Injectable Contraceptives

Injectable contraceptives are safe and highly effective. Providers find that injectables are easy to administer, and many women find that they are convenient to use. More than 24 million couples throughout the world now use injectable contraceptives, and their use is increasing rapidly. ■

Note to facilitator:
The *Checklist for Screening Clients Who Want to Initiate DMPA or NET-EN* and the MEC quick reference chart are tools that can be used to help determine which clients are medically eligible to use progestin-only injectables.

Photo credit: FHI (packaging from socially marketed DMPA in Kenya and Uganda)

Types of Injectable Contraceptives

	Progestin-only	Combined
Hormones	progestin	progestin + estrogen
Duration of effect	3 months, 2 months	1 month
Type	DMPA, NET-EN	Cyclofem, Mesigyna

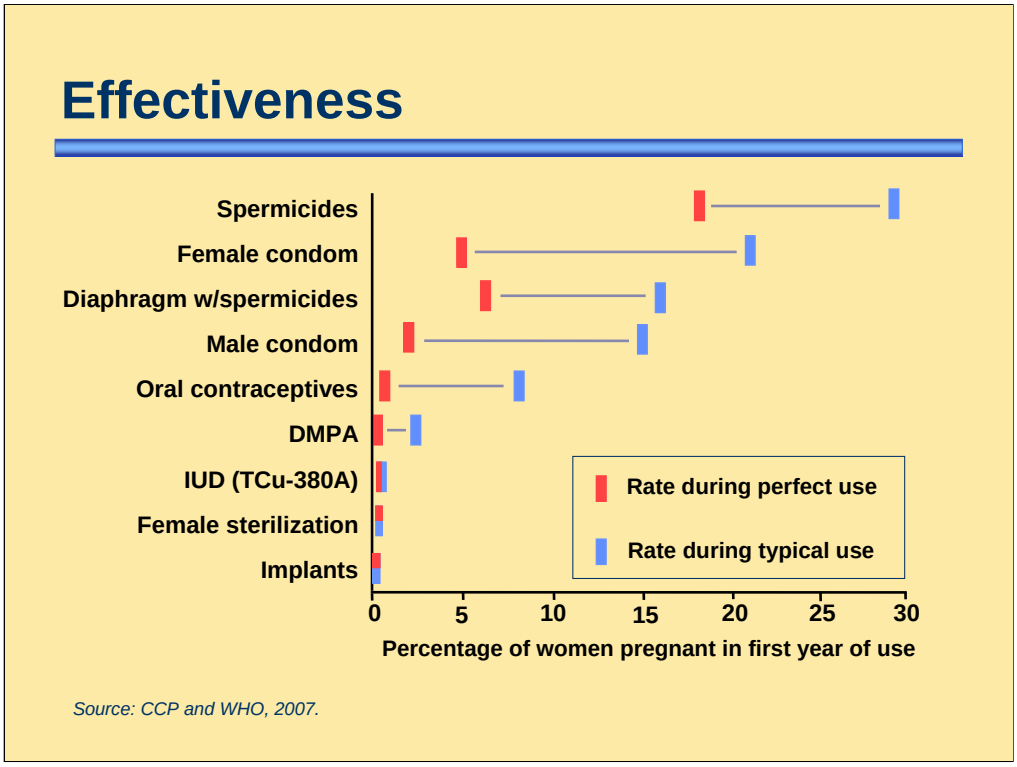
Injectable contraceptives contain female sex hormones that are injected into muscle and released into the blood gradually, thereby providing contraception over a period of time. How long each type of injectable remains effective after an injection depends mainly on the types and amounts of hormones it contains.

There are two types of injectable contraceptives: [redacted]

- Progestin-only injectables contain only progestin, which is a synthetic form of the female sex hormone progesterone. They are administered every two or three months, depending on the product. [redacted]
- Combined injectables contain both progestin and estrogen. They are administered once per month. [redacted]

In this presentation we will focus on progestin-only injectables and specifically on DMPA, as it is more commonly used throughout the world. [redacted]

Discussion question:
What brands of progestin-only injectables are available in the facility where you work?



Injectables are among the most effective methods of contraception. Typical one-year pregnancy rates in clinical trials are 0.3 percent or lower for both progestin-only and combined injectables. This chart compares the pregnancy rates for injectables with the rates for other contraceptive methods. The red rectangles show pregnancy rates for correct and consistent use, reflecting how often a contraceptive fails when it is used both correctly and consistently. The blue rectangles show pregnancy rates for typical use, reflecting how often a contraceptive fails in real-life situations, when it may not always be used correctly and consistently.

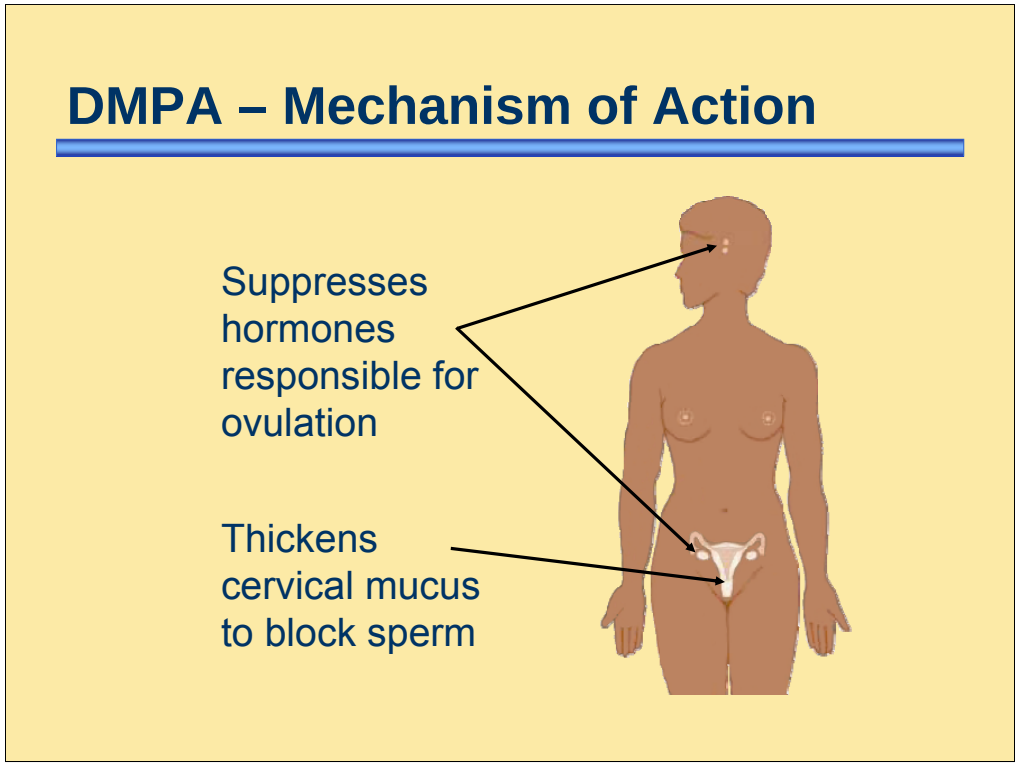
In the case of injectables, there is very little difference between pregnancy rates for correct and consistent use and typical use. As the chart shows, other reversible contraceptive methods, such as barrier methods or oral contraceptives, may have low pregnancy rates with correct and consistent use but much higher rates with typical use.

With injectables, all a woman needs to do is receive her next injection on time. Because the effectiveness of injectables does not depend on daily user compliance, the pregnancy rates for injectables are quite low even with typical use.

Use of injectables results in about the same pregnancy rate as sterilization, a nonreversible method. The only other reversible methods with similar effectiveness in typical use are intrauterine devices, also known as IUDs, and progestin-only subdermal implants.[1] ■

Reference:

1. World Health Organization/Department of Reproductive Health and Research (WHO), Johns Hopkins Bloomberg School of Public Health/Center for Communication Programs/INFO Project (CCP). *Family Planning: A Global Handbook for Providers.* Baltimore, MD and Geneva: CCP and WHO, 2007.



Injectable contraceptives prevent pregnancy in at least two ways. Their primary mechanism of action is to suppress ovulation. The hormones in injectable contraceptives cause the hypothalamus and the pituitary gland to reduce production of the hormones that are necessary for ovulation. When there is no ovulation, there is no egg to be fertilized.

In addition, injectable contraceptives cause the cervical mucus to become thicker. The thicker mucus acts as a barrier to sperm, making it more difficult for sperm to enter the uterine cavity. In the unlikely event that a woman does ovulate, this mucus barrier greatly reduces the chance that the egg will be fertilized.

Injectables also thin the endometrium. Theoretically, this could reduce the chance that a fertilized egg would be implanted. However, injectable contraceptives are so effective in preventing ovulation and fertilization that there is little chance a fertilized egg will be present in the uterus. Thus, thinning of the endometrium is unlikely to play a role in the contraceptive effectiveness of injectables. ■

Discussion questions:
What do women in your community believe about how injectables work? In the event that there are misconceptions about how injectables work, how can you explain the mechanism of action in simple terms?

DMPA – Most Widely Used Injectable

- Best known as Depo-Provera
- Used by more than 14 million women worldwide
- Administered by deep intramuscular injection
- 150 mg every 3 months
- Injection site: upper arm or buttocks

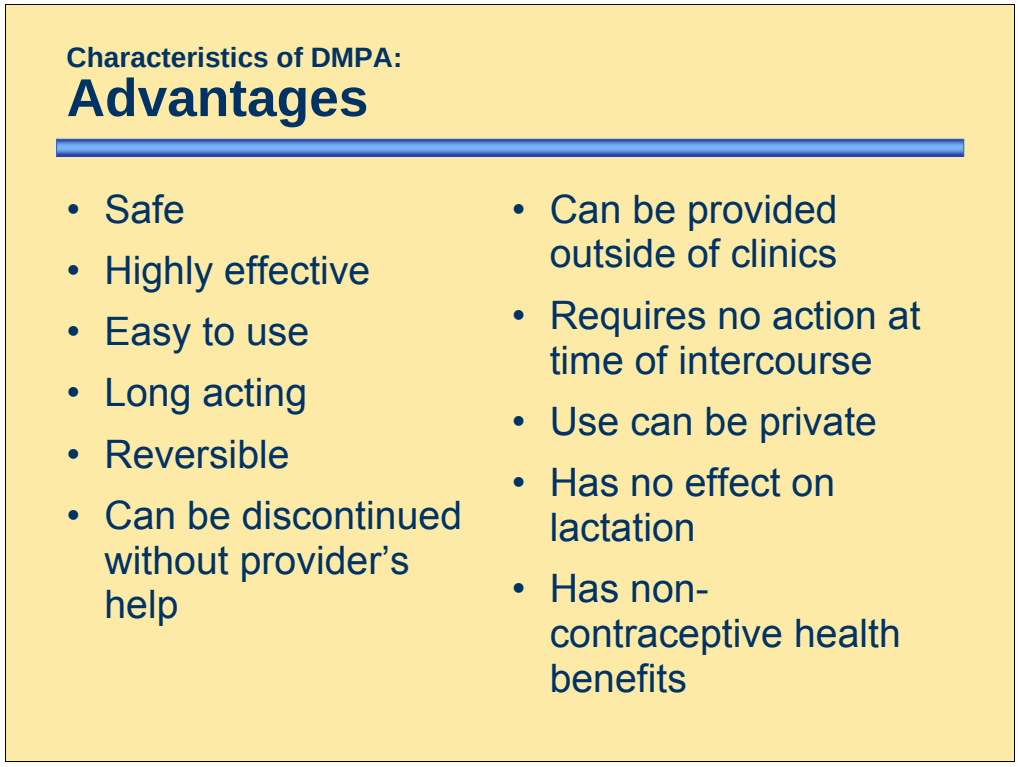
DMPA, best known commercially as Depo-Provera, is used by an estimated 14 million women worldwide. Women using DMPA receive a deep intramuscular injection once every three months at a dose of 150 milligrams.

Injections may be given in the deltoid muscle of the upper arm or the gluteus muscle of the buttocks. The deltoid is generally more accepted by women and is more easily accessed by the provider. The choice should depend mainly on the woman's preference.

The active ingredients in DMPA are suspended in water, so the vial must be lightly shaken to dissolve any sediment at the bottom. The injection site should not be massaged after the injection because that causes the hormone to be absorbed more rapidly than desired.

Following an injection, the hormone level remains high enough to prevent pregnancy for at least three months. ■

Illustration credit: Brian Morris/TenPlus Systems



DMPA offers a number of advantages. It can be used safely by most women, and it is among the most effective contraceptives available – pregnancy rates among injectable contraceptive users are .3 per 100 women during the first 12 months of use.

It is easy to use correctly and consistently, in part because it requires no daily routine.

DMPA is long acting. It is a reversible method of contraception, and it can be discontinued without the provider's help. To discontinue, a woman simply stops receiving injections, and the level of DMPA in her blood gradually decreases.

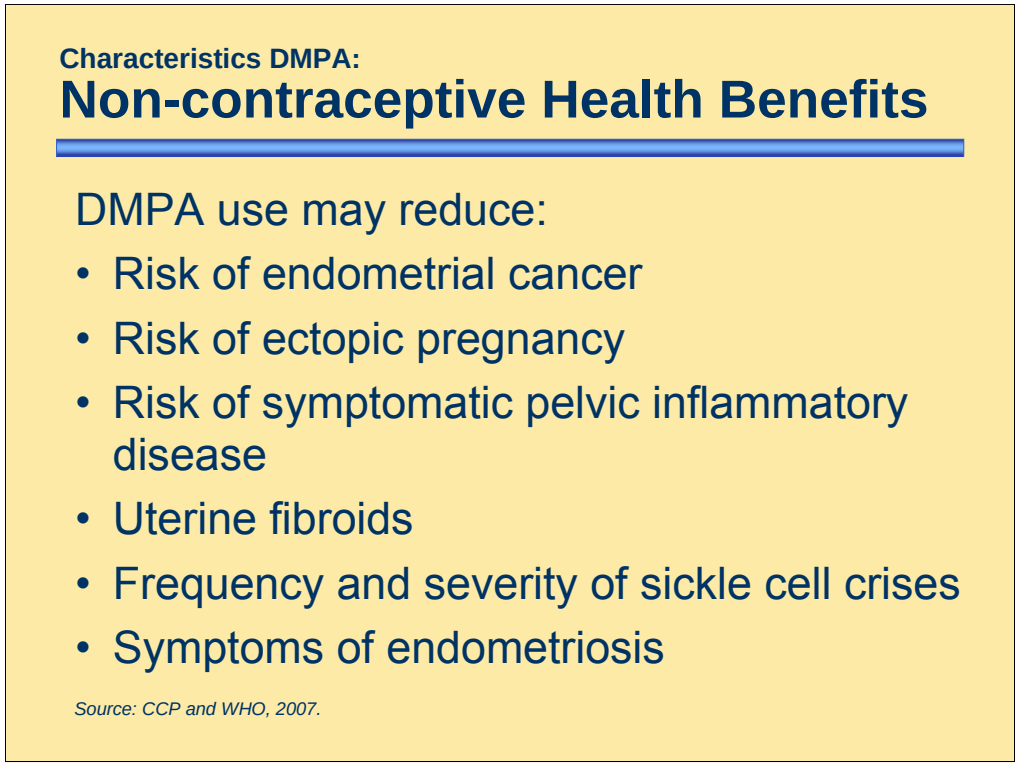
DMPA can be provided at convenient locations, such as at pharmacies or in homes, so its use need not require regular clinic visits.

Use of DMPA requires no action at the time of sexual intercourse. Because no supplies are kept at home, its use can be private.

DMPA has no effect on lactation, so it can be used by women who are breastfeeding.

Another advantage is that it provides health benefits in addition to contraception.

Discussion question:
Among your clients using DMPA, which advantages do you believe most influenced their decision and why?



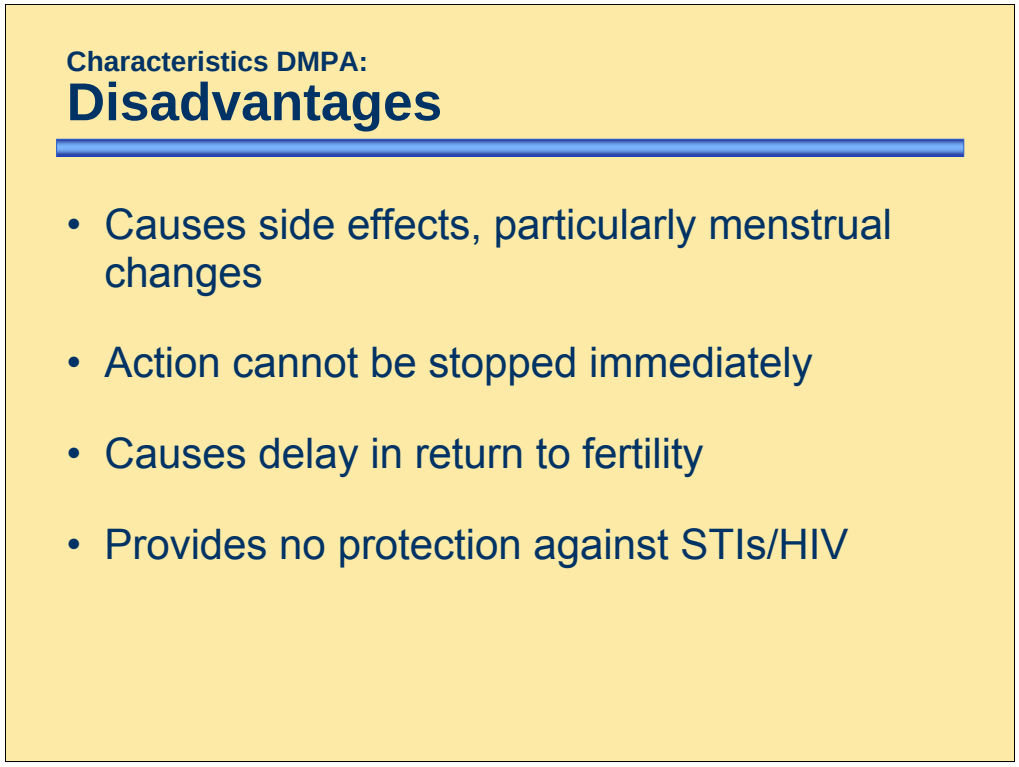
In addition to preventing pregnancy, DMPA provides these health benefits to users:

- Reduced risk of endometrial cancer
- Reduced risk of ectopic pregnancy
- Reduced risk of symptomatic pelvic inflammatory disease, or PID
- Helps protect against uterine fibroids
- Reduced frequency and severity of sickle cell disease crises
- Reduced symptoms of endometriosis[2]

DMPA is believed to have other health benefits, but these have not yet been confirmed by research. Because DMPA suppresses ovulation, it is also thought to prevent ovarian cysts. ■

Reference:

2. World Health Organization/Department of Reproductive Health and Research (WHO), Johns Hopkins Bloomberg School of Public Health/Center for Communication Programs/INFO Project (CCP). *Family Planning: A Global Handbook for Providers.* Baltimore, MD and Geneva: CCP and WHO, 2007.

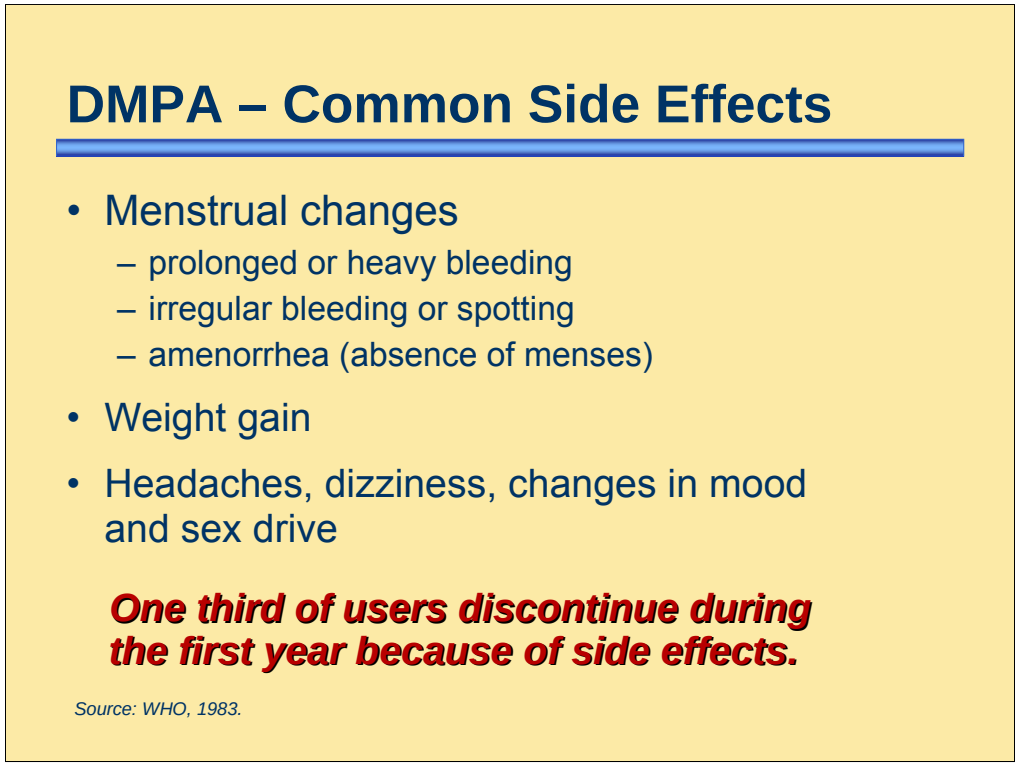


The main disadvantage of DMPA is that it has common side effects – in particular, it causes menstrual changes in most users. These changes include prolonged or irregular bleeding or amenorrhea, which is the absence of menses.

Because DMPA is long acting, its action cannot be stopped immediately if side effects develop or if the user wishes to become pregnant. After a woman's last injection of DMPA, its level in the blood decreases gradually. For this reason, it takes longer for fertility to return after discontinuation of DMPA than after discontinuation of other contraceptive methods.

Like other hormonal methods, DMPA offers no protection against sexually transmitted diseases, including HIV infection.

Discussion questions:
Which disadvantages do you think women in your community find most influential when deciding to avoid using DMPA? Do the reasons for avoiding DMPA seem to vary between different subgroups of women (e.g., youth, women with multiple children, women with HIV)?



The most commonly reported side effects of DMPA are menstrual changes, including prolonged, heavy, or irregular bleeding, spotting, and amenorrhea.

DMPA users also commonly report weight gain.

Less commonly reported side effects are headaches; dizziness; mood changes, such as anxiety; and changes in sex drive.

Typically, over 90 percent of DMPA users report at least one side effect during the first year of use. In most cases, none of these side effects result in health risks. Nonetheless, some side effects, such as changes in bleeding, may have serious practical and social consequences for women.

In a large, multinational study conducted by WHO, about one-third of DMPA users discontinued this method in the first year because of side effects. The side effects that most commonly led to discontinuation were menstrual changes: 15 percent of users discontinued because of prolonged, heavy, or irregular bleeding; and about 12 percent discontinued because of amenorrhea. About 2 percent discontinued because of weight gain, and about 5 percent discontinued because of other side effects.[3]

Discussion questions:
Which potential side effects do you think women in your community find most influential when making a choice to use injectables? Why do you think those are the most significant?

Reference:
3. World Health Organization (WHO). Multinational comparative clinical trial of long-acting injectable contraceptives: norethisterone enanthate given in two dosage regimens and depot-medroxyprogesterone acetate. Final report. *Contraception* 1983;28(1):1-20.

DMPA – Return to Fertility

- Does not permanently reduce fertility
- Length of time DMPA was used makes no difference
- Return to fertility depends on how fast woman fully metabolizes DMPA
  - on average, it takes 9 to 10 months for women to become pregnant after their last injection

Source: Pardthaisong, 1984; Schwallie, 1974.

DMPA does not permanently reduce fertility. However, it usually takes about four months longer for a woman to achieve pregnancy after discontinuing DMPA than after discontinuing other reversible contraceptive methods. ■

The length of time a woman has used DMPA makes no difference in return to fertility. ■

How long it takes for fertility to return depends on how long it takes the woman to metabolize fully the DMPA from her last injection. Because women differ in how they metabolize DMPA, there is considerable variability in how long it takes to become pregnant after discontinuation. ■

On average, women can become pregnant nine to ten months after the last DMPA injection. Some women may become pregnant as soon as four months after the last injection, but a small percentage may take as long as 18 months. The difference in fertility between former DMPA users and former users of other contraceptives disappears approximately 16 months after discontinuation.[4, 5]

Because of the delay in return to fertility, women should be counseled to consider discontinuing DMPA several months before the time they want to conceive. They should be reassured that DMPA does not cause permanent infertility. ■

References:

4. Pardthaisong T. Return of fertility after use of the injectable contraceptive Depo Provera: Up-dated data analysis. *J Biosocial Science* 1984;16(1):23-34.

5. Schwallie PC, Assenzo JR. The effect of depot-medroxyprogesterone acetate on pituitary and ovarian function, and the return of fertility following its discontinuation: a review. *Contraception* 1974;10(2):181-202.

Infant Exposure to DMPA through Breastfeeding

- DMPA has no effect on:
  - onset or duration of lactation
  - quantity or quality of breast milk
  - health and development of infant

- When to initiate:
  - after child is 6 weeks old (preferred)

Source: Koetsawang, 1987; WHO Task Force for Epidemiological Research on Reproductive Health, 1994; WHO, 2004.

DMPA has been used extensively by women who are breastfeeding. Studies have shown that DMPA has no adverse effects on:

- The onset or duration of lactation
- The quantity or quality of breast milk[6]
- The health and development of nursing infants[7, 8]

DMPA is excreted through breast milk. A breastfeeding infant swallows a small amount of DMPA, which enters the child's circulatory system. In newborn infants, the liver may not yet be mature enough to metabolize the DMPA received through breast milk. ■

Therefore, it is recommended that a woman who is breastfeeding wait until her child is six weeks old before using DMPA.[9] However, some providers prefer to initiate DMPA use immediately postpartum in cases where it would be difficult for the woman to return for the injection at the appropriate time. ■

Photo credit: Irina Yacobson/FHI

References:

6. Koetsawang S. The effects of contraceptive methods on quality and quantity of breast milk. *Int J Gynecol Obstet* 1987;25(Suppl):115-27.

7. WHO Task Force for Epidemiological Research on Reproductive Health. Progestogen-only contraceptives during lactation: I. Infant growth. *Contraception* 1994;50:35-53.

8. WHO Task Force for Epidemiological Research on Reproductive Health. Progestogen-only contraceptives during lactation: II. Infant development. *Contraception* 1994;50:55-68.

9. World Health Organization (WHO). *Selected Practice Recommendations for Contraceptive Use. Second Edition.* Geneva: WHO, 2004.

Effect of DMPA on Bone Density

- DMPA users have lower bone density than non-users
- Women initiating use as adults regain most lost bone
- Long-term effect in adolescents unknown
  - concern that osteoporosis may develop later
  - long-term studies are needed
  - generally acceptable to use

Source: Cromer, 1996; Cundy, 1994; WHO, 2004.

Most studies have found that DMPA users have lower bone density than non-users, especially women age 21 or younger. A woman's bones normally reach their maximum density during the teen years, but use of DMPA during adolescence prevents this.[10]

Women who start using DMPA as adults appear to regain most of the lost bone after they stop using DMPA.[11]

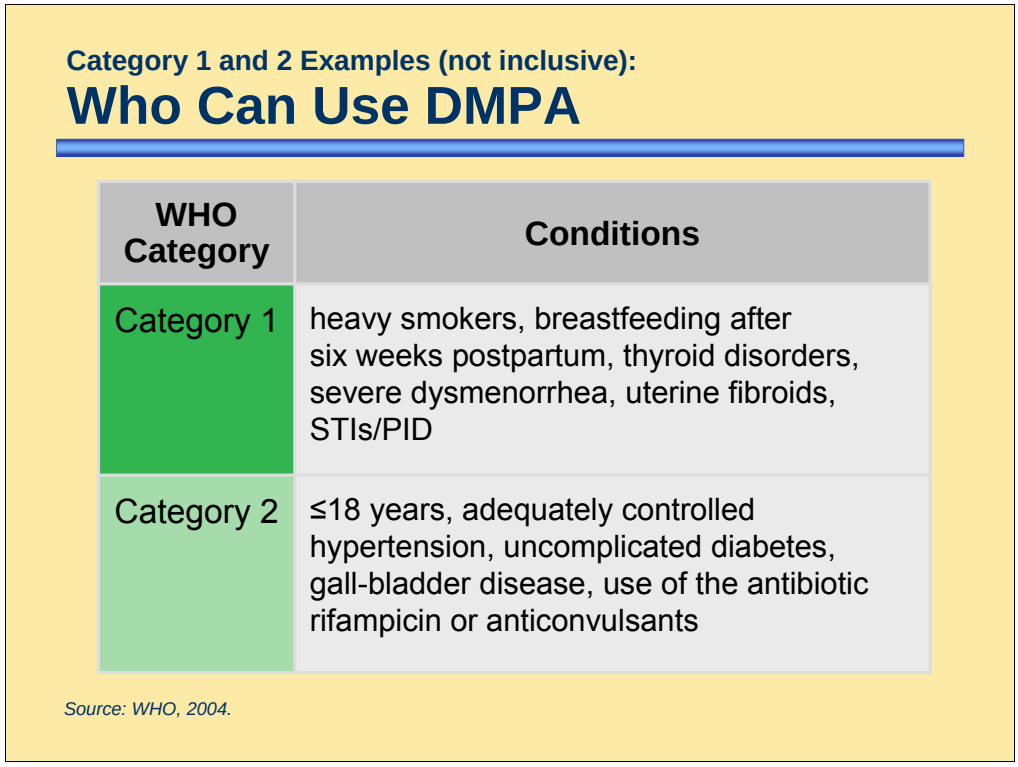
However, it is not yet known whether bone loss in adolescents and young women is completely reversible. If not, young women who use DMPA could have an increased risk of developing osteoporosis later in life. Long-term studies are needed to determine whether DMPA use increases the risk of osteoporosis, especially in women who begin using DMPA at a young age. Currently, DMPA use is considered to be generally acceptable for young clients, because the benefits of using the method outweigh the theoretical risk of osteoporosis.[12]

References:

10. Cromer BA, Blair JM, Mahan JD, et al. A prospective comparison of bone density in adolescent girls receiving depot medroxyprogesterone acetate (Depo-Provera), levonorgestrel (Norplant), or oral contraceptives. *J Pediatr* 1996;129:671-76.

11. Cundy T, Cornish J, Evans MC, et al. Recovery of bone density in women who stop using medroxyprogesterone acetate. *Br Med J* 1994;308:247-48.

12. World Health Organization (WHO). *Medical Eligibility Criteria for Contraceptive Use. Third Edition*. Geneva: WHO, 2004.



Injectables are safe for the overwhelming majority of women. The MEC identifies a number of medical conditions that do not prohibit DMPA use.

According to the MEC, DMPA can be used without any restrictions by women with category 1 conditions. For example, DMPA can be used freely by women who are heavy smokers; breastfeeding a baby older than six weeks; or have thyroid disorders, severe dysmenorrhea, uterine fibroids, or sexually transmitted infections, including current PID.

For women with category 2 conditions, the advantages of using the method outweigh the theoretical or proven risks. Thus, DMPA can generally be used by women with category 2 conditions, but careful follow-up may be required in some cases. Examples of such conditions include being 18 years old or younger; having adequately controlled hypertension, uncomplicated diabetes, or any form of gall-bladder disease; and using the antibiotic rifampicin or anticonvulsants.

In settings where clinical judgment is limited, category 2 conditions are treated in the same manner as category 1 conditions, meaning that women with either category 1 or 2 conditions should be able to obtain and use DMPA without restrictions.[13]

Discussion questions:
Use the MEC quick reference chart (included with the course materials) to find:

- Other Category 1 conditions that are not included in this slide (e.g., women who are 18 to 45 years old; women who have no children, non-migrainous headaches, superficial thrombophlebitis, complicated valvular heart disease, malaria, non-pelvic tuberculosis (TB), iron deficiency anemia or sickle cell anemia, endometrial or ovarian cancer, cervical ectropion, a family history of breast cancer, endometriosis, trophoblast disease, cholestasis related to the pregnancy; or are a hepatitis carrier; or at high risk of HIV or are HIV-infected; have AIDS but are not on ARVs; or use griseofulvin or antibiotics other than rifampicin)
- Other Category 2 conditions that are not included in this slide (e.g., women who are more than 45 years old; have migraines without an aura; migraines with aura/to initiate use; a history of deep venous thrombosis (DVT); known hyperlipidemias; cervical cancer; an undiagnosed breast mass; an irregular, heavy, or prolonged bleeding pattern; mild cirrhosis; cholestasis related to OCs; and AIDS on ARV therapy).

Remind participants that the quick reference chart is also not a comprehensive listing of all the conditions that WHO has categorized. Participants can review the WHO guidelines for a comprehensive list and explanations.

Reference:
13. World Health Organization (WHO). *Medical Eligibility Criteria for Contraceptive Use. Third Edition*. Geneva: WHO, 2004.

Category 3 and 4 Examples (not inclusive):

Who Should Not Use DMPA

WHO Category	Conditions
Category 3	breastfeeding before 6 weeks postpartum, severe hypertension (≥160/≥100), vascular disease, current DVT/PE, current or history of ischemic heart disease or stroke, complicated diabetes, active viral hepatitis, severe cirrhosis, liver tumors
Category 4	current breast cancer

Source: WHO, 2004.