



The Truth About Vaccines



Why Do We Need More Storylines About Vaccines?

People develop their understanding of vaccines not just from health information, but also from stories about family, trust, risk, and responsibility. Research shows that stories featuring relatable characters and relationships can strengthen vaccine confidence. At a time when health information comes from increasingly varied sources, these stories can help normalize vaccination as part of everyday family and community life.



A vaccine is like beginner texts for the immune system.

Just as children use simple books to learn how to read, the immune system uses a vaccine to learn how to recognize a particular germ. The vaccine does not need to remain in the body for the immune system to remember what it learned.³

How Vaccines Work

The immune system is designed to learn. Vaccines introduce a harmless or weakened version of a germ, a recognizable piece of a germ, or temporary instructions for producing one recognizable component. The immune system responds by creating antibodies and memory cells.¹

If the real germ appears later, the immune system can recognize it and respond. Depending on the vaccine, this preparation can reduce the chance of infection, transmission, severe illness, hospitalization, or death. **Vaccines offer meaningful protection even if they don't prevent every infection.**²

Types of Vaccines: Different vaccines use different methods to teach the immune system.



Live attenuated vaccines use a weakened form of a germ. Examples include MMR, chickenpox, and yellow fever vaccines.



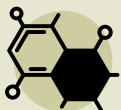
Inactivated vaccines use a killed form of a virus or bacterium. Examples include hepatitis A and injected polio vaccines.



Toxoid vaccines prepare the immune system to recognize a harmful toxin produced by bacteria. Tetanus and diphtheria vaccines use this approach.



Viral-vector vaccines use a modified, harmless virus to deliver instructions that produce an immune response.



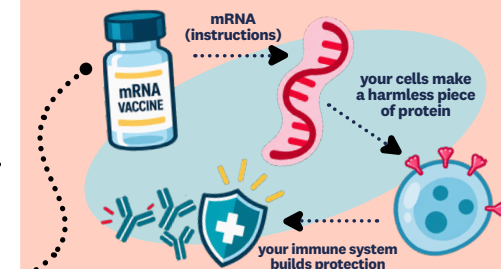
Subunit, recombinant, and conjugate vaccines contain a specific protein, sugar, or other recognizable component of the germ. Examples include HPV, hepatitis B, Hib, and pneumococcal vaccines.



mRNA vaccines provide temporary instructions that teach cells to make copies of one recognizable protein. Some flu and COVID-19 vaccines use this technology.⁴

The Truth About mRNA

Messenger RNA, or mRNA, is a temporary set of instructions used by cells to make proteins. Vaccine mRNA works outside the cell's nucleus, where DNA is stored. It does not enter the nucleus or alter a person's DNA.



Once cells have used the instructions, they quickly break down and discard the mRNA. The protein created from those instructions is also cleared, while the immune system retains the memory needed to recognize the virus later. mRNA technology was studied for decades before the COVID-19 pandemic.⁵

Vaccination by the Numbers

154 MILLION
LIVES SAVED

Vaccination against 14 diseases is estimated to have saved 154 million lives over the past 50 years—more than six lives every minute. Vaccination contributed to about 40% of the improvement in global infant survival.⁶

11.1 MILLION
CASES

A 10% decline in MMR vaccination could result in approximately 11.1 million U.S. measles cases over 25 years, according to a 2025 modeling study.⁷

95%
COVERAGE

Because measles is highly contagious, about 95% of a community must be vaccinated to prevent outbreaks. In 2025, global two-dose coverage was 77%, and 57 countries experienced large or disruptive outbreaks.^{8,9}

The Truth About Vaccines

Why Childhood Vaccines Are Timed Carefully



1
EARLY
PROTECTION

The childhood immunization schedule is designed around when children are most vulnerable to particular illnesses and when their developing immune systems can respond effectively.



2
BUILDING IMMUNITY
IN STAGES

Some vaccines require more than one dose because immune protection develops in stages. Additional doses may complete, strengthen, or refresh the immune response.



3
SCHEDULE GUIDED
BY EVIDENCE

The American Academy of Pediatrics' 2026 schedule continues to recommend routine immunization against 18 serious diseases. The schedule is reviewed regularly as medical knowledge, available vaccines, and disease patterns change.¹⁰



4
HEALTHY
COMMUNITIES

Routine immunization prepares the immune system to recognize serious illnesses and makes it harder for contagious diseases to spread through families, schools, and communities.¹¹ When children stay healthy, they can focus on growing, learning, playing, and doing the things they love.



Delaying a recommended immunization extends the period during which a child remains unprepared for the disease.¹²

“Eliminated” Does Not Mean “Gone”

Elimination means that sustained local transmission of a disease has stopped in a particular country or region. **It doesn't mean the organism has disappeared worldwide.** Occasional cases or small outbreaks may still occur where a disease has been declared eliminated.¹³

A traveler can acquire measles, polio, rubella, or another infection in one country and carry it into another. When most people are immunized, the infection has few opportunities to spread. When coverage falls or varies sharply between communities, one case can grow into an outbreak.¹⁴

This is why community immunity matters. High immunization rates help protect infants who are too young for certain vaccines, people with weakened immune systems, and others who cannot be immunized for medical reasons.¹⁵



Elimination vs Eradication:

Eradication means a disease-causing pathogen no longer exists in nature. Thanks to vaccination, smallpox has been eradicated, so routine smallpox vaccination is no longer necessary.

Why Is a Vaccine Schedule Important?

A national vaccine schedule helps doctors advise patients on the ideal pace and timing of immunizations. It's an organizational tool, not a mandate. The vaccines children may need to participate in daycare or school are determined by state and local officials.

Vaccines included on the federal schedule are covered by private insurance and are provided for free to children on Medicaid or whose families may not be able to afford them through a program called Vaccines for Children. About half of all children in the U.S. receive routine immunizations through this program. Even if a vaccine is available in the U.S., if it's not on the federal schedule, many families would face significant barriers getting the vaccine and paying for it.

Recently, federal officials proposed vaccine schedule changes that the majority of doctors in the U.S. do not support. A federal court has blocked some of these changes. The American Academy of Pediatrics maintains its own evidence-based vaccine schedule, and families can continue to access these recommended vaccines. However, parents are dealing with a lot of conflicting information right now, making it difficult to discern which advice is reliable and trustworthy.



The Bottom Line

Vaccines prepare the immune system to recognize and resist serious diseases. They have saved millions of lives, allowed children to grow up without illnesses that once commonly caused paralysis and death, and helped entire communities remain healthy.²¹ Their success can also make the diseases they prevent seem distant. But when immunization rates fall, those diseases can return. Maintaining strong vaccination coverage and ensuring that every family can access recommended immunizations is essential to preserving decades of progress.²²

COVID-19, Flu & Travel Vaccines

- **COVID-19:** The virus that causes COVID-19 continues to evolve, so vaccine formulations and recommendations are updated annually. COVID-19 vaccines cannot cause COVID-19, and mRNA vaccines do not alter DNA. Recommendations may vary by age, health conditions, and vaccination history, so individuals should consult current medical guidance.¹⁶
- **Influenza:** Flu viruses are constantly changing and continually monitored. The World Health Organization (WHO) leads a global process to review circulating strains and recommend updated vaccine formulations. Annual vaccination prepares the immune system for viruses expected to circulate that season.¹⁷
- **International travel:** Travelers should first ensure routine immunizations are current. Additional vaccines may be recommended or required based on destination, season, itinerary, age, and health history, including yellow fever, hepatitis A, typhoid, meningococcal disease, rabies, or polio. Some countries require proof of vaccination for entry or exit.¹⁸

Access Is Part of the Picture: Not every missed immunization results from a family rejecting vaccines. Parents may face transportation problems, limited clinic hours, unpaid time away from work, provider shortages, insurance confusion, vaccine shortages, or difficulty finding trustworthy answers to their questions.¹⁹

Keeping communities healthy requires making routine immunizations easy to find, convenient, and affordable. When families can access recommended vaccines on time, children are better able to remain in school, participate in activities, and grow up free from illnesses that vaccination can prevent.²⁰