READINGS ON TEENAGERS AND SEX EDUCATION 1997–2003

Supported by a grant from the Program on Reproductive Health and Rights of the Open Society Institute

THE ALAN GUTTMACHER INSTITUTE

NEW YORK & WASHINGTON

Page numbers referred to in the Table of Contents of this volume appear at the top center of each page. For journal articles, page numbers from the original publication are on the bottom of each page.)

© 2004 by the Alan Guttmacher Institute, A Not-for-Profit Corporation for Reproductive Health Research, Policy Analysis and Public Education; all rights, including translation into other languages, reserved under the Universal Copyright Convention, the Berne Convention for the Protection of Literary and Artistic Works and the International and Pan American Copyright Convention.

ISBN 0–939253–63–1

The Alan Guttmacher Institute
120 Wall Street
New York, New York 10005

1301 Connecticut Avenue, NW
Suite 700
Washington, D.C. 20036

www.guttmacher.org

TABLE OF CONTENTS

7 Introduction

OVERVIEW

11 Sexuality Education
The Alan Guttmacher Institute
Facts in Brief, 2002

13 Sexuality education: Our Current Status, and an Agenda for 2010
Susan N. Wilson
Family Planning Perspectives, 2000, 32(5):252–254

16 Sex Education: Needs, Programs and Policies
The Alan Guttmacher Institute
Presentation Tool, 2004

60 Can More Progress Be Made? Teenage Sexual and Reproductive Behavior in Developed Countries
The Alan Guttmacher Institute
Executive Summary, Occasional Report No. 3, 2001, 1–6

66 Understanding "Abstinence": Implications for Individuals, Programs and Policies
Cynthia Dailard
The Guttmacher Report on Public Policy, 2003, 6(5):4–6

PARENT-CHILD COMMUNICATION ABOUT SEX

71 Effects of a Parent-Child Communications Intervention on Young Adolescents' Risk for Early Onset of Sexual Intercourse
Susan M. Blake, Linda Simkin, Rebecca Ledsky, Cheryl Perkins and Joseph M. Calabrese
Family Planning Perspectives, 2001, 33(2):52–61

81 No Sexuality Education is Sexuality Education
Stanley Snegroff
Family Planning Perspectives, 2000, 32(5):257–258

83 Teenage Partners' Communication About Sexual Risk and Condom Use: The Importance of Parent-Teenager Discussions
Daniel J. Whitaker, Kim S. Miller, David C. May and Martin L. Levin
Family Planning Perspectives, 1999, 31(3):117–121

88 Family Communication About Sex: What Are Parents Saying and Are Their Adolescents Listening?
Kim S. Miller, Beth A. Kotchick, Shannon Dorsey, Rex Forehand and Anissa Y. Ham
Family Planning Perspectives, 1998, 30(5):218–222 & 235

94 Studying Parental Involvement in School-Based Sex Education: Lessons Learned
Diana P. Oliver, Frank C. Leeming and William O. Dwyer
Family Planning Perspectives, 1998, 30(3):143–147

SCHOOL AND COMMUNITY-BASED SEX EDUCATION PROGRAMS

101 Factors Associated with the Content of Sexuality Education in U.S. Public Secondary Schools
David J. Landry, Jacqueline E. Darroch, Susheela Singh and Jenny Higgins
Perspectives on Sexual and Reproductive Health, 2003, 35(6): 261–269

110 The Young Men's Clinic: Addressing Men's Reproductive Health and Responsibilities
Bruce Armstrong
Perspectives on Sexual and Reproductive Health, 2003, 35(5):220–225

116 Man2Man: A Promising Approach to Addressing the Sexual and Reproductive Health Needs of Young Men
Genevieve Sherrow, Tristan Ruby, Paula K. Braverman, Nathalie Bartle, Shawn Gibson and Linda Hock-Long
Perspectives on Sexual and Reproductive Health, 2003, 35(5):215–219

121 An Evaluation of California's Adolescent Sibling Pregnancy Prevention Program
Patricia East, Elizabeth Kiernan and Gilberto Chávez
Perspectives on Sexual and Reproductive Health, 2003, 35(2):62–70

130 Preventing Sexual Risk Behaviors and Pregnancy Among Teenagers: Linking Research and Programs
Debra Kalmuss, Andrew Davidson, Alwyn Cohall, Danielle Laraque and Carol Cassell
Perspectives on Sexual and Reproductive Health, 2003, 35(2):87–93

137 Preventing Pregnancy and Improving Health Care Access Among Teenagers: An Evaluation Of the Children's Aid Society-Carrera Program
Susan Philliber, Jacqueline Williams Kaye, Scott Herrling and Emily West
Perspectives on Sexual and Reproductive Health, 2002, 34(5):244–251

145 Understanding What Works and What Doesn't In Reducing Adolescent Sexual Risk-Taking
Douglas Kirby
Family Planning Perspectives, 2001, 33(6):276–281

TABLE OF CONTENTS

SCHOOL AND COMMUNITY-BASED SEX EDUCATION PROGRAMS (CONTINUED)

151 Long-Term Outcomes of an Abstinence-Based, Small-Group Pregnancy Prevention Program in New York City Schools
Lisa D. Lieberman, Heather Gray, Megan Wier, Renee Fiorentino and Patricia Maloney
Family Planning Perspectives, 2000, 32(5):237–245

160 Adolescents' Reports of Reproductive Health Education, 1988 and 1995
Laura Duberstein Lindberg, Leighton Ku and Freya Sonenstein
Family Planning Perspectives, 2000, 32(5):220–226

167 Changing Emphases in Sexuality Education in U.S. Public Secondary Schools, 1988–1999
Jacqueline E. Darroch, David J. Landry and Susheela Singh
Family Planning Perspectives, 2000, 32(5):204–211 & 265

176 Sexuality Education in Fifth and Sixth Grades in U.S. Public Schools, 1999
David J. Landry, Susheela Singh and Jacqueline E. Darroch
Family Planning Perspectives, 2000, 32(5):212–219

184 Using Randomized Designs to Evaluate Client-Centered Programs to Prevent Adolescent Pregnancy
Dennis McBride and Anne Gienapp
Family Planning Perspectives, 2000, 32(5):227–235

193 Pregnancy Prevention Among Urban Adolescents Younger than 15: Results of the 'In Your Face' Program
Lorraine Tiezzi, Judy Lipshutz, Neysa Wrobleski, Roger D. Vaughan and James F. McCarthy
Family Planning Perspectives, 1997, 29(4):173–176 & 197

198 Education Now and Babies Later (ENABL): Life History of a Campaign to Postpone Sexual Involvement
Helen H. Cagampang, Richard P. Barth, Meg Korpi and Douglas Kirby
Family Planning Perspectives, 1997, 29(3):109-114

204 The Impact of the Postponing Sexual Involvement Curriculum Among Youths in California
Douglas Kirby, Meg Korpi, Richard P. Barth and Helen H. Cagampang
Family Planning Perspectives, 1997, 29(3):100-108

OTHER SOURCES OF SEX EDUCATION

215 Teenagers Educating Teenagers about Reproductive Health and Their Rights to Confidential Care
Katy Yanda
Family Planning Perspectives, 2000, 32(5):256–257

217 Can the Mass Media be Healthy Sex Educators?
Jane D. Brown and Sarah N. Keller
Family Planning Perspectives, 2000, 32(5):255–256

219 Older, but Not Wiser: How Men get Information about AIDS and Sexually Transmitted Diseases after High School
Carolyn H. Bradner, Leighton Ku and Laura Duberstein Lindberg
Family Planning Perspectives, 2000, 32(1):33–38

FEDERAL, STATE AND LOCAL POLICY

227 States' Implementation of the Section 510 Abstinence Education Program, FY 1999
Adam Sonfield and Rachel Benson Gold
Family Planning Perspectives, 2001, 33(4):166–171

233 Abstinence Promotion and the Provision of Information about Contraception in Public School District Sexuality Education Policies
David J. Landry, Lisa Kaeser and Cory L. Richards
Family Planning Perspectives, 1999, 31(6):280–286

240 School-Based Sexuality Education: The Issues and Challenges
Patricia Donovan
Family Planning Perspectives, 1998, 30(4):188–193

246 Legislators Craft Alternative Vision of Sex Education to Counter Abstinence-Only Drive
Heather Boonstra
The Guttmacher Report on Public Policy, 2002, 5(2):1–3

249 Abstinence Promotion and Teen Family Planning: The Misguided Drive for Equal Funding
Cynthia Dailard
The Guttmacher Report on Public Policy, 2002, 5(1):1–3

252 State-Level Policies on Sexuality, STD Education
Rachel Benson Gold and Elizabeth Nash
The Guttmacher Report on Public Policy, 2001, 4(4):4–7

256 Sex Education: Politicians, Parents, Teachers and Teens
Cynthia Dailard
The Guttmacher Report on Public Policy, 2001, 4(1):9–12

TABLE OF CONTENTS

FEDERAL, STATE AND LOCAL POLICY (CONTINUED)

260 Fueled by Campaign Promises, Drive Intensifies to Boost Abstinence-Only Education Funds
Cynthia Dailard
The Guttmacher Report on Public Policy, 2000, 3(2):1–2 & 12

263 Sexuality Education Advocates Lament Loss of Virginia's Mandate…Or Do They?
Rebekah Saul
The Guttmacher Report on Public Policy, 1998, 1(3):3–4

265 Whatever Happened to the Adolescent Family Life Act?
Rebekah Saul
The Guttmacher Report on Public Policy, 1998, 1(2):5 & 10–11

APPENDICES

271 U.S. Teen Pregnancy Statistics: Overall Trends, Trends by Race and Ethnicity and State-by-State Information
Stanley K. Henshaw and David J. Landry
Special Report, Updated 2004, 1–22

293 U.S. Teenage Pregnancy Statistics with Comparative Statistics for Women Aged 20–24
Stanley K. Henshaw
Special Report, Updated 2004, 1–14 & Notes

In the United States, teenagers typically have sexual intercourse for the first time around age 17, and almost two-thirds have had sex before graduating from high school. From the time they begin having sex until they marry, which typically occurs in their mid-20s, young people are at high risk for unintended pregnancies and sexually transmitted diseases (STDs). And it is during these formative teenage years that young people first develop the communications and negotiation skills that will influence whether their future sexual relationships are mutually respectful and fulfilling or exploitive and psychologically unhealthy. Thus, it is imperative that young people receive support in making decisions regarding sexual activity so that they can protect themselves from unintended pregnancies and STDs and grow to be sexually healthy adults.

Currently, adverse outcomes are far too common. Each year, nearly 822,000 teenage women become pregnant; 80% of these pregnancies are unintended. An estimated nine million new STDs occur among people younger than 25 each year, including 15,000 cases of sexually transmitted HIV. Harder to quantify is the annual number of teenagers who are subjected to or engage in exploitive sexual behavior.

The good news is that progress is being made: Teenage pregnancy rates declined 28% between 1990 and 2000, reaching their lowest level in 30 years. This is attributable to both more teenagers delaying the initiation of sexual intercourse and improved contraceptive use among those teenagers who are having sex. But teenagers in this country continue to fare worse as a result of their sexual activity than their peers in other developed countries, even though teenagers across developed nations, including the United States, begin having sex at similar ages and have similar levels of sexual activity. Clearly, more must be done to improve the sexual and reproductive health of U.S. teenagers.

Sex education can play a major role in helping teenagers make healthy and responsible decisions about sex, by providing them with the information and skills they need to delay sexual activity, to protect themselves and their partners when they become sexually active and to engage in mutually respectful relationships. However, the content of sex education that is provided in schools varies tremendously across the United States, and controversy persists over the relative merits of sex education that promotes abstinence as the only acceptable form of behavior outside of marriage and more comprehensive approaches that discuss contraception as well.

Historically, decisions about the content of sex education were largely a state and local matter. This changed in 1996 with the enactment of the federal welfare reform law, which provided significant funding for abstinence programs that teach that sex outside of marriage is wrong and harmful for people of any age and deny young people complete and accurate information about contraception. Within less than a decade, cumulative federal and state matching funds for this particularly narrow brand of abstinence education approached the $1 billion mark. During this time, the debate over sex education continued and perhaps intensified at all levels of government. Yet far too often this rancorous debate has occurred in the absence of sound evidence-based arguments, and policymakers have time and again failed to heed “what works.”

Nonetheless, recent research by The Alan Guttmacher Institute (AGI) and others now

offers a clearer picture of sex education in this country, covering topics ranging from local school district policy to classroom practice to program effectiveness. With an eye toward informing policy debates and aiding researchers and program planners alike, this volume includes all the major documents about teenagers and sex education in the United States produced or published by AGI between 1997 and 2003. They represent the work of researchers within AGI and at other institutions. Thematically, these documents share a focus on sex education in the home, school or community, or address how teenagers get information about sex, contraception, or sexual and reproductive health. The collection includes articles published after 1996—a practical and symbolic starting point given that year's enactment of the welfare reform law, which, for the first time, articulated the federal government's approach to sex education.

The volume is divided into five chapters that begin with an overview of the subject and move on to parent-child communication about sex; school and community-based sex education programs; other sources of sex education (including peer education efforts, the media and postsecondary education settings); and, finally, federal, state and local policy. It was produced with support from the Program on Reproductive Health and Rights of the Open Society Institute (OSI).

This volume provides researchers, program planners, advocates and policymakers with a comprehensive body of information about sex education in this country at the start of the 21st century. A better understanding of the sex education landscape will help to meet the ongoing challenge of providing young people with the information and support they need to delay sexual activity, to protect themselves and their partners from pregnancy and disease when they become sexually active, and, as adults, to healthy sexual relationships.

11 Sexuality Education
The Alan Guttmacher Institute
Facts in Brief, 2002

13 Sexuality education: Our Current Status, and an Agenda for 2010
Susan N. Wilson
Family Planning Perspectives, 2000, 32(5):252–254

16 Sex Education: Needs, Programs and Policies
The Alan Guttmacher Institute
Presentation Tool, 2004

60 Can More Progress Be Made? Teenage Sexual and Reproductive Behavior in Developed Countries
The Alan Guttmacher Institute
Executive Summary, Occasional Report No. 3, 2001, 1–6

66 Understanding "Abstinence": Implications for Individuals, Programs and Policies
Cynthia Dailard
The Guttmacher Report on Public Policy, 2003, 6(5):4–6

Facts in Brief

Sexuality Education

Sex and Pregnancy Among Teenagers

• By their 18th birthday, 6 in 10 teenage women and nearly 7 in 10 teenage men have had sexual intercourse.

• A sexually active teenager who does not use contraception has a 90% chance of becoming pregnant within a year.

• Of the approximately 950,000 teenage pregnancies that occur each year, more than 3 in 4 are unintended. Over 1/4 of these pregnancies end in abortion.

• The pregnancy rate among U.S. women aged 15-19 has declined steadily—from 117 pregnancies per 1,000 women in 1990 to 93 per 1,000 women in 1997. Analysis of the teenage pregnancy rate decline between 1988 and 1995 found that approximately 1/4 of the decline was due to delayed onset of sexual intercourse among teenagers, while 3/4 was due to the increased use of highly effective and long-acting contraceptive methods among sexually experienced teenagers.

• Despite the decline, the United States continues to have one of the highest teenage pregnancy rates in the developed world—twice as high as those in England, Wales or Canada and nine times as high as rates in the Netherlands and Japan.

• Every year, roughly 4 million new sexually transmitted disease (STD) infections occur among teenagers in the United States. Compared with rates among teens in other developed countries, rates of gonorrhea and chlamydia among U.S. teenagers are extremely high.

• Though teenagers in the United States have levels of sexual activity similar to their Canadian, English, French and Swedish peers, they are more likely to have shorter and more sporadic sexual relationships and less likely to use contraception.

Local Sexuality Education Policy

• More than 2 out of 3 public school districts have a policy to teach sexuality education. The remaining 33% of districts leave policy decisions up to individual schools or teachers.

• 86% of the public school districts that have a policy to teach sexuality education require that abstinence be promoted. 35% require abstinence to be taught as the *only option* for unmarried people and either prohibit the discussion of contraception altogether or limit discussion to its ineffectiveness. The other 51% have a policy to teach abstinence as the *preferred option* for teens and permit discussion of contraception as an effective means of preventing pregnancy and STDs.

• Only 14% of public school districts with a policy to teach sexuality education address abstinence as *one option* in a broader educational program to prepare adolescents to become sexually healthy adults.

• Over 1/2 of the districts in the South with a policy to teach sexuality education have an abstinence-only policy, compared with 20% of such districts in the Northeast.

• While most states require schools to teach sexuality education, STD education or both, many also give local policymakers wide latitude in crafting their own policies. The latest information on state-level policies is available at www.guttmacher.org/pubs/spib_SSEP.pdf.

Sexuality Education in the Classroom

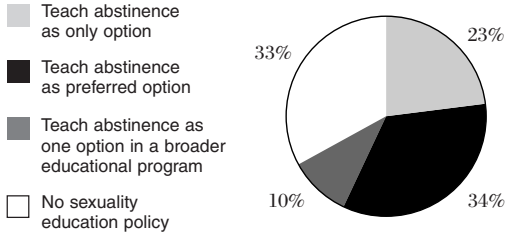
• Sexuality education teachers are more likely to focus on abstinence and less likely to provide students with information on birth control, how to obtain contraceptive services, sexual orientation and abortion than they were 15 years ago.

• The proportion of sexuality

chart a

Sex Education Policies

Most school districts promote abstinence.



Source: Landry DJ, Kaeser L and Richards CL, Abstinence promotion and the provision of information about contraception in public school district sexuality education policies, *Family Planning Perspectives*, 1999, 31(6):280–286.

THE ALAN GUTTMACHER INSTITUTE
NEW YORK & WASHINGTON

education teachers who taught abstinence as the only way to prevent pregnancy and STDs increased from 1 in 50 in 1988 to 1 in 4 in 1999.

• The overwhelming majority of sexuality education teachers believe that by the end of the 7th grade, students should have been taught about puberty, how HIV is transmitted, STDs, how to resist peer pressure to have sex, implications of teenage parenthood, abstinence from intercourse, dating, sexual abuse and nonsexual ways to show affection.

• The majority of teachers believe that topics such as birth control methods and how to obtain them, the correct way to use a condom, sexual orientation, and factual and ethical information about abortion should also be taught by the end of the 12th grade. These topics are currently being taught less often and later than teachers think they should be.

• More than 9 in 10 teachers believe that students should be taught about contraception, but 1 in 4 are prohibited from doing so.

• 1 in 5 teachers believe that restrictions imposed on sexuality education are preventing them from meeting their students' needs.

• The majority of Americans favor more comprehensive sexuality education over abstinence-only education.

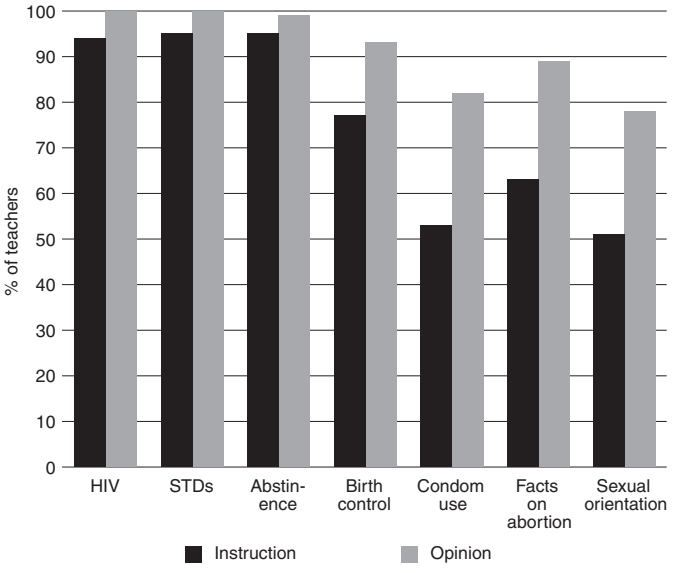
• At least 3/4 of parents say that in addition to abstinence, sexuality education should cover how to use condoms and other forms of birth control, abortion, sexual orientation, pressures to have sex and the emotional consequences of having sex.

• At least 40% of students report that topics such as STDs and HIV, birth control, how to use and where to obtain birth control, and how to handle pressure to have sex either were not covered in their most recent sexuality education course or were not covered sufficiently.

chart b

Thinking vs. Doing

There is a large gap between what teachers think should be taught and what they teach when it comes to birth control, abortion and sexual orientation.



Source: Darroch JE, Landry DJ and Singh S, Changing emphasis in sexuality education in U.S. public secondary schools, 1988–1999, *Family Planning Perspectives, 2000, 32(5):204–211 & 265.*

Government Support of Abstinence-Only Education

• There are currently 3 federal programs dedicated to funding restrictive abstinence-only education—Section 510 of the Social Security Act, the Adolescent Family Life Act's teenage pregnancy prevention component, and the Special Projects of Regional and National Significance program (SPRANS)—with total annual funding of $102 million for FY 2002.

• Federal law establishes a stringent 8-point definition of "abstinence-only education" that requires programs to teach that sexual activity outside of marriage is wrong and harmful—for people of any age—and prohibits them from advocating contraceptive use or discussing contraceptive methods except to emphasize their failure rates.

• There is currently no federal program dedicated to supporting comprehensive sexuality education that teaches young people about both abstinence and contraception.

• Despite years of evaluation in this area, there is no evidence to date that abstinence-only education delays teenage sexual activity. Moreover, recent research shows that abstinence-only strategies may deter contraceptive use among sexually active teenagers, increasing their risk of unintended pregnancy and STDs.

• Evidence shows that comprehensive sexuality education programs that provide information about both abstinence and contraception can help delay the onset of sexual activity in teenagers, reduce their number of sexual partners and increase contraceptive use when they become sexually active. These findings were underscored in *Call to Action to Promote Sexual Health and Responsible Sexual Behavior,* issued by former Surgeon General David Satcher in June 2001.

Sources of Data

The data in this fact sheet are the most current available. Most of the data are from research conducted by The Alan Guttmacher Institute (AGI) and published in:

Why is Teenage Pregnancy Declining? The Roles of Abstinence, Sexual Activity and Contraceptive Use; Teenage Sexual and Reproductive Behavior in Developed Countries: Can More Progress Be Made?; and the peer-reviewed journal *Perspectives on Sexual and Reproductive Health* (formerly *Family Planning Perspectives*).

Additional sources include the Kaiser Family Foundation and the National Campaign to Prevent Teen Pregnancy.

THE ALAN GUTTMACHER INSTITUTE
NEW YORK & WASHINGTON

A Not-for-Profit Corporation for Reproductive Health Research, Policy Analysis and Public Education

120 Wall Street
New York, NY 10005
Phone: 212.248.1111
Fax: 212.248.1951
info@guttmacher.org

1120 Connecticut Avenue, N.W.
Suite 460
Washington, DC 20036
Phone: 202.296.4012
Fax: 202.223.5756
policyinfo@guttmacher.org

Web site: www.guttmacher.org

©2002, The Alan Guttmacher Institute 8/02

VIEWPOINT

Sexuality Education: Our Current Status, and an Agenda for 2010

By Susan N. Wilson

Three articles in this issue of Family Planning Perspectives—on changing emphases in secondary school sexuality education ("Changing Emphases"), on sexuality education in grades 5–6 ("Grades 5–6") and on adolescents' views of reproductive health education ("Adolescents' Views")—provide valuable information for educators and advocates. They also point the way to new directions for research and for advocacy.

Retreat from Responsibility?

Overall, the three studies present discouraging news for advocates of comprehensive sexuality education—i.e., those who favor teaching a balanced, medically correct program including both abstinence and protection against disease and unintended pregnancy. "Adolescents' Views" reports major shifts in the prevalence and content of school-based reproductive health education in the United States over the period 1988–1995. While instruction became almost universal, it became more focused on the prevention of HIV and AIDS. Instruction about contraception, about how to say no to sex and about condoms was much less common than education about HIV and AIDS. Notably, the study reveals increased instruction about abstinence before the 1996 passage of the federal Welfare Reform Act, with its provision for major funding of abstinence-until-marriage education programs.

In "Changing Emphases," teachers of grades 7–12 testify to a marked shift from a more balanced treatment of abstinence and protection in 1988 to much heavier reliance on abstinence in 1999. In particular, there was a large increase in the percentage of teachers who taught abstinence as the only effective means of preventing pregnancy and disease. These "abstinence only" programs may be driving other topics from the curriculum. In 1999, teachers were less likely to teach about condoms as a means of disease prevention than they were in 1988, to explain how each birth control method works or to give information about where students could go for birth control. Moreover, when asked at what grade level specific topics should be taught, the teachers in the "Changing Emphases" study reported more conservative views in 1999 than they did in 1988.

"Grades 5–6" shows that sexuality education is much less common at these grade levels than in grades 7–12. Where programs exist, they mainly cover such topics as puberty, HIV and AIDS, sexually transmitted diseases, sexual abuse and abstinence; discussion of contraceptive methods is relatively rare. Yet half of teachers believe that birth control methods should be taught in or before grade seven.

This discrepancy between belief and practice may result from administrative and community restraints. One in four teachers say their school administration is nervous about community reaction to sexuality education at these grade levels, one in five cite restrictions that prevent them from meeting their students' needs and nearly two out of five say they have to be careful about what they teach because they fear adverse community reaction.

Yet these studies reveal some bright spots as well. While teachers in grades 7–12 have become more restrictive in their beliefs about what topics they should teach, the vast majority still favor teaching topics relating to disease prevention and birth control. Moreover, around one-third of all teachers cover sensitive topics, such as giving students information about specific locations where they can go for birth control, showing the proper way to use condoms and showing actual birth control devices. And many critical topics were actually taught earlier in grades 7–12 in 1999 than they were a decade before.

Only one in five teachers believe that students who learn about both abstinence and contraception are more likely to become sexually active than those taught about abstinence alone. In addition, a surprising percentage of secondary school teachers who teach in abstinence-only programs go beyond abstinence to discuss prevention topics.

With regard to sexuality education in grades five and six, few of those who teach this topic perceive their administration to be nervous about possible adverse community reaction or feel a lack of administrative support for their efforts. More than half of these teachers believe that information about birth control methods and abortion should be taught at or before seventh grade, and more than two in five believe that sexual orientation, where to go for birth control and how to use a condom should also be taught.

Sexuality Education in 1999

The context of these studies, according to a 1999 survey of public school district superintendents, is that two districts in three have a district-wide policy to teach sexuality education. Of these, 14% have a comprehensive policy (where abstinence is one option in a broader program), 51% have an abstinence-plus policy (where abstinence is the preferred option, but contraception is discussed as an effective means of protecting against disease and unintended pregnancy) and 35% (23% of all districts) have an abstinence-only policy (where abstinence is the only option and discussion of contraception is prohibited, unless it is to emphasize its shortcomings). Districts in the South are far more likely than those in the Northeast to have an abstinence-only policy.[1]

The news from "Changing Emphases"

Susan N. Wilson is executive coordinator of the Network for Family Life Education, Rutgers University, Piscataway, NJ.

and "Grades 5–6" is disquieting for advocates of comprehensive sexuality education. The balance seems to be swinging toward the single message of abstinence, with the result that fewer teenagers are hearing classroom messages about birth control methods, the benefits of condom use, specific locations where they can go for birth control and the proper way to use condoms.

Why are America's schools providing their students with less information than they were a decade ago? Recent federal promotion of abstinence-until-marriage education programs cannot be responsible. Although funded at $50 million per year, these programs did not begin until the 1997–1998 school year, and in some states do not take place in schools at all. The changes are more likely the product of federal funding for HIV and AIDS education beginning in the mid-1980s, and to a lesser extent the result of increased funding for teenage pregnancy prevention. The result is a state- and local-level trend toward fear-based, abstinence-centered instruction. But if the federal abstinence-until-marriage funding—with its ban on discussions of contraception and safer sex practices—was not critical in the period 1988–1999, it is likely to extend and accelerate the trend toward abstinence-only in the future. (This could be especially true if Gov. George W. Bush is elected president and fulfills a stated pledge to "elevate abstinence education from an afterthought to an urgent policy."[2])

The trend toward reliance on abstinence-only education is especially disquieting in the face of recent statistics from the Centers for Disease Control and Prevention showing that 65% of students have sexual intercourse before the end of high school. These data also show that other measures of teenage sexual activity (such as the percentage of teenagers with four or more partners in their lifetime or the percentage who had intercourse in the past three months) are on the rise and that adolescents are having first intercourse at younger ages.[3] The safety and health of these young people surely requires sexuality education that balances the topics of abstinence and HIV and AIDS with those of responsibility and protection.

The CDC's Youth Risk Behavior Surveys for the years 1991–1999 show that for about half of the 1990s—that is, from about 1991 to 1997—teenage sexual activity and the adolescent pregnancy rate declined substantially, although sexual activity rose again from 1997 to 1999.[4] Proponents of abstinence-only curricula have already claimed that their programs are responsible for the decrease. (They have been silent about the subsequent increase.) But condom use also increased during the same period, and one analysis suggests that only about one-quarter of the decline in pregnancy is attributable to more teenagers choosing abstinence, while about three-quarters is attributable to better use of contraceptives, particularly long-term methods.[5]

One aim of comprehensive sexuality education is to teach an understanding of and a respect for sexual diversity. So it is of particular concern that teachers in 1999 were much less likely to teach about sexual orientation—or to think that it should be taught—than were teachers in 1988. Why are these changes taking place in an age of increasing tolerance and visibility? Is it, in fact, a reaction to that tolerance and visibility, or is it merely that the rise of abstinence-only education is driving other topics from the classroom?

"Changing Emphases" and "Grades 5–6" show that teachers are not merely acceding to restrictive laws and district policy, but are themselves more conservative about what should be taught at various grade levels. At the same time, a substantial proportion feel that they are not meeting the needs of students for information and that many topics should be introduced earlier. Teachers' ambivalence may be rooted in real or perceived opposition in the community, especially concerning sexuality education in the elementary grades. All in all, the timing of formal instruction seems to have more to do with the fears of adults than the needs of students.

An Agenda for 2010

The research articles in this issue record changes in sexuality education during the last decade of the 20th century. Our view of conditions a decade from now will be shaped, in part, by the actions of researchers and advocates in the years ahead.

Areas for Further Research

Like all good research, the three articles suggest avenues for new studies of sexuality education:

- Teachers who report that they cover both abstinence and prevention might spend 98% of their time on one and 2% on the other. What is the average amount of time that teachers devote to key topics?
- To what extent do community-based organizations, including Planned Parenthood and prochoice and antiabortion groups, visit and make presentations in classrooms? Do they teach topics that regular classroom teachers do not? If so, are students learning a wider range of topics than these studies reveal?
- Are school-based programs generally offered in heterogeneous or homogeneous instructional groupings? Which do students prefer? Which are more effective?
- How much preservice education do elementary classroom teachers receive? Are they trained to talk about abstinence in meaningful ways, to help students develop behavioral skills through role-plays and to handle community and administrative pressures?
- How much in-service training in sexuality education (as opposed to pure HIV and AIDS education) do secondary school teachers receive? Who pays for it? Are teachers aware of recent research indicating the effectiveness of comprehensive programs and the lack of similar research regarding abstinence-only programs?
- Do teachers know of local or regional organizations that could help them persuade their administrations to make the curriculum more relevant to student needs? Do teachers see students as possible allies in efforts to improve school programs?
- What do today's students think should be taught, and when? Do they believe that school programs provide them with what they need? Do they find their teachers to be knowledgeable about and comfortable with important topics?
- What do former students—those now in their young 20s—say about the usefulness of the sexuality education they received in high school? How do they think it has affected them in such areas as health, relationships and ability to communicate?

An Advocacy Agenda

Given the findings of the three studies, proponents of comprehensive sexuality education might consider these areas of action and advocacy:

- Remind the public—and ourselves—that a consistent 80–90% of Americans say they favor courses that teach contraception and disease prevention in addition to abstinence; that 70% oppose federal funding for programs that prohibit teaching about condoms and contraception; that 69% say teaching abstinence until marriage is "just not realistic"; and that 58% think seventh- and eighth-graders should be taught about condom use.[6]
- Continue to point out to politicians and to the public that "there does not currently exist any scientifically credible, published research" demonstrating that abstinence-only programs have actually delayed the onset of sexual intercourse or reduced any

measure of sexual activity. Conversely, there is growing evidence that comprehensive programs reduce sexual activity, pregnancy rates and birthrates.[7]

- Continue to publicize Western European teenage pregnancy rates, birthrates and abortion rates, all of which are lower than—and many of which are a fraction of—U.S. rates, and have been achieved without any reliance on abstinence-only education programs.[8]
- Work to encourage the federal government and Congress to support and evaluate comprehensive sexuality education programs and to set aside narrow approaches that promote abstinence until marriage as the sole acceptable sexuality education strategy or only permitted adolescent behavior.
- Reduce the remaining gaps in access to school-based programs. Sexuality education for young males, particularly for non-Hispanic black males, should begin far earlier than it does now, in order to reach these students before they begin to have intercourse. Moreover, both genders need to hear identical messages about responsibility and share classroom discussions about abstinence and condom use.
- Provide sexuality education in non-school settings where dropouts can be reached, such as workplaces, alternative schools, GED programs, the criminal justice system, the military and federal programs such as the Job Corps.
- Provide preservice training for grade-school classroom teachers, since "Grades 5–6" reveals that it is largely regular classroom teachers, not school nurses, who teach the subject at this level. If any grade-school teacher may be required to teach sexuality education, all teacher candidates need the equivalent of a one-semester course covering such topics as the sexual development of children and adolescents, how to answer children's questions, how to teach refusal, negotiation and communication skills using role-plays and small groups, how to handle community and parental opposition, and how to lead discussions about values.
- Provide in-service training for elementary and secondary teachers, covering new materials, effective teaching strategies, current research findings and ways to handle community pressure and controversy.
- Create a privately funded national commission to make recommendations about implementing classroom programs and involving parents in grades K–6. (Several excellent curricula already exist.)
- Finally, build a Web-based "second line of defense" to help young people whose schools fail to provide them with the information they need. Several excellent Web sites are already attracting millions of teenagers seeking balanced, medically accurate, nonideological information about birth control, condoms, emergency contraception, abortion, pleasure, relationships and other vital topics.

Conclusion

The three research articles highlighted here offer valuable, if disappointing, information about the present state of sexuality education programs in American public schools and about changes in the past decade. The findings are troubling, given the needs of young people, the very high rates of pregnancy and sexually transmitted infections among U. S. adolescents and the specter of HIV and AIDS. The findings become even more problematic given today's political climate and the possible outcomes of upcoming elections. Advocates of comprehensive sexuality education will be working to produce a more positive picture when researchers reexamine the subject in 2010.

References

1. Landry DJ, Kaeser L and Richards CL, Abstinence promotion and the provision of information about contraception in public school district sexuality education policies, Family Planning Perspectives, 1999, 31(6):280–286.

2. Dailard C, Fueled by campaign promises, drive intensifies to boost abstinence-only education funds, The Guttmacher Report on Public Policy, 2000, 3(2):1–2 & 12; and Morse J, Practicing chastity in the classroom: more sex-education classes are teaching kids only about abstinence: will they listen? Time, 1999, 154(16), Oct. 18.

3. Centers for Disease Control and Prevention (CDC), Youth Risk Behavior Surveillance—U.S., 1999, Morbidity and Mortality Weekly Report, 2000, 49(SS-5):19–21 & 75.

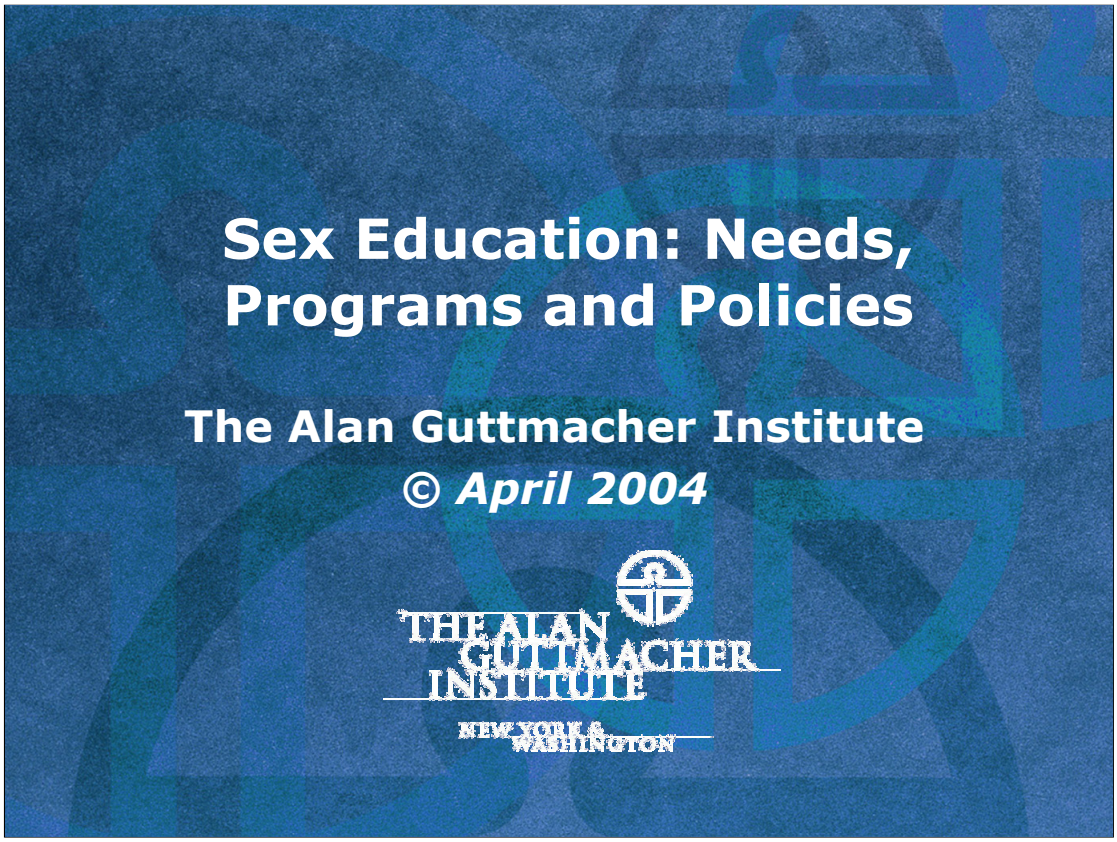
4. CDC, Trends in sexual risk behaviors among high school students—United States, 1991–1997, Morbidity and Mortality Weekly Report, 1998, 47(36):749–752; and CDC, 2000, op. cit. (see reference 3).

5. Darroch JE and Singh S, Why Is Teenage Pregnancy Declining? The Roles of Abstinence, Sexual Activity and Contraceptive Use, Occasional Report, New York: The Alan Guttmacher Institute, 1999, No. 1.

6. Donovan P, School-based sexuality education: the issues and challenges, Family Planning Perspectives, 1998, 30(4):188–193; and Public support for sexuality education reaches highest level, survey says, SIECUS Shop Talk, 1999, 4(7):1.

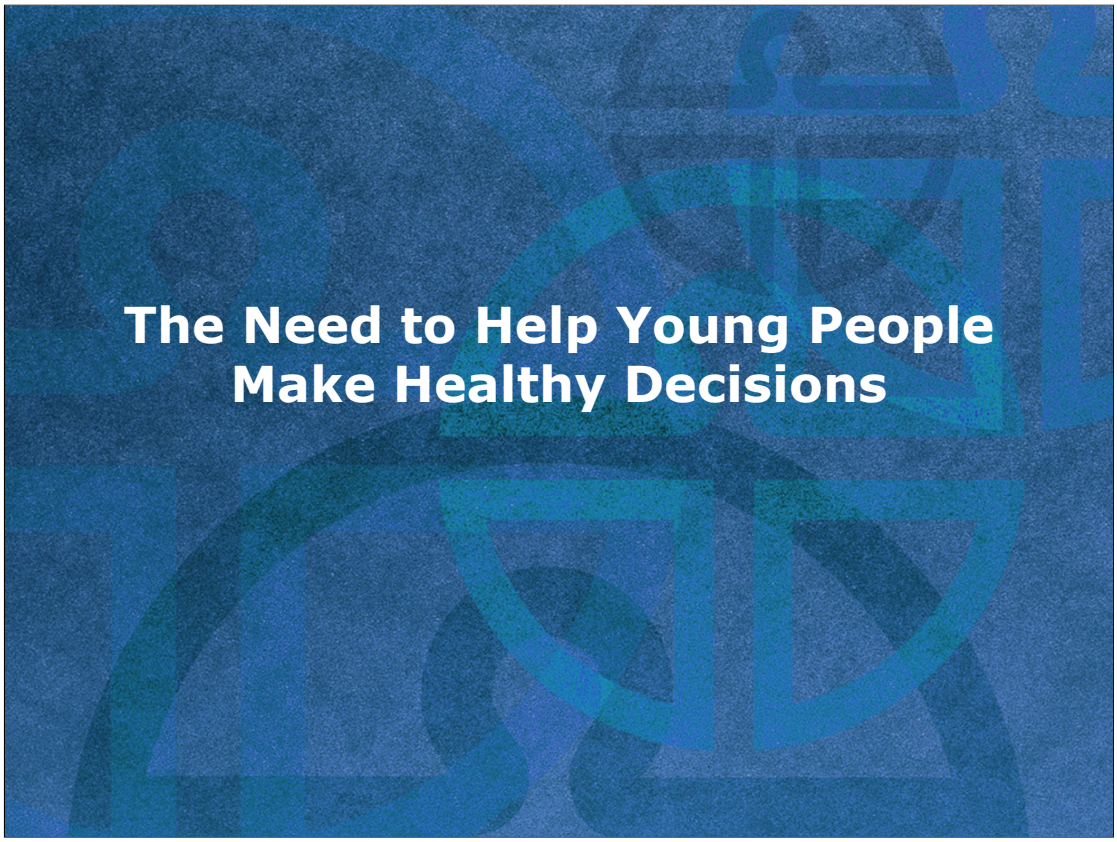
7. Kirby D, No Easy Answers: Research Findings on Programs to Reduce Teen Pregnancy, Washington, DC: The National Campaign to Prevent Teen Pregnancy, 1997; and Jemmott JB III, Jemmott LS and Fong GT, Abstinence and safer sex HIV risk-reduction interventions for African American adolescents: a randomized controlled trial, Journal of the American Medical Association, 1998, 279(19):1529–1536.

8. Singh S and Darroch JE, Adolescent pregnancy and childbearing: levels and trends in developed countries, Family Planning Perspectives, 2000, 32(1):14–23.

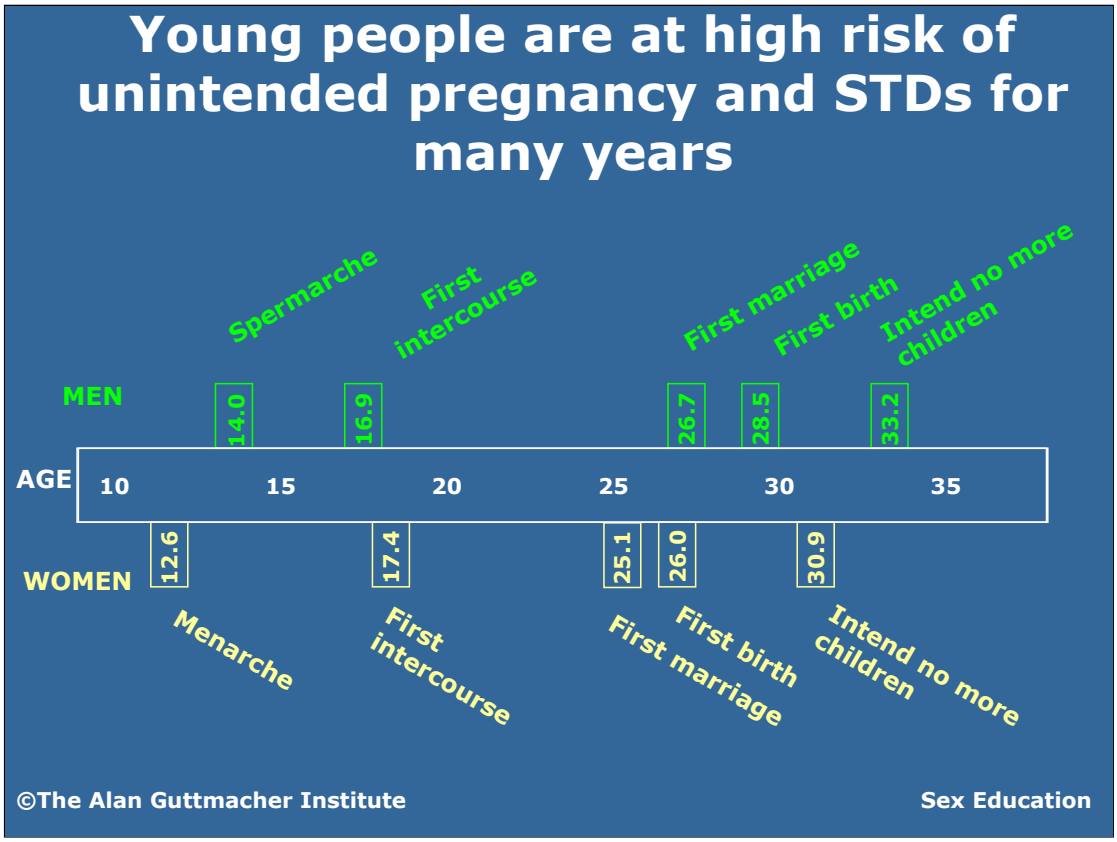


This presentation from The Alan Guttmacher Institute brings together the latest information about sex education in the United States as it relates to the prevention of unintended pregnancies and sexually transmitted diseases (STDs). It includes background information about sexual activity among American youth, sex education policy and practice in public schools, the effectiveness of programs designed to delay sexual activity and to prevent unintended pregnancy and STDs among teenagers, and the disconnect between public opinion and public policy in this area.

Note: These slides were updated in February 2004 to reflect the FY 2004 Appropriations Bills, and in April 2004 to reflect new teenage pregnancy and STD data.



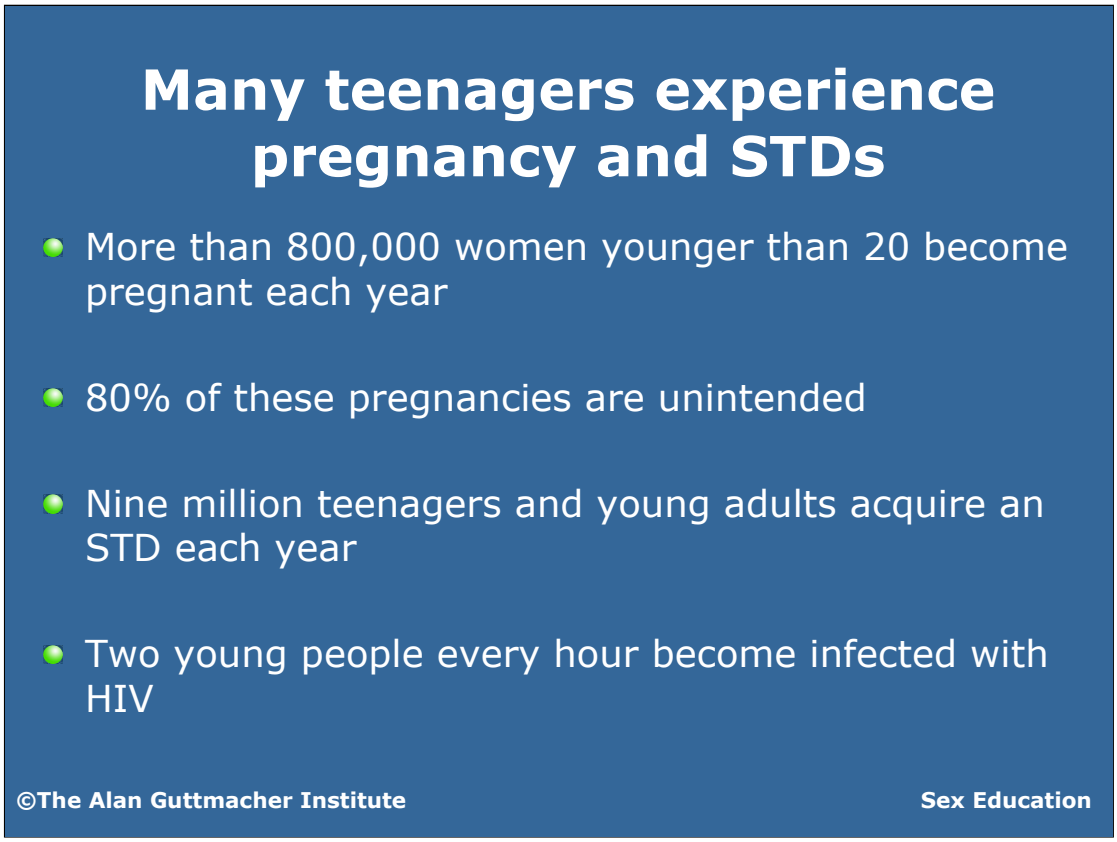
There is a clear need to help young people make healthy decisions regarding sexual activity so that they can protect themselves from unintended pregnancy and STDs.



The period of time during which young people are at greatest risk of unintended pregnancy and STDs spans many years.

Most young people enter puberty in early adolescence—around age 13 for women and age 14 for men. They typically have sexual intercourse for the first time around age 17, but do not marry until their middle to late 20s. This means that they are at high risk of unintended pregnancy and STDs for almost a decade before marriage, at which point their risk diminishes but does not disappear.

Sources: The Alan Guttmacher Institute (AGI), *In Their Own Right: Addressing the Sexual and Reproductive Health Needs of American Men*, New York: AGI, 2002, p. 8; and Dailard C, Marriage is no immunity from problems with planning pregnancies, *The Guttmacher Report on Public Policy*, 2003, Vol. 6, No. 2, pp.10-13.

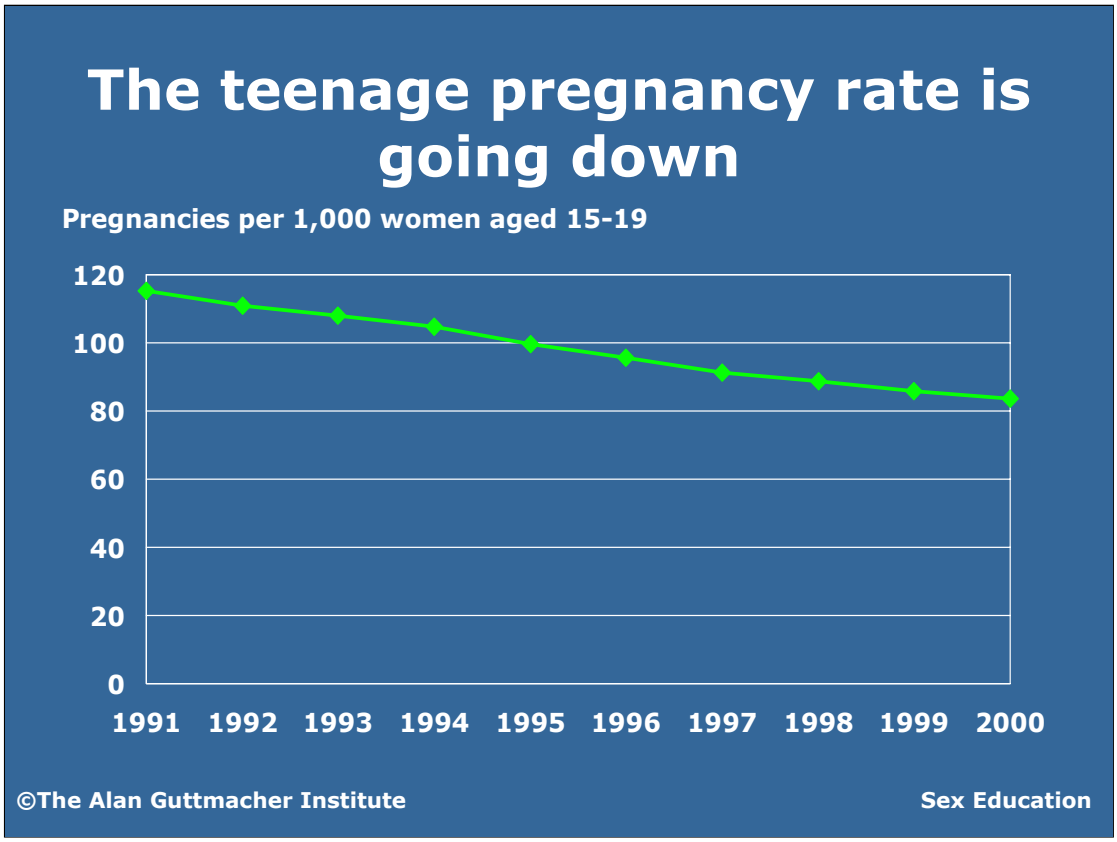


Each year, more than 800,000 teenage women become pregnant, and about 80% of these pregnancies are unintended. Additionally, an estimated nine million teenagers and young adults acquire an STD each year.

Half of the 30,000 new sexually transmitted cases of HIV infection in the United States each year occur among individuals younger than 25. That means that every hour of every day, an average of two young people become infected with HIV.

Note: These slides were updated in April 2004 to reflect new teenage pregnancy and STD data.

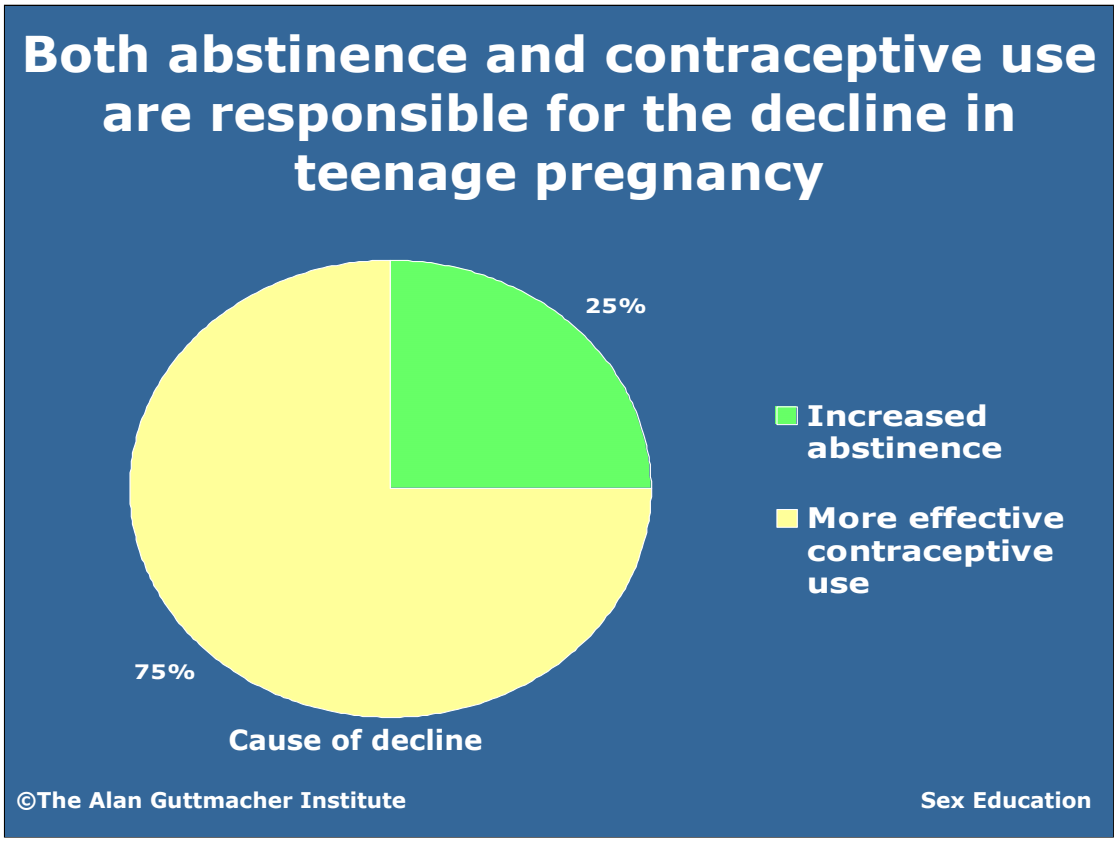
Sources: Henshaw SK, U.S. teenage pregnancy statistics with comparative statistics for women aged 20-24, New York: AGI, February, 2004, <http://www.guttmacher.org/pubs/teen_stats.pdf>, accessed Apr. 8, 2004; Henshaw SK, Unintended pregnancy in the United States, *Family Planning Perspectives*, 1998, 30(1):24-29 & 46; and Weinstock H, et al., Sexually Transmitted Diseases Among American Youth: Incidence and Prevalence Estimates, 2000, Perspectives on Sexual and Reproductive Health, 2004, 36(1):6-10.



The good news, however, is that the teenage pregnancy rate in this country is down 28% since its peak in 1990, and is at its lowest level in 30 years.

Note: These slides were updated in April 2004 to reflect new teenage pregnancy and STD data.

Source: Henshaw SK, U.S. teenage pregnancy statistics with comparative statistics for women aged 20-24, New York: AGI, February 2004, <http://www.guttmacher.org/pubs/teen_stats.pdf>, accessed Apr. 8, 2004.

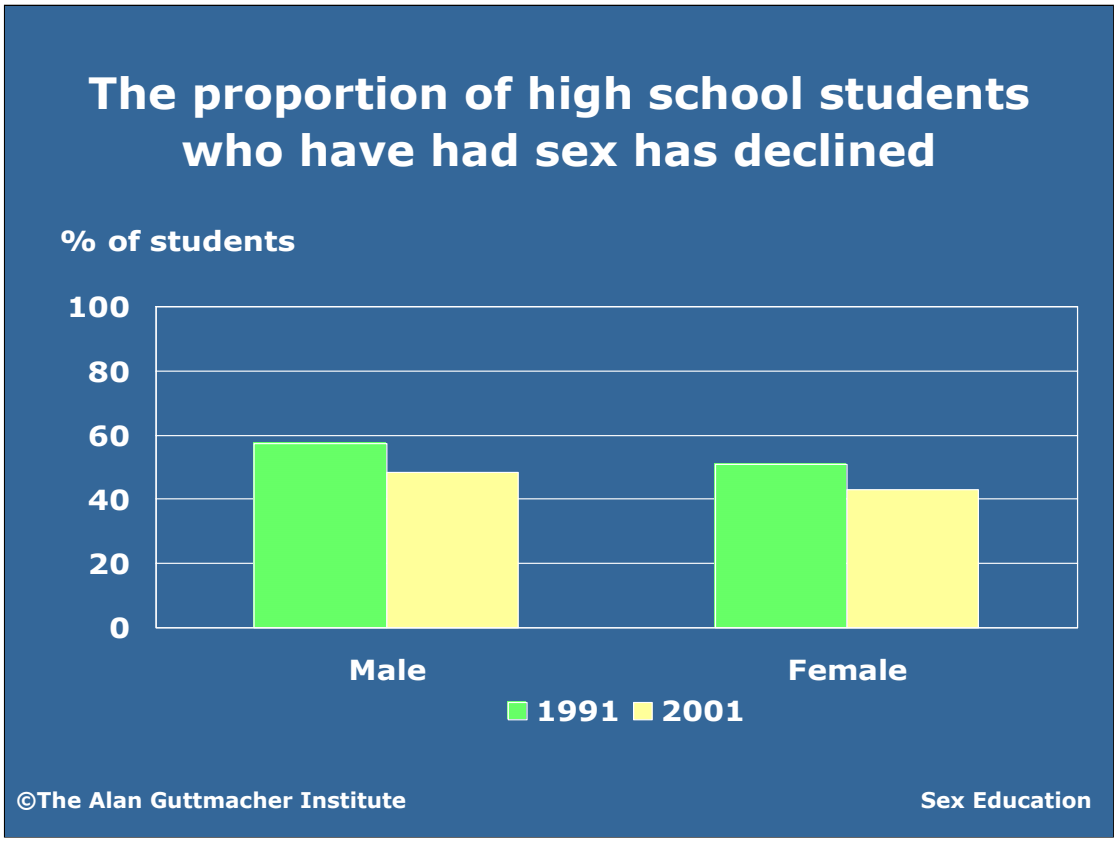


Research suggests that both increased abstinence and changes in contraceptive practice are responsible for the decline in teenage pregnancy, but in different proportions.

An analysis by researchers at The Alan Guttmacher Institute found that approximately one-quarter of the decline in teenage pregnancy between 1988 and 1995 was due to more teenagers remaining abstinent.

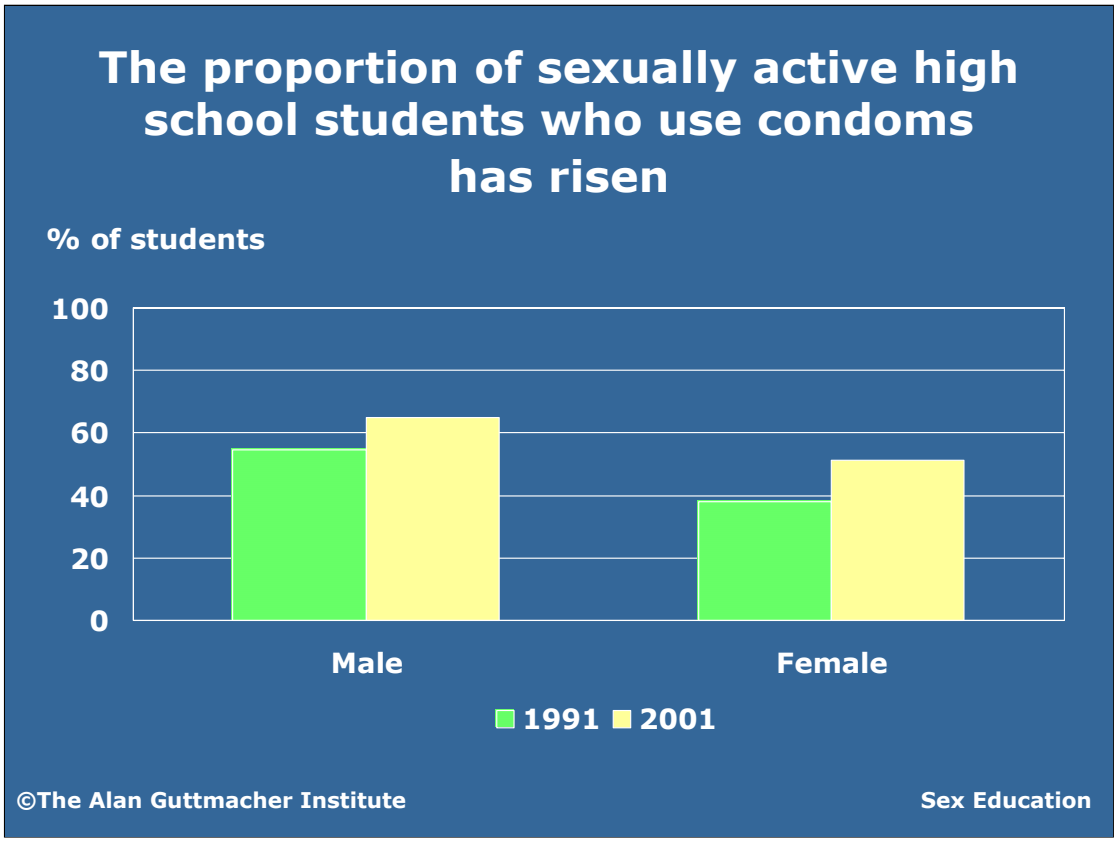
Approximately three-quarters of the drop resulted from a decrease in pregnancy rates among sexually active teenagers. This decline was caused by more effective contraceptive use, resulting in large part from greater reliance on highly effective, long-lasting hormonal methods such as Depo Provera.

Source: Darroch JE and Singh S, *Why Is Teenage Pregnancy Declining? The Roles of Abstinence, Sexual Activity and Contraceptive Use*, Occasional Report, New York: AGI, 1999, No. 1.



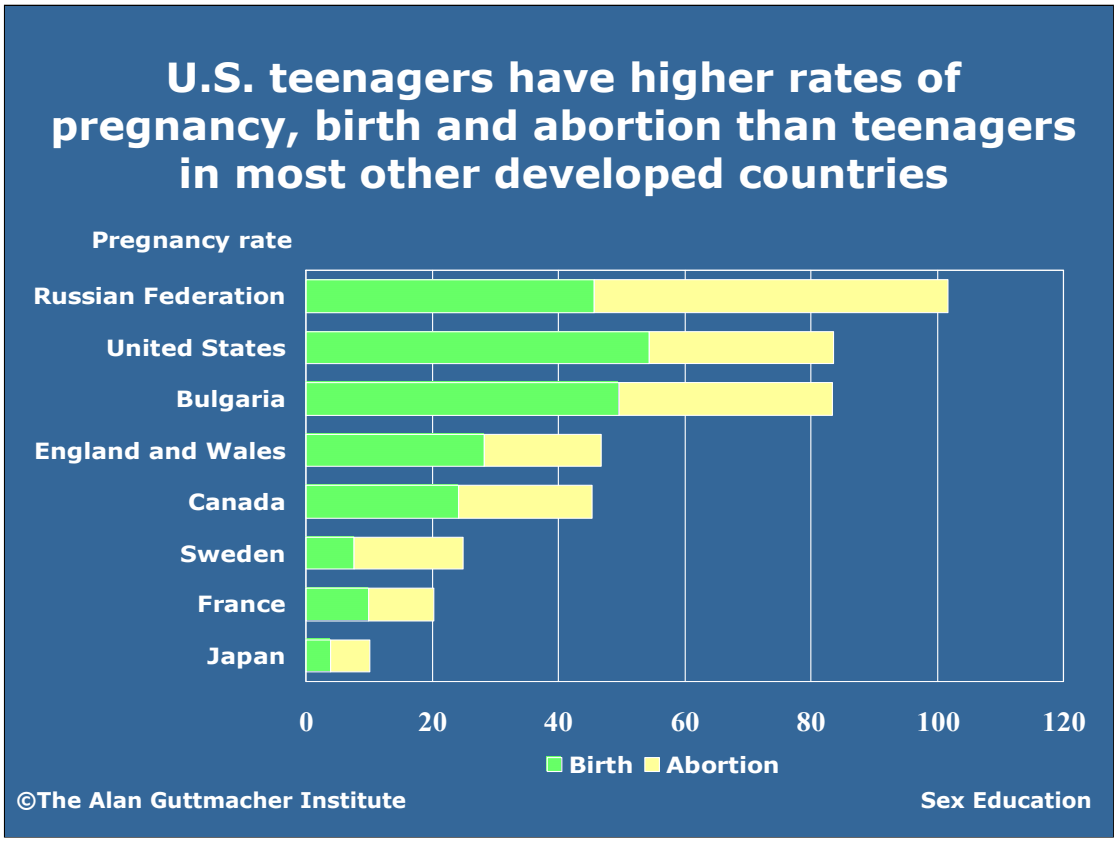
A complementary analysis shows that between 1991 and 2001, the proportion of high school students who had ever had sex declined by 16% for both males and females.

Source: Brener N et al., Trends in sexual risk behaviors among high school students—United States, 1991-2001, *Morbidity and Mortality Weekly Report*, 2002, 51(38):856-859.



The proportion of teenagers who had had sex decreased between 1991 and 2001, and condom use among sexually active teenagers increased during that period by 19% for males and 35% for females.

Source: Brener N et al., Trends in sexual risk behaviors among high school students—United States, 1991-2001, *Morbidity and Mortality Weekly Report*, 2002, 51(38):856-859.

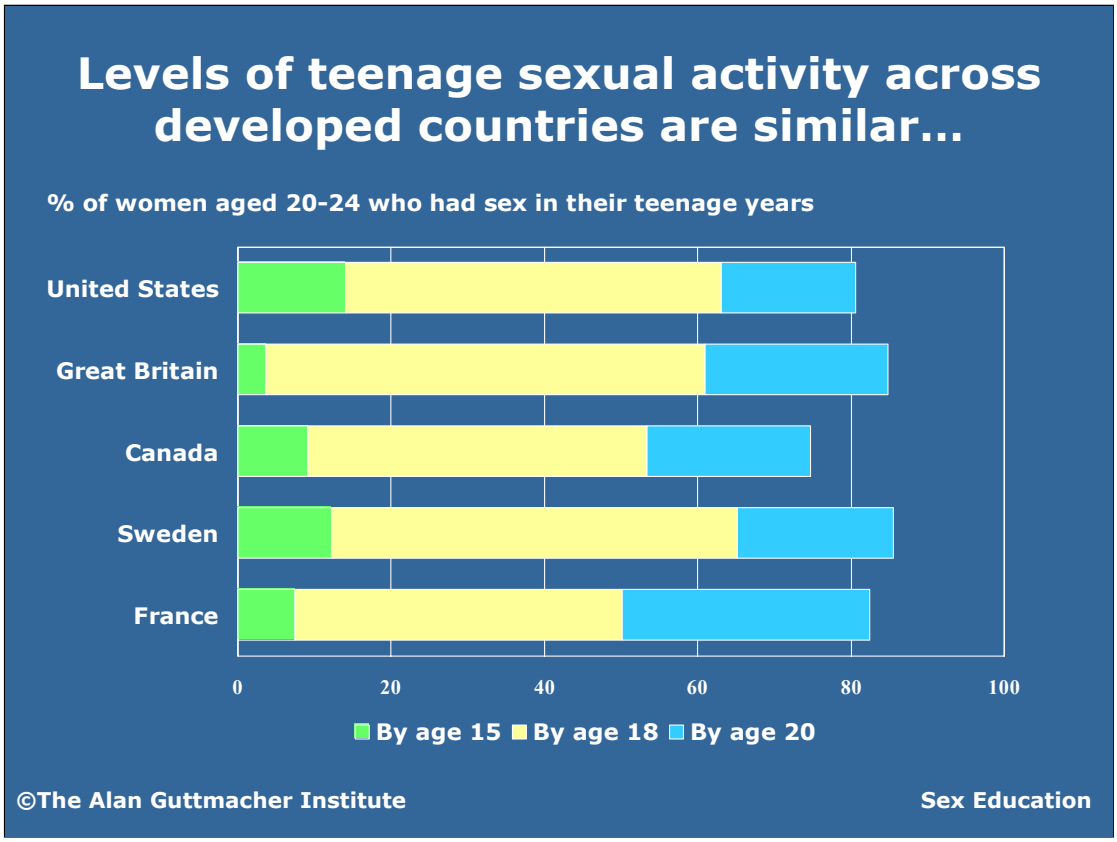


Notes: Teenage pregnancy rate=number of births and abortions per 1,000 women aged 15-19. Pregnancies do not include miscarriages.

Nonetheless, more progress is needed. Teenagers in the United States fare worse as a result of their sexual activity than do teenagers in most other developed countries. U.S. teenagers have much higher pregnancy rates, birthrates and abortion rates. They also have higher rates of STDs.

Sources: AGI, *Teenage Sexual and Reproductive Behavior in Developed Countries: Can More Progress Be Made?* Occasional Report, New York: AGI, 2001, No. 3; and AGI, *Fulfilling the Promise: Public Policy and U.S. Family Planning Clinics*, New York: AGI, 2000.

Why Do U.S. Teenagers Fare Worse Than Teenagers in Other Developed Countries?



Note: Data are for the mid-1990s.

A common misperception is that teenagers in this country begin having sex at an unusually early age and have especially high rates of sexual activity. But research comparing adolescents in the United States with adolescents in similar developed nations shows that this is not true. By and large, American teenagers behave in much the same way as their counterparts in other countries in terms of their age at initiation of sex and their levels of sexual activity.

Source: AGI, *Teenage Sexual and Reproductive Behavior in Developed Countries: Can More Progress Be Made?* Occasional Report, New York: AGI, 2001, No. 3.

…but U.S. teenagers have higher rates of unintended pregnancy and STDs because they

- Are less likely to use contraceptives
- Have shorter relationships
- Have more sexual partners

©The Alan Guttmacher Institute Sex Education

In comparison with their peers in other developed countries, sexually active teenagers in the United States are less likely to use contraceptives. When they do, they are less likely than teenagers in other countries to use the pill or other highly effective hormonal methods, possibly because they have shorter relationships.

The fact that U.S. teenagers have shorter relationships and, consequently, more sexual partners over time also increases their risk for STDs.

Source: AGI, *Teenage Sexual and Reproductive Behavior in Developed Countries: Can More Progress Be Made?* Occasional Report, New York: AGI, 2001, No. 3.

What accounts for lower teenage pregnancy and STD rates in other countries?

- Clear and unambiguous prevention messages
- Strong condemnation of teenage parenthood
- Societal supports for young people

©The Alan Guttmacher Institute Sex Education

There is evidence that in many developed countries with low levels of teenage pregnancy, childbearing and STDs, adults tend to be more accepting of sexual activity among teenagers than are adults in the United States. However, adults in these countries also give clear and unambiguous messages that sex should occur within committed relationships and that sexually active teenagers are expected to take steps to protect themselves and their partners from pregnancy and STDs.

Moreover, while these societies may be more accepting of teenage sex than the United States, they are, in fact, less accepting of teenage parenthood. Strong societal messages convey that childbearing should occur only in adulthood, which is considered to be when young people have completed their education, are employed and are living in stable relationships. Societal supports exist to help young people with the transition to adulthood, through vocational training, education and job placement services, and child care. As a result, teenagers have positive incentives to delay childbearing.

Sources: AGI, *Teenage Sexual and Reproductive Behavior in Developed Countries: Can More Progress Be Made?* Occasional Report, New York: AGI, 2001, No. 3; and Boonstra H, Teen pregnancy: trends and lessons learned, *The Guttmacher Report on Public Policy*, 2002, Vol. 5, No. 1, pp. 7-10.

What accounts for lower teenage pregnancy and STD rates in other countries?

- Greater access to contraceptive and reproductive health services
- Comprehensive sex education

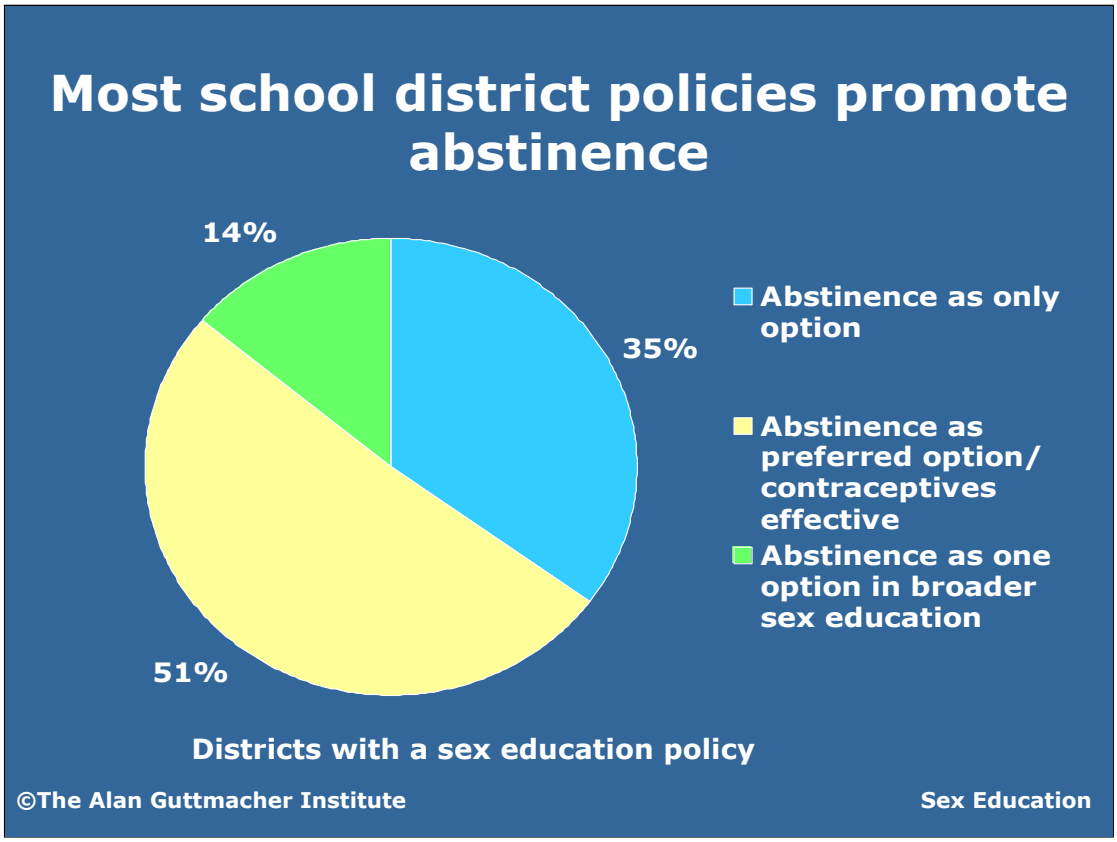
©The Alan Guttmacher Institute Sex Education

Teenagers in other developed countries also have greater access to contraceptives and reproductive health services than teenagers in the United States, and they are provided with comprehensive education about pregnancy and STD prevention in schools and community settings. In contrast, sex education that exclusively promotes abstinence is common in U.S. public schools.

Sources: AGI, *Teenage Sexual and Reproductive Behavior in Developed Countries: Can More Progress Be Made?* Occasional Report, New York: AGI, 2001, No. 3; and Boonstra H, Teen pregnancy: trends and lessons learned, *The Guttmacher Report on Public Policy*, 2002, Vol. 5, No. 1, pp. 7-10.

Sex education can play a major role in helping teenagers to make healthy and responsible decisions about sex, but the content of sex education varies tremendously. Currently, 39 states mandate either sex education or education on HIV/AIDS and other STDs, but their laws tend to be very general. Policies specifying the content of sex education classes are typically set at the local level, and local school districts tend to have broad discretion in this area.

Sources: AGI, Sexuality education, State Policies in Brief, July 2003, <http://www.agi-usa.org/pubs/spib_SE.pdf>, accessed July 28, 2003; and Gold RB and Nash E, State-level policies on sexuality, STD education, *The Guttmacher Report on Public Policy*, 2001, Vol. 4, No. 4, pp. 4-7.

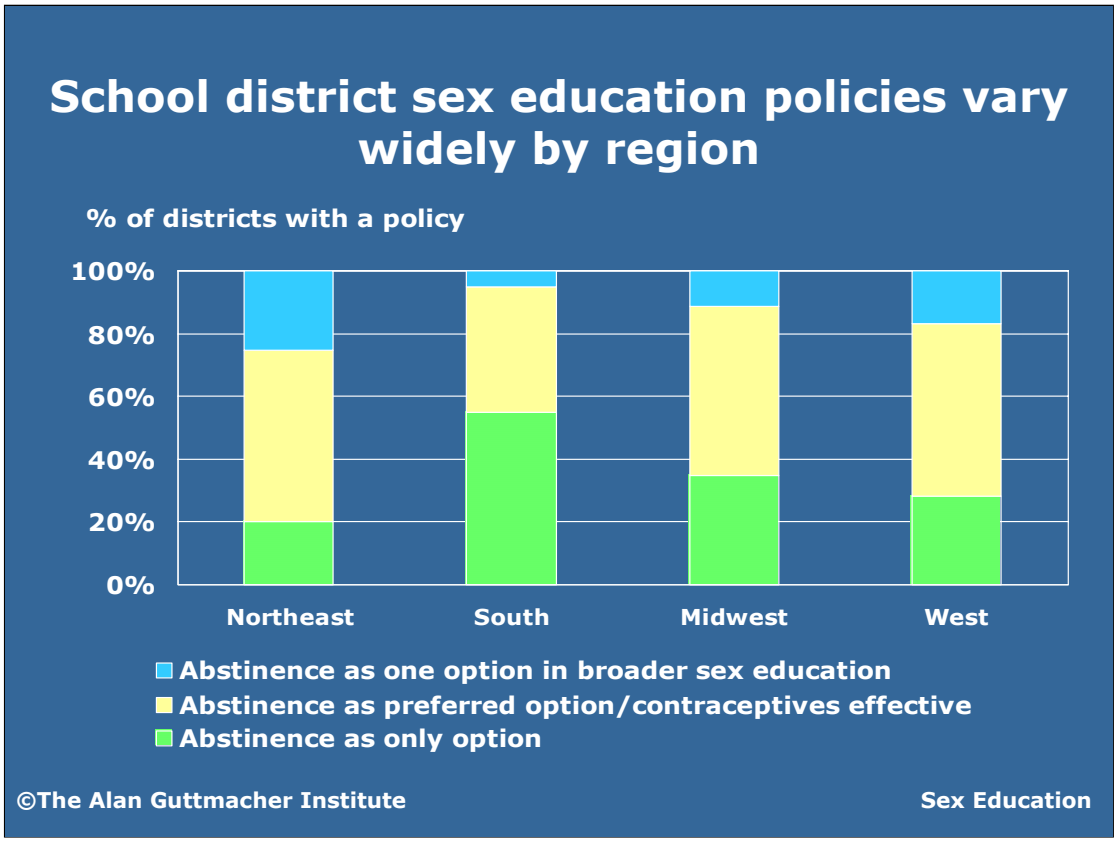


Today, more than two out of three public school districts have a policy of teaching sex education. Most adopted their current policies during the mid-1990s. During this time, many state governments and local communities were experiencing heated debates over the content of sex education curricula.

School districts with a sex education policy universally require that abstinence be taught, and 86% require that abstinence be promoted over other options for teenagers. Some 35% require that abstinence be taught as the only option for unmarried people, and either do not allow discussion of contraceptives or allow discussion only of their failure rates. The other 51% require that abstinence be taught as the preferred option for young people, but also permit discussion about contraception as an effective means of protecting against unintended pregnancy and STDs.

Only 14% have a policy of teaching abstinence as part of a broader program designed to prepare adolescents to be sexually healthy adults.

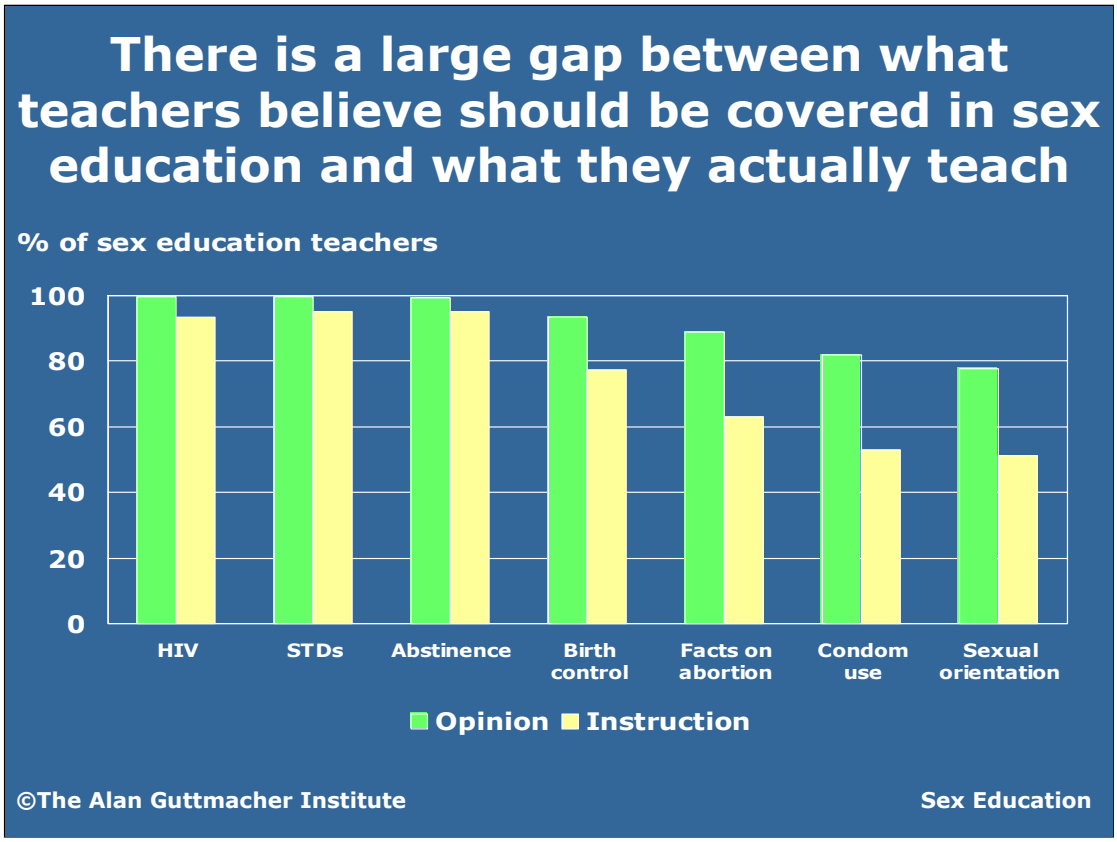
Source: Landry DJ, Kaeser L and Richards CL, Abstinence promotion and the provision of information about contraception in public school district sexuality education policies, *Family Planning Perspectives*, 1999, 31(6):280-286.



There is significant regional variation in school district sex education policies. More than half of school districts in the South have a policy of teaching that abstinence is the only option for teenagers, compared with 20% of districts in the Northeast.

The trend in school district policy is toward abstinence promotion. Districts that switched their policies during the 1990s were twice as likely to adopt a more abstinence-focused policy as to move toward a more comprehensive approach.

Source: Landry DJ, Kaeser L and Richards CL, Abstinence promotion and the provision of information about contraception in public school district sexuality education policies, *Family Planning Perspectives*, 1999, 31(6):280-286.



Not surprisingly, the emphasis on abstinence in sex education policies influences what is being taught in sex education classes. In certain areas of sex education, there is a large gap between what teachers believe they should cover and what they are actually teaching. The great majority of sex education teachers believe that sex education should cover factual information about birth control and abortion, the correct way to use a condom, and sexual orientation. However, far fewer actually teach these topics, either because they are prohibited from doing so or because they fear teaching these topics would create controversy.

As a result, one in four teachers believe they are not meeting their students' needs for information.

Source: Darroch JE, Landry DJ and Singh S, Changing emphasis in sexuality education in U.S. public secondary schools, 1988-1999, *Family Planning Perspectives*, 2000, 32(5):204-211 & 265.

Many sex education teachers do not teach about contraception

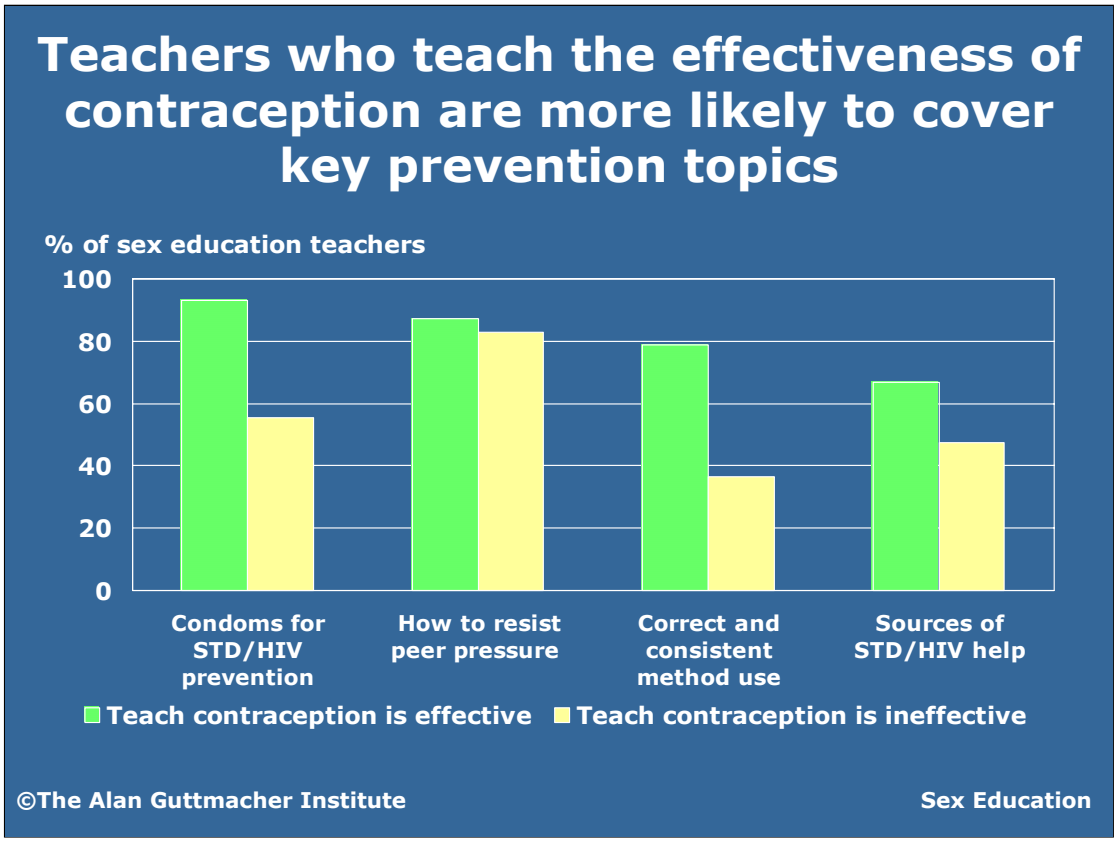
- One in four sex education teachers are prohibited from teaching about contraception
- Four in 10 either do not teach about contraceptive methods (including condoms) or teach that they are ineffective

©The Alan Guttmacher Institute Sex Education

The gap between what sex education teachers think should be covered and what they actually teach is particularly acute when it comes to contraception. Sex education teachers almost universally believe that students should be provided with basic factual information about birth control, but school policies prohibit one in four teachers from doing so.

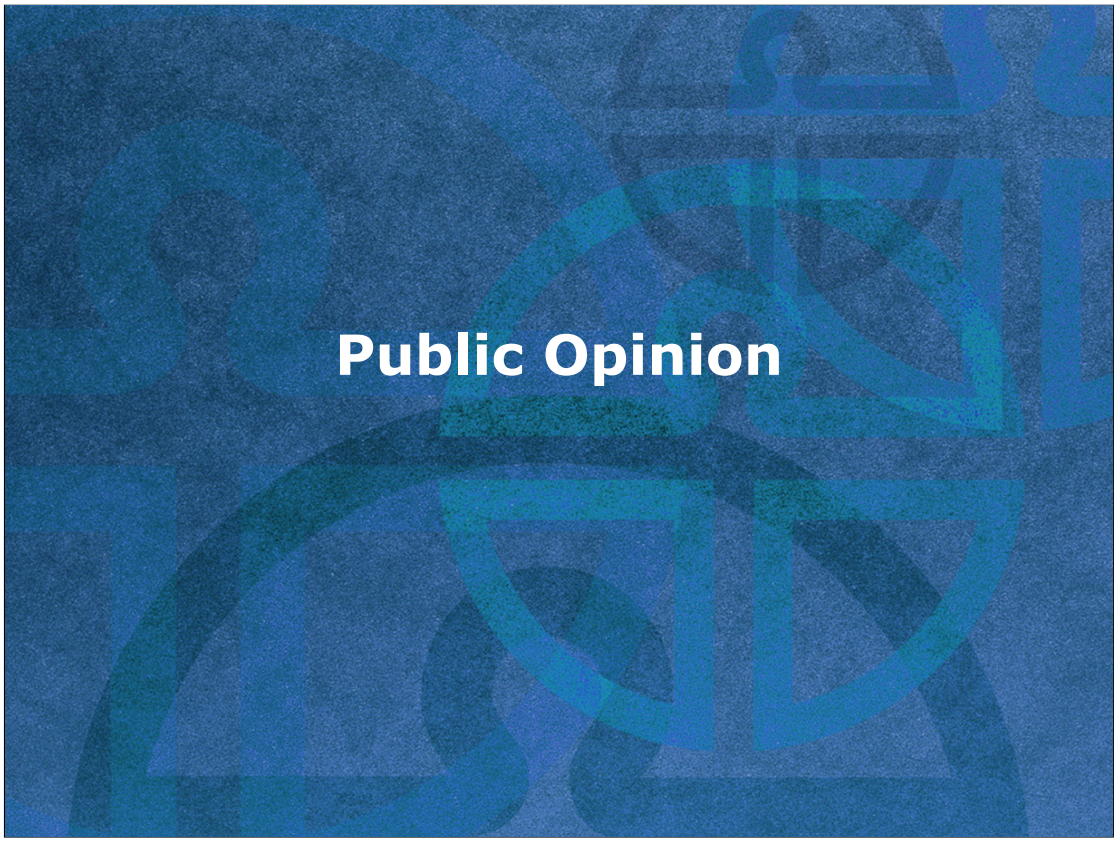
Overall, four in 10 teachers either do not teach about contraceptive methods (including condoms) or teach that they are ineffective in preventing pregnancy and STDs.

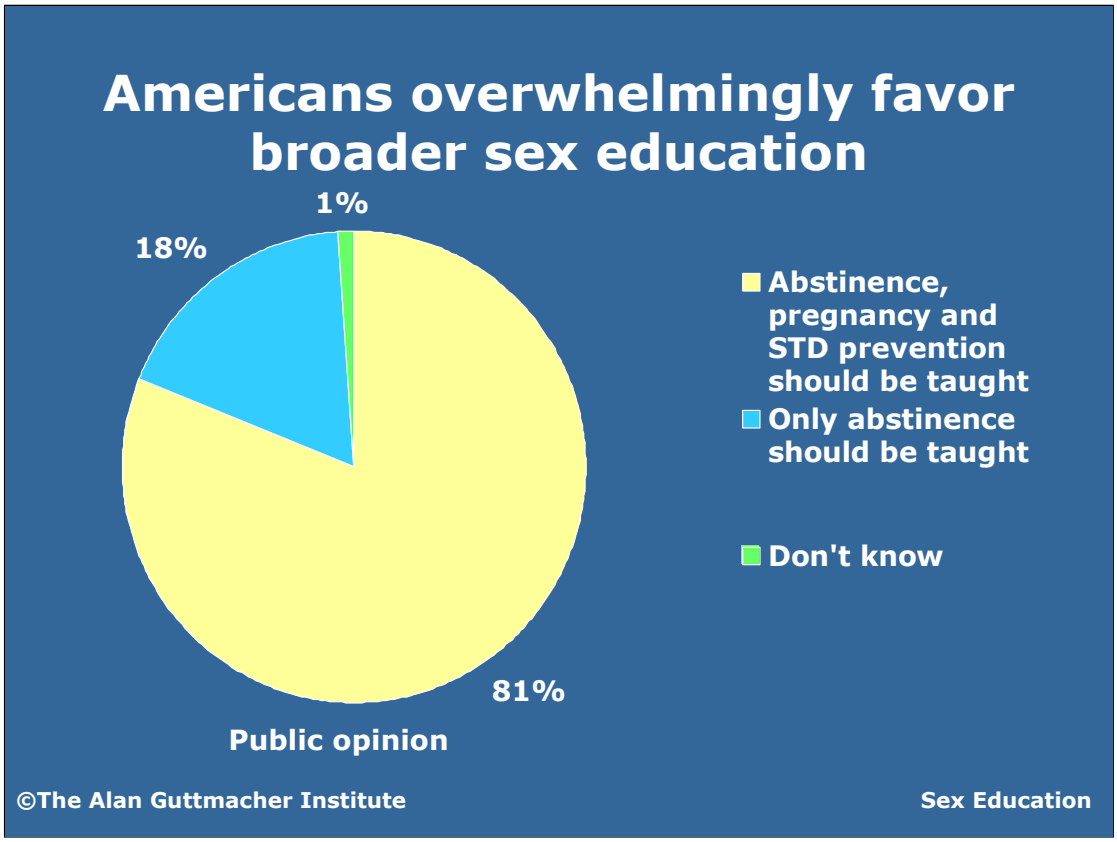
Source: Darroch JE, Landry DJ and Singh S, Changing emphasis in sexuality education in U.S. public secondary schools, 1988-1999, *Family Planning Perspectives*, 2000, 32(5):204-211 & 265.



That four in 10 sex education teachers either do not teach about contraceptives at all or teach that they are ineffective in preventing pregnancy and STDs is particularly troubling. New research shows that teachers who present contraception as effective are more likely than those who present it as ineffective to provide young people with specific information about topics key to the prevention of unintended pregnancy and STDs, including the importance of using contraceptives consistently, the use of condoms to prevent STD/HIV infection and where to obtain STD/HIV help.

Source: Landry DJ et al., Factors influencing the content of sex education in U.S. public secondary schools, *Perspectives on Sexual and Reproductive Health*, 2003, forthcoming.


Public Opinion

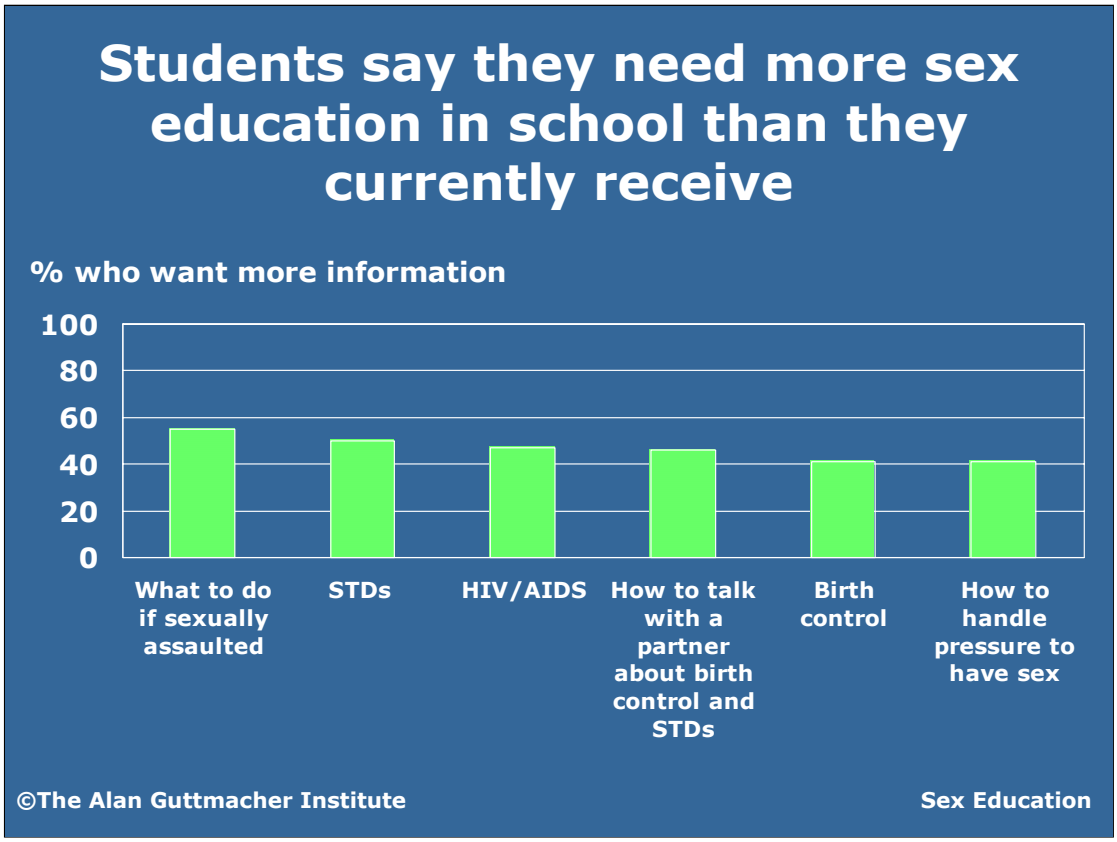


What many students are being taught in sex education classes does not reflect public opinion about what they should be learning. Americans overwhelmingly support sex education that includes information about both abstinence and contraception. Moreover, public opinion polls consistently show that parents of middle and high school students support this kind of sex education over classes that teach only abstinence.

Parents also want sex education classes to cover topics that are perceived as controversial by many school administrators and teachers. At least three-quarters of parents say that sex education classes should cover how to use condoms and other forms of birth control, as well as provide information on abortion and sexual orientation. Yet these topics are the very ones that teachers often do not cover.

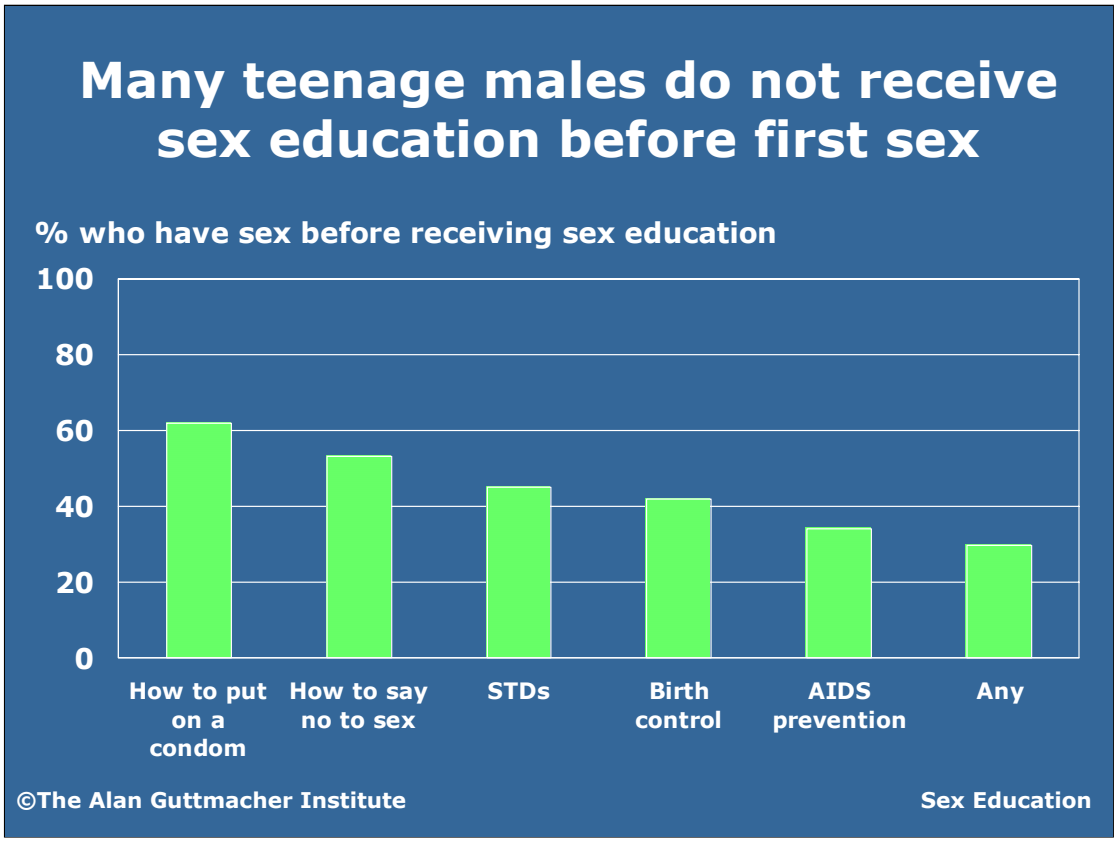
Finally, two in three parents say that significantly more classroom time should be devoted to sex education.

Source: The Henry J. Kaiser Family Foundation (KFF), *Sex Education in America*, Menlo Park: KFF, 2000.



Similarly, students report that they want more information about sexual and reproductive health issues than they are receiving in school. Some 40-50% of students in grades 7-12 report wanting more factual information about birth control and HIV/AIDS and other STDs, as well as what to do in the event of rape or sexual assault, how to talk with a partner about birth control and how to handle pressure to have sex.

Source: The Henry J. Kaiser Family Foundation (KFF), *Sex Education in America*, Menlo Park: KFF, 2000.



In addition to receiving too little information, students are receiving sex education too late to fully protect themselves against unintended pregnancy and STDs. For example, research on teenage males suggests that 30% do not receive any sex education before they have sex for the first time. This figure climbs to 46% for black teenage males.

With respect to specific topics, more than 40% of teenage males do not receive any formal education about birth control or STDs before they have sex for the first time.

Source: Lindberg LD, Ku L and Sonenstein F, Adolescents' reports of reproductive health education, 1988-1995, *Family Planning Perspectives*, 2000, 32(5):220-226.

Support for comprehensive sex education

- American Medical Association
- American Academy of Pediatrics
- American Nurses Association
- American College of Obstetricians and Gynecologists
- American Psychological Association
- American Public Health Association
- National Institutes of Health
- Institute of Medicine

©The Alan Guttmacher Institute Sex Education

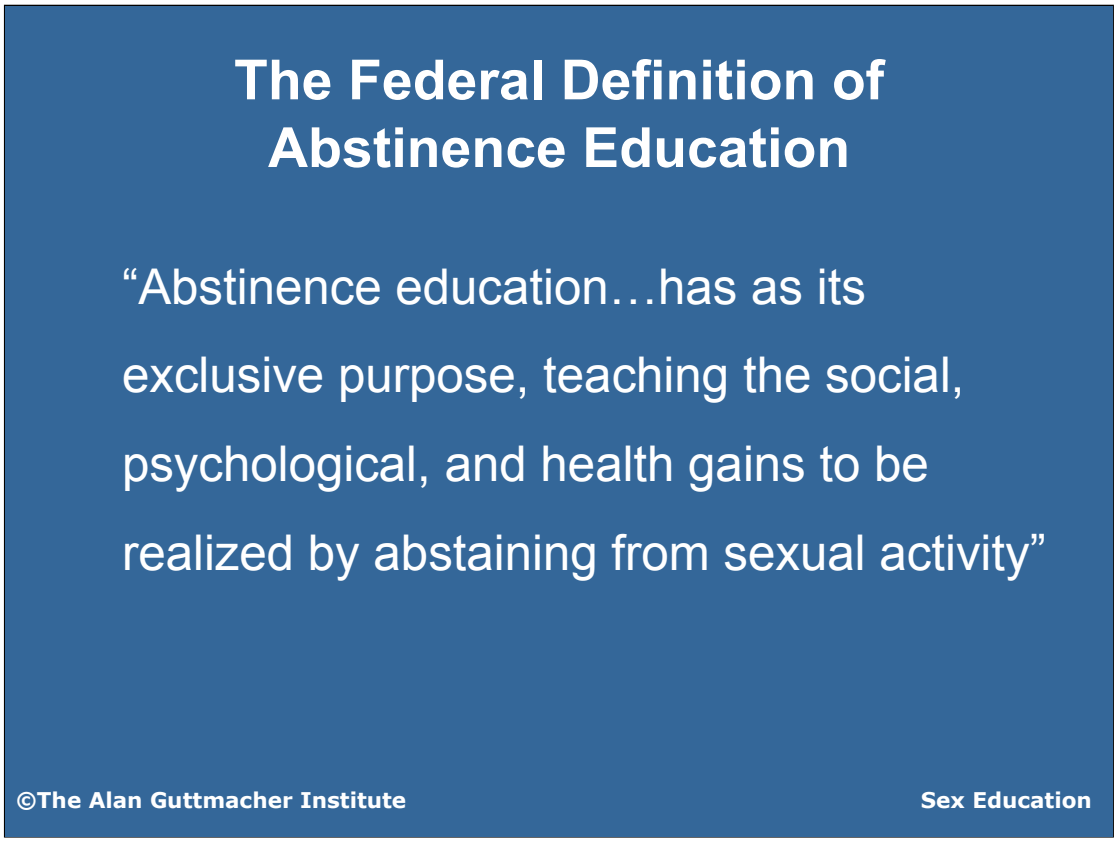
Major medical and public health organizations also support more comprehensive forms of sex education that include information about both abstinence and contraception for the prevention of teenage pregnancy and STDs. These include the American Medical Association, the American Academy of Pediatrics, the American Nurses Association, the American College of Obstetricians and Gynecologists, the American Psychological Association, the American Public Health Association, the National Institutes of Health and the Institute of Medicine.

Source: Boonstra H, Legislators craft alternative vision of sex education to counter abstinence-only drive, *The Guttmacher Report on Public Policy*, 2002, Vol. 5, No. 2, pp. 1-3.

A growing body of research therefore highlights a troubling disconnect: Although teachers, parents, students and health organizations want young people to receive more comprehensive information about how to avoid unintended pregnancy and STDs and about how to become sexually healthy adults, U.S. policymakers continue to promote school-based abstinence education that fails to provide accurate information about contraception, including condoms.

Source: Dailard C, Sex education: Politicians, parents, teachers and teens, *The Guttmacher Report on Public Policy*, 2001, Vol. 4, No. 1, pp. 9-12; and Boonstra H, Legislators craft alternative vision of sex education to counter abstinence-only drive, *The Guttmacher Report on Public Policy*, 2002, Vol. 5, No. 2, pp. 1-3.

U.S. Government Support for
Abstinence Education

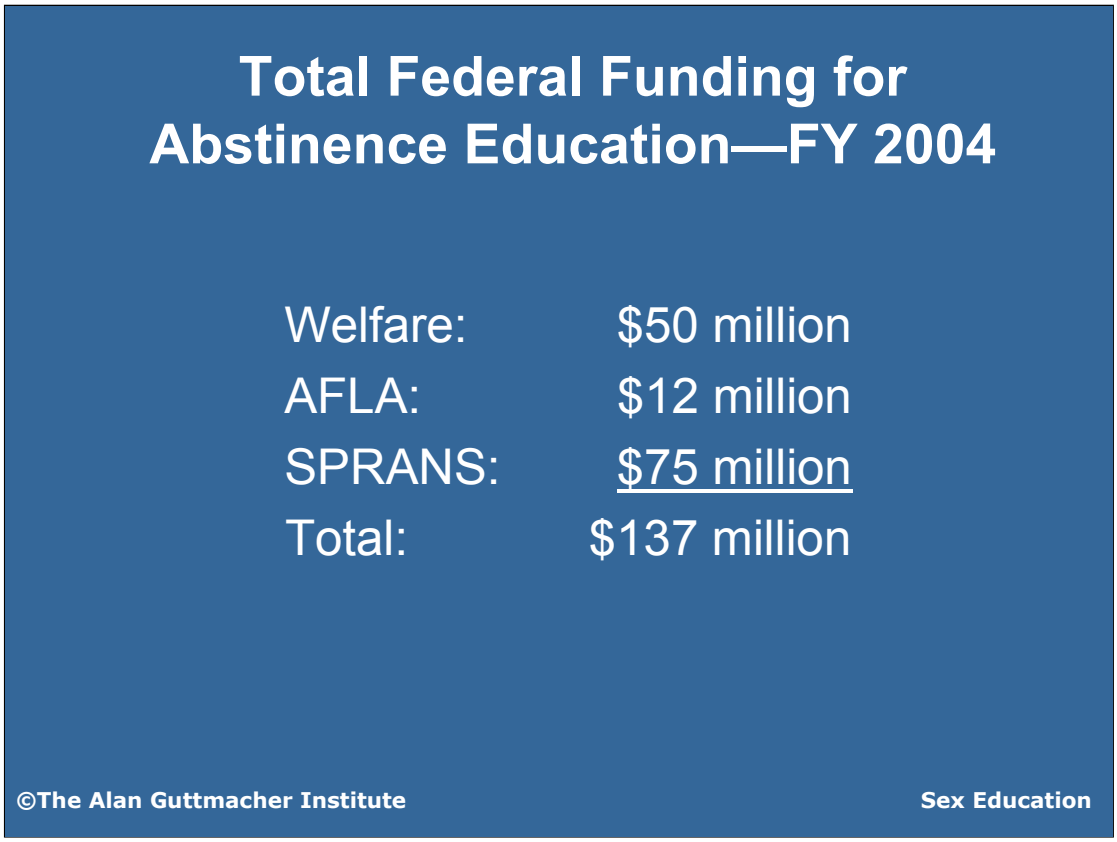


Beginning in 1981, the federal government provided funding on a small scale for education that promoted abstinence. Under the 1996 welfare reform law, however, it committed $50 million a year in federal funding and required another $38 million in state matching funds to support abstinence education.

The 1996 law established a stringent eight-point definition of "abstinence education" that requires funded programs to teach that sexual activity outside of marriage is wrong and harmful—for people of any age. Funded programs must exclusively promote abstinence. As a result, they are prohibited from advocating contraceptive use. They must either refrain from discussing contraceptive methods altogether or limit their discussion to contraceptive failure rates.

This eight-point definition represents the only articulation of sex education policy in federal law.

Source: P.L. 104-193, Aug. 22, 1996.

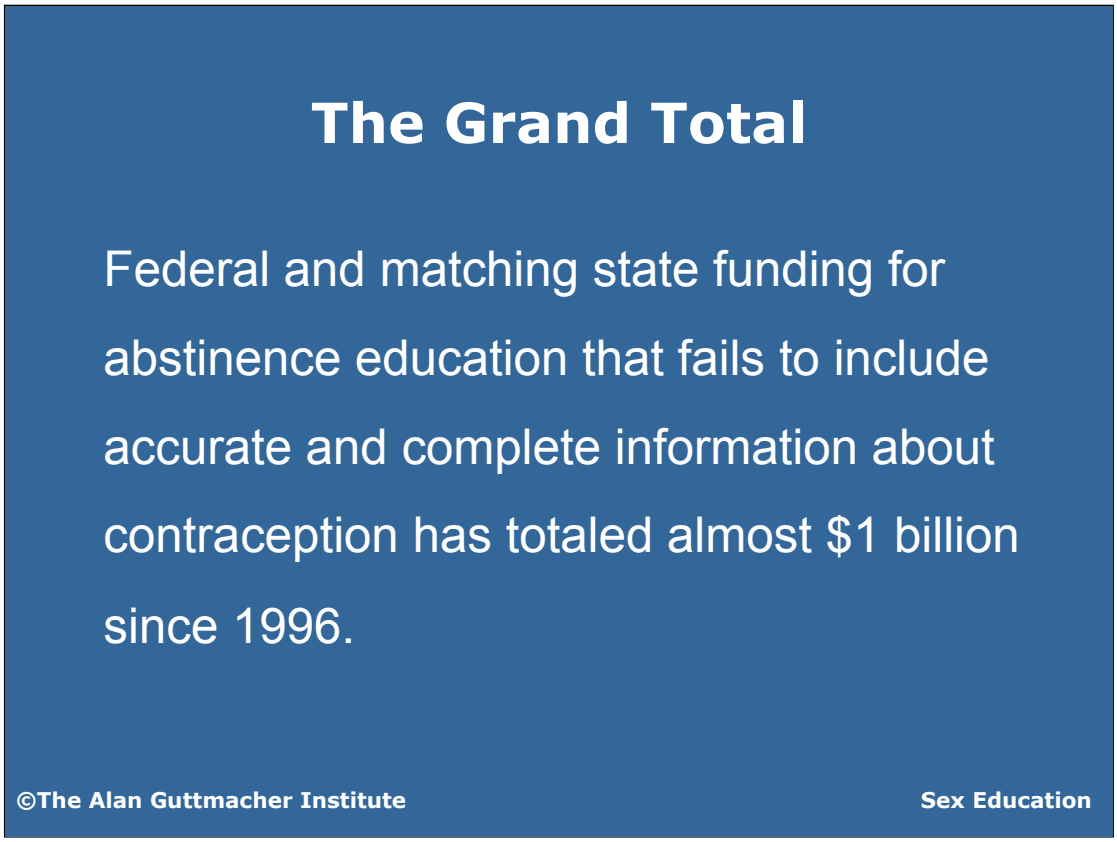


Since 1996, Congress has also supported abstinence education that omits accurate information about contraception through two other funding streams, both of which use the welfare law's eight-point definition. In 2004, Congress provided $12 million for abstinence education through the Adolescent Family Life Act and $75 million for Special Projects of Regional and National Significance.

Across these three programs, the federal government devoted $137 million to abstinence education in 2004.

Note: Updated February 2004.

Source: Dailard C, Abstinence promotion and teen family planning: the misguided drive for equal funding, *The Guttmacher Report on Public Policy*, 2002, Vol. 5, No. 1, pp. 1-3.



Overall, federal and matching state funding for abstinence education that fails to include accurate and complete information about contraception has totaled almost $1 billion since 1996.

Note: Updated February 2004

Source: Dailard C, Funding history for abstinence programs, memorandum, Washington, DC: AGI, 2003.

Effectiveness of
Sex Education

What do evaluations say about the effectiveness of sex education?

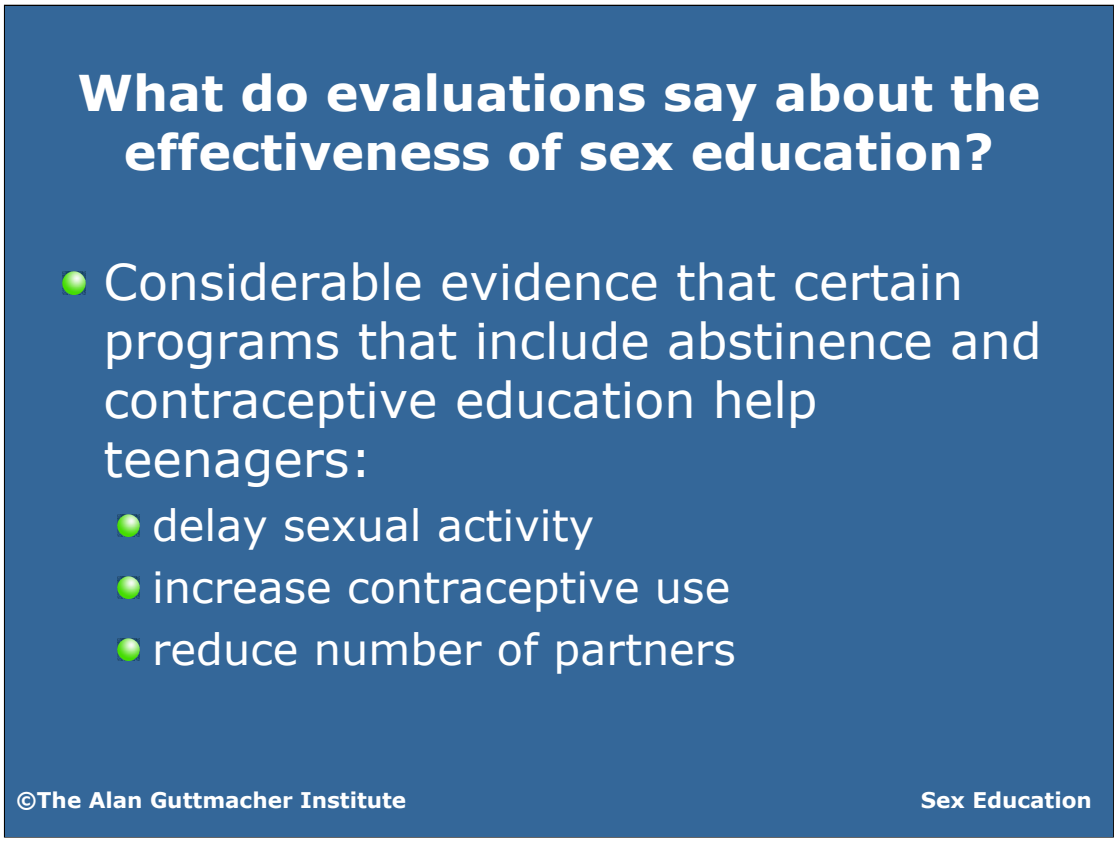
- No evidence that abstinence without contraceptive education effectively protects teenagers
- Contraceptive education does not encourage sexual activity

©The Alan Guttmacher Institute Sex Education

Despite at least two decades of abstinence education, there have been few rigorous evaluations to date of programs focusing exclusively on abstinence. None of these, moreover, has shown evidence that these programs either delay sexual activity or reduce teenage pregnancy.

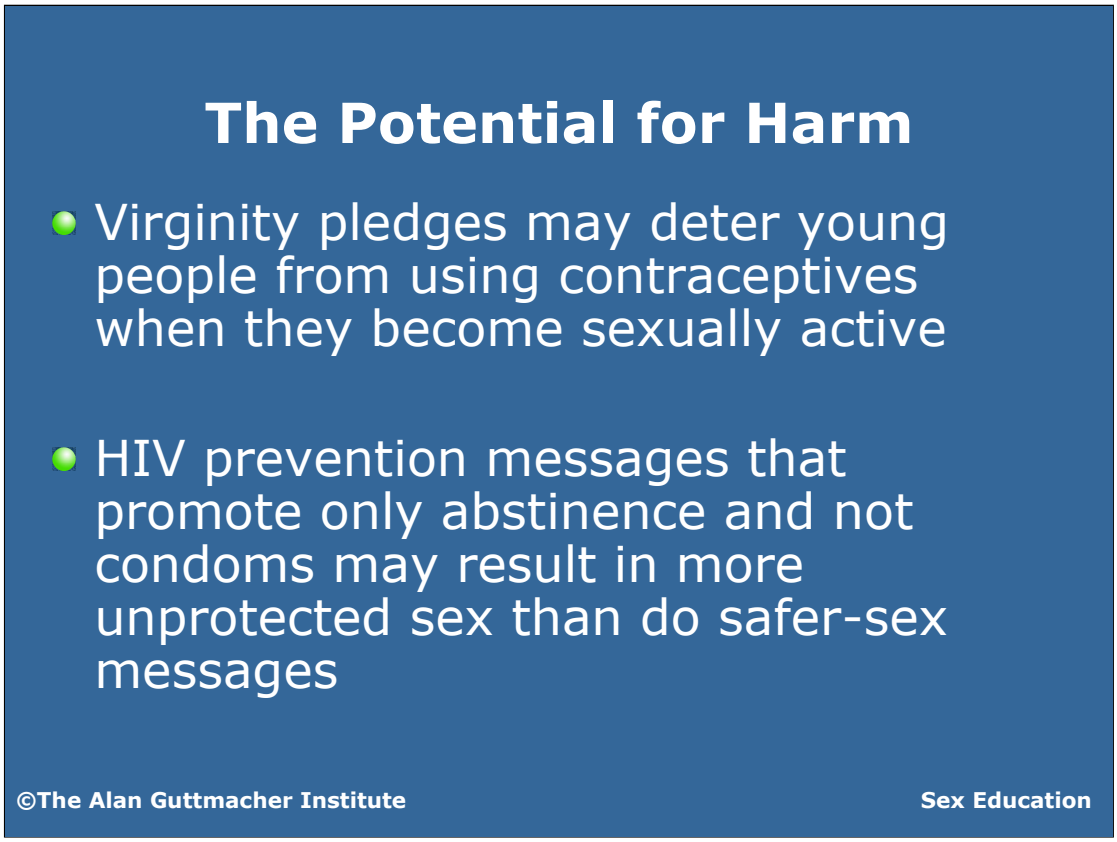
Program evaluations clearly show, however, that contraceptive education does not promote sexual activity among teenagers. These results refute long-standing claims by proponents of abstinence education that providing teenagers with information about the value of both abstinence and contraceptive use sends "mixed messages" that encourage sexual activity.

Sources: Kirby D, *Emerging Answers: Research Findings on Programs to Reduce Teen Pregnancy*, Washington, DC: The National Campaign to Prevent Teen Pregnancy, 2001; and Satcher D, *The Surgeon General's Call to Action to Promote Sexual Health and Responsible Sexual Behavior*, Rockville, MD: Office of the Surgeon General, 2001.



Furthermore, there is considerable scientific evidence that certain programs that include information about both abstinence and contraception help teenagers delay sexual activity. Teenagers who have participated in these more comprehensive programs also demonstrate increased contraceptive use when they do become sexually active and have fewer sexual partners.

Sources: Kirby D, *Emerging Answers: Research Findings on Programs to Reduce Teen Pregnancy*, Washington, DC: The National Campaign to Prevent Teen Pregnancy, 2001; and Satcher D, *The Surgeon General's Call to Action to Promote Sexual Health and Responsible Sexual Behavior*, Rockville, MD: Office of the Surgeon General, 2001.



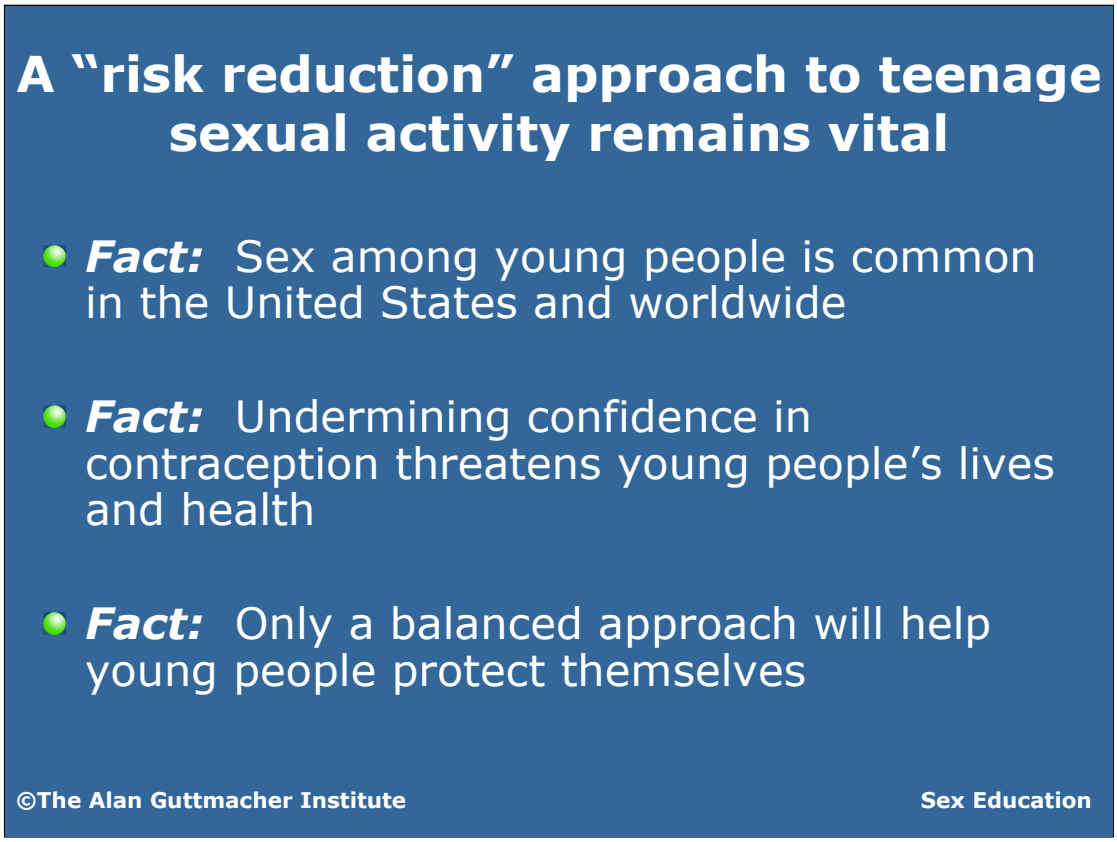
Research suggests that education and strategies that promote abstinence but withhold information about contraceptives in general, and condoms in particular, can actually place young people at risk of pregnancy and STDs. For example, a study of teenagers who took a pledge promising to abstain from sex until marriage and subsequently broke their pledge were one-third less likely to use contraceptives than those who had not pledged virginity in the first place.

Another study found that sexually experienced teenagers who received messages promoting only abstinence for HIV prevention were more likely to have unprotected sex than those who received safer-sex messages emphasizing abstinence, but advising condom use for teenagers who are sexually active.

More research needs to be done to determine how long these negative effects last.

Sources: Bearman PS and Bruckner H, Promising the future: virginity pledges and first intercourse, *American Journal of Sociology*, 2001, 106(4):859-912; Jemmott JB, Jemmott LS and Fong GT, Abstinence and safer sex HIV risk-reduction interventions for African American adolescents: a randomized controlled trial, *Journal of the American Medical Association*, 1998, 279(19):1529-1536; and Dailard C, Abstinence promotion and teen family planning: the misguided drive for equal funding, *The Guttmacher Report on Public Policy*, 2002, Vol. 5, No. 1, pp. 1-3.

In Conclusion…



The promotion of abstinence education that questions the effectiveness of contraceptives in general, and condoms in particular, is at the heart of a socially conservative movement to undermine the validity of "risk reduction" as a public health paradigm. Proponents of this view say that only complete "risk elimination" through abstinence until marriage to an uninfected partner and mutual lifelong monogamy offers total protection from STDs. Furthermore, they say that this is the only prevention message that should be provided to young people.

Yet sex among young people, and unmarried people of all ages, is common—both in this country and around the world. Thus, undermining people's confidence in the effectiveness of contraceptives, including condoms, threatens their health and lives.

Providing young people with balanced and accurate information about contraception as part of basic sex education must therefore remain a key component of public health efforts to help young people protect themselves against unintended pregnancies and STDs.

Source: Boonstra H, Public health advocates say campaign to disparage condoms threatens STD prevention efforts, *The Guttmacher Report on Public Policy*, 2003, Vol. 6, No. 1, pp. 1-2 & 14.

Summary

- Many U.S. teenagers experience unintended pregnancy and STDs
- Teenagers in other developed countries fare better
- Abstinence education that omits accurate information about contraceptives is prevalent across the country
- Many sex education teachers believe they are not meeting students' needs

©The Alan Guttmacher Institute

In summary, too many young people in this country experience poor reproductive and sexual health outcomes, including unintended pregnancy and STDs. Individuals and organizations working to improve the health and welfare of young people can learn from the experience of other developed countries, where young people have significantly lower rates of unintended pregnancy and STDs.

In contrast to schools in these other countries, where sex education includes comprehensive information about pregnancy and STD prevention, U.S. schools commonly provide abstinence education that either excludes information about or denigrates contraception. As a result, many sex education teachers believe they are not meeting their students' needs for information.

Summary

- Current federal policy ignores public opinion and research on "what works"
- Only a balanced and comprehensive approach will help teenagers to become sexually healthy adults

©The Alan Guttmacher Institute Sex Education

By promoting abstinence education that omits accurate and complete information about contraception, U.S. policy ignores the experience of other countries, public opinion and research about "what works."

Preserving and continuing the gains of the last decade requires a balanced approach that emphasizes all the key means of prevention—including effective contraceptive and condom use, as well as abstinence. Ultimately, only such a comprehensive approach will provide young people with the tools they need to protect themselves and to become sexually healthy adults.

Major Sources

National Surveys

- Youth Risk Behavior Survey–Centers for Disease Control and Prevention
- National Survey of Family Growth–National Center for Health Statistics
- Surveys of school superintendents and sex education teachers–AGI
- Survey of students and public opinion–Henry J. Kaiser Foundation
- National Survey of Adolescent Males–Urban Institute

©The Alan Guttmacher Institute

This presentation uses information from a variety of nationally representative surveys from federal and private agencies. The data sources include surveys of school superintendents, teachers, students and the general public. Other data and sources include birth and international abortion statistics from a range of sources, evaluation research results on the effectiveness of sex education programs and policy analysis conducted by AGI staff.

Major Sources

Other Sources

- Teenage pregnancy statistics–AGI
- International birth and abortion statistics from various sources
- Evaluation research–National Campaign to Prevent Teen Pregnancy
- Federal law and policy
- Statements on sex education from national organizations
- Policy analysis from AGI

©The Alan Guttmacher Institute

Acknowledgments:

This presentation was prepared by Cynthia Dailard, with the assistance of David Landry, Jennifer Nadeau and Rebecca Wind, all with The Alan Guttmacher Institute (AGI). It was supported by a grant from the Program on Reproductive Health and Rights of the Open Society Institute.

AGI is grateful to the following individuals, who reviewed earlier drafts of this presentation and provided valuable information and advice: Krista Anderson, Planned Parenthood of the Rocky Mountains; Kelson Ettienne-Modest, Weaver High School; Marcela Howell, Advocates for Youth; Douglas Kirby, ETR Associates; Mike McGee, Planned Parenthood Federation of America; Jennifer Parker, ACCESS/Women's Health Rights Coalition; and Susan Wilson, Rutgers University.

References

Slide 3: The Alan Guttmacher Institute (AGI), *In Their Own Right: Addressing the Sexual and Reproductive Health Needs of American Men*, New York: AGI, 2002, p. 8; and Dailard C, Marriage is no immunity from problems with planning pregnancies, *The Guttmacher Report on Public Policy*, 2003, Vol. 6, No. 2, pp.10-13.

Slide 4: Henshaw SK, U.S. teenage pregnancy statistics with comparative statistics for women aged 20-24, New York: AGI, May 2003, <http://www.guttmacher.org/pubs/teen_stats.pdf>, accessed July 28, 2003; Henshaw SK, Unintended pregnancy in the United States, *Family Planning Perspectives*, 1988, 30(1):24-29 & 46; and Centers for Disease Control and Prevention (CDC), *Young People at Risk: HIV/AIDS Among America's Youth*, Atlanta: CDC, Mar. 2002.

Slide 5: Henshaw SK, U.S. teenage pregnancy statistics with comparative statistics for women aged 20-24, New York: AGI, May 2003, <http://www.guttmacher.org/pubs/teen_stats.pdf>, accessed July 28, 2003.

Slide 6: Darroch JE and Singh S, *Why Is Teenage Pregnancy Declining? The Roles of Abstinence, Sexual Activity and Contraceptive Use,* Occasional Report, New York: AGI, 1999, No. 1.

Slide 7: Brener N et al., Trends in sexual risk behaviors among high school students—United States, 1991-2001, *Morbidity and Mortality Weekly Report*, 2002, 51(38):856-859.

Slide 8: Brener N et al., Trends in sexual risk behaviors among high school students—United States, 1991-2001, *Morbidity and Mortality Weekly Report*, 2002, 51(38):856-859.

Slide 9: AGI, *Teenage Sexual and Reproductive Behavior in Developed Countries: Can More Progress Be Made?* Occasional Report, New York: AGI, 2001, No. 3; and AGI, *Fulfilling the Promise: Public Policy and U.S. Family Planning Clinics*, New York: AGI, 2000.

Slide 11: AGI, *Teenage Sexual and Reproductive Behavior in Developed Countries: Can More Progress Be Made?* Occasional Report, New York: AGI, 2001, No. 3.

Slide 12: *AGI, Teenage Sexual and Reproductive Behavior in Developed Countries: Can More Progress Be Made?* Occasional Report, New York: AGI, 2001, No. 3.

Slide 13: AGI, *Teenage Sexual and Reproductive Behavior in Developed Countries: Can More Progress Be Made?* Occasional Report, New York: AGI, 2001, No. 3; and Boonstra H, Teen pregnancy: trends and lessons learned, *The Guttmacher Report on Public Policy*, 2002, Vol. 5, No. 1, pp. 7-10.

©The Alan Guttmacher Institute **Sex Education**

References

Slide 14: AGI, *Teenage Sexual and Reproductive Behavior in Developed Countries: Can More Progress Be Made?* Occasional Report, New York: AGI, 2001, No. 3; and Boonstra H, Teen pregnancy: trends and lessons learned, *The Guttmacher Report on Public Policy*, 2002, Vol. 5, No. 1, pp. 7-10.

Slide 15: AGI, Sexuality education, State Policies in Brief, July 2003, <http://www.agi-usa.org/pubs/spib_SE.pdf>, accessed July 28, 2003; and Gold RB and Nash E, State-level policies on sexuality, STD education, *The Guttmacher Report on Public Policy*, 2001, Vol. 4, No. 4, pp. 4-7.

Slide 16: Landry DJ, Kaeser L and Richards CL, Abstinence promotion and the provision of information about contraception in public school district sexuality education policies, *Family Planning Perspectives*, 1999, 31(6):280-286.

Slide 17: Landry DJ, Kaeser L and Richards CL, Abstinence promotion and the provision of information about contraception in public school district sexuality education policies, *Family Planning Perspectives*, 1999, 31(6):280-286.

Slide 18: Darroch JE, Landry DJ and Singh S, Changing emphasis in sexuality education in U.S. public secondary schools, 1988-1999, *Family Planning Perspectives*, 2000, 32(5):204-211 & 265.

Slide 19: Darroch JE, Landry DJ and Singh S, Changing emphasis in sexuality education in U.S. public secondary schools, 1988-1999, *Family Planning Perspectives*, 2000, 32(5):204-211 & 265.

Slide 20: Landry DJ et al., Factors influencing the content of sex education in U.S. public secondary schools, *Perspectives on Sexual and Reproductive Health*, 2003, forthcoming.

Slide 22: The Henry J. Kaiser Family Foundation (KFF), *Sex Education in America*, Menlo Park: KFF, 2000.

Slide 23: The Henry J. Kaiser Family Foundation (KFF), *Sex Education in America*, Menlo Park: KFF, 2000.

Slide 24: Lindberg LD, Ku L and Sonenstein F, Adolescents' reports of reproductive health education, 1988-1995, *Family Planning Perspectives*, 2000, 32(5):220-226.

©The Alan Guttmacher Institute **Sex Education**

References

Slide 25: Boonstra H, Legislators craft alternative vision of sex education to counter abstinence-only drive, *The Guttmacher Report on Public Policy*, 2002, Vol. 5, No. 2, pp. 1-3.

Slide 26: Dailard C, Sex education: Politicians, parents, teachers and teens, *The Guttmacher Report on Public Policy*, 2001, Vol. 4, No. 1, pp. 9-12; and Boonstra H, Legislators craft alternative vision of sex education to counter abstinence-only drive, *The Guttmacher Report on Public Policy*, 2002, Vol. 5, No. 2, pp. 1-3.

Slide 28: P.L. 104-193, Aug. 22, 1996.

Slide 29: Dailard C, Abstinence promotion and teen family planning: the misguided drive for equal funding, *The Guttmacher Report on Public Policy*, 2002, Vol. 5, No. 1, pp. 1-3.

Slide 30: Dailard C, Funding history for abstinence programs, memorandum, Washington, DC: AGI, 2003.

Slide 32: Kirby D, *Emerging Answers: Research Findings on Programs to Reduce Teen Pregnancy,* Washington, DC: The National Campaign to Prevent Teen Pregnancy, 2001; and Satcher D, *The Surgeon General's Call to Action to Promote Sexual Health and Responsible Sexual Behavior*, Rockville, MD: Office of the Surgeon General, 2001.

Slide 33: Kirby D, *Emerging Answers: Research Findings on Programs to Reduce Teen Pregnancy,* Washington, DC: The National Campaign to Prevent Teen Pregnancy, 2001; and Satcher D, *The Surgeon General's Call to Action to Promote Sexual Health and Responsible Sexual Behavior*, Rockville, MD: Office of the Surgeon General, 2001.

Slide 34: Bearman PS and Bruckner H, Promising the future: virginity pledges and first intercourse, *American Journal of Sociology*, 2001, 106(4):859-912; Jemmott JB, Jemmott LS and Fong GT, Abstinence and safer sex HIV risk-reduction interventions for African American adolescents: a randomized controlled trial, *Journal of the American Medical Association*, 1998, 279(19):1529-1536; and Dailard C, Abstinence promotion and teen family planning: the misguided drive for equal funding, *The Guttmacher Report on Public Policy*, 2002, Vol. 5, No. 1, pp. 1-3.

Slide 36: Boonstra H, Public health advocates say campaign to disparage condoms threatens STD prevention efforts, *The Guttmacher Report on Public Policy*, 2003, Vol. 6, No. 1, pp. 1-2 & 14.

©The Alan Guttmacher Institute **Sex Education**

THE ALAN GUTTMACHER INSTITUTE

Can More **Progress** Be **Made?**

Teenage Sexual and Reproductive Behavior in Developed Countries

Executive Summary

There is strong consensus in the United States that teenage pregnancy and birth levels are too high. Despite dramatic decreases in teenage pregnancy rates and birthrates in the United States over the past decade, this country still has substantially higher levels of adolescent pregnancy, childbearing and abortion than in other Western industrialized countries. Moreover, teenage birthrates have declined less steeply in the United States than in other developed countries over the last three decades (Chart 1, page 2).

While much can be learned from the experience and insights of people in the United States who are engaged in efforts to reduce teenage pregnancy rates and birthrates, important lessons can also be learned from other countries. Cross-national comparisons can help to identify factors that may be so pervasive, they are not readily recognized within the United States; such comparisons can also suggest new approaches that might be helpful.

This executive summary presents the highlights of a large-scale investigation, Teenage Sexual and Reproductive Behavior in Developed Countries, conducted in Sweden, France, Canada, Great Britain[1] and the United States between 1998 and 2001 (see box, page 2). Teenage pregnancy rates and birthrates in these five countries vary widely, with the lowest rates in Sweden and France, moderate rates in Canada and Great Britain, and the highest rates in the United States. Although the focus of this executive summary is on what the United States can learn from the other countries, many of the insights gained may also be useful to them, as well as to countries not involved in this study.

Beneath the generalizations necessary when making cross-national comparisons, there are often large differences across areas and groups within a country, and varying national contexts and histories. While all of the study countries have democratic governments and are highly developed, they differ in some basic respects, such as population size and density, and political, economic and social perspectives and structures. For example, the United States has long emphasized individual responsibility for one's own welfare. As much as possible, government is expected to stay out of people's lives, especially in the area of health and social policy, and only as a last resort, to play a remedial role as provider of assistance.

The resulting deregulated, individualistic society has tended to foster more fluid social structures, greater flexibility and innovation, and more economic vibrancy than can be found in much of Europe. On the other hand, the social and political commitment to providing a social and economic safety net, including health care for all, which has been so strong in Europe since World War II, is largely missing from the United States. The large U.S. population, geographic area and economy encompass far greater diversity than is found in the other study countries, but the United States is also characterized by greater inequality and more widespread poverty, which are compounded by the country's history of slavery and racism.

Major Conclusions

■ Continued high levels of teenage childbearing in the United States compared with levels in Sweden, France, Canada and Great Britain reflect higher pregnancy rates and smaller proportions of pregnant teenagers having abortions. Since timing and levels of sexual activity are quite similar across countries, the high U.S. rates arise primarily because of less, and possibly less-effective, contraceptive use by sexually active teenagers.

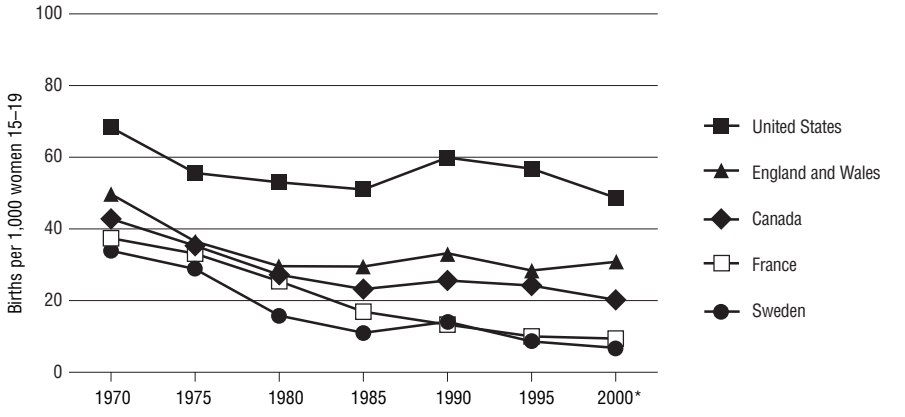
■ Growing up in conditions of social and economic disadvantage is a powerful predictor of early childbearing in all five countries. The greater proportion of teenagers from disadvantaged families in the United States contributes to the country's high teenage pregnancy rates and birthrates. At all socioeconomic levels, however, American teenagers are less likely to use contraceptives and more likely to have a child than their peers in the other countries.

■ Stronger public support and expectations for the transition to adult economic roles, and for parenthood, in Sweden, France, Canada and Great Britain than in the United States provide young people with greater incentives and means to delay childbearing.

■ Societal acceptance of sexual activity among young people, combined with comprehensive and balanced information about sexuality and clear expectations about commitment and prevention of childbearing and STDs within teenage relationships, are hallmarks of countries with low levels of adolescent pregnancy, childbearing and STDs.

■ Easy access to contraceptives and other reproductive health services in Sweden, France, Canada and Great Britain contributes to better contraceptive use and therefore lower teenage pregnancy rates than in the United States. Easy access means that adolescents know where to obtain information and services, can reach a provider easily, are assured of receiving confidential, nonjudgmental care and can obtain services and contraceptive supplies at little or no cost.

Chart 1. Teenage birthrates declined less steeply in the United States than in other developed countries between 1970 and 2000.



*Data are for 1997 in Canada, 1998 in France and 1999 in England, Wales and Sweden.

Pathways to High U.S. Rates

Teenage pregnancy levels are higher in the United States than in the other study countries.

U.S. teenagers have higher birthrates than adolescents in the other study countries because they are much more likely to become pregnant, and because those who become pregnant are less likely than pregnant adolescents in the other countries to have abortions (Chart 2). At the same time, however, U.S. teenagers also have a higher abortion rate than their peers in the other countries because they are more likely to become pregnant unintentionally.

In addition to having higher rates of unplanned pregnancy, teenage women in the United States are more likely than their peers in the other countries to want to become mothers. Surveys indicate that even if only those teenagers who wanted to become mothers did so, the resulting teenage birthrate in the United States (18 per 1,000 women aged 15–19) would still be higher than the total adolescent birthrates in France and Sweden and about two-thirds as high as the total teenage birthrates in Great Britain and Canada.

Differences between countries in levels of sexual activity are too small to account for the wide variation in teenage pregnancy rates.

Levels of sexual activity and the age when teenagers become sexually active do not vary appreciably across the five countries (Chart 3). Moreover, most measures indicate less, rather than more, exposure to sexual intercourse among teenage women and men in the United States than among those in the other four countries.

However, some potentially important differences exist between countries in patterns of teenage sexual activity. Teenagers in the United States are the most likely to have sexual intercourse before age 15. They also appear, on average, to have shorter and more sporadic sexual relationships. For example, American teenagers who had intercourse in the past year are more likely to have had more than one partner than young people in the other countries, especially those in France and Canada (Chart 4).

Less contraceptive use and less use of hormonal methods are the primary reasons U.S. teenagers have the highest rates of pregnancy, childbearing and abortion.

U.S. teenagers are less likely to use any contraceptive method than young women in the other study countries and are also less likely to use the pill or a long-acting reversible hormonal method (the injectable or the implant), which have the highest use-effectiveness rates (Chart 5, page 4).

Data on the effectiveness with which women and men use contraceptive methods are available only for the United States. However, estimates using these effectiveness rates and country method-use patterns suggest that less-successful use of contraceptive methods also contributes to higher pregnancy rates among U.S. teenagers.

More sexual partners, a higher prevalence of infection and, probably, less condom use contribute to higher teenage sexually transmitted disease (STD) rates in the United States.

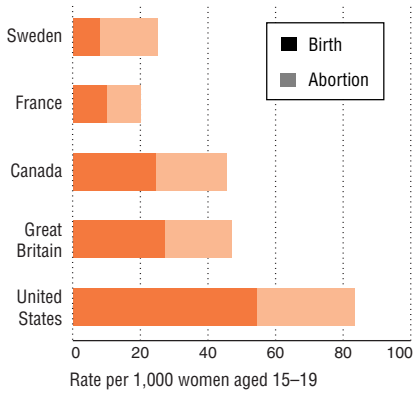
STD rates are higher among U.S. teenagers than among adolescents in the other study countries. U.S. teenagers have more sexual partners than teenagers in the other study countries, especially France and Canada. This increases their risk of contracting an STD, including HIV. Moreover, while sexually active teenagers in the United States are more likely than their counterparts in the other countries to rely on condoms as their main method, available data suggest they are less likely than teenagers in Great Britain and probably Canada to use condoms in addition to a hormonal method. Thus, American teenagers who are sexually active are more likely to be exposed to the risk of STDs and may be less likely to use condoms. Higher levels of STD infection in the U.S. population as a whole than in the other study countries suggest that another factor contributing to high STD levels among teenagers is the greater prevalence of both viral and untreated bacterial STDs among their partners.

Information Sources

Collaborating research teams carried out case studies for each of the five countries. The study teams used a common approach to gather information and prepare in-depth country reports. The project also included two workshops, analyses of teenage pregnancy and STD levels in all developed countries, and site visits by the U.S. study team, who were also the project leaders, that involved extensive consultation with reproductive health professionals in each of the focus countries.

Study-team participants were in Canada, Eleanor Maticka-Tyndale, Alex McKay and Michael Barrett; in France, Nathalie Bajos and Sandrine Durand; in Great Britain, Kaye Wellings; in Sweden, Maria Danielsson, Christina Rogala and Kajsa Sundström; and in the United States, Jacqueline E. Darroch, Jennifer Frost, Susheela Singh, Rachel Jones and Vanessa Woog. Project funding was provided by The Ford Foundation and The Henry J. Kaiser Family Foundation.

Chart 2: U.S. teenagers have higher pregnancy rates, birthrates and abortion rates than adolescents in other developed countries.



Note: Data are for mid-1990s.

Society's Influences on Teenagers' Behavior

The behavior of young people in the study countries and the types of policies and programs developed for teenagers reflect the social, historical and governmental contexts of the individual countries. For example, the unplanned pregnancy rate among women aged 15–44 in the early to mid-1980s was much higher in the United States than in Sweden, Canada and Great Britain; the U.S. rate was similar to the rate in France. The abortion rate in the mid-1990s was higher not only among teenagers but also among women in their 20s and among all women aged 15–44 in the United States than in any of the other study countries. The greatest differences in abortion rates were not among teenagers but among women in their early 20s, with the U.S. abortion rate at 50 per 1,000 women aged 20–24, compared with rates in the other study countries no higher than 31 per 1,000.

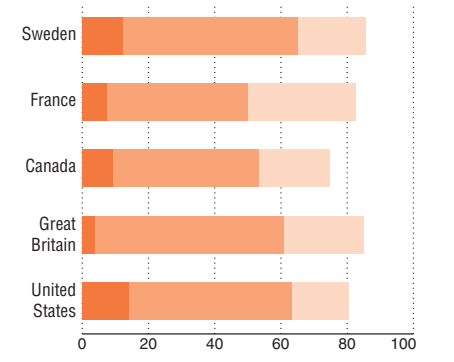
Social and economic well-being and equality are linked to lower teenage pregnancy rates and birthrates.

•Government commitment to social welfare and equality for all members of society provides greater support for individual well-being in other countries than in the United States. The philosophy that individuals are responsible for their own welfare and that the government should stay out of people's lives as much as possible, especially in the areas of health and social policy, contributes to widespread inequity in the United States. For example, one-fifth of U.S. women of reproductive age have no health insurance. The national and local governments play a remedial role, making services such as public health clinics, housing and income assistance available to poor, uninsured and other disadvantaged people. However, because public services are primarily for the disadvantaged, their use carries a stigma in many communities. Numerous nongovernmental organizations help make up for the lack of public services, but their coverage and scope vary widely.

In contrast, the other study countries, especially Sweden and France, have stronger social welfare systems, and are committed to reducing economic disparity within their populations. Government provides or pays for basic services such as health care for everyone. Public services are therefore considered a right, and no stigma is attached to their use.

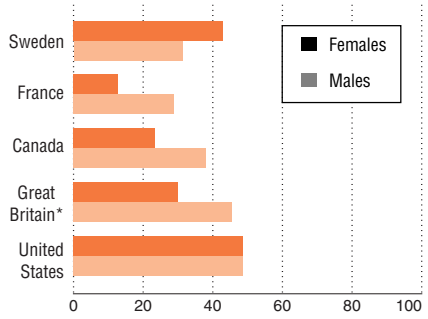
•Compared with adolescents in the other countries, U.S. teenagers are more likely to grow up in disadvantaged circumstances and those who do are more likely to have a child during their teenage years. In all of the study countries, young people growing up in disadvantaged economic, familial and social circumstances are more likely than their better-off peers to engage in risky sexual behavior and to become parents at an early age. Although the United States has the highest median per capita income of the five countries, it also has the largest proportion of its population who are poor. The higher proportion of teenagers from disadvantaged backgrounds contributes to the high teenage pregnancy rates and birthrates in the United States.

Chart 3: Differences in levels of teenage sexual activity across developed countries are small.



Note: Data are for mid-1990s.

Chart 4: Among teenagers who had sex in the last year, those in the United States are more likely than those in other developed countries to have had two or more partners.



*Data for 16–19-year-olds. Note: Data are for mid-1990s.

At all socioeconomic levels, however, U.S. youth have lower levels of contraceptive use and higher levels of childbearing than their peers in the other study countries. For example, the level of births among U.S. teenagers in the highest income subgroup is 14% higher than the level among similarly advantaged teenagers in Great Britain and higher than the overall levels in Sweden and France. Differences are greatest among disadvantaged youth: U.S. teenagers in the lowest income subgroup have birth levels 58% higher than similar teenagers in Great Britain. Not only do Hispanic and black teenagers in the United States, who are much more likely than whites to be from low socioeconomic circumstances, have very high pregnancy rates and birthrates, the birthrate among non-Hispanic white teenagers (36 per 1,000) is higher than overall rates in the other study countries.

Strong and widespread governmental support for young people's transition to adulthood, and for parents, may contribute to low teenage birthrates in the countries other than the United States.

Adolescence is viewed in all the study countries as a time of transition to adult roles, rights and responsibilities. However, while Sweden and France, and to some extent Great Britain and Canada, seek to help all youth through this transition, the United States primarily assists only those in greatest need.

•Education and employment assistance help young people become estab-

lished as adults. In the United States, the transition to adult roles and the process of settling on a vocation and finding employment are generally up to the individual adolescent and his or her family. Government employment training and assistance programs tend to be remedial and directed at small numbers of poor youth who are unable to find work on their own. The U.S. approach offers great freedom of choice and flexibility for many, but does little to help those who are less knowledgeable about opportunities for school and work or are less able to take advantage of them on their own.

Youth in the other countries tend to receive more societal assistance and support for this transition, in the form of vocational education and training, help in finding work, and unemployment benefits. Such assistance is available to all youth through both public programs and private employers. These efforts not only smooth the transition from school to work but also convey to teenagers that they are of value to society, that their development and input are important, and that there are rewards for making the effort to fit into expected social roles.

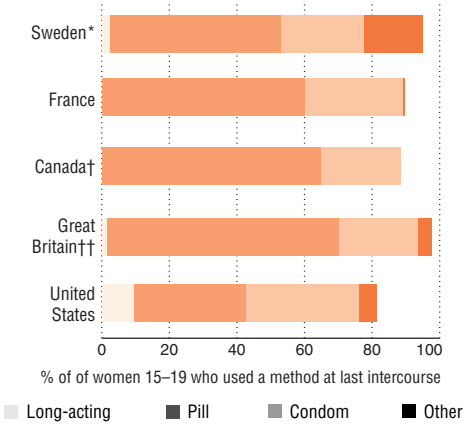
•Support for working parents and families signifies the high value of children and parenting, and gives youth the incentive to delay childbearing. In the United States, paid maternity leave is rare and child benefits are available only to some poor women and families. In the other study countries, working mothers (and sometimes fathers) are guaranteed paid parental leave and other benefits. Although the parental leave and family support policies in these countries, particularly Sweden and France, are quite generous in terms of time and money, they are not an incentive for younger women and teenagers to have children, because parental leave payments are tied to prior salary levels. These policies appear to reinforce societal norms that childbearing is best postponed until a young couple's careers have been established. Support for working parents thus offers young people both the incentive to delay childbearing until they have completed school and become employed and the assurance that they will be able to combine work and childrearing.

Positive attitudes about sexuality and clear expectations for behavior in sexual relationships contribute to responsible teenage behavior.

•Openness and supportive attitudes about sexuality in other countries have not led to greater sexual activity or risk-taking. The U.S. society is highly conflicted about sexuality in general and about expectations for adolescent behavior in particular. Adults in the other countries are less conflicted about both sexuality and teenage sexual activity, at least for older teenagers.

Although a majority of adults in all five countries frown on young people's having sex before age 16, such behavior is more likely to be accepted in Sweden and Canada (where 39% and 25%, respectively, think it is not wrong at all or only sometimes wrong) than it is in the United States and Great Britain (where 13% and 12%, respectively, hold these views).[2] Adults in the other countries are also much more accepting of sex before marriage than are Americans: 84–94% in Canada, Great Britain and Sweden, compared with only 59% in the United States. Although there are no comparable data for France, initiation of intercourse before marriage or cohabitation is the norm there. In spite of these differences in attitudes, similar proportions of young people in all the study countries become sexually active during their adolescence.

Chart 5: U.S. teenagers are less likely to use a contraceptive method and to use a hormonal method than teenagers in other developed countries.



*Data are for 18–19-year-olds. †The condom category includes all methods other than the pill, but the condom is the predominant "other method." ††Data are for 16–19-year-olds. Note: Users reporting more than one method were classified by the most effective method. Data are for early to mid-1990s.

•There is a strong consensus in countries other than the United States that childbearing belongs in adulthood. Young people in Europe are usually considered adults only when they have finished their education, become employed and live independently from their parents. And only when they have established themselves in a stable union is it considered appropriate to begin having children. This view is most clearly established in Sweden and France, but it is also more common in Canada and Great Britain than in the United States.

Few adolescents in any of the study countries meet these criteria for parenthood. For example, the proportion of adolescent women who are married or cohabiting ranges from 4% to roughly 10% in these countries. Nonetheless, of the few teenage births that occur in Sweden and France, 51% in each country are to young women who are married or cohabiting, compared with 38% in the United States (data are not available for Canada or Great Britain). Because the overall teenage birthrate in the United States is so high, the birthrate among women who are not in union—37 per 1,000—is much higher than in Sweden and France—no more than 5 per 1,000.

•Countries other than the United States give clearer and more consistent messages about appropriate sexual behavior. Positive acceptance of sexuality in countries other than the United States is by no means value-free. In France and Sweden in particular, sexuality is seen as normal and positive, but there is widespread expectation that sexual intercourse will take place within committed relationships (though not necessarily formal marriages) and that those who are having sex will protect themselves and their partners from unintended pregnancy and STDs. In these countries, and also increasingly in Canada and Great Britain, sexual relationships among adolescents are accepted by others. This acceptance carries with it expectations of commitment, mutual monogamy, respect and responsibility.

While adults in the other study countries focus chiefly on the quality of young people's relationships and the exercise of personal responsibility within those relationships, adults in the United States are often more concerned about whether young people are having sex. Close relationships are often viewed as worrisome because they may lead to intercourse, and contraception may not be discussed for

fear that such a discussion might lead to sexual activity. These generalities across countries are borne out in the behavior of young people. As was noted earlier, teenagers in the United States who have had sex appear more likely than their peers in the other countries to have short-term and sporadic relationships, and they are more likely to have many sexual partners during their teenage years.

•Comprehensive sexuality education, not abstinence promotion, is emphasized in countries with lower teenage pregnancy levels. In Sweden, France, Great Britain and, usually, Canada, the focus of sexuality education is not abstinence promotion but the provision of comprehensive information about prevention of HIV and other STDs; pregnancy prevention; contraceptives and, often, where to get them; and respect and responsibility within relationships. Sexuality education is mandatory in state or public schools in England and Wales, France and Sweden and is taught in most Canadian schools, although the amount of time given to sexuality education, its content and the extent of teacher training vary among these countries and within them as well. In Sweden, the country with the lowest teenage birthrate, sexuality education has been mandated in schools for almost half a century, which reflects, and promotes, the topic's acceptance as a legitimate and important subject for young people.

Extremely vocal minority groups in the United States pressure school districts not to allow information about contraception to be provided in sexuality education classes, and substantial federal and state funds are directed to promoting abstinence for unmarried people of all ages, particularly for adolescents. Some 35% of the school districts that mandate sexuality education require that abstinence be presented as the only appropriate option outside of marriage for teenagers and that contraception either be presented as ineffective in preventing pregnancy and HIV and other STDs or not be covered at all.

•Media is used less in the United States than elsewhere to promote positive sexual behavior. Young people in all five countries are exposed through television programs, movies, music and advertisements to sexually explicit images and to casual sexual encounters with no consideration for preventing pregnancy or STDs. However, entertainment media and advertising messages about sexuality are seemingly less influential in the other countries than in the United States, because they are balanced by more pragmatic parental and societal attitudes and by nearly universal comprehensive sexuality education.

Pregnancy and STD prevention campaigns undertaken in the United States generally have a punitive tone and focus on the negative aspects of teenage childbearing and STDs rather than on promotion of effective contraceptive use. The media have been used more frequently in the other countries for public campaigns to prevent STDs and HIV; the messages are generally positive about sexuality and are more likely to be humorous than judgmental. For example, the Swedish government works closely with youth to publish a frank and informative periodical magazine featuring subjects such as love, identity and sexuality that is widely read—and trusted—by young people. A government contraceptive campaign in France used television spots to air the message, "Contraception: The choice is yours."

Contraceptive use is higher, and pregnancy and STDs less common, where teenagers have easy access to sexual and reproductive health services.

•Only in the United States do substantial proportions of adolescents lack health insurance and therefore have poor access to health care. Study countries other than the United States have national systems for the financing and delivery of health care for everyone. Although the systems vary, they provide assurance that teenagers can access a clinician.

In contrast, substantial proportions of U.S. teenagers and their families have no health insurance, and some who do have insurance may not be covered for contraceptive supplies or may fear that using insurance for reproductive health services will compromise their confidentiality, since their coverage usually comes through their parents' policy. Many teens, regardless of their insurance status, turn to public health care providers for contraceptive services.

•Contraceptive services and other reproductive health care are generally more integrated into regular medical care in countries other than the United States. In Sweden, France, Great Britain and Canada, contraceptive services are usually integrated into other types of primary care. This not only contributes to ease of access, but also lends support for the notion that contraceptive use is normal and important. In the United States, in contrast, contraception is still not fully accepted as basic health care. It is often not covered by private health insurance policies and, at least for teenagers, not always provided confidentially and sensitively by private physicians, who provide most people's care. The fact that teenagers rely heavily on family planning clinics rather than the family doctor for contraceptive services simultaneously stigmatizes the clinics for providing care that is somewhat outside the mainstream and their teenage clients for doing something wrong by seeking those services in the first place.

•U.S. teenagers have greater difficulty obtaining contraceptive services than do adolescents in the other study countries. Youth in the study countries obtain contraceptive services and supplies from a variety of providers, including physicians, nurse clinicians and clinics that either provide care to women and men of all ages or serve adolescents exclusively. No one type of contraceptive service provider appears necessarily the best for teenagers. What appears crucial to success is that adolescents know where they can go to obtain information and services, can get there easily and are assured of

Table 1: The cost of reproductive health care for teenagers varies by country and by type of service.

Service	Sweden	France	Canada	Great Britain	United States
Clinic visit	Free	Free	Free	Free	Mostly free
Private physician visit	Free	Pay full cost; insurance will reimburse 80%	Free	Free	Pay full cost; insurance may reimburse at varying levels
Pill prescription	Initial cycles free; then $1–3 per cycle	Free at clinic; $1–7 at pharmacy	Initial cycles free; then $3–11 per cycle	Free	Free or discounted at clinics; $5–35 per cycle at pharmacy

receiving confidential, nonjudgmental care, and that these services and contraceptive supplies are free or cost very little.

In all five countries, teenagers seeking contraceptive services from clinic providers are guaranteed confidentiality, both legally and in practice. However, in the United States, numerous attempts to reverse this policy have been made at the national and state levels. While private physicians are usually legally protected from liability for serving minors on their own consent, there is little information about whether they always provide confidential care. Regulations in Great Britain state that physicians may prescribe contraceptives for an adolescent younger than 16 if it is in her best medical interest and she can give informed consent, but controversy about the standards and changes in policy guidelines have left many youth confused about whether they can obtain care confidentially from clinics or from private physicians.

Contraceptive services and supplies are free or low-cost in Sweden, France, Canada and Great Britain. In the United States, the cost of care and supplies can be very high and depends on the type of provider; a young person's income level; whether she is covered by health insurance that includes contraceptive coverage and, if so, whether she feels comfortable with the possibility her parents will know she used that coverage (Table 1, page 5).

Providers' attitudes may influence teenagers' choice of a method. In countries other than the United States, the pill is the method usually offered to young women and most providers view oral contraceptives as the best method for adolescents and assume that young people are able to use them effectively. In the United States, almost all providers offer the pill along with a range of other methods, and many young women have turned to long-acting hormonal methods because of their own or their provider's perception that these may be easier to use successfully.

Sweden offers examples of ways to provide youth-friendly services. All Swedish providers guarantee confidentiality for young people seeking contraceptive and STD information and services; youth who seek STD testing are considered to be acting responsibly. In addition to maternal and child health clinics, youth clinics throughout the country provide primary health care, including contraceptive and STD services, and psychological counseling to adolescents. These clinics are run by nurse-midwives who have direct authority to prescribe oral contraceptives. Young people often make informational visits to these clinics as part of school programs, and the clinics offer hotlines to call for information, advice and appointments.

Other approaches have been used in France, where many family planning clinics offer sessions just for teenagers on Wednesday afternoons, when public schools throughout the country are closed. A recent government media campaign offered a hotline and brochures to help publicize government health clinics that provide free contraceptives to youth.

•In study countries other than the United States, there is easier access to abortion. There is relatively little controversy in Sweden, France, Canada and Great Britain over the provision of abortion services, which are often provided through government health services or covered by national health insurance, and which are available confidentially to teenagers, although providers often encourage young women to involve their parents. In contrast, almost all abortion services in the United States are provided by private organizations, separate from women's regular sources of medical care. Abortion is barred from coverage in federal and most state insurance programs, except in cases of rape, incest and danger to the woman's life. Many American teenagers live in states that mandate parental consent or notice, or approval by a judge, before minors can obtain abortions.

Final Thoughts

The findings suggest that improving adolescents' prospects for successful adult lives and giving them tangible reasons to view the teenage years as a time to prepare for adult roles rather than to become parents are likely to have a greater impact on their behavior than exhortative messages that it is wrong to start childbearing early. Many in the United States give little support to young people as they establish sexual relationships. They consider adolescents to be developmentally incapable of making good judgments about their own behavior and of using contraceptives and condoms effectively. In contrast, the other countries—most notably Sweden and France—appear to have clear social expectations that young people can and will make responsible decisions about sexual relationships, use contraceptives effectively, prevent STDs and obtain health services they need in a timely fashion, and that adults should provide them with guidance, support and assistance along the way. Where young people receive social support, full information and positive messages about sexuality and sexual relationships, and have easy access to sexual and reproductive health services, they achieve healthier outcomes and lower rates of pregnancy, birth, abortion and STDs.

[1] Great Britain comprises England, Scotland and Wales. Some of the study information is available only for England and Wales.

[2] Widmer ED, Treas J and Newcomb R. Attitudes toward nonmarital sex in 24 countries, *Journal of Sex Research,* 1998, 35(4):349–357.

©2001 The Alan Guttmacher Institute

The full report, *Teenage Sexual and Reproductive Behavior in Developed Countries: Can More Progress Be Made?*, and separate reports for Sweden, France, Canada, Great Britain and the United States are available for purchase. To order, call 1-800-355-0244 or 1-212-248-1111, or visit www.guttmacher.org and click "buy."

THE ALAN GUTTMACHER INSTITUTE
NEW YORK & WASHINGTON

A Not-for-Profit Corporation for Sexual and Reproductive Health Research, Policy Analysis and Public Education

120 Wall Street
New York, NY 10005
Phone: 212.248.1111
Fax: 212.248.1951
info@guttmacher.org

1120 Connecticut Avenue, N.W.
Suite 460
Washington, DC 20036
Phone: 202.296.4012
Fax: 202.223.5756
policyinfo@guttmacher.org
Web site: www.guttmacher.org

Understanding 'Abstinence': Implications for Individuals, Programs and Policies

By Cynthia Dailard

The word "sex" is commonly acknowledged to mean different things to different people. The same can be said for "abstinence." The varied and potentially conflicting meanings of "abstinence" have significant public health implications now that its promotion has emerged as the Bush administration's primary answer to pregnancy and sexually transmitted disease (STD) prevention for all people who are not married.

For those willing to probe beneath the surface, critical questions abound. What is abstinence in the first place, and what does it mean to use abstinence as a method of pregnancy or disease prevention? What constitutes abstinence "failure," and can abstinence failure rates be measured comparably to failure rates for other contraceptive methods? What specific behaviors are to be abstained from? And what is known about the effectiveness and potential "side effects" of programs that promote abstinence? Answering questions about what abstinence means at the individual and programmatic levels, and clarifying all of this for policymakers, remains a key challenge. Meeting that challenge should be regarded as a prerequisite for the development of sound and effective programs designed to protect Americans from unintended pregnancy and STDs, including HIV.

CONTRACEPTIVE EFFECTIVENESS RATES FOR PREGNANCY PREVENTION*

Contraceptive Method	Perfect Use	Typical Use
Abstinence	100	???
Female Sterilization	99.5	99.5
Oral Contraceptives	99.5–99.9**	92.5
Male Condom	97	86.3
Withdrawal	96	75.5

*Percentage of women who successfully avoid an unintended pregnancy during their first year of use. **Depending on formulation. *Sources:* Perfect use–Hatcher, RA, et al., *Contraceptive Technology,* 17th ed., 1998, page 216. Typical use–AGI, *Fulfilling the Promise: Public Policy and U.S. Family Planning Clinics,* 2000, page 44.

Abstinence and Individuals

What does it mean to use abstinence? When used conversationally, most people probably understand abstinence to mean refraining from sexual activity—or, more specifically, vaginal intercourse—for moral or religious reasons. But when it is promoted as a public health strategy to avoid unintended pregnancy or STDs, it takes on a different connotation. Indeed, President Bush has described abstinence as "the surest way, and the only completely effective way, to prevent unwanted pregnancies and sexually transmitted disease." So from a scientific perspective, what does it mean to abstain from sex, and how should the "use" of abstinence as a method of pregnancy or disease prevention be measured?

Population and public health researchers commonly classify people as contraceptive users if they or their partner are consciously using at least one method to avoid unintended pregnancy or STDs. From a scientific standpoint, a person would be an "abstinence user" if he or she *intentionally* refrained from sexual activity. Thus, the subgroup of people consciously using abstinence as a method of pregnancy or disease prevention is obviously much smaller than the group of people who are not having sex. The size of the population of abstinence users, however, has never been measured, as it has for other methods of contraception.

When does abstinence fail? The definition of an abstinence user also has implications for determining the effectiveness of abstinence as a method of contraception. The president, in his July 2002 remarks to South Carolina high school students, said "Let me just be perfectly plain. If you're worried about teenage pregnancy, or if you're worried about sexually transmitted disease, abstinence works every single time." In doing so, he suggested that abstinence is 100% effective. But scientifically, is this in fact correct?

Researchers have two different ways of measuring the effectiveness of contraceptive methods. "Perfect use" measures the effectiveness when a contraceptive is used exactly according to clinical guidelines. In contrast, "typical use" measures how effective a method is for the average person who does not always use the method correctly or consistently. For example, women who use oral contraceptives perfectly will experience almost complete protection against pregnancy. However, in the real world, many women find it difficult to take a pill every single day, and pregnancies can and do occur to women who miss one or more pills during a cycle. Thus, while oral contraceptives have a perfect-use effectiveness rate of over 99%, their typical-use effectiveness is closer to 92% (see chart). As a result, eight in 100 women who use oral contraceptives will become pregnant in the first year of use.

Thus, when the president suggests that abstinence is 100% effective, he is implicitly citing its perfect-use rate—and indeed, abstinence *is* 100% effective if "used" with perfect

consistency. But common sense suggests that in the real world, abstinence as a contraceptive method can and does fail. People who intend to remain abstinent may "slip" and have sex unexpectedly. Research is beginning to suggest how difficult abstinence can be to use consistently over time. For example, a recent study presented at the 2003 annual meeting of the American Psychological Society (APS) found that over 60% of college students who had pledged virginity during their middle or high school years had broken their vow to remain abstinent until marriage. What is not known is how many of these broken vows represent people consciously choosing to abandon abstinence and initiate sexual activity, and how many are simply typical-use abstinence failures.

To promote abstinence, its proponents frequently cite the allegedly high failure rates of other contraceptive methods, particularly condoms. By contrasting the perfect use of abstinence with the typical use of other contraceptive methods, however, they are comparing apples to oranges. From a public health perspective, it is important both to subject abstinence to the same scientific standards that apply to other contraceptive methods and to make consistent comparisons across methods. However, researchers have never measured the typical-use effectiveness of abstinence. Therefore, it is not known how frequently abstinence fails in the real world or how effective it is compared with other contraceptive methods. This represents a serious knowledge gap. People deserve to have consistent and accurate information about the effectiveness of all contraceptive methods. For example, if they are told that abstinence is 100% effective, they should also be told that, if used correctly and consistently, condoms are 97% effective in preventing pregnancy. If they are told that condoms fail as much as 14% of the time, they should be given a comparable typical-use failure rate for abstinence.

What behaviors should be abstained from? A recent nationally representative survey conducted by the Kaiser Family Foundation and *seventeen* magazine found that half of all 15–17-year-olds believed that a person who has oral sex is still a virgin. Even more striking, the APS study found that the majority (55%) of college students pledging virginity who said they had kept their vow reported having had oral sex. While the pledgers generally were somewhat less likely to have had vaginal sex than non-

Abstinence is 100% effective if 'used' with perfect consistency. But common sense suggests that in the real world, it can and does fail.

pledgers, they were equally likely to have had oral or anal sex. Because oral sex does not eliminate people's risk of HIV and other STDs, and because anal sex can heighten that risk, being technically abstinent may therefore still leave people vulnerable to disease. While the press is increasingly reporting that noncoital behaviors are on the rise among young people, no research data exists to confirm this.

Abstinence Education Programs

Defining and communicating what is meant by abstinence are not just academic exercises, but are crucial to public health efforts to reduce people's risk of pregnancy and STDs. For example, existing federal and state abstinence-promotion policies typically neglect to define those behaviors to be abstained from. The federal government will provide approximately $140 million in FY 2004 to fund education programs that exclusively promote "abstinence from sexual activity outside of marriage" ("Abstinence Promotion and Teen Family Planning: The Misguided Drive for Equal Funding," *TGR,* February 2002, page 1). The law, however, does not define "sexual activity." As a result, it may have the unintended effect of promoting noncoital behaviors that leave young people at risk. Currently, very little is known about the relationship between abstinence-promotion activities and the prevalence of noncoital activities. This hampers the ability of health professionals and policymakers to shape effective public health interventions designed to reduce people's risk.

There is no question, however, that increased abstinence—meaning delayed vaginal intercourse among young people—has played a role in reducing both teen pregnancy rates in the United States and HIV rates in at least one developing country. Research by The Alan Guttmacher Institute (AGI) indicates that 25% of the decrease in the U.S. teen pregnancy rate between 1988 and 1995 was due to a decline in the proportion of teenagers who had ever had sex (while 75% was due to improved contraceptive use among sexually active teens). A new AGI report also shows that declines in HIV-infection rates in Uganda were due to a combination of fewer Ugandans initiating sex at young ages, people having fewer sexual partners and increased condom use (see related story, page 1).

But abstinence proponents frequently cite both U.S. teen pregnancy declines and the Uganda example as "proof" that abstinence-only education programs, which exclude accurate and complete information about contraception, are effective; they argue that these programs should be expanded at home and exported overseas. Yet neither experience, in and of itself, says anything about the effectiveness of pro-

grammatic interventions. In fact, significant declines in U.S. teen pregnancy rates occurred prior to the implementation of government-funded programs supporting this particularly restrictive brand of abstinence-only education. Similarly, informed observers of the Ugandan experience indicate that abstinence-only education was not a significant program intervention during the years when Uganda's HIV prevalence rate was dropping. Thus, any assumptions about program effectiveness, and the effectiveness of abstinence-only education programs in particular, are misleading and potentially dangerous, but they are nonetheless shaping U.S. policy both here and abroad (see related story, page 13).

To date, no education program focusing exclusively on abstinence has shown success in delaying sexual activity.

Accordingly, key questions arise about how to measure the success of abstinence-promotion programs. For example, the administration is defining program success for its abstinence-only education grants to community and faith-based organizations in terms of shaping young people's intentions and attitudes with regard to future sexual activity. In contrast, most public health experts stress the importance of achieving desired behavioral outcomes such as delayed sexual activity.

To date, however, no education program in this country focusing exclusively on abstinence has shown success in delaying sexual activity. Perhaps some will in the future. In the meantime, considerable scientific evidence already demonstrates that certain types of programs that include information about both abstinence and contraception help teens delay sexual activity, have fewer sexual partners and increase contraceptive use when they begin having sex. It is not clear what it is about these programs that leads teens to delay—a question that researchers need to explore. What is clear, however, is that no program of any kind has ever shown success in convincing young people to postpone sex from age 17, when they typically first have intercourse, *until marriage,* which typically occurs at age 25 for women and 27 for men. Nor is there any evidence that the "wait until marriage" message has any impact on young people's decisions regarding sexual activity. This suggests that scarce public dollars could be better spent on programs that already have been proven to achieve delays in sexual activity of any duration, rather than on programs that stress abstinence until marriage.

Finally, there is the question of whether delays in sexual activity might come at an unacceptable price. This is raised by research indicating that while some teens promising to abstain from sex until marriage delayed sexual activity by an average of 18 months, they were more likely to have unprotected sex when they broke their pledge than those who never pledged virginity in the first place. Thus, might strategies to promote abstinence inadvertently heighten the risks for people when they eventually become sexually active?

Difficult as it may be, answering these key questions regarding abstinence eventually will be necessary for the development of sound and effective programs and policies. At a minimum, the existing lack of common understanding hampers the ability of the public and policymakers to fully assess whether abstinence and abstinence education are viable and realistic public health and public policy approaches to reducing unintended pregnancies and HIV/STDs.

This is the fourth in a series of articles examining emerging issues in sex education and related efforts to prevent unintended pregnancy and sexually transmitted diseases. The series is supported in part by a grant from the Program on Reproductive Health and Rights of the Open Society Institute. The conclusions and opinions expressed in these articles, however, are those of the author and The Alan Guttmacher Institute.

71 Effects of a Parent-Child Communications Intervention on Young Adolescents' Risk for Early Onset of Sexual Intercourse
Susan M. Blake, Linda Simkin, Rebecca Ledsky, Cheryl Perkins and Joseph M. Calabrese
Family Planning Perspectives, 2001, 33(2):52–61

81 No Sexuality Education is Sexuality Education
Stanley Snegroff
Family Planning Perspectives, 2001, 32(5):257–258

83 Teenage Partners' Communication About Sexual Risk and Condom Use: The Importance of Parent-Teenager Discussions
Daniel J. Whitaker, Kim S. Miller, David C. May and Martin L. Levin
Family Planning Perspectives, 1999, 31(3):117–121

88 Family Communication About Sex: What Are Parents Saying and Are Their Adolescents Listening?
Kim S. Miller, Beth A. Kotchick, Shannon Dorsey, Rex Forehand and Anissa Y. Ham
Family Planning Perspectives, 1998, 30(5):218–222 & 235

94 Studying Parental Involvement in School-Based Sex Education: Lessons Learned
Diana P. Oliver, Frank C. Leeming and William O. Dwyer
Family Planning Perspectives, 1998, 30(3):143–147

ARTICLES

Effects of a Parent-Child Communications Intervention on Young Adolescents' Risk for Early Onset of Sexual Intercourse

By Susan M. Blake, Linda Simkin, Rebecca Ledsky, Cheryl Perkins and Joseph M. Calabrese

Context: *The quality of parent-child communications about sex and sexuality appears to be a strong determinant of adolescents' sexual behavior. Evaluations of interventions aimed at improving such communications can help identify strategies for preventing early onset of sexual behavior.*

Methods: *A school-based abstinence-only curriculum was implemented among 351 middle school students, who were randomly assigned to receive either the classroom instruction alone or the classroom instruction enhanced by five homework assignments designed to be completed by the students and their parents. An experimental design involving pretest and posttest surveys was used to assess the relative efficacy of the curriculum delivered with and without the parent-child homework assignments.*

Results: *In analyses of covariance controlling for baseline scores, immediately after the intervention, adolescents who received the enhanced curriculum reported greater self-efficacy for refusing high-risk behaviors than did those who received the classroom instruction only (mean scores, 16.8 vs. 15.8). They also reported less intention to have sex before finishing high school (0.4 vs. 0.5), and more frequent parent-child communications about prevention (1.6 vs. 1.0) and sexual consequences (1.6 vs. 1.1). In all significant comparisons, the direction of the findings favored adolescents who received the enhanced curriculum. Dose-response relationships supported the findings.*

Conclusions: *Parent-child homework assignments designed to reinforce and support school-based prevention curricula can have an immediate impact on several key determinants of sexual behavior among middle school adolescents.*

Family Planning Perspectives, 2001, 33(2):52–61

The extent to which parents are involved and the manner in which they are involved in their children's lives are critical factors in the prevention of high-risk sexual activity. Children whose parents talk with them about sexual matters or provide sexuality education or contraceptive information at home are more likely than others to postpone sexual activity. And when these adolescents become sexually active, they have fewer sexual partners and are more likely to use contraceptives and condoms than young people who do not discuss sexual matters with their parents, and therefore are at reduced risk for pregnancy, HIV and other sexually transmitted diseases (STDs).[1]

The positive effects of parent-child communications appear to be mediated by several critical factors: the frequency and specificity of communications;[2] the quality and nature of exchanges;[3] parental knowledge, beliefs and comfort with the subject matter;[4] and the content and timing of communications (for example, whether they take place before the young person initiates sexual activity).[5] A number of more general indices of family structure and relationship quality also play a role in adolescent sexual behavior. These include family cohesion or closeness;[6] family structure;[7] parenting style, including parental monitoring, supervision or coercion;[8] and general parent-child communication patterns.[9] Thus, while the precise mechanisms whereby parental communications influence adolescent sexual behavior have not been fully determined, the preponderance of evidence regarding communication effectiveness supports the important role that parents can play in preventing early sexual onset.

Previous investigators have suggested that efforts to increase parent-child communications should parallel the HIV, STD and pregnancy prevention education that is provided in schools.[10] Although multiple strategies and programs to increase parent-child communication have been described in the literature,[11] relatively few have been evaluated. Programs designed to increase parent-child communications about HIV, sexuality or sexual abuse have been effective in elevating parental knowledge;[12] building communication confidence and skills, as well as intentions to discuss sexuality;[13] and raising the frequency or quality of parent-child communications about sex and sexuality.[14] The few studies that have reported an impact on the sexual attitudes, skills or behaviors of participating children have documented generally positive results.[15] Yet, none of these studies clearly demonstrated a direct impact of parent-child communication on adolescent intentions, other potential mediators or sexual behavior, and few discussed how self-selection may have influenced the makeup of the groups of parents and children participating or the nature of the parent-child communication.

In summary, the quality of parent-child relationships and parenting style in general, and communications about sex and sexuality more specifically, appear to be strong determinants of adolescent sexual

Susan M. Blake is associate research professor, Department of Prevention and Community Health, The George Washington University Medical School, School of Public Health and Health Services, Washington, DC; Linda Simkin is senior program officer, Academy for Educational Development (AED), New York; Rebecca Ledsky is research and evaluation officer, AED, Washington, DC; Cheryl Perkins is director of youth programs, Prevention Partners, Rochester, NY; and Joseph M. Calabrese is executive director, Prevention Partners. The authors acknowledge the important contributions of Catherine M. Shisslak, Kim S. Miller, Andrew S. Doniger, Susan Rogers, Tom Lehman, Paula Hollerbach, Cookie Waller and Brenda Jagatic. The work on which this article was based was supported by contract APH 000391-01-0 from the Office of Adolescent Pregnancy Programs, U.S. Department of Health and Human Services.

behavior. Relationships to adolescent sexual behavior have been found in both cross-sectional and prospective studies, particularly when parent-child communications were characterized as being "open and receptive." Given the consistency of these findings, it is rather surprising that so few interventions have been developed and tested for effectiveness in improving parent-child communications related to sex and sexuality, and consequently adolescent sexual behavior.

We sought to develop such an intervention targeting younger adolescents, the majority of whom were not yet sexually experienced, to prevent early onset of sexual intercourse. Five homework assignments, each involving parental participation, were developed to reinforce and support a standard abstinence-only curriculum, entitled Managing the Pressures Before Marriage (MPM), that was being used in middle schools. Social learning and social cognitive theoretical constructs were applied to involve parents in reinforcing the skills and information that children learned in class, and in clearly specifying and modeling expected behaviors.[16]

The purpose of this study was to assess the effectiveness of these homework assignments delivered in conjunction with the curriculum (referred to here as MPM-enhanced) as compared with the effectiveness of the school-based curriculum alone (MPM only). We hypothesized that the enhanced intervention would be more effective in changing adolescent beliefs, self-efficacy and intentions to delay sexual onset than the curriculum alone. Specifically, we expected that students receiving the homework assignments would, as a result, not only communicate more often with their parents about these issues, but also express stronger beliefs supporting abstinence, greater self-efficacy and firmer intentions to remain abstinent than those who received the standard curriculum only.

Methods

Intervention Description

The MPM curriculum, developed by the Center for Adolescent Reproductive Health at Grady Memorial Hospital, is a modified version of Postponing Sexual Involvement (PSI), a skills-based curriculum that has been tested and found to be effective.[17] Early studies demonstrated PSI's acceptability and its contribution to adolescents' decisions to postpone sex.[18] Among lower-income, minority adolescents of middle school age, PSI reduced the proportion initiating sexual intercourse (4% in the intervention group vs. 20% in the comparison group), but it had no discernible impact on adolescents who were already sexually active. While results were less impressive after one year, group differences remained significant, particularly among females.[19]

MPM and PSI use basically the same content and instructional methods. Both consist of five one-hour sessions led by pairs of trained youth leaders. Both address risks of early sexual involvement, social and media pressures to become sexually active, and assertiveness and communication skills an adolescent needs to resist peer pressure. Instructional strategies include brainstorming, critical analysis, role-playing, and skill training and rehearsal. The only significant difference between these two curricula is that MPM reinforces the message that abstinence until marriage is the expected standard of behavior, whereas PSI provides a general message that students should postpone sexual intercourse without specifying for how long.

The five homework assignments were developed on the basis of formative research. Focus groups were conducted with parents and adolescents, and the lessons, other available curricula and scientific literature related to parent-child communications about sexuality and sexual behavior were reviewed. The homework assignments were designed to increase parents' understanding of the changes and pressures that their children of middle school age face; facilitate open and receptive parent-child communications about sex and sexuality; increase parents' ability to encourage their children to avoid or resist peer pressure to become sexually active; and build parents' and children's skills in identifying and reducing the risks of pregnancy, HIV and other STDs. The assignments did not stress abstaining from sex until marriage. (Details of each assignment are described in the appendix, page 60).

Like the school-based curriculum, the strategies and activities developed for the homework assignments were based upon principles of social learning theory. Communication exercises were aimed at facilitating new parent-child exchanges, encouraging interpersonal learning, increasing equity and exchange during parent-child communications, and shifting habitual ways of communicating and thinking about these issues. For example, both parents and children were encouraged to discuss challenges they face, to talk about their wishes for one another and to compare their responses to similar questions (such as what kinds of qualities to look for in close friendships or dating relationships). Activities included structured communications, modeling, demonstration and rehearsal.

Procedures

Active parental consent procedures were used. All parents were offered the opportunity to exempt their child from participation in a class where instruction would be based on an abstinence-only pregnancy prevention curriculum. (Only one parent refused.) Along with the consent form, parents of children in the MPM-enhanced group received copies of the homework assignments.

Youth leaders were recruited from local high schools by means of morning or afternoon announcements; interested students were invited to attend an informational meeting after school that described the basic program and youth leader responsibilities. Contacts at the high schools (usually health or home economics teachers) also recruited students who they thought might be interested and would do a good job. Of the 38 students who participated, 25 were female and 36 were white; 28 were in grades 10 and 11, six were in ninth grade and four were in 12th grade.

Youth leaders received 30 hours of training before conducting MPM classroom sessions. In general, one pair of leaders was assigned to each classroom, but on occasion, one leader filled in for another in a different classroom. One program staff member attended and assisted with each lesson. Youth leaders were aware that some classes were receiving homework assignments and some were not. However, they were not given detailed information regarding why, nor was there any evidence that their presentation of the lessons changed as a result of differences in classroom assignment. The lessons were implemented in five weekly sessions and were identical for classes receiving MPM alone and those receiving the enhanced intervention.

Additional coordination activities were required in the MPM-enhanced group. Project staff introduced the first parent-child homework assignment immediately after students completed the baseline survey, and before the classroom sessions began. The difficulties both adolescents and parents have when talking about sex or sexuality-related topics were acknowledged, and students' concerns and questions about talking to their parents

were addressed. Students who felt uncomfortable talking with their parents were encouraged to complete the assignments with a project staff member or another adult. The remaining homework assignments were completed after each of the first four classroom sessions so that the last one could be reviewed on the final day of class.

After each lesson, if time permitted, program staff asked the students general questions about the homework assignment (e.g., whether they completed it and liked the activities). Staff acknowledged that the lessons generally left little time to go into specifics about the homework activities. Students were reminded at the end of each session to complete at least one activity in the next assignment before the next class.

Study Design and Data Collection

The relative efficacy of the MPM curriculum delivered with and without the five parent-child homework assignments was assessed by means of an experimental design in which study and comparison groups in the same schools were examined before and after the intervention. Once we had obtained administrative approval in three middle schools, we randomly assigned (by quarter marking period within schools) 19 eighth-grade health or family and consumer science classrooms to receive either the curriculum only or the curriculum plus the five parent-child homework assignments during the 1998–1999 school year. Because the number of classrooms available in each school was smaller than we would have preferred, and we wished to maximize exposure to the parent-child homework assignments, eight classrooms received the curriculum only, and 11 received the enhanced intervention.

One week prior to the intervention, project staff introduced the study to students, explained that it involved two surveys, and stressed the confidential and voluntary nature of students' responses and participation. Students completed baseline surveys at this time. Postintervention surveys were administered seven weeks later, within one week following completion of the MPM curriculum.

Survey questionnaires were collected from 389 students at baseline and from 410 students immediately postintervention. The analyses presented here include only the subset of 351 adolescents from whom we collected both questionnaires—190 who received the enhanced curriculum and 161 who received MPM only. The preintervention sample was equally divided by gender (males, 52%; and females, 48%); the majority of adolescents were white and non-Hispanic (85%). Students lived in predominantly middle-class suburban communities outside Rochester, New York. No additional demographic data were collected because of programmatic constraints and a desire to reduce the burden on respondents and the time required to complete the survey.

Three forms in addition to the survey questionnaires were used to gather data: an attendance form, which project staff completed at each session; a homework form, which students in the MPM-enhanced group were asked to fill out with their parents after completing each assignment; and a form given to students who did not return a homework form, to document that the assignment had not been completed. Linkages among data sources, as well as participants' confidentiality, were facilitated by unique identification numbers staff assigned to each student on the basis of classroom enrollment data.

Homework forms included questions regarding which lesson activities were completed, the date of completion, and what the student and parent separately liked or disliked about the lesson. A space was provided, if an activity was not completed, to explain why not. The bottom of the form contained a line for both the parent and the child to sign, verifying completion (or not) of each assignment.

Because of initial difficulties in retrieving homework forms, incentives were provided for their completion. For each form students returned, they were given one ticket for a raffle at the end of the intervention; prizes (e.g., a family pack of four tickets to the movies or a video arcade) had been voted upon by each class. Students who turned in forms could also select one item from a "goodie box" filled with candy bars, markers, key chains, pens and stickers. Those who did not turn in a signed homework form but completed a form describing whether the assignment was completed or the reason for noncompletion were given a lesser incentive.

A total of 642 homework forms and noncompletion forms were returned—68% of the possible 950 (190 students for each of five sessions). Of these, 492 indicated that some portion of the assignment was completed, and 41 that the assignment had not been completed; 109 forms were unclear as to whether the assignment had been completed.

The proportion of returned homework forms was 78% for the first session, but it declined steadily, to 58% for the last session. Similarly, the proportion of students who completed the homework assignments was 65% for the first session, but it declined for each session thereafter (to 38% for the final session).

Measures

The independent variable in this study was treatment condition (MPM-enhanced vs. MPM only). Dependent variables were multiple determinants of sexual onset, characteristics of parent-child communication about sex and risk-related behaviors. The survey also asked about students' age, grade, race or ethnicity, and average grades in school.*

- *Knowledge.* Two knowledge items that may influence when young people initiate sexual intercourse were assessed: students' perceptions of the effectiveness of abstinence as a preventive method and of the risks of pregnancy the first time one has sexual intercourse.
- *Sexual beliefs and attitudes.* A variety of measures assessing beliefs about sex and perceptions of norms were grouped into summary scales. Three scales are based on items for which possible responses ranged from one (indicating strong agreement) to four (strong disagreement): overall sexual beliefs (14 items; alpha=.78), personal beliefs that support delaying sexual intercourse (eight items; alpha=.77) and perceived peer beliefs supporting such delay (three items; alpha=.67). Three items independently measured perceptions that substance use increases risk taking, that adolescents who have had sexual intercourse will expect it from their next partner and that the media encourage adolescent sex; possible responses ranged from one (strongly agree) to four (strongly disagree) for the first two items and from one (strongly disagree) to four (strongly agree) for the third. Adolescents' perceptions of the number of males and females in their school who had ever had sexual intercourse (with response options ranging from zero, indicating none, to four, indicating almost all) were combined into a summary scale (two items; alpha=.88).
- *Self-efficacy for refusal/avoidance.* We asked adolescents to rate how sure they were that they could refuse or avoid hypothetical situations involving peer or partner

*Copies of the survey are available from Susan M. Blake, The George Washington University Medical School, School of Public Health and Health Services, 2175 K St. NW, Suite 700, Washington, DC 20037.

pressure to drink alcohol, use drugs or engage in sexual intercourse; possible responses ranged from one (very unsure) to four (very sure). We constructed individual scales to reflect overall self-efficacy (five items; alpha=.83) and self-efficacy related to substance use (two items; alpha=.70) and sexual avoidance or refusal (three items; alpha=.77).

• *Behavioral intentions.* We asked adolescents to rate the likelihood that they would have sex before finishing middle school and before finishing high school; possible responses ranged from one (no chance) to four (already have). Using only responses from sexually inexperienced students, we combined these measures into a summary scale (two items; alpha=.84). Two additional items, both rated on a five-point scale ranging from one (definitely not) to five (definitely would), were combined into one scale (alpha=.87) measuring the likelihood of sexual intercourse under specific circumstances—that is, "if you had sexual feelings for someone you liked" and "if someone you liked wanted to have sex with you."

• *Parent-child communications.* Adolescents rated their comfort in talking with their parents about sex on a scale ranging from one (very uncomfortable) to four (very comfortable). We assessed the frequency of conversations in which parents addressed nine specific topics (how they expected their child to behave when it comes to having sex; abstinence; developing positive relationships; body changes during puberty; reasons to wait to have sex; and ways to avoid sexual pressure situations, to refuse sex, to avoid HIV and other STDs, and to prevent pregnancy). Responses, ranging from zero (never) to three (six or more), were combined into five variables: a single item on communications about puberty and physiological changes, and summary scales measuring the overall frequency of communications (nine items; alpha=.90) and the frequency of communications about sexual expectations (four items; alpha=.80), prevention strategies (two items; alpha=.91) and consequences of sexual intercourse (two items; alpha=.83). Two items separately measured the extent to which students discussed with their parents what they learned in class or worked on for a homework assignment.*

• *Sexual opportunities.* Adolescents rated how often in the previous three months they were exposed to each of two situations that we classified as "potentially sexual" (i.e., someone pressured them to drink alcohol or use drugs, and someone tried to get them into a situation where sex might occur) and three situations that we categorized as "sexual" (i.e., they kissed or touched someone sexually, someone tried to have intercourse with them and they tried to have intercourse with someone). Scales were developed to measure exposure to the "potentially sexual situations" (two items; alpha=.77) and the "sexual situations" (three items; alpha=.71), and overall exposure to any situations (five items; alpha=.84).

• *Avoidance or refusal in high-risk sexual situations.* We also assessed how often adolescents who were exposed to high-risk situations refused to engage in risky behavior. Six variables indicate what proportion of times adolescents refused risky behavior overall (six items, alpha=.89), in potentially sexual situations (two items; alpha=.69) and in sexual situations (four items; alpha=.87).

• *Substance use and sexual behaviors.* Two variables were created from one survey item to reflect lifetime and recent alcohol use. Responses for lifetime use were coded from one (never had alcohol) to seven (drank alcohol on 20–30 of the past 30 days); for recent use, responses were coded from zero (no use in the past 30 days) to five (drank on 20–30 of the past 30 days). Separate items assessed whether adolescents had ever had sexual intercourse, whether they had had intercourse in the past three months, their lifetime number of partners and the regularity with which they used condoms; only the first two of these items were used in this study because of the small number of students who reported sexual intercourse. One item assessed the number of times that adolescents "went further, sexually," than they really wanted to in the past three months.

Table 1. Percentage of students reporting specific knowledge or behaviors, or mean score (and standard deviation) for dependent variables, at baseline and posttest surveys

Variable	Baseline	Posttest
Knowledge		
Abstinence effectiveness (%)	69.7	86.9****
Pregnancy risk (%)	86.9	91.4
Sexual beliefs and attitudes		
Overall beliefs supporting delay	42.3 (6.7)	43.3 (7.4)
Personally support delay	26.6 (4.6)	26.9 (4.9)
Friends/peers support delay	8.5 (2.3)	8.8 (2.4)*
Substance use increases risk-taking	2.1 (1.0)	2.0 (1.0)
Expect sex if had sex before	2.4 (0.9)	2.3 (1.0)
Media encourage adolescent sex	2.9 (1.0)	3.4 (0.9)***
Perceive fewer sexually active peers	1.1 (0.8)	1.1 (0.8)
Self-efficacy for refusal/avoidance		
Overall	15.7 (4.1)	16.3 (3.9)
Substance refusal/avoidance	6.4 (1.8)	6.5 (1.8)
Sexual refusal/avoidance	9.4 (2.5)	9.8 (2.4)*
Behavioral intentions		
Likely to have sex before finishing H.S.	0.6 (0.6)	0.5 (0.6)**
Likelihood of intercourse (if attracted to an individual)	2.3 (2.2)	2.1 (2.3)
Parent-child communications		
Comfort communicating with parents about sex	2.5 (1.1)	2.6 (1.0)*
Frequency of communication about sex†		
Overall	6.0 (5.9)	6.5 (6.3)
Puberty/physiological changes	0.7 (0.9)	0.7 (0.9)
Sexual expectations	2.9 (2.8)	3.2 (3.0)
Prevention strategies	1.0 (1.6)	1.3 (1.7)
Consequences of sexual intercourse	1.4 (1.8)	1.4 (1.8)
Frequency of discussions about class activities		
Class lessons	na	2.2 (1.0)
Homework assignments	na	2.1 (1.2)
Sexual opportunities†		
No. of potentially sexual situations	1.3 (1.9)	1.3 (1.8)
No. of sexual situations	1.6 (2.2)	1.5 (2.2)
Avoided/refused high-risk or sexual situations‡		
Overall	72.4 (44.7)	77.8 (56.9)
Refused potentially sexual situations	74.0 (55.8)	63.9 (49.7)
Refused sexual situations	75.1 (51.7)	86.5 (64.6)
Substance use and sexual behaviors		
Lifetime alcohol use	2.0 (1.2)	2.1 (1.5)
Recent alcohol use§	0.4 (0.9)	0.5 (1.2)
Went further sexually than wanted to‡	1.5 (0.7)	1.6 (0.6)
Ever had sexual intercourse (%)	5.7	6.4
Recent sexual intercourse (%)†	2.0	4.4

*p≤.05. **p≤.01. ***p≤.001. ****p≤.0001. †In the past three months. ‡Among those in these situations in the past three months. §In the past 30 days. *Note:* na=not applicable.

Data Analysis

Basic frequencies and means were calculated for each variable and summary scale on the baseline and postintervention surveys. Interitem correlation coefficients for each scale were calculated from pretest data, using Cronbach's alpha. T-tests for mean differences, kappa statistics and McNemar tests for nonindependent samples were used to assess changes in knowledge, attitudes, intentions and practices from baseline to postintervention.

*Although students in the MPM-only group did not receive homework assignments to complete with their parents, they may have shared with their parents workbooks or other materials that they received as part of their work in class.

Table 2. Percentage of students reporting specific knowledge or behaviors, or adjusted mean score (and standard error) for dependent variables, by intervention group, posttest survey

Variable	MPM-only	MPM-enhanced	F
Knowledge			
Abstinence effectiveness (%)	87.2 (2.6)	84.6 (2.6)	ns
Pregnancy risk (%)	91.8 (2.0)	92.9 (2.0)	ns
Sexual beliefs and attitudes			
Overall beliefs supporting delay	43.5 (0.40)	43.3 (0.37)	ns
Personally support delay	26.9 (0.28)	27.1 (0.26)	ns
Friends/peers support delay	8.8 (0.15)	9.0 (0.14)	ns
Substance use increases risk-taking	2.1 (0.07)	1.9 (0.07)	ns
Expect sex if had sex before	2.4 (0.07)	2.2 (0.06)	3.6*
Media encourage adolescent sex	3.4 (0.06)	3.3 (0.06)	ns
Perceive fewer sexually active peers	1.1 (0.05)	1.1 (0.05)	ns
Self-efficacy for refusal/avoidance			
Overall	15.8 (0.24)	16.8 (0.22)	10.3**
Substance refusal/avoidance	6.2 (0.12)	6.8 (0.11)	10.7***
Sexual refusal/avoidance	9.6 (0.15)	10.2 (0.14)	7.5**
Behavioral intentions			
Likely to have sex before finishing H.S.	0.5 (0.03)	0.4 (0.03)	8.3**
Likelihood of intercourse (if attracted to an individual)	2.2 (0.12)	1.9 (0.11)	ns
Parent-child communications			
Comfort communicating with parents about sex	2.6 (0.07)	2.7 (0.06)	ns
Frequency of communication about sex†			
Overall	5.8 (0.39)	7.2 (0.37)	6.9**
Puberty/physiological changes	0.7 (0.06)	0.7 (0.06)	ns
Sexual expectations	3.0 (0.19)	3.4 (0.19)	ns
Prevention strategies	1.0 (0.11)	1.6 (0.11)	13.3***
Consequences of sexual intercourse	1.1 (0.11)	1.6 (0.11)	8.0**
Frequency of discussions about class activities			
Class lessons	1.8 (0.08)	2.5 (0.08)	29.7****
Homework assignments	1.3 (0.08)	2.9 (0.07)	241.8****
Sexual opportunities†			
No. of potentially sexual situations	1.3 (0.11)	1.3 (0.10)	ns
No. of sexual situations	1.5 (0.13)	1.5 (0.12)	ns
Avoided/refused high-risk or sexual situations‡			
Overall	71.6 (4.0)	72.6 (4.3)	ns
Refused potentially sexual situations	68.7 (5.4)	76.3 (5.6)	ns
Refused sexual situations	73.9 (4.5)	70.4 (5.4)	ns
Substance use and sexual behaviors			
Lifetime alcohol use	2.2 (0.08)	1.9 (0.08)	5.4*
Recent alcohol use§	0.6 (0.06)	0.4 (0.06)	4.2*
Went further sexually than wanted to‡	1.5 (0.22)	1.7 (0.26)	ns
Ever had sexual intercourse (%)	7.4 (1.6)	5.1 (1.5)	ns
Recent sexual intercourse (%)†	4.5 (1.3)	3.2 (0.11)	ns

*p≤.05. **p≤.01. ***p≤.001. ****p≤.0001. †In the past three months. ‡Among those in these situations in the past three months. §In the past 30 days. *Note:* ns=not significant.

We employed two strategies to determine whether the assignments were effective. First, we used repeated-measures analyses of variance to simultaneously assess the effects of time (baseline vs. postintervention) and treatment condition (MPM-enhanced vs. MPM only). Second, we conducted analyses of covariance to assess differences after the intervention between the two treatment groups, and after controlling for the baseline values of each variable. Both analyses included all adolescents from the MPM-enhanced group, irrespective of whether they completed the parent-child homework assignments. In both instances, gender was included as an independent variable to determine whether males and females were equally likely to benefit. These results are not presented in this article, but may be found elsewhere.[20]

We initially performed standard statistical tests using SAS (data presented in tables), and then employed mixed-model analyses using SAS PROC MIXED statistical software to address potential clustering of observations. Because the probability of a type I error increases when the unit of randomization and intervention delivery is the classroom but data analyzed are from individual students, we used mixed-model procedures to confirm these results. For significant findings, we also calculated the amount of variance in outcomes explained by group membership. Finally, analyses of covariance, again controlling for the baseline value of each variable, were used to determine whether adolescents who completed more homework assignments and activities were more likely to benefit. Since students' demographic and baseline characteristics may have influenced their likelihood of completing homework assignments, we performed post-hoc comparisons, controlling for these factors, to determine whether dose-response relationships remained significant.

Results

Baseline Comparisons

No baseline differences existed between groups in race or ethnicity, age, sex or academic achievement. One-way analyses of variance indicated that the MPM-enhanced group was significantly more likely than the MPM-only group to believe that substance use increases sexual risk (2.2 vs. 2.0; p≤.05) and that the media influence adolescent sexual behavior (3.0 vs. 2.8; p≤.01); they also were more likely to say that they had gone further than they had wanted to sexually within the previous three months (1.6 vs. 1.1; p≤.01). Students in the MPM-only group were more likely than others to have been in high-risk sexual situations in the past three months (1.7 vs. 1.4; p≤.05), to report lifetime alcohol use (2.1 vs. 1.8; p≤.05) and to say that they had used alcohol recently (0.5 vs. 0.3; p≤.05). No other differences were found between groups at baseline.

Overall Change

We compared values of the dependent variables at baseline and postintervention for both treatment groups combined (Table 1, page 55). Adolescents were significantly more likely to know of the effectiveness of abstinence as a prevention strategy after the intervention (87%) than before (70%), but their level of knowledge about the risk of pregnancy at first sex did not change; nevertheless, the proportion who answered both knowledge items correctly rose from 63% to 80% (not shown). The belief that peers and friends support abstinence increased from baseline to the second survey (8.5 vs. 8.8), as did the perception that the media influence adolescent sexual behavior (2.9 vs. 3.4).

The average score reflecting self-efficacy for sexual refusal or avoidance rose significantly from the baseline to the postintervention survey (9.4 vs. 9.8), and the score for intentions to have sex before finishing high school declined (0.6 vs. 0.5). Perceived comfort communicating with parents about sex improved (2.5 vs. 2.6), but the frequency of parent-child communications about sex did not change significantly. All other measures were similar at baseline and postintervention. These results remained significant in the mixed-model analyses.

Impact of the Enhanced Curriculum

In analyses controlling for baseline values, adolescents in the MPM-enhanced group did not differ from those in the MPM-only group with respect to knowledge or most attitudinal values immediately after the intervention (Table 2). The one exception is that those in the MPM-only group were more likely than those who received the enhanced curriculum to agree that adolescents who have had sexual intercourse will always expect to have sex in their next relationship (mean scores, 2.4 and 2.2, respectively). Students in the MPM-enhanced group expressed signif-

icantly greater self-efficacy with regard to refusing or avoiding substance use and sexual behavior (16.8 vs. 15.8 overall), and were less likely to intend to have sex before completing high school (0.4 vs. 0.5).

In the postintervention survey, the two groups reported similar levels of comfort in talking to their parents about sex. As we expected, however, students in the MPM-enhanced group reported more frequent communication with their parents than did adolescents who did not receive the parent-child homework assignments (overall means, 7.2 and 5.8, respectively). This difference reflects more frequent communications about prevention strategies (1.6 vs. 1.0) and consequences of sexual intercourse (1.6 vs. 1.1). In addition to having completed the homework assignments together, adolescents in the MPM-enhanced group talked more often with parents about the class lessons (2.5 vs. 1.8).

Although the MPM-only group was more likely to have been exposed to potentially sexual or sexual situations at baseline (not shown), the analyses controlling for baseline differences revealed no group differences after the intervention in exposure to high-risk situations, refusal when exposed to high-risk sexual situations, or lifetime or recent sexual intercourse. However, students in the MPM-enhanced group had significantly lower scores than those in the MPM-only group on lifetime alcohol use (1.9 vs. 2.2) and on alcohol use in the previous three months (0.4 vs. 0.6).

In the analyses controlling for the cluster sampling design, all but two of the significant findings reported above remained significant: The belief that sexually experienced adolescents will expect sex in future relationships and recent alcohol use became marginally significant (p=.08). Although the amount of variance explained in the overall models was relatively high in both the repeated-measures analyses and the analyses of covariance (e.g., for self-efficacy, at least 40%), the variance attributable to differences between groups was small (e.g., less than 5% for self-efficacy, intentions and parent-child communications), except with regard to having talked to parents about class lessons (9%) and completing homework assignments together (45%).

Table 3. Percentage of students reporting specific knowledge or behaviors, or mean score for dependent variables, by whether any homework activities were completed

Variable	All students (N=351)	MPM-only (N=161)	Homework completed		Pairwise comparison	Overall significance
			None (N=36)	Any (N=154)		
Self-efficacy for refusal/avoidance						
Overall	16.3	15.8	16.5	17.0	a***	.05
Substance refusal/avoidance	6.5	6.2	6.4	6.9	a***	.001
Sexual refusal/avoidance	9.9	9.6	10.1	10.2	a**	.05
Behavioral intentions						
Likely to have sex before finishing high school	0.5	0.5	0.3	0.4	a,** b*	.01
Parent-child communications						
Overall frequency†	6.5	5.8	5.2	7.4	a**, c*	.01
Puberty/physiological changes†	0.7	0.7	0.6	0.7		ns
Sexual expectations†	3.2	3.0	2.0	3.6	a*, c**	.01
Prevention strategies†	1.3	1.0	1.1	1.6	a***	.001
Consequences of sexual intercourse†	1.4	1.1	1.4	1.6	a**	.05
Frequency of discussions about class activities						
Class lessons	2.2	1.8	1.4	2.6	a***, c***	.0001
Homework assignments	2.1	1.3	1.5	3.2	a***, c***	.0001
Substance use and sexual behaviors						
Lifetime alcohol use	2.0	2.2	2.1	1.8	a**	.01
Recent alcohol use‡	0.5	0.6	0.6	0.4	a**	.05
Went further sexually than wanted to go§	1.6	1.5	3.1	1.3	b**, c***	.01
Ever had sexual intercourse (%)	6.4	7.0	14.3	4.0		ns
Recent sexual intercourse (%)†	4.4	4.4	14.3	2.0	b*, c**	.001

* p≤.05. ** p≤.01. *** p≤.001. **** p≤.0001. †In the past three months. ‡In the past 30 days. §Among adolescents in this situation in the past three months. *Notes:* The "overall significance" column refers to general tests of differences between groups, whereas the "pairwise comparison" column provides the precise location of differences between groups. a=MPM-only vs. any homework; b=MPM-only vs. did no homework; c=did no homework vs. did any homework. ns=nonsignificant.

Selection Biases and Dose Response

The majority of students in the MPM-enhanced group completed at least one parent-child homework assignment: Thirty percent completed one or two assignments, and 51% completed three or more; 19% completed no assignments. Each assignment included 3–5 activities (for a total of 18 activities), but students and their parents could choose which activities to complete; therefore, not all of the activities were completed. Fifty-four percent of students completed a total of three or fewer activities, 41% completed 4–8 and 5% completed nine or more.

Using demographic information from the survey questionnaires in conjunction with information from the homework completion forms, we found several selection biases influencing the completion of homework assignments. The proportion of students who had completed no assignments was higher among black and Hispanic adolescents than among non-Hispanic whites (43% vs. 18%; p<.05), was higher among males than among females (27% vs. 9%; p<.01), and was higher among adolescents who reported recent sexual intercourse than among those who did not (63% vs. 17%; p<.001). Students who received mostly A's in school were less likely to have completed no assignments than were those with lower grades (6% vs. 28%; p<.001).

We conducted three sets of comparisons between the MPM-only and MPM-enhanced groups to test the additive effects of having completed increasing numbers of homework assignments or activities: one according to whether any homework activities were completed, one according to the number of homework activities completed (three or fewer vs. four or more) and one according to the number of assignments completed (0–1 vs. 2–3 vs. 4–5).

Results of these analyses indicate that compared with adolescents in the MPM-only group, those in the MPM-enhanced group who completed any of the homework assignments reported significantly lower intentions to become sexually active, greater self-efficacy to refuse substances and sexual intercourse, less alcohol use in the past 30 days, and a greater overall frequency of parent-child communications about sex and discussions related to the MPM classroom lessons (Table 3). Furthermore, within the enhanced intervention group, the frequency of communications in general, and communications related to sexual expectations more specifically, was significantly higher among students who completed any homework assignments than among those who completed none. No differences in exposure to potentially sexual situations

Table 4. Percentage of students reporting specific knowledge or behaviors, or mean score for dependent variables, by number of homework activities completed

Variable	All students (N=351)	MPM-only (N=161)	Activities completed		Pairwise comparison	Overall significance
			≤3 (N=102)	≥4 (N=88)		
Self-efficacy for refusal/avoidance						
Overall	16.3	15.8	16.7	16.9	a***, b**	.001
Substance refusal/avoidance	6.5	6.2	6.6	7.0	b***	.001
Sexual refusal/avoidance	9.9	9.6	10.3	10.0	a*	.01
Behavioral intentions						
Likely to have sex before finishing high school	0.5	0.5	0.4	0.4	b***	.004
Parent-child communications						
Overall frequency†	6.5	5.8	6.7	7.4	b*	.05
Puberty/physiological changes†	0.7	0.7	0.7	0.7		ns
Sexual expectations†	3.2	3.0	3.2	3.4		ns
Prevention strategies†	1.3	1.0	1.4	1.7	a*, b***	.001
Consequences of sexual intercourse†	1.4	1.1	1.5	1.7	b**	.05
Frequency of discussions about class activities						
Class lessons	2.2	1.8	2.2	2.7	a**, b***, c**	.0001
Homework assignments	2.1	1.3	2.4	3.5	a***, b**, c***	.0001
Substance use and sexual behaviors						
Lifetime alcohol use	2.0	2.2	2.0	1.8	b***	.01
Recent alcohol use‡	0.5	0.6	0.5	0.4		ns
Went further sexually than wanted to go§	1.6	1.5	2.2	0.8	c**	.05
Ever had sexual intercourse (%)	6.4	7.0	7.1	4.6		ns
Recent sexual intercourse (%)†	4.4	4.4	7.1	1.1		ns

* p≤.05. ** p≤.01. *** p≤.001. **** p≤.0001. †In the past three months.‡In the past 30 days. §Among adolescents in this situation in the past three months. *Notes:* The "overall significance" column refers to general tests of differences between groups, whereas the "pairwise comparison" column provides the precise location of differences between groups. a=MPM-only vs. ≤3 homework activities; b=MPM-only vs. ≥4 homework activities; c=≤3 vs. ≥4 homework activities.

or refusal within these situations were found (not shown).

Similar patterns were found in analyses of the number of activities and the number of assignments completed (Tables 4 and 5). Compared with adolescents in the MPM-only group, adolescents who completed more homework activities or assignments reported significantly lower intentions to become sexually active, greater self-efficacy to refuse or avoid risk behaviors, less lifetime alcohol use, more parent-child communications overall and more discussions related to the MPM classroom lessons. Within the MPM-enhanced group, incremental differences between various levels of homework completion were in the right direction on many variables, but comparisons reached statistical significance on only two variables: Students who completed fewer homework activities or assignments were less likely than those who completed more to say that they talked with their parents about the lessons and were more likely to say that they went further than they wanted to sexually.

Post-hoc analyses of these same dosage variables, controlling for selection biases in homework completion, yielded similar results. For most comparisons, significance levels remained the same or increased to include additional pairwise comparisons as significant. Only one result became nonsignificant: the intention to have sex before completing high school.

Discussion

Parent-child homework activities designed to increase communications and reinforce standard school-based pregnancy, HIV and STD prevention curricula can enhance prevention effects among children. In our assessment of the relative effectiveness of a standard abstinence-only curriculum, with or without the addition of parent-child homework assignments, we have gone beyond previous work by attempting to look at the impact of a parent-child intervention on theory-based factors empirically found to influence adolescent sexual behavior.

Although changes from baseline to immediately after the intervention were evident among all adolescents, these changes were most likely to occur among those who received the parent-child homework assignments. In all significant comparisons, the direction of the findings favored adolescents who received the enhanced curriculum. The results were supported by the dose-response analyses to the extent that adolescents in the intervention group who completed more of the homework assignments evidenced the greatest benefits. Thus, results presented in this article were quite positive and support the potential for parent-child homework interventions to have an additive effect on school-based prevention curricula.

Social learning theory and social cognitive theory posit that learning occurs through observations, personal and vicarious experiences, and interactions with the surrounding environment.[21] Behavioral consequences and feedback from the surrounding social and physical environment, and the way an individual interprets these consequences and feedback, determine future action. Over time, performance standards and moral codes become internalized through self-observation, assessment and reinforcement from oneself and others.

In this study, parents facilitated the adoption and internalization, at least on a short-term basis, of values, beliefs and behaviors that might prevent future high-risk sexual activity. The increase in parent-child communications we observed was consistent with findings from previous interventions.[22] And improvements in self-efficacy were consistent with at least one other parent-child homework intervention related to sexuality (out of three) reported in the literature that measured student outcomes.[23] The finding that adolescents who completed assignments with their parents had stronger intentions than others of remaining abstinent has not been previously reported. Given that improvements were observed on three theoretically and empirically derived determinants of behavior (i.e., parental communications about sex, self-efficacy for refusal and avoidance, and behavioral intentions to abstain from sex), this approach seems to have the potential for a longer-term impact on sexual behavior, since each of these factors is a fairly reliable predictor of the probability of sexual and other high-risk behaviors.[24]

Several findings, however, were less supportive of the efficacy of this approach. Most important, the dose-response relationships we observed were primarily between adolescents assigned to the parent-child homework intervention and those who were not. We did not observe increases in personal beliefs supporting abstinence (which other authors have found to be directly associated with sexual intentions) and consequent sexual behavior.[25] We suspect this may be partially related to the content of the belief items

included on our survey and the messages being communicated in class. Many adolescents participating in postintervention focus groups had difficulty with the "abstinence until marriage" message in the MPM curriculum, and several items endorsing this message were included in the summary scales.

Additionally, intentions to remain abstinent were observed only on global, as opposed to situation-specific, items. For example, intentions to have sex before finishing high school were lower among students who received the parent-child homework assignments than among those who participated only in the classroom work. However, no differences were found on items reflecting the likelihood of having sex with someone the adolescents "really liked." Indeed, several of the belief items also included conditional statements such as "I believe it's OK for people my age to have sex with a serious boyfriend or girlfriend." Thus, it appears that younger adolescents may already be making conditional and contextual decisions that could affect later sexual behavior; in principle, they want or intend to remain abstinent, but under certain conditions or circumstances, they may become sexually active. This may be another reason why we did not see an increase in beliefs supporting sexual delay, and it raises questions regarding when in a youth's development it is most appropriate to initiate discussions about contraception.

Finally, we did not find any differences between groups in recent sexual behaviors, most likely because of the timing of the postintervention assessment (immediately after the intervention), the low prevalence of sexual behavior among younger adolescents and the fact that changes in sexual onset or behavior can take as long as 18 months to demonstrate.[26] Only 6% of study participants had ever had sexual intercourse, and only 4% had done so within the previous three months. It remains to be seen, therefore, whether this type of intervention will have an impact on longer-term sexual behaviors or sexual onset.

Our study has several limitations, the most significant of which was the lack of a longer-term follow-up to determine whether the observed differences are sustained and whether assignment to the parent-child homework condition influenced sexual onset or behavior. Second, although our findings were confirmed in the analyses that adjusted for cluster effects due to classroom sampling,[27] the practical significance of these findings must be considered. While the amount of variance explained by the overall model for any given outcome was high, the variance attributable to differences between groups was rather small except in relation to having discussed class lessons or completed homework assignments. And although successful parent-child homework interventions have been reported in relation to other health risk behaviors, such as substance use,[28] questions have been raised about the extent to which homework assignments are powerful enough to change later behaviors.[29] Further, since our study involved a population of primarily suburban adolescents, the generalizability of the findings to more diverse, ethnic populations in urban areas is limited.

In addition, self-selection biases were clearly operative within the parent-child homework intervention condition, in that not all students completed all of the homework assignments, and those who did may have been at lower risk. These biases in many ways parallel those found in another study, in which parents who did not complete homework assignments with their child perceived their child to be at greater risk, were less certain whether their child was having sex, perceived significantly more barriers to communication and reported less self-efficacy related to parent-adolescent communication about sexual matters than parents with greater involvement.[30] Furthermore, since we encountered difficulties in collecting homework forms in later sessions, we may have underestimated the proportion of students who completed assignments, as well as the amount of discussion that occurred at home. Clearly, improvements can be made to intervention implementation and data collection to ensure that more time in each class is spent discussing and reinforcing parent-child communications and promoting completion of homework assignments by all students.

Nonetheless, the results were promising. Homework assignments designed to enhance parent-child communications and support a school-based prevention curriculum appeared to have an immediate impact on several key determinants of sexual behavior among middle school adolescents. Parent-child communica-

Table 5. Percentage of students reporting specific knowledge or behaviors, or mean score for dependent variables, by number of homework assignments completed

Variable	All students (N=351)	MPM-only (N=161)	No. of assignments completed			Pairwise comparison	Overall significance
			0–1 (N=69)	2–3 (N=44)	4–5 (N=77)		
Self-efficacy for refusal/avoidance							
Overall	16.3	15.8	16.9	16.6	17.0	a*, b**	.01
Substance refusal/ avoidance	6.5	6.2	6.7	6.5	7.0	a*, b***	.001
Sexual refusal/ avoidance	9.9	9.6	10.4	10.1	10.0		ns
Behavioral intentions							
Likely to have sex before finishing high school	0.5	0.5	0.4	0.4	0.4	b***	.01
Parent-child communications							
Overall frequency†	6.5	5.8	6.0	7.6	7.4	b*, c*	.05
Puberty/physiological changes†	0.7	0.7	0.7	0.7	0.7		ns
Sexual expectations†	3.2	3.0	2.7	3.8	3.5		ns
Prevention strategies†	1.3	1.0	1.3	1.6	1.7	b***, c*	.01
Consequences of sexual intercourse†	1.4	1.1	1.5	1.6	1.6		ns
Frequency of discussions about class activities							
Class lessons	2.2	1.8	2.0	2.6	2.7	b***, c***, d**, e***	.0001
Homework assignments	2.1	1.3	2.1	3.0	3.5	a***, b***, c***, d***, e***, f**	.0001
Substance use and sexual behaviors							
Lifetime alcohol use	2.0	2.2	1.9	2.1	1.8	a*, b**	.05
Recent alcohol use‡	0.5	0.6	0.4	0.6	0.3		ns
Went further sexually than wanted to go§	1.6	1.5	2.8	1.0	0.9	a**, d**, e***	.01
Ever had sexual intercourse (%)	6.4	7.0	10.6	2.3	3.9		ns
Recent sexual intercourse (%)†	4.4	4.4	10.6	0.0	1.3	d*, e*	.05

* p≤.05. ** p≤.01. *** p≤.001. **** p≤.0001. †In the past three months.‡In the past 30 days. §Among adolescents in this situation in the past three months. *Notes:* The "overall significance" column refers to general tests of differences between groups, whereas the "pairwise comparison" column provides the precise location of differences between groups. a=MPM-only vs. 0–1; b=MPM-only vs. 4–5; c=MPM-only vs. 2–3; d=0–1 vs. 2–3; e=0–1 vs. 4–5; f=2–3 vs. 4–5. ns=nonsignificant.

tions, self-efficacy, substance use and intentions to remain abstinent were improved. The most crucial question that our study leaves unanswered is the extent to which the changes that we observed immediately postintervention will produce longer-term changes in sexual onset and behavior. Randomized intervention trials to assess both the process and the outcomes of improved parent-child interventions are an important next step. Research on parent-child involvement in prevention interventions is still in its infancy. We are optimistic, however, that by conducting research along these lines, it may be possible to make a significant contribution to the prevention of HIV, STDs and pregnancy among adolescents.

Appendix

Homework Assignment 1

The first assignment was designed to break the ice. Parents were asked to complete this assignment with their child prior to the first classroom MPM session. Activity 1 focuses on establishing and making a commitment to the "Ground Rules for Conversation." Parents and their children review these ground rules for open communication together, and then sign a commitment sheet, agreeing to follow the rules for the remainder of the sessions. The next two activities aim to help parents and children practice discussing sensitive or personal issues before specifically discussing issues related to sex, sexuality, HIV, STD or pregnancy prevention. In activity 2, parents and children review a "Stages of Life" chart, which describes issues and challenges that arise at various developmental stages (childhood, adolescence and adulthood). Parents and children take turns discussing how these issues and experiences affect them personally. During activity 3, "Make a Wish," parents and children separately answer a series of worksheet questions about what they would like to do and be, how they want to be perceived, and what they wish for themselves and each other. They then share their responses.

Homework Assignment 2

The second assignment was designed to reinforce information covered in the first classroom MPM session. In activity 1, "Interview of Parent," children interview their parents to find out what life was like when they grew up, whether teenagers were sexually active, whom they talked to about sex, why teenagers delayed or initiated sexual activity, etc. In activity 2, students pick from a list some of the "Reasons to Wait to Have Sex" that their friends might choose, and explain why they think their friends feel that way. In activity 3, parents have an opportunity to explain why they would like their child to wait to have sex. In activity 4, parents and children together complete a worksheet on "Myths and Facts" about HIV, STD and pregnancy risks, and then review their answers against the correct answers. In activity 5, parents and their children look through magazines together to try to identify "Messages in the Media" that promote sexual activity among adolescents. Students are asked to bring copies of media advertisements to the next MPM class.

Homework Assignment 3

The third assignment was designed to increase understanding of media pressures and why some preteenagers and teenagers become sexually active, and to identify ways to handle internal pressures. In activity 1, "Messages in the Media," parents and children review and discuss advertisement portrayals of men and women, and how these advertisements directly or indirectly promote sexual activity. In activity 2, parents and children individually review a list of "Reasons for Having Sex" and check off the ones that they think motivate adolescents to become sexually active; they then compare the top three on their lists. In activity 3, parents and children explore "Ways to Handle Internal Pressures" to have sex that teenagers face (e.g., having sexual feelings and desires, wanting to belong and fearing that someone will leave you).

Homework Assignment 4

The fourth assignment was designed to increase adolescents' skills in resisting peer pressures to become sexually active. Activity 1, "What Are My Strengths?" was designed to help students build self-esteem and increase their ability to resist peer pressures. Parents and children complete separate worksheets containing questions about personal and interpersonal strengths, positive qualities, goals for the future and at least one "pressure" situation that they handled positively. Parents and children share their answers and discuss similarities and differences. In activity 2, children answer a series of questions designed to identify the qualities they look for when "Choosing Best Friends." Their answers are discussed with parents. In activity 3, "Resisting Peer Pressures," parents and children select two out of five hypothetical role-play scenarios to enact together. They read the scenario, complete a worksheet, select a role, role-play the situation, and provide feedback to one another about successes and areas for improvement. During each role-play, they are instructed to strive for the following goals: resist pressure, feel good about yourself, feel accepted by the other person and feel in control of the situation. In activity 4, "Dealing with Peer Pressures to Have Sex," parents and children identify sources of peer pressure, the types of pressure received and how to respond effectively to these pressures.

Homework Assignment 5

The fifth assignment was designed to increase adolescents' skills in being able to resist dates' or partners' pressures to become sexually active. Activity 1, "Dating—Deciding Who You Will Go Out With," was designed to help students identify the expectations they have of dating relationships (e.g., what kind of person they would like to go out with, how they would like to be treated, "red flags" to look out for and how to handle pressures). Parents and children answer questions separately and then discuss the similarities and differences in their answers. In activity 2, "Dealing with Pressures to Have Sex," students identify the types of dating partners who might put the greatest pressure on them to have sex (e.g., someone they are attracted to, they have just started dating or have been dating a long time), "pressure lines" they might hear, how they could respond and what the expected outcomes of responding in that way might be. In activity 3, "Resisting Dating Pressures," parents and students select the types of dates that would put the greatest pressure on them, and choose two of 10 corresponding role-play scenarios to enact together. Before each role-play, parents and students read the scenario out loud, answer a series of questions about the situation together, pick roles and then role-play the situation to achieve the following goals: resist pressure, feel good about yourself, feel accepted by the other person and feel in control of the situation. After each role-play scenario, parents and students give each other feedback on their thoughts and feelings during the role-play.

References

1. Adolph C et al., Pregnancy among Hispanic teenagers: is good parental communication a deterrent? *Contraception,* 1995, 51(5):303–306; Baumeister LM, Flores E and VanOss Marín B, Sex information given to Latina adolescents by parents, *Health Education Research,* 1995, 10(2):233–239; Casper LM, Does family interaction prevent adolescent pregnancy? *Family Planning Perspectives,* 1990, 22(3):109–114; Fox GL and Inazu JK, Patterns and outcomes of mother-daughter communications about sexuality, *Journal of Social Issues,* 1980, 36(1):7–29; Inazu JK and Fox GL, Maternal influence on the sexual behavior of teenage daughters: direct and indirect sources, *Journal of Family Issues,* 1980, 1(1):81–99; Jessor SL and Jessor R, Transition from virginity to nonvirginity among youth: a social-psychological study over time, *Developmental Psychology,* 1975, 11(4):473–484; Pick S and Palos PA, Impact of the family on the sex lives of adolescents, *Adolescence,* 1995, 30(119):667–675; Rodgers KB, Parenting processes related to sexual risk-taking behaviors of adolescent males and females, *Journal of Marriage and the Family*, 1999, 61(1):99–109; Sigelman CK et al., Parents' contributions to knowledge and attitudes regarding AIDS, *Journal of Pediatric Psychology,* 1993, 18(2):221–235; and Wilson MD et al., Attitudes, knowledge, and behavior regarding condom use in urban black adolescent males, *Adolescence,* 1994, 29(113):14–26.

2. Sigelman CK et al., 1993, op. cit. (see reference 1).

3. Dutra R, Miller K and Forehand R, The process and content of sexual communication with adolescents in two-parent families: associations with sexual risk taking, *AIDS and Behavior*, 1999, 3(1):59–66; Jaccard J, Dittus PJ and Gordon VV, Parent-adolescent congruency in reports of adolescent sexual behavior and in communications about sexual behavior, *Child Development*, 1998, 69(1):247–261; Kotchick BA et al., Adolescent sexual risk-taking behavior in single-parent ethnic minority families, *Journal of Family Psychology,* 1999, 13(1):93–102; Miller BC et al., Pubertal development, parental communication, and sexual values in relation to adolescent sexual behaviors, *Journal of Early Adolescence*, 1998, 18(1):27–52; Mueller KE and Powers WG, Parent-child sexual discussion: perceived communicator style and subsequent behavior, *Adolescence*, 1990, 25(98):469–482; and Whitaker DJ et al., Teenage partners' communication about sexual risk and condom use: the importance of parent-teenager discussions, *Family Planning Perspectives*, 1999, 31(3):117–121.

4. Sigelman CK et al., 1993, op. cit. (see reference 1); and Shoop DM and Davidson PM, AIDS and adolescents: the relation of parent and partner communication to adolescent condom use, *Journal of Adolescence,* 1994, 17(2): 137–148.

5. Nolin MJ and Peterson KK, Gender differences in parent-child communication about sexuality: an exploratory study, *Journal of Adolescent Research,* 1992, 7(1):59–79; Fisher TD, A comparison of various measures of family sexual communication: psychometric properties, validity, and behavioral correlates, *Journal of Sex Research,* 1993, 30(3):229–238; Jaccard J and Dittus PJ, Parent-adolescent communication about premarital pregnancy, *Families in Society*, 1993, 74(6):329–343; Levy SR et al., Young adolescent attitudes toward sex and substance use: implications for AIDS prevention, *AIDS Education and*

Prevention, 1993, 5(4):340–351; Miller KS et al., Patterns of condom use among adolescents: the impact of mother-adolescent communication, *American Journal of Public Health*, 1998, 88(10):1542–1544; and Pistella CL and Bonati FA, Communication about sexual behavior among adolescent women, their family and peers, *Families in Society*, 1998, 79(2):206–211.

6. Fox GL, The mother-adolescent daughter relationship as a sexual socialization structure: a research review, *Family Relations,* 1980, 29(1):21–27; and Resnick MD et al., Protecting adolescents from harm: findings from the National Longitudinal Study of Adolescent Health, *Journal of the American Medical Association,* 1997, 278(10):823–832.

7. Barnett JK, Papini DR and Gbur E, Familial correlates of sexually active pregnant and nonpregnant adolescents, *Adolescence,* 1991, 26(102):457–472; and Ramirez-Valles J, Zimmerman MA and Newcomb MD, Sexual risk behavior among youth: modeling the influence of prosocial activities and economic factors, *Journal of Health and Social Behavior*, 1998, 39(3):237–253.

8. Rodgers KB, 1999, op. cit. (see reference 1); Forehand R et al., Role of parenting in adolescent deviant behavior: replication across and within two ethnic groups, *Journal of Consulting and Clinical Psychology,* 1997, 65(6):1036–1041; Miller BC et al., The timing of sexual intercourse among adolescents: family, peer, and other antecedents, *Youth and Society,* 1997, 29(1):54–83; and Miller KS, Forehand R and Kotchick B, Adolescent sexual behavior in two ethnic minority samples: the role of family variables, *Journal of Marriage and the Family,* 1999, 61(1):85–98.

9. Ramirez-Valles J, Zimmerman AM and Newcomb MD, 1998, op. cit. (see reference 7); Miller KS, Forehand R and Kotchick B, 1999, op. cit. (see reference 8); and Werner-Wilson RJ, Gender differences in adolescent sexual attitudes: the influence of individual and family factors, *Adolescence,* 1998, 33(131):519–531.

10. Levy SR et al., Longitudinal comparison of the AIDS-related attitudes and knowledge of parents and their children, *Family Planning Perspectives,* 1995, 27(1):4–10; and Kirby D, Sexuality and sex education at home and school, *Adolescent Medicine*, 1999, 10(2):195–209.

11. Boettcher J and Boettcher K, Sex education for fifth and sixth graders and their parents, *American Journal of Maternal/Child Nursing,* 1978, 3(4):218–220; Kirby D, Peterson L and Brown JG, A joint parent-child sex education program, *Child Welfare,* 1982, 61(2):105–114; Santelli J et al., Bringing parents into school clinics: parent attitudes toward school clinics and contraception, *Journal of Adolescent Health,* 1992, 13(4):269–274; Snegroff S, Communicating about sexuality: a school/community program for parents and children, *Journal of Health Education,* 1995, 26(1):49–51; and Valentich M and Gripton J, Teaching children about AIDS, *Journal of Sex Education and Therapy,* 1989, 15(2):92–102.

12. Jorgensen SR, Project Taking Charge: an evaluation of an adolescent pregnancy prevention program, *Family Relations,* 1991, 40(4):373–380; Jorgensen SR, Potts V and Camp B, Project Taking Charge: six-month follow-up of a pregnancy prevention program for early adolescents, *Family Relations,* 1993, 42(4):401–406; Benshoff JM and Alexander SJ, The Family Communication Project: fostering parent-child communication about sexuality, *Elementary School Guidance and Counseling,* 1993, 27(4):288–300; and Winett RA et al., Efficacy of a home-based human immunodeficiency virus prevention video program for teens and parents, *Health Education Quarterly,* 1993, 20(4):555–567.

13. Benshoff JM and Alexander SJ, 1993, op. cit. (see reference 12); Winett RA et al., 1993, op. cit. (see reference 12); Isberner FR et al., Sex education in rural churches, *Human Services in the Rural Environment*, 1990, 13(4):6–12; Burgess ES and Wurtele SK, Enhancing parent-child communication about sexual abuse: a pilot study, *Child Abuse and Neglect*, 1998, 22(11):1167–1175; and Davis SL, Kolinsky SA and Sugawara AI, Evaluation of a sex education program for parents of young children, *Journal of Sex Education Therapy,* 1986, 12(1):32–36.

14. Miller BC et al., 1997, op. cit. (see reference 8); Benshoff JM and Alexander SJ, 1993, op. cit. (see reference 12); Burgess ES and Wurtele SK, 1998, op. cit. (see reference 13); Freeman EW and Rickels K, Family involvement: preventing early teenage childbearing, in: Freeman EW and Rickels K, eds., *Early Childbearing: Perspectives of Black Adolescents on Pregnancy, Abortion, and Contraception,* Newbury Park, CA: Sage Publications, 1993, pp. 119–137; Huston RL, Martin LJ and Foulds DM, Effect of a program to facilitate parent-child communication about sex, *Clinical Pediatrics,* 1990, 29(11):626–633; Kirby D, Effects of selected sexuality education programs: toward a more realistic view, *Journal of Sex Education and Therapy,* 1985, 11(1):28–37; Miller BC et al., Impact evaluation of Facts and Feelings: a home-based video sex education curriculum, *Family Relations,* 1993, 42(4):392–400; Oliver DP, Leeming FC and Dwyer WO, Studying parental involvement in school-based sex education: lessons learned, *Family Planning Perspectives,* 1998, 30(3):143–147; and Anderson NL et al., Evaluating the outcomes of parent-child family life education, *Scholarly Inquiry for Nursing Practice,* 1999, 13(3):211–238.

15. Benshoff JM and Alexander SJ, 1993, op. cit. (see reference 12); Jorgensen SR, Potts V and Camp B, 1993, op. cit. (see reference 12); Wurtele SK, Kast LC and Melzer AM, Sexual abuse prevention education for young children: a comparison of teachers and parents as instructors, *Child Abuse and Neglect,* 1992, 16(6):865–876; and Brock GC and Beazley RP, Using the health belief model to explain parents' participation in adolescents' at-home sexuality education activities, *Journal of School Health,* 1995, 65(4):124–128.

16. Bandura A, *Social Learning Theory,* Englewood Cliffs, NJ: Prentice-Hall, 1977; and Bandura A, *Social Foundations of Thought and Action: A Social Cognitive Theory,* Englewood Cliffs, NJ: Prentice-Hall, 1986.

17. Howard M, Postponing sexual involvement among adolescents: an alternative approach to prevention of sexually transmitted diseases, *Journal of Adolescent Health Care,* 1985, 6(4):271–277; and Howard M and McCabe JB, Helping teenagers postpone sexual involvement, *Family Planning Perspectives,* 1990, 22(1):21–26.

18. Howard M, 1985, op. cit. (see reference 17).

19. Howard M and McCabe JB, 1990, op. cit. (see reference 17).

20. Blake SM, Simkin L and Ledsky R, Gender effects of a parent-child communications intervention on young adolescents' risk for early onset of sexual behavior, *Journal of Health Communications*, 2001 (forthcoming).

21. Ibid.

22. Benshoff JM and Alexander SJ, 1993, op. cit. (see reference 12); Burgess ES and Wurtele SK, 1998, op. cit. (see reference 13); Freeman EW and Rickels K, 1993, op. cit. (see reference 14); Huston RL, Martin LJ and Foulds DM, 1990, op. cit. (see reference 14); Kirby D, 1985, op. cit. (see reference 14); Miller BC et al., 1993, op. cit. (see reference 14); and Weeks K et al., Does parental involvement make a difference? impact of parent interactive activities on students in a school-based AIDS prevention program, *AIDS Education & Prevention,* 1997, 9(1, Supplement):90–106.

23. Brock GC and Beazley RP, 1995, op. cit. (see reference 15).

24. Miller BC et al., 1998, op. cit. (see reference 3); Basen-Engquist K and Parcel GS, Attitudes norms, and self-efficacy: a model of adolescents' HIV-related sexual risk behavior, *Health Education Quarterly,* 1992, 19(2):263–277; Fishbein M and Ajzen I, *Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research,* Reading, MA: Addison-Wesley, 1975; Kasen S, Vaughan RD and Walter HJ, Self-efficacy for AIDS preventive behaviors among tenth grade students, *Health Education Quarterly,* 1992, 19(2):187–202; Magura S et al., Condom use among criminally-involved adolescents, *AIDS Care,* 1994, 6(5):595–603; Pleck JH, Sonenstein FL and Ku LC, Contraceptive attitudes and intention to use condoms in sexually experienced and inexperienced adolescent males, *Journal of Family Issues,* 1990, 11(3):294–312; St. Lawrence JS, African-American adolescents' knowledge, health-related attitudes, sexual behavior, and contraceptive decisions: implications for the prevention of adolescent HIV infection, *Journal of Consulting and Clinical Psychology,* 1993, 61(1):1–9; and Wulfert E and Wan CK, Condom use: a self-efficacy model, *Health Psychology,* 1993, 12(5):346–353.

25. Miller BC et al., 1998, op. cit. (see reference 3).

26. Main DS et al., Preventing HIV infection among adolescents: evaluation of a school-based education program, *Preventive Medicine,* 1994, 23(4):409–417.

27. Basen-Engquist K et al., The Safer Choices project: methodological issues in school-based health promotion intervention research, *Journal of School Health,* 1997, 67(9):365–371; McKinley SM, Stone EJ and Zucker DM, Research design and analysis issues, *Health Education Quarterly,* 1989, 16(2):307–313; and Murray DM and Hannon PJ, Planning for the appropriate analysis in school-based drug prevention studies, *Journal of Consulting and Clinical Psychology,* 1990, 58(4):458–468.

28. Perry CL et al., Project Northland: outcomes of a community-wide alcohol use prevention program during early adolescence, *American Journal of Public Health,* 1996, 86(7):956–965; and Williams CL et al., A home-based prevention program for sixth-grade alcohol use: results from Project Northland, *Journal of Primary Prevention,* 1995, 16(2):125–147.

29. Perry CL et al., 1996, op. cit. (see reference 28); and Werch CE et al., Effects of a take-home drug prevention program on drug-related communication and beliefs of parents and children, *Journal of School Health,* 1991, 61(8):346–350.

30. Brock GC and Beazley RP, 1995, op. cit. (see reference 15).

No Sexuality Education Is Sexuality Education

By Stanley Snegroff

As I stood outside the hospital nursery after the birth of my daughter, a little girl and her brother, both about 10 years old, were excitedly peering through the window at the new addition to their family. Turning to her father, the little girl asked, "Daddy, how can you tell if the baby is a girl or a boy?" The father, looking a bit flustered, stammered slightly and answered, "Girls have pink blankets, and boys have blue blankets." His son immediately replied, "What happens if the blankets get switched?" The father, giving me an exasperated look, led the children away.

Most parents realize the importance of educating their children about sexuality, but, as this story illustrates, many of them find themselves unable to address the subject comfortably. They want to be helpful but are unsure what, when or how to discuss sexual issues. Some believe they don't know enough, feel embarrassed or are not clear about their own sexual values and attitudes. In addition to their own discomfort, many are concerned about how their children will feel about discussing sex with them.

Whether or not they have explicit discussions with their children, parents transmit their attitudes and values about sexuality to them. From the moment of birth, children observe and learn from their parents' behavior in everyday life. For example, parents who express affection for each other are, in effect, modeling the open expression of love. The way parents answer questions and discuss issues related to sexuality also conveys a great deal. Do they hesitate, act uncomfortable or avoid the subject entirely? Parents who are unwilling or unable to discuss this important and sensitive part of life with their children present sexuality as a negative and a taboo rather than as a natural part of being human. No sexuality education *is* sexuality education, and the message received from this education may be a negative one.

If young children receive a negative message about sexuality from their parents, they will be highly unlikely to turn to their parents to discuss sexual matters as they get older. On the other hand, positive communication about sexual information, feelings, attitudes, values and behavior when children are young often leads to ongoing discussions as they mature. Establishing an environment conducive to open and comfortable communication is therefore extremely important.

Children's curiosity about sexuality is a normal part of growing up. Today's media—computers, books, radio, television, magazines, movies, music, videos and advertising—stimulate this curiosity further. Refusing to discuss sexuality—and thus stifling children's developmental need to learn and understand—can result in fear and embarrassment. These feelings, in turn, may lead to ignorance and misconceptions if children lack accurate information or seek information from inappropriate sources.

Although it may become more difficult to open lines of communication as children enter their teens, it is never too late to try. Professionals working with parents to improve their ability to educate their children about sexuality should emphasize the following messages:

- *Be askable.* Askable parents generally understand what a child is developmentally capable of understanding, have a sense of humor and are good listeners. Such parents raise "asking" children. Children who have been encouraged to communicate openly with their parents are much more likely to ask their parents what they want and need to know, leading to "teachable moments." When children initiate a discussion, they are often more receptive than they are when the parent addresses a topic simply because the parent believes the child "needs to know."

  It is not always wise, however, to wait until children exhibit interest in sexuality. They may never ask or comment. There are numerous issues and topics that may need to be discussed prior to a child's asking. Parents must judge their children's readiness and needs for information about sexuality just as they would if the topic were arithmetic or reading, and when appropriate initiate a conversation.
- *Be accepting*—an important part of being askable. An accepting parent does not convey a negative attitude or exhibit negative behavior when a child's natural curiosity leads to a question or comment. They convey the impression that all questions are good ones and all comments can be discussed.
- Discuss issues and answer questions *simply*: Parents often "overanswer" questions because they interpret them as much more complex and profound than they actually are. Parents should make every effort to try to understand questions and comments by repeating them and clarifying any words or phrases that are subjective and open to misinterpretation ("sex," for example). It is best to answer questions and discuss issues as factually, clearly and concisely as possible. After discussion, it is helpful to determine if a child is satisfied with the answer or comment. If not, repetition and additional clarification may be necessary.

  Frequently, parents are concerned that their children will not understand and as a result do not respond to a comment or question. When a response is too complex and technical—whether the subject is sexuality, arithmetic or photography—the child simply will not understand it, but will not be harmed.
- Discuss issues and answer questions *honestly*. Because of embarrassment or a lack of knowledge, many parents find it difficult to answer questions about sexuality or discuss sexual issues honestly. Unfortunately, many of us have been conditioned to believe that we must be experts and are reluctant to admit that we are not. When parents do not know an answer or are not sure how to comment, they can simply say, "I don't know," "I'm not sure" or "Let me think about it." Then they can seek the appropriate response, perhaps with the help of the child. Exploring books or Internet sites together, for example, is an excellent way to promote dialogue. It is most important that parents not use evasive tactics in an effort to convince their children that they are all-knowing. Evasiveness conveys a negative message about sexuality and diminishes trust.

  Parents do not realize that most questions and comments about "sex," prior to the age of 10 or 11, are primarily about biology. Basic and simple information about anatomy and physiology is usually all that is necessary. If children were curious about the workings of the knee or heart, most parents would attempt to discuss it or research the information for discussion. This should also apply to the anatomy and physiology of sexuality. Questions and discussions that focus on values give parents the opportunity to express their beliefs and guide their children in what they deem to be the appropriate direction. It is unlikely that these opportunities will present themselves if the lines of communication have not been opened by discussions about simpler factual information. If parents realize that conversations about sexuality are basically about love, rela-

Stanley Snegroff is an associate professor of health studies at Adelphi University, Garden City, NY.

tionships and biology, they will probably feel much less threatened and will welcome opportunities to communicate.

Programs sponsored by local schools, civic organizations or religious groups can help narrow the communication gap that exists between parents and their children concerning human sexuality.[1] For example, an after-school program for 10–12-year-olds, together with their parents, on a topic such as puberty can be very effective. Led by a sexuality educator or a health educator trained in sexuality education, these sessions can open lines of communication that can last a lifetime. Participants may compile lists of anonymous questions to be answered by the group, solve problems posed in case studies and engage in role-playing exercises. As they work in teams throughout the program, parents and children learn that they are able to discuss sexual issues simply and honestly in a climate of acceptance.

References

1. Snegroff S, Communicating about sexuality: a school/community program for parents and children, *Journal of Health Education*, 1995, 26(1):49–51.

Teenage Partners' Communication About Sexual Risk and Condom Use: The Importance Of Parent-Teenager Discussions

By Daniel J. Whitaker, Kim S. Miller, David C. May and Martin L. Levin

Context: *Teenagers' communication with their partners about sex and their use of condoms may be influenced by the discussions teenagers have with their parents about sex. However, little is known about the process of parent-teenager communication on this topic. Understanding both what parents discuss with their children and how they discuss it may lead to a greater understanding of teenagers' sexual behavior.*

Methods: *Interviews were conducted with 372 sexually active black and Hispanic youth aged 14–17 from Alabama, New York and Puerto Rico. Regression analyses were used to examine parent-teenager discussions about sexuality and about sexual risk, and parental communication skills as predictors of teenagers' discussions about sexual risk with a partner and teenagers' condom use.*

Results: *Parent-teenager discussions about sexuality and sexual risk were associated with an increased likelihood of teenager-partner discussions about sexual risk and of teenagers' condom use, but only if parents were open, skilled and comfortable in having those discussions. Teenagers' communication with their partner about sexual risk also was associated with greater condom use, but the relationship between parent-teenager communication and teenagers' condom use was independent of this association.*

Conclusions: *The influence on teenagers of parent-teenager discussions about sexuality and sexual risk depends on both what parents say and how they say it. Programs that foster parent-teenager communication about sexuality and sexual risk must emphasize both of these aspects.*

Family Planning Perspectives, 1999, 31(3):117–121

Communicating with a sex partner is an important self-protective health behavior. It can help one to learn about a partner's prior sexual behavior and level of risk, information that will presumably lead to safer sexual behaviors (e.g., abstaining from sex with high-risk partners and using a condom). Without information about a partner's past sexual behavior, people must judge the safety of a sexual encounter on other, less valid indicators, such as the partner's personality traits,[1] appearance[2] or social group membership.[3]

Communication about sex as a means to promote safer sex is especially important for adolescents. By age 19, 86% of males and 75% of females have initiated intercourse, and about a quarter have had four or more sexual partners.[4] However, only 57% of teenagers report having used a condom during their most recent sexual intercourse.[5] As a result, each year, about three million adolescents acquire a sexually transmitted disease (STD),[6] and 16% of women aged 15–19 become pregnant.[7]

Several researchers have reported a positive association between communication about sex and safer sexual behaviors among adolescents.[8] For example, in one study of adolescent women, communicating to a partner a desire to use condoms was associated with increased condom use, and the ability to communicate with prospective partners about their sexual history was associated with having fewer partners.[9] Thus, encouraging adolescents to communicate with prospective partners about sex is potentially an effective strategy for preventing STDs, including HIV, and teenage pregnancy.

Although talking about sex is an important behavior, it is not a simple one. Despite the pervasiveness of sex in the American media, open discussions about the topic are made difficult by sociocultural taboos and by the "secrecy" surrounding it.[10] Norms that prohibit openness can hinder discussions about sexual behavior and can be obstacles to sexuality education and the dissemination of information about sex.[11] The difficulty and discomfort many Americans experience when discussing sexual behavior is illustrated by results from a nationwide survey indicating that 20–25% of married and unmarried adults have no knowledge of their partner's sexual history.[12]

The intimate discussions necessary to obtain information about a partner's sexual history and to negotiate safer sex may be particularly difficult for teenagers, who have relatively little experience with such discussions. Few data are available about the determinants of adolescent partners' communication about sex. Likely factors include perceived norms for discussing sex, the perceived risk level of one's sex partner, the teenager's knowledge about sex, and the teenager's comfort and skill in discussing sex. All of these factors may be influenced by what teenagers' parents have communicated to them about sex. For instance, one study found that teenagers who had discussed general sexuality issues with a parent were more comfortable communicating with a partner than were their peers who had not, but teenagers who had discussed AIDS-related issues with a parent were less comfortable than others about communicating with a partner.[13]

In addition to what parents say, the way in which they say it can influence teenagers' behavior. For example, a discussion that consists solely of a parent's demanding that a child refrain from having sex may send a message that everything about sex is to be avoided, and may thus suppress the teenager's desire to discuss sex with a partner. By contrast, a discussion in which a parent openly talks about sexuality and invites the child to ask questions is likely to reduce the adolescent's discomfort with discussing sex with a partner and to increase the chances that the adolescent will do so. Although studies of parent-teenager discussions about sex have assessed the content of the discussions,[14] parents' attitudes about sex[15] and the timing of the discussions,[16] few have examined the joint impact of the content and process of parent-teenager discussions.[17]

In the research described in this article, we examined how teenagers' communication with their sex partners and their condom use are affected by three factors

Daniel J. Whitaker is research psychologist, and Kim S. Miller is research sociologist, both at the Centers for Disease Control and Prevention, Atlanta; David C. May is assistant professor and criminal justice program coordinator, School of Public and Environmental Affairs, Indiana University–Purdue University, Fort Wayne, IN; and Martin L. Levin is Thomas L. Bailey Professor of Sociology and head of the Department of Sociology, Anthropology and Social Work, Mississippi State University, Mississippi State, MS.

related to parent-teenager communication: parent-teenager discussions about sexuality issues; parent-teenager discussions about issues related to sexual risk; and parents' openness, skill and comfort in discussing sex with their child (which we refer to as responsiveness).

We hypothesized that both types of parent-teenager discussions would promote teenagers' communication with their partners, and that these associations would be moderated by parental responsiveness. We expected that when responsiveness was high, both types of discussion would relate to greater teenager-partner communication, but that when responsiveness was low, the relationship would be weaker and possibly nonsignificant.

We also explored the documented associations of both parent-teenager communication[18] and teenager-partner communication[19] with condom use. We expected that sexuality discussions and risk discussions would each interact with parental responsiveness to predict condom use. Furthermore, we hypothesized that the association between parent-teenager communication and condom use would be mediated by communication between teenagers and their partners.

Methods

Sample

Our analyses are based on a subsample of participants in the Family and Adolescent Risk Behavior and Communication Study, a cross-sectional survey of adolescent-mother pairs conducted between October 1993 and June 1994. Participants were recruited from two public high schools in Montgomery, Alabama, and one public high school each in New York City and San Juan, Puerto Rico. Each selected high school had an overrepresentation of black or Puerto Rican adolescents, groups disproportionately at risk for HIV.[20] A description of the sample appears elsewhere.[21]

A list of potential participants was obtained from each high school, and students were recruited through fliers distributed in homerooms and sent to their homes. Interested teenagers contacted the researchers by phone; those who wished to participate and their mothers were screened for eligibility. For an adolescent-mother pair to be eligible for inclusion, the teenager had to be 14–16 years old, had to be enrolled in grades 9–11, and had to have lived with the mother and to have lived in the recruitment area for at least the past 10 years; the mother had to be the teenager's biological or adoptive parent or stepmother. Of the 1,733 pairs who provided screening information, 1,124 were eligible, and 982 (87% of eligible pairs) were interviewed. The final sample included a few teenagers who had turned 17 between their initial screening and interview.

Face-to-face interviews were conducted separately with the mother and the adolescent by an interviewer of the same ethnicity and gender as the teenager. Mothers were interviewed first whenever possible (91% of the time), to ease the adolescents' concerns that their responses would be discussed with their mother. Mothers were paid $45 for their participation, and adolescents were paid $25. Analyses of data collected during the interviews revealed that 75 pairs did not meet eligibility requirements; the final study sample consisted of the remaining 907 adolescent-mother pairs.

Our analyses are restricted to the 372 pairs in which the adolescent reported having engaged in penile-vaginal intercourse at least once. On average, these teenagers had first had intercourse at age 13.7 and had had 3.9 partners.

Measures

The analyses involved five measures: indices of sexuality discussions, risk discussions, responsiveness and partner communication (constructed using factor analysis), and single-item measures of condom use. Because our focus is teenagers' behavior, we took all measures of parent-teenager communication from the adolescents' reports rather than the mothers'. Adolescents' and mothers' reports were significantly but not highly correlated (r=.54 for sexuality discussions, r=.26 for risk discussions and r=.28 for responsiveness).

- *Sexuality and risk discussions*. Adolescents reported whether they had ever discussed with their mother any of 11 topics related to sexuality. A principal-components analysis divided these into two factors: Sexuality discussions comprised seven topics (when to start having sex, birth control, reproduction, physical and sexual development, menstruation, masturbation and handling pressure to have sex), and risk discussions comprised the remaining four (condoms, HIV and AIDS, STDs and choosing sex partners). The sexuality discussions index was formed by summing the number of topics discussed; scores therefore ranged from zero to seven (mean=3.20, standard deviation=2.10, α=.75). Similarly, the risk discussions index was computed by summing the number of topics discussed, so scores ranged from zero to four (mean=2.72, standard deviation=1.28, α=.66).
- *Parental responsiveness.* Adolescents rated their agreement (on a scale ranging from one, indicating strong disagreement, to four, indicating strong agreement) with eight items that assessed their perceptions of their mothers' openness, skill and comfort in discussing the 11 topics. The eight items were "My mother tries to understand how I feel about topics like this," "My mother knows how to talk to me about topics like this," "My mother and I talk openly and freely about these topics," "My mother doesn't talk to me about these topics—she lectures me," "My mother doesn't know enough about topics like this to talk to me," "My mother wants to know my questions about these topics," "I can ask my mother the questions I really want to know about topics like this" and "If I talked to my mother about these topics, she would think I'm doing these things." We reversed negatively worded items, then summed adolescents' responses to the eight items to form the index; the range of scores was 8–32 (mean=22.22, standard deviation=4.37, α=.81).
- *Partner communication.* Adolescents reported whether they had discussed four topics related to sexual risk—birth control, condoms, STDs, and HIV and AIDS—with their current or most recent boyfriend or girlfriend. We formed the index of partner communication by counting the number of topics discussed; index scores therefore ranged from zero to four (mean=2.65, standard deviation=1.50, α=.82).
- *Condom use.* Adolescents reported whether they had used a condom during their most recent sexual intercourse (70% answered yes) and rated their lifetime condom use on a scale of one, signifying never, to five, indicating always (mean=3.79, standard deviation=1.40).

Results

Partner Communication

We first examined the simple correlations between the parent-teenager communication factors and teenagers' communication with their partners. Sexuality discussions were positively related to partner communication (r=.25, p<.001), as were risk discussions (r=.18, p<.001); responsiveness showed a tendency for a positive association, but the correlation was of only marginal statistical significance (r=.09, p=.08).

Next, we used regression analyses to determine whether the relationship between each type of discussion and partner communication was moderated by responsiveness. (Moderation is examined by testing the interaction between two

terms.*) We tested the two interactions in separate analyses because parent-teenager discussions about sexuality can have different effects on adolescents than parent-teenager discussions about risk issues such as AIDS.[22]

The first set of analyses focused on sexuality discussions, responsiveness and their interaction. There was a significant effect for sexuality discussions, but also a significant interaction between discussions and responsiveness (Table 1), which indicates that the effect of discussions on teenager-partner communication differed depending on responsiveness. We thus probed the interaction by computing the association between sexuality discussions and teenager-partner communication when responsiveness was high and when it was low. The results revealed that the association was positive and significant when responsiveness was high but was weaker and of marginal significance when responsiveness was low. This contrast can be seen by the slopes of the lines plotting predicted values of partner communication based on this interaction (Figure 1).

A similar pattern of results emerged from the analyses of risk discussion, responsiveness and their interaction. Both risk discussions and the interaction had significant effects; therefore, the association between risk discussions and teenager-partner communication varied at different levels of responsiveness. The probe of the interaction showed that the relationship was positive and significant when responsiveness was high, but was not significant when responsiveness was low.

Condom Use

Next, we turn to our hypotheses that teenagers' communication with both their parents and their partners influences their condom use, and that teenager-partner communication mediates the role of parent-teenager communication. To demonstrate mediation, we must show the following: that parent-teenager communication is associated with partner communication, that both teenager-partner and parent-teenager communication are associated with condom use, and that the association between parent-teenager communication and condom use is weakened when teenager-partner communication is controlled.[23] We have already established that the first association exists; we now focus on the remaining steps.

We used logistic regression analysis to assess the effect of teenager-partner communication on condom use at most recent intercourse and linear regression analysis to evaluate its effect on lifetime condom use. The results indicated that partner communication was only marginally related to condom use during most recent intercourse (b=.172, p=.07), but greater partner communication was significantly associated with greater lifetime use (b=.203, p=.001).

To examine the relationship between parent-teenager communication and condom use, we conducted two series of regression analyses that paralleled those used to examine teenager-partner communication. The first included sexuality discussions, responsiveness and their interaction; the second included risk discussions, responsiveness and their interaction. Each was applied to condom use during most recent intercourse and lifetime condom use.

In the analyses pertaining to sexuality discussions, the interaction between these discussions and parental responsiveness significantly increased the likelihood of both condom use at last intercourse and lifetime use (Table 2, page 120). Probing these interactions yielded similar results (not shown): When parental responsiveness was high, sexuality discussions were significantly associated with increased condom use during most recent intercourse (b=.212, p=.02) and lifetime condom use (b=.110, p=.03). However, at low levels of responsiveness, sexuality discussions were negatively associated with condom use during most recent intercourse (b=–.246, p=.004) and (albeit at a marginal level of statistical significance) to lifetime condom use (b=–.091, p=.08).

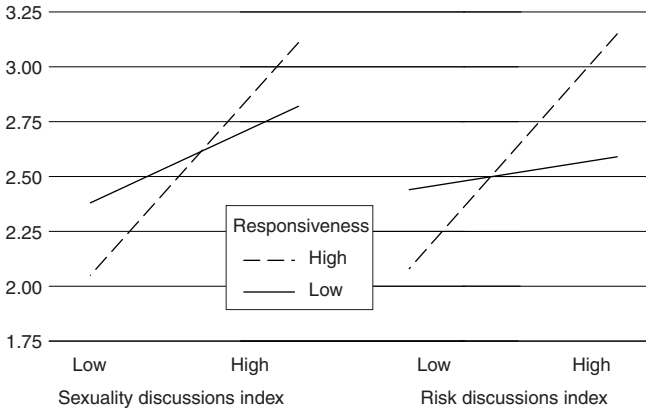
Similarly, the interaction of risk discussions and responsiveness was significantly associated with increased condom use both at most recent intercourse and over the teenager's lifetime (Table 2). The probe of these interactions showed that at high levels of responsiveness, risk discussions were positively related to condom use during most recent intercourse (b=.454, p=.004) and lifetime condom use (b=.232, p=.01). However, at low levels of responsiveness,

Table 1. Linear regression coefficients showing effects of parent-teenager communication variables on teenager-partner communication about sex, by type of parent-teenager communication, Family and Adolescent Risk Behavior and Communication Study, 1993–1994

Type of communication and variable	b	SE
Sexuality		
Sexuality discussions	.178***	.039
Responsiveness	–.003	.019
Sexuality x responsiveness	.017*	.009
F (3, 360)=9.25, p<.001		
R^2=.07		
Probe of sexuality discussions at high responsiveness	.252***	.055
Probe of sexuality discussions at low responsiveness	.103	.054
Risk		
Risk discussions	.238***	.066
Responsiveness	.010	.019
Risk x responsiveness	.041**	.014
F (3, 360)=7.14, p<.001		
R^2= .056		
Probe of risk discussions at high responsiveness	.418***	.098
Probe of risk discussions at low responsiveness	.058	.079

*p=.05. **p<.01. ***p<.001. *Note:* SE=standard error.

Figure 1. Predicted values of partner communication from the interaction between sexuality discussions and parental responsiveness and between risk discussions and parental responsiveness



Notes: Scores on the sexuality discussions index ranged from zero to seven; scores on the risk discussions index ranged from zero to four. Predicted values were computed at one standard deviation above and below the mean of sexuality discussions, risk discussions and responsiveness.

*In testing the interaction terms, we followed procedures outlined elsewhere. (Source: Aiken LS and West SG, *Multiple Regression: Testing and Interpreting Interactions*, Newbury Park, CA: Sage Publications, 1990.) First, we centered all predictors by subtracting the sample mean from each individual's score, and then we created the cross-product terms. Centering the predictors when testing interactions between continuous variables reduces multicollinearity among the predictors and thus facilitates the interpretation of interactions. We probed significant interactions by computing the simple slope of the regressions of sexuality discussions or risk discussions on partner communication at high and low levels of responsiveness, using one standard deviation above and below the mean as the high and low values, respectively.

Table 2. Regression coefficients showing effects of parent-teenager communication variables on teenagers' condom use at most recent intercourse and on teenagers' lifetime condom use, by type of parent-teenager communication

Type of communication and variable	b	SE
CONDOM USE AT RECENT SEX		
Sexuality		
Sexuality discussions	–.017	.060
Responsiveness	.063*	.030
Sexuality x responsiveness	.052***	.015
$\chi^2(4)=19.02$, $p<.001$		
Risk		
Risk discussions	.147	.010
Responsiveness	.066*	.030
Risk x responsiveness	.070**	.023
$\chi^2(4)=16.68$, $p<.001$		
LIFETIME CONDOM USE		
Sexuality		
Sexuality discussions	.009	.037
Responsiveness	.028	.018
Sexuality x responsiveness	.023**	.008
$F(3, 358)=4.12$, $p<.006$		
Risk		
Risk discussions	.091	.063
Responsiveness	.029	.018
Risk x responsiveness	.032**	.013
$F(3, 358)=3.96$, $p<.008$		

*p≤.05. **p≤.01. ***p≤.001. *Note:* SE=standard error.

risk discussions were not significantly associated with either measure of condom use. Thus, in sum, the parent-teenager communication factors predicted condom use in the same manner that they predicted partner communication.

Finally, to determine whether the association between parent-teenager communication and condom use was mediated by teenager-partner communication, we repeated the regression analyses, with communication with the partner included as a predictor. The results (Table 3) were substantially the same as those from the earlier analyses, indicating that the relationship between parent-teenager communication and condom use is direct and independent.

Discussion

We have found that parent-teenager communication about sexuality and about sexual risks may promote teenagers' discussions with their partners about sex, but only when parents communicate with their teenagers in a skilled and open manner. Similarly, parent-teenager communication may encourage teenagers to use condoms, but only if parents are skilled, comfortable and open in discussions about sexuality and risks related to sexual behavior. Moreover, the association between parent-teenager communication and adolescents' condom use is not mediated by discussions between teenagers and their partners about sex.

These findings underscore the importance of examining both the content and the process of parent-teenager communication about sex to arrive at a more complete understanding of how that communication affects teenagers' sexual behavior. Our results differ somewhat from those of earlier research,[24] but the discrepancies may be explained by the earlier study's failure to assess the communication process and by important differences in the types of variables measured and in the way they were measured.

The findings have implications for the prevention of HIV, other STDs and pregnancy among teenagers. Parent-teenager discussions about sex are associated with teenagers' safer sex behavior, including delayed initiation of sexual activity and increased condom use;[25] therefore, programs that increase parent-teenager communication about sex may be effective prevention tools. Our work indicates that an important component of such programs would be the inclusion of communication skills training for parents. Obviously, parents need to know what messages are developmentally appropriate for their children; our data indicate that they also need to know how to talk with their children. Parents' manner of communicating with their children can influence the extent to which youngsters hear the message.[26]

Our research had some limitations. First, the sample comprised only members of racial or ethnic minorities, and participants were not recruited in a systematic manner; thus, the sample may not be representative of all teenagers or even of teenagers in the geographic areas in which the study was conducted. In addition, the way in which the sample was recruited may have caused the more motivated and more stable mother-adolescent pairs to volunteer to participate, so we may have the "cream of the crop" of the sampling frame. Even so, the adolescents included in our analyses had engaged in a considerable level of risk behavior; in addition, black and Hispanic youth are at increased risk for STDs and therefore are an important population to study and target for intervention.

A further limitation is that the data were obtained from the teenagers' reports, and this restricts the extent to which parental responsiveness can be studied. Observing parents and teenagers communicating about sex and sexual risk would be useful in corroborating our findings. Third, the construct of parental responsiveness—used here to describe openness and skill in discussing topics related to sexuality and sexual risk—needs to be refined. More refined measures of the components of responsiveness may show that they independently influence teenagers' behavior.

As evidence based on broader samples and more refined measures accrues regarding the importance of the parent-teenager communication process in determining teenagers' sexual risk behavior, such evidence must be incorporated into HIV prevention strategies.

Table 3. Regression coefficients showing effects of parent-teenager communication variables and teenager-partner communication on teenagers' condom use at most recent intercourse and on teenagers' lifetime condom use, by type of parent-teenager communication

Type of communication and variable	b	SE
CONDOM USE AT RECENT SEX		
Sexuality		
Partner communication	.105	.080
Sexuality discussions	–.042	.062
Responsiveness	.064*	.030
Sexuality x responsiveness	.050***	.016
$\chi^2(5)=20.47$, $p<.001$		
Risk		
Partner communication	.071	.079
Risk discussions	.121	.102
Responsiveness	.066*	.030
Risk x responsiveness	.066**	.023
$\chi^2(5)=16.23$, $p=.006$		
LIFETIME CONDOM USE		
Sexuality		
Partner communication	.135**	.049
Sexuality discussions	–.019	.037
Responsiveness	.029	.017
Sexuality x responsiveness	.020**	.008
$F(4, 355)=4.97$, $p<.001$		
Risk		
Partner communication	.123*	.049
Risk discussions	.054	.063
Responsiveness	.028	.017
Risk x responsiveness	.026*	.013
$F(4, 355)=4.70$, $p<.001$		

*p=.05. **p<.01. ***p<.001. *Note:* SE=standard error.

References

1. Williams SS et al., College students' use of implicit personality theory instead of safer sex, *Journal of Applied Social Psychology*, 1992, 22(12):921–933.

2. Clark LF et al., The role of attraction in partner assessments and heterosexual risk for HIV, in: Oskamp S and Thompson S, eds., *Understanding and Preventing HIV Risk Behavior: Safer Sex and Drug Use*, Thousand Oaks, CA: Sage Publications, 1996.

3. Ibid.

4. Centers for Disease Control and Prevention (CDC), Youth risk behavior surveillance—United States, 1995, *Morbidity and Mortality Weekly Report*, 1996, 45(SS-4).

5. Ibid.

6. Division of STD/HIV Prevention, CDC, *Division of STD/HIV Prevention Annual Report, 1992,* Atlanta: CDC, 1993.

7. Abma JC et al., Fertility, family planning, and women's health: new data from the 1995 National Survey of Family Growth, *Vital and Health Statistics,* 1997, Series 23, No. 19.

8. Biglan A et al., Social and behavioral factors associated with high-risk sexual behavior among adolescents, *Journal of Behavioral Medicine,* 1990, 13(3):245–261; Catania JA et al., Predictors of condom use and multiple partnered sex among sexually-active adolescent women: implications for AIDS-related health interventions, *Journal of Sex Research,* 1989, 26(4):514–524; DiClemente RJ, Predictors of HIV-preventive sexual behavior in a high-risk adolescent population: the influence of perceived peer-norms and sexual communication on incarcerated adolescents' consistent use of condoms, *Journal of Adolescent Health,* 1991, 12(5):385–390; and Rickman RL et al., Sexual communication is associated with condom use by sexually active incarcerated adolescents, *Journal of Adolescent Health*, 1994, 15(5):383–388.

9. Catania JA et al., 1989, op. cit. (see reference 8).

10. Institute of Medicine, *The Hidden Epidemic: Confronting Sexually Transmitted Diseases,* Washington, DC: National Academy Press, 1996; and Lear D, Sexual communication in the age of AIDS: the construction of risk and trust among young adults, *Social Science and Medicine*, 1995, 41(9):1311–1323.

11. Gambrell AE and Kantor LM, The far right and fear-based abstinence-only programs, *SIECUS Report*, 1992/1993, 21(1):16–18.

12. EDK Associates, *The ABCs of STDs*, New York: EDK Associates, 1995.

13. Shoop DM and Davidson PM, AIDS and adolescents: the relation of parent and partner communication to adolescent condom use, *Journal of Adolescence*, 1994, 17(2):137–148.

14. Dutra R, Miller KS and Forehand R, The process and content of sexual communication with adolescents in two-parent families, *AIDS and Behavior*, 1999, 3(1):59–66.

15. Jaccard J, Dittus PJ and Gordon VV, Maternal correlates of adolescent sexual and contraceptive behavior, *Family Planning Perspectives*, 1996, 28(4):159–165 & 185; Moore KA, Peterson JL and Furstenberg FF Jr., Parental attitudes and the onset of early sexual activity, *Journal of Marriage and the Family*, 1986, 48(4):777–782; and Newcomer SF and Udry JR, Parent-child communication and adolescent sexual behavior, *Family Planning Perspectives*, 1985, 17(4):169–174.

16. Miller KS et al., Patterns of condom use among adolescents: the impact of maternal-adolescent communication, *American Journal of Public Health,* 1998, 88(10): 1542–1544.

17. Furstenberg FF Jr. et al., Family communication and teenagers' contraceptive use, *Family Planning Perspectives*, 1984, 16(4):163–170; and Jaccard J and Dittus P, Parent-adolescent communication about premarital pregnancy, *Families in Society*, 1993, 74(6):329–343.

18. Holtzman D and Rubinson R, Parent and peer communication effects on AIDS-related behavior among U.S. high school students, *Family Planning Perspectives*, 1995, 27(6):235–240 & 268; and Miller KS et al., 1998, op. cit. (see reference 16).

19. Biglan A et al., 1990, op. cit. (see reference 8); Catania JA et al., 1989, op. cit. (see reference 8); DiClemente RJ, 1991, op. cit. (see reference 8); and Rickman RL et al., 1994, op. cit. (see reference 8).

20. Lindegren ML et al., Epidemiology of human immunodeficiency virus infection in adolescents, United States, *Pediatric Infectious Disease Journal*, 1994, 13(6):525–535.

21. Miller K et al., Adolescent sexual experience: a new typology, *Journal of Adolescent Health*, 1997, 20(3):179–186.

22. Shoop DM and Davidson PM, 1994, op. cit. (see reference 13).

23. Baron RM and Kenny DA, The moderator-mediator variable distinction in social-psychological research: conceptual, strategic, and statistical considerations, *Journal of Personality and Social Psychology*, 1986, 51(6):1173–1182.

24. Shoop DM and Davidson PM, 1994, op. cit. (see reference 13).

25. Holtzman D and Rubinson R, 1995, op. cit. (see reference 18); and Miller KS et al., 1998, op. cit. (see reference 16).

26. Miller KS et al., Family communication about sex: what are parents saying and are their adolescents listening? *Family Planning Perspectives*, 1998, 30(5):218–222 & 235.

Family Communication About Sex: What Are Parents Saying and Are Their Adolescents Listening?

By Kim S. Miller, Beth A. Kotchick, Shannon Dorsey, Rex Forehand and Anissa Y. Ham

Context: *Communication between parents and adolescents about sex, particularly in minority families, has been understudied; more information is needed both on which sex-related topics are discussed and on how their content is transmitted.*

Methods: *Parent-adolescent communication about 10 sex-related topics was examined in a sample of 907 Hispanic and black 14–16-year-olds. Chi-square analyses were performed to test for significant differences across the 10 topics in discussions reported by the adolescents (with either parent) and by the mothers. The openness of communication, parent-adolescent agreement about communication of topics and differences by gender and ethnicity were also examined.*

Results: *Significantly higher proportions of mothers and adolescents reported discussions of HIV or AIDS (92% by mothers and 71% by adolescents, respectively) and STDs (85% and 70%, respectively) than of issues surrounding sexual behavior, contraceptive use and physical development (27–74% for these other eight topics as reported by mothers vs. 15–66% as reported by adolescents). The gender of the adolescent and of the parent holding the discussion, but not the family's ethnicity, significantly influenced findings, with adolescents of both sexes more likely to report discussions with mothers than with fathers, and with parents more likely to discuss any of the 10 topics with an adolescent of the same gender than of the opposite gender. The likelihood of a topic being discussed and of mother-adolescent agreement that a topic was discussed both increased with an increasing degree of openness in the communication process.*

Conclusions: *Consistent with research among white samples, mothers of black and Hispanic adolescents are the primary parental communicators about sexual topics. To facilitate communication, educational programs for parents should cover not only what is discussed, but how the information is conveyed.* Family Planning Perspectives, 1998, 30(5):218–222 & 235

Adolescents have been identified as being at elevated risk for HIV infection.[1] Since the AIDS epidemic has had a disproportionate impact on minorities,[2] black and Hispanic adolescents may be at an even higher risk than nonminority teenagers. Similarly, rates of sexually transmitted diseases (STDs) and unintended pregnancy are especially high among minority youth.[3] Thus, black and Hispanic adolescents can be considered "at risk" for a number of negative consequences of sexual activity. Yet relatively little is known about the factors that influence the sexual socialization of these teenagers.[4]

Parents and other family members are in a unique position to help socialize adolescents into healthy sexual adults, both by providing accurate information about sex and by fostering responsible sexual decision-making skills. However, research on the role of parents in this process has yielded inconsistent results: Some, but not all, studies have found that family discussions about sex are related to higher levels of knowledge about sexuality and AIDS among adolescents, as well as a lower incidence of sexual risk-taking behavior.[5] Furthermore, adolescents and children often cite their parents as their preferred source of education about sex, and organized prevention and education efforts continue to advocate active parental involvement in children's sexual socialization.[6]

Research on parent-adolescent communication about sex typically has focused on who communicates with whom. Such research is important, as it delineates how parents provide information to adolescents. In general, the mother has been found to discuss sexuality with adolescents more often than the father.[7] However, this parental gender difference is often affected by the gender of the adolescent: Mothers communicate more often with their daughters than with their sons, while fathers rarely communicate with their daughters about sex; however, mothers and fathers discuss sex with their sons at approximately equal rates.[8]

Existing studies on parent-adolescent communication about sex have several shortcomings.[9] First, many have been based on samples comprised solely or predominantly of white adolescents. Further, the findings of the few studies that have examined the effect of ethnicity have been inconsistent. For example, black adolescents have been found to discuss sex with their parents both more often[10] and less often[11] than do white adolescents, while studies with Hispanic adolescents have shown they discuss sexual issues with their parents both less often[12] and as often as white adolescents.[13]

In addition, most studies of parent-teenager communication have provided only a global assessment of that information, without offering data on the specific topics discussed.[14] When the specific content was examined, however, the rate at which individual topics were discussed varied substantially.[15]

Moreover, sexual communication often has been examined from the adolescent's perspective only.[16] Even when research has examined the perspectives of both parent and child, agreement between the reports of such communication has rarely been assessed. Two studies that examined how adolescents' and parents' reports of conversation agreed found a modest level of correspondence, and indicated that mothers believed they were more communicative about sex than their daughters perceived them to be.[17]

Finally, most research has focused on whether any discussion about sexuality has taken place. Perhaps equally important is *how* sexual information is transmitted. More communication about sex occurs if adolescents view talking about sex with parents as easy.[18] Furthermore, the process of sexual communication (i.e., the mutuality of the interchange and support for each other's comments) differs by who is holding the discussion (e.g., parent-daughter pairs have more mutuality and support than do parent-son pairs).[19]

For our research, designed to examine communication between parents and adolescents on 10 sexuality topics, we hypothesized that those topics with especially dramatic consequences (e.g., HIV

Kim S. Miller is research sociologist at the Division of HIV/AIDS Prevention, Centers for Disease Control and Prevention (CDC), Atlanta, GA; Beth A. Kotchick and Shannon Dorsey are graduate students in psychology, and Rex Forehand is director of the Institute of Behavioral Research, all at the University of Georgia, Athens, GA; and Anissa Y. Ham is program analyst with the Division of Prevention Research and Analytic Methods, CDC.

and AIDS) and those that do not require a direct discussion about "having sex" (e.g., sex pressures) would be discussed more often than other topics.

We also examine whether communication on each topic varied by gender (of both the parent and the adolescent) or by ethnicity. We sought to test whether the findings of past research based on predominantly white samples—namely, that mothers communicate more than fathers, particularly with daughters—would also hold true in samples of minority youth. Although previous research has documented differences between blacks and Hispanics in their general parenting styles,[20] ours is the first to compare each group to ascertain if differences exist in sexual communication processes; as such, this aspect of our analysis should be viewed as exploratory.

We also expected our results to verify an earlier finding of only modest agreement in reports of discussions of sexual subjects, at least between mothers and adolescents,[21] with more mothers than adolescents reporting that various topics had been discussed. Finally, we examined whether the process of communication was associated with discussion of specific topics; we hypothesized that as the process of communication becomes more open, adolescents would report more topics having been discussed, and that the level of agreement between parents and adolescents over whether specific topics were discussed would also increase.

Methods

The Sample

Our data come from the Family Adolescent Risk Behavior and Communication Study (FARBCS), conducted in 1993–1994.[22] The FARBCS was a cross-sectional study, targeting minority communities, sponsored by the Behavioral Research and Evaluation Program of the Centers for Disease Control and Prevention. This study examined the impact of selected individual, family, peer and environmental factors on both the risk behavior and risk-reducing behavior of adolescents.

A total of 4,610 persons were contacted by presentations in the classrooms of four public high schools—two in Montgomery, Alabama, one in New York City and one in San Juan, Puerto Rico—and through distribution of fliers to students describing the study and by mailings to the students' homes. Interested persons were asked to return the forms to the school or to contact the research office directly.

The 1,733 adolescents who returned the forms were screened by phone to determine their eligibility for participation in the study. To be eligible, adolescents had to be 14–16-years of age, to identify themselves as black (in either the Montgomery or New York schools) or Hispanic (in either the New York or Puerto Rican schools) and to be currently enrolled in one of the four targeted schools. In addition, all must have resided with their mother (either biological, adoptive or stepmother) in the recruitment area for at least 10 consecutive years.

Overall, 1,124 of the screened adolescents appeared eligible to participate. Of these, 982 mother-adolescent pairs were successfully interviewed, resulting in a recruitment rate of 87%. Site-specific rates were 83% in San Juan, 88% in Montgomery and 92% in New York. Separate interviews were conducted with the adolescent and the mother either at the school or at an offsite research office. Interviewers were matched with participants on both ethnicity and gender; older women interviewed the mothers, while younger interviewers met with the adolescents. Interviews were conducted in English or Spanish, based on each participant's preference.

At the beginning of the session, the interviewer explained confidentiality and procedural issues. The consent forms were also reviewed separately with the mother and adolescent, and each signed the form. To reduce adolescents' concern about disclosure of information to their mother, the adolescent interviews were conducted, when possible, after the parent interviews had been completed (in 91% of cases). Each interview lasted approximately one hour. Mothers were paid $45 and adolescents were paid $25 for their participation.

The mother only was asked to provide information on the family's ethnicity, both her and her adolescent's age, her marital status and educational attainment, the total family monthly income, the length of time that the family had lived in the current city of residence and how long her adolescent had resided with her.

Subsequent analysis of the responses from these 982 interviewed pairs, however, showed 75 to be ineligible, because they did not adequately fulfill the ethnicity and residence requirements. Thus, the final sample for our study consists of 907 mother-adolescent pairs—259 black mother-child pairs in Montgomery and 172 in New York, and 260 Hispanic mother-adolescent pairs in San Juan and 216 in New York. There were more adolescent females than males in the sample (57% and 43%, respectively).

The mean age of the adolescents was 15.3 years (SD=0.79), while that for the mothers was 40.3 years (SD=5.9). One-fifth of the mothers had not finished high school, 25% had gone no further than high school, 23% had had some college, 19% had gone to trade school, 7% had a college degree and the remaining 6% held a graduate degree. The average total monthly family income was $1,000–$1,999. Half of the mothers were currently married.

Measures

Ten questions were developed from the literature on adolescents and sex education to measure sexual communication between adolescents and their mother; because both individuals completed this part of the questionnaire, data are available from the perspective of both parent and child. The questions administered to the adolescents, which were reworded to allow mothers to report their version of the communication, were:

- Have you and your mother ever talked about when to start having sex?
- Have you and your mother ever talked about birth control?
- Have you and your mother ever talked about condoms?
- Have you and your mother ever talked about AIDS or HIV?
- Have you ever talked to your mother about reproduction/having babies?
- Have you ever talked to your mother about physical/sexual development?
- Have you ever talked to your mother about masturbation?
- Have you ever talked to your mother about STDs?
- Has your mother ever talked to you about how to handle sexual pressure by your friends or potential partners?
- Has your mother ever talked to you about choosing sexual partners?

For each item, a "no" response was scored as one and a "yes" response as two. The alpha coefficients for the adolescent- and mother-completed versions were 0.78 and 0.79, respectively. Higher scores indicate more communication on sex-related topics between a mother and her teenage child.

The same 10 items also were used to assess sexual communication between adolescents and fathers; as fathers were not interviewed in this study, father-adolescent communication data are available from the teenagers' perspective only. Moreover, adolescents who reported that they had no contact with their father were excluded from this part of the study, reducing the final sample size to 770 adolescents. The 10 items were summed in the same way as the items measuring communication with mothers. The alpha co-

Table 1. Percentage of mothers who reported discussing sex-related topics with their adolescent child, and percentage of adolescents who reported having such a discussion with their mother and with their father, all by adolescent's gender and ethnicity, according to topic of discussion, Montgomery, Ala., New York City and San Juan, Puerto Rico, 1993–1994

Topic	Mothers reporting discussion	Adolescents reporting discussion with mother					Adolescents reporting discussion with father				
		All†	Gender		Ethnicity		All	Gender		Ethnicity	
	(N=907)	(N=907)	Female (N=519)	Male (N=388)	Black (N=476)	Hispanic (N=431)	(N=770)	Female (N=441)	Male (N=329)	Black (N=354)	Hispanic (N=416)
When to start having sex	63	52	60	42*	56	49	31	28	35	30	32
Birth control	65	46	57	31*	48	44	22	16	30*	19	24
Condoms	74	66	64	68	65	66	40	27	58*	38	42
HIV/AIDS	92	79	81	76	76	82	53	50	57	45	59*
Reproduction	73	63	71	51*	61	64	27	20	37*	25	29
Physical/sexual development	51	40	51	25*	42	38	15	9	22*	14	15
Masturbation	27	15	15	15	13	17	8	2	15*	6	10
STDs	85	70	74	66*	71	70	40	34	47*	37	42
Pressures to have sex	71	54	67	36*	57	51	39	44	32*	39	39
Choosing sex partners	58	51	53	48	24	59*	32	30	36	24	39*

*Difference by gender or race is statistically significant at p≤.01. †Significantly higher proportions of adolescents reported talking about each topic with their mother than with their father (p<.01).

efficient for this measure was 0.86.

Another 10 items measured the process of sexual communication between the adolescents and their mothers. For the teenagers, these items, which again were reworded to assess the mothers' perceptions, were:

- My mother doesn't know enough about topics like this to talk to me.
- My mother wants to know my questions about these topics.
- My mother tries to understand how I feel about topics like this.
- When my mother talks to me about these topics, she warns or threatens me about the consequences.
- My mother knows how to talk to me about topics like this.
- I can ask my mother the questions I really want to know about topics like this.
- My mother and I talk openly and freely about these topics.
- My mother tells me things about these topics that I already know.
- If I talked to my mother about these topics, she would think I'm doing these things.
- My mother doesn't talk to me about these topics; she lectures me.

Each item was scored on a four-point Likert scale ranging from one (strongly disagree) to four (strongly agree). Those items that were cast in negative wording were reverse-scored, so higher scores would uniformly indicate more open and receptive communication between mother and adolescent. As we were interested in the process of sexual communication from the combined perspective of mother and adolescent, we summed the 20 items from both respondents to form one score. The alpha coefficient of the combined measure was 0.74.

For each possible type of communication—mother-child and father-child from the adolescent's perspective, and mother-child from the mother's perspective—we conducted a chi-square analysis across the 10 topics, and then performed simple chi-square analyses comparing individual topics to one another. Because a number of statistical tests were performed, we elected to set the p value at .01 to partially control for repeating the null hypotheses when no difference existed.*

Results

Which Topics with Which Parent?

The data on whether specific topics were ever discussed, seen from both the adolescents' and the mothers' perspective, are presented in Table 1. For all three types of communication, a significant chi-square emerged ($\chi^2(9)>401.00$, $p<.01$, in all cases), indicating that the 10 topics were not equally discussed.

HIV or AIDS and STDs were most commonly discussed topics in all three communication scenarios, whereas masturbation and physical and sexual development were the least frequently discussed. In adolescent-mother conversations, from both the parents' and teenagers' perspectives, the next most commonly discussed topics were condoms, reproduction, pressures to have sex, when to start having sex and choosing sex partners. The rank order of the frequency of discussions about birth control varied slightly by whether the mother or the adolescent was reporting such discussions.

Among adolescents who had ever held conversations on sex-related topics with their father, the most frequently reported topics after HIV or AIDS and STDs were condoms, pressures to have sex, choosing sex partners, when to start having sex, reproduction and birth control.

We next examined if gender and ethnicity affected the likelihood that specific sexual topics would be discussed. According to the adolescents' reports of which parent they had talked with, significantly higher proportions of adolescents reported that they had talked about each sexual topic with their mother than with their father ($\chi^2(1)<21.54$, $p<.01$).

But are fathers more likely to talk to their adolescent sons about sex, while mothers are more likely to do so with their daughters? We performed chi-square analyses to test for such a gender differential in discussions on individual topics with either parent. As Table 1 shows, this gender differential was significant for seven of the 10 topics discussed with fathers ($\chi^2(1)>5.98$, $p<.01$): Male adolescents were significantly more likely than female adolescents to report having discussed six of the topics with their father, and they were significantly less likely to have discussed a seventh (pressures to have sex). In contrast, the data on mother-adolescent discussions indicate that daughters were significantly more likely than sons to report having talked to their mother about six topics ($\chi^2(1)> 5.69$, $p<.01$).

We also examined ethnicity within the context of conversations with either parent. According to the adolescents' reports, significantly greater percentages of Hispanic fathers than of black fathers had discussed two of the 10 topics with their children—HIV or AIDS and choosing a sex partner ($\chi^2(1)> 15.28$, $p<.01$). A significant difference emerged between black and Hispanic adolescents in mother-child discussions only for choosing sex partners, with Hispanic adolescents more than twice as likely to report having talked about this topic with their mothers as were black adolescents ($\chi^2(1) = 70.20$, $p<.01$).

*Further details about the analyses are available from the first author.

Agreement in Reports

We then compared adolescents' and mother's responses to gauge the degree to which their reports of specific discussions coincided. Mothers were more likely than adolescents to say that a discussion occurred for each of the 10 sexuality topics. This difference was significant at $p<.01$ for all topics except for condoms and choosing sex partners, which were significant at $p<.05$.

To more precisely examine agreement between mothers and adolescents, we conducted a case-by-case comparison of each individual teenager's report and his or her mother's report. We distributed the sample across three main groups of agreement. These included the overall percentage of mothers and their adolescent children who agreed that each topic either was or was not discussed (broken down into the proportion in which both agreed that the discussion had taken place and the proportion in which both concurred that it had not); the proportion in disagreement because the mother claimed that the topic had been discussed while the adolescent asserted that it had not; and the proportion in disagreement because the adolescent said that the topic had been discussed, while the mother reported that it had not.

The overall proportions in agreement—agreeing that a topic either had or had not been discussed—differed significantly by topic ($\chi^2(9)>52.3$, $p<.01$). According to simple chi-square analyses of agreement for each individual topic, significantly higher proportions of mother-child pairs were in agreement about their discussions of HIV or AIDS and masturbation than about most other topics (Table 2). For the former, this agreement stems from the pairs' concurring that the discussion had taken place, while for the latter, it arises from the participants' agreeing that discussion had not taken place.

For all topics, when there was a disagreement because only one party affirmed that a discussion had taken place, mothers were significantly more likely than adolescents to report that a discussion took place ($\chi^2(1)>11.39$, $p<.01$).

Process of Communication

Does the process of sexual communication play a role in whether adolescents recall that a particular topic was discussed, or in whether adolescents and mothers agree about which topics had been discussed? To answer this question, we summed the scores for the questions on the process of sexual communication (10 from the adolescent and 10 from the mother) into overall process scores and then divided these into quartiles, where scores in the first quartile indicated the least open communication between mother and adolescent, and scores in the fourth quartile indicated the most open communication. We then analyzed whether the degree of openness about sexual communication resulted in a difference in the percentage of mothers and adolescents who reported that they discussed a particular topic and in the percentage who agreed that they had discussed that topic, by gender of the adolescent.

The analyses of variance showed that the adolescent's gender had a significant effect on the proportion who agreed with their mothers: Female adolescents reported significantly more agreement than did male adolescents ($F(1,899)>39.21$, $p<.01$). Of even more interest, the process of sexual communication had a significant effect on the likelihood of agreement, with more open and receptive communication being associated with a higher degree of adolescent-parent agreement ($F(3,899)>48.25$, $p<.01$).

Figure 1 shows the quartiles for the process-of-communication scores by the mean percentage of the 10 topics that adolescents reported as having been discussed, and by the mean proportion in overall agreement about the discussions. The figure shows that as the process of sexual communication becomes more open and receptive (moving from the first through the fourth quartiles), the proportion who reported discussing a topic increases, as does the proportion of mothers and adolescents in agreement about those discussions. However, the interaction term was not significant in either analysis ($F(3,899)<.44$ in both cases), indicating that the adolescent's gender did not interact with the communication process to influence the proportion of mothers and adolescents who were in agreement about their discussions.

Table 2. Percentage distribution of mother-child pairs, by agreement over whether discussions about sexual topics had or had not occurred, according to individual topic (N=907)

Topic	N	% in agreement			% in disagreement		Total
		Overall	Both say discussion occurred	Both say discussion did not occur	Mother alone says discussion occurred	Adolescent alone says discussion occurred	
When to start having sex	906	65	40	25	23	12	100.0
Birth control	907	62	36	26	28	10	100.0
Condoms	907	68	54	14	20	12	100.0
HIV/AIDS	907	77	74	3	18	5	100.0
Reproduction	902	62	49	13	24	14	100.0
Physical/sexual development	906	61	26	35	25	14	100.0
Masturbation	904	74	8	66	19	7	100.0
STDs	906	71	63	8	22	7	100.0
Pressures to have sex	903	61	43	18	28	11	100.0
Choosing sex partners	904	58	34	24	25	17	100.0

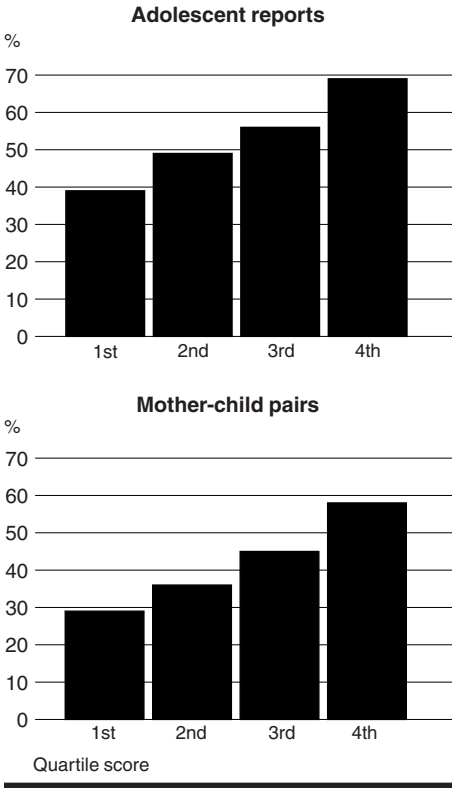
Note: Ns do not always total 907 because some respondents did not provide data on all topics.

Discussion

A substantial proportion of mothers and their adolescent children reported that parent-child discussions on 10 sexual topics had occurred. In particular, such topics as HIV or AIDS, STDs, condom use and pressures to have sex had been discussed with a parent in more than one-half of the families.

However, sizable proportions of our sample had not discussed many of the sexual topics examined. Given that open dis-

Figure 1. Percentage of sexual topics that adolescents report being discussed, and percentage of mother-child pairs agreeing that topics were discussed, from least-open to most-open quartile of communication score



cussion of sexual topics has been shown to inhibit early initiation of sexual activity, increase condom use and reduce sexual risk-taking behavior,[23] our findings suggest a need for educational programs designed to facilitate communication between parents and adolescents.

Not surprisingly, our data from a sample of black and Hispanic adolescents indicate that more mothers than fathers discuss sexual topics with adolescents. This finding underscores the fact that mothers are still the primary communicator with adolescents regarding sexual behavior and related topics, regardless of the adolescent's gender. These results agree with those from studies conducted among samples of white families.[24]

Moreover, our data also confirm previous research among predominantly white samples that the gender of the adolescent affects the gender of the parent with whom discussions take place[25]—that is, mothers are more likely to communicate with their daughters about sex than with their sons, whereas fathers are more likely to discuss sex with their sons than with their daughters. Interestingly, topics such as birth control, reproduction, physical and sexual development and sexual pressures are more likely to be discussed by same-gender pairs (i.e., mother-to-daughter and father-to-son) than are such topics as HIV or AIDS and choosing a sexual partner. This finding indicates that, to understand the process of sexual communication, it is important to examine discussion of individual topics rather than global sexual communication between parents and adolescents.

When we considered ethnicity within the context of conversations with either parent, the likelihood of discussion was similar in black and Hispanic families, despite the fact that these groups demonstrate substantially different cultural patterns in parenting.[26] We propose that similar educational programs, at least in terms of what should be discussed, would be useful for these two groups.

Do parents and adolescents agree that sexual topics have or have not been discussed? Similar to the findings of earlier research,[27] mothers and adolescents had modest levels of overall agreement (ranging from 58% to 77%, depending on the topic). When disagreement occurred, mothers were more likely than adolescents to report that such a topic had, in fact, been discussed, a finding that also concurs with those of earlier research.[28] This suggests sexual communication might be facilitated by discovering new ways to help parents discuss certain topics and make sure adolescents listen.

One way to facilitate such communication is to improve the process, by enhancing parental openness and receptiveness to discussions. This suggests that the content and process of sexual communication are intertwined, and thus should be studied together rather than separately. The study of sexual communication and of the educational programs developed to increase such communication should include not only what is discussed, but how it is discussed.

Our findings have several clinical implications for educational programs. First, many topics are clearly not being discussed; failure to provide adolescents with information on these specific topics may place them at risk for negative outcomes.

In addition, not only do many different topics need to be discussed, but parents need to adopt an open and receptive approach when initiating conversations or responding to teenagers' questions. An open process of sexual communication involves parents' having adequate knowledge, being willing to listen, talking openly and freely, and understanding the feelings behind questions posed by adolescents.

Moreover, adolescent intervention specialists should be aware that mothers and fathers play different roles in sexual communication. Mothers in our sample of black and Hispanic 14–16-year-olds were the primary communicators of sexual topics, as were mothers in samples of white adolescents. The prominence of the mother's role cannot be ignored in educational programs; however, fathers appear to communicate with their children about certain sexual topics, particularly with their sons (e.g., on condom use and STDs). Thus, fathers should not be ignored in research or in educational programs designed to foster effective parent-adolescent communication about sex.

These implications need to be considered in light of the study's limitations, however. First, the data are cross-sectional; thus, implications about causality cannot be drawn. Furthermore, our assessment of topics examined only whether a discussion had occurred, and thus provide only a brief snapshot of a complex and ongoing exchange. Information regarding the nature, depth, frequency and length of discussions is needed to fully understand communication about sex.

Another shortcoming is that we did not examine the process of communication for each individual topic. If intervention programs are to be effective, how each topic is communicated and understood needs to be studied. Our study also did not have any data supplied by fathers; it would have been strengthened by their inclusion. Neither was the degree of contact between fathers and adolescents assessed; how often adolescents see their father and the quality of that relationship may have influenced the findings. Finally, we did not consider the content and process of sexual communication within broader familial and extrafamilial contexts, which are likely to be important.

On the other hand, this analysis is the first such study to be conducted among a sample of minority adolescents, who have been identified as being at high risk for several negative outcomes of early sexual activity.[29] In addition, our sample was large enough to allow examination of gender and ethnic differences. Moreover, we evaluated not only the content of sexual discussions, but also their process.

Future research might build upon our findings by focusing on how the process and content of sexual communication relate to sexual risk-taking behavior. The role of each parent, particularly in two-parent families, should be considered. Research also needs to expand from addressing what parents say and how they say it to examining the role of other parent variables, such as their attitudes toward adolescent sexuality and their own behavior that they present as a model for their adolescent children. To understand, and perhaps change, how parents influence adolescent sexuality, the complex set of behaviors and attitudes that constitute parenting will have to be studied further.

References

1. Aggleton P, Young people and AIDS, *AIDS Care,* 1995, 7(1):77–80.

2. Centers for Disease Control and Prevention (CDC), HIV/AIDS Surveillance Report, 1997, 9(1):1–39.

3. Bluestein D and Starling ME, Helping pregnant teenagers, 1994, 161(2): 140–143.

4. DiMauro D, *Sexual Research in the United States: An Assessment of the Social and Behavioral Sciences,* New York: Social Science Research Council, 1995.

5. Fisher TD, An extension of the findings of Moore, Peterson, and Furstenberg (1986) regarding family sexual communication and adolescent sexual behavior, *Journal of Marriage and the Family,* 1989, 51(3):637–639; and Pick S and Palos P, Impact of the family on the sex lives of adolescents, *Adolescence,* 1995, 30(119):667–675.

6. Alexander SJ, Improving sex education programs for young adolescents: parents' views, *Family Relations,* 1984, 33(4):251–257; and Bowler S et al., HIV and AIDS among adolescents in the United States: increasing risk in the 1990s, *Journal of Adolescence,* 1992, 15(4):345–371.

7. Nolin MJ and Petersen K, Gender differences in parent-child communication about sexuality: an exploratory study, *Journal of Adolescent Research,* 1992, 7(1):59–79;

(continued on page 235)

Family Communication...

(continued from page 222)

ry study, *Journal of Adolescent Research*, 1992, 7(1):59–79; and Noller P and Callan VJ, Adolescents' perceptions of the nature of their communication with parents, *Journal of Youth and Adolescence*, 1990, 19(4):349–362.

8. Ibid.

9. Jaccard J and Dittus PJ, Parent-adolescent communication about premarital pregnancy, *Families in Society: The Journal of Contemporary Human Services*, 1993, 74(6):329–343.

10. Furstenberg FF Jr. et al., Family communication and teenagers' contraceptive use, *Family Planning Perspectives*, 1984, 16(4):163–170.

11. Inazu JK and Fox GL, Maternal influence on the sexual behaviors of teenage daughters, *Journal of Family Issues*, 1980, 1(1):81–99.

12. Leland NL and Barth RP, Characteristics of adolescents who have attempted to avoid HIV and who have communicated with parents about sex, *Journal of Adolescent Research*, 1993, 8(1):58–76.

13. Sigelman CK et al., Parents' contributions to children's knowledge and attitudes regarding AIDS: another look, *Journal of Pediatric Psychology*, 1995, 20(1):61–77.

14. Jaccard J and Dittus PJ, 1993, op. cit. (see reference 9).

15. Jaccard J, Dittus PJ and Gordon VV, Parent-adolescent congruency in reports of adolescent sexual behavior and in communications about sexual behavior, *Child Development*, 1998, 69(1):247–261; and Nolin MJ and Petersen K, 1992, op. cit. (see reference 7).

16. Noller P and Callan VJ, 1990, op. cit. (see reference 7).

17. Furstenberg FF Jr. et al., 1984, op. cit. (see reference 10); and Jaccard J, Dittus PJ and Gordon VV, 1998, op. cit. (see reference 15).

18. Nolin MJ and Petersen KK, 1992, op. cit. (see reference 7).

19. Whalen CK et al., Parent-adolescent dialogues about AIDS, *Journal of Family Psychology*, 1996, 10(3):343–357.

20. Forehand R and Kotchick BA, Cultural diversity: a wake-up call for parent training, *Behavior Therapy*, 1996, 27(2):187–206.

21. Furstenberg FF Jr. et al., 1984, op. cit. (see reference 10); and Jaccard J, Dittus PJ and Gordon VV, 1998, op. cit. (see reference 15).

22. Miller KS et al., Adolescent heterosexual experience: a new typology, *Journal of Adolescent Health*, 1997, 20(3):179–186.

23. Kotchick BA, Miller KS and Forehand R, Adolescent sexual behavior: a multi-system perspective, *Clinical Psychology Review*, 1998 (forthcoming).

24. Nolin MJ and Petersen KK, op. cit. (see reference 7).

25. Jaccard J and Dittus PJ, 1993, op. cit. (see reference 9).

26. Forehand R and Kotchick BA, 1996, op. cit. (see reference 20).

27. Furstenberg FF Jr. et al., 1984, op. cit. (see reference 10); and Jaccard J, Dittus PJ and Gordon VV, 1998, op. cit. (see reference 15).

28. Ibid.

29. CDC, 1997, op. cit. (see reference 2).

COMMENT

Studying Parental Involvement in School-Based Sex Education: Lessons Learned

By Diana P. Oliver, Frank C. Leeming and William O. Dwyer

Carol Weiss, an influential figure in program evaluation, has written that "only with sensitivity to the politics of evaluation research…can the evaluator be as creative and strategically useful as he should be."[1] This is true for all evaluations, but for an evaluation in the extremely controversial area of school-based sexuality education, political factors may become a predominant issue.

In particular, the school environment is likely to be dominated by political constituencies—both liberal and conservative—attempting to foster their own agendas. As a result, school officials must deal with well-organized groups emphatically advocating diametrically opposed views. In such an environment, it is not surprising that conducting a valid evaluation study is often a lesser concern. Other potential stumbling blocks include teachers who are uncomfortable with the curriculum, parents who are uncomfortable in dealing with their adolescents' sexuality and the numerous problems associated with conducting applied research in "real world" settings, where many activities are not under the investigators' control.

We encountered a number of these problems during a 1996 pilot study with 5th–8th-grade students in Memphis, Tennessee. With the aim of increasing parental involvement in school-based family life education, we examined the value of supplementing the curriculum with joint parent-child homework assignments. In addition, we sought to assess the efficacy of a voluntary parental training program that taught techniques for increasing communication between parents and children.

Diana P. Oliver is a doctoral student, Frank C. Leeming is professor and codirector of the Behavioral Community Psychology Program, and William O. Dwyer is professor and codirector of the Behavioral Community Psychology Program, all with the Department of Psychology, University of Memphis, Memphis, TN. The research on which this article is based received partial support through a grant from the Memphis City Schools.

The purpose of this article is to share some of our experiences in this area, and to provide some insights to others contemplating evaluation work in school-based sexuality education.

Background

In 1988, the Memphis City Schools developed and implemented the Family Life Curriculum, a knowledge- and skills-based sexuality education program designed for students from kindergarten through 12th grade with the stated purpose of reducing the high adolescent pregnancy rate. This initiative was adopted in anticipation of the passage of a 1989 Tennessee state law mandating school-based sex education in counties with adolescent pregnancy rates exceeding 19.5 pregnancies per 1,000 young women aged 15–17.

The program was part of the health education curriculum and progressed from simple concepts of family at lower elementary grade levels to complex family relationships and human sexuality at the junior and senior high school levels. A variety of approaches was used in the presentation of this material, including lectures, discussions, audiovisual presentations and guest speakers.

As with many school-based sexuality education programs, the curriculum was hotly debated before being implemented, and the Tennessee State Board of Education mandated that the program be evaluated five years after its inception. This evaluation, in which we took part, was presented in 1994 to the Memphis City Schools' Board of Commissioners.[2]

The most prominent finding of our report was that for unknown reasons, the curriculum had been only sporadically implemented. In some schools it had never been presented, whereas in other schools, the teachers assigned to present it had covered only selected portions of the material. Thus, the program's effectiveness with regard to the goal of reducing teenage pregnancy could not be adequately assessed.

The report also called attention to the absence in the program of any initiatives to encourage parents' involvement with their children's sexuality education. While many school-based programs lack such a component, a small body of recent research suggests that the promotion of parental involvement may be an important component of school-based sexuality-education programs.[3] Therefore, the report recommended that steps be taken to empower parents of children in the city schools to take part in their children's sexuality education.

Specifically, we recommended that a pilot study be conducted to test the efficacy of adding two supplements to the curriculum: joint parent-child homework assignments to encourage parents to be more involved and to communicate with their adolescents about sexual issues, and a workshop for parents to develop skills for doing so. The Memphis public school administration implemented this pilot study, and we were invited to assist in its planning, execution and evaluation. What follows is an overview of this effort, including our initial strategies, the impediments we encountered, our midcourse corrections and the eventual outcome, which—despite many difficulties—had an unexpected level of impact.

Methods

Initial Strategy

To maximize both the involvement of a variety of stakeholders and the potential for the findings' implementation, the pilot study and evaluation plan were developed in collaboration with Memphis public school administrators and the Family Life Curriculum Council (an advisory group made up of educators, professionals, parents and students). The plan was then re-

Table 1. Selected characteristics of schools and grades participating in an evaluation of the Family Life Curriculum, by experimental and control groups, Memphis, Tennessee, 1996

Characteristic	Experimental group		Control group	
	School A	School B	School C	School D
School characteristics				
Total enrollment	625	559	543	740
% mean daily attendance	95	94	95	92
% of students receiving free lunch*	19	74	21	35
Student sex and ethnicity				
% black male	15	54	14	28
% black female	20	46	12	29
% white male	31	0	37	24
% white female	33	0	36	19
Grade 5				
No. of teachers	1	na	1	na
No. of classes	2	na	2	na
No. of students	78	na	50	na
Grade 6				
No. of teachers	1	na	1	na
No. of classes	2	na	3	na
No. of students	71	na	68	na
Grade 7				
No. of teachers	na	3	na	2
No. of classes	na	3	na	8
No. of students	na	78	na	199
Grade 8				
No. of teachers	na	2	na	2
No. of classes	na	3	na	8
No. of students	na	47	na	184

*Percentage of students who received free lunch was used as an index of school socioeconomic level. *Note:* na=not applicable.

viewed and approved by the Memphis City Schools' Board of Commissioners.

The final plan, which called for an experimental group and a nonequivalent control group, was designed to use the following outcome measures: pretest and posttest data from a survey given to students to assess the quality and extent of their communication with their parents; and a parents' survey addressing their perceptions of the program after the curriculum had been delivered—and, in the case of the experimental parents, their views on the homework and the workshops. Once the plan for the pilot study and evaluation was approved, parents, teachers, school administrators and members of the Family Life Curriculum Council were involved in every step of the pilot study's development and implementation.

Participants

In all, 775 students in grades 5–8 at four Memphis public schools participated in the study conducted during the 1994–1995 school year, as did one or both parents of these students. The four schools chosen for the pilot program—two elementary schools and two junior high schools—were selected by school administrative personnel, who also determined which would be the experimental schools and which would be the controls.

Although school officials were well aware of the needs presented by the research design, we were unable to influence either the selection of schools or their assignment to experimental or control status. The result was that experimental and control schools were decidedly "nonequivalent." Table 1 shows the characteristics of each school and the number of teachers and students involved in the pilot project at each grade level. Experimental and control schools differed in terms of both racial composition and socioeconomic level. In addition, the two groups of schools differed in their levels of experience with the curriculum.

Materials and Instruments

•*Homework supplement.* The curriculum supplement used in the experimental classes consisted of homework designed to be completed by the student and one or both parents. (Copies of homework assignments are available from the authors upon request.) The homework assignments were developed at a one-day workshop attended by the teachers assigned to present the experimental program, designated school administration personnel and the senior author of this article.

Assignments for each grade level were designed to enhance the curriculum, as well as to promote parent-child discussions of subjects related to family life and human sexuality. The topics were grade-appropriate, were based on the curriculum content, and covered subjects such as family structure and relationships, coping with conflicts, changes that occur during puberty, and dating and sexuality. Each assignment included a parent's sign-off sheet indicating that the parent and child had completed the assignment together. This sheet, rather than the actual homework, was to be returned to the classroom teacher.

•*Student surveys.* With the assistance of students, teachers, counselors, the Family Life Curriculum Council and the school personnel involved in overseeing the program, two student surveys were developed. These consisted of a 27-item survey for students in grades 5–6 and a 43-item survey for students in grades 7–8. The surveys were developed to assess the students' perceptions of the degree to which they had communicated with their parents on topics related to the program.

The questions were designed in a Likert format and included items such as: "I have talked with my parents about how my body will change as I get older"; "In the last six weeks, how many times have you and your parents discussed how to handle sexual pressure?"; and "How valuable (helpful) were your talks with your parents about abstinence (not having sex)?" The surveys went through several reviews and revisions during the development process and were eventually approved by the superintendent's office.

•*Parent workshop curriculum.* A workshop, entitled "Communicating with Your Child in the 90s," was conducted by an agent from the University of Tennessee Agriculture Extension Service with teaching experience in this topic. The two-hour workshop consisted of several activities designed to help parents improve their listening and communication skills.

Topics covered in the workshop included parents as teachers, developing listening skills, assessing children's needs, assessing personal strengths and weaknesses, and developing communication skills. In addition, the program included a video entitled "A Family Talks About Sex," which presented several family scenarios demonstrating effective techniques for discussing human sexuality with children at different age levels.

•*Parent postintervention survey.* We used a 40-item survey to probe parents for their attitudes concerning the family life curriculum and to assess various aspects of parent-child communication. To the surveys sent to parents of children in the experimental group, we added six other items concerning the parent workshops and the homework assignments, neither of which involved parents of the control students. (Copies of the survey are available from the authors upon request.)

Procedures

The original evaluation plan called for pretest and posttest comparisons of nonequivalent experimental and control groups. The principal outcome measure was to be the children's responses on the survey administered in their classes before and after presentation of the curricu-

lum, which consisted of 10 lessons to be taught over 2 weeks. Before the surveys were to be administered, notes were to be sent to parents to inform them of the project, to provide them with instructions as to how they could review the survey at their child's school and to give them an opportunity to withhold consent for their child's participation in the survey.

Teachers in all schools were assigned in the usual way to present the curriculum, and no teachers were given any special training regarding the program. In the experimental schools, instructors were asked to keep a journal indicating which lessons had been covered during the course of the program, when homework assignments had been sent home, the number of assignments sent home and the number of sign-off sheets returned. In control schools, they were simply instructed to teach the standard curriculum as described in the curriculum guide. After the experimental curriculum had been presented, students at both experimental and control schools were asked to take the parents' survey home for their parents to complete, and to return it to their classroom teachers in a sealed envelope.

During the first week of the program, parents of students in the two experimental schools were invited to attend the two-hour parent workshop on communicating with their children. A letter of invitation was sent home with each student. Parents were asked to return a signed form indicating that they would be attending the workshop. Those parents who indicated that they would attend received a telephone reminder on the day of the workshop confirming the time and place.

A major setback in the project occurred when, just prior to the first scheduled student survey, the Board of Commissioners voted, after a brief discussion, not to allow the distribution of *any* survey instrument to the children in the study. Elimination of this component of the study meant that no data were obtained from the primary targets of the intervention—the children. Thus, the only outcome data available consisted of parents' responses to the survey to be administered after presentation of the curriculum. The result was that all data were postintervention, thereby precluding any assessment of the initial comparability of the participants.

To mitigate the problem created by the elimination of the before-and-after survey, we decided to involve family life curriculum teachers and parents of experimental and control children in separate focus-group discussions. It was hoped that in-depth, qualitative data on perceptions of impact of the homework and parent training would serve to reduce administrators' uncertainty about the value of the curriculum supplements. After family life instruction and the parents' survey, a letter was sent home with each child who participated in the pilot project inviting parents to attend focus-group discussions about the curriculum. Once again, parents who responded that they would participate received a telephone call to remind them to attend.

Table 2. Percentage of students in grades 5–8 who completed each of nine family life education homework assignments, all by grade and classroom teacher

Grade and teacher	1	2	3	4	5	6	7	8	9
Grade 5									
Teacher 1 (N=78)	73	79	79	91	91	86	na	na	na
Grade 6									
Teacher 1 (N=71)	92	92	97	97	99	100	100	96	90
Grade 7									
Teacher 1 (N=25)	40	28	40	36	32	na	na	na	na
Teacher 2 (N=35)	u	u	u	u	u	u	u	u	u
Teacher 3 (N=18)	u	u	u	u	u	u	u	u	u
Grade 8									
Teacher 1 (N=40)	38	88	90	63	50	55	50	na	na
Teacher 2 (N=7)	100	100	100	100	100	100	100	na	na

Note: na=not applicable. u=unavailable.

Discussions with parents of students in the experimental schools focused on overall attitudes toward the curriculum, the impact of the homework assignments, satisfaction with the homework assignments, methods of increasing parental involvement in school-based sex education and suggestions for improving the program. Similar topics were covered with parents of students in the control schools, and the moderator described the use of homework assignments in other classes and invited discussion of that approach.

We also held separate focus-group discussions for teachers of the experimental curriculum and those teaching the standard curriculum in the control schools. Topics discussed by teachers from experimental schools were to include their overall satisfaction with the curriculum, the successes and failures of the pilot program, the teacher's impressions of the impact of the homework assignments and techniques for improving the program. Similar topics were covered in discussions with teachers from control schools. As had been done in discussions with parents, the moderator described the homework assignments and prompted discussion of their use.

All focus-group or interview sessions were audiotaped. The moderator, the assistant to the moderator and the family life coordinator observed and took notes. Verbatim transcripts were prepared from the audiotapes and used to conduct a content analysis of the discussions according to previously established guidelines.[4]

Results

Teacher and Student Participation

Five of the seven experimental teachers completed their journals. These five indicated that they had covered most or all of the topics in the curriculum. The two remaining teachers failed to complete their journals. One had been absent during much of the time the curriculum was taught, and did not indicate whether the material had been covered in his absence. The other gave no information.

Table 2 shows the percentage of students in each teacher's classroom who returned the parental sign-off sheets. For the seven teachers involved in the experimental group, only one provided students with the entire homework supplement (Teacher 1 in Grade 6), and she had a return rate of 96%. Overall, only 34 of the planned 63 homework assignments (54%) were ever given to the students. For the 34 assignments, 83% of the total number of students who were enrolled in the class returned signed sheets stating that the assignment had been completed. These data suggest, not surprisingly, that gaining the support of the teachers is a key determinant of the success of this type of program.

Parents' Evaluation

• *Postintervention survey.* In all, 775 students participated in the study: 274 students in the experimental group and 501 in the control group. Each teacher received a parents' survey packet for each student in his or her classroom. A total of 348 parents (45%) returned surveys—172 (63%) from parents of children in the experimental group and 176 (35%) from parents of children in the control group. A factor analysis of the parent survey data, using varimax and oblique rotations, helped us to identify three factors affecting parents' opinion of the curriculum: their "attitude toward family life curriculum," which included five items and accounted for 11% of rotated variance; "recency of communication," which included 12 items and ac-

counted for 13% of rotated variance; and "value of communication," which included 12 items and accounted for 19% of rotated variance.

A t-test of the combined scores of the five items constituting the "parents' attitudes" factor showed significantly higher scores for parents of the experimental students than for parents of the control students, ($t[315]=3.87$, $p \leq .05$), indicating that parents of students in the experimental group had more favorable opinions about the curriculum than did parents whose children were in the control schools. For the other two factors, t-tests showed no significant differences between parent groups.

Four of the questions added to the survey of parents in the experimental group addressed the homework assignments. Sixty-seven percent of those parents who returned the surveys agreed or strongly agreed that the homework assignments encouraged their children to discuss topics that they had not discussed before, and 77% agreed that the assignments were useful in promoting communication with their children. Forty-eight percent believed that the assignments had provided them with an opportunity to discuss topics that they had previously postponed, although 73% stated that they had discussed most of the topics covered in the assignments before the curriculum had been taught that year.

•*Workshops.* The parent workshop was very poorly attended; although there were 274 children in the experimental group, only 18 people (representing 14 families) attended. Parents who attended the workshop were asked to rate its value in the survey. Five parents rated the workshop as "very valuable," seven rated it as "valuable" and six parents rated it as "somewhat valuable."

•*Focus-group discussions.* Twenty-four parents attended one of six focus-group discussions. Comments during these sessions consistently indicated that parents' overall impressions of the curriculum were positive, regardless of whether their children were in the experimental or control schools. Parents in the experimental group expressed a high degree of satisfaction with the homework assignments and indicated that they were an effective method of initiating discussions.

Several parents said that the homework assignments provided a stimulus, or an "excuse to talk," as well as opportunities to move beyond topics covered by the assignments into other areas of concern and interest. These parents said they used the assignments as a "screening process" to monitor what was being discussed in the classroom and to add their beliefs and family values to that instruction. When asked how they would feel if the homework assignments were removed from the curriculum, their response was a resounding "No, don't do that!"

During the discussions with the parents of students in the control schools, examples of the homework were provided, and the concept of the homework assignments was explained. These parents were then asked to discuss their impressions of the potential value of homework assignments. All comments were positive, with most parents emphasizing the importance of knowing what is being taught and having the opportunity to reinforce that information.

Teachers' Evaluation

Of the 13 teachers in the pilot study, only three attended the scheduled discussion groups, one from an experimental school and two from one of the control schools. These three were very positive about the curriculum and believed that it was a productive and useful program. As in the parents' focus group, the teachers believed the homework assignments would foster productive parent-child communication and alleviate the concerns of some parents about the content of the curriculum.

Discussion

It has been asserted that a major function of any evaluation study is to provide information that "reduces the uncertainty of action for specific stakeholders" to assist them in their programmatic decision making.[5] Our initial hope had been to provide such information through a carefully designed study. However, because we were not allowed to collect survey data from participating children, the evaluation was limited to posttest measures obtained from parents and teachers who completed surveys and attended focus-group or interview sessions. With all of these measures, selection bias posed a serious threat to the validity of any conclusions. Nevertheless, although the evaluation was far less rigorous than planned, it did provide information that school administrators found useful and that ultimately resulted in a system-wide change in the program.

Our evaluation findings were included in a report that was submitted to the school administration and the Board of Commissioners. For about a year, they took no significant action, and we believed that the report had been "filed." Soon afterward, however, there was renewed interest in the findings (due, in part, to inquiries made of the Board of Commissioners by the League of Women Voters), especially with regard to the joint child-parent homework assignments.

Without contacting us, school administrators designed and initiated a large-scale test of the program, which involved 1,183 kindergarten through ninth grade students in 42 different schools. Outcome measures included short surveys completed by students, parents, teachers and principals. Each survey consisted of Likert-scale items asking the participants to describe their opinions on curriculum content and the effectiveness of the homework assignments. When the school administrators received positive feedback from these surveys, they decided to expand the use of the homework supplement throughout the system and at all grade levels. The senior author of this article was then invited to participate in the development of a final report recommending system-wide implementation of the revised curriculum.

We believe that our evaluation reduced uncertainty among administrators about the acceptability of the program to parents, thereby allowing the administration to act decisively on the family life curriculum. We also learned some valuable lessons regarding strategies for improving the evaluation process and ensuring that adequate outcome measures are obtained in evaluations of sexuality education.

•***Bond with those who must deliver the program.*** Although we attempted to involve family life teachers in the study by meeting with them before the study and by working with several of them when we developed the homework assignments, no structure had been developed to promote their full participation in the curriculum instruction. Thus, only one teacher out of nine in the experimental group distributed all of the homework assignments, and one teacher did not distribute any homework assignments.

Not surprisingly, our data suggest that gaining the support of the teachers is a key determinant of the success of this type of program: There was a high overall return rate for the homework that was assigned. We believe it would have been useful to have held focus groups with the teachers before the program was carried out, to obtain their input on strategies for ensuring adequate implementation. Such a strategy might have increased their motivation to more fully enact the project design.

•*Be assertive concerning selection of project participants.* A second problem was that the school administrators determined which

schools would participate in the study and the experimental condition to which each school was assigned. There were obvious differences between the two sets of schools. In retrospect, we should have been more assertive in communicating to school administrators the importance of the groups' equivalence for the project, especially with respect to the schools' history of instructing the family life curriculum. In other words, we should have set more firmly the conditions under which we were willing to undertake the project.

•*Hold fast to the project design.* The most serious design problem we encountered was the last-minute decision to prohibit any questionnaires from being administered to students. Although at the time we believed our options were limited, hindsight suggests that we should have made additional efforts to convince school administrators and board members of the importance of this outcome measure. We should also have made a stronger effort to involve board members in the design of the student questionnaire. Although unrelated political issues were at stake, such actions might have resulted in less resistance. The adage "What I'm not up on, I'm down on" certainly has relevance for the type of evaluation we attempted to conduct, and we strongly encourage others contemplating evaluation work in sex education to consider strategies for ensuring intensive involvement of stakeholders.

•*Think "qualitative."* Our experiences highlight the importance of multiple outcome measures and the value of qualitative methods in program evaluation. There is no doubt that traditional quantitative methods, when they can be applied, maximize internal and external validity and increase the value of the project in reassuring administrators. After the loss of our student survey measure, we decided to conduct focus groups with parents and teachers. Attendance by teachers was low, and attempts to hold additional focus groups for the nonattending teachers were hampered by their loss to follow-up when the project ended with the academic school year. Nevertheless, the discussions that occurred provided us with important insights that were central to the final implementation of the curriculum changes.

•*Notice who is watching.* Our experience with evaluations in the public sector is that the clients and primary stakeholders often rely on the evaluators to become spokespersons regarding the issues at stake. Especially in controversial areas like sex education, numerous groups, organizations, reporters and others seek information, and the client may direct them to the evaluators for comments, presentations and speeches. As this list of other stakeholders grows and they become familiar with the evaluator's activities, opportunities arise to overcome project blockages caused by bureaucracy, politics and organizational inertia. This was certainly our experience during our project.

Because of the sensitive nature of the subject matter, our study's conduct was hampered by political influences and a degree of reticence on the part of some teachers to implement the curriculum. Although these impediments necessitated "mid-course corrections" in the study's execution and evaluation strategies, the effort did result in some valuable findings, and the child-parent homework supplement to the family life curriculum was eventually adopted throughout the Memphis public school system. Thus, in spite of the many difficulties that were encountered, we believe that it is possible to conduct effective research and evaluation in the area of school-based sexuality education. Such work can yield useful information that can alleviate uncertainty among school administrators about these programs.

References

1. Weiss CH, Where politics and evaluation research meet, *Evaluation Practice,* 1993, 14(1):93–106.

2. Dwyer WO et al., The family life curriculum in The Memphis City Schools: an evaluation, technical report, Memphis, TN: University of Memphis, Behavioral Community Psychology Group, Center for Applied Psychological Research, 1994.

3. Thornburg HD, Adolescent sources of information on sex, *Journal of School Health,* 1981, 51(4):274–277; Martin SSK and Christopher FS, Family guided sex education: an impact study, *Social Casework: The Journal of Contemporary Social Work,* 1987, 68(6):358–363; Barth RP et al., Preventing adolescent pregnancy with social and cognitive skills, *Journal of Adolescent Research,* 1992, 7(2):208–232; and Young M, Core-Gebhart P and Marx D, Abstinence-oriented sexuality education, *Family Life Educator,* 1992, 10(4):4–8.

4. Krippendorff K, *Content Analysis: An Introduction to Its Methodology,* Beverly Hills, CA: Sage Publications, 1980; and Tucker RK, Weaver RL, II, and Berryman-Fink C, *Research in Speech Communication,* Englewood Cliffs, NJ: Prentice-Hall, Inc., 1981.

5. Patton MQ, *Utilization-Focused Evaluation,* Newbury Park, CA: Sage Publications, 1986, p. 295.

101 Factors Associated with the Content of Sexuality Education in U.S. Public Secondary Schools
David J. Landry, Jacqueline E. Darroch, Susheela Singh and Jenny Higgins
Perspectives on Sexual and Reproductive Health, 2003, 35(6):261–269

110 The Young Men's Clinic: Addressing Men's Reproductive Helath and Responsibilities
Bruce Armstrong
Perspectives on Sexual and Reproductive Health, 2003, 35(5):220–225

116 Man2Man: A Promising Approach to Addressing the Sexual and Reproductive Health Needs of Young Men
Genevieve Sherrow, Tristan Ruby, Paula K. Braverman, Nathalie Bartle, Shawn Gibson and Linda Hock-Long
Perspectives on Sexual and Reproductive Health, 2003, 35(5):215–219

121 An Evaluation of California's Adolescent Sibling Pregnancy Prevention Program
Patricia East, Elizabeth Kiernan and Gilberto Chávez
Perspectives on Sexual and Reproductive Health, 2003, 35(2):62–70

130 Preventing Sexual Risk Behaviors and Pregnancy Among Teenagers: Linking Research and Programs
Debra Kalmuss, Andrew Davidson, Alwyn Cohall, Danielle Laraque and Carol Cassell
Perspectives on Sexual and Reproductive Health, 2003, 35(2):87–93

137 Preventing Pregnancy and Improving Health Care Access Among Teenagers: An Evaluation Of the Children's Aid Society-Carrera Program
Susan Philliber, Jacqueline Williams Kaye, Scott Herrling and Emily West
Perspectives on Sexual and Reproductive Health, 2002, 34(5):244–251

145 Understanding What Works and What Doesn't In Reducing Adolescent Sexual Risk-Taking
Douglas Kirby
Family Planning Perspectives, 2001, 33(6):276–281

151 Long-Term Outcomes of an Abstinence-Based, Small-Group Pregnancy Prevention Program in New York City Schools
Lisa D. Lieberman, Heather Gray, Megan Wier, Renee Fiorentino and Patricia Maloney
Family Planning Perspectives, 2000, 32(5):237–245

160 Adolescents' Reports of Reproductive Health Education, 1988 and 1995
Laura Duberstein Lindberg, Leighton Ku and Freya Sonenstein
Family Planning Perspectives, 2000, 32(5):220–226

167 Changing Emphases in Sexuality Education in U.S. Public Secondary Schools, 1988–1999
Jacqueline E. Darroch, David J. Landry and Susheela Singh
Family Planning Perspectives, 2000, 32(5):204–211 & 265

176 Sexuality Education in Fifth and Sixth Grades in U.S. Public Schools, 1999
David J. Landry, Susheela Singh and Jacqueline E. Darroch
Family Planning Perspectives, 2000, 32(5):212–219.

184 Using Randomized Designs to Evaluate Client-Centered Programs to Prevent Adolescent Pregnancy
Dennis McBride and Anne Gienapp
Family Planning Perspectives, 2000, 32(5):227–235

193 Pregnancy Prevention Among Urban Adolescents Younger than 15: Results of the 'In Your Face' Program
Lorraine Tiezzi, Judy Lipshutz, Neysa Wrobleski, Roger D. Vaughan and James F. McCarthy
Family Planning Perspectives, 1997, 29(4):173–176 & 197

198 Education Now and Babies Later (ENABL): Life History of a Campaign to Postpone Sexual Involvement
Helen H. Cagampang, Richard P. Barth, Meg Korpi and Douglas Kirby
Family Planning Perspectives, 1997, 29(3):109–114

204 The Impact of the Postponing Sexual Involvement Curriculum Among Youths in California
Douglas Kirby, Meg Korpi, Richard P. Barth and Helen H. Cagampang
Family Planning Perspectives, 1997, 29(3):100–108

Factors Associated with the Content of Sex Education In U.S. Public Secondary Schools

CONTEXT: *While sex education is almost universal in U.S. schools, its content varies considerably. Topics such as abstinence, and basic information on HIV and other sexually transmitted diseases (STDs), are commonly taught; birth control and how to access STD and contraceptive services are taught less often. Factors potentially associated with these variations need to be examined.*

METHODS: *Data on 1,657 respondents to a 1999 national survey of teachers providing sex education in grades 7–12 were assessed for variation in topics covered. Logistic regression was used to ascertain factors associated with instruction on selected topics.*

RESULTS: *The content of sex education varied by region and by instructors' approach to teaching about abstinence and contraception. For example, teaching abstinence as the only means of pregnancy and STD prevention was more common in the South than in the Northeast (30% vs. 17%). Emphasizing the ineffectiveness of contraceptives was less common in the Northeast (17%) than in other regions (27–32%). Instructors teaching that methods are ineffective and presenting abstinence as teenagers' only option had significantly reduced odds of teaching various skills and topics (odds ratios, 0.1–0.5).*

CONCLUSIONS: *Instructors' approach to teaching about methods is a very powerful indicator of the content of sex education. Given the well-documented relationship between what teenagers learn about safer sexual behavior and their use of methods when they initiate sexual activity, sex education in all U.S. high schools should include accurate information about condoms and other contraceptives.*

Perspectives on Sexual and Reproductive Health, 35(6):261–269

By David J. Landry, Jacqueline E. Darroch, Susheela Singh and Jenny Higgins

David J. Landry is senior research associate, Jacqueline E. Darroch is senior vice president and vice president for science, and Susheela Singh is director of research, all at The Alan Guttmacher Institute (AGI), New York. At the time this article was written, Jenny Higgins was research intern at AGI.

As in most other countries, men and women in the United States typically begin having sexual intercourse during late adolescence: at a median age of 16.9 years for men and 17.4 for women.[1] To make healthy and responsible decisions about whether to have intercourse and how to protect themselves and their partners from unwanted pregnancies and sexually transmitted diseases (STDs), young men and women need relevant information and education.[2]

National organizations such as the American Medical Association, the American Academy of Pediatrics and the National Academy of Sciences have recommended that schools implement comprehensive sex education strategies. Such strategies not only teach students that abstinence is the best way to prevent unintended pregnancy and STDs, but also provide students with the information and skills they need to reduce their number of partners and to use contraceptive and disease prevention methods effectively when they become sexually active.[3]

In contrast, federal legislation since the late 1990s has funded abstinence-only programs, which promote abstinence exclusively. Such legislation explicitly excludes advocating contraceptive use or teaching about contraceptive methods, except to stress their failure rates.[4] Abstinence-only programs gained prominence in 1998, when Section 510 of the Social Security Act began providing $50 million in annual grants, to be matched with $37.5 million annually in state funds. In almost every jurisdiction, programs funded under Section 510 support school-related activities.[5] Since Section 510 was established, two other federal programs—the Adolescent Family Life Act and the maternal and child health block grant's Special Projects of Regional and National Significance—have specified that their funds cannot be used to discuss contraceptives, except to emphasize their failure rates.[6]

Although comprehensive sex education and abstinence-only education are often contrasted against one another in policy arenas,[7] the way in which these approaches are implemented in the nation's schools is largely unknown. In this article, we report findings from our analysis of data from a nationally representative survey of sex education teachers in U.S. schools that examined whether and how abstinence, contraception and other topics were taught.

SEX EDUCATION IN U.S. SCHOOLS

Sex education is taught in almost all public secondary schools in the United States (93%); more than 95% of 15–19-year-olds have had sex education instruction.[8] However, the content of sex education—notably, the emphasis teachers give to abstinence and their coverage of the effectiveness of contraceptive methods—varies widely.[9]

A 1998 survey found significant regional differences in school district policies on whether sex education should be taught and, if so, how abstinence and contraceptive methods should be presented.[10] Sixty-nine percent of U.S. school districts had a policy to teach sex education. In 35% of these districts, the policy was to teach abstinence as the only positive option outside of marriage, and to highlight the ineffectiveness of methods for preventing pregnancy and STDs (if these methods were covered at all). Among districts with a policy, those in the South were significantly more likely than those in other regions to require teaching abstinence as the only option for unmarried teenagers (55% vs. 20–35%). These differences in policies raise questions about whether regional patterns exist in instructors' approaches to teaching about abstinence and contraceptive methods—including whether they teach specific skills and topics.

Regional differences in contextual factors, such as local public opinion on teaching students about birth control and STD prevention, may help explain variations in sex education instruction. Analyses from the General Social Survey have demonstrated that adults living in the South typically have less permissive attitudes about sexuality than do those in other regions (as gauged by attitudes toward premarital and extramarital sex, and homosexuality). This may reflect more traditional values and attitudes generally among Southern residents, and a relatively high proportion who belong to fundamentalist religious denominations.[11]

A region's proportion of youth who are sexually active, and its pregnancy rate relative to other regions, also may be related to the content of sex education; however, relationships are likely to be complex, and their direction hard to identify. For example, relatively low rates of teenage sexual activity and pregnancy may reflect a region's lower need for sex education compared with other regions', or they may result from more widespread sex education. Similarly, a relatively high STD prevalence among adolescents may increase community support for sex education or may reflect deficits in current programs.

Comparisons between the United States and other countries might help inform our understanding of regional patterns in the United States. In many Western, developed countries with adolescent pregnancy and STD rates lower than U.S. rates, there is not only greater societal acceptance of sexual activity among teenagers, but also more comprehensive and balanced sex education and greater access to condoms and other forms of birth control.[12] Thus, regional variations in the United States in societal acceptance of sexual activity among adolescents and approval of sex education could be associated with differences in what is taught in schools.

Factors other than region and instructors' approach to teaching abstinence and method effectiveness may also be related to the content of sex education classes. For example, health educators receive more training in sex education than physical education teachers do.[13] Moreover, because schools with a large student enrollment or a high proportion of impoverished students generally have a relatively high proportion of sexually active students, they may receive increased support from officials and the local community for instruction on birth control and STD prevention.[14]

In this article, we establish a context in which to understand regional patterns of sex education, and we report survey findings on how instructors approach the teaching of abstinence and method effectiveness, according to region. We also examine differences in the proportion of instructors teaching 27 selected topics and skills, according to region and to a measure of how instructors teach abstinence and method effectiveness. Finally, we examine whether region, teaching approach and other factors are independently associated with the proportions of instructors teaching selected key topics and skills related to preventing sexual behavior, pregnancy and STDs, and to accessing contraceptives and STD services.

METHODS

Sample and Survey of Teachers

We analyzed data collected by The Alan Guttmacher Institute (AGI) in a 1999 nationally representative survey of public school teachers of grades 7–12 who are responsible for the subject areas that usually include sex education—biology, health education, family and consumer science (also known as home economics), and physical education—and school nurses. In all, 3,754 teachers responded to the survey, representing 49% of eligible participants. Our analysis is based on the 1,657 respondents who had taught sex education in the current or preceding school year.

Market Data Retrieval supplied a systematic random sample of teacher names, stratified by teaching specialty; their company also provided data on each teacher's school, including state, number of students enrolled and the proportion of students living in poverty. More information about the survey methods has been described previously.[15]

To measure how a teacher approached abstinence, the survey asked, "Which one of the following best describes the way you teach about abstinence from intercourse in your sexuality education instruction?" Respondents could indicate that they presented abstinence as one alternative, as the best alternative or as the only alternative for pregnancy and STD prevention, or that they do not teach about abstinence.*

Instructors' approaches to teaching about condoms and birth control were assessed through two questions. First, "Which one of the following best describes the way you teach about condoms in your sexuality education instruction?" Respondents could indicate one of three options: They emphasize that condom use can be an effective means of preventing STDs among sexually active persons, they emphasize that it is ineffective, or they do not teach about condom use to prevent STDs. The second question asked, "Which one of the following best describes the way you

*Questionnaire items about STDs usually used the term "STDs/HIV." In this article, we have generally shortened the term to "STDs."

teach about birth control in your sexuality education instruction?" Response choices indicated emphasizing that use of birth control methods can be an effective means of pregnancy prevention for sexually active persons, emphasizing that it is ineffective or never teaching about birth control.

Other Data Sources

To consider other factors that may be related to geographic variation in sex education, we examined regional data from additional sources. Public opinion data come from unpublished tabulations of a 1999 national poll of 1,050 adults, conducted by Hickman-Brown Research for Advocates for Youth and the Sexuality Information and Education Council of the United States; at a 95% confidence level, the survey had a sampling error of plus or minus three percentage points.[16] Data on 20–24-year-old women come from the 1995 National Survey of Family Growth.[17] Finally, rates of pregnancies, births, abortions and miscarriages were calculated from previously reported AGI data.[18] To calculate regional-level estimates, we aggregated the state-level data within each region, taking into account state differences in the number of female residents aged 15–17.

Statistical Analysis

Data from the survey of teachers were weighted to reflect the national distribution of sex education teachers in 1999. To analyze data from this complex, stratified sample, we performed t-tests to assess significant differences among proportions by using Stata software, version 7.0. (This software package uses the unweighted number of cases and incorporates information from the sample weights and stratified sample design to inflate the standard errors for significance testing.)

We conducted multivariate logistic regression analysis to ascertain whether region and contextual factors were independently associated with instructors' approach to teaching about abstinence and method effectiveness. Moreover, we conducted additional multivariate logistic regression analyses to explore the potential independent associations between these factors and the likelihood of an instructor's teaching selected key skills and topics representing three broad subject areas: sexual behavior and abstinence (how to say no to sexual intercourse); methods for prevention of pregnancy and infection (the importance of correct, consistent method use; the proper way to use a condom; and specific clinics or physicians where students can get birth control); and other means of prevention of and services specifically for STDs (monogamy as a way to prevent STDs and the names of clinics or other resources for STD services). The independent variables included teacher-reported levels of community and school administration support for sex education, the source of the school's sex education policy, school enrollment, the proportion of the student body living in poverty, the instructor's area of specialty, and the instructor's approach to teaching abstinence and contraceptive effectiveness.

TABLE 1. Selected measures of public opinion on premarital sex and sex education, and of young women's sexual behavior and reproductive experience, United States, by region

Measure	Total	Northeast	South	Midwest	West
Public opinion, 1999					
% who believe sex should occur only in marriage	33	26	40*	34*	29
% who support the teaching of sex education in high school	93	94	92	92	93
% who support the teaching of sex education in junior high school	84	82	82	85	87
% who agree that by grades 11–12, the following topics are appropriate to be taught					
Abstinence	95	96	93	96	93
Contraception	91	94	90*	89*	95
Condoms	90	93	89*	89*	93
Sexual behavior/reproductive experience					
% of sexually experienced 20–24-year-old women who had had sex by age 17, 1995	47	43	47	49	46
Rate per 1,000 women aged 15–17, 1996					
Pregnancies†	62	56	67	50	69
Births	34	24	41	29	36
Abortions	19	25	16	14	24

*Differs significantly from proportion in the Northeast at p<.05. †Includes miscarriages. *Note:* The four U.S. regions are as follows: **Northeast**—Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island and Vermont. **South**—Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia and West Virginia. **Midwest**—Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota and Wisconsin. **West**—Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington and Wyoming. *Sources:* **Public opinion**—unpublished tabulations of a nationwide poll of 1,050 respondents, aged 18 or older (reference 16). **Sexual behavior**—reference 17. **Reproductive experience**—calculated from previously reported findings by The Alan Guttmacher Institute (reference 18).

RESULTS

Variations in Context

In 1999, one-third of Americans believed that sexual intercourse should occur only in marriage (Table 1); the proportions in the Midwest and South (34% and 40%, respectively) were higher than those in the West and Northeast (29% and 26%, respectively). However, the level of public support for teaching sex education in schools—93% of U.S. adults supported such instruction in high school, and 84% in junior high school—did not vary by region. Support for teaching specific topics was high—93–96% for abstinence, 89–95% for contraception and 89–93% for condoms—although for some topics, it was lower in the South and Midwest than in the Northeast and West.

Nationally, 47% of women aged 20–24 in 1995 had had intercourse by age 17; a small sample size precluded our detecting statistically significant differences by region. Regions varied little in the proportion of females aged 15–19 reporting nonuse of a contraceptive at their first intercourse (range, 22–28%) or most recent intercourse (18–29%) (not shown).

Sixty-two per 1,000 U.S. women aged 15–17 became pregnant in 1996; 34 per 1,000 of these adolescent women gave birth, 19 had abortions and nine had miscarriages. The West and South had the highest rates of teenage pregnancy. The South had the highest birthrate; the West and Northeast had the highest abortion rates. More current national data show that birthrates and abortion rates have declined; regional data are not available beyond 1996, but differences probably have not changed substantially.[19]

TABLE 2. Percentage distribution of U.S. public secondary school sex education teachers, by their presentation of abstinence and the effectiveness of methods for preventing pregnancy and STDs, according to region, 1999

Presentation of topics	Total (N=1,657)	Northeast (N=305)	South (N=510)	Midwest (N=560)	West (N=282)
Abstinence					
The only option	23.4	16.8	29.7***	22.4	21.1
One option/the best option	71.8	78.1	64.9***	72.6	75.9
Not taught	4.8	5.1	5.4	5.0	3.1
Method effectiveness†					
Effective	60.3	72.2	55.3***	54.9***	64.4
Ineffective	27.5	17.1	29.1***	32.3***	26.8**
Not taught	12.2	10.7	15.6*	12.8	8.8
Method effectiveness and abstinence‡					
Methods effective, abstinence best	51.2	62.1	45.5***	47.4***	57.2
Methods effective, abstinence only	9.1	10.4	10.2	8.1	7.4
Methods ineffective, abstinence best	25.5	21.3	25.0	30.2**	21.9
Methods ineffective, abstinence only	14.2	6.2	19.4***	14.3***	13.5**
Total	100.0	100.0	100.0	100.0	100.0

*Differs significantly from proportion in the Northeast at p<.05. **Differs significantly from proportion in the Northeast at p<.01. ***Differs significantly from proportion in the Northeast at p<.001. †"Effective" includes instructors who taught that use of birth control can be an effective means of preventing pregnancy, condom use can be an effective means of preventing STDs or both. The category does not include teachers emphasizing that birth control or condoms are ineffective. "Ineffective" includes instructors emphasizing the ineffectiveness of birth control methods for pregnancy prevention, the ineffectiveness of condoms for STD prevention or both. ‡Instructors not teaching about abstinence were included with "abstinence best"; those not teaching about pregnancy prevention methods and STD prevention methods were included with "methods ineffective." *Notes:* Ns are unweighted. For a list of states by region, see note to Table 1.

Variations in Teaching Approach

In 1999, 23% of sex education teachers taught abstinence as the only option for preventing pregnancy and STDs (Table 2). Sixty percent of sex education teachers presented birth control as an effective means of preventing pregnancy among sexually active persons, condoms as an effective means of preventing HIV and other STDs, or both; the rest emphasized the ineffectiveness of preventive methods (28%) or did not teach about them at all (12%). Therefore, the proportion of sex education instructors emphasizing the ineffectiveness of methods or not teaching about methods at all (40%) was substantially higher than the proportion teaching abstinence as the only option (23%).

The South had the highest proportion of instructors teaching abstinence only (30%), and the Northeast had the lowest (17%). Regional differences in teaching approaches were greater for method effectiveness than for abstinence. Whereas 72% of teachers in the Northeast emphasized that contraceptive methods can be effective, only 55% in the South and Midwest did so. Seventeen percent of teachers in the Northeast emphasized the ineffectiveness of methods, compared with 27–32% in other regions.

Instructors' approach to teaching abstinence did not perfectly reflect their approach to teaching method effectiveness, as we found when we combined both variables to form a four-category measure. Nationally, 51% of sex education teachers used what might be called a comprehensive approach to sex education: They taught that abstinence is the best option for young people to prevent pregnancy and STDs, and also taught that contraception and condoms can be effective for preventing pregnancy and STDs. Fewer than half of teachers in the South and Midwest used this approach, compared with three-fifths in the Northeast. In contrast, the approach of 14% of all teachers followed more closely the federal definition of abstinence-only education—teaching that abstinence is the only option, and either not teaching about other preventive methods or emphasizing their ineffectiveness. A significantly greater proportion of teachers in the South, Midwest and West (14–19%) than in the Northeast (6%) reported using this approach.

Roughly one-third of teachers nationwide taught abstinence and method use in a manner inconsistent with the positions of advocates of abstinence-only education and advocates for comprehensive sex education: Twenty-six percent taught that abstinence is the best option and that methods are ineffective, and 9% taught that abstinence is the only option and that methods are effective. Teachers using these approaches together formed a substantial group in all regions.

Variations in Specific Content

• *Regional differences.* No significant differences were found by region in the proportion of instructors teaching how alcohol and drug use affects behavior, negative consequences of sexual intercourse, how to resist peer pressure to have sexual intercourse, signs and symptoms of STDs, or that only some STDs are curable (Table 3). These topics were taught by at least 84% of instructors in each region. In addition, all but four of the 27 topics and skills were taught by similar proportions of teachers in the West and Northeast. However, a significantly higher proportion of teachers in the Northeast than in the South provided instruction on 19 of the 27 skills and topics examined, including all those related to STD services or to pregnancy and STD prevention. Regional differences were greatest for the following topics and skills: sexual orientation, which methods can be purchased over the counter and which require a medical visit, the proper way to use a condom, and the importance of using both a condom and a more effective birth control method to avoid pregnancy and STDs (difference between proportions teaching these topics in the Northeast and South, 19–27 percentage points).

Similar proportions of instructors in the Midwest and Northeast taught most topics related to sexual behavior and abstinence, and STD facts and prevention. However, instruction on most topics related to STD services and to pregnancy and STD prevention was less common among Midwestern teachers than among Northeastern teachers.

• *Differences by approach to abstinence and method effectiveness instruction.* In general, instructors' approach to teaching abstinence and method effectiveness was related to the specific topics and skills they taught, except for sexual abstinence as a form of STD prevention (Table 3). For most of the topics and skills examined in bivariate analyses, the proportion of instructors covering each topic or skill was significantly lower among instructors emphasizing method ineffectiveness, regardless of abstinence approach, than among instructors emphasizing method effectiveness and teaching abstinence as the best option.

TABLE 3. Percentage of U.S. public secondary school sex education teachers covering selected topics and skills, by region and approach to teaching about abstinence and method effectiveness, 1999

Topics and skills	Total	Region†				Teaching approach‡			
		Northeast	South	Midwest	West	Methods effective		Methods ineffective	
						Abstinence best	Abstinence only	Abstinence best	Abstinence only
Sexual behavior and abstinence									
How alcohol/drug use affects behavior	91.2	92.3	90.4	91.3	91.3	91.7	95.8*	88.7	91.1
Negative consequences of intercourse	91.1	90.8	88.8	92.2	93.4	92.7	97.3*	85.4**	92.6
How to resist peer pressure to have intercourse	85.7	84.8	84.1	85.4	90.3	86.9	90.5	79.0**	89.8
Sexuality as a natural and healthy part of life	83.1	85.7	77.0**	84.3	89.3	87.5	80.5	75.5***	84.8
How to refuse intercourse	77.0	77.8	74.9	78.2	77.7	77.0	90.0***	70.3*	83.5**
Consensual vs. forced sexual contact	68.7	74.9	63.0***	69.9	69.9	73.6	78.1	57.7***	65.5*
Importance of both partners' agreeing to any sexual behavior	68.2	74.6	61.1***	71.4	67.3	75.5	78.9	56.6***	57.7***
Abortion—factual information	63.0	69.7	58.1**	62.3*	65.7	74.1	63.3*	50.3***	45.6***
Abortion—ethical issues	57.4	61.8	53.5*	57.0	60.2	67.0	59.3	44.9***	41.3
Sexual orientation/homosexuality	51.3	65.2	39.5***	54.2**	51.5**	63.3	61.3	34.1***	32.0***
How to negotiate sexual limits	47.1	51.2	43.0*	48.7	46.6	51.3	55.6*	40.6**	40.3**
STD facts and prevention									
Sexual abstinence as a way to prevent STDs	94.6	92.8	93.8	95.4	96.7*	97.4	99.1	86.0	98.5
STD symptoms can be hidden, absent or unnoticed	93.6	90.7	93.1	94.4	96.1**	96.3	99.0*	86.7**	93.8
Only some STDs are curable	91.7	89.4	91.6	92.9	92.0	95.7	98.6**	82.5***	89.8**
Signs and symptoms of STDs	91.7	89.6	91.7	92.3	93.1	95.3	99.2***	83.4***	90.1*
Monogamy as way to prevent STDs	80.1	82.1	73.5**	82.1	86.1	86.2	81.8	71.6***	73.0***
STD risk from oral/anal sex	80.4	84.5	71.8***	84.5	83.8	88.4	85.4	68.3***	70.5***
STD services									
Importance of notifying all sexual partners if infected	78.1	82.2	75.6*	78.3	78.0	84.6	88.2	66.2***	69.4***
Confidential services available without parental consent	62.7	71.2	58.1***	60.5**	65.9	72.7	71.7	49.9***	44.5***
Specific sources of STD services	58.7	64.6	54.7**	56.9*	63.0	66.7	68.5	45.6***	50.9***
Methods for pregnancy/STD prevention									
Condom use to prevent STDs	78.0	84.0	71.7***	78.4	82.2	94.3	84.7**	61.7***	44.3***
Importance of correct, consistent method use	61.8	71.2	55.7***	59.8**	67.0	80.4	69.8*	38.8***	32.1***
Importance of using dual methods to avoid pregnancy/infection	60.2	71.3	52.5***	58.5***	65.7	78.7	73.5	36.1***	27.4***
Which methods can be purchased at a store, and which require physician/clinic visit	50.3	62.2	43.3***	48.8***	53.3*	49.2	41.0	18.7***	14.3***
How to communicate with partner about birth control	47.0	55.6	40.7***	47.5*	48.1	60.7	54.8	28.7***	26.2***
Specific sources of birth control	35.3	43.3	28.7***	32.8**	43.8	47.2	31.7**	19.6***	8.5***
Proper way to use condoms	33.4	48.8	22.3***	31.5***	40.8	68.4	52.3**	28.8***	22.6***

*p<.05. **p<.01. ***p<.001. †Significance levels refer to the difference between the specified proportion and the proportion for the Northeast. ‡Significance levels refer to the difference between the specified proportion and the proportion for "methods effective, abstinence best." "Effective" includes instructors who taught that use of birth control can be an effective means of preventing pregnancy, condom use can be an effective means of preventing STDs or both. The category does not include teachers emphasizing that birth control or condoms are ineffective. "Ineffective" includes instructors emphasizing the ineffectiveness of birth control methods for pregnancy prevention, the ineffectiveness of condoms for STD prevention or both. Instructors not teaching about abstinence were included with "abstinence best"; those not teaching about pregnancy prevention methods and STD prevention methods were included with "methods ineffective." *Notes:* Ns are unweighted. For a list of states by region, see note to Table 1.

Among teachers emphasizing method effectiveness, we observed some differences between those teaching abstinence as the only option and those teaching abstinence as the best option. Nonetheless, the findings of our bivariate analyses show that instructors' approach to teaching method effectiveness may be an important determinant of the topics and skills taught in sex education classes.

• *Differences by other factors.* Teachers' inclusion of specific topics and skills generally was associated with contextual factors. For example, teachers' concern about possible adverse community reaction, and teaching in a school without a district- or school-level sex education policy, each had a positive association with instruction on topics related to abstinence and had a negative association with instruction on topics related to pregnancy and STD prevention (not shown). We subsequently performed multivariate logistic regression analysis to ascertain which variables are associated independently with teachers' presentation of specific topics and skills.

Multivariate Results

• *Method effectiveness and abstinence.* In our analyses controlling for contextual factors (Table 4, page 266), teachers in the South, Midwest and West were more likely than those in the Northeast to emphasize the ineffectiveness of methods for preventing pregnancy and STDs or not to cover methods at all (odds ratios, 1.7–2.4). Similarly, teachers in the South and Midwest were more likely than teachers in the Northeast to teach abstinence as the only option (1.6–2.7).

Teachers concerned about the potential for adverse

TABLE 4. Percentage distribution of U.S. public secondary school sex education teachers, by selected contextual characteristics, and odds ratios from multivariate logistic regression analyses of the association between those characteristics and teachers' presentation of selected topics

Characteristic	%	Methods not taught or ineffectiveness emphasized	Abstinence only	How to refuse intercourse	Importance of correct, consistent method use	Proper way to use condoms	Specific sources of birth control	Monogamy as a way to prevent STDs	Specific sources of STD services
Region†									
Northeast (ref)	18.9	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
South	31.1	2.36***	2.71***	1.00	0.63*	0.31***	0.67*	0.77	0.68
Midwest	33.6	2.33***	1.57*	1.31	0.75	0.52***	0.76	1.15	0.83
West	16.4	1.68*	1.32	1.13	0.96	0.67	1.12	1.38	0.81
Consider administration nervous about community reaction to sex education									
No (ref)	78.1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Yes	21.9	0.98	1.39	1.06	0.69*	0.58**	1.22	0.92	0.90
Concerned about community reaction to sex education									
No (ref)	68.0	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Yes	32.0	1.91***	1.18	0.64*	0.52***	0.43***	0.38***	0.69*	0.86
Sex education policy									
District-level (ref)	68.3	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
School-level	7.4	0.77	0.94	0.57	1.05	0.89	1.29	1.13	1.20
Up to teacher	24.3	1.02	0.67*	0.49***	1.09	0.71*	1.00	0.82	0.77
No. of students enrolled at the school									
<300 (ref)	10.9	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
300–499	14.9	1.37	0.73	0.92	1.33	0.99	1.23	1.04	1.31
500–999	36.8	1.42	0.73	0.99	1.21	1.25	1.12	1.09	1.20
≥1,000	37.4	0.97	0.47***	1.39	1.69*	2.22***	2.00**	1.19	2.06***
% of student body in poverty									
<6.0 (ref)	16.3	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
6.0–15.9	41.0	0.87	0.94	0.93	1.02	1.67*	1.62*	1.25	1.44*
16.0–29.9	31.3	0.81	0.74	1.11	1.14	2.13***	1.67*	1.39	1.91***
≥30.0	11.4	0.58*	0.75	1.74	0.72	1.57	1.32	0.91	1.35
Instructor's specialty									
Health (ref)	30.0	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Family/consumer science	18.2	0.78	0.56**	1.06	2.69***	1.14	1.41	0.79	1.07
Biology	21.0	1.30	0.42***	0.05***	0.35***	0.23***	0.31***	0.28***	0.18***
Nurse	2.7	0.95	0.79	0.37***	1.15	0.98	2.50***	0.61*	1.33
Physical education	28.1	1.43*	1.31	0.72	1.05	1.16	1.32	0.68	0.95
Instructor's approach to presenting preventive method use and abstinence‡									
Methods effective, abstinence best (ref)	51.2	na	na	1.00	1.00	1.00	1.00	1.00	1.00
Methods effective, abstinence only	9.1	na	na	2.31*	0.53**	0.44***	0.74	0.59	1.01
Methods ineffective, abstinence best	25.5	na	na	0.90	0.16***	0.33***	0.28***	0.42***	0.47***
Methods ineffective, abstinence only	14.2	na	na	1.40	0.12***	0.10***	0.17***	0.41***	0.47***

*p<.05. ** p<.01. ***p<.001. †For a list of U.S. states by region, see note to Table 1. ‡"Effective" includes instructors who taught that use of birth control can be an effective means of preventing pregnancy, condom use can be an effective means of preventing STDs or both. The category does not include teachers emphasizing that birth control or condoms are ineffective. "Ineffective" includes instructors emphasizing the ineffectiveness of birth control methods for pregnancy prevention, the ineffectiveness of condoms for STD prevention or both. Instructors not teaching about abstinence were included with "abstinence best"; those not teaching about pregnancy prevention methods and STD prevention methods were included with "methods ineffective." *Notes:* Percentages are weighted. na=not applicable. ref=reference category.

community reaction to sex education were more likely than other teachers to emphasize method ineffectiveness or not to discuss preventive methods (1.9). Compared with respondents in schools with a district-level policy on sex education, respondents in schools without a district- or school-level policy had reduced odds of presenting abstinence as the only option (0.7).

There were few differences by school enrollment, or by relative affluence of the student body, in teachers' approach to presenting method effectiveness or abstinence. However, teachers in the largest schools (student enrollment of at least 1,000 pupils) were less likely than those in the smallest schools (fewer than 300 students) to teach abstinence as the only option (odds ratio, 0.5); teachers at schools with at least 30% of students living in poverty were less likely than teachers at schools with fewer than 6% in poverty to emphasize method ineffectiveness (0.6).

Family and consumer science teachers and biology teachers each were less likely than health education teachers to teach abstinence as the only method of prevention. Physical education teachers were more likely than health education teachers to emphasize the ineffectiveness of methods or not to teach the topic at all.

• *Sexual behavior and abstinence.* Teachers concerned about potential adverse community reaction, or teaching in a school and district with no sex education policy, had re-

duced odds of teaching students how to say no to a boyfriend or girlfriend who wants to have sex. Biology teachers and nurses were less likely than health teachers to cover this topic. However, odds of teaching this topic were higher for teachers who presented method use as effective and abstinence as the only option than for instructors who presented method use as effective but taught abstinence as the best of several options (odds ratio, 2.3).

• *Methods for pregnancy and STD prevention.* Southern teachers were significantly less likely than Northeastern instructors to teach the importance of correct and consistent contraceptive use (odds ratio, 0.6) or the proper way to use a condom (0.3), or to provide information on specific sources of birth control (0.7). Midwestern teachers differed significantly from Northeastern teachers on only one of these variables—instruction on proper condom use (0.5). Teachers generally were less likely to teach these pregnancy prevention and service topics if they had concerns, or perceived that their school administration had concerns, about possible adverse community reaction (odds ratios, 0.4–0.7).

Teachers were more likely to discuss the topics related to pregnancy prevention and services if they taught at one of the largest schools instead of one of the smallest (odds ratio, 1.7–2.2). Teachers in schools with at least 6% but fewer than 30% of students living in poverty were more likely than teachers at the most affluent schools to discuss proper condom use and specific sources of birth control. Biology teachers were less likely than health education teachers to teach each of the pregnancy prevention and services topics. Family and consumer science teachers had elevated odds of discussing the importance of correct, consistent method use, and school nurses had elevated odds of providing information on specific sources of birth control.

Teachers who emphasized the ineffectiveness of contraception, regardless of how they presented abstinence, were considerably less likely to teach the three pregnancy prevention topics than were instructors who teach that method use is effective and abstinence is best. Instructors who teach that method use is ineffective and abstinence is the only option had the lowest odds of teaching these three topics (odds ratios, 0.1–0.2). And among teachers who emphasize the effectiveness of contraceptives, those using an abstinence-only approach were less likely than those using an abstinence-best approach to teach two of these three topics.

• *Prevention and services for HIV and other STDs.* Few variables showed significant variation in the likelihood of an instructor's teaching about monogamy as a form of STD prevention. In part, this was probably because most teachers (80%) reported that they taught this topic. However, instructors who taught that method use is ineffective and that abstinence is the best or only option for adolescents were substantially less likely to teach about monogamy than were teachers who taught that method use is effective and abstinence is the best option (odds ratios, 0.4).

Teachers emphasizing the ineffectiveness of method use or not teaching about method use had reduced odds of providing students with names of specific places offering STD services (0.5). Teachers in schools with the largest student enrollments, or with 6% to nearly 30% of students living in poverty, had increased odds of providing information about places where students can obtain STD services (1.4–2.1).

DISCUSSION

Current controversies over sex education imply that the disagreements are primarily about whether instruction should stress abstinence. However, there appears to be little disagreement over this point in the United States: Surveys show overwhelming support among adults in the general public and among sex education teachers for teaching adolescents to be abstinent.[20] In fact, almost all sex education teachers in our survey presented abstinence as the only or the best option for teenagers.

According to our findings, the controversy between abstinence education and more comprehensive approaches centers, instead, on what information should be presented to students about how sexually active people can prevent unwanted pregnancy and STDs. Although public support for instruction on condoms and other contraceptives is almost as high as that for abstinence instruction, recipients of federal funds for education programs promoting abstinence are prohibited from using their grants to advocate contraceptive use.

Furthermore, our findings suggest that federal requirements are out of step not only with the desires of almost all the general public, but also with how sex education is taught in the majority of U.S. public schools: Six in 10 sex education teachers in our survey reported teaching contraceptive method use as an effective means of preventing pregnancy and STDs among sexually active people.

Since public education is generally a local or state responsibility, it is not surprising that instruction in most schools does not follow the federal concept of abstinence education. Still, a high proportion of secondary school sex education instructors reported presenting abstinence as the only way of preventing pregnancy and STDs (23%), and an even greater proportion reported presenting methods as ineffective (28%) or not teaching about them at all (12%). These findings are of grave concern because they indicate that students are not receiving accurate information, or are receiving no information at all, on methods in their sex education classes.

We found that instructors who stressed the ineffectiveness of methods—regardless of their approach to teaching about abstinence—had significantly reduced odds of teaching most of the topics and skills examined in our multivariate analysis. In particular, instructors teaching that contraceptives are ineffective and abstinence is the only option were the least likely to teach the topics and skills related to pregnancy prevention. In contrast, instructors presenting abstinence as the best among multiple options and stressing method effectiveness were more likely than other instructors to teach nearly all topics and skills related to pregnancy and STD prevention and services.

At the same time, our analyses show that teachers' approaches to covering abstinence and method effectiveness are not the only factors that potentially explain the specific skills and topics taught. Teachers in the South, the Midwest and, to a lesser extent, the West were significantly more likely than those in the Northeast to emphasize method ineffectiveness or not to cover methods at all. And while fewer than half of sex education teachers in the Northeast and West (41–49%) taught the proper way to use a condom or provided information about specific places where students can access birth control services, the proportions among Southern and Midwestern teachers were even lower.

Worry about adverse community reaction was associated with reduced odds of teaching skills and topics related to prevention of pregnancy. In contrast, teaching in schools with a moderate to high proportion of students in poverty was associated with increased odds of teaching most of these topics and skills.

Teaching students that contraceptive methods are ineffective, and not providing them information on how to use methods effectively, may contribute to poor use or even nonuse.[21] Results from the Youth Risk Behavior Survey demonstrate that condom use among high school students significantly increased during the 1990s, but the rate of increase slowed by the end of the decade.[22]

Federally sponsored abstinence-only funding has increased substantially since our survey of teachers was conducted in 1999. Future research is needed to examine to what extent these funds have influenced public school instruction—especially whether they have increased teachers' likelihood of emphasizing the ineffectiveness of contraceptive methods, and decreased their likelihood of instructing students on how to use contraceptives effectively. If a trend toward emphasizing contraceptive ineffectiveness exists, we would expect that regional differences will be exacerbated, and students in the South and Midwest will be even less likely than students living elsewhere to receive accurate information about pregnancy and STD prevention.

Our study has several limitations. Of note, although the survey captured whether instructors taught certain topics and skills, it did not measure the quality of instruction, the amount of time spent on topics, details of what was taught on each topic or the message delivered about specific topics. In addition, the teaching of sex education and regional variation may be influenced by characteristics that we were unable to measure directly, such as religiosity and conservatism of the local area.

Young people who are taught both that they should delay becoming sexually active and that they should use methods if and when they do have sex are more likely than others to engage in these preventive behaviors.[23] These facts and the data presented here make clear that it is time to shift the debate about sex education instruction from whether and how to teach abstinence to whether and how condoms and other methods are taught in sex education classes. Instructors' approach to teaching about methods is a very powerful indicator of the content of sex education today.

REFERENCES

1. The Alan Guttmacher Institute (AGI), *In Their Own Right: Addressing the Sexual and Reproductive Health Needs of American Men,* New York: AGI, 2002; Darroch JE et al., *Teenage Sexual and Reproductive Behavior in Developed Countries: Can More Progress Be Made?* Occasional Report, New York: AGI, 2001, No. 3; and AGI, *Into a New World: Young Women's Sexual and Reproductive Lives,* New York: AGI, 1998.

2. National Guidelines Task Force, *Guidelines for Comprehensive Sexuality Education: Kindergarten–12th Grade,* second ed., New York: Sexuality Information and Education Council of the United States (SIECUS), 1996.

3. Council on Scientific Affairs, American Medical Association (AMA), *Report 7 of the Council on Scientific Affairs: Sexuality Education, Abstinence and Distribution of Condoms in Schools,* Chicago: AMA, 1999; American Academy of Pediatrics, Welfare reform: a review of abstinence education and transitional medical assistance, statement to the House Subcommittee on Health, House Energy and Commerce Committee, Washington, DC, Apr. 23, 2002, <http://www.aap.org/advocacy/washing/review%5Fof%5Fabstinence%5Fed.htm>, accessed Nov. 21, 2002; and Committee on HIV Prevention Strategies in the United States, Division of Health Promotion and Disease Prevention, Institute of Medicine, *No Time to Lose: Getting More from HIV Prevention,* Washington, DC: National Academy Press, 2001.

4. Advocates for Youth and SIECUS, *Toward a Sexually Healthy America: Roadblocks Imposed by the Federal Government's Abstinence-Only-Until-Marriage Education Program,* Washington, DC, and New York: Advocates for Youth and SIECUS, 2001; and Dailard C, Abstinence promotion and teen family planning: the misguided drive for equal funding, *Guttmacher Report on Public Policy,* 2002, 5(1):1–3.

5. Sonfield A and Gold RB, States' implementation of the Section 510 Abstinence Education Program, FY 1999, *Family Planning Perspectives,* 2001, 33(4):166–171.

6. Dailard C, 2002, op. cit. (see reference 4).

7. Collins C et al., *Abstinence Only vs. Comprehensive Sex Education: What Are the Arguments? What Is the Evidence?* Policy Monograph Series, San Francisco: AIDS Research Institute, University of California, 2002.

8. Lindberg LD, Ku L and Sonenstein F, Adolescents' reports of reproductive health education, 1988 and 1995, *Family Planning Perspectives,* 2000, 32(5):220–226.

9. Darroch JE, Landry DL and Singh S, Changing emphases in sexuality education in U.S. public secondary schools, 1988–1999, *Family Planning Perspectives,* 2000, 32(5):204–211 & 265.

10. Landry DJ, Kaeser L and Richards CL, Abstinence promotion and the provision of information about contraception in public school district sexuality education policies, *Family Planning Perspectives,* 1999, 31(6): 280–286.

11. Smith TW, Attitudes towards sexual permissiveness: trends, correlates and behavioral connections, *Social Change Report,* 1992, No. 35.

12. Darroch JE et al., 2001, op. cit. (see reference 1).

13. Rodriguez M et al., Teaching our teachers to teach: a SIECUS study on training and preparation for HIV/AIDS prevention and sexuality education, *SIECUS Report,* 1995, 28(2):1–11.

14. McNeely CA, Nonnemaker JM and Blum RW, Promoting school connectedness: evidence from the National Longitudinal Study of Adolescent Health, *Journal of School Health,* 2002, 72(4):138–146; and Singh S and Darroch JE, Trends in sexual activity among adolescent American women: 1982–1995, *Family Planning Perspectives,* 1999, 31(5): 212–219.

15. Darroch JE, Landry DL and Singh S, 2000, op. cit. (see reference 9).

16. Advocates for Youth, Americans support sexuality education including information on abstinence and contraception, 1999, <http://www.advocatesforyouth.org/factsfigures/suppsexed.htm>, accessed Dec. 18, 2002; and SIECUS, Public support for sexuality education reaches highest level, 1999, <http://www.siecus.org/parent/pare0003.html>, accessed Dec. 18, 2002.

17. Frost JJ et al., *Teenage Sexual and Reproductive Behavior in Developed Countries: Country Report for the United States,* Occasional Report, New York: AGI, 2001, No. 8.

18. Henshaw SK and Feivelson DJ, Teenage abortion and pregnancy statistics by state, 1996, *Family Planning Perspectives,* 2000, 32(6):272–280.

19. Jones RK, Darroch JE and Henshaw SK, Patterns in the socioeconomic characteristics of women obtaining abortions in 2000–2001, *Perspectives on Sexual and Reproductive Health,* 2002, 34(5):226–235.

20. The Henry J. Kaiser Family Foundation, *Sex Education in America: A Series of National Surveys of Students, Parents, Teachers and Principals,* Menlo Park, CA: Henry J. Kaiser Family Foundation, 2000.

21. Bearman PS and Bruckner H, Promising the future: virginity pledges and first intercourse, *American Journal of Sociology,* 2001, 106(4):859–912; and Jemmott JB III, Jemmott LS and Fong GT, Abstinence and safer sex HIV risk-reduction interventions for African American adolescents: a randomized controlled trial, *Journal of the American Medical Association,* 1998, 279(19):1529–1536.

22. Centers for Disease Control and Prevention, Trends in sexual risk behaviors among high school students—United States, 1991–2001, *Morbidity and Mortality Weekly Report,* 2002, 51(38):856–859.

23. Kirby D, *Emerging Answers: Research Findings on Programs to Reduce Teen Pregnancy,* Washington, DC: National Campaign to Prevent Teen Pregnancy, 2001.

Acknowledgments

The authors thank Suzette Audam for programming assistance and Advocates for Youth and the Sexuality Information and Education Council of the United States for providing unpublished public opinion tabulations by region. The research on which this article is based was supported by a grant from the Marion Cohen Memorial Foundation.

Author contact: *dlandry@guttmacher.org*

The Young Men's Clinic: Addressing Men's Reproductive Health and Responsibilities

By Bruce Armstrong

Bruce Armstrong is director, Young Men's Clinic, and associate clinical professor, Heilbrunn Department of Population and Family Health, Mailman School of Public Health, Columbia University, New York.

Interest in men's health, including their sexual and reproductive health, has been growing over the past two decades. The 1994 International Conference on Population and Development in Cairo and the 1995 Fourth World Conference on Women in Beijing both recognized the effect of men's behavior on women's health, highlighted the importance of shared responsibility and sparked interest in developing interventions to increase male involvement in reproductive health programs.[1] A 2002 report by The Alan Guttmacher Institute emphasized that the sexual and reproductive health concerns of men are important in their own right, not only because males play important roles as fathers and sexual partners.[2] The National Survey of Adolescent Males, the Youth Risk Behavior Survey, and studies and reports sponsored or produced by other organizations have significantly contributed to the growing body of knowledge about men's sexual and reproductive health concerns, beliefs, attitudes and behaviors.[3]

Since 1997, the Office of Family Planning in the Office of Population Affairs at the Department of Health and Human Services has funded diverse community-based programs to learn how to engage with and provide reproductive health services to males.[4] This special report describes sexual and reproductive health services and how they have evolved at one of those programs—the Young Men's Clinic, an ambulatory clinic for adolescent and young adult males in New York City.

THE YOUNG MEN'S CLINIC

The clinic is a component of a reproductive health program jointly operated by the Center for Community Health and Education at Columbia University's Mailman School of Public Health and NewYork–Presbyterian Hospital. It is located in the upper Manhattan community of Washington Heights, which has the highest concentration of Hispanic residents in New York City.[5] Created in 1987, the Young Men's Clinic is the only facility in the city specifically tailored to address the sexual and reproductive health needs of adolescent and young adult men, and has been recognized for many years as an important model of the delivery of community-based health care services to young males.[6]

The Young Men's Clinic provides medical, social work, mental health and health education services at two clinic sessions each week. Services are provided in the clinical space used by the Center for Community Health and Education's reproductive health program, which serves adolescent and adult women at more than 25,000 visits each year. Between 28 and 35 men are served at each session. Use of the clinic has almost tripled since 1998: Some 1,452 men made 2,522 visits in 2002, compared with 506 men who made 908 visits in 1998.

The target age range for the clientele of the Young Men's Clinic is 13–30. Seventy-five percent of patients are 20–29, and 46% are 20–24 (the male age-group with the highest rates of gonorrhea and chlamydia[7]). Ninety-five percent are Hispanic (the majority of whom identify themselves as Dominican); 3% are black. Approximately half of the men are employed either full- or part-time. Only 25% of patients receive Medicaid benefits, and 3% have some form of private insurance.

History

The Young Men's Clinic evolved out of the adolescent family planning program that has been operated by the Center for Population and Family Health (now the Heilbrunn Department of Population and Family Health) since 1976. Both the scope and the use of services have shifted with fluctuations in funding and with increased knowledge about the needs of young men.

Use of reproductive health services by males was generally low during the 1970s (few of the male involvement demonstration projects sponsored by the Office of Population Affairs during that period attracted many males.)[8] However, the emergence of HIV and AIDS, concerns about rising teenage pregnancy rates, and increases in the proportion of teenage births that were nonmarital prompted renewed interest in developing strategies to reach young men during the early 1980s.

Knowledge of young men's sexual and reproductive health needs and behaviors was limited during the mid-1980s, and the available information was typically obtained from women. To increase knowledge of factors that female and male Hispanic adolescents perceived as barriers to using contraceptives and family planning clinics, researchers from the Center for Population and Family Health conducted and videotaped focus groups with youth from the community.[9] Several of the male participants said they were reluctant to visit a clinic close to their homes because they did not want to be identified as sexually active ("What if my aunt sees me!"). Participants also believed that family planning clinics are for women only, and that talking about birth control is not "manly" ("Men are supposed to know these things"; "Women expect you to take charge"). Embedding sexual and reproductive health care within a broader menu of services was endorsed as one way of reducing

men's embarrassment over being seen at the clinic ("If I could limp in like I hurt my ankle playing basketball, I'd tell the doctor I had a drip").

The focus groups triggered a substantial (and unexpected) level of interest among the young men. Several returned to the hospital to watch the videotaped sessions (which were followed by discussions about HIV and condoms), and suggested other recreational activities that could be taped and used to connect men to services. Videotaping was extended to include break dancing in the streets, performances at school talent shows and basketball games in local parks. These activities attracted young male performers and athletes to the hospital clinic, and most young men enthusiastically participated in discussions about HIV and sexually transmitted diseases (STDs) after viewing their videotape.

These young men also functioned as gatekeepers, linking faculty at the Center for Population and Family Health to adults at community-based organizations. As common missions, interests and needs were identified, partnerships were forged between the burgeoning "men's program" and agencies that were deeply rooted in the community. For example, leaders of community-based organizations accompanied young men from their programs to the health discussions. In return, faculty and students at the Center for Population and Family Health chaperoned dances and cosponsored basketball tournaments (purchasing T-shirts, and refereeing and videotaping games). Training in cardiopulmonary resuscitation was arranged at the hospital for a local scout troop, and the scouts reciprocated by distributing flyers about the new program throughout the community.

Building on the connections established by the focus group youth and partner organizations in the community, faculty conducted in-depth interviews with high school football coaches, Little League baseball coaches, clergy and other adult "key informants" to hear what sexual and reproductive health services young men needed and how services should be designed. The consistent message that emerged from these interviews was that young men in Washington Heights had little access to routine physical examinations that were needed for participation in school, sports and work.

Informed by these responses and encouraged by the success of the videotaping outreach initiative, the Center for Population and Family Health applied to the Office of Population Affairs in 1987 for a "special initiatives" grant and received $20,000 to expand services for young men at the family planning clinic. This supplemental funding was used to develop a Monday evening clinic session exclusively for males. Pediatrics residents provided services under the supervision of an attending physician, and faculty from the Center for Population and Family Health trained first-year medical students to provide health education. With the advent of the new evening sessions, the Young Men's Clinic shifted from a street outreach and health education program to a clinical model that was complemented by occasional outreach activities.

Current Service Model

The Young Men's Clinic currently provides a limited package of such health care services as physical examinations for school and work and treatment of sports injuries, acne and other conditions. The clinic's main focus is addressing the sexual and reproductive health needs of young men—e.g., screening and treatment of STDs, confidential HIV counseling and testing, and condom education and distribution. An attending physician, a nurse practitioner and a master's-level social worker make up the core clinical team. Family medicine resident physicians augment the medical staff during six months of the year. Medical and public health students from Columbia University provide health education services under the supervision of public health faculty. Although the majority of patients at the Young Men's Clinic speak English, 90% of the salaried clinical and support staff speak both Spanish and English.

Medical students complete psychosocial histories and provide health education at initial and annual visits. Sessions are tailored to each individual's concerns and developmental level. "Teachable moments" are maximized so that men have opportunities to discuss how to use condoms, communicate with their partner about contraception, perform testicular self-examinations and maintain a regular schedule of visits to the clinic (e.g., for regular STD screening). Young men with significant psychosocial needs (e.g., referrals for mental health or employment services) are referred to the social worker.

Public health students design health education activities that they conduct in the waiting room. Discussions focus on STDs and other health issues that concern men (e.g., hernias and stress management), as well as beliefs related to the outcomes of and widespread acceptance of such preventive health behaviors as limiting the number of sexual partners and supporting a partner's use of a contraceptive method.

To create a male-friendly environment, clinic staff show sports and entertainment videos when group activities are not being conducted, and distribute magazines such as *Sports Illustrated* and *Men's Health*. Paintings of men engaged in health-promoting behaviors (e.g., holding a baby) are placed in strategic locations throughout the clinic, and photographs of distinguished men of color (e.g., Secretary of State Colin Powell and former Surgeon General David Satcher) are displayed on the clinic's Wall of Fame.

The social worker provides mental health and social services during clinic sessions and short-term case management services throughout the week. Some of these services do not require young men to revisit the clinic. For example, the social worker provided more than 800 telephone consultations in 2002. Consultations typically are brief (10 minutes or less) and focus on health education (e.g., symptoms of herpes), decision-making (e.g., how to help a girlfriend decide on a contraceptive method), interpersonal skills (e.g., how to talk to a partner about getting tested for STDs) and finding necessary services at other agencies (e.g., support groups for gay adolescents). Even though telephone

counseling is not a reimbursable service, logs capture the full range and volume of this important activity, and summary statistics are reported to funders.

Outreach

The increasing number of clients visiting the Young Men's Clinic challenges the notion that men are hard to reach and demonstrates that young men will engage in programs that are accessible, affordable, culturally sensitive, rooted in the community and tailored to their needs. The following outreach interventions were designed to ensure that the clinic has high visibility in the community:

. . . young men will engage in programs that are accessible, affordable, culturally sensitive, rooted in the community and tailored to their needs.

- A social marketing cartoon series that portrays men as competent, caring and involved in health-promoting activities has been developed. Cartoons are printed in English and Spanish on brightly colored cards and distributed through several channels. Story lines address emergency contraception, urine-based chlamydia screening, male support for female contraceptive use, hernia, and referral services at the Young Men's Clinic. A cartoon about dual protection against pregnancy and STDs is being developed. Information about the clinic (location, days and hours of operation, and telephone number) is embedded in each script.
- Medical and public health students are sent to community events such as evening basketball games. Wearing colorful clinic T-shirts, students distribute cartoons and engage men in "life space interviews" about clinic services.
- The results of formative research at the clinic in 2001 suggested that young men delay seeking health care because they fear hearing bad news. In addition, concerns were frequently expressed about the confidentiality of test results and about pain associated with laboratory tests (especially penile probes). A seven-minute digital video about urine-based screening was produced to address these concerns. In the video, satisfied patients give "testimonials" about the clinic and describe the benefits of being tested ("I sleep better at night knowing everything is all right"). The clinic's attractive facility is shown while merengue music plays in the background. Copies of the video are distributed to community-based organizations and downloaded onto computers at school-based clinics run by the Center for Community Health and Education.
- The social worker leads discussions in the family planning clinic to help women link their partners to the Young Men's Clinic. Cartoons are distributed and discussed, and women are encouraged to make appointments for their partners. After these groups were instituted, the proportion of new male patients who were referred by family planning patients increased sharply, from 25% in 1999 to 53% in 2001.
- Although most residents of Washington Heights have limited financial resources, close family and friendship networks provide invaluable support. These networks also create entry points for introducing information about men's sexual and reproductive health services. A standard talking point during waiting room groups, for example, focuses on what men can do to take care of their sexual and reproductive health, their partner's health and the health of their children. Telling friends about the clinic is proposed as one possible action. Tapping into these networks appears to be an effective strategy: Some 25% of the men who came to the Young Men's Clinic for the first time in 2001 said they had heard about the clinic from another patient; in addition, almost two-thirds of the men who made revisits in 2000 and 2001 reported that they had told another man about the clinic since their last visit.

Funding

The Young Men's Clinic has been supported over the years by a patchwork of funding that has included in-kind institutional contributions (e.g., the clinic facility, volunteer students and Columbia faculty), private foundation and state grants, patient fees and third-party Medicaid reimbursement. The clinic has never received funds from either NewYork–Presbyterian Hospital or Columbia University.

Administrators from the Center for Community Health and Education strongly believe that to prevent transmission of STDs in women and reduce the incidence of unintended pregnancy, men must be included in reproductive health services. Since 1987, when medical services for young men were introduced, some funds from the family planning operating budget have been committed to cover medical, social work and support staff at the Young Men's Clinic.

Title X funding specifically designated for men's services was first received in 1998, when the clinic was designated as an Office of Population Affairs male demonstration project. The Young Men's Clinic received funding from the New York Community Trust that same year. These additional funds enabled the clinic to hire a part-time medical director and a full-time social worker, and to expand to two sessions each week. But although these funds provided a more secure financial base, they did not cover the total cost of operating the clinic.

The total annual operating expenses for the Young Men's Clinic are approximately $311,000, excluding administrative overhead and indirect expenses, such as rent for the clinic facility. Of that amount, $150,000 comes from the Office of Population Affairs through the New York State Department of Health, and approximately $88,000 from Medicaid billing and out-of-pocket patient fees. Other grants and funding sources provide $73,000. Uninsured patients who are 19 or older pay a nominal fee based on income, pursuant to Title X guidelines. A new Medicaid entitlement benefit that covers family planning and reproductive health care services for men and women with incomes less than 200% of the federal poverty level (Family Planning Benefit Program) has been in place in New York State since October 2002.

ORGANIZING CONCEPTS

Empowering

The Young Men's Clinic attempts to empower men to adopt and sustain behaviors that improve their health and the health of their partners. This is challenging because many

of the clinic's patients, like other low-income young men of color, experience environmental and structural barriers to meeting their most basic needs on a daily basis. Many are recent immigrants, and few have jobs that provide a living wage or employer-sponsored health insurance. Shifting eligibility requirements for Medicaid coverage since the institution of welfare reform in 1996 have left many confused, fearful and distrustful of medical and other service providers.[10]

To improve staff members' ability to increase young men's self-efficacy and engage them as partners in their own health care, the clinic trains them to help young men identify and use personal and environmental resources to make changes in their lives (e.g., initiating condom use); avoid responding to patients in a manner that sounds blaming, threatening or minimizing and that diminishes men's motivation to take action; and communicate confidence that men can change their behavior and affect their environment. For example, when completing a psychosocial history with an adult who has never finished high school, staff are trained to ask "How did you decide to leave school before you graduated?" rather than "Why did you drop out?" When providing health education about genital warts, staff help young men save face by telling them "It's okay; many men haven't heard about viruses like this one" instead of "You should know about this by now; it's a common infection."

Teachable Moments

Parents, teachers and health care providers regularly miss opportunities to talk with young men about sexual health concerns and fail to provide them with the knowledge and skills they need to protect themselves.[11] As a result, many young men are uninformed about sexual and reproductive health, unfamiliar with the health care system, uncomfortable talking with physicians and reluctant to seek help even when they have symptoms.[12] A visit to the Young Men's Clinic may present one of the few opportunities men have to discuss sexual and reproductive health.

The clinic maximizes teachable moments so that young men have multiple opportunities to ask questions, obtain information, learn skills and think about their behaviors. Graduate students leading group activities in the waiting room focus conversations on factors that are associated with using condoms and with partner communication (e.g., concerns that condoms will affect sexual pleasure). Students inject these issues into discussions so they can be explicitly explored (e.g., asking whether women *always* feel insulted if a man wants to use a condom).

Downtime in the waiting room is also used to inform men about cancers of the male reproductive tract, describe how the testicles are examined during a comprehensive physical, demonstrate testicular self-examinations and provide guidance about what to do if symptoms are observed (i.e., call the clinic). Encouraging men to perform testicular self-examinations and to use the Young Men's Clinic as their medical home raises men's awareness of their reproductive health, establishes a baseline of what is normal and creates opportunities for expressing concerns that may warrant attention (e.g., symptoms of herpes or genital warts).

Collaboration

Healthy People 2010 states that developing community partnerships is one of the most effective ways to improve the health of communities.[13] The Young Men's Clinic collaborates with several governmental, nonprofit and community-based organizations to leverage resources and create a comprehensive package of services. A linkage with the New York City Department of Health, for example, allows the clinic to offer urine-based screening for chlamydia and gonorrhea to every patient at no cost to the clinic. (The prevalence of chlamydia among clinic clients was about 11% in 2002. All of the men who tested positive were successfully treated with a single dose of azythromycin.)

EngenderHealth, an organization that provides technical assistance related to reproductive health throughout the world, funded the clinic's social marketing cartoons. Family medicine residents have increased the number of in-kind medical providers and facilitated referrals to the family medicine outpatient clinic when diabetes and other chronic conditions are diagnosed. A Harlem Health Promotion Center health educator is assigned to the Young Men's Clinic and provides smoking cessation services during clinic sessions.

CHALLENGES AND RESPONSES

Although the substantial increase in clinic use since 1998 is encouraging and provides evidence that men are willing to participate in sexual and reproductive health care, the success of the Young Men's Clinic has created some of its most vexing problems. Marketing activities and informal word-of-mouth outreach by satisfied male and female users of the family planning and reproductive health programs run by the Center for Community Health and Education have dramatically increased the clinic's visibility, but the growing demand for services is outpacing the clinic's capacity. Some 5–10 nonemergency walk-in patients have to be turned away and rescheduled at every clinic session. Although the clinic has adapted by collaborating with government and community-based agencies, enlisting graduate students to provide health education services, maximizing recovery of reimbursable revenue and seeking additional sources of funding, the financial challenges facing the clinic are formidable.

The Young Men's Clinic serves men who are the least likely to be insured and the most likely to be disconnected from health care. Men in their 20s are too old for the State Children's Health Insurance Program (SCHIP) and are rarely eligible for Medicaid. Moreover, many of the clinical, counseling and health education services men need are not reimbursable.[14]

The clinic also serves a large number of immigrants, both legal and undocumented. New York State court decisions have restored full Medicaid eligibility to legal immigrants who were eligible for Medicaid before the state implemented

federal welfare reforms, but undocumented adults still do not qualify for coverage except for prenatal and emergency services.[15] The policy at programs of the Center for Community Health and Education, including the Young Men's Clinic, is that no one is denied services because of inability to pay. This includes undocumented immigrants. The clinic administration and staff believe that any other position would be unethical. Moreover, health care costs would ultimately be driven up if men had to be treated at emergency rooms and their partners had to be hospitalized with pelvic inflammatory disease and other complications of untreated chlamydial infections.

As at most male involvement programs in the United States, especially those serving low-income, uninsured, minority communities, securing adequate and stable funding to provide and (given the high level of interest and need) expand services has been the most pressing dilemma. Few funding sources target men's sexual and reproductive health.[16] The decision to allocate scarce resources to men's services is difficult for managers of Title X–funded programs because of the rising costs of providing services and inadequate Medicaid reimbursement rates. Moreover, despite Title X's extraordinary success in helping to prevent millions of unintended pregnancies over the last 30 years, funding for the program has not kept pace with inflation. The growing federal budget deficit and pressures on states to balance budgets have created even greater financial uncertainties.[17]

Limited funding in the face of the high demand for services has constrained the capacity of the Young Men's Clinic to implement several important activities, including the expansion of health education services at community venues. During the summer of 2003, however, the clinic applied for funding to launch a community-based health education and condom distribution intervention at 14 community-based organizations in Washington Heights and neighboring Harlem, and for an additional medical provider to serve newly recruited patients. If this intervention is funded, a health educator will deliver a three-session group curriculum that uses the social marketing cartoons and digital video. A slide program that walks men through a typical clinic visit by showing digital photos of staff (e.g., receptionists), space (e.g., the lab) and activities (e.g., taking blood pressure) will also be used. Men will be encouraged to visit the clinic for STD screening. Building on the success of the In Your Face school-based intervention, developed by the Center for Community Health and Education,[18] the health educator will escort each young man who visits the Young Men's Clinic through his initial visit.

Although formative evaluations have informed the development of culturally sensitive outreach interventions such as the video and cartoons, and process evaluations (e.g., patient flow analyses, chart reviews and patient satisfaction surveys) have identified service delivery problems so that corrective action could be taken, funding constraints have limited the clinic's ability to conduct rigorous outcome evaluations. The clinic is currently seeking funding to support systematic evaluations of clinic interventions (e.g., the effectiveness of waiting room group activities on knowledge, beliefs and behaviors), as well as outcome studies that measure changes in condom use and partner communication among clinic users.

CONCLUSIONS

The sexual behavior of adolescent males has changed for the better in recent years.[19] Nevertheless, more progress is needed to achieve not only the Healthy People 2010 goal of eliminating health disparities, but also increased condom use among adolescents who are sexually active, and lower rates of pregnancy and chlamydial infection.[20] It is particularly important to increase primary and secondary prevention efforts that target men in their early 20s, who are more likely than younger males to engage in risky sexual behaviors and to have adverse reproductive health outcomes.[21] Achieving reductions in sexual risk-taking among men in their early 20s similar to those observed among adolescent males could contribute to further declines in unintended pregnancy and STD rates among young women.

The Young Men's Clinic is successfully engaging young men of color who are poorly served by the U.S. health care system. To improve young men's access to comprehensive and integrated sexual and reproductive health care throughout the country, health organizations and community-based agencies will increasingly need to pool resources, strengthen linkages and craft strategies for incorporating sexual and reproductive health into services. Most important, public and private funding specifically earmarked for men's services must be increased.

REFERENCES

1. United Nations (UN), International Conference on Population and Development, Programme of Action, <www.iisd.ca/linkages/Cairo/program/p04009.html>, accessed Apr. 15, 2003; and UN, Fourth World Conference on Women, Beijing Declaration and Platform for Action, <www.un.org/womenwatch/daw/beijing/platform>, accessed Apr. 15, 2003.

2. The Alan Guttmacher Institute (AGI), *In Their Own Right: Addressing the Sexual and Reproductive Health Needs of American Men,* New York: AGI, 2002.

3. Sonenstein FL et al., Changes in sexual behavior and condom use among teenaged males: 1988 to 1995, *American Journal of Public Health,* 1998, 88(6):956–959; Grunbaum JA et al., Youth risk behavior surveillance—United States, 2001, *Morbidity and Mortality Weekly Report Surveillance Summary,* 2002, Vol. 51, No. SS–04; Rich JA and Ro M, *A Poor Man's Plight: Uncovering the Disparity in Men's Health,* Community Voices Publication Series, Battle Creek, MI: W.K. Kellogg Foundation, 2002, No. 476; Sonenstein FL, ed., *Young Men's Sexual and Reproductive Health: Toward a National Strategy,* Washington, DC: Urban Institute, 2000; and Sandman D, Simantov E and An C, *Out of Touch: American Men and the Health Care System, Commonwealth Fund Men's and Women's Health Survey Findings,* 2000, <http://www.cmwf.org/programs/women/sandman_men'ssurvey2000_374.asp>, accessed Apr. 1, 2003.

4. Male Advocacy Network, *Components That Work in Male Reproductive Health and Education Programs,* Washington, DC: Male Advocacy Network, 2002.

5. Citizens' Committee for Children of New York (CCC), *Keeping Track of New York City's Children,* New York: CCC, 2002.

6. Armstrong B et al., Involving men in reproductive health: the YoungMen's Clinic, *American Journal of Public Health,* 1999, 89(6):902–905;

Steinhauer J, At a clinic, young men talk of sex, *New York Times,* Sept. 6, 1995, pp. B6–7; Stolberg SG, Men's reproductive health care gets new emphasis, New York Times, Mar. 19, 2002, p. B6; Sonenstein FL et al., *Involving Males in Preventing Teen Pregnancy: A Guide for Program Planners,* Washington, DC: Urban Institute, 1997; AVSC International, Selected U.S. reproductive health clinics serving men: three case studies, New York: AVSC International, 1997; and Hanson M, ed., *Maternal and Child Health Program Design and Development: From the Ground Up; Collaboration and Partnership: A Casebook,* New York: Columbia University School of Social Work, 1997.

7. Centers for Disease Control and Prevention (CDC), *Sexually Transmitted Disease Surveillance,* 2001, Atlanta: CDC, 2002.

8. Schulte MM and Sonenstein FL, Men at family planning clinics: the new patients? *Family Planning Perspectives,* 1995, 27(5):212–216 & 225.

9. Darabi KF, Barriers to contraceptive use and clinic utilization among Hispanic teenagers in New York City, New York: William T. Grant Foundation, 1985.

10. Adams A and Armstrong B, Connecting the disconnected: involving male minority youth in reproductive health, unpublished document, Columbia University, Mailman School of Public Health, New York, 1999.

11. Porter LE and Ku L, Use of reproductive health services among young men, 1995, *Journal of Adolescent Health,* 2000, 27(3):186–194; Kaiser Family Foundation and *Glamour, Survey of Men and Women on Sexually Transmitted Diseases,* Menlo Park, CA: Kaiser Family Foundation, 1998; Lindberg LD, Ku L and Sonenstein FL, Adolescents' reports of receipt of reproductive health education, 1988–1995, *Family Planning Perspectives,* 2000, 32(5):220–226; and Holtzman D and Rubinson R, Parent and peer communication effects on AIDS-related behavior among U.S. high school students, *Family Planning Perspectives,* 1995, 27(6): 235–240 & 268.

12. Sandman D, Simantov E and An C, 2000, op. cit. (see reference 3).

13. U.S. Department of Health and Human Services (DHHS), *Healthy People 2010: Understanding and Improving Health,* second ed., Washington, DC: U.S. Government Printing Office, 2000.

14. Sonenstein FL, 2000, op. cit. (see reference 3).

15. Bachrach D and Lipson K, *Health Coverage for Immigrants in New York: An Update on Policy Developments and Next Steps,* New York: Commonwealth Fund, 2002.

16. Sonenstein FL, 2000, op. cit. (see reference 3).

17. Gold RB, Nowhere but up: rising costs for Title X clinics, *Guttmacher Report on Public Policy,* 2002, 5(5):6–9; Dailard C, Title X family planning clinics confront escalating costs, increasing needs, *Guttmacher Report on Public Policy,* 1999, 2(2):1–3; Gold RB, Title X: three decades of accomplishment, *Guttmacher Report on Public Policy,* 2001, 4(1):5–8; and Dailard C, Challenges facing family planning clinics and Title X, *Guttmacher Report on Public Policy,* 2001, 4(2):8–11.

18. Tiezzi L et al., Pregnancy prevention among urban adolescents younger than 15: results of the "In Your Face" program, *Family Planning Perspectives,* 1997, 29(4):173–176 & 197.

19. Sonenstein FL et al., 1998, op. cit. (see reference 3); and Grunbaum JA et al., 2002, op. cit. (see reference 3).

20. DHHS, 2000, op. cit. (see reference 13).

21. Ku L et al., Risk behaviors, medical care, and chlamydial infection among young men in the United States, *American Journal of Public Health,* 2002, 92(7):1140–1143; Bradner CH, Ku L and Lindberg LD, Older, but not wiser: how men get information about AIDS and sexually transmitted diseases after high school, *Family Planning Perspectives,* 2000, 32(1):33–38; Ku L, Sonenstein FL and Pleck JH, Young men's risk behaviors for HIV infection and sexually transmitted diseases, 1988 through 1991, *American Journal of Public Health,* 1993, 83(11):1609–1615; and Ku L, Sonenstein FL and Pleck JH, The dynamics of young men's condom use during and across relationships, *Family Planning Perspectives,* 1994, 26(6):246–251.

Acknowledgments

The author thanks Lorraine Tiezzi and Ruben Santiago for their editorial assistance.

Author contact: *ba5@columbia.edu*

Man2Man: A Promising Approach to Addressing The Sexual and Reproductive Health Needs of Young Men

By Genevieve Sherrow, Tristan Ruby, Paula K. Braverman, Nathalie Bartle, Shawn Gibson and Linda Hock-Long

Genevieve Sherrow is research associate, Tristan Ruby is manager of adolescent programs, Shawn Gibson is director of adolescent programs, and Linda Hock-Long is director of research—all at the Family Planning Council, Philadelphia. At the time Man2Man was developed and implemented, Paula K. Braverman was chief of adolescent medicine, St. Christopher's Hospital for Children, and associate professor of pediatrics, Drexel University College of Medicine, Philadelphia; she is currently director of community program development, Division of Adolescent Medicine, Cincinnati Children's Hospital, Cincinnati. Nathalie Bartle is associate dean of student affairs and professor of community health and prevention, Drexel University School of Public Health.

Despite a growing awareness of the importance of involving male adolescents in pregnancy and sexually transmitted disease (STD) prevention efforts, information is lacking regarding the design and delivery of effective male-specific strategies.[1] In this special report, we describe the evolution of a promising program in Philadelphia, Man2Man, instituted through the collaborative efforts of the Family Planning Council (the Title X grantee for southeastern Pennsylvania); the Drexel University School of Public Health; St. Christopher's Hospital for Children; and NorthEast Treatment Centers (NET), a local agency providing mental health, substance abuse treatment and social services.

PROGRAM BACKGROUND

The Man2Man program grew out of two projects that examined the lack of reproductive health and pregnancy prevention services for young men in North Central Philadelphia: a Family Planning Council project, and a collaboration of the Drexel University School of Public Health and St. Christopher's Hospital for Children. Representatives of the three agencies came together to discuss collaboration and a potential course of action. In 1998, they formed a coalition to design and implement a health education intervention for young men. Part of a grant from the Centers for Disease Control and Prevention (CDC) to the Family Planning Council was used to pilot-test the program. Two years later, the coalition was joined by NET, which also serves as a program site.

The target area for the intervention is an economically disadvantaged section of North Central Philadelphia with high teenage pregnancy and STD rates. According to Census Bureau estimates, 45% of the area's families with children younger than 18 had incomes below the federal poverty leve1 in 2000,[2] and 53% of households with children were female-headed.[3] In addition, North Central Philadelphia's 1997 school dropout rates were higher than rates in other sections of the city.[4] The area's 1996 teenage birthrate of 124 births per 1,000 women aged 15–19[5] was more than twice the national rate of 54 per 1,000[6] and substantially higher than the city rate of 83 per 1,000.[7] That same year, 12% of 15–19-year-old women living in the area who underwent chlamydia screening tested positive.[8]

THEORETICAL FRAMEWORK AND GOALS

A synthesis of Bandura's social learning theory[9] and the theory of reasoned action[10] represents the theoretical framework for the Man2Man program. A central tenet of social learning theory is that people learn as much by observing the experiences of others (i.e., through observational learning) as they do through direct experience, especially when they are observing a person they respect and perceive as being powerful or similar to themselves. According to the theory of reasoned action, behavioral intent and action are influenced by two important factors: one's attitude toward the positive and negative aspects of a particular behavior, and one's perceptions of social norms, or what important others think about engaging in the behavior. In designing Man2Man, the coalition felt that using adult male facilitators would expose participants to positive role models who would help them recognize the benefits of engaging in responsible behaviors and modify their responses to social pressures to engage in high-risk behaviors.

Four goals have informed the development, implementation and evaluation of Man2Man:

- to improve knowledge and attitudes regarding men's health issues, and strengthen intentions to engage in responsible reproductive health behavior;
- to enhance personal values, life skills, family interactions and self-sufficiency;
- to increase personal responsibility by developing relationships with adult male role models; and
- to expand utilization of, and access to, primary and reproductive health care services.

PROGRAM DEVELOPMENT

In designing the program, the coalition took into account that a confluence of psychosocial, environmental and economic factors contributes to poor reproductive health outcomes. It used a holistic approach to address multiple, concurrent risk factors (school dropout, early onset of sex, multiple partners, and lack of contraceptive and condom use), and located Man2Man services in established settings, such as public schools. Principals at two target high schools agreed to support the development of services at their sites.

Program planners held focus groups with male students to gain an understanding of their unique health and psychosocial needs and to elicit their input regarding program design. Participants expressed a need for accurate information and support from adult male role models in the following areas: sexual health, disease prevention, child development, relationships with women and fathering skills. They also indicated a preference for a male-only program that provided an opportunity for their voices to be heard.[11]

Because curriculum development and validation is a time-consuming and costly endeavor, the coalition adapted an

existing curriculum—Fatherhood Development: A Curriculum for Young Fathers,[12] developed by Public Private Ventures and distributed by the National Center for Strategic Non-Profit Planning and Community Leadership (NPCL)—to use as the foundation for the Man2Man program. Although designed specifically for young fathers, the curriculum covers topics that are important in the lives of all young men.

The Fatherhood Development curriculum comprises five modules: personal development, life skills, fatherhood, relationships, and health and sexuality. Given the goals of the project, the coalition incorporated a lesson on contraception into the health and sexuality module. The curriculum outlines interactive and discussion-based strategies, such as role-playing and games, designed to actively engage participants and to encourage them to share their personal experiences. Activities are also designed to enhance problem-solving and critical thinking skills, and to assist participants in applying the knowledge and skills they are learning to real-life situations. (See box for detailed session content.)

PROGRAM DELIVERY

The Man2Man program consists of 15 weekly, two-hour sessions delivered to groups of 10–12 adolescents by a trained adult male facilitator. Twelve sessions cover substantive content; the remaining three are devoted to orientation and evaluation activities.

Curriculum session content, Man2Man program

Personal development
- Discuss definitions, ideas and perceptions about manhood; diverse male role models and their positive contributions; experiences as sons, men and fathers
- Identify stereotyped beliefs about certain groups; develop personal definitions of manhood
- Discuss qualities of self-sufficiency; conduct personal assessment; develop a one-year plan

Life skills
- Explore communication, miscommunication and communication styles; assess "poor" and "good" listening skills; practice effective listening skills via role-play
- Explore important or difficult decisions made, and discuss outcomes; play game illustrating potential consequences of poor decision-making

Fatherhood
- Reinforce accurate information and dispel myths about a father's influence on his children; identify personal values regarding fatherhood and children; explore best approaches for handling problem behaviors in children
- Play game identifying children's developmental stages; identify tasks and skills involved in caring for children at different ages

Relationships
- Identify clues to help recognize feelings of anger; practice nonviolent responses to resolving conflict and managing anger
- Identify qualities of good relationships; evaluate effectiveness of personal relationships and establish goals for enhancement

Health and sexuality
- Explore differences in men's and women's health; role-play to illustrate how to communicate with health care providers
- Discuss myths and misperceptions about male sexuality; engage participants in activity exploring responsible sexual decision-making
- Play game illustrating spread of STDs; engage participants in activities to test strength and sensitivity of condoms and learn correct use; describe contraceptive method effectiveness and use

The project began in the fall of 1999 with final program planning and preparation for piloting Man2Man as an after-school program in the two high schools that had been involved in the planning phase focus groups. At each school, the principal selected a faculty coordinator for the program. The coordinators, in consultation with the principals, collaborated with the coalition to identify facilitators and develop marketing strategies to engage students. Facilitators were selected on the basis of their interest in and commitment to working with youth and the Man2Man goals. Seven teachers from the two schools and a minister from the local community were recruited and trained to facilitate Man2Man groups. The pilot program was launched in the spring of 2000. During the first year, 44 participants attended the program. These participants named the intervention Man2Man.

During the second project year (2000–2001), Man2Man served 107 students at the schools. Five of the original facilitators remained active in the program, and 10 new facilitators, including school-based probation and security officers, were trained. In addition to the school sites, the coalition introduced Man2Man at NET, targeting adjudicated young men served by one of the agency's behavioral health programs. To ensure adequate supervision, the coalition recruited and trained two NET case managers to facilitate Man2Man groups. Cofacilitators were used for groups of 15–20 young men. (Groups were larger at NET than in the schools because of the greater potential for attrition in this population.) A total of 79 participants were served over two program cycles at NET in 2000–2001.

In the program's third year (2001–2002), Man2Man served 151 young men at the school sites and 43 at NET. At the school sites, five facilitators from the previous year returned and four new facilitators were trained. Because of internal organizational issues, a new team of facilitators had to be recruited at one school. At NET, two new facilitators became involved in the program.

In 2002–2003, the program's fourth year, Man2Man served a total of 200 young men at one of the original school sites, NET and a new site at an alternative school; because of internal organizational challenges, one original school site was unable to offer Man2Man. At the alternative school, Man2Man was incorporated into the routine school day, rather than being delivered as an after-school program. Four teachers were trained as facilitators to implement the program at this site. At the other school site, seven returning facilitators were joined by one new facilitator; both NET facilitators continued their involvement.

FACILITATOR TRAINING

An annual two-day Man2Man training workshop is conducted for new and returning facilitators from all sites. In addition to didactic sessions on the Fatherhood Development curriculum modules, the training covers contraception (i.e., the appropriate use, effectiveness, advantages and disadvantages of various methods) and information re-

garding local adolescent family planning services and techniques to facilitate access to services.

The workshops provide opportunities for facilitators to develop skills needed to effectively lead group sessions (e.g., active listening and nonjudgmental response techniques) and to use appropriate self-disclosure as a role-modeling strategy. In addition, workshop activities allow returning facilitators to share their Man2Man experiences and expertise with new facilitators.

During the first year, NPCL, the distributor of the Fatherhood Development curriculum, conducted the facilitator workshop. In subsequent years, NPCL-trained local consultants have assumed responsibility for facilitator training, and NPCL has provided consultation regarding workshop design. Although the use of local consultants to conduct the workshop generated some debate, the coalition ultimately agreed it was a more cost-effective approach than using NPCL staff.

PARTICIPANT RECRUITMENT AND ATTENDANCE

Project coordinators and facilitators, along with administrators at each Man2Man site, have worked with the coalition to develop and implement appropriate, site-specific participant recruitment strategies. The original school sites have used a variety of techniques to promote schoolwide awareness of Man2Man. For instance, before a new program cycle begins, daily announcements are made over the loudspeaker, and flyers are posted in classrooms and hallways. In addition, each year, the coalition presents evaluation findings, including participant and facilitator feedback, to faculty and staff, and gives them informational materials to distribute in their classrooms. Word-of-mouth advertising by former participants has become an important recruitment strategy. At the alternative school, where teachers and students are assigned to small "learning communities," facilitators communicate directly with interested young men about the program.

Given the nature of NET's services for adjudicated youth, it was necessary to develop a different set of strategies to maximize recruitment at that site. NET facilitators make bimonthly presentations to probation officers and provide written materials about Man2Man to juvenile court judges. In addition, NET case management staff send letters describing the program and encouraging enrollment to parents and guardians of youth in the behavioral health program.

During the first year of the program, participants received four types of incentives: food provided at each session; gift certificates to movie theaters, music stores or sports stores, provided periodically over the program cycle; course credit upon completion of the program; and a graduation ceremony, at which each participant received a certificate of achievement. At debriefing sessions conducted at the completion of the cycle, participants provided compelling feedback that having "good food, and lots of it" was the most important incentive; course credit was a close second. The gift certificates ranked lowest. Given these responses, Man2Man continues to offer food at each session at the schools and NET, and to provide course credit at the school sites. Gift certificates are distributed to all program participants at graduation ceremonies. NET participants also receive public transportation tokens to ensure access to program activities.

For the two original schools and NET, information is available on attendance during the second and third years of the program. (The attendance tracking system was not in place in the first year, and information for the most recent year is not yet available.) At the school sites, participants attended a median of eight of the 12 substantive sessions. Most (86%) participants attended at least five of these sessions; 50% attended at least nine. At NET, participants attended a median of three substantive sessions; 28% attended at least five. The facilitators report that changes in participants' probation requirements or status and transportation difficulties represent the major barriers to program participation at NET.

FACILITATOR AND PARTICIPANT FEEDBACK

The coalition conducts three focus groups with facilitators during each cycle and a focus group with participants at the end of the cycle to gather their feedback on how the program is doing. Project staff independently review and analyze focus group transcripts to identify themes in the following areas: the program's structure and format, its content and areas needing improvement. While a more rigorous evaluation has not yet been completed, this feedback provides valuable insights that are used in further planning.

Structure and Format

• *Appeal of the small group format.* Feedback thus far indicates that the small group format is an important facet of the program, as it allows facilitators and participants to discuss sensitive issues. One participant's comment exemplifies the majority of responses regarding the small group format: "It's easier to talk and share in a small group with the facilitator." Similarly, one facilitator described the groups as providing "a safe space" for young men.

Facilitators consistently observe that the small group format helps to build a sense of camaraderie and trust over the course of a program cycle. In addition, the small group setting allows facilitators to focus on issues of particular importance to participants. The following statement illustrates the level of comfort of most young men in regard to sharing their feelings and experiences with the group: "I felt real free, like I could say anything and not feel funny about it." Similarly, one participant observed, "I have been to a lot of programs, but [at] this one I was able to give my feelings out." Young men consistently report that they feel empowered to share their feelings because of the self-disclosure of the facilitators and the other participants.

• *Importance of adult male role models.* Participants report that using supportive adult men as facilitators is an important aspect of the Man2Man program. In the words of one participant, "[Man2Man] is cool, and I would definitely recommend it. It is an opportunity to spend some quality

time with men." Facilitators take a genuine interest in the young men and work to develop an appropriate level of intimacy with them. Because many participants do not have regular opportunities to interact with caring and supportive adult men, the facilitators help them "connect with the program messages." Facilitators find that young men are "proud of coming to Man2Man" and that participation makes them "feel special."

Content

• *Relevance to real-life situations.* Facilitators say that the curriculum is "working," meaning that the ideas and information shared in the sessions have a positive impact on the participants. In describing one program activity, a facilitator commented that it "assisted the young men in understanding the consequences of poor, uninformed decision processes." In a similar vein, the following statement is representative of participants' attitudes in this area: "I like the session because it really helps me out and makes me think about my life and what I am going to do in my future."

Focus group feedback suggests that participants are able to make meaningful connections between session topics and their own lives. For example, some youth have reported an increase in awareness of the tremendous economic and social implications of fatherhood as a result of participation in Man2Man. One young man commented, "Fatherhood is not just diapers and food; there are lots of responsibilities." Similarly, another young man stated, "It takes money to care for a baby. [The program] woke me up to that and to how much money it costs to live on your own."

• *Knowledge about sexual health issues and potential consequences of risky behavior.* Facilitators find that participants are very interested in topics concerning sexuality and sexual health. Group discussions provide facilitators with the opportunity to identify and dispel misperceptions that many young men hold about sexuality and sexual health, and to focus on potential consequences of unsafe sexual behavior, such as pregnancy, HIV and other STDs. As one facilitator observed, "One teen was shocked to hear that an STD could be transmitted through oral sex." Similarly, the comment of one young man summarizes perspectives regarding the ways in which Man2Man participation enhances knowledge and awareness: "We were surprised at the different ways to have STDs transmitted." The thoughts of another young man reflect the emphasis that is placed on adopting responsible sexual behaviors: "The world says to be a man is having sex; you can be a man without sex."

Program Improvement

Participants consistently suggest one modification to Man2Man: the inclusion of women in a session or sessions to discuss "female perspectives." Many young men have indicated an interest in developing a better understanding of women's point of view on issues that fall into the categories of "relationship expectations" and "manhood and responsibility." The words of one young man reflect the feelings of a number of participants: "We need to find out what women want. How are we going to know what women want if we can't talk to them?"

COSTS AND FUNDING

Using data from the third project year, we have calculated that the direct costs of delivering the Man2Man program at the two original school sites total $413 per student for 15 weekly sessions, or $28 per student for each session. (Direct costs are the project coordinators' and facilitators' salaries, incentives, facilitator training expenses, supplies and administrative expenses.) Level of attendance does not affect program costs because facilitator expenses remain the same, regardless of the number of young men at a session.

Funding thus far has been provided through demonstration and research grants from the CDC and the Department of Health and Human Services, Office of Population Affairs, but long-term sustainability remains a challenge. In an effort to sustain the program, the coalition has leveraged available resources to reduce costs—for instance, by adapting an existing curriculum rather than developing a new one. Costs have also been minimized by implementing Man2Man at public schools and NET: With the ready pool of potential participants at those sites, Man2Man does not need to rely on outreach workers or expensive advertising campaigns to recruit participants. Moreover, school and community sites provide men experienced in working with youth who can serve as Man2Man facilitators, thereby reducing the cost of facilitator recruitment and the need for extensive training other than training in the curriculum. In addition, because the program was integrated into the regular school day at the alternative school, its implementation became part of the regular responsibilities of facilitators, who did not receive an hourly stipend.

LESSONS LEARNED

Thus far, several key lessons have emerged through the coalition's experience with the Man2Man program: Partnerships such as the Man2Man coalition can enhance adolescent pregnancy and STD prevention efforts; young men are receptive to small group formats that encourage active participation and focus on sensitive sexual health issues; and young men are interested in gaining a greater understanding of female attitudes and expectations regarding relationships with men.

From its earliest stages, Man2Man has been a collaborative effort among community agencies, which have faced several challenges in working together to develop and implement the program. Given each agency's unique mission, program priorities and approaches to working with individuals and communities, the coalition had to build consensus and develop a shared vision for the program. It has had to pay careful attention to roles and responsibilities to ensure that the strengths of each partner are utilized and valued, and has had to keep all partners informed of the program's progress at each site. Collaboration has thus required extensive communication, flexibility and respect

for differences among agencies.

While collaboration has presented challenges, it has also enhanced program planning and implementation efforts. The unique perspectives and resources of each coalition member have helped to shape, sustain and enrich Man2Man. For example, the Drexel University School of Public Health provides expertise in developing collaborative public health programs, St. Christopher's Hospital for Children provides medical consultation for contraception training and the Family Planning Council provides expertise in project management. The schools and NET have provided access to young men and insight into their unique needs. At the same time, representatives from the coalition have enhanced the range of services the program can provide. Although collaboration requires additional time and effort, the benefits to Man2Man have apparently far outweighed the costs.

Although a common assumption is that young men are not emotionally expressive, those attending the Man2Man program actively participate and share their feelings and personal experiences during session activities. In fact, participants consistently report that they feel comfortable expressing themselves in the group setting. Our experience suggests that traditional views of emotional expression among young men may partly reflect their lack of opportunity rather than lack of desire. As we have observed in Man2Man, young men are willing and able to be emotionally expressive in a safe environment.

Female perspectives on sexual health and related topics are important to young men. The coalition's decision to develop a male-specific program was based on results of formative research and a review of the literature. Although participants agree that it is easier to talk about some subjects in an all-male group, they have pointed out that a better understanding of the "female perspective" would strengthen their ability to communicate and engage in successful relationships with women.

FUTURE DIRECTIONS

The Man2Man program has completed its fourth year. Positive feedback from participants and facilitators suggests that it can engage young men in activities regarding reproductive and sexual health issues. Meanwhile, the coalition plans a number of enhancements to strengthen and refine the service model. The curriculum will be enriched by the addition of a number of sexual health skill-based activities drawn from other curricula. In addition, the coalition will determine the ways in which female perspectives can be included (e.g., through a panel of young women or an adult female "guest facilitator"). Because the discussion-based nature of the curriculum topics may lead to variations in session content, facilitator training will be enhanced to foster greater consistency. Finally, the program will be expanded to serve young men in other underserved, high-risk communities in Philadelphia and surrounding counties.

A more extensive and rigorous evaluation is needed to fully determine the cost-effectiveness of the Man2Man program and its impact on behavior change and reproductive health outcomes. The coalition hopes that these enhancements will not only result in better services for young men in the Philadelphia area but also contribute to the design and delivery of effective sexual and reproductive health programs for male youth.

REFERENCES

1. Sonenstein F et al., *Involving Males in Preventing Teen Pregnancy: A Guide for Program Planners,* Washington, DC: Urban Institute, 1998; The Alan Guttmacher Institute (AGI), *In Their Own Right: Addressing the Sexual And Reproductive Health Needs of American Men,* New York: AGI, 2002; and Sonenstein F, ed., *Young Men's Sexual and Reproductive Health: Towards a National Strategy,*Washington, DC: Urban Institute, 2000.

2. U.S. Bureau of the Census, Poverty status in 1999 of families by family type by presence of related children under 18 years by age of related children, *American FactFinder Detailed Tables*, 2000, <http://factfinder.census.gov/servlet/DTTable_ts=68043150803>, accessed Mar. 10, 2003.

3. U.S. Bureau of the Census, Family type by presence of own children under 18 years by age of own children, *American FactFinder Detailed Tables,* 2000, <http://factfinder.census.gov/servlet/DTTable_ts= 68043809170>, accessed Mar. 10, 2003.

4. Family Planning Council, Semi-annual progress report: community coalition partnership programs for the prevention of teen pregnancy in North Central Philadelphia, Philadelphia: Family Planning Council, 1999.

5. Philadelphia Department of Public Health, unpublished data, Aug. 6, 2003.

6. AGI, U.S. teenage pregnancy statistics with comparative statistics for women aged 20–24, 2003, <www.guttmacher.org/pubs/teen_stats.html>, accessed May 15, 2003.

7. Pennsylvania Department of Health, Resident live births by single age of mother and county: Pennsylvania 1996, July 2003, <www.dsf.health.state.pa.us/health/lib/health/BRX011T_96.pdf>, accessed Aug. 19, 2003; and U.S Bureau of the Census, Population estimates for counties by age and sex: annual time series July 1, 1990 to July 1, 1999, Aug. 2000, <eire.census.gov/popest/archives/county/cas/cas42.txt>, accessed Aug. 19, 2003.

8. Philadelphia Department of Public Health STD Clinics, Region III Infertility Prevention Project, unpublished data, Aug. 6, 2003.

9. Bandura A, *Social Learning Theory,* Englewood Cliffs, NJ: Prentice-Hall, 1977.

10. Fishbein M and Ajzen I, *Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research,* Boston: Addison-Wesley, 1975.

11. Adolescent Male Project: findings from teen male focus groups, Philadelphia: Family Planning Council, 1999.

12. Wilson P and Johnson J, *Fatherhood Development: A Curriculum for Young Fathers,* Philadelphia: Public Private Ventures, 1995.

Author contact: *Genevieve@familyplanning.org*

An Evaluation of California's Adolescent Sibling Pregnancy Prevention Program

By Patricia East, Elizabeth Kiernan and Gilberto Chávez

CONTEXT: *The siblings of adolescents who have been pregnant or are parents have disproportionately high rates of teenage pregnancies and births. California's Adolescent Sibling Pregnancy Prevention Program is targeted at these high-risk youths.*

METHODS: *An evaluation of the program was conducted in 1997–1999 with 1,176 predominantly Hispanic 11–17-year-olds who had at least one sibling who was an adolescent parent or had been pregnant—731 youths who were program clients and 445 youths who received no systematic services. All evaluation participants completed an interview and questionnaire at enrollment and again nine months later.*

RESULTS: *Female program clients had a significantly lower pregnancy rate than comparison females over the evaluation period (4% vs. 7%), as well as a lower rate of sexual initiation (7% vs. 16%). They also significantly decreased their frequency of school truancy, whereas this outcome increased among comparison females; program females had significantly more definite intentions of remaining abstinent at posttest than comparison females. Consistency of contraceptive use increased over time among males in the program and decreased among comparison males. Delivery of group services was correlated with delayed onset of intercourse among males, and the receipt of services related to psychosocial skills was correlated with greater contraceptive use at last sex among all sexually experienced youth.*

CONCLUSIONS: *This new program, which serves a population known to be at very high risk for early pregnancy, appears to be effective at reducing rates of pregnancy and improving several pregnancy-related risk behaviors.*

Perspectives on Sexual and Reproductive Health, 2003, 35(2):62–70

Patricia East is research scientist, and Elizabeth Kiernan is program manager, both in the Department of Pediatrics, University of California, San Diego Medical Center. At the time this article was written, Gilberto Chávez was chief of the Maternal and Child Health Branch, California Department of Health Services, Sacramento, CA. He is currently director, Division of Birth Defects and Developmental Disabilities, Centers for Disease Control and Prevention, Atlanta.

Much evidence has documented the disproportionately high rates of adolescent pregnancy and childbearing and early sexual activity among the siblings of pregnant and parenting teenagers.[1] Concern over this problem led to the creation of the California Adolescent Sibling Pregnancy Prevention Program (ASPPP) in 1996. The program is delivered to the brothers and sisters of pregnant and parenting teenagers at 44 nonprofit social service agencies, community-based organizations, school districts and county health departments across California.* Each program site provides a unique combination of services, including individual case management, academic guidance, training in decision-making skills, job placement, self-esteem enhancement, and contraceptive and sexuality education. To date, the program has served approximately 6,000 youths.[2]

This article presents the results of an evaluation that had two goals. First, we sought to determine whether program participants showed more favorable outcomes than comparison youths at the conclusion of the nine-month evaluation. We assessed many outcomes, including the incidence of problem behaviors known to be risk factors for teenage pregnancy; adolescents' perceived likelihood that they would engage in pregnancy-related behaviors; and rates of first intercourse, contraceptive use and pregnancy. Second, we examined whether positive outcomes were related to the content area of services received, their mode of delivery and the dosage of the intervention. The findings from these analyses will highlight which services were most effective at preventing pregnancy in this high-risk population.

METHODS

Study Design

At the initiation of the evaluation, in May 1997, approximately 3,300 youths were participating in ASPPP.[3] Because of logistic and time constraints, only a subset of active program sites were included in the evaluation. The 16 ASPPP program sites selected to participate in the evaluation† were serving 1,011 clients at the time, or 31% of all clients statewide.

In our selection of program sites to be included in the evaluation, we targeted those sites that would be most representative in terms of geographic region of California, area of residence (urban or rural), and clients' age and race or ethnicity. This effort was partially successful. Although the client gender composition at the selected sites was identical to that of clients served statewide (60% female and 40%

*Program sites are contracted through the Maternal and Child Health Branch of California's Department of Health Services on a noncompeting basis.

†A 17th program site was originally selected to participate in the evaluation, but that agency had to temporarily discontinue service provision (because its administrative offices were relocating at the time), so it was excluded from the study.

male), the 16 evaluation sites were more likely than ASPPP sites overall to be located in an urban area and to serve Hispanics and clients who were younger than the average. Finally, we could not base our selection of evaluation sites on their record of services delivered, because most program sites were still developing their service profiles at the time.

The evaluation involved a group of current participants in ASPPP and a comparison group of youths not in the program. Eligibility criteria for participation in the evaluation (as either a program client or a member of the comparison group) were being aged 11–17 years and three months; having never been pregnant or caused a pregnancy; and having a biological teenage sibling (full or half) who was pregnant or parenting and enrolled in California's Adolescent Family Life Program or Cal-Learn Program.* The adolescents in the program group needed to be currently enrolled in ASPPP. Youths eligible for ASPPP were often identified through providers' existing caseloads, since most service providers were familiar with the families and siblings of the teenagers already enrolled in their programs.

Youths who participated in the evaluation as part of the comparison group could never have been enrolled in ASPPP, and neither could any of their siblings. Comparison youths were recruited from the waiting lists at the 16 evaluation sites or by outreach, often conducted through a satellite agency of the main ASPPP office.

We expected to enroll equivalent numbers of program clients and comparison youths at each site. (The average number of clients served per site was 63; the range, 20–195.) However, some sites could not meet this expectation because of financial and personnel constraints. For example, two sites did not enroll any comparison youths, and two enrolled only a negligible number (i.e., two or three individuals).

The Sample

Overall, 1,594 youths were enrolled in the evaluation: 1,011 program clients and 583 comparison youths. Enrollment for the evaluation took approximately 20 months (May 1997 to December 1998). Posttest data were collected nine months after enrollment. Usable posttest information was obtained for 1,271 adolescents, or 80% of those originally enrolled.

Similar proportions of program clients and comparison youths completed a posttest questionnaire (81% and 77%, respectively; χ^2=3.7, p<.06). The proportion successfully followed up was comparable for females (81%) and males (77%), and for youths of different races or ethnicities (Hispanics, 81%; blacks, 73%; whites, 76%; and other, 79%). Moreover, the likelihood of completing the posttest questionnaire was not related to several background characteristics, including age, receipt of financial assistance and family size.

The evaluation data reflect only those youths who provided complete pretest and posttest information. Contrasting the background characteristics of program and comparison youths indicated significant differences by several demographic factors, including age and race or ethnicity. We used two procedures to make the two groups more comparable in terms of both their characteristics and sample size. First, we eliminated all participants from the four sites that provided only three or fewer comparison youths (N=95); thus, the total unweighted sample for analysis from the remaining 12 sites was 1,176, or 731 program clients and 445 comparison youths. Second, we weighted the comparison group data within four sites that provided fewer comparison youths than program youths, but left the data unweighted from the remaining eight evaluation sites; weighting brought the final sample of comparison youths to 735.

TABLE 1. Percentage distributions and means reflecting selected background characteristics at enrollment of participants in the Adolescent Sibling Pregnancy Prevention Program and comparison youths, California, 1997–1998

Characteristic	Program (N=731)	Comparison (N=735)
% DISTRIBUTIONS		
Race/ethnicity		
Hispanic	77.0	71.4*
Black	9.5	11.3
White	8.1	8.6
Other	5.4	8.6
Speaks Spanish at home		
Yes	59.0	46.0***
No	41.0	54.0
Family currently receives aid†		
Yes	66.2	75.1*
No	20.4	18.2
No response	13.4	6.7
Area of residence		
Urban	71.0	66.9
Suburban	12.0	15.0
Rural	17.0	18.1
Gender		
Female	59.0	59.0
Male	41.0	41.0
Mother currently married		
Yes	52.0	48.0
No	48.0	52.0
Two-parent household		
Yes	52.9	51.0
No	47.1	49.0
Total	100.0	100.0
MEANS		
Current grade‡	8.1	8.3*
Age	13.5	13.6
Mother's last grade completed	9.3	9.8**
Mother's age at first birth	19.1	19.2

*Groups differ significantly at p<.05. **Groups differ significantly at p<.01. ***Groups differ significantly at p<.001. †Denotes any kind of government assistance. ‡For the 1% of adolescents who were no longer in school, the last grade attended was considered in the calculation of the mean. *Note:* Comparison group N is weighted. (Unweighted N was 445.)

*The Adolescent Family Life Program, which is operated through California's Department of Health Services, is designed to enhance the health and social and economic well-being of pregnant and parenting adolescents and their children. Cal-Learn, which is run by the state's Department of Social Services, uses incentives and disincentives to help pregnant and parenting teenagers attend high school and earn a high school diploma (or its equivalent).

In both the program and the comparison groups, the majority of youths were Hispanic, from economically disadvantaged families and urban residents; they were, on average, nearly 14 years old (Table 1, page 63). Program clients differed significantly from comparison youths on several background variables, however. For example, a significantly higher proportion of program than comparison youths were Hispanic (77% vs. 71%) and spoke Spanish at home (59% vs. 46%). The proportion of youths whose family was receiving aid at the time was significantly higher among comparison youths (75% vs. 66%), as was the mean grade completed by the youths' mother (9.8 vs. 9.3) and the adolescents' current grade (8.3 vs. 8.1).

Program participants and comparison youths had equivalent numbers of brothers (mean, 1.9—not shown) and sisters (2.8). Moreover, youths from both the program and the comparison groups had an equivalent number of sisters who had been pregnant during adolescence (mean, 1.3) and of brothers who had fathered a child as a teenager (mean, 0.2). (Overall, 73% of the full evaluation sample had one sister who had been pregnant or given birth, 16% had two such sisters and 6% had three or more; 11% overall had one brother who had fathered a child during adolescence and 5% had two or more.)

Forty-nine percent of evaluation participants lived in the Central Valley region of California, 27% in Los Angeles County and the surrounding coastal counties, 13% in Southern California, 6% in the San Francisco Bay area and 5% in Northern California. These proportions roughly correspond to the geographic distribution of all clients served by the program.

Survey Procedures and Measures

At enrollment, all participants were interviewed about their family background and completed a 59-item self-administered questionnaire, at their home or the program agency office. The survey instrument was expanded slightly and administered nine months later as a posttest. Program and comparison adolescents completed identical forms at pretest and posttest. Five percent completed their interview and questionnaire in Spanish; these adolescents did not differ on any indicator from those who responded in English. Although program clients were not paid for taking part in the evaluation, comparison youths received a $5 gift certificate for filling out the pretest questionnaire and a $10 gift certificate for completing the posttest form. All respondents (and their parents or guardians) provided written informed consent to participate.

The questionnaire assessed several outcomes relevant to the program, including the incidence of pregnancy, measures of sexual and contraceptive behavior, and variables thought to mediate adolescent sexual and fertility-related behavior.[4] The survey had a grade-2.5 reading level and an ease of readability score of 87 (out of 100). The mean alpha coefficient of scales assessed at both points in time was .78, and all scales had an alpha greater than .68, indicating acceptable internal consistency.* For items yielding response scores, increasing scores mean higher frequency, greater perceived likelihood and more consistency. For measures that combined more than one item, the resulting score represents an average of the items.

The 30 questionnaire items considered in the evaluation fell into the following categories:

*Six scales had low internal reliabilities (alpha less than .59) and are not included in the analyses.

TABLE 2. Means and percentage distributions reflecting evaluation outcomes assessed at pretest among program and comparison youths, by gender

Outcome	Females		Males	
	Program (N=432)	Comparison (N=430)	Program (N=299)	Comparison (N=305)
MEANS				
Parent-youth communication (scale, 1–4)†	2.0	2.0	1.8	1.7
Perceived likelihood of having sex (scale, 1–5)‡	2.0	2.0	2.5	2.8*
Perceived likelihood of early parenting (scale, 1–5)‡	1.6	1.6	1.8	1.8
Perceived likelihood of contraceptive use (scale, 1–5)‡	4.5	4.7*	4.4	4.4
Truancy (scale, 0–4)§	0.8	0.7	0.8	0.6*
Drug/alcohol use (scale, 0–4)§	0.5	0.5	0.5	0.5
Gang activities (scale, 0–4)§	0.1	0.2	0.2	0.2
No. of times had sex in last 3 mos. (range, 1–35)††	3.1	3.0	2.6	2.8
Lifetime no. of partners (range, 1–20)††	1.9	2.2	3.5	3.0
Consistency of contraceptive use in last 3 mos. (scale, 1–5)††,‡‡	4.0	3.7	3.4	4.1*
% DISTRIBUTIONS				
Ever had sex				
No	82.6	84.2	84.0	82.6
Yes	13.9	15.6	12.7	14.8
No response	3.5	0.2	3.3	2.6
Used contraceptive at last sex††				
No	15.0	11.6	18.0	20.0
Yes	71.7	55.1	56.4	62.2
No response	13.3	33.3	25.6	17.8
Ever had an STD††				
No	90.0	72.5	94.9	100.0
Yes	10.0	11.6	0.0	0.0
No response	0.0	15.9	5.1	0.0
Total	100.0	100.0	100.0	100.0

*Within gender, program group differs significantly from comparison group at p<.05. None of the differences retained significance, however, after grade level was controlled for. †Score of frequency of parent-youth communication in last three months, where 1=never, 2=once, 3=2–3 times and 4=more than three times. ‡Higher scores on the scale indicate increasing certainty that event asked about will occur, where 1=sure it will not happen, 2=probably will not happen, 3=not sure, 4=probably will happen and 5=sure it will happen. §Score of frequency of outcome in the last three months, where 0=never, 1=once, 2=2–3 times, 3=4–10 times and 4=more than 10 times. When outcomes were assessed through more than one item, score is the average across all items. ††Based on sexually experienced respondents only. ‡‡Consistency score, where 1=never, 2=rarely, 3=sometimes, 4=most of the time and 5=always. *Note:* All scores and contrasts included weighted data for the comparison group.

• *Parent-youth communication (two).* These items measured how frequently adolescents talked in the last three months with a parent or other adult relative about contraception and pressures to have sex (scale, 1–4).

• *Perceived likelihood of having sex (four).* These items assessed youths' likelihood that they would have sex during the next year, while still in high school, while still a teenager and before marriage (scale, 1–5).

• *Perceived likelihood of remaining abstinent (two).* At posttest only, adolescents were asked how sure they were that they would remain abstinent during the next year and how likely they were to wait until they were older to have sex (scale, 1–5). All participants were asked these questions, regardless of their sexual experience. The responses thus indicate intentions of secondary abstinence among sexually experienced youths.

• *Perceived likelihood of early parenting (four).* These gauged participants' likelihood of becoming a parent during the next year, while still in high school, while still a teenager and before marriage (scale, 1–5).

• *Perceived likelihood of contraceptive use (two).* These asked about the likelihood that a respondent and his or her partner would use any contraceptive and, specifically, a condom, if they were to have sexual intercourse (scale, 1–5).

• *Truancy (two).* Respondents were questioned on how frequently in the last three months they had cut a class and had cut a whole day of school (scale, 0–4).

• *Drug or alcohol use (four).* Participants were asked how many times during the last three months they had smoked cigarettes; drunk beer, wine or liquor; smoked marijuana; and used drugs other than marijuana, such as crack cocaine (scale, 0–4).

• *Gang activity (one).* This item asked how often during the last three months the adolescent had been part of a gang or gang activity (scale, 0–4).

• *Sexual behavior (three).* Youths were asked whether they had ever had voluntary vaginal intercourse (0=no, 1=yes). (The questionnaire specified voluntary intercourse to distinguish between willful and coerced pregnancy risk behavior.) Sexually experienced respondents also indicated how often they had had intercourse in the last three months and their total number of sexual partners.

• *Contraceptive behavior (three).* Sexually experienced youths were asked how consistently they had practiced contraception (scale, 1–5); what method they had used most often; and whether they had used a method at last intercourse (0=no, 1=yes).

• *Pregnancy and sexually transmitted disease (STD) history (three).* All respondents were asked whether they had ever been pregnant or impregnated anyone (0=no and 1=yes); their age at that time; and whether they had ever had an STD.

At pretest, young women in the program and comparison groups were similar on all indicators except the perceived likelihood of contraceptive use (Table 2). Males in the comparison group were significantly more certain than male program clients that they would have sex in the near future and had recently been truant significantly less often; those who were sexually experienced had used contraceptives more consistently. Once we entered controls for the youths' grade level, however, all of these differences—among females as well as males—lost statistical significance.

TABLE 3. Mean number of hours (and standard deviations) of services received, by service domain and mode

Service domain and mode	Mean
DOMAIN	
Psychosocial	**6.5 (7.3)**
Dealing with peer pressure	1.1 (1.7)
Decision-making skills	0.9 (1.1)
Life skills	0.7 (1.8)
Stress/anger management	0.7 (1.0)
Gang prevention	0.6 (1.0)
Self-esteem	1.5 (2.4)
Relationship with parents	1.0 (1.4)
Sexuality/health	**4.5 (5.0)**
Sexuality education	0.9 (1.1)
HIV/AIDS education	0.8 (1.1)
STD (non-HIV) education	0.9 (1.2)
Contraceptive education and services	0.9 (1.1)
Abstinence education	1.0 (1.1)
Activities	**3.8 (4.1)**
Community service	0.3 (0.9)
Recreation	3.5 (3.9)
School/job	**3.5 (4.0)**
School issues	2.7 (3.3)
Job skills	0.9 (1.1)
MODE	
One-on-one	10.6 (11.5)
Group	7.4 (10.1)

Note: The 16 service domains were grouped into four overarching service categories for ease of analysis.

Description of Services

No specific program services were required of providers, other than at least one face-to-face contact with every client every month. Program personnel were expected to implement a variety of services to prevent pregnancy and related risk behaviors.* Two sample programs, which are profiled in the appendix (page 70), provide a sense of what services may be involved.

The evaluation involved monitoring the services that program clients received at all of the sites. Providers were required to note the following at every client encounter: duration of service (dosage); service mode, or how it was delivered (i.e., case management, group activity, one-on-one mentoring, individual counseling, formal therapy, video or other means); and service domain, or broad content area (i.e., community service or recreational activity, psychosocial skills, job skills or school issues, and sexuality and health issues).

On average, program clients received 18.4 hours of services over the evaluation period (range, 45 minutes to more than 95 hours), or approximately two hours per month.

*A copy of the program standards can be obtained from the California Department of Health Services, Maternal and Child Health Branch, at <http://www.mch.dhs.ca.gov/programs/asppp/asppp.htm>.

TABLE 4. Changes in scores from pretest to posttest, percentages of youths engaging in selected behaviors during the evaluation period and outcomes assessed at posttest only, by group and gender

Outcome	Females		Males	
	Program	Comparison	Program	Comparison
Changes in scores				
Parent-youth communication	.07	.28	.08	.13
Perceived likelihood of having sex	.12	.22	.26	–.04
Perceived likelihood of early parenting	.06	.15	.06	–.07
Perceived likelihood of contraceptive use	.09	–.04	.07	.17
Truancy	–.12	.18**	–.04	.02
Drug/alcohol use	–.09	–.08	–.08	–.04
Gang activities	–.09	–.09	–.06	–.18
Consistency of contraceptive use†	–.39	.14	.38	–.18**
Percentages over evaluation period				
Had first sex	7.4	16.0**	11.7	11.5
Became pregnant/caused a pregnancy	3.7	6.5*	0.7	1.3
Posttest measures				
Perceived likelihood of abstaining from sex (scale, 1–5)	4.3	4.0*	3.8	3.9
No. of times had sex in last 3 mos.†	6.5	3.9	4.2	3.7
Consistency of contraceptive use in last 9 mos. (scale, 1–5)†	3.5	3.7	4.0	4.0
% used contraceptive at last sex†	77.4	55.8	59.2	53.3
No. of partners in last 9 mos.†	1.5	1.7	2.0	2.0
% had an STD in last 9 mos.†	6.8	9.3	1.4	0.0

*Within gender, program youths differed significantly from comparison youths at p<.05. **Within gender, program youths differed significantly from comparison youths at p<.01. †Based on sexually experienced respondents only. *Notes:* Analyses of covariance (ANCOVA) included weighted data for the comparison group and controlled for cumulative receipt of nonprogram services and background characteristics that differed significantly at intake. Among females, ANCOVA produced F values of 7.09 (df=1 and 639) for significant difference between program and comparison youths in change in truancy, and 4.68 (df=1 and 662) for significant difference in perceived likelihood of abstaining at posttest. Among males, F value was 7.18 (df=1 and 57) for significant difference between program and comparison youths in change in consistency of contraceptive use from pretest to posttest.

To simplify our analysis of service impact, we reduced the 16 possible service domain categories to four on the basis of services that are related or typically delivered together. Thus, over the nine-month evaluation, clients received an average of seven hours of services devoted to improving their psychosocial skills, five hours of sexuality and health education, and four hours each of community service or recreational activities and help with school and job issues (Table 3, page 65).

Clients received, on average, 11 hours of individual services and seven hours of group activities over the evaluation period. (We excluded from the analysis services that included showing videos and "other" modes of delivery, because of the small number of service hours involved.) The number of group service hours correlated minimally with the number of one-on-one hours (r=.12); thus, these measures appear to be assessing separate aspects of service delivery.

Compared with males, females received significantly more total service hours (20.1 vs. 15, p<.001) and participated in significantly more hours of one-on-one services (12.4 vs. 7.9); however, the number of hours of group activities did not differ by gender. The mode of service delivery did not vary by clients' race or ethnicity, but one-on-one services were positively correlated with age (r=.15), whereas group activities were negatively associated with age (r=–.11). Thus, older clients were likely to receive many hours of individual services, whereas younger clients were likely to receive services within a group.

Receipt of Nonprogram Services

At the posttest interview, we asked all evaluation participants if, in the past nine months, they had received any nonprogram services, such as through school, church or synagogue; organizations such as the Girl Scouts or Boy Scouts; or a community center or agency (e.g., Boys' and Girls' Clubs). We also asked that respondents specify which of the following seven domains best described those services: sexuality education, drug and alcohol use prevention, contraception, violence prevention and gang activity, communication with parents, STDs (including HIV and AIDS) and how to handle peer pressure.

A significantly higher proportion of comparison adolescents than of program youths received any nonprogram services (63% vs. 50%; χ^2=24.61, p<.001). Relative to program clients, comparison youths also received other services in a higher average number of topic areas (2.9 vs. 2.2; t=4.56, p<.001). Because these services address key pregnancy prevention issues, we used the receipt of supplemental services (summed across the seven topic domains) as a statistical control in the analyses comparing clients and nonprogram youths, and as an independent variable in interaction with group status (program or comparison) in other analyses.

Analytic Procedures

To contrast the program and comparison groups, we calculated change scores for the outcome variables from pretest to posttest—that is, the measure's value assessed at posttest, minus the value assessed at pretest. A positive change score indicates an increase in that variable from pretest to posttest, and a negative change score indicates a decrease.

We then contrasted these change scores by group, using analysis of covariance tests when the dependent variables were continuous and we needed to statistically control for a variety of factors (e.g., extent of nonprogram services and differences in the adolescents' background characteristics at pretest). We used logistic regressions when the outcome variables were categorical rather than scales or scores (such as the proportions who first had sex during the evaluation period, who experienced or caused a pregnancy, who used contraceptives at last sex and who had an STD). When change scores were unavailable because data were collected at only one point (e.g., abstinence intentions were assessed at posttest only), we compared the posttest scores of program clients and comparison youths, using analysis of covariance or logistic regression, depending on the coding of the variable. All the analyses controlled for the cumulative number of domains of nonprogram services received and for background characteristics that differed significantly by group at intake (i.e., grade level, ethnicity, language spoken at home, family's receipt of financial assistance and mother's educational level). We conducted separate analyses for males and females, both to discern gender-specific program effects and because male and female program participants received different levels and types of services. We present F values and odds ratios only for

variables that were significant.

We next ran additional analyses of covariance and logistic regressions that tested for interactions between group status (comparison vs. program) and additional services received (many vs. few or none). We based our categorization on the median number of domains in which males and females received additional services. Thus, for young women, "few or no outside services" was defined as having received nonprogram services in two or fewer topic areas, whereas "many" corresponded to three or more. Among young men, those who received no outside services were categorized as having received "few or no outside services," whereas the receipt of outside services in one or more areas corresponded to "many." These analyses controlled for the same background variables as the original analyses.

To examine whether positive outcomes were related to the receipt of specific services, we computed Pearson-listwise correlations between the hours of service received in the four service domains and the two service modes and the program outcomes. Correlations were computed first for all program clients (statistically controlling for youths' gender and age) and then separately for each gender (statistically controlling for age). The correlations by gender highlight which services may be particularly effective for males and for females.

TABLE 5. Means for selected outcomes, by number of nonprogram services received, according to gender and group

Outcome	Many†	Few or none‡
MALES		
Posttest likelihood of abstinence		
Program**	4.02	3.64
Comparison	3.94	3.91
F=8.55 (df=1 and 426)		
Change in frequency of gang activities		
Program	–.01	–.11
Comparison**	–.20	–.12
F=7.21 (df=1 and 426)		
FEMALES		
Change in perceived likelihood of sex		
Program	.09	.14
Comparison*	.12	.36
F=3.93 (df=1 and 666)		
Change in frequency of drug/alcohol use		
Program	–.09	–.09
Comparison***	–.27	.05
F=10.40 (df=1 and 637)		

*Within gender and group, difference by receipt of nonprogram services is significant at p<.05. **Within gender and group, difference by receipt of nonprogram services is significant at p<.01. ***Within gender and group, difference by receipt of nonprogram services is significant at p<.001. †Defined as receipt of nonprogram services in one or more topic areas for males and in three or more for females. ‡Defined as receipt of no nonprogram services for males and of nonprogram services in two or fewer topic areas for females. *Note:* The F values are for the group by nonprogram services interaction.

RESULTS

Group Contrasts

Overall, participation in the sibling pregnancy prevention program appears to have been associated with positive outcomes, especially among females. For example, program females' truancy frequency score declined from pretest to posttest, while it rose among nonprogram females (Table 4); program participants scored significantly higher than comparison females on their abstinence intentions score at posttest. Moreover, a significantly lower proportion of program than of comparison females first had sex over the nine-month period (7% vs. 16%) and experienced a pregnancy in that interval (4% vs. 7%). Results of the logistic regressions performed with these data (not shown) show that the odds of initiating sexual activity over the evaluation period were significantly elevated among comparison females relative to program females (odds ratio, 1.5; 95% confidence interval, 1.09–1.94), and the odds of becoming pregnant were significantly higher among comparison than program females (odds ratio, 1.6; 95% confidence interval, 1.07–2.52).

Only one significant difference emerged between program and comparison males at posttest: Males enrolled in the program increased their consistency of contraceptive use from pretest to posttest, while comparison males used contraceptives less consistently over time.

Effects of Nonprogram Services

When we tested for interactions between group status (program or comparison) and the receipt of nonprogram services, two significant interaction effects emerged for each gender (Table 5). Among program males, those who received nonprogram services in one domain or more had more definite intentions of abstaining from sex than those who received no outside services at all. All other interactions centered on the comparison group. Comparison group males who received many outside services experienced greater declines in their frequency of gang activities from pretest to posttest than did those who received no supplemental services. Similarly, among comparison females, those who received many outside services perceived sex in the near future to be significantly less likely to occur, and used drugs and alcohol less frequently, than females who received relatively few nonprogram services.

Effects of Type and Mode of Services

Our assessment of whether the receipt of services in specific domains was associated with changes in program outcomes revealed many significant correlations, both among program clients overall and among male and female participants separately. Because of the relatively large sample size and the large number of correlations computed, we focus on those that were highly significant.

At p<.01 or higher, the receipt of an increasing number of hours of school and job-related services was correlated with reductions in the frequency of skipped classes over time among males and with more consistent contraceptive use over time among females (Table 6, page 68). More hours of sexuality or health education were related to declines from pretest to posttest in the perceived likelihood of early parenting among all program clients (and among males

TABLE 6. Significant correlation coefficients from analyses assessing the relationship between service domain and mode of delivery and evaluation outcomes, by gender

Gender and outcome	Domain				Mode of delivery	
	School/ job	Sexuality/ health	Psycho- social	Activities	One-on- one	Group
All						
Likelihood of early parenting	ns	–.11***	ns	ns	–.12***	ns
Likelihood of contraceptive use	ns	ns	ns	ns	ns	.10**
Gang activities	ns	ns	ns	ns	–.09**	ns
Frequency of sex in last 3 mos.†	–.11*	–.09*	ns	ns	ns	ns
Used contraceptive at last sex†,‡	ns	ns	.20**	ns	.16*	ns
Males						
Likelihood of abstaining‡	ns	–.16**	ns	.25***	ns	.14**
Likelihood of early parenting	ns	–.16**	ns	ns	–.14**	ns
Truancy	–.21***	–.12*	–.18**	ns	–.22***	–.12*
Had first sex since pretest	ns	ns	ns	ns	ns	–.17**
Females						
Likelihood of early parenting	ns	–.11*	–.15**	ns	–.14**	ns
Likelihood of contraceptive use	.11*	.10*	ns	ns	ns	.14**
Truancy	ns	ns	.13**	ns	ns	ns
Had first sex since pretest	ns	.12*	ns	ns	ns	ns
Consistency of contraceptive use since pretest†,‡	.28**	ns	ns	ns	ns	ns
Used contraceptive at last sex†,‡	ns	.23*	.23*	ns	ns	ns

*p<.05. **p<.01. ***p<.001. †Based on sexually experienced respondents only. ‡Assessed at posttest only (not a change score). *Notes*: Outcomes are change scores unless otherwise noted. Tests for correlations among all clients statistically controlled for youths' age and gender, and those conducted for males and females separately statistically controlled for age. ns=not significant.

separately), but also to decreases in males' perceived likelihood of remaining abstinent.

The receipt of psychosocial services was positively related to contraceptive use at most recent sex among all program clients. Psychosocial services were also correlated with reduced truancy among males but with increased truancy among females, and with a reduced perceived likelihood of early parenting among females. The number of hours of community and recreational activities was associated only with males' more definite intentions to be abstinent.

Services delivered in a one-on-one context were related to reductions in adolescents' perceived likelihood of early parenting among all program clients (and males and females separately), as well as to declines in gang activity among all program clients and in truancy among males. Finally, services delivered in a group setting were related to greater certainty of contraceptive use among all program clients (and among females separately), and to a greater certainty among males that they would remain abstinent. The receipt of group services also was correlated with a delay in sexual debut among males.

Even at p<.05, negative associations emerged between content area and delivery modes and measures of sexual activity (for all clients), measures of truancy (for males) and measures of intentions of early parenting (for females). We found positive correlations at p<.05 between content area and contraceptive use at last sex (for females) and between content area and contraceptive intentions and sexual initiation (for females), as well as a positive correlation between one-on-one service delivery and contraceptive use at last sex (for all clients).

DISCUSSION AND CONCLUSIONS

Our results suggest that participation in ASPPP was associated with several favorable outcomes, particularly among female clients. Most notable was the significantly lower pregnancy rate among program females than comparison females (4% vs. 7%). This difference translates to a 43% reduction in pregnancy. Applying such a potential decrease to all 3,600 young women who have been served by ASPPP to date[5] could have a meaningful impact on rates of teenage pregnancies and births in California, and mean far lower costs for services for pregnant and parenting teenagers throughout the state. Certainly, ASPPP and other special programs that systematically focus prevention efforts on high-risk individuals hold great promise for continuing the trend toward lower teenage birthrates in the country; such programs should be considered an integral component of any national pregnancy prevention policy.

Very few males overall reported impregnating a partner over the evaluation period, so there were no differences in these rates by group. These negligible rates of causing a pregnancy may reflect a variety of factors, such as the low overall rates of fatherhood among young men in this age-group. For example, the Youth Risk Behavior Surveillance Survey found that only 4% of males in grades 9–12 had caused a pregnancy.[6] Additionally, the presumably young female partners of these males (who averaged 14 years of age) may be less likely than older women to have informed their partner of a pregnancy. Moreover, these young men may be less likely than older men to admit to themselves that they had gotten someone pregnant and thus be less likely to report it.

Significantly lower proportions of program than of comparison females first had sex during the evaluation period. This difference is a key indicator of success. Young age at sexual onset is a known risk factor for teenage pregnancy; thus, if program services can delay sexual initiation, pregnancy will be avoided or at least delayed.

When contrasted with females in the comparison group, program females were more certain, at posttest, that they would remain abstinent. Further, program females cut classes less frequently from pretest to posttest, whereas females in the comparison group increased their frequency of truant behavior over this period. Among males, only one significant difference emerged between program clients and comparison youths: ASPPP males used contraceptives more consistently from pretest to posttest, whereas those in the comparison group used contraceptives less consistently over that period. All of these differences were in the desired direction and are key measures of program success.

The effects of the receipt of nonprogram services were only nominal among program participants, but were more important among comparison youths. These findings illustrate that benefits accrue for youths who are not part of an organized state program, but who receive many services in diverse community settings. In these cases, a "saturation" of services across multiple contexts likely reinforces the prevention message and helps forge social norms that shun

risky and unhealthy behaviors.[7] Thus, although comparison youths did not necessarily fare better overall than program youths, those who received many community services fared better than those who received minimal or no community services in terms of females' reductions in frequency of drug and alcohol use and perceived likelihood of sex, and in males' reductions in gang activity.

Our study also identified types of services that were especially effective in enhancing positive outcomes. The receipt of group services was correlated with delayed sexual debut among males, and services that strengthen psychosocial skills were correlated with increased contraceptive use among sexually active youths.

A few unexpected findings emerged in which program services were correlated with an unfavorable outcome. For example, the receipt of sexuality or health education was correlated with less certainty of remaining abstinent among males and with recent sexual debut among females (at $p<.05$). The most plausible interpretation may be that males with little intention of being abstinent and females who had only recently started having sex were specifically targeted to receive many hours of sexuality or health education. The finding of a positive correlation between training in psychosocial skills and females' frequency of truancy most likely reflects the same kind of tailoring of service to need (i.e., females who often cut classes were targeted to receive many hours of psychosocial services).

That the correlation between psychosocial services and truancy was in the opposite direction among males is puzzling. One possible explanation is that service providers were more reactive (and less proactive) with female clients than with male clients.* Alternatively, these results may reveal that different services work differently for each gender. In any case, repeated assessments of measures throughout the evaluation period would have been useful to verify these conjectures.

The variability in the number of service hours that clients received is also noteworthy. Although the total amount of services received averaged 18 hours over the evaluation period, it ranged from 45 minutes to 95 hours. Moreover, the number of hours received in each service domain and mode varied by clients' gender and age. These findings of variations by client characteristics suggest that providers did not deliver services in a vacuum, but focused on the needs and characteristics of each client. An approach based on individual needs can be a sound and successful pregnancy prevention strategy, particularly because different factors likely influence the pregnancy-related risk behaviors of older and younger adolescents and of male and female adolescents.[8] The different levels of service offered and the individually tailored nature of service delivery are important components of this program and should be considered in its replication.

Several potential limitations of this study should be mentioned. First, the evaluation period—nine months—was relatively short. Most clients participate in the program for a longer period (sometimes a year or more), so the changes captured here likely underestimate what most clients ultimately experience. A longer study period may uncover long-term effects that are not yet evident among these fairly young adolescents (i.e., 14 years old, on average). Unrealized benefits may include impacts on rates of high school graduation and college attendance, and reductions in pregnancy rates in the middle and later teenage years, when most adolescent pregnancies occur.[9] Of course, program effects may also decay over time.

Second, individuals were not randomly assigned to program and comparison groups, so the adolescents who were recruited into the program might have had a different pregnancy risk than those who made up the comparison group. To avoid this potential bias, randomization would have been preferable. Third, the evaluation sample was predominantly Hispanic. Different outcomes might have resulted if the program had served a different population; thus, caution should be exercised when generalizing beyond the evaluation sample.

A definite strength of the evaluation, however, is that all participants had siblings who had been pregnant or had been a parent. (Since program and comparison youths had equivalent numbers of these siblings, the known higher risk associated with having many such siblings was not an issue.[10]) Thus, all participants were at very high risk of early sexual activity and pregnancy, and of problem behaviors such as alcohol and drug use.[11] The risks for this population likely derive from the adolescent's family background (e.g., having permissive parents) and environment (e.g., neighborhood conditions of poverty, lack of job opportunities and community norms that accept early and unwed parenting). A sibling's pregnancy and parenthood may also affect these youths. For example, an adolescent may model the behavior of a sister who gave birth, the adolescent's mother may be less available to monitor her children, and family stress and financial hardship may increase when a teenager has become pregnant or given birth.[12] Any changes in attitudes and behaviors that occurred from pretest to posttest among these sibling clients should, therefore, be considered within this context.

In summary, California's special sibling program was effective at reducing the pregnancy rate and several pregnancy-related risk behaviors in this high-risk sample. Targeting intervention efforts at high-risk youths has been a recommended approach to teenage pregnancy prevention.[13] Although such specially targeted programs are certainly a challenge to implement, they hold great promise for significantly lowering rates of teenage pregnancy and births.

The different levels of service offered and the individually tailored nature of service delivery are important components of this program and should be considered in its replication.

*This explanation is supported by the correlation coefficients between receipt of psychosocial services and truancy at pretest, which were .15 for males but –.01 for females, and thus suggest that truant males were targeted to receive more psychosocial services, but that receipt of psychosocial services was unrelated to females' truancy levels at pretest. The correlations between psychosocial services and truancy at posttest (statistically controlling for pretest levels), however, were –.15 for males and .21 for females, which suggests that an increasing number of hours of psychosocial services over the evaluation was associated with declines in truancy among males, but with increased truancy among females. These pretest and posttest correlations by gender are roughly what would be expected if providers were less proactive with females than with males.

Appendix—Description of Two Sample ASPPP Programs

Stand Tall and Achieve Responsibility (STAR)

• *Site.* County of Santa Cruz Health Services Agency.

• *Stated goals.* To support teenagers in delaying childbearing; help youths do well in school; and help youths be physically healthy.

• *Underlying objectives.* That youths see themselves as important and valued persons; have a positive, optimistic life outlook; have healthy and positive goals and expectations; develop trusted, positive relationships with caring adults; and enjoy themselves and have fun. Utilizes a youth development approach.

• *Strategies.* In areas of sex and contraception—counsel about abstinence and contraception; provide access to quality reproductive health care; take clients to a health or medical clinic, if needed; provide rewards for not having sex or for being responsible about using contraceptives; and incorporate goal-setting concepts. In schooling and job skills—connect clients with tutors and help with homework; help with writing and typing school reports; take clients to the library to do research; help students deal with teachers and connect with school counselor; help clients prepare a résumé; advocate at expulsion and court hearings; and meet with teachers and principal. In the areas of health and general well-being—make appointments and take youths to doctor, dentist, optometrist, sports exams and vaccine updates; sign up clients for medical insurance; provide access to sports teams, games and swimming program at local high school; help teenagers recognize media pressure for fashion and thinness; educate clients about healthy eating and exercise; and go on field trips and engage in group activities to strengthen social skills and competence in new situations.

• *Program structure.* Throughout the first year of operation, one full-time program staff person for a 35-client caseload.

• *Program successes after one year of operation.* No pregnancies; no STDs; extremely low program dropout rate; and more than 50% attendance on field trips and outings.

San Bernardino County Siblings Program

• *Site.* County of San Bernardino Department of Public Health.

• *Stated goals.* To prevent pregnancy; promote healthy lifestyles; and inspire and empower young people and their families toward self-discovery, positive personal growth, goal attainment and self-sufficiency.

• *Strategies.* Sibling groups meet bimonthly to participate in sports, visit museums and historical places, visit colleges or vocational schools, and participate in sociocultural events and volunteer activities. Each event is structured and developed with specific goals and objectives to build youths' self-esteem and internal strengths by exposing them to opportunities that increase their skills in decision-making, problem-solving, goal-setting and communication. Program staff identify and build on existing strengths and accomplishments, provide a sense of belonging, and advocate, educate and counsel when needed.

• *Program structure.* In the first year of operation, three social workers and two public health nurses provided case management for approximately 200 youths.

• *Program successes after the first year of operation.* Program attendance has resulted in reductions in rates of teenage pregnancies and truancy. Eighty-seven percent of program participants are enrolled in school and attend regularly.

REFERENCES

1. Cox J, Emans SJ and Bithoney W, Sisters of teen mothers: increased risk for adolescent parenthood, *Adolescent and Pediatric Gynecology,* 1993, 6(1):138–142; East PL, Do adolescent pregnancy and childbearing affect younger siblings? *Family Planning Perspectives,* 1996, 28(4):148–153; East PL, The younger sisters of childbearing adolescents: their attitudes, expectations, and behaviors, *Child Development,* 1996, 67(2):267–284; East PL and Felice ME, Pregnancy risk among the younger sisters of pregnant and childbearing adolescents, *Journal of Developmental and Behavioral Pediatrics,* 1992, 13(2):128–136; East PL and Jacobson LJ, The younger siblings of teenage mothers: a follow-up of their pregnancy risk, *Developmental Psychology,* 2001, 37(2):254–264; and Friede A et al., Do the sisters of childbearing teenagers have increased rates of childbearing? *American Journal of Public Health,* 1986, 76(10):1221–1224.

2. Adolescent Sibling Pregnancy Prevention Program, <http://www.mch.dhs.ca.gov/programs/asppp/aspppfacts.htm>, accessed Oct. 17, 2002.

3. Reynen D, California Department of Health Services, Sacramento, CA, personal communication, May 15, 1997.

4. Kirby D, *Looking for Reasons Why: The Antecedents of Adolescent Sexual Risk-Taking, Pregnancy, and Childbearing,* Washington, DC: National Campaign to Prevent Teen Pregnancy, 1999.

5. Katsuranis F, California Department of Health Services, Sacramento, CA, personal communication, Oct. 17, 2002.

6. Grunbaum JA et al., Youth risk behavior surveillance—United States, 2001, *Morbidity and Mortality Weekly Report,* 2002, 51(SS-4):1–64.

7. Brindis C, Antecedents and consequences: the need for diverse strategies in adolescent pregnancy prevention, in: Lawson A and Rhode DL, eds., *The Politics of Pregnancy: Adolescent Sexuality and Public Policy,* New Haven, CT: Yale University Press, 1993; and Kirby D, *Emerging Answers: Research Findings on Programs to Reduce Teen Pregnancy,* Washington, DC: National Campaign to Prevent Teen Pregnancy, 2001.

8. Kirby D, 1999, op. cit. (see reference 4); Kowaleski-Jones L and Mott F, Sex, contraception and childbearing among high-risk youth: do different factors influence males and females? *Family Planning Perspectives,* 1998, 30(4):163–169; and Mott FL et al., The determinants of first sex by age 14 in a high-risk adolescent population, *Family Planning Perspectives,* 1996, 28(1):13–18.

9. Alan Guttmacher Institute (AGI), *Sex and America's Teenagers,* New York: AGI, 1994.

10. East PL and Kiernan EA, Risks among youths who have multiple sisters who were adolescent parents, *Family Planning Perspectives,* 2001, 33(2):75–80.

11. Cox J, Emans SJ and Bithoney W, 1993, op. cit. (see reference 1); East PL, Do adolescent pregnancy..., 1996, op. cit. (see reference 1); East PL, The younger sisters..., 1996, op. cit. (see reference 1); East PL and Felice ME, 1992, op. cit. (see reference 1); East PL and Jacobson LJ, 2001, op. cit. (see reference 1); and Friede A et al., 1986, op. cit. (see reference 1).

12. East PL, Impact of adolescent childbearing on families and younger siblings: effects that increase younger siblings' risk for early pregnancy, *Applied Developmental Science,* 1998, 2(2):62–74; and East PL, The first teenage pregnancy in the family: does it affect mothers' parenting, attitudes, or mother-adolescent communication? *Journal of Marriage and the Family,* 1999, 61(2):306–319.

13. Brindis C, 1993, op. cit. (see reference 7); and Moore KA and Sugland BW, *Next Steps and Best Bets: Approaches to Preventing Adolescent Childbearing,* second ed., Washington, DC: Child Trends, 1999.

Acknowledgments

The data presented here were collected as part of contract 96-27072 between the California Department of Health Services (DOHS) and the University of California, San Diego, with grant support from the Office of the Assistant Secretary for Planning and Evaluation and the David and Lucile Packard Foundation. The authors appreciate the hard work and dedicated efforts of the 16 California Adolescent Family Life Program agencies that participated in the evaluation, and thank Terrence Smith and Fran Katsuranis of DOHS for their support and comments on a previous draft.

Author contact: *peast@ucsd.edu*

Preventing Sexual Risk Behaviors and Pregnancy Among Teenagers: Linking Research and Programs

By Debra Kalmuss, Andrew Davidson, Alwyn Cohall, Danielle Laraque and Carol Cassell

Debra Kalmuss is professor of clinical public health, Andrew Davidson is professor of public health and Alwyn Cohall is associate professor of clinical public health, all at the Joseph Mailman School of Public Health, Columbia University, New York. Danielle Laraque is associate professor and chief, Department of Pediatrics, Mount Sinai Medical Center, New York. Carol Cassell is senior health scientist, Dyncorps, Atlanta.

Recent trends in adolescent sexual behavior offer mixed messages. It is very encouraging that teenagers' overall rates of sexual activity, pregnancy and childbearing are decreasing, and that their rates of contraceptive and condom use are increasing.[1] However, the proportion of young people who have had sex at an early age has increased.[2] Moreover, while adolescent females' contraceptive use at first sex is rising, their use at most recent sex is falling.[3]

There is general consensus that the proportion of teenagers who engage in behaviors that put them at risk of pregnancy and of HIV and other sexually transmitted infections (STIs) remains too high. Each year, approximately one million young women aged 15–19—or one-fifth of all sexually active females in this age-group—become pregnant; the vast majority of these pregnancies are unplanned.[4] In the United States, the risk of acquiring an STI is higher among teenagers than among adults.[5] Moreover, rates of unprotected sexual activity, STIs, pregnancy and childbearing continue to be substantially higher among U.S. adolescents than among young people in comparable industrialized countries.[6]

Research has also begun to highlight an alarmingly high rate of involuntary sex among young people. In the 1995 National Survey of Family Growth, 13% of 15–19-year-old females reported that they had been forced to have sex.[7] When asked about their first sexual experience, 22% of 15–44-year-old women for whom it occurred before age 15 reported that the act was involuntary, as did 16% of those who first had sex before age 16. Involuntary sexual activity is typically unprotected and thus puts its victims at very high risk of pregnancy and STIs.

Finally, recent research and clinical observations suggest that a substantial proportion of teenagers, including those who report having never had vaginal sex, are engaging in oral sex.[8] This trend has negative implications for teenagers' sexual health because many seem unaware that STIs can be acquired through unprotected oral sex.

Adolescent health professionals are faced with the dilemma of how to refine programmatic and research efforts to maintain the progress that has been made while reducing those risk behaviors that remain too prevalent. The solution may lie, in part, in bridging the gap between research and programs. For more than 30 years, researchers have studied the antecedents of teenagers' high-risk sexual behaviors, and service providers have designed programs to prevent those behaviors. Their efforts have typically proceeded independently, however, and each professional community's work has not routinely informed that of the other. This lack of communication is understandable, given the differences in professional backgrounds and training, work settings and day-to-day activities. We believe, however, that this lack of communication inevitably compromises the quality of both research and programs related to teenage sexual health and behaviors.

We are an interdisciplinary group of public health researchers and service providers who are committed to bridging the chasm between research and programs. In this comment, we suggest ways in which work to reduce levels of teenage pregnancy and risk-taking can proceed in a more integrated and collaborative fashion. We believe that research on prevention should be designed and conducted to inform the development of programs and policy. The issues that emerge as these programs and policies are implemented, in turn, will raise questions that promote further research, which ultimately will inform the next generation of programs and policies.

The structure of this comment models this process. We begin on the research side and give a brief overview of findings on the antecedents of adolescent sexual risk behaviors and pregnancy, and discuss their implications for program and policy development. This effort is grounded in a comprehensive literature review that we conducted for the Centers for Disease Control and Prevention (CDC).* We then move to the program side. On the basis of our own clinical observations and discussions with other providers in a variety of settings, we identify a set of critical programmatic issues that hinder success in reducing adolescents' sexual risk-taking. Finally, we outline the specific research questions raised by these service-related issues. The answers to these questions will potentially enhance program efficacy.

RESEARCH SIDE

Antecedents of Risky Sexual Behaviors and Pregnancy

In our literature review for the CDC, we targeted three risky sexual behaviors—early onset of sexual activity, nonuse of contraceptives and nonuse of condoms—and one possible outcome of those behaviors, teenage pregnancy. Major literature reviews on these topics were published in 1987 and 1995;[9] we supplemented and updated them by systematically examining the research published in peer-reviewed journals from 1994 to 2002.

The literature identifies four key sets of factors that have been associated with risky sexual behaviors and pregnan-

*The literature review, which contains a detailed section on study methodology, is available from the first author.

cy: race and ethnicity; socioeconomic status; social influences; and attitudes toward contraception, condoms and pregnancy and safer-sex behavioral skills. Differences by race and ethnicity vary across risk behaviors. For example, black teenagers are more likely to have very early vaginal sex than Hispanics, who are more likely to do so than whites.[10] (Specifically, black males initiate vaginal sex more than two years earlier than Hispanic males, and three years earlier than white males.[11]) Hispanic adolescents are the least likely to have used a condom or another contraceptive method at last intercourse.[12] The combined influences of earlier sexual debut among blacks and greater nonuse of contraceptives among Hispanics yield higher teenage pregnancy rates among nonwhite than white teenagers.[13]

These racial and ethnic differences in sexual risk-taking and pregnancy are partly attributable to differences in socioeconomic disadvantage. More broadly, socioeconomic status is related to each of the four outcomes studied. Among the socioeconomic indicators that significantly predict risky sexual behaviors and pregnancy are the adolescent's having a parent with low educational attainment and living in a single-parent family.[14] A teenager's own level of academic achievement is positively related to age at sexual debut.[15]

Young people's social influences clearly affect their likelihood of engaging in risky behaviors, particularly early sexual debut and nonuse of condoms. For example, having friends who are sexually active or who do not use condoms enhances one's own risk of these behaviors.[16] Moreover, teenagers who perceive that their mother disapproves of their having sex or who talked with their mother about condom use before first intercourse are less likely than others to become sexually active or to fail to use condoms.[17] Finally, teenagers who are more actively involved in religious activities and those who avoid general nonsexual high-risk behaviors tend to initiate sex later than other teenagers.[18] In all likelihood, the effects of religiosity and avoidance of risk operate through social influence mechanisms.

Sexual risk behaviors are also related to attitudes and behavioral skills. Adolescents' attitudes toward practicing contraception, using condoms and becoming pregnant predict the likelihood that each will occur.[19] In addition, their specific attitudes toward pregnancy affect the likelihood that they will practice contraception and use condoms.[20] Furthermore, teenagers who feel they have the requisite skills to use condoms (i.e., they can obtain them and successfully negotiate their use with a partner) are more likely than others to use condoms.[21] Similarly, young people who have demonstrated to themselves that they can use contraceptives (i.e., they used them once) are more likely than others to use them again.[22]

Not surprisingly, age and age at menarche strongly affect the likelihood of sexual initiation and teenage pregnancy.[23] Older female adolescents and those who reach menarche at younger ages, because of their longer intervals of exposure, are more likely than their younger peers to become sexually active and to get pregnant.[24] Despite the positive correlation between age and pregnancy, older sexually active teenagers are, paradoxically, more likely than younger ones to have used a contraceptive method at last sex.[25]

Programmatic Implications of the Research

Taken together, these research findings have implications for programs that are designed to reduce high-risk behaviors among adolescents. The programmatic implications yield the following eight broad recommendations.

• *Programs should begin earlier and target younger adolescents.* Since adolescents who experience early puberty are at increased risk for early sexual activity, primary health care providers should be screening and counseling youth regarding puberty, sex and sexual risk behaviors at younger ages than they currently do. Many young adolescents receive health care from pediatricians or family practice physicians; these health professionals should inquire about each patient's sexual experiences and intentions during preadolescence and early adolescence. They then should provide developmentally appropriate educational and counseling messages that are responsive to the young person's stage of sexual activity. Because at least some young people have oral sex before vaginal sex, it is important that these conversations include oral sex.

• *New program models for minority teenagers need to be developed.* The data documenting the early onset of vaginal sex among black males and the relatively low levels of contraceptive and condom use among Hispanic teenagers suggest that current prevention models are ineffective at reducing these behaviors in nonwhite communities.

• *Risk reduction programs need to be systematically linked to other youth programs that directly address socioeconomic disadvantage.* The literature paints an overall picture of heightened risk among poor and disadvantaged adolescents. Programs that address sexual and reproductive health issues in disadvantaged communities tend to offer a vital but limited array of services. With some notable exceptions (e.g., the Children's Aid Society–Carrera Program[26]), these programs have not addressed the fact that poor teenagers' motivation to avoid pregnancy is undermined by their blocked opportunities for advancement.

We recognize that it is both difficult and costly to incorporate vocational and academic counseling and support, as well as mentoring and related services, into sexual and reproductive health programs. Rather than attempt to provide these important services, sexual risk reduction programs could form active partnerships with youth programs that are focused on these other goals. Such partnerships would connect teenagers to a supplementary web of services as well as increase the level of coordination between a wide array of youth organizations and providers.

• *Programs need to understand that many youth lack the skills to practice safer sex.* A variety of behavioral skills are necessary for condom use, including communication, negotiation and refusal skills, and technical condom use skills. Programs must train clients in these skills and provide time and a comfortable place for them to practice. While the resource investment needed for such skills training may appear to

be beyond the normal scope of adolescent health and family planning programs, ignoring this component undermines the value of safer-sex education and counseling.[27]

• Programs need to effectively address the influence of peer groups, social norms and pressures to have sex. The influence of social norms is particularly acute during adolescence, which is characterized by a strong need to fit in with one's peers. Small-group interventions to address these pressures are particularly promising,[28] since these programs offer a unique opportunity to develop and reinforce norms that support risk reduction behaviors. Over time, the group becomes a valued social network that motivates adherence to the newly formed norms. Some group interventions have been set up with preexisting friendship networks;[29] this approach takes advantage of natural social networks that then can reinforce the normative and behavioral change after the intervention ends.

A small-group program will only be effective, however, if the intervention lasts long enough for the group to coalesce and function as a valued social network. Decisions on program duration thus need to take into account not only the time involved in knowledge acquisition and skills training, but the time needed to create a cohesive group that can generate and support new norms.

• Programs for adolescents should not assume that sexual behavior is volitional. Despite the overall high rates of forced sex reported by young women and the high proportion of very early sexual activity that is reported to be involuntary,[30] most current models of sexuality education and counseling assume that youth are free agents in their sexual decision-making. Thus, when programs counsel about abstinence or safer sex and teach the requisite skills to practice them, the desired behavior is expected to follow. However, this assumption misses the mark for youth who are unable to make autonomous decisions about whether and under what conditions to have sex.

The starting point is to develop protocols that sensitively elicit information from youth about whether their sexual activity is voluntary. This would involve training providers to feel comfortable seeking this information. The next step is to link youth who report nonconsensual sex to counselors who have been trained in working with young people on this issue.

Ideally, social workers should be added to the staff of family planning clinics and pregnancy prevention programs so they can intervene with youth who have had early nonconsensual sex. For this group of very high-risk youth, social work intervention is a necessary supplement to traditional family planning education and counseling.* Programs that do not and cannot provide mental health services need to design a referral system that is suited to adolescents. Because clinical experience has shown that adolescents given a referral will not always make and keep an appointment, the system should test new methods of making and following up on adolescent referrals.

• Programs should not assume that sexual activity among teenagers is limited to vaginal sex. If substantial proportions of youth view behaviors aside from intercourse as safer forms of sexual activity than vaginal sex, it is important that programs explicitly discuss these behaviors and educate youth about them. Adolescents need to know about the risks for STIs associated with oral and anal sex, as well as how to protect themselves from these infections.

• Programs cannot assume that teenagers are unambivalent about preventing pregnancy. For many adults, the issue is perfectly clear—teenagers should not bear children. However, it is incorrect to assume that teenagers, particularly those who are most at risk of early childbearing, share this view. Teenagers hold a range of attitudes toward childbearing; while the more negative attitudes along that spectrum protect against early pregnancy, the more positive ones increase the risk of unprotected sex. In-depth studies on these attitudes indicate that although few teenagers want to become pregnant in the near future, a sizable minority are ambivalent about that prospect.[31] Teenage pregnancy prevention programs need to focus more on this ambivalence, which, if left unchecked, affects adolescents' motivation to delay sex or to use contraceptives consistently.

Innovative programs that probe adolescents' attitudes toward childbearing should include values clarification exercises and discussions that reality-test young women's beliefs about childbearing, particularly the likely role of the baby's father in their lives and in the baby's life. Such programs may be offered in a variety of settings, including health education classes and after-school recreational programs, and through videos shown in the waiting rooms of adolescent health, school-based health or family planning clinics.

For…very high-risk youth, social work intervention is a necessary supplement to traditional family planning education and counseling.

PROGRAM SIDE

In our clinical observations and discussions with an array of service personnel, providers identified four key issues as impediments to program success with adolescents. Each of these translates into a set of questions to help guide research. Because these questions are grounded in concerns brought up by program providers, the research undertaken to answer them is likely to be embraced by providers in their continuing efforts to improve the quality of prevention programs.

Learning Disabilities and Cognitive Immaturity

The link between poor academic performance and high-risk sexual behaviors is well established.[32] While many variables contribute to academic failure, we focus on cognitive deficits, which include learning disabilities and cognitive immaturity.

Through our clinical practices and program work, we have come to believe that teenagers with cognitive deficits probably engage in early, unprotected sexual activity at higher

*Some examples of adolescent clinical programs that have adopted this comprehensive approach are the adolescent family planning and school-based health clinics run by the Mailman School of Public Health and the Center for Community Health and Education in collaboration with New York Presbyterian Hospital, the Mount Sinai Adolescent Health Center and Planned Parenthood of New York City.

rates than others do. These deficits may cause low academic achievement, which in turn increases the likelihood of sexual risk-taking. Our observation is supported by a study based on data from the National Longitudinal Survey of Youth, which documented a significant association between low cognitive ability and early childbearing.[33] Practicing safer sex requires a series of skills and abilities (i.e., abstract thinking, cost-benefit analysis, anticipatory planning and behavioral control) that may be lacking in youth with learning disabilities or low levels of cognitive maturity.

Finally, cognitive deficits may result in sexual risk-taking because sexuality education and pregnancy prevention programs are not designed to accommodate the learning styles of these children. Educational research and theory clearly indicate that effective teaching requires sensitivity to the learning style, as well as the cognitive ability and maturity, of the learner.[34] This theory, however, has not filtered into the fields of health education and communication. Adolescent counseling and education programs are typically designed with a one-size-fits-all approach. This standardization of teaching mode and content places teenagers with learning disabilities and low levels of cognitive maturity at a clear disadvantage.

Research is needed into the association between learning and related disabilities (e.g., attention deficit disorder), cognitive immaturity and sexual risk-taking behavior among adolescents. Our experience suggests that such research needs to address the following questions:

- Are adolescents with learning disabilities and low levels of cognitive maturity at greater risk than their peers for sexual risk-taking and poor sexual health?
- Can screening instruments for assessing learning disabilities and cognitive maturity be adapted for use by providers in clinical settings?
- Are specific types of instruction, counseling, support and follow-up more effective than others in reducing sexual risk-taking among cognitively impaired adolescents?

Insufficient Male Involvement

The majority of adolescent pregnancy prevention programs have been designed for females, partly because women are the ones who get pregnant and because, except for condoms, all reversible contraceptive methods are female methods. However, the strength of the rationale for focusing exclusively on women has diminished over the last few decades. For example, a heightened concern with preventing disease as well as pregnancy has made males an increasingly important audience for programmatic efforts. Among adolescents who are sexually active, the most effective method of disease prevention is the male condom, which reinforces the need to include young men. Finally, increased interest in delaying the onset of sexual activity has meant that prevention programs need to be directed at both sexes.

Typically, programs that involve young men have "budded off" of existing programs for women. Such a secondary focus is unlikely to be the best approach to serving young men, however. The guiding question is how to best design and structure clinical programs that focus on young men and contribute to global pregnancy and disease prevention goals. Systematic research into this area should address the following:

- What is the most appropriate setting for male sexual health programs—stand-alone efforts or interventions that are part of larger family planning and sexual health programs that serve women as well?
- What are the most appropriate services for male programs: Would young men be more comfortable if the program also provided primary health care services rather than sexual health services exclusively?
- What is the most appropriate content for counseling and health education for males, and what strategies would best deliver that content?
- Do male clients feel more comfortable with male providers than with female providers?
- How do we change the generalized belief among the public and providers alike that only young women, and not young men, need reproductive and sexual health services?

Males' Very Early Sexual Activity

In recent years, considerable attention has been paid to very early onset of vaginal sexual activity among females (i.e., before age 14), particularly because unacceptably high rates of nonvolitional sex have been documented among this age-group.[35] We know little, however, about the nature or context of males' very early vaginal sex. The issue is most pressing for black males, whose median age at first sex is 13.6 years.[36] The most extreme explanation for this finding is that young males are frequently coerced into having vaginal sex. However, even if such sexual activity is not physically forced, it may not be truly voluntary. One factor motivating early intercourse may be that male peer group norms endorse early sex as a way to prove masculinity and thus solidify social standing. Knowing the motivation behind and nature of early sexual experiences among young men is critical for designing counseling and educational programs that are grounded in the reality of their lives. Research is needed to address the following questions:

- To what extent is very early vaginal sex voluntary for young men?
- What is the age difference between young men who are pressured to have sex and their partners?
- Even when early sex is not forced, is it a response to peer group pressures or other social influences?
- How do these young men feel about their very early sexual activity?
- What factors protect against very early onset of sexual activity among males?

Onetime Program or Clinic Visits

For many of the health professionals who are best positioned to provide risk reduction services to youth, the onetime visit poses an enormous obstacle. Clients of adolescent health, school health and family planning clinics, which serve large

numbers of youth, typically make a single visit, followed by an indeterminate interval before a second one. Program staff need to somehow effectively provide risk reduction education and counseling in a single visit, and also offer the service that the client came for. The reality of health care financing, with its premium on short visits, compounds this problem.

The dilemma of the single visit is complex, and little research exists on how best to address it.[37] Clearly, providers need to make the most creative use of their limited time with adolescent clients. One idea is to use the waiting room as a forum for health education. Adding a health educator to clinic staff can transform the waiting room from a source of frustration and boredom into a site for receiving health education, participating in discussions about sexual risk-taking, and learning sexual communication and refusal skills. Waiting-room health education can be facilitated by the use of culturally and developmentally appropriate videos and slide shows or print material to spark discussion between the client and educator. Computers with interactive educational software may also be used for health education and counseling.

Another possibility is to extend contact with adolescent clients through follow-up by phone or e-mail. These contacts could be initiated by a trained counselor or health educator as a way of staying in touch; they could also be used to reinforce counseling and educational messages that were presented at the clinic and to encourage a revisit.

The development of these new approaches will take time and money. Both will be hard to come by in a period of shrinking resources in which understaffed and underfunded providers are overwhelmed. These new efforts must therefore be conducted with external funds that include evaluation monies. Research to identify the most feasible and effective models for extending the one-visit encounter and maximizing its impact should be guided by the following questions:

- What are the goals of waiting-room education, and are programs successful at achieving them?
- What are the minimum requirements for a waiting-room program to be successful?
- Is waiting-room education most effective when it is led by an educator, or are electronic media presentations (i.e., via video or computer) just as effective?
- Are periodic phone or e-mail contacts effective at reinforcing health education messages about safer sex? Do they help maintain gains in knowledge and changes in attitudes and behaviors?
- Do follow-up contacts work best for particular groups of adolescents?

CONCLUSIONS

Our goal was to suggest ways in which research and programs could work in a more integrated and collaborative fashion. An attempt to forge links between research on the antecedents of high-risk behaviors and risk reduction programs led us to recommend new criteria to guide that research. The three criteria usually used to identify antecedents of risk-taking and assess their importance are theory, precedence in the literature, and statistical significance and relative magnitude of the variable's effect. Researchers select antecedents to evaluate on the basis of the first two criteria, and make empirically based conclusions about their impact on the basis of the third. We recommend that the tractability and program relevance of antecedents be added to the list of criteria.

Sometimes antecedents that are very potent but relatively immutable may ultimately be less important than factors that are less strong but more amenable to change or that have clear implications for program development. Researchers need to achieve a better balance between focusing on factors that will help them best model or extend theory on risk behaviors, and focusing on factors that can best inform programs and policy on these behaviors.

Careful consideration of the four critical issues that emerged as obstacles to successful risk reduction programs may provide a road map for a more collaborative engagement between program providers and researchers. To date, many providers have perceived research on the determinants of adolescent sexual risk-taking and pregnancy as external to their needs and perspectives. This detachment may help explain why program people do not openly embrace such research. We suggest that research steeped in the concerns articulated by providers will yield more provider buy-in. This, in turn, will enhance the likelihood that providers will use study findings to develop and modify risk reduction programs for youth.

We hope that the process outlined here extends the research agenda by encouraging studies that are explicitly attuned and responsive to programmatic issues. The primary goal of such research is not to expand theory or increase knowledge (although it may well do so). Instead, the goal is to translate programmatic issues into research questions, whose answers will enhance the development and quality of sexual risk reduction policies and programs. Such programmatic research is a vital supplement to basic research on reproductive and sexual health, and will fundamentally strengthen the tenuous linkages between the research, program and policy communities.

Adding a health educator to clinic staff can transform the waiting room from a source of frustration and boredom into a site for receiving health education.

REFERENCES

1. Abma JC et al., Fertility, family planning and women's health: new data from the 1995 National Survey of Family Growth, *Vital and Health Statistics,* 1997, Series 23, No. 19; Ventura SJ et al., Births to teenagers in the United States, 1940–2000, *National Vital Statistics Reports,* 2001, Vol. 49, No. 10; and Sonenstein FL et al., Changes in sexual behavior and condom use among teenaged males: 1988 to 1995, *American Journal of Public Health*, 1998, 88(6):956–959.

2. Terry E and Manlove J, *Trends in Sexual Activity and Contraceptive Use Among Teens*, Washington, DC: National Campaign to Prevent Teen Pregnancy, 2000.

3. Ibid.

4. Alan Guttmacher Institute (AGI), *Teenage Pregnancy: Overall Trends and State-by-State Information*, New York: AGI, 1997; and Henshaw SK, Unintended pregnancy in the United States, *Family Planning Perspectives,* 1998, 30(1):24–29.

5. Centers for Disease Control and Prevention (CDC), *Sexually Transmitted Disease Surveillance, 2000*, Atlanta: CDC, 2001.

6. Singh S and Darroch JE, Adolescent pregnancy and childbearing: levels and trends in developed countries, *Family Planning Perspectives*, 2000, 32(1):14–23; and Panchaud C et al., Sexually transmitted diseases among adolescents in developed countries, *Family Planning Perspectives*, 2000, 32(1):24–32.

7. Abma JC et al., 1997, op. cit. (see reference 1).

8. Schuster MA, Bell RM and Kanouse DE, The sexual practices of adolescent virgins: genital sexual activities of high school students who have never had vaginal intercourse, *American Journal of Public Health*, 1996, 86(11):1570–1576; Gates GJ and Sonenstein FL, Heterosexual genital sexual activity among adolescent males: 1988 and 1995, *Family Planning Perspectives*, 2000, 32(6):295–297 & 304; and Remez L, Oral sex among adolescents: is it sex or is it abstinence? *Family Planning Perspectives,* 2000, 32(6):298–304.

9. Hofferth SL and Hayes CD, eds., *Risking the Future: Adolescent Sexuality, Pregnancy and Childbearing*, Vols. 1 and 2, Washington, DC: National Academy Press, 1987; and Moore KA et al., *Adolescent Sex, Contraception and Childbearing: A Review of Recent Research,* Washington, DC: Child Trends, 1995.

10. Abma JC and Sonenstein FL, Sexual activity and contraceptive practices among teenagers in the United States, 1988 and 1995, *Vital and Health Statistics*, 2001, Series 23, No. 21; and Sonenstein FL et al., 1998, op. cit. (see reference 1).

11. Warren CW et al., Sexual behavior among U.S. high school students, 1990–1995, *Family Planning Perspectives,* 1998, 30(4):170–172 & 200; and Upchurch DM et al., Gender and ethnic differences in the timing of first sexual intercourse, *Family Planning Perspectives*, 1998, 30(3): 121–127.

12. Abma JC et al., 1997, op cit. (see reference 1); and Sonenstein FL et al., 1998, op. cit (see reference 1).

13. Abma JC et al., 1997, op. cit. (see reference 1).

14. Miller BC et al., The timing of sexual intercourse among adolescents: family, peer and other antecedents, *Youth and Society,* 1997, 29(1): 54–83; Billy JO, Brewster KL and Grady WR, Contextual effects on the sexual behavior of adolescent women, *Journal of Marriage and the Family,* 1994, 56(2):387–404; Brewster KL, Race differences in sexual activity among adolescent women: the role of neighborhood characteristics, *American Sociological Review,* 1994, 59(3):408–424; Capaldi D, Crosby L and Stoolmaker M, Predicting the timing of first sexual intercourse for at-risk adolescent males, *Child Development,* 1996, 67(2): 344–359; Lauritsen J, Explaining race and gender differences in adolescent sexual behavior, *Social Forces,* 1994, 72(3):859–883; Moore KA et al., 1995, op. cit. (see reference 9); and Hofferth SL and Hayes CD, 1987, op. cit. (see reference 9).

15. Lynch CO, Risk and protective factors associated with adolescent sexual activity, *Adolescent & Family Health*, 2001, 2(3):99–107; Brewster KL, Neighborhood context and the transition to sexual activity among young black women, *Demography,* 1994, 31(4):603–614; and Brewster KL, 1994, op. cit. (see reference 14).

16. Miller BC et al., 1997, op. cit. (see reference 14); East PL, The younger sisters of childbearing adolescents: their attitudes, expectations and behaviors, *Child Development,* 1996, 67(2):267–284; Romer D et al., Social influences on the sexual behavior of youth at risk for HIV exposure, *American Journal of Public Health,* 1994, 84(6):977–985; Stanton BF el al., Sexual practices and intentions among preadolescent and early adolescent low-income urban African-Americans, *Pediatrics,* 1994, 93(6):966–973; and Stanton BF et al., Longitudinal stability and predictability of sexual perceptions, intentions, and behaviors among early adolescent African-Americans, *Journal of Adolescent Health,* 1996, 18(1):10–19.

17. Moore KA et al., 1995, op. cit. (see reference 9); and Hofferth SL and Hayes CD, 1987, op. cit. (see reference 9); Miller KS et al., Patterns of condom use among adolescents: the impact of mother-adolescent communication, *American Journal of Public Health,* 1998, 88(10):1542–1544; Miller BC, *Families Matter: A Research Synthesis of Family Influences on Adolescent Pregnancy,* Washington, DC: National Campaign to Prevent Teen Pregnancy, 1998; Jaccard J and Dittus PJ, Adolescent perceptions of maternal approval of birth control and sexual risk behavior, *American Journal of Public Health*, 2000, 90(9):1426–1430; and Resnick MD et al., Protecting adolescents from harm: findings from the National Longitudinal Study of Adolescent Health, *Journal of the American Medical Association,* 1997, 278(10):823–832.

18. Halpern CT et al., Testosterone and religiosity as predictors of sexual attitudes and activity among adolescent males: a biosocial model, *Journal of Biosocial Science,* 1994, 26(2):217–234; Resnick MD et al., 1997, op. cit. (see reference 17); Billy JO, Brewster KL and Grady WR, 1994, op. cit. (see reference 14); and Capaldi D, Crosby L and Stoolmaker M, 1996, op. cit. (see reference 14).

19. Moore KA et al., 1995, op. cit. (see reference 9); Hofferth SL and Hayes CD, 1987, op. cit. (see reference 9); Stanton BF et al., 1996, op. cit. (see reference 16); Galavotti C et al., Validation of measures of condom and other contraceptive use among women at high risk for HIV infection and unintended pregnancy, *Health Psychology*, 1995, 14(6): 570–578; and Adolph C et al., Pregnancy among Hispanic teenagers: is good parental communication a deterrent? *Contraception,* 1995, 51(5):303–306.

20. Moore KA et al., 1995, op. cit. (see reference 9); Hofferth SL and Hayes CD, 1987, op. cit. (see reference 9); Laraque D et al., Predictors of reported condom use in central Harlem youth as conceptualized by the Health Belief Model, *Journal of Adolescent Health,* 1997, 21(5): 318–327; and Overby KJ and Kegeles SM, The impact of AIDS on an urban population of high-risk female minority adolescents: implications for intervention, *Journal of Adolescent Health,* 1994, 15(3):216–227.

21. Galavotti C et al., 1995, op. cit. (see reference 19); and Overby KJ and Kegeles SM, 1994, op. cit. (see reference 20).

22. Moore KA et al., 1995, op. cit. (see reference 9); and Hofferth SL and Hayes CD, 1987, op. cit. (see reference 9).

23. Halpern CT et al., 1994, op. cit. (see reference 18); Resnick MD et al., 1997, op. cit. (see reference 17); and Benson MD and Torpy EJ, Sexual behavior in junior high school students, *Obstetrics & Gynecology,* 1995, 82(2):279–284.

24. Resnick MD et al., 1997, op. cit. (see reference 17); Adolph C et al., 1995, op. cit. (see reference 19); and Spingarn RW and DuRant RH, Male adolescents involved in pregnancy: associated health risk and problem behaviors, *Pediatrics,* 1996, 98(2, pt. 1):262–268.

25. Santelli JS et al., The association of sexual behavior with socioeconomic status, family structure and race/ethnicity among U.S. adolescents, *American Journal of Public Health,* 2000, 90(10):1582–1588; and Abma JC, Driscoll A and Moore K, Young women's degree of control over first intercourse: an exploratory analysis, *Family Planning Perspectives,* 1998, 30(1):12–18.

26. Kirby D, *Emerging Answers: Research Findings on Programs to Reduce Teenage Pregnancy,* Washington, DC: National Campaign to Prevent Teen Pregnancy, 2001; and Philliber S et al., Preventing pregnancy and improving health care access among teenagers: an evaluation of the Children's Aid Society–Carrera Program, *Perspectives on Sexual and Reproductive Health,* 2002, 34(5):244–251.

27. Kirby D, 2001, op. cit. (see reference 26); and DiClemente RJ and Wingood GM, A randomized controlled trial of an HIV sexual risk-reduction intervention for young African-American women, *Journal of the American Medical Association,* 1995, 274(16):1271–1276.

28. Kirby D, 2001, op. cit. (see reference 26); and Jemmott JB and Jemmott LS, Interventions for adolescents in community settings, in: DiClemente RJ and Peterson JL, eds., *Preventing AIDS: Theories and Methods of Behavioral Interventions*, New York: Plenum Press, 1994, pp. 141–174.

29. Stanton BF et al., A randomized, controlled effectiveness trial of an AIDS prevention program for low-income African-American youths, *Archives of Pediatrics and Adolescent Medicine,* 1996, 150(4):363–372.

30. Abma JC et al., 1997, op. cit. (see reference 1); and Abma JC, Driscoll A and Moore K, 1998, op. cit. (see reference 25).

31. Zabin LS et al., Do adolescents want babies? the relationship between attitudes and behavior, *Journal of Research on Adolescence*, 1993, 3(1):67–86; and Adler NE and Tschann JM, Conscious and preconscious motivation for pregnancy among female adolescents, in: Lawson A and Rhode DL, eds., *The Politics of Pregnancy: Adolescent Sexuality and Public Policy*, New Haven, CT: Yale University Press, 1993, pp. 144–158.

32. Halpern CT et al., Smart teens don't have sex much (or kiss much either), *Journal of Adolescent Health,* 2000, 26(3)213–225; and Resnick MD et al., 1997, op. cit (see reference 17); and Billy JO, Brewster KL and Grady WR, 1994, op. cit. (see reference 14).

33. Shearer DL et al., Association of early childbearing and low cognitive ability, *Perspectives on Sexual and Reproductive Health*, 2002, 34(5): 236–243.

34. Sims JS, ed., *The Importance of Learning Styles: Understanding the Implications for Learning, Course Design, and Education*, Westport, CT: Greenwood Press, 1995.

35. Abma JC, Driscoll A and Moore K, 1998, op. cit. (see reference 25).

36. Warren CW et al., 1998, op. cit. (see reference 11).

37. Igra V and Millstein SG, Current status and approaches to improving preventive services for adolescents, *Journal of the American Medical Association,* 1993, 269(11):1408–1412; and Paperny DM and Hedberg VA, Computer-assisted health counselor visits: a low-cost model for comprehensive adolescent preventive services, *Archives of Pediatrics and Adolescent Medicine,* 1999, 153(1):63–67.

Acknowledgments

This comment and the project it describes were supported by grant U48/209663 from the Centers for Disease Control and Prevention.

Author contact: *dk6@columbia.edu*

Preventing Pregnancy and Improving Health Care Access Among Teenagers: An Evaluation Of the Children's Aid Society–Carrera Program

By Susan Philliber, Jacqueline Williams Kaye, Scott Herrling and Emily West

Susan Philliber is senior partner and Scott Herrling is data analyst, Philliber Research Associates, Accord, NY. At the time this article was written, Jacqueline Williams Kaye was senior associate and Emily West was data analyst, also at Philliber Research Associates.

CONTEXT: *Despite the recent declines in rates of teenage pregnancy, relatively little is known about the few programs that have been successful in reducing adolescent pregnancy.*

METHODS: *Six agencies in New York City each randomly assigned 100 disadvantaged 13–15-year-olds to their usual youth program or to the intervention being tested—the Children's Aid Society–Carrera program, a year-round after-school program with a comprehensive youth development orientation. Both program and control youth were followed for three years. Multivariate regression analyses assessed the effects of program participation on the odds of current sexual activity, use of a condom along with a hormonal contraceptive, pregnancy and access to good health care.*

RESULTS: *Seventy-nine percent of participants remained in the program for three full years. Female program participants had significantly lower odds than controls of being sexually active (odds ratio, 0.5) and of having experienced a pregnancy (0.3). They had significantly elevated odds of having used a condom and a hormonal method at last coitus (2.4). However, participation in the program created no significant impact on males' sexual and reproductive behavior outcomes. Nonetheless, program participants of both genders had elevated odds of having received good primary health care (2.0–2.1).*

CONCLUSIONS: *This program is one of only four whose evaluation has successfully documented declines in teenage pregnancy using a random-assignment design. Better outcomes among males may be achieved if programs reach them even earlier than their teenage years.*

Perspectives on Sexual and Reproductive Health, 2002, 34(5):244–251

Despite recent declines, the United States still has one of the highest teenage pregnancy rates among industrialized nations.[1] While a growing number of programs have improved contraceptive prevalence or affected sexuality-related behaviors, few high-quality evaluations have documented programs' success in reducing teenage pregnancies and births, and even fewer have been able to delay the age of sexual debut. This article reports on the results achieved by a three-year, random-assignment evaluation of a Carrera-model teenage pregnancy prevention program.

The past 20 years have been filled with acrimony over how to best approach the problem of teenage pregnancy, but few successful strategies have emerged from this debate. Program evaluation has been sorely neglected and is frequently limited to measuring knowledge change or assessing intentions to remain abstinent. Moreover, many evaluations have lacked comparison groups, which has made it impossible to be sure that the programs themselves produced the observed outcomes.

What programs have been successful in reducing rates of teenage pregnancy? Two are early childhood or elementary school interventions. The Seattle Social Development Project used teacher training and parenting classes in elementary schools to increase children's sense of attachment to their school and family, while also increasing their social skills.[2] Some 18 schools were nonrandomly assigned to receive the intervention or not. By age 18, young people from the program schools were less likely to have had intercourse and also had lower pregnancy rates than those from control schools.

A second program, the Abecedarian project, randomly assigned children to receive interventions during preschool, elementary school, both or neither.[3] Children in preschool received year-round, full-day child care from infancy through kindergarten, while those in the elementary school intervention worked with a home-school resource teacher whose objective was to increase parental involvement in the child's learning. The children in intervention classrooms had lower birthrates than children in the control group at age 21 and had delayed childbearing by more than one year.

Two communitywide projects have lowered teenage pregnancy rates. In one, pregnancy rates in a rural South Carolina county were tracked from 1977 to 1988 to detect changes created by an intervention that featured sexuality education training for school staff, classroom training in decision-making skills for students and the school nurse's providing transportation to a family planning clinic and dispensing condoms.[4] Compared with another part of the county and with three similar counties, the intervention area had lower rates of teenage pregnancy; furthermore, these rates returned to previously high levels after the program ended. A second evaluation of this program described

in more detail the interventions used to achieve these results.[5]

The other community-based intervention, Plain Talk, attempted to increase adults' communication skills in teenage sexuality issues and to motivate adults to encourage adolescent contraceptive use.[6] Pregnancy rates among participants dropped over a three- or four-year period, but the research design did not include comparison communities or random assignment.

Clinic-based interventions have also proved useful. The Self Center, a Baltimore clinic, sent staff into a nearby high school to recruit teenage clients and to offer education and counseling. A 28-month follow-up showed that black female clients from the high school had lower pregnancy rates than black females attending two matched comparison schools.[7]

Educational and job-related interventions can be successful strategies to reduce teenage pregnancy rates and birthrates. The Youth Incentive Entitlement Pilot Projects offered part-time jobs during the school year and full-time summer jobs if participants stayed in school.[8] A four-year study documented reduced birthrates among black female participants. The Conservation and Youth Service Corps offered work experience through community service, as well as remedial education.[9] In this intervention, which used random assignment, 18–25-year-old-blacks experienced fewer nonmarital pregnancies than nonprogram blacks in the same age-group. Community service is also the main intervention for Teen Outreach, a yearlong curriculum and volunteer service program.[10] That program, implemented in several cities, also used random assignment and achieved lower pregnancy rates among participating teenagers.

In addition to programs that have resulted in reductions in rates of teenage pregnancy, several interventions have effected changes in age at sexual debut and contraceptive use.[11] While evaluations of these projects did not document changes in pregnancy rates, progress in these two related outcomes should, at some point, affect pregnancies and births.

These evaluation results suggest that it is possible to reduce the incidence of teenage pregnancies and births, as well as delay sexual debut and increase contraceptive use. Several of these evaluations, however, did not track pregnancy rates and had relatively short follow-up intervals; moreover, only three that assessed the impact of programs on early pregnancy used true experimental designs (i.e., Teen Outreach, Abecedarian and Conservation and Youth Service Corps). Further, some evaluations had positive findings for only selected subgroups of participants, or tested the intervention on young people from one ethnic group only.

This article adds to the field by reporting the first findings from a longitudinal, random-assignment evaluation of teenage pregnancy prevention programs based on the Children's Aid Society (CAS)–Carrera model. The model focuses on reducing pregnancy, but uses a comprehensive youth development approach, coupled with sexuality education and contraceptive provision to those who become sexually active.

The CAS–Carrera Program

In 1984, the Children's Aid Society implemented a sexuality education and pregnancy prevention program for high-risk adolescents in Harlem. Michael A. Carrera (director of adolescent sexuality and pregnancy prevention programs at the agency) and colleagues designed and implemented the intervention, which is guided by the following principles: Staff treat children as if they were their own (parallel family system); each young person is viewed as pure potential; a holistic approach is used (incorporating multiple services to meet comprehensive interests and needs); contact with participants is continuous and long-term (i.e., through high school); services aim to involve parents and other adults; and services are offered under one roof in the community in a nonpunitive, gentle, generous and forgiving environment.

These principles infuse each of the program's seven critical parts—five activity components and two service components. The five major program activities are a work-related intervention called Job Club (with stipends, help with bank accounts, graduated employment experiences and career awareness); an academic component (featuring individual assessment, tutoring and homework help, PSAT and SAT preparation, and assistance with the college admissions process); comprehensive family life and sexuality education (weekly sessions emphasizing sexual knowledge given at age-appropriate and developmentally appropriate levels by an educator–reproductive health counselor); an arts component (designed to help young people discover and develop talent and confidence through weekly music, dance, writing or drama workshops led by theater and arts professionals); and an individual sports (as opposed to team sports) component that emphasizes activities requiring impulse control that can be practiced at all ages, such as squash, golf, snowboarding and swimming.

These five major activities are supplemented by two service components—mental health care (which includes counseling and crisis intervention, as needed, and weekly discussion groups led by a social worker) and medical care (which includes an annual comprehensive medical exam). Medical care is provided by the Mt. Sinai Hospital Adolescent Health Center; program staff schedule adolescents' appointments and accompany them on their visits. Reproductive health care offered through the center includes physical exams, testing for sexually transmitted infections, a wide range of contraceptive options (with condoms always being available) and counseling, as needed. If the health center refers a young person for specialty care, program staff follow up and help with accessing these services. The intervention also provides full dental care through the CAS dental clinic.

Throughout the school year, program activities run all five weekdays, generally for about three hours per day. Most program sites divide participants into 2–3 groups and rotate them among the five major activities offered. One group might receive sexuality education on Tuesday and Thursday, for example, while another group attends Job Club; on alternate days, the groups involved would be reversed. Most students participate in individual sports and creative

expression activities at least once a week, and receive academic assistance daily.

Over the summer, program activities include maintenance meetings to reinforce young people's sexuality education and academic skills; during the summer cycle, participants also receive job assistance and participate in social events, recreational activities and cultural trips.

Each site is staffed by part-time employees, who run the various components, and by a full-time coordinator. In addition, a full-time community organizer handles day-to-day logistics at each site and maintains continuous contact with young people and their parents. The community organizer is a community member selected because of good rapport with residents; this staff person follows up promptly if a young person fails to attend the program.

TABLE 1. Percentage distribution of participants in an evaluation of the CAS–Carrera pregnancy prevention program, by selected baseline characteristics, according to gender and group assignment, New York City, February–April 1997

Characteristic	All		Female		Male	
	Program (N=242)	Control (N=242)	Program (N=130)	Control (N=138)	Program (N=112)	Control (N=104)
Age						
13	39	32	36	27	43	38
14	37	38	35	41	39	34
15	24	30	29	32	18	28
Race/ethnicity						
Black	60	52	60	53	59	52
Hispanic	39	45	39	46	39	44
Other	1	3	1	1	2	4
Socioeconomic indicators						
Lives with employed adult and receives no entitlements	39	35	39	40	39	29
Lives with unemployed adult or receives entitlements	40	41	40	37	40	45
Lives with unemployed adult and receives entitlements	21	24	21	23	21	26
Living arrangement						
Both parents	35	33	31	35	43	31
Single parent	52	58	57	58	45	59
Neither parent	13	9	12	7	13	10
No. of parental risk factors†						
0	53	50	53	47	52	52
1	28	33	28	33	28	34
≥2	19	17	19	20	20	14
Previous participation in site's activities						
Yes	43	46	35	41	51	53
No	57	54	65	59	49	47
Has paid job						
Yes	32	35	28	31	37	39
No	68	65	72	69	63	61
Had health checkup in last year						
Yes	85	86	83	86	88	85
No	15	14	17	14	12	15
Ever had sex						
Yes	26	25	15	20	38	33
No	74	75	85	80	62	67
Total	100	100	100	100	100	100

†These factors, reported by the adolescents, included substance abuse, domestic violence, unemployment, illness, incarceration and depression.

In this article, we report the results of an evaluation of the CAS–Carrera program that gathered data from six sites in New York City. These sites were chosen (from 42 in the New York City area that applied to participate) for the experimental evaluation design because they were judged most likely to faithfully implement the program, given their reputation and history, site capacity and staff. All six are youth agencies that serve disadvantaged, inner-city populations. Staff for the academic assistance, sexuality education and Job Club components were hired by the Children's Aid Society to work at all six sites. Dr. Carrera and his staff trained all program staff and visited each site regularly to ensure high-quality program implementation.

DATA AND METHODS

Recruitment and Random Assignment

Adolescents were eligible to participate if they were not enrolled in an ongoing, structured after-school program; if they would be aged 13–15 on July 1, 1997; and, because the Carrera model is a primary prevention program, if they were not currently pregnant and were not parents. The agencies used a variety of recruitment strategies, including conducting outreach in schools, distributing flyers, contacting families on their mailing lists and recruiting adolescents who were already involved in their recreational activities.

Each site recruited 100 students. Baseline data were collected from February through April 1997. After the evaluation team conducted the baseline interview, students were asked to draw envelopes to determine whether they would be assigned to the Carrera program or to an alternative (control) program. At most sites, the alternative was the agency's regular youth program (which might include recreational activities, homework help, arts and crafts, or only drop-in privileges at the agency); none of the agencies had health care services on-site.

Prior to the baseline data collection, parents were given an extensive orientation about the evaluation design and the individual programs. Both parents and adolescents signed consent forms for participation in the program and its evaluation, including the random-assignment procedure. Complaints about program assignments were minimal, and some young people preferred the shorter time commitment required by the control programs.

Data Collection

The three-year program evaluation drew on linked data from three sources: annual surveys of teenagers' characteristics and program outcomes; annual tests of knowledge of sexual topics administered by the evaluation team at the same time as the annual surveys; and monthly attendance records provided by program staff.

To facilitate tracking, both program and control students were contacted several times a year, staff sent them birthday cards, and participants received cash and other incentives whenever data were collected. Home visits, telephone calls and visits to the program sites were used to locate and survey young people who did not participate in

scheduled data collection efforts. In the program group, the adolescents' self-reported data on their sexual activity, pregnancies and births were comparable to information on those events provided by the program staff and obtained from the adolescents' medical records.

The Sample

Our analysis is based on the 81% of the original sample—484 program and control adolescents—who supplied data at the three-year follow-up (Table 1). The sample included adolescents of both sexes and was fairly evenly divided into each of the three targeted ages (13, 14 and 15).

Sixty percent of youth assigned to the program were non-Hispanic black (of African American or Caribbean descent), and most of the remainder were Hispanic. Many came from economically stressed families: Twenty-one percent lived in a household with no working adult and received entitlements; another 40% lived with an unemployed adult or received benefits. The majority of program participants lived in single-parent homes. Moreover, 28% reported that their parents or another adult family member had ever participated in or experienced one of the following social risk factors—abuse of substances, domestic violence, illness, incarceration or unemployment. Nineteen percent reported having parents with two or more of these factors.

Two-fifths of the program adolescents had taken part in an activity, but not in a structured program, at the site before being recruited for the evaluation. Three in 10 had paid employment at baseline, and almost nine in 10 had had a medical checkup in the previous year. One-quarter of the program participants had had sexual intercourse by the time they enrolled in the evaluation.

We created a six-point scale measuring how many of the following barriers to healthy social development each young person reported: having parents who had experienced two or more of the selected problems listed in the table; having a poor relationship with one's mother;* living in an unsafe neighborhood; having no relationship with a church or faith center; living in a household of low socioeconomic status; and having friends who engaged in three or more delinquent behaviors (specifically, participating in physical fights, carrying a weapon, using a weapon, stealing, being arrested and damaging school property.) Adolescents who participated in the program scored a mean of 1.5 on this barriers scale (not shown). They also reported a mean of 1.1 delinquent behaviors.

The experimental and control groups did not differ significantly by demographic and socioeconomic characteristics. The groups also did not differ, even within gender groups, in their relationships with their mother, school grade or previous participation in an after-school program (not shown).

Analytic Techniques

Our primary outcomes of interest were pregnancy and childbirth. Participants were asked about pregnancy and birth histories at each annual survey. Males were asked if they knew for sure whether they had caused a pregnancy or birth, if they did not know but thought they had, or if they did not know but thought they had not.

Our analysis also includes intermediate outcomes related to pregnancy. First, we assessed sexuality-related knowledge at three points in time, using a 72-item comprehensive instrument that included questions on physiology, contraception, gender differences, sexuality and pregnancy (alpha=.90). Adolescents completed this questionnaire prior to random assignment and again at the end of the first and second program years. We calculated changes in the percentage of correct responses to evaluate gains in knowledge over time.

All evaluation participants were also asked whether they had initiated sexual intercourse. For females only, we assessed whether they had been asked to have sex when they did not want to, and how they had responded in such situations. To gauge the extent of effective contraceptive use, we asked all sexually experienced adolescents whether they had used a condom or any other contraceptive at last intercourse.

We also questioned adolescents about comprehensive health care, because those who have better access to consistent, high-quality primary care are also likely to have better access to reproductive health care when they need it; in addition, overall health status affects other documented precursors of early pregnancy. For example, undiagnosed vision problems or ineffective asthma management can affect school performance, and success in school is related to the risk of early pregnancy and childbearing.[12]

We asked about five desirable health care outcomes: having received medical care in a setting other than an emergency room; having had a medical checkup in the last year; having been given a social assessment (i.e., answering questions about broader family and environmental factors) at that checkup; having had a hepatitis B vaccination; and having had a dental checkup in the last year. We converted these items into a dichotomous variable, coded one if young people reported four or five of these outcomes and zero otherwise.

We used chi-square analyses and analyses of variance to test for significant differences between the program and control groups in the sexuality, reproductive and primary health care outcomes. Logistic regression analyses were performed to assess whether participation in the control program had an independent impact on the outcomes, once baseline characteristics, age, ethnicity and number of barriers to social development were controlled for.

In each regression, all adolescents who had originally been assigned to either group and who were contacted after three years were included, regardless of the actual attendance records of program students. This means that the evaluation is likely to underestimate the effects of the CAS–Carrera model, especially when the model is compared with no intervention; thus, our analysis may more accu-

*We defined adolescents' relationship with their mother as poor if they felt that their mother did not spend enough time with them, they did not share ideas or important decisions with their mother or they felt that their mother did not listen to them.

TABLE 2. Average number of hours teenagers spent in fall and spring program activities over three years, by selected characteristics, according to gender

Characteristic	Total	Female	Male
Gender			
Male	243	na	243
Female	242	242	na
Age			
13	266	282	250
14	240	212	270
15	209	225*	182
Race/ethnicity			
Black	244	256	231
Hispanic	242	225	262
No. of social barriers at baseline†			
0–1	248	237	263
2	257	267	245
≥3	209	216	203
No. of delinquent behaviors at baseline‡			
0	243	233	259
1	238	240	234
≥2	248	263	238
Had sex before enrollment			
Yes	178	203**	167
No	262	247	285

*p<.05. **p<.01. †Social barriers include having friends who engaged in three or more delinquent behaviors; having parents who had experienced two or more of the selected problems listed in Table 1; having a poor relationship with one's mother; living in an unsafe neighborhood; having no relationship with a church or faith center; and living in a household of low socioeconomic status. ‡Delinquent behaviors include participating in physical fights, carrying a weapon, using a weapon, stealing, being arrested and damaging school property. *Notes:* p-values denote significant differences by gender. na=not applicable.

rately estimate the effects of program exposure (which could have been minimal) compared with what young people can find on their own. (Although all control adolescents were offered an alternative program, some stayed with that alternative program, while others decided to try another or to drop out entirely.)

RESULTS

Bivariate Analyses

Three years after enrollment, 79% of participants were still involved at some level in their CAS–Carrera program: Forty-eight percent were actively involved in all program components, and 31% had contact with program staff outside of the weekday, after-school schedule. Those who were no longer involved had moved (8%); had never participated (5%); or had family issues that precluded participation, had scheduling conflicts or were incarcerated (8%). In contrast, only 36% of the control students were regularly participating in a program after three years, a retention rate that represents a decline from 42% at the end of the first two years.

Over three full years of programming (i.e., combining fall semester, spring semester and summer cycles), adolescents assigned to the CAS–Carrera program attended about 16 hours per month, on average; among the 48% who were most actively involved, the average was 22 hours. Participants spent the greatest number of hours receiving academic support, because most program sites offered tutoring, homework help and similar activities daily. (Job Club, family life and sexuality education, artistic self-expression and sports were generally offered on alternating days.)

The community organizers made about two contacts per month with adolescents or their families outside of program hours. Their logs suggest that absenteeism was caused by teenagers' family responsibilities (such as having to babysit younger siblings), family mobility, employment, educational activities and participation in extracurricular activities at school. Parents sometimes punished their children by making them miss program days, a practice that the program discouraged.

Among the program participants only, we examined the total number of hours spent in program activities during the fall and spring cycles over the three years by participants' characteristics. The oldest females attended significantly more hours than the oldest males (225 vs. 182—Table 2), and sexually experienced females attended significantly more hours than sexually experienced males (203 vs. 167). However, a multivariate analysis based on the total sample showed that only prior sexual experience was independently and negatively related to attendance, net of the other variables in the table (not shown).

When we compared the sexual, reproductive and health care outcomes among program and control students, we found gains in knowledge over time to be significantly greater among program participants than among controls: The number of correct responses on the knowledge questionnaire rose by 22% and 11%, respectively (Table 3). Females in the program were significantly more likely than those in the control group to say they had chosen not to have sex when pressured (75% vs. 36%). Program women were significantly less likely than controls to have ever had intercourse.

Moreover, sexually experienced program females were significantly more likely than controls to have used a condom with a highly effective method (i.e., the pill, the injectable or the implant) at last intercourse (36% vs. 20%). There were no significant differences by group assignment, however, in the proportions of young women who reported having used a condom at last coitus. Perhaps most important, at the third-year follow-up, females in the CAS–Carrera program had significantly lower rates of pregnancies and births than control females.

While male participants in the program also had significantly higher gains in knowledge than controls, the other positive sexual and reproductive outcomes found among women were not evident among men. In fact, program males were significantly less likely than control males to have used a condom along with a highly effective method at last intercourse (9% vs. 20%).

Young people in the CAS–Carrera program were more likely than controls to receive health care at a place other than the emergency room (94% vs. 83%). Further, the proportion of males who had received a social assessment at their last doctor visit was twice as high among program males as among control males (65% vs. 32%). Program participants of both sexes were significantly more likely than

control students to have had a hepatitis B vaccination, an often neglected immunization. There were no significant differences by group assignment, however, in receipt of dental care or a medical checkup in the last year. Program participants of both genders were significantly more likely than controls to report five, or four of the five, desirable health care outcomes.

Sexually experienced adolescents also were asked about their reproductive health care–seeking behavior. Among males, the proportions who had made such a visit were significantly higher among program participants than among controls (74% vs. 46%). While the proportion having made such a visit was also higher among program females than among controls, the difference was not significant.

Multivariate Analyses

Because the significant differences at the bivariate level could have been caused by factors other than the program's effects, we present results of logistic regression analyses that controlled for age, ethnicity, baseline measures of the outcome variables and social development barriers at intake. These regressions were conducted for the four most important outcomes only—that is, having become pregnant or caused a pregnancy, having used a condom and hormonal method at last intercourse, being sexually active and having four or five of the positive health care outcomes. We did not assess the program's effects on the likelihood of a live birth because so few occurred over the period.

Although we conducted regressions that combined program males and females—and found that program participation was a significant, independent contributor in several regressions—because the significant findings were created for the most part by one gender group or the other, we present only gender-specific findings. Each regression was first performed using a dummy variable for the individual program site. However, since neither the significance nor the magnitude of the odds ratios changed when site variables were included, we excluded site variables from the analysis.

The odds ratios in the first panel of Table 4 (page 250) estimate the relative likelihood of each outcome among the program adolescents compared with that among control teenagers, net of the control variables. The odds of becoming pregnant were significantly reduced among young women in the CAS–Carrera program, compared with controls (odds ratio, 0.3). Further, female program participants had significantly reduced odds of currently being sexually active after three years of program exposure (0.5) and significantly increased odds of having used a condom and a hormonal method at last intercourse (2.4).

As in the bivariate analysis, we found no significant program effect on these outcomes among males. One outcome was significant for both males and females: The odds of having received good health care were twice as high among program participants as among controls (2.0–2.1).

As might be expected, having had intercourse before enrollment independently increased the odds that students would currently be sexually active and that they would have become pregnant or caused a pregnancy; age also had the expected positive effects on these outcomes. The number of social development barriers significantly affected only females' odds of being sexually active (1.5), while being black (as opposed to Hispanic) increased the odds of currently having sex among males only (2.4) and increased the odds of desirable health care outcomes among females only (2.0).

TABLE 3. Change in knowledge, and percentage of teenagers reporting selected sexual, reproductive and health care outcomes, all over three years, by gender and group assignment

Outcome	All		Females		Males	
	Program	Control	Program	Control	Program	Control
Change in knowledge						
% increase in correct responses to knowledge questionnaire	22	11***	25	14***	18	6***
Sexual and reproductive						
Chose not to have sex under pressure†	na	na	75	36*	na	na
Ever had sex	63	72*	54	66*	73	79
Used condom and hormonal method at last sex†	21	20	36	20*	9	20*
Used condom at last sex†	86	83	84	75	88	92
Became pregnant or caused pregnancy	10	17*	10	22**	11	10
Gave birth‡ or became a father	4	6	3	10*	4	1
Health care						
Received care from setting other than emergency room	94	83***	98	91*	90	72***
Had medical checkup in last year	90	86	92	88	88	85
Received social assessment at last checkup	58	42***	52	50	65	32***
Had hepatitis B vaccination	86	74**	90	79*	80	67*
Had dental checkup in last year	58	64	61	63	54	64
Received 4 or 5 of above services	69	54***	74	61*	64	45**
Made a reproductive health visit in last year†	81	65**	90	83	74	46***

*p< 05. **p<.01. ***p<.001. †Asked of sexually experienced adolescents only. ‡These include two program and two control females who, at the time of their interview, were in their third trimester and intended to carry to term. *Note:* na=not applicable.

DISCUSSION AND CONCLUSIONS

This study has several potential limitations. Because program and control teenagers sometimes attended different programs located at the same site, some exchange of information, or "contamination" of the control group might have occurred. This would, however, likely diminish differences in outcome between program and control students. Further, our analysis followed these young people for three years, but the observed advantages among program students might dissipate over time.

These data are from New York City sites only, and they were collected from a sample that was overwhelmingly black and Hispanic. Thus, the data reported here do not reflect suburban and rural teenagers or those from other racial or ethnic groups. The sites in our study also benefited from the intensive training and support provided by the CAS staff. Sites that lack such support may find implementing the program to be challenging and make changes as they see fit. Indeed, we observed variations in program implementation, and quality, across sites. To date, not enough time

TABLE 4. Odds ratios from logistic regression analyses showing the effects of selected variables on sexual, reproductive and health care outcomes over three years, by gender

Variable	Became pregnant or caused pregnancy		Used condom and hormonal method at last sex		Currently having sex		Had 4 or 5 of desirable health care outcomes†	
	Female	Male	Female	Male	Female	Male	Female	Male
Group assignment								
Program	0.31**	1.17	2.37*	0.47	0.52*	0.60	2.00*	2.08*
Control (ref)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Had sex before enrollment								
Yes	7.45***	4.13**	0.48	0.60	18.39**	24.08**	na	na
No (ref)	1.00	1.00	1.00	1.00	1.00	1.00	na	na
Use of health care before enrollment								
Yes‡	na	na	na	na	na	na	1.71**	1.86**
No (ref)	na	na	na	na	na	na	1.00	1.00
Age	1.92*	1.91*	1.32	1.72	1.70**	1.97*	0.92	0.83
Race/ethnicity								
Black	0.48	1.47	1.03	0.63	1.15	2.41*	1.98*	0.84
Hispanic (ref)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
No. of social barriers	1.04	1.60	0.76	1.28	1.54**	1.44	1.09	1.05

*p<.05. **p<.01. ***p<.001. †These five outcomes are having received medical care in a setting other than an emergency room; having had a medical checkup in the last year; having been given a social assessment at that checkup; having had a hepatitis B vaccination; and having had a dental checkup in the last year. ‡Denotes adolescents who reported not using the emergency room for primary care, having had a medical checkup in the last year and having had a dental checkup in the last year. *Notes:* ref=reference category. na=not applicable, because we did not consider it appropriate to include the "sex before enrollment" variable in the equation predicting health care outcomes, or the "health care before enrollment" variable in the equations predicting the reproductive outcomes.

has elapsed to assess which program components are most important; as more sites adopt the program, sufficient variations in implementation might allow such an analysis.

Our study, however, clearly documents the effectiveness among females of a comprehensive program to prevent adolescent pregnancy. Although our analyses cannot determine the relative importance of the model's components, the philosophy, structure and specific staff roles may each contribute to the successful long-term relationships that a large proportion of the young people formed with the program and its staff.

The CAS–Carrera philosophy emphasizes that working with young people is "a marathon, not a sprint"; the program design calls for "adopting" a group of young people and then sticking with them for several years. Adolescents who attend infrequently or only sporadically and those who have ongoing behavioral problems nonetheless remain part of the group. The program operates year-round, and staff are available even during nonprogram hours. All staff receive training and support in the program's overall philosophy, as well as in their specific responsibilities and tasks.

Within the overall structure of the five activities and two services, the CAS–Carrera model looked for creative solutions when participants had trouble staying connected with the program. For example, although the Job Club component provides internships and summer jobs (along with a classroom component involving discussions of job options and training in job readiness skills), some participants need to work even more hours than can be arranged through the Job Club. To solve the problem of attrition caused by participants' need to work, CAS–Carrera program staff looked for jobs for them in the immediate program vicinity and developed some jobs within the agency housing the program. In this way, staff could maintain an ongoing relationship with adolescents who were unable to attend during scheduled hours.

Although community organizers are rare in youth programming, their role appears to be an important one. These staff maintain regular and frequent contact with program youth and their families. Perhaps most important, community organizers give youth and families a continuous message that young people are noticed, valued and missed when they do not attend. Many youth programs take no action when adolescents do not attend.

The data show that the program maintains long-term connections with young people and that this affects young women's risk of pregnancy directly by improving their sexual literacy, delaying initiation of intercourse and increasing their use of effective contraceptives. These outcomes reflect the dual role of the sexuality educator and reproductive health counselor. The group family life and sexuality education sessions provide information on abstinence, contraception, pregnancy, physiology and gender roles. Through these sessions, staff also develop a close relationship with young people, so they are well positioned to provide support and follow-up as young people make decisions about sex. Again, the model emphasizes a flexible approach; conversations between the sexuality educator and an adolescent are more likely to happen over a slice of pizza in the neighborhood than in a counseling room.

While too few births occurred overall for meaningful analysis, ongoing follow-up data suggest that a difference between program and control women in the proportions who decide to carry pregnancies to term is emerging. Given program women's delays in initiating intercourse, their greater use of effective contraception and their lower pregnancy rates, there may soon be significantly fewer births among program than control females.

The program effects were weaker among young men, perhaps in part because young men who had had intercourse before enrolling (i.e., very early in their teenage years) were the least likely to attend regularly. Strong social norms among these inner-city young men might also stress the benefits (or lack of negative consequences) of early sexual behavior and parenthood. Finally, the female partners of male CAS–Carrera participants did not receive direct program support and services unless they were also enrolled. Perhaps the male participants could not, or did not, repeat the program messages to their partners. The data suggest that reaching young men sooner may strengthen outcomes at earlier ages; indeed, to achieve this goal, CAS has now implemented programs with 11- and 12-year-olds.[13]

Although participation in a CAS–Carrera program did not significantly affect males' reproductive outcomes, important

benefits emerged in their overall access to primary health care. At the three-year follow-up, program males (as well as females) had much better access to health care than control males. Finally, although program males' significantly higher rates of reproductive health care visits did not result in their causing fewer pregnancies, such improved access might have influenced young men's health status in other ways. For example, increased use of reproductive health care services might have improved sexually transmitted infection prevention or resulted in earlier diagnosis and treatment, although the surveys did not ask directly about such infections.

How do the pregnancy results from the CAS–Carrera model compare with those from other successful and well-evaluated pregnancy prevention programs? Although direct comparisons with all such programs are not possible, we compared our results with those from an evaluation of the community service–based program Teen Outreach. According to those results, after one year, the odds of pregnancy were 41% as high among program females as among controls;[14] our evaluation, in contrast, found that after three years, the odds of pregnancy were only 31% as high among CAS–Carrera females as among controls.

How much does such a comprehensive program cost? At the New York City sites, costs averaged $4,000 per year for each teenager enrolled, or about $16 a day (an amount that is less than what after-school child care would cost). These costs cover—for a program that operates 50 weeks a year, five and often six days a week—comprehensive medical and dental services; stipends for the hours spent in Job Club; and wages for work on entrepreneurial and community service projects or internships (i.e., three dollars per hour for younger teenagers and minimum wage once adolescents qualify for working papers).

Costs for some line items are likely to be higher in New York City than in other parts of the country; for example, teachers who worked in the academic component as tutors were paid the union wage of $34 per hour. While some may find these costs alarming, deciding how much should be invested in young people is clearly a policy issue. Such program costs seem less daunting, however, when they are viewed in juxtaposition with the costs that are avoided by preventing early pregnancies and promoting more positive behaviors.

Our evaluation results allow the CAS–Carrera program to join the fewer than 10 others that have shown an impact on teenage pregnancy rates or birthrates. The program is one of only four for which evaluations based on random assignment have demonstrated an impact. While the CAS–Carrera model appears to have achieved success by building long-term relationships with participants, by delaying sexual intercourse and by encouraging effective method use, further analysis by participants' ethnicity and attendance levels should increase our understanding of what other factors might contribute to program success. Reducing teenage pregnancy is an important goal for the nation and for disadvantaged communities in particular. At least for the young women studied here, the CAS–Carrera program is a strategy that works.

REFERENCES

1. Singh S and Darroch JE, Adolescent pregnancy and childbearing: levels and trends in developed countries, *Family Planning Perspectives*, 2000, 32(1):14–23.

2. Hawkins JD et al., Preventing adolescent health-risk behaviors by strengthening protection during childhood, *Archives of Pediatrics & Adolescent Medicine,* 1999, 153(3):226–234.

3. Campbell FA, Long-term outcomes from the Abecedarian study, paper presented at the biennial meeting of the Society for Research in Child Development, Albuquerque, NM, Apr. 16, 1999.

4. Vincent ML, Clearie AF and Schluchter MD, Reducing adolescent pregnancy through school and community-based education, *Journal of the American Medical Association*, 1987, 257(24):3382–3386.

5. Koo HP et al., Reducing adolescent pregnancy through a school- and community-based intervention: Denmark, South Carolina, revisited, *Family Planning Perspectives*, 1994, 26(5):206–211 & 217.

6. Grossman J and Pepper S, *Plain Talk and Adolescent Sexual Behavior*, Philadelphia: Public/Private Ventures, 1999.

7. Zabin LS et al., Evaluation of a pregnancy prevention program for urban teenagers, *Family Planning Perspectives*, 1986, 18(3):119–126.

8. Olsen RJ and Farkas G, The effects of economic opportunity and family background on adolescent cohabitation and childbearing among low-income blacks, *Journal of Labor Economics*, 1990, 8(3):341–362.

9. Jastrzab J et al., *Evaluation of National and Community Service Programs and Impacts of Service: Final Report on the Evaluation of American Conservation and Youth Service Corps,* Cambridge, MA: Abt Associates, 1996.

10. Philliber S and Allen JP, Life options and community service: teen outreach program, in: Miller BC et al., eds., *Preventing Adolescent Pregnancy*, Newbury Park, CA: Sage Publications, 1992, pp. 139–155; and Allen JP et al., Preventing teen pregnancy and academic failure: experimental evaluation of a developmentally based approach, *Child Development*, 1997, 64(4):729–742.

11. Jemmott JB, III, Jemmott LS and Fong GT, Abstinence and safer sex: a randomized trial of HIV sexual risk-reduction interventions for young African-American adolescents, *Journal of the American Medical Association*, 1998, 279(19):1529–1536; Kirby D et al., Reducing the risk: a new curriculum to prevent sexual risk-taking, *Family Planning Perspectives*, 1991, 23(6):253–263; and Rotheram-Borus MJ et al., Reducing HIV sexual risk behaviors among runaway adolescents, *Journal of the American Medical Association*, 1991, 266(9):1237–1241.

12. Kirby D, *Emerging Answers: Research Findings on Programs to Reduce Teen Pregnancy*, Washington, DC: National Campaign to Prevent Teen Pregnancy, 2001.

13. Carrera M, Children's Aid Society, New York, personal communication, Jan. 15, 2002.

14. Allen JP et al., 1997, op. cit. (see reference 10).

Acknowledgments

Funding for this evaluation and for the programs serving as sites was provided by The Robin Hood Foundation. The authors wish to express their appreciation to the foundation and to the staff at the following program sites, whose program efforts and assistance in facilitating data collection made this evaluation possible: Citizens Advice Bureau, Grand Street Settlement, Jacob A. Riis Neighborhood Settlement House, Madison Square Boys and Girls Club, New York City Mission Society and Project Reach Youth. Special gratitude is extended to Michael Carrera, the originator and nurturer of these programs.

Author contact: *sphilliber@compuserve.com*

VIEWPOINT

Understanding What Works and What Doesn't In Reducing Adolescent Sexual Risk-Taking

By Douglas Kirby

Given high rates of unprotected sex, unintended pregnancy and sexually transmitted disease (STD) infection among U.S. adolescents, for at least two decades people concerned about youth have developed a wide variety of programs to reduce adolescent sexual risk-taking. Sometimes these programs reduced sexual risk-taking; other times, they did not. Recognizing the varying success of programs, people have tried to identify the critical elements of effective programs.

In *Emerging Answers: Research Findings on Programs to Reduce Teen Pregnancy,*[1] I attempted to answer at least in part important questions about what works, what doesn't and why. That volume reviewed about 300 studies on risk and protective factors for adolescent sexual risk-taking. The research had examined the relationship between characteristics of communities, families, peers, partners and the adolescents themselves, on the one hand, and initiation of sex, frequency of sex, number of sexual partners, use of condoms, use of contraceptives, pregnancy and childbearing, on the other hand.

In identifying literally hundreds of different risk and protective factors across those domains, these studies painted a remarkably detailed and complex portrait of the antecedents of adolescent sexual risk-taking. However, 43 seemingly diverse factors appeared to be particularly important. At the community level, community disadvantage (e.g., low levels of education, employment and income) and disorganization (e.g., the crime rate) predicted measures of sexual behavior or pregnancy. Within the family, levels of education and income had an impact, as did family structure (e.g., having two parents versus one parent).

Family dynamics and attachment also play a role: If parents appropriately supervise and monitor their children, and if the adolescents feel connected to their parents, they are less likely to engage in sexual risk-taking. Family values about sexual behavior and contraceptive use, and family sexual behaviors, also have an impact on the adolescents' behavior. Moreover, peers' norms and behavior regarding sex and contraceptive use affect an individual's sexual and contraceptive behavior, as do adolescents' partners' support for contraception.

Turning to the teenagers themselves, their age and hormone levels, their attachment to school and religious institutions, their engagement in other problem or risk behaviors, their emotional well-being, the characteristics of their relationships with romantic partners, any past history of sexual abuse, and their own sexual beliefs, attitudes, skills and motivations all affect their sexual or contraceptive behavior.

In addition, *Emerging Answers* reviewed 73 studies measuring the impact of diverse types of programs. There was particularly strong evidence that four groups of programs are effective at reducing sexual risk-taking or pregnancy:

- sex and HIV education programs with certain qualities;
- some clinic-patient protocols that focus on sexual behavior;
- service learning programs that include both intensive voluntary service and ongoing small-group discussions about the service; and
- the Children's Aid Society–Carrera programs (CAS-Carrera programs), which include multiple youth development components, health services and close relationships with the staff.

In addition, *Emerging Answers* found weaker evidence that a few other programs were effective.

In this controversial area of research, Emerging Answers was intentionally designed to be a balanced and cautious analysis of what can currently be said about the impact of different kinds of programs. Here, though, I want to be more speculative, to draw upon other knowledge that I have about some of these studies and to incorporate findings from a few studies that did not meet the criteria for inclusion in *Emerging Answers.*

The seemingly diverse risk and protective factors associated with sexual risk-taking, and the four apparently diverse groups of effective programs, raise several questions: Are there common constructs among the many risk and protective factors that may help explain their impact upon sexual behavior? Are there common elements among the effective programs that may explain their success? Is there some conceptual framework or simple theory that can help explain both sets of diverse findings?

Social Norms and Connectedness

A remarkably simple conceptual framework may partially explain some, although not all, of these disparate findings: social norms, and connectedness to those expressing the norms. As an illustration of this concept, consider cigarette smoking. If an adolescent associates with people who express norms favoring smoking, then he or she is more likely to also smoke; if the teenager is around people who express norms opposed to smoking, then he or she is less likely to smoke. In addition, if the adolescent is closely connected to one group or the other, then that group's norms will have a much greater impact upon the adolescent's behavior. Thus, both the norms of the group and the individual adolescent's connectedness to that group are important, and there is an interaction between these two constructs.

There is nothing new about this con-

Douglas Kirby is senior research scientist at ETR Associates, Santa Cruz, CA. The author thanks Karin Coyle, Jill Denner and Sarah Brown for their comments on an early version of this viewpoint.

ceptual framework. Indeed, social-cognitive theory, the theory of reasoned action and innumerable other theories recognize the importance of group norms, and other theories recognize the importance of connectedness to family or other groups. Moreover, social development theory[2] and other theories explicitly recognize the interaction between connectedness to a group and the impact of that group's norms.

Nevertheless, in this commentary, I hope to show that norms, connectedness and their interaction are useful concepts to better understand some (although by no means all) of the findings in *Emerging Answers.* Moreover, I intend to demonstrate that we should give them greater consideration, both in research and in the development of programs to reduce adolescent sexual risk-taking.

How do these simple principles about human behavior explain a substantial number of the research findings in the field of adolescent sexual behavior and programs to affect that behavior? First, youth are commonly connected to their families, to their peers and to their romantic partners, and all three groups have diverse norms about sexual and contraceptive behavior. Thus, the social norms–connectedness framework would suggest that the norms of these groups would have an impact upon adolescents' behavior.

Influence of Norms

According to a large number of studies summarized in *Emerging Answers,* when parents express stricter values about teenagers' having sex or about premarital sex in general, then the teenagers initiate sex later, have sex less frequently and have fewer sexual partners. Similarly, when parents express positive values about contraception, adolescents are more likely to practice contraception if they have sex, and when parents hold more negative views of early childbearing, teenagers are less likely to give birth as adolescents.

However, parents and families express norms in ways other than simply having and verbalizing their values; they also model behavior, and this modeling can affect youths' perceptions of norms and their own behavior. Studies examined in *Emerging Answers* suggest that if a teenager's mother had sex at an early age, gave birth at an early age, is single and dating, or is single and cohabiting, or if an older sister is having sex or has given birth, then he or she is more likely to initiate sex at a younger age. Similarly, if the teenager's mother or sister gave birth as an adolescent, then he or she is also more likely to be involved in a pregnancy or give birth as an adolescent.

The norms and behavior of peers also affect youths' sexual behavior. When teenagers believe that their peers have permissive attitudes toward premarital sex or actually engage in sex, then they themselves are more likely to engage in sex, have sex more frequently and have sex with more sexual partners. If youth believe that their peers express norms favoring condom use and actually use condoms, then they themselves are more likely to use condoms. If adolescents have friends who have become pregnant or are teenage mothers, then they themselves are more likely to become pregnant and bear children.

Finally, several studies indicate that if teenagers' sexual partners support condom use, then they are more likely to use condoms, and if the partners support contraceptive use, then they are more likely to practice contraception. In addition, if teenagers have a boyfriend or girlfriend who is three or more years older, they are much more likely to have sex at any given age. A partial, but probable, explanation for this is that older boyfriends and girlfriends have more permissive norms and expectations about sex.

Other findings from *Emerging Answers* further support the importance of clear norms, and can be partially explained by the norms of different groups. First, youth residing in communities with greater disadvantage and disorganization are more likely to engage in unprotected sex. Residents of communities with low levels of education, high rates of unemployment, low income levels and high crime rates may express less consistent and clear norms about delaying sex, about always using condoms or practicing contraception, and about avoiding early pregnancy and childbearing.[3] Furthermore, a study of low-income Hispanic communities in California found that while most low-income Hispanic communities had high birthrates, the few that did not expressed more consistent and less-permissive values about sexual behavior and early childbearing than the others.[4]

Second, youth who have been previously sexually coerced or abused are much more likely to initiate voluntary sex at an early age, have more sexual partners, use condoms less frequently, practice contraception less frequently, and become pregnant and give birth more often. Although youth who have been sexually abused are often disadvantaged in a number of ways, it is also true that they have undoubtedly received very confusing and conflicting messages—especially from those abusing them—rather than clear and consistent messages about avoiding sex or unprotected sex.

Third, many of the risk and protective factors that most strongly affected initiation of sex, frequency of sex, number of partners, condom and contraceptive use, and pregnancy and childbearing are the teenager's own beliefs and norms about these behaviors. Typically, these beliefs and norms are learned, in part, from the beliefs and norms expressed by others, as well as from others' sexual behavior and its consequences.

In sum, consistent with the social norms–connectedness framework, all of these studies strongly suggest that the norms of the individuals or groups with whom adolescents are connected or with whom they interact affect adolescents' sexual behavior.

Influence of Connectedness

Although norms about sexual behavior and early childbearing vary greatly, families, schools and faith communities in general express clearer norms against unprotected sex than do other groups or influences in youths' communities, such as the media or peers. Thus, the social norms–connectedness framework would predict that greater connectedness to these groups would be related to less sexual risk-taking.

And, according to *Emerging Answers,* that is what numerous studies reveal. Greater attachment to family is related to later initiation of sex, less frequent intercourse, greater use of contraception, less pregnancy and less childbearing. Greater attachment to and success in school have similar effects. Finally, several studies (although not all) have found that stronger religious affiliation is associated with later initiation of sex, less-frequent intercourse, fewer sexual partners and less childbearing. Notably, youth attending parochial schools, which tend to have more conservative values regarding sex outside of marriage, are less likely to initiate sex than those attending public schools.

In contrast, none of the studies reviewed in *Emerging Answers* have found that greater attachment to peers is associated with less sexual risk-taking. In fact, in one study, being part of a peer group and being popular with peers was associated with earlier onset of intercourse.[5] Thus, attachment per se does not reduce

sexual risk-taking, as much as attachment to individuals or groups who have clear norms against sex or unprotected sex.

The same study also found that close friends' characteristics affected teenagers' sexual behavior, but that the characteristics of more distant groups within the school (e.g., school leaders) had little impact. Thus, it is not just that peers can have an influence on sexual behavior, but rather it is the degree of closeness to or connectedness with particular peers that determines whether peer norms affect teenagers' norms.

Evidence from Impact Studies

Can the same social norms–connectedness framework partially explain the success of seemingly diverse programs? As noted above, *Emerging Answers* identified four groups of programs with substantial evidence for success in reducing sexual risk-taking.

The first consisted of sexuality and HIV education programs. Ten characteristics distinguished effective programs from ineffective programs. One of the most important was emphasis on clear norms about avoiding unprotected sex. The effective programs not only stated the norm clearly, they repeated it frequently, provided factual information to support it, engaged youth in activities to help them personalize the norm, modeled desirable behaviors and had students practice the behaviors through role-playing and other activities. In contrast, ineffective programs tended to lay out the pros and cons of different behaviors, taught decision-making skills and then implicitly encouraged youth to decide what was right for them.

Another characteristic of effective programs was that they selected teachers or program leaders who believed in the program and could relate to youth, and then provided them with training. The leaders' qualities, in combination with their training, increased the chances that the students at a minimum would find the program leaders credible, and might even develop some connection with them.

The second group of effective programs consisted of those within health, family planning or STD clinics. In these programs, the project directors modified the standard clinic protocols, and clinicians followed the modified protocols during visits with adolescent patients. Although the programs differed considerably from one another, in all of them staff expressed clear norms against unprotected sex and for abstinence or condom or contraceptive use. For example, they asked each patient about his or her perceived barriers to being abstinent or obtaining and using condoms, demonstrated how to use a condom, engaged the patient in a brief role-play involving negotiating condom use or provided pamphlets to reinforce the message. Thus, these programs not only supported clear norms, they also encouraged the adolescents to adopt the norm. In addition, in one of the programs, clinic staff called all patients 2–6 times after the clinic visit regarding their contraceptive use, which may have increased patient connectedness to the staff.

The third group of effective programs were service learning programs. These programs include voluntary or unpaid service in the community (e.g., tutoring, working as a teacher's aide or working in nursing homes) and structured time for preparation and reflection before, during and after service (e.g., group discussions, journal writing or papers). Often the service is voluntary, but sometimes it is prearranged as part of a class. And often, but not always, the service is linked to academic instruction in the classroom. Four different studies, three of which evaluated programs in multiple locations, have consistently indicated that service learning either delays sexual activity or reduces teenage pregnancy.[6] However, not all service learning programs addressed sexual or contraceptive behavior. Why then did they change behavior?

One such program (for middle school youth) was linked with a program that strongly encouraged youth to delay sex.[7] Members of both the intervention and the control groups received the abstinence programs, but only the intervention group participated in the service learning component. Notably, the intervention group delayed sex for a much longer period of time than the control group, which received only the abstinence component. One possible explanation for these results is that the service learning component increased youths' connectedness to the program staff who were encouraging them to remain abstinent, and therefore their message about abstinence was much more effective.

Frankly, it is less clear why some of the service learning programs delayed sex or reduced teenage pregnancy. There are many plausible explanations. The programs may in fact have increased connectedness to caring adults (some of whom may have expressed clear norms about avoiding unprotected sex). However, other characteristics of service learning may very well also have reduced sexual risk-taking. For example, they may have increased autonomy, or they may simply have occupied a fair amount of discretionary time during which the students might have otherwise been unsupervised at home and might have engaged in unprotected sex.

The fourth group of effective programs actually included only one type of program—the CAS-Carrera program—implemented in multiple sites.[8] The CAS-Carrera program delayed sex, increased long-term contraceptive use, and reduced both pregnancy and childbearing among female adolescents. Notably, this program has stronger evidence that it actually reduced teenage pregnancy and childbearing for three years than any other program.

The program was a long-term, intensive one that recruited youth when they were about 13–15 years old and encouraged them to participate almost daily throughout high school. Its components included family life and sexuality education; academic support (e.g., tutoring); employment; self-expression through the arts; sports; and health care. For female teenagers, the program expressed clear norms about abstinence and contraceptive use by encouraging participants to avoid sex or to use contraceptives, by providing role-playing in the sexuality education class, and by helping sexually active young women obtain long-acting contraceptives from the health clinic.

A critical aspect of the CAS-Carrera program was that the staff very consciously tried to develop close relationships with the teenagers. In some cases, they almost became surrogate parents. Thus, part of this program's success may have been caused by this greater attachment to adults with clear values against unprotected sex.

In addition to these four groups of programs with especially strong evidence for success, other scattered programs have been found to be effective, but have less strong evidence. Several are noteworthy. First, in a small, rural South Carolina community, teachers, administrators and community leaders were given training in sexuality education; sexuality education was integrated into all grades in the schools; peer counselors were trained; the school nurse counseled students, provided male students with condoms and took female students to a nearby family planning clinic; and local media, churches and other community organizations highlighted special events and reinforced the messages of avoiding unintended pregnancy.[9] Thus, messages about avoiding sex and practicing contraception if youth are sex-

ually active were reinforced in a number of ways.

Evaluations indicate that this program reduced the pregnancy rate among young teenagers, and when parts of the programs and the clarity of the expressed norms diminished, the pregnancy rate returned to preprogram levels. This model was replicated in several towns in Kansas. However, in that replication, the forcefulness and clarity of the message may have been lacking, and the results measuring the impact of the program were mixed.[10]

While most studies of school-based and school-linked health centers revealed no effect on student sexual behavior or contraceptive use, two had some evidence of increased contraceptive use.[11] Notably, one was run by Planned Parenthood and the other provided reproductive health services only. Thus, both focused upon sexual behavior and both gave a clear message about remaining abstinent or using contraceptives. In at least one of the two programs, independent observers commented upon how charismatic the staff were and how well they were able to connect with youth.

Two media initiatives appear to have had an impact upon behavior. One, *Not Me, Not Now,* was not summarized in *Emerging Answers,* because a prepublication draft arrived only after the book had been written. *Not Me, Not Now,* which focused upon young teenagers, gave a clear message about delaying sex and appeared to delay the onset of sexual intercourse among these youth.[12] The program had young people from the community try out for parts in the television advertisements, which then aired for five years. Thus, they represented the community, and many young people commented that they were credible. The advertisements were reinforced by posters, classroom activities, parent materials, a Web site and community events.

The other media initiative targeted high-risk youth and encouraged them to use condoms.[13] Three public service announcements were aired multiple times on television, condom vending machines were installed in locations recommended by youth, and teenagers were trained to facilitate small-group workshops that focused on decision-making and assertiveness skills. The public service announcements were designed to appeal to teenagers. Multiple community surveys indicated that the initiative increased young people's condom use with casual sex partners while the campaign aired. After the campaign ended, condom use with casual sex partners returned to previous levels.

Finally, a completely different kind of program was specifically designed to increase connectedness to families and schools and to thereby reduce a variety of risk behaviors (e.g., substance use, unprotected sex, school dropout and delinquency). Thus, it provided a particularly direct test of the importance of the second construct in this social norms–connectedness framework.[14] Research demonstrated that the program was effective at increasing attachment to school and decreasing sexual activity, pregnancy and delinquency over many years.

Evidence Among Parenting Teenagers

While *Emerging Answers* did not review studies of programs designed to reduce repeat pregnancy or childbearing among teenagers who were already parents, such studies also support the importance of norms and connectedness. Since the mid-1980s, at least 17 programs designed to help pregnant and parenting teenagers have been studied.[15] Many provided prenatal care, parenting training and case management services more generally.

Eight of these 17 studies found that the programs significantly delayed a second birth; of these eight, five included repeated visits by program staff to the teenage mothers' homes. In addition, all five programs that included home visits delayed repeat pregnancies. These repeated one-on-one visits to the teenagers' homes allowed the staff to develop closer relationships with the young mothers (to become more connected), and more than one of the papers talked about both the closeness of that relationship and its importance.[16] Several studies also emphasized the clear norms these staff expressed about avoiding repeat pregnancies.

Discussion

The social norms–connectedness framework not only focuses on norms and connectedness as being important in affecting behavior, it also recognizes the interaction between them. If a group has clear norms for (or against) sex or contraceptive use, then adolescents associated with this group will be more (or less) likely to have sex and use contraceptives. However, the impact of the group's norms will be greater if the adolescents are closely connected to this group than if they are not.

This quite simple framework appears to partially explain a remarkably large number of the findings reported in *Emerging Answers,* many of which (although not all) were consistent with this framework. Innumerable studies demonstrated that the norms of individuals to whom teenagers are attached (e.g., family members, close friends and romantic partners) were strongly related to and consistent with the adolescents' own sexual and contraceptive behavior. In addition, when youth were more connected to groups or institutions that typically have or express values against adolescents' engaging in sex or unprotected sex (e.g., their families, schools and faith communities), they were less likely to engage in sex or unprotected sex. When they were more connected to groups or individuals typically with more permissive values (e.g., peers or boyfriends or girlfriends, especially older boyfriends or girlfriends), then they were much more likely to engage in sex.

When the sexuality and HIV education programs, the clinic protocols, the school-based or school-linked clinics, the CAS-Carrera programs and media campaigns expressed clear norms about sexual and contraceptive behavior, program participants were more likely to act in a manner consistent with those norms. Furthermore, when staff developed much stronger relationships with youth over time, as they did in the CAS-Carrera program and possibly in one of the service learning programs, the effects were particularly strong and dramatic. Finally, studies of programs to reduce repeat pregnancies among parenting teenagers also support the importance of social norms and connectedness. In contrast, when sexuality and HIV education programs, clinic protocols, and school-based or school-linked clinics failed to give a clear message, then they were not effective.

There are numerous other examples of research findings that are partially explained by this social norms–connectedness framework, but space does not allow their presentation here. Thus, this framework appears to have considerable explanatory power; it helps us understand a wide variety of research findings.

On the other hand, the importance of social norms and connectedness should not be exaggerated. There are innumerable theories to explain adolescent sexual risk-taking; one volume named 17,[17] and *Emerging Answers* identified more than 100 risk and protective factors associated with sexual behavior. Each of these theories and factors also contributes to our understanding of adolescent sexual behavior, and many do not involve either connectedness or norms (e.g., communi-

ty opportunity and poverty; parental monitoring and supervision of adolescent children; hormone levels; substance use; emotional well-being; and self-efficacy to refrain from sex or to insist upon contraceptive use). Consequently, addressing these other risk and protective factors is necessary if we are to dramatically reduce sexual risk-taking.

In addition, programs that were effective at changing behavior did more than just change norms; some increased self-efficacy and improved other determinants of sexual risk-taking. Furthermore, there are probably some programs that do not address either norms or connectedness and yet are effective at reducing sexual risk-taking (some service learning programs might be one example). Finally, program staff can impart knowledge, teach skills, increase opportunity and improve other risk and protective factors even if they are not well connected to the targeted adolescents (although they may be more effective in these endeavors if they are well connected).

Thus, the social norms–connectedness framework does not explain everything, but it remains noteworthy that it does partially explain a large and diverse group of findings.

Limitations of the Evidence

There are at least two important limitations of the evidence reviewed here. First, research studies do not provide objective measures of the extent to which programs present a clear message and convey desirable social norms, nor do studies provide objective measures of the extent to which program leaders or educators can relate to youth and form connections with them. Sometimes program staff may believe that they are giving a clear message, but they actually fail to do so; sometimes a curriculum may be designed to give a clear message, but the educators obfuscate that message. Thus, even though some curricula described much clearer messages than others and even though some programs described their efforts to employ educators who relate well to youth, it is impossible to know for sure which programs gave clear messages and which programs were implemented by educators who could connect with youth.

Second, I have reviewed here all the major groups of programs that *Emerging Answers* found to have substantial evidence supporting their effectiveness, as well as some individual programs with less-strong evidence and some aimed at reducing repeat pregnancy. However, I have not reviewed every program, and undoubtedly some programs and some findings are not explained by this framework or do not support this framework

Implications for Future Work

This social norms–connectedness framework has implications both for research and for practice. Despite the many studies that have measured the relationship between norms and behavior, additional research could profitably be undertaken. Few, if any, studies in this field have measured the full impact of norms and connectedness upon adolescent sexual behavior, for two reasons: First, few have measured simultaneously the impact of family, peer and partner norms upon sexual behavior; in addition, few studies have measured the impact of the norms of each of these groups or individuals while simultaneously measuring the adolescents' connectedness to each of those groups or individuals. In fact, not very many studies have even measured the various components of connection or determined which components are most important. Thus, the total amount of variance in behavior that can be explained by norms and connectedness and their interaction is not really known.

In addition, as noted above, little if any research reports either objective or subjective measures of the clarity of the norms promoted in sexuality and HIV education classes or the connectedness between program staff and adolescents. Thus, the development and reporting of these measures may also advance the field.

In terms of practice, there is a substantial literature in health education (and in other fields as well) on how to change norms. For example, communities can use mass media (e.g., soap operas or public service announcements) to portray desirable behavior. Programs can use attractive models similar to the targeted group to give reasons for desirable behavior and to model behavior. Programs can mobilize friends and opinion leaders to take a public stance on certain issues. Sexuality and HIV education programs can use role-playing and small-group activities to reinforce norms. Organizations can conduct anonymous surveys of youth to demonstrate that most youth believe that they either should not have sex or should always use protection. And programs may be able to help parents (or families more generally) express their values clearly and model more responsible sexual behavior. This literature can help people design more effective programs. On the other hand, there is undoubtedly much yet to be learned about how to change norms.

Others have developed theories for increasing connectedness. For example, David Hawkins and his colleagues have theorized that youth will become more connected to school when they have greater opportunity for involvement, develop the skills to be successful in school activities and are recognized and rewarded for their success and achievements.[18] Relatively few programs have focused upon connectedness, and the literature on how to increase connectedness is less well developed. More can also be done in this area.

Developers of programs should be aware of the importance of giving a clear message, of trying to get youth to adopt responsible norms, of increasing connectedness between staff and youth, and of increasing connectedness between youth and other youth or adults who express clear, responsible norms.

Conclusions

Behavioral theorists have long recognized the influence of norms upon behavior, and for decades at least, practitioners have tried to use the media, group opinion leaders, and small-group or other interactive activities in sexuality and HIV education classes to change norms and to thereby change behavior. In addition, for a variety of reasons, people have tried to increase connectedness between youth and their families, schools and faith communities. Thus, simply recognizing that norms and connectedness influence behavior is not new.

However, what is striking—to me, at least—is the extent to which social norms, connectedness and their interaction partially explain so many research findings involving both risk and protective factors and the impact of programs. While no single theory can explain all findings on adolescent sexual behavior (adolescent sexual behavior is just not that simple), these constructs appear remarkably powerful. Perhaps if we measure them better and focus upon them more, they can lead to the development of still more effective programs.

References

1. Kirby D, *Emerging Answers: Research Findings on Programs to Reduce Teen Pregnancy*, Washington, DC: National Campaign to Prevent Teen Pregnancy, 2001.

2. Hawkins JD et al., Preventing adolescent health-risk behaviors by strengthening protection during childhood, *Archives of Pediatrics and Adolescent Medicine*, 1999, 153(3): 226–234.

3. Burton LM, Obeidallah DA and Allison K, Ethnographic insights on social context and adolescent development among inner-city African-American teens, in: Jessor R, Colby A and Shweder RA, eds., *Ethnography and Human Development*, Chicago: University of Chicago Press, 1996.

4. Denner J et al., The protective role of social capital and cultural norms in Latino communities: a study of adolescent births, *Hispanic Journal of Behavioral Sciences*, 2001, 23(1):3–21.

5. Bearman P and Brückner H, *Power in Numbers: Peer Effects on Adolescent Girls' Sexual Debut and Pregnancy,* Washington, DC: National Campaign to Prevent Teen Pregnancy, 1999.

6. Allen JP et al., Preventing teen pregnancy and academic failure: experimental evaluation of a developmentally-based approach, *Child Development*, 1997, 64(4): 729–742; Melchior A, *National Evaluation of Learn and Serve America School and Community-Based Programs*, Waltham, MA: Center for Human Resources, Brandeis University, 1998; O'Donnell L et al., Long-term reduction in sexual initiation and sexual activity among urban middle school participants in the Reach for Health community youth service learning HIV prevention program, 2000, unpublished; Philliber S and Allen JP, Life options and community service: Teen Outreach Program, in: Miller BC et al., eds., *Preventing Adolescent Pregnancy*, Newbury Park, CA: Sage, 1992.

7. O'Donnell L et al., 2000, op. cit. (see reference 6).

8. Philliber S et al., Preventing teen pregnancy: an evaluation of the Children's Aid Society Carrera program, Accord, NY: Philliber Research Associates, 2000, unpublished.

9. Vincent M, Clearie A and Schluchter M, Reducing adolescent pregnancy through school and community-based education, *Journal of the American Medical Association*, 1987, 257(24):3382–3386.

10. Paine-Andrews A et al., Effects of a replication of a multicomponent model for preventing adolescent pregnancy in three Kansas communities, *Family Planning Perspectives,* 1999, 31(4):182–189.

11. Kirby D, Waszak C and Ziegler J, Six school-based clinics: their reproductive health services and impact on sexual behavior, *Family Planning Perspectives*, 1991, 23(1):6–16; and Zabin LS et al., Evaluation of a pregnancy prevention program for urban teenagers, *Family Planning Perspectives,* 1986, 18(3):119–126.

12. Doniger AS et al., Impact evaluation of the 'Not Me, Not Now' abstinence-oriented, adolescent pregnancy prevention communications program, Monroe County, NY, *Journal of Health Communication,* 2001, 6(1):45–60.

13. Polen MR and Freeborn DK, *Outcome Evaluation of Project ACTION*, Portland, OR: Kaiser Permanente Center for Health Research, 1995.

14. Hawkins JD et al., 1999, op. cit. (see reference 2).

15. Brindis C and Philliber S, Room to grow: improving services for pregnant and parenting teenagers in school settings, *Education and Urban Society*, 1998, 30(2):242–260; and Solomon R and Liefeld CP, Effectiveness of a family support center approach to adolescent mothers: repeat pregnancy and school drop-out rates, *Family Relations,* 1998, 47(2):139–144.

16. Olds D, letter to the editor, *Washington Post,* May 27, 1998, referred to in Greer FM and Levin-Epstein J, *One Out of Every Five: Teen Mothers and Subsequent Childbearing,* Washington, DC: Center for Law and Social Policy, 1998.

17. Graber JA, Brooks-Gunn J and Peterson AC, *Transitions Through Adolescence: Interpersonal Domains and Context*, Mahwah, NJ: Lawrence Erlbaum, 1996.

18. Hawkins JD et al., 1999, op. cit. (see reference 2).

Long-Term Outcomes of an Abstinence-Based, Small-Group Pregnancy Prevention Program In New York City Schools

By Lisa D. Lieberman, Heather Gray, Megan Wier, Renee Fiorentino and Patricia Maloney

Context: *Despite drops in U.S. teenage birthrates, questions continue to arise about how best to reduce the country's adolescent birthrate. School-based programs continue to be considered one of the best ways to reach adolescents at risk of early sexual activity.*

Methods: *A total of 312 students completed a pretest, a posttest and a follow-up one year after the posttest: 125 who had participated in a 3–4-month-long abstinence-based small-group intervention led by trained social workers, and 187 in a comparison group that received no special services.*

Results: *There were few significant differences between the intervention and comparison groups at posttest. At the one-year follow-up, however, intervention students had significantly better scores on locus of control, their relationship with their parents and (among males only) their attitudes about the appropriateness of teenage sex. Measures of depression, self-esteem, intentions to have sex, attitudes toward teenage pregnancy and various behaviors did not differ significantly between groups. By the time of the one-year follow-up, there was no difference between study groups among females in the initiation of sexual intercourse. Among the males, initiation of sexual intercourse appeared to be higher in the intervention group than in the comparison group, but the difference was not statistically significant. Positive outcomes were especially limited among students who were already sexually active at the start of the study, a finding that emphasizes the difficulties of reaching adolescents who are already at high risk for pregnancy.*

Conclusions: *A small-group abstinence-based intervention focusing on mental health can have some impact on adolescents' attitudes and relationships (particularly with their parents). Long-term evaluations are important for determining the effects of an intervention, as it is difficult to change adolescent risk behavior.* Family Planning Perspectives, 2000, 32(5):237–245

Recent reports of drops in teenage birthrates are welcome news. Questions continue to be raised, however, about which kinds of programs will best affect the U.S. adolescent birthrate, which remains one of the highest among industrialized nations.[1] Adolescents continue to initiate intercourse at an early age, many long before they are emotionally and psychologically prepared to deal with its consequences.[2] In addition, despite public health, media and educational campaigns to prevent the spread of HIV, a significant proportion of preadolescents and early adolescents, particularly those residing in inner cities, engage in sexual behaviors that place them at high risk for HIV or sexually transmitted disease (STD) transmission.[3]

In this article, we discuss the evaluation of an abstinence-based, small-group approach to preventing pregnancy and STDs that took place in three New York City middle schools. Schools have been the primary site of formal sexuality education programs over the past several decades. However, while some curricula have demonstrated promising results, no single school-based approach has been shown to markedly reduce adolescent sexual activity, risk-taking or pregnancy.[4]

A review of the literature reveals conflicting findings about the successes and failures of a variety of programs, ranging from abstinence-based models to multifaceted programs that offer comprehensive sexuality education with links to school-based health clinics.[5] Evaluations suggest that programs providing a comprehensive focus on sexuality produce positive outcomes and do not increase sexual activity, but few have been able to demonstrate significant long-term reductions in the onset of sexual activity or in the number of sexual partners, or increases in contraceptive use.[6]

In addition, no credible published studies have suggested that programs promoting abstinence only, without addressing risk reduction, do any better.[7] Further, few school-based sexuality curricula discuss sexual exploitation or violence,[8] despite the fact that for many students, choices about sexual behavior are blurred by experiences of sexual abuse and victimization.[9]

During early adolescence, uncertainty about oneself, puberty, heightened interpersonal sensitivity and awareness of changing physical appearance often result in self-criticism, fear of displeasing others and other forms of psychological distress.[10] These factors make the middle school or junior high school years a period of emotional fragility for many young people, at a time when they are also faced with difficult choices with respect to sexual and other risk behaviors.

A variety of emotional and social issues influence adolescent behavior. Teenagers with higher levels of depression, greater hopelessness and a lower sense of control over events in their lives are more likely to initiate sexual intercourse at very young ages.[11] Poor self-concept is associated with earlier onset of sexual activity for both male and female adolescents.[12] Adolescents who report having more friends who are sexually active are also more likely to engage in such behavior.[13] Sexual abuse and victimization increase the risk of early sexual behavior. Finally, adolescents often demonstrate multiple risk behaviors. The ability of young adolescents to negotiate this difficult period can make a critical difference in their social and sexual choices.[14]

Several factors appear to protect young people against multiple risk behaviors, including strong family connections, high self-efficacy or personal power, social problem-solving skills, and external support systems that encourage coping and positive values and provide high expectations and positive norms.[15] A variety of studies suggest that the quality of family relationships and communication are strongly linked with early sexual activity. Lower rates of adolescent sexual activity are associated with having parents who demonstrate a combination of tradition-

Lisa D. Lieberman is senior evaluation consultant to Inwood House, New York, and president of Healthy Concepts, New City, NY. Heather Gray was formerly senior researcher, Megan Wier is a research coordinator and Renee Fiorentino was formerly project coordinator, Inwood House Research Group, New York. Patricia Maloney is the Teen Choice Program Director, Inwood House. The study on which this article is based was a project of Inwood House that was funded by the U.S. Department of Health and Human Services, under Adolescent Family Life Demonstration Grant APH 000363-04.

al attitudes toward sexual behavior and effective communication practices,[16] with positive relationships and a sense of acceptance by the adolescent,[17] and with higher levels of family attachment, involvement and supervision.[18]

Moreover, our clinical experience consistently shows that young people want to be able to talk to their parents and families about sex and sexual involvement.[19] Furthermore, many studies support the importance of teenagers' having caring relationships with adults outside of their families,[20] suggesting that young people can benefit from mentoring and support from adults—including those at their schools—who take their concerns seriously.

The evaluation discussed here involved students who participated in Inwood House's abstinence-based program, Project IMPPACT. The project's small-group mental health model (which is described below) uses trained social workers in a group-counseling model that focuses on relationships and communication, skills-building and positive mental health, as well as providing up-to-date and accurate information about sexuality and about pregnancy and disease prevention. The topics and approach were designed to address the developmental needs of adolescents, to encourage healthy communication skills and family relationships, and to strengthen young people's sense of self and control over their lives and decisions as a means of preventing early and risky sexual behavior.

Data and Methods

The Program

Inwood House is a multiservice agency providing residential and offsite care and services for pregnant and parenting teenagers in New York City. In addition to these direct services, Inwood House also delivers targeted pregnancy prevention programs to New York City's youth. For the past 21 years, Inwood House has conducted a pregnancy and disease prevention program called Teen Choice among students in New York City high schools and middle schools. In 1995, Inwood House received funding for an Adolescent Family Life Demonstration grant to begin the Project IMPPACT (Inwood House Model of Pregnancy Prevention and Care for Teenagers) program and evaluation.

Project IMPPACT is an abstinence-based model of the Teen Choice small-group mental health program. It is conducted in three New York City middle schools—two in Brooklyn and one in the Bronx. At these schools, the Project IMPPACT curriculum focuses on the importance of abstaining from sexual intercourse. Topics include male and female anatomy; understanding pressure to have sex; coping with peer pressure and pressure from the media; risks of early sexual involvement; and STDs, HIV and AIDS. Contraception is discussed, but abstinence is emphasized as the best choice,* and discussions are held about the failure of contraceptives to provide complete protection against pregnancy and STDs.†

Project IMPPACT staff are invited by classroom and physical education teachers to make presentations to students, during which they describe the program and invite students to join a small group. Students self-select into the groups and are required to obtain parental permission.

The small group is the essential component of Project IMPPACT. This approach differs from more traditional classroom-based sex education, in that group discussions guided by a trained and trusted adult help young people incorporate new ideas and openly discuss with their peers the issues they face as teenagers. Small groups that provide knowledge and life-skills building activities have been shown to work well for youth in a variety of settings.[21]

The Project IMPPACT groups work to build communication skills, support healthy adult-child and peer communications, and attempt to create peer groups in which new behavior patterns become acceptable and desirable.[22] Furthermore, the experience is meant to enhance young people's ability to adopt or reject new ways of thinking by providing the opportunity to question and apply new information through guided interaction with significant others—i.e., people whose opinions matter, such as peers or a respected adult.[23]

The Project IMPPACT groups typically have 8–12 members and meet for 12–14 sessions over one semester. Each session lasts for one class period (35–45 minutes) and follows a curriculum providing activities, discussion and informational guidance. Students who volunteer to participate are expected to attend all sessions. (The average rate of attendance during the evaluation presented in this article was 87%, or 11.3 sessions.)

Groups are single-sex or coeducational, depending both on the comfort and maturity level of the students and on the logistics of recruitment. Project IMPPACT social workers have a master's degree in social work or its equivalent, have extensive training in adolescent development, group work and human sexuality, and meet weekly with each other, the project director and a clinical supervisor for in-service training and supervision.

Study Design

Our study is based on pretest, posttest and one-year follow-up surveys, using both intervention and comparison cohorts. For both intervention and comparison groups, pretest data were collected at the beginning of the spring semester (late February or March 1996). A posttest was conducted at the end of the same semester (May or June 1996) for both groups, with an interval of 3–4 months from pretest to posttest. The follow-up was conducted approximately one year after the posttest (starting in April 1997 and ending with some mail-in surveys in August 1997). Thus, the actual interval from pretest to follow-up varied from 14 to 18 months.

Intervention and comparison students were from the same schools. Comparison students, however, were recruited from different wings or areas of the school that were not eligible to participate in the program because of scheduling or programmatic requirements. While intervention students were recruited through classroom presentations by Project IMPPACT workers, comparison students were recruited by our data collection staff. Both intervention and comparison students were required to obtain written parental consent, and all students participated on a voluntary basis.‡

To collect the long-term follow-up data, we located the students who had completed a pretest and a posttest, with the help of middle-school guidance counselors and administrators, based on information students provided on the pretest survey cover sheets. Most of the sixth and seventh graders were at the same

*The funding for this program preceded current abstinence-only guidelines; as a result, the program described here is distinct from current federally funded abstinence programs, in that discussion of contraceptives is permitted.

†Under federal funding guidelines, Project IMPPACT workers are prohibited from making referrals for contraceptive services. Additionally, all posters and curriculum materials must be approved by the federal funding agency to assure that they meet the abstinence-focused guidelines.

‡Notably, the incentive for participation differed for the two groups. While intervention students were receiving services in an ongoing semester-long program, comparison students received gift certificates for participating in the pretest and posttest. At the one-year follow-up, students from both groups were offered gift certificates as an incentive for completing the survey.

schools where they had participated in Project IMPPACT the year before. With the help of the Project IMPPACT workers and staff at the Project IMPPACT schools, these students were given the follow-up surveys in large groups at their schools.

However, nearly half of the original sample had been in eighth grade during the first year of the study. By the time of the one-year follow-up, these eighth graders were dispersed across the city into more than 60 high schools in Manhattan, Brooklyn, the Bronx and Queens. We contacted guidance staff at each of these high schools, produced the signed parental consent forms and arranged logistics with each individual school to have our data collection staff survey the students in their high schools—in small groups or individually. The majority of high schools cooperated with the research effort. If students could not be reached at their school, we mailed surveys to those for whom we had an accurate address.

Study Hypotheses

We hypothesized that participants in Project IMPPACT would report significant positive changes from pretest to posttest and from pretest to follow-up in the following areas: psychosocial measurements of self-esteem, locus of control and self-efficacy; ability to communicate with their parents or other adults about sexuality and other concerns; attitudes consistent with postponing sexual activity; attitudes consistent with preventing pregnancy; intentions to engage in sexual intercourse in the next six months; and onset of sexual intercourse. Finally, we anticipated that participants in Project IMPPACT who were or who became sexually active during the program would be less likely at follow-up than comparison students to engage in sexual behaviors that could lead to unintended pregnancy or STD infection.

Survey Instrument

The survey instrument included variables from existing school-based sexual attitude and behavior surveys,[24] items from existing standardized scales[25] and several new items. We pilot-tested the survey with 25 young people who were not members of a Project IMPPACT group at two schools in the same school districts as the Project IMPPACT schools, and followed this with a focus-group discussion. Sample scale items and reliability coefficients (Cronbach's alpha) are summarized in Table 1. Alphas for the scales were moderate to high (.64–.87) for all but two scales. The Parental Sex Attitudes scale, which consisted of only two items, had an alpha of .54, and the pregnancy attitudes scale, which consisted of four items, had an alpha of .58. Thus, findings related to these two scales must be interpreted with caution.

Sexual activity and sexual behavior questions were modified versions of questions from the New York City High School AIDS Evaluation Study and the ENABL study.[26]* In addition, both students who were sexually active and those who were not were asked about their intention to have sex within the next six months.

The Teenage Sex Attitudes scale was based on revised versions of questions from two existing sexual behavior surveys[27] and included concepts such as: "It's okay for people my age to have sex with a boyfriend or girlfriend." The Teenage Pregnancy Attitudes scale measured concepts such as "getting (someone) pregnant now would really mess up my future." Items were revised versions from an existing sexual behavior survey.[28]

The Locus of Control scale measured students' perceptions of how much control they had over the events and circumstances of their lives. The Self-Efficacy scale measured students' perceptions of their abilities to say no to sex under a variety of circumstances. Both were taken from the New York City High School AIDS Evaluation Study.[29] The Kandel Depression Scale[30] measured the degree to which students had experienced a variety of symptoms of depression in the past six months. Self-esteem was measured using a modified version of the 10-item Rosenberg Self-Esteem Scale,[31] but with more adolescent-friendly language (as determined by the pilot test).

The scales measuring the students' relationship and communication with their parents were taken from the New York City High School AIDS Evaluation Study. The Parental Talk scale measured students' assessments of the degree to which they could talk to their parents about a variety of problem areas, including drugs, alcohol, sex and school problems. The Parental Sex Attitudes scale measured students' perceptions of their parents' or guardians' attitudes about teenagers having sex, such as "My parents/guardians would be upset if they thought I was having sex." The Parental Respect scale measured the students' desire to follow their parents' guidelines,such as "I usually do what my parents/guardians want me to." The Parental Relationship Scale included all items in the Parental Respect, Parental Sex Attitudes and Parental Talk Scales, plus one additional item that reflected an overall measurement of the parent-child relationship.

Table 1. Among scales used in one-year follow-up survey, number of items, range in scores, desired direction and alpha value

Scale	N of items	Range	Desired direction	Alpha
Depression	6	6–18	lower	.73
Self-esteem	10	10–40	higher	.79
Locus of control	5	5–20	higher	.64
Self-efficacy	3	3–12	higher	.64
Teenage sex attitudes	7	7–28	higher	.72
Teenage pregnancy attitudes	4	4–16	higher	.58
Parental relationship*	11	11–44	higher	.79
Parental respect	3	3–12	higher	.70
Parental sex attitudes	2	2–8	higher	.54
Parental talk	5	5–20	higher	.87

*Parental talk, parental sex attitudes and parental respect scales combined.

Among the limitations of the survey method are the difficulty of measuring complex attitudes and behaviors using a pencil-and-paper test, variations in literacy and the time constraints imposed by the school schedule. In anticipation, we simplified the language of the survey where possible, provided assistance to students who had difficulty reading the survey and made every effort to allow sufficient time to complete the survey. Furthermore, while standardized scales may have the advantage of extensive validity and reliability testing, we modified existing standardized measures to assure adolescent-friendly language and to increase students and school staff's comprehension of, comfort with and acceptance of the survey.[32]

Retention Rates

In our pretest cohort, a total of 527 pretests were conducted among intervention and comparison students; 417 of these students completed posttests, for a retention rate of 79%. Some students who were not retained in the study dropped out of the intervention after one or two sessions, and thus were no longer eligible for the study (Table 2, page 240). Further, as this was the first year of the program, there was a higher rate of dropout from the early sessions of the groups than in subsequent program years.

*Sexual activity was defined by the response to the question "Have you ever had sexual intercourse (sex)?" Students could respond no, yes or "I have fooled around but I have never had sex." Sexually active students were defined as those who responded yes only; they were then asked a series of follow-up questions on age at first intercourse, number of partners, contraceptive use and other details regarding their sexual behavior.

Table 2. Numbers and percentages of study participants retained at various stages, by study group membership

Retention	All	Intervention	Comparison
No. in pretest	527	223	304
No. matched, pretest to posttest	417	168	249
% retained, pretest to posttest	79	75	82
No. matched, pretest to one-year follow-up	312	125	187
% retained, posttest to one-year follow-up	75	74	75
% retained overall, pretest to one-year follow-up	59	56	62

The 417 students were surveyed, either in person at their schools or by mail, at the one-year follow-up. (One-quarter of the 417 were mail-in follow-ups.) A total of 312 follow-up surveys were completed, for an overall retention rate from pretest to follow-up of 59%. (The response rate for mailed surveys was the same as that for school-based follow-up.) While this reflects a significant loss to follow-up, we feel that it represents a relatively high rate of retention, given the nature of the sample (with high levels of transience and absenteeism) and the fact that one-third of the sample moved from middle school to high school.

There were few differences between students who completed the pretest only and those who completed a pretest and a posttest. When we compared those who took pretests only with those who took a pretest, a posttest and a follow-up, we found (as would be expected) that those who were more troubled, less engaged in school and at higher risk were more likely to have been lost during the long-term follow-up period. Female students lost to follow-up were somewhat more likely to have cut school in the past 30 days, to use alcohol and to have repeated a grade in school. In addition, those lost to follow-up appeared more likely to have already engaged in sexual intercourse and to intend to have sex.

Likewise, among the male students, those who smoked, who already were sexually active, who intended to have sex and who reported having friends who were having sex were more likely to have been lost to follow-up. The loss of "higher risk" students to long-term follow-up, however, was similar in both the intervention and comparison groups, with only one exception—more young women lost to follow-up in the comparison group than in the intervention group reported that they had friends who were having sex.

Data Analysis

Data were entered and cleaned in an SPSS database, and impossible responses (e.g. pretest responses indicating that a student was sexually active and posttest responses indicating that the same student had never had sex) were reconciled. We used all data in the survey to make decisions about consistency, opting for missing data when the inconsistencies could not be reconciled. Any recoded items were flagged so we could conduct analyses to assure that this process did not yield systematic biases.

We analyzed the data using SPSS-PC for Windows. Pretest descriptive data were used to compare intervention and comparison groups and to compare data from students who completed all three surveys with those who were lost to follow-up. We conducted tests of reliability of the participant survey, which included comparing data across different methods of data collection and from different questions on the survey, as well as testing the internal consistency of the scales.

We computed pretest-to-posttest change scores and pretest–to–one-year follow-up change scores for each of the outcome variables and scales. We used independent sample t-tests (two-tailed tests) to determine the difference in change scores between intervention and comparison groups for both the short-term (pretest-posttest) and long-term (pretest–follow-up) periods.

The independent sample t-test method, focusing on the difference in change scores, accounts for both differences at pretest and differences in the direction of the changes between intervention and comparison students. Furthermore, this method is useful when the variance between groups is not homogeneous, as was the case for many of the variables.

We used chi-square analysis (Fisher's exact test) for the dichotomous variables—onset of sexual behavior; contraceptive use at last intercourse; and having ever been pregnant. However, the extremely small cell sizes (several with an "expected count" of less than five) violated the assumptions of the chi-square test. Thus, data for the behavioral variables are mainly descriptive and provide information about areas for further exploration.

After analyzing the data for the total group, we conducted analyses separately for males and females and for students who were already sexually active at pretest and those who were not. In addition, we

Table 3. Selected means and percentages for characteristics at pretest of study participants who were surveyed at pretest, posttest and one-year follow-up, by sex

Characteristic	Female			Male		
	Intervention (N=103)	Comparison (N=107)	p	Intervention (N=22)	Comparison (N=80)	p
Mean age	12.8	12.9	.817	13.1	12.9	.292
Mean grade	7.3	7.4	.301	7.3	7.4	.852
% black/Caribbean	70.3	62.7	.267	64.7	68.0	.796
% Hispanic/Latino	19.8	23.5	.531	17.6	26.7	.444
% multiethnic/other	9.9	13.8	.696	17.6	5.3	.181
% who repeated a grade	18.4	7.5	.020	27.3	13.9	.213
% who cut class at least once in last month	18.6	15.8	.602	27.2	15.2	.194
Mean depression score*	11.27	10.24	.009	10.33	10.25	.996
% who live in two-parent household	45.3	39.4	.257	44.4	50.0	.539
% who live in a household where English is spoken about half of the time or less	24.5	25.2	.429	5.9	25.0	.017
% who report having been slapped, punched or kicked by a parent/guardian	25.4	9.9	.017	12.5	17.0	.673
% who used cigarettes in past 30 days	16.8	11.5	.269	5.0	5.1	.982
% who used alcohol in past 30 days	18.4	11.5	.177	10.0	11.4	.861
% who used marijuana in past 30 days	3.0	4.7	.545	9.5	6.4	.625
% who have been touched sexually when it was not desired	21.4	6.5	.002	0.0	3.8	.358
% who have been forced to have sex	8.7	2.8	.064	0.0	1.3	.600
% who report they will definitely/probably have sex in the next 6 months	18.0	19.8	.742	44.5	42.7	.893
% who were sexually active at pretest	10.8	8.5	.577	31.8	20.1	.296
% who have ever been pregnant or have ever caused a pregnancy	0.0	0.0	1.000	0.0	1.3	.384
% who report that a few/most/all of their friends have had sex	63.0	58.1	.462	65.0	49.4	.216
% who report that at least one friend who has been pregnant or has ever caused a pregnancy	44.6	43.3	.841	33.4	32.9	.970

*The mean depression score is based on a scale of six items, with possible scores ranging from 6 to 18.

Table 4. Mean values of scales for selected variables, by intervention and comparison group and by pretest, posttest and one-year follow-up, and significance and effect size for short-term and long-term outcomes, according to psychological variable, gender, sexual activity status and grade

Variable	Intervention			Comparison			Short-term outcomes		Long-term outcomes	
	Pretest	Posttest	One year	Pretest	Posttest	One year	p	Effect size	p	Effect size
Depression	**11.11**	**10.86**	**10.92**	**10.24**	**10.33**	**10.22**	**.394**	**–0.854**	**.554**	**–0.592**
Male	10.33	9.19	10.33	10.25	10.29	9.84	.429	–0.811	.556	0.591
Female	11.27	11.16	11.03	10.24	10.36	10.51	.499	–0.677	.151	–1.443
Not sexually active	11.02	10.73	10.86	10.19	10.30	10.28	.318	–1.002	.435	–0.782
Sexually active	11.75	11.50	11.25	10.64	10.57	10.00	.880	–0.153	.845	0.196
8th grade	11.06	10.51	10.81	10.44	10.47	10.65	.280	–1.088	.322	–0.994
Self-esteem	**33.97**	**34.10**	**34.56**	**34.83**	**35.18**	**35.21**	**.545**	**–0.606**	**.685**	**0.407**
Male	33.65	33.79	34.45	34.66	34.45	35.28	.854	0.185	.832	0.212
Female	34.04	34.17	34.59	34.95	35.72	35.16	.236	–1.190	.614	0.506
Not sexually active	33.77	33.96	34.76	34.79	35.21	35.15	.588	–0.543	.246	1.164
Sexually active	35.19	34.81	33.44	34.79	34.91	35.33	.713	–0.370	.105	–1.663
8th grade	34.98	35.73	35.04	35.14	35.28	35.10	.696	0.391	.902	0.123
Locus of control	**14.61**	**15.19**	**15.61**	**15.46**	**15.52**	**15.63**	**.067**	**1.843**	**.010**	**2.598**
Male	14.11	15.13	14.95	15.26	15.21	15.45	.046	2.032	.444	0.779
Female	14.71	15.20	15.74	15.60	15.72	15.74	.277	1.091	.022	2.306
Not sexually active	14.59	15.10	15.53	15.53	15.45	15.63	.072	1.814	.019	2.367
Sexually active	14.88	15.80	16.18	14.95	15.95	15.38	.748	0.325	.323	1.001
8th grade	15.08	15.74	16.10	15.51	15.77	15.66	.441	0.775	.085	1.737
Self-efficacy	**10.49**	**10.07**	**10.91**	**9.90**	**10.10**	**10.35**	**.024**	**–2.265**	**.913**	**–0.109**
Male	8.78	8.31	10.50	8.53	8.57	9.25	.344	–0.953	.167	1.396
Female	10.83	10.40	10.99	10.75	10.93	11.04	.025	–2.265	.674	–0.421
Not sexually active	10.61	10.05	10.91	10.26	10.31	10.46	.045	–2.021	.734	0.340
Sexually active	9.86	10.29	10.93	7.70	8.71	9.57	.356	–0.935	.382	–0.885
8th grade	10.76	10.19	10.98	9.70	9.89	10.43	.039	–2.087	.221	–1.230

Notes: Ns are 312 for all study participants, 102 for males, 210 for females, 267 for those not sexually active, 43 for those sexually active and 138 for those in 8th grade.

separately examined students who were in eighth grade at the time of the intervention, given the potential importance with respect to risk behaviors of the transition from middle school to high school.

For several reasons, we decided to use a change-score method and analyze by subgroup rather than use a multivariate method that would adjust for pretest scores and would use subgroups as covariates (e.g., analysis of covariance). First, the unequal cell sizes of the different subgroups would create unbalanced models; in addition, preliminary tests showed significant nonhomogeneity of variance, which violates a primary assumption of analysis of covariance.

These same two factors also made it difficult for us to conduct analyses that would have controlled for pretest differences in risk characteristics between the intervention and comparison groups (i.e., repetition of a grade, sexual victimization and depression for the females, and English language spoken at home for the males). Thus, we conducted additional t-test analyses for the subgroups when the intervention and comparison groups differed, to determine if the significant findings or the direction of changes differed from those of the overall groups. (Such an outcome would have suggested that the findings might have resulted from pretest group differences rather than the intervention.)

A great number of statistical tests were calculated; thus, by chance alone, approximately 5% of these (using p<.05 criteria)—or seven of the 142 comparisons—would be statistically significant, and these would be distributed randomly. Despite the strong possibility of Type I error in the individual comparisons, however, a total of 18 tests were significant (13% of those calculated), and they were logically related to each other and in a clearly interpretable pattern.

Results

The Study Sample

The 312 intervention and comparison students who completed a pretest, posttest and one-year follow-up survey were predominantly black or Caribbean (approximately two-thirds) or Latino (about one-fifth) (Table 3). Approximately two-thirds were female, and the mean age at pretest was 12.9 years.

While the demographic characteristics of the intervention and comparison groups did not differ, the intervention appears to have attracted needier and more troubled students, particularly among the females. Young women in the intervention group had higher mean depression scores than those in the comparison group (11.3 vs. 10.2) and were more likely to have repeated a grade (18% vs. 8%), to have been touched sexually when it was not desired (21% vs. 7%) and to have been slapped, punched or kicked by a parent or guardian (25% vs. 10%).

Among the males, similar patterns occurred, with what appear to be somewhat higher percentages of intervention males having repeated a grade and reporting having sexually active friends. None of these differences were statistically significant, however, due in part to the small sample size of the intervention group.

Overall, nearly two-thirds of the intervention group and one-half of the comparison group reported that a few, most or all of their friends had had sex. One-third of the males and 44% of the females reported having at least one friend who had been pregnant or had caused a pregnancy.

Outcome Analyses

•*Short-term outcomes*. There were a few statistically significant (p<.05) short-term differences between groups. As can be seen in Table 4, there were no changes from pretest to posttest on the psychosocial variables (depression and self-esteem). Locus of control changed significantly among the males only (p=.046), with the intervention group showing higher locus of control at posttest than at pretest (a change in the desired direction) and the comparison group lower locus of control.

Notably, in some areas, intervention students appeared to be doing worse than comparison students in the short term. These included self-efficacy in the total

Table 5. Mean values of scales for selected variables, by intervention and comparison group and by pretest, posttest and one-year follow-up, and significance and effect size for short-term and long-term outcomes, according to sexual attitudes or intentions and parental variables, and gender, sexual activity status and grade

Variable	Intervention			Comparison			Short-term outcomes		Long-term outcomes	
	Pretest	Posttest	One year	Pretest	Posttest	One year	p	Effect size	p	Effect size
Attitudes about teenage sex	**22.78**	**22.66**	**23.01**	**22.80**	**22.66**	**21.85**	**.793**	**0.263**	**.057**	**1.918**
Male	19.25	20.86	22.58	20.68	20.42	19.74	.160	1.44	.001	3.511
Female	23.53	22.92	23.11	24.00	23.75	23.05	.771	–0.292	.459	0.744
Not sexually active	23.24	22.81	23.19	23.54	23.18	22.17	.852	0.187	.056	1.932
Sexually active	20.36	21.89	22.09	17.33	18.60	19.42	.911	0.114	.830	–0.217
8th grade	22.26	21.52	22.26	22.63	22.12	21.65	.870	0.164	.348	0.948
Attitudes about teenage pregnancy	**14.60**	**14.24**	**14.48**	**14.24**	**14.23**	**14.38**	**.063**	**–1.869**	**.404**	**–0.835**
Male	13.63	12.79	14.06	14.09	13.74	13.95	.107	–1.636	.378	0.887
Female	14.79	14.47	14.56	14.33	14.49	14.66	.104	–1.633	.141	–1.477
Not sexually active	14.64	14.15	14.35	14.41	14.43	14.44	.021	–2.320	.349	–0.938
Sexually active	14.50	14.64	15.36	13.17	13.00	13.96	.579	0.561	.943	0.072
8th grade	14.66	14.32	14.41	14.40	14.34	14.41	.165	–1.398	.577	–0.559
Sex intentions	**1.66**	**1.70**	**1.81**	**1.76**	**1.78**	**2.06**	**.815**	**0.234**	**.171**	**–1.373**
Male	2.18	2.07	2.12	2.09	2.26	2.41	.599	–0.527	.195	–1.304
Female	1.57	1.64	1.75	1.52	1.44	1.82	.238	1.185	.368	–0.902
Not sexually active	1.54	1.65	1.69	1.57	1.60	1.92	.595	0.532	.127	–1.532
Sexually active	2.50	2.00	2.50	2.92	2.92	3.00	.360	–0.927	.838	–0.206
8th grade	1.79	1.93	2.13	1.91	1.97	2.15	.683	0.409	.604	0.521
Parental relationship	**34.94**	**34.43**	**35.40**	**37.29**	**37.31**	**36.31**	**.780**	**–0.280**	**.055**	**1.929**
Male	32.31	30.73	35.94	36.62	37.16	35.84	.208	–1.276	.078	1.873
Female	35.46	35.01	35.30	37.71	37.39	36.61	.883	0.148	.264	1.121
Not sexually active	35.50	34.16	35.38	37.50	37.50	36.21	.220	–1.235	.146	1.461
Sexually active	32.07	36.09	35.79	35.80	35.63	36.50	.130	1.620	.150	1.475
8th grade	34.21	34.78	36.67	36.95	36.42	35.61	.440	0.780	.001	3.376
Parental respect	**10.42**	**10.22**	**10.48**	**10.91**	**10.87**	**10.64**	**.430**	**–0.792**	**.167**	**1.39**
Male	10.00	9.60	10.78	11.00	10.83	10.71	.295	–1.055	.038	2.114
Female	10.51	10.34	10.42	10.84	10.89	10.58	.460	–0.741	.557	0.589
Not sexually active	10.48	10.21	10.45	10.88	10.93	10.59	.158	–1.420	.323	0.990
Sexually active	10.14	10.31	10.79	11.00	10.42	10.83	.100	1.700	.278	1.118
8th grade	10.04	10.36	10.56	10.83	10.69	10.37	.221	1.231	.011	2.584
Parental attitudes about sex	**6.78**	**6.58**	**6.62**	**6.62**	**6.70**	**6.41**	**.271**	**–1.104**	**.814**	**0.236**
Male	5.63	5.64	6.50	6.15	6.15	5.77	.937	–0.079	.021	2.349
Female	6.99	6.74	6.64	6.92	7.01	6.82	.173	–1.367	.270	–1.106
Not sexually active	6.90	6.58	6.65	6.84	6.82	6.49	.179	–1.348	.657	0.445
Sexually active	6.14	6.79	6.64	5.26	5.79	5.87	.819	0.231	.864	–0.172
8th grade	6.73	6.79	6.73	6.59	6.55	6.41	.783	0.276	.552	0.596
Parental talk	**14.53**	**13.94**	**14.92**	**16.32**	**15.95**	**15.61**	**.942**	**–0.073**	**.021**	**2.315**
Male	14.39	13.60	15.89	15.95	16.21	15.86	.276	–1.097	.199	1.326
Female	14.56	14.00	14.71	16.56	15.80	15.44	.593	0.536	.025	2.254
Not sexually active	14.97	13.84	14.99	16.27	16.10	15.49	.189	–1.319	.114	1.586
Sexually active	12.00	14.67	14.50	16.45	14.79	16.14	.023	2.401	.086	1.811
8th grade	14.24	14.29	15.82	16.21	15.53	15.11	.293	1.055	.000	3.823

Notes: Ns are 312 for all study particpants, 102 for males, 210 for females, 267 for those not sexually active, 43 for those sexually active and 138 for those in 8th grade.

group, among females, among eighth graders and among those not sexually active (Table 4), and attitudes toward teenage pregnancy among students who were not sexually active (Table 5).

There were no short-term differences between groups in attitudes about teenagers having sex or in intentions to have sex. Finally, among the sexually active subsample, the intervention group became more likely to talk with parents (with an increase in score from 12.0 to 14.7), while the comparison group became less likely.

•*Long-term outcomes.* The long-term outcome findings were more impressive, with no significant findings in an unexpected direction. There continued to be no significant change in depression and self-esteem (Table 4), whereas locus of control differed significantly between study groups overall (p=.010), for all females (p=.022) and for all non-sexually active students (p=.019). In each case, the intervention group had lower scores than the comparison group at pretest, but at the one-year follow-up the intervention group reported scores higher than before, while the comparison group's scores were similar to pretest.

There were no significant long-term findings for self-efficacy (Table 4), intentions to have sex or attitudes about teenage pregnancy (Table 5). Long-term, males in the intervention group differed significantly (p=.001) from those in the comparison group regarding attitudes about teenagers having sex: The intervention males moved from lower scores at pretest to higher scores at the one-year follow-up (from 19.3 to 22.6), while the comparison males moved from higher to lower scores (from 20.7 to 19.7).

There were several significant long-term findings in parental relationship variables, all in the expected direction—that is, the intervention group had higher scores, whereas the comparison group had lower scores. Between-group differences in parental talk were significant overall (p=.021), as well as for females (p=.025)

and for eighth graders (p=.000). Parental respect was significant among boys (p=.038) and among eighth graders (p=.011). Between-group differences in perceptions about their parents' attitudes about adolescent sex were significant for males (p=.021), and the between-group difference for the overall parental relationship scale was significant (p=.001) among eighth graders.

Among the few students (n=43) who were already sexually active at pretest, we found no significant long-term differences between groups on any of the psychosocial, attitudinal or parental relationship variables.

We performed additional analyses to separate the subgroups on the basis of pretest characteristics on which the intervention and comparison group differed (i.e., depression, sexual victimization, repetition of a grade and use of English at home). These findings were similar: Either the same variables were significant, or the associations were in the same direction as in the overall analyses, suggesting that the significant differences were not due solely to the characteristics differentiating the intervention and comparison groups.

•*Onset of sexual activity*. With respect to the initiation of sexual activity (Table 6), we found no significant differences between groups in the overall sample. Among the entire group of students who were not already sexually active at the pretest, 8% of the intervention group and 3% of the comparison group reported sexual activity at posttest. At the one-year follow-up, an additional 11% of the intervention group and 14% of the comparison group reported having sex, for a total onset between pretest and follow-up of 18% and 16%, respectively.

Among the male students, a total of 40% of those in the intervention group had initiated sex (20% by posttest and 20% by the one-year follow-up), compared with a rate of 20% (3% and 17%, respectively) in the comparison group. The between-group short-term difference was significant among the males (p=.045), although at the long-term follow-up the difference between the intervention and comparison groups was no longer statistically significant.

Among the female students, overall rates of onset of sexual activity were 14% for the intervention group (6% at posttest and 8% at the one-year follow-up) and 13% (2% and 10%, respectively) for the comparison group. These differences were not statistically significant.

•*Condom use at last intercourse.* At pretest, there were no significant differences in condom use at last intercourse or in use of "nothing to prevent pregnancy" (Table 6). Among all students who were sexually active by the end of the study, there were no significant differences in condom use or in the use of nothing to prevent pregnancy. The ability to draw conclusions about this group is limited by the small number of students who were sexually active, however.

•*Reported pregnancies.* Finally, we found no difference between intervention and comparison females at the one-year follow-up regarding pregnancies. Nine pregnancies were reported between the pretest and the one-year follow-up—five in the intervention group and four in the comparison group.* At the one-year follow-up, no young males in the intervention or comparison groups reported having caused a pregnancy.

Table 6. Percentage of students who engaged in a specified behavior, by membership in intervention or control group and by gender, according to type of behavior

Behavior	Total			Females			Males		
	Intervention	Comparison	χ^2 test*	Intervention	Comparison	χ^2 test*	Intervention	Comparison	χ^2 test*
SEXUAL ACTIVITY									
All students with data	**(N=124)**	**(N=186)**	**na**	**(N=102)**	**(N=106)**	**na**	**(N=22)**	**(N=80)**	**na**
Sexually active at pretest	14.5	13.4	.867	10.8	8.5	.640	31.8	20.0	.258
Not sexually active at pretest	**(N=106)**	**(N=161)**	**na**	**(N=91)**	**(N=97)**	**na**	**(N=15)**	**(N=64)**	**na**
Began sexual activity between pretest and posttest	7.5	2.5	.070	5.5	2.1	.269	20.0	3.1	.045
Began sexual activity between posttest and one-year follow-up	10.6	13.5	.558	8.0	10.4	.799	20.0	17.2	.687
Began sexual activity between pretest and one-year follow-up	17.6	16.1	.738	13.7	12.5	1.000	40.0	20.3	.176
CONDOM USE AT LAST SEX									
Sexually active at pretest	**(N=15)**	**(N=24)**	**na**	**(N=9)**	**(N=9)**	**na**	**(N=6)**	**(N=15)**	**na**
Used a condom	73.3	70.8	.870	77.8	80.0	1.00	66.7	66.7	1.00
Used nothing	13.3	29.2	.265	11.1	22.2	1.00	16.7	33.3	.623
Sexually active at one-year follow-up	**(N=30)**	**(N=47)**	**na**	**(N=19)**	**(N=22)**	**na**	**(N=11)**	**(N=25)**	**na**
Used a condom	79.3	80.4	.907	78.9	90.9	.390	81.8	73.1	.695
Used nothing	6.7	10.6	.699	10.5	12.0	1.000	0.0	12.0	.538
EVER BEEN PREGNANT/ MADE SOMEONE PREGNANT									
All students with data	**(N=124)**	**(N=186)**	**na**	**(N=102)**	**(N=106)**	**na**	**(N=22)**	**(N=80)**	**na**
At pretest	0.0	0.5	1.000	0.0	0.0	na	0.0	1.3	1.000
At one-year follow-up	4.0	2.7	.503	4.8	3.7	1.000	0.0	1.3	1.000

*Using Fisher's exact test (two-tailed). *Note:* na=not applicable.

Conclusion

Study Limitations

The quasi-experimental design that we used here controls for some threats to validity (i.e., history and maturity) that are of great relevance to this type of prevention work. However, in the context of a program that was successful in attracting the target group (students at the highest risk of early sexual activity and pregnancy) to join, the challenge of finding an ideal comparison group was even greater. The self-selection process in which students joined both the intervention and comparison group further challenged the design, since students had different incentives, and thus different motivations, to join either group.

We could not randomly assign students to groups, given the voluntary nature of Project IMPPACT and the need for long-term follow-up. While the students in the intervention and comparison groups were from the same neighborhoods and schools and had a wide variety of behaviors and risks, the self-selection produced some differences between the intervention and comparison groups. The result was a somewhat "needier" intervention group.

Those who were in the original cohort and those who remained one year later differed somewhat, although there were few systematic differences between intervention and comparison students in loss to follow-up. Some students in the follow-up were reached by mail, rather than at their

*None of the nine pregnancies reported at the one-year follow-up resulted in live births. In the intervention group, three females reported miscarriages and two had abortions. In the comparison group, one young woman had a miscarriage and three had abortions.

schools. While this approach offered less control over the circumstances under which the survey was completed, the mail survey approach was the only way to reach students who would otherwise have been completely lost to follow-up. When we assessed critical variables such as sexual activity rates for mail surveys vs. in-school surveys, we found no significant differences in reporting of risk behaviors.

The samples used in these analyses were small, and the various subgroups differed in size. Furthermore, our analyses included only students with valid data at all three test points; this reduced group sizes even more and increased discrepancies in cell sizes. These factors resulted in low power and made it more difficult to achieve statistically significant results.

Interpretation

The challenge for adolescent pregnancy and disease prevention programs is to develop interventions that encourage students to delay the onset of sexual activity, address the needs of young people who are already sexually active to reduce their risk, instill knowledgeable, responsible and healthy attitudes toward sex, and support positive parent-child communication. The small-group model presented here, which is based on social cognitive theory, may be better suited than traditional classroom education to addressing sensitive areas of adolescent development. We hypothesized that because it focused on mental health issues and on building skills and strengths in young people, this approach would have the most impact on psychosocial variables, parental communication and relationship variables, and attitudes related to sexual activity. (We also recognized that the potential for a short-term, in-school intervention to have an impact on behavior would be limited.)

Our evaluation results support some, but not all, of these hypotheses. The approach was associated with long-term positive gains among intervention students in a sense of control over their lives, in attitudes about the appropriateness of teenage sex and, notably, in their self-reported relationships and communication with their parents one year after participating in the program. Although the data suggested short-term outcomes in the opposite of the desired direction for a few variables, these differences were not significant one year later.

The continued challenge of changing attitudes about teenage pregnancy among a group of young people who are in a social context in which adolescent parenting is common, the difficulty of addressing mental health issues of depression and self-esteem in a short-term school intervention and the challenges of changing adolescent sexual behavior are all evident in our data. Furthermore, the lack of significant outcomes among the students who were already or who became sexually active suggests that these students are an especially challenging group, whose needs may not be met within the context of an abstinence-focused, school-based program.

A variety of studies have shown that affecting sexual behavior within a school-based program is consistently difficult. The evaluation described here was further challenged by a study population with numerous risk factors: early sexual activity, truancy, repetition of a grade in school, coresidence with a single parent, and substance use, as well as the extent to which sexual behaviors and risks are commonplace in their peer cultures.

Particularly troubling was the number of students who reported forced sexual activity. Clearly such activity has implications for pregnancy-prevention programs, particularly abstinence-based programs. Seven in 10 women who initiated sex before the age of 13 had unwanted or nonvoluntary sex the first time.[33] In fact, the younger the women were at first intercourse, the more likely they were to report it as unwanted or nonvoluntary. Few school sexuality curricula address these issues.[34] Thus, programs that emphasize the decision to remain abstinent must recognize the many students for whom initiation of sexual activity is not a personal choice.

The improved findings at the long-term follow-up on a variety of measures may reflect the dynamics of the small-group approach and point to the importance of including long-term follow-up in evaluations. During the group sessions, participants discuss, reflect on and are challenged to come to terms with their own values, attitudes, environment and behavior. Thus, some effects may have taken time to manifest themselves and may not have been evident at posttest, while "undesired effects" (e.g., some changes in self-efficacy) in evidence in the short-term results diminished over the long term. The apparently increased onset of sexual activity among males during the short pretest-to-posttest period, which also was not significant over the long term, again illustrates the importance of taking a long-term view when assessing behavior change in a very high-risk group.

With respect to parent-child relationships, our outcomes were particularly encouraging. Our data suggest that discussions initiated in the small-group sessions at school may have spilled over into the home up to one year after exposure to the program. Data have suggested that young people want to communicate with their parents about sexuality, and that family relationships and communication are strongly associated with early sexual activity and with risk reduction behavior, such as condom use.[35] Recent studies further illustrate the importance of family communication: Adolescents whose mothers talk with them about condom use before they initiate sexual intercourse are more likely than others to use a condom at first intercourse and to remain more consistent condom users,[36] and social support for contraception—particularly by a parent—is a strong influence in consistent condom use.[37]

Conclusions

Our findings suggest the need for in-depth study, over a longer term, that addresses the needs of young people at the highest risk of teenage pregnancy. We are currently engaged in an evaluation that follows a larger group of eighth graders who participated in one of three variations of the small-group program (the abstinence-based approach, a more comprehensive approach and a multicomponent approach that links the comprehensive program with other community-based services) and a comparison group through the 11th grade.

It is encouraging that one year after participating in the program, the young women in the intervention group were no more likely than those in the comparison group to be sexually active or to have become pregnant (despite their higher risk status at pretest). It is also heartening to find that a small-group mental health program, based in schools, can affect adolescents' self-reported communication and relationship with their parents. Even when young people are hesitant or unable to approach their parents about sex, they can benefit from the mentoring and support of a trained and experienced adult. Furthermore, the small group provides young people with the opportunity to explore a variety of issues (not just sex) that they face as teenagers, and to engage in mutual problem-solving with their peers.

References

1. Ventura SJ, Curtin MA and Mathews TJ, *Teenage Births in the United States: National and State Trends, 1990–1996*, Hyattsville, MD: National Center for Health Statistics, 1998; and Stolberg SG, Birth rate at new low as teen-age pregnancy declines, *New York Times*, April 29, 1999.

2. Centers for Disease Control and Prevention (CDC), Trends in sexual risk behaviors among high school students—United States, 1991–1997, *Morbidity and Mortality Weekly Report*, 1998, 47(36):749–752.

3. Kann L et al., Youth risk behavior surveillance—United States, 1997, *Morbidity and Mortality Weekly Report*, 1998, 47(SS-3):1–89.

4. Kirby D, *No Easy Answers: Research Findings on Programs to Reduce Teen Pregnancy*, Washington, DC: National Campaign to Prevent Teen Pregnancy, 1997.

5. Christopher FS, Adolescent pregnancy prevention, *Family Relations*, 1995, 44(4):384–391; Kirby D et al., An impact evaluation of Project SNAPP: an AIDS and pregnancy prevention middle school program, *AIDS Education and Prevention*, 1997, 9(Supplement A):44–61; Tiezzi L et al., Pregnancy prevention among urban adolescents younger than 15: results of the "In Your Face" program, *Family Planning Perspectives*, 1997, 29(4):173–176 & 197; and Kirby D et al., *Evaluation of Education Now and Babies Later (ENABL): Executive Summary*, Berkeley, CA: University of California at Berkeley, Family Welfare Research Group; and Santa Monica, CA: ETR Associates, 1995.

6. Kirby D, 1997, op. cit. (see reference 4); and Christopher FS, 1995, op. cit. (see reference 5).

7. Thomas M, Abstinence-based programs for prevention of adolescent pregnancies: a review, *Journal of Adolescent Medicine*, 2000, 26(1):5–17; White CP and White MB, The Adolescent Family Life Act: content, findings, and policy recommendations for pregnancy prevention programs, *Journal of Clinical Child Psychology*, 1991, 20(1):58–70; and Kirby D, 1997, op. cit. (see reference 4).

8. Beyer C and Ogletree RJ, Sexual coercion content in 21 sexuality education curricula, *Journal of School Health*, 1998, 68(9):370–375.

9. The Alan Guttmacher Institute (AGI), *Teen Sex and Pregnancy: Facts In Brief*, New York: AGI, 1998.

10. Rosenberg M, *Society and the Adolescent Self-Image*, Princeton, NJ: Princeton University Press, 1965.

11. DeRidder L, Teenage pregnancy: etiology and educational interventions, *Educational Psychology Review*, 1993, 5(1):87–107; Furstenberg FF, Race differences in teenage sexuality, pregnancy, and adolescent childbearing, *Milbank Quarterly*, 1987, 65(Suppl. 2):381–403; Klerman LV, Adolescent pregnancy and poverty: controversies of the past and lessons for the future, *Journal of Adolescent Health*, 1993, 14(7):553–561; Zabin LS, Astone NM and Emerson MR, Do adolescents want babies? the relationship between attitudes and behavior, *Journal of Research in Adolescence*, 1993, 74(3):67–86; Musick JS, *Young, Poor and Pregnant*, New Haven, CT: Yale University Press, 1993; Anderson E, *Sexuality, Poverty and the Inner City*, Menlo Park, CA: The Henry J. Kaiser Family Foundation, 1994; and Harvey SM and Spigner C, Factors associated with sexual behaviors among adolescents: a multivariate analysis, *Adolescence*, 1995, 30(118):253–264.

12. Kissman M, Social support and gender role attitude among teenage mothers, *Adolescence*, 1990, 25(99):709–716.

13. Millstein S and Mosckicki A, Sexually-transmitted diseases in female adolescents: effects of psychosocial factors and high-risk behaviors, *Journal of Adolescent Health*, 1995, 17(2):83–90.

14. Brooks-Gunn J and Furstenberg FF Jr., Adolescent sexual behavior, *American Psychologist*, 1989, 44(2): 249–257.

15. Leffert N et al., *Making the Case: Measuring the Impact of Youth Development Programs*, Minneapolis: The Search Institute, 1996; and Scales P, Reducing risks and building developmental assets: essential actions for promoting adolescent health, *Journal of School Health*, 1999, 69(3):113–119.

16. Moore KA, Simms MC and Betsey CL, *Choice and Circumstance: Racial Differences in Adolescent Sexuality and Fertility*, New Brunswick, NJ: Transaction Books, 1986.

17. Weinstein M and Thornton M, Mother-child relations and adolescents' sexual attitudes and behavior, *Demography*, 1989, 26(4):563–577.

18. Hayes CD, ed., *Risking the Future: Adolescent Sexuality, Pregnancy and Childbearing*, Vol. 1, Washington, DC: National Academy Press, 1987; Hovell M et al., Family influences on Latino and Anglo adolescent sexual behavior, *Journal of Marriage and the Family*, 1994, 56(4):973–986; and Smith CA, Factors associated with early sexual activity among urban adolescents, *Social Work*, 1997, 42(4):334–346.

19. Lieberman L, Subin C and Gray H, *Project IMPPACT: Report on Preliminary Findings*, New York: Inwood House, March 1997; and Inwood House, *TEEN CHOICE: Teen Pregnancy Prevention Program*, New York: Inwood House, 1997.

20. Resnick MD et al., Protecting adolescents from harm: findings from the National Longitudinal Study on Adolescent Health, *Journal of the American Medical Association*, 1997, 278(10):823–832; and Keith J et al., *13,000 Adolescents Speak: A Profile of Michigan Youth*, East Lansing, MI: Community Coalitions in Action, 1995.

21. NIH Consensus Statement Online, Feb. 11–13, 1997, 15(2); and Freudenberg N and Zimmerman M, *AIDS Prevention in the Community*, Washington, DC: American Public Health Association, 1995.

22. Bandura A, *Social Foundations of Thought and Action: A Social Cognitive Theory*, Englewood Cliffs, NJ: Prentice Hall, 1986.

23. Steinberg DM, A model for adolescent pregnancy prevention through the use of small groups, *Social Work with Groups*, 1990, 13(2):57–68.

24. Guttmacher S et al., Condom availability in New York City public high schools: relationships to condom use and sexual behavior, *American Journal of Public Health*, 1997, 87(9):1427–1433; and Kirby D et al., 1995, op. cit. (see reference 5).

25. Kandel DB, Raveis VH and Davies M, Suicidal ideation in adolescence: depression, substance use and other risk factors, *Journal of Youth & Adolescence*, 1991, 20(2):289–308; and Rosenberg M, The self-esteem scale, 1965, in Robinson JP and Shaver PR, *Measures of Social Psychological Attitudes*, Ann Arbor, MI: Survey Research Center, Institute for Social Research, 1973.

26. Guttmacher S et al., 1997, op. cit. (see reference 24); and Kirby D et al., 1995, op. cit. (see reference 5).

27. Guttmacher S et al., 1997, op. cit. (see reference 24); and Kirby D et al., 1995, op. cit. (see reference 5).

28. Kirby D et al., 1995, op. cit. (see reference 5)

29. Guttmacher S et al., 1997, op. cit. (see reference 24).

30. Kandel DB, Raveis VH and Davies M, 1991, op. cit. (see reference 25).

31. Rosenberg M, 1973, op. cit. (see reference 25).

32. Lieberman L, Evaluating the success of substance abuse prevention and treatment programs for pregnant and postpartum women and their infants, *Women's Health Issues*, 1998, 8(4):218–229.

33. AGI, 1998, op. cit. (see reference 9).

34. Beyer C and Ogletree RJ, 1998, op. cit. (see reference 8).

35. Moore KA, Simms MC and Betsey CL, 1986, op. cit. (see reference 16); Weinstein M and Thornton M, 1989, op. cit. (see reference 17); Hayes CD, 1987, op. cit. (see reference 18); Hovell M et al., 1994, op. cit. (see reference 18); and Smith CA, 1997, op. cit. (see reference 18).

36. Miller KS et al., Patterns of condom use among adolescents: the impact of mother-adolescent communication, *American Journal of Public Health*, 1998, 88(10): 1542–1544.

37. Laraque D et al., Predictors of reported condom use in Central Harlem youth as conceptualized by the Health Belief Model, *Journal of Adolescent Health*, 1997, 21(5): 318–327.

Adolescents' Reports of Reproductive Health Education, 1988 and 1995

By Laura Duberstein Lindberg, Leighton Ku and Freya Sonenstein

Context: *Reproductive health education is a key strategy for promoting safe sexual behavior among teenagers. In the last decade, new initiatives in response to AIDS and growing interest in abstinence education may have changed the prevalence, content or timing of the reproductive health education provided by schools and parents.*

Methods: *Formal reproductive health education and communication with parents about reproductive health among males aged 15–19 were analyzed using data from the 1988 and 1995 National Surveys of Adolescent Males. Young men's reports of formal instruction were compared with reports by adolescent females from the 1995 National Survey of Family Growth.*

Results: *Between 1988 and 1995, formal reproductive health education became nearly universal among adolescent males: In 1988, 93% of teenage males received some formal instruction, compared with 98% in 1995. The percentage of teenage males who received instruction about AIDS increased from 73% to 97% and the proportion who received instruction about how to say no to sex increased from 58% to 75%. Adolescent males who had dropped out of school received significantly less reproductive health education than those who had stayed in school, however. In addition, the median age at initial instruction decreased from age 14 to 13. Many males did not receive instruction prior to first intercourse, with non-Hispanic blacks being significantly less likely than other males to receive education prior to first intercourse. In 1995, 54% of black males had received reproductive health education before they first had sex, compared with 68% of Hispanic males and 76% of non-Hispanic white males. A smaller share of adolescent males than females received reproductive health education, and males were less likely than females to receive instruction prior to first intercourse.*

Conclusions: *During the last decade, many types of formal reproductive health education for adolescents expanded. Further efforts should focus on assuring access to timely, comprehensive and high-quality reproductive health education for all teenagers and reducing gaps in access related to race, gender and school attendance.*

Family Planning Perspectives, 2000, 32(5):220–226

Reproductive health education, including messages to encourage abstinence and promote the use of condoms and contraceptives by those who are sexually active, is the front line of efforts to prevent pregnancy, AIDS and other sexually transmitted diseases (STDs) among America's adolescents. School-based instruction is a primary mode of reproductive health education: It can reduce sexual risk behaviors by delaying age at first intercourse, reducing levels of sexual activity and increasing contraceptive or condom use.[1] Parents also can be influential sources of reproductive health education for adolescents.[2] Reproductive health education, through schools or parents, is an important step in promoting safer sexual behaviors among American teenagers.

The prevalence, content and timing of adolescents' reproductive health education in the last decade likely have changed as a result of AIDS prevention initiatives and shifts in the debate about responsible sexual behavior. In 1988, at least some school-based health education was nearly universal among adolescent males, but a substantial proportion of young men did not receive instruction about AIDS or abstinence.[3] It is likely that since that time, more teenagers have received instruction about AIDS: Between 1991 and 1998, the number of states requiring HIV-prevention education in schools increased from 13 to 35.[4]

There also may have been increases in abstinence-related instruction for teenagers, as interest in such instruction has grown. For example, as part of the 1996 federal welfare reform legislation, Congress authorized $50 million annually to fund abstinence-only education,[5] so for the first time significant federal and state funds would be invested in abstinence programs for teenagers. Many states now require some form of abstinence education in schools.[6]

While some of these policy shifts followed the period we examine in this article, they reflect the changing social context of sexuality education that serves as the background to potential changes in instruction from 1988 to 1995. Increased efforts to involve parents in their children's reproductive health education also may have increased teenagers' exposure to reproductive health information.[7] However, a recent Gallup poll indicates that adults were less concerned about AIDS in 1997 than in 1987, suggesting that motivation to educate their teenagers about this topic may have waned.[8]

Recent research has described reproductive health education among certain subgroups of adolescents and the specific topics covered by the instruction. Formal reproductive health instruction among metropolitan males aged 17–19 increased between 1979 and 1988 and between 1988 and 1995.[9] The Youth Risk Behavior Survey (YRBS) indicated increases from 1991 to 1997 in the proportion of students in grades 9–12 reporting having been taught about HIV or AIDS in school.[10] While formal instruction about reproductive health seems to have increased in the recent past, at least among some adolescents, it is not clear how the content and timing of the instruction has changed, or which teenagers have not received instruction. For example, adolescents not attending high school are not included in the YRBS estimates of the prevalence of AIDS education.

Our article examines changes between 1988 and 1995 in American teenage males' reports of the prevalence, content and timing of their reproductive health education,

Laura Duberstein Lindberg is a senior research associate, Population Studies Center, Leighton Ku is a principal research associate, Health Policy Center, and Freya Sonenstein is director, Population Studies Center, all at The Urban Institute, Washington, DC. The authors gratefully acknowledge the research assistance of Karen Alexander, Stacey Phillips and Carolyn Bradner. Laura Porter provided thoughtful comments. An earlier version of this paper was presented at the 1999 National HIV Prevention Conference, Atlanta, GA, August 29–Sept. 1, 1999. The research on which this article is based was funded by the Charles Stewart Mott Foundation. The National Survey of Adolescent Males was funded with the support of the National Institute of Child Health and Human Development, with additional support from the Office of Population Affairs, the National Institute of Mental Health and the Centers for Disease Control and Prevention. The views expressed here are those of the authors, and do not necessarily reflect those of The Urban Institute, its sponsors or its trustees.

both from formal, school-based instruction and from their parents. We describe differences in education by age, race and ethnicity, and school attendance status.

We focus on young males for three major reasons. First, the available data are best suited to monitor the experiences of teenage males. The National Survey of Adolescent Males (NSAM) provides the richest measures of reproductive health education during the past decade; the National Survey of Family Growth (NSFG), which includes only females, and the YRBS, which excludes teenagers who are not in school, measure instruction in a more limited range of reproductive health topics. In addition, our focus on teenage males extends an established body of research that has examined the link between reproductive health education and sexual risk-taking among young males. Finally, recent shifts in sexual activity and condom use have occurred primarily among adolescent males rather than among females, making it imperative to discern the factors influencing their change in behavior.[11] To better understand the experiences of young men, we also compare their formal instruction with that of adolescent females in the more recent period.

Data and Methods

Data

The data for males are derived from the 1988 and 1995 NSAM. The methodologies for each survey wave have been described in detail elsewhere.[12] The 1988 NSAM was a nationally representative household sample of 1,880 never-married men aged 15–19 years and stratified to oversample black and Hispanic youth. The overall sample response rate was 74%. The 1995 NSAM also was a nationally representative household sample of 15–19-year-old males in the contiguous United States that oversampled black and Hispanic youth. The response rate was 75%. In 1995, 1,729 males participated in interviews; however, our analyses are restricted to the 1,710 who were never married. Because each wave of the NSAM is representative of teenage males living in households, the sample includes both current students and nonstudents.

Data for females are derived from the 1995 NSFG, a nationally representative household sample of 10,847 15–44-year-old women that was designed to study fertility and family formation.[13] Black and Hispanic women were oversampled. The overall response rate was 79%. The NSAM originally was designed as a counterpart to fertility-related data about adolescent females collected in the NSFG; this facilitates our comparisons between males and females.

Variables

In both waves of the NSAM, all respondents were asked to report retrospectively on whether they had ever received "formal instruction in school or in an organized program" in eight specific reproductive health topics, and if so, the grade they first received this instruction. These topics are divided into five content areas of reproductive health education based on previously used categorizations[14]: AIDS (including how to prevent AIDS through safe sex); other STDs*; birth control (including methods of birth control and where to obtain contraceptive methods); how to say no to sex; and how to put on a condom (1995 only).

The location of this formal instruction was measured only in the 1988 survey; the vast majority of males (91–96%) receiving each type of reproductive health education said they received this instruction in school. Thus, formal instruction on these topics is essentially synonymous with school-based reproductive health education.[15]

In the 1995 NSFG, female respondents reported retrospectively about formal sex education in four specific topics: methods of birth control, STDs, how to prevent AIDS using safe sex practices, and abstinence or how to say no to sex. Respondents aged 18 or older were asked to report only about formal instruction they received prior to age 18. To create measures comparable with those in the NSAM, we limited our analytic samples to 815 females and 1,149 males aged 15–17. For both sexes, the measures of reproductive health education reflect adolescents' recall of such instruction, and should not be interpreted as a direct measure of school policies or specific curricula.

For males and females, we calculated two measures of the timing of formal reproductive health education. In both the NSAM and the NSFG, respondents were asked the grade they first received instruction in each topic reported. Estimating that children in first grade are approximately six years old, we calculated respondents' age at first instruction by adding five to the grade in which they said they first received instruction. For male respondents who reported having repeated a grade, we added another year. (Comparable information was not collected for females.)

Based on this measure, we calculated the median age at first instruction in each topic (the age at which 50% of all respondents receive instruction), derived using life-table methods. For example, to compute the percentage of youth who had instruction by their 16th birthday, we exclude data from 15 year-olds, since they have not attained that age yet. Formal instruction prior to first intercourse was identified if age at first instruction was younger than reported age at first intercourse; following the approach used in prior research,[16] if the same age was reported for both, instruction was deemed to have occurred after first intercourse. We limited this measure to sexually experienced respondents.

In addition to being asked about formal instruction in reproductive health topics, NSAM respondents were asked if they had "ever talked with either or both of your parents or the people who raised you" about the following reproductive health topics: birth control, AIDS, other STDs or "what would happen if you got a girl pregnant."

In the NSAM and the NSFG, questions about reproductive health instruction, age at first intercourse and age at interview were all self-reported in face-to-face interviews. As these are potentially sensitive behaviors, there is some risk of intentional or unintentional reporting errors. Nonetheless, earlier research has shown that other interview responses in the NSAM are relatively reliable and valid when compared with self-administered questions and external data.[17]

Analysis

We first examined changes in the receipt, content and timing of reproductive health education among adolescent males between 1988 and 1995 and tested for differences within each period by age, race and ethnicity, and whether the respondent was in school or had dropped out. We also studied differences between 1988 and 1995 in the percentage of young males reporting having ever talked with a parent about specific reproductive health topics, and we tested for differences in 1995 by individual and family characteristics. Finally, we looked for differences in 1995 between males and females aged 15–17 in their reports of receipt, content and timing of formal reproductive health instruction.

The surveys each employed multistage, stratified, clustered sampling and oversampled black and Hispanic adolescents. Accordingly, we weighted the results pre-

*In 1988, respondents were asked about "venereal diseases or VD," while in 1995 they were asked about "sexually transmitted diseases."

Table 1. Percentage of males aged 15–19 who received formal reproductive health education, by topic and year, according to demographic characteristics

Characteristic	Any topic‡		AIDS		How to say no to sex		STDs		Birth control		How to put on a condom
	1988	1995	1988	1995	1988	1995	1988	1995	1988	1995	1995
Total	**92.5**	**97.7*** **	**72.8**	**96.5*** **	**58.0**	**74.5*** **	**81.1**	**85.2***	**78.7**	**85.0****	**58.0**
Age at interview											
15–17	93.0	97.7	81.3	96.1	63.0	74.9	80.1	84.3	79.5	83.2	58.0
18–19	91.6	97.8	59.2†††	97.2	50.2††	73.9	82.9	86.7	77.4	88.1	58.1
Race/ethnicity											
Non-Hispanic black	93.7	98.5	79.2	98.0	61.6	77.4	80.2	86.9	78.8	86.4	65.9
Non-Hispanic white	92.3	97.7	70.3	96.1	57.7	74.2	82.0	85.2	79.2	84.2	55.9
Hispanic	92.9	96.8	78.7†	96.1	51.3	76.1	78.0	84.3	74.8	84.6	60.7†
School status at age 18–19											
In school/has diploma	95.7	98.3	66.1	98.0	55.0	77.9	86.8	90.1	84.9	90.9	58.5
Dropout	71.6††	95.1	24.6†††	93.0	26.3††	53.9††	63.7††	69.5††	39.7††	73.8†	55.9

*Difference between 1988 and 1995 is statistically significant at p≤.05. **Difference between 1988 and 1995 is statistically significant at p≤.01.***Difference between 1988 and 1995 is statistically significant at p≤.001. †Difference across a characteristic within year is statistically significant at p≤.05. ††Difference across a characteristic within year is statistically significant at p≤.01. †††Difference across a characteristic within year is statistically significant at p≤.001. ‡Instruction about AIDS, STDs, birth control or how to say no to sex. *Notes:* All tests of significance were done using t-tests. Ns varied among categories; the highest Ns were 1,880 (for 1988) and 1,709 (for 1995). Respondents in 1988 were not asked about instruction in how to put on a condom.

sented in this article to compensate for the probability of selection and nonresponse and poststratified them to align with Census data.[18] Because the sampling designs of the surveys are complex, we used SUDAAN to compute the standard errors used in statistical tests of differences in proportions.[19]

Results

Formal Instruction

•*Prevalence of reproductive health instruction by topic*. The proportion of teenage males receiving formal reproductive health education about AIDS, STDs, birth control or how to say no to sex increased significantly from 1988 to 1995 (Table 1). In 1995, 98% of teenage males received some formal instruction, compared with 93% in 1988. The largest increases occurred in the percentage of teenage males who received instruction about AIDS (from 73% to 97%) and about how to say no to sex (from 58% to 75%). Significant but smaller increases also occurred in the proportion of teenage males who had been taught about STDs and birth control. In 1995, 58% of teenage males received formal instruction in how to put on a condom.

In 1995, most males (97%) received formal instruction in two or more of the reproductive health topics examined (not shown). Almost half (45%) received instruction in all five topics, and 63% received instruction in the four topics most commonly examined—AIDS, how to say no to sex, birth control and STDs. Instruction about how to say no to sex that was not accompanied by instruction in where to obtain birth control, how to put on a condom and how to prevent AIDS by practicing safe sex—our best measure of what is currently referred to as "abstinence-only education"—was reported by less than 1% of teenage males.*

•*Differences in exposure to formal instruction*. In 1995, there were no significant differences by age or by race and ethnicity in male adolescents' exposure to formal reproductive health instruction (Table 1). This marks an attenuation of those demographic differences observed in 1988, reflecting the overall high levels of reproductive health education seen in 1995. In 1988, age was negatively associated with the receipt of instruction about AIDS or how to say no to sex: Adolescents aged 18–19 were less likely to have received this information than were those aged 15–17. The widespread adoption of these new topics into the reproductive health curriculum had eradicated these age differences by 1995, however.

Additionally, in 1988, non-Hispanic white males were significantly less likely to have received AIDS education than were non-Hispanic blacks or Hispanic males; by 1995, in contrast, there no longer were any significant differences by race. In 1995, instruction in how to put on a condom was significantly more common among black males than among other racial or ethnic groups.

Among 18–19-year-olds, both high school dropouts and those who were in school or who had earned a high school diploma experienced increases in reproductive health education from 1988 to 1995.† However, in both years, high school dropouts were significantly less likely than their more educated peers to have received instruction about STDs, birth control or how to say no to sex.

•*Timing of formal instruction*. The median age at first formal reproductive health education declined by one year between 1988 and 1995, from age 14 to age 13 (Table 2). The median age at first instruction in AIDS and in how to say no to sex each declined by two years. Differences by race in the median age at first instruction in 1988 had diminished by 1995.

Overall, and in each topic, sexually experienced males were significantly more likely in 1995 than in 1988 to have received reproductive health information prior to first intercourse. More than two-thirds of sexually experienced males received some formal reproductive health education prior to first intercourse in 1995, compared to only about half in 1988. The largest increases occurred in the timing of AIDS instruction; between 1988 and 1995, the percentage of sexually experienced teenage males who had received AIDS education prior to first

*Respondents were not asked specifically if they had received "abstinence-only" education. Instead, our estimate is calculated from separate responses to questions on each reproductive health topic. Instruction about where to obtain birth control, how to put on a condom and how to prevent AIDS by practicing safe sex was identified as inconsistent with an abstinence-only curriculum, and adolescents reporting instruction in these topics were deemed not to have received "abstinence-only" instruction. Adolescents reporting instruction in how to say no to sex combined with the more general topics of AIDS, STDs or birth control were identified as "abstinence-only," because aspects of these latter topics could be included in an abstinence-only curriculum.

†The group of adolescents who earned a high school diploma does not include those who may have earned a GED after dropping out of school. It is school attendance, not necessarily level of completed education, that is of interest to us here, because most formal reproductive health education takes place in school settings.

Table 2. Timing of reproductive health education among males aged 15–19, by topic and race/ethnicity, 1995 and 1998

Race/ethnicity	Any topic‡		AIDS		How to say no to sex		STDs		Birth control		How to put on a condom
	1988	1995	1988	1995	1988	1995	1988	1995	1988	1995	1995
MEDIAN AGE AT FIRST INSTRUCTION											
Total	**14**	**13**	**15**	**13**	**16**	**14**	**14**	**14**	**15**	**14**	**15**
Non-Hispanic black	14	13	15	14	16	14	15	14	15	14	15
Non-Hispanic white	14	13	16	13	16	14	14	14	15	14	16
Hispanic	14	13	15	13	17	14	15	14	15	14	15
% WHO RECEIVED INSTRUCTION BEFORE FIRST SEX											
Total	**53.3**	**70.4*** **	**18.5**	**65.8*** **	**21.1**	**47.0*** **	**43.1**	**55.1*** **	**41.3**	**58.0*** **	**38.0**
Non-Hispanic black	39.7	54.3	14.4	48.2	17.4	38.0	30.7	37.4	29.8	35.4	29.6
Non-Hispanic white	57.0	75.8	17.9	72.6	21.2	50.9	46.0	62.0	44.1	67.0	41.5
Hispanic	53.7††	68.2†††	27.9†	64.2†††	21.6	46.2†	44.3††	51.3†††	44.6††	53.2†††	39.0††

***Difference between 1988 and 1995 is statistically significant at p≤.001. †Difference within year is statistically significant at p≤.05. ††Difference within year is statistically significant at p≤.01. †††Difference within year is statistically significant at p≤.001. ‡Instruction about AIDS, STDs, birth control or how to say no to sex. *Notes*: All tests of significance were done using t-tests. Respondents in 1988 were not asked about instruction in how to put on a condom. In three cases, medians are overstated because slightly fewer than 50% had received instruction by the next lowest age—49.3% of white males first received AIDS education by age 15; 49.0% of black males first received AIDS education by age 13; and 49.4% of white males received education about how to put on a condom by age 15.

intercourse jumped from 19% to 66%.

Large increases also occurred in the receipt of instruction about how to say no to sex prior to first intercourse; by 1995, almost half of sexually experienced teenage males had received this instruction prior to becoming sexually experienced. Of all topics examined, how to put on a condom was the topic in which sexually experienced males were least likely to have received instruction prior to first intercourse.

In contrast to the similarities by race in the median age of instruction, there were significant differences by race among sexually experienced young men in the receipt of reproductive health education prior to first intercourse. In both 1988 and 1995, sexually experienced non-Hispanic blacks were less likely than other males to have received instruction prior to first intercourse in each topic. For example, in 1995, only about half of black males (54%) had received any reproductive health education prior to first intercourse, compared with 68% of Hispanic males and 76% of non-Hispanic white males.

Communication with Parents

Despite increases in adolescents' exposure to formal reproductive health instruction, there was little change between 1988 and 1995 in the proportion of young males who said they had discussed reproductive health topics with their parents. In both years, about three-quarters of young men reported ever having spoken with their parents about AIDS, STDs, birth control or what would happen if their partner became pregnant (Table 3). However, for each topic, only about half of teenage males reported ever having discussed the topic with either of their parents. "What would happen if you got a girl pregnant" was the only topic for which discussion increased significantly, from 49% to 56%.

We tested for differences in 1995 in the prevalence of parental communication by young men's race, age, sexual experience and family structure. Prior research has suggested that these demographic characteristics may predict parent-child communication about sex, although past findings are not consistent.[20] Given the stability of the level of parental communication between 1988 and 1995, we limit our examination of demographic variation to the most recent period.

There were few demographic differences in teenage males' reports of talking with their parents about AIDS (Table 4, page 224), and more differences in reports of discussing other reproductive health issues. Discussion of AIDS did not vary by race and ethnicity, family structure or sexual experience, but it did vary by age: Adolescents aged 15–17 were more likely than those aged 18–19 to report having discussed AIDS with their parents.

In contrast, discussion of the other three topics varied significantly by all demographic characteristics except age. Black males, those who lived outside of two-parent households and those who were sexually experienced were significantly more likely than their peers to have spoken with their parents about STDs, birth control or what would happen if their partner became pregnant.

Sex Differences

We also examined differences between males and females aged 15–17 in 1995 in the prevalence and timing of four types of formal reproductive health instruction—how to prevent AIDS by practicing safe sex, methods of birth control, STDs and how to say no to sex. (For the last topic, the NSAM respondents were asked only about how to say no to sex, while the NSFG participants were asked about abstinence and how to say no to sex as a single topic. For ease of discussion, we refer to reports from either sex as how to say no to sex.) These four topics differ somewhat from those examined in the previous tables.

In 1995, adolescent females aged 15–17 were significantly more likely than adolescent males to report ever having received formal instruction about methods of birth control, STDs and how to say no to sex (Table 5, page 224). The prevalence of AIDS instruction was the same for males and females. The largest differences were for instruction in how to say no to sex, for which 93% of females reported instruction, compared with only 75% of males. (However, question wording differed by sex for this type of instruction.)

Females were significantly more likely than males to have received instruction prior to first intercourse in each of the four topics examined. About half of males received instruction in each topic prior to first intercourse, compared with about three-quarters of females.

Table 3. Percentage of males aged 15–19 who reported having communicated with their parents about reproductive health, by topic, 1988 and 1995

Topic	1988	1995
Any	**74.0**	**77.7**
AIDS	51.4	55.6
STDs	41.1	42.7
Methods of birth control	44.6	43.8
What would happen if you got a girl pregnant	49.0	55.8**

**Difference between 1988 and 1995 was statistically significant at p≤.01.

Table 4. Percentage of males aged 15–19 who reported communication with parents about reproductive health, by topic, according to demographic characteristics, 1995

Characteristic	AIDS	STDs	Birth control	What would happen if you got a girl pregnant
Race/ethnicity				
Non-Hispanic black	58.4	56.6	48.5	69.0
Non-Hispanic white	56.9	41.1	46.0	51.4
Hispanic	52.8	40.3***	39.0**	64.6***
Age				
15–17	59.3	44.6	41.3	55.9
18–19	49.4*	39.4	48.1	55.7
Family structure at age 14				
Two parents	54.3	38.1	41.9	52.3
Other	58.2	50.9***	47.9*	63.0***
Ever had sexual intercourse				
Yes	56.1	47.0	47.2	62.3
No	55.1	37.4***	39.7**	47.8***

*Difference between characteristics within year is statistically significant at p≤.05. **Difference between characteristics within year is statistically significant at p≤.01. ***Difference between characteristics within year is statistically significant at p≤.001. *Note:* All tests of significance were done using t-tests.

Discussion

The last decade was a period of significant expansion of many types of formal instruction about AIDS, birth control, STDs and how to say no to sex among teenage males in the United States. In 1988, the recent emergence of AIDS as a significant public health concern served to jump-start the expansion of reproductive health education. In 1995, teenage males received more formal reproductive health education, about more topics and at earlier ages than they had in 1988. By 1995, general reproductive health education and instruction about AIDS were nearly universal among teenage males, while instruction about how to say no to sex became significantly more common. The median age at first instruction in reproductive health declined by one year, and teenage males were significantly more likely to have received some reproductive health education prior to first intercourse in 1995 than in 1988.

Even with the broad expansion of formal reproductive health education, there continues to be a lack of access to education among select groups of adolescents. First, high school dropouts appear to have much less access to formal instruction—which tends to be provided primarily through schools—than their peers. Other studies show that teenage dropouts are more involved in sexual risk behaviors, increasing their exposure to HIV and pregnancy, as well as heightening their need for reproductive health information.[21] Efforts need to be expanded to reach out-of-school youth through less traditional venues, such as in the workplace, the criminal justice system or other community settings.[22]

Additionally, in 1995, a substantial proportion of sexually experienced young men still had not received reproductive health education before they first had sex. Of particular concern is the lower rate of instruction before first intercourse among sexually experienced non-Hispanic black males. Differences in the relative timing of instruction are seen in spite of the few differences by race in the prevalence of reproductive health education or in the median age at first instruction.

In contrast, what *does* differ by race is the timing of first intercourse. The earlier onset of sexual activity among non-Hispanic blacks permits these youth fewer opportunities to receive instruction prior to first intercourse.[23] Recent declines in sexual activity among non-Hispanic white males, but not black males, exacerbate this problem.[24] Similarly, earlier ages at sexual initiation among males than among females[25] may explain in part the significantly lower levels of reproductive health education prior to first intercourse among males. While curriculum developers and communities may be hesitant to raise certain topics before children are "old enough," the timing of formal reproductive health education must realistically reflect the needs and behaviors of the students they are trying to educate.

The reasons why teenage males are less likely to receive formal reproductive health information than females are not clear. Although coeducational instruction should in theory result in comparable levels of education by sex, single-sex instruction for females may be more comprehensive than that provided to males. Females may be more likely to receive additional education to supplement any coeducational instruction they receive. Alternately, these differences by sex may reflect measurement error if young men are less able or willing than young women to recall reproductive health instruction.

The sex difference in education about how to say no to sex is particularly striking. This finding must be interpreted cautiously, given the differences in question wordings between the NSAM and the NSFG. There may be differences in students' exposure to instruction about how to say no to sex and instruction about abstinence if these are distinctive curricula. Thus, the NSFG's broader question asking young women if they received instruction about abstinence or about how to say no to sex may be eliciting more responses. Beyond methodological differences, however, these findings suggest that some abstinence education messages are targeted only at females. Reaching out to young males with gender-sensitive, accessible reproductive health information needs to be a key strategy for reducing sexual risks for young men and their partners.

The changes in the prevalence, content and timing of reproductive health education documented here occurred contemporaneously with unprecedented shifts toward safer sexual behaviors among American teenagers. Between 1988 and 1995, teenage sexual activity declined, condom use increased and the teenage birthrate fell.[26] There is some evidence of a direct relationship between these trends. An increase in AIDS education from 1979 to 1995 is one factor associated with declines in sexual activity during this period for some groups of males.[27] While further research is needed to identify a causal mechanism between increased reproductive health education and decreased sexual risk-taking among teenagers, the concurrent shifts add further evidence to a growing body of research that reproductive health education can be provided to teenagers without encouraging sexual activity.[28]

While formal reproductive health education expanded substantially in the last decade, the level of communication be-

Table 5. Percentage of males and females aged 15–17 who ever received reproductive health education, and percentage of sexually experienced males and females aged 15–17 who received reproductive health education before first intercourse, by topic, 1995

Topic	Ever		Before first intercourse†	
	Males (N=1,149)	Females (N=815)	Males (N= 576)	Females (N=331)
How to prevent AIDS by practicing safe sex	92.0	93.5	52.7	70.2*
Methods of birth control	78.6	87.3*	48.6	71.3*
STDs	84.2	93.3*	50.6	73.8*
How to say no to sex	74.9	92.9*	43.0	72.0*

*Difference between sexes is statistically significant at p ≤.001. †Among sexually experienced respondents. *Notes:* Ns are unweighted. All tests of significance were done using t-tests.

tween parents and their teenage sons remained stagnant and relatively low. In both 1988 and 1995, only about half of young males reported ever having spoken with their parents about each of the topics examined in this article. Parents seem not to have responded to the AIDS epidemic and its inherent risks to their children's health by increasing their communication about AIDS, STDS or contraception with their sons. In contrast, young males became increasingly likely to report having talked to their parents about the consequences of getting a girl pregnant, suggesting that increased public concern about the role of males in teenage childbearing, and fatherhood more generally, have increased the salience of the consequences of childbearing for young males.[29]

Our measures of parent-son communication are limited, however, because we do not know with which parent the communication occurred, the exact content of the discussion or its timing. The higher prevalence of communication with parents among sexually experienced males than among inexperienced males suggests that some parent-teenager communication may be a response to teenage sexual activity.[30]

Our findings have some additional limitations. All of the measures rely on teenage males' self-reports, so there are likely to be some biases or measurement error in young men's recollections of what they were taught and their categorization of the topic of instruction they received. However, a study of parents' and children's reports of communication about sex found that when teenagers reported having communicated with their parents, their sexual behavior was influenced more than when parents reported having communicated with their teenagers.[31] What teenagers *remember* being taught may be more relevant than an external, albeit less biased, measure.

Although most of the NSAM questions about reproductive health education were the same in 1988 and 1995, it is possible that teenagers' interpretation of these questions changed over time. For example, both surveys asked about education on how to say no to sex. It is tempting to interpret this measure as the prevalence of abstinence education, based on our current understandings of this approach to sexuality education. However, in 1988, how to say no to sex may have been interpreted as abstinence-related education, but perhaps as one part of a more comprehensive approach that also recommended use of condoms for those who are sexually active. By 1995, it is possible that this measure may have been viewed in the more current context of abstinence-only education. Similarly, the interpretation of the question about instruction in "how to prevent AIDS using safe sex practices" might have changed between 1988 and 1995, as the term safe sex became more widely popularized and socially understood. The strength of respondent-based answers in the NSAM is that they help us understand what the students remember. However, changes in the sociopolitical environment make the nuances of how the respondents interpreted the questions more difficult to determine.

Our results provide limited insight into variations in the quality or quantity of teenagers' formal reproductive health education. A national survey of schools found great variation in the amount of classroom time devoted to HIV prevention education. Among teachers teaching HIV prevention, 22% spent only one class period on the topic, while 20% spent six or more class periods on the topic.[32] The data we examined also suggest variation in the depth and breadth of instruction. While nearly all teenage males received AIDS education, the exact content of this instruction likely varies. For example, the proportion of teenage males who received instruction about contraception, about how to say no to sex or about how to put on a condom was much lower than the proportion who received AIDS education, even though each of those topics could be considered relevant aspects of AIDS education.

Our results indicate that there has been substantial expansion in the prevalence and content of reproductive health education in the United States in the past decade. This expansion includes the co-existence of formal education in AIDS, STDs, birth control and how to say no to sex. Fewer than 1% of teenage males report receiving instruction about how to say no to sex without also receiving instruction about safe sex, about where to obtain birth control or about how to put on a condom. More recent surveys indicate that schools have shifted much more toward abstinence-only education: In 1999, one-third of public school principals said they have abstinence-only education. Among school superintendents who knew when their current sexuality education policy was established, more than one-half said it had been adopted after 1995.[33]

While changes between 1995 and 1999 in the content of what schools teach probably contribute to the discrepancies in school officials' and teenagers' reports, other factors may also explain the differences. First, students are reporting what they received over a long period of time that may encompass several classes taught at different grade levels, while school officials' reports typically describe a particular curriculum. Moreover, abstinence-only education may not necessarily be interpreted as teaching how to say no to sex and might also teach about AIDS or birth control, but without promoting use of contraception or safe sex. Additionally, the differences between the adolescents' and school officials' reports suggest that there may be substantial gaps between school policies and their actual practices inside the classroom. Finally, teenagers' reports are more related to what they remember, while the school officials are describing what was in the lesson plans. Nonetheless, the important finding is that—at least in 1995—most young men were exposed to a broader range of topics than simply abstinence.

Efforts to require abstinence-only education have the potential to sharply change teenagers' exposure to formal instruction in other topics. Narrowing the range of topics covered in formal reproductive health education is of grave concern.[34] Parents and health professionals may play a part in this education, but their efforts are not as universal as school-based sex education.[35] School-based reproductive health education is a primary guarantor that all teenagers obtain basic information about how to protect themselves from AIDS, STDs and pregnancy.

Although by 1995 at least some reproductive health education among teenagers was nearly universal, many challenges still remain in creating access to timely, comprehensive and high-quality reproductive health education for all teenagers.[36] Further efforts need to focus on diminishing differences in access by race, sex and school attendance. There are remaining gaps in the coverage of different reproductive health topics, especially in getting information to teenagers before they initiate sex. Progress has been made in closing these gaps. It will be important to continue monitoring whether recent efforts to narrow the curriculum result in changes in the type of information adolescents receive and, ultimately, in adolescents' sexual and reproductive behavior.

References

1. Kirby D et al., School-based programs to reduce sexual risk behaviors: a review of effectiveness, *Public Health Reports*, 1994, 109(3):339–360; Kirby D, *No Easy Answers: Research Findings on Programs to Reduce Teen Pregnancy*, Washington, DC: National Campaign to Prevent Teen Pregnancy, 1997; Ku LC, Sonenstein FL and Pleck JH, The association of AIDS education and sex education with

sexual behavior and condom use among teenage men, *Family Planning Perspectives*, 1992, 24(3):100–106; and Ku LC, Sonenstein FL and Pleck JH, Factors influencing first intercourse for teenage men, *Public Health Reports*, 1993, 108(6):680–694.

2. Miller KS et al., Family communication about sex: what are parents saying and are their adolescents listening? *Family Planning Perspectives*, 1998, 30(5):218–222 & 235; Miller BC, *Families Matter: A Research Synthesis of Family Influences on Adolescent Pregnancy*, Washington, DC: National Campaign to Prevent Teen Pregnancy, 1998; and Jaccard J and Dittus P, Parent-adolescent communication about premarital pregnancy, *Families in Society: The Journal of Contemporary Human Services*, 1993, 74(6):329–343.

3. Ku LC, Sonenstein FL and Pleck JH, 1993, op. cit. (see reference 1).

4. National Abortion and Reproductive Rights Action League (NARAL), *A State-by-State Review of Abortion and Reproductive Rights*, Washington, DC: NARAL, 1999.

5. U.S. Department of Health and Human Services (DHHS), *Block Grant Application Guidance for The Abstinence Education Provision of the 1996 Welfare Law P.L. 104–193*, Washington, DC: Office of State and Community Health, Maternal and Child Health Bureau, Health Resources and Services Administration, DHHS, 1997; and DHHS, *A National Strategy to Prevent Teen Pregnancy*, Washington, DC: DHHS, 1997.

6. NARAL, 1999, op. cit. (see reference 4).

7. DHHS, *Healthy People 2000: National Health Promotion and Disease Prevention Objectives*, Washington, DC: DHHS, Public Health Service, 91–50212, 1990; and National Campaign to Prevent Teen Pregnancy, *Ten Tips for Parents to Help Their Children Avoid Teen Pregnancy*, Washington, DC: National Campaign to Prevent Teen Pregnancy, 1998.

8. The Gallup Organization, AIDS issue fades among Americans, press release, Oct. 17, 1997, http://www.gallup.com/poll/releases/pr971017.asp.

9. Ku LC et al., Understanding changes in teenage men's sexual activity: 1979 to 1995, *Family Planning Perspectives*, 1998, 30(6):256–262.

10. Kann L et al., Results from the national school-based 1991 Youth Risk Behavior Survey and progress toward achieving related health objectives for the nation, *Public Health Reports*, 1993, 108(Suppl. 1):47–67; and Kann L et al., Youth Risk Behavior Surveillance: United States, 1997, *Morbidity and Mortality Weekly Report*, 1998, 47(SS-3), 1–89.

11. Sonenstein FL et al., Changes in sexual behavior and condom use among teenage men: 1988 to 1995, *American Journal of Public Health*, 1998, 88(6):956–959; Abma J et al., Fertility, family planning and women's health: new data from the 1995 National Survey of Family Growth, *Vital and Health Statistics*, 1997, Series 23, No. 19; Piccinino LJ and Mosher WD, Trends in contraceptive use in the United States, *Family Planning Perspectives*, 1998, 30(1):4–10 & 46; Warren CW et al., Sexual behavior among U.S. high school students, 1990–1995, *Family Planning Perspectives*, 1998, 30(4):170–172 & 200; and Centers for Disease Control and Prevention (CDC), Trends in sexual risk behaviors among high school students—United States, 1991–1997, *Morbidity and Mortality Weekly Report*, 1998, 47(36):749–752.

12. Sonenstein FL, Pleck JH and Ku LC, Sexual activity, condom use, and AIDS awareness among adolescent males, *Family Planning Perspectives*, 1989, 21(4):152–158; and Sonenstein FL et al., 1998, op. cit. (see reference 11).

13. Kelly JE et al., Plan and operation of the 1995 National Survey of Family Growth, *Vital and Health Statistics*, 1997, Series 1, No. 36; and Potter FJ et al., Sample design, sampling weights, and variance estimation in the 1995 National Survey of Family Growth, *Vital and Health Statistics*, 1998, Series 2, No. 124.

14. Ku LC, Sonenstein FL and Pleck JH, 1993, op. cit. (see reference 1).

15. Ku LC, Sonenstein FL and Pleck JH, 1992, op. cit. (see reference 1).

16. Ku LC, Sonenstein FL and Pleck JH, 1993, op. cit. (see reference 1); and Marsiglio W and Mott FL, The impact of sex education on sexual activity, contraceptive use and premarital pregnancy among American teenagers, *Family Planning Perspectives*, 1986, 18(4):151–162.

17. Lindberg LD et al., Completeness of young fathers' reports of fertility, *Journal of Economic and Social Measurement*, 1996, 24(1):15–23; and Sonenstein FL, Ku LC and Pleck JH, Measuring sexual behavior among teenage males in the U.S., in: Bancroft J, ed., *Researching Sexual Behavior*, Bloomington, IN: Indiana University Press, 1997, pp. 87–105.

18. U.S. Bureau of the Census, *Preliminary Projections: Civilian Noninstitutional Population by Age, Sex, Race and Hispanic Origin*, Washington, DC: U.S. Bureau of the Census, 1995.

19. Research Triangle Institute (RTI), SUDAAN, Release 6.00, Research Triangle Park, NC: RTI, 1992; and Lee ES, Forthofer R and Lorimor R, *Analyzing Complex Survey Data*, Newbury Park, CA: Sage Publications, 1989.

20. Holtzman D and Rubinson R, Parent and peer communication effects on AIDS-related behavior among U.S. high school students, *Family Planning Perspectives*, 1995, 27(6):235– 240 & 268; Raffaelli M, Bogenschneider K and Flood MF, Parent-teen communication about sexual topics, *Journal of Family Issues*, 1998, 19(3):315–333; and Moore KA, Peterson JL and Furstenberg FF, Parental attitudes and the occurrence of early sexual activity, *Journal of Marriage and the Family*, 1986, 48(4):777–782.

21. Lindberg LD, Boggess S and Williams SH, Multiple threats: the co-occurrence of teen health risk behaviors, in Office of the Assistant Secretary for Planning and Evaluation, *Trends in the Well-Being of America's Children and Youth*, Washington, DC: DHHS, 2000; Brener ND and Collins JL, Co-occurrence of health-risk behaviors among adolescents in the United States, *Journal of Adolescent Health*, 1998, 22(3):209–213; and CDC, Health risk behaviors among adolescents who do and who do not attend school—United States, 1992, *Morbidity and Mortality Weekly Report*, 1994, 43(8):129–132.

22. Lindberg LD et al., *Teen Risk-Taking: A Statistical Portrait*, Washington, DC: The Urban Institute Press, 2000; and Sonenstein FL et al., *Involving Males in Preventing Teen Pregnancy: A Guide for Program Planners*, Washington, DC: The Urban Institute, 1997.

23. Sonenstein FL, Ku LC and Pleck JH, 1997, op. cit. (see reference 17).

24. Sonenstein FL et al., 1998, op. cit. (see reference 11).

25. Moore KA, Driscoll AK and Lindberg LD, *A Statistical Portrait of Adolescent Sex, Contraception and Childbearing*, Washington, DC: National Campaign to Prevent Teen Pregnancy, 1998.

26. Ventura SJ et al., *Teenage Births in the United States: National and State Trends, 1991–97*, Hyattsville, MD: National Center for Health Statistics, 1998; and Sonenstein FL et al., 1998, op. cit. (see reference 11).

27. Ku LC et al., 1998, op. cit. (see reference 9).

28. Jemmott JB 3rd, Jemmot LS and Fong GT, Abstinence and safer sex HIV risk-reduction interventions for African American adolescents: a randomized controlled trial, *Journal of the American Medical Association*, 1998, 279(19):1529–1536; and Kirby D, 1997, op. cit. (see reference 1).

29. Federal Interagency Forum on Child and Family Statistics, *Nurturing Fatherhood: Improving Data and Research on Male Fertility, Family Formation and Fatherhood*, Washington, DC: Federal Interagency Forum on Child and Family Statistics, 1998.

30. Holtzman D and Rubinson R, 1995, op. cit. (see reference 20); Raffaelli M, Bogenschneider K and Flood MF, 1998, op. cit. (see reference 20); and Moore KA, Peterson JL and Furstenberg FF, 1986, op. cit. (see reference 20).

31. Jaccard J, Dittus PJ and Gordon VV, Parent-adolescent congruency in reports of adolescent sexual behavior and in communications about sexual behavior, *Child Development*, 1998, 69(1):247–261.

32. CDC, 1994 School Health Policies and Programs Study, *Fact Sheet: HIV-Prevention Education*, Washington, DC: DHHS.

33. Landry DJ, Kaeser L and Richards CL, Abstinence promotion and the provision of information about contraception in public school district sexuality education policies, *Family Planning Perspectives*, 1999, 31(6):280–286; and The Henry J. Kaiser Family Foundation, *National Survey of Public Secondary School Principals: The Politics of Sex Education* (chart pack), Menlo Park, CA: The Henry J. Kaiser Family Foundation, 1999.

34. Kirby D, Reflections on two decades of research on teen sexual behavior and pregnancy, *Journal of School Health*, 1999, 69(3):89–94; and Kirby D, Reducing adolescent pregnancy: approaches that work, *Contemporary Pediatrics*, 1999, 16(1):83–94.

35. Porter L and Ku LC, Use of reproductive health services among young men, 1995, *Journal of Adolescent Health* (forthcoming).

36. Kirby D, Reflections on two decades…, 1999, op. cit. (see reference 34); and Kirby D, Reducing adolescent pregnancy, 1999, op. cit. (see reference 34).

ARTICLES

Changing Emphases in Sexuality Education In U.S. Public Secondary Schools, 1988–1999

By Jacqueline E. Darroch, David J. Landry and Susheela Singh

Context: *Since the late 1980s, both the political context surrounding sexuality education and actual teaching approaches have changed considerably. However, little current national information has been available on the content of sexuality education to allow in-depth understanding of the breadth of these changes and their impact on current teaching.*

Methods: *In 1999, a nationally representative survey collected data from 3,754 teachers in grades 7–12 in the five specialties most often responsible for sexuality education. Results from those teachers and from the subset of 1,767 who actually taught sexuality education are compared with the findings from a comparable national survey conducted in 1988.*

Results: *In 1999, 93% of all respondents reported that sexuality education was taught in their school at some point in grades 7–12; sexuality education covered a broad number of topics, including sexually transmitted diseases (STDs), abstinence, birth control, abortion and sexual orientation. Some topics—how HIV is transmitted, STDs, abstinence, how to resist peer pressure to have intercourse and the correct way to use a condom—were taught at lower grades in 1999 than in 1988. In 1999, 23% of secondary school sexuality education teachers taught abstinence as the only way of preventing pregnancy and STDs, compared with 2% who did so in 1988. Teachers surveyed in 1999 were more likely than those in 1988 to cite abstinence as the most important message they wished to convey (41% vs. 25%). In addition, steep declines occurred between 1988 and 1999, overall and across grade levels, in the percentage of teachers who supported teaching about birth control, abortion and sexual orientation, as well as in the percentage actually covering those topics. However, 39% of 1999 respondents who presented abstinence as the only option also told students that both birth control and the condom can be effective.*

Conclusions: *Sexuality education in secondary public schools is increasingly focused on abstinence and is less likely to present students with comprehensive teaching that includes necessary information on topics such as birth control, abortion and sexual orientation. Because of this, and in spite of some abstinence instruction that also covers birth control and condoms as effective methods of prevention, many students are not receiving accurate information on topics their teachers feel they need.* Family Planning Perspectives, 2000, 32(5):204–211 & 265

In some form, sexuality education has been part of the curriculum in U.S. public schools for many years. A 1988 survey of public school teachers in grades 7–12 found that 93% worked in schools offering sexuality education.[1] Among women aged 18–19 in 1995, 96% had received some formal sexuality education instruction.[2]

The term "sexuality education," however, can span a broad range of topics. In 1988, almost all sexuality education instructors in public secondary schools taught about how HIV is transmitted and about sexually transmitted diseases (STDs); roughly nine in 10 taught about sexual decision-making, abstinence and birth control methods; and 64–83% covered abortion, homosexuality and "safer sex" practices. However, these topics were taught later, and less often, than secondary school teachers thought they should be.[3]

Although the major aim of school sexuality education was originally to teach young people about their physical and sexual development, such courses are now often expected to delay adolescents' initiation of sexual activity and to increase the chance that those who do have sex will use contraceptives to protect against pregnancy and STDs. Indeed, in recent years, assessments of the effects of some sexuality education curricula on young people's behavior have shown that they can contribute to a delay in sexual initiation and an increase in contraceptive use among young people who do have intercourse.[4]

Studies have identified a number of factors associated with effective sexuality education programs, including early and developmentally appropriate timing, instruction on how to identify social influences and pressures, and the use of role playing and other teaching strategies to enhance students' skills in such areas as resisting peer pressure, negotiating with partners and obtaining contraceptives.[5]

Notwithstanding the high prevalence of, and the high levels of public support for, sex education in U.S. public schools,[6] this issue has generated continuous, and often heated, disagreement. A 1998 survey of school superintendents found that only 69% of districts had a policy of teaching sexuality education, while the remainder left the decision up to the school principal or to teachers. Among school districts with a sexuality education policy, 35% (23% of all school districts) required that abstinence be taught as the only option for unmarried people, either prohibiting the discussion of contraception or requiring instructors to emphasize its shortcomings; 51% required that abstinence be taught as the preferred option

Jacqueline E. Darroch is senior vice president and vice president for research, David J. Landry is senior research associate and Susheela Singh is director of research at The Alan Guttmacher Institute, New York. The authors thank Kathleen Manzella for coordinating the study and are grateful to Linda Appel, Laura Vale, Lucy Gordon, Jamie Cipriano, Maria Elena Ramos, Elayne Heisler, Kate Nammacher, Ayana Mangum, Patricia Boudreau, Sumitra Mattai, Vanessa Woog and Andrey Iospa for their assistance in project development and in fielding and processing the questionnaires. Suzette Audam provided programming assistance and Jane Silverman and a panel of eight experts offered valuable input into questionnaire development. The research on which this article is based was supported by grants from the Charles Stewart Mott Foundation and the Open Society Institute.

for adolescents but also permitted discussion of contraception as an effective means of protecting against unintended pregnancy and STDs; and 14% had a policy of teaching about both abstinence and contraception as part of a broad sexuality education program.[7]

Pressures to teach abstinence as the central, if not sole, component of sexuality education have led to the establishment of a five-year federal and state program likely to spend about $440 million, and designed to fund educational efforts focused narrowly or exclusively on the promotion of sexual abstinence.[8] Yet opinion polls show that the majority of adults think that even though teenagers should be given a strong message to abstain from sexual intercourse until they are at least out of high school, sexually active young people should be given information about, and have access to, birth control.[9]

Public attention has recently been focused on debates over abstinence-only education. Little nationally representative information is available, however, on what is currently being taught in sexuality education courses in public schools.[10] Moreover, variations in the methodologies and sample design of the few studies that do exist make it difficult to compare results across studies, or to measure changes in sexuality education over time.

Because the present study uses a questionnaire and sample design comparable to that of the 1988 national survey of teachers, we can examine trends in the extent and content of sexuality education in public schools over the period 1988–1999.

Methodology

This article compares findings from two nationally representative sample surveys of 7th–12th-grade public school teachers responsible for the school subjects that usually include sexuality education—a 1988 survey of 4,241 teachers, and a 1999 survey of 3,754 teachers. (The methodology of the 1988 survey is discussed elsewhere.[11]) The 1999 survey was specifically designed to be comparable to the earlier survey in terms of coverage, sample and subject matter. In both 1988 and 1999, the study sample was drawn from teachers of biology, health education, family or consumer science (termed home economics in 1988) and physical education. School nurses were also included in both surveys.

We used the 1988 survey instrument as the starting point for the 1999 questionnaire; further development was based in part on an extensive review of the current standards on curricula for sexuality education and on consultation with sexuality educators and other researchers in this field. Preliminary questionnaire development work included a series of six focus groups with sexuality education teachers in three regions of the United States—the Northeast, the South and the West. A pretest of 250 randomly sampled public school teachers was conducted to refine the questionnaires. Where possible, the wording of questions in 1999 was the same as or very similar to the wording used in 1988, so we could measure trends in key aspects of sexuality education.

A sample of 7,772 teachers in grades 7–12 was drawn from a national database maintained by the commercial firm Market Data Retrieval. The universe from which the sample was drawn included school nurses and all teachers of the four selected subjects who, in spring 1999, were teaching in public schools that included one or more secondary grades (7–12). The sample was a systematic random sample, stratified by teaching specialty. Teachers were chosen using a sampling fraction proportional to the likelihood that teachers in their specialty were providing sex education, as estimated from the 1988 survey and other studies.[12] The strata ranged from 2,534 physical education teachers to 1,009 health education teachers.

We sent sampled teachers a questionnaire in early April 1999 and followed up with a reminder postcard one week later. We sent nonresponding teachers an additional questionnaire in late April. Beginning in early May, we faxed teachers who still had not responded a one-page questionnaire to ascertain whether they had taught sexuality education during the current school year (1998–1999) or the prior school year (1997–1998). If they responded that they had or if they did not answer, we sent them a third questionnaire. If they responded that they did not teach sexuality education, follow-up was concluded and they were recorded as not being sexuality education teachers.

If a sampled teacher was no longer teaching at the school, we asked that the questionnaire be directed to the teacher who had taken over that teacher's duties. In some cases, questionnaires were erroneously forwarded to teachers who taught sexuality education, rather than to the sampled teacher or the sampled teacher's replacement. In these cases, we directed a new questionnaire to the original respondent or the valid replacement and discarded the invalid questionnaire. During fielding, 92 sampled teachers (1% of those surveyed) were found to be ineligible because they were no longer teaching the same specialty and no one had taken over those duties, because they had never taught the specialty identified by the sample or because their school had been permanently closed.

In all, 3,754 teachers responded to the survey, representing 49% of all eligible surveyed teachers.* Response rates varied by type of teacher, ranging from 40% among physical education teachers to 68% among school nurses.

Using the same methodology as in 1988, we calculated weights for each of the sample strata. All data presented have been weighted to reflect the national distribution of 164,329 public school teachers in these grades and specialties.[13] We used the software package Stata to conduct tests of significance because the survey was based on a complex stratified sample. (Stata uses the unweighted number of cases and incorporates information from the sample weights and stratified design to inflate the standard errors for significance testing.)

Respondents whose replies to the first few questions indicated that they were not providing sexuality education in the current school year and had not done so in the previous year did not have to respond to any further questions. Therefore, most of our information is from the 1,767 responding teachers who had taught sexuality education in at least one of those years.

To achieve comparability in trend analyses of the 1988 and 1999 surveys, we made two important changes from the analytic approaches used for the published analysis of the 1988 survey. First, for analyses of specific grades, we excluded teachers from the base populations if their school did not include that grade. We also based estimates of specific topics taught by grade solely on teachers' answers to grade-specific questions (rather than applying the assumption previously made, that teachers who reported teaching a particular topic covered that topic in every grade in which they taught sexuality education). We retabulated the 1988 data for consistency with the 1999 analyses; thus, they may differ somewhat from those in previous publications.

Findings

Almost all teachers (93%) reported that sexuality education was taught at some time during grades 7–12 in their schools. Some 49% of respondents were teaching sexuality education in 1999 (an increase

*Teachers who responded during follow-up were somewhat less likely than those who responded immediately to be sexuality education teachers.

Table 1. Percentage distribution of sexuality education teachers, by specific topic cited as the most important message they wanted to convey to students, and the percentage who said a topic was one of their three most important messages, both according to year

Topic	1988	1999
Most important		
Abstinence	24.8	41.4***
Responsibility	38.0	20.9***
Reproductive facts	9.2	13.2***
STDs/AIDS	11.6	10.0
Self-esteem	4.0	3.6
Change is normal	2.0	2.7
Contraception	4.8	1.5***
Puberty	u	1.4
Other	5.6	5.3
Total	100.0	100.0
Among three most important		
Abstinence	36.8	56.2***
Responsibility	68.3	51.9***
Reproductive facts	19.8	28.2***
STDs/AIDS	35.3	44.5***
Self-esteem	9.4	11.9*
Change is normal	4.9	5.7
Contraception	21.9	15.0***
Puberty	u	4.4

*Significantly different from 1988 at p<.05. **Significantly different from 1988 at p<.01.***Significantly different from 1988 at p<.001. *Note:* u=unavailable; question not asked.

from 45% in 1988).* In all, an estimated 81,200 teachers and school nurses in grades 7–12 were teaching sexuality education during the 1999 school year. Of these, more than half were teachers of health education (30%) or physical education (28%). This finding is similar to the results of the survey carried out in 1988, when health education and physical education teachers accounted for 57% of all sexuality education instructors.† As in 1988, biology and family or consumer science teachers each accounted for about one-fifth of those teaching sexuality education, while school nurses accounted for 3%.

What Teachers Think Should Be Taught

In both years, almost two-thirds of teachers said the most important messages or topics of information they wanted to communicate to their students were related to abstinence and responsibility‡ (Table 1). Abstinence was the message most frequently identified as most important in 1999 (by 41% of teachers), while responsibility was the highest-priority message in 1988 (cited by 38%). STDs (including HIV and AIDS), reproductive facts and self-esteem were more likely to be cited as one of teachers' three most important messages in 1999 than they were in 1988. In contrast, the emphasis placed on contraception decreased: Teachers were less likely to cite the topic in 1999 than in 1988, either as their most important message (2% vs. 5%) or as one of their three most important messages (15% vs. 22%).

Seven teachers in 10 said that students who receive sexuality education that stresses abstinence are less likely to have sexual intercourse than students who do not, while 86% said that students who are taught to use contraceptives if they are sexually active are more likely to use them if they have sexual intercourse than are students who are not taught about contraceptives; 6% said that neither type of instruction is effective. One in five teachers (19%) thought students taught to be sexually abstinent, but to use contraceptives if they do have sex, are more likely to become sexually active than those taught only about abstinence (not shown).

Almost all sexuality education teachers in public secondary schools said that students should be taught about sexual development, sexual behavior and its possible negative outcomes (Table 2). Thus, 98% or more believed that by the end of grade 12, courses should have covered puberty, how HIV is transmitted, STDs, how to resist peer pressure to have sexual intercourse, implications of teenage parenthood, abstinence from intercourse, dating, sexual abuse and nonsexual ways to show affection. The overwhelming majority (78–98%) also thought that these topics should be covered in grade seven or earlier, although fewer than half would cover topics other than puberty and sexual abuse by the end of grade five.

Secondary school sexuality education teachers were about as likely in 1999 as in 1988 to think that courses should include information on the implications of teenage parenthood, STDs and how HIV is transmitted; they were slightly more likely to think they should cover abstinence from intercourse by the end of grade 12. However, 1999 survey respondents were much more likely to think that all of these topics should be covered in grade seven or earlier. The proportion who believed that implications of teenage parenthood should be taught by the end of grade seven increased by 16 percentage points between the two surveys. There were smaller increases in the proportion who cited that timing for instruction on STDs other than HIV (11 percentage points), abstinence from intercourse (11 percentage points) and how HIV is transmitted (five percentage points).

Although a majority of the teachers (78–93%) believed sexuality education courses should cover birth control methods, factual information and ethical issues about abortion, where to go for birth control, the correct way to use a condom, and sexual orientation, the proportions favoring coverage of these subjects were lower than they were for the other topics,

Table 2. Percentage of sexuality education teachers in grades 7–12 who thought specific topics should be taught by a specified grade, by topic, according to year

Topic	1988		1999		
	″grade 7	″grade 12	″grade 5	″grade 7	″grade 12
Puberty	u	u	80.5	97.9	99.7
How HIV is transmitted	86.9	99.9	47.2	91.4***	99.6
STDs	76.8	100.0	28.6	87.6***	99.6*
How to resist peer pressure to have sexual intercourse	u	u	29.0	88.3	99.2
Implications of teenage parenthood	62.4	100.0	16.6	78.0***	99.2**
Abstinence from intercourse	78.7	96.6	33.4	90.0***	99.2***
Dating	u	u	25.0	85.3	99.0
Sexual abuse	u	u	75.6	93.4	98.9
Nonsexual ways to show affection	u	u	41.5	87.7	97.9
Birth control methods	56.6	99.0	7.8	51.0**	93.4***
Abortion—factual information	45.4	98.3	6.4	41.3*	89.0***
Where to go for birth control	49.5	97.7	5.4	42.9***	88.8***
Abortion—ethical issues	36.9	91.7	5.4	37.1	84.4***
Correct way to use a condom	u	u	5.1	38.3	82.0
Sexual orientation†	53.6	95.0	10.7	39.4***	77.8***

*Significantly different from 1988 at p<.05. **Significantly different from 1988 at p<.01. ***Significantly different from 1988 at p<.001. †In the 1988 survey, this topic was labeled "homosexuality"; in 1999, it was labeled "sexual orientation/homosexuality." *Note:* u=unavailable; question not asked.

*Another 5% of teachers had taught sexuality education in the prior school year; they were included in the 1999 data presented here, unless otherwise noted.

†In fact, there is some crossover between these two specialties. In 1999, 20% of physical education instructors in grades 7–12 said they also taught health education, and 8% of health education teachers also identified themselves as physical education teachers. We classified these respondents by their sampled specialty.

‡We categorized the following responses from teachers to an open-ended question as indicating the teaching of "responsibility": decision-making or making responsible choices; consequences of sexual activity; consequences of parenthood; male responsibility; and recognizing risky situations.

especially in the earlier grades. Teachers were less likely in 1999 than in 1988 to say that classes should cover topics related to birth control, abortion and sexual orientation in grade seven or earlier (except ethical issues about abortion) or by the end of grade 12. The largest change was in views on teaching about sexual orientation. Teachers were 14–17 percentage points less likely in 1999 to think the topic should be covered at all or by the end of grade seven than they were in 1988.

Timing and Content

In 1999, teachers reported that sexuality education was offered in 63–69% of schools that included grades seven, eight, nine and 10, and in roughly half of schools with grades 11 and 12 (Table 3). There was a small increase between 1988 and 1999 in the proportion of teachers who reported that sexuality education was taught in their school at some time during grades 7–12 (from 90% to 93%). This increase was concentrated in grades seven and eight. For individual grades between nine and 12, the proportions of teachers who said that the subject was offered did not change significantly over time.

•*Topics*. When sexuality education was taught, teachers were most likely to cover how HIV is transmitted, STDs and abstinence (94–95%). All other topics were significantly less likely to be taught in grades 7–12 overall (51–88%). In most grades in 1999, such topics as the implications of teenage parenthood, puberty, birth control methods and nonsexual ways to show affection were significantly less likely to be taught than abstinence. Dating and how to resist peer pressure to have sexual intercourse were significantly less likely to be taught than abstinence only in some grades. In all grades, other topics—sexual abuse, where to go for birth control, abortion facts, ethical issues about abortion, the correct way to use a condom and sexual orientation—were significantly less likely than abstinence to be taught.

The content of sexuality education thus varies according to students' ages. In 1999, sexuality education teachers in grade nine were more likely than those teaching in any lower or higher grade to cover a given topic. For example, 87% of teachers in grade nine taught students about abstinence, compared with 73–75% in grades seven and eight and 66–71% in grades 10–12. Some 76% of sexuality education teachers in grade nine covered birth control methods, compared with 33% in grade seven, 53% in grade eight and 64–67% in higher grades.

Table 3. Percentage of all sampled teachers reporting that sexuality education was taught in their school, and percentage of sexuality education teachers who reported coverage of specific topics, by grade, according to topic taught, 1988 and 1999

Topic and year	Taught in school†	Taught by teacher					
		7	8	9	10	11	12
1999							
Any sexuality education†	**93.4****	**64.1****	**66.6****	**62.5**	**69.1**	**51.4**	**49.2**
Puberty	80.1	70.3	58.9	74.2	60.7	54.7	52.4
How HIV is transmitted	93.5	73.0**	74.5	87.9***	74.7***	70.3***	67.9***
STDs	95.2***	74.3***	79.3***	86.9***	75.3	70.9	68.2
How to resist peer pressure to have sexual intercourse	85.7***	70.4***	73.5***	82.4***	64.1	62.5*	59.9
Implications of teenage parenthood	88.4	63.9	74.1	82.2	68.5	66.3	64.0
Abstinence from intercourse	95.2*	73.1***	74.5***	87.2***	70.9**	67.9*	66.2**
Dating	80.7	69.3	70.9	76.8	57.8	58.2	55.7
Sexual abuse	78.2	58.2	62.1	76.0	61.1	59.6	58.9
Nonsexual ways to show affection	76.8	62.1	65.1	74.8	58.2	57.9	55.4
Birth control methods	77.2***	33.3***	52.5**	76.3	66.0***	67.1***	63.7***
Abortion—factual information	63.0***	22.6	35.7	62.6	57.0	57.1	54.0
Where to go for birth control	64.9	23.6	41.7	67.5	57.7	57.7	54.4
Abortion—ethical issues	57.4***	19.5	32.0	57.9	53.4	52.5	50.2
Correct way to use a condom	52.8*	16.3***	29.9***	55.1***	47.3***	48.0***	44.1***
Sexual orientation‡	51.3***	20.9	36.7	50.3	43.4	44.0	40.3
1988							
Any sexuality education†	**89.8**	**56.6**	**54.9**	**61.8**	**67.2**	**50.2**	**49.4**
How HIV is transmitted	94.0	63.5	69.7	81.0	85.8	83.4	84.8
STDs	82.1	46.4	50.6	68.2	76.0	70.9	72.3
How to resist peer pressure to have sexual intercourse	79.3	35.5	41.7	58.4	61.4	57.1	57.3
Abstinence from intercourse	89.4	56.8	60.9	74.7	78.5	74.0	74.0
Birth control methods	91.5	57.7	64.4	78.4	83.2	80.8	81.0
Abortion—factual information	82.9	uu	u	u	u	u	
Abortion—ethical issues	76.7	uu	u	u	u	u	
Proper way to use a condom	48.5	7.7	9.6	25.7	31.1	29.0	28.6
Sexual orientation‡	68.5	uu	u	u	u	u	

*Significantly different from 1988 at p<.05. **Significantly different from 1988 at p<.01. ***Significantly different from 1988 at p<.001. †The percentages in this row or column are based on the responses of all sampled teachers; all other, item-specific results are based on the responses of sexuality education teachers. ‡In the 1988 survey, this topic was labled "homosexuality"; in 1999, it was labed "sexual orientation/homosexuality." *Note:* u=unavailable; question not asked.

Sexuality education teachers were more likely in 1999 than in 1988 to teach about STDs, abstinence from intercourse and how to resist peer pressure to have intercourse, and they were equally likely to cover how HIV is transmitted. In addition, these topics were taught somewhat earlier in 1999 than in 1988. They were most likely to be taught in the 10th grade in 1988, a grade later than the most common grade in 1999. Some 70–74% of seventh-grade sexuality education teachers covered these topics in 1999, compared with 36–64% in 1988. Teachers in all grades were more likely to teach the correct way to use a condom in 1999 than in 1988 (53% vs. 49%).

In contrast, the proportions of secondary school sexuality education teachers covering birth control methods, abortion facts, ethical issues about abortion and sexual orientation decreased sharply. Each of these topics was 14–20 percentage points less likely to be covered in 1999 than in 1988. Although the likelihood that a sexuality education teacher would cover birth control in the ninth grade differed little between the surveys, the proportion decreased by 24 percentage points in the seventh grade (from almost 58% in 1988 to more than 33% in 1999) and by 12–17 percentage points in other grades.

•*Comparison with teachers' recommendations*. In 1999 as in 1988, specific topics were less likely to be covered than teachers thought they should be, and they were often covered later than teachers thought appropriate. For example, when Tables 2 and 3 are compared, we see that the gap between teachers' recommendations and the actual coverage of topics in sexuality education courses was less than 10 percentage points for HIV transmission (100% vs. 94%), STDs (100% vs. 95%) and abstinence (99% vs. 95%). For puberty, how to resist peer pressure to have intercourse, implications of teenage parenthood, dating and birth control methods, the gap was 10–20 percentage points. Differences for other topics—sexual abuse, nonsexual ways to show affection, abortion facts and ethical issues, where to go for birth control, the correct way to use a condom and sexual orientation—were 21–30 percentage points.

•*Specific skills, concepts and topics*. We asked sexuality education teachers whether they taught certain skills and concepts. One set of questions asked about skills and con-

Table 4. Percentage of sexuality education teachers who taught specific skills and concepts, by year and approach to teaching abstinence

Skills and concepts	Year		Approach to teaching abstinence	
	1988	1999	Only option	Best/one option
STD/HIV facts and prevention†	**u**	**89.5**	**90.1**	**92.9**
There are many types of STDs	u	94.7	96.6	96.9
Sexual abstinence as a form of prevention	91.2	94.6***	98.7	98.1
Symptoms of STDs/HIV are sometimes hidden, absent or unnoticed	u	93.6	95.9	95.5
Only some STDs are curable	u	91.7	93.1	94.7
Signs and symptoms of STDs/HIV	92.4	91.7	93.7	94.2
STDs/HIV can be contracted during oral or anal intercourse	u	80.4	76.5	85.2***
Sexual monogamy as a form of prevention	81.2	80.1	76.3	85.4***
Sexual behavior and abstinence†	**u**	**75.4**	**78.5**	**78.5**
How alcohol and drugs affect behavior	u	91.2	93.0	93.4
Negative consequences of sexual intercourse for teenagers	86.1	91.1***	94.2	94.3
How to resist peer pressure to have sexual intercourse	79.3	85.7***	93.0	89.7*
Sexuality is a natural and healthy part of life	u	83.1	82.6	86.6
How to stick with a decision, even under pressure	u	80.4	86.3	81.5*
How to say no to a boyfriend/girlfriend who wants to have sexual intercourse	78.4	77.0	85.5	79.2**
Specific ways to avoid sex	u	70.0	76.9	72.2
Difference between consensual and forced sexual contact	u	68.7	70.5	72.4
The importance of both partners agreeing to any sexual behavior	u	68.2	65.5	73.4**
How to recognize and resist media pressure regarding sexual behavior	u	67.4	70.3	70.5
How to negotiate sexual limits	u	47.1	45.9	50.5
STD/HIV services†	**u**	**66.5**	**63.2**	**71.2****
Importance of notifying all sexual partners if infected	86.4	78.1***	76.7	82.1*
Confidential testing and treatment is available for teenagers without parental consent	u	62.7	55.3	68.6***
Names of clinics or other specific sources students can go to for help	64.8	58.7***	57.6	63.0
Methods for pregnancy and infection prevention†	**u**	**52.0**	**38.7**	**59.4*****
Use of condoms as a form of STD/HIV prevention	88.9	78.0***	59.9	87.8***
Pregnancies should be planned	u	62.6	56.9	68.5***
The importance of using a method correctly and consistently	u	61.8	47.0	70.5***
How individual birth control methods work	70.5	60.3***	45.9	68.2***
The importance of using both a condom and a more effective birth control method to avoid both pregnancy and STDs/HIV	u	60.2	45.6	68.6***
Which methods can be purchased at a drug, grocery or convenience store and which methods require a doctor or clinic visit	u	50.3	34.4	58.5***
How to communicate with a sexual partner about birth control	46.4	47.0	37.5	53.2***
Information about specific clinics or doctors students can go to for birth control	48.5	35.3***	24.7	41.4***
The proper way to use a condom (using printed material, film or demonstration)	36.8	33.4	17.8	40.4***
Showing of actual birth control devices	33.8	30.8	17.4	36.8***

*p<.05. **p<.01. ***p<.001. †Percentages are averages of all items in this group. Averages for 1988 are not calculated because data are not available for many items. *Note:* u=unavailable; question not asked.

cepts related to sexual behavior and abstinence. In addition, because preventing STDs (including HIV) and avoiding unplanned pregnancy are topics central to good reproductive knowledge and health and thus critical to sexuality education, we asked teachers who covered STDs and HIV or birth control (in their teaching or in response to student questions) about selected concepts and skills related to each of these topics.

To improve our understanding of the relationships within this large group of measures, we carried out a factor analysis that included all questions on specific skills, concepts and topics. The results indicated that the skills and concepts related to STDs and HIV clustered into two different factors, one focused on facts and prevention and the other focused on services. Although a question about discussing condoms as a form of STD and HIV prevention was asked in the context of STDs and HIV, it clustered instead with items related to birth control; thus, we included it in a cluster of items labeled "methods for pregnancy and infection prevention." On average, 90% of teachers covered topics related to STD and HIV facts and prevention in 1999; 75%, sexual behavior and abstinence; 67%, STD and HIV services; and 52%, pregnancy and infection prevention (Table 4).

At least 80% of teachers covered each of the topics in the STD and HIV facts and prevention group (including abstinence and monogamy as forms of prevention), and some topics in the sexual behavior and abstinence group (how alcohol and drugs affect behavior; negative consequences of sexual intercourse for teenagers; how to resist peer pressure to have sexual intercourse; that sexuality is a natural and health part of life; and how to stick to a decision, even under pressure). In contrast, no more than half talked about how to negotiate sexual limits or about some items from the pregnancy and infection prevention group (how to communicate with a sexual partner about birth control, where to get birth control, demonstration of how to use condoms and showing actual birth control devices in a class).

Key Topics

As Table 4 shows, the great majority of sexuality education instructors reported teaching skills and concepts related to STD and HIV facts and prevention and those related to sexual behavior and abstinence, but only about half said they covered skills and concepts related to methods for pregnancy and infection prevention. The proportions differed somewhat, depending on how the question was asked, because some teachers who did not formally teach a particular topic did cover it in response to student questions.

•*STDs and HIV*. In 1999, almost all sexuality education teachers covered HIV as well as other STDs. Some 94% did so in their teaching, while 5% said they did so only in response to students' questions (data not shown). At least nine in 10 teachers gave students basic biological information about STDs and HIV, although fewer (eight in 10) told students these infections can be contracted through oral or anal intercourse (Table 4). Some 95% covered sexual abstinence as a form of prevention of STDs and HIV, compared with 80% who covered monogamy and 78% who taught students about con-

doms as forms of prevention. Almost eight in 10 taught students about the importance of notifying all sexual partners if they had an infection, but only about six in 10 covered the specifics of getting testing and treatment.

Secondary school teachers were more likely to teach about abstinence as a means of preventing STDs (including HIV) in 1999 than in 1988. The percentage teaching about signs and symptoms of STDs and HIV and about sexual monogamy as a means of prevention remained stable between the two surveys, but the percentage who covered three related topics—condoms as a form of prevention, the importance of notifying partners and where to go for help—declined.

In 1988, for example, 87% of teachers taught that condoms can be an effective means of preventing STDs and HIV for sexually active individuals, compared with 59% in 1999. Some 22% of teachers in 1999 taught that condoms were ineffective in preventing STDs and HIV, and the remainder did not cover the topic (not shown).

•*Birth control.* Half of sexuality education teachers said they had been directed by their school or school district to teach students about birth control; 23% said coverage of the topic was left to their own discretion. However, 24% had been told not to teach about birth control. Some had been told they could answer students' questions about birth control (10%), while a second group had been instructed not to teach the topic and not to answer student questions (6%); a few others had been told to refer students to someone else or to use outside speakers (8%). The remaining 3% of teachers responded simply that they did not cover birth control. In 1988, 19% of sexuality education teachers reported that there were formal constraints on their teaching about birth control and another 19% said there were informal constraints.[14] The questions asked in 1988 and 1999 were different, so it is not clear whether there has been any change in the prevalence of constraints over time.

The proportion of teachers who formally taught about the topic of birth control changed very little between the two surveys (from 70% in 1988 to 68% in 1999). However, the proportion who did not teach about it formally but who answered students' questions declined sharply (from 25% in 1988 to 16% in 1999). As a result, the proportion not covering the topic at all rose from 6% in 1988 to 16% in 1999.

Teachers' reports of how they covered the topic of birth control did not always match what they said they had been told to do, but the survey did not ascertain whether this was because their directions were more nuanced than the survey questions or because they were bending school policies to take into account student needs or pressures from other groups. Among 1999 survey respondents told only to answer students' questions about birth control, 47% only answered questions, 18% taught about birth control and 35% did not deal with the topic at all. Although 68% of those told to use their own discretion taught about birth control, 20% only answered questions and 12% did not cover the topic. Some 93% of those told to teach about birth control did so, but 7% simply responded to students' questions. Among those told not to cover birth control, 79% never covered the topic, 11% only responded to questions and 10% taught students about contraceptive methods.

Abstinence was the birth control method most commonly covered by teachers who formally taught or responded to questions about birth control (97%). In comparison, fewer covered the condom (90%) or birth control pills (86%). Some 60–77% of teachers covered spermicides, the diaphragm or cervical cap, periodic abstinence, the IUD, sterilization, the implant, the injectable and withdrawal. Only 40% discussed emergency contraceptive pills.

Sexuality education teachers were more likely to talk about general issues related to contraception than about details of use or access to methods. Some 78% covered condoms as a means of STD and HIV prevention, while slightly more than 60% discussed the need to plan pregnancies, the necessity of correct and consistent contraceptive use, the importance of dual use (using condoms to prevent STDs and HIV infection along with another method to avoid pregnancy) and how each birth control method works (Table 4). Teachers were less likely, however, to talk about specifics of how to obtain and use methods. Only half told their students which methods can be purchased without a medical visit and discussed how to communicate with a partner about birth control, and just one-third gave information about specific clinics or doctors from whom students could obtain birth control, showed actual birth control devices or demonstrated the correct use of the condom.

In 1999, teachers who taught about birth control were more likely to include each concept and skill related to contraception than were teachers who only responded to students' questions about the topic (data not shown). For example, 83–84% of those who formally taught about birth control pointed out the necessity of using a method correctly and consistently, discussed the importance of dual use and explained how each method works, compared with 18–27% of those who only responded to student questions. Similarly, those who formally taught about birth control were 60 percentage points more likely than those who only responded to students' questions to explain which methods can be purchased over the counter and which require going to a doctor or clinic.

Some significant changes in teaching on birth control occurred between 1988 and 1999. Sexuality education teachers in 1999 were less likely than similar teachers in 1988 to explain how methods work and to give information on specific clinics or doctors from whom students can obtain birth control. However, they were just as likely as in 1988 to discuss how to communicate with a sexual partner about birth control, to show birth control devices and to demonstrate proper condom use in class.

•*Abstinence.* Most teachers reported teaching students about abstinence from intercourse, but their treatment of the subject varied. Two-thirds (65%) presented abstinence as the best alternative for preventing pregnancy and STDs and another 7% presented it as one alternative for prevention. In contrast, 23% of teachers said they presented abstinence as the only way of preventing pregnancy and STDs, a steep increase from 2% in 1988. The remaining 5% reported that they did not teach about abstinence (data not shown).

In 1999, most sexuality education teachers covered specific skills and concepts related to decision-making and behaviors that could influence whether a young person actually had sexual intercourse (Table 4). Roughly nine in 10 instructors taught about how alcohol and drugs affect behavior, that sexual intercourse can have negative consequences and about how to resist peer pressure to have sex. These last two topics were more likely to be taught in 1999 than in 1988. At least three in four teachers told students that sexuality is a natural and healthy part of life and taught them skills such as how to stick to a decision, even under pressure, and how to say no to a boyfriend or girlfriend who wants to have sexual intercourse. About two in three said they taught their students specific ways to avoid sex, the difference between consensual and forced sexual contact, the importance of both partners agreeing to any sexual behavior and ways of recognizing and resisting media

Table 5. Percentage distribution of sexuality education teachers, by how they teach about the effectiveness of contraceptive methods and how they teach abstinence

Effectiveness	Total	Approach to teaching abstinence		
		Only option	Best/one option	Not taught
Effective	60.3	9.1	49.9	1.4
Ineffective	27.5	9.8	17.6	0.1
Not taught	12.2	4.4	4.4	3.3
Total	100.0	23.3	71.9	4.8

Note: The category "effective" includes teachers who taught that birth control can be an effective means of preventing pregnancy or that condoms can be an effective means of preventing STDs/HIV. The category includes teachers who taught only one of these two topics, but taught it as effective, and it does not include any teachers who responded that birth control or condoms are ineffective. The category "ineffective" includes teachers who responded that they emphasize the ineffectiveness of birth control in preventing pregnancy or teach that condoms are ineffective in preventing STDs/HIV. It includes teachers who taught only one of those two topics but taught that it was ineffective. The category "not taught" includes teachers who did not cover the effectiveness of either birth control or condoms.

pressure regarding sexual behavior. Only 47% of teachers covered how to negotiate sexual limits.

Responses to summary questions may mask important differences among teachers in the content they actually cover. The terms "abstinence-focused" and "abstinence-only" are commonly used by those favoring and criticizing this type of sexuality education. There are, however, no standard definitions of these terms. The data from this survey provide information that increases our understanding of what these categories mean in practice.

Teachers who presented abstinence as the only way to prevent pregnancy and STDs and those who presented it as the best (or one) alternative varied little in whether they taught most skills and concepts related to sexual behavior and abstinence and most items related to STD and HIV facts and prevention (Table 4). Those who presented abstinence as the only alternative were, however, less likely to teach the importance of both partners agreeing to any sexual behavior, that STDs and HIV can be contracted during oral or anal sexual intercourse and that sexual monogamy is a form of STD and HIV prevention (differences of 5–9 percentage points). Even greater differences were found between the two groups of teachers in their instruction about STD and HIV services, especially the availability of confidential testing and treatment, and in their coverage of skills and concepts related to method use (differences of 12–24 percentage points).

Six in 10 teachers who presented abstinence as the only alternative discussed condoms as a form of STD and HIV prevention and 46–47% explained how each birth control method works, the necessity of using methods correctly and consistently and the importance of using both condoms and a more effective method to avoid both pregnancy and STDs (including HIV). One-quarter gave students information about specific sources from which they could obtain birth control, and 17–18% showed birth control devices and the proper way to use a condom.

Some teachers who taught about abstinence as the best option or as one option did not teach about any other means of preventing pregnancy and STDs, but others covered the range of prevention options while stressing abstinence as the best choice. Still others apparently emphasized abstinence in part by focusing on the potential ineffectiveness of contraceptive methods for the prevention of infection and pregnancy.

Although 70% of sexuality education teachers covered all three of the central reproductive health topics—STDs (including HIV), abstinence and birth control, about 30% only taught about abstinence and STDs and HIV. About half of these teachers (16% of all sexuality education teachers) only answered student questions about birth control and the others (14%) did not cover birth control at all (data not shown).

Most teachers (59%) said they taught that birth control can be effective in preventing pregnancy or that condoms can be effective in preventing HIV and other STDs while they also stressed abstinence as the only option (9%) or as the best or as one option (50%) for teenagers (Table 5). However, 36% either taught that birth control and condoms are ineffective means of preventing pregnancy and STDs (27%, the sum of 9.8% and 17.6%) or did not cover birth control or condoms at all (9%, the sum of 4.4% and 4.4%), while they presented abstinence as the only (14%, the sum of 9.8% and 4.4%) or the preferred alternative (22%, the sum of 17.6% and 4.4%).

Thus, while there is a strong association between the approach to teaching abstinence and the effectiveness attributed to birth control and condoms, the information students receive cannot be clearly deduced from teachers' approach to teaching abstinence. Some 69% of teachers who discussed abstinence as the best or as one option for teenagers also presented birth control and condoms as effective alternative means of prevention, while 39% of those who said they taught abstinence as the only alternative nevertheless presented both birth control and condoms as effective means of prevention. In addition, 61% of those who taught abstinence as the only alternative either presented no information about birth control and condoms (19%) or taught that one or both are ineffective (42%), compared with 31% of those who presented abstinence as the best or as one alternative.

Support and Problems

In 1999, 68% of sexuality education teachers were in school districts with a policy of teaching sexuality education, but a substantial minority were in districts that left the decision to individual schools (7%) or to individual teachers (24%). As in 1988, almost two-thirds (65%) of sexuality education teachers reported in 1999 that their school administration supported their efforts to meet the sexuality education needs of their students. Fewer than half reported support from parents (47%) or from the community (44%). Teachers whose district had a policy of teaching sexuality education were slightly more likely than those in districts that left the decision to individual schools or teachers to feel that they had their school administration's support (68% vs. 61%). However, the two groups differed little in their perception of support from the community (46% and 41%, respectively) and support from parents (48% and 45%, data not shown).

Forty-three percent of sexuality education teachers were in schools that required them to use a specific curriculum for sexuality education. Some 26% of teachers said that information their students needed was not included in their curriculum, with little difference between those who were required to use a specific curriculum and those who were not. Moreover, 22% of teachers reported that their school restricted their ability to answer students' questions on topics not included in their curriculum.

In 1999, 35% of teachers said they had to be careful about what they taught because of the possibility of adverse community reactions to sexuality education. (Equivalent data for 1998 were not available.) Twenty-four percent believed that their administration was nervous about community reaction, a large reduction from the level in 1988 (34%). Some 19% said that restrictions imposed on sexuality education prevented them from meeting the sexuality education needs of their students—similar to the level seen in 1988 (21%).

Most teachers (86%) reported that their school had policies designed to foster parental involvement regarding sexuality education. The policy most commonly reported (by 82% of teachers) was to give parents the opportunity to review curriculum

content. Most teachers also reported that their school informed parents that they could remove their child from sexuality education classes (62%) or required that parents be notified about the topics that would be covered (56%). Some 31% worked in schools that required written parental permission (active consent) for students to attend sexuality education classes.

The most common problem teachers reported facing in 1999 was difficulties with the students themselves, including apathy and failure to pay serious attention to the subject, perceived invincibility, misinformation, diverse maturity levels and such environmental problems as high pregnancy rates and high levels of sexual abuse. In fact, 41% of secondary school sexuality education teachers said problems with students were their worst problem. Another common problem mentioned was pressure about what they taught (cited by 18% of teachers as their worst problem). Other difficulties included insufficient instructional time and the lack of updated, appropriate and readily available teaching materials.

The 1999 survey respondents were much more likely than their 1988 counterparts to say that student-created difficulties were one of their three worst problems (58% vs. 37%, respectively), but they were less likely to cite deficiencies in teaching materials (20% vs. 37%) or insufficient time (15% vs. 19%). Teachers in the two years were equally likely to claim that external pressure was one of their three worst problems, but this factor was slightly less likely to be reported as the single most important problem in the later survey than in the earlier one (18% vs. 23%).

Discussion

In many ways, sexuality education in U.S. public secondary schools has changed little in the last decade. The subject continues to be taught almost universally. Teachers continue to say that their top educational messages focus on abstinence and responsibility. Many topics are covered in sexuality education; the most common are STDs (including HIV) and abstinence, followed by birth control, abortion and sexual orientation. Teachers in 1999 continue to feel less than total support from their administration, their community and the parents of their students.

This overall stability, however, masks some notable changes in the level and content of sexuality education. Most topics covered as part of sexuality education continue to be taught less often and later than teachers think should be the case, but others—how HIV is transmitted, STDs, how to resist peer pressure to have sexual intercourse, abstinence and the correct way to use a condom—are now taught earlier than they were in 1988.

In contrast, steep declines occurred between 1988 and 1999 in teacher support for coverage of birth control, abortion, information on obtaining contraceptive and STD services, and sexual orientation, as well as in the proportions actually teaching those topics. Secondary school sexuality education teachers overall were less likely to teach about birth control methods in 1999 than in 1988; the decline in grade seven was particularly strong.

Many of the changes occurring between 1988 and 1999 reflect the increasingly strong promotion of abstinence as the only appropriate option for adolescents.[15] Four in 10 teachers cited abstinence as their most important message in 1999, up from one in four in 1988. The proportion of all secondary school teachers covering abstinence increased between 1988 and 1999. In addition, this topic is now being taught to younger students—the proportions of teachers covering it increased in grades 7–9, even as they dropped in grades 10–12. Teaching about abstinence has become much more directive as well: In 1999, one in four secondary teachers were teaching abstinence as the only way to prevent pregnancy and STDs, compared with one in 50 teachers in 1988.

In 1999, students in almost all grades were much less likely to be taught about birth control, abortion and sexual orientation than about abstinence from intercourse. When students were taught about both abstinence and birth control, teachers who presented abstinence as the only way to prevent pregnancy and STDs—rather than as the best option or as one among several alternatives—were more likely to present contraceptives as ineffective in preventing pregnancy and condoms as ineffective in preventing STDs (including HIV).

Nevertheless, a significant proportion of teachers who defined their teaching as abstinence-only did not appear to accept the notion that contraceptive use is unacceptable for young people. Among teachers who instructed students that abstinence is the only means of avoiding pregnancy and STDs, four in 10 also taught that birth control can be effective in preventing pregnancy or that condoms can be effective in preventing HIV and other STDs. In contrast, three in 10 teachers who taught that abstinence is the best alternative or is one alternative told students that contraception is ineffective in preventing pregnancy or STDs (including HIV). What we do not know is the emphasis that teachers place on abstinence relative to other preventive measures. Given that teachers' views about abstinence and contraception do not necessarily correspond to the lines drawn in the political debate over abstinence and prevention strategies, more detailed research is needed about how teachers present the effectiveness of contraception in prevention of pregnancy and STDs (including HIV) in the context of teaching about abstinence.

One limitation of a broad sexuality education survey such as this one is that it cannot measure many details about the content of particular topics of instruction. Studies that examine the curriculum content and other instructional materials can measure the relative balance of topics as well as the finer details about how components of topics are emphasized. Given that the content of a given curriculum may differ markedly from what is actually taught, observational studies of sexuality education instructors could provide another important means of learning how students are taught sexuality education in the public schools.

References

1. Forrest JD and Silverman J, What public school teachers teach about preventing pregnancy, AIDS and sexually transmitted diseases, *Family Planning Perspectives*, 1989, 21(2):65–72.

2. Abma J et al., Fertility, family planning, and women's health: new data from the 1995 National Survey of Family Growth, *Vital and Health Statistics*, 1997, Series 23, No. 19, Table 91.

3. Forrest JD and Silverman J, 1989, op. cit. (see reference 1).

4. Kirby D, *No Easy Answers: Research Findings on Programs to Reduce Teen Pregnancy,* Washington, DC: National Campaign to Prevent Teen Pregnancy, 1997; Frost JJ and Forrest JD, Understanding the impact of effective teenage pregnancy prevention programs, *Family Planning Perspectives*, 1995, 27(5):188–195; and Kirby D et al., School-based programs to reduce sexual risk behaviors: a review of effectiveness, *Public Health Reports*, 1994, 109(3):339–360.

5. Kirby DL et al., Reducing the Risk: impact of a new curriculum on sexual risk-taking, *Family Planning Perspectives*, 1991, 23(6):253–263; Kirby D et al., 1994, op. cit. (see reference 4); and Firestone WA, The content and context of sexuality education: an exploratory study in one state, *Family Planning Perspectives*, 1994, 26(3):125–131.

6. Louis Harris and Associates, *Public Attitudes Toward Teenage Pregnancy, Sex Education and Birth Control,* New York: Louis Harris and Associates, 1988, p. 24; North Carolina Coalition on Adolescent Pregnancy (NCCAP), *We the People: North Carolinians Support Comprehensive Sexuality Education, Adolescent Health Care Centers, Adolescent Pregnancy Prevention,* Charlotte, NC: NCCAP, 1993; South Carolina Council on Adolescent Pregnancy Prevention (SCCAPP), *South Carolina Speaks,* Columbia, SC: SCCAPP,

(continued on page 265)

Changing Emphases in…

(continued from page 211)

1997; Lake Sosin Snell Perry and Associates/American Viewpoint, Nationwide Survey for Planned Parenthood Federation of America, Oct. 2–7, 1997; The Field Institute, *Californians' Views on Teen Pregnancy, Results from a Large-Scale Statewide Survey of California Adults and Parents,* Jan.–Mar. 1999; and Meckler L, Survey: Americans want sex ed, *Chicago Tribune,* June 3, 1999.

7. Landry DJ, Kaeser L and Richards CL, Abstinence promotion and the provision of information about contraception in public school district sexuality education policies, *Family Planning Perspectives,* 1999, 31(6):280–286.

8. Personal Responsibility and Work Opportunity Reconciliation Act of 1996, P.L. 104-193, sec. 510(b).

9. Meckler L, 1999, op. cit. (see reference 6); and Sexuality Information and Education Council of the United States, Public support for sexuality education reaches highest level, 1999, http://www.siecus.org/media/press/press0005.html, accessed Mar. 14, 2000.

10. Collins JL et al., School health education, *Journal of School Health,* 1995, 65(8):302–311; Centers for Disease Control and Prevention, School-based HIV-prevention education—United States, 1994, *Morbidity and Mortality Weekly Report,* 1996, 45(35):760–765.

11. Forrest JD and Silverman J, 1989, op. cit. (see reference 1).

12. Ibid.; Orr MT, Sex education and contraceptive education in U.S. public high schools, *Family Planning Perspectives,* 1982, 14(6):304–313; and Sonenstein FL and Pittman KJ, The availability of sex education in large city school districts, *Family Planning Perspectives,* 1984, 16(1):19–25.

13. Market Data Retrieval, unpublished data from public school teacher universe counts, Mar. 9, 1999.

14. Forrest JD and Silverman J, 1989, op. cit. (see reference 1).

15. Donovan P, School-based sexuality education: the issues and challenges, *Family Planning Perspectives,* 1998, 30(4):188–193; and Mayer R, Trends in opposition to comprehensive sexuality education in public schools in the United States, *SIECUS Report,* 1996–1997, 25(6):20.

Sexuality Education in Fifth and Sixth Grades in U.S. Public Schools, 1999

By David J. Landry, Susheela Singh and Jacqueline E. Darroch

Context: *While policymakers, educators and parents recognize the need for family life and sexuality education during children's formative years and before adolescence, there is little nationally representative information on the timing and content of such instruction in elementary schools.*

Methods: *In 1999, data were gathered from 1,789 fifth- and sixth-grade teachers as part of a nationally representative survey of 5,543 public school teachers in grades 5–12. Based on the responses of 617 fifth- and sixth-grade teachers who said they teach sexuality education, analyses were carried out on the topics and skills sexuality education teachers taught, the grades in which they taught them, their teaching approaches, the pressures they experienced, whether they received support from parents, the community and school administrators, and their needs.*

Results: *Seventy-two percent of fifth- and sixth-grade teachers report that sexuality education is taught in their schools at one or both grades. Fifty-six percent of teachers say that the subject is taught in grade five and 64% in grade six. More than 75% of teachers who teach sexuality education in these grades cover puberty, HIV and AIDS transmission and issues such as how alcohol and drugs affect behavior and how to stick with a decision. However, when schools that do not provide sexuality education are taken into account, even most of these topics are taught in only a little more than half of fifth- and sixth-grade classrooms. All other topics are much less likely to be covered. Teaching of all topics is less prevalent at these grades than teachers think it should be. Gaps between what teachers say they are teaching and teachers' recommendations for what should be taught and by what grade are especially large for such topics as sexual abuse, sexual orientation, abortion, birth control and condom use for STD prevention. A substantial proportion of teachers recommend that these topics be taught at grade six or earlier. More than half (57%) of fifth- and sixth-grade sexuality education teachers cover the topic of abstinence from intercourse—17% as the only option for protection against pregnancy and STDs and 40% as the best alternative or one option for such protection. Forty-six percent of teachers report that one of their top three problems in teaching sexuality education is pressure, whether from the community, parents or school administrators. More than 40% of teachers report a need for some type of assistance with materials, factual information or teaching strategies.*

Conclusions: *A large proportion of schools are doing little to prepare students in grades five and six for puberty, much less for dealing with pressures and decisions regarding sexual activity. Sexuality education teachers often feel unsupported by the community, parents or school administrators.*

Family Planning Perspectives, 2000, 32(5):212–219

The questions of whether sexuality education belongs in American schools and what subjects should be covered at what age levels have been and continue to be of concern to many parents and communities throughout the United States.[1] Even though most Americans say they believe that schools have an important role in providing young people with information about reproduction and sexuality,[2] there is little national information that focuses specifically on the teaching of sexuality education in public schools, especially at the elementary level.* In a 1988 national survey, secondary school sexuality education teachers said it was appropriate for many of the topics they were covering to be taught before grade seven—earlier than the subjects were then being taught.[3]

As they develop physically and emotionally, children in grades five and six will face important decisions. They often will encounter considerable external pressure—through the mass media and from their peers—to become sexually active and to adopt behaviors that threaten their health.[4] During their adolescence, most will become at risk of pregnancy or of infection with HIV or other sexually transmitted diseases (STDs).[5] National studies have found that substantial proportions of young adolescents have used alcohol, tobacco and marijuana.[6] The 1999 Youth Risk Behavior Survey (YRBS) found that among American high school students in grade nine, 6% of girls and 18% of boys have had intercourse before age 13 (approximately before grade seven), and that 33% and 45%, respectively, have ever had intercourse.[7] Among female students of all races in grade nine, 8% have had four or more sex partners in their lifetime, as have 16% of male students. The YRBS data also indicate that 13% of female high school students (grades 9–12) have been forced to have sexual intercourse, as have 5% of males.

This article presents findings from a 1999 national survey of public school teachers in grades five and six. There is widespread concern about American children's sexual behavior in their early teenage years and about the importance of preparing preteens for the transitions and changes they will encounter as they go through puberty. For this reason, we focus this article predominantly on the degree to which any sexuality education exists in public schools in fifth and sixth grades and, where it does, on its content related to sexual behavior—especially as such behavior affects prospects for adolescents' sexual health.

Some policymakers and educators promote teaching abstinence from intercourse as the only effective means to encourage

*While some surveys provide information on sexuality education, they do not provide information specifically on teaching at the elementary level. In addition, though they address a broad range of health education topics, spanning key subjects such as dietary behaviors, emotional and mental health, environmental health, injury prevention, pregnancy and HIV prevention, they do not focus in-depth on sexuality education. (Sources: Collins JL et al., School health education, *Journal of School Health*, 1995, 65(8):302–311; and Grunbaum JA et al, Characteristics of health education among secondary schools—school health education profiles, 1998, *Morbidity and Mortality Weekly Report*, 2000, 49(No. SS-8):1–41.

David J. Landry is senior research associate, Susheela Singh is director of research and Jacqueline E. Darroch is senior vice president and vice president for research, all at The Alan Guttmacher Institute, New York. The authors thank Deirdre Wulf for comments on drafts, Kathleen Manzella for her work as study coordinator and Linda Appel, Laura Vale, Lucy Gordon, Jamie Cipriano, Maria Elena Ramos, Elayne Heisler, Kate Nammacher, Ayana Mangum, Patricia Boudreau, Sumitra Mattai, Vanessa Woog and Andrey Iospa for their assistance in project development and in fielding and processing the questionnaires. In addition, the authors thank Suzette Audam for her programming assistance and Jane Silverman and a panel of eight experts for their input into questionnaire development. The research on which this article is based was supported by grants from the Charles Stewart Mott Foundation and the Open Society Institute.

young unmarried people not to become sexually active and to help them avoid pregnancy and STDs.[8] However, little is known about the degree to which U.S. schools have adopted the abstinence-only approach, particularly at earlier grade levels. Therefore, this article also attempts to shed light on abstinence-only education and on the methods teachers are using to impart knowledge and skills connected with sexual behavior and its possible health and life consequences.

Methods

In 1999, we conducted a survey of fifth- and sixth-grade public school teachers in the United States. The nationally representative sample included classroom teachers who teach most subjects, including sexuality education, to one class; teachers in certain specialties—health and physical education and science—who may teach sexuality education; and school nurses. This survey was part of a larger survey of a nationally representative sample of 5,543 5th–12th-grade public school teachers. Most aspects of the methodology (questionnaire development, fieldwork, data processing and analysis) of the survey of fifth- and sixth-grade teachers are the same as those of the survey of 7th–12th grade teachers and are discussed elsewhere.[9] [Editor's note: See related article, page 204.]

For the purposes of our survey, we defined sexuality education to include any instruction about human sexual development, the process of reproduction, or interpersonal relationships and sexual behavior. We asked teachers whether they cover specific topics (such as physical development or relationships and the personal skills needed to negotiate them), based on a broad range of topics considered to be necessary and basic components of family life and sexuality education.[10] Because our larger project also surveyed teachers in grades 7–12, we are able to compare the extent of sexuality education and content of curricula at grades five and six with those at higher grades.

Sample Design

We drew the sample from a national database of teachers maintained by a commercial firm (Market Data Retrieval). The universe from which we drew the sample included all teachers of the selected categories who were teaching in spring 1999 in public schools responsible for grades five or six or both. The sample was a systematic random sample that was stratified by category of teacher. The categories of teachers ranged in size, the largest being fifth-grade classroom teachers (of whom 911 were sampled) and the smallest being health education teachers (of whom 154 were sampled.)

The sample consisted of 3,815 fifth- and sixth-grade teachers in the selected categories. During the survey's fielding, 155 teachers (4% of those sampled) were found to be ineligible because they no longer taught that specialty and had not been replaced by another teacher, because they never taught the specialty identified by the sample or because their school had been permanently closed. The number of eligible teachers in the final sample was 3,660.

In all, 1,789 fifth- and sixth-grade teachers responded to the survey—representing 49% of all eligible surveyed teachers. Response rates varied by type of teacher, from 42% of sixth-grade classroom teachers to 68% of school nurses.*

Analysis

We calculated weights taking into account the sample design and response rates. All data presented here are weighted to reflect the national distribution of the 303,965 public school teachers in these grades and specialties.† Teachers who responded that they did not teach sexuality education in the 1998 or 1999 school years did not respond to further questions because the remaining questions were relevant only for sexuality education teachers. Therefore, most of our analysis is based on the 617 fifth- and sixth-grade teachers who in 1999 said they teach sexuality education in the current school year (555 respondents) or had done so in the previous school year (62 respondents).

Our sample includes some sexuality education teachers who teach only grade five (52%), some who teach only grade six (32%) and some who teach both grades (16%).

Results

Teaching of Sexuality Education

Fifty-six percent of teachers in public schools with a grade five report that sexuality education is taught in that grade, and 64% of teachers in public schools with a grade six say that the subject is taught in sixth grade. Almost three out of four sampled teachers (72%) report that sexuality education is taught in either grades five or six or in both. Thus, almost 30% of teachers teach in schools where sexuality education is not taught in either grade.

Thirty percent‡ of fifth- and sixth-grade public school teachers in the selected categories—an estimated 90,070 of the teachers who teach grades five and six in public schools nationwide—say they teach sexuality education.§ The proportion of teachers who teach sexuality education varies by category of teacher: Thirty percent of fifth-grade classroom teachers cover this subject, as do 31% of sixth-grade classroom teachers, 59% of nurses and 17% of other specialized teachers (physical and health education and science teachers). At these grade levels, classroom teachers are the largest category of sexuality education teachers (77%), while 13% are school nurses and 10% are physical or health education or science teachers.

More than half of nurses teach only grades five and lower. By comparison, there are equal numbers of specialist teachers who teach only grade five or lower, only grade six or only grades five and six (data not shown).

Content of Sexuality Education

Puberty, one of the most basic topics, is the most likely topic to be taught at these grades: More than 90% of sexuality education teachers cover this topic (Table 1, page 214). As typically described in curricula for this age-group (though not necessarily what was taught by these teachers), puberty includes such topics as changes in the functioning of glands, organs and hormones; their influence on the body, feelings and behaviors; and sexual behavior.[11] A large proportion of sexuality education teachers—60% at grade five and 74% at grade six—report that they cover sexuality as a natural and healthy part of life (Table 2, page 215). However, a very small proportion of teachers—7% at grade five and 14% at grade six—cover sexual orientation and homosexuality (Table 1).

The majority of sexuality education teachers—53% at grade five and 63% at grade six—cover sexual abuse (Table 1). However, only 13% of fifth-grade and 38% of sixth-grade teachers discuss the difference between consensual and forced

*The response rates for other teacher categories were 43% for fifth-grade classroom teachers and science teachers, 46% for health education teachers and 51% for physical education teachers.

†Of the 303,965 teachers in the United States who taught in public schools with fifth and sixth grades in 1999, 134,275 were fifth-grade classroom teachers, 94,642 were sixth-grade classroom teachers, 41,106 were physical education teachers, 19,452 were school nurses, 10,930 were science teachers and 3,560 were health education teachers. (Source: Market Data Retrieval, Unpublished data of public school teacher universe counts, March 9, 1999, Shelton, CT: Market Data Retrieval, 1999.)

‡This percentage is based on data adjusted to reflect the national distribution of teachers in the sampled grades and specialties.

§Throughout the rest of this article, we refer to these teachers as sexuality education teachers.

Table 1. Percentage of all public school fifth- and sixth-grade sexuality education teachers who cover specific topics, by grade; and percentage of public school fifth- and sixth-grade sexuality education teachers who think specific topics should be taught by grade five or earlier or by grade six or earlier, 1999

Topic	% who cover topic			% who say topic should be taught in specified grades	
	Grades 5/6 (N=617)	Grade 5 (N=420)	Grade 6 (N=296)	≤grade 5 (N=617)	≤grade 6 (N=617)
Puberty	92.9	88.9	80.7*	96.5	99.6**
How HIV is transmitted	76.8	65.4	79.8**	70.7	90.5***
STDs	65.6	51.2	73.0***	56.1	83.8***
Sexual abuse	62.4	53.0	63.0	88.2	95.0**
Abstinence from intercourse	57.3	41.2	67.9***	47.8	75.4***
How to resist peer pressure to have intercourse	48.7	30.0	63.1***	42.2	73.4***
Implications of teenage parenthood	45.3	30.1	56.1***	37.0	67.0***
Dating	45.1	26.7	58.3***	39.6	74.2***
Nonsexual ways to show affection	41.3	26.4	54.3***	54.0	77.5***
Birth control methods	12.7	7.1	17.7**	12.5	30.8***
Abortion—factual information	11.5	6.7	16.4**	10.3	29.1***
Sexual orientation/homosexuality	11.2	6.9	14.3*	11.7	30.8***
Abortion—ethical issues	8.3	2.7	14.3***	8.3	25.9***
Where to go for birth control	3.3	0.7	5.8*	5.2	20.2***
Correct way to use a condom	1.8	0.5	2.9	4.6	19.2***

*p<.05. ** p<.01. ***p<.001. Notes: All Ns are unweighted. For proportions of sexuality education teachers who teach various topics, comparisons are between grade five and grade six. Data for teachers who teach both grades five and six are included in the values for teachers who teach grade five and in the values for teachers who teach grade six. Teachers were asked about their teaching of each topic at each grade. It was therefore possible to identify precisely the grade in which topics were taught.

sexual contact, and only 10% of fifth-grade and 35% of sixth-grade teachers discuss the importance of both partners agreeing to any sexual behavior (Table 2).

With the exception of puberty, a larger proportion of sixth-grade teachers than fifth-grade teachers cover sexuality education topics. Between 54% and 68% of sixth-grade teachers—compared to 26–41% of fifth-grade teachers—cover topics related to decisions about relationships and sexual intercourse, including abstinence from intercourse, how to resist peer pressure to have intercourse, dating and nonsexual ways to show affection (Table 1). Among this group of topics, abstinence from intercourse is the most likely to be taught, by 68% of sixth-grade teachers and 41% of fifth-grade teachers.

On a direct question about their overall approach to teaching abstinence from intercourse, 43% of fifth- and sixth-grade teachers say they do not teach abstinence, 36% say they teach that abstinence is the best alternative for preventing pregnancy and STDs, 17% report that they teach that it is the only alternative and 4% say they present it as one alternative (data not shown). Eleven percent of fifth-grade teachers and 37% of sixth-grade teachers discuss specific ways to avoid sex (Table 2).

We also asked teachers whether they emphasize that birth control can effectively prevent pregnancy or, conversely, that birth control is ineffective; and whether they emphasize that condoms can be an effective means of preventing STD and HIV infection or, conversely, that condoms are ineffective for that purpose. More than two-thirds (69%) of all fifth- and sixth-grade sexuality education teachers do not cover either of these issues (data not shown). However, among the approximately one-third of teachers who teach these topics, 17% of those who teach that abstinence is the only alternative for preventing pregnancy and STDs emphasize the effectiveness of both means of prevention, compared with 52% of those who teach that abstinence is one option or is the best option (data not shown).

We asked teachers whether they agreed or disagreed with several statements related to the impact of teaching about abstinence and contraception on students' behaviors. Most sexuality education teachers view both abstinence and contraception as effective messages. Seventy-two percent of teachers say that students who receive education that stresses abstinence are less likely to have intercourse than students who do not, and 86% of teachers say that students who learn about contraceptives are more likely than those who do not to use contraceptives if they are sexually active (data not shown). However, as many as one in five teachers (22%) think that students who receive both of these messages are more likely to become sexually active than students who only receive the abstinence message.

A large majority of fifth- and sixth-grade sexuality education teachers discuss how HIV and AIDS are transmitted: Approximately two-thirds (65%) teach this topic to fifth-grade students and 80% teach it to sixth-grade students (Table 1). In addition, a majority of sexuality education teachers (66%) discuss the broad topic of STDs, though the proportions are somewhat smaller than those who teach about HIV. Fewer teachers discuss specific aspects of STDs, such as that only some STDs are curable and that symptoms of STDs and HIV are sometimes hidden, absent or unnoticed: Approximately one-third of fifth-grade teachers and almost two-thirds of sixth-grade teachers cover these topics (Table 2).

Overall, the proportions of fifth- and sixth-grade sexuality education teachers who cover the broad topics of birth control methods and factual information on abortion are quite small (7–18%) at both grades (Table 1). Slightly larger proportions—10% of fifth-grade and 29% of sixth-grade sexuality education teachers—teach that pregnancies should be planned. However, very few cover specific aspects of birth control—for example, how methods work (Table 2). While 62% of fifth- and sixth-grade teachers discuss both abstinence and STDs and HIV, half of these do not cover birth control at all, and most of the remaining half only answer students' questions on birth control but do not teach the topic (data not shown).

Estimates for All Teachers

So far, we have discussed the extent to which sexuality education teachers cover various topics of sexuality. To estimate the extent to which all fifth- and sixth-grade public school teachers in the United States teach sexuality education, we adjusted the proportion of teachers who say they cover each topic by the proportion of teachers who report that sexuality education is taught in their school in either fifth or sixth grade (72%). These estimates give a reasonable indication of the extent to which all fifth- and sixth-grade public school teachers in the sampled categories teach sexuality education and cover particular topics.

As may be expected, for all topics, the extent to which a topic is covered by all fifth- and sixth-grade teachers in the sampled specialties is much lower than the proportion of sexuality education teachers in our survey who say they teach each topic. Puberty and how HIV is transmitted are the only topics taught by half or more of all fifth-and sixth-grade public school teachers. These topics are taught by approximately 66% and 55% of all sampled fifth- and sixth-grade teachers, respectively (data not shown), compared with 93% and 77% of all fifth- and sixth-grade sexuality education teachers (Table 1). The topics STDs,

sexual abuse and abstinence from intercourse are taught by 41–47% of all sampled teachers. A very small proportion of teachers (1–9%) cover birth control methods, abortion and sexual orientation.

Timing of Sexuality Education

•*Teachers' recommendations.* The majority (67–100%) of fifth- and sixth-grade sexuality education teachers believe that schools should cover a number of topics—puberty, how HIV is transmitted, STDs, sexual abuse, abstinence from intercourse, how to resist peer pressure to have sexual intercourse, implications of teenage parenthood, dating and nonsexual ways to show affection—in grade six or earlier (Table 1). The majority (54–97%) also say that by the end of grade five, schools should have taught about nonsexual ways to show affection, STDs, how HIV is transmitted, sexual abuse and puberty.

Sexuality education teachers are much less likely to think that topics such as birth control and abortion should be covered by grade five, but a larger proportion (19–31%) believe that these topics should be taught by grade six. Sexuality education teachers of grades five and six are more likely than teachers of grades 7–12 to say that each topic should be taught in grade five or earlier. For example, 97% of fifth- and sixth-grade sexuality education teachers believe that puberty should be taught by the end of grade five, compared with only 81% of teachers in grades 7–12 (data not shown). Fifty-six percent of fifth- and sixth-grade sexuality education teachers think STDs should be taught in grade five or earlier, compared with 29% of secondary school sexuality education teachers.

•*Actual timing of sexuality education.* The difference between the proportion of sexuality education teachers who think a topic should be taught in grade five and the proportion who say they teach that topic indicates the extent to which schools are not covering topics that teachers recommend be taught by certain grades. Similarly, the difference between the proportion who think topics should be taught before or during grade six and the proportion who say they teach those topics at grades six (Table 1) indicates the extent to which, by grade six, actual teaching falls short of teachers' recommendations.

In all cases, sexuality education teachers are less likely to teach each topic than they are to say that each of the topics should be covered by the end of grades five and six (Table 1). The gap is relatively small for puberty; however, it is much larger for some other topics. For example, 88% of sexuality education teachers believe sexual abuse should be taught by the end of grade five, while in practice, 53% of sexuality education teachers address this topic in grade five. The gap also is large for dating (40% vs. 27%) and for nonsexual ways to show affection (54% vs. 26%).

The gap between recommendations of what should be taught by the end of grade six and the actual proportions of sexuality education teachers who say they cover certain topics, such as birth control methods, abortion and sexual orientation, in the sixth grade is very large. For example, while 19–31% of fifth- and sixth-grade sexuality education teachers think that birth control and abortion should be covered by the end of grade six, only 3–18% of sixth-grade sexuality education instructors actually teach these topics (Table 1). Similarly, while 31% of fifth- and sixth-grade sexuality education teachers believe that sexual orientation should be taught no later than grade six, only 14% do so in grade six.

Gaps are much larger when we compare our estimates for what *all* fifth- and sixth-grade public school teachers are presenting with sexuality education teachers' opinions of when topics should be covered. With the exception of puberty, how HIV is transmitted and abstinence from intercourse, our estimates of the proportions of all fifth- and sixth-grade public school teachers who teach specific topics are less than half the proportions of sexuality education teachers who recommend the topics be taught by the end of sixth grade (data not shown). In the case of sexual orientation, birth control and abortion, the proportions of all surveyed teachers who teach these topics are less than one-third the proportions of sexuality education

Table 2. Percentage of fifth- and sixth-grade sexuality education teachers who cover specific skills and topics, by grade, 1999

Skills and topics	Total (N=617)	Teaches grade 5 (N=305)	Teaches grade 6 (N=153)	Teaches both grades (N=159)
Skills and relationships				
How alcohol and drugs affect behavior	76.0	73.0	83.0	72.5
How to stick with a decision, even under pressure	75.1	69.8	82.2	77.8
How to resist peer pressure to have sexual intercourse	48.9	30.6	68.3	67.4
How to recognize and resist media pressure regarding sexual behavior	33.3	21.5	44.3	47.8
How to say no to a boyfriend/girlfriend who wants to have sexual intercourse	30.0	16.8	41.0	49.3
Specific ways to avoid sex	23.8	10.6	36.6	41.0
The importance of both partners agreeing to any sexual behavior	21.9	10.3	34.9	32.7
How to negotiate sexual limits	0.6	0.3	0.2	2.2
Sexuality				
Sexuality is a natural and healthy part of life	66.2	59.9	74.2	70.4
Negative consequences of sexual intercourse for teenagers	46.0	30.1	66.7	55.4
Difference between consensual and forced sexual contact	24.6	12.9	38.1	34.8
STD/HIV				
Sexual abstinence as a form of prevention	58.0	40.9	77.7	75.2
Symptoms of STDs/HIV are sometimes hidden, absent or unnoticed	50.6	36.3	66.5	65.7
There are many types of STDs	48.4	31.9	70.7	57.4
Only some STDs are curable	44.2	27.5	66.5	53.8
Signs and symptoms of STDs/HIV	40.6	27.7	56.6	51.0
Sexual monogamy as a form of prevention	29.8	13.8	48.6	44.4
Use of condoms as a form of prevention	27.2	17.7	38.8	34.7
STDs/HIV can be contracted during oral or anal intercourse	15.7	8.0	22.1	27.1
Birth control				
Pregnancies should be planned	19.1	10.1	29.4	28.2
The importance of using both a condom and a more effective birth control method to avoid both pregnancy and STDs/HIV	8.5	5.6	11.9	10.4
The importance of using a method correctly and consistently	7.6	3.9	10.7	13.0
How individual birth control methods work	6.4	3.6	8.7	10.0

Notes: All Ns are unweighted. Teachers were asked whether they taught topics and skills, but not whether they taught a given topic or skill in each grade. Presented here are the proportions of teachers teaching these topics and skills according to the grade level they taught (fifth grade, sixth grade or both fifth and sixth grade). Teachers classified as teaching both fifth and sixth grade may actually cover some topics only in fifth grade or only in sixth grade.

Table 3. Percentage of fifth- and sixth-grade sexuality education teachers who teach personal skills and, among those who do so, percentage who often or sometimes used various teaching approaches, by skill

Skill	% who teach skill	Class discussion	Lecture	Audio-visual materials	Small-group discussion	Role-play/ simulation	Outside speakers
Total	**na**	**95.6**	**90.5**	**90.6**	**48.2**	**36.0**	**39.2**
How alcohol and drugs affect behavior	76.0	97.3	91.5	88.5	51.8	41.5	42.3
How to stick with a decision, even under pressure	75.1	96.4	92.1	89.0	52.1	42.2	41.9
How to resist peer pressure to have sexual intercourse	48.9	97.5	94.0	92.7	52.9	43.5	38.6
How to recognize and resist media pressure regarding sexual behavior	33.3	99.0	93.3	88.5	56.5	49.3	37.5
How to say no to a boyfriend/girlfriend who wants to have sexual intercourse	30.0	97.1	94.0	94.8	54.0	52.2	39.1
Specific ways to avoid sex	23.8	92.1	96.9	95.0	56.8	51.7	42.9

Notes: We did not ask teachers about their use of teaching approaches for specific skills, but for teaching in sexuality education classes in general. na=not applicable.

teachers who recommend the topics be taught by the end of sixth grade.

School Setting and Teacher Specialty

The grades offered in a school make relatively little difference in whether most general topics, including personal skills, are covered in sexuality education (data not shown). For example, among fifth- and sixth-grade sexuality education teachers who teach in schools where the highest grade is six, 32% cover the topic "how to recognize and resist media pressure regarding sexual behavior," which is very similar to the proportion of fifth- and sixth-grade teachers who do so in schools that include some secondary grades (36%). However, coverage of some more advanced topics related to sexual relationships, STDs, HIV and birth control is somewhat greater in schools that include secondary grades than in those that do not. For example, among fifth- and sixth-grade sexuality education teachers who teach in schools where the highest grade is six, 24% cover the topic "how condoms can be used as a form of prevention of STDs and HIV," which is substantially lower than the proportion of fifth- and sixth-grade teachers who do so in schools that include secondary grades (36%).

Compared with sixth-grade classroom teachers, fifth-grade classroom teachers are significantly less likely to cover all topics except for the most basic skills. Although nurses generally are less likely than grade six classroom teachers or specialist teachers to teach sexuality education, a moderate proportion (20–40%) of those who do teach the subject teach many topics. However, both school nurses and specialist teachers are somewhat more likely than other teachers to cover topics related to STDs and birth control. For example, 14% of nurses and 19% of specialized teachers cover the importance of using a condom correctly and consistently, compared with 4% and 7% of fifth- and sixth-grade classroom teachers, respectively (data not shown).

Personal Skills and Teaching Approaches

Educators now recognize that decision-making and communication skills should be covered in sexuality education curricula.[12] While we did not address these components of sexuality education in-depth in the survey, we obtained information on a few key personal skills. Seventy-six percent of sexuality education teachers say they teach fifth- and sixth-grade students about how alcohol and drugs affect behavior; a similarly large proportion (75%) of sexuality education teachers also discuss how to stick with a decision even under pressure. Fewer fifth- and sixth-grade sexuality education teachers (49%) discuss how to resist peer pressure to have intercourse. Even smaller proportions of teachers (approximately one-third) discuss how to recognize and resist media pressure regarding sexual behavior and how to say no to a boyfriend or girlfriend who wants to have sex. Still fewer teachers (22% and 24%, respectively) say they discuss the importance of both partners agreeing to any sexual behavior and specific ways to avoid sex (Table 2). Generally, teachers responsible only for grade five are much less likely to cover these skills than are sixth-grade teachers or those who teach both grades (Table 2).

We analyzed the use of teaching approaches according to whether teachers covered specific decision-making and communication skills to assess the extent to which teachers who cover these skills use approaches that are most appropriate for the subject matter. While almost all use lectures and class discussions, many sexuality education teachers also incorporate small-group discussions and role-playing or simulation techniques—approaches that have been shown to be effective, especially for teaching communication and decision-making skills.[13] Almost half of fifth- and sixth-grade sexuality education teachers use small-group discussions and more than a third use role-play or simulation. Although our analyses cannot lead us to conclude what proportions of teachers use a specific teaching approach for particular subject matter, they indicate that large proportions of teachers who teach personal skills do not use the teaching approaches that are considered to be the most appropriate for teaching such skills. For example, among teachers who discuss how to stick with a decision, 42% use role-playing or simulation techniques (Table 3)—with 8% doing so often and 34% sometimes (data not shown).

Environmental Influences

• *Policy.* Among fifth- and sixth-grade sexuality education teachers, most (83%) report that their school districts have a sexuality education policy. The remaining 17% report that the district's policy is to leave the decision to provide sexuality education to individual schools or individual teachers (data not shown).

Almost all teachers (95%) in schools that have a sexuality education policy report that their school engages parents in decisions regarding sexuality education. The most common policy, mentioned by 92% of sexuality education teachers, is to give parents the opportunity to review curriculum content. In addition, most teachers (89%) report that their school informs parents that they have the option to remove their child from sexuality education classes; 87% say their school requires that parents be notified of the topics that will be covered in sexuality education. Fifty-two percent of teachers are in schools that require written parental permission for students to attend sexuality education classes (also called an "opt-in" or active consent policy).

More than two-thirds (69%) of fifth- and sixth-grade sexuality education teachers are in schools that have a required curriculum. Among these teachers, 49% report that their school restricts their ability to answer students' questions on topics not included in the curriculum.

Only a small proportion (13%) of fifth- and sixth-grade sexuality education teachers report that their school's policy allows them both to teach birth control and to answer students' questions about it. Approximately one in five teachers (22%) say their school administration tells them not to teach and not to answer questions about birth control. An additional 24% are told not to teach birth control, but that they may answer students' questions about it. (As might be expected, few teachers—less than 1%—are told to teach birth control but to not answer students' questions.) A large proportion (41%) did not mention any of these conditions when describing their school's policy. Forty-four percent of this group report that they do not teach birth control at all, 28% report that the teacher has discretion whether to discuss birth control, 14% say their school directs them to refer students to other sources and 14% did not specify a reason.

•*Support and difficulties.* The majority (62%) of sexuality education teachers report that their school administration supports their efforts to meet the sexuality education needs of their students (Table 4). Forty-six percent report that parents support their teaching and 39% say the community supports it. Nevertheless, 38% of sexuality education teachers say they are cautious about what they teach because of possible adverse community reaction, 25% believe their administration is nervous about possible community reaction to sexuality education and 21% feel that restrictions imposed on their teaching prevent them from meeting their students' sexuality education needs. Notably, teachers who report community or parental support for their efforts are much less likely to say that their school administration is nervous and are more likely to say that they have the support of the school administration (not shown).

We asked all sexuality education teachers about the kinds of assistance they need and about their difficulties with teaching specific topics. Some teachers who do not teach the topics answered these questions, possibly suggesting that their need for assistance or their difficulties may account in part for their not teaching some topics. However, most teachers who do not teach these topics did not answer these questions; we do not know whether these factors (need for assistance and difficulties teaching topics) are significant reasons why this group of teachers does not teach these topics, or whether they are irrelevant. Nevertheless, these results provide some indication of the extent to which teachers need assistance with materials, and of the extent and type of difficulties they experience in covering particular topics.

Table 4. Percentage distribution of sexuality education teachers, by level of agreement with statement about support received from school administration, parents and community, according to statement

Statement	Agree	Neutral	Disagree	Total
My school administration supports my efforts to meet sexuality education needs of my students.	62.0	27.4	10.6	100.0
Parental attitudes support my efforts to meet sexuality education needs of my students.	46.2	36.6	17.1	100.0
Community attitudes support my efforts to meet sexuality education needs of my students.	38.8	40.3	20.8	100.0
My school administration is nervous about possible adverse community reaction to sexuality education.	25.1	25.9	49.0	100.0
Restrictions imposed on sexuality education prevent me from meeting the needs of my students.	21.0	20.4	58.6	100.0
I have to be careful about what I teach because of possible adverse community reaction.	38.4	29.2	32.4	100.0

Notes: We asked respondents to indicate the degree to which a statement reflected their situation, on a scale from 1–5, where 1="not at all" and 5="a great deal." Answers were grouped as follows: 1–2=disagree; 3=neutral; and 4–5=agree. Unweighted number of respondents ranged from 541 to 548, depending on response to statement.

Approximately 40–53% of fifth- and sixth-grade sexuality education teachers responding to the question report that they need some kind of assistance. The level of assistance they need varies according to topic (Table 5). Need for teaching materials is slightly greater (29–40%) than the need for teaching strategies (20–33%) or factual information (15–35%). By comparison, 7th–12th-grade sexuality education teachers are much less likely to need assistance of any kind (data not shown).

A substantial minority (31–41%) of fifth- and sixth-grade sexuality education teachers report difficulty teaching certain topics because of actual or potential pressure from the school administration, parents or the community (Table 6, page 218). The topics they report to be problematic are abortion as one of several options for pregnant teens, homosexuality, birth control methods and how to use condoms. In comparison, they report little difficulty in teaching sexual decision-making, sexual abuse, STDs and abstinence from intercourse.

•*Problems teachers face.* Pressures—whether from parents, community or school administration—that are being placed on teachers also emerged in an open-ended question about the biggest problems facing the respondent as a sexuality education teacher. Twenty-four percent of teachers say such pressures are their top problem and 46% of teachers say they are one of the three biggest problems (data not shown). Problems with students are another top concern: Twenty-three percent of fifth- and sixth-grade teachers give this as their biggest problem, and 42% cite it as one of the three biggest problems. Teachers mention such specific student-related problems as apathy and lack of serious attention to the subject; an attitude of invincibility; misinformation; diversity of maturity; and environmental problems, such as high pregnancy rates and a high level of sexual abuse.

By comparison, 7th–12th-grade sexuality education teachers are much less likely to report that pressures are one of their top problems and are more likely to point

Table 5. Percentage of fifth- and sixth-grade sexuality education teachers who report needing assistance in teaching specified topics, by type of assistance needed, according to topic; and percentage and number of sexuality education teachers who answered question

Topic	Assistance needed				% who answered question	N
	Any	Factual information	Teaching materials	Teaching strategies		
STDs	53.2	30.8	37.8	20.3	65.6	319
HIV/AIDS	52.4	30.4	39.4	22.1	68.3	408
Sexual orientation/ homosexuality	50.4	19.8	33.7	32.5	22.3	158
Abortion—ethical issues	49.1	28.9	40.1	30.3	16.2	126
Sexual abuse	48.9	26.1	36.7	29.0	54.9	335
Abortion—factual information	48.0	34.9	32.6	21.9	18.7	138
Skills to resist peer pressure	45.3	15.3	37.1	27.5	65.5	385
Birth control methods	43.5	24.9	31.2	25.7	21.8	161
Sexual abstinence	39.9	19.0	28.6	21.6	48.8	324

Note: Ns are unweighted.

Table 6. Percentage of fifth- and sixth-grade sexuality education teachers who reported experiencing difficulties in teaching sexuality education topics, by type of difficulty, according to topic; and percentage and number of sexuality education teachers who answered question

Topic	Difficulty experienced				% who answered question	N
	Any	Insufficient information	Personal reasons	Pressure (actual/potential)		
How to use condoms	64.4	9.0	19.9	40.8	20.0	145
Abortion as one of several options for pregnant teenagers	62.3	13.8	20.8	35.5	19.0	134
Sexual orientation/ homosexuality	48.5	10.4	12.1	31.7	25.9	173
Birth control methods	44.1	7.5	8.0	31.1	28.5	192
STDs	20.0	12.7	8.4	8.2	54.9	345
Sexual decision-making	18.7	5.7	2.6	11.1	48.0	303
Sexual abuse	14.7	6.7	1.8	6.6	57.1	330
Abstinence from intercourse	12.9	3.6	0.9	8.4	54.9	348

Note: Ns are unweighted.

to student-related problems as the biggest problem they face. Other common categories of problems for fifth-and sixth-grade teachers were not having enough time and lacking up-to-date, appropriate and readily available teaching materials (data not shown).

Discussion

The large majority of fifth- and sixth-grade public school teachers report that sexuality education is taught at these grades, with more than half reporting that sexuality education (very broadly defined) is taught in fifth-grade classrooms in public schools and nearly two-thirds saying it is taught in sixth-grade classrooms. However, the fact that almost three out of 10 teachers work in schools that do not provide sexuality education to students in grades five and six may in part reflect the public's ambivalence about sexuality education for younger students. In a public opinion poll about sexuality education, 93% of adults supported sexuality education courses for high-school age students and 84% supported courses for junior high school–age students, but only 48% supported courses for older elementary school–age students (ages 9–11).[14]

Nonspecialist, or classroom, teachers are the largest category of sexuality education teachers in fifth and sixth grades, constituting three out of four of all those who say they teach the subject. Depending on the extent of their training in sexuality education, both classroom teachers and others who cover the subject may not be adequately prepared to teach it.[15] Thus, it is not surprising that the majority of fifth- and sixth-grade sexuality education teachers report that they could use some assistance—such as factual information, teaching materials or teaching strategies.

In keeping with established national guidelines for sexuality education curricula,[16] puberty is the topic that sexuality education teachers in grades five and six are most likely to cover, followed by the transmission of HIV. Certain other topics are also highly likely to be covered—for example, STDs, sexual abuse, abstinence from intercourse and the view that sexuality is a natural and healthy part of life. In contrast, topics related more specifically to sexual activity are less likely to be covered, especially specific birth control topics. Given how many schools do not provide sexuality education at these grades, at most just slightly more than half of all fifth- and sixth-grade public school teachers cover any sexuality education topics—even a subject like puberty.

Educators increasingly recognize that personal skills and strategies to resist pressure are very important components of any sexuality education curriculum. A large proportion of sexuality education teachers cover two basic skills—how alcohol and drugs affect behavior and how to stick with a decision, even under pressure. Teachers are much less likely to teach other skills that relate directly to decisions about sexual behavior. However, the quality of the instruction likely varies substantially, because many teachers do not use the teaching approaches that are most effective in teaching such skills—for example, role-playing, simulation and small-group discussions. External factors such as large class size, too little time allocated to sexuality education and insufficient training also constrain teachers' ability to use the more effective teaching strategies.

Environmental factors may influence sexuality education and are likely to vary significantly across and within communities. This makes it difficult to apply any standardized curriculum and requires teachers to adapt and improvise. Moreover, even within classrooms, children of a similar age will vary in their development and growth, making it difficult for sexuality education teachers to provide information that is appropriate for the age and developmental level of all children in a particular class.

The teaching of abstinence from intercourse in fifth- and sixth-grade varies widely. Two in five sexuality education teachers report that they do not teach it, while almost one in five teach that it is the only alternative for preventing STDs and pregnancy; another two in five present abstinence as the best alternative or as one alternative. The proportions of sexuality education teachers who cover abstinence at grades five and six are significantly smaller than the proportions of 7th–12th-grade teachers who do so—nine in 10 of whom teach abstinence and about one in four of whom teach that abstinence is the only alternative.

There is a large gap between the proportion of teachers who think topics should be taught by grade five or earlier and the proportions of teachers who say they teach the topics at that grade. This gap is especially large for sexual abuse and for nonsexual ways to show affection. There are also large differences between what teachers recommend that students be taught by the end of grade six and what teachers say they teach in what grades, particularly for birth control, abortion, sexual orientation and condom use. Interestingly, fifth- and sixth-grade teachers think that some topics should be introduced at an earlier grade than what 7th–12th-grade teachers recommend. It may be that fifth- and sixth-grade teachers, who have day-to-day interactions with students in these early grades, are more likely to understand the needs of this age-group than are teachers of older students.

Fifth- and sixth-grade sexuality education teachers say their schools try to involve parents in their children's sexuality education: Most schools notify parents about sexuality education, inform them of the option to remove their children from such classes and allow parents to review the curriculum. Slightly more than half of the teachers say that their schools have an "opt-in" policy, suggesting that the administrative demands of ensuring written parental permission is obtained from each student are substantial.[17] Furthermore, if a large proportion of parents neglect to complete and return the necessary paperwork for their children to participate

in the class, one result of this policy could be that a significant proportion of students might not receive sexuality education even when the school district has a policy that it be taught.

In examining the timing and content of sexuality education teaching, our survey largely focused on a specific subset of the subject matter that is typically included in sexuality education or family life education curricula for the upper elementary level—topics and skills that relate to the choices, decisions and risks that result from sexual activity. More research is needed to ascertain the full breadth and depth of sexuality or family life education that students are receiving at the elementary level. Are they being taught a broad base of general skills and topics, including, for example, human development, interpersonal relationships and broader social and cultural factors? To what extent are students learning about the factors they need to consider for healthy decision making?

Additional work also is needed to confirm and extend these findings. The Centers for Disease Control and Prevention's results from the School Health Policies and Programs Study 2000 survey, which is being conducted this year, could provide a useful comparison to our results.[17] Finally, research is needed to examine the content and timing of sexuality education in private schools, which may differ from teaching in public schools.

Our results suggest that teachers work under a great deal of pressure and fear of possible conflict. Two teachers in five say that school policy restricts their ability to answer students' questions, one in four say that their school administration is nervous about adverse community reaction to sexuality education and nearly two in five are cautious because of the possibility of such a reaction. Less than half of sexuality education teachers say that they receive some or a great deal of support from the community and from parents. And when asked what their three biggest problems are, teachers rank pressure the highest.

Sexuality education can be difficult to teach at any grade level and often is controversial, given the sensitivity of the subject and the conflicted attitudes and values that exist in the broader society. Sexuality education teachers in the fifth and sixth grade feel that topics should be introduced at earlier grade levels than is currently occurring. In addition, sexuality education teachers at these grades report encountering more ambivalence and less support from the community, parents and administrators than do teachers at the secondary level. These findings suggest that sexuality education is particularly challenging at the upper elementary school level, a time when most students have not yet become sexually active and could benefit from information, advice and skills development.

References

1. Haffner DW, Sexual health for America's adolescents, *Journal of School Health*, 1996, 66(4):151–152; and Middleman AB, Review of sexuality education in the United States for health professionals working with adolescents, *Current Opinion in Pediatrics*, 1999, 11(4):283–286.

2. Haffner DW and Wagoner J, Vast majority of Americans support sexuality education, *SIECUS Report*, 1999, 27(6):22–23; Welshimer KJ and Harris SE, A survey of rural parents' attitudes toward sexuality education, *Journal of School Health*, 1994, 64(9):347–352; Lindley LL et al., Support for school-based sexuality education among South Carolina voters, *Journal of School Health*, 1998, 68(5):205–212; and Eisenberg ME, Wagenaar A and Neumark-Sztainer D, Viewpoints of Minnesota students on school-based sexuality education, *Journal of School Health*, 1997, 67(8):322–326.

3. Forrest JD and Silverman J, What public school teachers teach about preventing pregnancy, AIDS and sexually transmitted diseases, *Family Planning Perspectives*, 1989, 21(2):65–72.

4. Kunkel D, Cope KM and Biely E, Sexual messages on television: comparing findings from three studies, *Journal of Sex Research*, 1999, 36(3):230–236; DiIorio C, Kelley M and Hockenberry-Eaton M, Communication about sexual issues: mothers, fathers, friends, *Journal of Adolescent Health*, 1999 24(3):181–189; Brown JD, Childers KW and Waszak CS, Television and adolescent sexuality, *Journal of Adolescent Health Care*, 1990, 11(1):62–70; and Kinsman SB et al., Early sexual initiation: the role of peer norms, *Pediatrics*, 1998, 102(5):1185–1192.

5. The Alan Guttmacher Institute (AGI), *Sex and America's Teenagers*, New York: AGI, 1994; Warren CW et al., Sexual behavior among U.S. high school students, 1990–1995, *Family Planning Perspectives*, 1998, 30(4): 171–172, 200; and Trends in sexual risk behaviors among high school students—United States, 1991–1997, *Morbidity and Mortality Weekly Report*, 1998, 47(36): 749–752.

6. Youth Risk Behavior Surveillance—United States, 1999, *Morbidity and Mortality Weekly Report*, 2000, 49(SS-5):1–96; Millstein SG et al., Health-risk behaviors and health concerns among young adolescents, *Pediatrics*, 1992, 89(3):422–428; and Schuster MA, Bell RM and Kanouse DE, The sexual practices of adolescent virgins: genital sexual activities of high school students who have never had vaginal intercourse, *American Journal of Public Health*, 1996, 86(11):1570–1576.

7. Youth Risk Behavior Surveillance…, 2000, op. cit. (see reference 6).

8. Donovan P, School-based sexuality education: the issues and the challenges, *Family Planning Perspectives*, 1998, 30(4):188–193; and Mayer R, 1996–97 trends in opposition to comprehensive sexuality education in public schools in the United States, *SIECUS Report*, 1997, 25(6):20–26.

9. Darroch JD, Landry DJ and Singh S, Changing emphases in sexuality education in U.S. public secondary schools, 1988–1999, *Family Planning Perspectives*, 2000, 32(5):204–211 & 265.

10. American School Health Association (ASHA), *Sexuality Education Within Comprehensive School Health Education*, Kent, OH: ASHA, 1991; National Guidelines Task Force, *Guidelines for Comprehensive Sexuality Education, Second Edition*, New York: Sexuality Information and Education Council of the United States (SIECUS), 1996.

11. ASHA, 1991, op. cit. (see reference 10).

12. Kirby D et al., School-based programs to reduce sexual risk behaviors: a review of effectiveness, *Public Health Report*, 1994, 109(3):339–359; and Kirby D, et al., Reducing the risk: impact of a new curriculum on sexual risk-taking, *Family Planning Perspectives*, 1991, 23(6):253–263.

13. Kirby D, *No Easy Answers: Research Findings on Programs to Reduce Teen Pregnancy*, Washington, DC: National Campaign to Prevent Teen Pregnancy, 1997; and Frost JJ and Forrest JD, Understanding the impact of effective teenage pregnancy prevention programs, *Family Planning Perspectives*, 1995, 27(5):188–195.

14. SIECUS, Public support for sexuality education reaches highest level, March 1999, <http://www.siecus.org/parent/pare0003.html>, accessed July 28, 2000.

15. Rodriguez M. et al., *Teaching Our Teachers to Teach: A SIECUS Study on Training and Preparation for HIV/AIDS Prevention and Sexuality Education*, New York: SIECUS, 1996; and Donovan P, 1998, op. cit. (see reference 8).

16. ASHA, 1991, op. cit. (see reference 10); and National Guidelines Task Force, 1996, op. cit. (see reference 10).

17. Donovan P, 1998, op. cit. (see reference 8).

18. Centers for Disease Control and Prevention, School Health Policies and Programs Study: SHPPS 2000 project summary, <http://www.cdc.gov/nccdphp/dash/shpps/summary.htm>, accessed August 24, 2000.

Using Randomized Designs to Evaluate Client-Centered Programs to Prevent Adolescent Pregnancy

By Dennis McBride and Anne Gienapp

Context: *Interventions to prevent adolescent pregnancy (primarily curriculum-based programs) have not produced convincing evidence as to their success. Moreover, many evaluation approaches have been inadequate to assess program effectiveness. Therefore, rigorous evaluation of different kinds of interventions may help identify potentially effective strategies to prevent adolescent pregnancy.*

Methods: *An experimental design, in which clients were randomized to treatment and control groups, was used to evaluate the effects of a "client-centered" approach to reducing pregnancy among high-risk young people in seven communities in Washington State. Four projects served 1,042 youth (clients aged 9–13), and three served 690 teenagers (primarily clients aged 14–17). Projects offered a wide variety of services tailored to individual clients' needs, including counseling, mentoring and advocacy.*

Results: *On average, clients in the treatment group at youth sites received 14 hours of service, and their teenage counterparts received 27 hours; controls received only 2–5 hours of service. At one youth site, clients were less likely to intend to have intercourse after the intervention than before; at another, they became less likely to intend to use substances. Clients at one teenage project reported reduced sexual behavior and improved contraceptive use after receiving services; teenagers at another site reported reduced sexual intentions and drug use, and a greater intention to use contraceptives. The programs showed no other effects on factors that place young people at risk of becoming pregnant, including their sexual values and educational aspirations, communication with their parents (measured at youth sites only), and sexual and contraceptive behavior (assessed for teenagers only).*

Conclusions: *High-risk clients likely need considerably more intervention time and more intensive services than programs normally provide. Rigorous evaluation designs allow continued assessment that can guide program modifications to maximize effects.*

Family Planning Perspectives, 2000, 32(5):227–235

In 1993, concerns about the social and financial costs of teenage pregnancy and parenthood led the Washington State legislature to pass a bill authorizing the state health department to fund community-based teenage pregnancy prevention projects, family planning services for teenagers and a statewide media campaign. Funding for the pregnancy prevention projects was provided through a competitive process that was open to health departments, schools, family planning agencies, churches and youth organizations. Of the 50 agencies that applied, 11 (with a total of 13 sites) received funding, in amounts ranging from $40,000 to $50,000 per year. In 1995, the state health department contracted with the Washington Institute, a research and training institute affiliated with the University of Washington, to conduct an evaluation of the community-based projects.

The health department, evaluators and state legislators were aware that a lack of strong program evaluations had resulted in limited knowledge about effective teenage pregnancy prevention approaches. Hence, despite the relatively small amount of funding for projects, the intent of the 1993 legislation was to conduct rigorous evaluations to test potentially effective pregnancy prevention strategies and determine their impact on teenagers' sexual behavior. In keeping with this commitment, the health department required that projects, with the assistance of the evaluation team, develop strong evaluation designs, preferably employing randomized assignment or at least using matched comparisons. Of the 11 funded projects, eight have randomized designs. One of these is being assessed as part of a national evaluation; the remaining seven are the focus of this article.

These projects are distinctive in that they use a "client-centered" intervention approach, which combines education and skills-building with a broad array of individualized services. This article, based on results of a four-year evaluation of Washington's client-centered adolescent pregnancy prevention projects, highlights the challenges experienced in the implementation of rigorous evaluation designs in small programs and the benefits of such designs for policy decisions.

Evaluations in Perspective

Since the early 1990s, the rate of teenage pregnancy has been declining nationally and in Washington State.[1] Nevertheless, the problems and consequences of teenage sexual activity and pregnancy, which are well known, continue to be widespread.

Of concern are the many negative outcomes associated with teenage pregnancy—for teenage mothers and fathers, their children and society in general. For example, compared with women who give birth at ages 20–21, those who become mothers at age 17 or younger have worse outcomes on several dimensions, including the likelihood of completing school, having a subsequent pregnancy and being a single parent. Their children receive less health care than the children of older mothers, and they have lower cognitive scores, more difficulty in school, poorer health, less-stimulating and less-supportive home environments, and higher rates of incarceration and adolescent childbearing.[2]

Of further concern are rates of sexually transmitted diseases (STDs) among teenagers. Every year, three million teenagers acquire an STD. This total represents 25% of sexually active teenagers and 13% of all teenagers. In 1995, 10–29% of sexually experienced adolescent women were infected with chlamydia, and nearly 175,000 teenagers had gonorrhea.[3]

The costs associated with the consequences of early sexual activity—including pregnancy, childbirth and STDs—are enormous. Direct program costs for mothers de-

Dennis McBride is a senior research associate at the Washington Institute for Mental Illness Research and Training, University of Washington, Tacoma. Anne Gienapp is a research associate at Organizational Research, Seattle. The State of Washington Department of Health provided funding for this project. The authors thank Melinda Harmon and the staff of the State of Washington Department of Health, Division of Community and Family Health, for ongoing support and collaboration on this project.

Table 1. Characteristics of community-based teenage pregnancy prevention projects funded by the Washington State Department of Health, 1995–1999

Objective	Intervention	Setting and staff	Target clients
Site A			
To enhance protective factors in order to increase resiliency in adolescents, thereby preventing early pregnancy.	• *Education and skills-building:* School counselors conduct 10–12 group sessions, covering topics related to sexuality, risk behaviors (e.g., substance use), and coping with stress and anger. • *Mentorship:* Youth are matched with adult mentors according to mutual career interests. The intent is for youth and mentors to meet at least monthly and have at least weekly phone contact. • *Case management:* Project staff facilitate clients' relationship with mentors, make referrals to community services (including family planning) as needed and address family issues as needed.	• *Setting:* Project is administered in middle schools by a local health department. • *Staff:* Staff include a social worker and school counselors.	Youth in grades 7–8
Site B			
To provide communication and decision-making skills, as well as abstinence and sexuality education, to at-risk youth in order to deter early sexual activity.	• *Education and skills-building:* Monthly group sessions are held with school counselors throughout the school year. Topics include pregnancy prevention, HIV and other STD prevention, anger management, suicide, self-esteem, domestic violence and goal-setting. Activities and videos are used to enhance sessions. • *Weekly lunch meetings*: Project staff meet with youth weekly to discuss and reinforce education topics and provide support. • *Social/recreational activities:* Youth are invited to participate in activities monthly to foster connections among peers and with project staff.	• *Setting:* Project is administered in middle schools by a local family planning clinic. • *Staff:* Staff are health and sexuality educators and school counselors.	Youth aged 11–14
Site C			
To provide structured psychological and educational services to assist youth in delaying the onset of sexual activity and avoiding early pregnancy.	• *Education and skills-building:* Staff conduct 10 hours of group sessions dealing with issues related to risk for teenage pregnancy. Additionally, youth receive five sessions of the Postponing Sexual Involvement curriculum in school health classes. • *Advocacy*: Advocates work with youth individually and in groups to provide a mentor relationship as well as counseling services, family support, opportunities for recreation and assistance in making contact with other community services (including family planning).	• *Setting:* Project is administered by a mental health agency in local middle schools. • *Staff:* Staff are social workers, social work interns or college students (advocates).	Youth aged 11–14
Site D			
To provide education and support to girls at risk for early sexual activity.	• *Education and skills-building:* Weekly groups meet throughout the school year. Topics include pregnancy and STD prevention; dating violence; friendship; self-esteem; where to get help in the community; and communication, decision-making and refusal skills. • *Advocacy:* Project staff provide support and advocacy in the group setting linking clients with resources and school and community services (including family planning). In addition, youth are offered individualized support on a regular basis throughout the school year. Individual sessions address issues that arise during groups, build relationships between staff and clients, and explore issues of importance to clients. • *Social/recreational activities:* Several times throughout the year, youth are invited to participate in social/recreational activities, including arts and crafts, cultural activities, outings to the YMCA and family events.	• *Setting:* Project is administered in middle schools by Planned Parenthood. • *Staff:* Staff are health and sexuality educators and counselors.	Females in grades 7–8
Site E			
To provide enhanced family planning services to help teenagers avoid pregnancy.	• *Advocacy:* Staff provide education and support to teenagers who visit a family planning clinic. Education focuses on ways to avoid STDs and pregnancy, correct contraceptive use and relationship issues. Support may include counseling and helping teenagers make contact with other community services or reenter school.	• *Setting:* Project is administered by a local health department in its family planning clinic. • *Staff:* Staff are nurses, health educators and social workers.	Females aged 14–17
Site F			
To provide education, support and referrals to young women at risk for early sexual activity or pregnancy.	• *Education and skills-building:* Weekly groups throughout the school year address self-esteem; sexuality; pregnancy and STD prevention; identifying and avoiding risky behavior; life planning; and communication, decision-making, risk reduction, planning and goal-setting skills. • *Advocacy:* Support is provided in the group setting and individually. Individual sessions address issues that arise during groups, build relationships between staff and clients, and explore issues of importance to clients. The intensity of individual support varies according to clients' needs. In addition, staff make referrals and assist clients in accessing other community resources as needed (including family planning). • *Social/recreational activities:* Clients are invited to participate in periodic social/recreational activities.	• *Setting:* Project is administered in middle and high schools by Planned Parenthood. • *Staff:* Staff are health and sexuality educators.	Females aged 14–17
Site G			
To empower young women, improve their self-esteem and help them avoid early pregnancy by offering support, care and a safe place.	• *Support groups:* Weekly group sessions throughout the school year address consequences of sexual behavior, family and friendship relationships, healthy and unhealthy intimate relationships, decision-making and stress management. Information is provided via worksheets, videos and guest speakers. • *Advocacy:* Staff provide individual support, including counseling and referrals to community services (including family planning). • *Mentorship:* Youth are matched with mentors (women aged 18–30) from local colleges, who meet with teenagers at least one hour per week and provide opportunities for recreation and additional support.	• *Setting:* Project is administered in schools and other community-based settings by a local health department. • *Staff:* Staff are health and sexuality educators and social workers.	Females aged 14–17

livering at age 17 or younger are estimated to be nearly $7 billion more than those for women delivering when they are 20–21 years of age. This figure rises even further when other, associated costs are considered.[4]

Investment in the prevention of early sexual activity and teenage pregnancy clearly is warranted. However, the effectiveness of many teenage pregnancy prevention interventions remains unknown or uncertain because of a lack of carefully conducted outcome evaluations.[5] A definitive review of more than two decades' worth of evaluations found only 27 meeting criteria that are hardly "rigorous" by evaluation standards—namely, the evaluation had to have been published, and its design had to have included at least a comparison group.[6]

Despite the weaknesses and short supply of evaluations of teenage pregnancy prevention programs, there is evidence that some interventions—primarily curriculum-based programs that provide the same basic services to each client, generally in a school setting—have an effect on primary outcome measures such as sexual behavior and pregnancy.[7] Yet the magnitude of these interventions' effect on teenage pregnancy rates remains uncertain, and more evaluation is needed.[8] At the same time, rigorous evaluation of other kinds of programs may add to current knowledge regarding potentially effective interventions.

Research and evaluations suggest that in addition to curriculum-based activities, access to family planning services is an important factor for reducing teenage pregnancy.[9] In particular, efforts to facilitate and promote teenagers' use of contraceptives seem warranted. Although the majority of teenagers who engage in sexual intercourse report using contraceptives, 25% of those aged 15–17 and 16% of those aged 18–19 use no method.[10] Moreover, even among teenagers who use a method to prevent STDs or pregnancy, incorrect or inconsistent use increases the likelihood that the method will be ineffective. In addition to community-based prevention programs, family planning services aimed at teenagers yield opportunities to provide reinforcement regarding teenagers' consistent and proper use of contraceptives, even when sexual encounters are unplanned.[11]

Additionally, prevention programs that offer broad services and address an array of risk factors for early pregnancy may have more potential to influence teenagers' behavior than simplistic programs or interventions that address only one risk factor.[12]

The Client-Centered Approach

Background

Programs based on theoretical models appear to be the most effective at changing behavior and provide opportunities for strong evaluations.[13] However, none of the projects described in this article is explicitly based on a clearly identified theoretical model. Instead, the "client-centered" model is an approach developed primarily by service providers and is based upon their conclusions about why teenagers become involved in risky sexual behaviors and pregnancies. According to providers, many teenagers lack "real" information about sexual activity and its consequences; lack adults and peers they can trust and confide in; lack positive coping skills to manage stress, sadness and anger; and lack consistent emotional support and positive guidance.[14] Providers believe that addressing these needs is key to helping teenagers avoid risky behaviors and pregnancy.

Washington's community-based teenage pregnancy prevention projects utilize an approach that is more comprehensive than typical curriculum-based models. They address a wide range of issues and behaviors associated with early pregnancy, including values and attitudes about teenage sexual activity and pregnancy; alcohol and drug use; delay of sexual activity; prevention of STDs; enhancement of coping skills, life planning and goal-setting; and support for youth and their families. Interventions are intended to be flexible and tailored to each client's needs and risk level. Although many projects incorporate sexuality education—some use popular curricula such as Postponing Sexual Involvement, Sex Can Wait or Reducing the Risk—they modify educational messages according to teenagers' individual or community circumstances. They also provide individualized support services, including advocacy, counseling or mentorship; links to clinical family planning services; and opportunities for clients to participate in social or recreational activities.

The Projects

Six of the seven projects described in this article are administered in local middle and high schools (Table 1). Three are based in family planning organizations, three in local health departments and one in a mental health agency. Project staff include trained sexuality educators, social workers and counselors.

Four projects focused on youth (those aged 9–13), and three served teenagers (primarily 14–17-year-olds*). We distinguish in this evaluation between "youth" and "teenage" projects because while all projects have the objective of reducing adolescent pregnancy, their strategies differ according to their clients' age-group: Projects that provide services to older teenagers address sexual behavior directly; those serving younger clients address factors thought to increase the risk of too-early pregnancy.

Table 2. Percentage of clients with selected characteristics or mean values for selected characteristics, by type of site

Characteristic	Youth (N=1,042)	Teenage (N=690)
Percentages		
Female	70	90
Nonwhite	47	26
Grades mostly Ds/Fs	17	13
Mother did not finish high school	22	23
Used in past month:		
Alcohol	22	45
Tobacco	24	46
Marijuana	15	32
Ever had intercourse	na	63
Ever was pregnant	na	20
Means		
Age	13.1	15.4
Sexual behavior intent†	6.9	8.4

†Sexual behavior intent is measured on a four-item scale (see Table 5), with possible scores ranging from 4 to 20. *Note:* na=not applicable because the survey for youth sites does not include items addressing sexual or contraceptive behavior.

Teenagers served by Washington's community-based projects are referred by school counselors, family planning clinics and other social service agencies. Clients are often referred because they are perceived to be at high risk of becoming involved in premature sexual activity or pregnancy. A summary of several items from the evaluation instrument that correlate with early sexual behavior (Table 2) confirms that teenagers who participate in the community-based projects are at elevated risk. For instance, 22% of clients reported that their mother did not finish high school; by contrast, the proportion was 16% in a study conducted among a general school population of the same age.[15] Additionally, 17% of clients at youth sites and 13% of those at teenage sites reported getting mostly Ds and Fs in school, compared with 5–6% of students of similar ages in the general population.[16] Low levels of maternal education and school achievement are associated with too-early sexual activity.[17]

*Teenage projects were open to clients aged 12–17, but because of consent issues, they served mainly clients 14 and older.

Implementing Evaluations

Establishing rigorous evaluation protocols for adolescent pregnancy prevention projects—or for any social and health service program—is a difficult process. We were originally attracted to evaluating these projects because the state health department was willing to *require* rigorous evaluation despite myriad commonly heard reasons why such evaluations cannot be done. Although the evaluation is now well established, many challenges and barriers to implementation arose during the first year.

At the outset, most project staff were not accustomed to doing program evaluation, let alone following the protocol of a randomized design. Therefore, they faced a steep learning curve with regard to identifying "treatment" and "control" clients (i.e., those who will receive the intensive, client-centered services being addressed vs. those who will receive no services or the services typically provided at the site), collecting and tracking data, and adopting systematic practices for documenting program services and activities. During the first year, staff resisted evaluation because they felt that the time required to learn to implement it and then to conduct it took away from their ability to provide services to clients. Additionally, some project staff and community stakeholders viewed the evaluation protocol as ethically questionable in cases where, for comparison purposes, services were not provided to certain clients, or different services were provided to different groups.

Another challenge during the first year was that state law required all projects to obtain active parental consent before clients younger than 14 could participate in the evaluation. Obtaining *active* parental consent was extremely challenging and time-consuming. Other barriers included sites' ability to attract and maintain clients, staff turnover and community resistance to sexuality education activities.

To overcome these barriers, the evaluation team, project personnel and the state health department collaborated closely. To foster good working relationships, the evaluators and health department personnel conducted statewide and regional workshops, arranged regular site visits and had frequent phone contact with each project. In addition, health department personnel and the evaluation team worked together to carefully assess challenges and suggest solutions as they occurred. They also held regular meetings to discuss each project's progress and troubleshoot problems.

Gradually, solutions to problems were found. Project staff discovered ways to obtain parental consent via outreach or small incentives (e.g., coupons for pizza or movies). They also capitalized on word of mouth as more youth participated in the project and had positive experiences. Staff refined consent forms to ensure that clients have a clear understanding of the project and the evaluation, as well as to simplify procedures (e.g., forms for clients' agreement to participate and parents' consent were originally separate but were combined into one). Eventually, obtaining consent became integrated into the everyday process of conducting the projects.

Originally, we assumed that gaining staff's acceptance of randomized treatment and control groups would be the most difficult aspect of implementing the evaluation. Fortunately, this was not the case, for several reasons. First, the original request for proposals distributed by the state health department stated explicitly that a rigorous, preferably randomized design was required for funding. Hence, the expectation was established from the onset.

Second, the funding agent supported the requirement for rigorous designs throughout. In cases where projects opted to use weaker designs—e.g., because of the difficulty in implementing a rigorous design—the funding agent supported the evaluator in dissuading the projects from doing so. Instead, we worked together to overcome barriers and maintain the stronger designs. This was accomplished not through coercion but by fostering an atmosphere of mutual trust and compromise among the three partners.

Finally, and most importantly, we were able to help stakeholders understand the value of rigorous designs. While project staff were at first uncomfortable with the idea of not providing services to certain clients, they began to see that their programs cannot serve *all* youth in their community. Currently, projects provide comprehensive services to as many youth as resources allow for, and collect information for comparison purposes from additional youth. Most staff have come to view the randomized design not as "withholding" services from some youth, but as a rigorous test of their interventions.

In addition, our message as evaluators has consistently been that the primary goal of the evaluation is not simply to determine whether the program is effective, but to understand how well it is working so that it can be modified to maximize the effectiveness of services for clients. Strong designs give better information for program decision-making than do weaker designs. Hence, stakeholders have become more comfortable with and, consequently, more supportive of evaluation activities as they have begun to see how information feedback can be used to improve interventions.

Over the four years of the project, client numbers in each site have risen. The increases can probably be attributed to strengthened partnerships and participation agreements with schools and other collaborating agencies, improved recruitment and referral processes, and project staffs' increased experience with both program implementation and evaluation activities.

Process Evaluation

Service Delivery

Most clients are involved with projects for 1–2 years. The number of hours they spend receiving services varies, because whereas education services typically are provided in a fixed number of hours, the amount of time clients spend in other project components (e.g., meetings with advocates or mentors) differs according to their individual needs. Thus, at youth sites, participants in the treatment group received an average of 14 hours of services per year, and those in the control group received five hours of services. At teenage sites, the average was 27 hours for those in the treatment group and two hours for controls (Table 3).

In three of the youth sites, because staff were uncomfortable providing no project services to the control group, they provided some services—education and skills-building—to all clients. From an evaluation design standpoint, it would have been better if the control group had received no services. Nonetheless, controls did not receive the individualized services that treatment group clients did (i.e., counseling, advocacy or mentoring).

Focus Groups

In 1997–1999, 17 focus groups were conducted at the seven project sites to explore participants' program experiences, validate and obtain further insights into the client-centered approach, substantiate clients' risk levels and clarify factors that may influence outcomes, such as the attractiveness of the intervention, participants' level of engagement and potential implementation issues.* The discussions revealed issues such as teenagers' emo-

*Participants were 105 teenagers who were receiving services from the programs, and the focus groups were conducted during regular program meeting times. Semi-structured questions were used to guide discussions. Focus-group data were analyzed via a process of ethnographic description and structured analysis using the software package NU*DIST 4. Transcripts were independently coded, then categorized to reflect major substantive themes.

Table 3. Mean and median number of hours of service that clients receive per program year, and range across sites, by type of site

Site	Treatment				Control			
	N	Mean	Median	Range	N	Mean	Median	Range
Youth	**549**	**14**	**11**	**0–103**	**493**	**5**	**1**	**0–29**
A	64	18	13	2–103	88	8	8	0–23
B	121	19	13	0–60	93	7	6	0–29
C	181	7	6	0–36	170	4	0	0–24
D	183	15	13	0–41	142	0	0	0–0
Teenage	**371**	**27**	**23**	**0–140**	**319**	**2**	**0**	**0–29**
E	150	u	u	u	142	u	u	u
F	94	31	25	0–140	72	0	0	0–0
G	127	22	17	0–63	105	0	0	0–29

Note: u=unavailable.

tional instability, involvement in risky behaviors and destructive coping methods, as well as difficulties developing meaningful relationships. Many participants lacked resources for obtaining support and guidance. Some spoke of substance use; had experienced abuse or neglect; and appeared to be lonely, isolated or angry.

Teenagers' comments suggested that client-centered programs provide an attractive environment for learning and skills-building with respect to topics related to pregnancy prevention. Participants generally described programs as fun, helpful, supportive and educational. Several teenagers expressed appreciation that information they had received through the programs was so "real" or mentioned that it was more straightforward than any information they had gotten through school, parents or other sources of sexuality education. Teenagers often alluded to feelings of isolation and a lack of consistent family or peer relationships and support; many said that the support and attention they received and the relationships they developed with project staff, mentors or other program participants were especially meaningful to them. They also identified the development of positive attitudes about sexuality and self as a program benefit.

Table 4. Number of months between pretest and posttest, and follow-up rate, by project site

Site	No. of mos.	% followed up
Total	**7**	**75**
Youth		
A	9	85
B	6	77
C	5	63
D	6	86
Teenage		
E	8	79
F	8	80
G	6	68

Clients noted that programs were generally better than they had expected and said that offering more service hours could improve them. Participants identified confidentiality and trust as critical program features. Teenagers' experiences with the programs appeared to be enhanced when their sense of trust and safety was high, when their relationship with staff was strong, and when education about sexuality and contraception was reinforced through discussion, individual counseling or advocacy.

Outcome Evaluation

Methods and Procedures

Participants in project evaluations were randomly assigned to a treatment or control group, typically on the basis of whether their birth date is an odd or an even number. Appropriate consent had to be obtained for participation: For clients younger than 14, both active parental consent and client assent were required; for those 14 or older, only the client's consent was needed. The evaluation is based on results of pretests administered to clients before the start of the intervention (and generally before assignment to treatment or control groups) and posttests administered upon its completion. Data were typically collected from clients in group settings; participants who were absent for the initial test were surveyed later.

The basis for data collection was the Teenage Pregnancy Prevention Computerized Information System (TPPCIS), which is used to monitor and evaluate a wide range of teenage pregnancy prevention programs.* The data system was modified to fit the specific requirements of each project, but where possible, the same information was gathered for all sites to enhance comparability. TPPCIS was designed to capture three types of variables: demographic, risk and outcome. It included items assessing teenagers' educational aspirations, the importance they attach to future education, their communication with their parents, teenagers' and parents' values concerning sexuality, and teenagers' sexual intention and sexual behavior (in both cases, including contraceptive use).

Interventions were conducted within the school year, but began at slightly different times because of differences in schools' agendas. Consequently, for the seven projects covered in this article, the interval between the pretest and posttest was 5–9 months and averaged seven months (see Table 4). Considerable emphasis was placed upon obtaining adequate follow-up. Attempts were made to obtain information from clients remaining in the project as well as those who did not continue. Most teenagers who were lost to follow-up had left the state or transferred to other schools.

We compared the demographic and risk variables shown in Table 2 between participants with follow-up data and those who were lost to follow-up. The only statistically significant difference ($p<.05$, two-tailed) across all sites was gender: A smaller proportion of clients in the group who were not followed up than in the followed-up group were female (61% vs. 72%). For youth sites, only two indicators were statistically significant. In site C, 50% of those lost to follow-up were females, compared with 48% of those followed up. In site D, 33% of those lost to follow-up reported receiving mostly Ds and Fs, compared with 14% of those who were followed up.

For teenage sites, the differences were more pronounced. Overall, clients who were lost to follow-up were at higher risk than those who were followed up. Their mothers were less likely to have a high school education (23% vs. 32%), they were more likely to have mostly Ds and Fs (21% vs. 13%) and they were more likely to have repeated a grade (26% vs. 14%). This bias occurred within each teenage site.

Further tests were conducted to determine if this bias occurred between treatment and control groups for those lost to follow-up. For all sites combined, only one factor was statistically significant: Clients in the treatment group were more likely than those in the control group to have mothers who were not high school graduates (40% vs. 24%). No statistically significant differences were observed for demographic and risk indicators within sites for those lost to follow-up.

A perplexing problem has to do with "diffusion" (or "contamination").[18] Since each project's clients, whether assigned to the treatment or the control group, at-

*TPPCIS was developed in part by the lead author. Some of the core data items are published in: Card JJ, ed., *Evaluating Programs Aimed at Preventing Teenage Pregnancies*, Palo Alto, CA: Sociometrics, 1989; and Card JJ, ed., *Handbook of Adolescent Sexuality and Pregnancy: Research and Evaluation Instruments*, Newbury Park, CA: Sage Publications, 1993.

Table 5. Scales and their components used in project evaluations (and coefficient alpha for each scale), and possible scores for each scale, by type of site

Type of site and scale	Scores
YOUTH SITES	
Sexual behavior intent (α=.87)	**4–20**
How likely is it that you will have sexual intercourse in the next year?	
How likely is it that someone might get you to have sexual intercourse in the next year?	
I know some kids my age have had sexual intercourse. (I definitely would…would not do this.)	
How likely is it that you will stay abstinent while you are an unmarried teen?	
Educational aspirations (α=.65)	**4–20**
Looking ahead, what would you like to do about school? (Quit as soon as possible…finish college.)	
As you look to the future, how important is it to you to get a good education?	
How likely is it that you will get a good education?	
How important is it to your family that you continue your education after high school?	
Hard drug use (α=.13)	**0–5**
Have you used cocaine in the past month?	
Have you used crack in the past month?	
Have you used crank in the past month?	
Have you used acid in the past month?	
Have you used speed in the past month?	
Other substance use (α=.75)	**0–3**
Have you used alcohol in the past month?	
Have you used tobacco in the past month?	
Have you used marijuana in the past month?	
Substance use intent (α=.77)	**3–15**
If someone offered you alcohol and you didn't want to use it, how likely is it that you could say no?	
I know some kids my age have smoked cigarettes. (I definitely would…would not do this.)	
I know some kids my age have used alcohol, marijuana or other drugs. (I definitely would…would not do this.)	
Sexual values (α=.76)	**4–20**
I think it's OK for kids my age to have sex.	
Having sex is just a normal part of teenage dating.	
My friends think it is OK for kids my age to have sex.	
My beliefs about sex are the same as my parents'.	
TEENAGE SITES	
Sexual behavior intent (α=.78)	**2–10**
If someone did try to get you to have sexual intercourse, what would you do? (I would definitely say no...definitely say yes.)	
How likely is it that someone might get you to have sexual intercourse in the next year?	
Educational aspirations (α=.72)	**4–20**
Looking ahead, what would you like to do about school? (Quit as soon as possible…finish college.)	
How important is it to your family that you continue your education after high school?	
How likely is it that you will get a good education?	
As you look to the future, how important is it to you to get a good education?	
Hard drug use (α=.61)	**0–5**
Have you used cocaine in the past month?	
Have you used crack in the past month?	
Have you used crank in the past month?	
Have you used acid in the past month?	
Have you used speed in the past month?	
Other substance use (α=.72)	**0–3**
Have you used tobacco in the past month?	
Have you used alcohol in the past month?	
Have you used marijuana in the past month?	
Sexual values (α=.91)	**3–15**
Having sex is just a normal part of teenage dating.	
Having sex can cause lots of problems for teenagers.	
It is against my values to have sexual intercourse while I am an unmarried teenager.	

Note: Response options for some scaled items are shown in parentheses. For others, responses ranged from "very important" to "not at all important," "very likely" to "not at all likely" or "strongly agree" to "strongly disagree."

tended the same school or community-based service agency and were of similar ages, information may have been diffused via communication and interaction between the groups. While this may be a problem, we would rather use randomization and deal with potential diffusion than apply weaker designs and deal with their deficiencies. Furthermore, if diffusion occurs, we expect information that clients obtained in the project to "rub off" on clients in the control group. However, the individualized and intensive nature of the intervention should overshadow the effects of diffusion, enabling us to test the hypotheses despite the occurrence of some diffusion. Hence, while this issue is of concern, we do not expect it to be detrimental to this evaluation.*

Measures and Hypotheses

We combined pertinent items from the TPPCIS to form constructs, or scales, which we tested for reliability using Cronbach's alpha, a common measure of internal consistency of scale items. (We consider an alpha of .70 or higher to indicate a reliable scale.) The items for each scale and corresponding alphas are shown in Table 5. Most of the scales have moderate or strong alpha coefficients. The exception is the drug use scale, especially for youth. There was too little use of illicit drugs to attain reliability. Notably, marijuana use did not correlate with use of harder drugs for either teenagers or youth, but it correlated with alcohol and tobacco use.

Individual items are scored either on a five-point Likert scale (with scores ranging from one to five) or, if they are dichotomous, on a two-point scale (with zero indicating a negative response and one indicating positive). Scores for individual items are summed to yield a score for the overall construct. Thus, for example, the sexual intention construct for youth sites consists of four items whose scores may range from one to five; therefore, the score for the scale may range from four to 20.

Since youth and teenage projects have slightly different focuses, we expect them to have slightly different outcomes. In the youth sites, we hypothesize that after participating in the project, clients in the treatment group will be more likely than controls to express a decreased intent to engage in sexual behavior, increased values to delay sexual and other risky behaviors, increased communication with parents about sexuality,† increased educational aspirations, decreased substance use and decreased intent to use substances. In the teenage sites, we expect project participation to result in decreased intent to engage in sexual behavior, decreased sexual behavior, increased intent to use contraceptives,‡ increased

*Similarly, when this issue was discussed in a workshop of the National Campaign to Prevent Teen Pregnancy, the consensus was that while diffusion is a problem, it is not a "paralyzing" one. (Source: National Campaign to Prevent Teen Pregnancy, *Evaluating Abstinence-Only Interventions,* Washington, DC: National Campaign to Prevent Teen Pregnancy, 1998, p. 13.)

†The following dichotomous item measured communication with parents: "I can go to my parents with questions about sex."

‡Contraceptive intent was measured by one item: "How likely is it that you will use an effective form of birth control in the next year?" Possible responses ranged from "definitely will not" (scored as one) to "definitely will" (five).

Table 6. Adjusted mean values for selected measures of youth risk behavior, along with standard errors and statistical power, by site

Measure	Total				Site A				Site B				Site C				Site D			
	N	Adj. mean	S.E.	Power	N	Adj. mean	S.E.	Power	N	Adj. mean	S.E.	Power	N	Adj. mean	S.E.	Power	N	Adj. mean	S.E.	Power
Sexual behavior intent																				
Treatment	395	7.3	.13	.22	54	8.3	.39	.10	81	5.6	.24	.28	110	7.5**	.25	.82	150	7.7	.20	.15
Control	343	7.5	.14	na	73	8.2	.34	na	62	5.2	.27	na	95	8.4	.27	na	113	7.5	.23	na
Sexual values																				
Treatment	195	14.9	.23	.21	13	13.6	.83	.19	32	16.1	.58	.14	52	14.9	.41	.19	98	14.7	.32	.19
Control	148	15.2	.26	na	19	14.4	.69	na	34	15.7	.54	na	36	15.3	.50	na	59	15.1	.41	na
Communication with parents																				
Treatment	202	0.44	.03	.11	15	0.44	.13	.10	32	0.71	.08	.17	55	0.53	.06	.11	100	0.30	.04	.19
Control	148	0.46	.04	na	17	0.43	.12	na	32	0.63	.08	na	40	0.52	.08	na	59	0.35	.06	na
Educational aspirations																				
Treatment	237	17.4	.14	.35	20	15.7	.62	.15	32	17.6	.34	.11	51	17.5	.32	.20	134	17.8	.16	.36
Control	192	17.2	.15	na	32	16.2	.49	na	31	17.7	.34	na	37	17.1	.38	na	92	17.4	.20	na
Substance use																				
Treatment	334	0.80	.05	.24	54	1.1	.14	.18	54	0.19	.06	.18	94	0.97	.10	.25	132	0.79	.07	.37
Control	302	0.86	.05	na	74	1.3	.12	na	52	0.25	.06	na	82	1.1	.11	na	94	0.66	.08	na
Substance use intent																				
Treatment	194	6.5	.19	.15	14	8.3	.73	.25	30	4.2*	.37	.53	52	6.9	.40	.10	98	6.9	.27	.34
Control	146	6.4	.21	na	16	7.3	.68	na	32	5.1	.35	na	38	7.0	.46	na	60	6.3	.34	na

*p<.05. **p<.01. *Notes:* na=not applicable. S.E.=standard error. Power is the ability of a statistical test to reject the null hypothesis (that there is no association) when it is false (i.e., the probability of a correct decision).

contraceptive behavior, increased educational aspirations, decreased substance use and increased values to delay sexual and other risk behaviors.

Statistical Tests

In testing the hypotheses, we compared the randomly assigned treatment and control groups by using a covariance adjustment model.* With this model, differences in adjusted mean scores between the treatment and control group at posttest indicate the effect, or lack of effect, of the intervention on each variable. (For instance, in Table 6, the adjusted means for sexual intention are 7.3 for the treatment group and 7.5 for the control group. The difference is not statistically significant, indicating no effect of the intervention across sites on this variable.) Statistical tests were done using the GLM feature in SPSS, version 10.5. Hypotheses tests are considered significant at p<.05, one-tailed.

Sample sizes vary considerably within sites for tests of different hypotheses. This variation is due partly to survey modification over time. We used a core set of questions at startup, and as time progressed, we added or modified items on the basis of feedback from clients, requests from staff and analysis of surveys. Variations in sample size are also due to conditional relationships (e.g., questions that concern contraceptive use at last intercourse apply only to sexually active clients) and missing data.

Equivalence between treatment and control groups at baseline was tested for each site using independent t-tests. The variables considered were age, gender, ethnicity, grade repetition, grades received and mother's education. In nearly all cases (40 out of 42), equivalence of treatment and control groups is supported for both teenage and youth sites (p>.05, two-tailed). An exception occurs in one youth site for gender and in one teenage site for age. In site B, there is a larger proportion of females in the treatment group (61%) than in the control group (41%). Site F has slightly older clients in the treatment group (15.1 years) than in the control group (14.7).

Results of Hypothesis Testing

• *Youth sites.* We found only minimal support for any of our hypotheses regarding the youth sites. For clients' intention to have sexual intercourse, possible scores range from four to 20, with higher scores indicating a greater likelihood of intending to engage in sexual intercourse. In site C, the mean, adjusted for pretest score,† is 7.5 for the treatment group and 8.4 for the control group, and the difference is statistically significant (Table 6). Thus, results for this site support the hypothesis that youth in the project will have lowered intentions to engage in sexual intercourse. However, none of the other sites show support for this hypothesis, nor do the sites taken together show support.

Similarly, one site (B) showed a statistically significant effect in the hypothesized direction for intention to use substances. Possible scores for this construct range from three to 15. The adjusted means for both groups of youth are low, but the treatment group scores slightly lower (4.2) than controls (5.1), indicating a lower likelihood of intending to use substances. However, the power (i.e., the probability of correctly rejecting the null hypothesis when it is false) is low.

• *Teenage sites.* The first hypothesis, regarding clients' intent to engage in sexual intercourse, is tested for sites E and G only.‡ The sexual intention scale has two items, and scores for the scale can range from two to 10. The adjusted mean for site

*This model is an alternative to the more traditional repeated-measures approach. Both tests use only clients for whom we have both pretest and posttest data. However, the covariance adjustment model includes regression adjustment for the baseline value on the dependent variable in an analysis of covariance on the posttest data, not a comparison of change scores, the strategy of the repeated-measures technique. This is usually a more powerful approach than repeated measures. (Source: Murry D and Wolfinger R, Analysis issues in the evaluation of community trials: progress towards solutions in SAS/STAT MIXED, *Journal of Community Psychology*, 1994, CSAP Special Issue:140–154.)

†Covariate adjustments were also done for pertinent demographic and risk variables (e.g., gender, age, ethnicity, mother's education, low grades and whether the client repeated a grade). As expected, because of the random assignment, including these additional adjustments did not have a significant effect on any of the hypothesized outcomes. Hence, only the pretest adjustment is used in the results reported in Tables 6 and 7.

‡Site F is omitted because a slightly different item was used to measure sexual intent there. The item asked "How likely is it that you will have sexual intercourse in the next year?" Adjusted mean scores among 71 youth in the treatment group and 58 in the control group were nearly identical: 3.0 and 3.1, respectively.

Table 7. Adjusted mean values for selected measures of teenage risk behavior, along with standard errors and statistical power, by site

Measure	Total				Site E				Site F				Site G			
	N	Adj. mean	S.E.	Power	N	Adj. mean	S.E.	Power	N	Adj. mean	S.E.	Power	N	Adj. mean	S.E.	Power
Sexual behavior intent																
Treatment	208	6.2*	.13	.58	116	6.5*	.18	.63	na	na	na	na	92	5.9	.18	.10
Control	170	6.6	.15	na	110	7.0	.19	na	na	na	na	na	60	5.8	.23	na
Intercourse in past month																
Treatment	191	0.62**	.03	.76	98	0.69	.05	.39	32	0.50**	.08	.81	61	0.57	.06	.11
Control	166	0.74	.04	na	102	0.78	.04	na	23	0.83	.10	na	41	0.59	.08	na
Ever had intercourse																
Treatment	275	0.79	.02	.12	114	0.98	.01	.17	69	0.56	.05	.14	92	0.71	.03	.11
Control	232	0.80	.02	na	112	0.96	.01	na	59	0.60	.05	na	61	0.72	.03	na
Contraceptive intent																
Treatment	181	3.7	.11	.43	88	4.1**	.15	.75	65	3.4	.17	.15	28	3.2	.28	.27
Control	174	3.5	.11	na	84	3.6	.15	na	53	3.2	.19	na	37	3.6	.24	na
Contraceptive use in last month																
Treatment	99	0.80	.04	.15	63	0.85	.05	.12	12	0.73	.14	.46	24	0.73	.08	.24
Control	90	0.77	.04	na	64	0.82	.05	na	15	0.42	.13	na	11	0.87	.12	na
Contraceptive use at last sex																
Treatment	72	0.82	.06	.10	22	0.88	.07	.10	18	0.77**	.10	.94	32	0.80	.09	.46
Control	72	0.82	.06	na	30	0.89	.06	na	13	0.24	.12	na	29	1.00	.10	na
Contraceptive use always																
Treatment	70	0.45	.06	.39	21	0.49	.11	.30	18	0.47*	.10	.72	31	0.39**	.09	(.77)
Control	72	0.56	.06	na	30	0.66	.09	na	13	0.11	.12	na	29	0.69	.09	na
Educational aspirations																
Treatment	195	4.2	.06	.11	73	4.1	.10	.22	51	4.3	.12	.11	71	4.3	.10	.16
Control	169	4.2	.07	na	86	4.0	.09	na	43	4.3	.13	na	40	4.4	.13	na
Hard drug use																
Treatment	205	0.06	.02	.14	73	0.0*	.02	.66	52	0.06*	.02	(.52)	80	0.13*	.03	(.67)
Control	180	0.05	.02	na	87	0.06	.02	na	43	0.0	.03	na	50	0.03	.03	na
Other substance use																
Treatment	207	1.3	.06	.21	75	1.2	.11	.16	52	1.5	.12	.28	80	1.4	.10	.10
Control	180	1.2	.07	na	87	1.1	.11	na	43	1.3	.13	na	50	1.4	.13	na
Sexual values																
Treatment	109	7.7	.21	.12	22	8.6	.46	.28	40	7.6	.32	.12	47	7.3	.32	.11
Control	106	7.6	.21	na	31	8.0	.39	na	36	7.5	.34	na	39	7.5	.35	na

*p<.05. **p<.01. *Notes*: na=not applicable. S.E.=standard error. Power is the ability of a statistical test to reject the null hypothesis (that there is no association) when it is false (i.e., the probability of a correct decision). Power measures in parentheses indicate associations that are significant in the opposite direction than was hypothesized.

E is lower for the treatment group (6.5) than for the controls (7.0); although the power is low, the difference is statistically significant (Table 7). The two sites combined also show a statistically significant difference, but the difference is clearly due to the impact of the project at site E, since scores for the treatment and control groups were virtually identical at site G.

The hypothesis that sexual behavior will be lower among treatment clients than among controls is not supported in site E or G, but is strongly supported in site F. At posttest, 50% of the treatment group at that site and 83% of the controls said that they had intercourse within the last month; this difference is statistically significant and has ample power. The effect is carried over to the test of the sites combined.

Results for sites F and G do not indicate any effect of the project on clients' intention to use contraceptives. However, in site E, the mean score was significantly higher for the treatment group than for controls.

Support for the hypothesis that project participation will be associated with an increase in contraceptive behavior is also evident in site F. At posttest, 77% of clients in the treatment group said that they had used a contraceptive at last intercourse, compared with 24% of those in the control group; the difference is statistically significant with strong power. Additionally, 47% of the treatment group and 11% of controls said that they always use a contraceptive; this difference, too, is statistically significant, but with lower power. Of concern here is that since the contraceptive questions were asked only of clients who had been sexually active in the past month, the sample sizes for these tests are small. This concern notwithstanding, there is partial support for the hypothesis.

There is no support for hypotheses that treatment and control groups would differ with respect to educational aspirations, substance use or sexual values. Site E showed some positive difference in reported drug use at posttest, but the other two sites showed differences in the opposite direction from what was expected: Treatment clients reported a higher incidence of drug use than controls. In all cases, however, the amount of illicit drug use by both treatment and control group clients is very small.

Conclusion

It has taken four years to get a solid test of these hypotheses. While one project consistently shows positive differences between treatment and control groups, and some isolated effects occur in other projects, the interventions show little or no effect across most of the projects. So, where do we go from here? Obviously, one answer would be to conclude that these interventions do not work, cut their funding and start over. Unfortunately, cutting project

funds is the option usually taken by funding agencies, but in our opinion, it is a mistake. The better option is to begin modifying these interventions, and to the state health department's credit, it has concurred.

The reasons to maintain the projects are compelling. First, they have strong evaluation components. Second, we have a series of measures that are highly reliable and appear to be valid. Third, the project assumptions and orientations appear to fit well with the populations being served, and the programs are appealing to clients. Fourth, each project has had success in overcoming barriers to implementation, attracting and keeping clients, and gaining acceptance in the communities in which they operate. Fifth, sites are using evaluation data to modify and improve their programs. Hence, we have the processes in place to detect improvements when they occur. On the basis of information obtained through evaluations, modifications of the client-centered interventions began in 1999.

One issue that seems to warrant close assessment is service dosage. In site F, which showed consistent support for both sexual and contraceptive behavior hypotheses, treatment group clients spent the greatest number of hours in project activities—31, on average, compared with 14 for clients in youth sites and 27 for those in teenage sites overall. The question arises as to whether this level of service provision is sufficient to allow the interventions to have an impact on attitudes and behavior, especially given participants' risk factors. A study that measured outcomes of several health education curricula presented to youth in grades 4–7 found that program effects were limited when exposure time totaled less than 15 hours.[19] Significant improvement in program effects was noted when exposure exceeded 20 hours, but approximately 40–50 hours was required to effect changes in general health attitudes and practices. Although individualized interventions are more intensive than school-based curricula and thus may require less time to affect attitudes or behaviors, an increase in service hours may be necessary for the Washington community-based projects to generate expected effects across all sites.

Many projects have also begun to look closely at whether the services they offer are focused specifically enough on changing sexual behavior and intent. While programs aim to provide services that are tailored to clients' individual needs, focus-group findings suggested that this flexible approach may lead some programs to steer services to address clients' present crises. As programs become more and more focused on "crisis management," the emphasis on sexuality education and pregnancy prevention is likely to lessen. While discussing or assisting clients with a range of risk issues is doubtless important, a more specific focus on sexuality and the behaviors associated with pregnancy may be critical to the success of pregnancy prevention programs. The issue of whether program services are linked tightly enough to the evaluation hypotheses so that positive impacts can be reasonably expected in a relatively short time has begun to receive attention.

To address the issues of service quantity and intensity, the state health department responded to evaluators' recommendations and required that all projects increase their "service dose" to a minimum of 20 hours per client. Some sites, acting on the focus-group results indicating that clients want more participation time, are increasing exposure even more.

Another issue that bears on service quantity and intensity is that higher-risk clients are likely to need not only *more* interventions, but *more intensive* interventions. And projects may not have adequate resources to serve some very high risk teenagers, who are the most likely to drop out of programs. Teenagers with many complicated issues (including mental and emotional health issues) may not be able to integrate prevention education messages and may require services that are outside the scope of the community-based projects. While many projects initially expressed a desire to serve all teenagers, regardless of need, projects have begun to see that this may not be an effective strategy. To target their interventions effectively, programs may need to develop a "hierarchy of need." Ideally, they will tailor interventions specifically on the basis of information about clients' risk levels. And given the resource limitations of the community-based projects, some teenagers may be best served by even more intensive case management programs.

Using evaluation data, we hope to discover what quantity, intensity and mix of services project clients need. We will continue to evaluate and monitor the progress of these interventions until we identify the most promising strategies for addressing the difficult issues surrounding sexual behavior that affect our youth.

References

1. Moore K et al., *Adolescent Pregnancy Prevention Programs: Interventions and Evaluations*, Washington, DC: Child Trends, 1995; and Washington State Department of Health, Center for Health Statistics, *Washington State Pregnancy and Induced Abortion Statistics 1997*, Olympia, WA: Washington State Department of Health, 1998.

2. Maynard R, ed., *Kids Having Kids: A Robin Hood Foundation Special Report on the Costs of Adolescent Childbearing*, New York: The Robin Hood Foundation, 1996.

3. Kirby D, *No Easy Answers: Research Findings on Programs to Reduce Teen Pregnancy*, Washington, DC: National Campaign to Prevent Teen Pregnancy, 1997; and Trussell J, Card JJ and Hogue CJR, Adolescent sexual behavior, pregnancy, and childbearing, in: Hatcher R et al., eds., *Contraceptive Technology*, 17th rev. ed., New York: Ardent Media, pp. 701–744.

4. Kirby D, 1997, op. cit. (see reference 3); and Maynard R, 1996, op. cit. (see reference 2).

5. Brown S and Eisenberg L, eds., *The Best Intentions: Unintended Pregnancy and the Well-Being of Children and Families*, Washington, DC: National Academy Press, 1995; Moore K et al., 1995, op. cit. (see reference 1); Philliber S and Namerow P, Trying to maximize the odds: using what we know to prevent pregnancy, paper prepared for the Teen Pregnancy Prevention Program, Division of Reproductive Health, National Center for Chronic Disease and Prevention, Centers for Disease Control and Prevention, Atlanta, Dec. 13–15, 1995; Kirby D, 1997, op. cit. (see reference 3); and Miller B et al., *Preventing Adolescent Pregnancy: Model Programs and Evaluations*, Newbury Park, CA: Sage, 1992.

6. Brown S and Eisenberg L, 1995, op. cit. (see reference 5).

7. Frost JJ and Forrest JD, Understanding the impact of effective teenage pregnancy prevention programs, *Family Planning Perspectives*, 1995, 27(5):188–195; Moore K et al., 1995, op. cit. (see reference 1); Webster C and Weeks G, *Teenage Pregnancy: A Summary of Prevention Program Evaluation Results*, Olympia, WA: Washington State Institute for Public Policy, 1995; and Miller B et al., 1992, op. cit. (see reference 5).

8. Brown S and Eisenberg L, 1995, op. cit. (see reference 5).

9. Miller B et al., 1992, op. cit. (see reference 5); and Moore K et al., 1995, op. cit. (see reference 1).

10. The Alan Guttmacher Institute (AGI), *Sex and America's Teenagers*, New York: AGI, 1994.

11. Kirby D, 1997, op. cit. (see reference 3).

12. Ibid.; and Moore K et al., 1995, op. cit. (see reference 1).

13. Miller B et al., 1992, op. cit. (see reference 5); and Moore K et al., 1995, op. cit. (see reference 1).

14. Gienapp A, Greef E and Paulsen L, Interviews with the Washington State Department of Health's community-based teenage pregnancy prevention program coordinators, 1996.

15. McBride D, Aronson B and Malloy C, Preliminary evaluation of the Washington State abstinence education program, paper presented at the workshop Evaluating Title V Abstinence Education Programs, Bethesda, MD, July 24, 2000.

16. RMC Research Corp., *Washington State Survey of Adolescent Health Behaviors, 1998: Analytic Report*, Portland, OR: RMC Research Corp., 1998.

17. Kirby D, 1997, op. cit. (see reference 3).

18. Cook T and Campbell D, *Quasi-Experimentation: Design & Analysis Issues for Field Settings*, Chicago: Rand McNally, 1979, p. 54.

19. Connell D, Turner R and Mason E, Summary findings of the school health education evaluation: health promotion effectiveness, implementation, and cost, *Journal of School Health*, 1985, 55(8):316–321.

Pregnancy Prevention Among Urban Adolescents Younger than 15: Results of the 'In Your Face' Program

By Lorraine Tiezzi, Judy Lipshutz, Neysa Wrobleski, Roger D. Vaughan and James F. McCarthy

Data from a pregnancy prevention program operating through school-based clinics in four New York City junior high schools suggest that an intensive risk-identification and case-management approach may be effective among very young adolescents. Among students given a referral to a family planning clinic for contraception, the proportion who visited the clinic and obtained a method rose from 11% in the year before the program began to 76% in the program's third year. Pregnancy rates among teenagers younger than 15 decreased by 34% over four years in the program schools. In the fourth year of the program, the pregnancy rate in one school that was unable to continue the program was almost three times the average rate for the other three schools (16.5 pregnancies per 1,000 female students vs. 5.8 per 1,000).

(Family Planning Perspectives, **29:**173–176 & 197, 1997)

The problem of teenage pregnancy in the United States is far from resolved, especially among very young adolescents and minorities. In 1990, an estimated one million pregnancies occurred among U.S. teenagers; 28,000 of these were among adolescents younger than 15.[1] Although the overall pregnancy rate for adolescents has declined, the rate for those younger than 15 continues to climb. Among the 39 states that reported pregnancy rates for teenagers younger than 15 in 1991–1992, 20 reported increases, nine reported no change and 10 reported a decrease. In contrast, only five of the 42 states that reported pregnancy rates among 15–19-year-olds reported an increase for that age-group.[2]

The pregnancy rate among minority youth is twice as high as that among white teenagers, and appears to be rising: Between 1980 and 1988, it increased from 181 to 184 per 1,000 among nonwhites, while it decreased from 96 to 93 per 1,000 among whites.[3] Minority adolescents are disproportionately represented among teenagers who give birth; of the 38 states that reported rates for 1991–1992, 27 reported an increase in birthrates among Hispanic adolescents, whereas only six of 50 states reported an increase in birthrates among non-Hispanic white teenagers.[4]

Although no research has been conducted on factors contributing to the risk of pregnancy specifically among the youngest teenagers, some studies have examined the issue among all adolescents. Nonuse or inconsistent use of contraceptives is a major factor: Approximately 35% of unmarried, sexually active teenagers use no form of birth control at first intercourse,[5] and a sexually active teenager who does not use birth control has a 90% chance of becoming pregnant within a year's time.[6]

One reason for nonuse of contraceptives may be an imbalance of negotiating power resulting from the age discrepancy between many teenage women and their partners; approximately 60% of mothers aged 15–17 report that their partner is at least three years older than they are.[7] Young minority adolescents are especially at risk of pregnancy, as nonwhites are likely to engage in sexual intercourse at a younger age than whites.[8]

Programs aimed at reducing or preventing teenage pregnancies, especially among younger adolescents, must overcome several formidable financial and logistical barriers.[9] School-based clinics have long been regarded as an effective means of overcoming some of these barriers by providing convenient, affordable, comprehensive health care to adolescents, and have been the site of several successful prevention programs.[10] Many of these clinics, however, are prohibited from dispensing contraceptives. Rather, students must obtain contraceptives by prescription from an off-site source, a requirement that presents them with yet another barrier. Even if school-based clinics are able to provide contraceptives on-site, they need a rigorous follow-up mechanism to ensure that each adolescent receives counseling regarding the decision to become sexually active, chooses and receives an appropriate contraceptive, and is using the chosen method.

In 1986, the Center for Population and Family Health (CPFH) at the Columbia University School of Public Health, in collaboration with the Presbyterian Hospital in the City of New York and with New York City School District 6, established its first comprehensive school-based clinic. It now operates school-based clinics in four junior high schools and one high school in economically disadvantaged and medically underserved areas of New York City. These clinics, their services and their client population have been described elsewhere.[11]

In 1992, CPFH introduced a health education pilot program focusing on pregnancy prevention as part of clinic services. The pilot was then expanded into all four of the junior high schools served by CPFH. These schools have approximately 3,500 students, the majority of whom are immigrants from the Dominican Republic. This article describes the pregnancy prevention program and reports on the outcomes in its first four years of operation.

Program Description

The "In Your Face" pregnancy prevention program was designed to reduce the risk of unintended pregnancy by providing information, counseling, support and referral for reproductive health care. Students were targeted for this health education intervention in a variety of ways.

A confidential schoolwide health and risk factor screening survey[12] was administered annually by CPFH staff; typically, the screening captured about 85% of

Lorraine Tiezzi is program director and assistant clinical professor of public health, Judy Lipshutz is health education coordinator, Neysa Wrobleski is a health educator, Roger D. Vaughan is evaluation coordinator and assistant professor of clinical public health and James F. McCarthy is director of the Center for Population and Family Health (CPFH) and the Harriet and Robert Heilbrun Professor, Columbia University School of Public Health, New York. This investigation was a collaborative effort of the Center for Population and Family Health, Presbyterian Hospital, the Ambulatory Care Network Corporation and New York City School District 6. The program received support from the Aaron Diamond Foundation, the Engelberg Foundation, the Carnegie Foundation and the New York State Department of Health. The evaluation of the program was made possible by a grant from the Esther A. and Joseph Klingenstein Fund, Inc., and by general support for the CPFH program evaluation unit from the William and Flora Hewlett Foundation and the Andrew W. Mellon Foundation.

the student population. The survey, which was available in English and Spanish and took 25–30 minutes to complete, identified students who were sexually experienced and those who had characteristics correlated with sexual activity. These characteristics included alcohol and substance use by students or by their parent or guardian, having run away from home or having manifested some indicator of an underlying psychiatric or mental health problem, such as a suicide attempt or chronic depression.

Students who reported sexual activity or characteristics correlated with sexual activity were referred to the health educator. If the health educator determined that a student's survey responses were accurate, the student was invited to participate in the In Your Face health education program.

Other students entered the program after visiting the health educator because of referrals from the clinic-based medical providers and social workers, teachers and guidance counselors, or through self-referral. Many of the students who came on their own had heard a classroom presentation given by the health educator, informing students of the clinic location, hours and services.

From the pool of students identified as being at risk of pregnancy, the health educator in each school formed a number of groups, each consisting of 5–10 students. The groups met at least once a week during the school year. The program relied on group meetings as well as individual counseling; groups made efficient use of the health educator's time, created peer groups in which new norms could be established and provided a support group to reinforce positive attitudes and behavior.

The In Your Face intervention consisted of several components—group education, individual education and counseling, interdisciplinary support (i.e., a team approach, with input from social workers, medical providers and psychiatrists), referrals and classroom interventions, plus other special events and projects. In the group setting, the health educator delivered a series of 15 lessons based on the "Reducing the Risk" curriculum,[13] which had been reviewed and modified to be sensitive to the culture and language of the students. The lessons focused on such topics as knowledge, behavior and decision-making skills. However, since purely didactic lessons usually "turn off" adolescents, the intervention incorporated role-playing exercises, group games, brainstorming exercises and audiovisual presentations. Throughout the sessions, students explored ways to assess their own risks and identify behavioral cues of risk.

Saying no to sex was explored as an important and valid option. Students already involved in sexual activity were encouraged to abstain. For those continuing sexual activity, individual sessions were scheduled to discuss the available array of contraceptive methods, offer counseling about each option and provide referrals to obtain contraceptives. Each of these options was discussed in an open, honest, nonjudgmental way.

Dispensing contraceptives and prescriptions in junior high school clinics is prohibited in New York City; therefore, a referral mechanism enabled sexually active students to receive contraceptives at one of two satellite hospital clinics—the Young Adult Clinic and the Young Men's Clinic—which are jointly operated by CPFH and the Ambulatory Care Network Corporation of Presbyterian Hospital. The clinics, which offer a full range of medical and mental health services, are staffed and administered by CPFH health care workers.

The benefits of this arrangement are enormous: The students see the same staff they see in their own school-based clinics; record-keeping, transfer of information, compliance and follow-up are greatly enhanced; and students receive greater continuity of care. The health educator in the school-based clinic who refers a student to either of the satellite clinics acts as a case manager for that student; the educator organizes all documentation and paperwork required, meets the student at the clinic, oversees the visit at the clinic and tracks any lab test or follow-up needed. In this way, the health educator serves as a mediator and a guide for the student, essentially removing structural barriers to appropriate contraceptive services.

Sexual activity is related to and may indeed result from other events or conditions in an adolescent's life. Therefore, the health educator's ongoing case management is supplemented by regular follow-up meetings of an interdisciplinary team of nurse practitioners, social workers and physicians who work in the school-based clinic. A student who has been identified as having a serious medical or psychosocial problem is referred to the appropriate clinic provider, and the case is comanaged by all the providers involved. This "whole-person" approach to pregnancy prevention is a key component of the In Your Face program; trustworthy, competent and caring health providers are "in the student's face" to ensure that he or she obtains appropriate care.

Research Design

Adolescent health programs in general, and pregnancy prevention programs in particular, are often designed and implemented without the benefit of a thorough and rigorous evaluation of the effectiveness of specific program approaches. However, the research designs that are typically seen as the best present serious challenges to community health programs such as the one described in this article. The best research design would have entailed random assignment of students to treatment and control groups, with the treatment group receiving the intensive In Your Face program and the control group receiving only services routinely available through the school-based clinics. We did not use this approach because we could not justify withholding this potentially useful intervention from a portion of the students for the sole purpose of implementing a strong research design.

Another option was to select a control group consisting of junior high schools that were as similar as possible to the experimental schools in every aspect and dimension, both demographic and programmatic, except for the In Your Face program. However, it would have been difficult, if not impossible, to find a second group of junior high schools that had a student population predominantly made up of immigrants from the Dominican Republic, that had school-based clinics and that had environmental and economic conditions that were comparable to those of the program schools.

In addition, we could have compared the outcomes of students who participated in the In Your Face program to the outcomes of those who did not participate. However, because we attempted to reach all students at risk through multiple outreach mechanisms, a control group composed of those who were not involved in the program would tend to be at lower risk and would therefore bias the estimate of program effectiveness.

Another possibility was to assign students to different levels of the intervention. We chose not to use this approach because we believed that all students should have access to the full program. Inferences about "dose" effects could not be based on student attendance because such an approach would seriously confound program effects with student characteristics related to attendance.

Given these constraints, we decided to rely on what Cook and Campbell refer to as a one-group pre- and post-test design.[14] Although Cook and Campbell caution

that one should not try to draw "hard-headed causal inferences" from studies using this design, they consider that "inferences may be possible."

Data and Analysis

CPFH maintains its own tracking and data analysis system. Each time a student makes an individual visit to a school-based clinic, the provider records the reason for the visit, diagnoses, sexual behavior, problems identified, services rendered and referrals (among other information) on a comprehensive clinic visit form. Logs are kept of group attendance and visits to the hospital satellite clinics.

Pregnancy data for this analysis were compiled from clinic records. Young women who suspected that they were pregnant were referred to the clinic for testing, or came on their own. In addition, sexually active students who had symptoms consistent with pregnancy when they visited the clinic for other reasons were offered pregnancy tests and were referred to the health educator and social worker for counseling and follow-up. Although this data collection method may have missed some pregnancies, conversations with students and staff indicated that students were likely to come to the clinic if they were pregnant, because they felt that they would be treated with respect and that the clinic "was the place to go to get help."

The data from student clinic visits and the results from the schoolwide risk survey were linked by a unique nine-digit identification number assigned to each student by the school system. Using data sets that were linked across visit type, locations and years, we were able to compile a variety of descriptive statistics and cross-tabulations.

Table 1. Percentage distribution of students in program schools, and percentage with selected risk factors, all by demographic characteristics, 1992–1993 (N=3,738)

Characteristic	Total	Ever had sex	Ever considered suicide	Assaulted someone in past year
All	**100**	**20**	**14**	**18**
Gender				
Female	46	7	19	8
Male	54	31	10	27
Race/ethnicity				
Hispanic	81	18	14	17
Black	10	33	12	32
Other	9	16	13	17
Grade level				
6	35	16	14	19
7	33	18	14	19
8	32	25	14	17

Results

Table 1 describes the population of students in the schools served by the In Your Face program during its first year (1992–1993); the social and demographic characteristics of the population remained relatively stable over the study period. A substantial majority (81%) of the students described themselves as Hispanic (generally Dominican), 10% as black and 9% as members of other racial groups. Despite their young age (mean, 12.9 years), 20% had already had sexual intercourse, 18% had assaulted someone and 14% had thought about suicide.*

Because so-called "problem behaviors" tend to cluster, we expected that students enrolled in the program—whom we had actively recruited because they had been identified as being at risk of pregnancy—would report more risk factors in the schoolwide screening survey than would those who either did not use the school-based clinic services or who used the clinic but were not enrolled in the program. Indeed, the data presented in Table 2 show much higher risk profiles among students who were in the program (approximately 250 each year). Differences across categories for each risk variable in the table are significant (by the chi-square test) at the $p<.001$ level.

One of the goals of the In Your Face program was to reach as many as possible of the adolescents identified as sexually active. Because there was only one health educator in each school, and because the daily absentee rates in the four schools ranged from 10% to 20%, we were unable to achieve this goal. Information gathered by the health educators about sexually active students who were not reached by the program indicated that the vast majority could not be contacted because of what the schools classified as "consistent absenteeism" or "ongoing truancy." However, the success rate of the program in enrolling students classified as "currently sexually active" (defined as having had sex in the past three months) increased by nearly half over the first three years, from 50% of sexually active students in 1992–1993 to 74% in 1994–1995.

Changes in several outcome measures suggest that the program was effective. As we noted earlier, one of the program's objectives was to encourage sexually active students to consider abstinence. In 1994–1995, 25% of the students in the program who had ever had sex indicated that they had chosen to become abstinent (this question was not asked in previous years).

In addition, among students who chose to remain sexually active but were not using contraceptives consistently, the proportion who were successfully referred to the off-site family planning clinic increased from 25% (14 of 56) during the year before the program began to 85% (80 of 94) in the program's third year (Table 3, page 176). The majority of these students were female: In 1993–1994, for example, only 7% of those who completed referrals were male (not shown). Overall, among students who were referred to the clinic, the proportion who adopted a method increased from 11% (6 of 56) in the year before the program began to 76% (71 of 94) in the program's third year.

We calculated the overall pregnancy rate for the four junior high schools served by the In Your Face program by dividing the number of pregnancies occurring in the school as a whole by the number of female students enrolled midway through the year, regardless of whether they participated in the program. The rate decreased from 8.8 per 1,000 female students in 1992–1993 to 5.3 per 1,000 in 1993–1994 and then increased to 6.8 per 1,000 in 1994–1995. (Unfortunately, the number of pregnancies in prior years had not been recorded.) The

Table 2. Percentage of students in program schools, by use of clinic services and program participation, according to year and risk factor

Year and risk factor	All	Never used clinic	Used medical social-work services only	Participated in program
1992–1993				
Ever had sex	20	7	9	33
Ever considered suicide	14	11	16	26
Involved in assault in past year	18	6	9	27
1993–1994				
Ever had sex	16	8	11	42
Ever considered suicide	3	2	2	6
Involved in assault in past year	7	6	7	20
1994–1995				
Ever had sex	18	8	12	48
Ever considered suicide	2	1	2	3
Involved in assault in past year	7	4	7	12

*The wording of the question asking about thoughts of suicide was changed after the first year to more accurately identify students who had actually tried to commit suicide or had considered doing so. Thus, the proportions reporting thoughts of suicide are considerably lower in subsequent years.

Table 3. Among sexually active students who were not consistently practicing contraception, number who were referred to the family planning clinic, who visited the clinic and who adopted a method, by year

Year	Referred to clinic	Visited clinic	Adopted a method
1991–1992	56	14	6
1992–1993	79	35	26
1993–1994	94	85	80
1994–1995	94	80	71

decrease in the pregnancy rate mirrors the corresponding increases in the rates of referral for and acceptance of contraceptives.

In 1995–1996, one of the four schools was unable to operate the program because of a one-year lapse in funding. For that year, the three participating schools had a pregnancy rate of 5.8 per 1,000 female students, compared with a rate of 16.5 per 1,000 in the nonparticipating school. Thus, the removal of the In Your Face program components from the fourth school may have been associated with an increase in the pregnancy rate.

Comparisons between the pregnancy rate in the program schools and the regional rate for adolescents younger than 15 are not possible because regional data for the period of our study are not available. Between 1990 and 1993, however, the pregnancy rate for adolescents younger than 15 in Manhattan rose from 6.2 per 1,000 to 7.4 per 1,000, a 19% increase.[15] The rate in the schools operating the program declined by 34% between 1992 and 1996.

Discussion

The results presented in this article demonstrate that well-designed, well-implemented programs may be able to lower pregnancy rates among very young, high-risk adolescents. The In Your Face program used approaches based on commonly accepted standards of quality public health and clinical practice. The program draws on the public health principle of taking a population-based approach to the diagnosis and treatment of a given condition.

The In Your Face program collected risk factor information from the great majority of students in four junior high schools through the use of a schoolwide screening survey. This information was used to identify students who were in need of the program services; program staff then sought out and invited students identified as at risk to participate in the program. Once in the program, these students were provided, in effect, with both intensive case management and continuity of care, two hallmarks of quality medical care.

The pregnancy prevention program described in this article was not expensive. Its cost consisted of the salary of one health educator placed in each school, serving approximately 1,500 students. The health educators worked in existing school-based clinics, and clearly benefited from the infrastructure available through those clinics. Fortunately, school-based clinics are now available in many schools, and this model of intensive pregnancy prevention efforts, with its emphasis on aggressive case identification and management, can be applied in such schools.

Our study has some major limitations that must be acknowledged. It was not designed as a controlled trial; therefore, alternative explanations for the decrease in pregnancy rates must be explored. The program may simply have documented a natural or ecological decline in pregnancy rates.

Several factors, however, argue against this explanation. First, the most recent New York State Department of Health statistics indicate that state and city pregnancy rates were on the rise among all adolescent age categories in the four years prior to the inception of the In Your Face program (1990–1993). It seems unlikely that a natural decrease in pregnancy rates started the same year the program began.

Second, the decrease in pregnancy rates corresponded with the increase in factors that seem necessary for pregnancy reduction—identification of "at-risk" students and increases in referral rates and family planning acceptance rates. Third, the unintentional "crossover" design, in which one of the four program schools dropped out of the treatment group and was transformed into a control group, provides a comparison that demonstrates that the pregnancy rate dramatically increased in the school from which the program components were removed, while it continued to decrease in the schools that retained the program. Although none of these factors alone is powerful enough to prove that it was the program that caused the decrease in pregnancy rates, rather than some combination of unmeasured factors, the available evidence argues against alternative explanations and for program effectiveness.

The design on which our evaluation is based is limited; however, CPFH's strategy for monitoring and evaluation helped compensate for many of these constraints. First, it monitored changes in behavior and other outcomes over time. Second, we collected and analyzed not only data on program inputs (process data) and results (impact data), but also information on intermediary data that lie in the hypothesized causal pathway of the outcome of interest. Therefore, an important part of our overall approach to program evaluation is the collection of extensive data on the various phases of the program, to ensure that the entire process of the program worked as hypothesized.[16]

Early childbearing is a symptom and a consequence of the extreme poverty that pervades urban, minority communities in the United States. The long-term solution must address the basic economic conditions that give rise to early childbearing and to limited opportunities. However, results from this study demonstrate that public health programs, in the absence of fundamental economic change, can help some adolescents to avoid early pregnancies and to delay the start of childbearing.

References

1. Maternal and Child Health Bureau, Public Health Service, *Child Health USA '94,* DHHS Publication No. HRSA-MCH-95-1, U.S. Department of Health and Human Services, Washington, D.C., 1995.

2. Centers for Disease Control and Prevention, "State-Specific Pregnancy and Birth Rates Among Teenagers—United States, 1991–1992," *Morbidity and Mortality Weekly Report,* **44:**677–684, 1995.

3. National Center for Health Statistics, "Trends in Pregnancies and Pregnancy Rates, United States, 1980–88," *Monthly Vital Statistics Report*, Vol. 41, No. 6, 1992, pp. 1–7.

4. Ibid.

5. J.D. Forrest and S. Singh, "The Sexual and Reproductive Behavior of American Women, 1982–1988," *Family Planning Perspectives,* **22:**206–214, 1990.

6. S. Harlap, K. Kost and J.D. Forrest, *Preventing Pregnancy, Protecting Health: A New Look at Birth Control Choices in the United States*, The Alan Guttmacher Institute, New York, 1991.

7. D.J. Landry and J.D. Forrest, "How Old Are U.S. Fathers?" *Family Planning Perspectives*, **27:**159–165, 1995.

8. J.D. Forrest and S. Singh, 1990, op. cit. (see reference 5).

9. M.P. Beachler, "Improving Health Care for Underserved Infants, Children, and Adolescents," *American Journal of Diseases of Children*, **145:**565–568, 1991.

10. D. Kirby, C.S. Waszak and J. Ziegler, "Six School-Based Clinics: Their Reproductive Health Services and Impact on Sexual Behavior," *Family Planning Perspectives,* **23:**6–16, 1991; M. Howard and J.B. McCabe, "Helping Teenagers Postpone Sexual Involvement," *Family Planning Perspectives,* **14:**553–561, 1993; and L.S. Zabin et al., "Evaluation of a Pregnancy Prevention Program for Urban Teenagers," *Family Planning Perspectives,* **18:**119–126, 1986.

11. H.J. Walter et al., "Sexual, Assaultive, and Suicidal Behaviors Among Urban Minority Junior High School Students," *Journal of the American Academy of Child and Adolescent Psychiatry*, **34:**73–80, 1995; R.D. Vaughan et al., "Carrying and Using Weapons Among a Sample of Urban Minority Junior High School Students," *American*

(continued on page 197)

Pregnancy Prevention…

(continued from page 176)

Journal of Public Health, **86:**568–572, 1996; H. J. Walter et al., "School-Based Health Care for Urban Minority Junior High School Students," *Archives of Pediatric and Adolescent Medicine,* **149:**1221–1225, 1995; H. J. Walter et al., "Characteristics of Users and Non-Users of Health Clinics in Inner City Junior High Schools," *Journal of Adolescent Health*, **18:**344–348, 1996; and R. D. Vaughan et al., "The Development, Reliability, and Validity of a Risk Factor Screening Survey for Urban Minority Junior High School Students," *Journal of Adolescent Health,* **19:**171–178, 1996.

12. Ibid.

13. R. P. Barth et al., "Enhancing Social and Cognitive Skills," in B. C. Miller et al., eds., *Preventing Adolescent Pregnancy: Model Program and Evaluations*, Sage, Newbury Park, Calif., 1992.

14. T. Cook and D. Campbell, *Quasi Experimentation: Design and Analysis Issues for Field Settings*, Houghton Mifflin, Boston, 1979.

15. R. Lewis, Bureau of Reproductive Health, State of New York Department of Health, personal communication, May 3, 1996.

16. V. M. Ward et al., "A Strategy for the Evaluation of Activities to Reduce Maternal Mortality in Developing Countries," *Evaluation Review,* **18:**438–457, 1994.

Education Now and Babies Later (ENABL): Life History Of a Campaign to Postpone Sexual Involvement

By Helen H. Cagampang, Richard P. Barth, Meg Korpi and Douglas Kirby

Education Now and Babies Later (ENABL), a statewide adolescent pregnancy prevention initiative, was inaugurated in California in June 1992. Developed by the state's Office of Family Planning, ENABL utilized a five-session intervention curriculum, Postponing Sexual Involvement (PSI), targeted at delaying the onset of sexual activity among youths aged 12–14. Schoolwide and community-based activities, along with a statewide media and public relations campaign, reinforced the intervention's message. Data collected from nearly 9,000 surveys, 75 individual interviews and 50 focus groups indicated that youths, parents and community representatives supported the initiative and endorsed its message, although most recommended changes to the curriculum. However, because no impact on sexual behavior could be demonstrated, the campaign was abruptly terminated in February 1996, despite recommendations that the program be retained and improved. (Family Planning Perspectives, **29:**109–114, 1997)

On June 30, 1992, in the Governor's Council Room at the California State Capitol, Molly Joel Coye, director of the Department of Health Services (DHS), and Gayle Wilson, wife of Governor Pete Wilson, publicly launched the Education Now and Babies Later (ENABL) initiative. This pregnancy prevention program included an educational component complemented by a set of community-wide projects and a coordinated media campaign. At the governor's request, the legislature had appropriated $15 million for the campaign's first three-year funding cycle. The initiative also included three evaluation components: an outcome evaluation of the program's impact;[1] four formative evaluations of the initiative's acceptance and its adaptation by distinct communities; and a process evaluation to examine the program's implementation.

Widely heralded in the media in the days following its launch, ENABL provided a proactive and positive approach to a troubling social and public health problem. Despite conflicting but passionate beliefs about how best to address the issues of adolescent sexual activity and pregnancy, the campaign had broad bipartisan endorsement. Long after the official launch, DHS publications and public relations materials continued to emphasize the governor's support for the ENABL campaign.

The instructional core of the ENABL campaign was the Postponing Sexual Involvement (PSI) curriculum.[2] PSI was chosen because published evaluation results had indicated that the curriculum was effective in delaying the initiation of sexual intercourse, and therefore early pregnancy, among youths in populations with high rates of teenage pregnancy.[3]

In previous implementations, PSI had been accompanied by a reproductive health curriculum that included information about contraception. However, since vocal constituencies insisted that families were the more appropriate providers of information regarding sexuality, program managers in the state's Office of Family Planning (OFP) decided to use only the five-session PSI curriculum.[4] To compensate for the omission of the reproductive health unit in the California initiative, the state required organizations implementing the ENABL program to verify that youths who participated in the intervention had completed a reproductive health curriculum before receiving PSI.

Even in the context of California's volatile history of reproductive health policies, ENABL seemed to have promise. Social and religious conservatives liked the program's sole emphasis on postponing sexual activity, and reproductive health educators who traditionally provide information about contraception and disease prevention (information that is not part of the curriculum) eventually came to support ENABL's approach for middle school youths.[5]

Three and one-half years after its launch, ENABL had evolved from a groundbreaking health education campaign into a way of life for the agencies and communities involved in the program. Over time, ENABL continued to gain support among providers, parents and students in California, and was recognized nationally by professional associations, including the National Organization for Adolescent Pregnancy, Parenting and Prevention, and the Society of Public Health Educators. Buoyed by the initiative's apparent success, numerous other cities and states (including Florida, Minnesota and Wisconsin) considered or initiated similarly constructed, and sometimes identically named, programs.

See also pp. 100–108.

Despite its promise, though, the program failed to meet its objectives: Our evaluation of the curriculum found that it had not delayed the initiation of sexual intercourse among the young participants.[6] Consequently, in December 1995, the governor announced his decision to cancel the entire initiative. Those involved with ENABL at every level, from local contractors to students, were "shocked and dismayed"[7] at the program's demise. Even the governor's spokesperson reported that Wilson was "disappointed" when he found out that the initiative had not been effective.[8]

In this article, we report on our examination of the California initiative's design, as well as the process of its acceptance, its implementation and, ultimately, its demise. Our hope is that understanding the life cycle of this large and groundbreaking campaign will inform future efforts to influence the initiation of sexual intercourse among young teenagers.

Helen H. Cagampang is research specialist and Richard P. Barth is Hutto Patterson Professor at the School of Social Welfare, University of California, Berkeley. Meg Korpi is senior research scientist and Douglas Kirby is director of research, ETR Associates, Santa Cruz, Calif. Principal support for this research was provided by the State of California, Department of Health Services, Office of Family Planning. Additional support was provided by the Stuart Foundations. The authors thank the Office of Family Planning and Judith MacPherson Pratt for their review and commentary. The views expressed here are those of the authors and not necessarily those of the funders or reviewers.

Program Overview

The ENABL initiative was based on the belief that a comprehensive, statewide social marketing campaign, grounded in a curriculum for which there was some evidence of success, could counteract the societal and peer influences that encourage young people to engage in early sexual activity.[9] The campaign was designed for youths aged 12–14; its goal was to lead young teenagers to postpone the initiation of sexual activity. The initiative entailed locally developed activities implemented in school and community settings, training for staff at agencies contracted to run the program's intervention and a statewide media campaign. Lastly, the initiative included a statewide evaluation with process and formative components, as well as an assessment of the curriculum's impact on behaviors and associated beliefs and attitudes.

From early 1992 to mid-1994, OFP funded 28 intervention projects coordinated by nonprofit educational, health and social service agencies. The majority of these organizations were located in counties with the highest teenage birthrates in the state. Twenty-four of the original 28 agencies were refunded for the second cycle, which began in mid-1994, and four new agencies received funding at that time. Funding was expected to continue until mid-1997.

Implementation

The initiative had several components implemented at the local level; the central element was the PSI curriculum. The program's five one-hour sessions covered the risks of early sexual involvement, media and societal pressures, peer pressures, assertiveness techniques and skill reinforcement. Adults, including professional health educators and some college interns, taught 11,985 PSI courses, or 91% of all interventions. During the initial funding cycle, 12 agencies also trained high school students to implement the intervention. These youth leaders taught 1,222 courses, accounting for 9% of the interventions.

Local program staff were taught the PSI intervention, and they in turn trained adult and youth leaders in their own communities. Quarterly roundtable meetings and an annual leadership conference convened by OFP invited local program managers and health educators to discuss implementation issues related to community organizing, working in culturally diverse communities, augmenting the local media and public relations campaigns and implementing the statewide evaluation.

As required by California law, all programs included information sessions for parents. These sessions were conducted to introduce the PSI curriculum and to provide parents with an opportunity to ask questions about the program. Eighteen projects also delivered a supplementary curriculum, PSI for Parents, which was designed to teach parents to reinforce their children's PSI experiences. More than 60,000 parents attended one or more of the parent information or supplementary curriculum sessions.

Agencies implementing the ENABL program also conducted several additional types of activities to support youths in their efforts to delay the initiation of sexual intercourse and to inform them of the availability of community resources. These activities included developing and publicizing referral networks of health and social services for youths, as well as planning and conducting school and community events that promoted alternatives to sexual involvement. These activities were designed to involve large numbers of youths in the ENABL campaign, thus increasing acceptance of the program and its messages.

Contractors were also expected to publicize in their communities media messages relevant to the ENABL campaign and to conduct activities aimed at involving the larger community. These messages promoted awareness of the incidence of teenage pregnancy and fostered community support for changing social norms. Efforts included arranging radio and newspaper interviews and encouraging local media to air professionally produced public service announcements.

Statewide Media Campaign

The initiative's statewide media and public relations campaign was based on social marketing approaches[10] that have been used to address other public health issues such as smoking[11] and heart disease.[12] Evaluations of these campaigns had suggested that mass media combined with community outreach and individual services can be effective in promoting changes in attitudes and behavior.[13]

The statewide media campaign was headed by a professional public relations firm and employed a variety of subcontractors who specialized in reaching particular ethnic communities. The campaign used a variety of public relations strategies to raise community awareness about problems related to teenage pregnancy, to inform the public about the ENABL program, to encourage young people to become involved with ENABL and to contribute to a supportive environment for youths who were trying to resist pressures to become sexually active.

Methods

This article reports on the process and formative evaluations of the ENABL initiative. These evaluations addressed acceptance of the program among youths, parents and communities. They investigated issues related to implementation of the standard (adult-led) program, the youth-led program (including recruitment, training, logistics and the fidelity of program implementation) and of PSI for Parents. The formative evaluations also examined factors that may have facilitated or hindered program delivery.[14*]

Survey data were collected from 7,326 youths participating in the intervention, from 1,491 parents and from 205 adult health educators and teenage group leaders, to assess their satisfaction with the program. The surveys, which were designed to gather opinions about the implementation of the PSI curriculum and about the goals of the overall campaign, provided early indications of community response to PSI and to the initiative as a whole.[15]

The formative evaluations used a wide range of qualitative procedures, including 75 personal interviews with providers and 50 focus groups with youths, peer leaders and parents. These methods were also used to examine the programs' adaptation among culturally diverse youths, and to explore the relationship between ethnic perspectives and program objectives.

In addition, 14 quarterly and three annual standardized process evaluation reports containing agency-level service statistics and narrative descriptions were examined. These evaluation reports provided information on the breadth and scope of program implementation, including numbers and types of clients served, numbers of PSI sessions delivered, settings for delivery and other appropriate statistics.[16]

Additional sources for this article include personal communications, press releases, newspaper articles, media materials, official work plans and notes taken at meetings with statewide and local contractors. In combination, these data provide a detailed picture of the ENABL initiative and the PSI curriculum.

Despite the comprehensive nature of

*For extensive data on satisfaction with components of ENABL according to ethnicity, gender, race, partner status and curriculum leader type, see reference 15.

this evaluation, several important aspects of the campaign were not assessed. Specifically, neither the impact of the media campaign nor the impact of community activities on either teenagers or the community at large was included in our evaluation. However, a separate and relatively modest evaluation of the media campaign was completed.[17]

Findings

Program Acceptance

The study was not designed to compare the relative strength of support versus opposition to ENABL. However, we were able to identify some specific characteristics of both the endorsements and the criticisms the initiative received.

Overall, the ENABL campaign had broad appeal. In general, contractors were successful in gaining acceptance for the program: They were invited to deliver the PSI curriculum at the same locations year after year, and fewer than 1% of parents refused to permit their children to participate. Many contractors believed that the ENABL campaign contributed to a growing consensus in California that youths 14 and younger are not prepared physically, cognitively or emotionally to engage in sexual intercourse, and that they should be strongly encouraged to delay the initiation of sexual activity. Indeed, agency staff reported that one of the most appealing qualities of the initiative was its positive message that 12–14-year-olds benefit by postponing sexual activity. District- and school-level administrators, teachers, school board members, agency directors, students and parents all reported support for ENABL's approach.

Nonetheless, in the early stages of the implementation, most contractors (23 of 27 whom we interviewed) encountered some opposition or uncertainty about ENABL from a variety of sources, including parents, school board members, school curriculum committees and a church. Twelve contractors encountered resistance in communities that did not perceive a need for the program since they felt they had a good existing program (N=8) or since teenage pregnancy was not perceived to be an issue in that area (N=4). Four contractors encountered opposition from school officials who believed their schedules were already full, and three others because of pressing community events such as changes in key school personnel or the closing of a major employer in the community. Eight contractors encountered opposition to ENABL based on its association in some communities and in the state with Planned Parenthood.

Some contractors also found opposition specific to the PSI curriculum. Nine contractors met with resistance because ENABL did not explicitly promote abstinence until marriage, while two reported opposition because PSI was thought to be too simplistic and because it did not address the needs of sexually active teenagers. Indeed, the two main criticisms of the curriculum were its lack of specific messages advocating premarital abstinence* and its perceived weakness relative to other curricula. The latter point was raised by teachers, nurses, district administrators and church officials who judged their existing family life education curricula to be longer, superior and adequate for their purposes.

Overall, contractors were more likely to gain community acceptance for ENABL if they communicated the goals and objectives of the program clearly, emphasized common interests in their discussions with community leaders and potential opponents, demonstrated flexibility with the nonessential elements and firmness with the essential elements of the program, and kept program quality high by teaching small manageable groups (for example, in health or science classes rather than in much larger physical education classes).

Program Implementation

Between April 1992 and December 1995, contractors implemented the PSI program more than 13,200 times in some 620 schools and community settings, reaching almost 344,000 youths with at least four of the five curriculum sessions. However, some contractors delivered PSI twice to the same youths—first in the seventh grade and again in the eighth grade—so these figures contain some overlap.

PSI was delivered in both school (82%) and community (18%) settings. A substantially smaller percentage of the interventions were implemented in community settings, because it is much more difficult to recruit youths for a five-session curriculum from community agencies, and much easier to offer the curriculum to youths in classrooms. In schools, the program was offered in a range of classes, including science (38%), health (33%), physical education (10%) and a variety of other classes (19%). In community settings, contractors taught PSI in youth recreation programs (28%), churches (25%), social service agencies (17%) and other community settings (30%). Nearly 40% of the PSI leaders were health educators, 23% were classroom teachers and 23% were student interns; the remaining instructors were nurses, youth workers or volunteers.

Institutional factors affected implementation quality in each of the settings. While schools provided legitimacy and trust, curriculum leaders found that large class sizes contributed to discipline problems and were not always conducive to good interactions in role plays and other curriculum activities. School settings were less favorable for other reasons as well; rigid time schedules, bureaucratic limitations, teacher resistance and linguistic diversity within classrooms were obstacles to smooth curriculum delivery.

Although community settings provided flexibility with respect to time and an opportunity to adjust the curriculum for greater cultural sensitivity, recruitment and retention in those settings were problems for some contractors; groups tended to be too small and attendance erratic. Additionally, youths in community settings were often distracted by the recreational activities being conducted at some of the sites.

The contractual emphasis on teaching PSI to large numbers of youths created two problems. In some cases, the same youths received the curriculum in both seventh and eighth grade. Anecdotal evidence suggests that young people who received the curriculum twice were less interested the second time. In addition, some contractors reported difficulty in completing all of the activities to their satisfaction within the required time period. When forced to prioritize activities, contractors generally emphasized delivering the curriculum to the number of youths specified in their contracts, while deemphasizing schoolwide and community-based activities and social marketing projects. The extent to which this occurred could not be quantified.

Moreover, an emphasis on training large numbers of intervention leaders resulted in the inefficient use of resources. Local contractors reported that of the 1,300 adult leaders trained during the first funding cycle, fewer than 600 actually taught the PSI curriculum. The proportions were similar for youth leaders. This emphasis also may have undermined contractors' ability to field teaching staffs as diverse as their student populations; a more productive approach might have been to recruit and train a culturally-representative rather than a large group.

*To address this issue, OFP subsequently released a curriculum supplement. (See: California Office of Family Planning, *Supplement to the ENABL Basic Educator Training Manual,* Department of Health Services, Scaramento, Calif., Dec. 1994.)

Indeed, intervention leaders were considerably less diverse than were PSI participants. Adult leaders were predominantly female (80%), while participants were nearly as likely to be male as female. About 60% of adult leaders were white, compared with 29% of youths, and about 14% of leaders were Hispanic, compared with 44% of youths. Blacks were represented in approximately equal numbers among both leaders and participants (14% vs. 11%), as were Asians (9% vs. 11%).

In addition to the PSI curriculum, contractors developed and implemented nearly 3,080 schoolwide or agency-based activities, such as flyer distributions, assemblies, rallies and fairs. They distributed promotional materials popular among youths, such as water bottles, certificates, ribbons, book covers and buttons, to build identification with the messages of the ENABL campaign.

These activities appeared to be most effective when large groups of youths assisted in their planning and implementation. However, more than half of the contractors reported that schoolwide and agency-based activities such as essay contests and health fairs were time-consuming and difficult to implement and did not appear to be especially effective. As a result, contractors emphasized the need to identify more cost-effective schoolwide activities that could reach large numbers of students.

Referral networks, a required element of the ENABL program, were intended to provide youths with resources to support their decision to postpone sex, as well as to help them obtain other needed health and social services. Because of a lack of support at the school level or uncertainty about the process, the majority of contractors fulfilled this requirement by simply distributing a referral card with the phone numbers of local health and social service agencies. However, a few contractors conducted the process in a more complete manner, by assessing individual needs, making referrals to appropriate resources and by following up with youths. Individual referrals (N=2,170) were for issues related to family planning (40%), health care (24%), family problems and counseling (22%), school problems (7%) and substance or child abuse (3% each).

Contractors implemented 3,540 community awareness activities to build local support for the norm of postponing sex, including presentations to local groups such as churches and fraternal organizations (24%), meetings with local government and state representatives (25%), meetings with coalitions (19%) and community events such as street fairs and celebrations (14%). Contractors also recruited more than 1,810 volunteers to serve on advisory committees, do clerical work and assist at health fairs. Most of the contractors reported continuing involvement in community task forces or coalitions that existed prior to the ENABL campaign. However, they did not rate activities initiated specifically for ENABL as especially effective.

Contractors planned and implemented more than 2,380 local media activities, including newspaper articles and advertisements (38%), press releases (32%) and radio programs (30%). Audience sizes ranged from millions in the Los Angeles media market to hundreds for local flyer distributions. Not surprisingly, contractors who felt most successful with this aspect of ENABL were those with prior experience working with the media.

Youth Satisfaction

More than 60% of seventh graders and 59% of eighth graders thought their grade was optimal for implementing PSI, while 31% of eighth graders thought it should be offered in an earlier grade.

In general, youths from all ethnic groups and age-groups were about equally satisfied with PSI and ENABL. Although the content and language of the course embarrassed many youths (especially those from Hispanic and Asian backgrounds), most agreed that it was important for them to learn about and discuss sexuality. While participants enjoyed watching the role-play activities, some found participating in them embarrassing.

Eighty-two percent of youths who responded to the satisfaction survey rated the program as "good" or "excellent." Two-thirds of youths responded that the program was "very important" for people their age.

Gender and partner status significantly affected youths' satisfaction with the intervention. Girls were more likely to rate PSI as "good" or "excellent" than were boys, (87% vs. 76%, $p<.01$). In addition, youths, especially boys, who already had had a serious relationship at the completion of PSI were less satisfied than those who had not yet had one: Nearly 6% of boys who had not had relationships judged the topics "poor" or "very poor," compared with 11% of boys who had had relationships ($p<.01$); the difference was not significant for girls. Focus-group interviews supported these findings: There was general consensus that PSI and ENABL were well received but should be offered before youths experienced sexual pressures.

Despite their high levels of satisfaction with PSI, students also had many suggestions for improving the curriculum. More than 77% wanted more sessions, so they could get to know the instructor and cover the material in greater depth. Youths wanted more realistic videos and more activities, such as role plays, games and discussions, in which they could participate. They also wanted additional topics, such as prevention of infection with sexually transmitted diseases (STDs) and HIV (82%), healthy and unhealthy relationships (73%), ways to show affection without sex (72%), emotions and sex (62%), and birth control (62%). (Nearly 90% of girls wanted more information about contraception.) Youths and the majority of their parents who completed surveys endorsed expanding the content of the curriculum to include more information about prevention of STDs and pregnancy. Despite their criticisms, the majority of youths reported that they intended to delay initiation of sexual involvement as a result of completing PSI.

Adult vs. Youth Leaders

During the initiative's first funding cycle, 16 agencies implemented PSI using only adult leaders, while 12 agencies employed youth leaders as well. This was in contrast to the original implementation of PSI in Atlanta, which relied entirely upon youths to lead the interventions.[18]

Interviews and focus groups with these 12 contractors, as well as with youths who participated as leaders and with those who received the intervention, indicated that contractors' perceptions often did not match those of the youths involved. Contractors generally believed that participants receiving youth-led PSI were more likely to respond positively to this curriculum than to the adult-led intervention, and more likely to listen to and believe leaders. Some contractors also believed that youths perceived adult PSI leaders, no matter how adept or youthful, as proselytizing, while they believed that youth leaders were generally perceived as credible.

However, survey results revealed that there were no significant differences in overall satisfaction with PSI between youths receiving adult- and youth-led interventions. Moreover, there were no significant differences between the two groups in feelings of comfort with group leaders, or in perceptions that leaders were able to communicate clearly the messages in the curriculum or encourage participants to express their opinions. When pressed, focus-group participants expressed greater en-

thusiasm for youth-led than adult-led PSI, but they indicated that the leader's most important quality was their ability to establish a rapport with participants, and not their age, gender or ethnicity.

Despite enthusiasm about youth-led PSI, some specific problems emerged. Classroom observations revealed considerable inconsistency in the quality and content of youth-led instruction. At best, leaders were energetic, fluent and clear; at worst, they were awkward and dull. Furthermore, some youth leaders expressed reservations about giving unequivocal support to the program's message to postpone sex. Their internal conflicts or reservations may have undermined the focus and clarity of the messages.

Overall, contractors reported that youth-led PSI was far more difficult and costly to implement than adult-led PSI. Youth leaders required substantially more training, supervision and management than did adult leaders. Since few had previous teaching experience, they needed more guidance and practice over a longer period of time to achieve effective presentation skills and to become fully familiar with the PSI curriculum. In addition, adult staff had to plan and schedule youth presentations, obtain permission for youth leaders to be excused from their own classes and shuttle them to teaching assignments in geographically dispersed areas. Long distances between the leaders' high schools and ENABL middle schools, coupled with a lack of effective public transportation, also impeded smooth implementation of the youth-led PSI curriculum.

Four factors appeared to be related to the successful implementation of youth-led programs: careful selection and screening of a small cadre of youth leaders; thorough training, supervision and support; frequent opportunities to teach; and an agency-wide commitment to working with youths. Implementation of youth-led PSI, especially on a scale as large as that of the California initiative, requires considerable planning and resources.

Parent Involvement

ENABL leaders reached more than 60,000 parents in a range of settings, including Parent-Teacher Association meetings, Parents' Nights at local middle schools, information sessions about PSI, and PSI for Parents sessions. Eighteen contractors presented more than 600 PSI for Parents sessions to some 9,000 parents, typically condensing the two-session curriculum into one. The program gave parents insight into the issues and pressures faced by today's youths, in addition to information about the curriculum that their children were to receive. Slightly more than two-thirds of the courses were delivered in school settings, and the remainder were delivered in churches or youth recreation centers. Fathers and mothers were about equally likely to attend in either setting, but three-fourths of participants were mothers. Materials for parents were developed in 10 languages, including Cantonese, Spanish, Tongan and Ukrainian.

Parents who attended PSI for Parents and completed satisfaction surveys were extremely enthusiastic about the program. Nonetheless, contractors continually faced challenges in finding effective ways to recruit parents. Support from schools and teachers and from other community leaders were key factors in increasing parental attendance.

Most parents who attended the program indicated they wanted to see the curriculum their children would receive in school. Some instructors appeared to concentrate excessively on this aspect of the program, to the detriment of teaching the PSI for Parents curriculum. As was true for their children, parents wanted to learn more about how to communicate about sex within the family.

Epilogue

In May 1995, we delivered our draft evaluation report to OFP and the Department of Health Services. After responding to their comments, the final report—composed of the formative and process evaluations discussed here and the PSI impact evaluation that described the program's impact on sexual behavior and associated variables[19]—was forwarded to OFP in September 1995.

Despite the lack of positive outcomes from the impact evaluation, we concluded that there were good reasons to improve, rather than eliminate, ENABL: There was a need for a program that promoted the postponement of sexual involvement among middle school youths; parents and students strongly supported ENABL's message; and research findings could be used to develop remedies for problems in the curriculum.

In combination with ENABL's media and community activities, an improved curriculum could represent an important step toward a comprehensive and effective program. Therefore, we recommended that OFP maintain and strengthen the ENABL infrastructure and continue to deliver the program's message to California's youths, their parents and their communities. We recommended that OFP preserve its heavy investment in the campaign, adding that the initiative had built up "brand identification" for the ENABL program.

In view of the failure of the PSI curriculum and associated schoolwide activities to have a positive and significant impact on behaviors, we encouraged OFP to support the development and evaluation of a stronger and developmentally sequenced curriculum for middle school youths that would focus on delaying the onset of intercourse. We also encouraged development of a new curriculum that would incorporate known characteristics of effective programs and instruction: greater focus on skill-building; more time for group discussions, review and reinforcement of curriculum messages; more consistency in involving students in activities; and more attention to helping students personalize information.[20]

The report recommended that the curriculum incorporate numerous suggestions made by contractors, youths and parents. For example, a revised curriculum would review anatomy and physiology and include more information on STDs, healthy and unhealthy relationships and parental communication. Any video materials to be used should be more acceptable to youths, more effective and better integrated into class discussions. We also advised the OFP to alter the youth-led and parent components of PSI to make them easier to implement successfully and to develop more cost-effective school and community activities that would be mutually reinforcing and consonant with those delivered through the media campaign and the curriculum.

Neither the governor nor the program's advocates were prepared for the possibility of negative findings. Canceling a program so suddenly and in the middle of the fiscal year was a highly unusual occurrence. In an effort to explain the unexpected termination, stakeholders and observers alike looked for answers to the troubling question: Why was a program that had seemingly been so politically favored, so widely popular and so well-established summarily ended? One columnist suggested that the program was canceled because it was expensive and ineffective,[21] and another quoted the governor as saying, "I have concluded that we need a much more comprehensive strategy to deal with out-of-wedlock pregnancy."[22] Two other writers described how changes in California's Assembly leadership had eroded political support for all

OFP programs, especially those conducted by Planned Parenthood affiliates.[23]

Furthermore, the results of the outcome evaluation had the potential of being misconstrued as suggesting that the intervention actually increased pregnancies (a significant finding that we rejected upon closer examination). The political fallout of having the data misinterpreted in this way might also have had an influence on the decision to eliminate the program.

Ultimately, considering ENABL's high profile, the negative evaluation results and the changes in the Assembly leadership, it should not have been surprising that the governor decided to cancel the program. While a few contractors found alternative funding to continue their ENABL projects through the end of the school year, most closed their programs on February 29, 1996, when funding was eliminated.

Recommendations

Much can be learned from the life history of this large adolescent pregnancy prevention program. The cancellation of ENABL suggests that before a campaign of its size, complexity and high political profile is launched, preliminary research must ensure that the core elements of the campaign will have their intended effect. It is very important that an intervention component be selected for which there is strong evidence of success in delaying the onset of intercourse among members of the designated target group. Unfortunately, no existing middle school curriculum meets that standard. Hence, there is a real need to develop a program and demonstrate its effectiveness before undertaking another large-scale effort.

Furthermore, recent research has highlighted the difficulties involved in addressing the problem of pregnancy among very young teenagers. For example, the finding that two-thirds of babies born to the youngest adolescents (those 14 and younger) were fathered by men at least 20 years of age[24] indicates that the issues underlying a young teenager's decision to have sex may be too complex to address solely through a school-based curriculum. Therefore, we recommended that program components be targeted so that youths at lower immediate risk receive a baseline educational program that bolsters media and community messages, while youths at greater risk of becoming pregnant or causing a pregnancy receive more intensive services, in addition to the baseline program.

If a complex social marketing scheme is to be an element in the campaign, then its influence on public attitudes and behaviors should be explicitly evaluated by documenting and assessing more fully any changes in the public's acceptance and in the contractors' support for the primary message of the campaign. It is possible that a campaign may improve acceptance for a potentially important message, even in the absence of measured change in adolescent behavior upon short-term follow-up.

ENABL met a very difficult social policy challenge: It articulated a core of positive reproductive health messages for young adolescents that was acceptable—and even popular—across the political spectrum in California. Even given the volatility of the climate surrounding reproductive health issues in the state, fewer than 1% of parents refused permission for their children to participate. The overwhelming majority of middle school youths and their parents who completed the curriculum and responded to our surveys thought ENABL was a valuable program; at the same time, they supported a more comprehensive approach. Nevertheless, ENABL's popularity could not insulate it from the political imperative to show immediate success. In the end, its high profile, size and possible premature emphasis on the evaluation of behavior change worked against OFP's hope that the program would become an institution in California's reproductive health system.

References

1. D. Kirby et al., "Implementation and Impact of a Program to Postpone Sexual Involvement Among Youths in California," *Family Planning Perspectives*, **29:**100–108, 1997.

2. M. Howard and M. E. Mitchell, *Postponing Sexual Involvement: An Educational Series for Young Teens, Revised,* Emory/Grady Teen Services Program, Grady Memorial Hospital, Atlanta, 1990.

3. M. Howard and J. B. McCabe, "Helping Teenagers Postpone Sexual Involvement," *Family Planning Perspectives,* **22**:21-26, 1990.

4. J. M. Pratt, Teen Pregnancy Prevention Strategies, personal communication, Oct. 22, 1996.

5. Ibid.

6. D. Kirby et al., 1997, op. cit. (see reference 1).

7. Planned Parenthood Affiliates of California (PPAC), "Governor's Budget," *PPAC Perspectives,* Vol. 15, No. 1, Jan. 12, 1996, p. 1; and PPAC, "Education Now and Babies Later (ENABL)," ibid.

8. M. Vanzi, "Governor Ends Teen Pregnancy Program," *Los Angeles Times,* Dec. 28, 1995, p. A3.

9. M. Howard and J. B. McCabe, "An Information and Skills Approach for Younger Teens: Postponing Sexual Involvement Program," in B. C. Miller et. al., eds., *Preventing Adolescent Pregnancy,* Sage Publications, Newbury Park, Calif., 1992.

10. P. Kotler and E. L. Roberto, *Social Marketing: Strategies For Changing Public Behavior,* Free Press, New York, 1989; C. R. Lefebrve and J. A. Flora, "Social Marketing and Public Health Interventions," *Health Education Quarterly,* **15**:299–315, 1991; and L. W. Green and M. W. Kreuter, *Health Promotion Planning: An Educational and Environmental Approach, 2nd Edition,* Mayfield Publishing, Mountain View, Calif., 1988.

11. M. E. Wewers and K. Ahijevych, "Evaluation of a Mass Media Community Smoking Cessation Campaign," *Addictive Behaviors,* **16**:289–294, 1991.

12. J. W. Farquhar et al., "Effects of Communitywide Education on Cardiovascular Disease Risk Factors: The Stanford Five-City Project," *Journal of the American Medical Association,* **264**:359–365, 1991.

13. Ibid; and M. E. Wewers and K. Ahijevych, 1991, op. cit. (see reference 11).

14. Family Welfare Research Group and ETR Associates, "Formative Evaluation: Four Aspects of the Education Now and Babies Later (ENABL) Campaign," unpublished report, University of California, School of Social Welfare, Family Welfare Research Group, Berkeley, Calif., 1995.

15. S. A. Brown, "Youth Parent and Leader Satisfaction with Education Now and Babies Later," unpublished report, University of California, School of Social Welfare, Family Welfare Research Group, Berkeley, Calif., 1994.

16. S. A. Brown and S. Sheelar, "Education Now and Babies Later (ENABL) Process Evaluation Final Report for the First Funding Cycle, April 1992-June 1994," unpublished report, University of California, School of Social Welfare, Family Welfare Research Group, Berkeley, Calif., 1994.

17. E. A. Hall and W. J. Popham, *Evaluation of California's ENABL Media Campaign,* IOX Assessment Associates, Los Angeles, Calif., 1994.

18. M. Howard and J. B. McCabe, 1990, op. cit. (see reference 3).

19. D. Kirby et al., 1997, op. cit. (see reference 1).

20. D. Kirby, *A Review of Educational Programs Designed to Reduce Sexual Risk Taking Behaviors Among School-Aged Youth in the United States,* ETR Associates, Santa Cruz, Calif., 1995.

21. D. J. Saunders, "Wilson Abstains from Costly ENABLERS," *San Francisco Chronicle*, Dec. 27, 1996; and M. Vanzi, 1996, op. cit. (see reference 8).

22. M. Vanzi, 1996, op. cit. (see reference 8).

23. D. Morain, "Abortion Foes in GOP to Battle Wilson Funding," *Los Angeles Times,* Jan. 10, 1996, p. A1; and B. Hayward, "Some Foes of Abortion Call Budget Plan a Gain. Wilson Denies Tilt on Family Planning," *Sacramento Bee,* Jan. 21, 1996, p. A3.

24. M. Males and K. S. Y. Chew, "Adult Fathers in School-Age Childbearing," paper presented at the annual meeting of the Population Association of America, San Francisco, Calif., Apr. 8, 1995.

ARTICLES

The Impact of the Postponing Sexual Involvement Curriculum Among Youths in California

By Douglas Kirby, Meg Korpi, Richard P. Barth and Helen H. Cagampang

Postponing Sexual Involvement (PSI) is a widely implemented middle school curriculum designed to delay the onset of sexual intercourse. In an evaluation of its effectiveness among seventh and eighth graders in California, 10,600 youths from schools and community-based organizations statewide were recruited and participated in randomly assigned intervention or control groups; the curriculum was implemented by either adult or youth leaders. Survey data were collected before the program was implemented, and at three months and 17 months afterward. At three months, small but statistically significant changes were found in fewer than half of the measured attitudes, behaviors and intentions related to sexual activity; at 17 months, none of these significant positive effects of the PSI program had been sustained. At neither follow-up were there significant positive changes in sexual behavior: Youths in treatment and control groups were equally likely to have become sexually active, and youths in treatment groups were not less likely than youths in control groups to report a pregnancy or a sexually transmitted infection. The evaluation suggests that PSI may be too modest in length and scope to have an impact on youths' sexual behavior. (Family Planning Perspectives, **29:**100–108, 1997).

Concern about high rates of unintended pregnancy and sexually transmitted disease (STD) infection among adolescents has led to the implementation in many middle and high schools of sexuality education programs designed to delay the onset of sexual intercourse. One such curriculum, Postponing Sexual Involvement (PSI),[1] aims to support adolescents in delaying sexual activity by helping them understand the various social pressures that encourage adolescent sexual activity and by teaching teenagers skills that will enable them to set limits, resist peer pressure, be assertive in saying "no" to sex and develop nonsexual ways to express their feelings.

The PSI program is probably the most widely implemented middle school curriculum of its kind. It is brief and takes up little class time and, given its focus on postponing sex, has broad appeal to parents and schools. Moreover, an Atlanta-based evaluation of the PSI program implemented in combination with a five-session human sexuality course suggested that the curriculum delayed the initiation of first intercourse.[2]

However, serious questions have been raised about the quality of the intervention. For example, is the curriculum too modest in length, does it include enough practice in the skills that it attempts to teach, and do the slides or videos that it employs have appeal for young people?

Furthermore, two important methodological limitations of the Atlanta evaluation have been noted.[3] First, students were not randomly assigned to treatment and control groups: Youths living in one geographic area received the intervention, and they were compared with youths living in other geographic areas who did not receive the program. Thus, while analytic procedures controlled for some background characteristics and the two groups appeared to have been well matched, other uncontrolled factors may have differentially affected the two samples.

Second, the results of the Atlanta evaluation were biased slightly, because a small number of youths in the treatment group who initiated intercourse during the semester in which they participated in the program were excluded from the statistical analysis, while no comparable youths from the comparison group were omitted.

See also pp. 109–114.

The California Replication

From 1992 to 1994, in an effort to reduce teenage pregnancy statewide, the California Office of Family Planning funded the Education Now and Babies Later (ENABL) initiative.[4] Composed of 28 projects coordinated by an array of local nonprofit, educational, health and social service agencies, ENABL represented the largest statewide pregnancy prevention effort ever initiated.

The ENABL initiative included the PSI curriculum and school- and community-wide activities (such as flyer distributions, assemblies, rallies and fairs) designed to promote healthy alternatives to sexual activity, involve large numbers of youths in the ENABL campaign and increase acceptance of the program and of its messages. The initiative also included a statewide media campaign and provided youths with referral information for health and other social services.

Collectively, the ENABL projects delivered the PSI curriculum to approximately 187,000 youths in schools and community settings in 31 California counties. Ninety percent of the PSI programs were taught by adults (mostly professional educators or, occasionally, college interns). Ten percent of the programs were taught by youth leaders who were teenagers slightly older than those participating in

Douglas Kirby is director of research and Meg Korpi is senior research scientist at ETR Associates, Santa Cruz, Calif.; Richard P. Barth is Hutto Patterson Professor and Helen H. Cagampang is research specialist at the School of Social Welfare, University of California, Berkeley. This research was supported principally by the California Office of Family Planning, with additional support from the Cowell Foundation, the Packard Foundation and the Stuart Foundations.

the evaluation and who were trained to lead the intervention groups. Youth leaders were always accompanied by adult observers when presenting the program.

Seventeen ENABL projects also utilized PSI for Parents, a companion to the youth curriculum. It was designed to help parents reinforce their children's learning experiences regarding postponing sexual involvement. As part of ENABL, PSI for Parents was generally given in one 90–120-minute session. However, only about 5% of the parents of youths in this study received PSI for Parents.

The California evaluation was designed to measure PSI's impact on the occurrence of first intercourse and to examine the beliefs, attitudes and intentions that might mediate the initiation of sexual intercourse. The evaluation tested the effectiveness of implementing the program in both school and community settings, and examined school-based, adult-led interventions as well as those led by teenagers. In some agencies, the evaluation also assessed the impact of schoolwide and community-wide ENABL activities. The evaluation also examined the program's differential impact on sexual behavior according to participant's gender, grade, racial and ethnic background, and prior sexual experience.

Methods

Contractors

School districts, health departments and community-based organizations applied to the California Office of Family Planning to obtain funding to implement PSI and ENABL. Twenty-eight organizations were given contracts to use trained intervention leaders to implement the PSI program in school and community settings. These organizations were selected because they provided service to communities with high teenage birthrates, as well as for geographic and ethnic diversity and the ability to deliver a program like PSI.

Accordingly, the sample in this study is diverse, but it is likely to be more representative of youths in areas with higher rates of sexual risk behavior and higher teenage birthrates than of all California youths. Twenty-one of the 28 selected organizations completed all of the requirements of the evaluation and are included in the results. In all, 56 middle or junior high schools and 17 community-based agencies participated in the evaluation.

The PSI Program

The PSI curriculum consists of five sessions, 45–60 minutes in length, delivered in classroom or small group settings. Session I focuses on the risks of early sexual involvement and helps youths explore the reasons that teenagers have sex and the reasons why they might choose to wait. Session II helps young people understand and resist the social pressures that can lead to early sexual involvement. Session III identifies peer pressures that can affect teenagers' sexual behavior and helps teenagers determine their own limits for physically expressing affection. Session IV teaches assertive responses to help teenagers resist pressure to engage in sex. Session V provides reinforcement of the material learned in previous sessions. The PSI intervention included class discussions, group activities, use of videos or slides and a small amount of role playing.

PSI was implemented in addition to whatever standard sexuality curriculum an individual school offered. Thus, students in both treatment and control groups were likely to receive some instruction in sexuality. However, the vast majority of students in the control groups were not offered an additional, specialized sexuality curriculum comparable to PSI. Instead of PSI, these students typically received instruction in some other topic area.

Research Design

Three research designs, representing three levels of random assignment, were used to evaluate the effectiveness of PSI and the ENABL program. Each design included some level of random assignment, and the collection of survey data before the delivery of the intervention and again 17 months later.

In the first design, students within selected schools were randomly assigned by classroom to either a youth-led intervention, an adult-led intervention or a no-intervention control. This design also involved a few contractors who implemented the adult-led PSI program but did not offer the youth-led intervention. Thus, students in this group were randomly assigned by classroom to only two conditions, either the adult-led intervention or a control group. In this classroom-randomization design, survey data were collected from students three months after baseline, as well as at baseline and at the 17 month follow-up.

In the second design, entire schools were randomly assigned to either intervention or control conditions; intervention schools received adult-led PSI as well as various schoolwide activities in support of the ENABL initiative, while control schools received the standard sexuality education curricula; data were collected at baseline and 17 months after baseline only.

In the third design, youths were recruited from community-based agencies and were randomly assigned individually to either an adult-led intervention group or a no-intervention control; data were collected at baseline and 17 months after baseline only.

PSI stands on its own as a sexuality education curriculum. However, in the Atlanta implementation, it was preceded by a five-session course in human sexuality and decision-making.[5] In order to make the California intervention similar to the one in Atlanta, youths in California were required to receive instruction in human sexuality before participating in PSI. However, the specific curriculum used in Atlanta was not available to the public. Therefore, a different curriculum, covering similar subject matter, was used in the California replication.

We made an intensive effort to eliminate schools in which students in the control group might have received the PSI intervention. It is possible, for example, that an adolescent assigned to a control group at one of the community agencies might have received the intervention at school. However, the number of such students would be too small to influence the overall results of the study.

Sample

A total of 10,600 youths received parental consent to participate in this study; 75% completed both the baseline and the 17-month follow-up surveys. Among youths in the first research design, 4,234 (91%) also completed a three-month posttest. After surveys with incomplete or inconsistent data were eliminated,* the final sample included 7,340 youths who completed the baseline and follow-up surveys, 3,834 of whom had also completed the three-month posttest survey. Survey completion rates were similar for youths in both the intervention and control groups.

Among youths who were lost from the original sample for any reason, there were no significant differences between those lost from the intervention and those lost from the control group (about 1% more were lost from the intervention group than

*An extensive multistage process was used to clean the data. Surveys were eliminated if there was evidence of a "set" response pattern (e.g., the participant always selected "3" on a scale of 1 to 5), or if incompatible responses were evident (e.g., responses regarding having had sexual intercourse were inconsistent). (See: D. Kirby et al., *Evaluation of Education Now and Babies Later (ENABL): Final Report*, Family Welfare Research Group, Berkeley, Calif., 1995.) Six percent of cases were removed during data cleaning, leaving 69% of the original 10,600 cases in the final 17-month sample.

from the control group).* We report findings for the full three-month and 17-month samples here. However, we also compared our results for these full samples with those from the smaller sample for which we had three waves of data, and found that they were consistent.

Measures

We drew upon previous research in the field for our outcome measures. On occasion, if there were no appropriate scales available, we developed our own items. Measures were reviewed by several professionals in the field and extensively pilot-tested with students who completed the draft questionnaire and then participated in focus groups to further discuss and refine the survey items. The questionnaire was also translated into Spanish.

The main outcome of interest was whether a teenager had become sexually active subsequent to the intervention. We also asked adolescents whether they had tried to initiate sex or persuade someone to engage in intercourse, as well as whether they had been the recipient of such pressures. Among sexually active youths, we examined frequency of intercourse, number of sexual partners and use of contraceptives to address beliefs that PSI had the potential to affect these behaviors as well. Finally, we measured pregnancy rates and rates of reported sexually transmitted diseases.

We conducted factor analyses of all three waves of survey data to more fully understand the underlying structure of the mediating variables. These analyses resulted in the creation of seven multi-item scales. Items that did not clearly fit into any of the scales were treated separately in later analyses. We used these single items and the seven scales to measure a range of variables that are thought to mediate adolescent decision-making regarding sexual behavior.

- *Beliefs about sexual activity*. A six-item scale measured respondents' beliefs about how they and their peers viewed the timing and circumstances of first intercourse. Participants were asked to respond on a continuum of agreement to six statements such as "My best friends think that people my age should wait until they are older to have sex" and "Most students at my school think it's OK for people my age to have sex with a serious boyfriend or girlfriend." An additional four-item scale addressed beliefs about sexual pressure. Respondents were also asked to estimate the percentage of girls and boys in their school who had had sex; two additional single items addressed other beliefs about the inevitability of teenage sexual activity and whether it is possible to say no to sex without hurting the feelings of the other person.
- *Reasons to have sex or abstain.* An eight-item scale assessed possible reasons adolescents might have to postpone sex (e.g., "I would not have sex now because I'm waiting for the right person"), and a six-item scale measured possible reasons for initiating sex (e.g., "I would have sex now to feel accepted and loved").
- *Beliefs about sex and the media*. Three single items measured teenagers' beliefs regarding the extent and impact of media images about sex.
- *Parental communication*. Three single items measured whether respondents had spoken over the past year with a parent or guardian about sex.
- *Self-efficacy*. Self-efficacy in declining sex was measured with a four-item scale in which respondents were asked to indicate the degree to which they felt certain they could refuse sex in different situations. (For example, they were asked: "You are alone with a boy or a girl. You start to kiss and touch and it is hard to stop. How sure are you that you could keep from having sex?") An additional item addressed respondents' ability to express affection in a nonsexual way.
- *Behavioral intentions*. A four-item scale measured teenagers' intentions to engage in sexual activity in the future (e.g., "When it comes to sex, I have already decided 'how far' I will go"). In addition, at the 17-month follow-up, youths who had never had sexual intercourse were asked if they intended to wait until they were older to have sex, and those who had had intercourse were asked if they intended to wait before they have sex again.

All survey items examining beliefs, attitudes and intentions were recoded so that a higher score corresponded with a more desirable outcome (more conducive to postponing sexual involvement). Cronbach's alpha was used for each wave of data to calculate the interitem reliability of each scale. Six of the seven scales had coefficients that exceeded .70 at all three survey points, while the seventh scale (beliefs about sexual pressure) had coefficients exceeding .70 for two of the three time periods. Across all scales and time periods, the mean alpha coefficient was .82, indicating acceptable internal consistency of the measures.

Analytic Procedures

To control for chance differences between groups at baseline, we calculated change scores in the outcome variables over time (posttest score minus pretest score) and compared the scores of the treatment and control groups using t-tests. This procedure eliminated the need to use analysis of covariance to control for other differences at baseline.[6] If calculation of change scores was not feasible (e.g., when examining the impact of PSI on the frequency of sexual intercourse among youths who initiated intercourse after the pretest), the posttest scores of treatment-group participants were compared with those of the control group. Chi square tests were used for categorical data, and t-tests were used for continuous data.

We set the level of statistical significance at $p<.01$ because of our relatively large sample size and because of the large number of statistical tests that we conducted. When we examined our data at a less conservative level, those findings significant at $p<.05$ but not significant at $p<.01$ were often in inconsistent directions, suggesting they were chance occurrences.

Characteristics of the Sample

The mean age of the youths in the sample was 12.8 years and the mean grade level was 7.5 (Table 1). Males represented 42–45% of the participants. The sample was ethnically diverse, and race and ethnicity varied across settings: Among youths receiving adult-led PSI in any setting, 27–32% were Hispanic, approximately 40% were white, 9% were black and 12–14% were Asian or Pacific Islander, while participants who received youth-led PSI were more likely to be Hispanic (46–49%) and less likely to be white (21%). Teenagers recruited from community-based agencies were most likely to be Asian or Pacific Islander (47–52%), and least likely to be black (2–3%); approximately 20% were Hispanic, and 5–10% were white (not shown). Across all settings, almost 90% of youths lived with their mother or stepmother, while almost two-thirds had a male parental figure in the home.

Some 35–39% of youths reported ever having had a serious romantic involvement. No more than 11% of youths had

*We compared youths who were lost from the intervention group with those who were lost from the control group on a variety of pretest characteristics; the two groups were very similar. Using two-way analysis of variance, we examined the interaction effects between treatment group (intervention vs. control) and attrition (whether or not the 17-month follow-up survey had been completed) in relation to background characteristics, mediating variables and outcome variables at pretest. These analyses revealed no significant interaction effects at the $p<.01$ level for age, gender, family background characteristics, risk factors such as alcohol use or low school grades, or mediating or outcome variables.

ever had sex. On average, sexually experienced youths had had sex only about 2–3 times during the preceding year. Less than 1% had ever been pregnant or caused a pregnancy, and a comparable proportion had had an STD.

Nearly half of all youths reported having made a decision to place limits on their sexual activity; only 3–6% of all youths indicated that they had tried to persuade someone to have sex with them in the last three months, but 10–17% reported having been the target of such efforts (not shown).

There were relatively few statistically significant differences at baseline between treatment and control groups across the various randomization schemes; when significant differences did occur, they were very small. All statistically significant differences between treatment and control groups occurred among youths receiving adult-led PSI and occured in the design in which entire schools were randomly assigned. Youths in the intervention group from the schoolwide randomization were more likely than control youths to be Hispanic; they received slightly higher grades in school, were less likely to speak only English in the home and had mothers with less education. At baseline, these youths were also more likely to have ever had sex, and those who were sexually active had had slightly more sexual partners (not shown). We statistically controlled for the pretest differences in sexual behavior. Nonetheless, results from this research design should be interpreted with some caution.

Table 1. Means and percentages for background characteristics of students participating in treatment and control groups, by type of intervention, Postponing Sexual Involvement evaluation, California, 1992–1994

Characteristic	Youth-led		Adult-led	
	Treatment	Control	Treatment	Control
Mean age	12.8	12.9	12.8	12.8
Mean grade level	7.5	7.5	7.5	7.5
% male	44.6	42.7	41.7	42.4
Race/ethnicity (%)†				
American Indian	4.0	3.6	5.3	5.5
Asian/Pacific Islander	8.4	7.5	11.7	13.7
Black	9.8	10.1	8.9	8.7
Hispanic	46.4	48.9	31.9	27.4*
White	21.2	20.7	38.5	39.6
Other	8.1	6.9	7.2	8.0
% living with mother	87.2	87.3	88.8	88.5
% living with father	60.9	62.9	63.9	63.6
Mean academic grades‡	1.7	1.7	1.6	1.5*
Mean language score§	2.4	2.4	2.0	1.9*
Mean days of alcohol use††	0.9	1.0	0.9	0.9
Mean days per week home alone	2.4	2.4	2.7	2.8
Mother's mean educational level‡‡	2.8	2.8	3.2	3.4
% who ever had a serious boyfriend/girlfriend	35.2	36.3	39.1	37.9
% who ever had sex	9.7	10.9	11.0	10.0
Mean no. of sexual partners	0.2	0.2	0.3	0.2
% who were ever pregnant	0.4	0.2	0.5	0.4
% who were ever diagnosed with STD	0.3	0.0	0.3	0.3
Sample range	*605–893*		*2,933–3,396*	

*Difference between treatment and control group is significant at p<.01. †Ethnicity percentages do not add to 100% because of missing data, and because multiracial youths could check more than one category. ‡Academic grades were scored as 1=mostly As and Bs and 4= mostly Ds and Fs. §Language score is the degree to which English was spoken at home and was scored as 1=mostly English and 4=mostly other language. ††Indicates number of days within the last month that respondent drank alcohol. ‡‡Mother's educational level was scored as 1=eighth grade or less and 5=college graduate.

Results

We examined differences between youths in all treatment and control groups across all research designs, for all mediating variables and for all variables measuring sexual activity. Findings for all variables are displayed separately in the accompanying tables for youth-led classroom and adult-led classroom PSI, schoolwide ENABL and community-based PSI. We present these findings because we feel it is important to document the consistency of our results across settings. However, because three-month data were collected only for the classroom research design, and to keep the presentation of results as straightforward as possible, we describe in the text, unless otherwise noted, only the findings from the classroom research design.

Mediating Variables

• *Beliefs about sexual activity*. At the three-month posttest, teenagers in the youth-led intervention but not those in the adult-led intervention were significantly more likely than their counterparts in the control group to believe that they and their peers endorsed postponing sex (Table 2, p. 104). The difference in the change scores between the youth-led treatment and control groups was 0.08, an effect size of 0.15.* This difference, however, was not apparent at the 17-month follow-up.

At the three-month posttest, adolescents in both the youth-led and the adult-led classroom intervention were significantly less likely than their control group counterparts to believe that becoming sexually active during the teenage years was inevitable; these differences, however, were not significant at 17 months. Compared with their pretest responses, teenagers participating in the classroom intervention disagreed more at posttest with the statement "most teens are going to have sex, no matter what," while youths in the control groups agreed more with this statement at posttest than at pretest. The differences in change scores between the treatment and control groups for the adult-led and youth-led interventions were 0.14 and 0.12, corresponding to effect sizes of 0.15 and 0.13, respectively. Findings among students who had not had sex at pretest were similar to the results reported above for all youths.

There were no statistically significant differences between treatment and control groups at either the three- or 17-month posttest in teenager's beliefs about sexual pressure, in their estimates of the proportion of their peers who are sexually active or in the belief that it is possible to decline sex without hurting the other person's feelings.

• *Reasons to have sex or abstain*. At the three-month posttest, youths in the adult-led intervention checked significantly more reasons to refrain from sex than did those in the corresponding control group (a difference of 0.06), but the effect size was small (0.15). This difference was no longer apparent at 17 months. Although the impact of the youth-led intervention was almost as large as that of the adult-led group, it did not reach statistical significance.

There were no statistically significant differences between the treatment and control groups in the number of reasons or conditions under which youths said they would engage in sex, at either three or 17 months. For youths who had not had sex at pretest, the pattern of statistical significance was the same, and the effect size was similar (not shown).

• *Beliefs about sex and the media*. At the three-month posttest, youths who participated in either the adult-led or the youth-led PSI program were significantly more likely than teenagers in the corresponding control groups to recognize the sex-related content of media messages (effect

*To estimate the size of this difference based on a standard metric, we computed effect sizes using a pooled standard deviation. Generally, effect sizes of less than 0.20 are considered small and those greater than 0.50 are considered substantial (see: J. Cohen, *Statistical Power Analysis for the Behavioral Sciences, 2nd ed.*, Academic Press, New York, 1988).

Table 2. Mean change in selected mediating variables among students in treatment and control groups, by type of intervention and setting, according to length of follow-up

Variable	Youth-led				Adult-led											
	Classroom				Classroom				School				Community			
	Treatment	Control	p	N	Treatment	Control	p	N	Treatment	Control	p	N	Treatment	Control	p	N
BELIEFS ABOUT SEXUAL ACTIVITY																
Postponing sex																
3 months	–.038	–.119	.003*	1,668	–.050	–.106	.011	2,363	na	na	na	na	na	na	na	na
17 months	–.237	–.274	.308	1,363	–.251	–.282	.273	2,038	–.323	–.315	.710	3,297	–.103	–.105	.983	338
Inevitability of teenage sex																
3 months	.063	–.056	.006*	1,805	.096	–.040	.000*	2,581	na	na	na	na	na	na	na	na
17 months	–.149	–.132	.754	1,470	–.044	–.135	.027	2,208	–.083	–.102	.572	3,651	.042	–.058	.369	362
Sexual pressure																
3 months	.004	–.010	.606	1,689	.027	–.022	.027	2,428	na	na	na	na	na	na	na	na
17 months	–.077	–.041	.312	1,388	–.015	–.041	.322	2,103	.001	–.019	.348	3,489	.013	.140	.053	341
Peers' sexual activity																
3 months	–.132	–.133	.980	1,731	–.103	–.128	.517	2,481	na	na	na	na	na	na	na	na
17 months	–.773	–.651	.078	1,419	–.716	–.660	.294	2,138	–.704	–.711	.865	3,612	–.527	–.605	.572	357
Possible to say no to sex																
3 months	.053	–.048	.033	1,803	.030	–.017	.227	2,595	na	na	na	na	na	na	na	na
17 months	–.028	–.075	.376	1,475	.020	–.054	.094	2,224	.054	.011	.219	3,696	.037	–.098	.234	360
REASONS TO HAVE SEX OR ABSTAIN																
Not to have sex																
3 months	–.008	–.059	.011	1,592	.010	–.047	.000*	2,308	na	na	na	na	na	na	na	na
17 months	–.163	–.141	.418	1,307	–.094	–.132	.083	1,985	–.134	–.123	.487	3,454	–.027	.023	.344	339
To have sex																
3 months	–.023	–.053	.112	1,629	–.030	–.044	.401	2,350	na	na	na	na	na	na	na	na
17 months	–.110	–.114	.873	1,332	–.107	–.108	.992	2,032	–.118	–.103	.354	3,552	.041	.049	.898	343
BELIEFS ABOUT SEX AND THE MEDIA																
Media encourage sex																
3 months	.194	.022	.001*	1,791	.263	.048	.000*	2,571	na	na	na	na	na	na	na	na
17 months	.173	.094	.199	1,459	.194	.079	.016	2,196	.149	.090	.108	3,673	.011	.162	.152	362
Media do not affect behavior																
3 months	.110	.009	.047	1,775	.122	.020	.016	2,548	na	na	na	na	na	na	na	na
17 months	.054	–.033	.158	1,453	.013	–.011	.627	2,185	–.021	–.020	.976	3,659	.131	.132	.991	365
Sex is used to sell products																
3 months	.186	.005	.000*	1,791	.113	.020	.004*	2,559	na	na	na	na	na	na	na	na
17 months	.175	.103	.145	1,470	.083	.105	.568	2,190	.130	.061	.020	3,709	.083	.253	.083	366

*Difference between treatment and control group is significant. *Notes:* In this and subsequent tables: Larger mean change scores represent more desirable outcomes. The treatment group in the school setting received PSI along with schoolwide ENABL activities. na=not applicable, because three-month follow-up occurred only in classroom setting.

sizes of 0.11–0.21). No statistically significant differences remained at the 17-month follow-up. Among youths who had not had sex at pretest, the patterns of statistical significance were the same, but the effect sizes were slightly larger (0.14–0.24). There were no differences between treatment and control groups at either three or 17 months in youths' belief that the media have no influence on their behavior.

• *Communication with parents*. Regardless of sexual experience at baseline, there were no statistically significant differences at either the three- or 17-month follow-up between treatment and control groups in the level of communication with parents during the preceding year (not shown).

• *Self-efficacy*. As Table 3 indicates, youths receiving the adult-led but not the youth-led PSI were significantly more likely at the three-month posttest than youths in the control group to have confidence that they could say no to sex. The intervention appears to have counteracted a maturation effect, as youths who participated became more likely to believe they could refuse sex, while those in the control groups became less likely to believe so. However, the difference between the adult-led intervention and the corresponding control group was small (0.09, with an effect size of 0.13), and it did not remain significant at 17 months. There were no significant differences between treatment and control groups, at either three or 17 months, in participants' belief that they could demonstrate affection without having sex. The pattern of statistical significance was the same among youths who had never had sex at pretest (not shown).

• *Behavioral intentions*. There were no statistically significant differences between treatment and control groups in youths' having set sexual limits, in their intention to avoid sex even at the risk of losing a relationship (not shown), in sexually inexperienced youths' deciding to wait until they are older to have sex, or in sexually experienced youths' deciding to refrain from sex in the near future.

At the three-month posttest, teenagers in the youth-led but not the adult-led intervention were significantly more likely than control youths to report intending to refuse sex even when stirred by sexual feelings (effect size of 0.12), and those in the adult-led but not the youth-led intervention were significantly more likely than control youths to indicate that they intended to refuse pressure to have sex (effect size of 0.13).

Sexual Behavior

There were no statistically significant differences in attempts to persuade others to engage in intercourse between treatment and control groups in any setting at either

Table 3. Mean change in self-efficacy and in behavioral intentions among students in treatment and control groups, by type of intervention and setting, according to length of follow-up

Variable	Youth-led				Adult-led											
	Classroom				Classroom				School				Community			
	Treatment	Control	p	N	Treatment	Control	p	N	Treatment	Control	p	N	Treatment	Control	p	N
SELF-EFFICACY																
Saying no to sex																
3 months	.011	–.034	.218	1,537	.046	–.048	.003*	2,243	na	na	na	na	na	na	na	na
17 months	–.115	–.035	.100	1,265	.008	–.054	.116	1,939	–.046	–.061	.609	3,494	.048	.080	.738	334
Affection without sex																
3 months	–.026	–.065	.357	1,825	–.029	–.039	.756	2,617	na	na	na	na	na	na	na	na
17 months	–.023	–.037	.774	1,504	–.005	–.056	.193	2,254	–.017	–.026	.764	3,708	.047	.082	.738	361
BEHAVIORAL INTENTIONS																
Have set sexual limits																
3 months	.057	.042	.607	1,584	.027	.062	.132	2,289	na	na	na	na	na	na	na	na
17 months	.089	.105	.645	1,264	.108	.105	.900	1,967	.107	.095	.579	3,364	.052	.075	.738	332
Sexual feelings would lead to sex																
3 months	–.038	–.160	.007*	1,910	–.070	–.129	.120	2,731	na	na	na	na	na	na	na	na
17 months	–.317	–.270	.440	1,574	–.215	–.245	.534	2,339	–.299	–.277	.565	3,823	–.117	–.147	.801	381
Sexual pressure would lead to sex																
3 months	–.089	–.184	.026	1,918	–.051	–.165	.001*	2,739	na	na	na	na	na	na	na	na
17 months	–.310	–.244	.242	1,577	–.246	–.229	.697	2,348	–.299	–.255	.201	3,825	–.036	–.151	.293	382
Sexual pressure from boyfriend/girlfriend would not lead to sex																
3 months	–.053	–.021	.580	1,599	.014	–.036	.301	2,296	na	na	na	na	na	na	na	na
17 months	–.122	–.008	.127	1,328	–.063	.004	.249	1,979	–.098	–.082	.722	3,387	.087	–.073	.221	337
Have decided to postpone sex†																
% at 17 months	62.2	63.0	.768	1,197	66.4	63.1	.150	1,782	61.3	63.4	.253	2,829	71.3	67.5	.457	330
Have decided to postpone further sex‡																
% at 17 months	23.1	20.6	.551	396	20.9	22.6	.641	590	21.3	18.6	.288	1,016	34.5	33.3	.930	53

*Difference between treatment and control group is significant. †Among all youths not sexually experienced at 17-month follow-up. ‡Among youths sexually experienced at 17-month follow-up.

three or 17 months (not shown). As Table 4 (page 106) indicates, among youths who reported never having had intercourse at baseline, there were no statistically significant differences between intervention and control youths in the percentage who had initiated intercourse at either the three-month (5–6%) or the 17-month follow-up (15–18% in school settings and 8% in community settings). Furthermore, we found no significant differences in the impact of PSI on the postponement of sexual intercourse for different subgroups of students according to gender, grade, race or ethnicity, history of serious romantic involvement, prior receipt of sex education or contract agency responsible for implementing the program (not shown).

Among sexually experienced youths, there were no significant differences at either follow-up point in frequency of intercourse or number of sexual partners between any of the treatment and control groups, regardless of implementation setting, age of group leader (youth or adult) or participant's gender, prior sexual history, grade level, race or ethnicity or sexual experience prior to baseline.

We also examined the possibility that because the program discussed pregnancy and STDs as consequences of sexual activity and because it taught assertiveness skills to avoid sex, it might help adolescents insist upon the use of contraceptives if they did have sex. However, no significant differences emerged between intervention and control youths' use of oral contraceptives or condoms.

Pregnancy and STDs

Data on pregnancy rates among all youths who reported no prior history of pregnancy at pretest are presented in Table 5 (page 107) only for the 17-month follow-up, since any pregnancies reported at the three-month posttest were likely to have been conceived prior to baseline. There were no statistically significant differences in pregnancy rates between teenagers receiving the adult-led intervention and those in the corresponding control groups. This was true for all three settings, when analyzed separately or in combination. Furthermore, there were no significant differences when data only from those youths in adult-led groups who were sexually experienced at baseline were analyzed.

However, there was a statistically significant difference among those who had received the youth-led intervention; they were more likely to report a pregnancy than were their control group counterparts (4% vs. 2%). The same pattern emerged when only those youths sexually experienced at baseline were analyzed. We then conducted a multilevel statistical analysis, adjusting for clustering of youths within classrooms as well as within schools; the results remained statistically significant.

Given our other findings, this significant result was highly unexpected; we completed several additional analyses to more fully understand its cause. Analysis by gender revealed that the major difference between the treatment and control groups was among males. Young men receiving youth-led PSI reported a remarkably high rate of pregnancy involvement compared with their counterparts in the control group (6% vs. 2%). Further analyses revealed that a disproportionate number of the males reporting involvement in a pregnancy came from the seventh grade class of one particular school: Six males in the intervention group and only one in the control group reported having caused a pregnancy. When all seventh graders from that one school were removed from the statistical analysis, the overall relationship between youth-led PSI and pregnancy was

Table 4. Measures of sexual and contraceptive behavior among students in treatment and control groups, by type of intervention and setting, according to sexual experience and length of follow-up

Variable	Youth-led				Adult-led											
	Classroom				Classroom				School				Community			
	Treatment	Control	p	N	Treatment	Control	p	N	Treatment	Control	p	N	Treatment	Control	p	N
SEXUALLY INEXPERIENCED AT BASELINE																
% who initiated intercourse																
At 3 months	5.7	5.2	.673	1,678	5.6	5.4	.800	2,381	na	na	na	na	na	na	na	na
At 17 months	16.7	15.8	.660	1,431	15.1	17.1	.210	2,134	18.4	16.5	.126	3,446	7.7	8.4	.798	362
SEXUALLY EXPERIENCED AT EITHER FOLLOW-UP																
No. of acts of intercourse in last 3 months†																
Mean change at 3 months	0.9	0.3	.023	338	0.8	0.4	.109	464	na	na	na	na	na	na	na	na
Mean change at 17 months	1.8	1.6	.619	338	2.0	1.6	.162	586	1.7	1.9	.531	1,012	2.0	1.9	.960	52
No. of acts of intercourse in last 12 months†,‡																
Mean change at 17 months	3.0	2.7	.454	389	2.9	2.7	.453	586	2.8	3.0	.340	1,010	2.9	2.3	.552	52
No. of sexual partners ever†																
Mean change at 3 months	1.1	0.7	.069	342	1.0	0.8	.120	470	na	na	na	na	na	na	na	na
Mean change at 17 months	2.3	2.0	.282	393	1.9	1.8	.643	584	1.9	2.0	.420	1,012	1.0	1.4	.596	53
Used a condom																
% at 3 months	59.7	56.8	.593	339	65.9	56.3	.034	471	na	na	na	na	na	na	na	na
% at 17 months	56.7	61.0	.394	394	61.4	60.4	.802	584	66.2	67.0	.792	1,012	62.1	66.7	.728	53
Used oral contraceptives																
% at 3 months	24.3	20.4	.385	343	31.6	22.4	.024	475	na	na	na	na	na	na	na	na
% at 17 months	21.4	26.9	.212	387	19.4	24.3	.160	585	23.3	21.4	.469	1,015	20.7	29.2	.475	53

†Youths not sexually experienced at baseline were assigned a value of 0. ‡We do not include three-month data for this variable, because this time period included the nine months prior to baseline.

no longer statistically significant (p=.14).

There are a variety of possible explanations for what happened among those six seventh grade males. Given that classrooms of students were randomly assigned, it is possible that an especially high-risk group of males may have been assigned to one classroom, which was then assigned to the treatment condition. Alternatively, a small cluster of males may have decided to report incorrectly that they had caused a pregnancy, there may have been some gang activity requiring sexual activity and the claim of paternity, or several males may have each thought they were responsible for a single pregnancy.

In any case, it is unlikely that PSI caused an actual increase in pregnancy rates, for several reasons: First, much of the difference in pregnancy rates between students in the youth-led PSI and those in the corresponding control group occurred only among males in the seventh grade class in one school and did not occur in other classes, schools or agencies, or among females. Additionally, the males receiving youth-led PSI reported extremely high rates of pregnancy in relation to statewide statistics. Finally, there were no significant differences between treatment and control groups in sexual behavior and contraceptive use that would explain differences in pregnancy rates. Thus, the weight of the evidence indicates that neither youth-led nor adult-led PSI had a significant effect upon actual pregnancy rates.

Of those students who at pretest had reported never having had an STD, there were no significant differences at either follow-up between the PSI groups—either youth-led or adult-led—and their respective control groups in the percentage of youths who reported an STD (Table 5). Furthermore, there were no significant differences between the youth-led group and their control counterparts when the analysis was restricted to only sexually experienced youths.

There were no significant differences in reported STD rates between intervention and control participants in the schoolwide randomization or among teenagers recruited from community settings. (Rates among intervention groups were lower, although not significantly so.) However, participants in adult-led intervention groups in the classroom randomization design had significantly higher STD rates than did their control group counterparts.

Reported STD rates can increase either because greater proportions of youths actually contracted an STD or because larger proportions of youths with an STD decided to be tested and therefore learned that they had an STD. Thus, it is not clear whether an increase in reported STD rates represents a desirable or an undesirable event. Moreover, two of the five STDs listed in the survey question (herpes and crab lice) can be transmitted without sexual intercourse.

It is likely that this significant finding occurred by chance. The STD rates for the intervention and control groups in all three adult-led settings combined were remarkably similar (5–6%), while in the two adult-led settings other than the classroom randomization design, youths in the PSI groups had lower STD rates than did those in the control groups. Moreover, youths in the classroom scheme who participated in the adult-led intervention had not had significantly higher rates of sexual intercourse than their control group counterparts during the previous year (2.8 vs. 2.9 sexual acts), nor did they have a significantly higher number of sexual partners (1.9 vs. 1.8), nor were they significantly less likely to use condoms the last time they had sex (61% vs. 60%). Thus, there is no causal explanation for this finding.

However, it is possible that these students were more likely to obtain STD testing; some PSI leaders gave students referral cards specifying where such testing could be obtained. The weight of our findings strongly suggests that the PSI intervention did not significantly affect actual rates of STD infection.

Discussion

These results provide a remarkably consistent picture of the impact of PSI and the ENABL initiative. In the short term, the intervention had no impact on seven beliefs and attitudes, on four measures of inten-

Table 5. Percentage of youths reporting a pregnancy (or causing a pregnancy) or a diagnosed STD, by type of intervention and setting, according to length of follow-up

Variable	Youth-led				Adult-led											
	Classroom				Classroom				School				Community			
	Treatment	Control	p	N	Treatment	Control	p	N	Treatment	Control	p	N	Treatment	Control	p	N
Ever pregnant or caused a pregnancy†,‡																
At 17 months	3.7	1.5	.006*	1,548	2.5	1.9	.265	2,250	3.0	2.2	.139	3,758	1.1	1.1	.970	371
Ever diagnosed with an STD§																
All respondents																
At 3 months	0.7	0.3	.195	1,895	1.0	0.3	.032	2,711	na	na	na	na	na	na	na	na
At 17 months	1.5	0.7	.133	1,545	1.6	0.6	.015	2,313	1.4	1.6	.684	3,761	0.5	1.7	.289	372
Sexually experienced respondents																
At 3 months	4.0	1.1	.080	334	6.4	1.6	.007*	460	na	na	na	na	na	na	na	na
At 17 months	5.9	2.7	.122	389	6.8	2.1	.005*	584	5.1	6.7	.306	979	3.8	13.6	.221	48

*Difference between treatment and control is significant. †Among youths never pregnant at baseline. ‡We do not include three-month data for this variable, because pregnancies during this time period could have been conceived prior to baseline. §Based only on those who at baseline never had a diagnosed STD.

tions to have sex, or on five measures of sexual behavior.

The intervention had a small, positive impact among some groups on several attitudes related to sexual decision-making, on perceptions about the media's presentation of sexual images, and on feelings of self-efficacy and intentions to refuse sex. These attitudinal shifts did not translate into positive behavioral changes. Moreover, at 17 months, the intervention had no significant and positive effect upon any mediating variable, upon sexual or contraceptive outcomes or upon pregnancy or STD rates.

Our findings raise an important question: Why did this evaluation reveal no behavioral impact at three months and no impact of any kind at 17 months, when the evaluation of PSI in Atlanta suggested behavioral change? Is it possible that we failed to detect significant positive outcomes? The answer to this question has important implications for recommendations about how to develop effective programs.

Strengths and Limitations

This evaluation had several strengths: It employed a strong design with random assignment, short- and long-term follow-up and large sample sizes with sufficient statistical power to detect programmatically meaningful effects. It also allowed for the evaluation of youth-led PSI and adult-led PSI in schools and adult-led PSI in community settings. Moreover, this evaluation accounted for most of the mediating variables that might be affected by educational interventions and, in turn, might affect the initiation of intercourse. Most of the scales employed had acceptable-to-high reliability, and most of the behavioral measures had high internal consistency, both within each survey and between surveys. Finally, we checked extensively for inconsistencies and removed individuals with discrepant data.

However, several limitations are also noteworthy. This study did not have a strict no-treatment control group. While youths in the control groups received whatever program or instruction was otherwise being offered, it typically did not cover human sexuality. In addition, a large majority of the youths in both the treatment and control groups in this study, like those in Atlanta, had previously received some other instruction about aspects of human sexuality at some time during their middle school years. Thus, we could not assess whether PSI was more effective than nothing; all we could evaluate was whether PSI had a significant impact when it was taught in addition to other limited instruction on human sexuality.

There are several measurement limitations that are also noteworthy. Although youths who overreported or underreported sexual activity are likely to have been randomly distributed between the intervention and control groups, some youths who reacted negatively to the program or who were rebelling against its messages may have disproportionately overreported their sexual behavior. On the other hand, it is possible that youths who participated in PSI began to see teenage sexual activity in a less favorable light, and consequently underreported their own sexual activity. In either case, however, it seems likely that youths would overreport or underreport at the three-month posttest rather than at the 17-month follow-up, when any program effects are likely to have diminished. Moreover, our data on rates of sexual behavior are consistent with those from other studies.

The measurement of pregnancy is somewhat problematic. Several weeks or even several months may elapse between conception and the time a young women receives results from a pregnancy test. Until that time, she may not know of a conception or may incorrectly believe she is pregnant when she is not. Males, on the other hand, may not know that they have caused a pregnancy unless their sexual partner tells them.

Overall, we feel it is unlikely that the interventions produced programmatically important effects that were not detected. In the context of a strong design and methodology, we examined many subgroups of youths and searched at length for significant, positive and consistent behavioral effects. We found insufficient change in the mediating variables to suggest that there could be significant change in behavioral outcomes, and the results were remarkably consistent in demonstrating that PSI did not produce desirable effects upon behavior. Finally, behavioral results frequently were not in the desired direction, were not programmatically significant and were not close to statistical significance.

Replication Issues

When programs are replicated and implemented broadly, they are not always replicated with high fidelity. Accordingly, the ways in which the California implementation differed from that of the Atlanta evaluation should be examined.

The scale of the implementation in California was dramatically larger than that in Atlanta, and contractors had to stretch their resources and capacities in order to deliver PSI to large numbers of youths in relatively short periods of time. This raises the possibility that elements of the program may not have been implemented with the same fidelity as in Atlanta. There are several ways in which the California implementation of

PSI differed from that in Atlanta.

• *Age of students*. In Atlanta, only eighth grade students participated in the PSI evaluation, whereas in California, the program involved both seventh and eighth graders. However, when eighth graders were analyzed separately in California, results were similar to the findings from the combined analysis.

• *Additional five-session unit*. In Atlanta, PSI was implemented in addition to a five-session reproductive health unit that included basic human sexuality, decision-making and contraception, and the evaluation actually measured the impact of both PSI and this five-session reproductive health unit. In the California replication, the state contract required that study participants receive reproductive health education prior to receiving PSI, and 85% of our sample specifically remembered receiving such instruction. However, this instruction did not neccessarily occur immediately prior to PSI, as it did in the Atlanta implementation. Even so, findings based upon only those youths who remembered that they had previously received this instruction did not differ significantly from those based upon all youths. In addition, it does not seem likely that a series of classes that focused on postponing sex would be ineffective in delaying the onset of intercourse, yet would be successful in doing so if additional information were added on reproductive health and contraception.

• *Group leaders*. The PSI curriculum was developed for implementation by teenagers, and this is how it was implemented in Atlanta. In the California replication, the program was largely implemented by adults. Although this is an important difference, the results of this study were not more positive for those teenagers who participated in the youth-led intervention than for those who participated in the adult-led intervention.

• *Video*. The PSI curriculum came with a video showing still photographs of youths accompanied by voiceover narrations. About half of the ENABL project contractors used this video, but the rest found that the youths they served reacted so unfavorably to it that they could not use it. Thus, many of the youths in this evaluation received PSI without the video.

• *Implementation*. The educators implementing PSI—both youths and adults—were specially trained to deliver the program, were contractually obligated to follow the curriculum and knew they were being evaluated. Moreover, many contractors assigned their best and most experienced educators to facilitate the groups being evaluated. Thus, it is likely that in most respects, the basic structure and activities of the PSI curriculum were followed closely. Only a few modifications affecting only a small proportion of study participants were approved, and these were designed to make the curriculum more culturally appropriate.

Our personal observations and reports from agencies confirm that most contractors did follow the curriculum with considerable faithfulness. Moreover, the curriculum is well scripted, and according to most sexuality educators, relatively easy to follow. Group leaders received two days of training and practice in how to implement the program, and most belonged to organizations that commonly deal with sexual issues (e.g., family planning agencies); most had taught sex education in the classroom.

However, our personal observations of classroom instruction indicated that not all of the adult leaders always gave sufficient emphasis to important program messages; they sometimes spent more time than necessary answering questions not directly related to the intervention's goals. Moreover, a few leaders expressed dissatisfaction with the intervention's primary focus on postponing sexual involvement and the exclusion of information about contraception and disease prevention. Their conflicting feelings about the program may have diluted the strength of the messages they presented to students. Thus, some of the leaders may not have implemented PSI with optimal clarity and skill.

It was also our observation that some of the teenagers who led the intervention groups were not sufficiently trained or experienced. Some of the youths were not entirely comfortable talking about sex or communicating the program's singular message about postponing sexual involvement.

Conclusions

Despite these concerns, we do not believe that simply improving the fidelity of the implementation will cause PSI to dramatically change sexual behaviors. Rather, we believe that although the development of PSI was a seminal event in our field and the curriculum has broad appeal, the intervention (at five sessions in length) is too modest to have a significant impact on behavior. Indeed, the only three curricula implemented in the classroom that have led to changes in adolescent sexual behavior lasted an average of 15 sessions.[7]

Furthermore, the PSI program lacks one essential element of a successful behavior change curriculum: the opportunity to learn and practice new skills within an environment that provides sufficient support and feedback. Given its modest length, PSI cannot provide much practice in skill-building; during some implementations, a few participants did not have even a single opportunity to practice a refusal.

There is currently no middle school curriculum for which strong evidence indicates it is effective in delaying sexual involvement among young adolescents. Thus, there remains a real need to develop and demonstrate the effectiveness of such a program.

The findings from this replication study also make clear that before any group broadly implements a specific curriculum, it should thoroughly and critically examine the evidence for the effectiveness of that curriculum. Such a review should consider whether the curriculum was implemented, evaluated and found to be effective in large and rigorous studies in multiple sites. Characteristics of individual sites—uniqueness of the target population, unusually charismatic leaders or vagaries of the evaluation design—may limit the generalizability of the findings from one site to other sites. Thus, positive findings should be demonstrated in multiple sites and preferably multiple studies before a program is broadly replicated.

References

1. M. Howard and M. E. Mitchell, *Postponing Sexual Involvement: An Educational Series for Young Teens*, Emory/Grady Teen Services Program, Grady Memorial Hospital, Atlanta, Ga., 1990.

2. M. Howard and J. McCabe, "Helping Teenagers Postpone Sexual Involvement," *Family Planning Perspectives*, **22:**21–26, 1990.

3. D. Kirby, *A Review of Educational Programs Designed to Reduce Sexual Risk-Taking Behaviors Among School-Aged Youth in the United States*, National Technical Information Service #PB96108519, Springfield, Va., 1995.

4. H. H. Cagampang et al., "Education Now and Babies Later (ENABL): Life History of a Campaign to Postpone Sexual Involvement," *Family Planning Perspectives*, **29:**109–114, 1997.

5. M. Howard and J. McCabe, 1990, op. cit. (see reference 2).

6. D. Kirby et al., *Evaluation of Education Now and Babies Later (ENABL): Final Report*, Family Welfare Research Group, Berkeley, Calif., 1995.

7. S. Schinke, B. Blythe and L. Gilchrist, "Cognitive-Behavioral Prevention of Adolescent Pregnancy," *Journal of Counseling Psychology*, **28:**451–454, 1981; D. Kirby et al., "Reducing the Risk: A New Curriculum to Prevent Sexual Risk-Taking," *Family Planning Perspectives*, **23:**253–263, 1991; and D. S. Main et al., "Preventing HIV Infection Among Adolescents: Evaluation of a School-Based Education Program," *Preventive Medicine*, **23:**409–417, 1994.

215 Teenagers Educating Teenagers about Reproductive Health and Their Rights to Confidential Care
Katy Yanda
Family Planning Perspectives, 2000, 32(5):256–257

217 Can the Mass Media be Healthy Sex Educators?
Jane D. Brown and Sarah N. Keller
Family Planning Perspectives, 2000, 32(5):255–256

219 Older, but Not Wiser: How Men get Information about AIDS and Sexually Trnasmitted Diseases after High School
Carolyn H. Bradner, Leighton Ku and Laura Duberstein Lindberg
Family Planning Perspectives, 2000, 32(1):33–38

Teenagers Educating Teenagers About Reproductive Health and Their Rights to Confidential Care

By Katy Yanda

Teenagers are more likely to use health services when they are guaranteed confidentiality.[1] But what rights do minors have to confidential care, including reproductive health care? To what services can minors give informed consent without their parents' knowledge or permission? Using foundation funding and private donations, the Reproductive Rights Project of the New York Civil Liberties Union (NYCLU) created the Teen Health Initiative (THI) to fill the need for an accurate understanding of teenagers' rights to health care in New York.

New York broadly protects minors' rights to obtain and consent to confidential health care. Still, health care professionals—who cannot provide appropriate and comprehensive care unless they know exactly what the law specifies—are often confused about those rights.[2] THI makes the state's laws understandable and explains minors' legal rights to health care.

THI not only provides extensive training for professionals who work with adolescents, but also runs a peer education program. The program involves teenagers in discussions about their rights to confidential health care and gives them the tools to present that information to other adolescents around the state. In 1998, THI produced *Teenagers, Healthcare and the Law,* a booklet outlining minors' health care rights in New York. This booklet presents clear explanations, for both teenagers and professionals, of the state and federal laws that apply to minors' health care, specifically those related to confidentiality, informed consent and the health services to which minors are legally entitled.

Many teenagers will seek reproductive health care only if they know that it is available to them and that they can obtain it confidentially. According to Wilson, one peer educator, "The problem with laws is that teenagers aren't aware of the rights they have concerning their sexual health, and therefore do not receive the help they would like."

Sixteen peer educators, aged 14–19, make up the core of the program. Their weekly meetings in the offices of the NYCLU are a jumping off point for activities throughout New York. In a given month, members of the group may give workshops for other adolescents, identify "teenager-friendly" health centers in talks at schools and youth groups, participate in health fairs, attend rallies and demonstrations, call on state legislators and write letters to the editor. Currently, the peer educators are conducting interviews with adolescents throughout New York City about the barriers and problems they face in obtaining health care. This information will be incorporated into a Youth Summit that THI will hold in December for New York City peer educators who are working on health issues. THI is also producing a video on minors' legal rights to health care and the peer education program.

As peer educators organize and carry out these activities, they come to understand how reproductive health laws affect them. They are engaged in active learning and teaching; they are involved in their communities and become activists. "One of the things I like best about THI is its emphasis on teenagers' responsibilities," says Sophie, a peer educator and intern. "Although we discuss safe sex, contraceptive methods, HIV testing and AIDS, we also discuss teenagers' rights. We teach teenagers the power over their health care that the law gives them, and we emphasize the wide range of choices that a teenager has about his or her own health."

THI's work with the peer educators provides much of its energy, ideas and inspiration. In creating a two-tiered program—working with both teenagers and professionals—the program gains information and knowledge from each group. The peer educators become "advisors," experts on being adolescents in New York. By giving advice and asking questions, they provide information about their concerns and what they feel is important to include in the workshops. This process helps shape the direction of the advocacy, the production of materials and the professional training sessions offered by the program. Working directly with teenagers adds valuable depth to THI's training sessions for professionals. The THI program staff running these sessions can truthfully say, "Teenagers in New York are concerned about confidentiality in health care" or "Many adolescents don't know they can receive emergency contraception."

In turn, the peer educators benefit from being part of a professional organization that works on legal aspects of health care. Each teenager goes through an intensive training program at the beginning of the year that introduces or reinforces knowledge about issues related to reproductive health, civil liberties, youth rights and sexuality. The peer educators create a workshop called "Know Your Rights! Minors' Legal Rights to Health Care in New York." According to Wilson, "One of the most important aspects of the THI program is that it focuses on teenagers educating teenagers. The workshop feels more like a sharing of information than the lectures that some sex education classes present." The workshop covers the areas of health care to which minors can give informed consent and that they can receive confidentially. In New York State, in addition to mental health care and drug and alcohol counseling, these areas include reproductive health care—birth control (including emergency contraception), pregnancy testing, prenatal care and counseling, testing and treatment for sexually transmitted diseases (STDs), HIV and AIDS testing and treatment, and abortion.

The peer educators often open up the workshops by using a question as an icebreaker. One of the most telling is: "Can you talk to your parents about sex?" The majority of the adolescents attending say no. When asked what they consider the most crucial health problems teenagers are facing right now, they cite pregnancy, HIV infection and depression—all problems requiring services that teenagers can obtain confidentially in New York. The THI workshop shows teenagers that they have the right to receive these services and gives them a forum for asking questions. "Do I really have the right to an abortion without my parents knowing?" "Can I go for treatment of an STD by myself?" "Where can I get emergency contraception?" "Where can I obtain confidential counseling?" The questions raised in the workshops provide evidence of a great need for comprehensive sex education programs that include accurate information on teenagers' legal rights.

The creation of a peer education program around the legal rights of teenagers to health care expands the concept of sex education. The content of the workshop helps the peer educators and their audience to understand why they do and do not have access to different services, and encourages them to delve into the legal framework of access to health care. It discusses reproductive health, but also gives

Katy Yanda is director of the Teen Health Initiative at the New York Civil Liberties Union, New York.

them the tools to understand the history and the current status of their rights to reproductive health care. This, in turn, leads them to question how health care is provided, and to learn what they can do if they feel they do not have access to the services they need. Wilson notes: "Another thing that draws me to THI is that instead of presenting ideas or opinions on sex, it presents nonnegotiable facts about the rights teenagers have." Teresa, also a peer educator and intern, says, "The information that THI provides for teenagers is vital and unique in that it really empowers youth. It is helpful for teenagers to know that they have choices; our group reinforces this knowledge by letting youth know what their options and legal rights are when dealing with their health care."

The key is to make teenagers understand that they have a right to confidential health care and lead them to believe that they can assert and defend those rights and should tell their peers about them. THI involves adolescents in the legal processes of health care by explaining their rights and helping them to become advocates for their own health. Teenagers who understand and value their rights are a powerful voice in their defense when policymakers seek to put politics before public health. As Sophie comments, "We believe that when fully educated and treated respectfully, most teenagers are willing and able to make responsible choices about their health and their lives."

References

1. English A and Simmons P, Legal issues in reproductive health care for adolescents, *Adolescent Medicine,* 1999, 10(2):181–194; and Ford C et al., Foregone health care among adolescents, *Journal of the American Medical Association,* 1999, 282(23):2227–2234.

2. Lieberman D and Feierman J, Legal issues in the reproductive health care of adolescents, *Journal of the American Medical Women's Association,* 1999, 54(3):109–114.

FORUM

SEX EDUCATION OUTSIDE OF SCHOOL

Can the Mass Media Be Healthy Sex Educators?

By Jane D. Brown and Sarah N. Keller

The mass media—television, music, magazines, movies and the Internet—are important sex educators. Yet, the media seldom have been concerned with the outcome of their ubiquitous sexual lessons. Typically, those who own and create communications media have been more concerned with attracting audiences and selling products than they have been in promoting healthy sexuality. Most are driven by profit margins, not social responsibility, and are not in the business of promoting healthy sexuality. If irresponsible sexual behavior attracts audiences, then that is what will be produced.

Could the media be healthier sex educators? Absolutely. Will they do it? That's less clear.

Young people in the United States today spend 6–7 hours each day, on average, with some form of media. A majority have a television in their bedroom; all have access to music and movies. Computer and Internet use is diffusing rapidly. By 2010, it is expected that most homes with children in the United States will have access to the Internet. It is not clear, however, when and if the current "digital divide" between lower and higher income families and between those who are less literate or non–English-speaking and those who are literate or English-speaking will disappear.[1]

The media-saturated world in which children live is a world in which sexual behavior is frequent and increasingly explicit. Gone are the "I Love Lucy" days of single beds and polite pecks on cheeks. Youth today can hear and see sexual talk and portrayals in every form of media.

Adolescents rank the media with parents and peers as important sources of sexual information. This may be because the media are better at depicting the passion and positive possibilities of sex than its problems and consequences. Despite increasing public concern about the potential health risks of early, unprotected sexual activity, only about one in 11 of the programs on television that include sexual content mention possible risks or responsibilities. Sexually transmitted diseases other than HIV and AIDS are almost never discussed, and unintended pregnancies are rarely shown as the outcomes of unprotected sex.[2] Abortion is a taboo topic, too controversial for commercial television and magazines. Homosexual and transgendered youth rarely find themselves represented in the mainstream media. Although a few youth-targeted programs, such as "Dawson's Creek," have recently included gay characters, what some have called "compulsory heterosexuality" prevails.[3]

The clash between the media's depiction of sexual relations and the real-life experiences of youth contributes to their difficulties in making healthy sexual decisions. Although we still have much to learn about how the media influence young people's sexuality, evidence is accumulating that besides imparting basic information about sex, the ubiquitous and risk-free media portrayals, coupled with inadequate alternative models from other sectors, encourage unhealthy sexual attitudes and behavior.[4]

Government regulation of media content is unlikely and probably the least desirable remedy, so two strategies for working with the media hold greater promise. A number of groups, including the Henry J. Kaiser Family Foundation, Advocates for Youth and the National Campaign to Prevent Teen Pregnancy, have been working with Hollywood scriptwriters and television and music producers as well as magazine editors to encourage more sexually responsible media content. As a result of these efforts, hit shows like "Felicity" have included sensitive portrayals of homosexual youth, have provided explicit lessons in how to put on a condom and have portrayed teenagers postponing sexual intercourse, apparently with no decline in audience interest. Additionally, magazines such as *Teen People* and *YM* have produced excellent articles on such relevant topics as adolescent pregnancy and contraceptives.

The second strategy available to sex educators is the Internet, which has the advantage over other media of allowing any group to make their information and point of view available relatively inexpensively. Children soon will take for granted that they have access to almost any information and any form of entertainment in one place at any time they want it. At this point, unfortunately, it is easier to find sexually explicit, unhealthy sites than it is to locate those that promote sexually responsible behavior in an equally compelling way.

A number of comprehensive sexuality education websites for young people have been launched. Some of the earliest, such as Columbia University's *www.goaskalice.columbia.edu*, were established to provide college students with easily accessible health information and to offer sexual health information. A number of the current sites that focus on sexual health include sections for users to send in questions that a panel of experts will answer. Most of these also include a "frequently asked questions" (FAQ) section, since teen-

Jane D. Brown is James L. Knight Professor, School of Journalism and Mass Communication, University of North Carolina, Chapel Hill, NC. Sarah N. Keller is assistant professor, Department of Communication, Emerson College, Boston, MA.

agers often share similar concerns (e.g., *www.sxetc.org*, the site run by the Network for Family Life Education at the Rutgers University School of Social Work).

Sites typically include other features that might attract teenagers to learn more about specific topics, such as "Sex: What to do?! Did your first time get you into a sticky situation?" and "Four birth control methods not recommended for teens" (Planned Parenthood Federation of America's *www.teenwire.org*). Others, such as the American Social Health Association's *www.iwannaknow.org* site, also include chat rooms in which teenagers can discuss sexual concerns with their peers. The iwannaknow.org site's chat room is monitored by an experienced sexuality educator who can stop inappropriate talk and solicitation or interject accurate information.

At this point, we know little about who has access to such sites and how they are used, but they have promise. A major hurdle will be making sure that youth are aware of and can find the "good" sites. We also have to be careful that the good is not thrown out with the bad, as concern about protecting children from the risks of websurfing increase. According to a recent national survey of young people (10–17 years old) who regularly use the Internet, one out of five said they had been exposed to unwanted sexual solicitations while online in the past year. One in four reported having inadvertently encountered explicit sexual content.[5] Unfortunately, current screening devices are as likely to block sites containing information about breast self-exams, for example, as they are to block the many sites depicting bare breasts.

It is unlikely that the media, including the Internet, will shift toward a healthier depiction of sexuality anytime soon. Nonetheless, it is important that those concerned continue to push for healthier representations in commercial media and to create alternative portrayals and sources of information whenever possible. In the meantime, the most effective strategy may be to help children learn how to navigate this remarkable ocean of information, ideas and images. In some countries, such as Canada and Australia, media literacy is taught at all grade levels and throughout the curriculum, so children learn early that all media are constructed, convey a particular set of values and, in general, are designed to sell products. The need for media literacy is beginning to gain adherents in the United States as well. For example, a number of states have included media education in their public education standards. Children who know more about how the media work, how images are constructed and the potential effects of media exposure should be less negatively affected by media use and should be more able to find what they are looking for without being ambushed by unwanted, unhealthy sexual material or by predators.

In short, the media are important sex educators today and will continue to be in the future. Therefore, efforts both to encourage the media to present a healthier view of sexuality and to create, promote and make accessible healthier sources of sexual information should continue. Most importantly, children should be armed with the navigational and analytic tools they'll need to be able to create sexually healthy lives—despite what most of the media teach.

References

1. Roberts D, Media and youth: access, exposure, and privatization, *Journal of Adolescent Health,* 2000, 27(2):8–14; and Taylor H, Online population growth surges to 56% of all adults, *The Harris Poll* #76, Dec. 22, 1999, www.harrisinteractive.com, accessed June 29, 2000.

2. Cope K and Kunkel D, Sexual messages in teens' favorite prime-time programs, in: Brown J, Steele J and Walsh-Childers K, eds., *Sexual Teens, Sexual Media,* Hillsdale, NJ: Lawrence Erlbaum (in press).

3. Rich A, *Blood, Bread, and Poetry: Selected Prose 1979–1985,* New York: Norton, 1986; and Wolf MA and Kielwasser AP, eds., *Gay People, Sex, and the Media,* New York: Harrington Park Press, 1991.

4. Brown J, Steele J and Walsh-Childers K, eds., in press, op. cit. (see reference 2).

5. Finkelhor D, Mitchell K and Wolak J, *Online Victimization: A Report on the Nation's Youth,* Washington, DC: National Center for Missing & Exploited Children, 2000.

Older, but Not Wiser: How Men Get Information About AIDS and Sexually Transmitted Diseases After High School

By Carolyn H. Bradner, Leighton Ku and Laura Duberstein Lindberg

Context: *As they reach adulthood, young men are less likely to use condoms and are at increased risk for exposure to AIDS and other sexually transmitted diseases (STDs). Little is known about which prevention efforts reach men in their 20s.*

Methods: *Longitudinal data from the 1988, 1990–1991 and 1995 waves of the National Survey of Adolescent Males are used to identify sources of information about AIDS and STDs among 1,290 young men aged 22–26. Information receipt from four main sources, the topics covered by each source and the personal characteristics associated with getting more information are all explored.*

Results: *Twenty-two percent of men surveyed discussed disease prevention topics with a health provider in the last year, 48% attended a lecture or read a brochure, 51% spoke to a partner, friend or family member, and 96% heard about AIDS or STDs from the media (e.g., television advertisements, radio or magazine). Excluding media sources, 30% of young men reported getting no STD or AIDS prevention messages in the last year. Being black or Hispanic, having had a physical exam or an AIDS test in the last year, and having had discussions about AIDS or STDs with parents or a health care provider in the past were associated with receiving more information.*

Conclusions: *Although young men who are at higher risk for STD or HIV infection are more likely than other young men to get information about disease prevention, young adult men are much less likely than adolescents to receive AIDS or STD prevention education. More prevention efforts need to be aimed at young adults.*

Family Planning Perspectives, 2000, 32(1):33–38

Throughout the last decade, widespread concern about high rates of childbearing and sexually transmitted disease (STD) transmission among adolescents led to changes in sex education programs and, subsequently, adolescents' risk behaviors. As of 1996, almost all secondary schools reported offering AIDS education as part of a required health education class.[1] Research suggests that AIDS and sex education programs for adolescents may delay first intercourse, moderately reduce sexual activity and increase contraceptive use.[2] Recent studies show modest declines in sexual activity, pregnancy and childbearing among teenagers, as well as a rise in condom use, suggesting that prevention efforts among adolescents might work.[3] It remains to be seen whether such changes are maintained in adulthood.

After they leave school, young people are less connected to institutional structures that facilitate education about AIDS and STDs and organized prevention efforts drop off, despite increased levels of sexual risk-taking behaviors. The increasing delay before marriage results in a longer period for sexual partnering among young people, potentially increasing their exposure to HIV infection and other STDs. Men in their 20s are more likely to be sexually active and are less likely to use condoms than teenagers.[4] Their high-risk sexual behavior also leads to increased risk for disease: Half of all new HIV infections in the United States are among people younger than 25,[5] and young men aged 20–24 have the highest rate of gonorrhea infection among all male age-groups.[6] In contrast to adolescents, among whom rates of intercourse are declining, men in their 20s are at greater risk for HIV and other STDs than in the past: Recent reports show that HIV prevalence among young heterosexual men doubled between 1988 and 1993.[7]

Men in their 20s have relatively high rates of STD and HIV infection compared with younger men, and they are more likely to engage in risky sexual behaviors. These young men are often the hardest to reach for prevention, however, because they are no longer associated with institutions that traditionally provide prevention education.

Little is known about whether young men carry the prevention messages that they received as adolescents with them as they age or where they obtain new information about the prevention of STDs or AIDS. The available data on where young adults receive disease prevention information are very limited.

This article documents the sources of STD and AIDS prevention messages for men in their 20s. We identify the most common sources of information about AIDS and STDs for young men aged 22–26, the topics most frequently covered and the characteristics of men who receive information. We focus on the receipt of information on AIDS and other STDs, but these topics can be considered markers for receipt of information in other areas, such as pregnancy prevention. We are interested in determining whether the young men most in need of prevention information (those with a history of risky sexual behavior or STD testing) receive it. By using three waves of longitudinal data, we can link current receipt of information for disease prevention to prior health education efforts and sexuality communication.

Data and Methods

Sources of Data

Data are from the first three waves of the National Survey of Adolescent Males (NSAM), administered in 1988, 1990–1991 and 1995.[8] The 1988 NSAM was a nationally representative household sample of 1,880 never-married men aged 15–19 that oversampled black and Hispanic youth. The overall response rate for the first wave was 74%. The original cohort was surveyed again in 1990–1991, at ages 17–22, with an 89% follow-up rate. In 1995, the 1988 cohort was surveyed at ages 22–26 with a 75% follow-up response rate (from 1988). The analyses in this article are limited to the 1,290 young men who responded to all three waves; they represented 70% of the

Carolyn H. Bradner, formerly a research associate at The Urban Institute, is currently a medical student at the University of Chicago's Pritzker School of Medicine. Leighton Ku is a senior research associate and Laura Duberstein Lindberg is a research associate, both at The Urban Institute, Washington, DC. The preparation of this article was funded by the Charles Stewart Mott Foundation. The National Survey of Adolescent Males was funded with the support of the National Institute of Child Health and Human Development, with additional support from the Office of Population Affairs, the National Institute of Mental Health and the Centers for Disease Control and Prevention.

original sample (excluding those who died between waves).

For the original sample, weights were constructed to adjust for probability of selection, nonresponse and poststratification adjustments to census targets. For the 1995 wave, we constructed longitudinal weights that also adjust for attrition across the waves, so that the combined three-wave sample has a distribution of characteristics similar to the original 1988 sample.[9] All NSAM waves were conducted with a face-to-face interview and a self-administered paper-and-pencil questionnaire (which was used to collect more sensitive information).

Variables

The main outcome measures in this analysis are respondents' self-reported receipt of information about AIDS and STDs in the year prior to the 1995 interview from four types of sources: medical, instructional, social and media.

The 1995 NSAM had 20 health information items that covered these four source types. Information receipt from a medical source was captured by the question, "In the last 12 months has any doctor or nurse discussed any of these topics with you?" The four topics were: pregnancy prevention; AIDS; other STDs; and condoms. Data on instructional, social and media sources came from two questions, each with seven items. The first asked, "In the past 12 months did you get any information about X from any of these sources?" where "X" refers to either AIDS or other STDs (such as herpes, syphilis or chlamydia). The seven choices for information sources included brochures received at work or school; a lecture or workshop; a wife or girlfriend; other friends or family members; television; radio; and magazines or newspapers. Additional data on information receipt from the media was collected from a question that asked, "In the last 12 months have you seen any TV programs or TV ads about these topics?" where the two topic choices were preventing pregnancy and condoms.

Conversations with medical professionals about pregnancy might have been either about prevention or about a current pregnancy; thus, we excluded the pregnancy topic, since our analyses focus on prevention messages. For consistency, we eliminated this topic from the media grouping as well, leaving us with 18 items for the analysis. We grouped the 18 items into four binary variables based on loadings from factor analyses (varimax rotation) that indicate which items are intercorrelated. Respondents were coded as having received AIDS or STD information from a medical source if they talked to a doctor or nurse about AIDS, STDs or condoms. Respondents were coded as having received information from an instructional or social source if they reported receiving information on either AIDS or STDs from a lecture (instructional), or a partner, friend or relative (social). Respondents who reported receiving information on AIDS or STDs from television, radio, magazines or newspapers or receiving information on condoms from television were coded as having received information from a media source.

For the portion of the analysis that describes the characteristics of those who receive information, we hypothesized that health information receipt, like receipt of health care services, is a function of both the demand for and the supply of information.[10] We selected variables related to characteristics that might affect information-seeking by young men, as well as their ability to reach an information supplier. With longitudinal data, we can look at both current and earlier respondent characteristics.

We show health information receipt by race, age, marital status, level of education and employment status. We then explore information receipt by various health care characteristics, such as whether a respondent had a physical exam or an STD test in the last 12 months. The expectation is that people who regularly seek medical care are more likely to seek out information on reproductive health topics. Other health care characteristics that we examined include type of provider and insurance status. Having a regular source of care and medical insurance are expected to be linked with increased access to information.

We then consider the relationship between prior receipt of health information, as measured in previous waves. These measures include having received formal, primarily school-based, sex education by age 17; ever having talked to a parent about reproductive health topics (1988 wave); and having spoken to a doctor or nurse in the last 12 months (1990–1991 wave). Respondents with a history of sex education or sexuality communication are expected to be more likely to seek out information when they are older.

In the multivariate analysis, we add an additional group of correlates related to STD risk. These include having had three or more partners in the last year, having become sexually active before age 15 and knowing someone with AIDS. Ideally, respondents who have engaged in high-risk sexual activity or who ever knew someone with AIDS would be more likely to receive relevant information.

Data Analysis

All analyses presented here are weighted, using the longitudinal weights. SUDAAN was used to test for significance in bivariate tabulations, and in logistic regression models to adjust for the complex sample design.[11] The logistic regression analyses estimate three sets of models predicting receipt of reproductive health information from a medical, instructional or social source. Since 92 respondents did not answer the self-administered questionnaire (the section with questions on physical exams and AIDS and STD testing), we include a dummy variable for these respondents in case they differ from the remaining respondents.*

Results

Topic and Source of Information

Almost all respondents (96%) recall having heard prevention messages concerning AIDS or STDs through the media in the last year (Table 1). Only 22% of the young men talked to a doctor or nurse about AIDS, STDs or condoms in the last year.

Table 1. Percentage of U.S. males aged 22–26 who received information on AIDS and STDs in the last year, by topic, according to source, 1995 National Survey of Adolescent Males (N=1,290)

Source	Any topic	AIDS	STDs	Condoms
Total	**98.2**	**95.3**	**71.8**	**80.3**
Media	**96.2**	**91.7**	**58.7**	**78.3**
TV program/advertisement	94.0	87.0	44.1	78.3
Magazine	75.8	74.6	46.4	na
Radio	59.6	57.8	23.9	na
Medical				
Talked to a doctor/nurse about topic	22.3	18.4	17.9	16.4
Instructional	**47.8**	**45.1**	**34.0**	**na**
Attended a lecture on topic	20.8	17.9	15.3	na
Read a brochure on topic	43.3	40.2	30.1	na
Social	**50.8**	**46.9**	**31.6**	**na**
Talked to other friends/family about topic	40.0	37.1	25.1	na
Talked to girlfriend/wife about topic	33.2	29.8	19.6	na

Notes: Percentages are weighted. na=not applicable.

*The 92 missing cases in the self-administered questionnaire portion are because some respondents either erroneously skipped a section of this questionnaire or did not answer it at all. The models were run with and without the respondents missing self-administered questionnaire data, and the substantive results did not change.

Approximately half of the respondents report having received prevention information from a brochure or lecture (48%) and having talked to a partner, family member or friend about health information (51%). AIDS is consistently the topic most often reported, regardless of source.

Among the media sources, television is the most commonly reported source for information (94%). Respondents are twice as likely to report having read a brochure about various topics (43%) than to have attended a lecture (21%). Young men are more likely to report having talked about AIDS or STDs with a family member or friend than with a wife or girlfriend (40% vs. 33%).

We did not collect data on the content received from any of the sources. Media information could have been presented as part of a fictional story line, as a news story or in a prevention context. Furthermore, it is difficult to consider correlates of receipt, since virtually the entire sample reported having received information from the media about AIDS or STDs. These two problems led us to drop media from the remainder of our analyses.

Clinicians and television were the only sources that included information about condoms. If the condom measure is excluded from the analysis, the values for information receipt from a media and medical source change to 92% and 21%, respectively. There is a larger difference for the media than for the medical source, but since we exclude media from the rest of our analyses, our primary concern is the medical measure. Since the difference is about one percentage point, we do not believe that including the condom measure in the rest of the analyses substantively affects our results.

When the media category is excluded from the analysis, 30% of respondents report that they received no information about AIDS or STDs in the last year from the three remaining sources. Among those who report having received no information in the last year, 94% had received information from the media (results not shown). Approximately one-third of respondents received health information from one source and 27% got information from two sources. Only 12% of respondents got information from all three sources.

Correlates of Information Receipt

For each source of information on disease prevention, non-Hispanic black men and Hispanic men are more likely than white men to report having received prevention messages (Table 2). Older respondents are less likely to have received information from a medical source than respondents younger than 26. Single respondents and those with more education are more likely to receive information from an instructional source than are other young men. However, the most-educated men are less likely than other respondents to report receiving information from a social source. Respondents currently attending school are more likely to report information receipt from an instructional source than are respondents who are not in school, regardless of their employment status.

Whether a respondent has a regular source of health care is not related to his receipt of health information in the last year (Table 2). Information receipt also does not differ by insurance status, except that Medicaid recipients are more likely to report having received information from an instructional source (67%) than did men covered by other types of health insurance. Having a physical exam or having been tested for AIDS or an STD in the past year are positively associated with receipt of health information from all types of sources.

Having received formal sex education before age 17 is not significantly associated with having received disease prevention information later in life (Table 2). For the three sources of health information examined, more parental communication (i.e., discussion of more topics) at a young age is associated with a higher incidence

Table 2. Health information receipt in the last year among U.S males aged 22–26, by characteristics, according to source of information, National Surveys of Adolescent Males

Characteristic	% dist.	Source		
		Medical	Instructional	Social
DEMOGRAPHIC CHARACTERISTICS				
Race				
Black non-Hispanic	14.5	42.2**	66.5**	69.8**
Hispanic	9.3	35.6	57.7	66.8
White non-Hispanic/other	76.2	16.9	43.1	45.2
Age				
≤23	43.9	22.8*	52.1	51.8
24–25	43.8	24.8	46.2	51.2
26	12.4	11.7	38.5	45.5
Marital status				
Married	25.7	18.5	35.0**	47.0
Cohabitating	13.8	23.9	45.1	50.0
Single	60.6	23.6	53.9	52.5
Highest level of education				
<high school	7.6	13.6	30.1*	38.5*
High school graduate	69.3	23.3	48.2	54.0
College graduate	16.7	24.7	50.1	51.8
Graduate school	6.3	16.7	58.6	25.8
Employment/educational status†				
Employed, not in school	66.2	22.4	41.4**	49.9
Employed, in school	18.6	23.1	60.7	57.4
Not employed, in school	7.0	12.5	78.5	33.9
Not employed, not in school	8.2	28.7	44.8	58.0
HEALTH CARE CHARACTERISTICS				
Has regular doctor/health care provider				
Yes	82.2	23.7	49.4	50.8
No	17.8	15.5	39.6	49.7
Insurance status				
Medicaid	5.7	23.3	66.7*	53.6
Other insurance	70.1	21.6	48.7	50.0
Uninsured	24.1	24.2	40.5	52.2
Had physical exam in last 12 months‡				
Yes	56.1	31.0**	57.2**	56.9**
No	43.9	11.6	34.9	40.6
Had AIDS/STD test in last 12 months‡				
Yes	30.6	40.8**	59.9**	61.2**
No	69.4	14.3	41.9	44.7
PRIOR RECEIPT OF SEX EDUCATION				
Sex education by age 17				
No	10.3	20.7	52.7	49.5
1–4 topics	56.2	22.4	45.6	51.3
All five topics§	33.5	22.8	50.1	50.2
Talked to parents about sexuality topics (Wave 1 only)				
No	21.3	17.8*	42.1	46.7
1–5 topics	64.2	21.1	48.0	49.6
All six topics††	14.5	34.7	55.6	62.0
Discussed reproductive health with doctor at last visit (in 1990–1991)				
Yes	15.2	36.1**	50.6	65.2**
No	84.8	19.9	47.4	48.2

*p≤.05. **p≤.01. †"In school" refers to respondents who are currently enrolled in school either full-time or part-time. Of those who are in school, 0.2% are in high school, 72.1% are in college, 21.4% are in graduate school, 5.6% in vocational/trade school and 0.8% are in a GED program. ‡There are 92 missing cases for these variables, due to nonresponse on the self-administered questionnaire portion of the survey and to erroneous skipping. §Sex education topics include STDs, AIDS, safe sex, birth control methods and where to obtain birth control. ††Parental communication topics include talking with parents about the menstrual cycle, about how pregnancy occurs, about STDs, about contraceptive methods, about AIDS and about what to do if pregnancy occurs. *Note:* Significant difference refers to chi-square test of each characteristic and source.

of health information receipt, although the difference is statistically significant only for medical sources of information. Finally, when we examine prior discussion of AIDS or STD information with a physician (as reported in the 1990–1991 wave), we find that respondents who reported having discussed reproductive topics with a physician at their last visit prior to 1990–1991 are more likely to have received health information at a later age from both medical and social sources.

Multivariate Analyses

The first logistic regression shown in Table 3, which predicts receipt of information on AIDS, STDs or condoms from a medical source, indicates that non-Hispanic black men and Hispanic men are more likely to report having received information from a medical professional than are white men.* Health insurance status, provider type and prior sex education are not significantly related to having talked with a doctor or nurse in the 12 months prior to the survey. Respondents who had had a physical exam or an STD test in the previous 12 months are more likely to have talked with a doctor or nurse during the same time period. Respondents who reported having spoken with a parent about all six sexuality topics in 1988 or who reported having talked to a doctor in Wave 2 are much more likely to report having talked to a doctor or nurse in the 1995 wave. Finally, respondents who became sexually active before age 15 are less likely to have talked to a physician or nurse about reproductive health topics.

In the regression results predicting the likelihood of having attended a lecture or received a brochure about AIDS or STDs, being non-Hispanic black or Hispanic is positively associated with having received AIDS or STD information in the last 12 months. Being in school, regardless of employment, is highly correlated with having received a brochure or having attended a lecture on AIDS or STDs. College graduates are also more likely to report information receipt than are those with only a high school diploma. Respondents who received a physical exam in the last 12 months are more likely than others to report having attended a lecture or received a brochure.

Finally, the regression predicting discussion about AIDS or STDs with a partner, friend or family member in the last 12 months produces results similar to the others. Black and Hispanic men are more likely than white men to report having talked with someone about AIDS or STDs. Respondents who reported having lived with their parents in the last 12 months are more likely to have received information from a social source than other respondents. Respondents with less than a high school education are less likely to report having talked to someone about AIDS or STDs than those with a high school degree.

Respondents who had a physical in the last year are more likely than other young men to have received information from a social source. Respondents who in Wave 2 reported having spoken with their physician are more likely than others to report having received information from a social source in 1995.

Table 3. Odds ratios from logistic regression models predicting source of AIDS and STD information receipt in the last year among U.S. males aged 22–26, by source

Characteristic	Medical	Instructional	Social
Demographic characteristics			
Race			
Black non-Hispanic	3.34**	3.05**	2.17**
Hispanic	3.02**	2.53**	2.43**
White non-Hispanic/other (ref)	1.00	1.00	1.00
Age	0.93	0.94	1.02
Marital status			
Married	0.90	0.70	1.02
Cohabiting	0.87	0.74	0.91
Single (ref)	1.00	1.00	1.00
Lived with parent(s) in the last 12 months	1.18	1.44	1.56*
Employment/educational status			
Employed, in school	0.98	1.98*	1.41
Not employed, in school	0.40	4.90**	0.53
Not employed, not in school	0.89	0.77	1.07
Employed, not in school (ref)	1.00	1.00	1.00
Highest level of education			
<high school	0.64	0.65	0.58*
High school graduate/some college (ref)	1.00	1.00	1.00
College graduate or more	1.54	1.80**	0.87
Health care characteristics			
Insurance status			
Medicaid	0.93	2.79	1.03
No insurance	1.09	0.75	0.93
Other insurance (ref)	1.00	1.00	1.00
Has regular health care provider	0.81	0.80	1.33
Had physical exam in last 12 months	2.44**	2.47**	1.70**
Had AIDS/STD test in last 12 months	2.91**	1.46	1.40
Did not answer self-administered questionnaire†	2.35	2.87**	2.35*
Prior health education receipt			
Sex education by age 17	0.76	0.55	0.93
Talked to parents about reproductive health (Wave 1 only)			
No parental communication (ref)	1.00	1.00	1.00
1–5 topics	1.14	1.15	1.13
All six topics	2.36*	1.44	1.65
Reported talking to a doctor (Wave 2)	2.34**	1.08	1.94*
STD risk			
Had >3 partners in last year	1.55	1.39	1.28
Had sex before age 15	0.49**	0.71	1.12
Know someone with AIDS	1.48	1.15	1.49
–2 log likelihood	*240.00*	*257.79*	*164.05*
Degrees of freedom	*24*	*24*	*24*
N	*1,236*	*1,234*	*1,234*

*p≤.05, **p≤.01. †The models were also run without this variable and there was no change in the odds ratio for variables derived from the self-administered questionnaire.

Discussion

This article documents how men in their early 20s, who are generally employed and not in college, get prevention information about AIDS and STDs. Almost all of these young adults are exposed to media messages about such topics, but about two-thirds are informed by more direct sources, such as from family, friends or medical professionals, or through lectures or brochures. The examination of those who received direct information revealed certain demographic traits that are useful in identifying who is less likely to get AIDS or STD messages. White non-Hispanic males reported getting prevention messages less frequently than black or Hispanic men. Those without a high school degree were less likely to have more direct discussions or formal instruction about these topics.

After controlling for a host of social, demographic and other traits, we find that black or Latino men are much more likely to get information about reproductive

*The racial difference exists even in cases where STDs have been diagnosed. Among the small percentage who were told that they had an STD, black men were three times more likely to have discussed STDs with a medical professional than were white males. Most discussions occurred outside the context of a diagnosed STD.

health, suggesting that minority youth have been targeted for prevention efforts. This is important, given the large body of research indicating that nonwhite males are at increased risk for AIDS and STD infection. Young black men are also more likely to be sexually active and to have more partners than are young white men.[12] STD infection rates are also higher among ethnic minorities. In 1997, the chlamydia rate for Hispanics was almost three times that of whites, and the rate for blacks was 10 times that of whites. For gonorrhea, the contrast was even greater: The 1997 gonorrhea rate for black males aged 20–24 was 40 times that of whites.[13] Although HIV infection rates are declining for all men, they are falling at a slower rate for black men. By 1993, black males aged 18–22 had a higher HIV prevalence than white males.[14]

While it is gratifying that black and Hispanic males are receiving prevention messages, it is of concern that white males with similar sexual histories and socioeconomic status are substantially less likely to receive this information. The difference is particularly apparent with respect to discussing HIV or STDs with a doctor or nurse: Forty-two percent of black males got medical advice, compared with 17% of white males. We worry that medical professionals may have implicitly labeled minority males as being at risk of HIV or STDs, but not white males, regardless of their actual sexual experience.

The fact that about one-third of young adult men received no information about AIDS or STDs from any source other than the media stands in distinct contrast to the nearly universal coverage of HIV and sex education for high school students. As noted earlier, young adult men have even higher rates of sexual risk behaviors than teenagers and, from a public health perspective, might therefore be considered to have greater needs for prevention efforts. Nearly all men in their 20s are sexually experienced (94% of this sample), 88% were sexually active in the last year and 17% reported three or more partners in the last year, suggesting that prevention efforts need to be stronger among this group.

This analysis has some limitations. While we know if a respondent received information from a certain source, the content or context of the information exchange is unknown. For example, we do not know who initiated a conversation about AIDS or STDs. Further, all data are self-reported, and we cannot be certain that the histories have been recalled or reported accurately. However, self-reported data may still be reasonably valid: One recent study found that young people could accurately recall preventive health discussions.[15]

Our results show that the media, particularly television, are by far the most common source of health information for young men. The 1992 wave of the National Health Interview Survey found that the media were the most common source of information among 18–29-year-olds, followed by brochures.[16] Media can reach nearly everyone in this age-group, but the media send mixed messages. Studies have explored the relationship between media and sexuality, finding that while television and magazines frequently feature programming about sexual issues, very few focus on sexual health.[17] Mass media are a good way to increase awareness about reproductive health issues, but they should not substitute for interpersonal communication, which is generally thought to be more effective in motivating behavior change.[18]

Perhaps our most important finding is that there was a relationship between early communication about AIDS and STDs and the receipt of prevention messages years later, when the men were young adults. Those who had substantial discussion with their parents about reproductive health as of 1988 or who spoke with a doctor in 1991 were more likely to talk to a health professional about reproductive health issues in 1995. Similarly, those who reported talking to doctor in 1991 were more likely to have discussed these topics with their family or friends in 1995.

One interpretation of this finding is that discussions with influential people, such as physicians, family or friends, can have lasting effects and may continue to prompt self-interest or concern years later. Early discussions may set a pattern of communication that carries on later in life. Interestingly, we did not find these continuing effects for formal sex education or AIDS education. An alternative explanation may be that some youth have innate characteristics that lead them to be more communicative (or more worried) through different phases of their lives. In either case, there is at least one important policy lesson: We ought to reinforce continuing discussion of these topics by health professionals and by family and friends, and we should identify better mechanisms for communicating with those who are not having such discussions with influential sources.

The potential long-term benefits of discussion with influential sources supplement the well-documented short-term benefits. Prior studies have shown that discussing these issues with parents or physicians can promote changes in condom use and in sexual behavior.[19] However, a recent survey reports a gap between parental views on discussing sexual health and their children's desire for information. Adolescents do not believe that their parents talk to them early enough about sexual issues, even though parents say that talking to children about sex is important.[20]

Similarly, there are barriers in the extent to which medical professionals talk to their male patients about reproductive health, despite research showing that reproductive health counseling can affect sexual behavior.[21] However, a recent study found that only one-fifth of an adult sample reported talking to a physician about AIDS.[22] Other data have demonstrated that primary care physicians were much less likely to assess sexual risk behaviors among adults than other risk behaviors, such as smoking and alcohol use.[23] But even if clinicians were more proactive in discussions with their male patients, the fact that young men are much less likely to have a regular source of health care and to visit a doctor than women in their 20s means that the doctor's office cannot serve as a universal source of information and must be supplemented by other sources.[24]

Another potential source of health information for young men is college and graduate school, but reproductive health education in higher education is not nearly as universal as it is during high school. The 1995 National College Health Risk Behavior Survey results showed that less than half of college students reported receiving information on sexual risk prevention, regardless of the topic. Among the various topics, AIDS is most commonly covered, and information receipt declines as age increases.[25] A final possible site for prevention messages for young adults is the workplace, since most young adults are employed. Our impression is that there are relatively few organized prevention activities around reproductive health issues, except possibly for those working in the military or in health care.

From a lifetime perspective, young adulthood is the age of greatest sexual risk, especially for acquiring STDs or HIV or causing unintended pregnancies. Despite this, young adults are less likely to receive prevention messages at this age than when they are in high school. Part of the problem is structural: Because there are no universal institutions like junior or high school that reach all young adults, we

need to develop better ways to reach young men where they are. The media can spread prevention messages widely, but probably have less impact than interpersonal communications. Community programs aimed at young adults can and should be fostered. Most young men have at least some annual contact with medical professionals; this is an important opportunity to provide more information about reproductive health to their young male patients. On a broader level, we need to foster social norms in which family and friends feel that it is relevant and appropriate to talk about reproductive health issues with young adults.

References

1. Grunbaum J et al., Characteristics of health education among secondary schools—School Health Education Profiles, 1996, *Morbidity and Mortality Weekly Report,* 1998, 47(SS-4):1–31.

2. Kirby D et al., School-based programs to reduce sexual risk behaviors: a review of effectiveness, *Public Health Reports,* 1994, 109(3):339–360; Ku L, Sonenstein F and Pleck J, The association of AIDS education and sex education with sexual behavior and condom use among teenage men, *Family Planning Perspectives,* 1992, 24(3):100–106; and Ku L, Sonenstein F and Pleck J, Factors influencing first intercourse for teenage men, *Public Health Reports,* 1993, 108(6):680–694.

3. Centers for Disease Control and Prevention (CDC), Trends in HIV-related sexual risk behaviors among high school students–selected US cities, 1991–1997, *Morbidity and Mortality Weekly Report,* 1999, 48(21):440–443; Sonenstein FL et al., Changes in sexual behavior and condom use among teenage men: 1988 to 1995, *American Journal of Public Health,* 1998, 88(2):956–959; Kaufmann RB et al., The decline in US teen pregnancy rates, 1990–95, *Pediatrics,* 1998, 102(5):1141–1147; and Ventura SJ et al., Declines in teenage birth rates, 1991–97: National and state patterns, *National Vital Statistics Reports,* 1998, Vol. 47, No. 12.

4. Ku L, Sonenstein FL and Pleck JH, Young men's risk behaviors for HIV infection and sexually transmitted diseases, 1988 through 1991, *American Journal of Public Health,* 1993, 83(11):1609–1615; and Ku L, Sonenstein FL and Pleck JH, The dynamics of young men's condom use during and across relationships, *Family Planning Perspectives,* 1994, 26(6):246–251.

5. Division of STD Prevention, CDC, *Young People at Risk: Epidemic Shifts Further Toward Young Women and Minorities,* Atlanta: CDC, June 1998.

6. Division of STD Prevention, CDC, *Sexually Transmitted Disease Surveillance 1997,* Atlanta: CDC, 1998.

7. Rosenberg PS and Biggar RJ, Trends in HIV incidence among young adults in the United States, *Journal of the American Medical Association,* 1998, 279(23):1894–1899.

8. Sonenstein FL, Pleck JH and Ku L, Sexual activity, condom use, and AIDS awareness among adolescent males, *Family Planning Perspectives,* 1989, 21(4):152–158; Sonenstein FL, Pleck JH and Ku L, Levels of sexual activity among adolescent males, *Family Planning Perspectives,* 1991, 23(4):162–167; and Sonenstein FL et al., Changes in sexual behavior and condom use among teenage men: 1988 to 1995, *American Journal of Public Health,* 1998, 88(2):956–959.

9. Ku L et al., *Documenting the Master Data Set for the Old Cohort of the 1995 National Survey of Adolescent Males,* Washington, DC: Urban Institute, Sept. 1998; and Bureau of the Census, *Preliminary Projections: Civilian Noninstitutional Population by Age, Sex, Race and Hispanic Origin,* May 1, 1995, PPL-21, Series 1294.

10. Andersen RM and Newman JF, Societal and individual determinants of medical care utilization in the United States, *Milbank Memorial Fund Quarterly,* 1973, 51(1):95–124; and Andersen RM, Revisiting the behavioral model and access to medical care: does it matter? *Journal of Health and Social Behavior,* 1995, 36(1):1–10.

11. Research Triangle Institute (RTI), SUDAAN Release 6.34, Research Triangle Park, NC: Research Triangle Institute, 1993.

12. Ku L, Sonenstein FL and Pleck JH, 1993, op. cit. (see reference 4).

13. Division of STD Prevention, CDC, 1998, op. cit. (see reference 6).

14. Rosenberg PS and Biggar RJ, 1998, op. cit. (see reference 7).

15. Klein J et al., Developing quality measures for adolescent care: validity of adolescent's self-reported receipt of preventive services, *Health Services Research,* 1999, 34(1):391–404.

16. Schoenborn C, Marsh SL and Hardy AM, AIDS knowledge and attitudes for 1992: data from the National Health Interview Survey, *Advance Data from Vital and Health Statistics,* 1994, No. 243.

17. Walsh-Childers K, *Sexual Health Coverage: Women's, men's, Teen and Other Specialty Magazines,* Menlo Park, CA: The Henry J. Kaiser Family Foundation, 1997.

18. Hornik RC, Channel effectiveness in development communication programs, in: Rice R and Atkin C, eds., *Public Communication Campaigns, Thousand Oaks,* CA: Sage Publications, 1989, pp. 309–330.

19. Miller KS et al., Patterns of condom use among adolescents: the impact of mother-adolescent communication, *American Journal of Public Health,* 1998, 88(10): 1542–1544; Jaccard J, Dittus PJ and Gordon VV, Maternal correlates of adolescent sexual and contraceptive behavior, *Family Planning Perspectives,* 1996, 28(4):159–165 & 185; and Hingson R et al., Beliefs about AIDS, use of alcohol and drugs and unprotected sex among Massachusetts adolescents, *American Journal of Public Health,* 1990, 80(3):295–299.

20. The Henry J. Kaiser Family Foundation and Children Now, *Talking with Kids about Tough Issues: A National Survey of Parents and Kids,* 1998; and Kunkel D et al., *Sex on TV,* Menlo Park, CA: The Henry J. Kaiser Family Foundation, 1999.

21. Danielson R et al., Reproductive health counseling for young men: what does it do? *Family Planning Perspectives,* 1990, 22(3):115–1121.

22. Gerbert B, Bleecker T and Bernzweig J, Is anybody talking to physicians about acquired immunodeficiency syndrome and sex? a national survey of patients, *Archives of Family Medicine,* 1993, 2(1):45–51.

23. CDC, HIV prevention practices of primary-care physicians: United States, 1992, *Morbidity and Mortality Weekly Report,* 1994, 42(51/52):988–992.

24. Bloom B et al., Access to health care part 2: working-age adults, *Vital and Health Statistics,* 1997, Series 10, No. 197; Woodwell DA, National Ambulatory Medical Care Survey: 1996 summary, *Advance Data from Vital and Health Statistics,* 1997, No. 295; and Benson V and Marano MA, Current estimates from the National Health Interview Survey, 1995, *Vital and Health Statistics,* 1998, Series 10, No. 199.

25. Division of Adolescent and School Health, CDC, National Center for Chronic Disease Prevention and Health Promotion, Youth risk behavior surveillance: National College Health Risk Behavior Survey, United States, 1995, *Morbidity and Mortality Weekly Report,* 1997, 46(SS-6).

227 States' Implementation of the Section 510 Abstinence Education Program, FY 1999
Adam Sonfield and Rachel Benson Gold
Family Planning Perspectives, 2001, 33(4):166–171

233 Abstinence Promotion and the Provision of Information about Contraception in Public School District Sexuality Education Policies
David J. Landry, Lisa Kaeser and Cory L. Richards
Family Planning Perspectives, 1999, 31(6):280–286

240 School-Based Sexuality Education: The Issues and Challenges
Patricia Donovan
Family Planning Perspectives, 1998, 30(4):188–193

246 Legislators Craft Alternative Vision of Sex Education to Counter Abstinence-Only Drive
Heather Boonstra
The Guttmacher Report on Public Policy, 2002, 5(2):1–3

249 Abstinence Promotion and Teen Family Planning: The Misguided Drive for Equal Funding
Cynthia Dailard
The Guttmacher Report on Public Policy, 2002, 5(1):1–3

252 State-Level Policies on Sexuality, STD Education
Rachel Benson Gold and Elizabeth Nash
The Guttmacher Report on Public Policy, 2001, 4(4):4–7

256 Sex Education: Politicians, Parents, Teachers and Teens
Cynthia Dailard
The Guttmacher Report on Public Policy, 2001, 4(1):9–12

260 Fueled by Campaign Promises, Drive Intensifies to Boost Abstinence-Only Education Funds
Cynthia Dailard
The Guttmacher Report on Public Policy, 2000, 3(2):1–2 & 12

263 Sexuality Education Advocates Lament Loss of Virginia's Mandate…Or Do They?
Rebekah Saul
The Guttmacher Report on Public Policy, 1998, 1(3):3–4

265 Whatever Happened to the Adolescent Family Life Act?
Rebekah Saul
The Guttmacher Report on Public Policy, 1998, 1(2):5 & 10–11

States' Implementation of the Section 510 Abstinence Education Program, FY 1999

By Adam Sonfield and Rachel Benson Gold

Context: *As part of its reworking of the nation's welfare system in 1996, Congress enacted a major new abstinence education initiative (Section 510 of Title V of the Social Security Act), projected to spend $87.5 million in federal, state and local funds per year for five years. The new program is designed to emphasize abstinence from sexual activity outside of marriage, at any age, rather than premarital abstinence for adolescents, which was typical of earlier efforts. The actual message and impact of the program, however, will depend on how it is implemented.*

Methods: *Program coordinators in all 50 states, the District of Columbia and Puerto Rico were surveyed concerning implementation of the Section 510 abstinence education program in FY 1999. The questionnaire asked about expenditures and activities performed, about policies established for a variety of specific situations and about how the term "sexual activity" is defined and what specific components of the federal definition of "abstinence education" are emphasized.*

Results: *Forty-five jurisdictions spent a total of $69 million through the Section 510 program in FY 1999. Of this total, $33 million was spent through public entities, $28 million was spent through private entities and $7 million (in 22 jurisdictions) was spent through faith-based entities. Almost all jurisdictions reported funding school-related activities, with 38 reporting in-school instruction and presentations. Twenty-eight jurisdictions prohibited organizations from providing information about contraception (aside from failure rates), even at a client's request, while only six jurisdictions prohibited information about sexually transmitted diseases. Few reported having a policy or rendering guidance about providing services addressing sexual abuse, sexual orientation or existing pregnancy and parenthood. Only six respondents said they defined "sexual activity" for purposes of the program, and 16 reported focusing on specific portions of the federal definition of "abstinence education."*

Conclusions: *More than one in 10 Section 510 dollars were spent through faith-based entities. Programs commonly conducted in-school activities, particularly instruction and presentations, not only through public entities, but also through private and faith-based entities. Most jurisdictions prohibited the provision of information about contraception, about providers of contraceptive services or about both topics, even in response to a direct question and when using other sources of funding. Most also left definitions of "abstinence" and "sexual activity" as local decisions, thus not clearly articulating what the program is designed to encourage clients to abstain from.*

Family Planning Perspectives, 2001, 33(4):166–171

The federal government has had a long-standing interest in promoting abstinence as a means of preventing pregnancy and sexually transmitted diseases (STDs), particularly among adolescents, and has been involved in funding abstinence education programs for two decades. Congress's first foray into the issue was in 1981, with the passage of the Adolescent Family Life Act (AFLA).[1] The program's goal was to prevent premarital adolescent pregnancy by promoting the values of chastity and self-discipline, as well as to promote adoption as the preferred option for pregnant adolescents and to provide support for pregnant and parenting adolescents.

Congress revisited the subject of abstinence when it overhauled the nation's welfare system in 1996. Many of this new law's provisions were focused on the idea that the traditional welfare system had become a disincentive to marriage and an incentive to nonmarital childbearing. As one effort to counter this trend, Congress included in the welfare law a major new abstinence education initiative. Administered by the federal Maternal and Child Health Bureau at the Department of Health and Human Services and codified under Title V, Section 510, of the Social Security Act, the abstinence education program guarantees $50 million annually per year from FY 1998 through FY 2002. States are required to match every four dollars in federal funds with three dollars in state or local funds (including in-kind contributions), bringing the expected annual total public expenditure to $87.5 million. In addition to providing direct educational activities with these funds, states are allowed to provide "where appropriate, mentoring, counseling, and adult supervision to promote abstinence from sexual activity."[2]

Funds under this program are allocated to states based on a federal formula related to the number of low-income children in each state. State agencies may directly administer abstinence education programs themselves, or they may provide grants to other public entities at the state or local level or to private, nonprofit agencies, including faith-based organizations. Faith-based entities are eligible to receive AFLA funds; however, under a court settlement arising from a challenge based on the First Amendment of the U.S. Constitution, they were prohibited from using government money to teach or promote religion. In guidelines issued in May 1997,[3] the Maternal and Child Health Bureau recommended that states apply the same criteria to the Section 510 abstinence education program.

The Section 510 program marked a significant shift to a broader concept of promoting abstinence from sexual activity outside of marriage, at any age. Commenting on the intent of Congress in drafting the provision, Ron Haskins and Carol Statuto Bevan, congressional staff members who were key to the crafting of the abstinence education language, wrote that while some might consider the standard required by law to be outdated, it "was intended to align Congress with the social tradition…that sex should be confined to married couples."[4]

This departure from previous abstinence education initiatives was embodied in an eight-point definition of "abstinence education" that labels nonmarital sexual activity and childbearing as likely

Adam Sonfield is public policy associate and Rachel Benson Gold is deputy director for policy analysis with The Alan Guttmacher Institute (AGI), Washington, DC. The research on which this article is based was supported in part by the General Service Foundation. The conclusions and opinions expressed in this article are those of the authors and AGI. The authors express their gratitude for the important contributions of Anjali Dalal in this effort. They also thank Daniel Daley, Christine Cralley Fogle, Lisa Kaeser, Shannon King and Vivian Wong for their guidance and comments on the survey instrument and Cory L. Richards for his advice and guidance throughout the project.

to be psychologically and physically harmful to individuals and society. It also states that faithful marriage is the expected standard of sexual activity.* The Maternal and Child Health Bureau's guidelines for the program state that "it is not necessary to place equal emphasis on each element of the definition."[5] Although the guidelines go on to state that "a project may not be inconsistent with any aspect of the abstinence education definition," this language gives states and initiatives some flexibility in designing their abstinence education message.†

Research regarding the structure, implementation and evaluation of the Section 510 program at the state level has been conducted by the Maternal and Child Health Bureau, in its annual summaries for the program. In addition, several outside organizations, such as the Association of Maternal and Child Health Programs, the Sexuality Information and Education Council of the United States and the State Policy Documentation Project (a joint project of the Center on Budget and Policy Priorities and the Center for Law and Social Policy) have examined some aspects of how the program has been implemented.[6]

Although these studies have looked at the types of organizations receiving funding and at the types of activities being conducted, they have not examined the extent to which funding goes to specific types of organizations, nor have they linked the types of activities being conducted to funding data. In addition, previous work has not examined the extent to which state abstinence efforts have chosen to emphasize specific components of the eight-point definition embodied in the federal legislation.

Moreover, none of these other studies have addressed a range of important issues on which both the law and the federal guidelines are vague, leaving key decisions to the states. First, while federal policy prohibits initiatives from promoting methods of pregnancy and STD prevention other than abstinence or from providing related services, federal rules are silent on how initiatives should or may handle direct questions from clients and requests for referrals. Similarly, there is no federal guidance on whether or how initiatives should address and provide support and referrals for groups for whom a strict message of abstinence outside of marriage does not easily apply—such as individuals who have been or who may have been sexually abused, who are or who may be homosexual, or who are pregnant or are already parenting.

Finally, the federal law and guidelines leave undefined the very term "sexual activity," even though a number of organizations, when commenting on the proposed guidelines issued by the Maternal and Child Health Bureau, specifically requested such a definition. Although these organizations were divided over how the term should be defined, they agreed that the term could be given a wide range of interpretations—from being synonymous with vaginal intercourse to including other types of sexual activity with significant risk of STD transmission (such as anal and oral intercourse) to including any expression of sexual feeling.

Health and abstinence educators also broadly disagree or are ambivalent about what constitutes "sex"—and, therefore, about what constitutes "abstinence." One recent report concludes that "abstinence proponents are wrestling with how to handle an evolving dilemma that pits those who stress the need to be as precise as possible in specifying the range of behaviors to be abstained from against others who insist that such specificity violates the core of abstinence-only education."[7] Consequently, it is important to determine how various states have dealt with these issues as they design and implement their Section 510 efforts.

Methodology

In April 2000, we sent questionnaires regarding implementation of the Section 510 abstinence education program during FY 1999 (October 1, 1998, through September 30, 1999) to the individuals listed by the Maternal and Child Health Bureau as program coordinators in 50 states, the District of Columbia and Puerto Rico. We obtained responses from 46 states, the District of Columbia and Puerto Rico; program coordinators in four states (Colorado, Louisiana, Mississippi and South Dakota) declined to complete the survey. Of the 48 respondents, two (California and New Hampshire) did not spend Section 510 funds during FY 1999 and therefore were not applicable to our survey. As a result, we compiled results from a total of 44 states, the District of Columbia and Puerto Rico.

Program officials were asked to report total expenditures during FY 1999 under the Section 510 program and to indicate how much of this total was in federal dollars and how much was in nonfederal dollars (including in-kind contributions). Officials also were asked to indicate how much of this total was spent through public entities, through private entities (excluding faith-based entities) and through faith-based entities, and to report what activities were performed under the Section 510 program through each of these types of entity.

In addition, we asked whether, under the Section 510 program, organizations were allowed to provide instruction promoting specific religious values or beliefs or to provide information about contraception, about STDs and about providers of related services when a client specifically asks for such information. Further, we asked officials whether they had policies on or provided guidance for the Section 510 program about services to clients with several types of special needs, as well as about defining the term "sexual activity." Finally, we asked officials to indicate which if any of the specific components of the definition of abstinence education they had chosen to emphasize.

Several methodological issues arose in the course of this study. For questions relating to funding, several respondents were unable to provide complete answers, and states were inconsistent in how they accounted for in-kind contributions; in fact, one reported such a massive in-kind contribution ($21 million above what was required) that we reduced the figure to the amount required by law, in order to avoid skewing the data. A few jurisdictions were unable to categorize a portion of their expenditures as spent through one of the three types of entities, even after consulting us for assistance. A number of responses indicated confusion over our distinction between adult counseling and mentoring and peer counseling and mentoring; for this analysis, we merged the two categories. Similarly, we merged the categories of classroom instruction and in-school presentations. Also, many respondents had difficulty answering a question about promoting specific religious values or beliefs; ultimately, we excluded this question from the analysis.

Findings

Funding

Of the 46 jurisdictions that gave usable responses, all but one (Georgia) were able to provide funding data and to categorize their data into the three categories used here: public, private and faith-based.

Forty-three states, the District of Co-

*Table 4 lists the eight components of the definition.

†The eight-point definition has since been applied to AFLA and to a third federal abstinence program, part of the special projects of regional and national significance under Title V, Section 501(a)(2), of the Social Security Act.

Table 1. Percentage distribution of reported expenditures through the Section 510 abstinence program, by type of grantee, according to state, FY 1999

State	Public	Private	Faith-based
Total	**48**	**40**	**11**
Alabama	98	0	2
Alaska	50	50	0
Arizona	17	83	0
Arkansas	49	24	26
California	na	na	na
Colorado	nr	nr	nr
Connecticut	30	70	0
Delaware	100	0	0
District of Columbia	100	0	0
Florida	24	66	10
Georgia	u	u	0
Hawaii	9	91	0
Idaho	100	0	0
Illinois	24	50	27
Indiana	36	57	7
Iowa	41	55	5
Kansas	40	23	37
Kentucky	100	0	0
Louisiana	nr	nr	nr
Maine	9	91	0
Maryland	74	14	12
Massachusetts	10	46	0
Michigan	31	66	3
Minnesota	41	58	1
Mississippi	nr	nr	nr
Missouri	53	47	0
Montana	18	49	33
Nebraska	33	9	0
Nevada	37	63	0
New Hampshire	na	na	na
New Jersey	0	77	15
New Mexico	49	44	7
New York	26	28	47
North Carolina	100	0	0
North Dakota	100	0	0
Ohio	36	54	10
Oklahoma	27	73	0
Oregon	100	0	0
Pennsylvania	54	31	16
Puerto Rico	100	0	0
Rhode Island	0	100	0
South Carolina	0	100	0
South Dakota	nr	nr	nr
Tennessee	46	44	10
Texas	79	21	0
Utah	45	43	12
Vermont	0	100	0
Virginia	41	50	9
Washington	67	22	11
West Virginia	58	23	2
Wisconsin	40	44	16
Wyoming	36	64	0

Notes: na=not applicable (no expenditures made). nr=no response was made to the survey. u=expenditures were made, but amount is unknown. Data may not add to 100% because of rounding and because a few states were unable to break down all of their funding in these categories.

lumbia and Puerto Rico reported having spent a total of $69 million through the Section 510 abstinence education program in FY 1999. Of that total, $34 million was in federal dollars and $35 million was in nonfederal dollars.

Thirty-nine states, the District of Columbia and Puerto Rico reported having spent $33 million through public entities, 48% of the total (Table 1). Thirty-six states spent $28 million (40% of the total) through private entities, and 22 states reported spending $7 million (11% of the total) through faith-based entities.*

Table 2. Number of programs in which an activity was performed through the Section 510 abstinence program, by type of activity, according to type of grantee

Activity	Total (N=45)	Public (N=41)	Private (N=36)	Faith-based (N=22)
In-school instruction/presentations	38	34	25	18
Before-/after-school programs	34	24	24	16
Training for teachers/school officials	29	26	18	10
Curriculum development/implementation	28	23	17	11
Education programs outside of schools	33	28	24	17
Parent/family education	38	32	26	20
Counseling/mentoring	33	26	23	17
Sports/recreation/community service	23	17	14	12
Media campaigns/public awareness	36	24	27	13
Local partnerships/coalition-building	30	24	21	14
Program planning/evaluation	41	36	24	15
Other	19	16	3	2

Nine jurisdictions spent all or nearly all of their funds through public entities, and another six spent more than half of their funds through such entities. Private entities were the only funding recipients in three states and received the majority of funds in 14 others. No jurisdiction spent a majority of their funds through faith-based entities, although five states spent at least one-quarter of program monies through such entities, and nine others spent at least 10%.

Activities Performed

Each of the 45 jurisdictions that answered the questions related to funding also reported what activities were performed through each type of entity in FY 1999 under the Section 510 program (Table 2). Among the 41 jurisdictions that spent money through public entities, the most commonly reported of the 12 activities about which we asked was program planning and evaluation. This activity was performed through public entities in 36 jurisdictions. In-school instruction and presentations and parent and family education (in 34 and 32 jurisdictions, respectively) also were common. The least frequently conducted activity, and the only one listed by fewer than half of the 41 jurisdictions, was sports, recreation and community service (in 17 jurisdictions).

Among the 36 jurisdictions that spent money through private entities, the activities most commonly conducted through these entities were media campaigns and public awareness efforts (in 27 jurisdictions), parent and family education (in 26) and in-school instruction and presentations (in 25). Again, sports, recreation and community service was listed least often (in 14 jurisdictions), and two others—curriculum development and implementation (in 17) and training for teachers and school officials (in 18)—were given by half of the 36 jurisdictions or fewer.

Twenty of the 22 jurisdictions that made expenditures through faith-based entities listed parent and family education among the activities performed by these entities. In-school instruction and presentations was reported by 18, while education programs outside of schools and counseling and mentoring were each given by 17. Training for teachers and school officials (in 10) and curriculum development and implementation (in 11) were mentioned least often.

Overall, 41 of the 45 jurisdictions reported that program planning and evaluation was performed under the Section 510 program in FY 1999, followed by parent and family education and in-school instruction and presentations (in 38 jurisdictions each). (Four jurisdictions—Connecticut, New Jersey, South Carolina and Washington—reported providing in-school instruction and presentations only through private or faith-based entities.) Four of the 45 jurisdictions—Maine, Massachusetts, Vermont and Wyoming—stood out from the rest in that they reported only activities without specific clients, including media campaigns and public awareness, program planning and evaluation, and administrative expenses (reported under an "other" category).

Information on Contraception and STDs

Nine jurisdictions reported that participating organizations, when specifically requested by a client, were allowed to provide information about contraception (aside from the failure rates of specific contraceptive methods). Three of these al-

*Four states—Massachusetts, Nebraska, New Jersey and West Virginia—reported a total of $1 million (1% of the total) that they were unable to categorize as spent through one of the three types of entities.

lowed such information to be provided using Section 510 funds, while the other six allowed it only when it was funded through sources other than the Section 510 program (Table 3). Twenty-eight jurisdictions prohibited such information entirely, while five provided no guidance on the issue.

Similarly, nine jurisdictions allowed organizations to provide information about available providers of contraceptive services, when asked by a client—four using Section 510 funds and five using other funds only. Twenty-three jurisdictions prohibited such information entirely, while 10 provided no guidance on the issue.

Six jurisdictions allowed organizations to answer questions both about contraception and about providers of contraceptive services (although not always with the same funding source). Three additional jurisdictions allowed organizations to provide referrals, upon request, for both types of information, and one was unable to answer our questions. Overall, 29 of the jurisdictions prohibited provision of information about one or both of these topics.

Thirty-two jurisdictions allowed participating organizations, when specifically requested by a client, to provide information about STDs, including HIV; all but four of these jurisdictions allowed organizations to use Section 510 funds to provide this information. Six jurisdictions prohibited such information entirely, while six provided no guidance on the issue. One additional jurisdiction allowed referrals for such information, while another jurisdiction allowed organizations to provide "general" information only.

Twenty-two jurisdictions allowed organizations, upon the client's request, to provide information about available providers of STD and HIV services, and 18 permitted this to be done with Section 510 funds. Ten jurisdictions prohibited the provision of such information entirely, while 11 provided no guidance on the issue. Three additional jurisdictions allowed referrals to such providers. All 22 jurisdictions that allowed organizations to answer questions about STD and HIV service providers also allowed answers about STDs and HIV as a topic.

Eighteen jurisdictions allowed organizations, upon the client's request, to provide information about STDs, including HIV, but prohibited similar information about contraception (aside from failure rates). Similarly, eight jurisdictions allowed organizations to provide information about available providers of STD and HIV services when they were asked by a client, but did not permit provision of information about providers of contraceptive services. Several other jurisdictions prohibited one or both types of information related to contraception but provided no guidance on similar information related to STDs and HIV. The six jurisdictions that prohibited information about STDs and HIV also proscribed the provision of information about the other three categories.

Of the 29 jurisdictions that prohibited the provision of information upon request about contraception, about providers of contraceptive services or about both, 25 spent Section 510 funds on in-school instruction and presentations (not shown). Twenty-one did so through public entities, 18 through private entities and 15 through faith-based entities. Among the 29 jurisdictions are the 10 that similarly prohibited information about providers of STD and HIV services (six of which also prohibited information about STDs and HIV as a topic). Six of these 10 spent funds on in-school instruction and presentations, including five through public entities, five through private entities and four through faith-based entities.

Specific Populations

Several states indicated that they had a policy or provided guidance to grantees about specific populations that might be served under the Section 510 abstinence education program. Sixteen jurisdictions responded that they had a

Table 3. Number of programs reporting the existence of policies regarding whether organizations may provide information about certain topics when specifically requested by a client in a program funded with Section 510 abstinence education monies, by type of information, according to state

State	Contraception		STDs/HIV	
	Information about topic*	Information about providers	Information about topic	Information about providers
Total	**9**	**9**	**32**	**22**
Alabama	No	No	No	No
Alaska	No	No	No	No
Arizona	u	u	Yes	ng
Arkansas	No	Yes	Yes	Yes
California	na	na	na	na
Colorado	nr	nr	nr	nr
Connecticut	No	ng	Yes	No
Delaware	Yes†	Yes†	Yes†	Yes†
District of Columbia	No	Yes	Yes	Yes
Florida	No	No	Yes	Yes
Georgia	No	No	No	No
Hawaii	No	No	Yes	No
Idaho	ng	ng	Yes†	Yes†
Illinois	Yes	ng	Yes	Yes
Indiana	Yes†	Yes†	Yes†	Yes†
Iowa	No	Yes†	Yes	Yes
Kansas	No	No	Yes†	Yes†
Kentucky	No	No	‡	§
Louisiana	nr	nr	nr	nr
Maine	No	No	No	No
Maryland	§	§	Yes	Yes
Massachusetts	ng	ng	ng	ng
Michigan	Yes†	Yes	Yes	Yes
Minnesota	ng	ng	Yes	Yes
Mississippi	nr	nr	nr	nr
Missouri	No	No	Yes	ng
Montana	No	No	Yes	ng
Nebraska	No	No	Yes	Yes
Nevada	No	No	ng	ng
New Hampshire	na	na	na	na
New Jersey	No	No	Yes	Yes
New Mexico	No	No	Yes	No
New York	No	ng	Yes	Yes
North Carolina	ng	ng	ng	ng
North Dakota	Yes†	Yes†	Yes	Yes
Ohio	No	No	No	No
Oklahoma	No	No	Yes	Yes
Oregon	§	§	§	§
Pennsylvania	No	No	Yes	ng
Puerto Rico	Yes†	Yes†	Yes	Yes
Rhode Island	Yes	Yes	Yes	Yes
South Carolina	No	No	ng	ng
South Dakota	nr	nr	nr	nr
Tennessee	No	No	Yes	Yes
Texas	Yes†	ng	Yes	ng
Utah	No	No	Yes	No
Vermont	ng	ng	ng	ng
Virginia	§	§	Yes	§
Washington	No	No	Yes	Yes
West Virginia	Yes	No	Yes	Yes
Wisconsin	No	ng	ng	ng
Wyoming	No	No	No	No

*Aside from the failure rates of specific contraceptive methods. †Only when using non-510 funds. ‡State responded that organizations may provide "general" information only. §State responded that organizations may make referrals. *Notes:* u=expenditures were made, but amount is unknown. ng=no guidance provided. na=not applicable (no expenditures made for the program overall or through the specified type of entity). nr=no response was made to the survey.

Table 4. Number of programs choosing to emphasize specific components of the definition of abstinence education in their Section 510 programs

Component	No.	Specific programs emphasizing
No component	**30**	
Any component	**16**	
Specific components An educational or motivational program which		
(A) has as its exclusive purpose, teaching the social, psychological, and health gains to be realized by abstaining from sexual activity;	10	Connecticut, Georgia, Hawaii, Kentucky, Maryland, Michigan, Minnesota, Nevada, Puerto Rico, Wyoming
(B) teaches abstinence from sexual activity outside marriage as the expected standard for all school age children;	4	Hawaii, Maryland, Massachusetts, Michigan
(C) teaches that abstinence from sexual activity is the only certain way to avoid out-of-wedlock pregnancy, sexually transmitted diseases, and other associated health problems;	10	Connecticut, Hawaii, Kentucky, Maine, Maryland, Michigan, Nevada, New Jersey, Rhode Island, Washington
(D) teaches that a mutually faithful monogamous relationship in context of marriage is the expected standard of human sexual activity;	1	Hawaii
(E) teaches that sexual activity outside of the context of marriage is likely to have harmful psychological and physical effects;	0	
(F) teaches that bearing children out-of-wedlock is likely to have harmful consequences for the child, the child's parents, and society;	3	Georgia, Nevada, Rhode Island
(G) teaches young people how to reject sexual advances and how alcohol and drug use increases vulnerability to sexual advances; and	16	Connecticut, Georgia, Hawaii, Kentucky, Maine, Maryland, Massachusetts, Michigan, Minnesota, Nevada, New Jersey, Puerto Rico, Rhode Island, Vermont, Washington, Wyoming
(H) teaches the importance of attaining self-sufficiency before engaging in sexual activity.	15	Connecticut, Georgia, Hawaii, Kentucky, Maine, Maryland, Massachusetts, Michigan, Minnesota, Nevada, New Jersey, Puerto Rico, Rhode Island, Washington, Wyoming

Note: Thirty programs elected to emphasize no specific component of the definition of abstinence education.

policy or rendered guidance to grantees about providing services under Section 510 for clients who have or may have been sexually abused. Of these 16, five simply referenced or described their laws mandating that certain professionals, including teachers, report sexual abuse—laws that are universal in the United States. Most other jurisdictions reported that they required participating organizations to make referrals for services or counseling. Only a few answered that they provided or offered specific training on the subject.

Seven jurisdictions reported a policy or guidance about services for clients who are or may be homosexual. Two of these jurisdictions referenced portions of their sexuality education statutes—similar to those in many other states that did not reference them for this survey—that address what types of information about homosexuality may or must be discussed. Initiatives in Alabama must emphasize "in a factual manner and from a public health perspective, that homosexuality is not a lifestyle acceptable to the general public and that homosexual conduct is a criminal offense under the laws of the state." South Carolina's statute prohibits discussion of "alternate sexual lifestyles," except in the context of STDs. The other five jurisdictions briefly described less-specific, nonbinding guidance on counseling these clients.

Six jurisdictions answered that they have a policy or provide guidance about services for clients who are pregnant or already parenting. Two of these six (Arizona and Michigan) described an approach of encouraging "secondary virginity." The other four (Hawaii, Maryland, Minnesota and Puerto Rico) described some type of referral process for other services.

Definition of Sexual Activity

Only six respondents answered that they had a policy or provided guidance to grantees defining "sexual activity" for purposes of the Section 510 program. Three of these jurisdictions—Alabama, Hawaii and Virginia—described a definition that was limited to vaginal sexual intercourse, while Washington State's definition included vaginal, oral or anal sex. Maryland reported that it only asks about "intercourse" for its evaluation, but encourages initiatives to expand the definition in discussions. Finally, Oregon stated that while it does not have a specific definition, it does talk about "seven levels of physical affection" and lets "school values and comfort level" determine what is discussed.

Eight-Point Definition

Thirty of the 46 jurisdictions reported that they did not emphasize any specific components of the eight-point definition of "abstinence education" included in the statute that governs the Section 510 program (Table 4).* The remaining 16 jurisdictions, about one-third of the total, reported that they took advantage of this option. Among these 16, most selected 3–4 components on which to focus.

Two components were most popular: how to reject sexual advances, including the role of alcohol and drugs (component G, emphasized by all 16 jurisdictions); and the importance of self-sufficiency before sexual activity (component H, emphasized by 15). Least popular were faithful marriage as the expected standard for sexual activity (component D, chosen by Hawaii only), and sexual activity outside marriage as likely to have harmful effects (component E, chosen by none).

Discussion

The total amount spent through the Section 510 abstinence education program by the 45 jurisdictions that provided funding data for this survey—a total of $69 million in expenditures in FY 1999—is almost identical to the expected expenditures for those jurisdictions, $68 million, which includes the federal funds and the anticipated state match, based on the four-to-three matching requirement.†

More than one in 10 of these abstinence

*In these jurisdictions, individual participating organizations may still have been allowed to emphasize specific components. Wisconsin, in fact, reported that it required organizations to choose four components, one of which must be component B, D, E or F.

†This figure includes $39 million in federally allotted funds and $29 million in required matching funds. The remaining $11 million in federal funds slated for the program was allocated primarily for the one state that was unable to provide data for its expenditures ($1 million), the four states that did not respond to the survey ($3 million), and the two states that did not spend Section 510 money during FY 1999 ($6 million).

education dollars was spent through faith-based entities. Fourteen states spent at least 10% of their total allocations through faith-based entities, including five that spent at least one in four of their abstinence education dollars through such groups.

Jurisdictions commonly reported that Section 510 dollars went toward school-related activities, with 38 reporting that they funded actual in-school instruction and presentations. This confirms other research indicating that abstinence-only education in general has made substantial inroads in public schools over the past decade. A 1998 study of superintendents found that 35% of district-wide sexuality education policies teach abstinence as the only option outside of marriage,[8] while a 1999 study of secondary school sexuality education teachers found that 23% taught that message, up from 2% in 1988.[9]

Significantly, however, we found that some in-school activities—particularly in-school instruction and presentations, although also, to a lesser extent, curriculum development and training for school personnel—were provided not only through public entities, but through private and faith-based entities as well. In fact, 25 of 36 jurisdictions that funded private entities conducted in-school instruction through such entities, along with 18 of 22 jurisdictions that funded faith-based entities. Moreover, four states conducted such instruction only through nonpublic entities.

With most states using Section 510 funds to provide instruction in a school context, where the population is not self-selected, it is vital that programs be able to address a wide variety of individuals, whose circumstances and needs may differ. Few jurisdictions, however, reported that they had a policy or had rendered guidance to ensure or encourage that initiatives address the needs of important populations for which an abstinence-only message may not necessarily apply (people who have or may have been sexually abused, who are or may be homosexual, or who are pregnant or already parenting). Among the few that did, most required or encouraged referrals to appropriate service providers. Providing referrals for necessary services beyond the scope of the initiative is an important component of any public health or education initiative, and states may wish to consider whether they need to require such referrals.

Further, most jurisdictions (29 of the 46 for which we had information) reported prohibiting the provision of information about contraception, about the providers of contraceptive services or about both, even in response to a direct question and even when an organization is using other sources of funding. Twenty-five of these 29 spent Section 510 funds on in-school instruction and presentations—a setting where students' questions are otherwise encouraged; moreover, 18 provided such instruction through private entities and 15 did so through faith-based entities.

Such policies are significant departures from what states generally require for sexuality and health education outside of the Section 510 program. While information on contraception may not be affirmatively included in the policies and curricula that some states already have in place for other forms of sexuality or health education, no state other than Utah goes so far as to restrict teachers in their responses to spontaneous student questions.[10]

A greater number of jurisdictions reported permitting programs to provide information about STDs or the providers of STD services, and even allowed Section 510 funds to be used for this purpose. Still, six jurisdictions prohibited programs from answering questions related to any of the four topics.

Nearly two-thirds of the jurisdictions opted not to take advantage of the Maternal and Child Health Bureau's invitation to emphasize particular components of the eight-point definition of abstinence.* This decision nevertheless results in official state policy that appears to give tacit approval to the controversial components that focus on declared societal standards of abstinence outside of marriage and on the "likely" harmful consequences of nonmarital sex and childbearing, at least in that it puts them on an equal footing with the less controversial components. The 16 jurisdictions that emphasized particular components typically selected the less-controversial ones—those focusing on building skills and self-esteem and avoiding the concept of abstinence outside of marriage. Notably, five of the 16 are in New England, the region in which school districts are least likely to have an abstinence-only policy (14%, compared with 35% nationwide).[11]

Finally, by declining to formally define "sexual activity," most states appear to be putting themselves in the difficult position of not clearly articulating what it is that the abstinence education program is designed to encourage clients to abstain from. Unfortunately, the federal Maternal and Child Health Bureau also declined to provide a clear definition, and left the matter to the states. They now also appear to have opted not to decide. While this abdication of responsibility clearly poses a significant challenge for attempts to evaluate the program and assure accountability, it also makes it imperative that future research focus on the implementation of the program through local initiatives, where these and many other key decisions are unavoidable.

*Whether states have opted for a more indirect approach by, for example, using the grantee selection process to give preference to entities proposing to teach a specific type of message is beyond the scope of this research.

References

1. Title XX of the Public Health Service Act.

2. U.S. Social Security Act 510(b)(1).

3. Maternal and Child Health Bureau (MCHB), Health Resources and Services Administration (HRSA), U.S. Department of Health and Human Services (DHHS), *Abstinence Advisory #1*, May 12, 1997.

4. Haskins R and Bevan CS, Abstinence education under welfare reform, *Children and Youth Services Review*, 1997, 19(5/6):465–484.

5. MCHB, HRSA, DHHS, *Application Guidance for the Abstinence Education Provision of the 1996 Welfare Law, P.L. 104–193, New Section 510 of Title V of the Social Security Act*, Rockville, MD: MCHB, May 1997, p. 9.

6. MCHB, *1999 Annual Summary for the Abstinence Education Provision of the 1996 Welfare Law, P.L. 104–193, Section 510 of Title V of the Social Security Act*, Rockville, MD: MCHB, 2000; Pfau S, *Abstinence Education in the States: Implementation of the 1996 Abstinence Education Law*, Washington, DC: Association of Maternal and Child Health Programs, 1999; Daley D and Wong VC, *Between the Lines: States' Implementation of the Federal Government's Section 510(b) Abstinence Education Program in Fiscal Year 1998*, New York: Sexuality Information and Education Council of the United States, 1999; and State Policy Documentation Project, *Abstinence Unless Married Education Program*, 1999, <http://www.spdp.org/absteduc/index.html>.

7. Remez L, Oral sex among adolescents: is it sex or is it abstinence? *Family Planning Perspectives*, 2000, 32(6): 298–304.

8. Landry DJ, Kaeser L and Richards CL, Abstinence promotion and the provision of information about contraception in public school district sexuality education policies, *Family Planning Perspectives*, 1999, 31(6):280–286.

9. Darroch JE, Landry DJ and Singh S, Changing emphases in sexuality education in U.S. public secondary schools, 1988–1999, *Family Planning Perspectives*, 2000, 32(5):204–211 & 265.

10. The Alan Guttmacher Institute, unpublished data on state sexuality education policies, Washington, DC, 2001.

11. Landry DJ, Kaeser L and Richards CL, 1999, op. cit. (see reference 8).

Abstinence Promotion and the Provision Of Information About Contraception in Public School District Sexuality Education Policies

By David J. Landry, Lisa Kaeser and Cory L. Richards

Context: *For more than two decades, abstinence from sexual intercourse has been promoted by some advocates as the central, if not sole, component of public school sexuality education policies in the United States. Little is known, however, about the extent to which policies actually focus on abstinence and about the relationship, at the local district level, between policies on teaching abstinence and policies on providing information about contraception.*

Methods: *A nationally representative sample of 825 public school district superintendents or their representatives completed a mailed questionnaire on sexuality education policies. Descriptive and multivariate analyses were conducted to identify districts that had sexuality education policies, their policy regarding abstinence education and the factors that influenced it.*

Results: *Among the 69% of public school districts that have a district-wide policy to teach sexuality education, 14% have a comprehensive policy that treats abstinence as one option for adolescents in a broader sexuality education program; 51% teach abstinence as the preferred option for adolescents, but also permit discussion about contraception as an effective means of protecting against unintended pregnancy and disease (an abstinence-plus policy); and 35% (or 23% of all U.S. school districts) teach abstinence as the only option outside of marriage, with discussion of contraception either prohibited entirely or permitted only to emphasize its shortcomings (an abstinence-only policy). Districts in the South were almost five times as likely as those in the Northeast to have an abstinence-only policy. Among districts whose current policy replaced an earlier one, twice as many adopted a more abstinence-focused policy as moved in the opposite direction. Overall, though, there was no net increase among such districts in the number with an abstinence-only policy; instead, the largest change was toward abstinence-plus policies.*

Conclusions: *While a growing number of U.S. public school districts have made abstinence education a part of their curriculum, two-thirds of districts allow at least some positive discussion of contraception to occur. Nevertheless, one school district in three forbids dissemination of any positive information about contraception, regardless of whether their students are sexually active or at risk of pregnancy or disease.*

Family Planning Perspectives, 1999, 31(6):280–286

An overwhelming majority of U.S. adults have long supported sexuality education in the public schools, according to a wide array of surveys.[1] That support extends not only to teaching about abstinence,* but also to teaching about contraception for the prevention of pregnancy and of sexually transmitted diseases (STDs), including HIV. Moreover, according to a 1997 survey, while eight in 10 adults believe it is very important that teenagers be given a strong message from society that they should abstain from sex until they are at least out of high school, six in 10 say that sexually active young people should have access to birth control, and only two in 10 object to that proposition.[2]

Public opinion regarding the scope of sexuality education is consonant with the weight of research in this area. In February 1997, for example, the Consensus Panel on AIDS of the National Institutes of Health declared that the "abstinence-only" approach "places policy in direct conflict with science because it ignores overwhelming evidence that other programs are effective" in delaying the onset of sexual intercourse among adolescents and in reducing their number of partners and increasing their condom use, if they are already sexually active.[3]

Indeed, a 1997 comprehensive review and analysis of existing evaluations of abstinence-only programs concluded that while there may be too little evidence for a definitive conclusion, "there does not exist any scientifically credible, published research demonstrating that they have actually delayed . . . the onset of sexual intercourse or reduced any other measure of sexual activity."[4] That analysis, which also assessed other approaches to sexuality education and teenage pregnancy prevention, supports the major conclusions of international literature reviews conducted in 1993 and 1997—that the programs most effective in changing young people's behavior, in terms of both delaying their initiation of sexual intercourse *and* promoting their eventual contraceptive use, are those that address abstinence along with contraception for pregnancy and STD prevention (often termed a "comprehensive" approach).[5]

Nonetheless, among U.S. policymakers at the federal and state levels, educational efforts that focus narrowly or exclusively on abstinence promotion are being widely embraced. In 1996, as part of comprehensive welfare reform legislation, Congress established a new $250 million, five-year entitlement to states to support a variety of educational efforts, including but not limited to school-based programs, that must have abstinence promotion outside of marriage as their "exclusive purpose." These efforts must also be entirely separate from state programs that involve contraceptive information or services.[6] To date, all but two states have accepted federal funds under these conditions and are currently in various stages of implementing their programs.[7]

The enactment of this 1996 federal law was a milestone in a concerted effort over the past two decades by self-described

*In this article, when we use the term abstinence, we generally mean abstinence from sexual intercourse. In research and policy discussions about sexuality education, the meaning of the term (i.e., what young people are abstaining from) is often ambiguous. In many cases, supporters of abstinence-only education believe the term should refer to virtually all forms of sexual activity.

David J. Landry is senior research associate and Cory L. Richards is vice president for public policy, both with The Alan Guttmacher Institute (AGI). At the time this article was written, Lisa Kaeser was senior public policy associate at AGI; she is now legislative and public liason officer with the National Institute of Child Health and Human Development, Bethesda, MD. The study on which this article is based was supported by a grant from The Robert Sterling Clark Foundation. The authors thank Sharon Adams-Taylor, Brenda Greene, Leslie Kantor, Gerri Moore, Jerald Newberry and Stephen Rieben for their guidance and comments on the survey instrument; Robin Hennessey, Maria Elena Ramos and Suzette Audam for their efforts in fielding the survey and preparing it for analysis; and Rachel Benson Gold for her assistance and wise counsel throughout the project.

"profamily" groups to advocate the promotion of abstinence, rather than contraceptive education and services, as the appropriate strategy for addressing teenage sexual activity and pregnancy. As far back as 1981, Congress enacted the Adolescent Family Life Act (AFLA), which among other goals sought to establish a counseling and service network parallel to the Title X–funded family planning clinic system that would promote "self-discipline and other prudent approaches to the problem of adolescent premarital sexual relations." Such a system also would have provided contraceptive services only to adolescents who already had a child and who were seeking to prevent a second or subsequent birth.[8] While this national service network never materialized, the AFLA subsidized the development of curricula that became a central organizing tool for promoting abstinence-only education in schools.

The Sexuality Information and Education Council of the United States (SIECUS) has extensively, if anecdotally, documented local controversies surrounding sexuality education since the 1991–1992 school year. By 1995, SIECUS had tracked more than 400 controversies over the preceding three years; it identified 160 new conflicts that surfaced in 40 states during the 1994–1995 school year alone.[9] By the 1996–1997 school year, the cumulative total had risen to more than 500 local controversies in all 50 states. Most of these controversies involved groups promoting abstinence-only programs over the existing or proposed sexuality education program.[10] Still, relatively little is known about the impact on school policies of this lengthy and ongoing campaign.

In this article, we present results from the first nationwide assessment of the extent to which sexuality education policy at the local school district level has focused on the promotion of abstinence. We pay specific attention to the relationship between policy on teaching abstinence and policy on providing contraceptive information. We examine existing policies nationwide and how they vary by district size, metropolitan status and region. We also explore school superintendents' perceptions of the factors that most influenced how their policies were established.

Data and Methods

Sample

The sample frame for the analysis comes from the U.S. Department of Education's National Center for Education Statistics. We used the early release of the Common Core of Data, Public Elementary/Secondary Education Agency Universe for the school year 1996–1997.[11] These data contain the names of all public school districts in the United States, their mailing addresses, the grades taught and geographic indicators, such as metropolitan status. We combined files for the 50 states and the District of Columbia to create a database of all 16,448 public education districts. We excluded from this overall total the 1,537 administrative districts that had no students enrolled.

Since our survey was designed to collect information on policies in school districts that taught grade six or higher, we deleted a further 1,346 school districts that only included grade five or for which grade-level information was unavailable. Of the districts initially sampled, five were later found to be ineligible because they had closed or were duplicated by another case; thus, the corrected sample frame contained 13,560 eligible school districts.

We stratified the districts by numbers of students so we could compare policies according to enrollment size; these groups were 1–4,999 students (small), 5,000–24,999 students (medium) and 25,000 students or more (large). Within these strata, we sampled all 224 large-enrollment districts, and we randomly sampled 500 districts in both the small- and medium-enrollment districts, for a total of 1,224 sampled districts.

Fielding

Questionnaires addressed to "Superintendent" were mailed to each sampled district in late May 1998, with reminder postcards sent one week later. We called nonresponding school districts beginning in late June to verify addresses and to obtain the name of the superintendent. We then sent a second questionnaire, with a cover letter addressed to the superintendent by name. Districts that still had not responded were called a second time, and the interviewer attempted to speak with the superintendent or a person to whom the superintendent might delegate responsibility for completing the questionnaire. A third questionnaire was then mailed or faxed to the person identified as most likely to complete the questionnaire. Fielding was completed in October 1998.

In 41% of the returned questionnaires, the form was completed by the superintendent or a person in the superintendent's office. In the remaining cases, the individual responsible for health education policy in the district (such as the curriculum director) usually completed the questionnaire. This occurred more commonly in larger districts, which are more likely to delegate administrative responsibilities.

A total of 825 school superintendents or their delegates responded, for an overall response rate of 68%—84% among large-enrollment districts (n=187), and 64% among small- and medium-enrollment districts (n=318 and n=320, respectively).

To adjust for nonresponse and for the enrollment size strata, we assigned a weight to responding school districts that inflated the number of cases to the actual number of eligible districts in the United States as a whole (13,560). We used the software package Stata to conduct tests of significance because the survey was based on a complex stratified sample. (Stata uses the unweighted number of cases and incorporates information from the sample weights and stratified design to inflate the standard errors for significance testing.)

To provide some context for the distribution of responses by school districts, we also examined some selected variables by the number of students in the United States. We created student weights by multiplying the number of students enrolled in each sampled district by the ratio of the number of students in the universe of all districts to the number of students in the responding sampled districts. This resulted in weighted estimates of all students in the universe of eligible school districts (43,276,146 students in districts that offer instruction in grade six or higher).

The questionnaire administered to district representatives defined "sexuality or abstinence education" as "any and all health education relating to human sexuality, including family life, abstinence until marriage, postponing sexual involvement, and avoidance of STDs or HIV and unintended pregnancy" (hereafter referred to as sexuality education).

While we defined policy as "any guidance that applies, district-wide, to sexuality education in the schools," some respondents crossed out policy and wrote in "practice." Some responded that they had no policy, and simply followed state directives; for our purposes, we considered these cases to have a policy.

We grouped the 825 districts according to the location categories defined in the sample-frame database, which classifies districts by their primary catchment area—the urban center of a metropolitan county (central city), the other areas of a metropolitan county (suburban) and areas completely outside metropolitan counties (nonmetropolitan). We also classified districts by four Census Bureau geographic

Table 1. Percentage distribution of U.S. school districts (and weighted and unweighted number of districts), by type of policy on the teaching of sexuality education, according to district characteristic

Characteristic	Sexuality education is to be taught	Decision is left to school/ teachers	Total	Weighted N	Unweighted N
All	**68.8**	**31.2**	**100.0**	**13,493**	**817**
Region					
Northeast	85.9**	14.1**	100.0	2,371	115
South	68.4	31.6	100.0	3,090	282
Midwest	59.1*	40.9*	100.0	5,316	227
West	73.2	26.8	100.0	2,716	193
Division					
Northeast					
New England	87.7**	12.3**	100.0	987	45
Middle Atlantic	84.5**	15.5**	100.0	1,383	70
South					
South Atlantic	99.3**	0.8**	100.0	800	124
East South Central	40.2**	59.8**	100.0	672	44
West South Central	64.9	35.1	100.0	1,617	114
Midwest					
East North Central	76.3	23.7	100.0	2,053	110
West North Central	48.2**	51.8**	100.0	3,263	117
West					
Mountain	65.4	34.6	100.0	1,227	74
Pacific	79.5	20.5	100.0	1,490	119
Enrollment size (no. of students)					
Large (≥25,000)	95.1**	4.9**	100.0	223	186
Medium (5,000–24,999)	91.1**	8.9**	100.0	1,550	314
Small (<5,000)	65.3	34.7	100.0	11,719	317
Metropolitan status					
Central city	83.6	16.4	100.0	614	173
Suburban	80.9**	19.1**	100.0	4,915	353
Nonmetropolitan	60.1*	39.9*	100.0	7,964	291

*Differs significantly from national total at p<.05. **Differs significantly from national total at p<.01. *Notes:* In this and the following tables, the states (including Washington, DC) within each subdivision are: **New England**—CT, MA, ME, NH, RI and VT; **Middle Atlantic**—NJ, NY and PA; **South Atlantic**—DC, DE, GA, FL, MD, NC, SC, VA and WV; **East South Central**—AL, KY, MS and TN; **West South Central**—AR, LA, OK and TX; **East North Central**—IL, IN, OH, MI and WI; **West North Central**—IA, KS, MN, MO, ND, NE and SD; **Mountain**—AZ, CO, ID, MT, NM, NV, UT and WY; and **Pacific**—AK, CA, HI, OR and WA. The total number of U.S. districts does not include the 68 weighted (and eight unweighted) districts that had a policy to prohibit teaching sexuality education.

regions—North, South, Midwest and West—and by nine subdivisions within these regions.

The level of missing data on overall sexuality education policy is quite low. For example, among the districts with a policy, only 4% did not supply details about how abstinence is taught. We did not impute missing data, but assumed that the responses on those few items that were missing would be similar to those of the responding districts. The item with the highest level of nonresponse was that asking districts with a sexuality education policy for the single most influential factor in establishing that policy (26%); in contrast, only 10% were unable to provide data on any factor influencing such policies.

We categorized districts along a continuum of how much emphasis their sexuality education program gives to abstinence promotion. We asked districts with a sexuality education policy which of the following best describes how their policy addresses abstinence:

- as *one* option in a broader educational program to prepare adolescents to become sexually healthy adults;
- as the *preferred* option for adolescents (when contraception is discussed, it is presented as an effective means of protecting against unintended pregnancy and STDs or HIV for sexually active individuals);
- as the *only positive* option outside of marriage (when contraception is discussed, its ineffectiveness in preventing pregnancy and STDs or HIV is highlighted); or
- as the *only* option outside of marriage (all discussion of contraception is prohibited).

Since there were too few of these cases (36 unweighted districts, or 6% of all weighted districts with a sexuality education policy) to separately analyze them, we combined this category with the previous one to create a single abstinence-only category.

We also used this continuum to categorize districts into two general groups related to policies on instruction about contraception. Districts whose policy fell into the first two categories on the continuum were put into the "contraception as effective" category. In contrast, districts whose policy fell into the latter abstinence-only categories were grouped under "contraception as ineffective."

We also conducted multivariate logistic regression analyses to determine the combined impact of region, district size and metropolitan status on the likelihood that school districts would have a policy to teach sexuality education. Additionally, among districts having such a policy, we used multivariate analysis to examine the likelihood that their policy would be an "abstinence only" policy.

Results

Sexuality Education Policies

Among all U.S. school districts, more than two-thirds (69%) have a policy to teach sexuality education (Table 1). The remaining 31% leave policy decisions concerning sexuality education to individual schools within the district or to teachers.* A disproportionate number of students reside in districts that have policies to teach sexuality education. Among all U.S. students attending a district offering grade six or higher, 86% reside in school districts that have such a policy, while the remaining 14% attend schools in districts that leave these policy decisions to individual schools or to teachers (data not shown).

By region, school districts in the Northeast are the most likely to have a districtwide policy to teach sexuality education (86%, or 17 percentage points higher than the percentage for the country as a whole). Conversely, Midwestern school districts are the most likely to leave policy decisions to individual schools or teachers (41%). School districts in the South and West did not differ significantly from the U.S. average in the proportion having a policy to teach sexuality education.

These policies vary widely by subregions, however. For instance, while the South as a whole closely parallels the nation, almost all districts in the South Atlantic division have a policy (99%), while far fewer in the East South Central subdivision have one (40%).

Similarly, while the proportion of all districts in the Midwest having an explicit policy is significantly below the national average, this difference is true for the West North Central subdivision only (48% vs. 69%, p<.01), but not for the other Midwest subdivision (76% vs. 69%, a nonsignificant difference). The Northeast, meanwhile, is

*Approximately 0.5% of school districts have a policy that prohibits the teaching of sexuality education altogether. Because this group was too small to be analyzed separately (it contained only eight unweighted cases) and was too different from the other groups to be combined, we excluded it entirely from the analysis.

more homogenous in having a policy than the South or Midwest. School districts in both New England and the Middle Atlantic division are more likely than the nation as a whole to have district-wide policies (88% and 85%, respectively). Finally, the Mountain and Pacific subdivisions of the West do not differ significantly from the national average.

More than nine of 10 large-enrollment and medium-enrollment districts (91–95%) have a district-wide policy to teach sexuality education, compared with just 65% of small-enrollment districts. Because the vast majority of U.S. school districts have enrollments of fewer than 5,000 students, however, this percentage among the small-enrollment districts is not significantly different from the national average.

The proportion of school districts with a policy was significantly lower for those located in nonmetropolitan counties (60%) than for those in either central city (84%) or suburban counties (81%). The proportion of suburban school districts with a policy is significantly higher than the national average, while the proportion of nonmetropolitan districts is significantly lower than the nation as a whole. The proportion among central city districts does not differ from the national average.*

Table 2. Percentage distribution of U.S. school districts with a policy to teach sexuality education (and weighted and unweighted number of districts), by how that policy addresses teaching abstinence and contraception, according to district characteristic

Characteristic	Sexuality education policy			Total	Weighted N	Unweighted N
	Contraception as effective		Contraception as ineffective			
	Comprehensive	Abstinence-plus	Abstinence-only†			
All	**14.4**	**50.9**	**34.7**	**100.0**	**8,910**	**652**
Region						
Northeast	25.4	54.5	20.1*	100.0	2,035	99
South	5.2**	39.8	55.0**	100.0	2,030	238
Midwest	11.5	53.6	34.9	100.0	2,940	153
West	17.0	54.7	28.3	100.0	1,905	162
Division						
Northeast						
New England	18.8	67.2	14.0**	100.0	867	40
Middle Atlantic	30.3	45.0	24.8	100.0	1,170	59
South						
South Atlantic	13.4	32.1*	54.4*	100.0	753	120
East South Central	2.2**	64.2	33.6	100.0	226	23
West South Central	0.0**	40.0	60.0**	100.0	1,050	95
Midwest						
East North Central	14.7	50.1	35.3	100.0	1,478	91
West North Central	8.3*	57.3	34.5	100.0	1,462	62
West						
Mountain	11.6	48.1	40.3	100.0	765	56
Pacific	20.6	59.0	20.4*	100.0	1,140	106
Enrollment size (no. of students)						
Large (≥25,000)	3.4**	56.3	40.4	100.0	208	174
Medium (5,000–24,999)	12.1	46.8	41.1	100.0	1,383	280
Small (<5,000)	15.2	51.5	33.3	100.0	7,320	198
Metropolitan status						
Central city	9.1	55.8	35.1	100.0	496	156
Suburban	15.1	52.7	32.3	100.0	3,860	305
Nonmetropolitan	14.4	48.9	36.7	100.0	4,555	191

*Differs significantly from national total at p<.05. **Differs significantly from national total at p<.01. †Combines the two categories "as the only positive option outside of marriage" and "as the only option outside of marriage."

Abstinence Policies

Among districts that have a policy to teach sexuality education (Table 2), 14% reported that their policy addresses abstinence as one option for adolescents to avoid pregnancy and STDs in a broader sexuality education program that includes discussion of contraception to prepare them to become sexually healthy adults (hereafter referred to as a comprehensive sexuality education policy). One-half of districts (51%) with a policy promote abstinence as the preferred option for adolescents; this policy allows contraception to be discussed as effective in protecting against unintended pregnancy and STDs or HIV (referred to as an abstinence-plus policy). Slightly more than one-third (35%) reported that their policy requires that abstinence be taught as the only option outside of marriage; discussion of contraception is either prohibited or its ineffectiveness in preventing pregnancy and STDs or HIV is highlighted (referred to as an abstinence-only policy). Thus, in terms of specific policy toward providing contraceptive information, 65% of districts with a policy allow discussions to portray contraception as effective in preventing pregnancy and STDs (the sum of the first two categories), while 35% either highlight contraception's ineffectiveness or prohibit discussion of contraception outright.

When all school districts in the country are taken into account—including those that do not have a policy to teach sexuality education—10% of U.S. school districts have a comprehensive sexuality education policy, 34% have an abstinence-plus policy, 23% an abstinence-only policy and 33% have no policy (data not shown). Among all U.S. students attending a district that includes grade six or higher, 9% are in districts that have a comprehensive sexuality education policy, 45% are in districts with an abstinence-plus policy, 32% in abstinence-only policy districts and 14% in districts that have no policy (data not shown).

There is considerable regional variation in how districts address the issue of abstinence. For instance, 55% of Southern school districts with a policy address abstinence as the only option for adolescents outside of marriage, a level 20 percentage points higher than the national average; in contrast, only 20% of districts in the Northeast with a policy have an abstinence-only policy—almost 15 percentage points below the national average. The South also has the lowest percentage (5%) of districts that direct that abstinence be taught as part of a comprehensive sexuality education program; while the percentage of Northeast districts that have a comprehensive policy is greater than the national average, this difference is not statistically significant. School districts in the Midwest and West do not differ significantly from all U.S. districts in how they address teaching abstinence.

In terms of regional subdivisions, the areas with the highest proportion having abstinence-only policies are both in the South—the West South Central subdivision (60%) and the South Atlantic subdivision (54%). (The third Southern subdivision, East South Central, does not differ from the national average.) While the proportion with an abstinence-only policy is lowest in New England (14%), the highest proportion of districts teaching absti-

*Suburban districts differ significantly from the nation, but central city districts do not because there are fewer central city districts; therefore, the standard errors for those estimates are larger.

Table 3. Odds ratios (and 95% confidence intervals) from logistic regression analyses predicting likelihood among all districts of having a policy to teach sexuality education, and among those districts with a policy, likelihood that policy dictates abstinence be taught as the only positive option for adolescents outside of marriage

Characteristic	Has policy (among all districts, N=817)	Has abstinence-only policy† (among districts with a policy, N=652)
Region		
Northeast	1.00	1.00
South	0.40* (0.18–0.94)	4.71** (2.08–10.68)
Midwest	0.30** (0.14–0.64)	2.11 (0.97–4.56)
West	0.53 (0.22–1.27)	1.52 (0.65–3.54)
Enrollment size (no. of students)		
Large (≥25,000)	1.00	1.00
Medium (5,000–24,999)	0.49 (0.18–1.34)	1.22 (0.72–2.06)
Small (<5,000)	0.11** (0.03–0.36)	1.00 (0.49–2.03)
Metropolitan status		
Central city	1.00	1.00
Suburban	1.80 (0.47–6.90)	1.24 (0.61–2.52)
Nonmetropolitan	0.83 (0.22–3.18)	1.26 (0.57–2.82)

*p<.05. **p<.01. †Combines the two categories "as the only positive option outside of marriage" and "as the only option outside of marriage."

nence as part of a comprehensive policy is found in the Middle Atlantic states (30%). New England districts are most likely to have a policy to teach an abstinence-plus curriculum (67%), although this proportion is not significantly different from the national average.

Districts' type of sexuality education policy does not vary appreciably by their enrollment size or metropolitan status, with the exception that large districts are significantly less likely than U.S. districts overall to treat abstinence as part of a comprehensive program.

Multivariate analyses indicate that when the effects of region and metropolitan status are taken into account, the relationship between district size and policy noted in Table 1 remains (first column of Table 3). Small-enrollment districts are about one-10th as likely as large ones to have such a policy (odds ratio, 0.11). Medium-sized districts are only about half as likely as large-enrollment districts to have a policy, but this difference is not statistically significant.

The relationship between region and district policy appears to be independent of the size or metropolitan status of a district. For example, net of other factors, school districts in the Midwest and in the South are significantly less likely than those in the Northeast to have a district-wide policy. The reduction in the likelihood of having a policy among districts in the West is not statistically significant, however.

Metropolitan status failed to independently affect the likelihood of having a policy, once the other variables were taken into account. This suggests that the finding in Table 1 that nonmetropolitan districts were less likely to have a policy was more a function of region and district size than of metropolitan status.

When we conducted among districts with a policy a multivariate analysis that controlled for region, enrollment size and metropolitan status, only region was independently associated with having an abstinence-only policy (Table 3). Southern districts were almost five times as likely as Northeastern districts to have a policy that teaches abstinence as the only option for unmarried adolescents. Midwestern districts were moderately more likely than Northeastern districts to have such a policy, but this association failed to reach statistical significance. After region was controlled for, district size and metropolitan status appeared to have no independent impact on whether a district has an abstinence-only policy.

Changes in District Policy

Among respondents who knew when their current policy was adopted (n=5,149 weighted districts), 53% said that their current policy was adopted after 1995, and another 31% said it was adopted between 1990 and 1995; only 16% said that their current policy predated 1990. There was no relationship between when a policy was adopted and the type of policy toward teaching abstinence (not shown).

Among respondents who knew whether their district's policy had replaced an existing one (n=5,920 weighted districts), almost one-quarter (23%) reported that their current policy had done so, while 77% indicated that their current policy had not replaced a prior policy.

Districts that indicated that their policy had been replaced were asked how their previous policy had addressed the teaching of abstinence following the same four-category scale. Among these districts, 52% said that their new sexuality education policy fell within the same general category as their former policy (the sum of the three descending diagonal cells in Table 4): The unchanged policy was to teach abstinence within a comprehensive program in 6%, as the preferred option for adolescents in 25% and as the only option in 21%. However, among districts that changed their policy, twice as many shifted toward a greater focus on abstinence as moved in the opposite direction. Thirty-three percent reported that their policy had changed from either a comprehensive to an abstinence-plus policy or from an abstinence-plus to an abstinence-only policy (the sum of the three cells above the diagonal), while just 16% reported that their policy had moved either from an abstinence-only policy to some other policy or from an abstinence-plus to a comprehensive policy (the sum of the three cells below the diagonal).

This shift among districts with replacement policies, however, had no net impact on the percentage of policies portraying contraception as effective or as ineffective. Fifteen percent of districts moved from having a policy in which contraception could be discussed positively (either a comprehensive or an abstinence-plus policy) to one in which contraception, if it is discussed at all, could only be portrayed negatively (an abstinence-only policy). Another 15% of districts, however, shifted from having an abstinence-only policy to a policy that permits contraception to be discussed as an effective means of preventing pregnancy and disease.

Finally, among the districts with replaced policies, there was virtually no net change in the total number of districts with abstinence-only policies (from 464 to 461, or a 0.6% decline). The major net shifts were in the number of districts that originally had had a comprehensive policy

Table 4. Among school districts whose current sexuality education policy replaced an existing one, percentage with a particular current policy, by policy

Prior policy	Current sexuality education policy				
	Contraception as effective		Contraception as ineffective		
	Comprehensive (N=189)	Abstinence-plus (N=640)	Abstinence-only† (N=461)	Total (N=1,290)	N
Total	**14.7**	**49.6**	**35.7**	**100.0**	**1,290**
Comprehensive	5.7	17.6	0.1	23.3	301
Abstinence-plus	0.4	25.3	15.0	40.7	525
Abstinence-only†	8.6	6.7	20.6	36.0	464

†Combines the two categories "as the only positive option" and "as the only option outside of marriage." *Note:* All Ns shown here are weighted.

(from 301 to 189, a decline of 37%), and in the number of districts that had had an abstinence-plus policy (from 525 to 640, an increase of 22%).

Factors Influencing Policy

Respondents were asked to choose, from 11 possibilities,* the single most important factor that influenced their district's current sexuality education policy (Table 5). One of just three factors (state directives, recommendations of special school board advisory committees or task forces, or school board actions) was named by at least three-quarters of districts, ranging from 78% of districts with abstinence-only policies to 88% of those with abstinence-plus policies. There were no significant differences in the percentage distributions according to the most influential factor between the three policy categories and the distribution for the nation as a whole.

On average, almost one-half of the districts (48%) cited state directives as the most influential factor. Special committees and school boards were cited as most influential about equally as often (18% and 17%, respectively). School boards were more likely than other factors to be considered as most important by districts with an abstinence-only policy, but this proportion did not differ significantly from that among all U.S. districts.

Respondents were also asked to indicate from the same list whether any of the factors had influenced their current policy. Districts reported an average of 2.6 factors. In general, the responses followed the same pattern as that created by the most influential factor, with state directives being the most frequently cited influential factor of all possibilities (74%). However, districts cited school board actions more frequently than they did special committees (63% vs. 36%). Predictably, the proportions checking community and teacher support for abstinence as influential factors were higher in districts with abstinence-only policies, whereas community support for broader sexuality education was more prevalent in districts that have comprehensive policies.

Finally, respondents were asked how supportive they thought the community at large was of their district's current policy on sexuality education. The most common response (53%) was that the community was "generally silent" on the issue; 41% reported that their community "strongly supports" the current policy, 5% that the community is divided and fewer than 1% that it is "generally opposed." The level of community support within each of the three sexuality education policy subgroups did not differ significantly from the nation as a whole. However, districts in which abstinence is presented as the only option outside of marriage for adolescents were somewhat more likely than other districts to have higher levels of community support for their policy (at least according to the school superintendent), and communities in these abstinence-only districts were less likely to be "generally silent" on the issue.

Discussion

By 1998, more than two out of three public school districts in the United States had adopted a district-wide policy to teach sexuality education. Most of those policies were developed in the 1990s, during a period of intense debate, not only in many local communities but also in state capitals and Congress, about the relative merits of abstinence promotion—and, specifically, abstinence-*only* promotion—versus more "comprehensive" approaches to sexuality education for young people. Yet the impact of those debates at the local level and the trend in the national debate are not especially easy to assess.

On the one hand, the overwhelming majority of policies now require that abstinence from sexual intercourse be promoted—either as the preferred option for adolescents or as the only option outside of marriage. Few districts stipulate that abstinence is to be presented as one option in a broader educational program to prepare adolescents to become sexually healthy adults.

On the other hand, among districts that adopted new policies, the newer policies do not appear to be more "conservative" regarding how abstinence is treated than those adopted earlier in the decade. Moreover, the bulk of the movement among those districts that switched from one policy category to another appears to have been away from comprehensive sexuali-

Table 5. Among school districts that have a sexuality education policy, percentage distribution by most influential factor affecting policy; percentage that cite any factor as affecting policy; and percentage distribution by level of community support for that policy; all according to type of policy

Factor and level of support	All	Sexuality education policy		
		Contraception as effective		Contraception as ineffective
		Comprehensive	Abstinence-plus	Abstinence-only†
Most influential factor				
State directives	48.2	53.0	53.5	40.1
Special committee	17.8	13.4	21.5	14.8
School board action	17.0	14.1	12.8	23.2
Teacher support for abstinence	5.6	3.9	2.8	9.7
Community support for abstinence	5.7	4.5	2.8	9.5
Teacher support for broader sexuality education	3.7	5.5	4.8	1.6
Community support for broader sexuality education	0.4	0.5	0.2	0.6
HIV prevention funding‡	1.3	3.9	1.4	0.2
Abstinence education funding§	0.1	0.5	0.0	0.2
Formal complaint/litigation	0.2	0.5	0.2	0.1
Total	100.0	100.0	100.0	100.0
Any factor influencing policy				
State directives	73.7	65.2	79.8	68.6
Special committee	35.8	30.7	37.9	34.8
School board action	63.4	53.8	69.0	59.5
Teacher support for abstinence	19.7	13.1	17.2	25.9
Community support for abstinence	15.4	7.0	11.8	23.7
Teacher support for broader sexuality education	24.7	33.0	28.9	15.5
Community support for broader sexuality education	11.4	18.3	14.2	4.7*
HIV prevention funding‡	14.1	15.3	17.9	8.4
Abstinence education funding§	3.2	0.8*	3.3	3.9
Formal complaint/litigation	1.0	3.9	0.6	0.4
Level of community support				
Strongly supports	40.6	32.7	35.9	50.6
Divided	5.1	4.1	4.9	5.8
Generally opposes	0.9	2.9	0.9	0.0
Generally silent	53.4	60.3	58.4	43.5
Total	100.0	100.0	100.0	100.0

*Differs significantly from national total at p<.05. †Combines the two categories "as the only positive option outside of marriage" and "as the only option outside of marriage." ‡From the Centers for Disease Control and Prevention.§From the Maternal and Child Health block grant (Title V). *Notes:* Weighted Ns for the United States as a whole for the three items were 6,838 districts for the most influential factor, 8,314 districts for any influential factor and 8,620 districts for level of community support. Percentages in distributions may not add to 100% because of rounding.

*Due to the small number of cases, the individual categories "formal complaint" and "litigation" were combined into one category.

ty education policies toward abstinence-plus policies; indeed, there was no net movement toward the most extreme abstinence-only policies.

Because abstinence-plus policies allow contraception to be discussed as an effective means of providing protection against pregnancy and disease, adding these districts to those presenting abstinence as part of a comprehensive educational program for adolescents indicates that two-thirds of all districts that have a policy permit positive discussions of contraception, notwithstanding the extent to which those policies also promote abstinence.

Still, more than one-third of districts with a policy to teach sexuality education require that abstinence be taught as the only option outside of marriage; under the vast majority of these policies, contraception may only be discussed in a way that highlights its shortcomings. (A small percentage of these districts prohibit discussion of contraception outright.) Despite considerable regional variation, there is no region of the country in which the proportion of districts with abstinence-only policies is negligible—one-fifth of districts in the Northeast with a policy, more than one-quarter in the West, more than one-third in the Midwest and more than one-half in the South.

The exclusive focus on abstinence promotion in these policies is troubling, in light of the dearth of research demonstrating that the abstinence-only approach is effective in delaying young people's sexual initiation. This lack of documentation stands in sharp contrast to the growing weight of evidence showing that broader educational approaches appear to delay sexual initiation.[12] Moreover, while more comprehensive approaches also have been shown to encourage greater use of contraceptives when young people eventually begin to have intercourse, the impact of abstinence-only programs on youth's subsequent contraceptive use has yet to be addressed.[13] By emphasizing the failure rates of contraceptive methods or by permitting no discussion about contraception at all, abstinence-only efforts might discourage effective contraceptive use and thereby put individuals at greater risk of unintended pregnancy when they become sexually active.

With more than 70% of young Americans aged 18–19 having initiated sexual intercourse,[14] the provision of adequate and accurate information about contraception—even while supporting the choice of young people who are delaying sexual initiation—should continue to be a high national priority. This is especially important if national declines in teenage pregnancy rates experienced from the late 1980s through the mid-1990s are to be sustained. A recent analysis indicates that those declines were associated not only with a modest increase in the proportion of young people who had never had sexual intercourse, but even more so with a lower likelihood of becoming pregnant among sexually experienced teenagers.[15]

In that regard, recent legislative efforts by California and Missouri to ensure that information presented to students in the context of sexuality education is "medically accurate," even within a framework that presents abstinence as the preferred choice, are encouraging. The Missouri legislation was supported by an alliance of organizations from opposite ends of the political spectrum that share the goals of reducing rates of teenage pregnancy and of STDs.[16]

Finally, it should be emphasized that this study was initiated in early 1998, well before states began implementing any abstinence-only promotion efforts of their own following enactment of the federal welfare reform legislation that guaranteed federal funds for school- and community-based programs over a five-year period. Additional research clearly is warranted to monitor and evaluate the extent to which that law and its implementation may be providing the impetus for additional changes in school district policy on the teaching of abstinence in the context of sexuality education.

References

1. Louis Harris and Associates, *Public Attitudes Toward Teenage Pregnancy, Sex Education and Birth Control,* New York, 1988, p. 24; North Carolina Coalition on Adolescent Pregnancy (NCCAP), *We the People: North Carolinians Support Comprehensive Sexuality Education, Adolescent Health Care Centers, Adolescent Pregnancy Prevention,* Charlotte, NC: NCCAP, 1993; South Carolina Council on Adolescent Pregnancy Prevention (SCCAPP), *South Carolina Speaks,* Columbia, SC: SCCAPP, 1997; Lake Sosin Snell Perry and Associates/American Viewpoint, Nationwide Survey for Planned Parenthood Federation of America, Oct. 2–7, 1997; The Field Institute, *Californians' Views on Teen Pregnancy, Results from a Large-Scale Statewide Survey of California Adults and Parents,* January–March 1999; and Meckler L, Survey: Americans want sex ed, *Chicago Tribune,* June 3, 1999.

2. Princeton Survey Research Associates, nationwide survey conducted for the Association of Reproductive Health Professionals and National Campaign to Prevent Teen Pregnancy, released May 2, 1997.

3. Interventions to prevent HIV risk behaviors, *NIH Consensus Statement,* 1997, Feb. 11–13; 15(2):15–16 & 22.

4. Kirby D, *No Easy Answers: Research Findings on Programs to Reduce Teen Pregnancy,* Washington, DC: National Campaign to Prevent Teen Pregnancy, 1997.

5. Global Programme on AIDS, *Effects of Sex Education on Young People's Sexual Behavior,* Geneva: World Health Organization, 1993; and Grunseit A et al., Sexuality education and young people's sexual behaviors: a review of studies, *Journal of Adolescent Research,* 1997, 12(4): 421–453.

6. Personal Responsibility and Work Opportunity Reconciliation Act of 1996, P.L. 104-193, sec. 510(b).

7. Sexuality Information and Education Council of the United States (SIECUS), *Between the Lines: States' Implementation of the Federal Government's Section 510(b) Abstinence Education Program in Fiscal Year 1998,* New York: SIECUS, 1999.

8. Omnibus Budget Reconciliation Act of 1981, P.L. 97-35, sec. 2001; and Saul R, Whatever happened to the Adolescent Family Life Act? *The Guttmacher Report on Public Policy,* 1998, 1(2):5.

9. Ross S and Kantor L, Trends in opposition to comprehensive sexuality education in public schools 1994–95 school year, *SIECUS Report,* 1995, 23(6):9.

10. Mayer R, 1996–97 trends in opposition to comprehensive sexuality education in public schools in the United States, *SIECUS Report,* 1997, 25(6):20.

11. National Center for Educational Statistics, Common core of data, http://www.ed.gov/NCES/ccd/ccdagency1996.html, accessed April 17, 1998.

12. Kirby D, 1997, op. cit. (see reference 4).

13. Ibid; Frost JJ and Forrest JD, Understanding the impact of effective teenage pregnancy prevention programs, *Family Planning Perspectives,* 1995, 27(5):188–195; and Kirby D et al., School-based programs to reduce sexual risk behaviors: a review of effectiveness, *Public Health Reports,* 1994, 109(3):339–360.

14. Sonenstein FL et al., Changes in sexual behavior and condom use among teenaged males: 1988 to 1995, *American Journal of Public Health,* 1998, 88(6):956–959; and Singh S and Darroch JE, Trends in sexual activity among adolescent American women: 1982–1995, *Family Planning Perspectives,* 1999, 31(5):212–219.

15. Darroch JE, *Why Is Teenage Pregnancy Declining? The Roles of Abstinence, Sexual Activity and Contraceptive Use,* Occasional Report, No. 1, New York: The Alan Guttmacher Institute, 1999.

16. California II: Governor signs "medically accurate" sex ed bill, *Kaiser Daily Reproductive Health Report,* listserve, Aug. 30, 1999; and Missouri: sex education is widely supported, *Kaiser Daily Reproductive Health Report,* listserve, Aug. 31, 1999.

SPECIAL REPORT

School-Based Sexuality Education: The Issues and Challenges

by Patricia Donovan

In fall 1997, the Franklin County, North Carolina, school board ordered chapters on sexual behavior, contraception and AIDS and other sexually transmitted diseases (STDs) cut out of its health textbook for ninth graders. The deleted material, the board said, did not comply with a new state law requiring public schools to teach abstinence until marriage in their comprehensive health education program for students in kindergarten through ninth grade.

The school board also instructed teachers to discuss only failure rates in response to students' questions about contraceptives. If asked about AIDS, teachers were to say only that the disease is caused by a virus that is transmitted primarily by contaminated needles and illegal homosexual acts. These actions came after months of debate in the county about how to handle sex education in accordance with the new law, which allows school districts to offer more comprehensive sexuality education only after a public hearing and a public review of instructional materials.[1]

The board's new policy is a compelling example of the controversy raging in many communities over what public schools should teach in sex education classes. Although national and state polls consistently show that 80–90% of adults support sex education in schools—including instruction on contraception and disease prevention in addition to abstinence[2]—many school districts are under intense pressure to eliminate discussion of birth control methods and disease-prevention strategies from their sex education programs. Instead, they are urged to focus exclusively on abstinence as a means of preventing pregnancy and STDs. "The abstinence-only movement has [triggered] a debate around the country about whether contraception should be discussed at all," observes Douglas Kirby, director of research at ETR Associates, who studies the impact of sex education programs.

The intensity of the debate is noted even by long-time sex education advocates such as Leslie Kantor, formerly director of planning and special projects with the Sexuality Information and Education Council of the United States (SIECUS) and currently vice president for education with Planned Parenthood of New York City. "There have always been disgruntled parents here and there, but local school boards have never seen anything like the very organized, orchestrated campaign for abstinence-only education," she says.

State legislatures are also feeling the pressure. Of the 51 sex education bills that were considered by state legislatures through March 1998, 20 pertain to making abstinence the focus of sex education in public schools.[3] One of these bills has been enacted: The Mississippi legislature established abstinence education as the "standard for any sex-related education taught in the public schools."[4] The law calls for teaching that "a mutually faithful, monogamous relationship in the context of marriage is the only appropriate setting for sexual intercourse." In Virginia, where mandatory sex education was repealed by the state school board in 1997, the legislature voted to reinstate sex education with the stipulation that the programs "present sexual abstinence before marriage and fidelity within monogamous marriage as moral obligations and not matters of personal opinion or personal choice."[5] The measure was vetoed by Governor James S. Gilmore on the grounds that the decision of whether to offer sex education should be left to local school boards.

According to dozens of sexuality education proponents interviewed for this report during the latter half of 1997 and in early 1998, the push for abstinence-only education is only the most visible element of a larger conservative strategy to eliminate more comprehensive programs. Other proposals include eliminating coeducational classes and changing the parental consent process in ways that sex education proponents warn could make participation in sex education more complicated for students and costly for schools. Groups opposed to sex education have captured the momentum, many of these observers say, because the opponents' new tactics seem less extreme than past efforts—and are therefore more difficult to refute.

But proponents say that they also bear some responsibility for the current turmoil themselves, both because they have allowed opponents of sex education to foster the misperception that the comprehensive programs generally do not teach abstinence and because they have failed to effectively articulate the goals of sex education.

Although sex education is often discussed and evaluated in terms of its role in reducing adolescent pregnancy and STD rates, supporters say its primary goal is broader: to give young people the opportunity to receive information, examine their values and learn relationship skills that will enable them to resist becoming sexually active before they are ready, to prevent unprotected intercourse and to help young people become responsible, sexually healthy adults. Unfortunately, notes Michael McGee, vice president for education at the Planned Parenthood Federation of America, programs today are judged almost exclusively according to "whether they feature abstinence, rather than whether they promote health."

Supporters of abstinence-only education won a major victory in 1996, when Congress committed $250 million in federal funds over five years to promote abstinence until marriage as part of welfare reform.[6] Nevertheless, in recent years it has been pri-

Patricia Donovan is a contributing editor for *Family Planning Perspectives* and senior associate for law and public policy with The Alan Guttmacher Institute, Washington, DC. Preparation of this special report was made possible by a grant from the General Service Foundation.

marily at the state and local levels where opponents of sexuality education have concentrated their efforts and where they have had their greatest impact. According to many sex education supporters, their opponents are putting enormous pressure on school boards to curtail sexuality education programs and are intimidating school administrators and teachers, who in turn are becoming increasingly cautious about what they teach, even when they are under no formal constraints.

"These are dark times for balanced, responsible sexuality education," concludes Barbara Huberman, director of training at Advocates for Youth.

Sexuality Education Today

Efforts to undermine sexuality education are not new, of course. Sex education has been a target of right-wing groups since the 1960s, when the John Birch Society and other ultraconservative organizations charged that such programs were "smut," "immoral" and "a filthy communist plot."[7]

The goal of these groups was to eliminate all sex education in schools, and they clearly had an impact: By the early 1970s, legislatures in 20 states had voted to restrict or abolish sexuality education.[8] By the end of the decade, only three states (Kentucky, Maryland and New Jersey) and the District of Columbia required schools to provide sex education.[9]

But, as SIECUS president Debra Haffner notes, "the landscape changed dramatically with the advent of AIDS." By the mid-1980s, widespread recognition that the deadly disease can be transmitted through sexual intercourse made it politically untenable to argue that sexuality education should not be taught in the schools, especially after Surgeon General C. Everett Koop called for sex education in schools beginning as early as the third grade. "There is now no doubt," Koop wrote in his 1986 report, "that we need sex education in schools and that it [should] include information on heterosexual and homosexual relationships. The lives of our young people depend on our fulfilling our responsibility."[10]

The states responded quickly: By the late 1980s, many states required schools to provide instruction about AIDS and other STDs. Some of these states also required instruction in sexuality education. In addition, since 1988, the Centers for Disease Control and Prevention (CDC) have provided financial and technical assistance to state and local education agencies, national organizations and other institutions to improve HIV education in schools. As of December 1997, 19 states and the District of Columbia had laws or policies that required schools to provide sexuality education, and 34 states and the District mandated instruction about HIV, AIDS and other STDs (Table 1).

Some states appeared to encourage only limited instruction, however. For example, while laws and policies in 23 states specified that all sexuality education must include instruction about abstinence, only 13 states required such courses to cover contraceptive methods.[11] Furthermore, only 22 states required that courses on HIV and STD prevention provide information on condom use and other prevention strategies in addition to information about abstinence.[12] A large majority of states have developed curricula or guidelines to provide program guidance to local school districts in implementing sexuality education programs. Many of these guides exclude such topics as abortion, homosexuality and masturbation because they are considered too controversial.[13]

School districts appear to be more likely than states to require instruction about contraception and STD prevention. In a 1994 survey, for example, the CDC found that more than 80% of school districts required instruction about the prevention of HIV and other STDs as part of health education, and that 72% required instruction about pregnancy prevention in their health programs.[14]

As a result of these laws and policies, virtually all teenagers now receive some sexuality education while they are in high school: In a 1995 national survey, more than nine in 10 women aged 18–19 said they received instruction, as did about seven in 10 women aged 18–44.[15] Most students, however, do not receive any instruction until ninth or 10th grade,[16] by which time many have already become sexually active. Even then, the information they receive may be insufficient. "It is widely believed by professionals in the field that most programs are short, are not comprehensive, fail to cover important topics and are less effective than they could be," Douglas Kirby observed.[17]

Regardless of whether a state mandates sex education or AIDS education, there is no guarantee that the subject will be taught in all school districts, because many states do not have a mechanism for monitoring program implementation. In fact, there is often wide variation in what is taught, both within school districts and even within the same school. Konstance McKaffree, who taught sexuality education in Pennsylvania public schools for 25 years before retiring in 1996, explains that what is offered often "depends on the teacher's ability, training and comfort with the subject matter," as well as on the principal's willingness to tolerate controversy.

Table 1. Distribution of U.S. states and District of Columbia, by state policy requirements for sexuality, STD and HIV/AIDS education, 1998

Schools required to provide both sexuality education and STD and/or HIV/AIDS education (N=20)	
Alabama	Minnesota
Arkansas	Nevada
Delaware	New Jersey
District of Columbia	North Carolina*
Georgia	Rhode Island
Hawaii	South Carolina
Illinois	Tennessee
Iowa	Utah
Kansas	Vermont
Maryland	West Virginia

Schools required only to provide STD and/or HIV/AIDS education (N=15)	
California	New York
Connecticut	Ohio
Florida	Oklahoma
Indiana	Oregon
Michigan	Pennsylvania
Missouri	Washington
New Hampshire	Wisconsin
New Mexico	

Schools not required to provide either sexuality education or STD and/or HIV/AIDS education (N=16)	
Alaska	Mississippi
Arizona	Montana
Colorado	Nebraska
Idaho	North Dakota
Kentucky	South Dakota
Louisiana	Texas
Maine	Virginia
Massachusetts	Wyoming

*Although the 1995 law mandates instruction on abstinence until marriage, the state board of education's Healthful Living Education curriculum, which is mandatory for grades K–9, requires lessons on sexuality education, including birth control, STD and HIV prevention and abstinence, beginning in seventh grade. *Source:* See reference 11.

A New Strategy

Since the early 1990s, sex education advocates report, opponents have brought increasing pressure to bear on school officials and teachers as they have refocused their efforts on local school boards and state legislatures. Prior to that time, opponents had concentrated primarily on national politics. "They realized that who is in the principal's office matters more than who is in the Oval Office," observes Leslie Kantor. "They decided to pay attention to elections no one pays attention to, like those for school board and county commissioner."

As a result of this shift, recent years have seen a sharp rise in the number of challenges to individual school district policies. According to SIECUS, more than 500 local disputes over sexuality education occurred in all 50 states between 1992 and 1997.[18] Typically, these confrontations were initiated by a few parents or by members of a local conservative group or

church, often with backing and support from national organizations with similar political or social agendas, such as Focus on the Family, the Eagle Forum, Concerned Women for America and Citizens for Excellence in Education.[19] In contrast, SIECUS documented a total of six local controversies in 1990.[20]

The substance of the debate over sexuality education has also changed, largely in response to the need to combat AIDS. "The controversy has shifted from whether to offer sex education in schools to what should be taught in these classes," observes Susan Wilson, executive coordinator of the Network for Family Life Education in New Jersey.

Promoting Abstinence

Abstinence-only proponents assert that the more comprehensive programs focus principally on teaching students about contraception and safer sex techniques and that the programs provide little or no instruction on abstinence. They also contend that sex education programs condone homosexuality, teach students how to have sex and undermine parental authority.[21] Continued high rates of adolescent pregnancy, STDs and out-of-wedlock births, they say, are proof of "the widespread failure of conventional sex education."[22]

Research suggests that many of these charges are unfounded. In a 1988 survey, for example, nine in 10 teachers of sexuality education in grades 7–12 reported that they taught their students about abstinence.[23] In addition, the CDC's 1994 survey found that 78% of public and private school teachers in health education classes include instruction in the rationale for choosing abstinence, compared with 56% who discuss the efficacy of condoms in preventing HIV and 37% who teach the correct use of condoms.[24]

Furthermore, several studies show that sexual intercourse among students did not increase after the presentation of pregnancy prevention programs that included discussions of abstinence, contraception and disease prevention and that taught teenagers decision-making and communication skills to help them resist risky or unwanted sexual activity.[25] In fact, such programs can help teenagers delay the onset of intercourse and can increase the likelihood that they will use condoms and other contraceptives when they do become sexually active. Moreover, researchers have found no methodologically sound studies that show abstinence-only programs delay the initiation of sexual intercourse.*[26]

Despite this evidence, abstinence-only programs continue to proliferate. This may stem in part from the skillful promotion of these programs. Their supporters "promise school boards and parents that if schools let them come in and teach an abstinence-only curriculum, children will not have sex," reports Debra Haffner. "It's a very appealing message to adults, who are very concerned that adolescents become sexually involved too early."

At the same time, concerns about teenage sexual activity and its consequences may engender greater receptivity to the notion of focusing exclusively on abstinence, at least among younger adolescents. "There is a growing recognition…that at some grade level—[grade] six, seven, eight—it is appropriate to talk only about delaying sex," observes Kirby. The question then becomes how long a delay is expected. Many abstinence-only curricula teach young people to forgo sex until marriage—an ambitious goal in a country where people typically do not marry until their mid-20s.[27] These curricula either provide no information about contraception or briefly discuss contraception only in terms of failure rates[28] to emphasize that condoms and other methods do not provide 100% protection against pregnancy and STDs.[29]

Furthermore, many of these curricula and other instructional materials appear to have been designed to frighten adolescents into remaining abstinent. For example, the abstinence-only curriculum Me, My World, My Future likens use of condoms to playing Russian roulette: "Condoms do not prevent STDs or AIDS," the curriculum states. "They only delay them…. The more often that the [sex] act is repeated, the more opportunity there is for condom failure."[30]

Choosing the Best, another widely used abstinence-only curriculum, also uses the Russian roulette theme, contending that "there is a greater risk of a condom failure than the bullet being in the chamber."[31] This curriculum also includes a video, entitled *No Second Chance*, in which a student asks, "What if I want to have sex before I get married?" The student's teacher then responds, "Well, I guess you'll just have to be prepared to die. And you'll probably take with you your spouse and one or more of your children." A second video packaged with the curriculum, *Sex, Lies and the Truth*, was produced by Focus on the Family. In it a student declares, "Safe sex isn't working anymore. Condoms are breaking, birth control is failing, and many kids and young people are just dying."

There are no official statistics on how many schools use abstinence-only materials, but according to some press reports, 4,000 of the nation's 16,000 school districts use an abstinence-only curriculum.[32] *Sex, Lies and the Truth* is estimated by some conservative groups to be used in more than 10,000 school systems.[33]

Other Tactics

In addition to pushing for abstinence-only instruction, sex education opponents are pressing for an end to coeducational sex education classes, for explicit parental consent for participation in sexuality education (as opposed to passive consent) and—in districts that retain comprehensive programs—for the option of taking an abstinence-only course instead. While these may not appear on the surface to be an attack on sexuality education, those who favor comprehensive instruction believe the ultimate goal behind such proposals remains the elimination of sexuality education from the public schools. They fear that the adoption of these measures would present obstacles that would undermine comprehensive sex education programs.

For example, while comprehensive sex education advocates acknowledge that it may at times be beneficial to separate the sexes (when discussing puberty with elementary school children, for example), they believe that the elimination of coeducational classes would deprive students of the opportunity to learn how to communicate effectively with members of the opposite sex and how to resist pressure to have sex.

The paperwork that would be required to administer the proposed changes to existing parental consent policies also concerns these advocates. The so-called "opt-out" policy currently used in the vast majority of school districts requires that parents take the initiative to inform the school if they do not want their child to participate in sexuality education. In districts that keep records, according to SIECUS data, fewer than 5% of parents exercise their option to remove their children from sex education courses.[34]

In contrast, the alternative consent policy proposed by supporters of abstinence-only education would create an "opt-in"

*Some researchers, including Kirby, believe that there is insufficient data available to make a conclusive judgment about the impact of abstinence-only curricula. One recent study did find that teenagers who participated in an abstinence program were less likely than a control group to report having intercourse in the three months following the intervention; however, the effect had disappeared at the six- and 12-month follow-up. (Source: Jemmott JB 3rd, Jemmott LS and Fong GT, Abstinence and safer sex HIV risk-reduction interventions for African American adolescents, *Journal of the American Medical Association*, 1998, 279(19):1529–1536.)

policy requiring the school to obtain written permission from each student's parents before that student could take sex education. A projection of the impact of such a change on schools in Fairfax County, Virginia, concluded that processing the nearly 134,000 forms generated by the 98% of parents in the school system who allow their children to receive sexuality education would require two weeks of work by 50 school employees.[35]

In addition to the increased burden on school staff and finances posed by the "opt-in" consent policy, there is the additional risk that some children would be excluded from sexuality education not because their parents did not want them to participate, but because the necessary consent form either never reached the parent or was never returned to the school.

Teachers' Fears Increase

The debates over program content and the proliferation of local controversies have heightened teachers' long-standing concern that parents and school officials do not support their efforts to provide sexuality education. As a result, they fear that discussion of controversial topics—masturbation, sexual orientation, abortion and, increasingly, contraception—could jeopardize their careers, according to many sex education proponents. "Teachers are scared; even the best are very discouraged," reports Peggy Brick, director of education at Planned Parenthood of Greater Northern New Jersey and a longtime sexuality educator and trainer.

Ultimately, proponents say, teachers believe their careers are at stake. There is always the potential for saying something that some parent will find objectionable, notes McGee, Planned Parenthood's vice president for education. "If the parent complains to the principal, the teacher may be called on the carpet, publicly humiliated and threatened with the loss of his or her job. It's a risky business."

Whether the pressure to avoid controversial subjects is real or imagined is a matter of debate. Nevertheless, the perception among teachers is that this pressure not only exists but has also intensified in recent years. "Teachers perceive themselves as more constrained," reports Patti Caldwell, senior vice president of Planned Parenthood of Southern Arizona, which provides sex education in public schools in the Tucson area. "There is limited evidence that they are as constrained as they think they are, but the perception has a significant impact on their confidence."

Fueling this perception, Caldwell and others say, is teachers' sense that they do not have the support of their principal and superintendent. "Administrators' commitment and comfort with the field is more important than board policy or official doctrine," observes Scott McCann, vice president for education at Planned Parenthood of Santa Barbara, Ventura and San Luis Obispo Counties in California.

Fear of controversy deters many school officials from taking a high-profile position on sex education, proponents say. Another reason, according to Brenda Greene, manager of the HIV/AIDS Education and School Health Program at the National School Boards Association, is that sexuality education is generally not a high priority for school officials: "Administrators want to focus on academic standards, student safety and other issues that communities and the state hold them accountable for."

A Lack of Training

Teachers and others believe that educators' wariness of sex education is often exacerbated by a lack of training, which leaves many feeling unprepared to teach the subject. The problems stem from both inadequate instruction during the teachers' undergraduate preparation and from a dearth of staff development and training opportunities once they are in the classroom.

Whether the pressure to avoid controversial subjects is real or imagined is a matter of debate. Nevertheless, the perception among teachers is that this pressure not only exists but has also intensified in recent years.

Although undergraduate programs for aspiring teachers generally have at least one course on sexuality education or health education, many of these schools do not require prospective teachers to take such a course. In a 1995 survey of college-based teacher certification programs, for example, fewer than two-thirds required candidates seeking certification in health education to take a course on sexuality,[36] even though sexuality education is most commonly provided by health education teachers.[37] According to the same survey, none of the programs required prospective teachers to take a course on HIV and AIDS prevention. Furthermore, very few programs require a course in how to teach these subjects: For example, only 9% of health education certification programs require students to take a course in sexuality education methodology, and none requires a course on HIV and AIDS education methods.[38]

Thus, many new teachers assume the responsibility of sexuality education with neither in-depth knowledge of the subject matter nor adequate instruction in how to teach it. The states share the blame for this problem, because few require that teachers of sexuality education or HIV and AIDS education teachers be certified in a relevant subject, such as health education.* Moreover, only six states require training for sexuality educators before they begin teaching, and only nine states and the District of Columbia require such training for teachers of HIV and AIDS education.[39]

Once in the classroom, teachers often have little opportunity or incentive to enhance their skills and knowledge. "Years ago, schools encouraged you to go to workshops," recalls McCaffree. "Not anymore. You lose personal and professional days and [often] have to pay for a substitute."

In addition, say sexuality education proponents, most teachers tend to use what training opportunities are available for other subjects. "Teachers need ongoing staff development," observes Greene of the National School Boards Association. "But local school district funds for staff development are very scarce. They can't even prepare teachers to use computers, and teachers are more motivated to use technology than to be skilled sexuality educators."

According to Wayne Pawlowski, director of training at Planned Parenthood Federation of America, even when teachers do have an opportunity to attend a workshop on sexuality education, the training they receive "is usually generic training about family life education, rather than instruction on how to teach sensitive subjects such as abortion, homosexuality and contraception—the topics teachers are most afraid of saying the wrong thing about."

There appears to be more opportunity for in-service training on HIV prevention than on other sex education topics, thanks to the CDC program. In the 1994 survey of health education teachers, nearly a third of middle school and senior high school teachers reported receiving in-service

*Only 12 states and the District of Columbia require teachers of sexuality education to be certified in a relevant subject, usually health or physical education; similarly, 12 states and the District require certification of teachers of HIV/STD education. (See: reference 36.)

training on HIV prevention during the two years preceding the survey.[40] In contrast, about 16% reported receiving training on STD prevention, and just 6% said they received training on pregnancy prevention—the lowest proportion of any of the health topics examined.

Classroom Consequences

The perception among teachers that they lack support for their work—as well as their lack of training—affects what happens in the classroom, sex education proponents report. Even when the school system itself places no restrictions on the subjects covered, teachers limit their discussion of controversial topics, according to several people interviewed for this article, including the retired teachers. This occurs despite the fact that the vast majority of teachers believe that it is important for students to get information about birth control, AIDS and other STDs, sexual decision-making and homosexuality, as well as abstinence.[41] "Unless they have seniority and some moxie, teachers are very reluctant to discuss controversial issues," observes Judith McCoy, vice president for education, training and counseling at Planned Parenthood in Seattle.

Supporters of comprehensive sexuality education report that increasingly, teachers limit their lessons to "safe" topics such as anatomy and abstinence. In addition, some say, sex is often linked with illegal drugs, disease and death. The message many students are getting, says former sexuality education teacher Diane Burger of Pennsylvania, "is that sex is bad for your body and dangerous."

Restrictions on sex education funded under the new federal abstinence-only program may exacerbate these trends, even if states do not use the funding to support classroom programs. (States plan to use their funds to support media campaigns, public education efforts, mentoring and counseling activities and curriculum development in addition to school-based programs.) Even money given to schools exclusively for after-school programs may have a chilling effect, says Daniel Daley, director of public policy at SIECUS, because it may give teachers the impression that this is all they may teach.

Teachers' tendency to avoid trouble by limiting their coverage of sexuality topics may be heightened by the fact that in most cases, sexuality education accounts for only a small part of their teaching responsibilities—overall, less than 10% of their time.[42] "It's a tiny part of what they do," notes Brick. "They don't identify themselves as sex education teachers." Most sex education teachers are physical education instructors, school nurses or health, biology or home economics teachers[43] who, according to several of the people interviewed for this report, may wish to avoid jeopardizing their careers for something they may consider a secondary responsibility.

Lack of ease with the subject matter is another obstacle. The paucity of training and in-service opportunities means that some teachers have not had an opportunity to resolve their own tensions and anxieties about the issues they are expected to discuss with students. "Teachers have personal discomfort with some topics," notes Leslie Kantor. "They need both the nuts and bolts as well as a chance to work through their own feelings. It sounds touchy-feely, but it is different getting up in front of a class and talking about oral sex than it is talking about algebra."

Furthermore, many teachers have not learned techniques that have proven to be most effective in helping teenagers postpone the initiation of sexual activity and use contraception when they do have sex. As Kantor points out, research shows that "interactive, experiential techniques, such as small-group discussions, role-play exercises and brainstorming rather than didactic approaches make a difference. This is a very important shift in the field, but…there is no training for public school teachers in how to use these more sophisticated teaching techniques, and no opportunity for them to become comfortable with more student-centered learning."

Instead, Kantor and others say, teachers continue to rely primarily on lectures. "Reducing a program to lectures, worksheets and purchasable programs is safer than discussion," notes Burger, "because the teacher doesn't risk having the students ask the wrong questions."

Addressing the Problems

Sex education proponents point to several steps that would address concerns about teacher preparedness and perceptions of lack of community support.

• *Improve professional training*. Undergraduate institutions should require prospective teachers in certain disciplines, such as health education, to take both subject-matter and methodology courses on sexuality and STD and HIV education, say sex education advocates. In addition, they say, all states should have or adopt certification requirements for teachers of sex education and HIV and STD education. States should also require that school districts do more to facilitate staff development.

In 1997, the Hawaii legislature adopted a resolution along these lines, urging the state department of education to study the feasibility of requiring all health teachers to be certified to teach health, to take five continuing education classes in specified health-related areas (including teenage pregnancy and STD and HIV prevention), and to be evaluated, along with their curriculum, by students.[44]

• *Establish local advisory committees*. Proponents of comprehensive sex education suggest that communities create local advisory committees composed of parents, religious leaders, medical professionals and other community leaders to review and approve curricula, books and other materials being proposed for use in a sexuality education course. Some states already require that such a committee be established.

"An advisory committee builds support for the program," explains Patricia Nichols, supervisor of the school health program in the Michigan Department of Health. Nichols and others point out that while committee members may not agree on every issue, once they reach a decision the committees generally stand behind it, even when challenged. This solid backing, Nichols notes, provides protection for teachers.

• *Encourage parental involvement*. Advisory committees have the additional advantage of encouraging parents to become more involved in the development and implementation of sexuality education courses. In contrast, merely giving parents the option of taking their children out of sexuality education classes provides no such opportunities for parents' active engagement. Jerald Newberry, executive director of the National Health Information Network at the National Education Association and former head of family life education in Fairfax County, Virginia, observes, "[An opt-out program] doesn't make parents more comfortable and knowledgeable." Newberry and others suggest that teachers hold information sessions early in the school year to give parents an opportunity to learn about the curriculum and to review materials that will be used in the course.

In a novel approach to this issue, Washington State permits parents to remove their child from mandated AIDS education classes, but only after the parents have attended a program offered by the school district on weekends and evenings to review the curriculum and to meet the teacher.

• *Promote the benefits of comprehensive programs*. On a broader level, sex education advocates believe that continuing to make

the case for comprehensive programs is critical. "Our message," declares Planned Parenthood's McGee, "has to be that it is immoral to deprive people of information that can save lives and promote health. 'Just say no' campaigns clearly do not provide such information."

Despite the current momentum of the abstinence-only movement, there is reason for optimism that more comprehensive programs will prevail. In several California communities, for example, parents and teachers have successfully opposed efforts by conservative, anti-sex–education school board members to implement an abstinence-only curricula or otherwise undermine sex education. In Hemet, for example, the school board was forced to back down from its abstinence-only approach to AIDS education after parents and teachers sued the school system.

Similarly, parent protests stopped the school board in Ventura County from proceeding with its plan to bar HIV–instruction training for teachers. "There was a huge backlash," reports Superintendent Charles Weis. "It was like awakening a sleeping giant." The defeat of conservative incumbents "sent a clear message to the extreme right that they could not fulfill their agenda and stay on the school board."

References

1. North Carolina General Assembly, House Bill No. 834, enacted July 29, 1995.

2. *Public Attitudes Toward Teenage Pregnancy, Sex Education and Birth Control*, New York: Louis Harris and Associates, 1988, p. 24; North Carolina Coalition on Adolescent Pregnancy (NCCAP), *We the People: North Carolinians Support Comprehensive Sexuality Education, Adolescent Health Care Centers, Adolescent Pregnancy Prevention*, Charlotte: NCCAP, Mar. 1993; South Carolina Council on Adolescent Pregnancy Prevention (SCCAP), *South Carolina Speaks*, Columbia: SCCAPP, 1997; and Lake Sosin Snell Perry and Associates/American Viewpoint, nationwide survey for Planned Parenthood Federation of America, Oct. 2–7, 1997.

3. National Abortion and Reproductive Rights Action League (NARAL) Foundation, 1998 state-by-state guide to legislative bills, Washington, DC: NARAL Foundation, Mar. 26, 1998.

4. Mississippi Legislature, House Bill No. 1304, enacted Mar. 31, 1998.

5. Virginia General Assembly, House Bill No. 478/Senate Bill No. 206, vetoed Apr. 16, 1998.

6. Personal Responsibility and Work Opportunity Reconciliation Act of 1996, P.L. 104–193, sec. 912.

7. Haffner DW and deMauro D, *Winning the Battle: Developing Support for Sexuality and HIV/AIDS Education*, New York: Sexuality Information and Education Council of the United States (SIECUS), 1991; and People for the American Way (PFAW), *Teaching Fear: The Religious Right's Campaign Against Sexuality Education*, Washington, DC: PFAW, June 1994.

8. Haffner DW and deMauro D, 1991, op. cit. (see reference 7).

9. Kenny AM and Alexander SJ, Sex/family life education in the schools: an analysis of state policies, *Family Planning/Population Reporter*, 1980, 9(3):44.

10. Koop CE, *Surgeon General's Report on Acquired Immune Deficiency Syndrome*, Washington, DC: U.S. Department of Health and Human Services, 1986.

11. NARAL, *A State by State Review of Abortion and Reproductive Rights*, Washington, DC: NARAL, 1998.

12. Ibid.

13. Gambrell AE and Haffner D, *Unfinished Business: A SIECUS Assessment of State Sexuality Education Programs*, New York: SIECUS, 1993.

14. Centers for Disease Control and Prevention (CDC), School-based HIV-prevention education—United States, 1994, *Morbidity and Mortality Weekly Report*, 1996, 45(35):760–765.

15. Abma JC et al., Fertility, family planning, and women's health: new data from the 1995 National Survey of Family Growth, *Vital and Health Statistics*, 1997, Series 23, No. 19, Table 91, p. 101.

16. Forrest JD and Silverman J, What public school teachers teach about preventing pregnancy, AIDS and sexually transmitted diseases, *Family Planning Perspectives*, 1989, 21(2):65–72.

17. Kirby D, School-based programs to reduce sexual risk-taking behaviors: sexuality, HIV/AIDS education, health clinics and condom availability programs, unpublished manuscript, 1994, p. 7.

18. Mayer R, 1996–97 trends in opposition to comprehensive sexuality education in public schools in the United States, *SIECUS Report*, 1997, 25(6):20–26.

19. PFAW, *Attacks on the Freedom to Learn*, Washington, DC: PFAW, 1996; and Burlingame P, *Sex, Lies & Politics: Abstinence-Only Curricula in California Public Schools*, Oakland, CA: Applied Research Center, 1997.

20. Haffner DW, SIECUS, New York, personal communication, July 31, 1997.

21. Concerned Women for America (CWA), Sex education in American schools: an evaluation of the Sex Information and Education Council of the United States, a public school administrator's guide, Washington, DC: CWA, undated; and Safe sex made them what they are today, paid advertisement in *The Sacramento Bee*, by Focus on the Family and Capitol Resource Institute, Nov. 30, 1997.

22. Napier K, Chastity programs shatter sex-ed myths, *Policy Review*, May-June, 1997, p. 12.

23. Forrest JD and Silverman J, 1989, op cit. (see reference 16).

24. CDC, 1996, op. cit. (see reference 14).

25. Kirby D, *No Easy Answers: Research Findings on Programs to Reduce Teen Pregnancy*, Washington, DC: National Campaign to Prevent Teen Pregnancy, 1997; and Frost JJ and Forrest JD, Understanding the impact of effective teenage pregnancy prevention programs, *Family Planning Perspectives*, 1995, 27(5):188–195.

26. Kirby D, 1997, op. cit. (see reference 25); and Wilcox BL et al., Federally funded adolescent abstinence promotion programs: an evaluation of evaluations, paper presented at the biennial meeting of the Society for Research on Adolescents, Boston, Mar. 10, 1996.

27. The Alan Guttmacher Institute (AGI), *Sex and America's Teenagers*, New York: AGI, 1994, p. 7.

28. Kirby D, 1994, op. cit. (see reference 17), p. 10.

29. *Me, My World, My Future*, teacher's manual, Spokane, WA: Teen-Aid, Inc., 1993; and *Choosing the Best*, student manual, Atlanta: Choosing the Best, Inc., 1993.

30. *Me, My World, My Future*, 1993, op. cit. (see reference 29), pp. 215–259.

31. *Choosing the Best*, 1993, op. cit. (see reference 29), p. 25.

32. Cooper M, The Christian right's sex machine: public schools praise the Lord and pass the propaganda, *Village Voice*, June 7, 1994, p. 31; and Lewin T, States slow to take U.S. aid to teach sexual abstinence, *New York Times*, May 8, 1997, p. 1.

33. Tryfiates PG, The Family Foundation, Fairfax, VA, open letter to supporters, Dec. 1995.

34. Mayer R and Kantor L, 1995–96 trends in opposition to comprehensive sexuality education in public schools in the United States, *SIECUS Report*, 1996, 24(6):3–11.

35. Twomey S, Vote's in, and sex-ed clearly wins, *Washington Post*, Dec. 12, 1994, p. D1.

36. Rodriguez M et al., Teaching our teachers to teach: a SIECUS study on training and preparation for HIV/AIDS prevention and sexuality education, *SIECUS Report*, 1995–1996, 24(2):15–23.

37. Forrest JD and Silverman J, 1989, op. cit. (see reference 16).

38. Rodriguez M et al., 1995–1996, op. cit. (see reference 36).

39. Ibid.

40. CDC, 1996, op. cit. (see reference 14).

41. Forrest JD and Silverman J, 1989, op. cit. (see reference 16).

42. Ibid.

43. Ibid.

44. Hawaii Legislature, House Resolution No. 32, adopted April 1, 1997.

Issues & Implications

Legislators Craft Alternative Vision of Sex Education to Counter Abstinence-Only Drive

By Heather Boonstra

Last summer, then–Surgeon General David Satcher drew the ire of White House officials with the release of his long-awaited *Call to Action to Promote Sexual Health and Responsible Sexual Behavior*. Citing research findings on the effectiveness of various program interventions, the Satcher report stresses the importance of sex education that balances encouragement of abstinence for young people with assuring "awareness of optimal protection from sexually transmitted diseases and unintended pregnancy, for those who are sexually active…." Satcher's conclusion is echoed in *Healthy People 2010,* the Department of Health and Human Services' set of official national goals for improved public health, which emphasizes the need to reduce teenage pregnancy and sexually transmitted disease (STD) rates in part through comprehensive sex education programs.

Endorsing sex education that includes information about condoms and contraceptive use to avoid STDs and unintended pregnancy along with positive messages about the value of delaying sexual activity is hardly a radical idea. Indeed, it is the position of the nation's leading medical, public health and educational organizations. Moreover, the overwhelming majority of Americans support this type of sex education. In a 1998 poll conducted by the Kaiser Family Foundation and ABC Television, 81% of adults said that sex education programs should teach both abstinence and pregnancy and STD prevention; only 18% thought programs should teach only abstinence.

Nonetheless, the exclusive promotion of abstinence is the sex education policy that prevails at the federal level. Currently, three separate programs support the most restrictive abstinence-only approach—an approach that requires condemnation of sex outside of marriage for people of all ages and allows no teaching about contraceptive methods beyond failure rates. For the current fiscal year, federal spending earmarked for this type of abstinence education totals $102 million. And the Bush administration has announced that it wants more, a $33 million increase for FY 2003 ("Abstinence Promotion and Teen Family Planning: The Misguided Drive for Equal Funding," *TGR,* February 2002, page 1).

Advocates of a more comprehensive, or "abstinence-plus," approach to sex education have long noted that the effectiveness of the abstinence-only approach has not been demonstrated. But as a practical matter, there has been no alternative policy proposal for these advocates to rally around. Legislation introduced in the House of Representatives in December 2001, however, sets out an alternative vision for how U.S. policy might best meet the needs of young people.

The Need for Action

In the United States, as in other developed Western countries, the majority of adolescents become sexually active during their teenage years. Roughly two-thirds (63%) of U.S. teens have had sexual intercourse by their 18th birthday. But while this level of sexual activity is hardly unique among developed countries, teens in the United States do have uniquely higher rates of unplanned pregnancy. Despite significant reductions in the U.S. teen pregnancy rate over the last decade or so, nearly 900,000 teenagers still become pregnant each year—and almost four in five (78%) of these pregnancies are unintended.

Research conducted by The Alan Guttmacher Institute between 1998 and 2001 indicates that U.S. teens are more likely to become pregnant because they are less likely to use any contraceptive method than young people in other developed countries and are also less likely to use methods that in actual use have the highest effectiveness rates, such as the pill ("Teen Pregnancy: Trends and Lessons Learned," *TGR,* February 2002, page 7). In 1995, one in four American adolescents did not use any method at first intercourse, and one in five were not currently using any method.

Fewer than one in five adults say that sex education programs should teach only about abstinence.

Teen STD rates in the United States are also high. Every year, roughly four million teens acquire an STD. Young people aged 15–19 account for one-third of all gonorrhea and chlamydia cases in the United States. On average, two young people in the United States are infected with HIV every hour of every day. Racial and ethnic minorities have been disproportionately infected with STDs, especially HIV/AIDS. For example, although blacks represent less than 16% of the adolescent population, they account for nearly half of all reported adolescent AIDS cases.

SELECTED MEDICAL, PUBLIC HEALTH AND EDUCATIONAL ORGANIZATIONS SUPPORTING COMPREHENSIVE SEXUALITY EDUCATION

American Academy of Child and Adolescent Psychiatry
American Academy of Pediatrics
American Association for Health Education
American Association of Family and Consumer Sciences
American Association of School Administrators
American College of Nurse-Midwives
American College of Obstetricians and Gynecologists
American Counseling Association
American Medical Association
American Medical Women's Association
American Nurses Association
American Psychiatric Association
American Psychological Association
American Public Health Association
American School Health Association
Association of State and Territorial Health Officials
Federation of Behavioral, Psychological and Cognitive Sciences
National Alliance of State and Territorial AIDS Directors
National Association of County and City Health Officials
National Association of School Psychologists
National Center for Health Education
National Council on Family Relations
National Education Association
National Medical Association
National Mental Health Association
National Organization on Adolescent Pregnancy, Parenting and Prevention
National School Boards Association
Society for Adolescent Medicine

Source: **Sexuality Information and Education Council of the United States.**

Preventing pregnancy and STDs among teenagers, therefore, is a major public health priority—and the role that sex education can play in achieving this goal is a question of major importance. Research has demonstrated that program interventions that urge teens to postpone having intercourse but also discuss contraception can be effective in helping teens delay sexual activity *and* increase contraceptive use when they do become sexually active. At the same time, most abstinence-only programs and strategies have not been proven effective in delaying teens' sexual initiation or in reducing the frequency of intercourse and number of sex partners. Indeed, recent evidence suggests that these programs and strategies—including virginity pledges, which have been shown to help some teenage girls postpone intercourse for up to 18 months—may actually increase young people's risk of pregnancy and disease by deterring the use of contraceptives, including condoms, when they become sexually active.

Heeding the Evidence

Based on this research and the realities of teen sexual activity in the United States, a broad constituency of child development, education, health care, and youth-serving agencies is committed to assuring that more comprehensive sex education is provided to young Americans. To date, well over 100 organizations—including many of the most prominent medical, public health and educational associations in the United States—have signed on to a statement to demonstrate their support (see box). Calling abstinence "a key component of sexuality education," the statement contends that, "Society should encourage adolescents to delay sexual behaviors until they are ready physically, cognitively, spiritually, socially and emotionally for mature sexual relationships and their consequences." At the same time, the statement asserts, "Society must also recognize that a majority of adolescents have become involved in sexual relationships during their teenage years. Scientific research indicates that comprehensive approaches to sexuality education can help young people postpone intercourse and use contraception and STD prevention."

Several recent studies and surveys suggest that sex education that includes information about both abstinence and contraception also has strong support among teachers and parents, as well as among teens themselves ("Sex Education: Politicians, Parents, Teachers and Teens," *TGR*, February 2001, page 9). A study published in *Family Planning Perspectives* in 2000 reports that more than nine in 10 public school teachers believe that students should be taught about contraception. According to interviews conducted for the Kaiser Family Foundation in 2000, parents overwhelmingly want schools to do more to prepare their children for "real life." More than eight in 10 believe sex education courses should discuss the use of birth control, including condoms. Three-quarters say abortion and sexual orientation should be discussed in a "balanced" way that presents different views in society. Kaiser-sponsored research also indicates that teens want more information about sexual and reproductive health issues than they are currently receiving in school.

Putting It Together

The Family Life Education Act, according to its original cosponsors, Reps. Barbara Lee (D-CA) and James Greenwood (R-PA), sets out a vision of U.S. sex education policy that is research-based and that has the support of medical, public health and educational organizations, as well as the American people. The bill would authorize $100 million annually for five years to support state programs that operate under a nine-point definition of "family life education programs" that stands in sharp contrast to the eight-point definition of an "eligible abstinence education program" that now governs federal support in this area (see box).

Funding under the Family Life Education Act also could be used to carry out "educational and motivational activities" that would teach young people about human physical and emotional development, promote male involvement in decision-making and help young people develop self-esteem and healthy attitudes about body image, gender roles, racial and ethnic diversity, sexual orientation and other issues. The legislation provides for both national and state-level evaluations of the programs'

effectiveness in helping young people delay the initiation of sexual intercourse, preventing teen pregnancy and STDs, and increasing contraceptive knowledge and use among teens who are sexually active.

Into the Fray

Not only has the president proposed a major increase in funding for abstinence-only education for the upcoming fiscal year, but social conservatives have made abstinence-only education a major priority as Congress prepares to reconsider the 1996 welfare law, which houses the eight-point definition that governs all three federal abstinence-education programs.

Advocates of more comprehensive sex education hope that the arrival of the Family Life Education Act on the scene will help them stave off efforts to extend and expand the reach of federal abstinence-only policy. By setting out a vision of responsible sex education for the future, they hope it will highlight for policymakers that the current policy is highly restrictive, censors information about contraception and is out of step with what research has shown to be effective and what most Americans say should be taught. "Denying our sons and daughters the information they need to protect their health and their lives is not only naive and misguided," said Rep. Lee in a recent press statement, "[it is] irresponsible and extremely dangerous.…We can't risk our children's future by not fully educating them about their options."

Because the Family Life Education Act would require that funded programs provide information about contraception as well as encourage abstinence, its sponsors and supporters hope it will help policymakers voice their opposition to the strictest form of abstinence-only education while still remaining supportive of abstinence messages. Over time, they hope it will help redirect the federal government's sexuality education spending toward more comprehensive models with demonstrated effectiveness in helping young people both delay having sex and protect themselves when they eventually do become sexually active.

SEXUALITY EDUCATION, AS DEFINED BY THE FAMILY LIFE EDUCATION ACT	ABSTINENCE EDUCATION, AS DEFINED BY CURRENT FEDERAL LAW
According to the Family Life Education Act, a program of family life education is one that: **1) is age-appropriate and medically accurate;** **2) does not teach or promote religion;** **3) teaches that abstinence is the only sure way to avoid pregnancy or sexually transmitted diseases;** **4) stresses the value of abstinence while not ignoring those young people who have had or are having sexual intercourse;** **5) provides information about the health benefits and side effects of all contraceptives and barrier methods as a means to prevent pregnancy;** **6) provides information about the health benefits and side effects of all contraceptives and barrier methods as a means to reduce the risk of contracting sexually transmitted diseases, including HIV/AIDS;** **7) encourages family communication about sexuality between parent and child;** **8) teaches young people the skills to make responsible decisions about sexuality, including how to avoid unwanted verbal, physical, and sexual advances and how not to make unwanted verbal, physical, and sexual advances; and** **9) teaches young people how alcohol and drug use can affect responsible decisionmaking.**	**According to current law, an abstinence education program eligible for federal funding is one that:** **A) has as its exclusive purpose, teaching the social, physiological, and health gains to be realized by abstaining from sexual activity;** **B) teaches abstinence from sexual activity outside marriage as the expected standard for all school age children;** **C) teaches that abstinence from sexual activity is the only certain way to avoid out-of-wedlock pregnancy, sexually transmitted diseases, and other associated health problems;** **D) teaches that a mutually faithful monogamous relationship in context of marriage is the expected standard of human sexual activity;** **E) teaches that sexual activity outside of the context of marriage is likely to have harmful psychological and physical effects;** **F) teaches that bearing children out-of-wedlock is likely to have harmful consequences for the child, the child's parents, and society;** **G) teaches young people how to reject sexual advances and how alcohol and drug use increases vulnerability to sexual advances; and** **H) teaches the importance of attaining self-sufficiency before engaging in sexual activity.**
Source: **The Family Life Education Act.**	***Source:*** **U.S. Social Security Act, Sec. 510(b)(2).**

Issues & Implications

Abstinence Promotion and Teen Family Planning: The Misguided Drive for Equal Funding

By Cynthia Dailard

The cornerstone of the Bush administration's approach to reducing teen pregnancy—and a key component of its effort to promote a conservative moral and religious agenda—is to dramatically increase funding for abstinence-only education. The central argument driving this effort is that there should be "parity" between what the federal government spends on providing contraceptive services to teenagers and what it spends on educational efforts that exclusively promote abstinence outside of marriage and prohibit discussion of contraception. Since the federal government allegedly spends $135 million annually on contraceptive services to teens—at best, an overly simplistic estimate first propounded by the Bush campaign during the heat of the 2000 presidential race—and only $100 million on abstinence-only education, federal funds should be significantly increased in favor of abstinence, or so their argument goes. Along these lines, the Bush administration has announced that it will seek "full parity," through a $33 million increase, for FY 2003.

This proposed funding increase boosts the prospects of conservatives seeking to defend the abstinence-only education program created through the 1996 welfare reform law, which is up for reauthorization this year. At the same time, it strengthens their hands to increase funding for two lesser-known, newer programs that also follow the very restrictive brand of abstinence-only education first established in 1996. These two programs account for why overall funding for abstinence-only education is now twice what was originally contemplated by the 1996 law, and the president's recent budget announcement suggests that even more funding may be on its way.

Regardless of the faith one puts in the accuracy of the Bush campaign's "parity" calculations—and many do not—comparing funding for abstinence-only education and family planning medical services is misguided in that it reflects a fundamental misunderstanding of the various programs in question and how they work. A more appropriate comparison, if one is to be made at all, is between what the federal government spends on abstinence-only education and what it spends on more-comprehensive educational efforts that include discussion of both abstinence and contraception. Yet even that comparison fails to take into account the potential harm associated with abstinence-only education, particularly in light of the potential public health benefit of more-comprehensive messages.

THE FEDERAL DEFINITION OF ABSTINENCE-ONLY EDUCATION

According to federal law, an eligible abstinence education program is one that:

A) has as its exclusive purpose, teaching the social, physiological, and health gains to be realized by abstaining from sexual activity;

B) teaches abstinence from sexual activity outside marriage as the expected standard for all school age children;

C) teaches that abstinence from sexual activity is the only certain way to avoid out-of-wedlock pregnancy, sexually transmitted diseases, and other associated health problems;

D) teaches that a mutually faithful monogamous relationship in context of marriage is the expected standard of human sexual activity;

E) teaches that sexual activity outside of the context of marriage is likely to have harmful psychological and physical effects;

F) teaches that bearing children out-of-wedlock is likely to have harmful consequences for the child, the child's parents, and society;

G) teaches young people how to reject sexual advances and how alcohol and drug use increases vulnerability to sexual advances; and

H) teaches the importance of attaining self-sufficiency before engaging in sexual activity.

Source: **U.S. Social Security Act, Sec. 510(b)(2).**

A Brief History

Currently, there are three federal programs dedicated to restrictive abstinence-only education, together funded at well over half a billion dollars since 1997. In 1996, conservative members of Congress quietly inserted language into legislation designed to overhaul the nation's welfare system; this language—section 510 of the Social Security Act—guaranteed $50 million annually over five years beginning in FY 1998 for abstinence-only education grants to the states. The law contains an extremely narrow eight-point definition of abstinence-only education that sets forth specific messages to be taught, including that sex outside of marriage—for people of any age—is likely to have harmful physical and psychological effects (see box). Subsequent program guidance states that while grant recipients are not required to emphasize all eight elements of the definition equally, the information they provide cannot be inconsistent with any of them. Because the first element requires that section 510 programs have as their "exclusive purpose" promoting abstinence outside of marriage, programs may not in any way advocate contraceptive use or discuss contraceptive methods except to emphasize their failure rates. To date, all states except California accept section 510 funding with these restrictions.

Seeking to further increase funding for abstinence-only education, Congress, beginning in FY 1997, has devoted an additional $10 million annually through the 1981 Adolescent Family Life Act (Title XX of the Public Health Service Act), a program whose original intent was primarily to support services for pregnant and parenting teenagers. The program has also always had a pregnancy prevention component aimed at discouraging premarital teen sex. Since FY 1997, however, Congress has rewritten the prevention section to ensure that programs funded under it comply with the stringent section 510 eight-point definition.

In 2000, Congress created yet a third abstinence-only education program, largely at the behest of Rep. Ernest J. Istook (R-OK). Istook not only wanted to significantly increase funding for abstinence-only education, but also he believed that the original intent of the section 510 program to establish "pure" abstinence-only programs had been undermined by some state governments. He was particularly concerned that states were using section 510 money to support such "soft" activities as teen pregnancy prevention media campaigns rather than direct classroom abstinence-only education, that they were targeting their efforts at 9–14-year-olds rather than older teenagers, and that they were picking and choosing among the various elements of the eight-point definition in order to avoid the most controversial ones.

As it turns out, this new program—which bypasses the state approval process entirely and instead makes grants directly to community-based (including faith-based) organizations—is extremely restrictive, more restrictive, in fact, than section 510. The new program, funded through the maternal and child health block grant's Special Projects of Regional and National Significance program (SPRANS), differs from section 510 in at least three significant ways: Programs must target adolescents aged 12–18; they must teach *all* components of the eight-point definition; and, in most cases, they cannot provide young people they have reached in their SPRANS program with information about contraception or safer-sex practices, even in other settings with non-SPRANS funds. It is largely because of these additional restrictions that conservatives have so embraced this program and view it as *the* funding vehicle through which to achieve parity. That is why the president's proposed $33 million funding increase is for this program alone—a whopping 83% increase over its funding level of $40 million for FY 2002.

Apples and Oranges

While these three federal programs differ in some respects, they are all education programs. But the programs they are being compared with—Medicaid and Title X of the Public Health Service Act—are not education programs. Medicaid is the health insurance program for the poorest Americans; it reimburses

Recent Research on Abstinence-Only and More-Comprehensive Sexuality Education Messages

"Promising the Future: Virginity Pledges and First Intercourse," *by researchers at Columbia University, found that programs that encourage students to take a virginity pledge promising to abstain from sex until marriage helped delay the initiation of intercourse in some teenagers. However, teens who broke their pledge were one-third less likely than non-pledgers to use contraceptives once they became sexually activity.* American Journal of Sociology, *2001. ("Recent Findings from the 'Add Health' Survey: Teens and Sexual Activity,"* TGR*, August 2001, page 1.)*

Emerging Answers, *authored by Douglas Kirby of ETR Associates, examined a wide range of interventions designed to reduce teen pregnancy and childbearing, including sexuality education programs. Analyzing the outcome evaluations of programs that met rigorous research standards, Kirby found that comprehensive sexuality education programs that urge teens to postpone having intercourse but also discuss contraception do not accelerate the onset of sex, increase the frequency of sex or increase the number of partners—as critics of sex education have long alleged—but can increase the use of contraception when teens become sexually active. At the same time, the report concludes that there is no reliable evidence to date supporting the effectiveness of abstinence-only education. National Campaign to Prevent Teen Pregnancy, 2001. These findings were echoed in* Call to Action to Promote Sexual Health and Responsible Sexual Behavior, *issued by U.S. Surgeon General David Satcher in June 2001.*

"Abstinence and Safer Sex HIV Risk-Reduction Interventions for African American Adolescents," *by researchers at Princeton University, the University of Pennsylvania and the University of Waterloo, reports the results of the first-ever randomized, controlled trial comparing an abstinence-only program with a safer-sex initiative designed to reduce the risk for HIV infection through condom use and with a control group that received health education unrelated to sexual behavior. After one year, the abstinence group reported similar levels of sexual activity as the safer-sex group and the control group. For teenagers who were already sexually active at the inception of the program, there was less sexual activity reported among the safer-sex group than among the abstinence or control group. Those in the safer-sex group also reported less frequent unprotected sex than did those in the abstinence and control groups.* Journal of the American Medical Association, *1998.*

physicians and other health care providers for medical services rendered to qualifying individuals. Title X's main purpose is to support the delivery of a broad package of family planning and related health services to low-income adults and teenagers through a nationwide network of family planning clinics ("Title X: Three Decades of Accomplishment," *TGR,* February 2001, page 5). These services include not only a choice of contraceptive methods but also Pap smears, breast exams, screening and treatment for sexually transmitted diseases (STDs), and screening for hypertension, diabetes and anemia—services that are increasingly expensive given the rising costs of screening and diagnostic technologies, newer and more-effective contraceptive drugs and devices, and other pharmaceuticals. It is also worth noting that family planning providers routinely counsel teenagers about the value of postponing sexual activity—in fact, Title X guidelines require abstinence to be discussed with all adolescent clients.

By equating funding for education efforts and medical services, the administration's "parity" rubric compares apples and oranges. A more appropriate comparison, if one is to be made at all, is between what the federal government is spending on abstinence-only education and what it may be spending on more-comprehensive education efforts that include discussion of both abstinence and contraception. But there is no federal program that supports comprehensive sexuality education as such. The only program that may come even close is the Centers for Disease Control and Prevention's Division of Adolescent and School Health's HIV prevention efforts. The entire budget for these efforts was just under $48 million in FY 2001. How much is actually spent on direct student education that allows discussion of both abstinence and risk-reduction—condom use, to be precise—is unclear, but the program also supports a wide range of other activities that include the training of teachers and school administrators in HIV prevention, technical assistance, curricula development, and program evaluation, as well as large-scale surveillance research such as the national Youth Risk Behavior Survey. Thus, looked at from any perspective, this funding scale already tips heavily in favor of abstinence-only by *at least* a two to one margin—even before the president's proposed funding increase is taken into account.

Looking Ahead

Despite the administration's flawed analysis—which, among other things, also ignores the fact that there are a number of federal block grants that states can use to support all of these various activities ("Fueled by Campaign Promises, Drive Intensifies to Boost Abstinence-Only Education Funds," *TGR,* April 2000, page 1)—the administration's definition of "parity" will play a major role as Congress considers welfare reauthorization later this year. It will also certainly drive the effort to increase funding for the SPRANS abstinence-only program during the annual appropriations process. While the administration last year promised to achieve parity within four years, the president's budget request makes it abundantly clear that he has bowed to the demands of conservative activists and members of Congress who are simply unwilling to wait that long.

Some policymakers today remain unfamiliar with the restrictive brand of abstinence-only education as defined by federal law. Others, trying to occupy the middle ground, have sought to justify their support for abstinence-only education as part of their broader support for an array of federally funded teen pregnancy prevention programs. Supporting multiple programs, they have claimed, allows them to embrace a wide variety of viewpoints on a difficult and controversial issue. However, young people who participate in these programs do not necessarily benefit from those multiple viewpoints. The content of the sexuality education they receive may be dictated entirely by the funding source for that education. And such support is not benign: Research is beginning to show that abstinence-only messages are not only unproven in their effectiveness but also may have harmful health consequences by deterring use of contraceptives when teens become sexually active (see box).

In order to stem this tide, the parity argument must be exposed for what it is—a convenient but faulty analysis that reflects a basic misunderstanding of the purposes of the various federal programs in question and how they work. Moreover, opposing the federal government's restrictive brand of abstinence-only education need not entail opposing abstinence altogether: Sexuality education can and should both stress a strong "abstinence-first" message and teach young people about the importance of protecting themselves against unintended pregnancy and disease when they become sexually active. And after over five years of federal government investment in abstinence-only education and half a billion dollars later, emerging research indicates that abstinence-only messages are not only scientifically unproven in their effectiveness but may be potentially dangerous for some teens as well.

State-Level Policies on Sexuality, STD Education

A review of state laws and policies relating to sexuality education and sexually transmitted disease (STD) education indicates that while most states require schools to teach one or both, most also give local policymakers wide latitude in crafting their own policies. What little substantive guidance states do provide is heavily weighted toward stressing abstinence. While many states permit discussion of contraception, or even mandate that the topic be covered, none requires that it be stressed.

By Rachel Benson Gold and Elizabeth Nash

In a move that many observers believe may cost him his job, Surgeon General David Satcher in June issued his long-awaited report, *Call to Action to Promote Sexual Health and Responsible Sexual Behavior*. Satcher describes the report, the release of which had been stalled for months, as a "first step—a call to begin a mature, thoughtful, and respectful discussion nationwide about sexuality." Citing published scientific evidence, Satcher endorses an approach to sexuality education that balances the importance of abstinence with assuring "awareness of optimal protection from sexually transmitted diseases and unintended pregnancy, for those who are sexually active" (see box). This endorsement places Satcher at odds with the Bush administration and with nearly 20 years of U.S. education policy that has increasingly emphasized abstinence. Federal involvement in efforts to promote abstinence rather than contraceptive use began on a small scale in 1981 with the enactment of the Adolescent Family Life Act (AFLA). Since then, Congress has added two new programs into the mix: a major freestanding program of abstinence-only education grants to the states, enacted as part of welfare reform in 1996; and a separate abstinence-only set-aside for community organizations (including those that are faith-based) within the maternal and child health (MCH) block grant, adopted last year.

For the current fiscal year, federal spending specifically earmarked for promoting abstinence-only education reached $80 million—$9 million through AFLA, $50 million through the program created with welfare reform (which brings with it an additional $38 million in matching funds from the states) and $20 million through the MCH set-aside.

However, because education policy in the United States is highly decentralized, the bulk of the detailed policy-making regarding sexuality and abstinence education takes place at the school district level. A 1998 nationally representative survey of local school superintendents by The Alan Guttmacher Institute (AGI) found that of the roughly two-thirds of districts that have a districtwide policy to teach sexuality education, only 14% require that abstinence be presented as one option "in a broader educational program to prepare adolescents to become sexually healthy adults." The remainder require that abstinence be promoted: Fifty-one percent require that abstinence be portrayed as the preferred option for adolescents (although information about contraception is permitted), but the remaining 35%—including half of school districts in the South—require that abstinence be taught as the only acceptable option outside of marriage.

When asked about how their policy was developed, the superintendents most often pointed to state directives as the most influential factors in crafting their policies. An AGI review of state laws and policies indicates, however, that states actually provide little in the way of detailed guidance to local districts about the content of their sexuality education and STD education. At the same time, the guidance states do provide is heavily geared toward promoting abstinence.

State Policy

According to AGI's review of states' laws and policies, most states have adopted laws governing sexuality education and STD education, with some states having separate laws for each area. To create an overall picture of state policy, this analysis examines sexuality education and STD education policies, including whether and how abstinence and contraception are to be treated within the context of this instruction.

Thirty-nine states require that some education related to sexuality be provided throughout the state (see table, page 6). Twenty-one require that both sexuality and STD education be provided. Seventeen require the provision of instruction on STDs, but not sexuality education. Only one, Maine, requires sexuality education but not STD education. Eleven states leave the decision to teach these subjects entirely to local school districts.

Parental Involvement

Whether or not they require sexuality education or STD education, 35 states guarantee some parental discretion over whether their children will participate in this instruction. Thirty-three states have an "opt-out" policy,

which gives parents the option to withdraw their children from these classes. Three states go further, requiring that parents affirmatively provide consent before a child may participate in the instruction. One state, Arizona, has separate parental discretion policies for sexuality education and STD education, requiring parental consent for the former, while having an opt-out policy for the latter.

Most states where parents have the option to withdraw their children from a class allow them to exercise that option for any reason. However, five states—Alabama, Massachusetts, New Jersey, Pennsylvania and Vermont—require that the withdrawal of the student be based on religious or moral beliefs. New York, which allows parents to withdraw their child for any reason, requires parents who do so to assure the school "that the pupil will receive such instruction at home."

Abstinence and Contraception

Most state policies on sexuality education and STD education give little substantive direction beyond requiring that abstinence or contraception be covered or stressed. Sixteen states—including some that have statewide mandates that sexuality education, STD education or both be provided—give local school districts total discretion over whether and how to teach abstinence and contraception. The remaining 34, whether or not they have state-level mandates that instruction be provided, place some requirements on local districts, often by including one or the other topic on a list of subjects that must be taught, or by requiring that it be stressed. Here, the states' preferences are clear: All 34 of these states require that abstinence be taught, with nine requiring that it be covered and 25 insisting that it be stressed. In sharp contrast, 19 states require that contraception be covered in sexuality education or STD education, but none requires that it be stressed.

A few states do describe their policies on abstinence and contraception in somewhat more detail. Florida, for example, requires the "benefits of sexual abstinence" be presented as part of the requirements for graduation. South Carolina requires the instruction to "stress the importance of abstaining from sexual activity until marriage" and to "help students develop skills to…abstain from sexual activity." In Texas, abstinence is to be presented "as the preferred choice of behavior in relationship to all sexual activity for unmarried persons of school age" and more attention must be devoted to abstinence from sexual activity "than to any other behavior."

Similarly, some states' policies on contraception, such as Oregon's, mandate that students be provided with information on the "efficacy of contraceptives in preventing" HIV and other STDs. South Carolina requires an explanation of the "methods of contraception and the risks and benefits of each method"—but only within "the context of future family planning."

Four other states—Georgia, Mississippi, North Carolina and Texas—do not require that contraception be discussed statewide, but nonetheless apply strict limits on discussion of contraception, should local decisionmakers choose to include the topic in their curricula. North Carolina, for example, requires that any discussion of contraception include "accurate statistical information on [contraceptive methods'] effectiveness and failure rates for preventing pregnancy and sexually transmitted diseases, including AIDS, in actual use among adoles-

The Surgeon General's Call to Action

In his report, Call to Action to Promote Sexual Health and Responsible Sexual Behavior*, U.S. Surgeon General David Satcher states that because of a lack of published evaluations on abstinence-only education, it is too early to draw conclusions on its effectiveness.*

Regarding more comprehensive approaches to sexuality education, Satcher refers to a larger body of evaluation evidence, including a recent analysis of more than 100 teenage pregnancy prevention programs across the country ("Report Says Sex Ed Can Reduce Teen Pregnancy, Jury Out on Ab-Only," TGR*, June 2001, page 13), indicating such programs either have no effect on or may actually delay adolescents' initiation of sexual activity. Satcher says such evidence supports the conclusion that informing adolescents about contraception "does not increase adolescent sexual activity, either by hastening the onset of sexual intercourse, increasing the frequency of sexual intercourse, or increasing the number of sexual partners." Furthermore, he says "some of these evaluated programs increased condom use or contraceptive use more generally for adolescents who were sexually active."*

In light of this evidence, Satcher calls for education that balances the importance of abstinence with assuring "awareness of optimal protection from sexually transmitted diseases and unintended pregnancy, for those who are sexually active." In a chapter titled, "Vision for the Future," Satcher offers a "foundation for promoting sexual health and responsible sexual behavior in a manner that is consistent with the best available science." In addtion, Satcher outlines specific goals for improving public awareness of sexual health and responsible sexual behavior; implementing and strengthening health and social interventions; and expanding the research base in this area. To access the report on the Internet or to request a copy of the report, visit the Surgeon General's Web site at <http://www.surgeongeneral.gov/library/sexualhealth/default.htm>.

State Laws and Policies on Sexuality and STD Education

State	Statewide Policy to Teach	Parents May Opt-out	Parents Must Consent	Abstinence Must Be Covered/Stressed		Contraception Must Be Covered/Stressed	
				STD Education	Sex Education	STD Education	Sex Education
Alabama	STD	BOTH		STRESSED	STRESSED	COVERED	COVERED
Alaska	BOTH						
Arizona		STD	SEX	STRESSED	STRESSED		
Arkansas				STRESSED	STRESSED		
California	STD	BOTH[1]		STRESSED	STRESSED	COVERED	COVERED
Colorado							
Connecticut	STD	BOTH			COVERED		
Delaware	BOTH			COVERED	COVERED	COVERED	COVERED
Florida	BOTH	BOTH			COVERED		
Georgia	BOTH	BOTH		COVERED	COVERED	(2)	(2)
Hawaii	BOTH			STRESSED	STRESSED	COVERED	COVERED
Idaho	STD	BOTH					
Illinois	BOTH	BOTH		STRESSED	STRESSED	COVERED	
Indiana	STD			STRESSED[3]	STRESSED		
Iowa	BOTH	BOTH					
Kansas	BOTH	BOTH					
Kentucky	BOTH			COVERED	COVERED		
Louisiana		BOTH		STRESSED	STRESSED		
Maine	SEX						
Maryland	BOTH	BOTH		STRESSED	STRESSED	COVERED	COVERED
Massachusetts		BOTH					
Michigan	STD	BOTH		COVERED	COVERED		
Minnesota	BOTH	BOTH					
Mississippi[4]		BOTH		STRESSED	STRESSED	(2)	(2)
Missouri	STD	BOTH		STRESSED	STRESSED	COVERED	COVERED
Montana		STD					
Nebraska							
Nevada	BOTH		BOTH				
New Hampshire	STD						
New Jersey	BOTH	BOTH		COVERED	COVERED	COVERED	COVERED
New Mexico	STD			STRESSED		COVERED	
New York	STD	STD		STRESSED		COVERED	
North Carolina	BOTH	BOTH		STRESSED	STRESSED	(2)	(2)
North Dakota	STD						
Ohio	STD			STRESSED			
Oklahoma	STD	BOTH		COVERED	STRESSED	COVERED	
Oregon	STD	BOTH		STRESSED	STRESSED	COVERED	COVERED
Pennsylvania	STD	STD		STRESSED		COVERED	
Rhode Island	BOTH	BOTH		STRESSED	STRESSED	COVERED	COVERED
South Carolina	BOTH	BOTH		STRESSED	STRESSED	COVERED	COVERED
South Dakota[5]							
Tennessee	BOTH	BOTH		STRESSED	STRESSED		
Texas		BOTH		STRESSED	STRESSED	(2)	(2)
Utah	BOTH		BOTH	STRESSED	STRESSED	(6)	(6)
Vermont	BOTH	BOTH		COVERED	COVERED	COVERED	COVERED
Virginia		BOTH		COVERED	COVERED	COVERED	COVERED
Washington	STD	BOTH		STRESSED		COVERED	
West Virginia	BOTH	BOTH		STRESSED	STRESSED	COVERED	COVERED
Wisconsin	STD	BOTH					
Wyoming	BOTH						

cent populations and shall explain clearly the difference between risk reduction and risk elimination through abstinence."

Utah has the most stringent state policy, which prohibits "the advocacy or encouragement of the use of contraceptive methods or devices." The law specifically prevents teachers from responding to students' spontaneous questions in ways that conflict with the law's requirements to promote abstinence and to not encourage the use of contraception. By contrast, Tennessee's statute explicitly permits teachers to answer students' spontaneous questions about contraception.

Other Subject Areas

Abortion and sexual orientation are rarely mentioned in states' policies. Only five states specifically address abortion: Connecticut, Louisiana, Michigan and South Carolina prohibit any discussion of abortion within sexuality education or STD education. Vermont, on the other hand, includes abortion as part of a list of required topics to be covered.

Only nine states mention sexual orientation or homosexuality. South Carolina prohibits any discussion of sexual orientation and Utah prohibits "the advocacy of homosexuality." Both Massachusetts and New Jersey require discussion of sexual orientation but do not provide content standards. The other five states—Alabama, Arizona, Mississippi, North Carolina and Oklahoma—require that discussions of homosexuality treat it as abnormal or dangerous. For example, sexuality education classes in Alabama must include "an emphasis, in a factual manner and from a public health perspective, that homosexuality is not a lifestyle acceptable to the general public and that homosexual conduct is a criminal offense under the laws of the state."

Conflicting Views

In short, states have established only very broad parameters for sexuality and STD education. While most states mandate that some form of sexuality education be provided, they give local policymakers wide latitude in determining the content of the instruction. What substantive guidance states do provide, however, is heavily weighted toward stressing abstinence; while many states allow discussion of contraception, none requires that it be stressed.

In examining the evolution of federal, state and local policy together, it is clear that abstinence promotion has truly taken hold as a matter of education policy in the United States and is being reflected in classroom education. AGI surveys of public school teachers of sexuality education in grades 7–12 in 1988 and 1999 found that the percentage who teach an abstinence-only curriculum has increased from one in 50 in 1988 to one in four in 1999.

While this focus on abstinence—in policy and practice—may be in fashion politically, studies have found that it is far out of step with what parents and teachers believe should be taught ("Sex Education: Politicians, Parents, Teachers and Teens," *TGR*, February 2001, page 9). Although nine in 10 teachers believe that students should be informed about contraception, one in four say they are instructed not to teach the subject; in general, one in four teachers believe that they are not meeting their students' needs for information. Parents, too, want their children to have that information: Public opinion polls recently and in the past show that the vast majority of Americans favor broader sex education programs rather than those that teach only abstinence. And, according to the U.S. Surgeon General, an exclusive focus on abstinence is not in line with the weight of the best scientific evidence now available.

NOTES TO TABLE: 1. LOCALITIES MAY REQUIRE PARENTAL CONSENT FOR HIV EDUCATION, BUT NOT FOR SEXUALITY EDUCATION. 2. STATE SPECIFICALLY AUTHORIZES LOCALITIES TO TEACH ABOUT CONTRACEPTION, BUT, IN MS, NC AND TX, IF TAUGHT, IT MUST INCLUDE FAILURE RATES OR EFFECTIVENESS AND FAILURE RATES AMONG ADOLESCENTS. 3. AIDS EDUCATION IS INCLUDED WITH COMMUNICABLE DISEASE EDUCATION AND CONTENT IS DETERMINED AT THE LOCAL LEVEL. 4. IN MISSISSIPPI, LOCALITIES MAY OVERRIDE THE STATE'S REQUIREMENT THAT ANY TOPIC, INCLUDING ABSTINENCE, BE INCLUDED IN INSTRUCTION. HOWEVER, A LOCALITY CANNOT CONTRADICT THE LAW ON A PARTICULAR TOPIC, AS THE LAW STATES, "NO PROGRAM OR INSTRUCTION MAY INCLUDE ANYTHING THAT CONTRADICTS THE EXCLUDED COMPONENTS." FOR EXAMPLE, WHILE THE LAW REQUIRES THAT ABSTINENCE BE STRESSED AS BENEFICIAL, A LOCALITY CAN CHOOSE NOT TO TEACH IT, BUT IT CANNOT CHOOSE TO TEACH THAT ABSTINENCE IS NOT BENEFICIAL. THE STATE BOARD OF EDUCATION ENCOURAGES PARENTAL CONSENT FOR SEXUALITY AND HIV/STD EDUCATION. 5. ABSTINENCE IS TAUGHT WITHIN CHARACTER EDUCATION. 6. PROHIBITS "THE ADVOCACY OR ENCOURAGEMENT OF THE USE OF CONTRACEPTIVE METHODS OR DEVICES."

Sex Education: Politicians, Parents, Teachers and Teens

*For two decades, policymakers have debated the relative merits of sexuality education that promotes abstinence as the only acceptable form of behavior outside of marriage and more comprehensive approaches that discuss contraception as well. The results of several new studies show that these debates may have had a considerable impact on what is being taught in the classroom; moreover, they strongly indicate that politicians—in their drive to promote morality-based abstinence-*only *education—are out of touch with what teachers, parents and teens think should be taught.*

By Cynthia Dailard

In 1981 Congress passed, and President Reagan signed into law, the Adolescent Family Life Act (AFLA). Through AFLA, the federal government for the first time invested on a small scale in local programs designed to prevent teenage pregnancy by encouraging "chastity and self-discipline" among teenagers. AFLA helped usher in 20 years of debate at the federal, state and local level over whether sexuality education should exclusively promote abstinence or should take a more comprehensive approach.

In the late 1990s, federal investment in this area increased significantly after Congress, as part of the 1996 welfare reform law, created a federal-state program funded at $440 million over five years to support local sexuality education programs that condemn *all* sex outside of marriage—for people of any age—and prohibit any positive discussion of contraception. Four years later, conservative lawmakers secured an additional victory when Congress approved a *third* abstinence-only education program funded at $50 million over two years through a set-aside in the maternal and child health block grant.

Yet this major increase in federal funding occurred despite evidence that shows that more comprehensive sexuality education, rather than abstinence-only education, helps teenagers to delay sexual activity ("Fueled by Campaign Promises, Drive Intensifies to Boost Abstinence-Only Education Funds," *TGR*, April 2000, page 1). It also occurred without clear pictures of either local sexuality education policies or the content of classroom instruction. Several studies published within the past year fill in these gaps, highlighting a significant disparity between the inclinations of policymakers and the needs and desires of both students and parents (see box, page 10). This research also suggests that there is a large gap between what teachers believe should be taught regarding sexuality education and what is actually taught in the classroom.

Local Policy

More than two out of three public school districts have a policy mandating sexuality education, according to research published in 1999 by The Alan Guttmacher Institute (AGI). Most of these policies—more than eight in 10—were adopted during the 1990s, a period of intense debate in many state governments and local communities over whether sexuality education curricula should include information about contraception as well as the promotion of abstinence.

This AGI research, based on a nationwide survey of school superintendents, found that local policies overwhelmingly encourage abstinence. Eighty-six percent of school districts with a sexuality education policy require promotion of abstinence; 51% require that abstinence be taught as the preferred option but also permit discussion of contraception as an effective means of protecting against unintended pregnancy and sexually transmitted diseases (STDs); and 35% require abstinence to be taught as the only option for unmarried people, while either prohibiting the discussion of contraception altogether or limiting discussion to contraceptive failure rates. Only 14% have a truly comprehensive policy that teaches about both abstinence and contraception as part of a broader program designed to prepare adolescents to become sexually healthy adults.

The AGI study found significant regional variation in the prevalence of abstinence-only policies (see chart, page 11, top). School districts in the South are most likely to have such policies (55%) and are least likely to have comprehensive programs (5%). In contrast, school districts in the Northeast are least likely to have an abstinence-only policy (20%).

Clearly, state and local policymakers have strongly supported abstinence promotion for some time; the AGI study was conducted even before states began implementing abstinence-only programs funded under the 1996 welfare reform law. Districts that switched their policies during the 1990s were twice as likely to adopt a

more abstinence-focused policy as to move in the other direction. Half of school superintendents surveyed cited state directives as the most important factor influencing their current policy; approximately four in 10 cited school boards or special committees.

Teachers

Not surprisingly, this shift in policy has had an impact on teachers and the content of sexuality education. A second AGI study, based on a survey of public school teachers, shows that since the late 1980s, sexuality education in secondary schools has become more focused on abstinence and less likely to provide students with information about contraception. The survey results, published in 2000, show that the percentage of public school teachers in grades 7–12 who teach abstinence as the only way of preventing pregnancies and STDs rose dramatically between 1988 and 1999—from one in 50 to one in four. Additionally, nearly three in four present abstinence as the preferred way to avoid unintended pregnancy and STDs.

Teachers are also emphasizing different topics than they did in the past. Compared with teachers in the late 1980s, teachers today are more likely to teach about abstinence, STDs and resisting peer pressure to have sex, but are significantly less likely to discuss more "controversial" subjects such as birth control, abortion and sexual orientation. And while some topics—such as HIV and other STDs, abstinence, correct condom use and resisting peer pressure—are taught earlier than they were in the past, most are still taught less often and later than teachers think they should be.

Although more than nine in 10 teachers believe that students should be taught about contraception (and half believe that contraception should be taught in grade seven or earlier), one in four are instructed not to teach the subject. And while the vast majority also believe that sexuality education courses should cover where to go for birth control, information about abortion, the correct way to use a condom, and sexual orientation, far fewer actually cover these topics (see chart, page 11, bottom).

Recent Studies Addressing Sexuality Education:

"Abstinence Promotion and the Provision of Information About Contraception in Public School District Sexuality Education Policies" *presents findings from the first nationwide assessment at the school-district level of the extent to which sexuality education policy focuses on abstinence promotion and whether these policies affect the provision of contraceptive information. On the basis of a nationally representative survey of 825 school district superintendents conducted by researchers at The Alan Guttmacher Institute (AGI) and completed in October 1998, it examines existing policies across the country and how they vary by district characteristics.*

"Changing Emphases in Sexuality Education in U.S. Public Secondary Schools, 1988–1999" *compares findings from two nationally representative AGI surveys of public school teachers in grades 7–12 in the five specialties most often responsible for sexuality education. The surveys, conducted in 1988 and 1999, each included about 4,000 teachers. Most of the information in the 1999 analysis is from a subset of 1,767 teachers who actually taught sexuality education in recent years. This group represents an estimated 81,000 teachers and school nurses actually responsible for teaching sexuality education in grades 7–12.*

"Sexuality Education in Fifth and Sixth Grades in U.S. Public Schools" *presents findings from a 1999 AGI survey of 1,789 fifth- and sixth-grade public school teachers.*

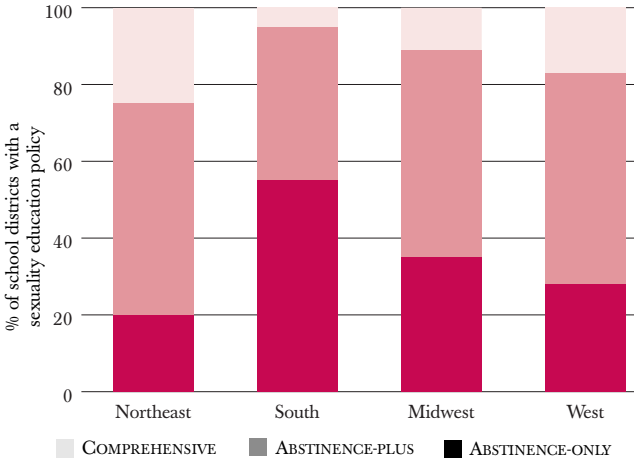
"Surveillance for Characteristics of Health Education Among Secondary Schools—School Health Education Profiles, 1998" *reports the results of a survey fielded in 1998 by the Centers for Disease Control and Prevention among principals in 36 states and 10 localities and health education teachers in 35 states and 10 localities to determine the content of health education courses, HIV/AIDS education, professional preparation of health educators, and parent and community involvement in school health education.*

"Sex Education in America: A View from Inside the Nation's Classrooms," *by the Kaiser Family Foundation, presents findings from telephone interviews of 313 principals, 1,001 sexuality education teachers and 1,501 student-parent pairs about their experiences with and attitudes toward sexuality education.*

"Adolescents' Reports of Reproductive Health Education, 1988 and 1995," *by researchers from The Urban Institute, examines changes between the late 1980s and the mid-1990s in U.S. teenage males' reports of the prevalence, content and timing of their reproductive health education—both from formal, school-based instruction and from their parents. The researchers explore differences in education by age, race and ethnicity, and compare young men's reports of their formal education in the 1995 National Survey of Adolescent Males with teenage females' reports in the 1995 National Survey of Family Growth.*

Sex Ed Geography

The type of sexuality education policy adopted by school districts varies widely by region.



Source: Landy DJ, Kaeser L and Richards CL, Abstinence promotion and the provision of information about contraception in public school district sexuality education policies, *Family Planning Perspectives*, 1999, 31(6):280–286.

Even if teachers are allowed to cover these sensitive topics, they may avoid them because they fear adverse community reaction; more than one-third report such concerns. All in all, these pressures and limitations lead one in four teachers to believe that they are not meeting their students' needs for information. A similar percentage of fifth- and sixth-grade teachers who teach sexuality education believe that schools are not doing enough to prepare students for puberty or to deal with pressures and decisions regarding sexual activity. Finally, a study published last year by the Centers for Disease Control and Prevention found that a significant proportion of health educators in secondary schools want additional training in the areas of pregnancy, STD and HIV prevention.

Parents

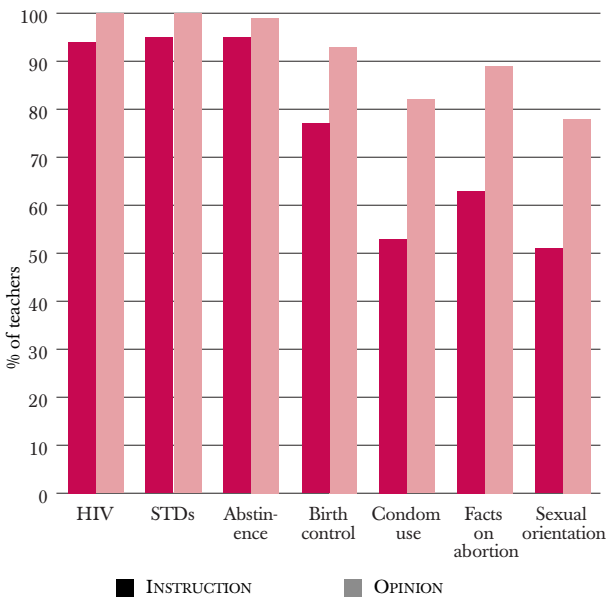
Most parents (65%) believe that sex education should encourage young people to delay sexual activity but also prepare them to use birth control and practice safe sex once they do become sexually active, according to interviews conducted for the Kaiser Family Foundation in 2000. In fact, public opinion is overwhelmingly supportive of sexuality education that goes beyond abstinence (see chart, page 12, top). Moreover, public opinion polls over the years have routinely showed that the vast majority of Americans favor broader sex education programs over those that teach only abstinence.

Kaiser reports that among the one-third of parents who say that adolescents should be told "only to have sex when they are married," an overwhelming majority also say that schools should teach adolescents how to get tested for HIV/AIDS and other STDs (86%), how to talk to a partner about birth control and STDs (77%), how to use condoms (71%), and where to get and how to use other birth control methods (68%). This suggests that parents and policymakers differ in their understanding of what it means to present abstinence as the only option outside of marriage, and that policies that prohibit any discussion of contraception or that portray it as ineffective may not reflect the desires of most parents.

In addition to topics that are routinely covered in sexuality education classes—such as the basics of reproduction, HIV and STDs, and abstinence—parents want schools to cover topics often perceived to be controversial by school administrators and teachers. Kaiser found that at least three-quarters of parents say that sexuality education classes should cover how to use condoms and other forms of birth control, abortion, sexual orientation, pressures to have sex and the emotional consequences of having sex. Three in four parents believe that these topics should be "discussed in a way that provides a fair and balanced presentation of the facts and different views in society." Yet most of these topics tend to be the very ones that teachers shy away from or are prohibited from teaching. Finally, most parents believe that the amount of time being spent on sexuality education should be significantly expanded.

Thinking vs. Doing

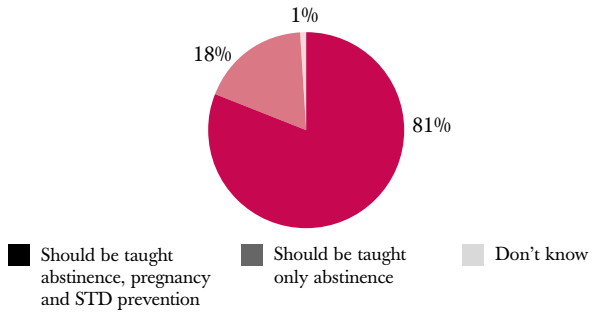
There is a large gap between what teachers think should be taught and what they teach when it comes to birth control, abortion and sexual orientation.



Source: Darroch JE, Landry DJ and Singh S, Changing emphasis in sexuality education in U.S. public secondary schools, 1988–1999, *Family Planning Perspectives*, 2000, 32(5):204–211 & 265.

Public Opinion

Americans overwhelmingly favor broader sexuality education programs over those that discuss only abstinence.



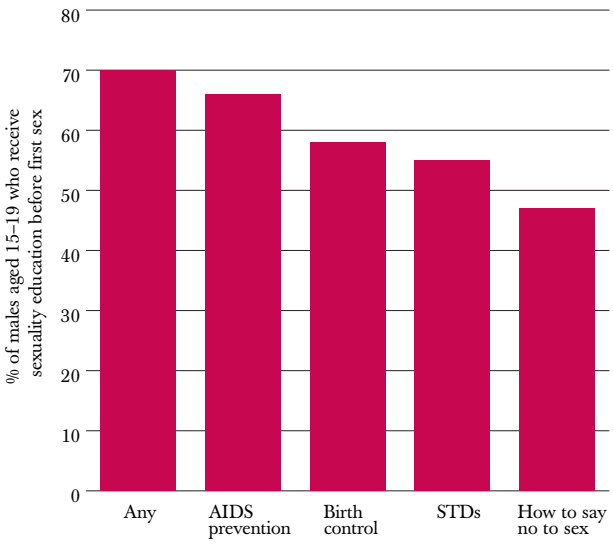
Source: The Henry J. Kaiser Family Foundation/ABC Television, *Sex in the 90s: 1998 National Survey of Americans on Sex and Sexual Health*, Sept. 1998.

Students

According to Kaiser, students report that they want more information about sexual and reproductive health issues than they are receiving in school. Approximately half of students in grades 7–12 report needing more information about what to do in the event of rape or sexual assault, how to get tested for HIV and other STDs, factual information on HIV/AIDS and other STDs, and how to talk with a partner about birth control and STDs. Two in five also want more factual information on birth control, how to use and where to get birth control, and how to handle pressure to have sex. Yet a significant percentage report that these topics are not covered in their most recent sexuality education course, or that they are not covered in sufficient depth. Moreover, Kaiser found that students whose most recent sex education course used an abstinence-only approach were less knowledgeable about pregnancy and disease prevention than were those whose most recent sex education was more comprehensive.

Knowledge Gap

Many young men do not receive sexuality education before they have sexual intercourse for the first time.



Source: Lindberg LD, Ku L and Sonenstein F, Adolescents' reports of reproductive health education, 1988–1995, *Family Planning Perspectives,* 2000, 32(5):220–226.

Research on teenage males published by The Urban Institute in 2000 suggests that although sexuality education has become almost universal, students are not receiving even general information early enough to fully protect themselves against unintended pregnancy and STDs. According to the Institute, virtually all males aged 15–19 report receiving some form of sexuality education in school, and the percentage receiving information about AIDS, STDs, birth control and how to say no to sex increased significantly between 1988 and 1995. The percentage of teenage males who received formal sexuality education before having sexual intercourse also increased during that time. However, 30% of teenage males still do not receive any sexuality education prior to first intercourse, with the rate as high as 45% for black teenage males (see chart, below).

Finally, The Urban Institute found that levels of communication between parents and their teenage sons remain low. Only half of young men today report ever having spoken to either of their parents about AIDS, STDs, birth control or what would happen if their partner became pregnant. Given parents' reticence, it is no wonder that they count on teachers and schools to convey the critical information that teenagers need to protect themselves when they do become sexually active.

Conclusion

This growing body of research highlights a troubling disconnect: While politicians promote abstinence-only education, teachers, parents and students want young people to receive far more comprehensive information about how to avoid unintended pregnancy and STDs, and about how to become sexually healthy adults.

Nonetheless, conservative lawmakers continue to pursue funding for abstinence-only education, and the election of George W. Bush as president suggests that additional funding will soon be on its way. Bush made abstinence promotion a prominent feature of his campaign rhetoric, promising to "elevate abstinence education from an afterthought to an urgent priority." Whether his actions will be tempered by new research suggesting that abstinence education is actually quite prevalent in this country, and that further promotion of abstinence-only education would run contrary to the desires of teachers, parents and students, remains to be seen.

Fueled by Campaign Promises, Drive Intensifies to Boost Abstinence-Only Education Funds

By Cynthia Dailard

The debate over sexuality education and teenage pregnancy prevention has been extremely divisive for many years, and it promises only to heat up in the coming months in the context of the presidential campaign. Texas Gov. George Bush, who locked up the Republican nomination in March, has long made abstinence promotion a prominent feature of his campaign rhetoric. Gov. Bush has promised that, if elected president, he would "elevate abstinence education from an afterthought to an urgent priority" by dramatically increasing funding for federal abstinence-only programs.

On the congressional front, Rep. Ernest Istook (R-OK), a long-standing opponent of the Title X family planning program, secured a major down payment on this effort during last year's annual appropriations cycle and has already pledged to come back this year for more. Yet the drive to boost funding for abstinence-only education programs—already up some 3,000% since 1996—continues despite a dearth of evidence that these programs are effective in delaying sexual activity. Instead, the evidence strongly supports the effectiveness of more comprehensive efforts and the important role of contraceptive use in reducing teenage pregnancy rates.

Federal Funding for Abstinence

Gov. Bush promises that his administration would spend at least as much each year on promoting abstinence education as it does on providing contraceptive services to teenagers. However, quantifying the exact amount being spent in each area is not easy.

Currently, there are two federal programs that provide funding specifically for abstinence-only education. One is the 1981 Adolescent Family Life Act (AFLA), sponsored by Title X opponents and promoted as a "family-centered" approach to teenage pregnancy prevention that would "promote chastity and self-discipline" to teenagers rather than provide them with contraceptive services. AFLA has been dogged by controversy from the beginning, and, until recently, its funding has been low. In its early years, it was attacked from the left and was subjected to a protracted lawsuit alleging numerous constitutional violations. Subsequent reforms instituted by the Clinton administration to ensure that AFLA funding did not promote religious dogma or provide medically inaccurate information only alienated conservatives, who charged that the administration had watered down the original abstinence-only thrust of the program ("Whatever Happened to the Adolescent Family Life Act?" April 1998).

In 1996, conservative policymakers and activists were successful in including, with virtually no debate, a provision in the massive welfare reform bill that resulted in a major infusion of dollars into abstinence-only education. Unlike AFLA, which targets *premarital* sex, the new program funds education efforts that must have as their "exclusive purpose" censuring *all* sex outside of marriage, at any age; the provision of any information about contraception beyond failure rates is prohibited. To qualify for funding, education programs under the welfare provision must adhere to a strict eight-point definition of "abstinence education."

Together, these two programs provide significant funding—notwithstanding the protestations of those who claim that funding for abstinence remains woefully low. The welfare law entitles states to $50 million in federal funds annually; because states must spend $3 for every $4 they receive, the total amount spent pursuant to this one program alone is almost $90 million annually. Due to Rep. Istook's efforts, a 1999 appropriation bill doubled funding for the AFLA program to $40 million (some of which, however, will not become available until October 1), requiring most of those funds to be spent on abstinence-only education under the strict welfare-program definition ("Congress in 1999: Actions on Major Reproductive Health–Related Issues," December 1999).

In addition to this dedicated federal funding, funds available to the states under other health or social welfare programs also may be used for abstinence education or counseling; such programs include the maternal and child health (MCH) block grant and the social services block grant, as well as the Title X program. In fact, more than half of agencies that receive Title X funding run programs at one or more clinic sites designed to encourage adolescents to postpone sexual activity. Finally, abstinence promotion is strongly supported by state and local governments, and it is now required by the overwhelming majority of local school districts that have a policy to teach sexuality education (see box, page 2).

Assessing the Impact

Clearly, then, there is a substantial amount of federal and other public support for abstinence education—and for abstinence-only education. Yet, the fact remains that, to date, there is a stunning lack of evidence of the effectiveness of this approach. While AFLA was enacted as a temporary "demonstration" program specifi-

cally to test and evaluate various program interventions, two decades and millions of dollars later there is no conclusive evidence that abstinence-only education works. In the most complete analysis of AFLA evaluations to date, a team of university researchers concluded in a 1996 report that "the quality of AFLA evaluations funded by the federal government vary from barely adequate to completely inadequate." Indeed, the researchers report that they "are aware of no methodologically sound studies that demonstrate the effectiveness" of abstinence-only curricula.

Other evaluations of abstinence-only programs arrived at a similar conclusion. A 1997 report commissioned by the National Campaign to Prevent Teen Pregnancy, while noting that methodological limitations due to the poor quality of the evaluations could have obscured program impact, nonetheless concluded that published studies of abstinence-only programs yielded no evidence that such programs delayed the onset of sexual activity. In contrast, the review concluded that more comprehensive sexuality education programs—those which included discussion of contraception—did not hasten sexual activity as their critics claim but, instead, helped teenagers to delay sexual activity. When teenagers who received more comprehensive education did become sexually active, the report found, they had fewer partners and were more likely than their peers who did not receive such messages to use contraceptives.

Finally, an article published in the *Journal of the American Medical Association* in 1998, which reported the results of the first-ever randomized controlled trial comparing an abstinence-only program with a "safer-sex" initiative designed to reduce the risk for HIV infection through condom use and a control group that received health education unrelated to sexual behavior, found similar results. After one year, the abstinence group reported similar levels of sexual activity as the safer-sex group and the control group. For teenagers who were already sexually active at the inception of the program, there was less sexual activity reported among the safer-sex group than among the abstinence or control groups. Those in the safer-sex group also reported less frequent unprotected sex than did the abstinence and control groups, suggesting that abstinence-only efforts may discourage effective contraceptive use and thus put individuals at greater risk of unintended pregnancy or sexually transmitted diseases (STDs) when they do become sexually active.

Study Finds Local Public School District Policies Overwhelmingly Promote Abstinence

A 1998 study by researchers at The Alan Guttmacher Institute found that among the seven in 10 public school districts that have a district-wide policy to teach sexuality education, the vast majority (86%) require that abstinence be promoted, either as the preferred option for teenagers (51% have such an abstinence-plus *policy) or as the only option outside of marriage (35% have such an* abstinence-only *policy). Only 14% have a* comprehensive *policy that addresses abstinence as one option in a broader education program to prepare adolescents to become sexually healthy adults. In almost two-thirds of district policies across the nation—those with comprehensive and abstinence-plus policies—discussion about the benefits of contraception is permitted. However, in the one-third of districts with an abstinence-only policy, information about contraception is either prohibited entirely or limited to discussion of its ineffectiveness in protecting against unplanned pregnancy and sexually transmitted diseases.*

The study, conducted before states began implementing any abstinence-only efforts stemming from the 1996 national welfare reform legislation, found that there was significant regional variation in the prevalence of abstinence-only policies. School districts in the South were far more likely to have such policies in place (55%) and were the least likely to have comprehensive programs in place (5%). In contrast, school districts in the Northeast were least likely to have abstinence-only policies in place (20%).

Among the superintendents surveyed who knew when their current policy was adopted, over half (53%) said that it was adopted after 1995, and another 31% said that it was adopted between 1990 and 1995. Among districts that switched their policies, twice as many adopted a more abstinence-focused policy as moved in the other direction.

Funding for Contraception

If it is difficult to quantify exactly how much the federal government spends on abstinence education, it is even harder to measure how much is being spent on contraceptive services to teenagers. Both the U.S. General Accounting Office and Advocates for Youth, an advocacy organization dedicated to promoting adolescent reproductive and sexual health, have estimated the amount spent on contraceptive services to teenagers under Title X and Medicaid—the two major sources of federal funding for family planning—to be almost $130 million annually.

Family planning experts caution that such calculations are at best imprecise and that comparisons between funding for abstinence education and contraceptive services can be misleading. Jacqueline Darroch, senior vice president and vice president for research at The Alan Guttmacher Institute (AGI), notes that "these estimates were arrived at simply by taking the proportion of clients served by the programs who were

(Continued on page 12)

Abstinence…
Continued from page 2

teens and applying that percentage to the overall funding level. That assumes all clients receive the same services, while certain populations—particularly teens—may be more expensive to serve than others, because they require more intensive counseling and may be at high risk for STDs, for example. And, to be fair," says Darroch, "it needs to be acknowledged that these estimates do not take into account funding for contraceptive services under other federal programs, such as the MCH or social services block grants."

Judith DeSarno, president and CEO of the National Family Planning and Reproductive Health Association, meanwhile, argues that "spending in these two areas is simply not comparable on a number of fronts." DeSarno notes, "Family planning involves providing a broad package of medical services beyond just the prescription of a contraceptive method, including pap smears, breast exams, and screening and treatment for STDs. It also involves in-depth, one-on-one counseling. This is a far more expensive endeavor than talking to adolescents, often in a classroom or other group setting, about abstinence."

What is clear, however, is that publicly funded family planning has a significant effect on teenage pregnancy. Each year, subsidized family planning services prevent an estimated 386,000 teenagers from becoming pregnant. Without these services, the number of births to teenagers would increase by one-quarter, and the number of abortions to teenagers would rise by nearly two-thirds. Moreover, while abstinence advocates claim credit for recent declines in teenage pregnancy, an AGI analysis of available data suggests otherwise. In fact, this analysis found that approximately one-quarter of the decline in teenage pregnancy between 1988 and 1995 is due to increased abstinence; about three-quarters of the decline is due to improved contraceptive use among sexually active teenagers.

The Road Ahead

Gov. Bush, as have so many abstinence proponents before him, claims that "the contraceptive message sends a contradictory message [that] tends to undermine the message of abstinence." The evidence, however, suggests that the reverse is true: Teenagers who receive messages that support postponing sexual activity but also include accurate information about contraception are more likely to delay sexual initiation than those who just receive abstinence-only messages, and they are better prepared to avoid unintended pregnancy and disease when they eventually do have intercourse. The drive to increase federal funding for abstinence-only education is also out of step with the beliefs of most Americans, who overwhelmingly favor—by a margin of more than four to one—broader sex education programs over those that teach abstinence as the only option.

Nonetheless, the effort to further increase funding for abstinence-only education is likely to gather steam as the presidential and congressional campaigns heat up. Key conservative members of Congress are already working toward this goal, and even many progressive politicians have trouble distinguishing between abstinence education, which virtually no one opposes, and abstinence-*only* efforts.

After ensuring last year that an additional $20 million for abstinence-only education will be set aside for release on October 1, Rep. Istook and his colleagues are already working for an additional $30 million in the context of the upcoming appropriation cycle. Their goal is to raise the annual federal funding level alone for abstinence-only education beyond the $100 million mark. Whether this effort will be successful, and whether it will be accompanied by a corresponding increase in federal funding for family planning services, remains to be seen.

Issues & Implications

Sexuality Education Advocates Lament Loss of Virginia's Mandate…Or Do They?

By Rebekah Saul

An intensive effort to reinstate Virginia's policy mandating sexuality education in the public schools came to a screeching halt on April 22 when the legislature failed to override Gov. James Gilmore's (R) veto of the legislation. Gilmore's veto came despite the last-minute adoption of an amendment, sponsored by an ultraconservative representative, that would have required all family life education (FLE) in the state to "present sexual abstinence before marriage and fidelity within monogamous marriage as moral obligations and not matters of personal opinion or personal choice."

The abstinence provision notwithstanding, conservative "profamily" groups celebrated the mandate's demise, while reproductive rights advocates—at least at first blush—considered the veto a defeat for their cause. On reflection, however, sexuality education advocates report mixed, and contradictory, feelings about the relative good of the FLE bill in light of the abstinence amendment. Though advocates have strongly endorsed statewide mandates over the last two decades as a means of validating sexuality education's place in public schools, the abstinence promotion movement may be changing the calculation.

Indeed, the Virginia case points up an eternally vexing question for those who work in the political process: How much compromise is too much? Or, in this case, is a half-bad sexuality education mandate really better than no mandate at all?

Sex Ed Mandates Popular

For decades, policymakers, educators, parents, public health advocates and citizens' groups argued over whether sexuality education should be provided in the public schools. In the 1980s, however, the advent of AIDS significantly changed the debate; in the face of the deadly epidemic, political moderates and even conservatives came forward to support school-based sexuality education. Among them was then-Surgeon General C. Everett Koop who, in his 1986 report on AIDS, stated, "There is now no doubt that we need sex education in schools and that it [should] include information on heterosexual and homosexual relationships….The lives of our young people depend on fulfilling our responsibility."

This new, broad-based support for AIDS and sexuality education paved the way for state policies—in the form of statutes, school board policies and department of education regulations—mandating that such education be provided in schools. In 1980, only three states required school-based sexuality education; by 1997, according to the National Abortion and Reproductive Rights Action League, 19 states required sexuality education and education on sexually transmitted diseases (STD), including HIV, in schools, with 16 more mandating STD/HIV education while not specifically requiring sexuality education *per se* (see box).

In line with this national trend, Virginia's state board of education in 1988 issued regulations mandating that all local school boards provide "comprehensive, sequential family life education" for grades K–12, including age-appropriate instruction on family living and community relationships; the value of postponing sexual activity; human sexuality; human reproduction; the prevention and effects of STDs; and mechanisms for coping with peer pressure. At its inception, Virginia's mandate, like those in other states, was seen as an assurance that schools would teach something approaching "comprehensive" sexuality education—including not only instruction on abstinence, but also education about disease and pregnancy prevention, as well as decisionmaking skills.

In September 1997, Virginia's conservative state school board—whose members had been appointed by then-Governor George Allen (R)—moved to repeal Virginia's FLE mandate, purportedly in order to give localities more "flexibility." The school board's decision drew quick and vocal public protest, and only a few months later the legislature

Is a half-bad sexuality education mandate really better than no mandate at all?

responded with an effort to restore the old mandate, this time in the form of a statute. The 1998 FLE legislation, which largely mirrored Virginia's former policy, was backed at every turn by a sound majority in both the House and Senate.

With only three days to go before the legislature's projected close, a "profamily" legislator in a surprise move offered up the amendment requiring that all FLE in the state teach that abstinence before marriage and fidelity within monogamous marriage are "moral obligations and not matters of personal opinion or personal choice." While a cadre of Democrats in the House of Delegates—including one of the legislation's sponsors Del.

19 STATES REQUIRE SEXUALITY AND STD/HIV EDUCATION	16 OTHERS REQUIRE STD/HIV EDUCATION ONLY
Alabama	California
Arkansas	Connecticut
Delaware	Florida
Georgia	Idaho
Hawaii	Indiana
Illinois	Michigan
Iowa	Missouri
Kansas	New Hampshire
Maryland	New Mexico
Minnesota	New York
Nevada	Ohio
New Jersey	Oklahoma
North Carolina	Oregon
Rhode Island	Pennsylvania
South Carolina	Washington
Tennessee	Wisconsin
Utah	
Vermont	
West Virginia	

Source: NARAL

Alan Diamonstein (D)—voted against the amendment (which passed by a vote of 71-22), they voted for the final bill. They apparently hoped, in Diamonstein's words, that the new language, while having little or no practical effect, would make the bill (politically) "stronger." Ultimately, the added language did bring a few conservatives along, but it failed to win over the new governor, who aligned himself on this issue with ultraconservatives opposed to sexuality education mandates in any form.

A Rock and a Hard Place

The last-minute addition of the abstinence language into the Virginia bill highlights the extent to which abstinence promotion has come to dominate the sexuality education debate—and the dilemma this presents for sexuality education proponents. Teaching the benefits of delaying intercourse has long been a core component of mainstream sexuality education. However, more recently, "abstinence education" has come to be seen, at least by conservative activists, as a means for greatly diminishing—or even wholly blocking—the provision of information on contraception, disease prevention and sexual orientation.

This puts advocates working toward comprehensive sexuality education in a difficult situation. Brenda Davis, Northern Virginia public affairs coordinator for Planned Parenthood of Metropolitan Washington (PPMW), was actively involved in the effort to reinstate FLE in Virginia. When asked about the addition to the bill of the abstinence language, Davis responded that she did worry about its potential legal implications. "It occurred to me that the [sponsors of the amendment] may have been looking for a basis for future legal challenges."

Nevertheless, despite Davis's and others' concerns, PPMW, along with other prochoice advocacy groups in the state, supported the final bill, banking on the hope that the practical impact of the abstinence amendment would be minimal. Without the mandate, Davis feared, "school boards struggling fiscally might just cancel the program altogether." Weighing both sides in the heat of the legislative moment, Davis and others working in the state decided that a FLE mandate with the abstinence language was better than no mandate at all.

Reflecting on the dilemma in hindsight, others are not so sure. Michael McGee, vice president for education of Planned Parenthood Federation of America, says, "I would rather have no mandate at all than have that law….Bad sexuality education does more harm than good." McGee stressed that such language aims to shift the emphasis of sexuality education away from health. "I wonder what the goal of sexuality education becomes….The bottom line [for me] is, is it good for the kids?…If the goal is to implement a state religion, sexuality education is not the place."

Jerald Newberry, executive director of the Health Information Network of the National Education Association and former coordinator of family life education for the Fairfax, Virginia, public schools, agrees that Virginia is better off without the failed measure. Newberry echoes Davis's concerns that the abstinence language, if enacted, could have had significant legal implications. "Adding language like that to a mandate is establishing grounds for a lawsuit," Newberry says, pointing out that if a teacher does anything that could be interpreted as contradicting the statute, a parent could seek legal recourse. Furthermore, stresses Newberry, "If you have a bad mandate, you restrict progressive school districts from providing good programs."

For their part, "profamily" groups in the state apparently decided that, even with the abstinence language authored by one of their own, no sexuality education is better—from their perspective, too—than a half good/half bad law. On its Web site, the Virginia-based antichoice, antihomosexual Family Foundation protested the bill even after the amendment's adoption, stating, "although the House added an amendment that requires abstinence be taught as a moral imperative, there is no need to mandate these controversial, non-academic programs in our schools."

PPMW's Davis characterizes sexuality education advocates in her state as "caught between a rock and a hard place." This could well sum up the position of sexuality education advocates across the country. With the spread of HIV among adolescents continuing and teen pregnancy rates in the U.S. remaining among the highest in the industrialized world, the responsibility to provide comprehensive sexuality education remains intense. Yet, a mandate strategy is clearly a risky one in this day and age. Having emerged from the fight in Virginia, Davis cautions those brave enough to take on the mandate issue to be vigilant: "Watch very closely every step of the way, until it's a done deal."

Whatever Happened to the Adolescent Family Life Act?

By Rebekah Saul

On the grounds that the Adolescent Family Life Act (AFLA)—the federal government's longstanding teen "chastity" program—largely duplicates the five-year, $250 million "abstinence-only" education program created by the 1996 welfare reform law, President Clinton's FY 1999 budget calls for AFLA's funding to be cut by 70%, from $17 million to $5 million. The action begs the question: Why would the Clinton administration, given the overwhelming political popularity of abstinence promotion, take what appears to be a swipe at AFLA, especially after working so hard to administer the program—conceived in the first year of the Reagan administration as the conservative "alternative" to family planning for teens—in ways that are more acceptable to the public health and reproductive rights communities?

The answer may be that while abstinence promotion as an idea is unquestionably in vogue, AFLA as a program is less so. Public health and reproductive rights advocates, while crediting the administration for the changes it has made in running the program, remain skeptical of the legislation's single-minded focus on abstinence as a means of teen pregnancy prevention, especially given the program's inability after 17 years to demonstrate the effectiveness of that approach.

For their part, conservative activists—largely *because* of the administration's reforms—consider AFLA to have become something akin to "abstinence-lite." By and large, they are pinning their hopes on the newer, "purer" effort under which the states are being funded to support programs that, in the words of the statute, have as their "exclusive purpose" the promotion of abstinence for all people outside of marriage.

Yet, in their origins and underlying intent, the new program and AFLA share many parallels—and AFLA's odyssey over the years has both substantive and political implications for the newer effort. Both programs were enacted quietly, without extended public or legislative debate, and were instantly controversial. Both sprang from a deep conviction among social conservatives that too much attention was being given and money being spent on "comprehensive" sexuality education and contraception-based pregnancy prevention efforts—and that an alternative program steeped in "traditional family values" was necessary. Both were consciously constructed to steer funds toward conservative "profamily" groups and away from family planning and sexuality education providers. And, both carried with them the onus that various programmatic approaches be tested and evaluated.

Morality and Family Values

In 1981, Sens. Jeremiah Denton (R-AL) and Orrin Hatch (R-UT), both staunch opponents of the Title X family planning program, which they believed undermined family values and promoted teen sexual activity and abortion, called for a new approach to teen pregnancy—one emphasizing morality and family involvement.

Denton and Hatch sponsored AFLA and quietly shepherded it—without hearings or floor votes in either house of Congress—through committee and into the Omnibus Budget Reconciliation Act of 1981. AFLA became Title XX of the Public Health Service Act, to be administered by the Office of Adolescent Pregnancy Prevention (OAPP) of the Department of Health and Human Services (DHHS).

AFLA's primary goal was to prevent premarital teen pregnancy by establishing "family-centered" programs "to promote chastity and self discipline." [Notably, the new abstinence-only program goes beyond AFLA in its underlying goal; while AFLA focuses on teen pregnancy prevention and discouraging sex *before* marriage, the new program aims to censure all sex outside of marriage—before, during and after.] Another main goal of AFLA was to promote adoption as the preferred option for pregnant teens.

While abstinence promotion as an idea is unquestionably in vogue, AFLA as a program is less so.

To win the support of Sen. Edward Kennedy (D-MA), the ranking Democrat on the labor and human resources subcommittee, the AFLA legislation also emphasized the provision of support services to pregnant and parenting adolescents. In fact, the statute provides that two-thirds of the services money go to "care" programs and one-third to prevention (although this ratio was reversed through the appropriations process in 1996).

Underlying AFLA was the conviction that the federal government had provided too much funding to Planned Parenthood and other family planning providers—thereby promoting a national "contraceptive mentality"—and that a new program was needed to counter this spending.

(Continued on page 10)

Adolescent Family Life Act
continued from page 5

Accordingly, the statute stated that "the federal government…should emphasize the provision of support by other family members and religious charitable organizations, voluntary associations and other groups...." By also virtually prohibiting funding for family planning services or the provision of any abortion-related information to AFLA program participants, and requiring that grants only be made to programs "which do not advocate, promote or encourage abortion," the legislation's conservative framers essentially sought to ensure that funding would be limited to like-minded "profamily" groups.

Church, State Conflicts

As mandated by the law, and in line with the intent of its conservative sponsors, AFLA's early grants went almost exclusively to far-right and religious groups. Much of the funding was used to develop the first generation of so-called fear-based curricula such as *Sex Respect*, which rely on scare tactics to promote abstinence and often distort information relating to the effectiveness of contraceptive and disease prevention methods.

The impact of *Kendrick* and the Clinton administration on the program is evidenced in the changing face of AFLA grantees and programs.

Some religious grantees went a step farther and developed programs that were explicit in their goals to promote religious values. For example, St. Margaret's Hospital, a Catholic facility in Dorchester, Massachusetts, was funded to conduct a program in which the curriculum included chapters entitled "The Church's Teachings on Abortion" and "The Church's Teachings on Artificial Contraception."

AFLA's support for these religious-based programs attracted the attention of religious and civil liberties groups. In 1983, on behalf of a group of clergy members and taxpayers, the American Civil Liberties Union's (ACLU) Reproductive Freedom Project filed suit against the program, arguing that it violated the separation of church and state mandated by the First Amendment to the United States Constitution.

In 1985, in *Kendrick v. Sullivan*, a U.S. district judge agreed and found AFLA unconstitutional on its face. The case was appealed directly to the U.S. Supreme Court, which in 1988 reversed the district court decision. However, the justices remanded the case for further factual findings on whether, *as administered*, AFLA was unconstitutional. Attorneys conducted a wider investigation and uncovered widespread constitutional violations during the Reagan and Bush administrations.

In January 1993, 12 years after filing suit, AFLA challengers and the Department of Justice Counsel for DHHS reached an agreement in the case. The five-year settlement placed certain conditions on administration of the grants and actions of the grantees, such as requiring AFLA grantees to submit curricula to DHHS for review and "consideration of whether the curricula teach or promote religion and whether such materials are medically accurate."

Beyond *Kendrick*

The *Kendrick* settlement coincided neatly with the advent of the Clinton administration, and both have resulted in significant changes in the administration of AFLA. To comply with *Kendrick*, OAPP implemented a rigorous review of AFLA programs and materials to screen for religious overtones and medical inaccuracies.

The time-limited settlement's recent expiration, however, has raised fears among civil liberties advocates that old practices might be revived. Not so, says Patrick Sheeran, director of OAPP. Sheeran maintains that OAPP plans to continue the policies established under *Kendrick* and go beyond *Kendrick* to "refine and upgrade" AFLA programs, including stepping up monitoring, training and evaluation efforts.

The impact of *Kendrick* and the Clinton administration on the program is evidenced in the changing face of AFLA grantees and programs. In 1997, Northern Michigan Planned Parenthood (NMPP) received an AFLA grant, marking the first time a Planned Parenthood affiliate has been funded through the program. With the AFLA money, NMPP has been able to expand *How to Say No,* its refusal-skills program aimed at teaching seventh graders the benefits of waiting to have sex and how to ward off unwanted sexual advances.

Ruby Hoy Murawski, NMPP's education coordinator, says she wasn't sure what was going to happen when NMPP applied for the grant but that she was impressed by OAPP's application review process; OAPP conducted a lengthy interview and scrutinized NMPP's program materials, which were required by OAPP to be carefully scripted and, at the time, were required to comply with the definition of abstinence education written into the welfare law. While Hoy Murawski says she "wouldn't be comfortable with the [*How to Say No*] program if it were the only thing kids ever heard or if the kids were much older," she maintains that "the abstinence message is appropriate for seventh graders."

Martha Lancaster, associate director of NMPP, shares Hoy Murawski's enthusiasm for the recent AFLA sup-

port for NMPP's work, pointing out, "We got funding to expand a program that we've been doing for 15 years. It's not a program that would be appropriate for all young people, but it's...an important part of responsible sex education."

Most of the current AFLA prevention programs target younger youth—aged 9–14, or, often, 9–12—and many utilize the *Postponing Sexual Involvement* curriculum, which is widely accepted as a non–fear-based approach to abstinence education, and related refusal-skills programs like *How to Say No*.

Assessing the Impact

Often lost among the political and administrative issues that have engulfed AFLA is the fact that it was created as a temporary *demonstration* program to test various program interventions. Accordingly, each funded project is required to spend between 1% and 5% of its grant on evaluation. At the time of the program's inception, there was no good evidence that abstinence-only education worked. Due to the poor quality of AFLA evaluations, nearly two decades—and many millions of dollars—later, there still isn't.

In the most complete analysis of AFLA evaluations to date, a team of university researchers found "numerous common flaws," including problems with hypotheses, assumptions, study design, methodology, data analysis and data interpretation. In their 1996 report entitled "Federally Funded Adolescent Abstinence Promotion Programs: An Evaluation of Evaluations," the researchers conclude that "the quality of the AFLA evaluations funded by the federal government vary from barely adequate to completely inadequate." Beyond that, they say they "are aware of no methodologically sound studies that demonstrate the effectiveness" of abstinence-only curricula.

OAPP's Sheeran agrees that there have been some methodological problems with the evaluations, pointing out that while Congress was wise in 1981 to require evaluation as part of the AFLA program, it made a mistake in "putting the programs and evaluations into the same category—both starting and ending the same day." This, Sheeran says, was "very shortsighted—because it is necessary to follow the kids afterwards to see if they stay abstinent." He stresses that, in an attempt to address some of these methodological issues, OAPP in recent years has occasionally waived AFLA's statutory requirements to allow for "evaluation-intensive" projects that spend up to 30% of their grant money on evaluation.

At the time of the program's inception, there was no good evidence that abstinence-only education worked. Due to the poor quality of AFLA evaluations, nearly two decades–and many millions of dollars–later, there still isn't.

Looking Ahead

OAPP's reforms have redeemed AFLA, at least to some extent, in the eyes of many family planning and sexuality education advocates. The prevailing lack of evidence that abstinence education has any impact on teen sexual activity, however, largely has prevented it from garnering their active support. Furthermore, these advocates caution that even the "responsible" administration of the AFLA program is tenuous, since it essentially can be attributed to the *Kendrick* settlement that officially has expired and to the presence of the Clinton administration.

Enthusiasm for the program among conservative activists, meanwhile, has eroded in recent years as the program, by their standards, has increasingly been diluted. By and large, they have turned their energies to promoting a new, bigger experiment in abstinence education: the welfare abstinence-only education program. And they have demonstrated their intent to guard—at the federal, state and grassroots levels—the welfare law's far-right letter and its spirit.

How successful they will be is another matter. In looking ahead to the new program's implementation, one major question is whether it will be administered—at least in some states—in ways that temper the extreme nature of the law, as generally has been the case with AFLA under the Clinton administration.

Another major question is whether the new program will be any more successful than AFLA in yielding rigorous evaluations that shed light on the efficacy of the abstinence promotion approach. Notably, despite AFLA's overall failure in this regard (or, perhaps, because of it), the new program originally included no evaluation component at all. Faced with a barrage of criticism, however, Congress added $6 million for this purpose in a separate bill. While not a large sum in relation to the magnitude of the program, DHHS officials have pledged that the funds will be used to conduct scientifically rigorous, independent evaluations of a manageable number of program interventions.

Meanwhile, with most attention focused on the new effort, AFLA has become the program that few partisans get excited about—either pro or con. How Congress will respond to the president's requested budget cut remains to be seen.

271 U.S. Teen Pregnancy Statistics: Overall Trends, Trends by Race and Ethnicity and State-by-State Information
Stanley K. Henshaw and David J. Landry
Special Report, Updated 2004, 1–22

293 U.S. Teenage Pregnancy Statistics with Comparative Statistics for Women Aged 20–24
Stanley K. Henshaw
Special Report, Updated 2004, 1–14 & Notes

U.S. Teenage Pregnancy Statistics

Overall Trends, Trends by Race and Ethnicity And State-by-State Information

The Alan Guttmacher Institute
120 Wall Street, New York, NY 10005
www.guttmacher.org

Updated February 19, 2004

THE ALAN GUTTMACHER INSTITUTE
NEW YORK & WASHINGTON

Summary

Rates of pregnancy, birth and abortion among U.S. teenagers continued their downward trend in 2000 (Table 1). Nationwide, the teenage pregnancy rate declined by 2% between 1999 and 2000 (from 85.7 to 83.6 pregnancies per 1,000 women aged 15–19). From 1986 to 2000, the rate dropped by 22% and, more importantly, fell by 28% since peaking in 1990.

The birthrate for teenagers also declined by 2% between 1999 and 2000 (from 48.8 to 47.7 births per 1,000 women aged 15–19). The 2000 rate was 5% lower than the 1986 rate and 23% lower than the peak rate of 61.8 births per 1,000 women reached in 1991.

Teenagers' abortion rate in 2000 was 24.0 per 1,000 women aged 15–19—some 3% lower than the 1999 rate of 24.7 per 1,000. From 1986 to 2000, the abortion rate dropped by 43%; during the same period, the proportion of teenage pregnancies ending in abortion fell from 46% to 33%—a decline of more than one-quarter (27%).

White, black and Hispanic adolescents have experienced declines in pregnancy rates, although to different extents (Table 1). Among black women aged 15–19, the nationwide pregnancy rate fell by 32% between 1990 and 2000 (from 224 to 153 per 1,000); among white teenagers, it declined by 28% during that time (from 24 to 71 per 1,000). The pregnancy rate among Hispanic teenagers, who may be of any race, increased from 162 to 170 per 1,000 women aged 15–19 between 1990 and 1992, but then fell to 138 per 1,000 by 2000—15% below the 1990 rate.

Teenage pregnancy rates in 2000 varied widely by state, ranging from 42 pregnancies per 1,000 women aged 15–19 in North Dakota to 113 per 1,000 in Nevada and 128 per 1,000 in the District of Columbia (Table 2). The highest state adolescent pregnancy rates after Nevada's were in Arizona, Mississippi, New Mexico and Texas. Vermont, New Hampshire, Minnesota and Maine had the lowest rates after North Dakota's.

Teenage birthrates for 2000 also varied considerably by state (Table 2). The highest rates (66–71 births per 1,000 women aged 15–19) were in Mississippi, Texas, Arizona, Arkansas and New Mexico; in the District of Columbia, 56 births occurred per 1,000 teenage women. New Hampshire, Vermont, Massachusetts, North Dakota and Maine had the lowest rates (23–29 per 1,000).

Statewide teenage abortion rates were highest (36–47 abortions per 1,000 women aged 15–19) in New Jersey, New York, Maryland, California and Nevada (Table 2); the rate in the District of Columbia was 55 per 1,000. Teenagers in Utah, South Dakota, Kentucky and North Dakota had the lowest abortion rates (6–8 per 1,000).

Overall in 2000, one-third of pregnancies among 15–19-year-olds ended in abortion (Table 2). However, in New Jersey, 60% of teenage pregnancies ended in abortion, as did at least 50% in New York, Massachusetts and the District of Columbia. By contrast, only

13% of pregnancies among teenagers in Kentucky and Utah ended in abortion; the proportion was also relatively low (15–16%) in Louisiana, Arkansas and South Dakota.

Between 1988 and 2000, teenage pregnancy rates declined in every state and in the District of Columbia (Table 3). Teenage birthrates increased between 1988 and 1992 in all but four states (Maine, Maryland, New Hampshire and New Jersey); birthrates then fell in all states between 1992 and 2000. By 2000, they were lower than the 1998 rates in all states except Colorado, Iowa, Nebraska and Texas. Teenage abortion rates between 1988 and 2000 declined in every state except Mississippi and Wyoming.

Of the states with available 2000 pregnancy data by race and Hispanic ethnicity (Table 4), Arkansas had the highest the pregnancy rate per 1,000 non-Hispanic white teenagers (77 per 1,000). Pregnancy rates among this group were also high in other southern states: Alabama, Tennessee, Mississippi, Kentucky and South Carolina (71–73 per 1,000). North Dakota had the lowest pregnancy rate among non-Hispanic white teenagers (33 per 1,000).

Pregnancy rates per 1,000 black women aged 15–19 were highest in New Jersey (209 per 1,000), and next highest in Wisconsin, Delaware, Pennsylvania and Oregon (161–177 per 1,000). They were lowest in Utah, New Mexico, West Virginia, Rhode Island and Colorado (71–114 per 1,000).

Georgia, Arizona, Tennessee, Colorado and Delaware had the highest pregnancy rates among Hispanic women aged 15–19 (154–169 per 1,000). In contrast, pregnancy rates among Hispanic teenagers were lowest in Mississippi, Missouri, South Dakota and Ohio (71–115 per 1,000).

Overall, approximately 822,000 pregnancies occurred among women aged 15–19 in 2000; roughly two-thirds of these pregnancies were among 18–19-year-olds (Table 5). In general, states with the largest numbers of teenagers also had the greatest number of teenage pregnancies. California reported the highest number of adolescent pregnancies (113,000), followed by Texas, New York, Florida and Illinois (with about 37,000–80,000 each). The smallest numbers of teenage pregnancies were in Vermont, North Dakota, Wyoming, South Dakota and Alaska, all of which reported fewer than 2,000 pregnancies among women aged 15–19.

This report concludes with a series of tables that were used to calculate rates of pregnancy, birth and abortion in 2000, including numbers of teenage pregnancies, births, abortions and miscarriages, as well as population counts (Tables 5–9). A parallel set of tables of 1999 data (Tables 10–16) follows the 2000 set.

The preparation of this report was made possible by grants from the Marion Cohen Memorial Foundation and the David and Lucile Packard Foundation.

About the Tables

Data Sources and Methodology

The data sources and methods for estimating state teenage pregnancy rates in 1999 and 2000 are similar to those used to measure pregnancy rates for 1996 and 1992.[1] Pregnancies are calculated as the sum of births, miscarriages (including stillbirths) and abortions. The number of births to teenagers in each state and teenage birthrates were obtained from the National Center for Health Statistics (NCHS).[2] The number of miscarriages was estimated as 20% of births plus 10% of abortions; these proportions attempt to account for miscarriages that occur after the pregnancy has lasted long enough to be noticed by the woman (6–7 weeks after her last menstrual period).[3]

The annual numbers of abortions in each state for 1987, 1988, 1991, 1992, 1995, 1996, 1999 and 2000 were calculated from survey data that The Alan Guttmacher Institute (AGI) collected from all known abortion providers. Data for other years were interpolated from the AGI numbers, after adjustment for annual trends based on state health department data compiled by the Centers for Disease Control and Prevention.[4]

The national numbers of abortions by age, race and Hispanic ethnicity were estimated from distributions that we obtained by summing state health department data, after accounting for year-to-year changes in the reporting states.* In 2000, however, data on the race and ethnicity of teenagers having abortions were incomplete in 29 states.

The numbers of teenage abortions by state of residence were calculated from the number of abortions performed in each state for women of all ages (residents and nonresidents), which we estimated from the AGI provider surveys. We reassigned abortions to the woman's state of residence on the basis of information provided by state abortion reporting agencies. In 2000, for six states where complete residence-based information was unavailable, we asked a sample of abortion facilities for information about the state in which women obtaining abortions said they lived.† To estimate the number of nonresidents who had abortions in each state, we applied the percentage distribution of women having abortions, by state of residence, to our count of the total number of abortions that took place in each state.

Of the state residents having abortions, the proportion who were aged 15–17 and 18–19 and members of the various racial and ethnic groups were taken from state health department reports. For states with no information on the age of women having abortions in 2000,‡ we estimated the proportion of abortions obtained by teenagers by using several measures, including the national distribution, the distribution from neighboring or nearby and demographically similar states, and historical distributions from the state (see notes to tables for state-specific calculation methods).

Our calculation methods assume that teenagers travel outside their home state for abortion services in the same proportions as older women.§ This assumption may not be valid in states where minors travel out-of-state to avoid parental involvement requirements or in states to which teenagers travel.

For 1990–2000, NCHS recently released revised population estimates based on the results of the 2000 census. To maintain comparability with prior years, these estimates convert the multiple race responses for an individual from the 2000 decennial census into a single response.[5] Thus we have recalculated all 1990–1999 rates using updated denominators. Furthermore, NCHS publishes birthrates with April 1 population denominators for the decennial census years, and with July 1 denominators for other years. To maintain consistency, we have based all rates on July 1 denominators.

Interpreting the Data

Because health department abortion statistics are incomplete or nonexistent in many states, care should be used in interpreting the teenage abortion and pregnancy data. For the states with no information on the age of women having abortions, the teenage abortion rate was estimated. Similarly, error is introduced by the assumption that teenagers have abortions out-of-state in the same proportions as older women. Therefore, one cannot draw inferences about the effects of parental involvement requirements on the number of abortions obtained by minors.

Births and abortions are reported according to the woman's age at the time of the event, not the age at which she became pregnant; teenage pregnancy rates are therefore understated. For example, the rate for women aged 18–19 would be higher than that shown if pregnancies beginning at age 19 and ending at age 20 were included.

Footnotes

* For a description of the methodology for estimating the number of abortions according to women's characteristics, see Henshaw SK and Van Vort J, *Abortion Factbook, 1992 Edition: Readings, Trends, and State and Local Data to 1988*, New York: The Alan Guttmacher Institute, 1992, p. 164.

† The six states were Arizona, Florida, Iowa, Louisiana, Massachusetts and New Hampshire. In addition, we assumed that no out-of-state women obtained abortions in Alaska, and that for California, the percentage (0.5%) and distribution of out-of-state abortions in 2000 was the same as those in 1982, the last year for which this information is available.

‡ These states were Alaska, California, Florida, New Hampshire and Wyoming.

§ In 1996 only, we used age-specific data on state of residence for some states.

References

1. Henshaw SK and Feivelson DJ, Teenage abortion and pregnancy statistics by state, 1996, *Family Planning Perspectives*, 2000, 32(6):272–280; and Henshaw SK, Teenage abortion, birth and pregnancy statistics by state, 1992, *Family Planning Perspectives*, 1997, 29(3):115–122.

2. National Center for Health Statistics (NCHS), 2000 natality data set, CD-ROM, Hyattsville, MD: NCHS, 2002; and NCHS, 1999 natality data set, CD-ROM, Hyattsville, MD: NCHS, 2001.

3. Leridon H, *Human Fertility: The Basic Components,* Chicago: University of Chicago Press, 1977, Table 4.20.

4. Elam-Evans et al., Abortion surveillance—United States, 2000, *Morbidity and Mortality Weekly Report,* 52(SS-12):1–32.

5. NCHS, U.S. Census populations with bridged race categories, 2003, <http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm>, accessed Feb. 10, 2004; and Ingram DD et al., United States Census 2000 population with bridged race categories, *Vital and Health Statistics,* 2000, Series 2, No. 135.

Table 1. Rates of pregnancy, birth and abortion per 1,000 women aged 15–19, and abortion ratio, by race and ethnicity, 1986-2000

Race/ethnicity and measure	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
TOTAL															
Pregnancy rate*	106.7	106.6	111.4	114.9	116.9	115.3	111.0	108.0	104.6	99.6	95.6	91.4	88.7	85.7	83.6
Birthrate	50.2	50.6	53.0	57.3	60.3	61.8	60.3	59.0	58.2	56.0	53.5	51.3	50.3	48.8	47.7
Abortion rate	42.3	41.8	43.5	42.0	40.5	37.4	35.2	33.9	31.6	29.4	28.6	27.1	25.8	24.7	24.0
Abortion ratio†	45.7	45.2	45.1	42.3	40.2	37.7	36.9	36.5	35.2	34.5	34.8	34.6	33.9	33.6	33.4
WHITE															
All															
Pregnancy rate*	90.0	89.6	93.0	95.8	98.8	96.6	92.3	90.0	87.8	84.9	81.4	77.9	75.9	73.4	71.4
Birthrate	42.3	42.5	44.4	47.9	51.2	52.6	51.4	50.6	50.5	49.5	47.5	45.5	44.9	44.0	43.2
Abortion rate	35.6	35.1	36.1	34.8	33.9	30.4	27.9	26.6	24.7	23.2	22.2	21.1	20.0	18.7	17.9
Abortion ratio†	45.7	45.2	44.9	42.1	39.8	36.6	35.2	34.4	32.8	31.9	31.9	31.7	30.8	29.8	29.3
Non-Hispanic															
Pregnancy rate*	u	u	u	u	87.3	82.7	77.0	74.6	71.8	68.8	65.5	62.9	60.2	57.4	54.7
Birthrate	u	u	u	39.9	41.5	42.7	41.0	40.2	39.8	38.6	36.9	35.4	34.7	33.6	32.2
Abortion rate	u	u	u	u	32.9	28.7	25.3	24.0	21.8	20.5	19.3	18.6	16.9	15.5	14.6
Abortion ratio†	u	u	u	u	44.2	40.2	38.1	37.4	35.4	34.7	34.3	34.4	32.7	31.7	31.3
NONWHITE															
All															
Pregnancy rate*	180.7	180.1	189.1	193.4	189.4	188.5	183.5	177.6	169.0	155.1	148.9	141.6	136.2	130.8	128.2
Birthrate	84.8	85.5	89.2	95.9	96.3	97.8	94.6	91.2	87.5	80.5	75.9	72.6	70.2	66.1	64.4
Abortion rate	71.8	70.4	74.5	71.3	67.0	64.7	63.6	62.0	58.2	53.2	52.5	49.4	47.3	46.8	46.3
Abortion ratio†	45.8	45.2	45.5	42.6	41.0	39.8	40.2	40.5	39.9	39.8	40.9	40.5	40.3	41.4	41.8
Black															
Pregnancy rate*	u	u	u	u	223.8	222.3	216.6	209.9	198.7	181.4	175.1	168.1	162.0	156.1	153.3
Birthrate	95.8	97.6	102.7	111.5	112.9	114.8	111.3	107.3	102.9	94.4	89.6	86.3	83.5	79.1	77.4
Abortion rate	u	u	u	u	80.3	76.9	75.5	73.8	68.3	61.9	61.4	58.7	56.2	55.7	54.9
Abortion ratio†	u	u	u	u	41.6	40.1	40.4	40.7	39.9	39.6	40.7	40.5	40.2	41.3	41.5
HISPANIC															
Pregnancy rate*	u	u	u	u	162.2	169.1	169.7	165.8	164.4	158.5	152.8	143.5	142.5	139.4	137.9
Birthrate	u	u	u	100.8	99.5	104.6	103.3	101.8	101.3	99.3	94.6	89.6	87.9	86.8	87.1
Abortion rate	u	u	u	u	38.9	39.6	41.6	39.7	39.0	35.8	35.7	32.7	33.7	32.1	30.3
Abortion ratio†	u	u	u	u	28.1	27.5	28.7	28.0	27.8	26.5	27.4	26.8	27.7	27.0	25.8

*Includes estimated number of pregnancies ending in miscarriage or stillbirth. †Abortions per 100 pregnancies ending in abortion or live birth; denominator excludes miscarriages and stillbirths.

Notes: In this and subsequent tables, data are tabulated according to the woman´s age at the pregnancy outcome and, for births, according to the mother´s race (not the child´s). Numbers and rates may differ slightly from those published previously because we revised the number of abortions in 1993 through 1997 and used population estimates that came from the 2000 census. u=unavailable.

Table 2. Ranking by rates of pregnancy, birth and abortion per 1,000 women aged 15–19, these rates by age-group, and abortion ratios—all according to state of residence, 2000

State	Pregnancy rate*				Birthrate				Abortion rate				Abortion ratio†
	Rank	15–19	15–17	18–19	Rank	15–19	15–17	18–19	Rank	15–19	15–17	18–19	
U.S. total	**na**	**84**	**48**	**136**	**na**	**48**	**27**	**78**	**na**	**24**	**14**	**38**	**33**
Alabama	15	90	54	142	9	61	37	96	30	16	9	24	20
Alaska‡	30	73	37	140	21	48	24	93	35	14	8	26	23
Arizona	2	104	62	168	3	67	40	108	19	21	12	35	24
Arkansas	10	93	51	155	4	66	35	112	41	12	8	19	16
California‡	7	96	55	156	23	47	27	78	5	36	21	58	43
Colorado	22	82	48	133	15	51	29	84	21	19	12	29	27
Connecticut	33	70	42	113	44	31	16	54	9	30	21	44	49
Delaware	11	93	62	131	19	48	30	72	8	31	24	41	39
District of Columbia	na	128	119	135	na	56	50	61	na	55	53	57	50
Florida§	6	97	55	163	16	51	28	85	7	33	19	56	40
Georgia	8	95	55	154	6	63	36	102	22	18	11	29	23
Hawaii	12	93	50	158	26	46	23	82	6	34	21	55	42
Idaho	37	62	31	106	27	43	21	74	45	10	6	16	19
Illinois	20	87	53	138	20	48	28	79	10	27	18	40	36
Indiana	31	73	39	121	17	49	26	82	38	12	7	20	20
Iowa	43	55	30	89	39	35	18	57	42	12	7	19	26
Kansas	34	69	36	118	24	46	23	81	39	12	8	19	21
Kentucky	25	76	41	124	14	56	30	91	47	8	5	13	13
Louisiana	19	87	50	140	7	62	36	100	44	11	7	18	15
Maine	46	52	27	90	46	29	14	53	31	15	9	24	34
Maryland	13	91	53	151	30	41	23	69	3	38	22	62	48
Massachusetts	40	60	34	94	48	26	15	41	11	26	14	41	50
Michigan	27	75	42	123	32	40	22	67	15	24	14	39	38
Minnesota	47	50	26	85	45	30	16	51	36	13	7	21	29
Mississippi	3	103	64	156	1	71	45	107	28	16	9	25	18
Missouri	29	74	40	124	18	49	27	81	34	14	7	25	22
Montana	38	60	33	102	37	37	19	64	32	14	9	23	28
Nebraska	41	59	32	99	36	38	19	65	40	12	8	19	25
Nevada	1	113	64	194	8	61	33	108	4	36	22	59	37
New Hampshire§	48	47	22	83	50	23	10	43	25	17	9	29	42
New Jersey	16	90	52	154	43	32	17	57	1	47	29	78	60
New Mexico	4	103	64	163	5	66	39	106	18	22	15	33	25
New York	14	91	57	139	42	33	19	54	2	46	31	67	58
North Carolina	9	95	54	152	13	59	33	94	17	22	12	35	27
North Dakota	50	42	21	71	47	28	13	48	48	8	5	12	22
Ohio	28	74	40	124	25	46	24	78	27	17	10	27	27
Oklahoma	21	86	48	141	10	60	33	99	37	12	8	19	17
Oregon	23	79	44	130	28	43	23	72	13	25	15	40	37
Pennsylvania	39	60	34	96	41	34	20	54	23	17	10	28	34
Rhode Island	36	67	38	99	40	34	21	49	16	23	12	36	40
South Carolina	17	89	57	132	12	59	36	89	24	17	13	23	23
South Dakota	44	54	27	94	35	38	19	67	49	7	3	13	16
Tennessee	18	89	50	144	11	60	34	97	29	16	9	26	21
Texas	5	101	59	165	2	69	41	110	26	17	9	30	20
Utah	45	53	30	81	34	39	21	60	50	6	4	9	13
Vermont	49	44	23	75	49	24	11	43	33	14	9	22	37
Virginia	32	72	38	120	31	41	21	69	20	21	11	34	34
Washington	26	75	42	125	33	39	20	67	12	26	16	40	40
West Virginia	35	67	34	112	22	47	23	80	46	10	6	15	17
Wisconsin	42	55	30	93	38	35	19	60	43	12	7	19	25
Wyoming**	24	77	42	132	29	42	19	77	14	25	17	36	37

*Includes estimated number of pregnancies ending in miscarriage or stillbirth. †Abortions per 100 pregnancies ending in abortion or live birth. ‡Abortion estimates are based on the number of abortions among all women in the state and the proportion of abortions obtained by women of the same age nationally. §Abortion estimates are based on the number of abortions among all women in the state and the proportion of abortions obtained by women of the same age in neighboring or similar states. **Abortion estimates are based on the number of abortions among all women in the state and the average proportion of abortions obtained by women of the same age in Wyoming in 1992, 1996 and 1999.

Notes: Even though abortions have been tabulated according to state of residence where possible, in states with parental notification or consent requirements for minors, the pregnancy and abortion rates may be too low because minors have traveled to other states for abortion services. na=not applicable.

Table 3. Rates of pregnancy, birth and abortion per 1,000 women aged 15–19, according to state of residence, selected years

State	Pregnancy rate*				Birthrate				Abortion rate			
	1988	1992	1996	2000	1988	1992	1996	2000	1988	1992	1996	2000
U.S. total	**111**	**111**	**96**	**84**	**53**	**60**	**53**	**48**	**43**	**35**	**29**	**24**
Alabama	110	116	103	90	63	72	67	61	32†	27	20	16
Alaska	111	111	82	73	57	65	51	48	38†	30†	19†	14‡
Arizona	127	131	115	104	69	80	72	67	40	32	26	21
Arkansas	115	115	106	93	70	75	74	66	27	23	16	12
California	154	157	122	96	58	73	61	47	76†	63†	45†	36‡
Colorado	102	111	92	82	49	58	51	51	39	37	29	19
Connecticut	107	95	84	70	36	39	37	31	58	44	37	30
Delaware	117	119	89	93	53	59	54	48	49†	44	23	31
District of Columbia	209	254	199	128	74	107	79	56	110	115	49	55
Florida†	133	125	111	97	63	65	57	51	52†	42†	39†	33†
Georgia	122	126	107	95	69	74	67	63	37	34	24	18
Hawaii	134	140	103	93	49	54	49	46	68	68	40	34
Idaho	73	77	69	62	45	52	47	43	17	14	12	10
Illinois	112	111	103	87	54	63	55	48	43†	32	33	27
Indiana	89	94	87	73	52	59	55	49	25	22	19	12
Iowa	69	66	57	55	33	41	37	35	27†	16†	12†	12
Kansas	88	90	78	69	49	56	49	46	27	21	17	12
Kentucky	96	99	88	76	60	65	61	56	22	19	13	8
Louisiana	107	108	97	87	68	76	67	62	23	15	15	11
Maine	82	70	58	52	41	40	32	29	30	20	18	15
Maryland	129	118	105	91	51	51	46	41	61	52	44	38
Massachusetts	97	86	76	60	32	38	31	26	53	38	36	26
Michigan	111	108	87	75	47	57	46	40	49	37	29	24
Minnesota	69	64	56	50	31	36	32	30	29	19	16	13
Mississippi	106	121	106	103	73	84	74	71	16	19	16	16
Missouri	99	100	85	74	55	63	53	49	30	22	19	14
Montana	74	81	66	60	39	46	39	37	24	23	17	14
Nebraska	75	71	62	59	37	41	39	38	27	20	14	12
Nevada	142	143	140	113	65	71	69	61	59	53	51	36
New Hampshire	87	62	56	47	33	31	28	23	43†	22†	20†	17†
New Jersey	112	96	96	90	39	39	35	32	60	45	49	47
New Mexico	124	128	109	103	72	80	70	66	35	30	22	22
New York	116	118	103	91	40	45	40	33	61	59	50	46
North Carolina	122	120	103	95	61	69	62	59	45	34	25	22
North Dakota	57	59	49	42	31	37	32	28	18	13	10	8
Ohio	96	93	81	74	52	58	50	46	31	21	18	17
Oklahoma	105	100	90	86	62	70	63	60	27†	14†	13†	12
Oregon	105	99	89	79	48	53	50	43	43	32	26	25
Pennsylvania	87	84	68	60	41	45	38	34	34	27	20	17
Rhode Island	86	93	79	67	38	46	39	34	36	35	30	23
South Carolina	114	109	94	89	65	70	60	59	33	23	19	17
South Dakota	69	74	60	54	44	48	40	38	15	14	10	7
Tennessee	110	111	97	89	64	71	64	60	31	24	18	16
Texas	117	122	113	101	69	78	73	69	31	26	23	17
Utah	69	65	58	53	44	46	41	39	15	9	7	6
Vermont	81	71	59	44	33	36	30	24	37	26	22	14
Virginia	106	101	87	72	46	52	45	41	46	35	29	21
Washington	109	107	87	75	47	51	46	39	47	42	29	26
West Virginia	78	85	73	67	50	56	51	47	17†	16	12	10
Wisconsin	74	73	61	55	38	42	37	35	26	21	15	12
Wyoming	82	81	75	77	48	50	45	42	23	19	20	25§

*Includes estimated number of pregnancies ending in miscarriage or stillbirth. Some pregnancy rates were based on state-specific special calculations (see footnotes in abortion rate column). †Abortion estimates are based on the number of abortions among all women in the state and the proportion of abortions obtained by women of the same age in neighboring or similar states. ‡Abortion estimates are based on the number of abortions among all women in the state and the proportion of abortions obtained by women of the same age nationally. §Abortion estimates are based on the average number of abortions among all women in the state and the proportion of abortions obtained by women of the same age in Wyoming in 1992, 1996 and 1999.

Note: Even though abortions have been tabulated according to state of residence where possible, in states with parental notification or consent requirements for minors, the pregnancy and abortion rates may be too low because minors have traveled to other states for abortion services.

Table 4. Rates of pregnancy, birth and abortion rates per 1,000 women aged 15 –19, by race and ethnicity, according to state of residence, 2000

State	Non-Hispanic white			Black			Hispanic		
	Pregnancy*	Birth	Abortion	Pregnancy*	Birth	Abortion	Pregnancy*	Birth	Abortion
U.S. total†	**55**	**32**	**15**	**153**	**77**	**55**	**138**	**87**	**30**
Alabama	73	49	12	123	82	23	136	107	6
Alaska	u	31	u	u	73	u	u	72	u
Arizona	68	38	20	122	74	31	164	114	25
Arkansas	77	56	10	141	97	22	132	103	8
California	u	22	u	u	56	u	u	79	u
Colorado	59	31	20	114	80	16	154	113	16
Connecticut	u	15	u	u	59	u	u	89	u
Delaware	62	32	22	166	85	58	154	103	28
District of Columbia	u	2	u	u	81	u	u	85	u
Florida	u	37	u	u	82	u	u	58	u
Georgia	70	46	13	127	81	27	169	132	10
Hawaii	56	20	29	143	64	60	146	100	23
Idaho	54	36	10	‡	‡	‡	135	105	9
Illinois	u	26	u	u	94	u	u	90	u
Indiana	(63)	42	(11)	145	91	32	u	95	u
Iowa	(49)	30	(11)	128	86	23	u	97	u
Kansas	56	37	10	142	86	35	133	100	12
Kentucky	(71)	53	(7)	119	84	17	u	92	u
Louisiana	(62)	43	(9)	127	92	15	u	40	u
Maine	51	29	15	‡	‡	‡	‡	‡	‡
Maryland	u	26	u	150	67	64	u	62	u
Massachusetts	u	16	u	u	56	u	u	88	u
Michigan	u	27	u	u	80	u	u	81	u
Minnesota	36	21	10	160	89	48	147	105	19
Mississippi	72	52	9	139	93	24	71	52	7
Missouri	60	41	10	152	92	39	109	80	12
Montana	(51)	28	(15)	‡	‡	‡	u	64	u
Nebraska	u	29	u	u	85	u	u	105	u
Nevada	u	40	u	u	77	u	u	108	u
New Hampshire	u	21	u	u	34	u	u	58	u
New Jersey	35	13	18	209	67	116	130	69	43
New Mexico	70	39	21	101	56	31	128	85	23
New York	52	17	28	167	53	93	130	64	48
North Carolina	u	43	u	132	79	34	u	147	u
North Dakota	33	20	8	‡	‡	‡	‡	‡	‡
Ohio	59	38	13	159	93	43	115	80	17
Oklahoma	u	50	u	122	84	19	u	97	u
Oregon	67	35	23	161	69	71	151	103	24
Pennsylvania	41	24	11	165	82	61	128	91	17
Rhode Island	u	19	u	111	55	41	u	94	u
South Carolina	71	44	16	116	79	19	126	96	9
South Dakota	40	27	7	‡	‡	‡	111	77	17
Tennessee	73	50	12	141	90	30	155	120	10
Texas	65	40	15	120	76	26	142	103	16
Utah	43	32	5	71	45	15	141	107	11
Vermont	44	24	14	‡	‡	‡	‡	‡	‡
Virginia	u	30	u	118	68	33	u	71	u
Washington	u	30	u	u	56	u	u	101	u
West Virginia	(66)	47	(9)	103	67	20	u	9	u
Wisconsin	39	24	10	177	111	39	137	98	17
Wyoming	u	36	u	‡	‡	‡	u	81	u

*Includes estimated number of pregnancies ending in miscarriage or stillbirth. †Includes estimates for states not shown. ‡Rate not calculated because population base of women aged 15–19 was <500.

Notes: In states with parental notification or consent requirements for minors, pregnancy and abortion rates may be too low because minors may have traveled to other states for abortion services. Numbers of pregnancies, pregnancy rates and abortion rates in parentheses include abortions obtained by Hispanic women; in these states, ≤ 10% of births to white women 15–19 were to Hispanics. u=unavailable.

Table 5. Number of pregnancies and births among women younger than 20, by age-group, according to state of residence, 2000

State	Pregnancies*				Births			
	<15	15–19	15–17	18–19	<15	15–19	15–17	18–19
U.S. total	**19,640**	**821,810**	**281,900**	**539,910**	**8,519**	**468,990**	**157,209**	**311,781**
Alabama	370	14,400	5,030	9,360	201	9,727	3,403	6,324
Alaska†	30	1,770	590	1,180	14	1,162	381	781
Arizona	390	18,610	6,630	11,990	218	12,018	4,296	7,722
Arkansas	220	8,980	2,910	6,070	130	6,400	2,021	4,379
California†	2,850	113,000	39,320	73,680	896	55,463	18,914	36,549
Colorado	230	12,130	4,340	7,790	117	7,550	2,614	4,936
Connecticut	170	7,420	2,790	4,630	66	3,277	1,077	2,200
Delaware	80	2,540	940	1,610	31	1,330	452	878
District of Columbia	100	2,410	970	1,440	31	1,057	408	649
Florida‡	1,450	48,440	16,710	31,730	531	25,166	8,648	16,518
Georgia	770	27,370	9,380	17,990	396	17,994	6,114	11,880
Hawaii	50	3,600	1,190	2,410	18	1,788	542	1,246
Idaho	50	3,420	1,000	2,410	16	2,349	671	1,678
Illinois	930	37,480	13,680	23,800	391	20,714	7,152	13,562
Indiana	280	16,020	5,020	11,000	128	10,846	3,354	7,492
Iowa	100	6,020	1,880	4,130	48	3,788	1,138	2,650
Kansas	120	7,030	2,160	4,870	56	4,706	1,379	3,327
Kentucky	210	10,610	3,320	7,290	130	7,775	2,403	5,372
Louisiana	450	15,780	5,330	10,450	274	11,269	3,796	7,473
Maine	20	2,250	700	1,550	7	1,273	363	910
Maryland	530	15,910	5,650	10,260	168	7,202	2,499	4,703
Massachusetts	240	12,160	3,880	8,280	90	5,308	1,740	3,568
Michigan	540	26,270	8,820	17,450	223	14,122	4,620	9,502
Minnesota	180	9,120	2,880	6,240	92	5,495	1,739	3,756
Mississippi	410	11,630	4,170	7,460	237	8,028	2,928	5,100
Missouri	280	14,950	4,720	10,230	134	9,852	3,202	6,650
Montana	20	2,070	700	1,370	6	1,268	406	862
Nebraska	70	3,860	1,240	2,620	34	2,477	753	1,724
Nevada	140	7,130	2,510	4,620	65	3,861	1,299	2,562
New Hampshire‡	20	2,000	570	1,430	4	995	257	738
New Jersey	580	23,080	8,330	14,750	132	8,087	2,660	5,427
New Mexico	150	7,290	2,750	4,540	78	4,655	1,700	2,955
New York	1,530	56,420	21,050	35,370	355	20,783	6,958	13,825
North Carolina	670	24,790	8,210	16,590	337	15,353	5,087	10,266
North Dakota	10	1,070	300	770	4	706	187	519
Ohio	710	29,650	9,600	20,060	307	18,455	5,796	12,659
Oklahoma	190	11,110	3,680	7,430	121	7,780	2,523	5,257
Oregon	160	9,360	3,150	6,210	66	5,094	1,657	3,437
Pennsylvania	720	24,950	8,280	16,660	295	14,177	4,763	9,414
Rhode Island	60	2,430	750	1,680	28	1,250	415	835
South Carolina	340	12,760	4,640	8,120	208	8,382	2,921	5,461
South Dakota	30	1,620	490	1,130	19	1,155	353	802
Tennessee	400	17,070	5,600	11,470	226	11,458	3,777	7,681
Texas	1,750	80,050	28,140	51,910	1,122	54,315	19,640	34,675
Utah	70	5,660	1,760	3,910	38	4,146	1,271	2,875
Vermont	10	970	290	670	2	521	138	383
Virginia	400	16,920	5,280	11,650	179	9,630	2,960	6,670
Washington	280	15,630	5,280	10,340	118	8,127	2,560	5,567
West Virginia	60	4,050	1,210	2,840	29	2,839	817	2,022
Wisconsin	210	10,980	3,570	7,420	99	6,977	2,222	4,755
Wyoming§	20	1,550	510	1,040	4	840	235	605

*Rounded to the nearest 10; includes estimated number of pregnancies ending in miscarriage or stillbirth. †Abortion estimates are based on the number of abortions to all women in the state and the proportion of abortions obtained by women of the same age nationally. ‡Abortion estimates are based on the number of abortions among all women in the state and the proportion of abortions obtained by women of the same age in neighboring or similar states. §Abortion estimates are based on the number of abortions among all women in the state and the average proportion of abortions obtained by women of the same age in Wyoming in 1992, 1996 and 1999.

Note: Even though abortions have been tabulated according to state of residence where possible, in states with parental notification or consent requirements for minors, the number of pregnancies may be too low because minors have traveled to other states for abortion services.

Table 6. Number of abortions and number of miscarriages and stillbirths among women younger than 20, by age-group, according to state of residence, 2000

State	Abortions*				Miscarriages and stillbirths*			
	<15	15–19	15–17	18–19	<15	15–19	15–17	18–19
U.S. total	**8,560**	**235,470**	**84,770**	**150,700**	**2,560**	**117,350**	**39,920**	**77,430**
Alabama	120	2,480	860	1,610	50	2,190	770	1,430
Alaska‡	10	340	120	220	†	270	90	180
Arizona	120	3,810	1,340	2,470	60	2,780	990	1,790
Arkansas	60	1,180	440	740	30	1,400	450	950
California‡	1,620	42,230	15,110	27,110	340	15,320	5,290	10,020
Colorado	80	2,790	1,090	1,690	30	1,790	630	1,160
Connecticut	80	3,170	1,360	1,810	20	970	350	620
Delaware	40	860	360	500	10	350	130	230
District of Columbia	60	1,040	430	600	10	320	130	190
Florida§	740	16,590	5,760	10,830	180	6,690	2,310	4,390
Georgia	270	5,250	1,860	3,390	110	4,120	1,410	2,720
Hawaii	30	1,320	490	830	10	490	160	330
Idaho	20	540	180	360	10	520	150	370
Illinois	420	11,480	4,640	6,840	120	5,290	1,890	3,400
Indiana	110	2,730	900	1,830	40	2,440	760	1,680
Iowa	40	1,340	470	870	10	890	270	620
Kansas	50	1,260	460	800	20	1,070	320	750
Kentucky	50	1,170	400	770	30	1,670	520	1,150
Louisiana	110	2,050	700	1,350	70	2,460	830	1,630
Maine	10	660	240	410	†	320	100	220
Maryland	300	6,600	2,410	4,190	60	2,100	740	1,360
Massachusetts	120	5,260	1,630	3,630	30	1,590	510	1,080
Michigan	240	8,480	2,980	5,500	70	3,670	1,220	2,450
Minnesota	70	2,290	720	1,570	20	1,330	420	910
Mississippi	120	1,820	600	1,220	60	1,790	650	1,140
Missouri	100	2,840	800	2,050	40	2,250	720	1,530
Montana	20	500	200	300	†	300	100	200
Nebraska	20	810	300	500	10	580	180	400
Nevada	60	2,270	870	1,400	20	1,000	350	650
New Hampshire§	20	730	230	500	†	270	70	200
New Jersey	380	12,160	4,670	7,490	60	2,830	1,000	1,830
New Mexico	50	1,550	640	910	20	1,090	400	680
New York	1,000	28,620	11,550	17,070	170	7,020	2,550	4,470
North Carolina	240	5,790	1,910	3,880	90	3,650	1,210	2,440
North Dakota	†	200	70	130	†	160	40	120
Ohio	310	6,820	2,400	4,420	90	4,370	1,400	2,970
Oklahoma	40	1,620	600	1,020	30	1,720	560	1,150
Oregon	70	2,950	1,050	1,900	20	1,310	440	880
Pennsylvania	330	7,210	2,330	4,880	90	3,560	1,190	2,370
Rhode Island	30	850	230	620	10	330	110	230
South Carolina	90	2,450	1,030	1,430	50	1,920	690	1,230
South Dakota	†	220	60	150	†	250	80	180
Tennessee	110	3,020	970	2,050	60	2,590	850	1,740
Texas	360	13,520	4,160	9,360	260	12,220	4,340	7,870
Utah	20	630	210	410	10	890	280	620
Vermont	†	310	120	200	†	140	40	100
Virginia	170	4,880	1,570	3,310	50	2,410	750	1,670
Washington	130	5,340	2,010	3,330	40	2,160	710	1,450
West Virginia	20	590	210	380	10	630	180	440
Wisconsin	80	2,370	820	1,560	30	1,630	530	1,110
Wyoming**	20	490	210	290	†	220	70	150

*Rounded to the nearest 10. †<5 abortions or miscarriages/stillbirths. ‡Abortion estimates are based on the number of abortions to all women in the state and the proportion of abortions obtained by women of the same age nationally. §Abortion estimates are based on the number of abortions among all women in the state and the proportion of abortions obtained by women of the same age in neighboring or similar states. **Abortion estimates are based on the number of abortions among all women in the state and the average proportion of abortions obtained by women of the same age in Wyoming in 1992, 1996 and 1999.

Note: Even though abortions have been tabulated according to state of residence where possible, in states with parental notification or consent requirements for minors, the number of abortions and miscarriages may be too low because minors have traveled to other states for abortion services.

Table 7. Population estimates among women aged 15–19, by age-group, according to state of residence, 2000

State	Population		
	15–19	15–17	18–19
U.S. total	**9,826,251**	**5,848,159**	**3,978,092**
Alabama	159,102	93,096	66,006
Alaska	24,148	15,748	8,400
Arizona	178,642	107,170	71,472
Arkansas	96,376	57,216	39,160
California	1,182,526	711,724	470,802
Colorado	148,373	89,804	58,569
Connecticut	106,439	65,612	40,827
Delaware	27,426	15,205	12,221
District of Columbia	18,768	8,115	10,653
Florida	497,983	303,577	194,406
Georgia	287,098	170,640	116,458
Hawaii	38,863	23,628	15,235
Idaho	54,769	31,977	22,792
Illinois	430,275	257,781	172,494
Indiana	219,730	128,760	90,970
Iowa	109,544	63,108	46,436
Kansas	101,613	60,420	41,193
Kentucky	139,429	80,497	58,932
Louisiana	180,517	105,890	74,627
Maine	43,599	26,405	17,194
Maryland	175,482	107,642	67,840
Massachusetts	203,508	115,869	87,639
Michigan	350,542	208,835	141,707
Minnesota	182,859	109,590	73,269
Mississippi	113,307	65,435	47,872
Missouri	201,880	119,320	82,560
Montana	34,497	21,098	13,399
Nebraska	65,381	38,977	26,404
Nevada	62,828	39,049	23,779
New Hampshire	42,761	25,511	17,250
New Jersey	256,582	160,600	95,982
New Mexico	71,021	43,174	27,847
New York	622,580	368,612	253,968
North Carolina	262,292	152,894	109,398
North Dakota	25,473	14,740	10,733
Ohio	399,817	238,258	161,559
Oklahoma	129,483	76,595	52,888
Oregon	119,188	71,538	47,650
Pennsylvania	415,550	242,815	172,735
Rhode Island	36,560	19,569	16,991
South Carolina	143,024	81,498	61,526
South Dakota	30,219	18,189	12,030
Tennessee	191,825	112,368	79,457
Texas	791,597	476,679	314,918
Utah	107,344	59,158	48,186
Vermont	22,046	13,046	9,000
Virginia	236,561	139,512	97,049
Washington	208,102	125,480	82,622
West Virginia	60,473	35,134	25,339
Wisconsin	198,183	118,395	79,788
Wyoming	20,066	12,206	7,860

Table 8. Number of pregnancies, births and abortions among women aged 15–19, by race and ethnicity, according to state of residence, 2000

State	Pregnancies*			Births			Abortions*		
	Non-Hispanic white	Black	Hispanic	Non-Hispanic white	Black	Hispanic	Non-Hispanic white	Black	Hispanic
U.S. total	**346,980**	**235,650**	**204,980**	**204,056**	**118,954**	**129,469**	**92,830**	**84,460**	**45,110**
Alabama	7,310	6,600	390	4,976	4,380	305	1,210	1,220	20
Alaska	u	u	u	483	80	83	u	u	u
Arizona	6,670	930	9,480	3,732	559	6,585	1,990	240	1,440
Arkansas	5,470	2,890	460	3,942	1,992	358	670	460	30
California	u	u	u	10,279	5,406	36,919	u	u	u
Colorado	6,190	850	4,810	3,258	594	3,539	2,070	120	520
Connecticut	u	u	u	1,108	851	1,249	u	u	u
Delaware	1,160	1,120	240	589	577	158	420	390	40
District of Columbia	u	u	150	10	926	126	u	u	u
Florida	u	u	u	10,311	9,255	5,481	u	u	u
Georgia	11,510	12,890	2,580	7,593	8,213	2,004	2,180	2,760	160
Hawaii	470	130	u	164	57	414	250	50	100
Idaho	2,590	30	670	1,724	18	517	480	10	40
Illinois	u	u	u	7,063	7,647	5,832	u	u	u
Indiana	(11,600)	3,240	1,020	7,858	2,045	851	(1,970)	720	u
Iowa	(4,930)	410	410	3,061	272	344	(1,140)	70	u
Kansas	4,640	1,030	1,100	3,070	629	832	860	250	100
Kentucky	(8,740)	1,530	u	6,472	1,075	194	(890)	210	†
Louisiana	(6,350)	9,030	200	4,422	6,546	170	(950)	1,070	u
Maine	2,110	40	u	1,205	20	14	610	10	10
Maryland	u	8,840	640	2,645	3,934	533	u	3,740	u
Massachusetts	u	u	u	2,543	1,009	1,727	u	u	u
Michigan	u	u	u	7,204	4,545	1,152	u	u	u
Minnesota	5,580	1,400	920	3,280	779	660	1,500	420	120
Mississippi	4,280	7,140	110	3,075	4,796	80	540	1,260	10
Missouri	9,920	4,230	550	6,782	2,541	407	1,620	1,070	60
Montana	(1,530)	10	u	854	10	61	(460)	†	u
Nebraska	u	u	u	1,615	293	404	u	u	u
Nevada	u	u	u	1,518	445	1,658	u	u	u
New Hampshire	u	u	u	854	18	53	u	u	u
New Jersey	5,310	10,090	5,640	1,961	3,259	3,000	2,690	5,620	1,860
New Mexico	1,790	190	4,460	1,001	103	2,976	540	60	810
New York	18,300	22,890	14,660	6,010	7,325	7,251	10,080	12,820	5,410
North Carolina	u	9,400	u	7,229	5,621	1,996	u	2,420	u
North Dakota	770	10	u	472	9	20	180	†	10
Ohio	19,550	8,760	1,130	12,432	5,127	787	4,210	2,370	170
Oklahoma	u	1,560	u	4,619	1,076	813	u	240	u
Oregon	6,560	460	1,760	3,423	198	1,209	2,230	200	290
Pennsylvania	13,710	8,510	2,340	8,066	4,218	1,665	3,660	3,130	310
Rhode Island	u	340	u	540	170	385	u	120	u
South Carolina	5,970	6,200	470	3,738	4,217	361	1,350	1,040	30
South Dakota	1,030	20	60	698	14	41	180	†	10
Tennessee	10,540	5,680	690	7,224	3,631	536	1,700	1,210	50
Texas	23,910	12,660	42,430	14,811	8,065	30,924	5,580	2,710	4,840
Utah	4,010	90	1,270	2,924	55	962	460	20	100
Vermont	930	10	u	501	2	3	300	10	†
Virginia	u	6,880	u	4,656	3,987	864	u	1,900	u
Washington	u	u	u	4,806	536	1,968	u	u	u
West Virginia	(3,780)	250	u	2,663	161	5	(530)	50	u
Wisconsin	6,560	2,640	1,210	3,960	1,656	867	1,640	590	150
Wyoming	u	u	u	632	12	126	u	u	u

*Rounded to the nearest 10. †<5 abortions.

Notes: Numbers of pregnancies include estimates of the numbers of miscarriages and stillbirths. Numbers of pregnancies and abortions in parentheses include abortions obtained by Hispanic women; in these states ≤ 10% of births to white women 15–19 were to Hispanics. Even though abortions have been tabulated according to state of residence where possible, in states with parental notification or consent requirements for minors, the number of abortions and pregnancies may be too low because minors have traveled to other states for abortion services. u=unavailable.

Table 9. Number of miscarriages and stillbirths, and total population, among women aged 15–19, by race and ethnicity, according to state of residence, 2000

State	Miscarriages and stillbirths*			Population		
	Non-Hispanic white	Black	Hispanic	Non-Hispanic white	Black	Hispanic
U.S. total	**50,090**	**32,240**	**30,400**	**6,344,322**	**1,537,501**	**1,486,384**
Alabama	1,120	1,000	60	100,676	53,481	2,840
Alaska	u	u	u	15,638	1,102	1,145
Arizona	950	140	1,460	98,067	7,600	57,673
Arkansas	860	440	70	70,829	20,460	3,489
California	u	u	u	470,069	97,258	469,600
Colorado	860	130	760	104,527	7,452	31,318
Connecticut	u	u	u	76,032	14,382	14,058
Delaware	160	150	40	18,664	6,750	1,529
District of Columbia	u	u	u	5,514	11,419	1,474
Florida	u	u	u	282,354	113,159	93,750
Georgia	1,740	1,920	420	163,783	101,779	15,239
Hawaii	60	20	90	8,379	893	4,136
Idaho	390	†	110	47,999	343	4,938
Illinois	u	u	u	270,175	81,146	64,487
Indiana	(1,770)	480	u	185,573	22,413	8,954
Iowa	(730)	60	u	100,746	3,176	3,543
Kansas	700	150	180	82,876	7,282	8,316
Kentucky	(1,380)	240	40	123,134	12,849	2,107
Louisiana	(980)	1,420	u	101,976	71,116	4,220
Maine	300	10	†	41,822	436	470
Maryland	u	1,160	u	100,719	58,817	8,585
Massachusetts	u	u	u	157,701	17,900	19,629
Michigan	u	u	u	269,627	57,145	14,269
Minnesota	810	200	140	157,034	8,753	6,277
Mississippi	670	1,090	20	59,221	51,427	1,532
Missouri	1,520	620	90	165,289	27,719	5,103
Montana	(220)	†	u	30,110	184	958
Nebraska	u	u	u	56,392	3,444	3,846
Nevada	u	u	u	37,571	5,767	15,311
New Hampshire	u	u	u	40,523	527	910
New Jersey	660	1,210	790	153,233	48,287	43,376
New Mexico	250	30	680	25,626	1,855	34,868
New York	2,210	2,750	1,990	354,025	137,329	112,724
North Carolina	u	1,370	u	169,325	71,391	13,593
North Dakota	110	†	†	23,035	230	378
Ohio	2,910	1,260	170	329,293	55,246	9,797
Oklahoma	u	240	u	91,677	12,792	8,358
Oregon	910	60	270	97,620	2,870	11,696
Pennsylvania	1,980	1,160	360	337,576	51,507	18,283
Rhode Island	u	50	u	28,308	3,073	4,083
South Carolina	880	950	80	84,221	53,379	3,743
South Dakota	160	†	10	25,783	249	532
Tennessee	1,620	850	110	144,419	40,202	4,466
Texas	3,520	1,880	6,670	366,068	105,826	298,803
Utah	630	10	200	92,673	1,221	8,992
Vermont	130	†	†	21,132	218	303
Virginia	u	990	u	156,200	58,488	12,254
Washington	u	u	u	158,929	9,640	19,515
West Virginia	(590)	40	u	57,075	2,400	534
Wisconsin	960	390	190	167,431	14,915	8,828
Wyoming	u	u	u	17,653	204	1,552

*Estimated as 20% of births plus 10% of abortions and rounded to the nearest 10. †<5 miscarriages/stillbirths.

Notes: Numbers of miscarriages and stillbirths in parentheses include those estimated from abortions obtained by Hispanic women; in these states≤ 10% of births to white women 15–19 were to Hispanics. Even though abortions have been tabulated according to state of residence where possible, in states with parental notification or consent requirements for minors, the number of miscarriages and stillbirths may be too low because minors have traveled to other states for abortion services. u=unavailable.

Table 10. Ranking by rates of pregnancy, birth and abortion per 1,000 women aged 15–19, these rates by age-group, and abortion ratios—all according to state of residence, 1999

State	Pregnancy rate*				Birthrate				Abortion rate				Abortion ratio†
	Rank	15–19	15–17	18–19	Rank	15–19	15–17	18–19	Rank	15–19	15–17	18–19	
U.S. total	**na**	**86**	**51**	**137**	**na**	**49**	**28**	**79**	**na**	**25**	**15**	**39**	**34**
Alabama	16	91	55	142	9	61	37	95	28	16	10	26	21
Alaska‡	27	76	41	144	24	48	25	91	27	17	9	32	26
Arizona	2	105	64	163	3	68	42	106	21	21	13	33	24
Arkansas	12	93	52	153	5	66	36	109	41	13	7	20	16
California‡	7	100	60	160	21	49	29	79	4	37	23	60	43
Colorado	23	83	52	130	18	50	30	80	19	21	15	30	30
Connecticut	34	72	46	113	44	33	19	54	9	30	22	44	48
Delaware	11	94	62	134	16	51	33	73	8	30	21	42	37
District of Columbia	na	133	124	139	na	56	53	58	na	59	54	63	51
Florida§	6	101	59	163	15	52	30	84	7	35	21	56	40
Georgia	8	99	59	157	7	64	37	101	20	21	13	32	25
Hawaii	14	93	54	154	27	45	24	79	6	35	23	54	44
Idaho	36	67	37	108	28	43	25	70	39	13	7	22	24
Illinois	20	87	53	138	19	50	29	81	12	25	17	37	34
Indiana	30	75	41	123	17	51	28	82	38	13	7	22	21
Iowa	43	56	30	91	39	35	19	58	42	12	7	19	26
Kansas	33	73	39	122	23	48	25	83	37	13	8	21	22
Kentucky	25	78	43	128	14	56	30	93	46	10	6	15	14
Louisiana	19	89	52	141	8	63	37	100	44	12	7	19	16
Maine	46	52	27	93	46	30	14	56	33	15	9	23	33
Maryland	9	96	59	156	30	42	25	70	3	42	27	66	50
Massachusetts	40	60	36	93	47	27	16	42	13	25	15	38	48
Michigan	26	77	43	127	31	41	23	69	14	25	14	40	37
Minnesota	47	51	28	85	45	30	17	51	40	13	7	22	30
Mississippi	4	102	62	156	1	71	44	107	31	15	8	24	18
Missouri	31	75	41	124	20	49	27	82	35	14	7	24	22
Montana	39	61	34	105	38	36	18	65	29	16	11	25	31
Nebraska	41	60	33	100	36	38	20	64	36	14	8	22	27
Nevada	1	116	72	184	6	64	37	105	5	36	25	52	36
New Hampshire§	49	45	23	78	50	24	11	43	32	15	9	24	39
New Jersey	15	91	53	155	43	33	18	58	1	47	29	77	59
New Mexico	5	101	64	160	4	67	42	106	22	19	13	29	22
New York	13	93	59	143	41	35	20	56	2	47	32	69	57
North Carolina	10	95	57	146	13	58	35	88	15	23	13	36	28
North Dakota	50	41	21	70	48	27	13	47	49	8	5	13	23
Ohio	29	75	42	125	25	46	25	78	25	18	11	28	28
Oklahoma§	22	84	47	139	11	60	33	99	45	11	6	18	15
Oregon	21	85	49	139	26	46	25	77	11	27	17	42	37
Pennsylvania	38	62	36	98	40	35	21	55	24	18	10	29	34
Rhode Island	37	65	40	94	42	34	21	47	16	23	13	34	41
South Carolina	18	89	58	131	12	59	37	87	26	17	12	24	23
South Dakota	44	56	28	98	35	39	19	68	48	9	5	15	18
Tennessee	17	91	51	146	10	61	34	98	30	16	9	26	21
Texas	3	104	63	165	2	70	43	109	23	19	10	31	21
Utah	45	53	30	81	34	39	22	59	50	6	4	9	13
Vermont	48	46	25	76	49	25	12	44	34	14	10	21	37
Virginia	28	76	41	125	29	43	23	71	17	22	12	36	34
Washington	24	79	45	131	33	41	22	70	10	27	17	42	40
West Virginia	35	68	36	112	22	48	25	81	47	9	5	13	15
Wisconsin	42	57	32	93	37	36	21	60	43	12	7	20	25
Wyoming	32	73	41	125	32	41	22	72	18	22	13	35	34

*Includes estimated number of pregnancies ending in miscarriage or stillbirth. †Abortions per 100 pregnancies ending in abortion or live birth. ‡Abortion estimates are based on the number of abortions among all women in the state and the proportion of abortions obtained by women of the same age nationally. §Abortion estimates are based on the number of abortions among all women in the state and the proportion of abortions obtained by women of the same age in neighboring or

Notes: Even though abortions have been tabulated according to state of residence where possible, in states with parental notification or consent requirements for minors, the pregnancy and abortion rates may be too low because minors have traveled to other states for abortion services. na=not applicable.

Table 11. Rates of pregnancy, birth and abortion per 1,000 women aged 15–19, by race and ethnicity, according to state of residence, 1999

State	Non-Hispanic white			Black			Hispanic		
	Pregnancy*	Birth	Abortion	Pregnancy*	Birth	Abortion	Pregnancy*	Birth	Abortion
U.S. total†	**57**	**34**	**16**	**156**	**79**	**56**	**139**	**87**	**32**
Alabama	74	49	13	123	82	23	138	102	14
Alaska	u	34	u	u	69	u	u	59	u
Arizona	59	40	10	126	81	27	159	113	21
Arkansas	78	56	11	138	98	19	132	103	7
California	u	24	u	u	59	u	u	81	u
Colorado	63	32	23	112	73	22	143	109	12
Connecticut	u	16	u	u	59	u	u	97	u
Delaware	66	34	23	165	92	50	145	94	29
District of Columbia	u	3	u	u	81	u	u	66	u
Florida	u	39	u	u	82	u	u	58	u
Georgia	76	49	16	133	82	31	149	116	9
Hawaii	u	18	u	92	42	38	u	98	u
Idaho	59	38	13	‡	‡	‡	130	95	14
Illinois	u	28	u	u	100	u	u	89	u
Indiana	(65)	44	(11)	157	96	38	u	83	u
Iowa	(50)	31	(11)	143	91	31	u	100	u
Kansas	60	39	12	158	97	38	129	99	9
Kentucky	u	53	u	u	84	u	104	86	1
Louisiana	(64)	45	(9)	127	91	16	u	39	u
Maine	49	28	14	‡	‡	‡	‡	‡	‡
Maryland	u	27	u	154	70	63	u	57	u
Massachusetts	u	17	u	u	60	u	u	88	u
Michigan	u	28	u	u	82	u	u	81	u
Minnesota	37	21	10	163	93	47	139	102	15
Mississippi	72	51	10	136	94	22	61	47	5
Missouri	62	42	10	150	91	37	105	75	13
Montana	(53)	29	(17)	‡	‡	‡	u	57	u
Nebraska	u	28	u	u	98	u	u	105	u
Nevada	u	45	u	u	87	u	u	105	u
New Hampshire	u	22	u	‡	‡	‡	u	58	u
New Jersey	36	14	18	212	71	115	139	71	49
New Mexico	69	39	20	87	57	18	126	88	19
New York	46	18	22	168	54	93	159	66	73
North Carolina	u	43	u	133	79	34	u	136	u
North Dakota	(34)	21	(8)	‡	‡	‡	‡	‡	‡
Ohio	62	39	14	155	89	44	99	66	18
Oklahoma	u	52	u	u	82	u	u	91	u
Oregon	75	39	26	156	66	70	156	108	24
Pennsylvania	42	25	11	173	84	66	132	93	19
Rhode Island	u	19	u	108	48	45	u	79	u
South Carolina	73	45	17	114	78	18	123	89	14
South Dakota	42	28	8	‡	‡	‡	‡	‡	‡
Tennessee	76	52	12	141	90	30	129	97	12
Texas	69	42	17	124	80	25	144	103	18
Utah	44	32	5	74	48	15	133	103	9
Vermont	46	25	15	‡	‡	‡	‡	‡	‡
Virginia	u	31	u	126	72	35	u	67	u
Washington	u	32	u	u	60	u	u	96	u
West Virginia	(66)	48	(8)	110	75	19	‡	‡	‡
Wisconsin	40	25	10	184	119	37	125	90	15
Wyoming	u	38	u	‡	‡	‡	u	64	u

*Includes estimated number of pregnancies ending in miscarriage or stillbirth. †Includes estimates for states not shown. ‡Rate not calculated because population base of women aged 15–19 was <500.

Notes: In states with parental notification or consent requirements for minors, pregnancy and abortion rates may be too low because minors may have traveled to other states for abortion services. Numbers of pregnancies, pregnancy rates and abortion rates in parentheses include abortions obtained by Hispanic women; in these states, ≤ 10% of births to white women 15–19 were to Hispanics. u=unavailable.

Table 12. Number of pregnancies and births among women younger than 20, by age-group, according to state of residence, 1999

State	Pregnancies*				Births			
	<15	15–19	15–17	18–19	<15	15–19	15–17	18–19
U.S. total	**20,460**	**836,290**	**293,570**	**542,730**	**9,054**	**476,050**	**163,588**	**312,462**
Alabama	410	14,730	5,160	9,570	221	9,850	3,459	6,391
Alaska†	40	1,780	630	1,150	17	1,123	396	727
Arizona	400	18,150	6,540	11,600	236	11,789	4,243	7,546
Arkansas	190	9,060	2,980	6,080	109	6,434	2,098	4,336
California†	2,930	115,570	41,620	73,950	1,038	56,635	20,230	36,405
Colorado	210	12,100	4,550	7,550	106	7,251	2,579	4,672
Connecticut	170	7,500	2,930	4,560	50	3,386	1,191	2,195
Delaware	60	2,570	940	1,630	33	1,384	496	888
District of Columbia	80	2,550	1,010	1,530	37	1,076	438	638
Florida‡	1,520	48,440	17,160	31,280	544	24,912	8,770	16,142
Georgia	830	28,190	9,940	18,250	418	18,027	6,236	11,791
Hawaii	70	3,620	1,310	2,320	15	1,759	578	1,181
Idaho	50	3,690	1,200	2,480	30	2,396	793	1,603
Illinois	950	37,590	13,740	23,850	421	21,417	7,408	14,009
Indiana	290	16,690	5,260	11,430	165	11,189	3,539	7,650
Iowa	100	6,220	1,960	4,270	44	3,948	1,199	2,749
Kansas	130	7,410	2,350	5,060	51	4,920	1,499	3,421
Kentucky	200	11,140	3,560	7,590	118	8,045	2,524	5,521
Louisiana	430	16,220	5,620	10,610	270	11,538	4,023	7,515
Maine	30	2,270	720	1,560	10	1,313	373	940
Maryland	600	16,550	6,200	10,350	165	7,238	2,608	4,630
Massachusetts	240	12,140	4,080	8,060	73	5,524	1,861	3,663
Michigan	640	27,000	9,010	17,990	270	14,547	4,755	9,792
Minnesota	180	9,220	3,050	6,180	89	5,503	1,805	3,698
Mississippi	350	11,780	4,180	7,600	208	8,200	2,961	5,239
Missouri	310	15,150	4,870	10,280	143	10,006	3,241	6,765
Montana	20	2,120	730	1,390	11	1,249	395	854
Nebraska	60	3,950	1,300	2,650	35	2,470	791	1,679
Nevada	150	6,860	2,600	4,260	73	3,777	1,336	2,441
New Hampshire‡	30	1,890	570	1,330	6	997	271	726
New Jersey	610	23,000	8,400	14,600	172	8,282	2,786	5,496
New Mexico	170	7,200	2,790	4,410	102	4,753	1,814	2,939
New York	1,590	57,670	21,630	36,040	389	21,489	7,308	14,181
North Carolina	720	24,620	8,540	16,070	352	15,049	5,280	9,769
North Dakota	10	1,080	310	760	7	703	198	505
Ohio	700	30,320	10,010	20,320	329	18,710	5,994	12,716
Oklahoma‡	210	10,980	3,630	7,350	135	7,850	2,579	5,271
Oregon	180	10,110	3,490	6,630	86	5,492	1,795	3,697
Pennsylvania	700	25,760	8,700	17,050	279	14,604	5,010	9,594
Rhode Island	40	2,390	770	1,620	16	1,222	414	808
South Carolina	370	12,900	4,770	8,140	208	8,467	3,062	5,405
South Dakota	20	1,700	520	1,180	17	1,175	355	820
Tennessee	440	17,490	5,760	11,730	247	11,723	3,860	7,863
Texas	1,820	81,180	29,530	51,660	1,165	54,367	20,121	34,246
Utah	60	5,810	1,850	3,960	43	4,253	1,342	2,911
Vermont	20	1,010	320	680	8	549	156	393
Virginia	470	17,610	5,580	12,030	207	9,935	3,109	6,826
Washington	330	16,290	5,580	10,700	138	8,441	2,701	5,740
West Virginia	50	4,250	1,300	2,950	25	3,044	904	2,140
Wisconsin	230	11,260	3,800	7,460	117	7,194	2,428	4,766
Wyoming	20	1,500	510	990	6	845	276	569

*Rounded to the nearest 10; includes estimated number of pregnancies ending in miscarriage or stillbirth. †Abortion estimates are based on the number of abortions among all women in the state and the proportion of abortions obtained by women of the same age nationally. ‡Abortion estimates are based on the number of abortions among all women in the state and the proportion of abortions obtained by women of the same age in neighboring or similar states.

Note: Even though abortions have been tabulated according to state of residence where possible, in states with parental notification or consent requirements for minors, the number of pregnancies may be too low because minors have traveled to other states for abortion services.

Table 13. Number of abortions and number of miscarriages and stillbirths among women younger than 20, by age-group, according to state of residence, 1999

State	Abortions*				Miscarriages and stillbirths*			
	<15	15–19	15–17	18–19	<15	15–19	15–17	18–19
U.S. total	**8,720**	**240,940**	**88,420**	**152,520**	**2,680**	**119,300**	**41,560**	**77,740**
Alabama	130	2,640	920	1,720	60	2,230	780	1,450
Alaska‡	10	400	140	250	†	260	90	170
Arizona	110	3,640	1,320	2,320	60	2,720	980	1,740
Arkansas	50	1,220	420	790	30	1,410	460	950
California‡	1,530	43,280	15,770	27,520	360	15,660	5,620	10,030
Colorado	80	3,090	1,320	1,770	30	1,760	650	1,110
Connecticut	100	3,120	1,370	1,750	20	990	370	610
Delaware	20	820	310	510	10	360	130	230
District of Columbia	40	1,140	440	700	10	330	130	200
Florida§	790	16,860	6,030	10,830	190	6,670	2,360	4,310
Georgia	300	5,960	2,240	3,730	110	4,200	1,470	2,730
Hawaii	50	1,380	560	820	10	490	170	320
Idaho	10	740	230	510	10	550	180	370
Illinois	400	10,810	4,410	6,400	120	5,360	1,920	3,440
Indiana	90	2,970	920	2,050	40	2,530	800	1,730
Iowa	40	1,350	470	880	10	920	290	640
Kansas	60	1,370	500	870	20	1,120	350	770
Kentucky	50	1,360	480	870	30	1,740	550	1,190
Louisiana	100	2,160	720	1,450	60	2,520	880	1,650
Maine	20	630	240	390	†	330	100	230
Maryland	360	7,150	2,790	4,350	70	2,160	800	1,360
Massachusetts	140	5,010	1,680	3,330	30	1,610	540	1,070
Michigan	290	8,670	3,000	5,670	80	3,780	1,250	2,530
Minnesota	60	2,380	800	1,580	20	1,340	440	900
Mississippi	90	1,760	570	1,190	50	1,820	650	1,170
Missouri	120	2,860	900	1,960	40	2,290	740	1,550
Montana	10	560	240	330	†	310	100	200
Nebraska	20	900	320	580	10	580	190	390
Nevada	60	2,120	910	1,210	20	970	360	610
New Hampshire§	20	630	220	410	†	260	80	190
New Jersey	370	11,880	4,600	7,280	70	2,840	1,020	1,830
New Mexico	40	1,360	560	800	20	1,090	420	670
New York	1,020	28,990	11,690	17,290	180	7,200	2,630	4,570
North Carolina	270	5,960	2,010	3,960	100	3,610	1,260	2,350
North Dakota	†	210	70	140	†	160	50	120
Ohio	280	7,150	2,560	4,600	90	4,460	1,450	3,000
Oklahoma§	40	1,420	480	930	30	1,710	560	1,150
Oregon	70	3,200	1,210	1,990	20	1,420	480	940
Pennsylvania	340	7,480	2,450	5,040	90	3,670	1,250	2,420
Rhode Island	20	840	250	590	†	330	110	220
South Carolina	110	2,490	990	1,500	50	1,940	710	1,230
South Dakota	†	260	80	180	†	260	80	180
Tennessee	130	3,110	1,020	2,090	60	2,660	870	1,780
Texas	390	14,490	4,890	9,600	270	12,320	4,510	7,810
Utah	10	640	210	430	10	910	290	620
Vermont	10	320	120	190	†	140	40	100
Virginia	200	5,170	1,680	3,490	60	2,500	790	1,710
Washington	150	5,600	2,130	3,470	40	2,250	750	1,490
West Virginia	20	550	200	350	10	660	200	460
Wisconsin	80	2,390	800	1,580	30	1,680	570	1,110
Wyoming	20	440	160	280	†	210	70	140

*Rounded to the nearest 10. †<5 abortions or miscarriages/stillbirths. ‡Abortion estimates are based on the number of abortions among all women in the state and the proportion of abortions obtained by women of the same age nationally. §Abortion estimates are based on the number of abortions among all women in the state and the proportion of abortions obtained by women of the same age in neighboring or similar states.

Note: Even though abortions have been tabulated according to state of residence where possible, in states with parental notification or consent requirements for minors, the number of abortions and miscarriages may be too low because minors have traveled to other states for abortion services.

Table 14. Population estimates among women aged 15–19, by age-group, according to state of residence, 1999

State	Population		
	15–19	15–17	18–19
U.S. total	**9,761,569**	**5,810,904**	**3,950,665**
Alabama	161,690	94,541	67,149
Alaska	23,567	15,589	7,978
Arizona	173,368	102,137	71,231
Arkansas	97,269	57,600	39,669
California	1,154,633	693,318	461,315
Colorado	145,017	86,897	58,120
Connecticut	103,613	63,309	40,304
Delaware	27,299	15,147	12,152
District of Columbia	19,213	8,201	11,012
Florida	481,898	289,885	192,013
Georgia	283,808	167,277	116,531
Hawaii	39,097	24,064	15,033
Idaho	55,083	32,109	22,974
Illinois	431,253	258,406	172,847
Indiana	221,560	128,604	92,956
Iowa	111,498	64,505	46,993
Kansas	102,221	60,924	41,297
Kentucky	142,606	83,375	59,231
Louisiana	183,175	107,826	75,349
Maine	43,451	26,688	16,763
Maryland	171,587	105,237	66,350
Massachusetts	201,583	114,814	86,769
Michigan	351,020	209,037	141,983
Minnesota	181,500	109,240	72,260
Mississippi	115,717	66,892	48,825
Missouri	202,455	119,865	82,590
Montana	34,674	21,473	13,201
Nebraska	65,795	39,363	26,432
Nevada	59,135	35,927	23,208
New Hampshire	41,820	24,815	17,005
New Jersey	252,487	158,475	94,012
New Mexico	71,114	43,505	27,609
New York	620,076	368,223	251,853
North Carolina	259,279	148,873	110,406
North Dakota	26,081	15,243	10,838
Ohio	402,533	239,569	162,964
Oklahoma	130,625	77,631	52,994
Oregon	119,020	71,173	47,847
Pennsylvania	415,900	242,543	173,357
Rhode Island	36,461	19,314	17,147
South Carolina	144,637	82,639	61,998
South Dakota	30,482	18,445	12,037
Tennessee	192,848	112,654	80,194
Texas	781,157	467,694	313,463
Utah	109,716	60,763	48,953
Vermont	21,953	13,016	8,937
Virginia	233,103	136,851	96,252
Washington	205,963	124,274	81,689
West Virginia	62,818	36,441	26,377
Wisconsin	198,303	118,301	80,002
Wyoming	20,408	12,506	7,902

Note: To partition the estimated number of 15–19-year-olds in 1999 into age-groups 15–17 and 18–19, proportions from the 2000 census were used.

Table 15. Number of pregnancies, births and abortions among women aged 15–19, by race and ethnicity, according to state of residence, 1999

State	Pregnancies*			Births			Abortions*		
	Non-Hispanic white	Black	Hispanic	Non-Hispanic white	Black	Hispanic	Non-Hispanic white	Black	Hispanic
U.S. total	**364,010**	**239,230**	**200,330**	**212,923**	**121,166**	**124,677**	**98,640**	**85,300**	**46,110**
Alabama	7,520	6,760	360	5,051	4,481	264	1,320	1,260	40
Alaska	u	u	u	518	75	63	u	u	u
Arizona	5,660	930	8,810	3,826	593	6,281	970	200	1,160
Arkansas	5,610	2,910	410	3,975	2,061	321	760	400	20
California	u	u	u	11,154	5,639	36,709	u	u	u
Colorado	6,540	820	4,310	3,277	531	3,264	2,370	160	350
Connecticut	u	u	u	1,170	831	1,302	u	u	u
Delaware	1,240	1,110	210	629	614	137	440	330	40
District of Columbia	u	u	120	14	956	100	u	u	u
Florida	u	u	u	10,661	8,993	5,126	u	u	u
Georgia	12,370	13,460	2,020	7,955	8,315	1,579	2,570	3,170	120
Hawaii	u	90	u	145	41	411	u	40	u
Idaho	2,890	30	620	1,838	12	454	620	20	70
Illinois	u	u	u	7,520	8,158	5,585	u	u	u
Indiana	(12,140)	3,530	850	8,210	2,164	706	(2,080)	850	u
Iowa	(5,150)	430	390	3,220	275	322	(1,170)	90	u
Kansas	5,010	1,140	1,020	3,283	700	787	980	270	70
Kentucky	u	u	u	6,756	1,093	151	u	u	†
Louisiana	(6,640)	9,170	200	4,640	6,585	165	(980)	1,150	u
Maine	2,050	30	u	1,157	19	18	600	10	†
Maryland	u	8,860	550	2,637	4,048	460	u	3,640	u
Massachusetts	u	u	u	2,730	1,050	1,698	u	u	u
Michigan	u	u	u	7,471	4,668	1,116	u	u	u
Minnesota	5,810	1,330	800	3,352	757	584	1,630	390	90
Mississippi	4,360	7,240	80	3,097	4,969	63	590	1,160	10
Missouri	10,290	4,140	500	7,012	2,520	356	1,710	1,010	60
Montana	(1,620)	10	u	877	5	53	(520)	†	u
Nebraska	u	u	u	1,589	329	372	u	u	u
Nevada	u	u	u	1,608	470	1,475	u	u	u
New Hampshire	u	u	u	880	11	49	u	u	u
New Jersey	5,420	10,120	5,860	2,068	3,378	2,977	2,670	5,510	2,080
New Mexico	1,790	160	4,390	1,025	105	3,045	510	30	670
New York	16,340	22,880	17,830	6,350	7,361	7,348	7,930	12,770	8,190
North Carolina	u	9,490	u	7,206	5,675	1,613	u	2,440	u
North Dakota	(800)	20	u	492	13	21	(190)	10	u
Ohio	20,590	8,550	940	13,042	4,916	627	4,490	2,410	170
Oklahoma	u	u	u	4,873	1,063	738	u	u	u
Oregon	7,400	440	1,730	3,801	185	1,195	2,580	200	270
Pennsylvania	14,210	8,820	2,330	8,475	4,272	1,631	3,680	3,360	340
Rhode Island	u	320	u	541	144	311	u	140	u
South Carolina	6,200	6,200	400	3,865	4,249	293	1,420	1,000	50
South Dakota	1,100	30	40	726	13	26	210	10	10
Tennessee	11,020	5,770	510	7,574	3,674	386	1,750	1,240	50
Texas	25,210	13,010	41,910	15,320	8,397	30,151	6,210	2,670	5,210
Utah	4,240	80	1,170	3,080	51	906	500	20	80
Vermont	960	10	u	518	7	3	310	†	†
Virginia	u	7,290	u	4,856	4,202	757	u	2,040	u
Washington	u	u	u	5,136	552	1,799	u	u	u
West Virginia	(3,940)	270	u	2,829	180	23	(500)	50	u
Wisconsin	6,820	2,710	1,040	4,206	1,755	755	1,610	550	120
Wyoming	u	u	u	688	11	101	u	u	u

*Rounded to the nearest 10. †<5 abortions.

Notes: Numbers of pregnancies include estimates of the numbers of miscarriages and stillbirths. Numbers of pregnancies and abortions in parentheses include abortions obtained by Hispanic women; in these states≤ 10% of births to white women 15–19 were to Hispanics. Even though abortions have been tabulated according to state of residence where possible, in states with parental notification or consent requirements for minors, the number of abortions and pregnancies may be too lov because minors have traveled to other states for abortion services. u=unavailable.

Table 16. Number of miscarriages and stillbirths, and total population, among women aged 15–19, by race and ethnicity, according to state of residence, 1999

State	Miscarriages and stillbirths*			Population		
	Non-Hispanic white	Black	Hispanic	Non-Hispanic white	Black	Hispanic
U.S. total	**52,450**	**32,760**	**29,550**	**6,345,417**	**1,532,399**	**1,437,096**
Alabama	1,140	1,020	60	102,146	54,849	2,583
Alaska	u	u	u	15,440	1,083	1,068
Arizona	860	140	1,370	95,976	7,349	55,376
Arkansas	870	450	70	71,562	21,035	3,118
California	u	u	u	460,217	95,594	455,912
Colorado	890	120	690	103,028	7,274	30,032
Connecticut	u	u	u	74,241	13,987	13,485
Delaware	170	160	30	18,693	6,683	1,460
District of Columbia	u	u	u	5,501	11,863	1,519
Florida	u	u	u	274,975	110,103	88,690
Georgia	1,850	1,980	330	163,180	101,018	13,573
Hawaii	u	10	u	8,065	974	4,189
Idaho	430	†	100	48,631	289	4,769
Illinois	u	u	u	272,047	81,946	62,682
Indiana	(1,850)	520	u	187,972	22,468	8,470
Iowa	(760)	60	u	103,256	3,018	3,204
Kansas	750	170	160	84,008	7,231	7,922
Kentucky	u	u	30	126,550	13,028	1,764
Louisiana	(1,030)	1,430	u	103,521	72,229	4,187
Maine	290	†	†	41,761	390	455
Maryland	u	1,170	u	98,683	57,672	8,102
Massachusetts	u	u	u	156,727	17,467	19,313
Michigan	u	u	u	270,616	57,263	13,854
Minnesota	830	190	130	157,182	8,164	5,747
Mississippi	680	1,110	10	60,143	53,120	1,347
Missouri	1,570	610	80	166,457	27,679	4,721
Montana	(230)	†	u	30,469	131	925
Nebraska	u	u	u	57,268	3,362	3,547
Nevada	u	u	u	36,003	5,411	14,081
New Hampshire	u	u	u	39,761	488	852
New Jersey	680	1,230	800	150,975	47,814	42,145
New Mexico	260	20	680	26,079	1,854	34,763
New York	2,060	2,750	2,290	353,552	136,587	111,821
North Carolina	u	1,380	u	168,201	71,450	11,825
North Dakota	(120)	†	u	23,760	194	336
Ohio	3,060	1,220	140	332,480	55,254	9,477
Oklahoma	u	u	u	92,835	12,955	8,129
Oregon	1,020	60	270	98,430	2,800	11,063
Pennsylvania	2,060	1,190	360	339,356	50,916	17,590
Rhode Island	u	40	u	28,450	2,992	3,950
South Carolina	920	950	60	85,183	54,464	3,287
South Dakota	170	†	10	26,239	157	405
Tennessee	1,690	860	80	145,509	40,826	3,977
Texas	3,680	1,950	6,550	363,928	105,172	291,902
Utah	670	10	190	95,791	1,068	8,822
Vermont	130	†	†	21,129	195	264
Virginia	u	1,040	u	154,726	57,987	11,219
Washington	u	u	u	158,817	9,212	18,795
West Virginia	(620)	40	u	59,518	2,412	447
Wisconsin	1,000	410	160	168,391	14,716	8,364
Wyoming	u	u	u	17,989	206	1,568

*Estimated as 20% of births plus 10% of abortions and rounded to the nearest 10. †<5 miscarriages/stillbirths.

Notes: Numbers of miscarriages and stillbirths in parentheses include those estimated from abortions obtained by Hispanic women; in these states≤ 10% of births to white women 15–19 were to Hispanics. Even though abortions have been tabulated according to state of residence where possible, in states with parental notification or consent requirements for minors, the number of miscarriages and stillbirths may be too low because minors have traveled to other states for abortion services. u=unavailable.

U.S. Teenage Pregnancy Statistics
With Comparative Statistics for Women Aged 20-24

Stanley K. Henshaw
The Alan Guttmacher Institute
120 Wall Street, New York, NY 10005
www.guttmacher.org

Updated February 19, 2004

Notes on U.S. Teenage Pregnancy Statistics

The data in these tables come from the National Center for Health Statistics (NCHS) of the U.S. Department of Health and Human Services (number of births); The Alan Guttmacher Institute (AGI—total number of abortions); the U.S. Centers for Disease Control and Prevention (age distribution of women obtaining abortions); and the U.S. Bureau of the Census (population estimates). The exact sources are listed after the tables. We have adjusted the age distributions of women obtaining abortions to ensure year-to-year comparability; for a description of the methodology, see S.K. Henshaw and J. Van Vort, eds., *Abortion Factbook, 1992 Edition: Readings, Trends, and State and Local Data to 1988*, New York: AGI, 1992, p. 162.

Please note that in these tables, "age" refers to the woman's age at which the pregnancy ended, not the age at which she became pregnant or decided between having an abortion and carrying the pregnancy to term. Consequently, actual numbers of pregnancies among teenagers are higher than those reported here, because most of the 19-year-old women who were pregnant had their births or abortions at age 20 and, thus, were not counted as teenagers.* Likewise, please note that "year" refers to the calendar year in which the birth or abortion occurred, not the year in which the conception occurred.

Some of the figures differ from those previously published by AGI, because we have recalculated rates of birth, abortion and pregnancy for the 1990s using population estimates that take into account the 2000 census, we have revised the total number of abortions for years 1993 through 1998, and we have used the finalized numbers of births in 1999.

The figures may differ from those found in other sources. Firstly, as explained above, these data are not adjusted to reflect the woman's age at conception or the year in which she conceived. Secondly, unlike most other reports, this one includes estimated numbers and rates of pregnancy ending in miscarriage. (Pregnancy rates excluding miscarriages can be calculated from the tables by summing the rates of birth and abortion.) We estimate the number of miscarriages using a simple formula based on the number of live births and abortions, whereas NCHS estimates it from the National Survey of Family Growth. Thirdly, the denominator used in calculating rates among women younger than 15 is the female population aged 14; other sources may use women aged 10-14, 12-14 or 13-14. Finally, denominators are based on population estimates that are produced by the Bureau of the Census for July 1 each year and revised periodically; hence, our rates may differ slightly from those published elsewhere, depending on which census report was used. In our calculations of birth rates, we have used the same population denominators as those used by NCHS, with the exception of 1980, 1990 and 2000, for which NCHS uses the April 1 census counts and we use the July 1 estimates.

*For an estimate of the number of pregnancies at women's age of conception, see S.K. Henshaw et al., A Portrait of American Women Who Obtain Abortions, *Family Planning Perspectives*, 1985, 17(2):90, Table 6, and S.K. Henshaw et al., Characteristics of U.S. Women Having Abortions, 1987, Family Planning Perspectives, 1991, 23(2):75, Table 4.

Table 1. Number of women, number of births, and estimated number of abortions, miscarriages and pregnancies by age at outcome, 1972-2001

Year and age of woman	Female population (thousands)	Births	Legal abortions	Estimated miscarriages	Total pregnancies
Women Aged 14 or Less*					
1972	2,093	12,082	u.	u.	u.
1973	2,094	12,861	11,630	3,740	28,230
1974	2,086	12,529	13,420	3,850	29,800
1975	2,118	12,642	15,260	4,050	31,950
1976	2,080	11,928	15,820	3,960	31,710
1977	2,048	11,455	15,650	3,860	30,970
1978	2,020	10,772	15,110	3,670	29,550
1979	1,944	10,699	16,220	3,760	30,680
1980	1,834	10,169	15,340	3,570	29,080
1981	1,787	9,632	15,240	3,450	28,320
1982	1,748	9,773	14,590	3,410	27,770
1983	1,781	9,752	16,350	3,590	29,690
1984	1,819	9,965	16,920	3,690	30,570
1985	1,853	10,220	16,970	3,740	30,930
1986	1,706	10,176	15,690	3,600	29,470
1987	1,613	10,311	14,270	3,490	28,070
1988	1,573	10,588	13,650	3,480	27,720
1989	1,608	11,486	12,750	3,570	27,810
1990	1,589	11,657	12,580	3,590	27,830
1991	1,670	12,014	12,270	3,630	27,910
1992	1,694	12,220	12,830	3,730	28,780
1993	1,756	12,554	12,410	3,750	28,710
1994	1,855	12,901	12,080	3,790	28,770
1995	1,860	12,242	10,830	3,530	26,600
1996	1,910	11,148	10,360	3,270	24,780
1997	1,919	10,121	9,640	2,990	22,750
1998	1,890	9,462	9,360	2,830	21,650
1999	1,957	9,054	8,720	2,680	20,450
2000	1,967	8,519	8,560	2,560	19,640
2001	1,982	7,781	u.	u.	u.

Year and age of woman	Female population (thousands)	Births	Legal abortions	Estimated miscarriages	Total pregnancies
Women Aged 15 to 17					
1972	6,071	236,641	86,140	55,940	378,720
1973	6,185	238,403	104,590	58,140	401,130
1974	6,276	234,177	123,350	59,170	416,700
1975	6,288	227,270	140,520	59,510	427,300
1976	6,319	215,493	152,700	58,370	426,560
1977	6,310	213,788	165,610	59,320	438,720
1978	6,286	202,661	169,270	57,460	429,390
1979	6,200	200,137	178,570	57,880	436,590
1980	6,063	198,222	183,350	57,980	439,550
1981	5,848	187,397	175,930	55,070	418,400
1982	5,618	181,162	168,410	53,070	402,640
1983	5,424	172,673	166,440	51,180	390,290
1984	5,373	166,744	160,900	49,440	377,080
1985	5,409	167,789	165,630	50,120	383,540
1986	5,520	168,572	165,240	50,240	384,050
1987	5,450	172,591	161,120	50,630	384,340
1988	5,251	176,624	158,330	51,160	386,110
1989	4,974	181,044	139,130	50,120	370,290
1990	4,888	183,327	129,820	49,650	362,800
1991	4,882	188,226	118,050	49,450	355,730
1992	4,993	187,549	114,400	48,950	350,900
1993	5,086	190,535	112,960	49,400	352,900
1994	5,249	195,169	110,280	50,060	355,510
1995	5,424	192,508	105,970	49,100	347,580
1996	5,582	185,721	103,810	47,530	337,060
1997	5,732	180,154	98,460	45,880	324,490
1998	5,790	173,231	94,810	44,130	312,170
1999	5,811	163,588	88,420	41,560	293,570
2000	5,848	157,209	84,770	39,920	281,900
2001	5,892	145,324	u.	u.	u.

Year and age of woman	Female population (thousands)	Births	Legal abortions	Estimated miscarriages	Total pregnancies
Women Aged 18 to 19					
1972	3,917	379,639	104,860	86,410	570,910
1973	4,008	365,693	127,310	85,870	578,870
1974	4,074	361,272	156,350	87,890	605,510
1975	4,178	354,968	186,260	89,620	630,850
1976	4,263	343,251	209,980	89,650	642,880
1977	4,271	345,366	231,020	92,180	668,570
1978	4,269	340,746	249,520	93,100	683,370
1979	4,297	349,335	266,030	96,470	711,840
1980	4,319	353,939	261,430	96,930	712,300
1981	4,248	339,995	257,400	93,740	691,140
1982	4,191	332,596	250,330	91,550	674,480
1983	4,092	316,613	244,890	87,810	649,310
1984	3,914	302,938	237,970	84,390	625,290
1985	3,765	299,696	233,570	83,300	616,570
1986	3,686	293,333	224,000	81,070	598,400
1987	3,689	289,721	220,520	80,000	590,240
1988	3,778	301,729	234,390	83,780	619,900
1989	3,865	325,459	231,770	88,270	645,500
1990	3,768	338,499	221,150	89,810	649,460
1991	3,526	331,351	196,300	85,900	613,550
1992	3,395	317,866	180,960	81,670	580,500
1993	3,410	310,558	174,750	79,590	564,900
1994	3,440	310,319	164,560	78,520	553,400
1995	3,505	307,365	156,960	77,170	541,500
1996	3,611	305,856	159,000	77,070	541,930
1997	3,693	303,066	157,180	76,330	536,580
1998	3,851	311,664	153,870	77,720	543,250
1999	3,951	312,462	152,520	77,740	542,720
2000	3,978	311,781	150,700	77,430	539,910
2001	3,951	300,620	u.	u.	u.

Year and age of woman	Female population (thousands)	Births	Legal abortions	Estimated miscarriages	Total pregnancies
Women aged 15 to 19					
1972	9,988	616,280	191,000	142,350	949,630
1973	10,193	604,096	231,900	144,100	980,000
1974	10,350	595,449	279,700	147,060	1,022,210
1975	10,466	582,238	326,780	149,130	1,058,150
1976	10,582	558,744	362,680	148,020	1,069,440
1977	10,581	559,154	396,630	151,500	1,107,290
1978	10,555	543,407	418,790	150,560	1,112,760
1979	10,497	549,472	444,600	154,350	1,148,430
1980	10,381	552,161	444,780	154,910	1,151,850
1981	10,096	527,392	433,330	148,810	1,109,540
1982	9,809	513,758	418,740	144,620	1,077,120
1983	9,515	489,286	411,330	138,990	1,039,600
1984	9,287	469,682	398,870	133,830	1,002,370
1985	9,174	467,485	399,200	133,420	1,000,110
1986	9,206	461,905	389,240	131,310	982,450
1987	9,139	462,312	381,640	130,630	974,580
1988	9,029	478,353	392,720	134,940	1,006,010
1989	8,840	506,503	370,900	138,390	1,015,790
1990	8,656	521,826	350,970	139,460	1,012,260
1991	8,407	519,577	314,350	135,350	969,280
1992	8,389	505,415	295,360	130,620	931,400
1993	8,496	501,093	287,710	128,990	917,800
1994	8,689	505,488	274,840	128,580	908,910
1995	8,929	499,873	262,930	126,270	889,080
1996	9,193	491,577	262,810	124,600	878,990
1997	9,425	483,220	255,640	122,210	861,070
1998	9,641	484,895	248,680	121,850	855,420
1999	9,762	476,050	240,940	119,300	836,290
2000	9,826	468,990	235,470	117,350	821,810
2001	9,844	445,944	u.	u.	u.

Year and age of woman	Female population (thousands)	Births	Legal abortions	Estimated miscarriages	Total pregnancies
Women Under Age 20**					
1972	9,988	628,362	u.	u.	u.
1973	10,193	616,957	243,530	147,750	1,008,230
1974	10,350	607,978	293,120	150,910	1,052,010
1975	10,466	594,880	342,040	153,180	1,090,100
1976	10,582	570,672	378,500	151,980	1,101,150
1977	10,581	570,609	412,280	155,360	1,138,260
1978	10,555	554,179	433,900	154,230	1,142,310
1979	10,497	560,171	460,820	158,110	1,179,110
1980	10,381	562,330	460,120	158,480	1,180,930
1981	10,096	537,024	448,570	152,260	1,137,860
1982	9,809	523,531	433,330	148,030	1,104,890
1983	9,515	499,038	427,680	142,580	1,069,290
1984	9,287	479,647	415,790	137,520	1,032,940
1985	9,174	477,705	416,170	137,160	1,031,040
1986	9,206	472,081	404,930	134,910	1,011,920
1987	9,139	472,623	395,910	134,120	1,002,650
1988	9,029	488,941	406,370	138,420	1,033,730
1989	8,840	517,989	383,650	141,960	1,043,600
1990	8,656	533,483	363,550	143,050	1,040,090
1991	8,407	531,591	326,620	138,980	997,190
1992	8,389	517,635	308,190	134,350	960,180
1993	8,496	513,647	300,120	132,740	946,510
1994	8,689	518,389	286,920	132,370	937,680
1995	8,929	512,115	273,760	129,800	915,680
1996	9,193	502,725	273,170	127,870	903,770
1997	9,425	493,341	265,280	125,200	883,820
1998	9,641	494,357	258,040	124,680	877,070
1999	9,762	485,104	249,660	121,980	856,740
2000	9,826	477,509	244,030	119,910	841,450
2001	9,844	453,725	u.	u.	u.

Year and age of woman	Female population (thousands)	Births	Legal abortions	Estimated miscarriages	Total pregnancies
Women Aged 20 to 24					
1972	9,021	1,174,183	u.	u.	u.
1973	9,198	1,101,113	240,610	244,280	1,586,000
1974	9,415	1,108,051	286,600	250,270	1,644,920
1975	9,677	1,093,676	331,640	251,900	1,677,220
1976	9,901	1,091,602	392,280	257,550	1,741,430
1977	10,152	1,146,491	449,660	274,260	1,870,410
1978	10,373	1,139,524	489,410	276,850	1,905,780
1979	10,541	1,188,663	525,710	290,300	2,004,670
1980	10,683	1,226,200	549,410	300,180	2,075,790
1981	10,805	1,212,000	554,940	297,890	2,064,830
1982	10,805	1,205,979	551,680	296,360	2,054,020
1983	10,762	1,160,274	548,130	286,870	1,995,270
1984	10,687	1,141,578	551,110	283,430	1,976,120
1985	10,541	1,141,320	548,020	283,070	1,972,410
1986	10,258	1,102,119	531,380	273,560	1,907,060
1987	9,971	1,075,856	518,290	267,000	1,861,150
1988	9,689	1,067,472	519,600	265,450	1,852,520
1989	9,473	1,077,598	509,420	266,460	1,853,480
1990	9,396	1,093,730	532,480	271,990	1,898,200
1991	9,451	1,089,692	533,280	271,270	1,894,240
1992	9,417	1,070,490	526,490	266,750	1,863,730
1993	9,328	1,038,127	512,340	258,860	1,809,330
1994	9,168	1,001,418	475,450	247,830	1,724,700
1995	8,986	965,547	440,780	237,190	1,643,520
1996	8,770	945,210	432,130	232,260	1,609,600
1997	8,781	942,048	422,170	230,630	1,594,850
1998	8,901	965,122	418,030	234,830	1,617,980
1999	9,099	981,929	422,550	238,640	1,643,120
2000	9,355	1,017,806	429,610	246,520	1,693,940
2001	9,619	1,021,627	u.	u.	u.

Notes: u. = data unavailable.
*Population is women aged 14. **Population is women aged 15-19.

Table 2. Birth, pregnancy and abortion rates per 1,000 women, by age at pregnancy outcome, 1972-2001

Year and age of woman	Birth rate	Abortion rate	Pregnancy rate
Women Aged 14 or Less*			
1972	5.8	u.	u.
1973	6.1	5.6	13.5
1974	6.0	6.4	14.3
1975	6.0	7.2	15.1
1976	5.7	7.6	15.2
1977	5.6	7.6	15.1
1978	5.3	7.5	14.6
1979	5.5	8.3	15.8
1980	5.5	8.4	15.9
1981	5.4	8.5	15.8
1982	5.6	8.3	15.9
1983	5.5	9.2	16.7
1984	5.5	9.3	16.8
1985	5.5	9.2	16.7
1986	6.0	9.2	17.3
1987	6.4	8.8	17.4
1988	6.7	8.7	17.6
1989	7.1	7.9	17.3
1990	7.3	7.9	17.5
1991	7.2	7.3	16.7
1992	7.2	7.6	17.0
1993	7.2	7.1	16.4
1994	7.0	6.5	15.5
1995	6.6	5.8	14.3
1996	5.8	5.4	13.0
1997	5.3	5.0	11.9
1998	5.0	5.0	11.5
1999	4.6	4.5	10.5
2000	4.3	4.4	10.0
2001	3.9	u.	u.

Year and age of woman	Birth rate	Abortion rate	Pregnancy rate
Women Aged 15 to 17			
1972	39.0	14.2	62.4
1973	38.5	16.9	64.9
1974	37.3	19.7	66.4
1975	36.1	22.3	68.0
1976	34.1	24.2	67.5
1977	33.9	26.2	69.5
1978	32.2	26.9	68.3
1979	32.3	28.8	70.4
1980	32.7	30.2	72.5
1981	32.0	30.1	71.5
1982	32.2	30.0	71.7
1983	31.8	30.7	72.0
1984	31.0	29.9	70.2
1985	31.0	30.6	70.9
1986	30.5	29.9	69.6
1987	31.7	29.6	70.5
1988	33.6	30.2	73.5
1989	36.4	28.0	74.4
1990	37.5	26.6	74.2
1991	38.6	24.2	72.9
1992	37.6	22.9	70.3
1993	37.5	22.2	69.4
1994	37.2	21.0	67.7
1995	35.5	19.5	64.1
1996	33.3	18.6	60.4
1997	31.4	17.2	56.6
1998	29.9	16.4	53.9
1999	28.2	15.2	50.5
2000	26.9	14.5	48.2
2001	24.7	u.	u.

Year and age of woman	Birth rate	Abortion rate	Pregnancy rate
Women Aged 18 to 19			
1972	96.9	26.8	145.8
1973	91.2	31.8	144.4
1974	88.7	38.4	148.6
1975	85.0	44.6	151.0
1976	80.5	49.3	150.8
1977	80.9	54.1	156.5
1978	79.8	58.4	160.1
1979	81.3	61.9	165.7
1980	81.9	60.5	164.9
1981	80.0	60.6	162.7
1982	79.4	59.7	160.9
1983	77.4	59.8	158.7
1984	77.4	60.8	159.8
1985	79.6	62.0	163.8
1986	79.6	60.8	162.3
1987	78.5	59.8	160.0
1988	79.9	62.0	164.1
1989	84.2	60.0	167.0
1990	89.8	58.7	172.4
1991	94.0	55.7	174.0
1992	93.6	53.3	171.0
1993	91.1	51.2	165.6
1994	90.2	47.8	160.8
1995	87.7	44.8	154.5
1996	84.7	44.0	150.1
1997	82.1	42.6	145.3
1998	80.9	40.0	141.1
1999	79.1	38.6	137.4
2000	78.4	37.9	135.7
2001	76.1	u.	u.

Year and age of woman	Birth rate	Abortion rate	Pregnancy rate
Women aged 15 to 19			
1972	61.7	19.1	95.1
1973	59.3	22.8	96.1
1974	57.5	27.0	98.8
1975	55.6	31.2	101.1
1976	52.8	34.3	101.1
1977	52.8	37.5	104.6
1978	51.5	39.7	105.4
1979	52.3	42.4	109.4
1980	53.2	42.8	111.0
1981	52.2	42.9	109.9
1982	52.4	42.7	109.8
1983	51.4	43.2	109.3
1984	50.6	42.9	107.9
1985	51.0	43.5	109.0
1986	50.2	42.3	106.7
1987	50.6	41.8	106.6
1988	53.0	43.5	111.4
1989	57.3	42.0	114.9
1990	60.3	40.5	116.9
1991	61.8	37.4	115.3
1992	60.3	35.2	111.0
1993	59.0	33.9	108.0
1994	58.2	31.6	104.6
1995	56.0	29.4	99.6
1996	53.5	28.6	95.6
1997	51.3	27.1	91.4
1998	50.3	25.8	88.7
1999	48.8	24.7	85.7
2000	47.7	24.0	83.6
2001	45.3	u.	u.

Year and age of woman	Birth rate	Abortion rate	Pregnancy rate
Women Under Age 20**			
1972	62.9	u.	u.
1973	60.5	23.9	98.9
1974	58.7	28.3	101.6
1975	56.8	32.7	104.2
1976	53.9	35.8	104.1
1977	53.9	39.0	107.6
1978	52.5	41.1	108.2
1979	53.4	43.9	112.3
1980	54.2	44.3	113.8
1981	53.2	44.4	112.7
1982	53.4	44.2	112.6
1983	52.4	44.9	112.4
1984	51.6	44.8	111.2
1985	52.1	45.4	112.4
1986	51.3	44.0	109.9
1987	51.7	43.3	109.7
1988	54.2	45.0	114.5
1989	58.6	43.4	118.1
1990	61.6	42.0	120.2
1991	63.2	38.8	118.6
1992	61.7	36.7	114.5
1993	60.5	35.3	111.4
1994	59.7	33.0	107.9
1995	57.4	30.7	102.5
1996	54.7	29.7	98.3
1997	52.3	28.1	93.8
1998	51.3	26.8	91.0
1999	49.7	25.6	87.8
2000	48.6	24.8	85.6
2001	46.1	u.	u.

Year and age of woman	Birth rate	Abortion rate	Pregnancy rate
Women Aged 20 to 24			
1972	130.2	u.	u.
1973	119.7	26.2	172.4
1974	117.7	30.4	174.7
1975	113.0	34.3	173.3
1976	110.3	39.6	175.9
1977	112.9	44.3	184.2
1978	109.9	47.2	183.7
1979	112.8	49.9	190.2
1980	114.8	51.4	194.3
1981	112.2	51.4	191.1
1982	111.6	51.1	190.1
1983	107.8	50.9	185.4
1984	106.8	51.6	184.9
1985	108.3	52.0	187.1
1986	107.4	51.8	185.9
1987	107.9	52.0	186.7
1988	110.2	53.6	191.2
1989	113.8	53.8	195.7
1990	116.4	56.7	202.0
1991	115.3	56.4	200.4
1992	113.7	55.9	197.9
1993	111.3	54.9	194.0
1994	109.2	51.9	188.1
1995	107.5	49.1	182.9
1996	107.8	49.3	183.5
1997	107.3	48.1	181.6
1998	108.4	47.0	181.8
1999	107.9	46.4	180.6
2000	108.8	45.9	181.1
2001	106.2	u.	u.

Notes: u. = data unavailable. Abortion rates for 1997 are preliminary.
*Denominator is women aged 14. **Denominator is women aged 15-19.

Sources

Population

1972-1979: U.S. Bureau of the Census, "Preliminary Estimates of the Population of the United States, by Age, Sex and Race: 1970-1981," Current Population Reports (CPR), P-25, No. 917, 1982, Table 2.
1980-1989: U.S. Bureau of the Census, "U.S. Population Estimates, by Age, Sex, Race and Hispanic Origin: 1980 to 1991," CPR, P-25, No. 1095, 1993, Table 1.
1990-2000: U.S. Bureau of the Census website, http://eire.census.gov/popest/data/national/tables/intercensal/US-EST90INT-04.php, accessed 3/20/03.
2001: Ventura SJ et al., "Revised Birth and Fertility Rates for the United States, 2000 and 2001, NCHS, Nation Vital Statistics Reports, Vol. 51, No. 4, 2003, Table II and reference 2.

Births

1972: National Center for Health Statistics (NCHS), "Advance Report of Final Natality Statistics," Monthly Vital Statistics Report (MVSR), Vol. 23, No. 8, Supplement, Table 2.
1973: NCHS, "Advance Report of Final Natality Statistics, 1973," MVSR, Vol. 23, No. 11, Supplement, Table 2
1974: NCHS, "Advance Report of Final Natality Statistics, 1974," MVSR, Vol. 24, No. 11, Supplement, Table 2
1975: NCHS, "Advance Report of Final Natality Statistics, 1975," MVSR, Vol. 25, No. 10, Supplement, Table 2
1976: NCHS, "Final Natality Statistics, 1976," MVSR, Vol. 26, No. 12, Supplement, 1978, Table 2.
1977: NCHS, "Final Natality Statistics, 1977," MVSR, Vol. 27, No. 11, Supplement, 1979, Table 2.
1978: NCHS, "Final Natality Statistics, 1978," MVSR, Vol. 29, No. 1, Supplement, 1980, Table 2.
1979: NCHS, "Advance Report of Final Natality Statistics,1979," MVSR, Vol. 30, No. 6, Supplement, 1981, Tab
1980: NCHS, "Advance Report of Final Natality Statistics, 1980," MVSR, Vol. 31, No. 8, Supplement, 1982, Ta
1981: NCHS, "Advance Report of Final Natality Statistics, 1981," MVSR, Vol. 32, No. 9, Supplement, 1983, Ta
1982: NCHS, "Advance Report of Final Natality Statistics, 1982," MVSR, Vol. 33, No. 6, Supplement, 1984, Ta
1983: NCHS, "Advance Report of Final Natality Statistics, 1983," MVSR, Vol. 34, No. 6, Supplement, 1985, Ta
1984: NCHS, "Advance Report of Final Natality Statistics, 1984," MVSR, Vol. 35, No. 4, Supplement, 1986, Ta
1985: NCHS, "Advance Report of Final Natality Statistics, 1985," MVSR, Vol. 36, No. 4, Supplement, 1987, Ta
1986: NCHS, "Advance Report of Final Natality Statistics, 1986," MVSR, Vol. 37, No. 3, Supplement, 1988, Ta
1987: NCHS, "Advance Report of Final Natality Statistics, 1987," MVSR, Vol. 38, No. 3, Supplement, 1989, Ta
1988: NCHS, "Advance Report of Final Natality Statistics,1988," MVSR, Vol. 39, No. 4, Supplement, 1990, Tab
1989: NCHS, "Advance Report of Final Natality Statistics, 1989," MVSR, Vol. 40, No. 8, Supplement, 1991, Ta
1990: NCHS, "Advance Report of Final Natality Statistics, 1990," MVSR, Vol. 41, No. 9, Supplement, 1993, Ta
1991: NCHS, "Advance Report of Final Natality Statistics, 1991," MVSR, Vol. 42, No. 3, Supplement, 1993, Ta
1992: Ventura SJ et al., "Advance Report of Final Natality Statistics, 1992," MVSR, Vol. 43, No. 5, Supplement 1994, Table 2.
1993: Ventura SJ et al., "Advance Report of Final Natality Statistics, 1993," MVSR, Vol. 44, No. 3, Supplement 1995, Table 2.
1994: Ventura SJ et al., "Advance Report of Final Natality Statistics, 1994," MVSR, Vol. 44, No. 11, Supplemer 1996, Table 2.
1995: Ventura SJ et al., "Advance Report of Final Natality Statistics, 1995," MVSR, Vol. 45, No. 11, Supplemer 1997, Table 2.
1996: Ventura SJ et al., "Report of Final Natality Statistics, 1996," MVSR, Vol. 46, No. 11, Supplement, 1998,
1997: Ventura SJ et al., "Births: Final Data for 1997," NCHS, National Vital Statistics Reports (NVSR), Vol. 47 No. 18, 1999, Table 2.
1998: Ventura SJ et al., "Births: Final Data for 1998," NCHS, NVSR, Vol. 48, No. 3, 2000, Table 2.
1999: Ventura SJ et al., "Births: Final Data for 1999," NCHS, NVSR, Vol. 49, No. 1, 2001, Table 2.
2000: Martin JA et al., "Births: Final Data for 2000," NCHS, NVSR, Vol 50, No. 5, Table 2.
2001: Martin JA et al., "Births: Final Data for 2001," NCHS, NVSR, Vol 51, No. 2, Table 2.

Abortions

1972: Centers for Disease Control, Abortion Surveillance: 1972, Atlanta, 1974.
1973-1988: Henshaw SK and Van Vort J, Abortion Factbook, 1992 Edition: Readings, Trends, and State and Local Data to 1988, The Alan Guttmacher Institute, New York, 1992, Table 1, p. 172.
1989-2000: unpublished data based on the national total number of abortions from the AGI Abortion Provider Surveys, AGI estimates for non-survey years (1989,1990,1993, 1994, 1997 and 1998), and the adjusted age

distribution of abortions from the Centers for Disease Control and Prevention. 14

Miscarriages

Miscarriages are estimated as 20% of live births plus 10% of abortions.

Pregnancies

Pregnancies are the sum of births, abortions and miscarriages.