

# One in eight children at risk for measles, analysis shows

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Gaps in measles vaccination rates place one in eight children at risk for becoming sick from the highly contagious illness, according to an analysis of national vaccination coverage being presented at IDWeek 2015. Measles can lead to pneumonia, encephalitis, hospitalization and occasionally, death.

Those who are not vaccinated or are undervaccinated are highly susceptible to becoming ill because [measles](#) is very contagious through direct contact and droplets that can spread through the air. Measles is one of the most contagious of the vaccine-preventable diseases, meaning to prevent sustained transmission, it's necessary to maintain the highest levels of immunity.

The study suggests that nearly 9 million [children](#) - infants through 17 - are susceptible to measles primarily because they haven't received the measles, mumps and rubella (MMR) vaccine, or have received only one of the two recommended doses. Some children are vulnerable because they can't receive the vaccine for medical reasons or aren't old enough to be vaccinated. Others aren't vaccinated because their parents delay vaccination or opt out for religious or personal reasons.

These findings are significant because in their analysis of the National Immunization Survey-Teen, the researchers from Emory University found the percentage of children immune to measles is very close to the range of 92 to 94 percent. Below this threshold, measles outbreaks are possible and could lead to widespread illness. Currently, measles is not

widespread thanks to herd immunity, meaning the majority of people have been vaccinated, which ensures the number of people vulnerable to infection is small and helps protect those who can't be vaccinated by preventing their exposure to the [measles virus](#).

Researchers also found that nearly one in four children aged three or younger are at risk, and that nearly 5 percent of 17-year-olds had not received any doses of the vaccine.

"Although we eliminated continuous measles transmission in the United States about 15 years ago thanks to the effectiveness of the MMR vaccine and robust vaccination rates, these study results show that we can't get complacent," said Robert Bednarczyk, PhD, lead author of the study and assistant professor in the Hubert Department of Global Health, Rollins School of Public Health, Emory University, Atlanta. "While we currently have overall immunity in the population that should prevent sustained measles transmission, if the virus is introduced, there is the potential for large outbreaks. This is because there are clusters of unvaccinated children in some communities, which could allow a large outbreak to occur with spread to similar communities."

All children should receive two doses of measles containing vaccines at the recommended ages, he said. He noted that the biggest concern is children who haven't received any doses for any of a variety of reasons, including: lack of access, being unaware of the need for vaccines and being opposed to vaccines. In addition, doctors need to ensure those who received only one dose receive a second dose at the recommended age.

The MMR vaccine is given to children in two doses, the first at 12 to 15 months and the second at four to six years old. While children are required to receive the MMR vaccine before attending school, some are exempt because they have a medical issue, such as an immune disorder or cancer. (The measles is a weakened live virus, and while it does not

cause disease, it is not recommended for those whose immune systems are compromised.) Further, most states offer exemptions for religious or personal reasons. (Three states, most recently California, do not offer non-medical exemptions.)

In their analysis, researchers determined that 12.5 percent of all children - 8.7 million - were not fully protected by vaccination and therefore were susceptible to measles, and that 24.7 percent of children age three or younger are at risk. Among 17-year-olds, 4.6 percent had received no doses of MMR. If the percentage of vaccinated children drops to just 98 percent of current levels, researchers estimate that 14.2 percent of children - one in seven - would be vulnerable to measles.

"We know some parents have concerns about vaccines and may want to avoid or delay vaccination, or follow an alternative schedule than the one recommended because they're concerned about the safety of the vaccine," said Dr. Bednarczyk. "In fact, the vaccine is very safe, while not vaccinating is highly risky, leaving their children - and others - vulnerable to a serious illness that can cause a large number of complications. Currently, these children are protected because of the high vaccine coverage of the population, but that will change if we begin having more outbreaks and the percentage of children vaccinated declines."

Provided by Infectious Diseases Society of America

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