

What to know about measles in the US as case count breaks record



Enlarge / A young child, seated in a bed in a clinical setting, who had presented with an extensive rash, which had developed due to a measles infection. The image was captured on day-3 of the rash, which is usually when the rash manifests, beginning on the face, then adopting a more generalized distribution.

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This year's tally of measles cases is now the largest seen this century—and it's only April. As several outbreaks

continue to rage around the country with no end in sight, officials fear the disease will once again take root, undoing a public health triumph that was decades in the making.

As of 3pm on Wednesday, April 24, the Centers for Disease Control and Prevention confirmed 695 measles cases across 22 states. That is the highest number of measles cases since the milestone date of 2000, when health officials declared measles eliminated (meaning that there was no longer continuous transmission of the viral illness in the US, though international travelers can continue to import the disease). It's also the highest number of cases seen since 1994, when there were 958 cases.

The year 1994 is also a milestone. It marked the start of the federally funded "Vaccines for Children" program, which provides vaccines at no cost to children whose parents or guardians may not otherwise be able to afford them. From there, annual measles cases dropped precipitously—448 in 1996, 138 in 1997, and down to a triumphant low of 86 in 2000, the year of the elimination declaration.

Disease dive

The swift drop after the VFC program in 1994 was just the final gem in the crown of the public health achievement of beating back measles. A few years earlier, in 1990, the case count stood at a towering 27,786. A few decades earlier—before the measles vaccine was licensed in 1963—case counts hovered around half a million a year. Between 1958 and 1962, there was an average of 503,282 measles cases and 432 associated deaths reported to the CDC each year. And those were just official figures. The CDC estimates that the actual case counts each year were between 3 million and 4 million.

- US measles cases since 1994.

Beth Mole, Data from CDC

- Measles incidence before and after the availability of a vaccine.

Until measles is eradicated globally, we will never fully shake the highly contagious disease. But a drop from millions of annual cases to 86 in the span of four decades is an undeniable success. In fact, some public health officials wonder if it was a little too successful.

The current resurgence of measles—both in the US and abroad—is largely blamed on the spread of misinformation by anti-vaccine advocates who falsely claim that the measles vaccine is harmful (it's not, it's very safe and highly effective). But a large component of the problem is also that parents are no longer familiar with the horrors of vaccine-preventable diseases—from crippling polio, to the rib-fracturing coughs of pertussis (whooping-cough), to the scorching fevers and deadly complications of measles. Thus, any perceived risks from a vaccination can tip the risk-benefit analysis in the minds of misinformed parents when they see the risks from the diseases themselves as being negligible. But make no mistake, these diseases are serious.

Measles is deadly

The highly infectious respiratory disease starts with a fever, coughs, conjunctivitis (red, watery eyes), and runny nose. White spots (Koplik spots) in the mouth can show up a few days later. A few days more bring the tell-tale red rash and scorching fevers that may spike above 104 degrees Fahrenheit.

Complications can arise in any victim, but children aged 5 and younger are particularly vulnerable. The most common complications are ear infections and diarrhea. But there's also the potential for severe inflammation in the lungs and airway (croup), as well as pneumonia, and swelling in the brain (encephalitis) that can lead to convulsions and long-term intellectual disabilities. One or two children in 1,000

will die from the disease. In pregnant women, the disease can cause premature birth and low birth weight.

Surviving the disease doesn't mean you're in the clear. The virus can cripple the immune system for months or even years, leaving survivors vulnerable to a host of other infections. Moreover, in rare cases, the virus is thought to hide in the brain, causing a slowly progressive, ultimately fatal neurological disorder called Subacute sclerosing panencephalitis (SSPE). It usually presents six to eight years after the initial infection and starts with subtle mental decline, such as memory loss, as well as irritability and motor issues, such as involuntary jerking. It can progress to seizures and blindness from there. At the end stages, patients may lose the ability to walk before becoming comatose and falling into a vegetative state. SSPE usually kills with fever, heart failure, or by destroying the autonomic nervous system, which regulates breathing and heart rate among other essential functions. Most cases are seen in children who contracted measles early in life (before age 2) and most of them die from the disease within one to three years of being diagnosed.

Without vivid images of measles' miserable rashes, severe complications, and neurological horrors, vaccination is declining worldwide. The World Health Organization recently noted a 300 percent rise in global measles cases in the first three months of 2019 compared with the first three months of last year.

There are currently at least six ongoing outbreaks in the US, with the potential for more to pop up as the highly contagious virus festers in communities with low vaccination rates. Most cases are in children who have not been vaccinated. However, others are also vulnerable, including children too young to vaccinate (typically those younger than 12 months), people with weakened immune systems such as cancer patients on chemotherapy, and those vaccinated decades ago with only one

of the two doses of vaccine now recommended to achieve 97 percent efficacy.

On Thursday, April 25, two public universities in California quarantined more than 100 students and staff who were potentially exposed. Officials in New York's Rockland County, meanwhile, made their second declaration of a state of emergency over the outbreak there.

The CDC updates the number of confirmed measles cases every Monday.

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