

RFK Jr. wants to scrutinize the vaccine schedule – but its safety record is already decades long

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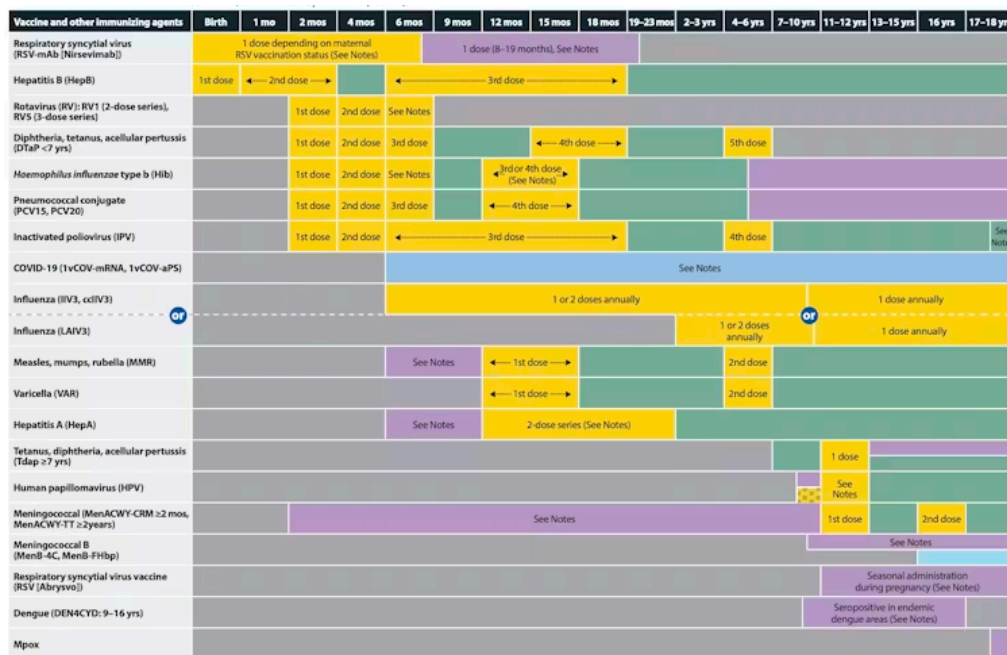


Children today receive more vaccines than children did in the past, but due to advances in vaccine technology, today's shots contain far fewer immune-stimulating molecules.

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The U.S. childhood immunization schedule, the grid of colored bars pediatricians share with parents, recommends a set of vaccines given from birth through adolescence to prevent a range of serious infections. The basic structure has been in place since 1995, when federal health officials and medical organizations first issued a unified national standard, though new vaccines have been added regularly as science advanced.

Vaccines on the childhood schedule have been tested in controlled trials involving millions of participants, and they are continuously monitored for safety after being rolled out. The schedule represents the accumulated knowledge of decades of research. It has made the diseases it targets so rare that many parents have never seen them.



The U.S. childhood vaccine schedule recommends a set of vaccines given from birth through adolescence. The schedule shown here was last updated in August 2025.

Centers for Disease Control and Prevention

But the schedule is now under scrutiny.

On Dec. 16, 2025, the Centers for Disease Control and Prevention adopted its first major change to the childhood immunization schedule, under Kennedy's leadership. The agency accepted an advisory committee's vote to drop a long-held recommendation that all newborns be vaccinated against hepatitis B, despite no new evidence that questions the vaccine's long-standing safety record.

Health and Human Services Secretary Robert F. Kennedy Jr., who has cast doubt on vaccine safety for decades, has said he plans to further scrutinize the vaccines children receive.

I'm an infectious disease physician who treats vaccine-preventable diseases and reviews the clinical trial evidence behind immunization recommendations. The vaccine schedule wasn't designed in a single stroke. It was built gradually over decades, shaped by disease outbreaks, technological breakthroughs and hard-won lessons about reducing childhood illness and death.

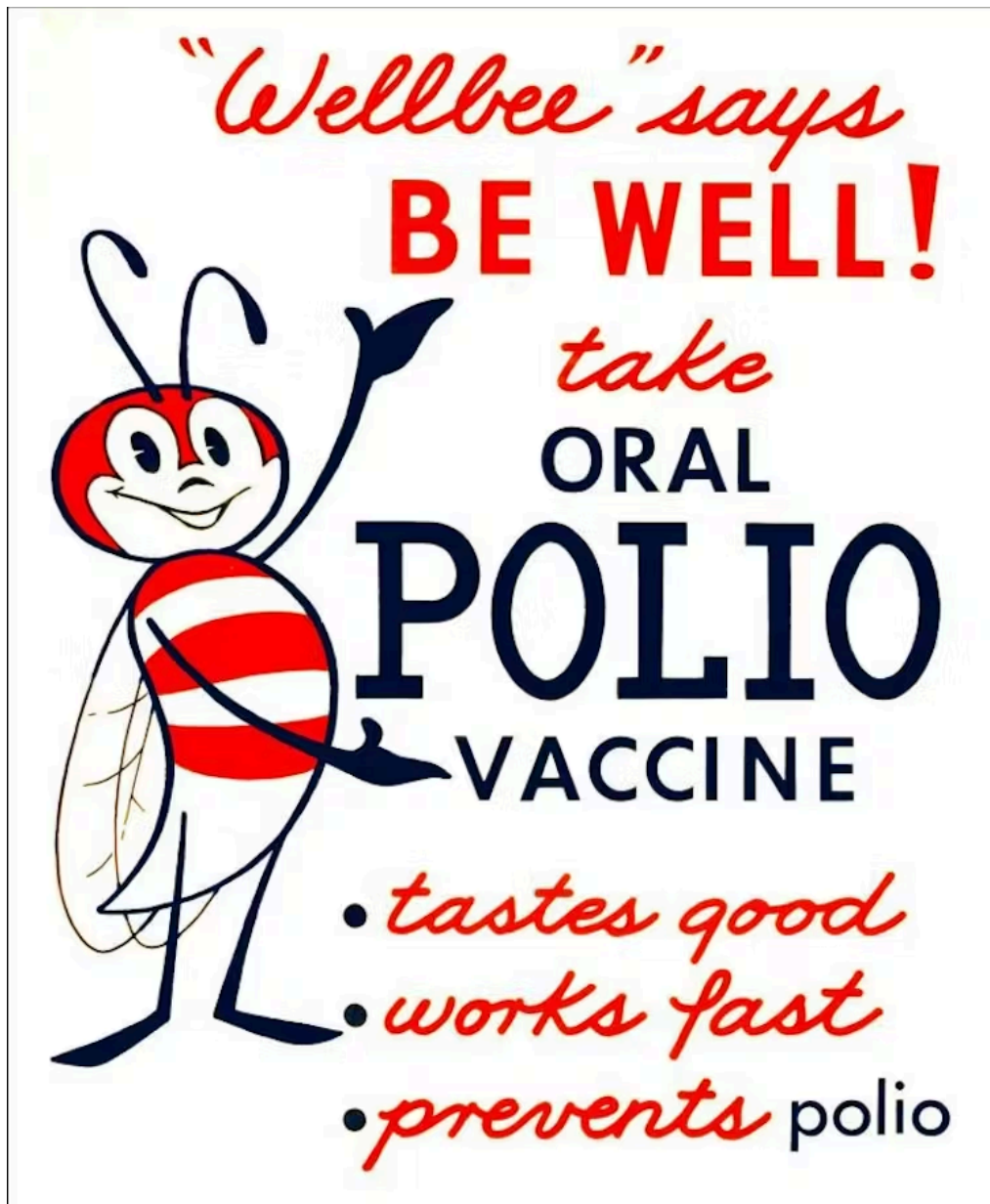
With federal officials now casting doubt on its foundations, it's helpful to know how it came about.

The early years

For the first half of the 20th century, smallpox vaccination was common, required by most states for school entry. But there was no unified national schedule. The combination vaccine against diphtheria, tetanus and pertussis, known as the DTP vaccine, emerged in 1948, and the Salk polio vaccine arrived in 1955, but recommendations for when and how to give them varied by state, by physician and even by neighborhood.

The federal government stepped in after tragedy struck. In 1955, a manufacturing failure at Cutter Laboratories in Berkeley, California, produced batches of polio vaccine containing live virus, causing paralysis in dozens of children. The incident made clear that vaccination couldn't remain a patchwork affair. It required federal oversight.

In 1964, the U.S. surgeon general established the Advisory Committee on Immunization Practices, or ACIP, to provide expert guidance and recommendations to the CDC on vaccine use. For the first time, a single body would evaluate the evidence and issue national recommendations.



Polio vaccines, as advertised in this CDC poster from 1963, were administered on a large scale throughout the U.S. starting in 1955.

Centers for Disease Control and Prevention

New viral vaccines

Through the 1960s, vaccines against measles (1963), mumps (1967) and rubella (1969) were licensed and eventually combined into what's known as the MMR shot in 1971. Each addition followed a similar pattern: a disease that killed or disabled thousands of children annually, a vaccine that proved safe and effective in trials, and a recommendation that transformed a seemingly inevitable childhood illness into something preventable.

The rubella vaccine went beyond protecting the children who received it. Rubella, also called German measles, is mild in children but devastating to fetuses, causing deafness, heart defects and intellectual disabilities when pregnant women are infected.

A Rubella epidemic in 1964 and 1965 drove this point home: 12.5 million infections and 20,000 cases of congenital rubella syndrome left thousands of children deaf or blind. Vaccinating children also helped protect pregnant women by curbing the spread of infection. By 2015, rubella had been eliminated from the Americas.

Technology opens new doors

One limitation of some early bacterial vaccines was that they didn't work well in infants. Young children's immune systems couldn't mount a strong response to the sugar coating on certain bacteria. In the 1980s, scientists developed a method called conjugate vaccine technology, in which sugars on bacterial pathogens are linked to proteins that the immune system – even in infants – can more easily respond to.

The first target of this innovation was a bacterium called *Haemophilus influenzae* Type b, or Hib. Before vaccination, Hib was the leading cause of bacterial meningitis in American children, causing roughly 20,000 cases of the disease annually and killing hundreds.

The Hib conjugate vaccine was licensed for use in infants in 1990, and within five years Hib disease in young children dropped by more than 99%. Most pediatricians practicing today have never seen a case.

Hepatitis B and the safety net

In 1991, the CDC added hepatitis B vaccination at birth to the schedule. Before then, around 18,000 children every year contracted the virus before their 10th birthday.

Many parents wonder why newborns need this vaccine. The answer lies in biology and the limitations of screening.

An adult who contracts hepatitis B has a 95% chance of clearing the virus. An infant infected in the first months of life has a 90% chance of developing chronic infection, and 1 in 4 will eventually die from liver failure or cancer. Infants can acquire the virus from their mothers during birth, from infected household members or through casual contact in child care settings. The virus survives on surfaces for days and is highly contagious.

Early strategies that targeted only high-risk groups failed because screening missed too many infected mothers. Even today, roughly 12% to 18% of pregnant women in the U.S. are never screened for hepatitis B. Until ACIP dropped the recommendation in early December 2025, a first dose of this vaccine at birth served as a safety net, protecting all infants regardless of whether their mothers' infection status was accurately known.

This safety net worked: Hepatitis B infections in American children fell by 99%.

Access becomes a right

The schedule's expansion was enabled by a crucial policy change. From 1989 to 1991, a measles outbreak swept through American cities, causing more than 55,000 cases and over 120 deaths. Investigators found that many infected children had seen doctors but never been vaccinated. Their families couldn't afford the shots, and the system had failed to catch them.

Congress responded by creating the Vaccines for Children program in 1994, which provides free vaccines to children who are uninsured, underinsured or on Medicaid. With cost no longer a barrier, ACIP could recommend vaccines based on science rather than worrying about who could afford them.

A unified standard

For decades, different medical organizations issued their own, sometimes conflicting, recommendations. In 1995, ACIP, the American Academy of Pediatrics and the American Academy of Family Physicians jointly released the first unified childhood immunization schedule, the ancestor of today's familiar grid. For the first time, parents and physicians had a single national standard.

The schedule continued to evolve. ACIP recommended vaccinations for chickenpox in 1996; rotavirus in 2006, replacing an earlier version withdrawn after safety monitoring detected a rare side effect; and HPV, also in 2006.

Each addition followed the same rigorous process: evidence review, risk-benefit analysis and a public vote by the advisory committee.

More vaccines, less burden

One fact often surprises parents: Despite the increase in recommended vaccines, the number of immune-stimulating molecules in those vaccines, called antigens, has dropped dramatically since the 1980s, which means they are less demanding on a child's immune system.

The whole-cell pertussis vaccine used in the 1980s alone contained roughly 3,000 antigens. Today's entire schedule contains fewer than 160 antigens, thanks to advances in vaccine technology that allow precise targeting of only the components needed for protection.

What lies ahead

For decades, ACIP recommended changes to the childhood schedule only when new evidence or clear shifts in disease risk demanded it. Rolling back a long-standing recommendation with no new safety data represents a significant break from that norm.

In June 2025, Kennedy fired all 17 members of ACIP and replaced them with his own choices, many of whom had a history of anti-vaccine views.

Given this and other unprecedented changes Kennedy has made to vaccine policy in his first year as health secretary, this is unlikely to be the last such reversal.



On Dec. 5, 2025, the Advisory Committee on Immunization Practices voted to withdraw a long-standing recommendation that all babies receive a dose of the hepatitis B vaccine at birth.

Elijah Nouvelage/Stringer via Getty Images

Kennedy, his newly appointed ACIP panel and others within HHS have pushed to align the U.S. vaccine schedule with European countries such as Denmark, which recommends fewer vaccines. But every country's schedule reflects its specific disease burden, health care infrastructure and access to care.

Denmark's more targeted approach works in a small, wealthy country with universal public health care, equitable access and a national registry that tracks every patient. The U.S. health care system is fragmented: Millions are uninsured, many families move between providers, and screening systems have significant gaps.

Major medical organizations, including the American Academy of Pediatrics and the American College of Obstetricians and Gynecologists, have rejected the reversal on hepatitis B's routine use at birth. More broadly, these organizations and several states, including California, New York and Illinois, have indicated they will continue following established, evidence-based guidelines if federal recommendations diverge on other vaccines in the future.

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