Orangetown Pediatric Associates
Boston Children's Health Physicians

Vaccine Guide

for Orangetown Pediatrics Families

Our promise to families:

We understand that many parents today are navigating a large amount of information and sometimes inaccurate information about vaccines. **The board-certified pediatricians, nurse practitioners and physician assistants caring for your children are the best source of vaccine recommendations for your family.**

We promise to be a trusted source of information and to help you make decisions based on the information we have available at the time.

At Orangetown Pediatrics, we believe in:

- Listening to your concerns
- Providing clear, evidence-based information
- Partnering with you to protect your children from preventable illnesses

Our shared goal is simple: helping your child grow up healthy and protected.

We know that parents want to make thoughtful decisions for their children. Questions about vaccines are common, and we want to provide you with accurate information to help guide your decisions.

Our goal is to provide clear, honest information based on medical evidence so that you can feel informed and supported.

Your child's health, and the health of our entire community, matter deeply to us.

Why do vaccines matter?

Before vaccines, infectious diseases caused enormous suffering for children. Diseases like measles, polio, diphtheria, and whooping cough were common causes of disability and death.

Vaccines are one of the greatest achievements in medical history. They have dramatically reduced childhood illnesses and saved millions of lives.

Because vaccines work so well, many parents today have never seen these diseases firsthand and don't recognize the threat that they present. They are victims of their own success. But the germs that cause them still do exist. When vaccination rates drop, outbreaks can occur again. We have seen this in various areas throughout the country in recent years.

What are vaccines?

Vaccines are substances given to help the body develop protection against specific diseases.

They safely teach the immune system how to recognize and fight germs such as viruses and bacteria before a child is exposed to them in real life.

Because of vaccines, diseases that once harmed thousands of children each year are now rare.

How do vaccines work?

Your immune system protects your body from infection.

Vaccines work by introducing a harmless piece or weakened form of a germ so that the immune system learns to recognize it. The body then produces antibodies, which are like a memory system for the immune response.

If your child is later exposed to the real infection, their immune system can quickly recognize and fight it.

There are several types of vaccines, including:

- Inactivated vaccines – contain killed germs or pieces of germs
- Live attenuated vaccines – contain weakened versions of germs
- Toxoid vaccines – protect against toxins produced by bacteria

Are vaccines safe?

Vaccines are carefully studied and monitored.

Before approval, vaccines are tested in multiple phases of clinical trials involving thousands of volunteers. Researchers monitor safety and effectiveness for years before a vaccine is licensed.

After approval, vaccines continue to be monitored through national safety systems that track rare side effects.

While no medical treatment is completely risk-free, the risk of serious vaccine reactions is extremely low compared with the risks of the diseases they prevent.

Why does my child receive more vaccines than I did?

Medical science has developed vaccines that protect against more diseases than in the past. We no longer admit dehydrated babies to the hospital with rotavirus and rarely need to give injected medications (rather than oral) for ear infections now that we have the Prevnar vaccine. When many of the Orangetown doctors started practicing, these were both common occurrences.

Even though children receive more vaccines today, modern vaccines contain fewer immune-stimulating components than older vaccines did decades ago. Advances in science have allowed vaccines to become more targeted and efficient. **It's not the number of vaccines that's important, it's the number of immunological components in the vaccines that matter.** According to Dr. Paul Offit, a pediatric infectious disease physician, if you look at the tetanus vaccine given in the 1950's, you will find that it contained about 3,000 different proteins that induced an immune response. Compare that to all 18 vaccines given to children today that contain only about 180 separate immunologic challenges to the immune system. Vaccines are simply more refined today.

Are we giving babies too many vaccines too soon?

This is a common concern, but research shows that infants' immune systems can safely respond to vaccines.

Every day, babies encounter thousands of germs in their environment. The amount of immune stimulation from vaccines is tiny compared with what their immune systems naturally handle and do handle each and every day.

The vaccine schedule is designed to protect children as early as possible, when they are most vulnerable to severe infections. Delaying vaccines only prolongs the time when children remain unprotected.

Would it be better to get the disease and develop natural immunity?

Getting the disease itself can sometimes produce immunity, but the risks are much greater.

For example, infections like measles or chickenpox can lead to pneumonia, brain inflammation, or hospitalization. Vaccines provide protection without exposing children to these potentially serious complications.

If my child is sick, should I delay vaccines?

No, this is a common misconception among parents. Your child can still be vaccinated even if they have a minor illness or are on antibiotics. Remember, the amount of immune stimulation from vaccines is tiny compared to the stimulation everyday breathing in the air. The longer you delay vaccines, the longer you leave your child vulnerable to a preventable illness.

What side effects should I expect after vaccines?

Most vaccine reactions are mild and temporary.

Common reactions include:

- Fever
- Fussiness
- Redness or swelling at the injection site

These symptoms usually resolve within 24–48 hours and are a sign that the immune system is responding to the vaccine.

Serious reactions are **extremely rare** but can include:

- Severe allergic reaction (anaphylaxis)
- Seizure associated with fever
- Encephalitis (extremely rare)

National vaccine safety systems monitor these events carefully.

What ingredients are in vaccines?

Vaccines contain the active ingredient that stimulates immunity plus small amounts of other ingredients that help maintain effectiveness and stability.

These may include:

- Preservatives to prevent contamination
- Adjuvants to help improve immune response
- Additives or stabilizers to help maintain vaccine quality
- Residual traces from the manufacturing process

These components are present in extremely small amounts and are carefully studied for safety.

Of note, at Orangetown Pediatrics, we use single dose vials or single dose prefilled syringes whenever available. This approach helps minimize preservatives and reduces the risk of contamination, ensuring the safest possible administration for our patients.

What about aluminum in vaccines?

Aluminum salts are used in some vaccines to strengthen the immune response.

Aluminum is one of the most common elements in nature and is found naturally in food, water, breast milk, and infant formula. The amount used in vaccines is very small and has been safely used for decades.

In fact, babies receive more aluminum through normal feeding than through vaccines.

Do vaccines contain mercury?

The mercury-containing preservative thimerosal was removed from routine childhood vaccines more than 20 years ago.

We do not carry vaccines that contain thimerosal at Orangetown Pediatrics.

Do vaccines cause autism?

No. The original study that suggested this connection was later shown to be fraudulent and was withdrawn from medical literature. Several reputable scientists have tried to replicate the findings and couldn't. Now we know why. **Extensive research involving hundreds of thousands of children has found no link between vaccines and autism.**

Will mRNA vaccines change my child's DNA?

No. mRNA vaccines provide instructions for cells to briefly make a harmless piece of a virus so the immune system can recognize it. The mRNA never enters the cell nucleus where DNA is stored and cannot alter genetic material. The mRNA breaks down quickly after doing its job.

Is it safer to delay or space out vaccines?

There is no scientific evidence that alternative vaccine schedules are safer. It simply does not exist.

What we do know if that delaying vaccines simply leaves children unprotected for longer periods when they are most vulnerable to serious infections. **The recommended schedule is based on decades of research designed to provide the safest and most effective protection.**

What would happen if we stopped vaccinating?

If vaccination rates fall, diseases return. When immunization rates decline, outbreaks of vaccine-preventable diseases increase. For example, communities with lower vaccination rates have experienced outbreaks of measles and whooping cough. **We have seen this in Rockland County.**

How does my decision about vaccines affect others?

Infectious diseases spread from person to person. When enough people are vaccinated, it becomes much harder for diseases to spread. This is called community protection (herd immunity).

For vaccination to work best:

1. Your child needs to be vaccinated.
2. Other children in the community need to be vaccinated too.

Some people, such as newborns, children with certain medical conditions, or people receiving chemotherapy, cannot receive certain vaccines. They rely on the protection created when those around them are vaccinated. In this way, vaccination protects your child and helps protect the entire community.

Where can I find reliable resources for vaccination information?

If you search online for information about vaccines, you will find a wide range of perspectives. Unfortunately, some of this information is inaccurate and misleading, and may increase anxiety for parents who are simply trying to do their best for their children.

Here are reliable sources that provide accurate information:

- Healthychildren.org
- Vaccineinformation.org
- Vaccine.chop.edu

Adapted from:

Vaccineinformation.org, Beyond the Noise by Dr. Paul Offit