63. Counseling to Prevent Unintended Pregnancy

**RECOMMENDATION**

Periodic counseling about effective contraceptive methods is recommended for all women and men at risk for unintended pregnancy (see Clinical Intervention). Counseling should be based on information from a careful sexual history and should take into account the individual preferences, abilities, and risks of each patient. Sexually active patients should also receive information on measures to prevent sexually transmitted diseases (see Chapter 62).

**Burden of Suffering**

Approximately two thirds of all American women are at risk for unintended pregnancy (i.e., they are sexually active but do not want to become pregnant), and a substantial proportion of all pregnancies each year in the U.S. are unintended. In a national survey of over 8,000 women ages 15–44, 57% of all pregnancies were unintended, including those that were unwanted (i.e., in women who did not want more children) and those that were mistimed (i.e., in women who did not want children at that time). The proportion of pregnancies that are unintended is high in women of all ages: 42% of all pregnancies in women ages 30–34 and 77% in women ages 40–44. Births resulting from unintended and unwanted pregnancies have gradually increased since 1982. Approximately 40% of live births to women ages 15–44 were the result of unintended pregnancies, including 12% due to unwanted pregnancies.

**Unintended Teenage Pregnancies.** An increasing number of teenagers are at risk for unintended pregnancy. In a 1993 survey, 32% of 9th grade girls, 44% of 9th grade boys, and over two thirds of all high school seniors reported having had sexual intercourse; over half of seniors were sexually active within the previous 3 months. Factors associated with early sexual activity include: lower socioeconomic status; use of tobacco, alcohol, or other drugs; and single-parent households. Approximately 20% of sexu-

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\[a\] The 1988 National Survey of Family Growth (NSFG) is the source of the most widely cited statistics on unintended pregnancies and births. Data from the 1995 NSFG are scheduled to be released in 1996.
ally active teenage girls (age 15–19) become pregnant each year in the U.S., and over 80% of teen pregnancies are unintended. Teenagers account for over 1 million pregnancies and over 500,000 births a year in the U.S. Almost 40% of teenage births in 1992 were to mothers age 17 or younger, including 12,000 births in girls under age 15. Although pregnancy rates among sexually active teens declined steadily from 1972 to 1986, pregnancy and birth rates have increased for the entire teen population, due to increasing teenage sexual activity and declining abortion rates. The rates of teenage pregnancy and teenage birth (61 births/1,000 women ages 15–19 in 1992) remain substantially higher in the U.S. than in most Western countries.

Adverse Effects of Unintended Pregnancy. A 1995 Institute of Medicine (IOM) report on unintended pregnancy summarized the consequences of unintended pregnancy for both the parents and the child. The most obvious adverse consequence of unintended pregnancies is elective abortion. Roughly half of all unintended pregnancies end in abortion, accounting for most of the 1.5 million abortions performed annually in the U.S. Although abortion rates have declined modestly over the past 15 years in the U.S., they remain higher in the U.S. than in most Western countries.

Separating the effects of unplanned births from other important social and environmental factors (e.g., maternal health, education, and income) is difficult. Adverse social and medical consequences are most consistently observed for teenaged childbearing, most of which is attributable to unintended pregnancy. Teenage mothers are less likely to get or stay married, less likely to complete high school or college, and more likely to require public assistance and live in poverty. Infants born to teenage mothers, especially mothers under age 15, are more likely to suffer from low birth weight, neonatal mortality, and sudden infant death syndrome (SIDS), and they may be at greater risk of child abuse, neglect, and behavioral and educational problems at later ages. Risk factors common in young mothers (poverty, single parenthood, poor nutrition, and inadequate prenatal care) may be more important than young maternal age itself, however. From 1985 to 1990, the public costs of births to teenage mothers (Aid to Families with Dependent Children, Medicaid, etc.) were estimated to be over $120 billion.

The adverse consequences of unintended pregnancy and childbirth are not restricted to teenagers. Women who become pregnant unexpectedly forego the opportunity to receive preconception counseling to improve the health of the fetus. Pregnancies after age 40 are often unintended and are associated with increased risks to both mother and infant. Women with unwanted pregnancies are less likely to receive adequate prenatal care, more likely to smoke or drink, and more likely to have low
birth weight babies. Some studies have suggested that developmental problems are more frequent among unwanted children, but other environmental factors are probably important; more than 40% of children resulting from unintended pregnancies in the U.S. are born into single-parent families.

Efficacy of Risk Reduction

Complete sexual abstinence is the only certain form of contraception. Without contraception, an estimated 85% of heterosexual couples who engage in regular intercourse will conceive within 1 year. Available methods to prevent conception vary considerably in their effectiveness, convenience, reversibility, side effects, and cost, and are reviewed in detail in a number of up-to-date references.

The effectiveness of contraceptive methods is usually expressed in two ways: the failure rate under “perfect use” (annual pregnancy rates among persons who use the method correctly on every occasion) and under “typical use” (average users in retrospective surveys or clinical trials). Because many methods are not used consistently and correctly by the average couple, failure rates with typical use are often considerably higher than with perfect use. Nearly half of all unintended pregnancies occur in women who report using some form of contraception, and inconsistent or incorrect use of contraception is the major cause of such contraception “failures.” User knowledge, motivation and ability, cooperation of their partner, the cost, comfort, and ease of use of a particular method, and individual concerns about side effects or safety are all important determinants of compliance with a chosen method of contraception.

Contraceptive hormones include oral contraceptives (combined estrogen/progestin preparations and progestin-only pills), long-acting progestational agents that are injected or implanted, and postcoital preparations. Combination oral contraceptives (OCs) are the most popular method of reversible contraception, used by an estimated 10 million American women. The pill is generally taken daily for 21 days, followed by either placebo or no pills for 7 days. The failure rate is about 3% per year with typical use and as low as 0.1% per year when used correctly and consistently. Noncompliance remains the major cause of OC failure, especially in unmarried women. Failure rates calculated from a 1988 survey were 7%; rates were higher among women who were young, unmarried, or poor.

Side effects of OCs, such as breakthrough bleeding, nausea, and breast tenderness, decline over time and have been minimized in recent years by lowering the dose of hormones. Epidemiologic studies demonstrated an association between early OCs and cardiovascular disease (myocardial infarction, stroke, and thromboembolic disorders). This effect was most
pronounced in heavy smokers and older women, and has been attributed to thrombotic effects of higher doses of hormones in early formulations.\textsuperscript{19,21} Any risks associated with current OCs seem to be minimal.\textsuperscript{16,22,23} In several studies conducted after 1985, OC use was associated with an increased risk of occlusive stroke (an extremely rare event in young women),\textsuperscript{24–26} but effects on the risk of myocardial infarction have not been consistent.\textsuperscript{27,28} For most women (with the possible exception of older smokers), potential risks of OCs are lower than the risks of pregnancy and childbirth.\textsuperscript{29} In one U.S. study of newer OCs, there were no cardiovascular deaths in 55,000 patient-years of use.\textsuperscript{30} Patient satisfaction is generally higher for OCs (94\%) than most other methods.\textsuperscript{31}

The net effect of OC use on cancer risk appears to be negligible and may be favorable (see Chapter 64).\textsuperscript{32} The lifetime risk of breast cancer is similar in OC users and nonusers, but some studies suggest a modest increase in early breast cancer among long-term users or those beginning OC use at a young age.\textsuperscript{33,34} The absolute increase in risk is small, may be due to factors other than OCs (e.g., delayed childbearing), and may not apply to current formulations. A modest increase in cervical cancer has also been reported, but the significance of this association is also controversial.\textsuperscript{19} In contrast, OC use is associated with a 40–50\% reduction in the risk of ovarian and endometrial cancer (see Chapter 64). Additional noncontraceptive benefits of OCs include lower incidence of menstrual disorders, benign breast disease, uterine fibroids, and clinical pelvic inflammatory disease (PID).\textsuperscript{17,35} Extended follow-up (12–20 years) of several large cohorts reported no effect of prolonged OC use on overall or cause-specific mortality.\textsuperscript{22,23}

The progestin-only pill (“mini-pill”) is less effective than combination OCs (failure rate 0.5–4\%) and is more likely to cause irregular menses.\textsuperscript{16,36} It is a useful alternative for women who are breast-feeding or who have contraindications to estrogen. Injectable progestins (depot-medroxyprogesterone acetate [DMPA], i.e., Depo-Provera) and subdermal progestin implants (i.e., Norplant) provide long-term contraception without the need for daily compliance. DMPA is administered as intramuscular injections given 4 times a year and has a failure rate of only 0.3\%.\textsuperscript{16} Subdermal implants can be inserted and removed as an office procedure and provide effective contraception for up to 5 years. Cumulative 5-year pregnancy rates in large case-series were 0.5–1.2\%.\textsuperscript{37,38} Satisfaction with subdermal implants seems high among selected groups\textsuperscript{39,40} but it is not as high as with OCs. Common side effects with progestin-only contraceptives include irregular bleeding (up to 50–70\%), headache, and weight gain; cases of stroke and pseudotumor cerebri have been reported among users of Norplant, but no causal association has been established.\textsuperscript{41} Removal compli-
cations (e.g., broken or imbedded implants) occurred in 5% of patients in 1985–1993. Initial studies reported no significant increase in breast cancer, and a substantial reduction in endometrial cancer, among women using DMPA. DMPA causes modest adverse effects on serum lipids, but the long-term effects on cardiovascular disease are not known for any of the progestin-only contraceptives.

Postcoital administration of estrogen and progestin can reduce subsequent pregnancy if initiated within 72 hours after unprotected intercourse. The best-evaluated regimen consists of two doses of 100 µg ethinyl estradiol and 1 mg levonorgestrel (i.e., two 50 µg combination OC pills), given 12 hours apart. Based on reported failure rates (0.2–7.4%), it is estimated to reduce risk of pregnancy by 75%. Prominent side effects include irregular bleeding, nausea (up to 50%), and vomiting. Alternate regimens using danocrine (Danazol) have fewer side effects but have been less well studied. In two recent trials in Great Britain, mifepristone (RU 486) was as effective as, and better tolerated than, estrogen/progestin regimens for postcoital contraception. RU 486 is under study in the U.S. but not yet available. Surveys indicate that knowledge of and use of postcoital contraception remains low among patients and clinicians.

Barrier contraceptive methods include the male and female condom and female barriers used with spermicide. Barrier methods have fewer side effects than hormonal contraception, but average effectiveness is more variable due to inconsistent or incorrect use. When used reliably, latex condoms have a 3% failure rate, compared to 12–16% among average users. The female condom has failure rates comparable to other female barriers: 5% under perfect use and 20% under typical use. Cost ($2.50) and unfamiliar appearance may be obstacles to regular use. Latex condoms (and presumably female condoms) also provide protection against human immunodeficiency virus (HIV) and other sexually transmitted diseases (STDs) (see Chapter 62). Condoms infrequently slip or rupture, but most failure is due to inconsistent or improper use.

Other female barriers include the diaphragm, cervical cap, vaginal sponge, and vaginal film. Diaphragms have a failure rate of about 6% when used consistently, and 18–22% under average conditions. Among reliable users, failure rates appear higher (10% vs. 3%) in women having more frequent intercourse (≥3 times per week). The cervical cap and contraceptive vaginal sponge are as effective as the diaphragm in nulliparous women, but less effective in parous women (failure rates 20–36%). Both can be left in for longer periods than the diaphragm (24 hours). The only American manufacturer of sponges discontinued production in 1995, however. Spermicides (foams, creams, jellies) used alone are estimated to have failure rates of 6% when used consistently and
21–25% under typical usage conditions. Both barrier methods and spermicides can reduce the risk of infection with gonorrhea and chlamydia, but effects on HIV transmission are uncertain (see Chapter 62).

**Intrauterine devices** (IUDs) can provide very effective contraception (0.1–0.6% failure rate) for extended periods. Two IUDs are currently available in the U.S.: a copper IUD (Paragard), approved for continued use for up to 8 years, and a progesterone-releasing IUD (Progestasert), which should be replaced annually; approval of a levonorgestrel IUD, which can be left in place for 5 years, is pending in the U.S. Despite adverse publicity in the 1980s that led to the withdrawal of most IUDs from the U.S. market, these newer IUDs have been used widely in other countries and have proven to be safe and reliable. In a study of nearly 23,000 women, the risk of PID was increased only in the first 20 days following IUD insertion, but thereafter remained low (1.6 cases/1,000 years of use); risk was not increased among monogamous women using IUDs. Between 2% and 10% of women will experience expulsion of their IUD in the first year, and up to 15% may require removal due to pain or bleeding. For many women, especially those at low risk of STDs, IUDs offer excellent alternatives to OCs and other methods.

**Coitus interruptus** (withdrawal) and **periodic abstinence** may be more acceptable alternatives for persons with religious objections to artificial contraception and others who are unwilling or unable to use other methods. It is often difficult to perform these methods correctly. Abstinence during fertile periods can be based on date of last menstrual period (calendar or “rhythm” method) or changes in temperature or cervical mucus (ovulation method). The ovulation method is more effective than the calendar method (1–3% vs. 9% failure rate under perfect use) but requires abstinence for about 17 days of each cycle. Coitus interruptus can fail if withdrawal is not timed properly or if preejaculatory fluid contains sperm. Due to these difficulties, failure rates of withdrawal and periodic abstinence are 18–20% annually in actual practice. Effectiveness may be improved by combining these methods with other contraception during the fertile period of the menstrual cycle.

**Sterilization** is the most common method of contraception in the U.S. and has no proven long-term risks. It differs from other methods in that it is intended to provide permanent contraception. The average failure rate is 0.1–0.2% for male sterilization (vasectomy) and 0.4% for female sterilization (tubal ligation). Between 1% and 2% of vasectomies are accompanied by transient side effects (hematoma, infection, or epididymitis). The complication rate from tubal ligation depends on the type of procedure (e.g., mini-laparotomy, laparoscopy, colpotomy) but is generally less than 1%. Within 2 years of the procedure, up to 3% of American women reported regret over sterilization. Fertility can be restored in up to 50% of men after reversal of vasectomy, and up to 70% of
women after reversal of tubal ligation. Sterilization does not protect against sexually transmitted infections, but tubal ligation is associated with lower risk of PID and ovarian cancer.

**Effectiveness of Counseling**

Many adolescents and adults could potentially benefit from counseling about how to prevent unintended pregnancy. In a 1990 survey, 12% of sexually active women ages 15–44, and 22% of sexually active teens, reported not practicing any form of contraception. Contraception use at first premarital intercourse remains lower than at any other stage in life: 29% of all teens and more than half of women under age 17 report using no contraception at first intercourse. Many more persons use contraception but fail to use it consistently or correctly. Nearly half of all unintended pregnancies occur in women using a contraceptive method. Among teenagers, the most common reasons given by teenagers for not using contraception at last intercourse were “Didn’t expect to have sex” and “Just didn’t think pregnancy would occur.” In one study of college students fitted for a diaphragm, only 57% reported using it with each coitus.

Information on the effectiveness of counseling by primary care clinicians in altering sexual practices or improving the use of contraception remains limited, however. What evidence does exist comes primarily from studies of interventions delivered in other settings (classrooms, school clinics, family planning clinics) or targeted to AIDS-related behaviors rather than unintended pregnancy. The 1995 IOM report identified 23 pregnancy prevention programs that had been adequately evaluated, most of which targeted high-risk adolescents. These programs employed a variety of interventions: community- and school-based education about sexuality, life skills, and contraception; individual counseling through school or hospital clinics; and provision of contraceptive services. Most evaluations were based on change in self-reported sexual activity and contraceptive use rather than actual rates of unintended pregnancy. There were several major conclusions of the IOM review: only 13 of 23 programs were even somewhat effective in changing behavior, and magnitude of effect was often small; evidence of the effectiveness of abstinence-only programs was inconclusive; education programs that provided information on both abstinence and contraceptive use had generally favorable effects, without promoting early sexual activity or frequency of intercourse; and only a few programs included measures to ensure access to contraception.

One of the most effective programs combined a school curriculum with free contraceptive services through a school-linked clinic. Another community-based program that included contraceptive services demonstrated early success in preventing adolescent pregnancy, but not in later years after contraceptive services were dropped. Evaluations of other
school-based clinics suggest no clear effect on teenage birth rates, but most pregnancies occurred before students had used the clinic or discussed birth control.

Kirby et al. reviewed the effects of 23 school programs providing sex and HIV education (including some reviewed in the IOM report). They noted isolated positive effects of some programs on use of contraception at first intercourse, but less effect on contraception use among sexually experienced teens. As in the IOM report, they found no evidence that education about sexuality or instruction about contraception led to earlier or more frequent sexual activity among teenagers. All effective programs went well beyond simply providing factual information about contraception and sexuality; most sought to reinforce specific norms about sexual behavior and to develop skills to help teens resist sexual pressures.

A variety of HIV prevention programs have employed individual or group counseling in a clinic setting (see Chapter 62). A number of these demonstrated an increase in condom use after counseling men, but interventions emphasized STD prevention rather than contraception. A randomized trial of reproductive health counseling of young men age 15–18 did not increase overall use of contraception or use of condoms.

Access to family planning clinics appears to help prevent unintended adolescent pregnancy. Teenagers who attend family planning clinics were more likely to use oral contraceptives and less likely to engage in unprotected sexual intercourse; adolescents living in communities with subsidized family planning services were less likely to become pregnant in one analysis. Clinic attenders are self-selected, however, and many of the effects of counseling are short-lived. In one study, less than one half of all adolescents attending a family planning clinic were compliant with contraception after 1 year. Attempts to improve compliance through family counseling, telephone follow-up, or contingency planning have met with limited success.

There are obvious limitations in generalizing from such programs to routine office counseling by clinicians. Furthermore, little is known about interventions to improve contraception in nonadolescent women and men. At the same time, the potential to improve counseling practices in the primary care setting is apparent. A minority of primary care providers—from 18% of pediatricians to 53% of nurse practitioners—routinely ask their female patients about family planning needs. Surveys document that many adolescents and adults are misinformed about the risks of unintended pregnancy, the benefits and risks of particular contraceptive methods, and the proper use of contraception. Misperceptions about risks of contraception (especially OCs and IUDs) are important reasons why women delay seeking contraceptive services, use contraceptives inconsistently, or prematurely discontinue their use.
The effectiveness of counseling depends on the age, maturity, sex, and experience of the patient, as well as on the level of training and counseling skills of the provider. Selection of an appropriate method of birth control must take into consideration the personal preferences, religious beliefs, and abilities of the patient, and the nature of their relationship with their partner(s). As documented in the IOM report, physician training in family planning is highly variable and often limited. Many clinicians are reluctant to prescribe contraceptives for adolescents without parental consent, although most states explicitly or implicitly permit minors to consent to contraceptive services without parental approval. Informing parents may discourage adolescents from seeking needed assistance and conflict with the duty to protect the well-being of the patient and the confidentiality of the doctor-patient relationship. Concern that a physician will inform parents is commonly cited by adolescents as a reason for choosing family planning clinics over private physicians to obtain contraception. Of the estimated 5 million teenaged women at risk for unintended pregnancy in the U.S., however, only 1.2 million receive services at publicly funded family planning clinics.

**Recommendations of Other Groups**

Numerous organizations recommend counseling sexually active adolescents and adults about unintended pregnancy. The American Academy of Family Physicians, the AMA Guidelines for Adolescent Preventive Services (GAPS), the American Academy of Pediatrics (AAP), the American College of Obstetricians and Gynecologists (ACOG), the Society for Adolescent Medicine, the Canadian Task Force on the Periodic Health Examination, and Bright Futures recommends that clinicians counsel all adolescents about preventing unintended pregnancy (including the role of abstinence) and provide effective contraception for all sexually active patients. These groups also encourage physicians to protect the confidentiality of the doctor-adolescent relationship within the confines of local legal requirements regarding parental consent. Healthy People 2000, a U.S. Public Health Service report of national health objectives, endorses efforts to increase sexual abstinence among adolescents and increase the proportion of primary care providers offering age-appropriate family planning counseling. Updated family planning information from the World Health Organization was released in 1995.

**Discussion**

Unintended pregnancy remains a critical problem in the U.S. Although the consequences of unintended pregnancy are most pronounced in

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b Some states permit minor consent on the basis of age (age 14 or 16) or if referred by doctor, family planning agency or school.
young, unmarried women, the problem affects women and men throughout the reproductive period of their lives. Multiple factors are involved in unintended pregnancy, including personal and societal attitudes toward sex, contraception, and pregnancy. Postponing early sexual activity among teens and increasing the consistent use of effective contraception continue to be elusive goals for parents, clinicians, and educators alike. Nonetheless, a variety of evidence indicates that a combination of patient education and access to effective contraception can reduce unintended pregnancy. Although their ability to influence patient sexual behavior may be limited, clinicians can offer information about contraceptive options and prescribe effective and appropriate contraception. The public health benefits of better contraceptive practices would be enormous: reducing the proportion of women not using contraception by half could prevent as many as one third of all unintended pregnancies and 500,000 abortions per year.  

There is no ideal contraceptive method for all patients. The choice of an appropriate method must consider each patient’s motivation and ability to use a particular method, their individual preferences (and partner’s preferences), cost and safety factors, and their relationship with their sexual partner(s). Women bear the largest burden from unintended pregnancy, and methods under female control (hormonal contraception, IUDs, and female barriers) appear to be used more regularly than those requiring male cooperation (condoms, coitus interruptus, periodic abstinence). On the other hand, female methods (with the possible exception of the female condom) do not offer reliable protection against transmission of HIV or other STDs, which are important threats to many individuals. The importance of measures to reduce the risk of STDs (abstinence, maintaining monogamous relationships, avoiding sex with high-risk persons, and using condoms consistently) need to be emphasized along with the importance of effective contraception. Clinicians need to remain alert to factors that may contribute to noncompliance (anxiety, cost, discomfort, embarrassment, etc.).

The effectiveness of counseling depends in part on the clinician’s sensitivity to the personal concerns and privacy of the patient. These issues are especially important when addressing issues of sexuality with adolescents, who may have conflicted feelings about sexuality or childbearing, limited information about fertility and contraception, and unrealistic perceptions of the risks of unprotected sex. Clinicians can encourage abstinence as the safest choice, provide support for individuals choosing to postpone sexual activity, and prescribe effective contraceptive methods for young persons who continue to be at risk. The low rate of contraception at first intercourse indicates that discussion of sexuality and contraception should begin before adolescents become sexually active.
CLINICAL INTERVENTION

Periodic counseling about effective contraceptive methods is recommended for all women and men at risk for unintended pregnancy ("B" recommendation). Counseling should be based on information from a careful history that includes direct questions about sexual activity, current and past use of contraception, level of concern about pregnancy, and past history of unintended pregnancies. Counseling should take into account the individual preferences, concerns, abilities, and risks of each patient and his or her partner, including risk of STDs (see Chapter 62). Counseling should include a discussion of the risk associated with the patient's current contraceptive practice and, when indicated, available alternatives for more effective contraception. Clinicians should inform adolescent patients that abstinence is the most effective way to prevent unintended pregnancy and STDs, although the effectiveness of abstinence counseling has not been established.

Clear instructions should be provided for the proper use of recommended contraceptive techniques. Hormonal contraceptives, barrier methods used with spermicides, and IUDs should be recommended as the most effective reversible means of preventing pregnancy in sexually active persons. Sexual abstinence, the maintenance of a mutually faithful monogamous sexual relationship, and consistent use of condoms should be emphasized as important measures to reduce the risk of STDs (see Chapter 62). Clinicians should monitor satisfaction and compliance of patients with any chosen form of contraception.

Empathy, confidentiality, and a nonjudgmental, supportive attitude are especially important when discussing issues of sexuality with adolescents. Clinicians should involve young pubertal patients (and their parents, where appropriate) in early, open discussion of sexual development and effective methods to prevent unintended pregnancy and STDs. Clinicians should explore attitudes and expectations of adolescents and other patients who are not currently involved in a sexual relationship to anticipate future need for contraception, and inform them how to obtain information and contraception if they plan to begin engaging in sexual intercourse. Preferably, adolescents should be examined without their parent(s) present. Clinicians providing birth control for minors should take into consideration both the confidentiality of the doctor-patient relationship as well as local legal restrictions when deciding whether to notify parents before prescribing contraception. The optimal frequency of counseling to prevent unintended pregnancy is unknown and is left to clinical discretion.

The draft update of this chapter was prepared for the U.S. Preventive Services Task Force by David Atkins, MD, MPH, with contributions from materials prepared by
REFERENCES


