

ORAL CONTRACEPTIVES

EMERGENCY CONTRACEPTION

FERTILITY AWARENESS-BASED

INTRAUTERINE DEVICES

FEMALE CERVICAL BARRIER METHODS

CONTRACEPTIVE IMPLANTS

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CONDOMS (MALE & FEMALE)

SPERMICIDES

CONTRACEPTIVE EVIDENCE

QUESTIONS AND ANSWERS

SECOND EDITION

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CONTRACEPTIVE EVIDENCE

QUESTIONS AND ANSWERS
SECOND EDITION

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CONTRACEPTIVE EVIDENCE

QUESTIONS AND ANSWERS

Thirty years ago, the Population Reference Bureau (PRB) published *Contraceptive Safety: Rumors and Realities* to provide policymakers, program managers, and service providers with accurate information on the risks and benefits of contraceptive methods. In 1998 and 2013, PRB updated the resource to include the latest scientific research on all available methods and to add other methods, such as the female condom and emergency contraceptive pills.¹

Nevertheless, rumors and incomplete information continue to spread and inhibit clients from making an informed choice and accessing a contraceptive method that works for them. The goal of this 2020 update is to help women and men choose methods based on scientific evidence rather than rumors and to assist policymakers, program managers, and providers in filling those needs.

Need For Family Planning Services

An estimated 214 million women of reproductive age in developing regions still have an unmet need for modern contraception, meaning they do not want to become pregnant for two years or more but are not using a modern contraceptive method.² Some of the reasons for this unmet need include:³

- Fear of side effects—perceived and real.
- Limited knowledge about methods.
- Lack of access to contraceptive methods.
- Reliance on breastfeeding after six months to prevent another pregnancy.
- Opposition to family planning by the woman, her partner or family members.
- Infrequent sexual intercourse.

In addition, health providers can inadvertently play a negative role by giving incorrect information to clients. By further perpetuating myths and rumors about family planning, providers may undermine efforts to help women achieve their reproductive goals.⁴ Better quality of care, including better contraceptive counseling, information, and public education, is key to reducing unmet need for family planning.

Family planning has a multitude of health, social, and economic benefits for women and their families, including improving maternal and infant health, reducing unintended pregnancies and unsafe abortions, and preventing the spread of HIV.⁵

ORAL CONTRACEPTIVES (THE PILL)

Question: What are oral contraceptives (the pill)?

Answer: Two types of oral contraceptives (“the pill”) are available, combined and progestin-only. Progestin is the synthetic hormone in oral contraceptives that mimics the action of progesterone to prevent pregnancy. Combined oral contraceptives (COCs) contain low doses of two types of hormones, a progestin and an estrogen, similar to those naturally found in reproductive age women. Progestin-only pills (POPs) contain very low doses of a progestin and can be used early in breastfeeding (unlike COCs) or by women who cannot use methods with estrogen.

Both types of oral contraceptives prevent pregnancy by preventing ovulation (the release of eggs from the ovaries) or thickening cervical mucus (thus blocking sperm from meeting an egg).⁶

Question: Will the pill cause birth defects if a woman becomes pregnant in the future?

Answer: No. Evidence shows that neither COCs nor POPs will cause birth defects if a woman becomes pregnant in the future. Also, neither pill will harm the fetus if a woman becomes pregnant while taking the pill or if she accidentally takes the pill when she is already pregnant.⁷

Question: Will using the pill cause a woman to be infertile in the future?

Answer: No. Use of COCs or POPs does not cause infertility. In fact, use of the pill may help a woman to preserve her fertility by protecting her from pelvic inflammatory disease, an infection of the reproductive organs that can lead to infertility. When a woman stops using the pill, fertility returns without a delay in most cases. A small percentage of women may experience a delay of a few months.⁸

Question: Does using the pill increase a woman’s risk of developing ovarian or endometrial cancer?

Answer: Women who use the pill significantly reduce their risk of cancer of the ovaries and of the lining of the uterus (endometrial cancer) by as much as 50 percent if the pill is used for 10 years or more. Protection against these two forms of cancer continues for 15 or more years after stopping use of the pill.⁹

Question: Does using the pill increase a woman’s risk of developing breast cancer?

Answer: The studies have been inconsistent. Some research has shown that women who used COCs more than 10 years ago face the same risk of breast cancer as women who never used them.¹⁰ However, other studies have found that current users of COCs and women who have used the pill within the past 10 years are slightly more likely to be diagnosed with breast cancer. Researchers note that this *may* not be associated with a biological effect of the pill, but rather, by earlier detection. When current or former users of COCs are diagnosed with breast cancer, the cancer is typically less advanced than in other women.¹¹

Question: Does using the pill increase a woman’s risk of developing cervical cancer?

Answer: Some studies find that the risk of cervical cancer increases slightly during use, especially if a woman takes COCs for more than five years. Women taking COCs for fewer than five years do not have a higher risk of cervical cancer.¹²

The reason for this increased risk is not entirely clear.

Question: Does using the pill increase a woman’s risk of developing liver cancer?

Answer: Use of the pill is associated with an increased risk of noncancerous tumors on the liver.¹³ Therefore, COCs should not be used in patients with hepatocellular adenoma or carcinoma.¹⁴

Question: Does using the pill cause blood clots?

Answer: The use of oral contraceptives does come with an increased risk of blood clots. Blood clots usually occur in the leg but occasionally develop in other parts of the body. Most clots are treated with medicines to thin the blood and are not life-threatening. However, sometimes a clot can travel to the lungs and cause serious health problems.

The risk may vary by type of progestin, which can modify the effects of estrogen on clotting.¹⁵ In 2012, a United States Food and Drug Administration (FDA) review of the literature concluded there was as high as a three-fold increase in the risk of blood clots for contraceptives that contain drospirenone compared to contraceptives containing levonorgestrel or other progestins. Other large epidemiological studies have found no additional risk of blood clots with drospirenone-containing products.¹⁶ The FDA continues to emphasize that the risk of blood clots from oral contraceptives is small, even when using a pill that contains drospirenone. Women who are pregnant or postpartum have a much higher risk of developing blood clots than women who are using any oral contraceptive.¹⁷

Question: Should a woman stop using the pill after a year or two to give her body a “rest” from the hormones?

Answer: No. No scientific evidence suggests that a woman should take a break after a year or two of continuous use of oral contraceptives. Today’s oral contraceptives are considered safe to take for years at a time, and starting and stopping pill use can increase the risk of an unintended pregnancy.¹⁸

Question: Does using the pill increase the risk of contracting HIV?

Answer: No. Using the pill does not appear to increase a woman’s risk of contracting HIV, but it also does not protect her against sexually transmitted infections (STIs) including HIV. Sexually active women and men should have access to and use condoms to prevent the risk of contracting or spreading HIV and other STIs. While condoms provide dual protection, using both a condom and another contraceptive method can greatly reduce a women’s risk of both unintended pregnancy and contracting HIV or other STIs.¹⁹

Question: If a woman is already HIV positive, does using an oral contraceptive pill accelerate the progression of her HIV disease?

Answer: No. The World Health Organization (WHO) states that women at high risk of contracting HIV or those living with HIV can use oral contraceptives without restriction.²⁰ In fact, voluntary use of contraception by HIV-positive women who wish to prevent pregnancy continues to be the most effective strategy to prevent the birth of HIV-positive newborns.²¹ For women and men who are at high risk of HIV or are already HIV positive, correct and consistent use of condoms is essential to prevent HIV transmission to noninfected sexual partners.

EMERGENCY CONTRACEPTIVE PILLS (ECPS)

Question: What are emergency contraceptive pills?

Answer: Emergency contraceptive pills (ECPs) are either small tablets sold specifically as an emergency contraceptive product or a high dose of a daily oral contraceptive pill. The four main types of ECPs have different key ingredients.²² They contain:

- **Progestin and estrogen.** Many brands of the daily COC pills can be used for emergency contraception in the United States.
- **Progestin (levonorgestrel).** Dedicated levonorgestrel emergency contraceptive products are available without a prescription in many places, including the United States and Europe. Daily levonorgestrel-only contraceptive pills may also be used for emergency contraception but require a prescription in the United States. POPs are less likely to cause side effects if used for emergency contraception as compared with COCs.
- **Ulipristal acetate.** Research shows that ulipristal acetate (a different type of hormone) ECPs are well-tolerated, and are likely as effective or more effective than progestin-only ECPs.²³ They may be more effective than other ECPs if taken later—up to five days after unprotected sex.
- **Small doses of mifepristone.** This pill is also highly effective, with few side effects. It is currently available only in Armenia, Moldova, Ukraine, China, Russia, and Vietnam.²⁴

Most ECPs sold in the United States are now packaged in a single dose. Two-dose progestin-only ECPs are no longer sold in the United States, although they are still available in many other countries.²⁵ ECPs are effective in preventing pregnancy when taken within five days of unprotected sex. However, the sooner a woman takes ECPs after unprotected sex, the more effective they will be.

For many women, ECPs offer an opportunity to prevent unintended pregnancy following the failure of a method (such as a condom breaking), unprotected sex, or rape. Because ECPs are not as effective as using most routine methods, it is generally not recommended that women use them as an ongoing method of pregnancy prevention.

Question: Is using ECPs the same as having an abortion?

Answer: No. Using ECPs is not the same as having an abortion. ECPs prevent or delay ovulation and inhibit the transport of the egg or sperm, and thus can interfere with fertilization of the egg. There is no evidence that progestin and estrogen ECPs, progestin-only ECPs, or ulipristal acetate ECPs will prevent or interfere with implantation of a fertilized egg.²⁶ Mifepristone also works to prevent or delay ovulation, but it can prevent or interfere with implantation of a fertilized egg depending on the dosage given and how long after unprotected sex the pill is taken.²⁷ Once a woman is pregnant, ECPs will not induce an abortion or affect the developing embryo, unlike pills used for medical abortion, which are designed to terminate a pregnancy. ECPs consist of a combination of progestin and estrogen, progestin only, ulipristal acetate, or small doses of mifepristone, while abortion pills contain much larger doses of mifepristone combined with a medication called misoprostol.²⁸ ECPs work after unprotected sex but before pregnancy, while medical abortion works after pregnancy starts (once the fertilized egg is implanted in the uterus).

Question: How effective are ECPs?

Answer: ECPs are effective for up to five days after unprotected intercourse. ECP regimens reduce a woman's chance of pregnancy when used correctly. Progestin-only ECPs are significantly more effective than older ECP regimens.²⁹ ECPs containing mifepristone or ulipristal acetate are at least as effective as progestin-only ECPs and potentially even more effective.³⁰ Most efficacy estimates for progestin-only ECPs range from 50 percent to 100 percent.³¹ A meta-analysis estimated that a 10 mg dose of mifepristone will prevent 83 percent of unintended pregnancies.³² The average efficacy of ulipristal acetate is estimated to be between 62 percent to 85 percent.³³ ECPs should be taken as soon as possible after unprotected sex to be most effective at preventing an unintended pregnancy. Instructions for two-pill progestin-only emergency contraceptive products may say that the two doses should be taken 12 hours apart. However, research shows that progestin-only ECPs are equally effective if the two doses are taken at the same time.³⁴

Question: If a woman uses ECPs and is already pregnant, will her child suffer from birth defects?

Answer: No. Similar to oral contraceptives, studies that have examined births to women who continued to take ECPs without knowing they were pregnant found no increased risk of birth defects.³⁵

Question: Can a woman use ECPs as a regular method of family planning?

Answer: ECPs are generally not recommended as a regular method of family planning. Using ECPs as a regular form of family planning can be very expensive, can cause bleeding between periods, and is less effective at preventing pregnancy than most other contraceptive methods.³⁶

Question: After a woman takes ECPs, will she be protected from pregnancy until she gets her next period?

Answer: No. ECPs are most effective right after unprotected intercourse. They continue to reduce the risk of pregnancy up to five days; however, as more time passes, they are less effective. In addition, a single use of ECPs will not protect against a second or third act of unprotected intercourse during the same cycle. To avoid pregnancy, a woman must use another contraceptive method after taking ECPs.³⁷

Question: When can a woman resume or start regular contraception after using emergency contraception?

Answer: A woman who has taken a progestin-only or a combined progestin/estrogen ECP can start or restart any method immediately after she takes the ECP. A woman who has taken a ulipristal acetate ECP can restart any hormonal method on the sixth day after taking ECPs.³⁸ Nonhormonal methods can be started immediately if she is not pregnant.

INJECTABLE CONTRACEPTIVES

Question: What are injectable contraceptives?

Answer: Injectable contraceptives are delivered to a woman through an injection given in the muscle or under the skin. They work to prevent pregnancy by stopping monthly ovulation (release of eggs from ovaries). They also thicken cervical mucus, making it difficult for sperm to pass through to the uterus.³⁹ Depending on the type, an injectable contraceptive lasts for one, two, or three months before a new injection is needed to maintain its efficacy.

The types of injectable contraceptives include:

- Progestin-only injectable contraceptives containing depot medroxyprogesterone acetate (DMPA), administered every three months. A subcutaneous formulation of DMPA is injected just under the skin and can be administered by women themselves.⁴⁰
- Progestin-only injectable contraceptives containing norethisterone oenanthate (NET-EN), administered once every two months.
- Combined injectable contraceptives containing both progestin and estrogen, administered once a month.

As commonly used, about three out of 100 women using monthly injectables over the first year will become pregnant. This means that 97 of every 100 women using injectables will not become pregnant. When women have injections on time, less than one pregnancy per 100 women using monthly injectables occurs over the first year (two per 10,000 women).⁴¹

Question: If a woman uses an injectable contraceptive, does her risk of cancer increase?

Answer: Similar to oral contraceptives, injectables provide protection from the risk of endometrial cancer and ovarian cancer.⁴² A recent study in Thailand found women who had ever used DMPA had a 39 percent reduction in ovarian cancer. The same study found using DMPA for three years or more reduced the risk by 83 percent compared with women who had never used DMPA.⁴³ Some studies suggest there may be an increased risk of cervical cancer among women using DMPA for more than five years; however cervical cancer cannot develop because of DMPA alone.⁴⁴

While some studies find an increased risk of breast cancer with DMPA, others do not.⁴⁵ Similar to COCs, any increase in risk disappears 10 years after women discontinue DMPA use. It is unclear whether any biological risk exists, or whether researchers find a heightened risk of breast cancer among current and recent DMPA users because of earlier detection. Because breast cancer is rare among young women, many health experts agree the health benefits of using DMPA to prevent pregnancy outweigh the risks.⁴⁶

Question: If a woman uses an injectable contraceptive, will she have to stop using it at times to resume a regular menstrual cycle?

Answer: No. Women using injectable contraceptives do not have to take breaks from their normal contraceptive regimen to resume a regular menstrual cycle. Some women may experience no monthly bleeding while using an injectable contraceptive. The progestin hormone present in the method prevents the lining of the uterus from building up as thickly as it does among women who are not using any contraceptive method. The result is either light bleeding or no bleeding each month, but there is no health risk. Some women may experience the opposite side effect—heavy, prolonged, or irregular bleeding. This type of bleeding is also not harmful and tends to lessen or stop after the first few months of use. When a woman stops using injectable contraception, her menses return after several months.⁴⁷

Question: If a woman uses an injectable contraceptive and is already pregnant, will her child suffer from health problems?

Answer: Evidence from a number of studies shows no risk to the fetus if a woman accidentally uses an injectable method while pregnant or becomes pregnant while using the method.⁴⁸

Question: If a woman uses an injectable contraceptive, does she risk becoming infertile?

Answer: Injectable contraception does not cause a woman to become infertile but there may be a delay in the time it takes to become pregnant after discontinuing use. Studies suggest that after the last injection of DMPA, half of women who intend to become pregnant will become pregnant within 10 months.⁴⁹ Studies have not found an association between the duration of DMPA use and the time until fertility returns. A study of monthly injectables found that women can become pregnant as early as one month after the last injection and that more than 50 percent were able to become pregnant within six months of the last injection.⁵⁰

Because a woman can become pregnant before having her first period after discontinuing use of an injectable, it is important that she and her partner use a condom or another barrier method to prevent an unplanned pregnancy, unless she discontinued DMPA to try to become pregnant.

Question: Will using an injectable contraceptive cause a woman to suffer bone density loss?

Answer: There is evidence that injections administered every three months (DMPA) do contribute to bone density loss, especially in the hip and lower spine, within two years of receiving the first injection. Women who use an injectable and have low levels of calcium intake, smoke, and have never given birth are at the highest risk for bone density loss.⁵¹ Studies of monthly injectables found no difference in bone density between women who used this method and women who didn't.⁵²

Women who use injectable contraceptives as adults may lose significant bone mineral density. Bone loss is greater with increasing duration of use and may not be completely reversible.⁵³ However, two studies have found that bone loss in adolescents and young women is recovered after discontinuation of DMPA.⁵⁴ WHO considers it acceptable for adolescents to use an injectable contraceptive.⁵⁵

Question: Will using an injectable contraceptive increase a woman's risk of contracting HIV?

Answer: Some studies suggested that HIV-negative women using a progestin-only injectable (which does not contain estrogen), such as DMPA, may be at increased risk of acquiring HIV, but several other studies did not support this association. In 2016, a committee of experts reviewed all the available evidence and determined that use of DMPA and norethisterone enanthate (NET-EN) injectables among women at high risk of HIV should be changed from category 1 (no restrictions for use) to category 2 (general use) in WHO's Medical Eligibility Criteria for Contraceptive Use (MEC). This means that for women at high risk of HIV, the advantages of using DMPA and NET-EN products generally outweigh any theoretical or proven risk.⁵⁶ Women using progesterone-only injectable contraception who are at high risk of HIV should also be strongly advised always to use condoms (male or female) and to take other HIV prevention measures.⁵⁷

In 2019, a four-country randomized study of nearly 8,000 women known as the Evidence for Contraceptive Options and HIV Outcomes (ECHO) trial found no statistical difference in HIV acquisition among women using three contraceptive methods: DMPA, the levonorgestrel implant, and a nonhormonal IUD. In response, WHO released updated guidance informed by an expert group stating that there are no restrictions on contraceptive method use for women at high risk of HIV acquisition.⁵⁸

Question: If a woman is HIV positive, will using an injectable contraceptive speed up the progression of her HIV disease?

Answer: The bulk of evidence indicates that HIV-positive women can use hormonal contraceptive methods, including injectable contraceptives, without concerns that this will accelerate HIV disease progression.⁵⁹

Question: If a woman uses injectable contraception and is HIV positive, does this increase her chances of transmitting the virus to sexual partners?

Answer: One study suggests that injectable contraceptives may be associated with female-to-male HIV transmission. However, the body of evidence on this subject is limited and additional evidence is needed.⁶⁰

It is important that women at risk of HIV infection and those who are HIV positive use condoms to reduce the risk of acquiring and transmitting HIV and other STIs. Injectable contraception does not protect against HIV or other STIs.⁶¹

CONTRACEPTIVE IMPLANTS

Question: What are contraceptive implants?

Answer: Contraceptive implants are thin, matchstick-sized, plastic rods placed under the skin inside a woman's upper arm by a trained provider. They work to prevent pregnancy by stopping monthly ovulation (release of eggs from ovaries). They also thicken cervical mucus, making it difficult for sperm to pass through to the uterus.⁶² Two main types of contraceptive implants are available. Both are progestin-only:

- Levonorgestrel products, commonly sold under the name Jadelle and Levoplant, which is also known as Sino-Implant (II), use a two-rod system. Jadelle lasts for five years, and Levoplant for up to four years.⁶³ Levonorgestrel implants are not currently available in the United States.⁶⁴
- Etonogestrel product, commonly sold under the name NXT or Nexplanon, is a single-rod system that lasts up for three years, although there is evidence suggesting they can last at least five years.⁶⁵

Contraceptive implants are very effective. Fewer than one out of 100 women (one per 1,000 women) with the implant will become pregnant each year.⁶⁶ Implants can be removed at any time by a trained provider and fertility will return quickly.⁶⁷

Question: Is there a risk that implant rods can move from a woman's arm to other parts of her body?

Answer: Implants are inserted just under the skin in the inner part of the upper arm and will generally not move from that general area. The implant can be felt at any time by lightly touching the skin above where it was inserted.⁶⁸ In rare cases an implant can shift a centimeter or two or come out of the skin if it has been inserted incorrectly or if the incision site does not heal properly. Very rarely the implant can travel in a blood vessel and be found at another place in the body.⁶⁹

Question: Is it safe for adolescents to use contraceptive implants?

Answer: Contraceptive implants are safe and appropriate for most women and adolescents and are 99 percent effective.⁷⁰ Implant failure is rare and does not increase the risk of ectopic pregnancy.⁷¹ There is no other known harm to the mother or fetus if implants are still in place during pregnancy.

**Question: How long is the surgical procedure to insert and remove an implant?
Does it hurt?**

Answer: Depending on the type of implant, the average time to insert an implant is one minute and the average time to remove an implant is three minutes.⁷² Most users have not reported excessive difficulty or pain during insertion or removal. A health care provider will numb a small area of the woman's arm before insertion and removal. Normal side effects for insertion or removal may be bruising, minor pain or bleeding, and scarring. Rarely, infection at the site may occur if the insertion or removal is not done properly.⁷³

**Question: Contraceptive implants are a long-acting contraceptive method.
If a woman has an implant inserted, can it be removed at any time?**

Answer: Yes. An implant can be removed at any time, and after removal there is no delay in return to fertility.⁷⁴

Question: If a woman uses a contraceptive implant, does her risk of cancer increase?

Answer: No. Studies have not found that use of implants increase the risk of any cancer.⁷⁵

INTRAUTERINE DEVICES (IUDS)

Question: What are intrauterine devices (IUDs)?

Answer: Intrauterine devices (IUDs) are small, often T-shaped objects made from plastic, that are inserted into the uterus by a trained provider. Two types of IUDs work to prevent pregnancy in different ways:

- Copper IUDs contain no hormones but work by damaging sperm or keeping it from traveling to or fertilizing the egg.⁷⁶ They are effective for up to 12 years.⁷⁷
- Hormonal IUDs contain a progestin (levonorgestrel), which causes cervical mucus to thicken and the lining of the uterus to thin, keeping the sperm from reaching the egg.⁷⁸ Depending on the specific brand used, they are effective from three to seven years.⁷⁹

Copper IUDs provide immediate contraceptive protection, but hormonal IUDs are most effective seven days after they are inserted.⁸⁰ Both copper and hormonal IUDs have extremely high rates of preventing pregnancy. Less than one out of 100 women with an IUD will become pregnant each year.⁸¹ Both types of IUD can be removed at any time by a trained provider and fertility will quickly return.

Question: If a woman uses an IUD, will she be able to become pregnant in the future?

Answer: Yes. The IUD does not cause infertility (inability to become pregnant). Almost all women who use an IUD can become pregnant once the IUD is removed, assuming they are still of childbearing age and have no other conditions that have affected their fertility. However, a woman who has an active pelvic infection or STI should not receive an IUD until these infections have been treated. If an IUD is inserted in the presence of an infection, there is a chance of introducing bacteria that can lead to infertility.⁸²

Question: Is it safe for adolescents to use IUDs? Does a woman need to have had a child already?

Answer: There is no minimum or maximum age limit for using an IUD. Once a woman reaches menopause (no longer menstruating) the IUD should be removed within 12 months.⁸³ Most women who are within their reproductive years can use the IUD regardless of whether they have previously given birth.

Question: If a woman would like to use an IUD as a contraceptive method but is not sure how long she would like to use it, should she still choose to use this method?

Answer: Yes. Although available IUDs protect from pregnancy for three to 12 years, they can be removed by a trained health care provider at any time and for any reason.⁸⁴

Question: What happens to the IUD during sexual intercourse? Is there a risk that it will travel to other parts of a woman's body?

Answer: During sexual intercourse, the IUD does not move. Sometimes a man can feel the strings located at the end of the IUD. If this is bothersome, the health care provider can cut the strings shorter so they are not outside the cervical canal. A man also may feel the IUD if it has been expelled from the cervix. Spontaneous IUD expulsion occurs in up to 10 percent of women, most commonly in the first year of use.⁸⁵ If a woman suspects that she has expelled her IUD, she should see a health care provider immediately.⁸⁶ Very rarely, and unrelated to intercourse, the IUD may go through the wall of the uterus and be found outside the uterus.⁸⁷

Question: Is there a risk to the newborn if a woman becomes pregnant while using an IUD?

Answer: During the first year of use, pregnancy rates among IUD users are less than one per 100 users compared with four per 100 for the injection of Depo-Provera, seven per 100 for the oral contraceptive pill, and 13 per 100 for the condom under typical or common use.⁸⁸ If a woman does become pregnant while using the IUD, there is no evidence that it will harm the fetus. However, she may be at increased risk of pregnancy complications if conceiving with an IUD in place. If she finds that she is pregnant while using the IUD, she should have the IUD removed to decrease the chance of a miscarriage or infection. She should also see her health care provider to ensure the pregnancy is not ectopic (developing outside the uterus).⁸⁹

CONDOMS (MALE AND FEMALE)

Question: What are condoms?

Answer: Condoms are a thin covering, usually made of latex or polyurethane, that are placed either over the penis or inside the vagina to prevent sperm from entering the woman's body. Male and female condoms are single-use products that must be discarded following sex. Unlike other contraceptive methods, condoms do provide some protection against STIs, such as HIV, genital herpes, gonorrhea, and syphilis.⁹⁰

The contraceptive effectiveness of both types of condoms depends on their consistent and correct use. If used perfectly, only two out of 100 women whose partners use male condom will become pregnant; with typical use 13 out of 100 women whose partners use male condoms will become pregnant each year.⁹¹ Perfect use of the female condom will result in only five out of 100 users becoming pregnant each year; typical use will result in 21 out of 100 users becoming pregnant each year.⁹²

Question: If a condom comes off or breaks during sexual intercourse, is there a chance it can permanently lodge inside a woman's body?

Answer: While condom breakage is not very common with high-quality condoms, a male condom can break during intercourse for many reasons, including how it was used, whether it was used past its expiration date, damaged when removed from the package, used more than once, or improperly manufactured. There is a small chance that a condom can become lodged inside a woman's vagina, for example, if the condom fits too loosely or if a man withdraws his penis without holding the base of the condom. If the condom is lodged in the vagina, it cannot travel to other parts of the body, and is usually easily removed manually. If the condom cannot be removed manually, the woman should go to her gynecologist or to a hospital's emergency room for help to prevent infection.⁹³

Users should also avoid tearing or damaging the condom while removing it from the package; they should squeeze the tip to press air out of the reservoir, unroll the condom over the erect penis, and apply a lubricant or spermicide that is not oil-based as the oil will damage latex condoms.⁹⁴

Similar to male condoms, female condoms cannot permanently lodge inside a women's body.

Question: If a man uses a condom, will he be able to have an erection?

Answer: Some men may, at times, experience a loss of erection while applying or using condoms. Men who lack confidence in using condoms correctly or experience problems with the fit or feel of a condom may be more likely to experience condom-associated erection loss.⁹⁵ If a man finds he is having difficulty keeping an erection while wearing a condom, more lubrication may help increase sensation for the man, or he may wish to try a different brand of condom. Men who suffer from premature ejaculation may find that using condoms helps them with this problem.⁹⁶

Question: Condoms are often thought of as being needed only for risky sex, such as having intercourse with sex workers. Is this true?

Answer: No. Condoms are not used only for high-risk sex. Around the world, many people prefer to use condoms for pregnancy prevention, for infection prevention, or both. When condoms are used correctly, only two out of 100 women whose partners use male condoms will become pregnant, while only five out of 100 women using a female condom will become pregnant. Both are cost effective and easy to use with few or no side effects. Condoms are currently the only form of contraception that can prevent transmission of an STI, including HIV. Since condoms protect people against infections, they are a preferred method for many sexually active individuals, including those who have multiple partners and sex workers.⁹⁷

VAGINAL RINGS

Question: What are vaginal rings?

Answer: A vaginal ring is a small, circular, and flexible plastic ring that is inserted into the vagina. Inside of the ring are the same hormones found in other contraceptives (combined progestin and estrogen, progestin-only) that work to prevent pregnancy by stopping monthly ovulation and by thickening cervical mucus, making it difficult for sperm to pass through to the uterus.⁹⁸

Vaginal rings are placed in the vagina for three weeks, followed by one week out of the vagina, at which point the woman will usually have a period. Most vaginal rings must be replaced every month with a new one; however, in 2018 a new type of vaginal ring that can be re-used for up to 12 months was approved.⁹⁹

Typical use of vaginal rings will result in seven out of 100 women becoming pregnant over the first year for the progestin-only ring, and one to two women out of 100 for the combined ring. When no mistakes are made inserting or using the vaginal ring, less than one out of 100 women will become pregnant in the first year.¹⁰⁰

SPERMICIDES

Question: What are spermicides?

Answer: Spermicides are a contraceptive method that contains chemicals that kill sperm. Spermicides are available in creams, film, foams, gels, and suppositories and are typically used with a diaphragm or cervical cap; certain brands of condoms include spermicides. Repeated and high-dose use of the spermicide nonoxynol-9 is associated with increased risk of genital lesions, which may increase the risk of HIV infection. Therefore, use of spermicides is not recommended for women at high risk of HIV and women living with HIV or AIDS.¹⁰¹

FEMALE CERVICAL BARRIER METHODS (Contraceptive Sponge, Diaphragm, and Cervical Cap)

Question: What are female cervical barrier methods?

Answer: Female cervical barrier methods are products that work to prevent pregnancy by keeping the sperm from reaching the egg.¹⁰² Three main types of barrier methods are available:

- Contraceptive sponges are made from soft, squishy plastic and are inserted into the vagina before sex. The sponge covers the cervix and contains a spermicide that blocks the sperm from entering the cervix as well as by slowing it down.¹⁰³ To be effective the sponge must be left in place for at least six hours after sex and should not be left in the vagina for more than 30 hours total. Sponges are single-use and are only effective for a 30-hour period.¹⁰⁴
- Diaphragms are a dome-shaped soft rubber or silicone cup with a flexible rim. When used correctly, the diaphragm covers the cervix to prevent sperm from reaching the egg. The inside of the cup is filled with a spermicide to provide additional protection against pregnancy.¹⁰⁵ The diaphragm should be left in place for at least six hours after last sex before removing it. While many diaphragms require a trained provider to fit and insert it correctly, in many countries there are also new, one-size diaphragms that women can insert and use on their own.¹⁰⁶

- Cervical caps are similar to diaphragms—a soft rubber or silicone cup fits over the cervix to prevent sperm from reaching the egg. Cervical caps are a slightly different shape than diaphragms and must also be left in place for at least six hours, but not more than 48 hours. The inside of the cap is also filled with spermicide to provide additional protection.¹⁰⁷

The effectiveness of female cervical barrier methods depends on their consistent and correct use. In addition, the effectiveness of sponges and cervical caps vary based on whether a woman has given birth. If used perfectly in women who have never given birth, nine out of 100 sponge-users will become pregnant each year, and for women who have given birth, 20 out of 100 will become pregnant each year. Typical use shows that 12 out of 100 sponge-users who have never given birth will become pregnant each year, as will 24 out of 100 sponge-users who have already given birth.¹⁰⁸

If used perfectly in women who have never given birth, nine out of 100 cap-users will become pregnant each year, as will 26 out of 100 cap-users who have previously given birth. Typical use shows that 16 out of 100 cap-users who have not given birth will become pregnant each year, along with 32 out of 100 cap-users who have already given birth.¹⁰⁹

For diaphragms with spermicide, perfect use will result in 16 out of 100 users becoming pregnant each year, and typical use will result in 17 out of 100 users becoming pregnant each year.¹¹⁰

Question: Do diaphragms, cervical caps, and contraceptive sponges prevent cervical cancer?

Answer: Using a diaphragm does not prevent cervical cancer but may help prevent HPV, an STI known to cause cervical cancer. Currently, there is no evidence that using a contraceptive sponge or cervical cap prevents the spread of HPV.¹¹¹

FEMALE AND MALE STERILIZATION

Question: What are female and male sterilization?

Answer: Both female and male sterilization are minor surgical procedures that permanently prevent pregnancy. For women this procedure is called tubal occlusion or ligation; for men it is called vasectomy.

Female sterilization involves closing off the fallopian tubes, which carry an egg from the ovary to the uterus. Doing so prevents an egg from moving down into the fallopian tube and thus keeping the sperm from reaching the egg.¹¹² There are three different types of female sterilization:

- Minilaparotomy is a minor surgical procedure where a section of each fallopian tube, or the whole tube, is removed. After a minilaparotomy a woman is immediately protected against pregnancy.¹¹³
- Laparoscopy is a minor surgical procedure in which a special scope is inserted to visualize the tubes and the tubes are then tied and cut, banded, cauterized, or clipped. After a laparoscopy a woman is immediately protected against pregnancy.¹¹⁴
- Hysteroscopy does not require incisions in the skin. Small implants are placed in the fallopian tubes, and scar tissue forms around the devices, blocking the tubes. It takes three months for the scar tissue to form, and during this period the woman must use another contraceptive method to prevent pregnancy.¹¹⁵

Male sterilization involves tying, cutting, clipping, or sealing the vas deferens, one of the two tubes that carry sperm from the testes, which prevents sperm from ever being released. It takes about two to three months after sterilization for a man's semen to become totally free of sperm, so an alternative family planning method should be used during that time.¹¹⁶

Question: After a woman is sterilized, is there a chance she can still become pregnant?

Answer: Female sterilization (tubal ligation) is an effective form of contraception that permanently prevents a woman from becoming pregnant. In most cases, a tubal ligation is more than 98 percent effective, with only two in 100 women over 10 years becoming pregnant after the operation; tubal ligation can fail if the woman was pregnant before sterilization, if an opening develops in the tube, or if the provider cut in the wrong place, missing the fallopian tube.¹¹⁷

Question: After a man is sterilized, is there a chance that he can still impregnate a woman?

Answer: While male sterilization (vasectomy) is a permanent contraception method for men, the couple must use another contraceptive method for three months after the vasectomy for full protection from pregnancy. After three months, vasectomies have a failure rate of less than 1 percent, which means it is a very effective method. Failure tends to occur when if the couple does not use another method during the first three months after the vasectomy, if the the cut ends of the vas deferens, which transports the sperm during ejaculation, grow back together, or if the provider made an error in the procedure.¹¹⁸

Question: Will sterilization make a person gain weight?

Answer: No correlation exists between sterilization and weight gain. Women may believe that sterilization causes weight gain because most clients are sterilized in their 30s or later, a time when the metabolism rate slows and weight gain is common. The weight gain tends to be associated with aging rather than the sterilization procedure.¹¹⁹

Question: Will sterilization make a person physically weak?

Answer: Since sterilization is a minor surgical procedure, a woman or man may have some discomfort and need a few days to recover after surgery.¹²⁰

Question: Is female sterilization associated with reduced risk of ovarian cancer?

Answer: Yes. A 2016 study of over 1 million women found that those who had undergone female sterilization (tubal ligation) had a 20 percent reduction in risk of developing ovarian cancer compared with those women who had not, and a similar reduction for peritoneal cancer. The study also found reduced risk of fallopian tube cancer.¹²¹ A 2013 study found that tubal ligation was associated with significantly reduced risks of invasive, endometrial, clear cell, and mucinous cancer.¹²² A 2011 study of over 40 previous studies found that tubal ligation reduced the risk of ovarian cancer by 34 percent and that this protection continued for up to 14 years after the procedure took place.¹²³

Question: Is a vasectomy a painful procedure? Is it complicated?

Answer: No. A vasectomy is a quick procedure that requires a health care provider to close or block the vas deferens, the tube that carries sperm from the testicles to the urethra in preparation for ejaculation. After a man completes the outpatient procedure, he may experience slight or moderate discomfort, which can be alleviated by using an athletic supporter, ice bag, and a pain reliever. He should also rest for two days.¹²⁴

Question: Is a tubal ligation a painful procedure? Is it complicated?

Answer: The procedure can be somewhat uncomfortable. During a tubal ligation, a medical provider performs minor surgery that prevents the movement of the egg to the fallopian tubes and uterus for fertilization and blocks sperm from traveling up the fallopian tubes to the egg.

A tubal ligation is an outpatient procedure under local anesthesia. A woman may experience some short-term side effects, such as abdominal pain or cramping, fatigue, dizziness, and bloating. A pain reliever helps alleviate the discomfort.¹²⁵

Question: If a woman chooses to undergo tubal ligation, will she no longer menstruate?

Answer: Tubal ligation does not prevent a woman from menstruating. Unlike a hysterectomy, which removes the uterus and stops future menstruation, tubal ligation blocks the fallopian tubes to prevent an egg from moving into the uterus for possible fertilization by sperm. Tubal ligation has no effect on the production of female hormones and a woman will still shed the lining of her uterus (the endometrium) each month. If a woman chooses tubal ligation during her later reproductive years, her menstrual cycle may change due to menopause rather than as a result of the procedure itself.¹²⁶ Additionally, women who stop using hormonal methods to become sterilized may notice cycle changes.

Question: Is vasectomy the same thing as castration?

Answer: No. Castration is the removal of the testicles, which is not what happens during a vasectomy. A vasectomy is a procedure that blocks the passage of sperm from the testicles to the tubes called the vas deferens. A man's testicles are not involved in the procedure.¹²⁷

Question: After a vasectomy, can a man still produce semen and ejaculate?

Answer: Yes. A man will still be able to produce semen and ejaculate, but there will be no sperm in the semen.¹²⁸

Question: Will a man still desire sex and be able to perform sexually after he has a vasectomy?

Answer: A man's sexual desire and ability to have sex is not affected by a vasectomy. Male sterilization does not interfere with hormone production in the testes or with the blood vessels or nerves necessary for an erection. A vasectomy does not cause impotence or affect a man's ability to have and maintain an erection. The only difference is there will no longer be sperm released into the semen during ejaculation. This may actually increase sexual pleasure due to lack of fear of an unplanned pregnancy.¹²⁹

Question: If a man has a vasectomy, is he at greater risk of getting prostate cancer?

Answer: Most studies find no relation between vasectomy and risk of prostate cancer.¹³⁰

Question: Can a vasectomy increase a man’s chances of heart problems or harm his immune system?

Answer: No link has been shown between a vasectomy and coronary heart disease.¹³¹ This rumor began when earlier studies, using vasectomized monkeys as research subjects, showed a correlation between diet and heart problems. Subsequent studies in humans have shown no association.¹³²

Question: If a man gets a vasectomy, is he still able to do physical labor?

Answer: After surgery, he may need to take a one-week break from lifting and heavy work, but he can return to his normal work once he has recovered.¹³³

FERTILITY AWARENESS-BASED METHODS

Question: What are fertility awareness-based methods?

Answer: Fertility awareness-based methods (also known as natural family planning) include a variety of options for couples to protect themselves from pregnancy by knowing when the woman is fertile during her menstrual cycle. The fertile time is when she can become pregnant.

The methods include *calendar-based methods* that involve tracking the days of the menstrual cycle to identify the start and end of the fertile time and *symptoms-based methods* that require observing cervical secretions and/or a woman’s body temperature, which rises slightly after ovulation. This allows the couple to time intercourse to prevent or achieve pregnancy depending on the couple’s family planning intentions.

During a woman’s fertile period, defined differently by the different fertility awareness-based methods, the couple prevents pregnancy by avoiding unprotected sex by either abstaining or using another contraceptive method. Fertility awareness-based methods have no side effects or health risks, other than the possibility of unintended pregnancy if the method should fail (and the potential for sexually transmitted infections). When commonly used during the first year, 12 to 25 of every 100 couples will experience a pregnancy, depending on the method they are using.¹³⁴

Question: Does one need to be literate and highly educated to use a fertility awareness-based method for family planning?

Answer: Studies in Latin America, Asia, and Africa have shown that women with very little education and those who cannot read or write use fertility awareness-based methods, such as the Standard Days Method (SDM), as effectively as highly educated women, but may require more counseling time and tailored materials. SDM uses memory aids such as CycleBeads, a color-coded string of beads that indicates the days of a women’s reproductive cycle when pregnancy is likely or unlikely to occur. These tools, along with other counseling information that uses pictures to explain the method, help women and men who are unable to read understand how a method works.¹³⁵

Other fertility awareness-based methods—such as the TwoDay Method, the basal body temperature method, and the symptothermal method—are also available for women and men who may have little education. Additional counseling may be needed to ensure that the client understands how to use the method but the effectiveness rate is the same as other clients with more education.¹³⁶

Question: If a woman wants to use a fertility awareness-based method, does she need to have a regular menstrual cycle?

Answer: If a woman does not have a regular menstrual cycle (a cycle that usually lasts between 26 and 32 days), she is still eligible to use some fertility awareness methods. If a woman has two or more cycles that fall outside of the 26- to 32-day range, she will reduce her chances of becoming pregnant if she uses a symptoms-based method, such as the TwoDay Method, the basal body temperature method, Billings Ovulation Method, or the symptothermal method.¹³⁷

Question: What do couples do on the days when a woman is at risk of becoming pregnant?

Answer: During the days when a woman is fertile, the couple will either need to abstain from sex or use a barrier method. While it may be difficult to change the behavior of a male partner, including him during family planning counseling sessions can help both partners understand the importance of preventing pregnancy and practicing abstinence or a barrier method during fertile days.¹³⁸

THE LACTATIONAL AMENORRHEA METHOD

Question: What is the Lactational Amenorrhea Method (LAM)?

Answer: The Lactational Amenorrhea Method is a temporary form of family planning that relies on the natural effect that a new mother breastfeeding her baby has on fertility.¹³⁹ LAM is an effective method of contraception only if the woman can meet all of the following requirements:

- Menstrual bleeding, including spotting, has not returned following childbirth.
- Her baby is fed “on demand” (at least every four hours during the day and at least every six hours during the night), exclusively by breastmilk and no other food, water, or liquids are given to the baby.
- Her baby is less than six months old.¹⁴⁰

A woman can use LAM as a method of family planning because frequent breastfeeding temporarily prevents the release of the hormones that cause ovulation.¹⁴¹

Question: How effective is the Lactational Amenorrhea Method?

Answer: The effectiveness of LAM is highly dependent on whether a woman can fully breastfeed her baby. Less than one out of 100 women who are able to fully breastfeed their baby and who use LAM perfectly in the first six months after childbirth will become pregnant. Women who are able to fully breastfeed their baby and who use LAM typically in the first six months after childbirth have a 2 out of 100 chance of becoming pregnant.¹⁴²

The effectiveness of LAM reduces significantly when a woman’s period returns, when she no longer fully breastfeeds her baby, or when her baby reaches six months of age. Women wishing to avoid pregnancy should transition to another method of family planning when any of these criteria are met.¹⁴³

Question: The Lactational Amenorrhea Method requires the mother to exclusively breastfeed her newborn for the first six months. Does a baby need to be fed more than only breast milk to intake adequate nutrients?

Answer: According to WHO, exclusive breastfeeding for the first six months is the optimal way to feed an infant, providing all the energy and nutrients needed. Breastfeeding also helps reduce infant mortality due to common childhood illnesses such as diarrhea or pneumonia and helps infants recover from illness more quickly. Exclusive breastfeeding also helps the growth and development of the infant.¹⁴⁴

Question: If a woman is HIV positive, is it safe for her to use LAM as a contraceptive method?

Answer: If she is HIV positive, she can pass HIV to her baby through breast milk but receiving HIV treatment significantly reduces the chances of this happening. WHO suggests that HIV-positive women use replacement feeding instead of breastfeeding if safe drinking water is consistently available, and if the replacement is:

- Acceptable to the mother and baby.
- Affordable for the mother.
- Feasible to purchase or make.
- Available for the full first six months of the infant's life.

If all the criteria above cannot be met, WHO recommends exclusive breastfeeding for HIV-positive women rather than mixed feeding (breastfeeding along with replacement foods). The benefits of exclusive breastfeeding must be weighed against the danger of passing HIV to the infant. If the criteria above cannot be met for replacement feeding, especially in areas of the world where infectious disease and malnutrition are common causes of infant deaths, breastfeeding may still be the best choice for HIV-positive women and their children. Women who are HIV positive should be counseled about the risks and benefits of breastfeeding and about LAM no longer being effective once the mother begins giving her infant replacement foods, her menstruation returns, and/or her infant is older than six months.¹⁴⁵

THE NEED FOR ACCURATE INFORMATION

All of the contraceptive methods reviewed in this document can significantly reduce the chances of unintended pregnancy if used correctly and consistently, and most are safe for the majority of users and under almost all conditions. Addressing misinformation about each method helps women and men choose which method(s) to use based on scientific evidence rather than myths and rumors. Access to accurate information about all contraceptive methods ensures that women and men are able to evaluate which method is right for them based on their childbearing goals, health status, relationship, and living conditions.

REFERENCES

- 1 Population Reference Bureau, *Contraceptive Safety: Rumors and Realities* (Washington, DC: Population Reference Bureau, 2013).
- 2 Guttmacher Institute, "Adding It Up: Investing in Contraception and Maternal and Newborn Health," Fact Sheet (December 2017), accessed at www.guttmacher.org/fact-sheet/adding-it-up-contraception-mnh-2017, on Dec. 19, 2017.
- 3 Guttmacher Institute, "Adding It Up: Investing in Contraception and Maternal and Newborn Health"; and Jacqueline E. Darroch, Gilda Sedgh, and Haley Ball, *Contraceptive Technologies: Responding to Women's Needs* (New York: Guttmacher Institute, 2011).
- 4 Elisa Wells, "Countering Myths and Misperceptions About Contraceptives," *Outlook on Reproductive Health* (June 2015), accessed at www.path.org/publications/files/RH_outlook_myths_mis_june_2015.pdf, on Mar. 6, 2018.
- 5 World Health Organization (WHO), "Family Planning/Contraception," accessed at www.who.int/mediacentre/factsheets/fs351/en/, on Mar. 6, 2018.
- 6 WHO, Department of Reproductive Health and Research, and Johns Hopkins University, Bloomberg School of Public Health, Center for Communication Programs, *Family Planning: A Global Handbook for Providers, Evidence-Based Guidance Developed Through Worldwide Collaboration, 2018 Update* (Baltimore and Geneva: Johns Hopkins University, Bloomberg School of Public Health and WHO, 2018).
- 7 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 8 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 9 Laura J. Havrilesky et al., "Oral Contraceptive Pills as Primary Prevention for Ovarian Cancer: A Systematic Review and Meta-Analysis," *Obstetrics & Gynecology* 122, no. 1 (2013): 139-47; and Alfred O. Mueck, Harald Seeger, and Thomas Rabe, "Hormonal Contraception and Risk of Endometrial Cancer: A Systematic Review," *Endocrine-Related Cancer* 17, no. 4 (2010): 263-67.
- 10 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 11 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 12 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 13 Carlo La Vecchia and Alessandra Tavani, "Female Hormones and Benign Liver Tumours," *Digestive and Liver Disease* 38, no. 8 (2006): 535-36; and Olivier Farges et al., "Changing Trends in Malignant Transformation of Hepatocellular Adenoma," *Gut* 60, no. 1 (2011): 85-89.
- 14 Robert A. Hatcher, *Contraceptive Technology 21st Edition* (Atlanta: Managing Contraception, LLC, 2018).
- 15 U.S. National Library of Medicine and the National Institutes of Health (NIH), "Levonorgestrel (2010)," accessed at www.nlm.nih.gov/medlineplus/druginfo/meds/a610021.html, on July 23, 2013; and United States Food and Drug Administration (FDA), "FDA Drug Safety Communication: Updated Information About the Risk of Blood Clots in Women Taking Birth Control Pills Containing Drospirenone" (2013), accessed at www.fda.gov/Drugs/DrugSafety/ucm299305.htm, on July 23, 2013.
- 16 Hatcher, *Contraceptive Technology 21st Edition*.
- 17 FDA, "FDA Drug Safety Communication: Updated Information About the Risk of Blood Clots in Women Taking Birth Control Pills Containing Drospirenone."
- 18 International Planned Parenthood Federation (IPPF), "Combined Oral Contraceptive Myths," (March 2019), accessed at www.ippf.org/blogs/myths-and-facts-about-contraceptive-pill, on Mar. 29, 2019.
- 19 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*; and Chelsea B. Polis, et al., "An Updated Systematic Review of Epidemiological Evidence on Hormonal Contraceptive Methods and HIV Acquisition in Women," *AIDS* 30, no. 17 (2016): 2665-83.
- 20 WHO, "Hormonal Contraceptive Eligibility for Women at High Risk of HIV," (February 2017), accessed at www.who.int/reproductivehealth/publications/family_planning/HC-and-HIV-2017/en/, on Dec. 7, 2018.
- 21 WHO, "Hormonal Contraceptive Eligibility for Women at High Risk of HIV"; and WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 22 James Trussell, Elizabeth G. Raymond, and Kelly Cleland, "Emergency Contraception: A Last Chance to Prevent Unintended Pregnancy," (January 2019), accessed at <https://ec.princeton.edu/questions/ec-review.pdf>, on Feb. 25, 2019.
- 23 Anna Glasier et al., "Ulipristal Acetate Versus Levonorgestrel for Emergency Contraception: A Randomized Non-Inferiority Trial and Meta-Analysis," *Lancet* 375, no. 9714 (2010): 555-62; and R. L. Barbieri, "Levonorgestrel or Ulipristal: Is One a Better Emergency Contraceptive Than the Other?" accessed at www.medge.com/obgmanagement/article/64256/contraception/levonorgestrel-or-ulipristal-one-better-emergency, on Jan. 4, 2018.
- 24 Trussell, Raymond, and Cleland, "Emergency Contraception: A Last Chance to Prevent Unintended Pregnancy."
- 25 Trussell, Raymond, and Cleland, "Emergency Contraception: A Last Chance to Prevent Unintended Pregnancy."
- 26 C. Berger et al., "Effects of Ulipristal Acetate on Human Embryo Attachment and Endometrial Cell Gene Expression in an In Vitro Co-Culture System," *Human Reproduction* 30, no. 4 (2015): 800-811; and American College of Obstetricians and Gynecologists, "Emergency Contraception," (Jan. 30, 2020), accessed at www.acog.org/Patients/FAQs/Emergency-Contraception#work, on Oct. 16, 2018.
- 27 Kristina Gemzell-Danielsson and Lena Marions, "Mechanisms of Action of Mifepristone and Levonorgestrel When Used for Emergency Contraception," *Human Reproduction Update* 10, no. 4 (2004): 341-348.
- 28 American Society for Emergency Contraception, "Emergency Contraception and Medical Abortion: What's the Difference?" (Jan. 30, 2020), accessed at www.cecinfo.org/custom-content/uploads/2013/03/MedAbort_FactSheet_2013_ASEC.pdf, on Mar. 6, 2018.
- 29 Linan Cheng et al., "Interventions for Emergency Contraception," *Cochrane Database Systematic Review* (2008); Task Force on Postovulatory Methods of Fertility Regulation, "Randomised Controlled Trial of Levonorgestrel Versus the Yuzpe Regimen of Combined Oral Contraceptives for Emergency Contraception," *Lancet* 352, no. 9126 (1998): 428-33; and Elizabeth G. Raymond et al., "Minimum Effectiveness of the Levonorgestrel Regimen of Emergency Contraception," *Contraception* 69, no. 1 (2004): 79-81.
- 30 Cheng et al., "Interventions for Emergency Contraception"; and Glasier et al., "Ulipristal Acetate Versus Levonorgestrel for Emergency Contraception."
- 31 Hatcher, *Contraceptive Technology 21st Edition*.
- 32 Gilda Piaggio et al., "Combined Estimates of Effectiveness of Mifepristone 10 mg in Emergency Contraception," *Contraception* 69, no. 6 (2003): 439-46.
- 33 Paul Fine et al., "Ulipristal Acetate Taken 48-120 Hours After Intercourse for Emergency Contraception," *Obstetrics & Gynecology* 115, no. 2, part 1 (2010): 257-63; Glasier et al., "Ulipristal Acetate Versus Levonorgestrel for Emergency Contraception"; and Mitchell D. Creinin et al., "Progesterone Receptor Modulator for Emergency Contraception: A Randomized Controlled Trial," *Obstetrics & Gynecology* 108, no. 5 (2006): 1089-97.

- 34 Trussell, Raymond, and Cleland, "Emergency Contraception: A Last Chance to Prevent Unintended Pregnancy."
- 35 Lin Zhang et al., "Pregnancy Outcome After Levonorgestrel-Only Emergency Contraception Failure: A Prospective Cohort Study," *Human Reproduction* 24, no. 7 (2009): 1605-11; and Marco De Santis et al., "Failure of the Emergency Contraceptive Levonorgestrel and the Risk of Adverse Effects in Pregnancy and on Fetal Development: An Observational Cohort Study," *Fertility Sterility* 84, no. 2 (2005): 296-99.
- 36 Planned Parenthood, "Morning-After Pill (Emergency Contraception)" (2012), accessed at www.plannedparenthood.org/health-topics/emergency-contraception-morning-after-pill-4363.asp, on Dec. 13, 2012.
- 37 Planned Parenthood, "Morning-After Pill (Emergency Contraception)"; and WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 38 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 39 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*; and Courtney A. Schreiber and Kurt Barnhart, "Injectable Contraceptives," in Yen & Jaffe's Reproductive Endocrinology (7th Edition), ed. Jerome F. Strauss III and Robert L. Barbieri (Boston: Elsevier, 2014).
- 40 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 41 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 42 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*; and WHO, *Medical Eligibility Criteria for Contraceptive Use: Fourth Edition* (Geneva: WHO, 2010).
- 43 Sarikapan Wilailak et al., "Depot Medroxyprogesterone Acetate and Epithelial Ovarian Cancer: A Multicenter Case-Control Study," *British Journal of Obstetrics and Gynaecology* 119, no. 6 (2012): 672-77.
- 44 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 45 Christopher I. Li et al., "Effect of Depo-Medroxyprogesterone Acetate on Breast Cancer Risk Among Women 20-44 Years of Age," *Cancer Research* 72 (2012): 2028-35.
- 46 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 47 Johns Hopkins Bloomberg School of Public Health, Center for Communication Programs, *Contraceptive Myths and Counseling Messages: The Complete Content From the Online Database* (Baltimore: Johns Hopkins Bloomberg School of Public Health, 2007).
- 48 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 49 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*; Tieng Pardthaisong, Ronald H. Gray, and Edwin B. McDaniel, "Return of Fertility After Discontinuation of Depot Medroxyprogesterone Acetate and Intra-Uterine Devices in Northern Thailand," *Lancet* 315, no. 8167 (1980): 509-12; and P.C. Schwallie and J.R. Assenzo, "The Effect of Depo-Medroxyprogesterone Acetate on Pituitary and Ovarian Function and the Return of Fertility Following its Discontinuation: A Review," *Contraception* 10, no. 2 (1974): 181-202.
- 50 L. Bahamondes et al., "Return of Fertility After Discontinuation of the Once-a-Month Injectable Contraceptive Cycloferm®," *Contraception* 55, no. 5 (1997): 307-10.
- 51 Waleska Modesto, Valeria Bahamondes, and Luis Bahamondes, "Prevalence of Low Bone Mass and Osteoporosis in Long-Term Users of the Injectable Contraceptive Depot Medroxyprogesterone Acetate," *Journal of Women's Health* 24, no. 8 (2015): 636-40.
- 52 M. E. Beksinska et al., "Bone Mineral Density in Women Aged 40-49 Years Using Depot-Medroxyprogesterone Acetate, Norethisterone Enanthate or Combined Oral Contraceptives for Contraception," *Contraception* 71, no. 3 (2005): 170-5; Von Kesserü et al., "Premenopause Contraception With Monthly Injectable Mesigyna® With Special Emphasis on Serum Lipid and Bone Density Patterns," *Contraception* 61, no. 5 (2000): 317-22; and L. Bahamondes et al., "Bone Mineral Density in Users of Two Kinds of Once-a-Month Combined Injectable Contraceptives," *Contraception* 74, no. 3 (2006): 259-63.
- 53 Modesto, Bahamondes, and Bahamondes, "Prevalence of Low Bone Mass and Osteoporosis in Long-Term Users of the Injectable Contraceptive Depot Medroxyprogesterone Acetate."
- 54 Hatcher, *Contraceptive Technology 21st Edition*.
- 55 WHO, *Medical Eligibility Criteria for Contraceptive Use: Fourth Edition* (Geneva: WHO, 2015).
- 56 WHO, "Hormonal Contraceptive Eligibility for Women at High Risk of HIV."
- 57 WHO, "Hormonal Contraceptive Eligibility for Women at High Risk of HIV"; and WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 58 Evidence for Contraceptive Options and HIV Outcomes (ECHO) Trial Consortium, "HIV Incidence Among Women Using Intramuscular Depot Medroxyprogesterone Acetate, a Copper Intrauterine Device, or a Levonorgestrel Implant for Contraception: A Randomised, Multicentre, Open-Label Trial," *Lancet* 394, no. 10195 (2019): 303-13; and WHO, *Contraceptive Eligibility for Women at High Risk of HIV: Guidance Statement, Recommendations on Contraceptive Methods Used by Women at High Risk of HIV* (New York: WHO, 2019).
- 59 Sharon J. Phillips, Kathryn M. Curtis, and Chelsea B. Polis, "Effect of Hormonal Contraceptive Methods on HIV Disease Progression: A Systematic Review," *AIDS* 27, no. 5 (2013): 787-94.
- 60 Chelsea B. Polis, Sharon J. Phillips, and Kathryn M. Curtis, "Hormonal Contraceptive Use and Female-to-Male HIV Transmission: A Systematic Review of the Epidemiologic Evidence," *AIDS* 27, no. 4 (2013): 493-95.
- 61 WHO, "Hormonal Contraceptive Eligibility for Women at High Risk of HIV."
- 62 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 63 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 64 Hatcher, *Contraceptive Technology 21st Edition*.
- 65 Moazzam Ali et al., "Extended Use up to Five Years of the Etonogestrel-Releasing Subdermal Contraceptive Implant: Comparison to Levonorgestrel-Releasing Subdermal Implant," *Human Reproduction* 31, no. 11 (2016): 2491-8.
- 66 Centers for Disease Control and Prevention (CDC), "Effectiveness of Family Planning Methods," accessed at www.cdc.gov/reproductivehealth/unintendedpregnancy/pdf/contraceptive_methods_508.pdf, on Jan. 11, 2018.
- 67 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 68 The Family Planning Association, "Contraceptive Implant: Your Guide" (2013), accessed at www.fpa.org.uk/helpandadvice/contraception/contraceptiveimplant, on Dec. 18, 2012; and WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.

- 69 Ji Hui Choi et al., "Migration of a Contraceptive Subdermal Device Into the Lung," *Obstetrics and Gynecology* 60, no. 3 (2017): 314-17; and Merck, Sharp, and Dohme Limited, "Nexplanon (Etonogestrel): Implants Have Been Found Rarely in the Vasculature and Lung—An Update Regarding Possible Risks and Complications Regarding Insertion, Localisation, and Removal," accessed at https://assets.publishing.service.gov.uk/media/576006d640f0b652dd000036/Nexplanon_DHPC_sent_31_May_2016.pdf, on Mar. 29, 2019.
- 70 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*; American College of Obstetricians and Gynecologists, Committee on Adolescent Health Care, Long-Acting Reversible Contraception Working Group, "Adolescents and Long-Acting Reversible Contraception: Implants and Intrauterine Devices," Committee Opinion Number 539 (October 2012, reaffirmed 2016), accessed at www.acog.org/Resources-And-Publications/Committee-Opinions/Committee-on-Adolescent-Health-Care/Adolescents-and-Long-Acting-Reversible-Contraception, on Dec. 21, 2017; Bliss Kaneshiro and Jennifer Salcedo, "Contraception for Adolescents: Focusing on Long-Acting Reversible Contraceptives (LARC) to Improve Reproductive Health Outcomes," *Current Obstetrics and Gynecology Reports* 4, no. 1 (2015): 53-60; and Colleen McNicholas and Jeffrey F. Peipert, "Long-Acting Reversible Contraception (LARC) for Adolescent," *Current Opinion in Obstetrics and Gynecology* 24, no. 5 (2012): 53-60.
- 71 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 72 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 73 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 74 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 75 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 76 Washington University of St. Louis, School of Medicine, Contraceptive Choice Center, "Copper IUD Fact Sheet," accessed at <https://contraceptivechoice.wustl.edu/wp-content/uploads/2015/07/Copper-IUD-Fact-Sheet.pdf>, on Jan. 4, 2018; and WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 77 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 78 Hatcher, *Contraceptive Technology 21st Edition*.
- 79 Reproductive Health Access Project, "IUD Information" (March 2017), accessed at www.reproductiveaccess.org/wp-content/uploads/2014/06/IUD_facts.pdf, on Sept. 7, 2019.
- 80 Reproductive Health Access Project, "IUD Information."
- 81 U.S. Department of Health and Human Services (HHS), Office of Population Affairs, "Intrauterine Device (IUD): The Facts," accessed at www.hhs.gov/opa/sites/default/files/iud-fact-sheet.pdf, on Jan. 4, 2018.
- 82 David Hubacher et al., "Use of Copper Intrauterine Devices and the Risk of Tubal Infertility Among Nulligravid Women," *New England Journal of Medicine* 345, no. 8 (2001): 561-67; and Anshu P. Mohllajee, Kathryn M. Curtis, and Herbert B. Peterson, "Does Insertion and Use of an Intrauterine Device Increase the Risk of Pelvic Inflammatory Disease Among Women With a Sexually Transmitted Infection? A Systematic Review," *Contraception* 73, no. 2 (2006): 145-53.
- 83 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 84 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 85 Robert A. Hatcher et al., *Contraceptive Technology, 21st Edition*; and Amy Stoddard, Colleen McNicholas, and Jeffrey F. Peipert, "Efficacy and Safety of Long-Acting Reversible Contraception," *Drugs* 71, no. 8 (2011): 969-80.
- 86 Hatcher, *Contraceptive Technology 21st Edition*.
- 87 Klaas Heinemann et al., "Risk of Uterine Perforation With Levonorgestrel-Releasing and Copper Intrauterine Devices in the European Active Surveillance Study on Intrauterine Devices," *Contraception* 91, no. 4 (2015): 274-9.
- 88 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 89 Ezio Fulcheri, Elisa di Capua, and Nicola Ragni, "Pregnancy Despite IUD: Adverse Effects on Pregnancy Evolution and Fetus," *Contraception* 68, no. 1 (2003): 35-38; and Hatcher, *Contraceptive Technology 21st Edition*.
- 90 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 91 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 92 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 93 Johns Hopkins University, *Contraceptive Myths and Counseling Messages*.
- 94 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 95 Cynthia Graham et al., "Erection Loss in Association With Condom Use Among Young Men Attending a Public STI Clinic: Potential Correlates and Implications for Risk Behavior," *Sexual Health* 3, no. 4 (2006): 255-60.
- 96 Johns Hopkins University, *Contraceptive Myths and Counseling Messages*.
- 97 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 98 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 99 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*; and FDA, "FDA Approves New Vaginal Ring for One Year of Birth Control," Aug. 10, 2018, accessed at www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm616541.htm, on Nov. 6, 2018.
- 100 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 101 WHO, *Medical Eligibility Criteria for Contraceptive Use*.
- 102 Melissa L. Gilliam and Richard J. Derman, "Barrier Methods of Contraception," *Obstetrics and Gynecology Clinics of North America* 27, no. 4 (2000): 841-58.
- 103 M. A. Kuyoha, "Sponge Versus Diaphragm for Contraception: A Cochrane Review," *Contraception* 67, no. 1 (2003): 15-18; and Planned Parenthood, "Birth Control Sponge," accessed at www.plannedparenthood.org/learn/birth-control/birth-control-sponge, on Mar. 29, 2019.
- 104 Planned Parenthood, "How Do I Use the Sponge," accessed at www.plannedparenthood.org/learn/birth-control/birth-control-sponge/how-do-i-use-sponge, on Jan. 4, 2018.
- 105 The Contraceptive Report, "How to Use the Diaphragm," accessed at www.cervicalbarriers.org/documents/contraception_report_dia_000.pdf, on Jan. 4, 2018.
- 106 PATH, "A New Kind of Diaphragm," accessed at www.path.org/resources/reinventing-the-past-to-reshape-the-future-of-contraception-the-story-of-the-silcs-diaphragm/, on June 14, 2018.
- 107 Planned Parenthood, "Cervical Cap," accessed at www.plannedparenthood.org/learn/birth-control/cervical-cap, on Jan. 4, 2018.
- 108 Planned Parenthood, "How Effective Is the Sponge?" accessed at www.plannedparenthood.org/learn/birth-control/birth-control-sponge/how-effective-sponge, on Jan. 4, 2018.
- 109 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 110 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.

- 111 George F. Sawaya et al., "Effect of Diaphragm and Lubricant Gel Provision on Human Papillomavirus Infection Among Women Provided With Condoms: A Randomized Controlled Trial," *Journal of Obstetrics & Gynecology* 112, no. 5 (2008): 990-97; and Planned Parenthood, "What Are the Disadvantages of Using the Sponge?" accessed at www.plannedparenthood.org/learn/birth-control/birth-control-sponge/what-are-disadvantages-using-sponge, on Mar. 29, 2019; and Planned Parenthood, "What Are the Disadvantages of Using Cervical Caps?" accessed at www.plannedparenthood.org/learn/birth-control/cervical-cap/what-are-disadvantages-using-cervical-caps, on Mar. 29, 2019.
- 112 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 113 American College of Obstetricians and Gynecologists (ACOG), "Frequently Asked Questions, Contraception: Sterilization for Women and Men," (September 2015), accessed at www.acog.org/Patients/FAQs/Sterilization-for-Women-and-Men#how, on Jan. 4, 2018; and United States Agency for International Development (USAID), Maternal and Child Survival Program, *Minilaparotomy Under Local Anesthesia* accessed at http://reprolineplus.org/system/files/resources/Minilap_ReferenceManual.pdf, on Mar. 29, 2019.
- 114 ACOG, "Frequently Asked Questions, Contraception: Sterilization for Women and Men."
- 115 ACOG, "Frequently Asked Questions: Hysteroscopy," (October 2018), accessed at www.acog.org/Patients/FAQs/Hysteroscopy, on Sept. 7, 2019.
- 116 Linley Cook et al., "Vasectomy Occlusion Techniques for Male Sterilization," *Cochrane Database of Systematic Reviews* (2014).
- 117 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 118 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 119 IPPF, "Myths and Facts About...Female Sterilization," (March 2019), accessed at www.ippf.org/blogs/myths-and-facts-about-female-sterilisation, on Mar. 29, 2019; and WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 120 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 121 K. Gaitskell et al., "Tubal Ligation and Incidence of 26 Site-Specific Cancers in the Million Women Study," *British Journal of Cancer* 114, no. 9 (2016): 1033.
- 122 W. Sieh et al., "Tubal Ligation and Risk of Ovarian Cancer Subtypes: A Pooled Analysis of Case-Control Studies," *International Journal of Epidemiology* 42, no. 2 (2013): 579-89.
- 123 D. Cibula et al., "Tubal Ligation and the Risk of Ovarian Cancer: Review and Meta-Analysis," *Human Reproduction Update* 17, no. 1 (2010): 55-67.
- 124 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 125 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 126 Ruwaida M. Salem and Vidya Setty, "When Contraceptives Change Monthly Bleeding," *Population Reports* J, no. 54 (August 2006), accessed at www.fhi360.org/sites/default/files/media/documents/FP_HIV_Toolkit/ProviderPracticalResources/WhenContraceptivesChangeBleeding_PopRpt_2006.pdf, on Mar. 29, 2019; and WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 127 Johns Hopkins University, *Contraceptive Myths and Counseling Messages*.
- 128 Johns Hopkins University, *Contraceptive Myths and Counseling Messages*.
- 129 Johns Hopkins University, *Contraceptive Myths and Counseling Messages*.
- 130 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 131 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 132 M. J. Goldacre et al., "Cancer and Cardiovascular Disease After Vasectomy: An Epidemiological Database Study," *Fertility and Sterility* 84, no. 5 (2005): 1438-43; and M. J. Goldacre et al., "Immune-Related Disease Before and After Vasectomy: An Epidemiological Database Study," *Human Reproduction* 22, no. 5 (2007): 1273-78.
- 133 Mayo Clinic, "Vasectomy," (August 15, 2017), accessed at www.mayoclinic.org/tests-procedures/vasectomy/about/pac-20384580, on Nov. 6, 2018.
- 134 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*; and Urrutia R. Peragallo et al., "Effectiveness of Fertility Awareness-Based Methods for Pregnancy Prevention: A Systematic Review," *Obstetrics & Gynecology* 132, no. 3 (2018): 591-604.
- 135 Georgetown University, Institute for Reproductive Health, *Standard Days Method: Implementation Guidelines for Program Personnel* (Washington, DC: Institute for Reproductive Health, Georgetown University, 2006).
- 136 Urrutia R. Peragallo et al., "Effectiveness of Fertility Awareness-Based Methods for Pregnancy Prevention: A Systematic Review," *Obstetrics & Gynecology* 132, no. 3 (2018): 591-604.
- 137 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 138 Irit Sinai et al., "Fertility Awareness-Based Methods of Family Planning: Predictors of Correct Use," *International Family Planning Perspectives* 32, no. 2 (2006): 94-100.
- 139 HHS, "Lactational Amenorrhea Method (LAM)," accessed at www.hhs.gov/opa/pregnancy-prevention/birth-control-methods/lam/index.html, on Nov. 6, 2018.
- 140 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*.
- 141 HHS, "Lactational Amenorrhea Method (LAM)," accessed at www.hhs.gov/opa/pregnancy-prevention/birth-control-methods/lam/index.html, on Nov. 6, 2018.
- 142 WHO and Johns Hopkins University, *Family Planning: A Global Handbook for Providers, 2018 Update*; and WHO, "Infant and Young Child Feeding," accessed at www.who.int/en/news-room/fact-sheets/detail/infant-and-young-child-feeding, on Mar. 29, 2019.
- 143 HHS, "Lactational Amenorrhea Method (LAM)."
- 144 WHO, "Exclusive Breastfeeding for Six Months Best for Babies Everywhere" (Jan. 15, 2011), accessed at www.who.int/mediacentre/news/statements/2011/breastfeeding_20110115/en/, on Dec. 27, 2012.
- 145 WHO, *HIV and Infant Feeding 2010: An Updated Framework for Priority Action* (Geneva: WHO, 2012); Federico León et al., *The Balanced Counseling Strategy: A Toolkit for Family Planning Service Providers* (Washington, DC: Population Council, 2008); and WHO and UNICEF, *Guideline—Updates on HIV and Infant Feeding: The Duration of Breastfeeding and Support From Health Services to Improve Feeding Practices Among Mothers Living With HIV* (Geneva: WHO, 2016).

ORAL CONTRACEPTIVES

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