



PRACTICE BULLETIN CLINICAL MANAGEMENT GUIDELINES FOR OBSTETRICIAN – GYNECOLOGISTS*

Emergency Contraception

Emergency contraception, also known as postcoital contraception, is therapy used to prevent pregnancy after an unprotected or inadequately protected act of sexual intercourse. Common indications for emergency contraception include contraceptive failure (eg, condom breakage or missed doses of oral contraceptives) and failure to use any form of contraception (1-3). Although oral emergency contraception was first described in the medical literature in the 1960s, the U.S. Food and Drug Administration (FDA) approved the first dedicated product for emergency contraception in 1998. Since then, several new products have been introduced. Methods of emergency contraception include oral administration of combined estrogen–progestin, progestin only, or selective progesterone receptor modulators and insertion of a copper intrauterine device (IUD). Many women are unaware of the existence of emergency contraception, misunderstand its use and safety, or do not use it when a need arises (4-6). The purpose of this Practice Bulletin is to review the evidence for the efficacy and safety of available methods of emergency contraception and to increase awareness of these methods among obstetrician–gynecologists and other gynecologic providers.

Background Regimens

Research on the postcoital use of contraceptive steroids began in the 1960s. The first oral regimen, which used a widely available brand of combined estrogen–progestin oral contraceptive pills, was published in 1974 [7]. Research on progestin-only regimens for occasional postcoital use by women

having infrequent sexual intercourse also began at approximately the same time [8]. Data regarding the use of IUDs as emergency contraceptives were initially published in the 1970s and, more recently, selective progesterone receptor modulators were introduced.

The most commonly used oral emergency contraceptive regimen is the progestin-only pill, which consists of 1.5 mg of levonorgestrel (Table). This product can be purchased over the counter and is available without age restriction as of 2013. The product using two levonorgestrel doses of 0.75 mg has fallen out of use in favor of the simpler one-dose regimen,

* Екстрена контрацепція, яку ще називають «посткоїтальною контрацепцією», — це терапія, яка використовується для запобігання вагітності після незахищеного або недостатньо захищеного статевого акту. Методи екстреної контрацепції включають пероральне застосування комбінованих препаратів, що містять естроген і прогестин, тільки прогестин або селективні модулятори рецепторів прогестерону й уведення мідної внутрішньоматкової спіралі. Мета цього практичного бюлетеня полягає в аналізі доказів ефективності та безпеки доступних методів екстреної контрацепції й підвищення знань про ці методи серед акушерів-гінекологів та інших медичних працівників.



which is at least as effective as the two-dose product [9, 10]. The levonorgestrel regimen is labeled for use for up to 72 hours after unprotected sex but is best used as soon as possible after unprotected sex [10-14] (Table).

A second dedicated emergency contraceptive, a pill containing 30 mg of ulipristal acetate, was approved by the FDA in 2010 and requires a prescription. This selective progesterone receptor modulator, or antiprogesterin, has demonstrated effectiveness up to 120 hours after unprotected sex [14] (Table).

Combined estrogen–progestin emergency contraceptive regimens are no longer sold as a dedicated product.

However, they can be formulated from a variety of standard oral contraceptives (<http://ec.princeton.edu/questions/dose.html#dose>) [15].

The copper IUD also can be used for emergency contraception, although the FDA has not labeled it for this indication. The IUD is highly effective if placed within 5 days of sexual intercourse and in some studies was used as many as 10 days later [16-18]. The levonorgestrel-containing IUDs are currently being investigated for use as emergency contraception.

Method of Action

No single mechanism of action has been established for emergency contraception; rather, the mode of action varies according to the day of the menstrual cycle on which sexual intercourse occurs, the time in the menstrual cycle that the emergency contraceptive is administered, and the type of emergency contraceptive [19-22]. Ulipristal acetate and the levonorgestrel-only regimen have been shown to inhibit or delay ovulation [23-29]. Levonorgestrel delays follicular development when administered before the level of luteinizing hormone increases. Ulipristal acetate inhibits follicular rupture even after the level of luteinizing hormone has started to increase. Review of the evidence suggests that emergency contraception is unlikely to prevent implantation of a fertilized egg [24, 27, 29-35]. The copper IUD prevents fertilization by affecting sperm viability and function. It also may affect the oocyte and endometrium [36].

Emergency contraception sometimes is confused with medical abortion [37]. Medical abortion is used to terminate an existing

Table

Available Methods of Emergency Contraception

Regimen	Formulation	Timing of Use After Unprotected Sexual Intercourse*	Access	FDA Labeled for Use as Emergency Contraception
Selective progesterone receptor modulator	1 tablet, containing 30 mg of ulipristal acetate	Up to 5 days	Requires a prescription	Yes
Progestin only	1 tablet, containing 1.5 mg of levonorgestrel	Up to 3 days	Available over the counter without age restriction	Yes
	2 tablets, each containing 0.75 mg of levonorgestrel	Up to 3 days	Available over the counter to those 17 years and older with photo identification	Yes
Combined progestin–estrogen pills	A variety of formulations can be used†	Up to 5 days	Requires a prescription	No†
Copper IUD§	N/A	Up to 5 days	Requires office visit and insertion by a clinician	No†

Abbreviations: FDA, U.S. Food and Drug Administration; IUD, intrauterine device; N/A, not applicable.

* Emergency contraception is best used as soon as possible after unprotected sex.

† A variety of formulations of combined oral contraceptives can be used for emergency contraception. For a list of appropriate formulations, see <http://ec.princeton.edu/questions/dose.html#dose>.

‡ Although these methods are not FDA labeled for use as emergency contraception, they have been found to be safe and effective when used for emergency contraception and can be used off-label for this indication.

§ The copper IUD is the most effective method of emergency contraception.

pregnancy, whereas emergency contraception is effective only before a pregnancy is established. Emergency contraception can prevent pregnancy after sexual intercourse and is ineffective after implantation. Studies of high-dose oral contraceptives indicate that hormonal emergency contraception confers no risk to an established pregnancy or harm to a developing embryo [38].

Adverse Effects

No deaths or serious complications have been causally linked to emergency contraceptive pills [39]. Short-term adverse effects include the following:

- Nausea and headache — Ulipristal acetate and levonorgestrel products have similar adverse effect profiles. The most frequently reported adverse effects are headache (19%) and nausea (12%) [14]. The combined estrogen–progestin regimen has a significantly higher rate of nausea than the ulipristal acetate and levonorgestrel regimens [40].
- Irregular bleeding — After emergency contraceptive pill use, the menstrual period usually occurs within 1 week of the expected time [41]. Some patients experience irregular bleeding or spotting in the week or month after treatment; one trial of the levonorgestrel-only regimen found that 16% of women reported nonmenstrual bleeding in the first week after use [10]. If emergency contraception is taken earlier in the cycle, it is more likely that a woman will experience bleeding before the expected menses [42]. Irregular bleeding associated with emergency contraception resolves without treatment.
- Other adverse effects — Some patients have reported experiencing other short-term adverse effects with oral regimens, such as breast tenderness, abdominal pain, dizziness, and fatigue [43].

Copper IUD insertion carries a risk of uterine perforation of approximately 1/1,000, is associated with uterine cramping, and may

cause increased duration of menstrual flow or dysmenorrhea [44].

Effects on Pregnancy

No studies have specifically investigated adverse effects of exposure to emergency contraceptive pills during early pregnancy. However, numerous studies of the teratogenic risk of conception during daily use of oral contraceptives (including older, higher-dose preparations) have found no increase in risk to either the pregnant woman or the developing fetus [45].

Existing data indicate that use of levonorgestrel emergency contraception does not increase the chance that a subsequent pregnancy will be ectopic. Emergency contraception, like all other contraceptives, actually reduces the absolute risk of ectopic pregnancy by preventing pregnancy overall [46].

Barriers to Use

Women seeking emergency contraception typically are younger than 25 years, have never been pregnant, and have used some form of contraception in the past [1, 47, 48]. Numerous studies have shown that making emergency contraception more available does not encourage risky sexual behavior or increase the risk of unintended pregnancy [49]. Several published randomized trials have evaluated the policy of providing emergency contraception to women at the time of a routine gynecologic visit so that they will have the medication immediately available if a contraceptive mishap occurs [2, 50-56]. These trials compared this policy of advance provision with a policy of instructing women to contact a clinician if emergency contraception is needed. All but one of these trials showed no difference between the groups regarding self-reported frequency of either unprotected sexual intercourse or use of contraception [56].

Surveys have documented that a large number of women are unaware of the existence of emergency contraception or have in-



sufficient knowledge to allow them to use it effectively [57-62]. In a recent survey of adolescents who received care at urban emergency departments, only 64% had heard of emergency contraception [63]. Other research has indicated that women who are poor, foreign born, or who are not high school graduates are less likely to have knowledge of emergency contraception [47, 64]. In a 2007 study, few women who received information about emergency contraception remembered discussing it 12 months later [65]. In addition, many obstetrician–gynecologists and other gynecologic providers are poorly informed about this method of contraception [66-68]. In a 2008 U.S. survey, almost one in five practitioners were reluctant to provide education on the subject of emergency contraception to sexually active adolescents [69]. Three studies that evaluated females who were sexually assaulted and received care at emergency departments indicated that only 21-50% of eligible women received emergency contraception [70-72]. A survey of emergency medicine residents found that 71% reported that they always offered emergency contraception after sexual assault, but only 19% always offered it after consensual, unprotected sex. More studies to evaluate barriers to use in specific populations are needed so that appropriate policy interventions can be implemented [73, 74].

Availability of levonorgestrel emergency contraception has improved since it was approved for over-the-counter use. A study of 1,087 pharmacies in Philadelphia, Boston, and Atlanta found that even when availability was limited to behind-the-counter status (ie, being available without a prescription, but only after consultation with a pharmacist), the percentage of pharmacies unable to provide Plan B within 24 hours decreased from 23% in 2005 to 8% in 2007 [75]. However, previously documented barriers such as limited access to emergency contraception through pharmacies, student health centers, urgent care centers, and other sources re-

main [74, 76]. Despite the fact that the single-dose 1.5-mg levonorgestrel regimen is now available over the counter for individuals of all ages, a recent evaluation of telephone calls made to pharmacies by females posing as adolescents requesting emergency contraception revealed that significant barriers remain for adolescents seeking this product [77]. Consequently, obstetrician–gynecologists and other gynecologic providers need to pay particular attention to barriers for emergency contraception use in this at-risk population.

Clinical Considerations and Recommendations

- ***Who are candidates for emergency contraception?***

Emergency contraception should be offered or made available to women who have had unprotected or inadequately protected sexual intercourse and who do not desire pregnancy. The Centers for Disease Control and Prevention's *U.S. Medical Eligibility Criteria for Contraceptive Use, 2010* include no conditions in which the risks of emergency contraception use outweigh the benefits [78]. These criteria specifically note that women with previous ectopic pregnancy, cardiovascular disease, migraines, or liver disease and women who are breast-feeding may use emergency contraception. Therefore, any emergency contraceptive regimen may be made available to women with contraindications to the use of conventional oral contraceptive preparations. Reproductive-aged women who are victims of sexual assault always should be offered emergency contraception.

- ***What screening procedures are needed before provision of emergency contraception?***

No clinical examination or pregnancy testing is necessary before provision or prescription of emergency contraception. Emergency contraception should be offered or made

available any time unprotected or inadequately protected sexual intercourse occurs and the patient is concerned that she is at risk of an unwanted pregnancy. Emergency contraception should not be withheld or delayed in order to test for pregnancy, nor should it be denied because the unprotected coital act may not have occurred on a fertile day of the menstrual cycle.

- ***When should emergency contraception be initiated?***

Treatment with emergency contraception should be initiated as soon as possible after unprotected or inadequately protected sexual intercourse to maximize efficacy. Emergency contraceptive pills or the copper IUD should be made available to patients who request it up to 5 days after unprotected or inadequately protected sexual intercourse.

Ulipristal acetate's effectiveness is maintained for 5 days after sexual intercourse [14]. Levonorgestrel has decreasing efficacy with time after unprotected sex and is labeled for use up to 72 hours [10-14]. However, studies have shown it is still moderately effective when the first dose is taken up to 5 days after sexual intercourse [10, 79-84]. Insertion of a copper IUD should be performed as soon as possible after unprotected or inadequately protected sexual intercourse. It is effective when placed up to 5 days after sexual intercourse and, in some studies, was used up to 10 days afterward without failure [18].

- ***How effective is emergency contraception in preventing pregnancy?***

For emergency contraception, efficacy can be defined in one of two ways: the first is the proportion of women becoming pregnant after use of the method. The second is the number of pregnancies observed after treatment divided by the estimated number of pregnancies that would occur without treatment. When this proportion is subtracted from one, the resulting statistic is the «prevented fraction», which represents the estimated percentage of cases averted by the treatment. Reported figures on the efficacy of

emergency contraception vary considerably and are imprecise.

The copper IUD was evaluated in a multicenter trial among women who requested emergency contraception up to 5 days after unprotected sex. Among 1,893 women, there were no pregnancies within the first month [17]. A systematic review of the published literature regarding the use of IUDs as emergency contraception identified 42 studies over a 35-year time frame [16]. The pregnancy rates reported were between 0% and 2%, of which the aforementioned study was the largest [17]. The second largest study, which involved 1,013 women, had one pregnancy for a rate of 0.1% [16, 85].

The oral regimens also have been evaluated thoroughly. Studies have found that ulipristal acetate is more effective than the levonorgestrel-only regimen and maintains its efficacy for up to 5 days. A meta-analysis of comparative efficacy trials found a lower pregnancy rate among users of ulipristal acetate (1.4%) compared with users of the levonorgestrel-only regimen (2.2%) [14]. Phase III studies had an overall pregnancy rate of 1.9% for women who used ulipristal acetate [86]. Six studies comprising a total of more than 8,000 women who used the levonorgestrel-only regimen calculated prevention rates ranging from 60% to 94% [9-11, 41, 87, 88]. Similarly, eight studies including a total of more than 3,800 women who used the combined estrogen-progestin regimen yielded prevention rates ranging from 56% to 89%; a meta-analysis of pooled data from these studies concluded that the combined estrogen-progestin regimen prevents at least 74% of expected pregnancies [89].

Two studies have examined the efficacy of the levonorgestrel-only regimen compared with the combined estrogen-progestin regimen. The first study found no statistically significant difference in pregnancy rates between the levonorgestrel-only regimen and the combined regimen (2.4% versus 2.7%, respectively) [11]. However, a second larg-



er trial reported that the levonorgestrel-only regimen was significantly more effective for preventing pregnancy than the combined regimen (85% versus 57% of pregnancies prevented, respectively) [41]. Estimates based on combined data from these two studies show a reduced relative risk of pregnancy (relative risk, 0.51; 95% confidence interval, 0.31-0.83) with the levonorgestrel-only regimen [90]. The levonorgestrel-only regimen for emergency contraception is more effective than the combined hormonal regimen and is associated with less nausea and vomiting [40]. Therefore, the levonorgestrel-only regimen is preferred to the combined estrogen-progestin regimen.

Body weight influences the effectiveness of oral emergency contraception. Levonorgestrel emergency contraception may be less effective in women who are overweight (body mass index [BMI] 25-29.9 kg/m²) or obese (BMI of 30 kg/m² or greater) [91, 92]. Additionally, some research suggests that ulipristal acetate has lower effectiveness among obese women [86]. The efficacy of the copper IUD is not affected by body weight [16, 93]. Therefore, consideration should be given to use of a copper IUD as an alternative to oral emergency contraception in obese women. However, oral emergency contraception should not be withheld from women who are overweight or obese because no research to date has been powered adequately to evaluate a threshold weight at which it would be ineffective.

To maximize effectiveness, women should be educated about the availability of emergency contraception in advance of need. Multiple randomized controlled trials have failed to demonstrate a reduction in unintended pregnancy or abortion with increased access to emergency contraception [94]. These data highlight the importance of counseling patients about the appropriate use of emergency contraception as an episodic intervention rather than an effective long-term method. Information regarding effective long-term

contraceptive methods should be made available whenever a woman requests emergency contraception, and consideration should be given to the use of the copper IUD, which is highly effective as an emergency contraceptive and an ongoing contraceptive. Use of highly effective long-acting reversible methods should be encouraged.

- ***Is emergency contraception safe if used repeatedly?***

Data are not available on the safety of current regimens of emergency contraception if used frequently over a long period. However, oral emergency contraception may be used more than once, even within the same menstrual cycle. Information about other forms of contraception and counseling about how to avoid future contraceptive failures should be made available to women who use emergency contraception, especially those who use it repeatedly.

Hormonal emergency contraception is less effective for long-term contraception than most other available methods. In addition, continued use of hormonal emergency contraception would result in exposure to higher total levels of hormones than would ongoing use of either combined or progestin-only oral contraceptives, and frequent use also would result in more adverse effects, including menstrual irregularities. Therefore, emergency contraception should not be used as a long-term contraceptive.

- ***What clinical follow-up is needed after use of emergency contraception?***

No scheduled follow-up is required after use of emergency contraception. However, clinical evaluation is indicated for women who have used emergency contraception if menses are delayed by a week or more after the expected time or if lower abdominal pain or persistent irregular bleeding develops. The woman should be advised that if her menstrual period is delayed by a week or more, she should have a pregnancy test and seek clinical evaluation. Clinical evaluation also is indicated for women who have used emer-

gency contraception if lower abdominal pain or persistent irregular bleeding develops because these symptoms could indicate a spontaneous pregnancy loss or an ectopic pregnancy. Women should be referred as needed for the provision of ongoing contraception, sexually transmitted infection testing, and well-woman care.

• ***When should regular contraception be initiated or resumed after use of emergency contraception?***

Treatment with emergency contraception may not protect against pregnancy in subsequent coital acts [10] unless the copper IUD is the method chosen. In fact, because emergency contraception may work by delaying ovulation, women who have taken emergency contraceptive pills are at risk of becoming pregnant later in the same menstrual cycle. Women should begin using barrier contraceptives to prevent pregnancy (eg, condoms, diaphragms, and spermicides) immediately after using emergency contraception. The *U.S. Selected Practice Recommendations for Contraceptive Use, 2013* advise that any regular contraceptive method can be started immediately after the use of ulipristal acetate emergency contraception, but the woman should abstain from sexual intercourse or use a barrier method of contraception for 14 days or until her next menses, whichever comes first [95]. However, subsequent to the publication of the *U.S. Selected Practice Recommendations for Contraceptive Use, 2013*, the FDA changed the ulipristal acetate labeling to include a new warning about its use with hormonal contraceptives and a recommendation to delay initiating hormonal contraception until no sooner than 5 days after intake of ulipristal acetate [96]. This labeling change was based on data from two pharmacodynamic studies [96]. Although these studies suggest that coadministration of ulipristal acetate and progestins may reduce the contraceptive effect of either product, there have been no clinical studies demonstrating an increased rate of

pregnancy. Any regular contraceptive method can be started immediately after the use of levonorgestrel or combined estrogen–progestin emergency contraception, but the woman should abstain from sexual intercourse or use barrier contraception for 7 days [95].

• ***When is an intrauterine device appropriate for emergency contraception?***

Insertion of a copper IUD is the most effective method of emergency contraception. The copper IUD is appropriate for use as emergency contraception in women who meet standard criteria for an IUD and who desire long-acting contraception. Obese women may have higher failure rates with the use of levonorgestrel and ulipristal emergency contraception than women of normal body weight [86, 91, 92]. The efficacy of the copper IUD for contraception is not affected by body weight [16, 93]. Therefore, consideration should be given to the use of the copper IUD for emergency contraception among obese women.

Another advantage of using the copper IUD for emergency contraception is that it can be retained for continued long-term contraception. One study found the continuation rate after insertion for emergency contraception was 94.3% for parous women and 88.2% for nulliparous women [17]. Another study demonstrated a much lower cumulative pregnancy rate within the following year among women who selected the IUD over levonorgestrel as emergency contraception [97]. No randomized controlled trials have compared IUD insertion with oral regimens for emergency contraception.

Summary of Recommendations and Conclusions

The following conclusions are based on good and consistent scientific evidence (Level A):

- Ulipristal acetate is more effective than the levonorgestrel-only regimen and maintains its efficacy for up to 5 days.



- The levonorgestrel-only regimen for emergency contraception is more effective than the combined hormonal regimen and is associated with less nausea and vomiting.
- Insertion of a copper IUD is the most effective method of emergency contraception.

The following recommendations are based on limited or inconsistent scientific evidence (Level B):

- No clinical examination or pregnancy testing is necessary before provision or prescription of emergency contraception.
- Treatment with emergency contraception should be initiated as soon as possible after unprotected or inadequately protected sexual intercourse to maximize efficacy.
- Emergency contraceptive pills or the copper IUD should be made available to patients who request it up to 5 days after unprotected or inadequately protected sexual intercourse.
- Body weight influences the effectiveness of oral emergency contraception. The efficacy of the copper IUD is not affected by body weight. Therefore, consideration should be given to use of a copper IUD as an alternative to oral emergency contraception in obese women. However, oral emergency contraception should not be withheld from women who are overweight or obese.

The following recommendations are based primarily on consensus and expert opinion (Level C):

- Any emergency contraceptive regimen may be made available to women with contraindications to the use of conventional oral contraceptive preparations.
- To maximize effectiveness, women should be educated about the availability of emergency contraception in advance of need.
- Information regarding effective long-term contraceptive methods should be made available whenever a woman requests emergency contraception.
- Oral emergency contraception may be used more than once, even within the same menstrual cycle.

- Clinical evaluation is indicated for women who have used emergency contraception if menses are delayed by a week or more after the expected time or if lower abdominal pain or persistent irregular bleeding develops.
- The copper IUD is appropriate for use as emergency contraception in women who meet standard criteria for an IUD and who desire long-acting contraception.

ACOG Resources

American College of Obstetricians and Gynecologists. Access to emergency contraception. Committee Opinion No. 542. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2012;120:1250-3.

American College of Obstetricians and Gynecologists. Emergency contraception. Patient Education Pamphlet AP114. Washington, DC: American College of Obstetricians and Gynecologists; 2013.

Long-acting reversible contraception: implants and intrauterine devices. Practice Bulletin No. 121. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2011;118:184-96.

Understanding and using the U.S. Medical Eligibility Criteria for Contraceptive Use, 2010. Committee Opinion No. 505. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2011;118:754-60.

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Additional Resources

The following resources are for information purposes only. Referral to these sources and web sites does not imply the endorsement of the American College of Obstetricians and Gynecologists. These resources are not meant to be comprehensive.

The exclusion of a source or web site does not reflect the quality of that source or web site. Please note that web sites are subject to change without notice.

International Consortium for Emergency Contraception
45 Broadway, Suite 320
New York, NY10006 (212) 941-5300 <http://www.cecinfo.org>

Princeton University
Emergency contraception website Office of Population Research Wallace Hall
Princeton, NJ 08544

Emergency contraception hotline:
1-888-NOT-2-LATE
<http://ec.princeton.edu>

Reproductive Health Technologies Project
634 I Street NW, Suite 650
Washington, DC20006 (202) 530-4401
<http://www.rhttp.org/contraception/emergency>

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The MEDLINE database, the Cochrane Library, and the American College of Obstetricians and Gynecologists' own internal resources and documents were used to conduct a literature search to locate relevant articles published between January 1985– March 2015. The search was restricted to articles published in the English language. Priority was given to articles reporting results of original research, although review articles and commentaries also were consulted. Abstracts of research presented at symposia and scientific conferences were not considered adequate for inclusion in this document. Guidelines published by organizations or institutions such as the National Institutes of Health and the American College of Obstetricians and Gynecologists were reviewed, and additional studies were located by reviewing bibliographies of identified articles. When reliable research was not available, expert opinions from obstetrician–gynecologists were used.

Studies were reviewed and evaluated for quality according to the method outlined by the U.S. Preventive Services Task Force:

- I Evidence obtained from at least one properly designed randomized controlled trial.
- II-1 Evidence obtained from well-designed controlled trials without randomization.
- II-2 Evidence obtained from well-designed cohort or case–control analytic studies, preferably from more than one center or research group.
- II-3 Evidence obtained from multiple time series with or without the intervention. Dramatic results in uncontrolled experiments also could be regarded as this type of evidence.
- III Opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees.
- Based on the highest level of evidence found in the data, recommendations are provided and graded according to the following categories:
- Level A — Recommendations are based on good and consistent scientific evidence.
- Level B — Recommendations are based on limited or inconsistent scientific evidence.
- Level C — Recommendations are based primarily on consensus and expert opinion.