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Contraceptive Methods and Effectiveness

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With numerous birth control methods available today, nearly every young person with a uterus who does not currently desire pregnancy can safely use an effective contraceptive. Contraceptive counseling should include acknowledgment of individuals' values, preferences, and lived experiences, while establishing their specific goals with contraceptive use (e.g., contraception only and/or treatment of systemic issues).[12] Thus, knowledge of contraceptive effectiveness and how each method affects the hypothalamic-pituitary-gonadal (HPG) axis is important to know, which will allow the most comprehensive, shared decision-making.

(continues on page 2)

Contraceptive Methods and Effectiveness *(continued from page 1)*

Table 1: Contraceptive options by effect on HPG axis

Effects on HPG Axis, i.e., Systemic Methods	Limited to No Effect on HPG Axis, or Localized Methods	Non-hormonal Methods
Oral contraceptive pills	Levonorgestrel IUD (Mirena®, LILETTA®, Kyleena®, and Skyla®)	Copper IUD (Paragard®)
Contraceptive ring (NuvaRing®, Annovera®)		Barrier methods (i.e., male condoms, female condoms)
Contraceptive patch (Xulane®, Twirla®)		Diaphragms (Caya®)
Medroxyprogesterone intramuscular injection (DEPO-PROVERA®)		Spermicides
Contraceptive subdermal implant (NEXPLANON®)		Gel (Phexxi®)

Starting, stopping, and switching methods

Immediate, same-day contraceptive initiation is recommended for all methods as the best way to reduce the risk of unwanted pregnancy. It is not medically indicated to start after the next menses or after cervical cancer/sexually transmitted infection (STI) testing.[2] IUDs (intrauterine devices), however, should not be placed if the patient has had unprotected intercourse within the prior two weeks and is at risk for pregnancy. Except for copper IUDs, which are immediately effective, all other prescription contraceptives take one week to become effective and an additional method (i.e., condoms) should be used concurrently during that time.

Fertility potential returns within 24-48 hours of discontinuation of nearly all hormonal contraceptives. Patients on a medroxyprogesterone intramuscular injection (DMPA) who desire pregnancy should stop three to six months prior to attempting to conceive. Regardless of the method being discontinued, however, an alternative method should be started immediately if the patient does not desire pregnancy.

Table 2: Absolute Contraindications and Side Effects[1, 4, 5, 6, 7, 10, 11, 13]

Progesterone-Only-Containing Methods	Estrogen-and-Progesterone-Containing Methods
• Active progesterone-receptive breast cancer (all methods except Paragard) • Unassessed vaginal bleeding • Active pelvic inflammatory disease — IUDs only	• Current acute hepatitis, decompensated cirrhosis, liver cancer, or kidney impairment • Current use of ombitasvir, paritaprevir, or ritonavir • Active estrogen-receptive breast cancer • Increased risk of venous or arterial thromboembolic events (e.g., history of stroke/blood clots, migraines with aura, current uncontrolled cardiovascular disease/hypertension, or diabetes with end-organ disease) • Unassessed vaginal bleeding • Migraine with aura

To improve adherence, patients should be informed about possible side effects and that they are usually temporary, typically resolving in one to three months. Side effects that are severe or lasting longer than three months warrant a change in the method or the type of pill.

Table 3: Methods of Birth Control and Their Possible Side Effects

Method	Possible Side Effects
Systemic Methods (see Table 1) and Hormonal Emergency Contraceptive	• Irregular bleeding or irregular menses • Breast tenderness and fullness • Bloating • Feeling off • Acne changes (increased or decreased) • Stomach upset • Vaginal dryness and decreased libido • Weight gain *DEPO-PROVERA only
IUDs	• Irregular bleeding or irregular menses • Increased physiologic vaginal discharge • Acne changes – if coming off a systemic contraceptive method
Barrier Methods	• Contact dermatitis

Nexplanon Implant

Nexplanon is a flexible, matchstick-sized implant that is placed in the dermis of the upper arm that is 99.05% effective at contraception for up to three years.[3] While undesired irregular bleeding is very common with this method, some individuals may experience regular but lighter menses or amenorrhea. You must be certified by Merck to insert and remove Nexplanon.[10]

IUDs

IUDs are T-shaped implants that measure approximately 1.25 inches or less and are inserted into the uterine cavity. They last from three to 12 years and are approximately 99.2% effective at preventing pregnancy.[3] Levonorgestrel IUDs typically cause lighter menses or amenorrhea within three to six months, while the copper IUD can increase menses flow and dysmenorrhea. Both options are good for patients with contraindications to or past side effects resulting from systemic hormones, but neither option should be used to treat systemic menstrual concerns.

Depo-Medroxyprogesterone Intramuscular Injections (DMPA)

DEPO-PROVERA is the only medroxyprogesterone, intramuscular injectable contraceptive in the U.S. that is given every three months. It is 94% effective at preventing pregnancy.[3] Most individuals will have lighter menses or be amenorrheic within three to six months.

Estrogen-Progesterone-Containing Contraceptive (Pill, Patch, and Vaginal Ring)

Contraceptive methods containing estradiol/progesterone are approximately 91% effective at preventing pregnancy with typical use.[3] These methods are frequently used for three weeks, then held every fourth week during which the patient can have a withdrawal bleed.[3] Withdrawal bleeds are not medically necessary and skipping them, a practice called "continuous use," is safe for anyone not wanting a menses, as well as an effective treatment of such issues as dysmenorrhea and endometriosis.

Contraceptive pills are the most common form of prescription contraception in the U.S. They are taken by mouth daily, but time of day can vary. It is important to discuss patients' ability to take pills daily and to help them to overcome possible barriers to regular usage that might increase their risk of unwanted pregnancy. The variety of pills allows them to be tailored based on patient side effects or goals. A great reference is "Managing Contraceptive Pills," by Richard Palmer Dickey, MD, PhD.

Progesterone-only pills (POPs) are options for patients who have contraindications to estrogen and/or decline other methods. However, these pills must be taken within the same three-hour window of time daily, and therefore have a high risk of user error, contraceptive failure, and irregular spotting.

The contraceptive patch (Xulane, Twirla) is a two-inch square of adhesive that contains estrogen and progesterone.[13] It is placed on the skin and is replaced every seven days. Typical placement is the shoulder, scapula, or upper hip, but it should not be placed on the breasts or buttocks. These patches should not be used for individuals with body mass indexes (BMIs) greater than 30.[13]

Table 4: IUD FDA-Approved Duration of Effectiveness [1, 4, 5, 6]

Method	Paragard (copper) IUD	52 mg levonorgestrel IUD (Mirena)	52 mg levonorgestrel IUD (Liletta)	19.5 mg levonorgestrel IUD (Kyleena)	12 mg levonorgestrel IUD (Skyla)
Years Effective (FDA Approved)	12	8	7	5	3

The contraceptive ring (NuvaRing, Annovera) is a 2 to 3 inch wide, flexible, estrogen/progesterone-containing device that is placed within the fornix of the vagina every three to four weeks.[11] It may be left in during intercourse, however, if taken out, it should be rinsed and reinserted within three hours.

Phexxi

This prescription lactic acid gel is inserted into the vagina no more than one hour prior to each act of intercourse. It is 86% effective with typical use.[7]

Diaphragms

Whereas specialized training used to be required to size diaphragms, Caya, is an effective, one-size-fits-all prescription diaphragm that is 88% effective.[3] Spermicide is placed inside the cup, and then the cup is placed at the vaginal fornix and inserted inside the vaginal canal prior to intercourse. Diaphragms can be placed numerous hours prior to intercourse and can be left in for numerous sexual acts.

Over-the-Counter Hormone Free Methods

Condoms, both male and female, can be bought over the counter and are 82% and 79% effective at preventing pregnancy, respectively.[3] They should be placed before any genital touching occurs and should not be used with oil-based lubricants, as these cause micro tears in the latex that decrease its effectiveness. Condoms are the only method of contraception that also protects against STIs.

Spermicides are chemical inserts (gels or troches) that are placed within the vaginal canal prior to each act of intercourse. These inserts are approximately 73% effective at preventing pregnancy.[3]

Emergency Contraception

Paragard IUDs, high-dose levonorgestrel pills (Plan B®), and ulipristol pills (ella®) are the only current FDA-approved emergency contraceptives. While most are effective if used immediately after unprotected intercourse, they can be used up to five days after.[6, 8, 9] To allow easy access to and therefore quicker use of an emergency contraception, a prescription for one of these methods should be offered to all patients on a contraceptive who are at risk for potential user error (e.g., missed pills or broken condoms). Plan B can be taken concurrently with another contraceptive, but it is less effective for individuals with BMIs over 30. It is approximately 88% effective at preventing pregnancy.[8] If a patient is on a hormonal contraceptive, a backup method should be used for seven days after taking ella.[9] If pregnancy has already occurred, these methods will not end or harm the pregnancy.[8, 9]

References

1. AbbVie. (May 2022). Liletta HCP. LILETTA® | Levonorgestrel-Releasing Intrauterine System 52 mg. Retrieved October 3, 2022, from **https://www.liletta.com/**.
2. Access to Contraception. Committee Opinion No. 615. American College of Obstetricians and Gynecologists. Obstetrics & Gynecology. 2015. 125:250–255.
3. American College of Obstetricians and Gynecologists. (October 2021). Effectiveness of Birth Control Methods. ACOG. Retrieved October 3, 2022, from **https://www.acog.org/womens-health/infographics/effectiveness-of-birth-control-methods**.
4. Bayer. (n.d.). Learn about Kyleena® IUD. Homepage. Retrieved October 3, 2022, from **https://www.kyleena-us.com/**.
5. Bayer. (n.d.). Learn about Mirena® IUD. Homepage. Retrieved October 3, 2022, from **https://www.mirena-us.com/**.
6. CooperSurgical, Inc. (n.d.). About Paragard® IUD. Paragard® IUD HCP Site. Retrieved October 3, 2022, from **https://hcp.paragard.com/about-paragard/**.
7. Evofem Biosciences. (April 2022). Prescribe PHEXXI®-a first-in-class, non-hormonal birth control that can meet the individual needs of women. Phexxi®: Non-Hormonal Prescription Vaginal Contraceptive Gel. Retrieved October 3, 2022, from **https://hcp-phexxi.com/**.
8. Foundation Consumer Healthcare. (n.d.). For Pharmacists & Physicians | Plan B FAQs. Retrieved October 3, 2022, from **https://hcp.planbonestep.com/faqs/**.
9. HRA Pharma America. (July 20, 2020). What is ella®? Emergency contraceptive: Info for Health Care Professionals. ellaone USA. Retrieved October 3, 2022, from **https://www.ella-now.com/hcp/**.
10. Organon. (June 2021). Dosing and Administration. All health care providers performing insertions and/or removals of NEXPLANON should receive instructions and training prior to inserting or removing the implant. Insertion and Removal for NEXPLANON® (etonogestrel implant) 68 mg. Retrieved October 3, 2022, from **https://www.organonconnect.com/nexplanon/dosing-administration/**.
11. Organon. (n.d.). About NuvaRing. What Is NuvaRing® (etonogestrel/ethinyl estradiol vaginal ring)? Retrieved October 3, 2022, from **https://www.nuvaring.com/what-is-nuvaring/**.
12. Patient-Centered Contraceptive Counseling. Committee Statement No. 1. American College of Obstetricians and Gynecologists. Obstetrics & Gynecology. 2022. 139:349–353.
13. Viatris Inc. (n.d.). Using XULANE. Retrieved October 3, 2022, from **https://www.xulane.com/en/use-xulane**.

How to Be Reasonably Certain That a Woman is Not Pregnant

A health-care provider can be reasonably certain that a woman is not pregnant if she has no symptoms or signs of pregnancy and meets any one of the following criteria:

- is ≤7 days after the start of normal menses
- has not had sexual intercourse since the start of last normal menses
- has been correctly and consistently using a reliable method of contraception
- is ≤7 days after spontaneous or induced abortion
- is within 4 weeks postpartum
- is fully or nearly fully breastfeeding (exclusively breastfeeding or the vast majority [≥85%] of feeds are breastfeeds), amenorrheic, and <6 months postpartum

In situations in which the health-care provider is uncertain whether the woman might be pregnant, the benefits of starting the implant, depot medroxyprogesterone acetate (DMPA), combined hormonal contraceptives and progestin-only pills likely exceed any risk; therefore, starting the method should be considered at any time, with a follow-up pregnancy test in 2-4 weeks. For IUD insertion, in situations in which the health-care provider is not reasonably certain that the woman is not pregnant, the woman should be provided with another contraceptive method to use until the health-care provider can be reasonably certain that she is not pregnant and can insert the IUD.

When to Start Using Specific Contraceptive Methods

Contraceptive method	**When to start** (if the provider is reasonably certain that the woman is not pregnant)	**Additional contraception** (i.e., back up) needed	**Examinations or tests needed before initiation**[1]
Copper-containing IUD	Anytime	Not needed	Bimanual examination and cervical inspection[2]
Levonorgestrel-releasing IUD	Anytime	If >7 days after menses started, use back-up method or abstain for 7 days.	Bimanual examination and cervical inspection[2]
Implant	Anytime	If >5 days after menses started, use back-up method or abstain for 7 days.	None
Injectable	Anytime	If >7 days after menses started, use back-up method or abstain for 7 days.	None
Combined hormonal contraceptive	Anytime	If >5 days after menses started, use back-up method or abstain for 7 days.	Blood pressure measurement
Progestin-only pill	Anytime	If >5 days after menses started, use back-up method or abstain for 2 days.	None

Abbreviations: BMI = body mass index; IUD = intrauterine device; STD = sexually transmitted disease; U.S. MEC = U.S. Medical Eligibility Criteria for Contraceptive Use

[1] Weight (BMI) measurement is not needed to determine medical eligibility for any methods of contraception because all methods can be used (U.S. MEC 1) or generally can be used (U.S. MEC 2) among obese women.However, measuring weight and calculating BMI (weight [kg]/height [m^2] at baseline might be helpful for monitoring any changes and counseling women who might be concerned about weight change perceived to be associated with their contraceptive method.

[2] Most women do not require additional STD screening at the time of IUD insertion. If a woman with risk factors for STDs has not been screened for gonorrhea and chlamydia according to CDC's STD Treatment Guidelines (http://www.cdc.gov/std/treatment), screening can be performed at the time of IUD insertion, and insertion should not be delayed. Women with current purulent cervicitis or chlamydial infection or gonococcal infection should not undergo IUD insertion (U.S. MEC 4).

Source: For full recommendations and updates, see the U.S. Selected Practice Recommendations for Contraceptive Use webpage at http://www.cdc.gov/reproductivehealth/contraception.

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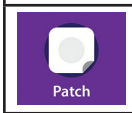
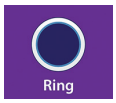
Reversible Methods of Birth Control

	**Intrauterine (IUD) contraception. Levonorgestrel intrauterine device (LNG IUD)** is a small T-shaped device placed inside the uterus by a doctor. It releases a small amount of progestin each day to prevent pregnancy. The LNG IUD stays in the uterus for three to eight years, depending on the device. Typical use failure rate: 0.1-0.4%.[1] **Copper T intrauterine device (IUD)** is a small device that is shaped in the form of a "T." A doctor places it inside the uterus, where it can stay for up to 10 years. Typical use failure rate: 0.8%.[1]
	**Implant.** A single, thin rod inserted under the skin of a woman's upper arm. The rod contains progestin that is released into the body over three years. Typical use failure rate: 0.1%.[1]
	**Injection or shot.** Women get shots of the hormone progestin in the buttocks or arm every three months from their doctor. Typical use failure rate: 4%.[1]
	**Combined oral contraceptives.** Also called "the pill," it contains hormones estrogen and progestin. Prescribed by a doctor, the pill is taken at the same time each day. Patients who are older than 35 years and smoke and have a history of blood clots or breast cancer, may be advised to not to take the pill. Typical use failure rate: 7%.[1] The progestin-only pill (or mini-pill) only has one hormone, progestin. Prescribed by a doctor, it is taken at the same time each day. It may be a good option for women who can't take estrogen. Typical use failure rate: 7%.[1]
	**Patch.** This skin patch is worn on the lower abdomen, buttocks, or upper body, but not on the breasts. Prescribed by a doctor, it releases hormones progestin and estrogen into the bloodstream. A new patch is placed once a week for three weeks. During the fourth week, remove the patch to have a menstrual period. Typical use failure rate: 7%.[1]
	**Hormonal vaginal contraceptive ring.** The ring releases the hormones progestin and estrogen. Placed inside the vagina, the ring can be worn for three weeks and then removed for a week to have a period. Typical use failure rate: 7%.[1]
	**Diaphragm or cervical cap.** These barrier methods are placed inside the vagina to cover the cervix to block sperm. The diaphragm is shaped like a shallow cup. The cervical cap is a thimble-shaped cup. Before sexual intercourse, you insert them with spermicide. A doctor provides a proper fitting because they come in different sizes. Typical use failure rate for the diaphragm: 17%.[1]
	**Male condom.** Worn by the man, a male condom keeps sperm from getting into a woman's body. Latex condoms help prevent pregnancy, HIV, and other STDs, as do the newer synthetic condoms. "Natural" or "lambskin" condoms help prevent pregnancy, but may not provide protection against STDs, including HIV. Typical use failure rate: 13%.[1] Condoms and lubricants can be purchased at a drug store. Do not use oil-based lubricants such as massage oils, baby oil, lotions, or petroleum jelly with latex condoms. They weaken the condom and it may break.
	**Female condom.** Worn by the woman, the female condom helps keep sperm from getting into the body. Available at drug stores, it is packaged with lubricant and can be inserted up to eight hours before sexual intercourse. Typical use failure rate: 21%.[1] May help prevent STDs.
	**Spermicides.** Works by killing sperm and available as foam, gel, cream, film, suppository, or tablet at drug stores. They are placed in the vagina no more than one hour before intercourse and left in place at least six to eight hours after intercourse. Spermicides can be used with a male condom, diaphragm, or cervical cap. Typical use failure rate: 21%.[1]
	**Emergency contraception (IUD or emergency contraceptive pills).** Women can have a **copper IUD** inserted within five days of unprotected sex. **Emergency contraceptive pills** can be taken by women up to five days after unprotected sex, but the sooner the pills are taken, the better they work. Some emergency contraceptive pills are available over the counter.

References

1. Trussell J, Aiken ARA, Micks E, Guthrie KA. Efficacy, safety, and personal considerations. In: Hatcher RA, Nelson AL, Trussell J, Cwiak C, Cason P, Policar MS, Edelman A, Aiken ARA, Marrazzo J, Kowal D, eds. Contraceptive technology. 21st ed. New York, NY: Ayer Company Publishers, Inc., 2018.

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Title X Family Planning Program

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The State of Iowa Department of Health and Human Services has been a recipient of federal funds for the Title X Family Planning Program since 1971. The Title X Family Planning Program is the only federally funded program dedicated solely to providing comprehensive family planning and related preventive health services. Grant funds are awarded to HHS and the Family Planning Council of Iowa to provide comprehensive family planning services across the state through a diverse network of public and private nonprofit health and community-based clinics. Title X plays a critical role in ensuring access to a broad range of family planning and related preventive health services for millions of low-income or underinsured individuals.[1] The Title X Family Planning Program accepts individuals of any gender and all ages, with an emphasis on ages 15 to 44. Services are mostly free or on a sliding scale, individuals with private insurance are also accepted. Individuals are never turned away due to an inability to pay.

Title X Family Planning Clinics are required to provide comprehensive reproductive health services that include preventive healthcare, education, and counseling. Title X family planning providers receive specialized training based on national standards and best practices to ensure access to high-quality family planning services. Title X clinics provide family planning services in a voluntary, client-centered and noncoercive manner.[1] Family planning services are services that assist in preventing or achieving pregnancy and are made available confidentially if requested by the individual. For many clients, Title X clinics are their only ongoing source of healthcare and health education.

Title X family planning services include a broad range of acceptable and effective contraceptive products and methods for clients who want to prevent pregnancy and space births, pregnancy testing and counseling, basic infertility services, sexually transmitted infection services, and preconception health services.[1] The Title X family planning provider and clients work together to determine which contraceptive method is best for them and their lifestyle.

The Title X program also includes other reproductive health and related preventive health services that are considered beneficial, such as HPV vaccination; provision of HIV pre-exposure prophylaxis (PrEP); breast and cervical cancer screening; screening for obesity, smoking, drug and alcohol use; mental health; and intimate partner violence.[1]

For more information, visit the family planning website at **https://idph.iowa.gov/family-health/family-planning**.

To find a Title X Family Planning Clinic near you, visit **https://opa-fpclinicdb.hhs.gov**.

Note: None of the Title X family planning funds are used where abortion is a method of family planning.

Resource

1. "Title X Service Grants." Office of Population Affairs, Title X Family Planning Program. Retrieved Oct. 17, 2022 from **https://opa.hhs.gov/grant-programs/title-x-service-grants**.

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What's in this issue

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