Best Practice

EVIDENCE-BASED CASE REVIEW

Contraception for adolescents

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Objectives

Discuss the impact of teen pregnancy on the individual and on society and the importance of preventing pregnancy in teens

Recognize that adolescents have different contraceptive needs than adults and that contraceptive efficacy and compliance are also different

Explore the importance of preventing sexually transmitted diseases while preventing teen pregnancy

Understand that contraceptive counseling is an important component of primary care for adolescents and that paying special attention to confidentiality is essential

Review contraceptive methods that are more likely to be used by adolescents and discuss alternatives

The rate of births among adolescents in the United States is four times higher than in western Europe, accounting for 13% of all births in the United States.[1,2] Between 1985 and 1990 the cost to the public of teenage childbearing was $120 billion.[3] The age-specific levels of sexual activity are similar to those of teenagers in other countries, raising the question of whether contraception is being underused in the United States. Most teenage mothers (83%) come from poor or low-income families as do most of the teenagers who have abortions (61%); however, 38% of all adolescents come from poor or low-income families. Having a child as a teenager triggers poverty in 28% of teenage mothers by the time they are in their 20s and 30s compared with only 7% of women of comparable age who give birth after adolescence.[4] There are 12 million adolescent girls in the United States. Each year, almost 1 million of them become pregnant—that is, 1 in 5 of all sexually active teenage girls.[4] More than 50% of these girls give birth, and 30% have an abortion. [4] Almost 80% of these pregnancies are unplanned, and more that half of them occur in 18 and 19 year olds.[4] About 25% of teenage mothers will have a second child within 2 years of their first.[4]

Only 29.8% of sexually active girls and women aged 15 to 19 use contraception, and many of them use it inconsistently.[5] More adolescents are using contraception at the time of first intercourse, mainly because of the increasing use of condoms: 76% of teenage girls and 72 % of teenage boys used condoms in 1997 compared with 64% and 62% in 1988, respectively.[5]

The use of contraception by adolescents is cost effective regardless of the method used. Current levels of contraceptive use averted an estimated 1.65 million pregnancies in teenage women aged between 15 and 19 years in 1995.[6] The cost of each averted pregnancy minus the cost of the contraceptive method represents measurable cost savings. In private medical practice, savings range from a low of $1,794 for the use of spermicides at 1 year of use to a high of $12,318 for levonorgestrel implants at 5 years; in the public sector, savings range from a low of $779 for spermicides at 1 year of use to a high of $5,420 for levonorgestrel implants at 5 years.[7] If insurance covered the cost of contraception for adolescents part of the problem of teenage pregnancies would be solved but even adolescents with insurance face barriers to accessing contraceptive services, one of which is confidentiality. The Association of Reproductive Health Professionals has a confidential adolescent reproductive health questionnaire, which can be a helpful tool for healthcare providers.

Abstinence can be presented as an alternative. About half of adolescents aged 15 to 19 abstain from intercourse. By ages 20 and 24, about 12% continue to abstain.[8] Studies show that fewer than 20% of all parents discuss sexuality with their children but the adolescent children of those who do are more likely to abstain.[9] A combined approach to discussing sexuality, which included family, school, and the media could be successful in increasing the number of teenagers who abstain from intercourse. The role of the community is critical in promoting abstinence because it can provide teens with hope for the future that they may not want to risk and alternative, supervised activities. Many school districts provide abstinence education but, interestingly, 23% of all school districts in the

Summary points

- Oral contraception is the contraceptive most commonly used by adolescents but their compliance and continuation rates are poor
- Encouraging teens to use condoms with a hormonal method can reduce the risk of sexually transmitted diseases
- A confidential and concrete approach to contraceptive counseling is likely to be effective in increasing the use of and compliance with methods of birth control
- Counseling about the side effects of different contraceptives is essential; adolescents who are familiar with the potential problems are more likely to be willing to manage them rather than stop using the contraceptive
- Emergency contraception should be discussed whenever contraceptive methods are discussed

United States teach teens that abstinence is the only option available and forbid dissemination of any positive information about other contraceptive options.[10]

METHODS

MEDLINE entries (1980-1999) were searched using terms including "adolescent," "contraception," "teenagers," and "birth control." The search retrieved review articles, editorials, and clinical studies published in English. The information obtained was used to design the case study presented to illustrate the important aspects of providing contraception to adolescents in primary care. Part of the content of the case is real, derived from the author's practice.

Brenda W is 16 years old and has been sexually active for the past 6 months with her boyfriend. She has been using condoms since the first time she had intercourse but the condom broke last time, one day before her office visit. She is concerned that she is pregnant and would like to use a back-up method in case a condom breaks again in the future.

Do adolescents have specific contraceptive needs?

Brenda W, like many other adolescents, is seeking contraceptive advice only months after becoming sexually active.[4] Misconceptions about the risks of contraceptive methods, fear of the pelvic exam, and concerns about confidentiality keep many teenagers from seeking advice from their physicians.[11] Better communication with adolescents—within families, at school, and within the medical system—can help them overcome these barriers. Clinicians usually don't bring up the issues of sexually transmitted diseases and contraception but these are subjects that most teens would like to discuss with their providers.[12] Teenagers will discuss their sexuality and contraceptive needs with their physician if they know that these discussions are confidential.[13] The Mature Minor Doctrine legally protects physicians who provide diagnosis and treatment of sexually transmitted diseases, contraception, pregnancy testing, and counseling for substance misuse, and mental health services.[14] In 1980, about 20% of family planning clinics required parental consent for patients aged 15 or younger even though 23% of teens using the clinics reported that they would not attend if their parents were notified.[15] In 1991, 30% of senior high school students did not use family planning clinics because they feared parental discovery.[13] Four of 10 teenagers who need contraceptive services request them from family planning clinics supported by federal Title X funding, which allows the clinics to provide contraception to anyone without regard to age or marital status.[16] In September 1997, though, the US House of Representatives only narrowly rejected a rule which would have made it mandatory to notify parents if their minor children attended clinics receiving Title X funds. Such clinics would have had to notify a parent at least 5 days before providing contraception to a minor. The rule was replaced by the decision that clinics should encourage but not insist on parental involvement. Also, since 1997, 30 states have required parental consent for teenagers to obtain abortions (up from 18 states in 1991). As a result of the legislation encouraging parental involvement in the provision of contraceptive services to minors, many teenagers are reluctant to seek birth control because the laws leave the decision about whether parents should be informed to the discretion of the physician, who must consider the best interests of the minor.

Because of the high incidence of sexually transmitted diseases among teens, prevention of these illnesses should be discussed together with contraception. Many clinicians advocate a belt and suspenders approach of using condoms as well as a hormonal method in order to minimize the risk both of an unwanted pregnancy and sexually transmitted diseases.

Are condoms used by adolescents and are they as effective as in adults?

Data from the 1995 National Survey of Family Growth showed that 37% of teenagers aged 15 to 19 used condoms for contraception.[17] Condoms are the second most commonly used contraceptive in this age group.[17] Condom failure is usually caused by breakage (up to 6.7% of failures) and slippage (up to 6.4%). Polyurethane condoms and the female condom are more likely to fail than latex condoms.[18] Condoms are more likely to fail among adolescent users (16.5% failure rate at 1 year of use by those aged 15 to 19 compared with a 14% failure rate among people aged 15 and 44)[7] mainly because of incorrect and inconsistent use.[19] The primary care provider who counsels adolescents about condom use should explain how and when to place the condom, how and when to remove it, and how to safely carry one in a purse.

The use of condoms tripled among adolescents in the 1980s, mainly prompted by the fear of AIDS. Still, many adolescents find condoms embarrassing to buy or obtain from clinics and may not use one for each act of coitus. The major advantage of condoms as a choice of contraception is that they protect against sexually transmitted

diseases and, indirectly, protect against infertility and cervical cancer.[18]

What can be done to prevent pregnancy in Brenda W's case 24 hours after a condom failure?

Emergency contraception is a good option. Previously known as the "morning after pill," it is effective up to 72 hours after unprotected intercourse; it works by interfering with ovulation, fertilization, and implantation.[20] It is a primary method of pregnancy prevention, since pregnancy begins with implantation and emergency contraception has no effect on an implanted egg. The Yuzpe regimen is most commonly used and consists of two doses of 100 µg ethinyl estradiol and 0.5 mg levonorgestrel administered 12 hours apart. In place of levonorgestrel, 1.0 mg doses of norgestrel can be used. There is an emergency contraception kit (Preven, Gynetics, Somerville, NJ) available by prescription that contains the two hormonal doses (two pills each) as well as a pregnancy test and information about the method and its side effects. A variety of oral contraceptives can also be used for emergency contraception (box).

This method is at least 75% effective in preventing pregnancy, and pregnancy rates fall from 8% to 2% when it is used.[21] The sooner the treatment is administered, the more efficacious it is, and this is a strong argument for providing prescriptions in advance. A regimen with similar efficacy is levonorgestrel alone administered in two doses of 0.75 mg each at 12-hour intervals. The insertion of an intrauterine device within 5 days after unprotected intercourse is another method. Mifepristone is 100% effective as emergency contraception but is not available in the United States.

Many patients and providers are not aware of emergency contraception, which limits its use. Only 36% of respondents in a study were aware that anything "could be done" within a few days of to prevent pregnancy, 55% "had heard" of emergency contraception but only 1% had used it.[22] A study of inner-city adolescents found that only 25% "had heard" of emergency contraception.[23] A survey of providers of contraceptive care to adolescents found that only 20% prescribed this method more than once a month and only one quarter discussed it during routine visits.[24] Another study of providers of reproductive health care found that more than 90% never or rarely spoke to their patients about emergency contraception, and about half of them had prescribed it over the past year.[25] There is a nationwide hotline (1 888 NOT 2 LATE) that provides advice on emergency contraception and a website dedicated to emergency contraception (http://opr.princeton.edu/ec/), and providers should offer these resources to adolescent patients during contraceptive counseling.

Options for emergency contraception

Type of pill	Dose
Preven	Two doses of two blue pills
Ovral	Two doses of two white pills
LoOvral	Two doses of four white pills
Levora	Two doses of four white pills
Levlen	Two doses of four light orange pills
Nordette	Two doses of four light orange pills
TriLevlen	Two doses of four yellow pills
Triphasil	Two doses of four yellow pills
Trivora	Two doses of four pink pills
Alesse	Two doses of five pink pills
Levlite	Two doses of five pink pills
Ovrette	Two doses of 20 yellow pills (levonorgestrel only)

The side effects of emergency hormonal contraception are nausea, vomiting, and irregular bleeding. The patient should be counseled to take an antiemetic 1 hour before taking the hormones and to have a urine pregnancy test if she does not menstruate within three weeks of using the emergency contraception. The provider can use the opportunity of this visit to counsel Brenda about other contraceptive options that prevent pregnancy when condoms fail.

After being counseled about long-term contraceptive options, Brenda W decides to try the birth control pill. She thinks that she can take the pill every day but is worried about gaining weight and has heard that the pill could cause cancer of the female reproductive organs and infertility. Also, she would like to try a preparation that would clear her acne and reduce her menstrual cramps. She specifically wants to try the pill that she saw advertised on television which was described as the best in terms of treating acne.

Oral contraceptives are the most common method of contraception used by adolescents, 44% of sexually active teenagers aged between 15 and 19 years use them.[17] The typical failure rate for the pill in adults is about 5%; in adolescents it is 10% to 15% at 1 year of use[26, 27] or higher, mainly due to inconsistent use.[28] About half of all teenagers who start taking oral contraceptives stop within 1 year.[29] The higher failure rate and lower continuation rate in adolescents compared with adults should prompt clinicians to provide appropriate counseling and discuss alternative methods as well. For example, a proactive approach of making a telephone call or scheduling a follow-up visit can help reinforce the need to take the pills each day and help manage the adolescent's side effects. It is important for the adolescent to know in advance what she plans to do with the pill pack if she is concerned about

confidentiality and privacy and the provider can help with suggestions.

Adolescents are concerned with their body image, so Brenda W's worry that she might gain weight on the pill should be addressed by her physician. There is no significant evidence that oral contraceptives cause weight gain, and this is a good opportunity to counsel her about the benefits of a healthy diet and regular exercise.[30] Long-term use of the pill does not increase the risk of ovarian and uterine cancer. Taking the pill for 4 years decreases the risk of ovarian cancer by 30% and taking it for 12 years decreases the risk by 80%. Taking oral contraceptives for 4 or more years decreases the risk of uterine cancer by 60%.[31] The use of oral hormonal contraception does not alter fertility, although pregnancy might be delayed for several months after discontinuing this method.[32] Using oral contraception generally improves acne. The third generation progestins (desogestrel, norgestimate, gestodene) are less androgenic and may offer more benefits.[33] The triphasic ethinyl estradiol and norgestimate combination is the only preparation that is approved by the US Food and Drug Administration for treating acne but many other contraceptives have the same beneficial effect, including those with higher doses of estrogen. After explaining to Brenda that all contraceptives are effective in treating acne, she insists that she wants to try the one that was advertised on television because her friend recommends it. The media and peer pressure are powerful influences on adolescent behavior.

Most women notice an improvement in menstrual cramps while taking any birth control pill. The beneficial effects of oral contraceptives outside of their contraceptive component should be presented to the teenager as this can often increase motivation to take the pill and to continue taking it regularly. Some of the noncontraceptive benefits are presented in the box.

The side effects and disadvantages associated with the use of oral contraceptives should also be specifically discussed. The adolescent who takes birth control pills should be able to recognize and report problems. Some of the disadvantages are presented in the box.

Brenda W decides to take triphasic ethinyl estradiol and norgestimate partly because she really wants her acne to go away. You advise her to return in 3 months or to call if she develops any side effects. After about a month, you get a call. She reports that she wants to stop the pills because she is persistently nauseous and is experiencing breast tenderness and mood changes.

What is the natural history of these side effects?

Nausea, breast tenderness, and irregular bleeding are self-limiting and tend to improve or disappear within three cycles of pill use. Brenda should be reassured and advised to take the pill at night with a meal to minimize the nausea. If the nausea persists, her pill could be changed to a lower dose pill (20 μg ethinyl estradiol) but she should be cautioned about the risk of increased menstrual abnormalities, such as breakthrough bleeding, while on the low-dose estrogen pill.

Mood changes in this patient should not be attributed automatically to the pill, other causes such as stress, changes in relationships, environment, or substance misuse should be ruled out. If other causes are not an issue, mood changes may be controlled by changing the proges-

Noncontraceptive benefits of using oral contraceptives

Menstrual	Less bleeding (and indirectly less anemia) and less dysmenorrhea Fewer symptoms of premenstrual syndrome Predictable menses
Cancer prevention	Ovarian cancer Uterine cancer
Decreased risk of	Ovarian cysts Benign breast disease Ectopic pregnancy
Improvement in or protection against	Acne Hirsutism Osteoporosis Endometriosis Rheumatoid arthritis Dyslipidemia

Disadvantages and side effects of using oral contraceptives

- No protection against sexually transmitted diseases
- Need to take pill daily
- Irregular menstrual pattern (missed menses, scanty bleeding, spotting, breakthrough bleeding)
- Headaches (new onset or worsening headaches)
- Depression
- Decreased libido
- Increased risk of cervical ectopy and chlamydial cervicitis
- Breast tenderness
- Nausea and vomiting
- Gallbladder disease may progress in susceptible women
- Hypertension
- Hepatocellular adenoma
- Growth of leiomyomas
- Leukorrhea
- Skin changes (chloasma, telangiectasias)
- Hair loss

tin component of the pill (for example, trying a preparation containing ethynodiol diacetate).

Brenda decides to try a lower dose pill (20 µg ethinyl estradiol) to minimize her symptoms. She returns in 3 months for follow up and does not feel better. She wants to find out more about other long-term contraceptive methods.

What other long-term hormonal contraceptive methods can adolescents use?

Depot medroxyprogesterone acetate and subdermal implants of levonorgestrel are effective contraceptives that require little from patients in terms of use. This makes them attractive alternatives for adolescents.

Depot medroxyprogesterone acetate is administered as a 150 mg injection every 3 months. It is used by 11% of 15 to 19 year olds who are sexually active.[17] The levonorgestrel implant consists of six silastic capsules inserted subdermally; they provide up to 5 years of effective contraception. The implant is used by 2% of sexually active adolescents.[17] These methods are excellent choices for adolescents with developmental disabilities or for teenagers who have difficulty taking their pills regularly.

Adolescents who choose the depot preparation or levonorgestrel implants have usually either already tried other methods or been pregnant. Forty-three percent of teenagers who have been pregnant are likely to choose depot medroxyprogesterone acetate; 34% who have been pregnant are likely to choose levonorgestrel implants, and only 12% are likely to use oral contraceptives.[34] Continuation rates with these methods at 6 months are higher than with oral contraceptives: 87% for the implant compared with 50% for oral contraceptives[35] and 78% for the depot preparation.[36] Convenience, long-term protection, and problems with previous contraception are the most frequent reasons that adolescents choose these methods.

Primary care physicians providing contraceptive services to adolescents should keep syringes of the depot preparation in their office for immediate injection and should make reinjection visits quick (nurses can give them) to increase the chance of adolescents adhering to the regimen. The discontinuation rate among adolescents for depot medroxyprogesterone acetate is fairly similar to that among adults: about 78% continue to use it at 1 year.[34] The most frequent reasons for discontinuation are irregular bleeding, amenorrhea, weight gain, nausea, and depression. It is important to explain to the teenager who chooses a long-term progestin method for contraception that the menstrual changes that occur are not harmful and that any weight gain is likely to be modest.

These long-acting progestins are used less frequently in Europe than in the United States, mainly because European teenagers are more consistent in their pill taking and have better rates of continuation.[37] The confidential, inexpensive, and accessible contraceptive services in western Europe contribute to the better education about contraceptives among teenagers and indirectly to increased compliance with their method of choice.

There are other long-term methods of hormonal contraception that will soon be available and may increase compliance among adolescents: a once-a-month combination hormonal contraceptive injection, a once-a-week combination hormonal patch), a two-implant system that provides effective contraception for 3 years after insertion, and a progestin implant that is available in Europe and is effective for 2 years. Possible future improvements in delivery systems include the availability of transdermal progestin cream, which would be applied to the skin daily; a device for self-injection of a dose of progestin; and the electronic pill reminder device, which sounds an alarm when the pill should be taken.

Are there any other choices that Brenda W could consider to prevent pregnancy?

The intrauterine device is an effective long-term contraceptive but it is not suitable for many adolescents because they are at high risk of contracting sexually transmitted diseases. Older teenagers, perhaps those with children or in monogamous relationships, may be better candidates.[20] Many teenagers are concerned that intrauterine devices reduce fertility; they need to know that nulliparity is not a contraindication to using an intrauterine device and fertility is preserved after discontinuing its use.

Brenda W already uses a condom, which she plans to continue to use to protect against sexually transmitted diseases. She should avoid using lubricants that are petroleum based because they weaken latex; she and her boyfriend should not use a female and a male condom at the same time. She can add a spermicide to increase the contraceptive efficacy of the condom; the failure rate of this combined method is 3.14% at 1 year of use.[38] Adolescents who develop an allergy to or local irritation from spermicides can try nonspermicidal condoms. Diaphragms and cervical caps are not popular among adolescents and women because they are perceived to interfere with intercourse and require manipulation of their genitals. They provide less protection against sexually transmitted diseases than condoms.

Withdrawal continues to be a popular method of contraception among teenagers but it has a high failure rate (about 22.5% at 1 year).[7] Teenagers find the rhythm

method difficult to use partly because their sexual activity is sporadic and unplanned.

References

1 Damson P, ed. *The progress of nations, 1996.* New York: UNICEF; 1996.
2 Ventura SJ, Martin JA, Curtin SC,Matthews TJ. Report on final natality statistics, 1996. *Monthly Vital Statistics Report* 1998;44(11 suppl):1-99.
3 Centers for Disease Control and Prevention. Preventing teen pregnancy, June 1,1999. Atlanta: CDC update.
4 Alan Guttmacher Institute. *Sex and America's teenagers.* New York: Alan Guttmacher Institute, 1994.
5 Kahn JG, Brindis CD, Glei DA. Pregnancies averted among U.S. teenagers by the use of contraceptives. *Fam Plann Perspect* 1999;31:29-34.
6 Abma JC, Chandra A, Mosher WD, et al. Fertility, family planning and women's health: new data from the 1995 national survey of family growth. National Center for Health Statistics. *Vital Health Stat* 1997;23:1-114.
7 Trussel J, Koenig JD, Stewart F, et al. Medical cost savings from adolescent contraceptive use. *Fam Plann Perspect* 1997;29:248-255.
8 Schuster MA, Bell RM, Kanouse DE. The sexual practices of adolescent virgins: genital sexual activities of high school students who have never had vaginal intercourse. *Am J Public Health* 1996;86:1570-1576.
9 Howard M, McCabe JB. Helping teenagers postpone sexual involvement. *Fam Plann Perspect* 1990;22:929-932.
10 Landry DJ, Kaeser L, Richards CL. Abstinence promotion and the provision of information about contraception in public school disctrict sexuality education policies. *Fam Plann Perspect* 1999;31:280-286.
11 Gage AJ. Sexual activity and contraceptive use: the component of the decisionmaking process. *Stud Fam Plann* 1998;29:154-166.
12 Malus M, LaChance PA, Lamy L, et al. Priorities in adolescent health care: the teenager's viewpoint. *J Fam Pract* 1987;25:159-162.
13 Zabin LS, Stark HA, Emerson MR. Reasons for delay in contraceptive clinic utilization. *J Adolesc Health Care* 1991;12:225-232.
14 Tafelski T, Boehm KE. Contraception in the adolescent patient. *Prim Care* 1995;22:145-159.
15 Torres A, Forrest JD, Eisman S. Telling parents: clinic policies and adolescents' use of family planning and abortion services. *Fam Plann Perspect* 1980;12:284-292.
16 Alan Guttmacher Institute. *Teenagers' right to consent to reproductive health care.* New York: Alan Guttmacher Institute, 1998.
17 Piccinino LJ, Mosher WD. Trends in contraceptive use in the United States: 1982-1995. *Fam Plann Perspect* 1998;30:4-10, 45.
18 Hatcher RA, Trussel J, Stewart F, et al. *Contraceptive technology.* 17th ed. New York: Irvington, 1998.
19 Rieder J, Coupey SM. The use of nonhormonal methods of contraception in adolescents. *Pediatr Clin North Am* 1999;4:671-694.
20 Glasier A. Emergency postcoital contraception. *N Engl J Med* 1997;337:1058-1064.
21 Trussell J, Ellertson C, Stewart F. The effectiveness of the Yuzpe regimen of emergency contraception. *Fam Plann Perspect* 1996;28:58-64.
22 Del Blanco S, Stewart FH, Koenig JD, et al. Are we making progress with emergency contraception? Recent findings on American adults and health professionals. *J Am Med Women Assoc* 1998;53(suppl 2):242-246.
23 Gold MA, Schein A, Coupey SM. Emergency contraception: a national survey of adolescent health experts. *Fam Plann Perspect*1997;29:15.
24 Grossman RA, Grossman BD. How frequently is emergency contraception prescribed? *Fam Plann Perspect* 1994;26:270.
25 Jones EF, Forrest JD. Contraceptive failure in the United States: revised estimates from the 1982 National Survey of Family Growth. *Fam Plann Perspect* 1989,21:103-109.
26 Berenson AB, Wiemann CM. Use of levonergestrel implants versus oral contraceptives in adolescents: a case-control study. *Am J Obstet Gynecol* 1995;172:1128-1137.
27 Blumenthal PD, Wilson LE, Remsburg RE, et al. Contraceptive outcomes among postpartum and postabortive adolescents. *Contraception* 1994;50:451-460.
28 Emans SM, Grace E, Woods ER, et al. Adolescents' compliance with oral contraceptives. *JAMA* 1987;257:3377-3381.
29 Rubinoff BE, Grubenstein A, Meirow D, et al. Effects of low-dose estrogen oral contraceptives on weight, body composition and fat distribution in young women. *Fertil Steril* 1995;63:516-521.
30 Grimes DA, Economy KE. Primary prevention of gynecologic cancers. *Am J Obstet Gynecol* 1995;172:227-235.
31 Bracken MB, Hellebrand KG, Holford TR. Contraception delay after oral contraceptive use: the effect of estrogen dose. *Fertil Steril* 1990,53:21-27
32 Redmond GP. Effectiveness of oral contraceptives in the treatment of acne. *Contraception* 1998;58(suppl):29-33S.
33 Davis AJ. Use of depot medroxyprogesterone acetate contraception in adolescents. *J Reprod Med* 1995;41(suppl):407-413.
34 Dinerman LM, Wilson DM, Duggan AK, et al. Outcomes of adolescents using levonorgestrel implants vs oral contraceptives or other contraceptive methods. *Arch Pediatr Adolesc Med* 1995;149:967-972.
35 Cromer BA, Smith RD, Blair JM, et al. A prospective study of adolescents who choose among levonorgestrel implant (Norplant), medroxyprogesterone acetate (Depo-Provera) or the combined oral contraceptive pill as contraception. *Pediatrics* 1994;94:687-694.
36 Cromer BA, Berg-Kelly KS, Van Groningen JP, et al. Depot medroxyprogesterone acetate (Depo Provera) and levonorgestrel (Norplant) use in adolescents among clinicians in Northern Europe and the United States. *J Adolesc Health* 1998;23:74-80.
37 Kestelmann P, Trussel J. Efficacy of the simultaneous use of condoms and spermicides. *Fam Plann Perspect* 1991;23:226-227, 232.

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