



## 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

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## abstract

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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.<sup>1</sup> 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).<sup>2</sup>

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.<sup>3</sup>

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

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.<sup>8</sup> Rates of *Chlamydia*, gonorrhea, and syphilis

have all continued to increase in adolescent and young adults.<sup>9</sup> 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%.<sup>10</sup>

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*.<sup>9</sup>

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.<sup>9</sup>

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).<sup>9</sup>

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.<sup>11,12</sup> 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.<sup>13</sup> 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.<sup>14</sup> 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.<sup>15</sup>

## CONDOM USE

### Recent Trends in Adolescent Condom Use

The condom remains the most popularly used contraceptive method among teenagers.<sup>3</sup> 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.<sup>3</sup> 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%).<sup>3</sup> 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%.<sup>16</sup> 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.<sup>17</sup>

### 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,<sup>18</sup> 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.<sup>18</sup> 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.<sup>19</sup> 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.<sup>20</sup> 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.<sup>21–23</sup>

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

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

The effect of the media on adolescent sexual behavior has been reviewed in a recent American Academy of Pediatrics policy statement.<sup>31</sup> 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.<sup>31</sup> On primetime television, 77% of programs have sexual content but only 14% reference risks or responsibility of sexual behavior.<sup>32</sup>

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.<sup>33</sup> A number of studies have examined the role of parent-adolescent communication about sexual risk and association with increased adolescent use of condoms.<sup>34–38</sup> Parental communication about sexual risk and condom use are associated with increases in adolescents' use of condoms.<sup>34–36,38</sup> 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.<sup>34</sup> 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.<sup>39</sup> 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.<sup>40</sup>

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.<sup>41</sup>

## 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%).<sup>42</sup> 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.<sup>43,44</sup> 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.<sup>45</sup> 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.<sup>42,45</sup> 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 condoms<sup>46</sup> and may increase likelihood of HIV transmission as a result of increased genital mucosal irritation.<sup>47</sup> 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.<sup>48</sup>

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%.<sup>49</sup> 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.<sup>50</sup> 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.<sup>51–54</sup> Passage of the smallest sexually transmitted pathogen, hepatitis B virus, is effectively blocked by latex condoms, according to in vitro studies.<sup>55–59</sup> 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.<sup>42</sup> Well-designed epidemiologic studies and those of discordant couples have shown that condoms are highly effective against heterosexual transmission of HIV infection.<sup>60</sup> The most recent Cochrane review estimated the effectiveness of condom use at 80%.<sup>61</sup> 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.<sup>54</sup> Recent studies have empirically documented that the effectiveness of condom use against many STIs is underestimated because of limitations of study design.<sup>62–68</sup> 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.<sup>53,54,65,69–74</sup>

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.<sup>51</sup>

Five key condom instructions reached by consensus at a World Health Organization Experts Meeting<sup>51</sup> 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.<sup>75</sup>

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.<sup>75,76</sup>

## 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<sup>77–79</sup> 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.<sup>80</sup>

Adolescents with main and regular partners tend to discontinue condom use quickly, especially if other pregnancy prevention methods are used.<sup>27</sup> 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.<sup>77,78,81–84</sup> 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.<sup>85</sup>

## 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.<sup>28</sup>

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.<sup>29</sup> Likewise, clinic-based interventions have been shown to be effective in increasing condom use and decreasing STIs.<sup>86,87</sup> Clinic-based safer sex interventions are endorsed by the CDC.<sup>88</sup>

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).<sup>89</sup>

## 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.

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