

Vaccine Basics

Why are vaccines important?

Vaccines train the **immune system** to attack specific **viruses** and **bacteria**. This makes vaccination an important part of preventing infections during pregnancy. If you are pregnant or thinking about getting pregnant, you need certain vaccines. At different points during their lives, babies, children, teens, adults, and seniors all need certain vaccines, too.

[\[Are you current on your vaccines? These are the ones you should get as an adult.\]](#)

How are vaccines made?

Most vaccines are made with inactivated (killed) versions of a pathogen (a virus or bacteria that causes disease). Some vaccines are made with parts of the pathogen or with a killed toxin made by the pathogen. None of these things can cause the disease itself when given as a vaccine. Most vaccines also contain some other ingredients, including

- water or other fluids
- preservatives and stabilizers
- chemicals added to inactivate the virus or bacteria
- substances that help create a stronger immune response to the vaccine
- small amounts of the material that was used to grow the virus or bacteria

The amounts of these ingredients are very small. All of them are tested extensively to make sure they are safe. You can [learn more about these ingredients](#) from the Centers for Disease Control and Prevention (CDC).

How are vaccines approved?

Vaccines are subject to [strict safety standards](#). In the United States, vaccines are approved by the U.S. Food and Drug Administration (FDA) only after thorough research. Testing starts with animals and small groups of human volunteers. Later, vaccines are tested in large clinical trials with thousands of volunteers. If a clinical trial shows that a vaccine is safe and effective, there are a few other safety reviews. Then vaccine experts meet to review the testing results.

Once a vaccine is licensed by the FDA, a committee called the [Advisory Committee on Immunization Practices \(ACIP\)](#) at the CDC recommends how best to use it to control disease. This recommendation goes to the CDC director, who reviews and approves the recommendation.

Vaccines and Pregnancy

How does getting vaccinated during pregnancy protect my baby?

Vaccines cause the body to create [antibodies](#). Antibodies are proteins that can identify bacteria and viruses and stop them from entering [cells](#) and making a person sick. After you get a vaccine during pregnancy and your body creates antibodies, some of those antibodies pass to the fetus. This means the baby will have the antibodies to protect against disease after birth.

Antibodies are a safe, normal reaction to a vaccine. They protect your baby during the first few months of life until your baby can be vaccinated.

Which vaccines may be given during pregnancy?

It is safe to get vaccines for the flu, whooping cough, COVID-19, respiratory syncytial virus (RSV), [hepatitis](#), [pneumonia](#), and certain types of [meningitis](#) during pregnancy.

Which vaccines should be given in every pregnancy?

Two vaccines are recommended during each pregnancy:

- **Tdap vaccine**—This vaccine protects against whooping cough. [Tdap vaccines](#) are recommended between 27 and 36 weeks of pregnancy.
- **Flu vaccine**—The flu is a serious illness that can be much more severe during pregnancy. You should get a [flu vaccine](#) if you are pregnant during flu season (October through May). It is best to get the flu vaccine early in the flu season, as soon as the vaccine is available.

When are other vaccines recommended during pregnancy?

- **RSV vaccine**—The [Pfizer RSV vaccine](#) is recommended if you are 32 to 36 weeks pregnant from September to January. RSV is a seasonal virus that can be dangerous for babies and young children.
- **COVID-19 vaccine**—If you are pregnant and not up to date on your [COVID-19 vaccines](#), you should get the [currently recommended vaccine](#).
- **Hepatitis, pneumonia, and certain meningitis vaccines**—These may be recommended based on your risk of getting these diseases. Talk with your [obstetrician–gynecologist \(ob-gyn\)](#) about the vaccines that you have had in the past. Your ob-gyn may recommend these vaccines based on your medical history and occupation.

Are there vaccines that should not be given during pregnancy?

Certain vaccines should not be given during pregnancy because they contain live, attenuated viruses. “Attenuated” means that the virus has been weakened so that it cannot cause disease in a healthy person. The vaccines that women should not get during pregnancy include

- live, attenuated flu vaccine given as a nasal spray (but the flu shot is safe)
- [measles–mumps–rubella \(MMR\) vaccine](#)
- [chickenpox](#) vaccine

Also, the vaccine for [human papillomavirus \(HPV\)](#) is not a live, attenuated vaccine, but it still should not be given during pregnancy.

Vaccine Safety

Are vaccines safe for me and my baby?

Yes, vaccines are safe for both of you. In fact, vaccination is one of the most important things that you can do to protect your health and your baby's health. Keep in mind that vaccines have been safely given to millions of pregnant women for more than 50 years.

Is there mercury in vaccines?

There is a tiny amount of mercury (also called [thimerosal](#)) in [a small number](#) of vaccines. It is safe and not harmful during pregnancy. But it is no longer used in most new vaccines due to new technology.

Thimerosal is safe because it uses a type of mercury called ethylmercury. This is different than the type of mercury found in fish. Ethylmercury is a nonpoisonous salt, and it naturally leaves the body after a vaccine.

Thimerosal is used mainly in vaccines that come in multidose vials. This means the vial has enough vaccine for more than one person. Vials with more than one dose need to be kept pure. Thimerosal helps prevent germs from growing in a vial that has multiple doses. But most new vaccines come in single-dose vials, which is why thimerosal is not used much anymore.

Find more information about [thimerosal and vaccine safety](#) and [all vaccine ingredients](#) from the CDC.

Do vaccines have side effects?

Some people have no side effects from getting a vaccine. Other people have mild side effects, such as a sore arm or a low fever, that go away within a day or two. Severe side effects and reactions are rare. The CDC monitors reactions for all vaccines given in the United States.

When you get a vaccine, you should get an information sheet that lists the possible side effects associated with that vaccine. If you have ever had a reaction to a vaccine, or if you have concerns about side effects, talk with your ob-gyn.

COVID-19 Vaccines

How do COVID-19 vaccines work?

Currently there are two types of COVID-19 vaccines available in the United States: mRNA (Moderna and Pfizer) and protein subunit (Novavax).

To understand how vaccines work, it helps to understand the COVID-19 virus. The surface of COVID-19 cells contains a “spike protein.” This protein attaches to and infects healthy cells in the body.

The COVID-19 vaccines work by teaching your body to fight the spike protein so it cannot bind to healthy cells. There is no live or inactive (killed) virus in the mRNA and protein subunit vaccines. Learn more about [these types of vaccines and how they work](#) from the CDC.

These vaccines cannot give you COVID-19. The vaccines do not affect your genes or DNA. There is no evidence that the COVID-19 vaccines cause infertility or have an impact on pregnancy.

Are the COVID-19 vaccines safe during pregnancy?

Yes, COVID-19 vaccines are safe during pregnancy. Scientists have compared the pregnancies of women who have received COVID-19 vaccines and women who have not. The reports show that these women have had similar pregnancy outcomes. Data do not show any safety concerns. Read [COVID-19 Vaccines: Answers From Ob-Gyns](#) to learn more.

Resources and Glossary

Resources

American College of Obstetricians and Gynecologists (ACOG)

www.acog.org/Vaccine-Resources

Centers for Disease Control and Prevention (CDC)

www.cdc.gov/vaccines/pregnancy

www.flu.gov

www.cdc.gov/coronavirus/2019-ncov/vaccines

Vaccines.gov

www.vaccines.gov

Find a COVID-19 vaccine near you.

Glossary

Antibodies: Proteins in the blood that the body makes in reaction to foreign substances, such as bacteria and viruses.

Bacteria: One-celled organisms that can cause infections in the human body.

Cells: The smallest units of a structure in the body. Cells are the building blocks for all parts of the body.

Chickenpox: A contagious disease caused by a virus that results in small, fluid-filled blisters on the skin. Also called varicella.

Hepatitis: Infection of the liver that can be caused by several types of viruses.

Human Papillomavirus (HPV): The name for a group of related viruses, some of which cause genital warts and some of which are linked to cancer of the cervix, vulva, vagina, penis, anus, mouth, and throat.

Immune System: The body's natural defense system against viruses and bacteria that cause disease.

Measles–Mumps–Rubella (MMR) Vaccine: A shot given to protect against measles, mumps, and rubella. The shot contains live viruses that have been changed to not cause disease. The shot is not recommended for pregnant women.

Meningitis: Inflammation of the covering of the brain or spinal cord.

Obstetrician–Gynecologist (Ob-Gyn): A doctor with special training and education in women’s health.

Pneumonia: An infection of the lungs.

Vaccines: Substances that help the body fight disease. Vaccines are made from very small amounts of weak or dead agents that cause disease (bacteria, toxins, and viruses).

Viruses: Agents that cause certain types of infections.

If you have further questions, contact your ob-gyn.

Don't have an ob-gyn? [Learn how to find a doctor near you.](#)

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