

Emergency Contraception

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Emergency contraception is used to prevent pregnancy after a coital act not adequately protected by a regular method of contraception. In contrast to early medical abortion, emergency contraception prevents a pregnancy from starting and does not disrupt an established pregnancy. The most commonly used approaches consist of two oral doses of contraceptive steroids. The levonorgestrel-only regimen (levonorgestrel, 0.75 mg, repeated in 12 hours) appears to be more effective and better tolerated than the Yuzpe regimen (ethinyl estradiol, 100 µg, and levonorgestrel, 0.5 mg, repeated in 12 hours). In the largest randomized, controlled trial to date, levonorgestrel prevented about 85% of pregnancies that would have occurred without its use. Hormonal emergency contraception has no known medical con-

traindications, although it is not indicated for suspected or confirmed pregnancy. However, if hormonal emergency contraception is inadvertently taken in early pregnancy, neither the woman nor the fetus will be harmed. Nausea and vomiting associated with the Yuzpe regimen can be reduced by prophylactic use of meclizine. A strong medical and legal case exists for making hormonal emergency contraception available over the counter, as has happened in countries other than the United States. Easier access to and wider use of emergency contraception could dramatically lower the high rates of unintended pregnancy and induced abortion in the United States.

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A 38-year-old woman presents to your primary care practice because after coitus last night, she found that her husband's condom was torn. She has two children, now teenagers, and she and her husband do not want another child. She read about the "morning-after pill" in a magazine and asks if she should consider using it.

WHAT IS EMERGENCY CONTRACEPTION?

Emergency contraception is used to prevent pregnancy after a coital act not adequately protected by a regular method of contraception. The need for emergency contraception is substantial: Each day in the United States, millions of couples have intercourse with inadequate contraception (for example, a torn condom or forgotten birth control pills), and hundreds of thousands of women at risk for unintended pregnancy use no contraception at all. Emergency contraception may also be useful in other common situations (Table 1).

Although emergency contraception can substantially reduce the burden of unintended pregnancy (2), its use has been neglected in the United States. In some countries, emergency contraception is well known and widely used (3–5). In contrast, a nationwide survey in 1997 revealed that only 1% of U.S. women have ever used emergency contraception (6). The reason for this low level of use is unlikely to be lack of need. Rather, most women (and many health care providers) are unfamiliar with the method (6) and therefore do not consider using or providing it when the need arises.

The most prominent sources of information about drug products in the United States—the drug manufacturers—do not extensively advertise emergency contraceptive products to the public or to health care providers. In addition, access is often limited. Some clinicians are hesitant to provide the method because of misperceptions about clinical, logistic, moral, or legal issues, or because of perceived lack of need. Cost may also be a barrier, as many insurance companies do not cover any contraceptive prod-

ucts, including emergency contraception. Moreover, one major pharmacy chain refuses to carry these products. Ironically, this policy may indirectly increase the number of unintended pregnancies and induced abortions.

Emergency contraception is sometimes called the *morning-after pill* or *postcoital contraception*. The term *emergency contraception* is preferred because it avoids giving the mistaken impression that the treatment must be taken the morning after sex (7, 8); moreover, it emphasizes that the treatment is not intended to be used as an ongoing method of contraception.

WHAT EMERGENCY CONTRACEPTION OPTIONS ARE AVAILABLE?

The two best-studied emergency contraception methods, and the most widely used throughout the world, are the combined estrogen–progestin (9) and the progestin-only regimens (10, 11) of oral contraceptive pills. Both

Table 1. Potential Indications for Use of Emergency Contraception*

Lack of contraceptive use during coitus
Mechanical failure of male condom (breakage, slippage, or leakage)
Dislodgment, breakage, or incorrect use of diaphragm, cervical cap, or female condom
Failure of a spermicide tablet or film to melt before intercourse
Error in practicing withdrawal (coitus interruptus)
Missed combined oral contraceptives (any two consecutive pills)
Missed progestin-only oral contraceptives (one or more)
Expulsion or partial expulsion of an intrauterine device
Exposure to potential teratogen (such as isotretinoin or thalidomide) while not using effective contraception
Late injection of injectable contraceptive (>2 weeks late for a progestin-only formulation, such as depot medroxyprogesterone acetate or norethindrone enanthate, or >3 days late for a combined estrogen plus progestin formulation)†
Rape

* Information obtained from reference 1.

† The usual interval for use of depot medroxyprogesterone acetate as contraception is every 13 weeks; the interval for the combined monthly injectable formulation is every 28 to 30 days, not to exceed 33 days.

Table 2. Levonorgestrel-Containing Emergency Contraception Options Available in the United States*

Category	Number and Color of Pills per Dose	Ethinyl Estradiol per Dose, μg	Levonorgestrel per Dose, mg
Dedicated emergency contraceptive			
Plan B†	1 white	NA	0.75
Preven‡	2 blue	100	0.50
Combination oral contraceptive			
Alesse§	5 pink	100	0.50
Levlen	4 light orange	120	0.60
Levliite	5 pink	100	0.50
Levora¶	4 white	120	0.60
Lo/Ovral§	4 white	120	0.60
Low-Ogestrel¶	4 white	120	0.60
Nordette§	4 light orange	120	0.60
Ogestrel¶	2 white	100	0.50
Ovral§	2 white	100	0.50
Tri-Levlen	4 yellow	120	0.50
Triphasil§	4 yellow	120	0.50
Trivora¶	4 pink	120	0.50
Progestin-only oral contraceptive			
Ovrette§	20 yellow	NA	0.75

* NA = not applicable.

† Manufactured by Women's Capital Corp., Bellevue, Washington.

‡ Manufactured by Gynetics, Somerville, New Jersey.

§ Manufactured by Wyeth, Philadelphia, Pennsylvania.

|| Manufactured by Berlex Laboratories, Wayne, New Jersey.

¶ Manufactured by Watson Laboratories, Corona, California.

regimens consist of two doses of contraceptive steroids taken 12 hours apart after intercourse. In the combined regimen, also called the *Yuzpe regimen* (9), each dose contains 100 μg of ethinyl estradiol plus 0.5 mg of levonorgestrel (or 1.0 mg of norgestrel, a mixture of levonorgestrel and the biologically inactive enantiomer dextronorgestrel). In the progestin-only regimen, each dose is 0.75 mg of levonorgestrel. Both regimens have recently become available in the United States as dedicated products marketed specifically for emergency contraception. The progestin-only regimen is preferred because it is more effective and causes less nausea and vomiting (10). Alternatively, these two regimens can be made from numerous brands of ordinary oral contraceptive pills (Table 2).

A copper intrauterine device (IUD) inserted within 5 days after intercourse appears to be the most effective form of emergency contraception. However, we are unaware of any direct comparisons of this technique with hormonal emergency contraception (12). The copper IUD currently available in the United States is the Copper T380A (Para-Gard T 380A, Ortho McNeil Pharmaceutical, Raritan, New Jersey). The IUD is most appropriate as emergency contraception for women who meet the screening criteria for regular use of such a device and who wish to use one for long-term contraception.

Orally administered mifepristone, an antiprogesterin, is also effective as emergency contraception. Randomized, controlled trials have shown that a single oral 600-mg dose of mifepristone was more effective and less noxious than

the Yuzpe regimen (13) or danazol (14). Another trial (15) found that lower doses (50 mg and 10 mg) were as effective as the 600-mg dose. The lower doses cause less delay in resumption of menses, which can add anxiety to an already tense situation for the woman. Mifepristone is unlikely to be used for emergency contraception in the United States, however, since the currently available tablets cost about \$90.00 and contain 200 mg (20 times the needed dose). Other, newer antiprogesterins may also be effective as emergency contraception (16).

A recent randomized, controlled trial indicated that combined estrogen-progestin regimens containing the progestin norethindrone instead of levonorgestrel may also be effective as emergency contraception, although they may not be as effective as the standard Yuzpe regimen (17). Other emergency contraception regimens used clinically in the past included high-dose estrogens (such as ethinyl estradiol, esterified or conjugated estrogens, or estrone) (18, 19), but these were abandoned because of gastrointestinal side effects. Although initial evidence supported the effectiveness of danazol (20), a randomized, controlled trial later refuted the findings (14).

You begin to discuss the various options for emergency contraception with the patient, who is anxious about the idea that the previous night's incident might result in a pregnancy. She has many questions about emergency contraception.

HOW DOES EMERGENCY CONTRACEPTION WORK, AND HOW DOES IT DIFFER FROM EARLY MEDICAL ABORTION?

Emergency contraception prevents a pregnancy from starting, which differs fundamentally from interruption of an early established pregnancy. This distinction is addressed in many education resources on emergency contraception that are available for clinicians (Table 3) and their patients (Table 4).

The mechanisms of action of the various forms of emergency contraception have not been extensively studied and, consequently, are not well understood. However, like all hormonal contraceptives, emergency contraceptive pills probably work through multiple mechanisms that may depend on the timing of their administration in the men-

Table 3. Clinician Resources about Emergency Contraception

Emergency Oral Contraception. American College of Obstetricians and Gynecologists Practice Patterns. No. 25. Washington, DC: American College of Obstetricians and Gynecologists; 2001. To request, call 508-750-8400.

Emergency Contraceptive Pills: Common Legal Questions about Prescribing, Dispensing, Repackaging, and Advertising. New York: Center for Reproductive Law and Policy; 1997. To request, call 212-514-5534.

Emergency Contraception: Is the Secret Getting Out? Menlo Park, CA: Henry J. Kaiser Family Foundation; 1997. To request, call 800-656-4533 and ask for no. 1352.

Expanding Global Access to Emergency Contraception. Consortium for Emergency Contraception. 2000. To request, contact the Consortium through its Web site at www.path.org/cec/.

Table 4. Patient Educational Materials on Emergency Contraception

Organization	Contact Information	Description
Emergency Contraception Website	www.not-2-late.com	Sponsored by the Office of Population Research at Princeton University; includes an extensive list of links to other sites and referrals to local providers
National Emergency Contraception Hotline	888-NOT-2-LATE (888-668-2528)	Established in 1995 by the Reproductive Health Technologies Project and the Office of Population Research at Princeton University to provide information and referrals; not affiliated with a manufacturer*
Consortium for Emergency Contraception	www.cecinfo.org	Established in 1998 by the Consortium to provide extensive information and references
American College of Obstetricians and Gynecologists	800-762-2264, ext. 830	The patient education pamphlet "Emergency Contraception" (AP114) can be ordered by telephone in packs of 50; the cost is \$17.50 for members and \$19.50 for nonmembers

* See reference 21.

strual cycle (22). The mechanism of action in any specific case is impossible to determine.

When taken before ovulation, emergency contraceptive pills inhibit ovulation in some women (23–28). Several studies have shown histologic or biochemical alterations in the endometrium after treatment with this regimen, suggesting that it may impair endometrial receptivity to implantation of a fertilized egg (27, 29–32). However, other studies (26, 33, 34) have found no such endometrial effects. Whether the endometrial changes that have been observed would be sufficient to inhibit implantation remains unclear.

Additional mechanisms proposed for medical emergency contraception regimens include changes to the cervical mucus that result in trapping of sperm; alterations in the transport of sperm, egg, or embryo through the reproductive tract (35, 36); interference with corpus luteum function (27, 37); and direct inhibition of fertilization. Statistical evidence indicates that current emergency oral contraceptive regimens could not be as effective as data show unless they work by a mechanism of action other than prevention of ovulation (38). Intrauterine devices used for emergency contraception may work by any of the mechanisms that account for their effectiveness when used for conventional contraception.

Many patients (and providers) confuse emergency contraception with medical abortion, since both are used after intercourse. Six to 7 days elapse between a coital act and establishment of a pregnancy, defined as implantation (39, 40). Emergency contraception acts in this interval to prevent pregnancy. Studies of high-dose oral contraceptive pills suggest that the combined estrogen–progestin regimen and the progestin-only regimen cannot interrupt an established pregnancy (41–44). By the time a pregnancy is diagnosed, emergency contraception will no longer be effective.

HOW EFFECTIVE IS EMERGENCY CONTRACEPTION LIKELY TO BE FOR THIS PATIENT, WHOSE UNPROTECTED INTERCOURSE OCCURRED ABOUT 12 HOURS AGO?

The effectiveness of a preventive therapy is best measured by comparing the chance that the condition will

occur if the therapy is used with the chance without treatment. For many preventive therapies, such as vaccines, these probabilities are often determined in a randomized, controlled trial comparing treatment with placebo. In the case of emergency contraception, however, efficacy was demonstrated initially in noncomparative observational studies; thereafter, use of a placebo became unethical. Therefore, the chance that pregnancy would occur in the absence of emergency contraception treatment is estimated by using published data on the probability of pregnancy on the day of the menstrual cycle (relative to ovulation) when each sexual act occurred in the treated sample (18, 45, 46). The statistic used to describe emergency contraception effectiveness is the "prevented fraction," which represents the proportion of cases averted by the treatment. The prevented fraction is defined as follows: $1 - (\text{number of pregnancies observed following treatment} / \text{estimated number of pregnancies in the absence of treatment})$.

The prevented fraction is inexact for several reasons. The numerator may be affected by inadvertent inclusion of pregnancies that were established before treatment or that were conceived from coitus after treatment. Calculation of the denominator may be complicated by uncertainty about the day of ovulation and the applicability of the published data on the probability of conception by cycle day. Furthermore, women may misreport whether they took the treatment or whether they took it correctly. Hence, estimates of the effectiveness of the various emergency contraception methods are not consistent across studies.

Data on efficacy are most extensive for the combined estrogen–progestin regimen. A meta-analysis of eight studies including more than 3000 women in total concluded that when used within 72 hours after sex, the combined regimen prevents about 74% of expected pregnancies (47). The figures from the eight individual studies, however, ranged widely (56% to 89%).

The largest study of the progestin-only regimen was a randomized trial conducted by the World Health Organization that included 1001 women using the regimen at 21 centers in 14 countries (10). When used within 72 hours after intercourse, the prevented fraction after levonorgestrel

therapy was 85%. A smaller study (11) in which the regimen was used within 48 hours after intercourse found a prevented fraction of 60%.

The larger trial mentioned earlier directly compared the combined regimen with the progestin-only regimen. The latter regimen was significantly more effective than the combined regimen. The relative risk for pregnancy in this study was 0.36 (95% CI, 0.18 to 0.70), indicating that the chance of pregnancy among women who received levonorgestrel was about one third that of those who received the Yuzpe regimen.

DURING WHAT INTERVAL AFTER UNPROTECTED INTERCOURSE MUST A WOMAN USE EMERGENCY CONTRACEPTION FOR IT TO BE EFFECTIVE?

Some data indicate that emergency contraceptive pills are more effective the sooner after intercourse they are taken. In the World Health Organization trial, for example, the prevented fraction was 77% if the Yuzpe regimen was used on the first day after intercourse but only 31% if it was used on the third day (10). The levonorgestrel regimen also showed a decrease in effectiveness with time (48). However, other studies of the Yuzpe regimen have shown no decrease in effectiveness with delay of treatment (49). Data also indicate that emergency contraceptive pills retain substantial effectiveness when used more than 72 hours after intercourse (49, 50). One randomized, controlled trial (17) and another cohort study (51) suggest that emergency contraception confers protection up to 120 hours after coitus. The implication of these findings is that the 72-hour time limit should be considered a guideline only; women should be advised to use the treatment as soon as possible after the need is recognized, but treatment should not be withheld from those who present later.

The efficacy of the IUD appears to be substantially higher than that of the hormonal emergency contraception regimens. When inserted within 5 days after intercourse, it can prevent more than 99% of expected pregnancies (12, 52).

Additional history taking reveals that the patient has no chronic medical problems, but she is currently taking doxycycline for adult-onset acne and smokes about one pack of cigarettes daily.

IS EMERGENCY CONTRACEPTION SAFE FOR A WOMAN WHO SMOKES AND IS OLDER THAN 35 YEARS OF AGE?

Hormonal emergency contraception is very safe. No deaths have been linked with use of emergency contraception, and the few case reports of serious adverse events among users do not support a causal association (53). An overdose of emergency contraception would not be lethal, and these drugs have no addictive potential. Indeed, menstrual disturbances caused by repeated use would probably

deter many women from frequent use (54). In contrast, each year more than 300 U.S. women die of overdoses of analgesics, antipyretics, and antirheumatics (55). Hormonal emergency contraception is much safer than aspirin.

DOES HORMONAL EMERGENCY CONTRACEPTION HAVE ANY MEDICAL CONTRAINDICATIONS?

No contraindications to hormonal emergency contraception exist. As noted by the World Health Organization (56), the method is not indicated for a woman with a suspected or confirmed pregnancy because the treatment will not work if the patient is already pregnant. However, no known harm would occur to her, the course of her pregnancy, or the fetus if emergency contraception were accidentally used.

No studies have directly compared the risk for complications after emergency contraception in women who have medical illnesses or other risk factors and women without these conditions. The U.S. Food and Drug Administration–approved package inserts of the two dedicated products for the combined regimen and the progestin-only regimen both list several precautions. However, these lists appear to be derived from the package inserts for combined oral contraceptive pills and are unlikely to apply to emergency contraception, since the duration of use of hormones is so short (57, 58).

The World Health Organization guidelines state specifically that breast feeding and history of ectopic pregnancy should not constitute any restriction to hormonal emergency contraception; in women with history of severe cardiovascular complications, angina pectoris, migraine, or severe liver disease, the benefits of this treatment generally outweigh the possible risks (56). Neither smoking nor age is listed as a contraindication. Use of emergency contraception has been shown not to alter clotting factors (although the clinical relevance of this finding is questionable, because clotting factors do not predict clinical events) (59).

Although data are lacking, some clinicians may prefer to prescribe the progestin-only regimen for women with classic contraindications to estrogen therapy, such as a history of idiopathic thrombosis, focal migraine, or hormone-dependent tumors. However, since pregnancy may also increase the chance of adverse outcomes in these women, the contraceptive benefit of even estrogen-containing emergency contraception may outweigh the risk of treatment.

Contraindications to emergency insertion of an IUD are the same as those for regular use of an IUD. If the unprotected coital act leading to emergency contraception also puts a woman at risk for sexually transmitted infections, the IUD may not be an appropriate choice (60). However, in many cases, sexually transmitted infections are not a concern, and if the woman is otherwise a candidate for ongoing use of an IUD, this option should be strongly considered.

WILL DOXYCYCLINE OR OTHER MEDICATIONS INTERFERE WITH THE EFFECTIVENESS OF EMERGENCY HORMONAL CONTRACEPTION?

One case report described an increase in international normalized ratio after use of the levonorgestrel regimen by a woman taking warfarin (61). Otherwise, no data are available specifically about interactions between hormonal emergency contraception regimens and other drugs. Although emergency contraceptive pills contain higher hormone doses than do standard oral contraceptive pills that contain the same hormones, interactions may be similar for the two therapies. Evidence indicates that certain medications, including rifampin, some anticonvulsant drugs (62), and St. John's wort (63), may decrease the efficacy of oral contraceptive pills. Therefore, women who are taking these drugs should be advised that the efficacy of emergency contraceptive pills may be reduced. Consideration may be given to increasing the amount of hormone in the emergency contraception regimens, either by increasing the amount in one or both doses or by giving an extra dose. If dedicated products are used, this adjustment may be complicated because extra doses are not included in the packages.

Contrary to popular tenets, no credible evidence suggests that commonly used antibiotics, including penicillins (64) and tetracyclines (65), reduce the efficacy of oral contraceptive pills. Small studies have shown no important effect of common antibiotics on serum levels of contraceptive steroids, and vice versa.

ARE ANY LABORATORY TESTS, INCLUDING A PREGNANCY TEST, NECESSARY BEFORE PRESCRIBING EMERGENCY HORMONAL CONTRACEPTION?

In general, the rationale for pretreatment assessment is to ensure that the patient has the indication for treatment and has no contraindications. For hormonal emergency contraception pills, this assessment can be done entirely by history; examination and laboratory tests are not necessary. Likewise, such screening has no value before starting ongoing hormonal contraception (66). A strong medical and legal case exists for providing emergency hormonal contraception over the counter, as is done in other countries (67). No medical supervision is necessary for its use.

The patient will report whether she had unprotected or inadequately protected intercourse. The determination of whether the act was "inadequately" protected should be left to her judgment. An act that is considered low risk by the clinician (for instance, because it occurred on a day of the menstrual cycle on which fertility is presumed to be low or because the woman used spermicide along with the condom that broke) may nevertheless cause substantial anxiety to some women. In addition, the clinician's judgment of the "fertile period" may be incorrect, since even in apparently normally cycling women, the cycle day of ovulation varies greatly (46). Because hormonal emergency

contraception is safe, withholding it from a woman who wants treatment is rarely justified.

The most important concern, established pregnancy, can be detected from the patient's menstrual history. If pregnancy is suspected, a confirmatory pregnancy test can be done. Routine pregnancy testing for all patients, however, is not medically or economically warranted (68). If a woman with an established pregnancy is inadvertently treated, evidence suggests no adverse effect on the pregnancy (42, 43, 69, 70).

Pretreatment assessment before emergency insertion of an IUD consists of the assessment that should be performed before insertion of an IUD for any reason. This assessment includes a pelvic examination to characterize the uterine anatomy and detect cervical infections.

Given the relatively high effectiveness of emergency hormonal contraception, the patient wants to pursue this option. You write a prescription and counsel the patient about how to take the medication and what to expect after she does.

HOW DO YOU PRESCRIBE EMERGENCY HORMONAL CONTRACEPTION?

Table 2 lists regimens for which a prescription can be written. The patient should take the first dose as soon as she gets the prescription filled. The second dose is taken 12 hours later. Authorizing several refills of the prescription is a useful precaution. Simple instructions for the patient are provided with both the levonorgestrel and Yuzpe regimens.

WHAT SIDE EFFECTS OCCUR WITH EMERGENCY CONTRACEPTION?

The most common side effects of hormonal emergency contraception are nausea and vomiting. In 12 studies that included more than 4500 women, the combined regimen was associated with a 42% incidence of nausea and a 16% incidence of vomiting (71). The World Health Organization trial found that these problems were significantly less common among users of the levonorgestrel regimen, of whom 23% had nausea and 6% had vomiting (10). Another randomized, controlled trial found levonorgestrel to be less noxious than the Yuzpe regimen (11).

CAN THE PATIENT MINIMIZE THE POTENTIAL FOR NAUSEA AND VOMITING?

The best way to minimize nausea and vomiting is to use the levonorgestrel regimen instead of the combined (Yuzpe) regimen whenever possible. A randomized trial has shown that if the Yuzpe regimen is used, pretreatment with the antiemetic drug meclizine can significantly reduce the chance of these side effects (71). However, substantially more drowsiness occurred in meclizine recipients. The common clinical advice of taking the Yuzpe regimen with food to reduce nausea and vomiting appeared to lack merit. Antiemetics are unlikely to be useful after nausea has set in (72).

Table 5. Emergency Contraception Billing Codes*

Type of Code and Source	Code	Instructions
Procedure <i>Current Procedural Terminology</i>	99201–99205: Office or other outpatient services, new patient 99212–99215: Office or other outpatient services, established patient	Select a single code. Guidelines in the Evaluation and Management Code section describe how to choose an individual code, depending on the complexity of the medical history obtained, the extent of the medical examination, and the level of medical decision making involved.
<i>Centers for Medicare & Medicaid Services Common Procedure Codes</i>	J8499: Prescription drug, oral, nonchemotherapeutic not otherwise specified J7300: Paragard T380A copper T intrauterine device	Select a single code. These procedure codes require that the patient be treated by a physician, a nurse practitioner, or a physician's assistant who has prescriptive authority.
Diagnosis <i>International Classification of Diseases, 9th Revision</i>	V25.01: Contraceptive management, general counseling, and advice and prescription of combined oral contraceptives V25.41: Surveillance of previously prescribed contraception pill	Select whichever code applies. Additional reasons for the office visit diagnoses should be included in the coding for the encounter.

* Data from reference 73.

WHAT OTHER SIDE EFFECTS MIGHT OCCUR?

An unknown proportion of women experience irregular vaginal bleeding after using hormonal emergency contraception. Such irregular bleeding should not be confused with menses, which is the much-anticipated evidence of treatment success. Users should be informed that emergency contraception does not bring on menses immediately; most women will have their period within 1 week of the expected time, but some may have early or delayed menses (10).

Other reported adverse events among users of both regimens included dizziness, fatigue, headache, breast tenderness, and lower abdominal pain (10). These symptoms may be treated symptomatically and usually resolve spontaneously within a few days.

HOW DO YOU BILL FOR EMERGENCY CONTRACEPTION CARE?

At present, no billing codes (including *Current Procedural Terminology*; *Health Care Financial Administration Common Procedure Codes*; or *International Classification of Diseases, 9th Revision*) have specific codes for this activity. Table 5 shows codes for services related to emergency contraception that can be used. Medicaid billing codes vary by state, and some may have specific internal codes for the service (73).

The patient leaves the office with a prescription for levonorgestrel. She wants to know what she should do if she vomits the first dose.

WHAT SHOULD BE DONE IF THE PATIENT VOMITS SOON AFTER TAKING EMERGENCY CONTRACEPTION?

The preferred management of vomiting shortly after taking emergency contraception is unknown (58). Some investigators suggest that vomiting indicates that sufficient quantities of steroid have been absorbed. Others recom-

mend repeating the dose, particularly if the vomiting occurs shortly after the dose is taken (within 1 hour). In cases of severe vomiting, the pills can be administered vaginally. Small studies of regular oral contraceptive pills administered by this route indicate that the hormones are absorbed through the vaginal epithelium (74, 75); this has been found to be true for other pills as well (76–78).

WHAT IS APPROPRIATE FOLLOW-UP MANAGEMENT OF A WOMAN AFTER EMERGENCY HORMONAL CONTRACEPTION?

Routine follow-up is unnecessary. Women should be seen promptly if any medical problems arise. If menses have not returned within 1 week after the expected time (or within 4 weeks after administration of emergency contraception), a pregnancy test should be considered to exclude this possibility. Women who need further counseling or another visit to start contraception can be scheduled to return as appropriate (58).

You explain to the patient that she should use a home pregnancy test if menses have not resumed within the next 4 weeks. The patient is worried about what will happen if she does become pregnant despite the emergency contraception.

WHAT HARM MIGHT COME TO A FETUS IF A WOMAN BECOMES PREGNANT DESPITE EMERGENCY HORMONAL CONTRACEPTION?

A woman who has used emergency contraception may later be found to be pregnant because the treatment failed, because she was already pregnant before treatment, or because coital acts after treatment led to pregnancy. In any of these cases, she should be advised of all available options, including delivery and abortion, so that she can decide which is most appropriate for her situation. Abortion can be performed in the early weeks after implantation by us-

ing medical (79, 80) or surgical approaches (81). If the patient decides to continue the pregnancy, she should be reassured that current data indicate that emergency contraceptive pills are not teratogenic and should cause no harm to the fetus. Although ectopic pregnancy can occur after use of emergency contraceptive pills, these regimens do not appear to increase that risk (82).

CAN A WOMAN USE EMERGENCY CONTRACEPTIVE PILLS AGAIN SHOULD THE NEED ARISE?

Unlike regular contraceptive methods, emergency contraceptive pills are not intended for frequent use; they are less effective and have more side effects than other methods. However, studies of high-dose levonorgestrel used for recurring postcoital contraception (54) indicate that the likelihood of harm due to repeated use is low. Therefore, emergency contraceptive pills should not be denied solely because a woman has used them before, even within the same menstrual cycle. However, repeated need for emergency contraception is a sign that the patient's current approach to contraception is not working well for her. Women who have repeated contraceptive emergencies should be provided with extra contraceptive counseling and advice on how to avoid these incidents in the future.

You ask the patient whether she wishes to continue to use condoms or wants to try another method of contraception. She wonders whether there may be contraceptive options for her that are more effective than condoms.

WHAT OTHER CONTRACEPTIVE OPTIONS ARE APPROPRIATE FOR THIS 38-YEAR-OLD WOMAN WHO SMOKES?

Emergency contraception provides an opportunity for clinicians to counsel patients about contraceptive options and about how to use them properly to avoid unintended pregnancies. Many women choose to change contraceptive methods after using emergency contraceptive pills, usually to a more effective method than the one they were using when the emergency occurred (83, 84). Combined oral contraceptive pills and other hormonal methods containing estrogen, such as the combined monthly injectable formulation (which contains medroxyprogesterone acetate and estradiol cypionate), would not be recommended for long-term use in this patient because she is older than 35 years of age and she smokes. However, assuming that she has no other medical problems, several other methods besides the male condom could be appropriate, including sterilization; the copper T380A IUD; the levonorgestrel-releasing intrauterine system; depot medroxyprogesterone acetate; levonorgestrel subdermal implants; progestin-only pills; and female barrier methods, such as the female condom or diaphragm.

The timing for starting ongoing contraception after use of emergency contraception varies by method. For oral

contraceptives, a woman may begin taking them immediately after completing the emergency contraceptive pill regimen or wait until the next menstrual period. Administration of implants or injectable formulations should be delayed until the next menses. Insertion of an IUD should also be done at the next menses, unless the woman is using the device for emergency contraception. Since ovulation may occur after the pills are taken, a woman may be at risk for conception later in the same cycle; she should thus be advised to use an interim barrier method until another method is initiated.

If the woman plans to continue using condoms or another barrier method for contraception, she should be offered a package of emergency contraceptive pills (or a prescription) to take home with her, so that she will have treatment immediately available in case of another contraceptive accident. This approach is more convenient for the patient and may increase the efficacy of the future treatment, since some evidence suggests that treatment is more effective the more promptly it is taken. Because emergency pills are safe and have essentially no contraindications, advance provision and advance prescription are medically reasonable. These approaches have been used successfully in the United States (84) and other countries (83, 85). No credible evidence suggests that providing emergency contraceptive pills in advance of need will encourage irresponsibility in use of other contraceptive methods or that it will reduce use of condoms for prevention of sexually transmitted infections.

IF THE PATIENT HAD CALLED RATHER THAN VISITED THE OFFICE, WOULD A TELEPHONE PRESCRIPTION HAVE BEEN APPROPRIATE?

No medical reason exists for emergency hormonal contraception to be available only by prescription. According to the Durham-Humphrey Amendment of 1951, the default option for all new drugs in the United States is over-the-counter sale unless the drug is dangerous, addictive, or complex to use. Emergency hormonal contraception meets none of these criteria. Thus, the U.S. Food and Drug Administration is authorized by federal law to switch these regimens to over-the-counter status without further study. In February 2001, 78 organizations filed a citizens' petition with the U.S. Food and Drug Administration requesting this action (67). Until this switch occurs, however, telephone screening and prescribing without an office visit is reasonable. This approach is currently being used at Planned Parenthood clinics in Georgia, Maryland, Illinois, Connecticut, and North Carolina.

DOES A PHYSICIAN RUN MEDICOLEGAL RISKS BY PRESCRIBING EMERGENCY CONTRACEPTION?

The risk for litigation associated with provision of emergency contraception should be negligible (86). In con-

trast, physicians who fail to offer emergency contraception when medically indicated may leave themselves open to legal action for substandard care. In one case (*Brownfield v. Daniel Freeman Marina Hospital, 208 Cal App 3d 405, 413-14[1989]*) that antedates U.S. Food and Drug Administration approval of emergency contraception, a court held a hospital liable for failing to provide a rape victim with information about and access to emergency contraception. The hospital, which had a religious affiliation, contended that it was immune under the state's Therapeutic Abortion Act, which excluded such hospitals from having to provide abortions. The court held that this immunity did not extend to provision of emergency contraception, since this treatment constitutes pregnancy prevention (86, 87).

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