

POLICY STATEMENT

Organizational Principles to Guide and Define the Child Health Care System and/or Improve the Health of All Children

Committee on Adolescence

Emergency Contraception

ABSTRACT. Teen birth rates in the United States have declined during the last decade but remain much higher than rates in other developed countries. Reduction of unintended pregnancy during adolescence and the associated negative consequences of early pregnancy and early childbearing remain public health concerns. Emergency contraception has the potential to significantly reduce teen-pregnancy rates. This policy statement provides pediatricians with a review of emergency contraception, including a definition of emergency contraception, formulations and potential adverse effects, efficacy and mechanisms of action, typical use, and safety issues, including contraindications. This review includes teens' and young adults' reported knowledge and attitudes about hormonal emergency contraception and issues of access and availability. The American Academy of Pediatrics, as well as other professional organizations, supports over-the-counter availability of emergency contraception. In previous publications, the American Academy of Pediatrics has addressed the issues of adolescent pregnancy and other methods of contraception. *Pediatrics* 2005;116:1038–1047; *contraception, emergency contraception, adolescent pregnancy.*

ABBREVIATIONS. FDA, US Food and Drug Administration; OC, oral contraceptive.

BACKGROUND

Most teen pregnancies are unplanned and pose a significant societal cost and potential individual risk. For 15- to 19-year-old teens who become pregnant in the United States, 74% to 95% describe their pregnancies as unintended.^{1,2} In 1999 (the most recent data available), approximately 56.5% of teenage pregnancies ended in live births, 28.5% in induced abortion, and 15% in miscarriage or stillbirth.³ Since 1990, birth rates for 15- to 19-year-olds in the United States have declined by 28% to a low of 43 per 1000 in 2002.⁴ For 15- to 17-year-olds, the 38% decrease in birth rates was even more dramatic, down to 27 per 1000 in 2002.⁴ The most recent data on abortion rates in 15- to 19-year-olds indicate a decrease of 39% during the last decade, with some estimates suggesting more than a 50% decline.^{3,5,6} The largest decline in abortion rates for 15- to 17-year-olds occurred from 1994 to 2000.^{5,6} The decline in teen birth rates reflects the higher rates of reported abstinence and more consistent use of reliable meth-

ods of contraception.^{7–10} Estimates of use suggest that emergency contraception has contributed substantially to the decrease in reported abortion rates in recent years.⁵ Yet, comparison of teen birth rates in the United States with those of other developed countries suggests that US rates are still 2 to 10 times higher.¹¹ The birth rate for 15- to 17-year-olds in the United States remains twice that of Canada and England and 10 times higher than the rates in France and Sweden.¹² Thus, unintended pregnancy and its consequences for the adolescent age group and society remain a focus of individual and public health concern.¹²

Reduction of unintended pregnancy is best achieved by strategies that include developing and implementing effective programs to delay and reduce sexual activity, increasing the use of effective contraceptives, and improving knowledge about the correct use of different contraceptive methods. Strategies to reduce unplanned pregnancies should include improving the knowledge, accessibility, and availability of contraceptive services, including emergency contraception.^{1,13} It is estimated that appropriate use of emergency contraception could reduce the number of unintended pregnancies each year by half and thereby similarly reduce the abortion rate.⁵

DEFINITION OF EMERGENCY CONTRACEPTION

"Emergency contraception" in this policy refers to the use of hormonal medications within 72 to 120 hours after unprotected or underprotected coitus for the prevention of unintended pregnancy.^{14,15} This includes the products labeled and dedicated for use as emergency contraception by the US Food and Drug Administration (FDA) and the "off-label" use of combination oral contraceptives (OCs) described in the literature since 1974.¹⁶ In the United States there are 2 FDA-approved medications for emergency contraception with labeled instructions. The combination of estrogen (ethinyl estradiol) and progestin (levonorgestrel) emergency contraception is marketed as Preven and was approved by the FDA in 1998. Preven contains hormones identical to those found in some combination OCs.¹⁷ Plan B (levonorgestrel), approved by the FDA in 1999, uses a progestin-only formulation. Plan B uses the metabolically active hormone found in a progestin-only OC and the same hormone found in some combination OCs.¹⁸ In addition, some OCs can be given in doses appropriate for emergency contraception, although they are not specifically labeled for this indication

(Table 1).¹⁹ This statement does not cover the use of the copper intrauterine device within 5 days of intercourse, because it is not an option available to most pediatricians.

FORMULATIONS OF EMERGENCY-CONTRACEPTION PRODUCTS AND POTENTIAL ADVERSE EFFECTS

The formulations of emergency-contraception products used in the United States today include commonly available combination OCs and the 2 dedicated products labeled for use as emergency contraception by the FDA (Table 1).²⁰

Combination OCs (Estrogen-Progestin)

Commonly available combination OCs containing ethinyl estradiol and levonorgestrel or norgestrel may be used for emergency contraception. A recent study suggests that OC pills containing norethindrone, another progestin, might be equally effective.²¹ Dose equivalents can be calculated or found in charts such as Table 1. Use of combination OCs for emergency contraception has been documented in large trials for the last 3 decades.^{22–25} Based on several studies in women having unprotected intercourse and using emergency contraception within 72 hours of the sexual contact, the effectiveness of combination OCs is estimated to reduce the pregnancy rate by 70% to 80% compared with not using emergency contraception.^{26,27} The use of combination OCs for emergency contraception is commonly referred to as the “Yuzpe method” and is named after Albert Yuzpe, MD, who first described such use in 1974.¹⁶ The overall reported pregnancy rate for those using the Yuzpe method of emergency contraception varies between 0.2% and 3.0%.^{28–30}

CALCULATION OF DOSING

Each of the 2 doses taken must contain a minimum of 100 μg of ethinyl estradiol and a minimum of 0.50

mg of levonorgestrel. Levonorgestrel is the active isomer of norgestrel, so equivalent dosing of any pill containing norgestrel requires doubling the dose of progestin. An example includes the use of an OC containing 30 μg of ethinyl estradiol and 0.3 mg of norgestrel. A total of 4 pills per dose would be required to be effective. Thus, 4 of these pills would deliver 120 μg of ethinyl estradiol and 1.2 mg of norgestrel, equivalent to 0.6 mg of levonorgestrel per dose. Two doses of 4 pills per dose of this particular formulation of combination OCs would be required. Other pill formulations used for emergency contraception are included in Table 1.²⁰ Similar information may be obtained on certain Web sites, some of which are listed in Table 2.

Although the use of combination OCs has not been labeled specifically for emergency contraception, the FDA Reproductive Health Advisory Committee and professional organizations such as the American College of Obstetricians and Gynecologists have declared the use of combination OCs for emergency contraception safe and effective.^{19,20} The availability of many combination OCs with norgestrel or levonorgestrel makes this alternative particularly helpful when there is no or limited access to a dedicated emergency-contraception product.

NAUSEA AND EMESIS WITH EMERGENCY-CONTRACEPTION PRODUCTS CONTAINING ESTROGEN

Nausea is experienced by approximately half and emesis by 17% to 22% of patients using estrogen-containing emergency-contraception methods, and these adverse effects seem unaffected by food intake.^{21,26,31,32} Other adverse effects might include fatigue, breast tenderness, headache, abdominal pain, and dizziness.^{31,33} Vomiting that occurs as a result of emergency contraception probably indicates that enough hormones have reached the bloodstream to have the desired contraceptive effect, but some ex-

TABLE 1. Dedicated Products and OCs for Use as Emergency Contraception^{20,33}

Brand*	Pills per Dose (No. of Pills to Swallow)†	Ethinyl Estradiol per Dose, μg	Levonorgestrel per dose, mg	Antinausea Treatment Recommended‡
Plan B (dedicated product)	1 white pill	0	0.75	No
Preven (dedicated product)	2 blue pills	100	0.50	Yes
Alesse	5 pink pills	100	0.50	Yes
Aviane	5 orange pills	100	0.50	Yes
Levlen	4 light orange pills	120	0.60	Yes
Levlite	5 pink pills	100	0.50	Yes
Levora	4 white pills	120	0.60	Yes
Low-Ogestrel	4 white pills	120	0.60	Yes
Lo/Ovral	4 white pills	120	0.60	Yes
Nordette	4 light orange pills	120	0.60	Yes
Ogestrel	2 white pills	100	0.50	Yes
Ovral	2 white pills	100	0.50	Yes
Ovrette	20 yellow pills	0	0.75	No
Tri-Levlen	4 yellow pills	120	0.50	Yes
Triphasil	4 yellow pills	120	0.50	Yes
Trivora	4 pink pills	120	0.50	Yes

* Prescriptive equivalents of dedicated products and common OCs.

† US Food and Drug Administration–approved treatment consists of 2 doses taken 12 hours apart. The first dose is to be taken within 72 hours of unprotected sex for best effectiveness, although up to 120 hours afterward has been shown to result in protection. Taking both tablets of progestin-only emergency contraception in a single dose at 1 time has been shown to have equivalent efficacy.

‡ Suggested antinausea medicine: oral meclizine, 25 to 50 mg, which has 24-hour duration of action.

TABLE 2. Resources

Emergency contraception hotline	1-888-668-2528
Emergency Contraception Web site	http://ec.princeton.edu
Managing Contraception Web site	www.managingcontraception.com
Woman's Capital Corporation	1-800-330-1271
	www.go2planB.com
American College of Obstetricians and Gynecologists	www.acog.org
International Consortium for Emergency Contraception	www.cecinfo.org

perts, including the American College of Obstetricians and Gynecologists, recommend that if vomiting occurs within 30 to 60 minutes of taking an emergency-contraception product, a dose should be repeated.³³ The severity and incidence of nausea and vomiting can be decreased significantly by using an antiemetic 1 hour before an estrogen-containing regimen.²⁵ Antiemetics are ineffective if taken after nausea is present.²⁴ An effective over-the-counter oral antiemetic is meclizine, 25 to 50 mg (Dramamine II), taken once before the combination-hormone methods. Patients should be counseled about drowsiness as a possible adverse effect.^{33,34} A recent report suggests that metoclopramide (Reglan), 10 mg by mouth once, may also reduce the nausea and cramping associated with combination-hormone-containing pills.³⁵

Preven (Combined Estrogen-Progestin)

Preven is a prepackaged dedicated product containing 50 μg of ethinyl estradiol and 0.25 mg of levonorgestrel in each tablet. To determine if a pregnancy is present from any unprotected contacts that occurred more than 10 days before, patients may use a urine pregnancy test included in the package. Instructions are to take 2 pills (100 μg ethinyl estradiol and 0.5 mg levonorgestrel per dose) at once and to repeat the dose of 2 pills in 12 hours. Because this combination-hormone-containing pill may cause nausea and vomiting, an antiemetic should be taken 1 hour before the first dose.

Plan B (Progestin Only)

Another available emergency-contraception product is Plan B, which contains 0.75 mg of levonorgestrel per pill.³⁶ One pill is given per dose, 12 hours apart, although recent data suggest that both doses may be taken at the same time with similar effectiveness and no significant increase in adverse effects.³⁷ This delivers a total treatment dose of 1.5 mg of levonorgestrel. This FDA-labeled method has several advantages over estrogen-progestin combination methods. There is significantly less nausea and vomiting in patients using Plan B compared with emergency-contraception formulations that contain estrogen.^{32,36} In addition, randomized, controlled trials have demonstrated that the use of Plan B results in even lower pregnancy rates than the combination estrogen-progestin methods.³²

EFFICACY OF EMERGENCY CONTRACEPTION

When appropriately initiated within 72 hours of unprotected coitus, emergency contraception will prevent approximately 80% of pregnancies in teens and young women who are midcycle and, thus, at risk for pregnancy.^{27,37,38} The effectiveness of emer-

gency contraception might be summarized as follows: if 100 teens have unprotected coitus in the middle of their cycles, estimates suggest that approximately 8 will become pregnant each month. Appropriate use of emergency contraception would reduce this number to approximately 2 pregnancies each month.^{14,26,27}

A randomized, controlled trial has shown that the progestin-only method, Plan B, was statistically more effective at preventing pregnancy than the combination methods. When the 2 regimens were started within 72 hours and were compared, the overall pregnancy rate was 1.1% in the levonorgestrel-only group compared with 3.2% in the combination-hormone or Yuzpe-regimen group.³² The proportion of pregnancies prevented in this study was 85% with levonorgestrel and 57% with the combination hormone method (ie, the Yuzpe method) when compared with the expected number when no treatment was given. The risk of pregnancy was approximately one third less for those treated with the levonorgestrel-only method compared with combined-hormone methods.³² Compared with the Yuzpe group, the levonorgestrel-only group experienced less nausea (23.1% vs 50.5%) and less vomiting (5.6% vs 18.0%).^{32,38}

MECHANISMS OF ACTION OF EMERGENCY CONTRACEPTION

Emergency contraception primarily inhibits ovulation, disrupts follicular development, and/or interferes with the maturation of the corpus luteum. These are the same mechanisms by which other hormonal methods of contraception prevent pregnancy.³⁹⁻⁴⁴ This mechanism of action is supported by a prospective study of women trying to conceive. All pregnancies were attributed to intercourse occurring during a 6-day period ending on the day of ovulation. Physiologically, sperm are viable in the vagina for up to 5 days in comparison with eggs, which must be fertilized within approximately 1 day of ovulation. The day of ovulation may vary from cycle to cycle for the same person and from person to person. The effectiveness of combined hormonal or progestin-only emergency contraception depends on the timing in the cycle when emergency contraception is used.^{45,46} Results of studies evaluating the effect of emergency contraception on the endometrium have been conflicting. Some studies have suggested histologic or biochemical alterations in the endometrium after emergency-contraception treatment, leading to the suggestion that the pills may act by impairing endometrial receptivity to the implantation of a fertilized egg.^{16,41,47-51} However, other studies have demonstrated little to no effect on the endometrium and raise the question of whether the

endometrial changes observed would be sufficient to inhibit implantation.^{38,39,42,43,52,53} Other suggested mechanisms, including alteration of sperm or egg transport, interference with the fertilization process, and/or cervical mucus changes, have not been verified by clinical data.^{14,40}

Emergency contraception does not interrupt a pregnancy that has already implanted in the uterine lining. The controversy over the effects of emergency contraception on the endometrium and potential impact on implantation requires that physicians be knowledgeable about all potential mechanisms when offering treatment to patients and families. Education on the mechanism of emergency contraception often helps to answer questions or concerns of individual patients. College students who recognized that standard emergency-contraception formulations were larger doses of hormones similarly used in OCs expressed more favorable attitudes toward emergency contraception than students without this knowledge.⁵⁴ Past surveys of college students have indicated that currently available emergency-contraception formulations are confused with RU-486.⁵⁴ Mifepristone, or RU-486, is an antiprogestin with abortifacient capabilities and was approved by the FDA in 2000 for nonsurgical abortions. Studies from other countries have reported the use of mifepristone for emergency contraception in much lower doses than those used for abortion (10 vs 600 mg).^{55,56} Mifepristone does not contain any of the synthetic steroid hormones (estrogens or progestins) used in OCs or emergency-contraception products. Unlike hormonal emergency contraception, mifepristone has the potential to disrupt a pregnancy after implantation within the uterine lining.

TYPICAL USE OF EMERGENCY CONTRACEPTION

Use of emergency contraception should be considered for those having had unprotected or inadequately protected coitus within the preceding 72 to 120 hours. Inadequate protection may include using broken or slipped condoms, missing 2 or more active OC pills, being more than 2 weeks late for a depot medroxyprogesterone intramuscular injection, leaving the contraceptive patch off for more than 24 hours, or removing the contraceptive vaginal ring for more than 3 hours.

Progestin-only emergency contraception may be prescribed by telephone for a teen requesting emergency contraception for an unprotected sexual contact. A urine pregnancy test is not required before use of emergency contraception. The assessment for indication to treat may be done by obtaining a history.^{38,57} A question that might be used as telephone triage before suggesting or prescribing emergency contraception is outlined in Table 3. A risk of pregnancy may be present on virtually any day of the cycle, because menstrual histories may be inaccurate and ovulation patterns may vary. A normal period should occur within 3 weeks of using emergency contraception. The discussion should include avoiding additional unprotected sexual contacts, particularly until a more reliable method of contraception can be initiated and/or maintained.

TABLE 3. Telephone Triage of Sexually Active Teens to Prescribe Emergency Contraception

Have you had unprotected intercourse or had a problem with or concern about your method of birth control during the last 3 to 5 days?
If the answer to the question is "yes," the patient may be a candidate for prescribing emergency contraception at that telephone visit.
For a telephone visit when emergency contraception is prescribed, the patient should be scheduled for a follow-up clinic evaluation for sexually transmitted diseases and pregnancy and for contraception within 10 to 14 days after taking emergency contraception.

Teens may not be able to give sufficiently adequate menstrual histories to exclude a preexisting pregnancy, and some teens already pregnant may try to use emergency contraception as an abortifacient. For patients seen in a clinical setting, the results of a urine pregnancy test are usually documented. If the test result is negative, a suggestion and prescription for emergency contraception should be given for any unprotected sexual contact or concern about regular contraception during the past 72 to 120 hours regardless of the patient's menstrual history.^{58,59} If telephone prescriptions for emergency contraception are made available for teens, then a scheduled office or clinic appointment should be made within 10 to 14 days after using emergency contraception to exclude an already existing pregnancy and/or to deal with issues of contraception and screening for sexually transmitted diseases. Confidential care addressing unprotected sexual contact and the need for emergency contraception should follow the same guidelines used to prescribe the more reliable methods of contraception.⁶⁰ For rape or abuse victims when the assault was within the past 72 to 120 hours, emergency contraception should be offered in addition to collection of appropriate specimens, pregnancy testing, antibiotic prophylaxis, and counseling. For patients or families of patients making initial contact by telephone, prescribing emergency contraception should not be delayed and should be made available, and the young woman should be encouraged to seek medical care as soon as possible.

TIMING OF EMERGENCY CONTRACEPTION

The relationship of emergency-contraception timing and effectiveness is somewhat controversial. A World Health Organization randomized, controlled study demonstrated a statistical decline in effectiveness with delayed use of either hormonal method of emergency contraception after unprotected coitus,³² although earlier observational studies reported no loss of efficacy.²⁶ In the World Health Organization study, delaying the first dose by more than 12 hours increased the odds of pregnancy by almost 50%, whereas other studies reported no loss in efficacy.^{21,26,29,32,37,61} When indicated, teens need to be encouraged to initiate the proper use of emergency contraception. This encouragement might include the discussion of possible dating scenarios and the possible need for advance prescription of emergency contraception to encourage the correct use of contraception. Emergency contraception should be initi-

ated as early as possible within 72 hours of the unprotected contact. The first and second emergency-contraception doses should be taken 12 hours apart and at a time when compliance with the second dose is probable. Recent data suggest that compliance with 2 doses may be less important in patients using Plan B. A recent multinational, randomized, controlled trial reported that a single dose of 1.5 mg of levonorgestrel is as effective as 2 doses of 0.75 mg of levonorgestrel taken 12 hours apart, with no significant increase in adverse effects.³⁷ However, the current FDA recommendation remains at 2 doses of levonorgestrel taken 12 hours apart.

Emergency contraception is approved by the FDA for use within 72 hours of coitus. Recent studies demonstrated that there is still some benefit to use of emergency contraception between 72 and 120 hours after the unprotected or unwanted coital event.^{37,58,59} Most women enrolled in the study evaluating use of emergency contraception more than 72 hours after coitus initially consulted the clinics for reasons other than unprotected coitus. A review of proper use and availability of emergency contraception should occur at each visit for sexually active teens.

AVAILABILITY

Dedicated products for emergency contraception may not be available in some pharmacies. A survey in 2002 polled 170 pharmacies in New York, NY, and found that a dedicated emergency-contraception product was available in only about half of the pharmacies.⁶² Another survey of pharmacies conducted in Indiana in 2001 indicated that 48% did not dispense emergency contraception. Pharmacists indicated that they were inadequately trained in adolescent-specific issues, with some negative attitudes expressed about emergency contraception and its provision.⁶³ A random sample of 320 pharmacies in Pennsylvania indicated that only 35% would be able to fill a prescription for emergency contraception on the same day.⁶⁴ Lack of stocking and, thus, availability of emergency contraception may be one of the main barriers to emergency-contraception access.⁶⁵ Fewer than half of the pharmacists surveyed in Minnesota supported participation in a collaborative protocol for provision of emergency contraception.⁶⁶ There are now several states that allow pharmacists to prescribe emergency contraception, including Alaska, California, Hawaii, Maine, New Mexico, and Washington, with the first pilot project initiated in the state of Washington in 1997.⁶⁷ A list of pharmacies in these various geographic areas that currently offer emergency contraception per pharmacist may be found on the Web site www.go2planB.com listed in Table 2. In December 2003, 2 FDA advisory panels endorsed over-the-counter status for Plan B.⁶⁸ The FDA announced in May 2004 the denial of over-the-counter status for emergency contraception.⁶⁹

SAFETY AND CONTRAINDICATIONS OF EMERGENCY CONTRACEPTION

There are few absolute contraindications to the use of combination-hormone emergency contraception. There are no contraindications to progestin-only

emergency contraception. The World Health Organization has stated that the only contraindication to the combination estrogen/progestin emergency-contraception method or the progestin-only emergency-contraception method is a known pregnancy, primarily because the treatment will not work if the patient is already pregnant.⁷⁰ The overall risk of pregnancy is very low with appropriate use of emergency contraception. There have been sporadic case reports of ectopic pregnancies after the use of emergency contraception. Any patient with a history of salpingitis or ectopic pregnancy needs to be generally aware of the potentially increased risk of an ectopic pregnancy regardless of use or nonuse of emergency contraception. Although the data are inadequate, current studies do not support the conclusion that use of progestin-only emergency contraception increases the risk of ectopic pregnancy in the general population; in fact, it is protective by preventing pregnancy.^{32,37,71-74} A review of information suggests that there is no evidence demonstrating that any of the emergency-contraception methods are teratogenic.⁶⁸ Evaluation of possible teratogenic effects of older, higher-dose OCs used on a daily basis in pregnancy have found no increased teratogenic risk.⁷⁵ For chronic health conditions in which estrogen-containing OCs are contraindicated, combination emergency-contraception regimens may still be offered because the duration of use is extremely short. However, many providers prefer to prescribe progestin-only regimens for teens with known hypercoagulable states, such as a history of blood clots or hereditary hypercoagulopathies or thrombophilias. Because pregnancy may increase the risks of adverse outcomes in these health conditions, the contraceptive benefit and availability of combination emergency contraception may outweigh the risk of treatment.^{38,76} Evidence indicates the concurrent use of certain medications such as some antiepileptic drugs, St John's wort, medications to treat human immunodeficiency virus, the antibiotic rifampin, and the antifungal griseofulvin may reduce the efficacy of OCs and, thus, potentially the combination emergency contraception but not the progestin-only method of emergency contraception.^{38,77}

A recent study that simulated over-the-counter access indicated that young women could use the levonorgestrel-only emergency contraception effectively and safely without health care provider intervention.⁷⁸ Evaluation of pharmacy access of emergency contraception by teens and women using emergency contraception in 4 Scandinavian and European countries suggested improved attitudes toward more consistent use of traditional or standard methods of contraception.⁷⁹

ISSUES OF KNOWLEDGE, USE, ACCESS, AND AVAILABILITY

Many teens in the United States are unaware of emergency contraception. In 1 survey of inner-city adolescents, of whom 71% were sexually experienced, only 30% had heard of emergency contraception.⁸⁰

Data for US women 18 years or older also demon-

strate a lack of emergency-contraception knowledge and use. In 2000, a survey of more than 500 women aged 18 to 44 years revealed that only 2% had used emergency contraception, and only 1 in 4 had heard of the method.⁸¹ In contrast, emergency contraception is often used in European countries to decrease teen-pregnancy and, thus, abortion rates. One Finnish study reported that 10% of women younger than 25 years had used emergency contraception at least once in their lifetime.⁸² One analysis of emergency-contraception use in Great Britain and the Netherlands concluded that in both of these countries, emergency-contraception use seemed to be a crucial safety net in adolescent pregnancy prevention.^{83,84} In France, teens are given rights to emergency-contraception access by law, and public and parochial high school nurses are allowed to provide emergency contraception.⁸⁵ According to a survey of obstetricians and gynecologists and family practice physicians in the United States conducted in 2000, only approximately 20% to 25% usually discuss emergency contraception.⁸¹ Of pediatricians answering a survey in New York about emergency contraception in 1999, inexperience with the use of emergency contraception was cited as the primary reason for not prescribing it.⁸⁶ Increasing health care provider knowledge about emergency contraception has been demonstrated to increase the percentage of providers and the number of prescriptions written for emergency contraception.⁸⁷

COMMON CONCERNS ABOUT EMERGENCY CONTRACEPTION

The concern that widespread emergency-contraception use would encourage unprotected coitus in teens is not supported in the literature. In 2 studies of US females from 15 to 24 years old, a treatment group received advance provision of emergency contraception and a control group received education only. There were no differences in the frequency of unprotected sex between the groups in both studies, although the treatment groups were 2 to 3 times more likely to use emergency contraception with unprotected coitus. In addition, no decreases were seen in consistent condom use in the treatment groups at follow-up.^{88,89} In 1 of the studies, adolescents who had been provided emergency contraception in advance were more likely to use emergency contraception sooner after unprotected coitus, compared with the control group, when it may be more effective.⁸⁹ A lesson on emergency contraception incorporated into the school curriculum for British 12- to 15-year-olds found no difference in reported sexual activity for the 6-month interval after the educational intervention compared with students not receiving the educational intervention.⁹⁰

None of the methods of emergency contraception provide protection against sexually transmitted diseases. Patients who use emergency contraception should be encouraged to access a provider for counseling about and testing for sexually transmitted diseases. As a contraceptive, emergency contraception is not as effective as other regularly prescribed methods of birth control. Therefore, initiation of more

effective hormonal contraception for teens planning on or likely to engage in continued sexual activity should also be encouraged.

Use of emergency contraception may slightly alter the menstrual pattern depending on the timing of its administration within the menstrual cycle. Approximately 98% of patients will menstruate within 3 weeks of treatment, with more than half menstruating at the expected time.³² If treatment is initiated before ovulation, the menses is often 3 to 7 days earlier than expected. Treatment initiated after ovulation usually results in menses at the expected time or in a slight delay. Patients who are 3 weeks post-treatment without menses should be evaluated for pregnancy.

USE OF EMERGENCY CONTRACEPTION ON COLLEGE CAMPUSES

Use of emergency contraception on college campuses has the potential to decrease unintended pregnancy. A Princeton University random-sample survey revealed that 30% of students had had an experience in which information about emergency contraception would have been helpful. More than 95% of these Princeton students knew about emergency contraception, but only 38% knew that the correct timing was within 72 hours of intercourse.⁵³

A recent survey of student health centers at universities and colleges reported that 52.2% offered emergency contraception and 47.8% did not.⁹¹ Reasons for not offering emergency contraception at college health services included moral objections and religious affiliations, inability to prescribe or dispense, and fear of liability and concern about nonuse of traditional, regular contraceptive methods.^{91,92}

ADVANCE PRESCRIPTION AND PROVISION OF EMERGENCY CONTRACEPTION

Advance provision of a course of emergency contraception has been shown to be effective. Several studies have found that prescribing emergency contraception in advance increases the likelihood of young women's and teens' use of emergency contraception when needed, yet does not increase sexual or contraceptive risk-taking behavior compared with those receiving only education about emergency contraception.^{88,89,93-97}

In 1 large study, 14- and 15-year-old British boys and girls were provided with information on emergency contraception. Six months after the educational intervention, teens receiving the education were more likely to report the correct use of emergency contraception but did not increase use of emergency contraception compared with students not receiving the intervention.⁹⁰

The American College of Obstetricians and Gynecologists has promoted offering advance prescriptions for emergency contraception.⁹⁸ As previously mentioned, potential regional barriers to access may exist in the United States, as documented in a recent survey of pharmacists in which 48% did not dispense emergency contraception.⁶³ In other areas of the country, dispensing emergency contraception directly by pharmacists without a prescription has

been successful in preserving teen access and privacy.⁹⁹ Pediatricians should consider issues related to access and availability as part of teens' education about emergency contraception, which may include cost, transportation, knowledge about correct use, and dispensing sites.

FUTURE OF EMERGENCY CONTRACEPTION

Emergency contraception has tremendous potential to reduce unintended pregnancy rates in teens and adults. Information on emergency contraception should be incorporated into the sexuality counseling included as part of a preventive health care visit. Emphasis should be on preventing unprotected coitus and assessing for other potential risk behaviors often associated with unprotected coitus such as alcohol use, substance abuse, date rape, and lack of parental supervision. Provision of medication or an advance prescription for emergency contraception should be considered. A rather common concern about emergency contraception is that teens will repeatedly use this method of birth control rather than more reliable methods. A longitudinal study of teens and young women in the United Kingdom found that only 4% of emergency-contraception users reported taking emergency contraception more than twice within 1 year, suggesting that repeated use of emergency contraception within this group was not common.¹⁰⁰

Several states currently allow patients to access emergency contraception via a pharmacist rather than a medical provider. In addition, over-the-counter emergency contraception has been encouraged by many professional organizations, including the AAP. The AAP was 1 of more than 60 medical and citizen groups signing a petition¹⁰¹ to the FDA stating that emergency contraception was safe, efficacious, and easy to administer, all 3 factors required by the FDA for over-the-counter medications.

SUMMARY STATEMENTS

1. Emergency contraception has the potential to further decrease the rate of unintended teen pregnancies in the United States.
2. Education and counseling about emergency contraception (*International Classification of Diseases, Ninth Revision*, code V25.03) should be a part of the annual preventive health care visit for all teen and young adult patients when sexuality issues are addressed.
3. Education should address access and availability issues specific to each community, allowing access to emergency contraception within 72 to 120 hours of unprotected or inadequately protected coitus. Advance prescription for emergency contraception should be considered for teens and young adults.
4. Using the same hormones found in some OCs, emergency contraception acts primarily on the ovulatory process.
5. The controversy over the effects of emergency

contraception on the endometrium and potential impact on implantation requires that physicians be knowledgeable about all potential mechanisms when offering it to patients and families to encourage more informed decision-making.

6. Emergency contraception is not a teratogenic agent and does not have the ability to disrupt a pregnancy already implanted in the uterine lining. Emergency contraception should not be confused with the antiprogesterin RU-486, or mifepristone.
7. The progestin-only method (Plan B) is better tolerated than the combination-hormone or Yuzpe method (Preven or OCs) and is more effective in preventing pregnancy. There are no medical contraindications to the use of progestin-only emergency contraception. Data suggest that both tablets of Plan B may be taken at the same time without affecting efficacy.
8. An increase in awareness and availability of emergency contraception to teens does not change reported rates of sexual activity or increase the frequency of unprotected intercourse among adolescents.
9. Patients who use emergency contraception should see their physician for risk-avoidance/risk-reduction discussions, identification of a usual contraceptive method, and testing for sexually transmitted diseases.
10. The AAP continues to support improved availability of emergency contraception to teens and young adults, including over-the-counter access and limiting the barriers to access placed by some health care providers and venues.

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REFERENCES

1. Henshaw SK. Unintended pregnancy in the United States. *Fam Plann Perspect.* 1998;30:24–29, 46

2. Pulley L, Klerman LV, Tang H, Baker BA. The extent of pregnancy mistiming and its association with maternal characteristics and behaviors and pregnancy outcomes. *Perspect Sex Reprod Health.* 2002;34:206–211
3. Ventura SJ, Abma JC, Mosher WD, Henshaw SH. Revised pregnancy rates, 1990–97, and new rates for 1998–99: United States. *Natl Vital Stat Rep.* 2003;52(7):1–14. Available at: www.cdc.gov/nchs/data/nvsr/nvsr52/nvsr52_07.pdf. Accessed November 29, 2004
4. Hamilton BE, Martin JA, Sutton PD; US Department of Health and Human Services Centers for Disease Control and Prevention. Births: preliminary data for 2002. *Natl Vital Stat Rep.* 2003;51(11):1–20. Available at: www.cdc.gov/nchs/data/nvsr/nvsr51/nvsr51_11.pdf. Accessed November 30, 2004
5. Jones RK, Darroch JE, Henshaw SK. Patterns in the socioeconomic characteristics of women obtaining abortions in 2000–2001. *Perspect Sex Reprod Health.* 2002;34:226–235
6. Elam-Evans LD, Strauss LT, Herndon J, et al. Abortion surveillance: United States, 2000. *MMWR Surveill Summ.* 2003;52(SS-12):1–32. Available at: www.cdc.gov/mmwr/preview/mmwrhtml/ss5212a1.htm. Accessed November 30, 2004
7. Darroch JE, Singh S. Why Is Teenage Pregnancy Declining? The Roles of Abstinence, Sexual Activity and Contraceptive Use. New York, NY: Alan Guttmacher Institute; 1999. Occasional Report 1
8. Boonstra H. Teen pregnancy: trends and lessons learned. *Guttman Rep Public Policy.* 2002;1. Available at: www.agi-usa.org/pubs/ib1_02.pdf. Accessed November 30, 2004
9. Jones RK, Darroch JE, Henshaw SK. Contraceptive use among US women having abortions in 2000–2001. *Perspect Sex Reprod Health.* 2002;34:294–303
10. Grunbaum JA, Kann L, Kinchen SA, et al. Youth risk behavior surveillance: United States, 2001. *MMWR Surveill Summ.* 2002;51(4):1–64. Available at: www.cdc.gov/mmwr/preview/mmwrhtml/ss5104a1.htm. Accessed November 30, 2004
11. Singh S, Darroch JE. Adolescent pregnancy and childbearing: levels and trends in developed countries. *Fam Plann Perspect.* 2000;32:14–23
12. Darroch JE, Frost JJ, Singh S, and the Study Team. *Teenage Sexual and Reproductive Behavior in Developed Countries: Can More Progress Be Made?* New York, NY: Alan Guttmacher Institute; 2001. Occasional Report 3
13. Santelli J, Rochat R, Hatfield-Timajchy K, et al. The measurement and meaning of unintended pregnancy. *Perspect Sex Reprod Health.* 2003;35:94–101
14. Croxatto HB, Devoto L, Durand M, et al. Mechanism of action of hormonal preparations used for emergency contraception: a review of the literature. *Contraception.* 2001;63:111–121
15. Glasier A. Emergency postcoital contraception. *N Engl J Med.* 1997;337:1058–1064
16. Yuzpe AA, Thurlow HJ, Ramzy I, Leyshon JJ. Post coital contraception—a pilot study. *J Reprod Med.* 1974;13:53–58
17. Food and Drug Administration. FDA approves application for Preven emergency contraceptive kit. Available at: www.fda.gov/bbs/topics/ANSWERS/ANS00892.html. Accessed November 30, 2004
18. Food and Drug Administration, Center for Drug Evaluation and Research. Plan B approval package. Available at: www.fda.gov/cder/foi/nda/99/21-045.PlanB.htm. Accessed November 30, 2004
19. US Food and Drug Administration. Prescription drug products: certain combined oral contraceptives for use as postcoital emergency contraception. *Fed Regist.* 1997;62:8609.
20. American College of Obstetricians and Gynecologists. ACOG practice bulletin: emergency oral contraception: Number 25, March 2001 (replace Practice Pattern Number 3, December 1996). *Int J Gynaecol Obstet.* 2002;78:191–198
21. Ellertson C, Webb A, Blanchard K, et al. Modifying the Yuzpe regimen of emergency contraception: a multicenter randomized controlled trial. *Obstet Gynecol.* 2003;101:1160–1167
22. Yuzpe AA, Lacey WJ. Ethinylestradiol and dl-norgestrel as a postcoital contraceptive. *Fertil Steril.* 1977;28:932–936
23. Van Santen MR, Haspels AA. Interception II: postcoital low-dose estrogens and norgestrel combination in 633 women. *Contraception.* 1985;31:275–293
24. Percival-Smith RK, Abercrombie B. Postcoital contraception with dl-norgestrel/ethinyl estradiol combination: six years experience in a student medical clinic. *Contraception.* 1987;36:287–293
25. Bagshaw SN, Edwards D, Tucker AK. Ethinyl oestradiol and D-norgestrel is an effective emergency postcoital contraceptive: a report of its use in 1,200 patients in a family planning clinic. *Aust N Z J Obstet Gynaecol.* 1988;28:137–140
26. Trussell J, Ellertson C, Stewart F. The effectiveness of the Yuzpe regimen of emergency contraception [published correction appears in *Fam Plann Perspect.* 1997;29:60]. *Fam Plann Perspect.* 1996;28:58–64, 87
27. Trussell J, Rodriguez G, Ellertson C. Updated estimates of the effectiveness of the Yuzpe regimen of emergency contraception. *Contraception.* 1999;59:147–151
28. Centre for Review and Dissemination. The Yuzpe regimen of emergency contraception: how long after the morning after [abstract 961127]? *Database of Abstracts of Review of Effectiveness.* 1998
29. Cheng L, Gulmezoglu AM, Oel CJ, Piaggio G, Ezcurra E, Look PF. Interventions for emergency contraception: review. *Cochrane Database Syst Rev.* 2004;(3):CD001324
30. Zuliani G, Colombo UF, Molla R. Hormonal postcoital contraception with an ethinylestradiol-norgestrel combination and two danazol regimens. *Eur J Obstet Gynecol Reprod Biol.* 1990;37:253–260
31. Webb AM, Russell J, Elstein M. Comparison of Yuzpe regimen, danazol, and mifepristone (RU486) in oral postcoital contraception. *BMJ.* 1992;305:927–931
32. Task Force on Postovulatory Methods of Fertility Regulation. Randomised controlled trial of levonorgestrel versus the Yuzpe regimen of combined oral contraceptives for emergency contraception. *Lancet.* 1998;352:428–433
33. Hatcher RA, Nelson, Ziemann M, et al. Emergency contraception. In: Hatcher RA, Nelson, Ziemann M, et al. *A Pocket Guide to Managing Contraception: 2002–2003 Edition.* Tiger, Ga: Bridging the Gap Foundation; 2002:71
34. Raymond EG, Creinin MD, Barnhart KT, Lovvorn AE, Rountree RW, Trussell J. Meclizine for prevention of nausea associated with use of emergency contraceptive pills: a randomized trial. *Obstet Gynecol.* 2000;95:271–277
35. Ragan RE, Rock RW, Buck HW. Metoclopramide pretreatment attenuates emergency contraceptive-associated nausea. *Am J Obstet Gynecol.* 2003;188:330–333
36. Ho PC, Kwan MS. A prospective randomized comparison of levonorgestrel with the Yuzpe regimen in post-coital contraception. *Hum Reprod.* 1993;8:389–392
37. von Hertzen H, Piaggio G, Ding J, et al. Low dose mifepristone and two regimens of levonorgestrel for emergency contraception: a WHO multicentre randomised trial. *Lancet.* 2002;360:1803–1810
38. Grimes DA, Raymond EG. Emergency contraception. *Ann Intern Med.* 2002;137:180–189
39. Durand M, del Carmen Cravioto M, Raymond EG, et al. On the mechanisms of action of short-term levonorgestrel administration in emergency contraception. *Contraception.* 2001;64:227–234
40. Trussell J, Raymond EG. Statistical evidence about the mechanism of action of the Yuzpe regimen of emergency contraception. *Obstet Gynecol.* 1999;93(5 pt 2):872–876
41. Ling WY, Wrixon W, Acorn T, Wilson E, Collins J. Mode of action of dl-norgestrel and ethinylestradiol combination in postcoital contraception. III. Effect of preovulatory administration following the luteinizing hormone surge on ovarian steroidogenesis. *Fertil Steril.* 1983;40:631–636
42. Marions L, Hultenby K, Lindell I, Sun X, Stabi B, Gemzell Danielsson K. Emergency contraception with mifepristone and levonorgestrel: mechanism of action. *Obstet Gynecol.* 2002;100:65–71
43. Swahn ML, Westlund P, Johannisson E, Bygdeman M. Effect of postcoital contraceptive methods on the endometrium and the menstrual cycle. *Acta Obstet Gynecol Scand.* 1996;75:738–744
44. Croxatto HB, Fuentealba B, Brache V, et al. Effects of the Yuzpe regimen, given during the follicular phase, on ovarian function. *Contraception.* 2002;65:121–128
45. Wilcox AJ, Weinberg CR, Baird DD. Timing of sexual intercourse in relation to ovulation: effects on the probability of conception, survival of the pregnancy, and sex of the baby. *N Engl J Med.* 1995;333:1517–1521
46. Wilcox AJ, Dunson D, Baird DD. The timing of the “fertile window” in the menstrual cycle: day specific estimates from a prospective study. *BMJ.* 2000;321:1259–1262
47. Hapangama D, Glasier AF, Baird DT. The effects of peri-ovulatory administration of levonorgestrel on the menstrual cycle. *Contraception.* 2001;63:123–129
48. Ling WY, Robichaud A, Zayid I, Wrixon W, MacLeod SC. Mode of action of DL-norgestrel and ethinylestradiol combination in postcoital contraception. *Fertil Steril.* 1979;32:297–302
49. Kubba AA, White JO, Guillebaud J, Elder MG. The biochemistry of human endometrium after two regimens of postcoital contraception: a dl-norgestrel/ethinylestradiol combination or danazol. *Fertil Steril.* 1986;45:512–516

50. Rowlands S, Kubba AA, Guillebaud J, Bounds W. A possible mechanism of action of danazol and an ethinylestradiol/norgestrel combination used as postcoital contraceptive agents. *Contraception*. 1986;33:539–545
51. Kahlenborn C, Stanford JB, Larimore WL. Postfertilization effect of hormonal emergency contraception. *Ann Pharmacother*. 2002;36:465–470
52. Taskin O, Brown RW, Young DC, Poindexter AN, Wiehle RD. High doses of oral contraceptives do not alter endometrial $\alpha 1$ and $\alpha v\beta 3$ integrins in the late implantation window. *Fertil Steril*. 1994;61:850–855
53. Landgren BM, Johannisson E, Aedo AR, Kumar A, Shi YE. The effect of levonorgestrel administered in large doses at different stages of the cycle on ovarian function and endometrial morphology. *Contraception*. 1989;39:275–289
54. Harper CC, Ellertson CE. The emergency contraceptive pill: a survey of knowledge and attitudes among students at Princeton university. *Am J Obstet Gynecol*. 1995;173:1438–1445
55. Xiao B, Zhao H, Piaggio G, von Hertzen H. Expanded clinical trial of emergency contraception with 10 mg mifepristone. *Contraception*. 2003;68:431–437
56. Piaggio G, Heng Z, von Hertzen H, Bilian X, Linan C. Combined estimates of effectiveness of mifepristone 10 mg in emergency contraception. *Contraception*. 2003;68:439–446
57. Stewart FH, Harper CC, Ellertson CE, Grimes DA, Sawaya GF, Trussell J. Clinical breast and pelvic examination requirements for hormonal contraception: current practice vs evidence. *JAMA*. 2001;285:2232–2239
58. Ellertson C, Evans M, Ferden S, et al. Extending the time limit for starting the Yuzpe regimen of emergency contraception to 120 hours. *Obstet Gynecol*. 2003;101:1168–1171
59. Rodrigues I, Grou F, Joly J. Effectiveness of emergency contraceptive pills between 72 and 120 hours after unprotected sexual intercourse. *Am J Obstet Gynecol*. 2001;184:531–537
60. Confidentiality in adolescent health care [reaffirmed January 1993, November 1997, May 2000]. *AAP News*. 1989;5:9
61. Piaggio G, von Hertzen H, Grimes DA, Van Look PF. Timing of emergency contraception with levonorgestrel or the Yuzpe regimen [letter]. Task Force on Postovulatory Methods of Fertility Regulation. *Lancet*. 1999;353:721
62. Edozien F. City Council survey: emergency contraception not widely available in New York City, survey finds. *New York Post*. October 10, 2002:16. Available at: <http://pqasb.pqarchiver.com/nypost/208526101.html?did=208526101&FMT=ABS&FMTS=FT&date=Oct+10%2C+2002&author=FRANKIE+EDOZIEN&desc=GOOD+LUCK+FINDING+MORNING+AFTER%27+PILL>. Accessed November 30, 2004
63. Conard LA, Fortenberry JD, Blythe MJ, Orr DP. Pharmacists' attitudes toward and practices with adolescents. *Arch Pediatr Adolesc Med*. 2003;157:361–365
64. Bennett W, Petraitis C, D'Anella A, Marcella S. Pharmacists' knowledge and the difficulty of obtaining emergency contraception. *Contraception*. 2003;68:261–267
65. Espey E, Ogburn T, Howard D, Qualls C, Ogburn J. Emergency contraception: pharmacy access in Albuquerque, New Mexico. *Obstet Gynecol*. 2003;102:918–921
66. Kumar AS, Hall LC, LePage A, Lim PC. Providing emergency contraceptive pills "behind-the-counter": opinions among Minnesota health-care providers. *Contraception*. 2003;68:253–259
67. Kaiser Family Foundation. Kaiser daily reproductive health report. Contraception and family planning: FDA advisory panels recommend EC be sold without prescription. December 17, 2003. Available at: www.kaisernetwork.org/daily_reports/print_report.cfm?DR_ID=21382&dr_cat=2. Accessed November 30, 2004
68. Food and Drug Administration. Nonprescription Drugs Advisory Committee and the Advisory Committee for Reproductive Health Drugs. December 16, 2003. Available at: www.fda.gov/ohrms/dockets/ac/03/briefing/4015b1.htm. Accessed November 30, 2004
69. Food and Drug Administration. FDA issues not approvable letter to Barr Labs: outlines pathway for future approval. Available at: www.fda.gov/bbs/topics/news/2004/NEW01064.html. Accessed November 30, 2004
70. World Health Organization, Department of Reproductive Health and Research. *Improving Access to Quality Care in Family Planning: Medical Eligibility Criteria for Contraceptive Use*. 2nd ed. Geneva, Switzerland: World Health Organization; 2000
71. Fabunmi L, Perks N. Caesarean section scar ectopic pregnancy following postcoital contraception. *J Fam Plann Reprod Health Care*. 2002;28:155–156
72. Harrison-Woolrych ML, Wooley J. Progestogen-only emergency contraception and ectopic pregnancy [editorial]. *J Fam Plann Reprod Health Care*. 2003;29:5–6
73. Sheffer-Mimouni G, Puzner D, Maslovitch S, Lessing JB, Gamzu R. Ectopic pregnancies following emergency levonorgestrel contraception. *Contraception*. 2003;67:267–269
74. Gainer E, Mery C, Ulmann A. Levonorgestrel-only emergency contraception: real-world tolerance and efficacy. *Contraception*. 2001;64:17–21
75. Bracken MB. Oral contraception and congenital malformations in offspring: a review and meta-analysis of the prospective studies. *Obstet Gynecol*. 1990;76(3 pt 2):552–557
76. Webb A, Taberner D. Clotting factors after emergency contraception. *Adv Contracept*. 1993;9:75–82
77. Hatcher RA, Ziemann M, Cwiak C, Darney PD, Creinin MD, Stosur HR. *Managing Contraception 2004–2005: For Your Pocket*. 2004:69–77. Available at: www.managingcontraception.com/cmanager/publish/pocket.shtml. Accessed November 30, 2004
78. Raymond EG, Chen PL, Dalebout SM. "Actual use" study of emergency contraceptive pills provided in a simulated over-the-counter manner. *Obstet Gynecol*. 2003;102:17–23
79. Gainer E, Blum J, Toverud EL, et al. Bringing emergency contraception over the counter: experiences of nonprescription users in France, Norway, Sweden and Portugal. *Contraception*. 2003;68:117–124
80. Cohall AT, Dickerson D, Vaughan R, Cohall R. Inner-city adolescents' awareness of emergency contraception. *J Am Med Womens Assoc*. 1998;53:258–261
81. Kaiser Family Foundation. *National Survey of Women Health Care Providers on Reproductive Health: Emergency Contraception*. Menlo Park, CA: Kaiser Family Foundation; 2003. Available at: www.kff.org/womenshealth/loader.cfm?url=/commonspot/security/getfile.cfm&PageID=14303. Accessed August 17, 2005
82. Kosunen E, Sihvo S, Hemminki E. Knowledge and use of hormonal emergency contraception in Finland. *Contraception*. 1997;55:153–157
83. Glasier A, Ketting E, Ellertson C, Armstrong E. Emergency contraception in the United Kingdom and the Netherlands. *Fam Plann Perspect*. 1996;28:49–51
84. Boonstra H. Emergency contraception: the need to increase public awareness. *Guttmacher Rep Public Policy*. 2002:3–6
85. Boonstra H. Emergency contraception: steps being taken to improve access. *Guttmacher Rep Public Policy*. 2002:10–14
86. Golden NH, Seigel WM, Fisher M, et al. Emergency contraception: pediatricians' knowledge, attitudes, and opinions. *Pediatrics*. 2001;107:287–292
87. Beckman LJ, Harvey SM, Sherman CA, Pettiti DB. Changes in providers' views and practices about emergency contraception with education. *Obstet Gynecol*. 2001;97:942–946
88. Raine T, Harper C, Leon K, Darney P. Emergency contraception: advance provision in a young, high-risk clinic population. *Obstet Gynecol*. 2000;96:1–7
89. Gold MA, Wolford JE, Smith KA, Parker AM. The effects of advance provision of emergency contraception on adolescent women's sexual and contraceptive behaviors. *J Pediatr Adolesc Gynecol*. 2004;17:87–96
90. Graham A, Moore L, Sharp D, Diamond I. Improving teenagers' knowledge of emergency contraception: cluster randomised controlled trial of a teacher led intervention. *BMJ*. 2002;324:1179
91. McCarthy SK. Availability of emergency contraceptive pills at university and college student health centers. *J Am Coll Health*. 2002;51:15–22
92. Brening RK, Dalve-Endres AM, Patrick K. Emergency contraception pills (ECPs): current trends in United States college health centers. *Contraception*. 2003;67:449–456
93. Glasier A, Baird D. The effects of self-administering emergency contraception. *N Engl J Med*. 1998;339:1–4
94. Ellertson C, Ambardekar S, Hedley A, Coyaji K, Trussell J, Blanchard K. Emergency contraception: randomized comparison of advance provision and information only. *Obstet Gynecol*. 2001;98:570–575
95. Jackson RA, Bimla Schwartz E, Freedman L, Darney P. Advance supply of emergency contraception. Effect on use and usual contraception—a randomized trial. *Obstet Gynecol*. 2003;102:8–16
96. Belzer M, Yoshida E, Tejjirian T, Tucker D, Chung K, Sanchez K. Advanced supply of emergency contraception for adolescent mothers

- increased utilization without reducing condom or primary contraception use [abstract]. *J Adolesc Health*. 2003;32:122–123
97. Blanchard K, Bungay H, Furedi A, Sanders L. Evaluation of an emergency contraception advance provision service. *Contraception*. 2003;67:343–348
98. American College of Obstetricians and Gynecologists. New ACOG leader promotes widespread advance prescriptions for emergency contraception [press release]. Available at: www.acog.org/from_home/publications/press_releases/nr04-30-01-1.cfm. Accessed November 30, 2004
99. Sucato GS, Gardner JS, Koepsell TD. Adolescents' use of emergency contraception provided by Washington State pharmacists. *J Pediatr Adolesc Gynecol*. 2001;14:163–169
100. Rowlands S, Devalia H, Lawrenson R, Logie J, Ineichen B. Repeated use of hormonal emergency contraception by younger women in the UK. *Br J Fam Plann*. 2000;26:138–143
101. Citizen's petition to Food and Drug Administration, Department of Health and Human Services. February 14, 2001. Available at: www.crlp.org/pdf/EC.petition.pdf. Accessed June 29, 2005

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