



Association of  
Reproductive  
Health  
Professionals

## *A Quick Reference Guide for Clinicians®*

# Choosing a Birth Control Method

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## Using This Guide

Contraceptive methods with high efficacy rates have been available for several decades. Still, nearly half of all pregnancies in the United States are unintended—either mistimed or unwanted.<sup>1</sup> Experts estimate that at current rates, at least half of all women in the United States will experience an unintended pregnancy, and one in three will have had an abortion by age 45.<sup>2</sup> Use of less effective methods, coupled with inconsistent, incorrect, and discontinued use, contributes to prevalence of unintended pregnancy.

The risk of unintended pregnancy is often further complicated by interruptions in contraceptive use. A number of factors cause these interruptions, including misunderstanding how to use the method; a change in health insurance status; challenges with accessing methods or contacting providers with questions about use or side effects; the effects of a significant life event; infrequent sexual activity; and misperceptions of risk of pregnancy.<sup>3</sup>

Interruptions in use also may be caused by providers' misperceptions about the appropriateness or safety of specific contraceptive methods for women with underlying medical conditions (see box). However, highly effective contraception is especially important among these women; approximately one-fourth of deaths during pregnancy in the United States are among women with pre-existing medical conditions.<sup>4</sup>

Conditions associated with increased risk for adverse health events as a result of unintended pregnancy

- Breast cancer
- Complicated valvular heart disease
- Diabetes: insulin-dependent; with nephropathy/retinopathy/neuropathy or other vascular disease; or of >20 years' duration
- Endometrial or ovarian cancer
- Epilepsy
- Hypertension (systolic >160 mm Hg or diastolic >100 mm Hg)
- History of bariatric surgery within the past two years
- HIV/AIDS
- Ischemic heart disease
- Malignant gestational trophoblastic disease
- Malignant liver tumors (hepatoma) and hepatocellular carcinoma of the liver
- Peripartum cardiomyopathy
- Schistosomiasis with fibrosis of the liver
- Severe (decompensated) cirrhosis
- Sickle cell disease
- Solid organ transplantation within the past two years
- Stroke
- Systemic lupus erythematosus
- Thrombogenic mutations
- Tuberculosis

Source: Reference 5

Health care providers need to counsel patients about each contraceptive option to allow them to select the best contraceptive method, based on their lifestyle, desire for children, desired family size, and intended timing for pregnancy. Because patient-provider discussions about contraceptive options are the strongest

indicator of selection, adherence, and satisfaction with a method, it is imperative that providers understand and are able to present patients with all available options.<sup>6</sup>

This concise reference guide for clinicians provides brief information about all contraceptive methods currently available in the United States. It is designed to help health care providers quickly counsel women about choosing the most appropriate and effective contraception for them.

In this guide, effectiveness for each contraceptive method is expressed as a failure rate, or the percentage of women who can be expected to become pregnant within the first year they use that method. Effectiveness rates are given with both perfect use (correct and consistent use of the method with every act of intercourse) and typical use (actual use, including occasional, inconsistent, or incorrect use). Separate sections in this guide are devoted to each of the following methods:

- Combined hormonal contraception (CHC), including the oral contraceptive pill, the contraceptive patch, and the vaginal ring
- Progestin-only contraception, including the contraceptive implant, injectable contraception, and progestin-only oral contraceptives
- Intrauterine contraception (IUC), including the copper intrauterine device (IUD) and the levonorgestrel intrauterine system (LNG IUS)
- Barrier methods, including the male condom, female condom, diaphragm, cervical cap, and sponge
- Spermicides
- Coitus interruptus (withdrawal)
- Fertility awareness
- Male sterilization (vasectomy)
- Female sterilization (operative and non-operative surgical sterilization)
- Emergency contraception

Each section describes the method; presents information on its use, effectiveness, risks, and side effects; and concludes with a list of principal advantages and disadvantages of that method and counseling messages. Contraindications and precautions are listed for each method, based on information from the medical eligibility criteria (MEC) for contraceptives from the Centers for Disease Control and Prevention (see box). Providers should carefully evaluate the risk/benefit ratio for use of the particular contraceptive by a woman with the relevant condition.

### Medical Eligibility Criteria Categories

1 = A condition for which there is no restriction for the use of the contraceptive method.

2 = A condition for which the advantages of using the method generally outweigh the theoretical or proven risks.

3 = A condition for which the theoretical or proven risks usually outweigh the advantages of using the method.

4 = A condition that represents an unacceptable health risk if the contraceptive method is used.

Source: Reference 5

The last section of this reference guide includes several comparison charts to help make counseling more efficient.

For a list of useful clinical resources on contraception, see ARHP's Reproductive Health Topic Area on Contraception, located at [www.arhp.org/topics/contraception](http://www.arhp.org/topics/contraception). Providers can refer patients to the ARHP Method Match tool, available at [www.arhp.org/methodmatch/](http://www.arhp.org/methodmatch/).

Although office visits are time-limited, health care providers have a clear responsibility to counsel their patients who are of reproductive age on contraceptive options, focusing on the most effective methods, including long-acting reversible contraception such as IUC and contraceptive implants. Health care providers should factor in each patient's personal and sexual situation when counseling about contraceptive methods. The cost and insurance or Medicaid coverage for contraceptive methods are variable and may influence the choice for some women.

Many contraceptive methods do not protect against sexually transmitted infections (STIs). If a woman is at risk for STIs, providers should recommend dual contraception use (condom plus an additional method). A discussion about having a back-up method for situations such as missed pills or delayed access may help a patient avoid an unplanned pregnancy.<sup>7</sup>

The following abbreviations are used throughout this document:

- BMD – bone mineral density
- CHCs – combined hormonal contraceptives
- COCs – combined oral contraceptives
- EC – emergency contraception
- FC - female condom
- FDA – Food and Drug Administration
- HIV – human immunodeficiency virus
- IUC – intrauterine contraception
- IUD – intrauterine device
- LNG IUS – levonorgestrel intrauterine system
- MEC – medical eligibility criteria
- NNS – no needle/no scalpel vasectomy
- NSV – no scalpel vasectomy
- OCs – oral contraceptives
- PID – pelvic inflammatory disease
- STI – sexually transmitted infection (assumed to include HIV)
- TSS – toxic shock syndrome
- UTI – urinary tract infection
- VTE – venous thromboembolism

# Comparison of Contraceptive Methods: Summary Chart

Method	Reversible	Discreet	Protects against STIs	Does not contain estrogen	Available OTC/ BTC*
<b>EXTREMELY EFFECTIVE</b>					
Abstinence	X		X	X	X
IUC	X	X		X**	
Female sterilization		X		X	
Implant	X	X		X	
Vasectomy		X		X	
<b>VERY EFFECTIVE</b>					
CHC (patch/ pill/ring)	X	X†			
Progestin-only (pill/injection)	X	X		X	
LAM†	X	X		X	X
<b>EFFECTIVE</b>					
Diaphragm	X			X	
Condom (female/male)	X		X	X	X
Coitus interruptus (withdrawal)	X			X	X
<b>MODERATELY EFFECTIVE</b>					
Cervical cap	X			X	
EC	X	X		††	†
Fertility awareness (rhythm method)	X	X		X	
Spermicides	X			X	X
Sponge	X			X	X

Source: Reference 8

\*over the counter/behind the counter

\*\*For Copper T IUD only

†For pill only

††Depends on type

## Combined Hormonal Contraception: General Information Benefits of Combined Hormonal Contraception

The term “combined hormonal contraception” refers to methods that include both an estrogen (often ethinyl estradiol) and a progestin (of which several are available). In addition to protecting women from pregnancy, combined hormonal contraceptives have some non-contraceptive benefits, which include:

- Menstrual-related health benefits, such as:
  - Decreased dysmenorrhea<sup>9</sup>
  - Decreased menstrual blood loss and anemia<sup>10</sup>
  - Possible reduction of premenstrual syndrome (PMS) symptoms<sup>11</sup>
- Other gynecological health benefits, such as decreased risk of:
  - Ectopic pregnancies
  - Endometrial and ovarian cancer<sup>12</sup>
  - Benign breast conditions
  - Pelvic inflammatory disease (PID)
- Non-gynecological benefit:
  - Effective in reducing acne<sup>13</sup>

### Risks

- The risk of venous thromboembolism (VTE) is increased with use of combined oral contraceptives (COCs). However, the annual risk is low (1.0–3.0/10,000 women) and approximately half that associated with pregnancy (5.9/10,000).<sup>14</sup>
- COC use does NOT increase the risk of breast cancer.<sup>15</sup>
- COC use does NOT increase the risk of cardiovascular events among healthy non-smokers less than age 35 who do not have other risk factors (see box).

## Dispelling Myths About the COCs and Cardiovascular Events<sup>16</sup>

- The incidence of cardiovascular events is low in reproductive-age women—whether or not they are COC users.
- The additional mortality associated with COC use among healthy women ages 40 to 44 is only 31.8 per million users per year (3.6 per million users per year for women 20 to 24 years old).
- The mortality rate associated with COC use is low among women who are less than 35 years old—whether they smoke or not.
- Smoking has a greater effect on mortality and the incidence of cardiovascular events than does COC use—for women of all ages.

## Side Effects

- Breakthrough and/or unscheduled bleeding may occur with COC use.
- Some women experience breast tenderness, nausea, or bloating.
- Many side effects disappear after the first few cycles of use.

## Contraindications and Precautions

### *Medical Eligibility Criteria for COC Pills, Ring, and Patch.*

#### Category 4

(unacceptable health risk if the contraceptive method is used)

- Postpartum (<21 days postpartum)
- Smoking if age  $\geq 35$  years and  $\geq 15$  cigarettes a day
- Multiple risk factors for arterial cardiovascular disease (such as older age, smoking, diabetes, and hypertension; possibly designated category 3 if multiple major risk factors are not present)
- Hypertension (systolic  $> 160$  mm Hg or diastolic  $> 100$  mm Hg or with vascular disease)

- Deep venous thrombosis/pulmonary embolism (DVT/PE)
  - Acute
  - Previous, not currently on anticoagulant therapy, with risk factors for recurrence (designated category 3 if no risk factors for recurrence)
- Known thrombogenic mutations (e.g., protein S deficiency)
- Ischemic heart disease or stroke (current or history of)
- Valvular heart disease (designated category 2 if uncomplicated)
- Peripartum cardiomyopathy (designated as category 3 if <6 or more months previously AND free of moderately or severely impaired cardiac function)
- Systemic lupus erythematosus (SLE) (designated as category 2 if known to be negative for antiphospholipid antibodies)
- Migraine
  - With aura
  - Without aura if age  $\geq 35$  years—for continuing method (designated category 3 for initiating method)
- Current breast cancer
- Severe cirrhosis
- Solid organ transplantation (designated category 2 if uncomplicated)
- Malignant liver tumor
- Benign liver tumor (i.e., hepatocellular adenoma; designated category 2 if focal nodular hyperplasia)

	<ul style="list-style-type: none"> <li>• Diabetes with nephropathy, retinopathy, neuropathy, other vascular disease, or duration of more than 20 years (possibly designated category 3, depending on the severity of the disease)</li> <li>• Acute viral hepatitis or exacerbation—for initiating method (possibly designated category 3 depending on severity)</li> </ul>
<p>Category 3 (theoretical or proven risks usually outweigh the advantages of using the method)</p>	<ul style="list-style-type: none"> <li>• Breastfeeding (if &lt; 1 month postpartum)</li> <li>• Postpartum, breastfeeding             <ul style="list-style-type: none"> <li>– 21 to &lt;30 days postpartum, with or without other risk factors for VTE</li> <li>– 30 to 42 days, with other risk factors for VTE</li> </ul> </li> <li>• Postpartum, not breastfeeding, with other risks for VTE (21 to 42 days postpartum)</li> <li>• Smoking if age <math>\geq</math>35 years and &lt;15 cigarettes a day</li> <li>• For COCs only: History of bariatric surgery with a malabsorptive procedure (e.g., gastric bypass)</li> <li>• Hypertension (adequately controlled or mildly elevated)</li> <li>• Known hyperlipidemias (possibly designated as category 2, depending on severity)</li> <li>• Migraine without aura, if age &lt;35 years—for continuing method (designated category 2 for initiating method)</li> <li>• Breast cancer in past; no evidence of disease for five years</li> <li>• Rifampin or rifabutin therapy</li> <li>• Certain antiretroviral and anticonvulsant medications (some are designated category 2)</li> </ul>

- Inflammatory bowel disease (IBD) (designated as category 2 if mild IBD and no other risk factors for VTE)
- History of cholestasis (if COC-related; designated as category 2 if pregnancy-related)
- Gallbladder disease (designated as category 2 if asymptomatic or treated by cholecystectomy)

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Source: Reference 5,17

## Advantages

- Discreet
- Very effective
- Rapidly reversible
- Easy to use, start, and stop

## Disadvantages

- Requires a prescription
- No protection against STIs

# Combined Oral Contraceptive Pills

## Description

- Most of the currently available COC formulations contain 20 to 35 mcg of ethinyl estradiol plus one of eight progestins.



## Use

- All COCs require a prescription.
- Providers may want to select initially a formulation with a midlevel dose of estrogen and then adjust later if the woman experiences unwelcome side effects.
- The Pocket Guide to Managing Contraception is a good resource for up-to-date listings of the many currently available COCs. (The book can be purchased online for \$10 or downloaded in pdf format for free at [www.managingcontraception.com/shopping/product.php?productid=16134](http://www.managingcontraception.com/shopping/product.php?productid=16134).)
- COC pill packs generally contain 28 pills (either 21 or 24 active-hormone pills and the remainder placebo) and require users to take a pill daily.

## Effectiveness

- This method is very effective, with a failure rate of 0.3 percent with perfect use and 9 percent with typical use.<sup>18</sup>
- However, a high number of unintended pregnancies are due to COC misuse or discontinuation.
- By the third month of use, the typical user misses three or more pills each cycle.
- Consistent and correct use tends to decline rather than improve over time.<sup>19</sup>
- Weight does not appear to affect the effectiveness of COCs. A study of almost 60,000 COC users in Europe found that body mass index (BMI) and weight had little, if any, relationship to effectiveness.<sup>20</sup>

## Risks, Side Effects, and Contraindications

As described above for all combined hormonal contraception.

## Advantages

As described above for all combined hormonal contraception.

## Disadvantages

As described above for all combined hormonal contraception, plus:

- Adherence; user must remember to take pill daily (for most pill packs)

## Counseling Messages

- Adherence is an important factor for success with this method. (Providing a prescription that lasts at least a year and can be filled 3 months at a time can help support consistent use.)
- Patients who use COCs should obtain emergency contraception (EC) in advance. (Note that patients who are less than 17 years old will need a prescription for EC.)
- Non-hormonal back-up contraception is needed for the first 7 days if COCs are started any day other than day 1 of the menstrual cycle.
- This method does not protect against STIs.

# Extended or Continuous Use of Combined Hormonal Contraceptive Pills

## Description

- Extended hormonal contraception delays menstruation; continuous use eliminates menstruation. When COCs were first introduced in the 1960s, social, cultural, and religious pressures favored associating pills with a “natural” cycle whereby hormone withdrawal for 7 days was followed by bleeding. The standard 21/7 COC regimen continues to be prescribed, although there is no known medical benefit to routine monthly bleeding.
- Pregnancy risk is highest when a woman misses more than 7 days of pills.
- Extended-regimen contraception has been used for years to relieve menstrual-related complaints and to treat women with menorrhagia, dysmenorrhea, endometriosis, chronic pelvic pain, and anemia.<sup>21</sup> Menstrual suppression through continuous COC use is associated with reduction in menstrual migraines, endometriosis, and acne and an improved sense of well-being.<sup>22</sup>
- Extended or continuous regimens are useful for women who want convenience for their menstruation, including women who travel, are on deployment in the military, or seek more control regarding the timing of menstruation.



## Use

- Seasonale<sup>®</sup>, Seasonique<sup>®</sup>, and Lybrel<sup>®</sup> are products approved for extended or continuous contraception.
- Seasonale contains 84 days of active pills and 7 days of inactive pills.
- Seasonique contains 84 days of active pills and 7 days of low-dose estrogen pills.
- Lybrel contains a full year of active pills with no inactive pills.

- Traditional COCs, vaginal ring, and transdermal patch also can be dosed continuously, but the Food and Drug Administration (FDA) has not approved this indication for these methods. When conventional COCs are used, three pill packs (63 active pills followed by a 7-day hormone-free interval) are usually prescribed.

## Effectiveness

As described previously for combined oral contraceptive pills.

## Risks, Side Effects, and Contraindications

As described previously for all combined hormonal contraception. In addition, there is an increase in breakthrough bleeding during the first few cycles of use as the body adjusts to the new hormone balance.<sup>23</sup>

## Advantages

As described previously for all combined hormonal contraception, plus:

- Delay or elimination of menstruation
- Ability to adjust cycle at particular times, for life events, or based on preference

## Disadvantages

As described previously for all combined hormonal contraception.

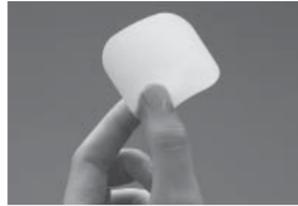
## Counseling Messages

- It is not necessary to bleed every month when using hormonal contraceptives. Neither menstrual blood nor iron builds up with hormonal methods.<sup>24</sup>
- Extended use of COCs is safe.
- Monthly menses is not proof of lack of pregnancy; accurate pregnancy tests are available for those who need reassurance.
- Unscheduled bleeding will lessen over time.
- This method does not protect against STIs.

# Transdermal Contraceptive Patch

## Description

OrthoEvra® is a beige-colored, transdermal contraceptive patch applied once a week to a part of a woman's body, including the abdomen, buttock, upper outer arm, or upper torso (excluding breasts). The patch releases 150 mcg of a type of progestin called norelgestromin and 20 mcg of ethinyl estradiol. Three consecutive 7-day patches (21 days) are applied once a week, followed by 1 patch-free week per cycle. Although it is recommended that women put on a new patch after seven days, the patch contains up to 9 days' worth of contraceptive hormones.



## Use

Providers are encouraged to provide patients with an additional prescription for the contraceptive patch for use in case of detachment. The drug is mixed with the adhesive; therefore, patches that do not stick must be replaced to maintain therapeutic levels of hormone. The patch can be worn during exercise, showers, bathing, and swimming; adhesion is not affected by heat, humidity, or exercise.

## Effectiveness

- This method is very effective. The contraceptive efficacy of the transdermal patch is comparable to that of COCs.<sup>25</sup>
- The failure rate is 0.3 percent with perfect use and 9 percent with typical use.<sup>18</sup>
- Some evidence suggests that efficacy is slightly decreased in women who weigh more than 198 pounds; however, the patch is still a very effective method for these women.<sup>26</sup> In such cases, provider and patient will need to compare the benefits and drawbacks with those of other contraceptive options.

## Risks

Venous thromboembolism (see Dispelling Myths About the Contraceptive Patch and VTE box)

## Side Effects

As described previously for all combined hormonal contraception. In addition, skin irritation at the application site may occur in some users.

## Contraindications and Precautions

As described previously for all combined hormonal contraception.

## Advantages

As described previously for all combined hormonal contraception, plus:

- Extra protection built in; if a woman forgets to remove the patch after a week, serum hormone levels will remain in the contraceptive range for up to 2 additional days
- Potential for improved adherence

## Disadvantages

As described previously for all combined hormonal contraception, plus:

- Concern about visibility of patch for some women (may be considered an advantage to others)
- Possible skin reactions or detachment
- Possible slight increase in risk of VTE compared with COCs

## Counseling Messages

- The patch should be applied to clean, dry skin on the abdomen, buttock, upper outer arm, or upper torso (excluding breasts). It should not be placed in areas that receive a lot of friction, such as under bra straps.
- The patch must be changed weekly.
- When the patch is removed, it should be folded closed to reduce release of hormones and should be disposed of in the garbage. To avoid the release of hormones into the soil and water supply, a used patch should not be flushed down the toilet.

- Non-hormonal back-up contraception is needed for first 7 days if the patch is started any day other than day 1 of the menstrual cycle.
- If the patch falls off, a new patch should be applied immediately. If the patch was off for more than 24 hours, 7 days of back-up contraception is required.
- This method does not protect against STIs.

### Dispelling Myths About the Contraceptive Patch and VTE

- Based on prior data, the FDA created a bolded warning for OrthoEvra about increased risk of venous thromboembolism in 2005.
- In January 2008, the OrthoEvra label added new study results showing twice the VTE risk for the patch compared with COCs. However, this increase in relative risk of VTE should be viewed in context.
- The overall risk of VTE is small, approximately 100 cases per 100,000 per year.<sup>27</sup> For women 25 to 35 years old, the incidence is only 30 cases per 100,000 per year.
- The risk of VTE is significantly higher in pregnancy than from the patch.<sup>28</sup>
- Currently available evidence suggests that the risk of VTE with the contraceptive patch is similar to that observed with COCs.<sup>29</sup>
- In a case control study of women with VTE, contraceptive patch use was associated with a similar incidence of VTE as COCs with norgestimate and 30 mcg of ethinyl estradiol.<sup>30</sup> In this study, the incidence of VTE was 52.8 per 100,000 women-years among patch users and 41.8 per 100,000 women-years among COC users.
- Post-marketing data demonstrate a similar risk of VTE among patch users and COC users who are  $\leq 39$  years of age; the data could not rule out an increased risk of VTE among patch users  $\geq 40$  years old.<sup>31</sup>
- Health care providers should review with women their overall risk of VTE in light of the absolute and relative risk of VTE and the woman's individual situation.

# Vaginal Ring

## Description

The vaginal ring (NuvaRing<sup>®</sup>) is a flexible, transparent ring placed in the vagina. When inserted, the ring delivers 120 mcg of a type of progestin called etonorgestrel and 15 mcg of ethinyl estradiol per day to the systemic circulation over a 3-week period to inhibit ovulation. The vaginal ring contains 4 weeks of hormones. It comes in one size that fits most women; no fitting is required. The vaginal ring has one of the highest satisfaction rates among users.<sup>32</sup>



## Use

One ring is inserted into the vagina per cycle and remains in place continuously for 3 weeks, followed by a ring-free week. The old ring should be discarded in the foil packet provided and a new ring inserted after the ring-free week. Use of the ring can be started at any time during the menstrual cycle. For continuous-use contraception, the patient can change the ring every 4 weeks without taking a 1-week break.

## Effectiveness

- This method is very effective. The contraceptive efficacy of the vaginal ring is comparable to that of COCs and the patch.
- The failure rate is 0.3 percent with perfect use and 9 percent with typical use.<sup>18</sup>

## Risks

As described previously for all combined hormonal contraception.

## Side Effects

As described previously for all combined hormonal contraception. Events directly related to the ring, such as expulsion during intercourse or other times, and increased vaginal secretions are uncommon; less than 3 percent of women discontinue use due to such events. It is rare for the user or her partner to feel the ring during sexual intercourse. Irregular bleeding also is uncommon.<sup>33</sup>

## Contraindications

As described previously for all combined hormonal contraception, plus:

- Vaginal obstruction
- Lack of comfort with touching genitalia

## Advantages

As described previously for all combined hormonal contraception, plus:

- Convenient, once-a-month use
- Excellent cycle control from the first month of use for most women<sup>34</sup>
- Does not require special fitting
- Extra protection built in; if a woman forgets to remove the vaginal ring after 21 days, serum hormone levels will remain in the contraceptive range for up to 1 additional week
- Potential for improved adherence

## Disadvantages

As described previously for all combined hormonal contraception, plus:

- Patient must remember to remove ring after 3 weeks, then insert another after a 1-week break
- May increase normal vaginal secretions

## Counseling Messages

- The ring is easy to insert and can be placed anywhere in the vagina; however, the deeper the placement, the less likely it will be felt. (Providers can consider offering a trial ring in the office to help reassure women who are skeptical about comfort and ease of use.)
- After 3 weeks, the ring should be removed; 1 week later a new ring should be inserted.

- The ring can be inadvertently expelled from the vagina while during removal of a tampon or bowel and bladder emptying, especially with straining or constipation. Often women are not aware that the device has been expelled.
- Most women wear the ring during intercourse. It is rarely uncomfortable, it rarely interferes with intercourse, and few partners object.<sup>35</sup>
- If there is a problem with intercourse, the ring can be removed for up to 3 hours without loss of efficacy.
- Non-hormonal back-up contraception is needed for first 7 days if the ring is started on any day other than day 1 of the menstrual cycle.
- If the ring falls out, it should be rinsed with warm water and reinserted within 3 hours. Back-up contraception is required for 7 days if the ring remains out for more than 3 hours.
- This method does not protect against STIs.

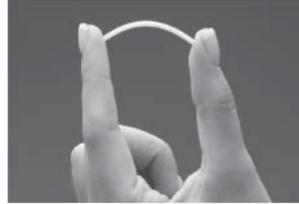
## Progestin-only Contraceptives

The levonorgestrel intrauterine system, a progestin-only contraceptive, is covered in the section on intrauterine contraception.

### Implant

#### Description

Implanon<sup>®</sup> is a progestin-only long-acting reversible contraceptive method. It consists of a single, matchstick-sized rod that contains the progestin etonogestrel (the same progestin contained in the vaginal ring). The implant is effective for 3 years and is a good contraceptive choice for women who cannot use estrogen.



#### Use

The contraceptive implant is inserted in the subdermal tissue of the inside aspect of the upper non-dominant arm. Once placed, it is not visible but is usually palpable. The rod must be inserted and removed by a trained provider. Because the insertion of the rod involves no incision, it is quick (less than 1 minute) and relatively painless.<sup>36</sup> The implant must be removed within 3 years of insertion—a procedure that takes about 3 minutes.

#### Effectiveness

This method is extremely effective, with a failure rate of 0.05 percent.<sup>18</sup>

#### Risks

There is no evidence of long-term effects such as deep vein thrombosis, anemia, or decreased bone mineral density (BMD); on the contrary, studies found that lumbar spine BMD improved.<sup>37</sup>

#### Side Effects

As with other progestin-only methods, irregular endometrial bleeding and amenorrhea are common. In clinical studies, the bleeding patterns observed in women were irregularly irregular<sup>38</sup> and included:

- Spotting (50 percent declining to 30 percent after 6 months)
- Amenorrhea (20 percent)
- Prolonged bleeding (20 percent declining to 10 percent after 3 months)
- Frequent irregular bleeding (<10 percent)
- Unpredictability of bleeding pattern over time<sup>39</sup>

## Contraindications and Precautions

### *Medical Eligibility Criteria for the Contraceptive Implant*

<p>Category 4 (unacceptable health risk if the contraceptive method is used)</p>	<ul style="list-style-type: none"> <li>• Current breast cancer</li> </ul>
<p>Category 3 (theoretical or proven risks usually outweigh the advantages of using the method)</p>	<ul style="list-style-type: none"> <li>• Ischemic heart disease or stroke (current or history of)—for continuing method (i.e., if heart disease worsens in a woman who is already using the contraceptive implant)</li> <li>• SLE (positive for antiphospholipid antibodies or status unknown)</li> <li>• Migraine with aura—for continuing method (i.e., if migraines worsen in a woman who is already using the contraceptive implant)</li> <li>• Unexplained vaginal bleeding prior to evaluation</li> <li>• Breast cancer in the past; no evidence of disease for 5 years</li> <li>• Severe cirrhosis</li> <li>• Malignant liver tumor</li> </ul>

Source: Reference 5

## Advantages

- Long-term method
- Discreet
- Very effective
- After up-front cost, cost-effective for term of use
- Rapidly reversible: after implant is removed, most women (94 percent) ovulate by 3 months; the majority ovulate within 3 weeks<sup>40</sup>
- Quick and easy insertion and removal procedures
- Can be inserted anytime during menstrual cycle when pregnancy can be excluded
- Non-contraceptive benefits, such as improved dysmenorrhea
- Lack of estrogen in the implant makes it appropriate for smokers older than age 35, postpartum breastfeeding women, and others with contraindications to estrogen

## Disadvantages

- Requires visit to trained clinician for insertion and removal
- Irregular bleeding patterns
- No protection against STIs

## Counseling Messages

- The implant provides 3 years of continuous pregnancy prevention and must be removed within 3 years; a new rod can be inserted at the time of removal.
- Once placed, the implant is not visible but is usually palpable. (Providers may want to show women the implant and briefly describe the insertion and removal process.)
- The contraceptive implant can cause bleeding irregularities, including amenorrhea.
- Non-hormonal back-up contraception is needed for the first 7 days after insertion.
- This method does not protect against STIs.

## Injectable

### Description

Depo-Provera® (depot medroxyprogesterone acetate, or DMPA) is a progestin-only method. It is a 3-month injectable that delivers either 104 mg (in the subcutaneous formulation) or 150 mg (in the intramuscular formulation) of medroxyprogesterone acetate to inhibit ovulation. DMPA is a good contraceptive choice for women who cannot use estrogen.



### Use

A provider administers the DMPA injection to the patient subcutaneously or intramuscularly every 3 months. DMPA can be administered up to 2 weeks early or 2 weeks late (i.e., 10 to 14 weeks after the last injection) without the need for a protective back-up contraceptive method. If it is more than 2 weeks late, the injection can be administered if the woman is reasonably certain that she is not pregnant. Additional contraceptive protection should be used for the next 7 days.<sup>41</sup>

### Effectiveness

This method is very effective.<sup>42</sup> The failure rate with perfect use is 0.2 percent and with typical use is 6 percent.<sup>18</sup> The convenience and high efficacy rate of DMPA have made this contraceptive method increasingly popular with teens.<sup>43</sup>

### Risks

Effects on bone (see box)

## Dispelling Myths About DMPA and Bone Health

In 2004, the FDA approved a “black box” warning regarding use of DMPA and loss of bone mineral density, based on clinical data showing a significant loss of BMD among women using DMPA.<sup>44</sup> Ample research evidence suggests that the effects of DMPA on bone health may be less concerning than originally believed.

- Premenopausal women who use DMPA for up to 5 years experience BMD loss similar to that associated with breastfeeding, and the loss is substantially reversed after cessation of DMPA.<sup>45</sup>
- The reliance on surrogate markers of bone loss may have heightened the concern about the effects of DMPA on bone; use of a surrogate endpoint (i.e., BMD) rather than a clinical endpoint (i.e., fracture) may have led to an inaccurate or overestimated assessment of the risks associated with DMPA.<sup>46</sup>
- Longer-term studies suggest that BMD may not be as affected by DMPA as suggested in studies of shorter duration. A 3-year observational study of established DMPA users  $\geq$  age 35 years (i.e., women who had attained peak bone mass) found that despite increased levels of bone turnover markers, BMD was not reduced in the hip or spine.<sup>47</sup>
- Experts have called for removal of the black box warning.
- The American Congress of Obstetricians and Gynecologists (ACOG) and the World Health Organization support long-term contraceptive use of DMPA for women 18–45 years old.<sup>48</sup>
- In an opinion published in October 2008, ACOG recommended that clinicians not allow concerns about the effects of DMPA on BMD to prevent their prescribing the contraceptive or limit use to 2 years.<sup>49</sup> Instead, clinicians should inform women about the relative benefits and risks so they can weigh the risk of fracture with the risk of unintended pregnancy. The opinion piece noted that the reduction in BMD associated with DMPA use is similar to that seen during pregnancy and breastfeeding (approximately 3 to 5 percent per year).
- Data on the effects of DMPA on bone health in individuals who have not yet attained peak bone health are not clear. The use of DMPA is designated category 1 or 2 for adolescents and perimenopausal women.<sup>5</sup>

## Side Effects

Side effects include weight gain and menstrual cycle changes. Nearly all women experience alterations in the menstrual cycle—irregular bleeding, spotting, or rarely, heavy bleeding. After 6 months, fewer women experience excessive or frequent bleeding, and more women experience amenorrhea. By 1 year, up to 70 percent of women have amenorrhea.<sup>50</sup>

## Contraindications and Precautions

### *Medical Eligibility Criteria for DMPA*

Category 4 (unacceptable health risk if the contraceptive method is used)	<ul style="list-style-type: none"><li>• Current breast cancer</li></ul>
Category 3 (theoretical or proven risks usually outweigh the advantages of using the method)	<ul style="list-style-type: none"><li>• Multiple risk factors for arterial cardiovascular disease (such as older age, smoking, diabetes, and hypertension)</li><li>• Hypertension (systolic <math>\geq 160</math> mm Hg or diastolic <math>\geq 100</math> mm Hg)</li><li>• Vascular disease</li><li>• Ischemic heart disease or stroke (current or history of)—for initiating or continuing method</li><li>• SLE (positive for antiphospholipid antibodies or status unknown; or if severe thrombocytopenia)</li><li>• Rheumatoid arthritis (designated category 2 if not on long-term corticosteroid treatment with a history of or risk factors for non-traumatic fractures)</li><li>• Migraine with aura—for continuing method (i.e., if migraines worsen in a woman who is already using DMPA)</li></ul>

- Unexplained vaginal bleeding prior to evaluation
- Breast cancer in past; no evidence of disease for 5 years
- Diabetes (only if nephropathy, retinopathy, neuropathy, or other vascular disease is present, or the duration of diabetes is >20 years)
- Severe cirrhosis
- Malignant liver tumor
- Certain antiretroviral and anticonvulsant medications (some are designated category 2)

Source: Reference 5

## Advantages

- Convenient, requires only four shots per year
- Discreet
- Very effective
- Reversible
- Amenorrhea (may improve conditions such as menorrhagia, dysmenorrhea, and iron deficiency anemia); may be a desired lifestyle change; can also decrease the risk of dysfunctional menstrual bleeding in women who are overweight
- Lack of estrogen in DMPA makes it appropriate for smokers older than age 35, postpartum breastfeeding women, and others who have contraindications to estrogen
- Reduces the risk of endometrial cancer by up to 80 percent, with continuing protection after discontinuation<sup>51</sup>
- Reduces risk of PID<sup>52</sup> and uterine leiomyomata<sup>53</sup>
- Can decrease the number and severity of crises in patients who have sickle cell anemia<sup>54</sup>
- Can decrease frequency of seizures and does not interact with anti-epileptic medications<sup>55</sup>

## Disadvantages

- Requires visit to clinician for quarterly injection
- Initial irregular bleeding
- Weight gain may occur in some women due to increased appetite, particularly those who are sedentary or overweight when they begin to use DMPA<sup>56</sup> (Weight gain of 5 percent or more in the first 6 months of use may signal risk of continued weight increase while on DMPA<sup>57</sup>)
- Short-term, reversible BMD loss
- Delayed return to fertility: the median time to conception for those who do conceive is 10 months after the last injection, much longer than with other hormonal methods
- No protection against STIs

## Counseling Messages

- Bleeding profile improves over time; amenorrhea, which occurs in about half of users after 1 year of use, may be an advantage or disadvantage, depending on the woman.<sup>58</sup>
- It is important to consider genetic and lifestyle factors that contribute to osteoporosis when weighing the benefits and risks of DMPA.
- It is important to promote bone health with weight-bearing exercise, intake of calcium and vitamin D, avoidance of tobacco, and limits on alcohol.
- Non-hormonal back-up contraception is needed for the first 7 days.
- This method does not protect against STIs.

# Progestin-Only Oral Contraceptives

## Description

Two formulations are available: one contains 0.35 mg of norethindrone, the other contains 0.075 mg of norgestrel. The primary mechanism of action is thickening of the cervical mucus.

## Use

The efficacy of progestin-only pills is highly dependent on consistent use; it is critical that women take the pill at the same time (i.e., within 3 hours) every day. There is no placebo week with progestin-only pills.

## Effectiveness

Often called “mini-pills,” progestin-only pills are a good contraceptive choice for women who cannot use estrogen.<sup>59</sup>

This method is highly effective, with a failure rate of 0.3 percent with perfect use and 9 percent with typical use.<sup>18</sup>

## Risks

None.

## Side Effects

- The primary side effect of progestin-only oral contraceptives is irregular menstrual bleeding—spotting or breakthrough bleeding, amenorrhea, or shortened cycles.
- Irregular bleeding decreases in many users by cycle 12.
- Less common side effects include headache, breast tenderness, and dizziness.

## Contraindications and Precautions

### *Medical Eligibility Criteria for Progestin-only Pills*

Category 4

(unacceptable health risk if the contraceptive method is used)

- Current breast cancer

Category 3  
(theoretical or proven risks usually outweigh the advantages of using the method)

- History of bariatric surgery with a malabsorptive procedure (e.g., gastric bypass)
- Ischemic heart disease or stroke (current or history of)—for continuing method
- SLE (positive for antiphospholipid antibodies or status unknown)
- Migraine with aura—for continuing method (i.e., if migraines worsen in a woman who is already using progestin-only pills)
- Breast cancer in the past; no evidence of disease for 5 years
- Severe cirrhosis
- Malignant liver tumor
- Certain antiretroviral and anticonvulsant medications (some are designated category 2)
- Rifampin or rifabutin therapy

Source: Reference 5

## Advantages

- Discreet
- Effective
- Rapidly reversible
- Easy to use, start, and stop
- No associated nausea
- Lack of estrogen in progestin-only pills makes the method appropriate for smokers older than age 35, postpartum breastfeeding women, and others with contraindications to estrogen
- Provides protection against uterine and ovarian cancer, benign breast disease, PID

## Disadvantages

- Requires a prescription
- Adherence can be challenging; user must remember to take pill at same time daily
- Initial irregular bleeding
- No protection against STIs

## Counseling Messages

- The progestin-only pill must be taken at the same time each day.
- If a pill is more than 3 hours late, a back-up method of contraception should be used for at least the next 48 hours.
- Patients using progestin-only pills should obtain emergency contraception in advance. (Note that patients who are less than 17 years old will need a prescription for EC.)
- A range of bleeding disturbances may occur with progestin-only pills—from amenorrhea to irregular, frequent, or prolonged bleeding.
- The irregular bleeding pattern is likely to improve within a few months of pill initiation.
- If bleeding is heavy or particularly bothersome, women should contact their health care provider.
- This method does not protect against STIs.

## Initiation of Hormonal Contraceptives

The World Health Organization (WHO), Planned Parenthood, and American Congress of Obstetricians and Gynecologists support unbundling services and not linking the provision of contraception with a pelvic exam, Pap test, or STI screening.<sup>60</sup>

- COCs are not linked to cervical cancer or infection—no need for Pap smear or STI screening before COCs are started or for continuing method.<sup>61</sup>
- Pelvic exams are not required for starting or continuing hormonal contraception.<sup>62</sup>
- ACOG recommends first Pap test at age 21 regardless of start age for sexual activity; many institutions follow ACOG guidelines.<sup>63</sup>
- WHO guidelines state that measuring blood pressure before starting COCs is desirable.<sup>64</sup> COCs are not teratogenic and will not produce adverse fetal effects if the patient is pregnant.

Providers should consider starting the contraceptive method on any day during the menstrual cycle, rather than restricting initiation to the subsequent Sunday or day 1 of the cycle. Initiation on any day of the cycle is referred to as the Quick Start method.

- Quick Start provides patients with protection from unplanned pregnancy faster and more reliably.
- Conventional initiation of hormonal contraception within 5 days of the beginning of the next menstrual cycle may mean a delay of several weeks between the time a woman receives her prescription and starts contraceptive use. With the old approach, women have additional exposure to pregnancy risk, and up to 25 percent of women never begin COCs after they receive the prescription.<sup>64</sup>
- Quick Start significantly improves the continuation rate for COCs, reduces the likelihood of a potential unplanned pregnancy, and results in better adherence at 3 months among adolescents.<sup>65</sup>

- Women who use Quick Start do not experience significant differences in the number of bleeding-spotting days or any other bleeding parameter compared with those who start on a conventional schedule.<sup>66</sup>

To use Quick Start:

- If the last menstrual period (LMP) was within the last 5 days, the method can be started immediately.
- If LMP was more than 5 days ago and a pregnancy test is negative, assess the last episode of unprotected sex to determine if EC is required before the woman starts the method.
- If the woman had unprotected sex within the last 2 weeks, start the contraceptive method and advise the patient to return for a pregnancy test in 3 weeks.
- Instruct women who are using the pill, patch, ring, injection, LNG IUS, or implant whose LMP was more than 5 days ago to use back-up contraception for the first 7 days.
- If IUC is the choice, the provider should consider the possibility of an early undetected pregnancy. IUC poses a risk to the pregnancy (and thus is designated MEC category 4), whereas the other Quick Start contraceptive methods do not.

**Table 1: Management of Incorrect Use, by Method** <sup>41,67,68</sup>

### Combined Oral Contraceptive Pills

- For pills with 30–35 mcg ethinyl estradiol:
  - If one or two active pills are missed: the woman should take an active pill as soon as possible and continue taking pills daily, one each day; additional contraception is not needed.
  - If three or more active pills are missed: the woman should take an active pill as soon as possible and continue taking pills daily, one each day; she should use additional contraception until she has taken active pills for 7 days in a row; if the missed pills are in the third week of the pack, the woman should finish the current pack without taking the inactive pills and start a new pack the next day.
  - If inactive pills are missed: the woman should discard the missed pills and continue taking pills daily, one each day.
- For pills with 20 µg or less ethinyl estradiol:
  - If one active pill is missed: the woman should take an active pill as soon as possible and continue taking pills daily, one each day; additional contraception is not needed.
  - If two or more active pills are missed: the woman should take an active pill as soon as possible and continue taking pills daily, one each day; the woman should use additional contraception until she has taken active pills for 7 days in a row; if the missed pills are in the third week of the pack, she should finish the current pack without taking the inactive pills and start a new pack the next day.
  - If inactive pills are missed: the woman should discard the missed pills and continue taking pills daily, one each day.

### Progestin-Only Pills

- The woman should take the missed pill as soon as possible and continue taking pills daily, one each day.
- Use of back-up method for 7 days is recommended if the pill is taken more than 3 hours past the regular time.

### Transdermal Patch

- Use of back-up method for 1 week is recommended if the patch has been off more than 7 days during the patch-free week or falls off and is not reattached within 24 hours.
- Use of back-up method for 1 week is also recommended if the patch is applied late in the first week or more than 2 days late in the second or third week (the patch contains 9 days' worth of medication).

### Vaginal Ring

- Use of back-up method for one week is recommended if the ring has been in more than 4 weeks, out more than 7 days during the patch-free week, or falls out and is not reinserted within 3 hours.
- If the ring is left in for more than 3 weeks but less than 4 weeks, the woman should remove the ring and insert a new ring after 7 days; back-up contraception is not needed.

# Intrauterine Contraception

## Description

Intrauterine contraception (IUC), also referred to as an intrauterine device (IUD) or intrauterine system (IUS), is a long-acting reversible contraceptive method that involves the placement of a small T-shaped device inside the uterus. Two IUC methods are available: the Copper T 380A (brand name ParaGard®) and the levonorgestrel intrauterine system (LNG IUS; brand name Mirena®). Because IUCs use either non-hormonal ingredients or progestin to prevent fertilization, they are a good contraceptive choice for women who cannot use estrogen. IUDs have one of the highest satisfaction and continuation rates among patients.<sup>32</sup>

## Copper T IUD

- The Copper T IUD contains polyethylene with copper along the vertical stem and horizontal arms.
- A polyethylene string is secured to the device, allowing for easy removal.
- The Copper T IUD is approved for 10 years of use, although studies have shown it to be effective for as long as 20 years.<sup>69</sup>
- The device causes an immune response that creates a hostile environment for sperm, thereby preventing fertilization of an ovum.
- In addition, it appears that the device also disrupts the normal division of oocytes and the formation of fertilizable ova.<sup>70</sup>



## LNG IUS

- Once placed in the uterus, the LNG IUS initially releases 20 mcg LNG/day; the rate decreases progressively to 10 mcg/day after 5 years.
- The LNG IUS thickens the cervical mucus and inhibits sperm motility and function.<sup>71</sup>
- The endometrial atrophy caused by the high LNG levels leads to a substantial decrease in menstrual flow and absence of bleeding in some women.



## Use

### Copper T IUD

- The Copper T IUD can be used off-label as emergency contraception. It can be inserted up to 5 days after unprotected intercourse and reduces the risk of pregnancy by more than 99%.<sup>72</sup>

### LNG IUS

- The LNG IUS is approved for 5 years of use, although data demonstrate that it is effective for up to 7 years.<sup>73</sup>

## Effectiveness

- IUC is extremely effective.
- The Copper T IUD is effective immediately after insertion and has a failure rate of 0.8 percent with typical use.<sup>18</sup>
- The LNG IUS is effective 7 days after insertion and has a failure rate of 0.2 percent with typical use.<sup>18</sup>

## Risks

- Complications associated with IUC include uterine perforation during the insertion procedure.
- Expulsion of the device occurs in 2 to 10 percent of users within the first year.<sup>58</sup>
- Expulsion may be more common in nulliparous women.<sup>58</sup>
- Because bacteria may be introduced into the uterus during IUC insertion, there is a slight increased risk of infection during the first month of use.
- IUC poses no increased risk of infections (i.e. or PID-associated infertility) beyond the first month of use.<sup>74</sup>
- Providers can consider obtaining gonorrhea and chlamydia cultures for women at risk of STIs at the time of IUC insertion. If results are positive, antibiotic treatment should be started, but there is usually no need to remove the device.<sup>41</sup>

## Dispelling Myths About Intrauterine Contraception

IUC can be safely used in:

- Women with multiple partners
- Teens
- Women who are immediately postpartum/postabortion
- Women with a history of STI or PID
- Nulliparous women
- Women with a history of ectopic pregnancy

### Side Effects

- The copper-containing IUD increases the duration and amount of menstrual bleeding, resulting in approximately 50 percent greater blood loss.<sup>75-77</sup>
- For LNG IUS users, bleeding patterns are unpredictable, with frequent light bleeding for the first 3 months after insertion.<sup>78</sup> By 3–6 months, most women experience dramatically reduced bleeding. About one-third of women will have amenorrhea after 12 months.<sup>79</sup>

### Contraindications and Precautions

#### Copper T IUD

#### *Medical Eligibility Criteria for Copper T IUD*

Category 4 (unacceptable health risk if the contraceptive method is used)	<ul style="list-style-type: none"><li>• Pregnancy</li><li>• Puerperal sepsis</li><li>• Unexplained vaginal bleeding—for initiating method (designated category 2 for continuing method)</li><li>• Gestational trophoblastic disease (designated category 3 if <math>\beta</math>-hCG levels are decreasing or undetectable)</li><li>• Cervical cancer awaiting treatment (designated category 2 for continuing method)</li></ul>
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	<ul style="list-style-type: none"> <li>• Current endometrial cancer (designated category 2 for continuing method)</li> <li>• Anatomical abnormality of uterus (designated category 2 if no distortion of uterine cavity or interference with IUD insertion)</li> <li>• Current PID—for initiating method (designated category 2 for continuing method)</li> <li>• Current purulent cervicitis, chlamydial infection, or gonorrhea—for initiating method (designated category 2 for continuing method); also designated category 2 if other STI or vaginitis is present)</li> <li>• Pelvic tuberculosis—for initiating method (designated category 3 for continuing method)</li> </ul>
<p>Category 3 (theoretical or proven risks usually outweigh the advantages of using the method)</p>	<ul style="list-style-type: none"> <li>• SLE with severe thrombocytopenia—for initiating method (designated category 2 for continuing method)</li> <li>• Increased risk for STIs (designated category 2 if low personal risk for gonorrhea or chlamydial infection)</li> <li>• Solid organ transplantation with complications—for initiating method (designated category 2 for continuing method) or if uncomplicated)</li> <li>• AIDS—for initiating method (designated category 2 for continuing method or if clinically well on antiretroviral therapy)</li> <li>• Antiretroviral therapy—for initiating method (designated category 2 if clinically well on therapy or for continuing method)</li> </ul>

Source: Reference 5

## LNG IUS

### *Medical Eligibility Criteria for LNG IUS*

#### Category 4

(unacceptable health risk if the contraceptive method is used)

- Pregnancy
- Puerperal sepsis
- Immediate postseptic abortion
- Unexplained vaginal bleeding—for initiating method (designated category 2 for continuing method)
- Gestational trophoblastic disease (designated category 3 if  $\beta$ -hCG levels are decreasing or undetectable)
- Cervical cancer awaiting treatment—for initiating method (designated category 2 for continuing method)
- Current breast cancer (designated category 3 if no evidence of disease for 5 years)
- Current endometrial cancer (designated category 2 for continuing method)
- Anatomical abnormality of uterus (designated category 2 if no distortion of uterine cavity or interference with IUD insertion)
- Current PID—for initiating method (designated category 2 for continuing method)
- Current purulent cervicitis, chlamydial infection, or gonorrhea—for initiating method (designated category 2 for continuing method; also designated category 2 if other STI or vaginitis is present)
- AIDS—for initiating method (designated category 2 if clinically well on antiretroviral therapy or for continuing method)
- Pelvic tuberculosis—for initiating method (designated category 3 for continuing method)

Category 3  
(theoretical or proven risks usually outweigh the advantages of using the method)

- Ischemic heart disease (current or previous)—for continuing method (designated as category 2 for initiating method)
- SLE (positive for antiphospholipid antibodies or status unknown; designated category 2 if antiphospholipid antibodies are known to be negative)
- Migraine with aura—for continuing method (designated category 2 for initiating method)
- Increased risk for STIs (designated category 2 if low personal risk for gonorrhea or chlamydial infection)
- Severe cirrhosis
- Liver tumors
  - Malignant
  - Hepatocellular adenoma (designated category 2 if focal nodular hyperplasia is present)
- Solid organ transplantation with complications—for initiating method (designated category 2 for continuing method or for no complications)
- Antiretroviral therapy—for initiating method (designated category 2 if clinically well on therapy or for continuing method)

Source: Reference 5

## Advantages of IUC

- Long-term method (10 to 20 years for Copper T IUD; 5 to 7 years for LNG IUS)
- Discreet
- Extremely effective
- After up-front cost, cost-effective for term of use
- Rapid return to fertility after removal

- Can be inserted any time during menstrual cycle when pregnancy can be excluded
- Can be inserted immediately after abortion or delivery (i.e., after placenta is delivered) or as long as 4 weeks afterward
- Lack of estrogen makes IUC appropriate for smokers older than age 35, postpartum women who are breastfeeding, and others with contraindications to estrogen.
- LNG IUS may reduce menstrual symptoms in women who have uterine fibroids or adenomyosis<sup>80,81</sup> and may reduce menstrual blood loss in women at risk for anemia.
- Copper T IUD provides a hormone-free option for women.

### Disadvantages

- Requires visit to trained clinician for insertion and removal
- Some risk of expulsion within first year
- No protection against STIs

### Counseling Messages

- IUC is an excellent contraceptive choice for women who desire a highly effective and long-term but reversible method of contraception.
- Women who want reassurance about the placement of the IUD can check for presence of the string, although checking on a regular basis is not necessary.
- It is important for women to be aware of the warning signs of expulsion and infection.
- Follow-up visits after IUC insertion are important.
- Women should use back-up contraception for 7 days after insertion of IUC.
- This method does not protect against STIs.

## Barrier Methods

### Male Condom

#### Description

The male condom is a thin sheath made of latex, natural animal membrane, polyurethane, silicone, or other synthetic material that fits over the erect penis.

During ejaculation, the condom catches semen to prevent it from entering the vagina and cervix. Latex and other synthetic condoms reduce the risk of transmission of STIs, including HIV. In contrast, natural animal condoms offer no protection against STIs. Condoms can be purchased at pharmacies and some other retail shops.



#### Use

- The rolled-up condom is placed on the tip of the erect penis. A small pouch at the condom tip accommodates ejaculated semen and is grasped while the condom is unrolled over the penis.
- Immediately after ejaculation, the condom should be grasped at the base of the penis before withdrawal from the vagina to avoid leakage.
- A new condom should be used for each act of sex.
- Spermicide provides no additional benefit to condoms and are not recommended with condoms.

#### Effectiveness

- This method is effective. With consistent and correct use, condoms have a failure rate of 2 percent. The typical use effectiveness rate is about 18 percent.<sup>18</sup>
- Effectiveness can be enhanced when both women and men understand how to discuss condom use with their partners.
- Condoms should not be used with nonoxynol-9 spermicides, because these products can cause vaginal and rectal irritation, which may increase the risk of HIV infection.<sup>82</sup>

#### Risks

None

## Side Effects

None

## Contraindications and Precautions

Allergy to latex

## Advantages

- Over-the-counter availability
- Easy to use
- Easily reversible
- Reduction of the risk of transmission of STIs, including HIV

## Disadvantages

- Lower efficacy than some other non-barrier methods with typical use
- Required with every act of intercourse
- Use depends on cooperation of male partner
- Reduced male sensation

## Counseling Messages

- Condoms both provide contraception and reduce the risk of transmission of STIs, including HIV.
- Simultaneous use of the male condom and the female condom is not recommended.
- Patients who use another contraceptive method and are at risk for STI transmission should also use male (or female) condoms for STI prevention.
- Correct use of condoms is essential to their effectiveness. (Providers should educate patients about correct use and strategies for negotiating condom use with partners.)
- Condoms should be used for all sexual activities that can transmit STIs.
- Oil-based lubricants should never be used with condoms.

- Spermicides such as nonoxynol-9 should not be used with condoms; irritation from nonoxynol-9 has been shown to increase the risk of HIV transmission.<sup>82</sup>
- It is important to check the expiration date on the condom packaging, because latex degrades over time and condoms more likely to break if used after their expiration date.
- Patients who use condoms should obtain EC in advance. (Note that patients who are less than 17 years old will need a prescription for EC.)

# Female Condom

## Description

The female condom (FC) is a polyurethane (FC1®) or nitrile (FC2®) sheath with a closed flexible ring on one end and an open-ended ring on the other. FCs are coated inside and outside with a silicone-based lubricant. During ejaculation, the condom catches semen to prevent it from entering the vagina and cervix. FCs can be purchased at pharmacies.



## Use

- The closed end of the female condom is inserted into the vagina and positioned snugly between the posterior fornix and the pubic bone. The open end lies outside the vaginal opening.
- The female condom can be inserted up to 8 hours before intercourse. It is removed and discarded immediately after intercourse.
- Female condoms and male condoms should not be used simultaneously because they can adhere to each other and cause slippage or breakage of one or both devices.

## Effectiveness

- This method is effective. With consistent and correct use, female condoms have a failure rate of 5 percent. With typical use, the rate is much higher, about 21 percent.<sup>18</sup>

## Risks

None

## Side Effects

None

## Contraindications and Precautions

None

## Advantages

- Only woman-controlled method that reduces the risk of transmission of STIs, including HIV<sup>82</sup>
- Over-the-counter availability
- Easily reversible
- Can be inserted ahead of time to avoid interruption during sex
- Can be used during menses

## Disadvantages

- Lower efficacy than some other non-barrier methods with typical use<sup>84</sup>
- Less discreet than other methods
- Vaginal discomfort, penile irritation
- Required with every act of intercourse
- May be noisy during intercourse

## Counseling Messages

- Condoms both provide contraception and reduce the risk of transmission of STIs, including HIV.
- Patients who use another contraceptive method and are at risk for STI transmission should also use male (or female) condoms for STI prevention.
- Correct use of condoms is essential to their effectiveness. (Providers should educate patients about correct use and strategies for negotiating condom use with partners. They should also provide patients with an opportunity to practice inserting and removing the condom during the clinic visit, if possible.)
- Condoms should be used for all sexual activities that can transmit STIs.
- Oil-based lubricants should never be used with condoms.
- Spermicides such as nonoxynol-9 should not be used with condoms; irritation from nonoxynol-9 has been shown to increase the risk of HIV transmission.<sup>82</sup>

- Simultaneous use of the male condom and the female condom is not recommended.
- It is important to check the expiration date on the condom packaging, because latex degrades over time and condoms more likely to break if used after their expiration date.
- Patients who use condoms should obtain emergency contraception in advance. (Note that patients who are less than 17 years old will need a prescription for EC.)

# Diaphragm

## Description

The diaphragm is a flexible latex or silicone dome-shaped device filled with spermicide and inserted into the upper vagina covering the cervix. It creates a spermicidal barrier at the cervical opening.



## Use

Diaphragms require a prescription and a fitting for the correct size, ranging from 50 to 95 mm diameter. They should be refitted after:<sup>85</sup>

- Full-term pregnancy
- Abdominal or pelvic surgery
- Miscarriage, or abortion after 14 weeks of pregnancy
- Weight change after pregnancy of 20 percent or more

The clinician should teach each patient how to apply spermicide to the device, insert it, and check it for correct placement.

Women should practice inserting and removing the device in the clinician's office until they feel comfortable. They should also learn how to check the diaphragm for tears and holes before each use and to clean and store the device properly.

Women can insert the diaphragm up to 6 hours before intercourse and should leave it in place for at least 6 hours but no more than 24 hours after the last act of intercourse. If the patient has additional acts of intercourse before 6 hours have elapsed, she should insert fresh spermicide onto the rim of the diaphragm with her finger without removing the device. She should not rinse the vagina or douche while wearing the diaphragm and for at least 6 hours after the last act of intercourse.

## Effectiveness

This method is effective. With correct and consistent use, the failure rate is 6 percent. Typical use is associated with a 12 percent failure rate.<sup>18</sup>

## Risks

The incidence of urinary tract infections (UTIs), bacterial vaginosis, and vaginal candidiasis may be increased in some women who use a diaphragm.<sup>86,87</sup>

## Side Effects

None

## Contraindications and Precautions

### *Medical Eligibility Criteria for the Diaphragm*

Category 4 (unacceptable health risk if the contraceptive method is used)	<ul style="list-style-type: none"><li>• High risk for HIV infection</li></ul>
Category 3 (theoretical or proven risks usually outweigh the advantages of using the method)	<ul style="list-style-type: none"><li>• HIV infection or AIDS</li><li>• History of toxic shock syndrome</li><li>• Antiretroviral therapy</li><li>• Allergy to latex</li><li>• Allergy to spermicides</li></ul>

Source: Reference 5

## Advantages

- Relatively discreet (can be inserted ahead of time)
- Easily reversible
- After up-front cost, relatively low ongoing cost for spermicide
- After initial fitting and instruction, no need for repeated visits to health care provider other than for replacement every 2 years

## Disadvantages

- Requires prescription
- Required with every act of intercourse
- Lower efficacy than some other methods with typical use
- Increased risk of UTIs and vaginal infections
- For some women, difficulty in learning insertion and removal techniques
- No protection against STIs

## Counseling Messages

- Consistent and correct use is essential to the effectiveness of the diaphragm.
- Oil-based lubricants damage latex and therefore should never be used with the latex diaphragm.
- This method does not protect against STIs.

## Cervical Cap

### Description

The cervical cap is a small, bowl-shaped device that fits snugly over the cervix and has a strap for easy removal. The FemCap® silicone cervical cap is the only cervical cap that is



currently available in the United States. Like the diaphragm, the cervical cap is designed for use with spermicide. It works by creating both a physical and a spermicidal barrier at the opening of the cervix. The FemCap is available in three sizes (22, 26, and 30 mm as measured by the inner diameter of the rim).

### Use

To use the cervical cap, a woman places spermicide inside the bowl and the groove around the outside of the device and inserts the device into the vagina. The cap is pressed up against the cervix to form a snug seal. There is no need to insert more spermicide with additional acts of intercourse.

After the last act of intercourse, the cap should be left in place for at least 6 hours. The cervical cap should not be worn for more than 48 hours. In addition, FemCap is not recommended for use during menstruation. Women should not rinse the vagina or douche while wearing the cervical cap and for at least 6 hours after the last act of intercourse.

The 22 mm cap is intended for women who have never been pregnant. The 26 mm is intended for women who have been pregnant—even if for a short duration (i.e., 2 weeks and did not have a vaginal delivery). The 30 mm is intended for women who had a vaginal delivery of a full-term baby. The FemCap requires a prescription from a clinician (for more information, visit [www.femcap.com/clinician-information.html](http://www.femcap.com/clinician-information.html)).

### Effectiveness

- This method is somewhat effective. The failure rate for the older (Prentif™ Cavity-Rim Cervical Cap) is about 9 percent with perfect use and 20 percent with typical use among nulliparous women, and about 26

percent with perfect use and 40 percent with typical use among women who have had a vaginal delivery.<sup>58</sup>

- Effectiveness data for first generation FemCap showed a failure rate of 14 percent among nulliparous women and 29 percent among women who have had a vaginal delivery.<sup>88</sup>

## Risks

Increased risk of bacterial vaginosis and vaginal candidiasis<sup>89</sup>

## Side Effects

None

## Contraindications and Precautions

### *Medical Eligibility Criteria for the Cervical Cap*

Category 4 (unacceptable health risk if the contraceptive method is used)	<ul style="list-style-type: none"><li>• High risk for HIV infection</li></ul>
Category 3 (theoretical or proven risks usually outweigh the advantages of using the method)	<ul style="list-style-type: none"><li>• HIV infection or AIDS</li><li>• History of toxic shock syndrome</li><li>• Antiretroviral therapy</li><li>• Allergy to latex</li><li>• Allergy to spermicides</li></ul>

Source: Reference 5

## Advantages

- Relatively discreet (can be inserted ahead of time)
- Easily reversible
- After up-front cost, relatively low ongoing cost for spermicide
- After initial fitting and instruction, no need for repeated visits to health care provider other than for a new size

## Disadvantages

- Requires prescription
- Required with every act of intercourse
- May cause pain or discomfort with intercourse<sup>90</sup>
- Lower efficacy than other methods with typical use
- Increased risk of certain vaginal infections
- For some women, difficulty in learning insertion and removal techniques
- No protection against STIs

## Counseling Messages

- Consistent and correct use is key to effectiveness with the cervical cap.
- This method does not protect against STIs.

## Sponge

### Description

The vaginal sponge is a small, circular, polyurethane sponge that contains 1 gram of nonoxynol-9 spermicide. The sponge has a dimple on one side that fits over the cervix and a loop on the opposite side for removal. The vaginal sponge can be purchased at a pharmacy.



### Use

The sponge is intended for one-time use only. It is moistened with tap water before use, squeezed once to evenly distribute the spermicide, and inserted into the vagina with the dimpled side fit against the cervix. There is no need for repeated applications of spermicide with additional acts of intercourse.

The sponge remains effective for up to 24 hours after insertion, regardless of the number of times intercourse occurs during that time. After the last act of intercourse, it should be left in place for at least 6 hours but for no more than 24–30 hours (i.e., if the last act of intercourse occurs 24 hours after insertion, it should be left in place for another 6 hours and then removed), because the risk of toxic shock syndrome (TSS) increases after that time. Women should not rinse the vagina or douche while wearing the sponge and for at least 6 hours after the last act of intercourse. Some women have difficulty with proper placement and/or removal of the sponge.

### Effectiveness

- This method is effective.
- The sponge is less effective in gravid women. In nulliparous women, the failure rate is 9 percent with perfect use and 12 percent with typical use.<sup>18</sup>
- In gravid women, the failure rate is 20 percent with perfect use and 24 percent with typical use.<sup>18</sup>

## Risks

Increased risk of yeast infections and TSS if sponge is left in place for longer than 24–30 hours.

## Side Effects

Some women experience vaginal dryness with sponge use.

## Contraindications and Precautions

Allergy to spermicides

## Advantages

- Relatively discreet (can be inserted ahead of time)
- Over-the-counter availability
- Easily reversible

## Disadvantages

- Required with every act of intercourse
- Lower efficacy than some other methods with typical use
- Increased risk of yeast infection and TSS if sponge is left in too long
- No protection against STIs

## Counseling Messages

- Because it is much less effective in gravid women, the vaginal sponge is a better contraceptive choice for women who have never been pregnant.
- The sponge should not be left in place for longer than the recommended time.
- There is an increased risk of TSS if the sponge is left in too long. (Providers should educate patients about the signs of TSS.)
- This method does not protect against STIs.

# Spermicides

## Description

Spermicides are creams, foams, gels, suppositories, and films that contain a chemical lethal to sperm. They can be used alone or together with a barrier method. Some condoms can be purchased at the pharmacy over the counter; others are available in the family planning aisle of pharmacies and retail stores.



## Use

Creams, foams, and gels are placed high up in the vagina, near the cervix, with a plastic plunger-type applicator. Spermicidal suppositories and films are inserted into the vagina and take 10–15 minutes to dissolve and become effective. Spermicides can be applied up to 1 hour before intercourse and must be reapplied with each act of intercourse. Women should not rinse the vagina or douche for at least 6 hours after the last act of intercourse.

## Effectiveness

This method is somewhat effective. Spermicides have a failure rate of 18% with perfect use and 28% with typical use.<sup>18</sup>

## Risks

Possible mucosal damage to the vagina and cervix with high or prolonged exposure<sup>91</sup>

## Side Effects

Increased risk of vaginal irritation, yeast infection, bacterial vaginosis, UTI, and HIV transmission with frequent use (twice daily or more).<sup>92</sup>

## Contraindications and Precautions

### *Medical Eligibility Criteria for Spermicides*

Category 4 (unacceptable health risk if the contraceptive method is used)	<ul style="list-style-type: none"><li>• High risk for HIV infection</li></ul>
Category 3 (theoretical or proven risks usually outweigh the advantages of using the method)	<ul style="list-style-type: none"><li>• HIV infection or AIDS</li><li>• Antiretroviral therapy</li><li>• Allergy to spermicides</li></ul>

Source: Reference 5

### Advantages

- Over-the-counter availability
- Easy to use
- Easily reversible

### Disadvantages

- Lower effectiveness compared with most other contraceptive methods
- Increased risk of vaginal irritation and infection with prolonged use
- No protection against STIs

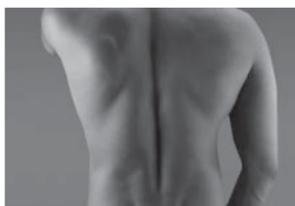
### Counseling Messages

- Spermicides can be used alone but are most effective when used with barrier methods.
- Spermicides do not protect against STIs.
- If used frequently, spermicides can increase the risk of vulvovaginal irritation, vaginal infection, and HIV transmission.

## Coitus Interruptus

### Description

With this method, commonly called “withdrawal,” the penis is withdrawn from the vagina before ejaculation occurs.



### Use

In withdrawal, the man withdraws his penis from the woman's vagina before he climaxes and ejaculates. The practice requires the man to be able to recognize when he is about to ejaculate and to withdraw the penis from the vagina and away from the woman's external genitalia in time. Withdrawal is often used by couples as a backup method to condoms or hormonal methods.<sup>92</sup>

### Effectiveness

- This method is effective. The pregnancy rate with this method appears to be similar to that of the male condom—approximately 4 percent with perfect use and 22 percent with typical use.<sup>18</sup>
- There is no evidence to support the common belief that pre-ejaculate fluid contains sperm.<sup>93</sup>

### Risks

None

### Side Effects

None

### Contraindications

None

### Advantages

- Readily available
- No cost
- No advance planning necessary

## Disadvantages

- Requires cooperation and self-control of male partner
- Lower efficacy than some other methods with typical use
- Required with every act of intercourse
- No protection against STIs

## Counseling Messages

- Withdrawal can be part of a larger risk-reduction strategy when used with hormonal, barrier, or other methods.
- Although not as effective as some contraceptive methods, it is substantially more effective than no contraception at all.
- Withdrawal can be discussed as a legitimate, if slightly less effective, contraceptive method just as condoms and diaphragms are.
- This method does not protect against STIs.
- Patients using withdrawal should obtain emergency contraception in advance. (Note that patients who are less than 17 years old will need a prescription for EC.)

## Fertility Awareness

### Description

A variety of contraceptive methods known variously as fertility awareness, natural family planning, rhythm, and other names may be suitable choices for couples who are highly motivated to abstain from vaginal intercourse or who use a barrier method during “fertile” days.



All fertility awareness methods are based on identifying the fertile days in a woman’s menstrual cycle by counting the days in the menstrual cycle and/or noting changes in fertile signs such as cervical mucus and basal body temperature (BBT). On days identified as fertile, the couple either abstains from vaginal intercourse or uses a barrier method.

Because these methods are based on the woman’s ovulatory cycle, they are most effective for women who have reliably regular menstrual periods, between 26 and 32 days in length. Women who have two or more periods differing from this length within a single calendar year are not good candidates for these methods.

### Use

In the Standard Days Method<sup>®</sup>, the days of the menstrual cycle are tracked on a calendar. Day 1 is the first day of menstruation and days 8 through 19 are the fertile days, when unprotected intercourse is avoided. A product called Cycle Beads<sup>™</sup> ([www.cyclebeads.com](http://www.cyclebeads.com)) is a simple visual aid to help a woman keep track of her cycle days and fertile period.

In the Calendar Days Method, a woman keeps track of her menstrual cycle for 6–12 months and then subtracts 18 from the number of days in the shortest cycle and 11 from the number of days in the longest cycle. The two resulting numbers indicate the beginning and end of the fertile period. The ovulation method involves tracking changes in cervical mucus and/or BBT daily to determine fertile and non-fertile days. Cervical mucus changes in amount and texture around the time of ovulation, and BBT, which is measured every morning, rises by about 0.4° F around

the time of ovulation. Alternatively, women can monitor the timing of ovulation using ovulation kits, which are available without prescription at pharmacies. Downloadable calendars are available at [www.womenshealth.gov/pregnancy/mom-to-be-tools/basal-temperature-chart.pdf](http://www.womenshealth.gov/pregnancy/mom-to-be-tools/basal-temperature-chart.pdf).

The TwoDay Method<sup>®</sup> requires women to monitor for cervical secretions every day. On any day when the woman observes secretions—or observed them the previous day—she considers herself to be fertile and avoids intercourse. When she notes 2 consecutive days without cervical secretions, she is unlikely to become pregnant from intercourse on that day.<sup>94</sup>

For some women, libido is high during fertile days, making abstinence an undesirable practice. Other couples find that intimacy is enhanced by practicing non-penile-vaginal forms of sexual expression during the fertile period.

For more detailed information on fertility awareness methods, see [www.birth-control-comparison.info/fam.htm](http://www.birth-control-comparison.info/fam.htm).

## Effectiveness

- This method is somewhat effective. With correct and consistent use of fertility awareness–based methods, the failure rate is 0.4 to 5 percent.<sup>18</sup> With typical use, the failure rate is as high as 24 percent.<sup>18</sup>
- To be effective, this method requires highly motivated couples where the woman has a reliably regular menstrual period.

## Risks

None

## Side Effects

None

## Contraindications and Precautions

None

## Advantages

- Low or no cost
- Readily available once trained in method
- Also can be used to pinpoint fertile days in order to conceive

## Disadvantages

- Requires cooperation of male partner
- Lower efficacy than other methods with typical use
- Lack of spontaneity on fertile days
- Unsuitable for women with cycles of fewer than 26 or more than 32 days in length
- No protection against STIs

## Counseling Messages

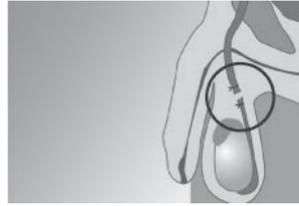
- Correct use of fertility awareness methods is important for these methods to be used successfully.
- The Standard Days Method can be learned quickly and easily, whereas the ovulation method requires more practice and training for patients to accurately recognize changes in cervical mucus.
- This method does not protect against STIs.

# Sterilization

## Male Sterilization

### Description

A permanent form of birth control, vasectomy has been used for decades for male sterilization. The outpatient procedure is highly effective and has few side effects. Vasectomy is exceedingly safe.



### Use

Two techniques are used to perform vasectomies: no-scalpel vasectomy (NSV) and no needle/no scalpel vasectomy (NNV). NSV is considered the standard of care. In NSV, the physician uses a small needle to inject anesthesia into the skin and vas deferens. In NNV, the physician uses a piston-like instrument to force anesthetic into the tissues. After anesthetizing the area, the provider creates a small opening (a few millimeters) in the skin of the scrotal sac and locates the vas deferens. The vas are then ligated or cauterized; there is no need for sutures.

Sexual activity may be resumed about 1 week after the procedure or the time at which the patient feels comfortable. A back-up contraceptive method is needed until the patient has had at least one negative sperm check after at least 3 months after the procedure AND at least 20 ejaculations.<sup>95</sup> These checks are essential to ensure the absence of residual sperm in the vas beyond the point of occlusion.

### Effectiveness

This method is extremely effective, with a failure rate of 0.10 to 0.15 percent.<sup>18</sup>

### Risks

- Reactions to local anesthesia are possible but rare.
- Some short-term tenderness and bruising may occur.
- Overall, NSV is associated with little pain and a low risk of infection.<sup>96</sup>

## Side Effects

None

## Contraindications and Precautions

- Known allergy or hypersensitivity to any materials used for the procedure
- Uncertainty about desire to end fertility

## Advantages

- Long-term method
- Discreet
- Low risk of side effects
- After up-front cost, no ongoing cost to maintain method
- No effect on hormonal milieu
- Very effective
- Quick recovery

## Disadvantages

- Requires surgical procedure
- Requires trust between partners
- No protection against STIs

## Counseling Messages

- Vasectomy should be considered a permanent method of male sterilization and should not be performed if there is a chance that the patient might desire to father children in the future.
- Reversal procedures exist but are technically complex, expensive, and have a variable success rate.
- Most activities can be resumed 3 days after the procedure. More strenuous activities, including sexual activity, can be resumed 1 week after vasectomy.

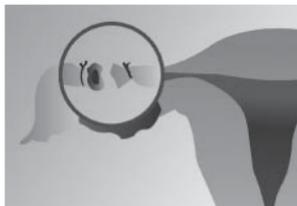
- Use of another form of contraceptive is essential until the patient has had at least one negative sperm check after at least 3 months AND at least 20 ejaculations.<sup>95</sup>
- This method does not protect against STIs.

## Female Sterilization

### *Operative Sterilization*

#### Description

Female surgical sterilization via tubal occlusion has been used for many years, is highly successful and safe, and has a low risk of complications. The fallopian tubes are occluded by ligation, blocking with clips or rings, or cauterization.



#### Use

Surgical tubal occlusion may be done as a laparoscopic procedure or as mini-laparotomy or laparotomy. The second two procedures are usually selected for sterilization after childbirth. These procedures can be performed on an outpatient basis as ambulatory surgery. After the procedure, women may resume having sexual intercourse as soon as they feel comfortable.

**Effectiveness** This method is extremely effective and is effective immediately. The failure rate is very low (0.5 percent).<sup>18</sup>

#### Risks

Potential complications associated with anesthesia and surgery

#### Side Effects

None. Because the hormonal milieu is unaffected by these surgeries, women continue to have normal menstrual cycles. There is no evidence that the timing of menopause is affected in older women who undergo surgical sterilization.

#### Contraindications and Precautions

- Known allergy or hypersensitivity to any materials used for procedure.

- Uncertainty about desire to end fertility
- Pregnancy or suspected pregnancy
- Inaccessible, technically difficult uterus and fallopian tubes
- Allergy to contrast medium

## Advantages

- Highly effective
- Long-term method
- Discreet
- Low risk of side effects
- After up-front cost, no ongoing cost to maintain method
- No effect on hormonal milieu
- Immediately effective; no back-up contraception necessary

## Disadvantages

- Requires surgical procedure
- No protection against STIs

## Counseling Messages

- Tubal occlusion should be considered a permanent end to a woman's fertility and should not be performed if there is a chance that the patient might desire childbearing in the future.
- Approximately 20 percent of women who undergo sterilization before age 30 experience regret.<sup>97</sup>
- Although procedures for reversal of surgical tubal occlusion exist, reversal is costly and has a low rate of success.
- This method does not protect against STIs.

## *Non-operative Sterilization*

### Description

Tubal microinserts are products for permanent female sterilization. Two tubal microinsert products were available: Essure® and Adiana®. However, Adiana was discontinued April 2012. Essure consists of two small

metal coils around a mesh of polyethylene terephthalate (PET) fibers. When placed in the fallopian tube, the coils expand to hold the device in place and the PET fibers induce an inflammatory reaction. The inflammation stimulates tissue growth in the tubal walls, which occludes the lumen over the following 3–6 months.<sup>98</sup>

Adiana is a tubal occlusion technique in which the health care provider directs radiofrequency energy to the fallopian tube, creating a superficial lesion in the tubal wall. Next, the provider introduces silicone polymer microinserts into each tube at the lesion site. Over the next 3 months, tissue lining the fallopian tubes grows into the microinserts to occlude the tubes.<sup>99</sup>

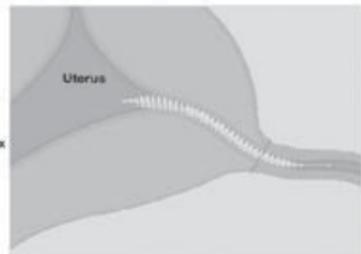
## Use

A trained health care provider places the tubal microinserts, usually under local anesthesia or sedation. The hysteroscopic procedure takes about 15 minutes. Hysterosalpingogram is used to verify tubal occlusion about 3 months after the procedure.

## Effectiveness

This method is extremely effective:

- Essure has a failure rate of less than approximately 0.2 percent.<sup>100</sup>
- Adiana's failure rate is about 1.1 percent.<sup>101</sup>



## Risks

Because these sterilization products are relatively new, the long-term effects are not known. Risks include perforation of the uterus and/or tube during insertion and improper placement of the device.

## Side Effects

Side effects of non-surgical tubal occlusion include cramping, pain, and bleeding or spotting on the day of the placement procedure.

## Contraindications

- Uncertainty about desire to end fertility
- Pregnancy or suspected pregnancy
- Taking immunosuppressive medication
- Previous delivery, miscarriage, or abortion within 6 weeks for Essure or 3 months for Adiana
- Current pelvic infection
- Inaccessible, technically difficult uterus and fallopian tubes
- Allergy to contrast medium
- Unwillingness to use another birth control method for the first 3 months
- Unwillingness to return 3 months later to check for tubal occlusion
- Previous tubal ligation

## Advantages

- Highly effective
- Long-term method
- Discreet
- Low risk of side effects
- After up-front cost, no ongoing cost to maintain method
- No effect on hormonal milieu
- No surgery required

## Disadvantages

- Requires visits to trained clinician for insertion and follow-up hysterosalpingogram
- Limited data on effectiveness, risks, and side effects
- No protection against STIs

## Counseling Messages

- Microinserts are not designed for removal.
- Tubal occlusion should be considered a permanent end to a woman's fertility and should not be performed if there is a chance that the patient might desire childbearing in the future.
- Back-up contraception is needed for 3 months or until tubal occlusion is verified.
- Patients should notify any health care professionals about their microinserts before any intrauterine procedures to avoid damaging the microinserts and other possible risks.
- Definitive data on effectiveness and risks are not yet available.
- This method does not protect against STIs.

# Emergency Contraception

## Description

Emergency contraception can prevent pregnancy after unprotected intercourse. Advance provision of EC is recommended for all women at risk for unintended pregnancy. Two forms of EC are available in the United States: pills or the Copper T IUD.



## EC Pills

The EC pills available in the United States are:

- Plan B® One-Step – single 1.5-mg levonorgestrel pill
- Next Choice™ – two 0.75-mg levonorgestrel pills
- ella® – single 30-mg ulipristal acetate pill

## Use

- The Next Choice product labeling states that the first tablet should be taken orally as soon as possible within 72 hours after unprotected intercourse.<sup>102</sup> The second tablet should be taken 12 hours after the first dose.
- Research shows that taking both pills at once increases compliance without increasing side effects or decreasing efficacy.<sup>103,104</sup>
- The product labeling for Plan B One-Step states that one pill should be taken within 72 hours after unprotected intercourse.<sup>105</sup>
- Research indicates that both the single dose and the two-dose formulations of levonorgestrel are effective up to 120 hours after unprotected intercourse.<sup>104</sup>
- Ella is approved for use up to 120 hours after unprotected sex. While the effectiveness of progestin-only pills declines with delay in treatment, the effectiveness of ella does not (up to 120 hours).<sup>106</sup>

## Dispelling Myths About Emergency Contraception

It's important for women and their providers to have accurate information about EC.

- EC pills do not harm an existing pregnancy.<sup>107</sup>
- EC pills and the copper IUD for EC do not cause an abortion.<sup>107</sup>
- Provision of EC in advance is not associated with an increase in unprotected intercourse.<sup>108</sup>

### Effectiveness\*

- The two available levonorgestrel formulations (Plan B One-Step and Next Choice) are equally effective in preventing pregnancy and have similar side effect profiles.<sup>104,109,110</sup>
- When taken 72 to 120 hours after sex, ulipristal acetate (ella) prevents significantly more pregnancies than Plan B; the odds of getting pregnant after taking Ella 72 to 120 hours after sex is about half the odds of getting pregnant after taking Plan B during a similar time period.<sup>111</sup>
- The effectiveness of progestin-only pills declines with delay in treatment, whereas the effectiveness of ella does not (for up to 120 hours).<sup>107</sup>

*\*The exact effectiveness of emergency contraceptive pills is difficult to measure, and some researchers believe the effectiveness may be lower than that reported on package labels. To find out more about studies evaluating the effectiveness of emergency contraception, read our thorough and up-to-date academic review of the medical and social science literature here: <http://ec.princeton.edu/questions/ec-review.pdf#page=3>*

### Risks, Contraindications, and Precautions

Given the single-dose nature of EC pills, most experts feel there are no risks considered to be contraindications.

### Side Effects

Some women experience nausea, fatigue, and headache.

## Advantages

- Highly effective
- Discreet
- Reversible

## Disadvantages

- Requires prescription if younger than age 17 (for all ages if ella is used)
- No protection against STIs

## Counseling Messages

- Patients should obtain emergency contraception in advance and keep it available for use if needed.
- Highly effective reversible ongoing contraceptive options are available.
- With valid identification showing an age of 17 or older, EC can be purchased at a pharmacy.
- Females who are younger than age 17 require a prescription. Ella requires a prescription regardless of age.
- This method does not protect against STIs.

## Copper IUD for EC

### Use

If the time of ovulation cannot be estimated, the copper IUD can be used as EC up to 5 days after unprotected intercourse. If the time of ovulation can be estimated, the copper IUD can be placed more than 5 days after intercourse but not more than 5 days after ovulation.<sup>5</sup> The LNG IUS cannot be used for EC.

### Effectiveness

Copper IUD EC is more than 99 percent effective in reducing pregnancy risk.<sup>110,112</sup>

## Risks, Side Effects, Contraindications, and Precautions

Given the ongoing use of the copper IUD for contraception after EC use, the risks, side effects, contraindications, and precautions are similar to those described for contraceptive use of the copper IUD (see section on copper IUD). In addition, see the table below.

### *Medical Eligibility Criteria for EC Use of Copper IUD\*\**

Category 4 (unacceptable health risk if the contraceptive method is used)	<ul style="list-style-type: none"><li>• Pregnancy</li></ul>
Category 3 (theoretical or proven risks usually outweigh the advantages of using the method)	<ul style="list-style-type: none"><li>• Rape with high risk for STIs</li></ul>

Source: Reference 5

*\*\*Refer to the copper T IUC section for a list of contraindications and precautions for ongoing use.*

## Advantages

- Highly effective
- Reversible

## Disadvantages

- Requires placement by trained health care provider
- No protection against STIs

## Counseling Messages

- Patients should obtain emergency contraception pills in advance and keep them available for use if needed.

- Highly effective reversible ongoing contraceptive options are available.
- With valid identification showing an age of 17 or older, EC can be purchased at a pharmacy.
- Females who are younger than age 17 require a prescription. Ella requires a prescription regardless of age.
- This method does not protect against STIs.

## Contraceptive Failure Rates: Table

Method column (1)	% of women experiencing an unintended pregnancy within the first year of use		% of women continuing use at 1 year <sup>a</sup>
	Typical use <sup>b</sup> Column (2)	Perfect use <sup>c</sup> Column (3)	Column (4)
No method <sup>d</sup>	85	85	
Spermicides <sup>e</sup>	28	18	42
Fertility awareness-based methods	24		47
Standard Days method <sup>f</sup>		5	
TwoDay method <sup>f</sup>		4	
Ovulation method <sup>f</sup>		3	
Symptothermal method <sup>f</sup>		0.4	
Withdrawal	22	4	46
Sponge			36
Parous women	24	20	
Nulliparous women	12	9	
Condom <sup>g</sup>			
Female (fc)	21	5	41
Male	18	2	43
Diaphragm <sup>h</sup>	12	6	57
Combined pill and progestin-only pill	9	0.3	67
Evra patch	9	0.3	67
NuvaRing	9	0.3	67
Depo-Provera	6	0.2	56
IUCs			
ParaGard (copper T)	0.8	0.6	78
Mirena (LNG)	0.2	0.2	80
Implanon	0.05	0.05	84
Female sterilization	0.5	0.5	100
Male sterilization	0.15	0.10	100
LAM is a highly effective, temporary method of contraception. <sup>i</sup>			

## Contraceptive Failure Rates: Table (cont)

- a Among couples attempting to avoid pregnancy, the percentage who continue to use a method for 1 year.
- b Among typical couples who initiate use of a method (not necessarily for the first time), the percentage who experience an accidental pregnancy during the first year if they do not stop use for any other reason. Estimates of the probability of pregnancy during the first year of typical use for spermicides and the diaphragm are taken from the 1995 NSFG corrected for underreporting of abortion; estimates for fertility awareness-based methods, withdrawal, the male condom, the pill and Depo-Provera are taken from the 1995 and 2002 NSFG corrected for underreporting of abortion. See the text for the derivation of estimates for the other methods.
- c Among couples who initiate use of a method (not necessarily for the first time) and who use it perfectly (both consistently and correctly), the percentage who experience an accidental pregnancy during the first year if they do not stop use for any other reason. See the text for the derivation of the estimate for each method.
- d The percentages becoming pregnant in columns (2) and (3) are based on data from populations where contraception is not used and from women who cease using contraception in order to become pregnant. Among such populations, about 89% become pregnant within 1 year. This estimate was lowered slightly (to 85%) to represent the percentage who would become pregnant within 1 year among women now relying on reversible methods of contraception if they abandoned contraception altogether.
- e Foams, creams, gels, vaginal suppositories and vaginal film.
- f The Ovulation and TwoDay methods are based on evaluation of cervical mucus. The Standard Days method avoids intercourse on cycle days 8 through 19. The Sympto-thermal method is a double-check method based on evaluation of cervical mucus to determine the first fertile day and evaluation of cervical mucus and temperature to determine the last fertile day.
- g Without spermicides.
- h With spermicidal cream or jelly.
- i However, to maintain effective protection against pregnancy, another method of contraception must be used as soon as menstruation resumes, the frequency or duration of breast-feeds is reduced, bottle feeds are introduced or the baby reaches 6 months of age.

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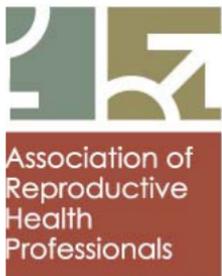
## Resources for Clinicians

### **WHO Selected Practice Recommendations for Contraceptive Use**

For information on what examinations or tests should be done routinely before providing a method of contraception (See section 30) [whqlibdoc.who.int/publications/2004/9241562846.pdf](http://whqlibdoc.who.int/publications/2004/9241562846.pdf)

### **United States Medical Eligibility Criteria (USMEC) for Contraceptive Use**

Summary Chart of U.S. Medical Eligibility Criteria for Contraceptive Use can be downloaded from [www.cdc.gov/reproductivehealth/UnintendedPregnancy/USMEC.htm](http://www.cdc.gov/reproductivehealth/UnintendedPregnancy/USMEC.htm)



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