



# Immunization Guide

For children from birth to age 18

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# A-Z of Vaccines

## What are Vaccines?

Vaccines are tools that teach your immune system how to recognize and fight germs. Just as you learned how to recognize letters before learning to read, vaccines help your immune system recognize germs before they can make you sick. This helps your immune system grow stronger.

## Did you know?

Over the past 50 years, vaccines have saved over 154 million lives, including 146 million children younger than 5 years.<sup>1</sup>

## How do they work?

Vaccines show your body either a harmless piece of a germ or a weakened version of it. This helps your immune system learn what the real germ looks like, so your body can act quickly to protect you if you ever come into contact with the real version.

## Why are vaccines important?

Vaccines can prevent serious illnesses, stop infections from spreading in communities, and prevent diseases that have been eliminated from coming back. When enough people get vaccinated, germs can't spread easily, which helps protect everyone— including people who can't get certain vaccines for medical reasons.

Getting vaccines on time is the safest and most effective way for your family to stay healthy. Some people are considered “high risk,” which means they are more likely to get very sick from the germs that vaccines protect against. Talk to your doctor about getting your shots and about whether you are “high-risk.”



## Where is this information from?

American Academy of Pediatrics (AAP) [aap.org](https://www.aap.org)

American Academy of Family Physicians (AAFP) [aafp.org](https://www.aafp.org)

Immunize.org [immunize.org](https://www.immunize.org)

National Library of Medicine [nlm.nih.gov](https://www.nlm.nih.gov)

World Health Organization [who.int](https://www.who.int)

## Words to Know

**ANTIBODIES:** Antibodies help your immune cells fight harmful viruses and bacteria in your body. When a germ enters your body, your immune system studies it and makes antibodies.

**VIRUS:** A virus is a tiny germ that can make people sick. It spreads by entering your body and copying itself. Over time, these germs can change to spread faster or act differently— these changes create what we call variants. That's why you need to get some vaccines, like your COVID-19 and flu shots, every year to protect against the latest variants.

**BACTERIA:** Bacteria are tiny living germs that can be found almost everywhere— in the air, water, soil, and even inside your body. Many are helpful, but some can make you sick.

# A-Z of Vaccines

## What are they and how do they help?

### COVID-19

The COVID-19 vaccine protects people from the COVID-19 virus. COVID-19 infections can cause coughing, fever, and trouble breathing. For many healthy people, it feels like a mild cold, but some can get very sick and may need to go to the hospital. It can be especially dangerous for older adults, people with weak immune systems, or those with other health problems.

COVID-19 spreads easily. The virus can get into your body if someone with the virus coughs, sneezes, or talks close to you, or if you touch something with the virus on it and then touch your mouth, nose, or eyes before washing your hands.

**The COVID-19 vaccine helps prevent most people from getting very sick or needing hospital care.**

#### How long does the protection last?

- The COVID-19 vaccine helps protect you from the current COVID-19 variant. COVID-19 cases often increase in the fall and winter, but spikes can happen at any time of year. Because the virus changes quickly, how well the vaccine prevents infection can vary. However, getting vaccinated helps protect you against serious illness and hospitalization longer than against infection alone.

### DTaP

The **DTaP** vaccine protects babies from three serious diseases: **D**iphtheria, **T**etanus, and **P**ertussis.

**Diphtheria** is caused by bacteria that can infect your nose, throat, and skin. If the bacteria infects your nose and throat, it can cause a thick coating that makes it hard to breathe or swallow. It can lead



to heart failure, paralysis, and even death if left untreated. **Since the vaccine was first used in the early 1940s, Diphtheria is almost completely gone in the U.S.**

**Tetanus**, or “lockjaw,” is caused by bacteria that live in dirt, dust, or manure. It can also live on objects lying on the ground, like nails and pieces of glass. Tetanus does not spread from person to person; it enters your body through a cut or scratch, and cleaning the wound does not get rid of the bacteria. Tetanus causes painful muscle stiffness, especially in your jaw and neck. It can lead to seizures, breathing problems, and suffocation.

**Pertussis**, or whooping cough, causes long, hard coughing fits that can make it hard to breathe, especially for babies and young children.

#### How long does the protection last?

- The DTaP vaccine protects you for several years. Babies get a series of DTaP shots as they grow, and older kids and adults need booster shots (Tdap vaccine) to stay protected.

## FLU

The flu vaccine protects you from the influenza (flu) virus, which can cause fever, cough, sore throat, and body aches. Most people recover, but the flu can be serious for young children, older adults, and people with other health problems.

**The flu shot lowers the risk of getting sick and helps prevent hospital stays.**

It can also make the illness milder if you do get the flu. The vaccine teaches your immune system how to fight the flu virus, but because the virus changes every year, everyone needs a new flu shot each season to stay protected.

### How long does the protection last?

- The shot protects you and your family for the flu season, which is October through March.

## HEPATITIS A (Hep A)

The hepatitis A vaccine protects you from the hepatitis A virus, which can cause swelling in your liver. It can also cause fever, tiredness, stomach pain, dark urine, and yellowing of the skin or eyes (this is called *jaundice*). Most people recover completely, but hepatitis A can be serious in older adults or people with other health problems, such as chronic liver disease. Hepatitis A spreads through germs in the stool (poop) of an infected person. You can get hepatitis A by eating food or drinking water that has the virus in it. This can happen if someone who is sick doesn't wash their hands after using the bathroom. It can also spread in childcare settings or through close contact with someone who has the virus.

### How long does the protection last?

- Two shots of Hep A vaccine provide about 95% protection, and this protection lasts for over 20 years.

## HEPATITIS B (Hep B)

The hepatitis B vaccine protects people from the hepatitis B virus, which attacks the liver and can cause both short-term (acute) and long-term (chronic) illness. Some people with chronic hepatitis B can develop serious liver problems later in life, like liver damage or cancer.

Hepatitis B spreads through blood or body fluids, and only a very tiny dose is needed to cause infection. More than 50% of people who have hepatitis B don't know they have it. Babies born to mothers who have hepatitis B are at the highest risk of getting the virus during birth. However, it can also be spread by close contacts or caregivers. Babies who are infected with hepatitis B near birth are at much higher risk of long-term, serious health issues. Hepatitis B can also spread by sharing items like razors, needles, or toothbrushes, having unprotected sex, or through contact with open cuts or blood.



The Hep B vaccine is 95–98% effective after all three shots.

### Is the Hep B vaccine safe?

- Yes. The Hep B vaccine is one of the most well-studied vaccines in the world. Many studies have evaluated the vaccine and have not found any links to fevers, allergies, brain problems, or other health issues.

### How long does the protection last?

- Studies show that about 90% of adults and more than 98% of babies gain lifelong protection from hepatitis B after vaccination.

## Words to Know

**HERD IMMUNITY:** Herd immunity happens when most people in a community are protected from a disease. *Immunity* means your body has learned how to fight off an infection, so it doesn't make you sick. When enough people have immunity, germs stop spreading. Herd immunity can:

- Stop a disease from spreading in an area (*elimination*)
- Stop a disease from spreading worldwide (*eradication*)
- Protect people from getting very sick or dying
- Protect people who can't get the shot

The only human disease that has been eradicated is smallpox. Many countries, including the U.S., have herd immunity for diseases like diphtheria, polio, and rubella thanks to vaccines.

Herd immunity only works because vaccines protect many people at once. However, it's not permanent; if fewer people are immune, these diseases can return.

## Hib

The **Hib** vaccine protects people from a bacteria called **haemophilus influenzae type b**, also called Hib. Hib can cause very serious infections— especially in babies and young kids. Before the vaccine, Hib was one of the main causes of meningitis in kids. Meningitis is a dangerous infection in your brain and spinal cord. Hib can also cause lung infections (pneumonia), swelling in your throat that makes it hard to breathe, and infections in your blood, bones, and heart.

**The vaccine reduces the risk of serious Hib infections, like meningitis, by 95–100% for children who get the full series of shots.**

Serious Hib infections, also called invasive Hib, are caused when the bacteria get into parts of your child's body that don't usually have germs, like their bloodstream, lungs, or the fluid in their spine. When the Hib bacteria do not spread into those parts of your body, it's called noninvasive and can cause more mild illnesses like sinus infections or ear infections. The vaccine doesn't always prevent noninvasive infections, but it does help your body respond, so kids don't get as sick as they would without the vaccine.

## HPV

The HPV vaccine protects people from getting infected with the **Human Papillomavirus (HPV)** — a very common virus that can cause cancers in multiple parts of your body. There are over 200 types of HPV, and it spreads through close skin-to-skin contact.

**The vaccine is over 90% effective at protecting you from the nine types of HPV that are most likely to cause cancer and serious infections.**

### How long does the protection last?

- Studies show that the HPV vaccine provides lifelong protection.

## IPV

**IPV** stands for **I**nactivated **P**olio **V**accine. *Inactivated* means the virus in the vaccine is dead, so it can't give you polio, but it will still teach your body how to recognize and fight the virus. The polio virus is a germ that attacks the nervous system and can cause paralysis (loss of movement). Before the vaccine, polio was common and sometimes deadly, especially for children. Today, it's very rare in countries that vaccinate.

Polio spreads through contact with the stool of someone who has the virus, often through unclean hands, food, or water.

**After the full series, the IPV vaccine is more than 99% effective at preventing polio.**

### How long does the protection last?

- The polio vaccine provides long-lasting protection. Most people don't need a booster unless they are traveling to areas where polio still spreads.



## MENINGOCOCCAL

Meningococcal vaccines help protect against meningococcal disease which is caused by a bacterial infection and can lead to serious illness. The disease has different forms, depending on what part of your body gets infected. The most common are *septicemia*, which is an infection in your blood, and *meningitis*, which is an infection in the lining around your brain and spinal cord. These infections can make people very sick, very quickly, and are especially dangerous for babies and young children.

About 1 in 10 people carry the meningococcal bacteria in their nose and throat, and even if they don't get sick, they can still spread the germs to others. The bacteria spread through saliva or close, long-term contact, like coughing, kissing, or living with someone who has been infected. Symptoms can be hard to identify and can differ from person to person. If you or a family member becomes extremely unwell very quickly, contact your doctor immediately.

There are different types (also called groups) of meningococcal bacteria. Vaccines protect against five main types: A, B, C, W, and Y.

- MenACWY protects against types A, C, W, and Y
- MenB protects against type B, which is more common in older teens and young adults
- MenABCWY protects against all five types (A, B, C, W, and Y) in a single vaccine

### How long does the protection last?

- Protection from meningococcal vaccines lasts for several years. Booster doses may be recommended for some people to maintain protection, depending on age and risk.

## MMR

The **MMR** vaccine protects people from three viruses that cause serious illness: **M**easles, **M**umps and **R**ubella.

**Measles** gives you a fever, rash, cough, and can lead to infection in your lungs and swelling in your brain.

**Mumps** causes swelling in your jaw and face which can spread to your brain and other parts of your body.

**Rubella**, or “*German measles*,” is usually a mild sickness in children but if a pregnant person gets sick, the virus can harm the baby. It can cause serious issues like hearing loss, vision problems, heart problems, or slow growth.

All three viruses spread when a sick person coughs or sneezes. The measles virus can even stay in the air for two hours after a person has left the room.

**After both shots, the vaccine is 97% effective against measles, 88% effective against mumps, and 97% effective against rubella.**

### How long does the protection last?

- For most people, the protection from MMR vaccines lasts for life.

## PCV

**PCV** stands for **P**neumococcal **C**onjugate **V**irus. The PCV vaccine protects people from bacteria that can cause lung infections (*pneumonia*), infection in your brain and spine (*meningitis*), and blood infections. The bacteria spread through coughs, sneezes, or close contact with someone who is infected. These illnesses can be very serious, especially for young children, older adults, or people with certain health problems. That is why it is important that children under the age of five and older adults are vaccinated.

**The PCV vaccine is very effective and has greatly reduced the number of serious infections in children and adults.**

### How long does the protection last?

- Protection lasts for several years. Children, older adults, and people with certain health problems should ask their doctors about different types of the PCV vaccine.

## RSV

The **RSV** vaccine protects babies and older adults from RSV, or **R**espiratory **S**yncytial **V**irus. RSV causes the nose, throat, lungs, and airways to become tighter and covered in a thick, sticky fluid called mucus. For many healthy babies, RSV looks like a cold, but some babies can get very sick and can struggle to breathe. It's especially dangerous for babies who are younger than six months old or who have other health issues.

Babies have smaller airways than children and adults, so RSV can make it very hard for them to breathe. RSV causes more hospital stays than any other sickness for babies under one year old.

**The RSV shot prevents about 80–90% of babies from going to the hospital.**

### How does it work?

- Either a pregnant mother is vaccinated with the RSV vaccine during their third trimester if that falls between September and January, or a baby receives an RSV antibody shot shortly before



or during their first RSV season (October – March). The infant RSV shot is different from most vaccines because it gives your baby antibodies that are already made, so it starts protecting them right away. This is very important because RSV spreads quickly and easily. It can be as easy as someone with RSV coughing or sneezing near you, or touching something that someone with RSV touched, like a doorknob, and then touching your or your baby's face without washing your hands first.

The RSV shot helps your baby's immune system fight the virus, so they don't get as sick as they would without it, and they feel better faster.

### How long does the protection last for my baby?

- The vaccine protects your baby for their first RSV season, which is October through March, when they are most at risk for severe illness. Older adults, including parents, grandparents, and caregivers, are also at higher risk of RSV-related complications and should talk to their doctor about RSV vaccination. Vaccination can also help lower the risk of passing RSV to infants.

## ROTAVIRUS (RV)

The RV vaccine protects babies and young children from rotavirus, a virus that causes severe diarrhea, vomiting, fever, and dehydration. Rotavirus spreads easily through stool, especially where young children play, eat, or share toys.

The vaccine is given by mouth, not as a shot, and is given at a very young age because rotavirus is more dangerous for babies.

**Before the vaccine existed, nearly all children got rotavirus at least once, and many needed emergency care for dehydration.**

The rotavirus vaccine greatly reduces hospital visits, prevents outbreaks in daycare settings, and keeps babies safer during their first year of life, when dehydration can become dangerous very quickly.



### How long does the protection last for my baby?

- The RV vaccine protects babies when rotavirus is most dangerous—usually when they are between two months and two years old. After getting the full vaccine series, protection stays strong through early childhood. Even though immunity can decrease over time, most older children no longer get severe rotavirus infections because their bodies can handle the illness better.

## Tdap

The **Tdap** vaccine protects you against three serious diseases: **T**etanus, **D**iphtheria and **P**ertussis. These are the same diseases as the DTaP vaccine for kids, but this vaccine is made for teens and adults. The Tdap vaccine boosts your immune system's memory of how to fight these germs. It's especially important for adults who are around babies, since whooping cough can be very dangerous for infants. When given during pregnancy, protection is passed to the baby, providing early protection until they can start their own DTaP series.

### DTaP vs. Tdap: What's the Difference?

- DTaP is given to young children, starting when they are babies. Kids receive a series of five doses between the ages of two months and six years old.

- Tdap is given to older children, teens, and adults. A single dose is recommended between ages 11 and 12, followed by booster doses in adulthood.

You can find more details about these diseases in the DTaP section above.

The Tdap vaccine is very effective at preventing all three diseases and reducing severe illness.

### How long does the protection last?

- Protection lasts for about ten years. Teens should get a Tdap vaccine between 11-12 years old and then a booster every ten years as adults. Pregnant women should receive Tdap during each pregnancy to protect newborns from whooping cough from birth until they can begin receiving their own vaccines.

## VARICELLA

The varicella vaccine protects against the varicella virus, which causes *chickenpox*. Chickenpox is an illness with an itchy rash, fever, and tiredness. Chickenpox spreads easily through the air when someone coughs or sneezes, or by touching the fluid from the blisters.

Before the vaccine, almost every child got chickenpox, and some developed serious problems like pneumonia or brain infections. The virus also stays in your body and can become active again when you're older, causing a painful illness called shingles.

**Two doses of the vaccine are about 90% effective at preventing chickenpox.**

If someone does get sick after both shots, the illness is usually very mild.

### How long does the protection last?

- The varicella vaccine gives lifelong protection for most people who get both doses.

## CT WiZ

### What is CT WiZ?

CT WiZ is Connecticut's official system for keeping track of vaccines. It helps you and your healthcare providers see your immunization records at any age.

CT WiZ is a secure system that stores vaccine records for people who live in Connecticut. The Connecticut Department of Public Health operates CT WiZ and follows strict privacy and security rules. By law, your health information is kept private.

As children grow, it can be hard to remember which vaccines are needed at each age. With CT WiZ, your child's doctor can quickly see their full vaccine history and tell you which vaccines are needed. This helps make sure children stay up to date without getting extra shots or missing any vaccines.

CT WiZ started collecting vaccine records for young children in 1998. In 2022, it expanded to include people of all ages. Today, vaccines given in Connecticut are automatically added to CT WiZ. This makes records easy to access, print, or download when needed.

### Getting Your CT WiZ Immunization Records

The CT WiZ Public Portal lets people who were vaccinated in Connecticut view their own vaccine records. Parents and guardians can also view records for their children.

When children need records for daycare, school, college, or summer camp, CT WiZ makes it easy. Instead of calling different doctors or pharmacies, parents can go online, download an official vaccine record in minutes, and submit it right away.

With CT WiZ, you can feel confident knowing your family's vaccine records are safe, complete, and easy to access.

To learn more or view your or your child's vaccine record, visit [ct.gov/getmyvaccinerecord](https://ct.gov/getmyvaccinerecord)

# Vaccine Schedules by Age

## Babies (up to 23 months)

	Birth	1 month	2 months	4 months	6 months	8 months	12 months	15 months	18 months	23 months
<b>COVID-19</b>					1 seasonal dose (more doses may be required for the initial series in unvaccinated babies under 2 years of age)					
<b>DTap</b> Diphtheria, Tetanus, Pertussis			1st dose (3 shot series)	2nd dose (3 shot series)	3rd dose (3 shot series)			1st booster dose (2 shot series) between 15 and 18 months old		
<b>Flu</b>					1 seasonal dose					
<b>Hep A</b> Hepatitis A							Babies should get 2 doses of the Hep A shot between 12 and 23 months old. The 2nd shot should be 6 months AFTER the 1st shot			
<b>Hep B</b> Hepatitis B	1st dose (3 shot series)	2nd dose (3 shot series)			3rd dose (3 shot series) Babies should get their last Hep B shot when they are between 6 and 18 months old					
<b>Hib</b> Haemophilus influenzae			1st dose (3 shot series)	2nd dose (3 shot series)	3rd dose (3 shot series)		1 booster dose between 12 and 15 months old			
<b>IPV</b> Polio			1st dose (4 shot series)	2nd dose (4 shot series)	3rd dose (4 shot series)					
<b>MMR</b> Measles, Mumps, Rubella							1st dose (2 shot series)			
<b>PCV</b> Pneumonia, Meningitis			1st dose (3 shot series)	2nd dose (3 shot series)	3rd dose (3 shot series)		1 booster dose between 12 and 15 months old			
<b>RSV</b>	If mom did not, or could not, get a RSV shot while pregnant, babies can get the RSV shot before they are 8 months old, or at the beginning of their first RSV season					Babies who are 8-19 months old AND have a higher chance of getting very sick from RSV should also get the RSV shot right before their second RSV season				
<b>RV</b>			1st dose (3 shot series)	2nd dose (3 shot series)	3rd dose (3 shot series)					
<b>Varicella</b> Chickenpox							1st dose (2 shot series)			

This schedule shows the recommended vaccines for most children. Some children may need a different schedule based on their health needs. For the full schedule with details, visit [AAP.org/immunizationschedule](https://www.aap.org/immunizationschedule) or scan the QR code:



# Vaccine Schedules by Age

## Children (ages 2-18)

	2-3 years	4-6 years	7 years	8 years	9 years	10 years	11 years	12 years	13 years	14 years	15 years	16 years	17 years	18 years
<b>COVID-19</b>	1 seasonal dose													
<b>DTap</b> Diphtheria, Tetanus, Pertussis		2nd booster dose (2 shot series)												
<b>Flu</b>	1 seasonal dose													
<b>HPV</b>					2 shot series between 9-12 years old. The 2nd shot should be 6-12 months AFTER the 1st shot									
<b>IPV</b> Polio		4th dose (4 shot series)												
<b>MenACWY</b> Meningococcal							1st dose (2 shot series) between 11-12 years old					2nd dose (2 shot series)		
<b>MenB</b> Meningococcal												Recommended for some teens - 2 dose series at least 6 months apart		
<b>MMR</b> Measles, Mumps, Rubella		2nd dose (2 shot series)												
<b>Tdap</b> Tetanus, Diphtheria, Pertussis							1 dose							
<b>Varicella</b> Chickenpox		2nd dose (2 shot series)												

This schedule shows the recommended vaccines for most children. Some children may need a different schedule based on their health needs. For the full schedule with details, visit [AAP.org/immunizationschedule](https://www.aap.org/immunizationschedule) or scan the QR code:



# Questions and Answers About Vaccines

## What is in a vaccine?

There are four types of ingredients in a vaccine, and each ingredient is important to ensure the vaccine is safe and effective. While the names may look unfamiliar, many ingredients used in vaccines occur naturally in our bodies, our environment, and the food we eat. The four ingredient types are:

1. **Antigens** are pieces of the virus or bacteria. This piece is either dead or weakened and is used to teach your body to recognize the germ and fight it if you are exposed in the future.
2. **Adjuvants** help to boost your immune system, so the vaccine works better. They help to provide better and longer-lasting protection.
3. **Preservatives** help to keep vaccines safe by keeping out other germs.
4. **Stabilizers** are ingredients that protect vaccines from damage during storage and transport. Vaccines may be exposed to heat, light, and other environmental changes, and stabilizers such as sugar and gelatin help keep them safe and effective.



## How do we know that a vaccine is safe?

Most childhood vaccines have been in use for decades, with millions of people worldwide receiving them safely every year. All vaccines go through significant studies, laboratory testing, and then three phases of clinical trials before they are made available for use to the public. Like all medicines, vaccines continue to be monitored for safety and effectiveness even after they are in use. Vaccine safety is monitored at local, national, and global levels. For more information, please visit: <https://www.vaccineinformation.org/vaccine-basics/vaccine-safety/>



## Is it safe to get several shots together, or combination shots?

Yes, it is safe to get several vaccines together. Many childhood vaccines are given together based on the times when the vaccines will work best with children's immune systems and when they are most vulnerable to the diseases that vaccines protect them from. Extensive research and testing are required for every vaccine to determine the best dose level, number of doses, and timing of doses.

Getting multiple vaccines at the same time won't overwhelm your immune system or make you sick. This is true whether you receive several shots at once or combination vaccines that protect against multiple diseases in a single shot.

**Here's why:** The antigens in vaccines— the tiny pieces of bacteria or virus that teach your body to fight disease— are very small compared to what we encounter naturally every day. Babies and young children are naturally exposed to about 2,000 to 6,000 antigens daily just from their environment.

By comparison, the entire childhood vaccine schedule exposes a child to only about 165 antigens between birth and age 18— while protecting them against 18 serious diseases.



## Do vaccines cause autism?

Autism, or **A**utism **S**pectrum **D**isorder (ASD), is a natural variation in how the brain works. Many people with autism have unique strengths and ways of thinking that are important and valuable. Signs of autism usually appear around the same time that children get their early vaccines, but the two are not related.

The original claim connecting vaccines and autism began with a very small study that used fake data to support their claim. The original claim was retracted (removed) and the author lost his license to practice medicine. **Since then, research in multiple countries studying millions of children show no connection between any childhood vaccine or vaccine ingredient and autism.** Research also shows that autism starts early in brain development, sometimes before a baby is born, and long before any vaccines are given.

Health experts around the world, including major health organizations such as the World Health Organization (WHO) and the Autism Science Foundation, continue to remind families that vaccines protect children from serious diseases and the worry about autism has been thoroughly studied and disproven.

## What is Thimerosal and is it safe in vaccines?

Thimerosal (or *thiomersal*) is one of several preservatives used to help prevent germs from getting into the vaccine vial each time a dose is drawn. Thimerosal contains *ethyl mercury*, which is quickly broken down and eliminated from the body. Ethyl mercury is sometimes confused with *methyl mercury*, which may cause health risks and can be found in certain fish and seafood.

**Thimerosal has not been used in any routine vaccines for kids since the early 2000s** because confusion about the different types of mercury caused people to lose trust in vaccine safety. The American Academy of Pediatrics and other medical organizations recommended removing thimerosal because the risks of children not getting their shots was higher than the benefits of using thimerosal instead of a different preservative.

According to the World Health Organization, extensive research in multiple countries showed that the tiny amount of thimerosal still used in a few flu vaccines did not cause harm and there was no link between thimerosal and autism or other neurodevelopmental disorders. One study from the California Department of Developmental Services found that there was no decrease in the number of children with autism after thimerosal was taken out of childhood vaccines.<sup>3</sup>

## Are vaccines that contain aluminum safe?

Aluminum salts are naturally found in the ground, water, and food. Very small amounts of aluminum salts have been safely used in some vaccines for decades. They are used to give your immune system an extra boost, which means that you can get fewer doses and smaller amounts of the vaccine.

The amount of aluminum in vaccines is very small and much less than people are naturally exposed to over time. According to the American Academy of Pediatrics, it is estimated that people take in about 7–9 milligrams (mg) of aluminum every day, either from food or cosmetic products like deodorant. 7–9 mg of aluminum is about the same size as 7–9 grains of sand. Vaccines like DTaP

(for diphtheria, tetanus and pertussis), hepatitis A, hepatitis B, HPV and others, contain less than 0.5 mg of aluminum per dose. That's smaller than half a grain of sand!

Whether the aluminum enters our bodies through a shot or the food we eat, our bodies filter most of it through our kidneys and get rid of it quickly.

Extensive research, including a 2025 study of over one million children<sup>2</sup>, has found no link between aluminum in vaccines and health problems including asthma, allergies, ADHD, and autism.

### **Is my child's doctor recommending these shots because they keep my child healthy or because the doctor will get paid?**

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Repeated studies since 2009 show that providing vaccines to children often creates costs to pediatricians (doctors for babies and children), not profits. Your child's doctor takes on significant costs to buy, store, and give out vaccines, and the payments from insurance companies do not always cover these costs. When they recommend and provide your child's shots, it's because they care about your child and want to protect them from preventable illnesses.

### **What should I do if my child is behind on recommended vaccines?**

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Every child is different. A doctor or nurse can help you figure out which vaccines your child needs and when to get them.

If your child has missed any vaccines, call your child's doctor or nurse to set up an appointment.

### **How are vaccines spaced in a catch-up schedule?**

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Doctors and nurses follow rules about how much time must pass between vaccine doses. These rules make sure each vaccine has time to work and keep your child safe. They will space out the shots so your child gets the most protection.

### **Does age matter when starting a catch-up schedule?**

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Yes, age matters. A child can start a catch-up schedule at any age. But the vaccines needed will depend on how old your child is. Some vaccines are only for babies. Others are not given until children are older.

Your child's doctor will look at your child's age and shot records to figure out which vaccines are still needed.

### **What if my child missed a vaccine dose?**

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Good news — you do not have to start over! Your doctor or nurse can look at your child's records and tell you which shots still need to be done. They will make a plan to get your child caught up and protected.

### **Have questions about your child's catch-up schedule? Talk to your doctor or call CT DPH at 860-509-7929.**

# Finding Reliable Sources

As a parent, it's important for you to be able to make informed decisions when it comes to your child's health. With all the confusion and questions about many health topics, including vaccines, these decisions get even harder. Here are three steps you can take to evaluate health information that you come across online:

## 1. Know the source: who is providing the information?

First, look at the **site name**. This can help you decide if it's safe to click on. For example:

**.gov** - If the website ends in **.gov**, that means it is U.S. federal, state, or local government agency and it's safe to click on.

**.edu** - websites that end in **.edu** are places of learning, such as a university, and are also safe to click on.

Next, look at the **About page** to see if the people managing the website are clearly identified AND if they are health care professionals.

For example, if you are looking for reliable information about gut health, then a site that is managed by *gastroenterologists* (doctors who specialize in stomach health and digestion) could be a reliable source. The same could be said if you're looking for information about cholesterol and the website is managed by *cardiologists* (doctors who specialize in heart health).

Finally, a reliable website will typically provide you with easy to find contact information that includes an address, telephone, and email address to contact. If the contact information is difficult to find, or the website only provides a contact form, this may be a sign that the website is less reliable.

## 2. Funding: who is paying for the website?

You may be able to find information about this on the **About page** and by doing a web search on the person or organization that owns the website. Ask yourself: Why are they giving me this information? Are they selling a product? Does the website use advertisements or other paid promotions?

## 3. Evidence: where is the research?

Reliable health information will be supported by more than one research study and reviewed by health care professionals or other specialists. Scroll to the bottom of the page and look for a **reference section**. There should be several links to studies that you can click on for more information.

### If you're not sure, do not share.

If you come across health information that you're not sure about, even after following these three steps, do a web search to check out other reputable sources, or ask your doctor or a health provider that you trust. Don't share the information online or to others unless you are sure that it is reliable.



# Resources and Links

1. Contribution of vaccination to improved survival and health: modelling 50 years of the Expanded Programme on Immunization. Shattock, Andrew J et al. The Lancet, Volume 403, Issue 10441, 2307 – 2316. [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(24\)00850-X/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(24)00850-X/fulltext)
2. Aluminum-Adsorbed Vaccines and Chronic Diseases in Childhood: A Nationwide Cohort Study. Andersson, Niklas W et al., <https://www.acpjournals.org/doi/10.7326/ANNALS-25-00997>, July 15, 2025
3. Continuing Increases in Autism Reported to California's Developmental Services System. Schechter, Robert MD, MSc, Grether, Judith PhD. JAMA Psychiatry, Vol. 65, No. 1, 2008. [https://jamanetwork.com/journals/jamapsychiatry/fullarticle/482546#google\\_vignette](https://jamanetwork.com/journals/jamapsychiatry/fullarticle/482546#google_vignette)



## AMERICAN ACADEMY OF PEDIATRICS

Recommended Child and Adolescent Immunization Schedule, <https://publications.aap.org/redbook/resources/15585/AAP-Immunization-Schedule>, September 17, 2025



## AMERICAN ACADEMY OF FAMILY PHYSICIANS

Immunizations and Vaccines, <https://www.aafp.org/family-physician/patient-care/prevention-wellness/immunizations-vaccines.html>



## AUTISM SCIENCE FOUNDATION

Autism and Vaccines, <https://autismsciencefoundation.org/autism-and-vaccines/#:~:text=Vaccines%20Do%20Not%20Cause%20Autism,between%20vaccines%2C%20thimerosal%20and%20autism>



## AUTISM SPEAKS

Do vaccines cause autism?, <https://www.autismspeaks.org/do-vaccines-cause-autism#:~:text=The%20study%20confirms%20that%20the,ingredients%20do%20not%20cause%20autism>



## IMMUNIZE.ORG

MMR Vaccine Does Not Cause Autism: Examine the Evidence, <https://www.immunize.org/wp-content/uploads/catg.d/p4026.pdf>, May 22, 2023



## JOHN HOPKINS BLOOMBERG SCHOOL OF PUBLIC HEALTH

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Why Experts Have Concluded That Vaccines Do Not Cause Autism: How a retracted study from the 1990s undermined trust in vaccines and led to a persistent myth, <https://publichealth.jhu.edu/2025/vaccines-do-not-cause-autism#:~:text=Sign%20up%20for%20Public%20Health,on%20important%20public%20health%20topics.&text=What%20research%20was%20done%20to,relationship%20between%20vaccines%20and%20autism>, March 19, 2025



## NSW HEALTH

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Meningococcal disease fact sheet, [https://www.health.nsw.gov.au/Infectious/factsheets/Pages/meningococcal\\_disease.aspx](https://www.health.nsw.gov.au/Infectious/factsheets/Pages/meningococcal_disease.aspx), August 30, 2024



## U.S. NATIONAL LIBRARY OF MEDICINE

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Evaluating Internet Health Information: A Tutorial from the National Library of Medicine, <https://medlineplus.gov/webeval/webeval.html>, October 3, 2023



## WORLD HEALTH ORGANIZATION

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WHO statement on autism-related issues, <https://www.who.int/news/item/24-09-2025-who-statement-on-autism-related-issues#:~:text=When%20immunization%20schedules%20are%20delayed,based%20considerations%20free%20of%20stigma>, September 25, 2025



Vaccine and immunization: Vaccine safety, <https://www.who.int/news-room/questions-and-answers/item/vaccines-and-immunization-vaccine-safety>, September 23, 2025



