



Common Questions About Vaccines

What Do Vaccines Do?

Vaccines work by preparing the body to fight illness. Each vaccine contains either a dead or a weakened germ (or parts of it) that causes a particular disease.

The body practices fighting the disease by making antibodies that recognize specific parts of that germ. This permanent or long-lasting response means that if someone is exposed to the actual disease, the antibodies are in place and the body knows how to fight the disease so the person doesn't get sick. This is called **immunity**. The process by which vaccines create immunity is known as **immunization**.

Since the start of widespread vaccinations in the United States, cases of once common childhood illnesses like measles and diphtheria have dropped greatly. Vaccines have protected millions of kids from dangerous diseases and saved thousands of lives.

In fact, some diseases are so rare now that parents sometimes ask if vaccines for them are even needed. But most diseases that can be prevented by vaccines do still exist in the world, even in the United States, although they happen very rarely.

Will the Immune System Be Weaker By Relying on a Vaccine?

No, the immune system makes antibodies against a germ, like the chickenpox virus, whether it encounters it naturally or through a vaccine. Being vaccinated against one disease does not weaken the immune response to another disease.

Can a Vaccine Give Someone the Disease It's Supposed to Prevent?

It's *impossible* to get the disease from any vaccine made with dead (killed) bacteria or viruses or just part of the bacteria or virus.

Only those vaccines made from weakened (also called **attenuated**) live viruses — like the chickenpox (varicella) and measles-mumps-rubella (MMR) vaccines — could possibly make a child develop a mild form of the disease. But it's almost always *much less severe* than if a child became infected with the disease-causing virus itself. However, for kids with weak immune systems, such as those being treated for cancer, these vaccines may cause problems.

The risk of disease from vaccination is very small. One live virus vaccine that's no longer used in the United States is the oral polio vaccine (OPV). The success of the polio vaccination program made it possible to replace OPV with the inactivated polio vaccine (IPV), which contains a killed virus form. This change means that polio disease cannot be spread by vaccinated U.S. children. OPV is still used in many other countries, though, with great success in reducing the number of cases worldwide.

Does My Child Need Vaccines if All the Other Kids in School Are Immunized?

It is true that a single child's chance of catching a disease is low if everyone else is fully vaccinated (immunized). But your child is also exposed to people other than those at school. And if one person thinks about skipping vaccines, chances are that others are thinking the same thing. Each child who isn't immunized gives highly contagious diseases one more chance to spread.

Although vaccination rates are fairly high in the United States, there's no sure way to know if everyone your child has contact with has been vaccinated. That's especially true now that so many people travel to and from other countries. During travel, someone could be exposed to people who got OPV in other countries, which can be risky for anyone who didn't get all their polio vaccines. So the best way to protect your kids is through vaccination.

Can Getting So Many Vaccines at One Time Harm My Baby?

Babies have stronger immune systems than you might think, and they can handle far more germs than what they receive from vaccines. In fact, the amount of germs in vaccines is just a small percentage of the germs babies' immune systems deal with every day.

Sometimes, kids can have a reaction to a vaccine like a mild fever or rash. But the risk of serious reactions is small compared with the health risks from the often-serious diseases they prevent, and do not happen because the baby got several vaccines at once.

A lot of consideration and research went into creating the immunization schedule most doctors use, and it has been proven safe time and time again. Still, some parents choose to use alternative schedules (spreading or "spacing out" vaccines) because they're concerned about the number of shots their babies get at each checkup. This is actually more likely to make a baby sick. Studies show that many babies on alternative immunization schedules never get all the vaccines they need.

Plus, alternative schedules can be a real hassle. Spacing out vaccines over more doctor visits means that you'll have to take your child to the doctor — and your child will have to get a shot — more often.

Why Should My Child Get a Painful Shot if Vaccines Aren't 100% Effective?

Few things in medicine work 100% of the time. But vaccines are one of the most effective weapons we have against disease — they work in 85% to 99% of cases. They greatly reduce your child's risk of serious illness (particularly when more and more people are vaccinated) and give diseases fewer chances to take hold in a population.

It can be hard to watch kids get a shot, but the short-term pain is nothing compared with suffering through a potentially deadly bout of diphtheria, whooping cough, or measles.

Why Do Healthy Kids Need to Be Immunized?

Vaccinations are intended to help **keep** healthy kids healthy. Because vaccines work by protecting the body before disease strikes, if you wait until your child gets sick, it will be too late for the vaccine to work. The best time to immunize kids is when they're healthy.

Can Vaccines Cause a Bad Reaction in My Child?

The most common reactions to vaccines are minor and include:

- redness and swelling where the shot was given
- fever
- soreness at the site where the shot was given

In rare cases, vaccines can trigger more serious problems, such as seizures or severe allergic reactions. If your child has a history of allergies to food or medicine, or has had a problem with a vaccine before, let the doctor know before any vaccines are given. Every year, millions of kids are safely vaccinated and very few experience serious side effects.

Research continually improves vaccine safety. The American Academy of Pediatrics (AAP) now advises doctors to use a diphtheria, tetanus, and pertussis vaccine that includes only specific parts of the pertussis cell instead of the entire killed cell. This vaccine, called DTaP, has been associated with even fewer side effects.

Do Vaccines or Thimerosal Cause Autism?

No. Many studies have found no link between vaccines and autism. Likewise, a groundbreaking 2004 report from the Institute of Medicine (IOM) found that **thimerosal** (an organic mercury compound that's been used as a preservative in vaccines since the 1930s) does **not** cause autism.

Still, some parents have opted not to have their children immunized, putting them at great risk for deadly diseases.

The MMR vaccine, especially, has come under fire even though many scientific reports have found no evidence linking the vaccine to autism. In fact, the study that suggested a possible link between autism and the MMR vaccine was retracted in 2004 and the doctor who published it lost his medical license. Even before it was discredited and declared fraudulent, the study was rejected by all major health organizations, including the AAP, the National Institutes of Health (NIH), the Centers for Disease Control and Prevention (CDC), and the World Health Organization (WHO).

There's also no reason to believe that thimerosal is linked to autism, according to the 2004 IOM report. Still, in an effort to reduce childhood exposure to mercury and other heavy metals, thimerosal began being removed from kids' vaccines in 1999. Now, **vaccines for infants and young children contain no or very little thimerosal**. And recent studies have not shown any cognitive and behavioral problems in babies who might have gotten these thimerosal-containing vaccines.

So what could explain the increased rates of autism in recent years? First, a broader definition of autism now can

apply to more kids who show varying degrees of symptoms. A greater awareness of the condition among health professionals also has led to more diagnoses.

And while the number of children diagnosed with autism may be increasing, the rates of MMR vaccination are not. In London, diagnoses of autistic disorders have been on the rise since 1979, but rates of MMR vaccination haven't increased since routine MMR vaccination began in 1988.

Also, the average age of diagnosis of autism is the same both in children who have *and* who have not gotten the MMR vaccine. What many researchers are seeing is that a child might have subtle signs of autism before the first birthday — sometimes even in early infancy — but these aren't noticed by parents until they become more obvious.

Wasn't There a Problem With the Rotavirus Vaccine?

Rotavirus is one of the most common causes of diarrhea in young children. In 1999, a rotavirus vaccine was taken off the market because it was linked to an increased risk for intussusception, a type of bowel problem, in babies.

Now, two different rotavirus vaccines (RotaTaq and Rotarix) are available and are very safe. Some studies suggest that they have a very small increased risk for intussusception, but that problem is rare. These vaccines have been shown to prevent most cases of rotavirus infection and almost all severe cases.

The vaccine is now on the regular immunization schedule to be given orally to infants as a liquid during standard vaccination visits — RotaTaq at ages 2 months, 4 months, and 6 months, or Rotarix at ages 2 months and 4 months. Your doctor will have the most current information.

Do Vaccines Cause SIDS, Multiple Sclerosis, Or Other Problems?

There are concerns, many of which circulate on the Internet, linking some vaccines to multiple sclerosis, sudden infant death syndrome (SIDS), and other problems. To date, studies have not shown any connection between vaccines and these conditions. The number of SIDS cases has actually fallen by more than 50% in recent years, while the number of vaccines given yearly continues to rise.

Why Do Kids Need Vaccines for a Disease That's Been Eliminated?

Diseases that are rare or wiped out in the United States, like measles and polio, still exist in other parts of the world. Doctors continue to vaccinate against them because it's easy to come into contact with illnesses through travel — either when Americans travel abroad or when people who aren't fully immunized come to the United States.

In recent years, there have been measles outbreaks in many different states, even though measles was declared eliminated from the U.S. in 2000. (Elimination means that the disease has not been transmitted continuously for over a year, but it doesn't mean there aren't outbreaks.) These cases were mostly among people who did not get vaccinated. Other preventable diseases that had recent outbreaks include whooping cough (pertussis) and mumps.

It's only safe to stop vaccinations for a particular disease when that disease has been eliminated worldwide, as with smallpox.

How Long Does Immunity Last After Getting a Vaccine?

A few vaccines, like the two for measles or the series for hepatitis B, may make you immune for your entire life. Others, like tetanus, last for many years but require periodic shots (boosters) for continued protection against the disease.

The whooping cough (pertussis) vaccine also does **not** give lifelong immunity, and that may be one reason why outbreaks still happen. Whooping cough isn't a serious problem for older kids and adults, but it can be for infants and young children. Because of this, teens and adults now get a pertussis booster along with the tetanus and diphtheria booster (Tdap) — an important step in controlling this infection, particularly for pregnant women and other adults who will be around newborn babies.

It's important to keep a record of vaccinations so the doctor knows when your kids are due for a booster. Also make sure your kids get the flu vaccine each year. Last year's flu vaccine won't protect someone from getting the flu this year because flu viruses constantly change. The vaccine is updated each year to include the most current strains of the virus.

The flu vaccine reduces the average person's chances of catching the flu by up to 80%. It can't prevent infection by all viruses that can cause flu-like symptoms, though, so it's not a guarantee that someone won't get sick during flu season. Still, if a person who got the vaccine gets the flu, their symptoms usually will be fewer and milder.

How Are Vaccines Studied and Improved?

The FDA's Center for Biologics Evaluation and Research is the government agency that regulates vaccines in the United States. Working with the CDC and the NIH, they continuously research and monitor vaccine safety and effectiveness.

New vaccines are licensed only after thorough lab studies and clinical trials, and safety monitoring continues even after they're approved. There continue to be improvements (such as those already made to the DTaP and polio vaccines) that ease potential side effects and ensure the best possible safety standards.

Where Can I Get Affordable Vaccines for My Child?

Vaccines are one of the best tools we have to keep kids healthy. But they work best when everyone gets them. Vaccines are now required to be covered by health insurance plans at no cost to the patient. Some plans only cover vaccines when they are given by your doctor or at specific locations. So check with your insurance company to make sure. You can also get inexpensive or free vaccines through many local public health clinics and community health centers, and campaigns to vaccinate kids often hold free vaccination days.

The U.S. government's Vaccines for Children program covers Medicaid-eligible, uninsured Alaskan and Native American populations, and some underinsured kids for routine vaccinations up to 18 years of age. The vaccines are provided by the government and given in a doctor's office. But the doctor's visit itself is **not** covered (unless the child has insurance, including Medicaid). Some public health clinics may cover both the visit and the vaccinations.

Where Can I Learn More About Vaccines?

Read this article for details about each recommended vaccine. You also can visit the CDC's National Immunization Program website for more information about vaccinations.

And talk with your doctor about which vaccines your kids need. Working together, you can help keep your family healthy.

Reviewed by: Elana Pearl Ben-Joseph, MD

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Common Questions About Vaccines

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1. The process by which vaccines create immunity is known as _____.
2. Being _____ against one disease does not weaken the immune response to another disease.
3. Each child who isn't immunized gives highly contagious diseases one more chance to spread.
True or False?
4. A lot of consideration and research went into creating the immunization _____ most doctors use, and it has been proven safe time and time again.
5. The best time to immunize kids is when they are _____.
6. Every year, millions of kids are safely vaccinated and very few experience serious _____.
7. It is never safe to stop vaccinations for a particular disease when that disease has been eliminated worldwide, as with smallpox.
True or False?
8. _____ isn't a serious problem for older kids and adults, but it can be for infants and young children.
9. It's important to keep a record of vaccinations so the doctor knows when your kids are due for a _____.
10. Vaccines are one of the best tools we have to keep kids _____.
But they work best when _____ gets them.

September 2022 Quiz Answers. 1.Energy 2.Proteins 3.True 4.Anabolism
5.Cells 6.Waste 7.False 8.Pancreas 9.Body Fat 10.Calories



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