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In the Clinic®

Contraception

Contraception counseling and provision are vital components of comprehensive health care. An unplanned pregnancy can be particularly challenging for patients with chronic illness. Internal medicine physicians are uniquely positioned to assess pregnancy readiness and provide contraception, as they often intersect with pregnancy-capable patients at the moment of a new diagnosis or when providing ongoing care for a chronic medical condition. A shared decision-making counseling approach engages patients, ensures patient-centered care, and supports their choice of a contraceptive method that aligns with their reproductive plans and medical needs.

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Forty-five percent of all pregnancies in the United States are considered unintended or mistimed (1). In the United States, maternal mortality and morbidity associated with pregnancy are increasing annually; in 2020, the maternal mortality rate was 23.8 deaths per 100 000 live births (including pregnancy-related deaths within 42 days after the end of pregnancy), and this risk is 3 times higher among Black birthing people (2). Although the overall number of births, abortion rate, and percentage of pregnancies considered to be unintended have decreased in the United States, they still exceed those in other similarly industrialized countries (1). More than 99% of sexually active people aged 15 to 44 years in the United States have used at least 1 form of contraception in their lifetime, and 65% of reproductive-aged people currently use some form of contraception (3). However, contraceptive failure, secondary to incorrect or inconsistent use or method failure, is an important and modifiable contributor to unintended pregnancy (4).

Internal medicine physicians, including hospitalists and medical subspecialists, are often the first clinicians to encounter people who are medically complex and in need of assistance with pregnancy planning. They may also prescribe medications that are teratogenic. Planned pregnancies in medically complex patients provide clinicians the opportunity to optimize patients' underlying health conditions and minimize their risk for pregnancy-related morbidity. Thus, internal medicine physicians in all specialties should feel comfortable discussing reproductive health and the importance of contraception with patients of reproductive age, especially those with medical conditions.

This article provides a foundation to support comprehensive contraceptive counseling by reviewing the different options for contraception and considerations in selection of a method.

How should clinicians assess pregnancy or contraception readiness?

Pregnancy readiness and planning can be assessed by asking patients about their desire for pregnancy, current and desired family size, prior pregnancy outcomes, and interest in contraception. Several assessment models exist, including asking, "Would you like to become pregnant in the next year?" (5). This question provides an opportunity for preconception counseling if the patient answers "yes" or for contraceptive counseling if the patient answers "no" and is interested in it (5). A similar model is the PATH questionnaire (www.envisionsrh.com/about-path), which covers parenting and pregnancy attitudes

PATH Questionnaire on Parenting and Pregnancy Attitudes and Timing

PATH framework for discussing reproductive desires: Parenting/Pregnancy Attitudes, Timing, and How important

1) "Do you think you might like to have (more) children at some point?"
2) "When do you think that might be?"
3) "How important is it to you to prevent pregnancy (until then)?"

Follow-up questions include:

- "Since you have said _____, would you like to talk about ways to be prepared for a healthy pregnancy?"
- "Since you have said _____, would you like to talk about contraception/pregnancy prevention?" If yes:
- "Do you have a sense of what's important to you about your birth control?" or "Can you tell me something that is important to you about your birth control?"

After giving information:

- "How would that be for you?"
- "Has that ever happened before?"
- "How do you think you would manage that?"

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(PA), timing (T), and how important delaying pregnancy is (H) (see the **Box**: PATH Questionnaire on Parenting and Pregnancy Attitudes and Timing). PATH is designed to be patient-centered, with a shared decision-making model that can be used with patients in any demographic without judgment, and allows for nuanced conversations that center patients' values around pregnancy intendedness as well as how important certain elements of contraception are. It provides space for a patient to express not wanting to be pregnant or feeling ambivalent about contraception (6).

Types of Contraception

What are the different types of contraception, how effective are they, and how do they work?

Several types of contraception are available in the United States. **Table 1** summarizes their relative efficacy and common side effects. There are 2 efficacy ratings for contraception; efficacy associated with "perfect use" (defined by strict prospective research criteria not often met in the real world) can be misleading, whereas "typical use" rates (defined by actual use data) better reflect real-world conditions. Despite variation in efficacy, each method is more effective than no method (7).

Contraceptives are often divided into hormonal and nonhormonal methods (**Table 1**). Hormonal contraceptives are further divided into combined estrogen–progestin (combined hormonal contraceptives [CHCs]) or progestin-only methods. Nonhormonal methods include copper intrauterine devices (IUDs) as well as several coitus-dependent methods, including barrier methods (condoms, diaphragms, spermicides, vaginal sponges), withdrawal, timed intercourse, and pH modulators (7).

CHCs (pills, patches, rings)

All CHCs contain some form of estrogen (typically ethinyl estradiol, although the newest combined pill uses a novel estrogen) and a progestin. Methods available in the United States include combined oral contraceptive (COC) pills, transdermal patches (2 types), and vaginal rings (2 types). The primary mechanism of CHCs is through progestin's suppression of ovulation. The estrogen component contributes to ovulation suppression but has greater effect in bleeding control and endometrial stabilization (8). In general, the pill form must be taken daily, the patch must be changed weekly, and the ring must be changed monthly or annually depending on the type (**Table 1**). For all types of CHCs, typical-use failure rates in the general population average 7% at 1 year (4, 7, 9).

COC pills may be taken in a routine 21/7 cycle (21 days of active pills and 7 days of placebo pills), resulting in withdrawal bleeding for the last week of the cycle. Extended use (3 months of active pills without withdrawal bleeding) or continuous use (no planned withdrawal bleeding) are alternative dosing options that may be slightly more effective in suppressing ovulation and may induce amenorrhea; some patients appreciate the greater control over their menstruation but may have higher breakthrough bleeding (8). A new COC contains estetrol—a novel, naturally occurring estrogen characterized by minimal metabolism by the liver and more tissue selectivity—combined with drospirenone. In theory, the estetrol–drospirenone pill could have less effect on tissues, such as breast and vascular tissue, although this is still being assessed in postmarketing studies (10).

Transdermal patches must be changed weekly for 3 consecutive weeks, with an off week for withdrawal bleeding. The 2 types of patches differ by progestin type, size, and adhesive type but have similar mechanisms of action. Both carry a boxed warning that they are contraindicated in patients with a body mass index (BMI) over 30 kg/m^2

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Table 1. **Methods of Contraception and Efficacy**

Examples, by Type	*Dosing Frequency*	*Attributes and Side Effects*	*Unplanned Pregnancy in First Year of Use, %**	
			Typical Use	*Perfect Use*
No method	–	–	85	85
Combined (estrogen–progestin)†				
Oral contraceptive pills (COCs, "the pill")‡	Taken daily by mouth	Menstrual changes (usually lighter)	7	0.3
Transdermal patch (Xulane [Mylan Pharmaceuticals]/Twirla [Agile Therapeutics])	Single patch changed weekly for 3 wk, then off for 1 wk (for withdrawal bleeding)	Single beige color for both Not recommended for patients with body mass index >30 kg/m^2	7	0.3
Monthly-use vaginal ring (NuvaRing [Organon])‡	Inserted in the vagina for 3 wk, then removed for 1 wk (for withdrawal bleeding); new ring every month	Vaginal irritation or discharge	7	0.3
Annual-use vaginal ring (ANNOVERA [Mayne Pharma])	Inserted in the vagina for 3 wk, then removed for 1 wk (for withdrawal bleeding); same ring replaced for 12 mo	Vaginal irritation or discharge	7	0.3
Progestin-only				
Oral contraceptive pills (progestin-only pills, "mini-pill")	Taken daily by mouth, with no "off" week	Spotting and menstrual changes common	7	1
Injectable (medroxyprogesterone [Depo-Provera (Pfizer)])	Intramuscular or subcutaneous injection every 3 mo	Menstrual changes common, including amenorrhea Weight gain Delayed return to fertility	4	0.2
LARC methods				
Subdermal implant (NEXPLANON [Organon])	Placed subdermally in upper arm; approved for 3 y, effective to 4 y	Must be placed by a trained clinician; dosing frequency reflects longest amount of time method can be used; device can be removed earlier Irregular bleeding common	0.1	0.1
LNG-IUD (Liletta [AbbVie], Mirena [Bayer], Kyleena [Bayer], Skyla [Bayer])	Inserted in uterus; approved for 3–5 y; Liletta and Mirena are effective up to 7 y	Spotting common Amenorrhea possible with higher-dose devices	0.1	0.1
Copper IUD (Paragard [CooperSurgical])	Inserted in uterus; approved and effective for 10 y	Nonhormonal Can cause heavier menses	0.8	0.6
Barrier				
Condoms (internal and external)	Every intercourse	Only method that also protects against sexually transmitted infections; available over the counter	External: 13 Internal: 21	External: 2 Internal: 5
Vaginal sponges	Every intercourse	Available over the counter	Parous people: 27 Nulliparous people: 14	Parous people: 20 Nulliparous people: 9
Diaphragm	Every intercourse	Requires prescription; some must be fitted by clinician	17	16
Cervical cap	Every intercourse	Must be fitted by clinician	Parous people: 32 Nulliparous people: 16	Parous people: 26 Nulliparous people: 9
Withdrawal	Every intercourse	Requires partner participation	20	4
Sterilization				
Tubal sterilization	–	Requires surgery	0.5	0.5
Vasectomy	–	3-mo lag time for full effect	0.15	0.1

COC = combined oral contraceptive; IUD = intrauterine device; LARC = long-acting reversible contraception; LNG = levonorgestrel.
** From reference 7.*
† Efficacy for all short-acting methods depends on user adherence.
‡ Continuous use acceptable.

due to a possible increased risk for venous thromboembolism (VTE) (11–13). The norelgestromin–ethinyl estradiol patch may also be less effective in patients who weigh more than 198 lb (90 kg) (11–13). Similarly, efficacy of the levonorgestrel–ethinyl estradiol patch is reduced in patients with a BMI between 25 and 30 kg/m^2 (11–13).

There are 2 vaginal rings: a monthly-use ring and an annual-use ring. The monthly-use ring contains ethinyl estradiol and etonogestrel and must be replaced every 4 weeks. Users may have withdrawal bleeding by waiting up to 7 days to replace the ring or may replace the ring immediately for continuous use (13). The annual-use ring contains ethinyl estradiol and segesterone, a novel progestin, and is used cyclically (inserted for 21 days, removed, and then reinserted after the 7-day withdrawal bleeding); thus, a single ring can be used for an entire year. It is approved for patients with a BMI under 29 kg/m^2 (14, 15).

Progestin-only methods (pills, injectables, implants, IUDs)

There are 4 types of progestin-only methods (Table 1): oral pills, injectables, subdermal implants, and the progestin-containing IUD; the last 2 are long-acting reversible contraceptive (LARC) methods. Almost all users of progestin-only methods experience a change in their menstrual cycle, typically lighter bleeding in an unpredictable pattern (common with implants, levonorgestrel IUDs, and progestin-only pills), and some may have total amenorrhea (common with injectables). Some patients dislike these changes and discontinue or switch methods. Progestin-only pills have a failure rate similar to that of CHCs (7% in 1 year). Failure rates for injectable medroxyprogesterone are reported to be 4% (16).

Progestin-only pills and levonorgestrel IUDs prevent pregnancy through progestin-induced changes to the cervical mucus and endometrium, with most cycles being ovulatory (17). Injectable contraception and implants prevent pregnancy primarily through ovulation suppression and also through progestin-induced changes to the cervical mucus and endometrium. Because progestin-only pills that contain norethindrone have a short half-life, they should be taken at the same time every day, although no data link dose timing to pregnancy outcomes (17). In contrast, the drospirenone progestin-only pill has a 24-hour dosing window, so a backup contraceptive method is not required unless the patient is more than 24 hours late in taking a dose; this progestin-only pill also has a 4-day placebo window intended to allow for predictable withdrawal bleeding (18, 19). Injectable methods (depot medroxyprogesterone acetate [DMPA]) are administered every 11 to 13 weeks and come in intramuscular or subcutaneous form. Although off-label, the subcutaneous form can be self-administered by patients every 3 months at home with proper education on administration technique (similar to insulin). Due to slower and more sustained absorption, the dose of subcutaneous DMPA is 30% lower (104 mg) than the intramuscular dose (150 mg) (16). Guidelines for self-administration of DMPA exist to support patients and providers (https://picck.org/resource/guideline-for-depo-provera-subcutaneous-self-injection).

Long-acting reversible contraception

Several LARC methods are approved by the U.S. Food and Drug Administration (FDA) when placed by a trained clinician (Table 1). These include hormonal IUDs that contain levonorgestrel at varying doses (52, 19.5, or 13.5 mg), a subdermal progestin implant containing etonogestrel, and a nonhormonal copper IUD. Efficacy rates for LARC generally rival those for permanent sterilization. Failure rates at 1 year are 0.1% for levonorgestrel IUDs (4, 20), below 0.05% for the subdermal implant (20, 21), and 0.8% for the copper IUD (20, 22).

Levonorgestrel IUDs are FDA-approved for 3 to 8 years depending on the brand. They are inserted into the uterus and prevent pregnancy by thickening cervical mucus, preventing passage of

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sperm, thinning the endometrial lining, incapacitating sperm, and slowing tubal motility. Estrogen levels remain normal, and most cycles are ovulatory (22). Twenty percent of patients using the 52-mg levonorgestrel IUD have amenorrhea by the end of the first year. Fewer patients have amenorrhea when using the 19.5- or 13.5-mg levonorgestrel IUDs. The subdermal etonogestrel implant, which is FDA-approved for 3 years, is placed in the inner aspect of the arm and works predominantly by suppressing ovulation (21). The copper IUD is inserted into the uterus and is FDA-approved for 10 years. It creates a sterile inflammatory state, rendering the uterus inhospitable to sperm or ova (22). Most users of this method continue to have their same cycle but may experience increased cramping or bleeding during menstruation.

Consent for placement of a LARC device should include a conversation about removal, specifically that patients may request removal of a device for any reason and at any time (22). Increasingly, data support efficacy of the subdermal implant and the copper IUD beyond FDA-approved periods. The subdermal implant may be used for up to 5 years and the copper IUD may be used for up to 12 years with equivalent efficacy (23, 24). We endorse extended use with careful counseling and shared decision making.

Permanent sterilization

For people who are certain they do not desire fertility, permanent sterilization via tubal ligation or vasectomy may be appropriate. Types of tubal sterilization include postpartum tubal ligation and interval tubal ligation. Both involve surgery and its procedural and anesthetic risks. Efficacy rates vary by technique (**Table 1**). Tubal sterilization is increasingly being performed via bilateral salpingectomy (removal of the fallopian tubes), which is absolutely irreversible (25, 26). Hysteroscopic sterilization (Essure [Bayer]) was voluntarily removed from the market in 2018 because of concerns about chronic postprocedural pain.

Aside from condoms, sterilization via vasectomy is the only contraceptive method available to patients who produce sperm. All techniques involve bilateral transection of the vas deferens. Unlike some types of tubal sterilization, vasectomy does not render the patient sterile immediately. Patients need to use additional contraception for at least 12 weeks after the procedure until azoospermia can be confirmed. Vasectomy may be ideal for couples for whom contraceptive use creates risks for the pregnancy-capable partner (26).

Barrier methods

Several barrier methods are available, including condoms, vaginal sponges, diaphragms, and cervical caps. All work by preventing sperm from accessing the cervix; external and internal condoms also prevent passage of sperm into the vagina. Sponges contain chemical spermicide. Condoms are the only contraceptive method that protects against sexually transmitted infections.

Sponges, condoms, and spermicide are available over the counter. Typical-use failure rates approach 13% for external condoms and 21% for internal condoms (27). Failure can occur due to improper use or mechanical failure (breakage or slippage) (27). Higher efficacy of external condoms may be due to greater familiarity and ease of use (4, 8). Manufacturers of internal condoms have training modules to assist clinicians in educating patients.

Most diaphragms and cervical caps require fitting by a clinician (27–29) and must be used with a spermicide. One diaphragm (Caya [HPSRx Enterprises]) is available without fitting by a clinician and is expected to fit 75% to 94% of people with a cervix (30). Failure rates for diaphragms are about 17% (4, 7, 27) but vary by user characteristics, including age and familiarity with the method. Failure rates for cervical caps and vaginal sponges (**Table 1**) are higher among parous people because

the change in cervical shape with parity makes the cap more difficult to fit (27).

Coitus interruptus (withdrawal)

Withdrawal, or removal of the penis from the vagina and external genitalia before ejaculation, works by preventing contact between spermatozoa and ova. Despite its relatively high failure rate (20%), withdrawal prevents pregnancy better than no method at all and may appeal to patients who prefer to avoid hormonal contraception (7). With perfect use, efficacy is substantially increased, to 96% (7). This method requires engagement of both partners and is most effective in established relationships. Although frequently disregarded by clinicians, withdrawal remains popular among patients, with 65% of pregnancy-capable people reporting ever-use of this method (31); thus, clinician familiarity and comfort in discussing its use are important (31, 32).

pH modulators

The FDA recently approved a nonhormonal contraceptive vaginal gel containing lactic acid, citric acid, and potassium bitartrate (Phexxi [Evofem Biosciences]). This gel acts by maintaining vaginal pH in the normal range, thereby lowering sperm mobility. It comes in prefilled applicators and must be placed vaginally no more than 60 minutes before sexual intercourse. It is not effective if used after intercourse. Common adverse effects include vulvovaginal burning and pruritus. Its efficacy is approximately 86% but is higher with concomitant use of condoms, a diaphragm, or a cervical cap (33–35).

Does contraception have benefits other than preventing pregnancy?

Hormonal contraceptives offer benefits beyond prevention of pregnancy. CHCs (for example, COC pills, transdermal patch, vaginal ring) can help alleviate dysmenorrhea (through decreased uterine prostaglandin production and by inhibiting ovulation) (36–38), regulate menstrual cycles (38), and reduce symptoms of menorrhagia. Cycle control is important because persons with anovulatory cycles are at risk for endometrial hyperplasia and subsequent uterine cancer (38, 39).

COCs may also help reduce premenstrual symptoms. Drospirenone-containing and other COCs can improve premenstrual dysphoric disorder (38, 40). Hirsutism and acne also improve via increased sex hormone–binding globulin and suppressed production of ovarian androgens (41).

Data indicate that CHCs may reduce risk for several types of cancer. Endometrial cancer risk is 50% lower among COC users, with reduced risk persisting for up to 20 years after use (38, 42). Relative risk for ovarian cancer is 20% lower for every 5 years of COC use (43). CHCs may also decrease risk for colon cancer (38). Tubal sterilization, including bilateral salpingectomy and other methods, reduces risk for ovarian cancer (25).

In addition, many patients have symptoms of other medical illnesses that are exacerbated by hormone fluctuations (for example, sickle cell crisis or migraine). For some, these symptoms may improve with use of hormonal contraception (38).

Like COCs, injectable contraception can improve symptoms of menorrhagia, reduce risk for endometrial cancer (42), and be effective for cycle control (44). Both the subdermal implant and the levonorgestrel IUD have been shown to improve dysmenorrhea and other symptoms of endometriosis (38, 45). The levonorgestrel IUD is extremely effective in treating menorrhagia, reducing blood loss by up to 50% (44). Both types of IUD decrease endometrial cancer risk (38). The levonorgestrel IUD has, with ongoing surveillance, also been used to treat endometrial hyperplasia without atypia (38, 46).

What is "emergency contraception," and when should it be considered?

Emergency contraception, also called postcoital contraception (Table 2), is

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Table 2. **Emergency Contraception Methods***

Method	*Dose*	*Comments*
Copper and 52-mg LNG IUD	–	Reduces pregnancy risk by 99%; most effective EC
Ulipristal acetate (ella [HRA Pharma America])	30-mg pill given once	Most effective dedicated EC oral regimen; maintains efficacy from day 1 through day 5; available by prescription only
LNG single-dose (Plan B/Plan B One-Step [Foundation Consumer Healthcare], generics)	1.5 mg LNG taken within 5 d of unprotected intercourse	Least effective dedicated EC oral regimen (reduces pregnancy risk by 60%–90%); diminishing efficacy from day 1 to day 5; less effective in people with body mass index >26 kg/m^2; available without prescription

EC = emergency contraception; IUD = intrauterine device; LNG = levonorgestrel.
** From references 47 to 50.*

any type of contraception used after sexual intercourse and includes the copper and 52-mg levonorgestrel IUDs and dedicated oral products (levonorgestrel [Plan B (Foundation Consumer Healthcare)] and ulipristal acetate [ella (HRA Pharma America)]) (47). Emergency contraception does not interrupt an established pregnancy; oral options delay ovulation, and IUDs may interfere with sperm motility through the reproductive tract. Both levonorgestrel and ulipristal acetate can be obtained in anticipation of need, which is useful because pharmacy supply may be inconsistent and rapid acquisition of postcoital contraception is crucial (48).

The copper and levonorgestrel IUDs are the most effective emergency contraceptives overall (47, 49) (**Table 2**). Emerging evidence suggests that the 52-mg levonorgestrel IUD is as effective as the copper IUD for emergency contraception within 5 days of unprotected intercourse. Both 52-mg levonorgestrel IUDs (Liletta [AbbVie] and Mirena [Bayer]) and the copper IUD can be continued as ongoing contraception after placement for an emergency contraception indication if desired by the patient (49).

Among oral emergency contraceptive options, ulipristal acetate, a selective progesterone-receptor modulator, may be as much as twice as effective as oral levonorgestrel methods. Ulipristal acetate maintains efficacy of 90% up to 5 days after unprotected sex without becoming less effective during that time. The risk for failure of ulipristal acetate may increase when used in patients with a BMI above 30 kg/m^2 (50). It is available only by prescription (47).

The progestin (levonorgestrel) oral emergency contraception regimens may reduce risk for pregnancy by as much as 89%, but this varies on the basis of timing in the menstrual cycle, BMI, and the number of days since unprotected sex (47). It is available without a prescription, and patients should be informed of this option. It can prevent pregnancy when taken up to 5 days after unprotected intercourse but is most effective when taken as soon as possible; it is marketed for use within 72 hours. It is less effective in people with a BMI above 26 kg/m^2; for these patients, ulipristal acetate or an IUD should be strongly considered (50).

When COCs are used as emergency contraception ("Yuzpe regimen"), the number of pills needed varies by formulation. These have more adverse effects (spotting, nausea, and vomiting) than dedicated products, are less effective, and must be taken within 72 hours of unprotected intercourse. Although less commonly used, they are useful in areas where dedicated products are inaccessible (47).

53. Breast cancer and hormonal contraceptives: further results. Collaborative Group on Hormonal Factors in Breast Cancer. Contraception. 1996;54:1S-106S. [PMID: 8899264]
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Types of Contraception... There are many hormonal and nonhormonal contraceptive options with varying mechanisms of action, efficacy, and requirements for user and clinician participation. Short-acting hormonal methods include pills, patches, and rings and contain an estrogen and a progestin; progestin-only methods include pills, injectables, subdermal implants, and IUDs. Nonhormonal methods include clinician-implemented methods, such as sterilization and copper IUDs, as well as barrier methods and withdrawal. Patients seeking sterilization must understand the surgical risks and permanency of the procedures. Postcoital "emergency" contraceptive methods include the copper and 52-mg levonorgestrel IUDs and dedicated oral products.

CLINICAL BOTTOM LINE

Risks of Contraceptive Methods

What are the risks of CHCs?

Clinicians should familiarize themselves with the U.S. Medical Eligibility Criteria for Contraceptive Use from the Centers for Disease Control and Prevention (CDC) when considering contraception for patients with medical conditions (**Supplement**, available at Annals.org) (51). This resource cross-references clinical scenarios against contraceptive method types and allows users to determine whether the risks of using a method in the setting of a particular medical problem may outweigh its benefits. These risks should be compared with the risks of pregnancy—particularly in patients who are at high risk for complications—and not the risks of contraception nonuse.

The most notable risk of estrogen-containing contraception (all combined hormonal methods) is a small increased risk for VTE. This is most pronounced in the first year but should be considered in the context of risk for VTE in pregnancy, estimated to be 5 to 20 cases per 10 000 person-years (vs. 1 to 5 cases per 10 000 person-years in the general population). The risk in patients receiving estrogen-containing contraceptives is 3 to 9 cases per 10 000 person-years, which increases with older age, obesity, hypertension, and smoking history. This risk returns to baseline 30 days after discontinuation (13).

Cardiovascular risks are higher among CHC users with hypertension and users who smoke, so risks of these methods may outweigh the benefits. Users aged 35 years or older who smoke have a 15- to 20-fold higher risk for ischemic stroke than nonsmokers; such patients who also have hypertension are at increased risk for myocardial infarction (51). Thus, estrogen-containing methods are not recommended for these groups. Increased risks are not seen in women younger than 35 years, regardless of smoking or hypertension status (51).

The transdermal patch received attention in the early 2000s for a black box warning about increased VTE risk and is labeled as conferring 1.5 times the VTE risk of COCs (52). However, the risk may not be as high as originally believed; several studies did not find a significant difference in risk between the patch and other combined methods (13, 51).

The association between the estrogen component of CHC and breast cancer is based on a meta-analysis from 1996 that examined breast cancer rates among COC users (53). However, subsequent studies suggest that women receiving low-dose COCs (≤35 mcg, the standard since 1978) who have no personal history of breast cancer are not at increased risk (54). Studies have

61. American College of Obstetricians and Gynecologists' Committee on Health Care for Underserved Women, Contraceptive Equity Expert Work Group, and Committee on Ethics. Patient-centered contraceptive counseling: ACOG committee statement number 1. Obstet Gynecol. 2022;139:350-353. [PMID: 35061341]
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66. Trussell J, Aiken A, Micks E, et al. Efficacy, safety, and personal considerations. In: Hatcher R, Nelson A, eds. Contraception Technology. 21st ed. Ayer Company Publishers; 2018.
67. Barnhart KT, Schreiber CA. Return to fertility following discontinuation of oral contraceptives. Fertil Steril. 2009;91:659-663. [PMID: 19268187]
68. Curtis KM, Jatlaoui TC, Tepper NK, et al. U.S. selected practice recommendations for contraceptive use, 2016. MMWR Recomm Rep. 2016;65:1-66. [PMID: 27467319]
69. American College of Obstetricians and Gynecologists' Committee on Practice Bulletins–Gynecology. ACOG practice bulletin no. 208: benefits and risks of sterilization. Obstet Gynecol. 2019;133:e194-e207. [PMID: 30640233]

also found no excess risk among women with *BRCA1* or *BRCA2* mutations or a strong family history of breast cancer (55).

A large prospective cohort study from Denmark reported higher risk for breast cancer among women with ever-use of CHCs than among nonusers, with increasing risk with longer use (56). The overall absolute increase in breast cancer diagnosed among current and recent users of any hormonal contraceptive was 13 (95% CI, 10 to 16) cases per 100 000 person-years.

Thus, there seems to be little or no absolute increase in risk for CHC-associated breast cancer.

What are the risks of progestin-only and LARC methods?

Progestin-only methods are not associated with increased risk for VTE. Use of injectable contraception is associated with modest weight gain. Patients, especially adolescents, who gain 5% of their body weight during the first 3 to 6 months of use have increased risk for continued weight gain throughout use (16). Injectables are also associated with a transient and reversible loss of bone density but no increased risk for fracture. Users may experience a delay in return to fertility of as long as 10 months after the last injection (16).

Both the subdermal implant and the levonorgestrel IUD are associated with irregular bleeding or intermenstrual spotting. Irregular bleeding in users of the levonorgestrel IUD usually resolves (20). Ongoing irregular bleeding with the subdermal implant is common (approximately 34%); it is typically light bleeding or spotting. The copper IUD is associated with heavier scheduled bleeding (20).

Both types of IUD may be associated with cramping during the first several months after insertion and have a small risk for spontaneous expulsion (20). Cramping can be treated with nonsteroidal anti-inflammatory drugs (57). There is also a small but increased risk for upper genital tract infection (pelvic inflammatory disease) at the time of insertion (1 per 1000 women), but this risk does not extend beyond the first month (57, 58). Strong evidence from a Cochrane meta-analysis indicates that prophylactic antibiotics at the time of IUD insertion do not decrease risk for infection and are not recommended (57, 58).

LARCs carry risks that are associated with the insertion procedure. IUD insertion carries a very low risk for uterine damage, including perforation (0.01%). The subdermal implant has a 1% cumulative risk for all complications related to insertion, including hematoma or infection, and a 1.7% cumulative complication risk associated with removal, including breakage, infection, and hematoma (57).

What are the risks to the fetus if a person becomes pregnant while using contraception?

There is no evidence that exposure to any form of short-acting hormonal contraception or the subdermal implant causes fetal anomalies, spontaneous miscarriage, preterm delivery, birth defects, compromised fertility in the offspring, or any other abnormalities (8). Patients who become pregnant while using an IUD are at higher risk for an ectopic pregnancy and other complications, including spontaneous miscarriage or preterm rupture of membranes (57). An obstetrician-gynecologist physician should be consulted urgently for pregnancy evaluation and counseling.

70. Fuentes L. Inequity in US Abortion Rights and Access: The End of Roe Is Deepening Existing Divides. Guttmacher Institute. 17 January 2023. Accessed at www.guttmacher.org/2023/01/inequity-us-abortion-rights-and-access-end-roe-deepening-existing-divides on 20 March 2023.
71. Singer MR, Bartz D, Pace LE. The role of primary care clinicians in protecting access to abortion services. JAMA Intern Med. 2022;182:897-898. [PMID: 35913723]
72. American College of Obstetricians and Gynecologists. Decriminalization of Self-Induced Abortion: Position Statement. December 2017. Accessed at www.acog.org/clinical-information/policy-and-position-statements/position-statements/2017/decriminalization-of-self-induced-abortion on 8 August 2022.

Risks of Contraceptive Methods... All CHCs are associated with a small increased risk for VTE, particularly in the first year. Progestin-only methods do not increase VTE risk. Injectable contraception may be associated with weight gain and may cause a delay in return to fertility of as long as 10 months after the last injection. Progestin LARC methods are associated with a change in menstrual bleeding patterns. Patients who become pregnant while using an IUD are at higher risk for an ectopic pregnancy, spontaneous miscarriage, or preterm rupture of membranes.

CLINICAL BOTTOM LINE

Contraception Selection and Management

How can clinicians support patients in their contraceptive decision making?

Contraceptive choice is a preference-sensitive decision (that is, more than 1 option is medically appropriate), and the patient must weigh the characteristics of each method to determine which is best for them (59). Clinicians should use a shared decision-making approach, engaging both their own expertise and that of the patient (60). Physicians should share their medical knowledge and experience with patients so that patients can integrate their values, preferences, and lived experience.

When a clinician's values and lived experiences differ from those of their patients, clinicians risk imposing their values preferentially and engaging in coercive care. Clinician concern about potential contraceptive failure must not eclipse an individual's right to contraceptive preference (including no method at all). Prior efforts to promote contraceptive use, particularly LARC methods, as solutions to poverty, adolescent pregnancy, or inequities in unintended pregnancy rates resulted in the coercion and oppression of groups that were already marginalized by society and the health care system (61), effectively limiting contraceptive options for these populations. Clinicians should recognize each patient's cultural, racial, religious, socioeconomic, language, and educational backgrounds and avoid harmful and imbalanced power dynamics (62). Thus, patient-centered and shared decision-making approaches to contraceptive counseling are particularly important.

What factors might patients and clinicians consider when working to select a contraceptive method that is right for them?

The variation in characteristics of contraceptive methods means that patients have much to consider in deciding which traits are most important to them. There may also be safety considerations or contraindications that clinicians need to consider.

Medical comorbidities

Contraception counseling is especially relevant for people with medical conditions, even seemingly minor ones. For example, physicians should have routine conversations with patients who use oral retinoids or warfarin about the effect of these medications on pregnancy and ways to mitigate risks. When new medications are initiated or a new diagnosis is made, contraception and pregnancy prevention or planning should be included in the conversation. This conversation is especially important for those whose health would be compromised by pregnancy. Although medically complex patients can have successful and safe pregnancies, success is optimized when pregnancies

are planned and underlying health conditions are managed before conception. The CDC's Medical Eligibility Criteria for Contraceptive Use, which were adapted from criteria from the World Health Organization specifically for use in the United States (51), provide a comprehensive analysis of medical conditions and the risks associated with certain contraceptives (Supplement).

Breastfeeding and postpartum period

Contraceptive options for breastfeeding patients are influenced by proximity to time of delivery. The CDC recommends delaying initiation of estrogen-containing methods (COCs, transdermal patch, vaginal ring) until at least 21 days after delivery. If there are preexisting risk factors for VTE (such as age >35 years, obesity, cesarean delivery, or smoking), patients should wait for 6 weeks after delivery and follow the standard Medical Eligibility Criteria in choosing a method. VTE risk returns to baseline 6 weeks after delivery (51).

Progestin-only methods (levonorgestrel IUDs, subdermal implants, injectables) can be safely initiated immediately after delivery during the postpartum hospital stay (51). Data show no effect on breastfeeding (63, 64). Immediate postplacental IUD placement (for both copper IUDs and levonorgestrel IUDs) has been shown to be an effective and safe contraceptive method for breastfeeding parents (65).

Postpartum patients may also use barrier methods; however, diaphragms and cervical caps may need to be refitted after delivery (27).

Menstrual changes and other side effects

It is important to review possible side effects and their mechanism when counseling about methods so that patients know what to expect. Menstrual changes are common with many methods. Although some patients welcome this, others may become concerned if they are unprepared. Patients who desire regular menses may prefer a daily pill over progestin-only methods to ensure a predictable bleeding pattern. For those who are less concerned about menstrual spotting, the effectiveness of LARC methods may have greater value. Ensuring that patients understand possible changes and side effects is an important aspect of their decision making and may improve their tolerance of side effects (59).

Prior experiences, ease of use, and quality-of-life considerations

Lifestyle, past use, side effects, ability to start and stop a method, and personal comfort with the method weigh differently for different people. It is important to have an open discussion to address myths or misconceptions about contraception while maintaining respect for patients' lived experiences. The goal is to provide patients with a method that has acceptable side effects and that they are likely to use correctly and consistently. For example, patients with unpredictable work schedules may find it difficult to take a pill at the same time every day. Others may be uncomfortable changing a vaginal ring or having a device in their body. Reviewing patient priorities will ensure that they choose a method they like (59, 66).

Plans for future pregnancy

The discussion about contraception should include the patient's plans for future pregnancy. Except for DMPA, most contraceptives allow a rapid return to fertility when discontinued. CHCs are appropriate for a patient interested in conceiving in the next year (conception varies from 72% to 94% within 12 months of discontinuation) (67, 68). IUDs and subdermal implants are also associated with rapid postremoval return to fertility and have no minimum-use requirements (57, 68). In contrast, DMPA delays return to fertility by an average of 10 months and is generally not recommended for patients hoping to conceive shortly after an injection. Nevertheless, ovulation is possible in some people if an injection is delayed by 2 weeks, so timing of the injection remains very important for people who do not want to become pregnant (16).

What are special considerations for permanent sterilization?

Sterilization should be considered for persons seeking to avoid pregnancy permanently. Patients do not have to be a certain age and need not have had children, and clinicians should not create barriers to this highly effective contraceptive method for patients who are seeking it. However, all types of sterilization should be considered permanent, and patients should understand and be counseled about this. Reversal procedures for vasectomy and tubal ligation are costly and frequently fail, and salpingectomy cannot be reversed (69).

How should clinicians monitor patients using contraception?

There is no required monitoring for patients using any contraceptive method; however, it is reasonable to check in with a patient after they have been using a new method for 3 to 6

months to assess for side effects and satisfaction. Patients with a new IUD may ask for a string check, which involves a speculum or bimanual examination to confirm the IUD string's presence at the cervical os. The CDC's Selected Practice Recommendations for Contraceptive Use provide guidance on specific approaches to manage side effects, particularly abnormal bleeding from hormonal contraceptive methods. Patients may request LARC removal at any time, regardless of how long they have had it—the decision is that of the patient, not the clinician (68).

We recommend patients receive follow-up for routine health care maintenance according to age-based guidelines. Dispensing multiple months' supply of a prescription at a time can improve adherence. Clinicians should not withhold renewals of contraceptive prescriptions just because a patient is overdue for an annual examination or routine test, as this can lead to lapses in use and unintended pregnancy.

When should primary care physicians consult or refer patients to a specialist for contraception?

The guidance of the CDC's Medical Eligibility Criteria should allow internal medicine physicians to feel comfortable counseling and prescribing contraception to most pregnancy-capable patients with various medical problems. However, for patients who are medically complex, referral to an obstetrician-gynecologist or a specialist in complex family planning should be considered. Other indications for referral include patient request for permanent sterilization, IUD or implant placement or removal if the primary care physician is not adequately trained, or a procedure that is particularly challenging.

Contraception Selection and Management... Clinicians should take a patient-centered, preference-based approach to helping patients select the contraceptive method that works best for them. Counseling should include a discussion of efficacy and side effects and consideration of the patient's comorbidities and lived experience. The CDC's Medical Eligibility Criteria are helpful in determining which methods are best for individual patients. Progestin-only methods may be initiated in the immediate postpartum period, whereas estrogen-containing methods should be delayed for 21 days to 6 weeks after delivery. All methods except injectable medroxyprogesterone offer a rapid return to fertility and are appropriate for patients anticipating conception within a year. Consideration of patients' priorities coupled with recommendations based on their medical history can help physicians start the conversation about methods that would be effective and safe.

CLINICAL BOTTOM LINE

Contraceptive Failure and Medication Abortion Counseling and Management

How should clinicians address contraceptive failure?

Sexually active patients are at risk for pregnancy regardless of whether they use contraception. Unintended or mistimed pregnancy is more common among people of color and those living below the federal poverty level (1), reflecting health disparities driven by an ecology of unequal socioeconomic factors that contribute to a lack of health care access in general and contraceptive care specifically (70). If contraception fails and a patient has an unplanned or mistimed pregnancy, clinicians should ideally provide comprehensive counseling on pregnancy options, including medication and surgical abortion (as well as parenting and making an adoption plan). However, the recent U.S. Supreme Court decision in *Dobbs v Jackson Women's Health Organization* removed federal protections for abortion care, functionally rendering abortion illegal in much of the country. Some jurisdictions may even place restrictions on what physicians can advise with regard to abortion care. The increasingly limited access to abortion care renders access to comprehensive and patient-centered contraception counseling even more important (71, 72). With recent federal judicial decisions, access to abortion is now determined by the patient's state of residence, and patients in certain states may be unable to access abortion care, including by mail order. Laws around abortion care are changing rapidly, and clinicians caring for pregnancy-capable people should remain up-to-date on the laws in their areas.

Contraceptive Failure and Medication Abortion Counseling and Management... Internal medicine physicians may be the first point of contact for someone with an unintended pregnancy who is seeking abortion. Legal access may be limited by the patient's state of residence and evolving federal judicial decisions.

CLINICAL BOTTOM LINE

Practice Improvement

What do professional organizations recommend?

The U.S. Medical Eligibility Criteria for Contraceptive Use were adopted as a primary resource for prescribers of contraception to aid in choosing safe, effective methods for all patients who seek it. The criteria can be especially helpful in guiding physicians caring for adolescents and medically complex patients (51). The CDC's Selected Practice Recommendations for Contraceptive Use provide support for managing common problems, including abnormal or unscheduled bleeding, missed pills, and late injections. Both resources are available via a free, user-friendly app (www.cdc.gov/reproductivehealth/contraception/mmwr/spr/summary.html). Clinicians should be comfortable referring questions about contraceptives to a gynecologist or a family planning specialist.

How can clinicians improve their skills or obtain additional training?

Several programs train clinicians to provide contraception beyond residency training. Large annual meetings, such as those of the American Academy of Family Physicians and the American College of Physicians, may have training programs for continuing medical education. The Clinical Training Center for Sexual and Reproductive Health (https://ctcsrh.org), a well-designed, web-based training program, offers a robust lesson in providing contraception. Physicians and advanced practice clinicians may be trained to place subdermal implants by contacting the manufacturer and undergoing formal training. Interested clinicians can contact their local Planned Parenthood affiliate or a trained clinician in their own institution if they are interested in being trained to place and manage IUDs. Innovating Education in Reproductive Health, an open-access, web-based site supported by the Bixby Center for Global Reproductive Health at the University of California, San Francisco, contains various training modules on contraception and other reproductive health topics.

Internal medicine physicians can seek training to provide medication abortion in their practice (71). Ample data support the safety of self-managed abortions, and clinicians should be aware of a likely increase in patients managing their own abortions, especially in restrictive states. As of this writing, no laws require mandatory reporting of self-managed abortion, and clinicians should be mindful of not creating risk for their patients through unnecessary reporting (72).

In the Clinic
Tool Kit

Contraception

Patient Information

https://medlineplus.gov/birthcontrol.html
https://medlineplus.gov/languages/birthcontrol.html
Information on birth control in English and other languages from the National Institutes of Health's MedlinePlus.

www.womenshealth.gov/a-z-topics/birth-control-methods
https://espanol.womenshealth.gov/a-z-topics/birth-control-methods
Information and fact sheet on birth control methods in English and Spanish from the Office on Women's Health in the Office of the Assistant Secretary for Health at the U.S. Department of Health and Human Services.

www.acog.org/womens-health/healthy-living/birth-control
Information on birth control from the American College of Obstetricians and Gynecologists.

Information for Health Professionals

www.cdc.gov/reproductivehealth/contraception/contraception_guidance.htm
Contraception guidance for health care providers from the Centers for Disease Control and Prevention.

www.cdc.gov/mmwr/volumes/69/wr/mm6914a3.htm
Update of the U.S. Medical Eligibility Criteria for Contraceptive Use from the Centers for Disease Control and Prevention.

www.acog.org/clinical/clinical-guidance/committee-statement/articles/2022/02/patient-centered-contraceptive-counseling
Patient-centered contraception counseling guidance from the American College of Obstetricians and Gynecologists.

WHAT YOU SHOULD KNOW ABOUT CONTRACEPTION

What Is Contraception?

Contraception, or birth control, is any method or medicine that prevents pregnancy.

Do I Need It?

Consider using birth control if:

- You are or may become sexually active and do not wish to become pregnant.
- You have heavy, painful periods or irregular periods. Some birth control options can help regulate your cycles. It may also lighten your period and help with premenstrual symptoms or acne.
- You take certain medications or have medical conditions that would be complicated by pregnancy.

What Are the Different Kinds?

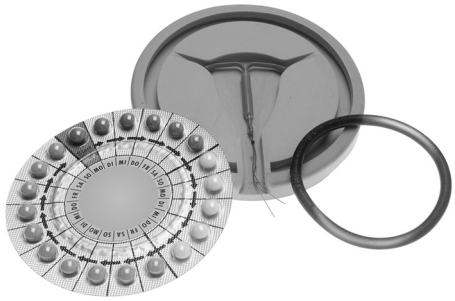
Many types of birth control are available, such as:

- Barrier methods. This type of birth control requires you or your partner to use it every time you have sex. Examples include condoms (which also protect against sexually transmitted infections, including HIV) and diaphragms.
- Short-acting reversible contraception. These methods are made of hormones. Depending on the type, you will need to take them daily, monthly, or every 3 months. They come in different forms, including pills, patches, vaginal rings, and shots.
- Long-acting reversible contraception ("LARC"). This type may or may not include hormones. It is inserted by your health care provider 1 time. Depending on the method, it can work for 3 to 10 years and can include intrauterine devices (IUDs) and implants under the skin of your arm.
- Male or female sterilization. These are permanent and are done via surgery or a medical procedure.
- Withdrawal method. This is when the penis is removed from the vagina before ejaculation. This method has a high failure rate and is generally not recommended.

Your doctor or other clinician can help you select which method is right for you on the basis of your lifestyle and health history.

What Type Is Most Effective for Preventing Pregnancy?

The type of birth control you use and the extent to which you use it properly will influence how



effective it is at preventing pregnancy. Any type of birth control is more effective than no birth control. To reduce your risk for sexually transmitted infection, use condoms in combination with other methods.

What Is "Emergency Contraception"?

Emergency contraception, sometimes known as "EC" or the "morning-after pill," is any form of birth control used after sex to prevent pregnancy. It is most effective when used soon after sex but can be effective up to 5 days after sex.

What Are Some of the Side Effects?

Side effects depend on the type of birth control used and can include irregular bleeding or spotting between periods, cramping, and modest weight gain.

Are There Risks?

Birth control is generally safe, but certain methods carry risks. Talk to your doctor about your individual risk factors.

Questions for My Doctor

- Should I use birth control?
- Which birth control method best fits my lifestyle?
- What are the side effects?
- What are the risks?
- What is the estimated monthly cost of this birth control?
- Is it covered by my insurance?

For More Information

ACP℠
American College of Physicians
Leading Internal Medicine, Improving Lives

MedlinePlus
https://medlineplus.gov/birthcontrol.html

Planned Parenthood
www.plannedparenthood.org/learn/birth-control

Patient Information