



POLICY STATEMENT

Condom Use by Adolescents

COMMITTEE ON ADOLESCENCE

ABBREVIATIONS

CDC—Centers for Disease Control and Prevention

FC—female condom

FDA—Food and Drug Administration

HIV—human immunodeficiency virus

HPV—human papillomavirus

MSM—men who have sex with men

STI—sexually transmitted infection

YRBS—Youth Risk Behavior Survey

This document is copyrighted and is property of the American Academy of Pediatrics and its Board of Directors. All authors have filed conflict of interest statements with the American Academy of Pediatrics. Any conflicts have been resolved through a process approved by the Board of Directors. The American Academy of Pediatrics has neither solicited nor accepted any commercial involvement in the development of the content of this publication.

The guidance in this statement does not indicate an exclusive course of treatment or serve as a standard of medical care. Variations, taking into account individual circumstances, may be appropriate.

All policy statements from the American Academy of Pediatrics automatically expire 5 years after publication unless reaffirmed, revised, or retired at or before that time.

www.pediatrics.org/cgi/doi/10.1542/peds.2013-2821

doi:10.1542/peds.2013-2821

PEDIATRICS (ISSN Numbers: Print, 0031-4005; Online, 1098-4275).

Copyright © 2013 by the American Academy of Pediatrics

abstract

FREE

Rates of sexual activity, pregnancies, and births among adolescents have continued to decline during the past decade to historic lows. Despite these positive trends, many adolescents remain at risk for unintended pregnancy and sexually transmitted infections (STIs). This policy statement has been developed to assist the pediatrician in understanding and supporting the use of condoms by their patients to prevent unintended pregnancies and STIs and address barriers to their use. When used consistently and correctly, male latex condoms reduce the risk of pregnancy and many STIs, including HIV. Since the last policy statement published 12 years ago, there is an increased evidence base supporting the protection provided by condoms against STIs. Rates of acquisition of STIs/HIV among adolescents remain unacceptably high. Interventions that increase availability or accessibility to condoms are most efficacious when combined with additional individual, small-group, or community-level activities that include messages about safer sex. Continued research is needed to inform public health interventions for adolescents that increase the consistent and correct use of condoms and promote dual protection of condoms for STI prevention with other effective methods of contraception. *Pediatrics* 2013;132:973–981

INTRODUCTION

This policy statement updates a previous statement from the American Academy of Pediatrics published in 2001.¹ The medical and societal consequences of adolescent sexual activity, including sexually transmitted infections (STIs) and unintended pregnancies, remain a significant public health problem. Although abstinence of sexual activity is the most effective method for prevention of pregnancy and STIs, young people should be prepared for the time when they will become sexually active. Prevention of STIs in adolescents involves safer sexual practices by those who are sexually active or who no longer plan to be abstinent. Since publication of the previous statement, there has been increasing evidence supporting the effectiveness of condoms to prevent many STIs, including HIV. Increased availability of condoms has been shown to increase use, and widespread distribution programs have been recommended by the Centers for Disease Control and Prevention (CDC).²

In this policy statement, the use of condoms as a method of preventing STIs, including HIV and pregnancy will be reviewed including effectiveness, factors that influence use, and the roles that schools, communities,

and parents can play in improving use of condoms and increased availability of condoms.

TRENDS IN ADOLESCENT SEXUAL ACTIVITY AND CONSEQUENCES

Despite recent data indicating that sexual activity has declined among adolescents, the current rates of sexual activity and health consequences of STIs and pregnancy remain a significant public health concern. The CDC, through its Youth Risk Behavior Survey (YRBS), reports sexual risk behaviors in a nationally representative sample of high school students surveyed biannually. In the most recently available YRBS (2011), 47.4% of students reported that they had ever had sexual intercourse, 33.7% reported that they were currently sexually active, and 15.3% had had sexual intercourse with four or more partners in their lifetime. Among sexually active students, 60.2% reported condom use during their last sexual encounter. Of additional concern, by 12th grade, nearly two-thirds (63.1%) of students reported ever being sexually active but reported lower use of condoms than did sexually active 9th- and 10th-graders.³

In 2011, approximately 330 000 teenagers gave birth,⁴ and in 2008, the most recently available estimates are that 750 000 teenagers became pregnant.⁵ Despite the fact that US teen birth rates are at the lowest level in the past 70 years,⁶ the birth rate for US teenagers remains higher than other developed nations, and marked disparities by race/ethnicity and geographic area persist.⁷

Rates of STIs remain highest among adolescents and young adults, with estimates suggesting that 15- to 24-year-olds, who represent 25% of the sexually experienced population, acquire nearly half of all new STIs.⁸ Rates of *Chlamydia*, gonorrhea, and syphilis

have all continued to increase in adolescent and young adults.⁹ A study that examined the prevalence of STIs among female adolescents 14 to 19 years of age in the United States from the 2003–2004 NHANES reported a 24.1% prevalence of any of 5 STIs (*Neisseria gonorrhoea*, *Chlamydia trachomatis*, *Trichomonas vaginalis*, herpes simplex virus type 2, and human papilloma virus [HPV] infections) among all female adolescents and a prevalence of 37.7% among sexually experienced females. Importantly, even among those whose sexual partner was the same age or 1 year older, the prevalence was high (25.6%), and among those with only 1 lifetime partner, the prevalence was 19.7%.¹⁰

For specific infections, in 2011 the highest *Chlamydia* rates were seen in 15- to 19-year-old (3.4%) and 20- to 24-year-old women (3.7%). Of concern, during 2010–2011, rates increased 4% for those aged 15 to 19 years and 11% for those aged 20 to 24 years. Reported rates of *Chlamydia* are lower among young men, likely because of decreased screening efforts, but have increased 6% for those 15 to 19 years of age and 12% for those 20 to 24 years of age between 2010 and 2011. In studies of higher-risk populations (for example, the National Job Training Program, an educational program for disadvantaged youth) at entry, rates of *Chlamydia* for women and men 16 to 24 years of age were 10.3% and 8%, respectively. Similarly, in juvenile correctional facilities, 13.5% of women and 6.5% of men screened positively for *Chlamydia*.⁹

Adolescent and young adult women also have the highest rates of gonorrhea compared with any other age and gender group and increased 1.4% in 15- to 19-year-old women during 2009–2010 (unchanged in 2011), and increased 5.4% in 20- to 24-year-old

women during 2010–2011. Adolescent and young adult men have also had increasing rates of gonorrhea, increasing 6% in those aged 20 to 24 years during 2010–2011.⁹

Syphilis rates in both men and women are highest in the 15- to 24-year old age group and increased most dramatically during 2010–2011 in 20- to 24-year-old men (5.2–21.9 cases/100 000), particularly in men who have sex with men (MSM).⁹

An estimated 10 065 young people aged 13 to 24 years received a diagnosis of HIV infection in 2011, accounting for 20% of all new infections in the United States. Among adolescent/young adult males living with and diagnosed with HIV, 77% acquired infection from MSM, 4% from heterosexual transmission, and 13% were perinatally acquired. Among females, 56% acquired infection by heterosexual transmission, and 34% were perinatally acquired.^{11,12} Anonymous HIV screening in locations where youth 12 to 24 years of age congregate in communities surrounding the Adolescent Trials Network for HIV/AIDS interventions found a prevalence of HIV of 15.3% in 611 MSM tested, 60% of whom did not know they were infected.¹³ In addition to patients with behaviorally acquired HIV infections, an estimated 9038 people with perinatally acquired HIV are now in adolescence and young adulthood. These youth are generally receiving highly active antiretroviral therapy, and concern exists for extensive drug-resistant strains.¹⁴ In a prospective cohort study of the reproductive health of sexually active adolescent girls perinatally infected with HIV, the cumulative incidence of pregnancy at 19 years of age was 24%, and incidence of STIs was 26%, stressing the need for comprehensive HIV/STI-prevention strategies.¹⁵

CONDOM USE

Recent Trends in Adolescent Condom Use

The condom remains the most popularly used contraceptive method among teenagers.³ An increased proportion of sexually active adolescents report using a condom at last intercourse, according to 2 CDC surveys. In the YRBS, condom use increased from 46.2% in 1991 to 60.2% in 2011.³ The prevalence of condom use was higher among male (68.6%) than female (53.9%) students and higher among white (63.3%) and African American (62.4%) than Hispanic students (54.9%).³ In the National Survey of Family Growth, condom use at last intercourse increased among females from 31% in 1988 to 52% in 2006–2010 and males from 53% to 75%.¹⁶ Rates of actual condom use in both surveys may also be lower than thought because of the uncertain/questionable validity of self-report of this and other sexual behaviors that are prone to bias. For example, in a clinic-based sample of African American females 15 to 21 years of age in Atlanta, Georgia, 186 young women reported 100% condom use via an audio computer-assisted self-interviewing technique. In these young women, 34% had a positive biologic marker for unprotected vaginal sex in the past 14 days (a Y-chromosome polymerase chain reaction assay). As a possible explanation of these findings, condoms may have been used inconsistently or incorrectly, or youth might have provided socially desirable answers.¹⁷

Factors That Influence Condom Use

A number of factors, including individual, family, sociodemographic, attitude, education, relationship, and partner-related factors, influence condom use. For example, in a national study of adolescent males,¹⁸ factors

associated with greater consistency of condom use included African American race/ethnicity, more positive condom attitudes, and more discussion of health topics with parents. Adolescents who did not have formal sex education were half as likely to use a condom at first intercourse and even less likely to use condoms consistently. Lower condom use at first sex was associated with older age, an older or casual first sexual partner, and a partner using another method of contraception. These factors were also associated with lower condom use at last sex, except for having a casual sexual partner, which was associated with higher condom use.¹⁸ Higher rates of condom use are noted in youth who perceive their partners as wanting to use condoms and in those able to communicate their desire to use condoms with their partners.¹⁹ Motivations for young people to have sex include the pursuit of fulfilling sexual experiences in addition to other motivations such as intimacy, procreation, or in response to peer or partner pressure. However, adolescents' lack of condom use is associated with perceptions that condoms reduce sexual pleasure and/or that partners disapprove of condom use.²⁰ Condom-promotion campaigns that include linking condom use to enhanced sensitivity and sensuality, and, thus, a more positive experience as a motivating factor, have found increased uptake of condoms and safer sex behaviors.^{21–23}

The influence of social networks that encourage condom use is becoming increasingly recognized.^{24,25} However, increased relationship intimacy and closeness to the partner's family can be associated with less condom use.²⁶ Condom use rates are higher in new relationships compared with established relationships.²⁷ Other factors associated with increased condom

use include receiving comprehensive sex and HIV education programs,²⁸ attending schools where condoms are available,²⁹ and perceiving a risk of STIs.³⁰

The effect of the media on adolescent sexual behavior has been reviewed in a recent American Academy of Pediatrics policy statement.³¹ Adolescents are exposed to an increasing amount of sexual content in music, movies, magazines, television, and the Internet, and this exposure plays an important role in adolescent initiation of sexual activity. Despite the increasingly sexually explicit material in media and programming, there are rare messages promoting responsible sexual activity, such as contraception, including condom use.³¹ On primetime television, 77% of programs have sexual content but only 14% reference risks or responsibility of sexual behavior.³²

Adults, especially parents, play an important role in promoting the sexual health of adolescents. Bright Futures outlines how pediatricians and other health care providers can support parents in promoting healthy sexual development and sexuality, including the use of condoms to protect against STIs including HIV.³³ A number of studies have examined the role of parent-adolescent communication about sexual risk and association with increased adolescent use of condoms.^{34–38} Parental communication about sexual risk and condom use are associated with increases in adolescents' use of condoms.^{34–36,38} Timing of the discussion is important; in 1 study, the highest rates of condom use at first and last sex, as well as for regular use, were found among adolescent girls who communicated with their mothers about condom use before onset of sexual activity compared with after initiation.³⁴ In a recent longitudinal study of parents and their

children regarding the timing of parent and child communication about sexual behaviors, more than 40% of the children had intercourse before there were discussions about STI symptoms, condom use, birth control, or partner condom refusal.³⁹ This suggests increased efforts are needed by pediatricians, educators, and those in public health to encourage parents to talk about these issues.

In a large study of African American and Puerto Rican teens aged 14 to 17 years, separate face-to-face interviews were conducted with 907 mother-adolescent pairs to examine factors that predicted mother-adolescent discussions about condoms. Those mothers who communicated effectively about condoms had greater knowledge of sexuality and HIV, perceived that they had enough information to discuss condoms, had received information from a health-related source, were comfortable in discussing condoms and sexuality, and believed that condom use prevents HIV. The implication for pediatricians is that providing parents with accurate information about adolescent sexual behavior, risks, and use and effectiveness of condoms can improve communication with their adolescents.⁴⁰

Other opportunities for parents to become comfortable speaking with their adolescents about sexual health was demonstrated in a novel work site-based trial. In weekly small-group sessions, parent training with a standardized prevention curriculum, designed to help parents of 11- to 16-year-old children communicate about sexual health, found significant differences compared with a control group in discussions of these topics, including condom education. At baseline, 4% of adolescents reported that a parent had discussed with them how to use a condom, and by the

9-month follow-up survey, 36% reported receipt of instruction.⁴¹

EFFECTIVENESS OF CONDOM USE

Materials used for male condoms are of 3 types: most (>80%) are composed of latex (natural rubber), and a small proportion (<5%) are natural membrane (lamb cecum) or synthetic (eg, polyurethane; approximately 15%).⁴² Only latex and synthetic condoms are recommended for prevention of STIs and HIV because natural membrane condoms contain small pores that may allow passage of viruses, including HIV, hepatitis B virus, and herpes simplex virus.^{43,44} Synthetic condoms, when compared with latex condoms, are generally more resistant to deterioration and are compatible with both oil- and water-based lubricants. Synthetic condoms have similar failure rates to latex condoms in prevention of pregnancy.⁴⁵ Although not extensively studied, synthetic condoms are believed to provide STI protection similar to male latex condoms; however, US Food and Drug Administration (FDA) labeling currently restricts their recommended use for latex-sensitive or -allergic people.^{42,45} Condoms lubricated with the spermicide nonoxynol-9 are no longer recommended, because they have a shorter shelf life, increased cost, and lack of added benefit compared with other lubricated condoms⁴⁶ and may increase likelihood of HIV transmission as a result of increased genital mucosal irritation.⁴⁷ In the United States, condoms are regulated as medical devices by the FDA, and stringent manufacturing standards exist such that each condom is tested for holes or weak spots before sale.⁴⁸

Condoms can be highly effective against unintended pregnancy when used consistently and correctly. Method failure of the male condom

for unintended pregnancy is estimated to be 2% in 12 months of use (ie, 2 pregnancies per 100 woman-years with perfect use), although with typical use, the failure rate (accounting for inconsistent and incorrect use) is 18%.⁴⁹ The most important non-contraceptive benefit of condom use is the additional protection against acquisition and transmission of STIs, including HIV. Evidence supporting the protection provided by condoms against acquisition of most STIs, including HIV, has increased markedly over the past decade.⁵⁰ If placed on the penis before genital contact and used throughout intercourse, condoms should prevent contact with semen, genital lesions, and infectious discharges in both males and females. Condoms greatly reduce the risk of STIs that are transmitted to or from the penile urethra, including gonorrhea, *Chlamydia*, trichomoniasis, hepatitis B virus, and HIV. Condoms also provide protection against STIs transmitted via skin-to-skin contact or contact with mucosal surfaces, including genital herpes simplex virus, HPV, syphilis, and chancroid in those affected areas covered by the condom.^{51–54} Passage of the smallest sexually transmitted pathogen, hepatitis B virus, is effectively blocked by latex condoms, according to in vitro studies.^{55–59} Most of the studies on condom effectiveness evaluate vaginal penile sexual activity. Latex and synthetic condoms also can be used during anogenital and orogenital intercourse to reduce the risk of STI.⁴² Well-designed epidemiologic studies and those of discordant couples have shown that condoms are highly effective against heterosexual transmission of HIV infection.⁶⁰ The most recent Cochrane review estimated the effectiveness of condom use at 80%.⁶¹ Inconsistency of the estimates of the effectiveness of condoms against

other STIs can be attributed to limitations in study design, because the quality of studies historically tended to be weaker than for studies of HIV.⁵⁴ Recent studies have empirically documented that the effectiveness of condom use against many STIs is underestimated because of limitations of study design.^{62–68} Even with these limitations, these and more recent studies with improved methodologies have found that condoms provide protection against a variety of STIs, including gonorrhea, *Chlamydia*, trichomoniasis, genital herpes, and HPV.^{53,54,65,69–74}

Given the coital-dependent nature of condoms, effectiveness against both unintended pregnancy and STIs is closely tied to the degree of consistency or correctness of use. Factors associated with decreased condom effectiveness include failure to use a condom with every act of intercourse; failure to use condoms throughout intercourse, such as placing condoms on after initiating intercourse or removing before ejaculation; condom breakage and slippage; and improper lubricant use with latex condoms (oil-based lubricants, such as petroleum jelly, baby oil, hand lotions, and some vaginal medications), which can reduce condom integrity and may result in breakage.⁵¹

Five key condom instructions reached by consensus at a World Health Organization Experts Meeting⁵¹ are as follows:

1. Use a new condom for each act of sexual intercourse.
2. Before any genital contact, place the condom on the tip of the erect penis with the rolled side out.
3. Unroll the condom all the way to the base of the erect penis.
4. Immediately after ejaculation, hold the rim of the condom and withdraw the penis while it is still erect.
5. Throw away the used condom safely.

FEMALE CONDOM

The female condom 1 (FC1; Reality, Femy, Care Contraceptive Sheath, Femidom), a loose-fitting polyurethane sheath with 2 flexible polyurethane rings, introduced in 1994, was the first condom marketed to women but is no longer in production in the United States. The FC2 (similarly designed to the FC1 but made of nitrile and without a seam) was approved for use in 2009 by the US FDA and is the only female-initiated barrier method for STI prevention currently available in the United States. Data regarding contraceptive effectiveness of female condoms suggest estimated rates of pregnancy during the first 12 months of perfect use and typical use for FC1 were 5% and 21%; these pregnancy rates are slightly higher than those associated with use of the male condom.⁷⁵

Although laboratory and clinical studies suggest that the female condom might be as effective as the male condom in preventing STIs, data are much more limited. Continued research is needed to evaluate the effectiveness and acceptability of female condoms, which currently account for less than 1% of US condom use overall.^{75,76}

DUAL PROTECTION

Hormonal contraceptives and intrauterine devices offer pregnancy protection but no protection against STIs. Use of “dual methods” (the combined use of condoms and hormonal contraceptives or an intrauterine device) may be the optimal approach for protection against both pregnancy and STIs for adolescents. Although dual method use has been increasing over time, studies find that fewer than 25% of adolescents use dual methods^{77–79} According to data from the National Survey of Family Growth, condom use is lower in women who use “highly

effective user-independent methods of contraception” defined as injectables, intrauterine devices, and implants, even lower than those who use oral contraceptives.⁸⁰

Adolescents with main and regular partners tend to discontinue condom use quickly, especially if other pregnancy prevention methods are used.²⁷ Studies that have examined dual method use among adolescents have found that increased use is associated with perceived risks of pregnancy and STIs, communication with parents about sexual risk, parental approval of birth control, positive attitudes toward condoms, increased use with casual partners versus main partners, partner support for condom use, and self-efficacy of condom negotiation.^{77,78,81–84} In 1 clinic-based study of African American and Hispanic female adolescents who received counseling and watched a video incorporating themes of condom use and nonuse, researchers found that at 3-month follow-up, those who had the intervention were more than twice as likely to have used a condom at last intercourse than in the usual care group. However, differences did not persist at the 12-month follow-up.⁸⁵

EFFORTS AIMED AT INCREASING CONDOM USE

Eighty-three studies of curriculum-based sex- and HIV-education programs among people younger than 25 years from all countries were reviewed, finding that two-thirds of the programs significantly improved one or more sexual behaviors. Of the 54 studies that evaluated effects on condom use, nearly half (48%) demonstrated an increase in condom use, and no studies found decreased condom use. Concern that these programs might hasten the initiation of sex appears unfounded. In the 52 studies that measured timing of initiation of

sex, 42% found that sexual initiation was significantly delayed for at least 6 months, and 55% found no effect.²⁸

Condom availability programs have been evaluated in a variety of settings. In a study of programs in Massachusetts high schools, adolescents in schools where condoms were available were more likely to receive condom use instruction and less likely to report lifetime or recent sexual intercourse, and adolescents who were sexually active were twice as likely to use condoms at most recent sexual encounter.²⁹ Likewise, clinic-based interventions have been shown to be effective in increasing condom use and decreasing STIs.^{86,87} Clinic-based safer sex interventions are endorsed by the CDC.⁸⁸

A recent meta-analysis of high-quality US and international studies of structural-level condom distribution interventions found significant effects on increased condom use, condom acquisition, condom carrying, delayed sexual initiation of youth, and reduced incidence of STIs. The interventions that increase availability or accessibility to condoms are most efficacious when combined with additional individual, small-group, or community-level activities. The intervention effects were significant across target participant characteristics (youth, adults, commercial sex workers, STI clinic populations, or males).⁸⁹

RECOMMENDATIONS

1. Abstaining from sexual intercourse should be encouraged for adolescents as the most effective way to prevent STIs, including HIV infection, and unintended pregnancy.
2. Pediatricians and other clinicians should actively support and encourage the consistent and correct use of condoms as well as other reliable contraception as part of anticipatory guidance with adolescents

who are sexually active or contemplating sexual activity. The responsibility of males as well as females in preventing unintended pregnancies and STIs should be emphasized.

3. Pediatricians and other clinicians are encouraged to implement the recommendations in Bright Futures promoting communication between parents and adolescents about healthy sexual development and sexuality including the use and effectiveness of condoms.
4. Restrictions and barriers to condom availability should be removed, given the research that demonstrates that increased availability of condoms facilitates use. Beyond retail distribution of condoms, sexually active adolescents should have ready access to condoms at free or low cost where possible. Pediatricians and other clinicians are encouraged to provide condoms within their offices and to support availability within their communities.
5. Condom availability programs should be developed through a collaborative community process and accompanied by comprehensive sequential sexuality education to be most effective. This is ideally part of a K–12 health education program, with parental involvement, counseling, and positive peer support.
6. Schools should be considered appropriate sites for the availability of condoms because they contain large adolescent populations and may potentially provide a comprehensive array of related educational and health care resources. Training of youth to improve communication skills around condom negotiation with partners can occur in school-based settings.
7. Pediatricians and other clinicians should actively help raise awareness among parents and communities that

making condoms available to adolescents does not increase the onset or frequency of adolescent sexual activity and that use of condoms can help decrease rates of unintended pregnancy and acquisition of STIs.

8. Pediatricians and other clinicians should provide and support parental education programs that help parents develop communications skills with their adolescent children around prevention of STIs and proper use of condoms.
9. The American Academy of Pediatrics should encourage additional research to identify strategies to increase continued condom use in established relationships and strategies for use of dual protection with condoms aimed at prevention of STIs and a second contraceptive method for the most effective prevention of pregnancy.

LEAD AUTHOR

Rebecca F. O'Brien, MD

CONSULTANT

Lee Warner, PhD, Associate Director of Science Centers for Disease Control and Prevention, Division of Reproductive Health

COMMITTEE ON ADOLESCENCE 2010–2011

Margaret J. Blythe, MD, Chairperson
William P. Adelman, MD
Cora C. Breuner, MD, MPH
David A. Levine, MD
Arik V. Marcell, MD, MPH
Pamela J. Murray, MD, MPH
Rebecca F. O'Brien, MD, MD

LIAISONS

Loretta E. Gavin, PhD, MPH – *Centers for Disease Control and Prevention*
Rachel J. Miller, MD – *American College of Obstetricians and Gynecologists*
Jorge L. Pinzon, MD – *Canadian Pediatric Society*
Benjamin Shain, MD, PhD – *American Academy of Child and Adolescent Psychiatry*

STAFF

Karen S. Smith
Mark Del Monte, JD

REFERENCES

- Kaplan DW, Feinstein RA, Fisher MM, et al; Committee on Adolescence. Condom use by adolescents. *Pediatrics*. 2001;107(6):1463–1469
- Centers for Disease Control and Prevention. Condom Distribution as a Structural Level Intervention. Atlanta, GA: Centers for Disease Control and Prevention; 2010. Available at: www.cdc.gov/hiv/resources/factsheets/PDF/condom_distribution.pdf. Accessed April 25, 2012
- Eaton DK, Kann L, Kinchen S, et al; Centers for Disease Control and Prevention (CDC). Youth risk behavior surveillance—United States, 2011. *MMWR Surveill Summ*. 2012; 61(4 SS-4):1–162
- Centers for Disease Control and Prevention. Births: final data 2011. *Natl Vital Stat Rep*. 2013;62(1). Available at: www.cdc.gov/nchs/data/nvsr/nvsr62/nvsr62_01.pdf. Accessed October 1, 2013
- Ventura SJ, Curtin SC, Abma JC, Henshaw SK. Estimated pregnancy rates and rates of pregnancy outcomes for the United States, 1990–2008. *Natl Vital Stat Rep*. 2012;60(7): 1–21
- Centers for Disease Control and Prevention. U.S. teenage birth rate resumes decline. *NGHS Data Brief*. 2011;Feb(58):1–8
- Santelli JS, Melnikas AJ. Teen fertility in transition: recent and historic trends in the United States. *Annu Rev Public Health*. 2010;31:371–383, 4, 383
- Weinstock H, Berman S, Cates W Jr. Sexually transmitted diseases among American youth: incidence and prevalence estimates, 2000. *Perspect Sex Reprod Health*. 2004;36(1):6–10
- Centers for Disease Control and Prevention. *Sexually Transmitted Disease Surveillance 2011*. Atlanta, GA: US Department of Health and Human Services; 2012
- Forhan SE, Gottlieb SL, Sternberg MR, et al. Prevalence of sexually transmitted infections among female adolescents aged 14 to 19 in the United States. *Pediatrics*. 2009;124(6):1505–1512
- Centers for Disease Control and Prevention. HIV Surveillance Report, 2011. February 2013. Vol. 23. Available at: www.cdc.gov/hiv/topics/surveillance/resources/reports. Accessed June 15, 2013
- Centers for Disease and Prevention. HIV Surveillance in Adolescent and Young Adults (through 2011). Available at: www.cdc.gov/hiv/library/slideset. Accessed June 15, 2013
- Barnes W, D'Angelo L, Yamazaki M, et al; Adolescent Trials Network for HIV/AIDS Interventions. Identification of HIV-infected 12- to 24-year-old men and women in 15 US cities through venue-based testing. *Arch Pediatr Adolesc Med*. 2010;164(3):273–276
- Hazra R, Siberry GK, Mofenson LM. Growing up with HIV: children, adolescents, and young adults with perinatally acquired HIV infection. *Annu Rev Med*. 2010;61:169–185
- Brogly SB, Watts DH, Ylitalo N, et al. Reproductive health of adolescent girls perinatally infected with HIV. *Am J Public Health*. 2007;97(6):1047–1052
- Martinez G, Capen CE, Abma JC. Teenagers in the United States: sexual activity, contraceptive use and childbearing, 2006. National Survey of Family Growth. National Center for Health Statistics. *Vital Health Stat*. 2011;23(31)
- Rose E, DiClemente RJ, Wingood GM, et al. The validity of teens' and young adults' self-reported condom use. *Arch Pediatr Adolesc Med*. 2009;163(1):61–64
- Manlove J, Ikramullah E, Terry-Humen E. Condom use and consistency among male adolescents in the United States. *J Adolesc Health*. 2008;43(4):325–333
- Tschann JM, Flores E, de Groat CL, Deardorff J, Wibbelsman CJ. Condom negotiation strategies and actual condom use among Latino youth. *J Adolesc Health*. 2010;47(3): 254–262
- Brown LK, DiClemente R, Crosby R, et al; Project Shield Study Group. Condom use among high-risk adolescents: anticipation of partner disapproval and less pleasure associated with not using condoms. *Public Health Rep*. 2008;123(5):601–607
- Scott-Sheldon LA, Marsh KL, Johnson BT, Glasford DE. Condoms + pleasure = safer sex? A missing addend in the safer sex message. *AIDS Care*. 2006;18(7):750–754
- Randolph ME, Pinkerton SD, Bogart LM, Cecil H, Abramson PR. Sexual pleasure and condom use. *Arch Sex Behav*. 2007;36(6): 844–848
- Crosby RA, Yarber WL, Graham CA, Sanders SA. Does it fit okay? Problems with condom use as a function of self-reported poor fit. *Sex Transm Infect*. 2010;86(1):36–38
- Choi KH, Gregorich SE. Social network influences on male and female condom use among women attending family planning clinics in the United States. *Sex Transm Dis*. 2009;36(12):757–762
- Rice E. The positive role of social networks and social networking technology in the condom-using behaviors of homeless young people. *Public Health Rep*. 2010;125(4):588–595
- Aalsma MC, Fortenberry JD, Sayegh MA, Orr DP. Family and friend closeness to adolescent sexual partners in relationship to condom use. *J Adolesc Health*. 2006;38(3): 173–178
- Fortenberry JD, Tu W, Harezlak J, Katz BP, Orr DP. Condom use as a function of time in new and established adolescent sexual relationships. *Am J Public Health*. 2002;92(2):211–213
- Kirby DB, Laris BA, Rollieri LA. Sex and HIV education programs: their impact on sexual behaviors of young people throughout the world. *J Adolesc Health*. 2007;40(3): 206–217
- Blake SM, Ledsky R, Goodenow C, Sawyer R, Lohrmann D, Windsor R. Condom availability programs in Massachusetts high schools: relationships with condom use and sexual behavior. *Am J Public Health*. 2003;93(6): 955–962
- Ellen JM, Adler N, Gurvey JE, Millstein SG, Tschann J. Adolescent condom use and perceptions of risk for sexually transmitted diseases: a prospective study. *Sex Transm Dis*. 2002;29(12):756–762
- Council on Communications and Media. American Academy of Pediatrics. Policy statement—sexuality, contraception, and the media. *Pediatrics*. 2010;126(3):576–582
- Kunkel D, Eyai K, Finnerty K, Biely E, Donnerstein E. *Sex on TV 4: A Biennial Report to the Kaiser Family Foundation*. Menlo Park, CA: Kaiser Family Foundation; 2005
- Haagan JF, Shaw JS, Duncan PM, eds. *Bright Futures: Guidelines for Health Supervision of Infants, Children and Adolescents*. 3rd ed. Elk Grove Village, IL: American Academy of Pediatrics; 2008
- Miller KS, Levin ML, Whitaker DJ, Xu X. Patterns of condom use among adolescents: the impact of mother-adolescent communication. *Am J Public Health*. 1998; 88(10):1542–1544
- Whitaker DJ, Miller KS, May DC, Levin ML. Teenage partners' communication about sexual risk and condom use: the importance of parent-teenager discussions. *Fam Plann Perspect*. 1999;31(3):117–121
- DiClemente RJ, Wingood GM, Crosby R, Cobb BK, Harrington K, Davies SL. Parent-adolescent communication and sexual risk behaviors among African American adolescent females. *J Pediatr*. 2001;139(3):407–412

37. Hutchinson MK, Jemmott JB, III, Jemmott LS, Braverman P, Fong GT. The role of mother-daughter sexual risk communication in reducing sexual risk behaviors among urban adolescent females: a prospective study. *J Adolesc Health*. 2003;33(2):98–107
38. Hadley W, Brown LK, Lescano CM, et al; Project STYLE Study Group. Parent-adolescent sexual communication: associations of condom use with condom discussions. *AIDS Behav*. 2009;13(5):997–1004
39. Beckett MK, Elliott MN, Martino S, et al. Timing of parent and child communication about sexuality relative to children's sexual behaviors. *Pediatrics*. 2010;125(1):34–42
40. Miller KS, Whitaker DJ. Predictors of mother-adolescent discussions about condoms: implications for providers who serve youth. *Pediatrics*. 2001;108(2). Available at: www.pediatrics.org/cgi/content/full/108/2/e28
41. Schuster MA, Elliott MN, Kanouse DE. Evaluation of Talking Parents, Healthy Teens, a new worksite based parenting programme to promote parent-adolescent communication about sexual health: randomised controlled trial. *BMJ* 2008;337:308
42. Warner L, Steiner MJ. Male condoms. In: Hatcher RA, Guest F, Stewart F, et al. *Contraceptive Technology*. 20th ed. New York, NY: Ardent Media Inc
43. Carey RF, Lytle CD, Cyr WH. Implications of laboratory tests of condom integrity. *Sex Transm Dis*. 1999;26(4):216–220
44. Lytle CD, Routson LB, Seaborn GB, Dixon LG, Bushar HF, Cyr WH. An in vitro evaluation of condoms as barriers to a small virus. *Sex Transm Dis*. 1997;24(3):161–164
45. Gallo MF, Grimes DA, Lopez LM, Schulz KF. Non-latex versus latex male condoms for contraception. *Cochrane Database Syst Rev*. 2006; (1):CD003550
46. Centers for Disease Control and Prevention (CDC). Nonoxynol-9 spermicide contraception use—United States, 1999. *MMWR Morb Mortal Wkly Rep*. 2002;51(18):389–392
47. Wilkinson D, Tholandi M, Ramjee G, Rutherford GW. Nonoxynol-9 spermicide for prevention of vaginally acquired HIV and other sexually transmitted infections: systematic review and meta-analysis of randomised controlled trials including more than 5000 women. *Lancet Infect Dis*. 2002;2(10):613–617
48. ASTM Committee F-16 on Fasteners. *Rubber Products; Standard Specifications for Rubber Contraceptives (Male Condoms-D3492). Selected ASTM Standards on Fastener-Related Materials, Coatings, and Testing*. West Conshohocken, PA: ASTM; 1996
49. Summary Table of Contraceptive Efficacy. Percentage of women experiencing an unintended pregnancy during the first year of typical use and the first year of perfect use of contraception and the percentage continuing use at the end of the first year. United States. Contraceptive efficacy. In: Hatcher RA, Trussell J, Nelson AL, Cates W, Stewart FH, Kowal D. *Contraceptive Technology*. 19th rev. ed. New York, NY: Ardent Media, 2007. Available at: www.contraceptivetechnology.org/table.html. Accessed April 25, 2012
50. Weller S, Davis K. Condom effectiveness in reducing heterosexual HIV transmission. *Cochrane Database Syst Rev*. 2001; (3):CD003255
51. Steiner MJ, Warner L, Stone KM, et al. Condoms and other barrier methods for prevention of STD/HIV infection, and pregnancy. In: Holmes KK, Sparling PF, Stamm WE, eds. *Sexually Transmitted Diseases*, 4th ed. New York, NY: MacGraw-Hill; 2008
52. Centers for Disease Control and Prevention. Sexually transmitted diseases treatment guidelines 2002. *MMWR Recomm Rep*. 2002;51(RR-6):1–78
53. Martin ET, Krantz E, Gottlieb SL, et al. A pooled analysis of the effect of condoms in preventing HSV-2 acquisition. *Arch Intern Med*. 2009;169(13):1233–1240
54. Warner L, Stone KM, Macaluso M, Buehler JW, Austin HD. Condom use and risk of gonorrhea and Chlamydia: a systematic review of design and measurement factors assessed in epidemiologic studies. *Sex Transm Dis*. 2006;33(1):36–51
55. Conant MA, Spicer DW, Smith CD. Herpes simplex virus transmission: condom studies. *Sex Transm Dis*. 1984;11(2):94–95
56. Katznelson S, Drew WL, Mintz L. Efficacy of the condom as a barrier to the transmission of cytomegalovirus. *J Infect Dis*. 1984;150(1):155–157
57. Rietmeijer CA, Krebs JW, Feorino PM, Judson FN. Condoms as physical and chemical barriers against human immunodeficiency virus. *JAMA*. 1988;259(12):1851–1853
58. Van de Perre P, Jacobs D, Sprecher-Goldberger S. The latex condom, an efficient barrier against sexual transmission of AIDS-related viruses. *AIDS*. 1987;1(1):49–52
59. Judson FN, Ehret JM, Bodin GF, Levin MJ, Rietmeijer CA. In vitro evaluations of condoms with and without nonoxynol 9 as physical and chemical barriers against Chlamydia trachomatis, herpes simplex virus type 2, and human immunodeficiency virus. *Sex Transm Dis*. 1989;16(2):51–56
60. Cates W Jr. The NIH condom report: the glass is 90% full. *Fam Plann Perspect*. 2001; 33(5):231–233
61. Pinkerton SD, Abramson PR. Effectiveness of condoms in preventing HIV transmission. *Soc Sci Med*. 1997;44(9):1303–1312
62. Devine OJ, Aral SO. The impact of inaccurate reporting of condom use and imperfect diagnosis of sexually transmitted disease infection in studies of condom effectiveness: a simulation-based assessment. *Sex Transm Dis*. 2004;31(10):588–595
63. Warner L, Macaluso M, Austin HD, et al. Application of the case-crossover design to reduce unmeasured confounding in studies of condom effectiveness. *Am J Epidemiol*. 2005;161(8):765–773
64. Warner L, Newman DR, Austin HD, et al; Project RESPECT Study Group. Condom effectiveness for reducing transmission of gonorrhea and chlamydia: the importance of assessing partner infection status. *Am J Epidemiol*. 2004;159(3):242–251
65. Niccolai LM, Rowhani-Rahbar A, Jenkins H, Green S, Dunne DW. Condom effectiveness for prevention of Chlamydia trachomatis infection. *Sex Transm Infect*. 2005;81(4):323–325
66. Shlay JC, McClung MW, Patnaik JL, Douglas JM Jr. Comparison of sexually transmitted disease prevalence by reported condom use: errors among consistent condom users seen at an urban sexually transmitted disease clinic. *Sex Transm Dis*. 2004; 31(9):526–532
67. Shlay JC, McClung MW, Patnaik JL, Douglas JM Jr. Comparison of sexually transmitted disease prevalence by reported level of condom use among patients attending an urban sexually transmitted disease clinic. *Sex Transm Dis*. 2004;31(3):154–160
68. Paz-Bailey G, Koumans EH, Sternberg M, et al. The effect of correct and consistent condom use on chlamydial and gonococcal infection among urban adolescents. *Arch Pediatr Adolesc Med*. 2005;159(6):536–542
69. Gallo MF, Steiner MJ, Warner L, et al. Self-reported condom use is associated with reduced risk of chlamydia, gonorrhea, and trichomoniasis. *Sex Transm Dis*. 2007;34(10):829–833
70. Winer RL, Hughes JP, Feng Q, et al. Condom use and the risk of genital human papillomavirus infection in young women. *N Engl J Med*. 2006;354(25):2645–2654
71. d'Oro LC, Parazzini F, Naldi L, La Vecchia C. Barrier methods of contraception, spermicides, and sexually transmitted diseases: a review. *Genitourin Med*. 1994;70(6):410–417

72. Manhart LE, Koutsky LA. Do condoms prevent genital HPV infection, external genital warts, or cervical neoplasia? A meta-analysis. *Sex Transm Dis*. 2002;29(11):725–735
73. Holmes KK, Levine R, Weaver M. Effectiveness of condoms in preventing sexually transmitted infections. *Bull World Health Organ*. 2004;82(6):454–461
74. Koss CA, Dunne EF, Warner L. A systematic review of epidemiologic studies assessing condom use and risk of syphilis. *Sex Transm Dis*. 2009;36(7):401–405
75. Vijayakumar G, Mabude Z, Smit J, Bekinska M, Lurie M. A review of female-condom effectiveness: patterns of use and impact on protected sex acts and STI incidence. *Int J STD AIDS*. 2006;17(10):652–659
76. Warner L, Gallo MF, Macaluso M. Condom use around the globe: how can we fulfil the prevention potential of male condoms? *Sex Health*. 2012;9(1):4–9
77. Bearinger LH, Resnick MD. Dual method use in adolescents: a review and framework for research on use of STD and pregnancy protection. *J Adolesc Health*. 2003;32(5):340–349
78. Santelli JS, Davis M, Celentano DD, Crump AD, Burwell LG. Combined use of condoms with other contraceptive methods among inner-city Baltimore women. *Fam Plann Perspect*. 1995;27(2):74–78
79. Anderson JE, Santelli J, Gilbert BC. Adolescent dual use of condoms and hormonal contraception: trends and correlates 1991–2001. *Sex Transm Dis*. 2003;30(9):719–722
80. Pazol K, Kramer MR, Hogue CJ. Condoms for dual protection: patterns of use with highly effective contraceptive methods. *Public Health Rep*. 2010;125(2):208–217
81. Ott MA, Adler NE, Millstein SG, Tschann JM, Ellen JM. The trade-off between hormonal contraceptives and condoms among adolescents. *Perspect Sex Reprod Health*. 2002;34(1):6–14
82. Sangi-Haghpeykar H, Posner SF, Poindexter AN III. Consistency of condom use among low-income hormonal contraceptive users. *Perspect Sex Reprod Health*. 2005;37(4):184–191
83. Sieving RE, Bearinger LH, Resnick MD, Pettingell S, Skay C. Adolescent dual method use: relevant attitudes, normative beliefs and self-efficacy. *J Adolesc Health*. 2007;40(3):275.e215–275.e222
84. de Visser R. Why do heterosexual young adults who use reliable contraception also use condoms? Results from a diary-based prospective longitudinal study. *Br J Health Psychol*. 2007;12(Pt 2):305–313
85. Roye C, Perlmuter Silverman P, Krauss B. A brief, low-cost, theory-based intervention to promote dual method use by black and Latina female adolescents: a randomized clinical trial. *Health Educ Behav*. 2007;34(4):608–621
86. Crosby R, DiClemente RJ, Charnigo R, Snow G, Troutman A. A brief, clinic-based, safer sex intervention for heterosexual African American men newly diagnosed with an STD: a randomized controlled trial. *Am J Public Health*. 2009;99(suppl 1):S96–S103
87. DiClemente RJ, Wingood GM, Rose ES, et al. Efficacy of sexually transmitted disease/human immunodeficiency virus sexual risk-reduction intervention for african american adolescent females seeking sexual health services: a randomized controlled trial. *Arch Pediatr Adolesc Med*. 2009;163(12):1112–1121
88. Centers for Disease Control and Prevention. *Compendium of HIV Prevention Interventions With Evidence of Effectiveness*. Atlanta, GA: Centers for Disease Control and Prevention; 1999, revised August 31, 2001
89. Charania MR, Crepaz N, Guenther-Gray C, et al. Efficacy of structural-level condom distribution interventions: a meta-analysis of U.S. and international studies, 1998–2007. *AIDS Behav*. 2011;15(7):1283–1297

Condom Use by Adolescents
COMMITTEE ON ADOLESCENCE
Pediatrics; originally published online October 28, 2013;
DOI: 10.1542/peds.2013-2821

| | |
|---|---|
| Updated Information & Services | including high resolution figures, can be found at: /content/early/2013/10/23/peds.2013-2821 |
| Citations | This article has been cited by 9 HighWire-hosted articles: /content/early/2013/10/23/peds.2013-2821#related-urls |
| Permissions & Licensing | Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at: /site/misc/Permissions.xhtml |
| Reprints | Information about ordering reprints can be found online: /site/misc/reprints.xhtml |

PEDIATRICS is the official journal of the American Academy of Pediatrics. A monthly publication, it has been published continuously since 1948. PEDIATRICS is owned, published, and trademarked by the American Academy of Pediatrics, 141 Northwest Point Boulevard, Elk Grove Village, Illinois, 60007. Copyright © 2013 by the American Academy of Pediatrics. All rights reserved. Print ISSN: 0031-4005. Online ISSN: 1098-4275.

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™



PEDIATRICS®

OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

Condom Use by Adolescents
COMMITTEE ON ADOLESCENCE
Pediatrics; originally published online October 28, 2013;
DOI: 10.1542/peds.2013-2821

The online version of this article, along with updated information and services, is
located on the World Wide Web at:
[/content/early/2013/10/23/peds.2013-2821](http://content.early/2013/10/23/peds.2013-2821)

PEDIATRICS is the official journal of the American Academy of Pediatrics. A monthly publication, it has been published continuously since 1948. PEDIATRICS is owned, published, and trademarked by the American Academy of Pediatrics, 141 Northwest Point Boulevard, Elk Grove Village, Illinois, 60007. Copyright © 2013 by the American Academy of Pediatrics. All rights reserved. Print ISSN: 0031-4005. Online ISSN: 1098-4275.

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™

