

Study confirms 2 vaccine doses protect children from chickenpox

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Two doses of the varicella, or chickenpox, vaccine provide excellent protection in children against this highly contagious and, in some cases, severe disease. To be published in the February 1 issue of *The Journal of Infectious Diseases*, the findings support the two-dose vaccine regimen recommended in the United States since 2006.

The [Centers for Disease Control and Prevention](#) (CDC) began recommending a single dose of varicella [vaccine](#) in [children](#) aged 1 to 13 years old in 1995. Although the incidence of varicella fell by 90 percent after introduction of the vaccine, there was a high rate of breakthrough varicella illness in immunized children and continuing outbreaks of varicella among children despite high rates of vaccination. Studies also showed that the single-dose vaccine's effectiveness was less than 90 percent. Given the evidence, CDC in 2006 began recommending a second dose of the vaccine for children 4 to 6 years old.

Although data suggest that two doses of varicella vaccine are associated with higher levels of antibody than is one dose, this study is the first to assess the clinical effectiveness of two doses of the vaccine in the general population. Eugene D. Shapiro, MD, and colleagues at Yale University and collaborators at Columbia University conducted active surveillance in an area in Connecticut and discovered 71 cases of varicella in children aged 4 or older. None of the children had received two doses of vaccine, 66 (93 percent) had received one dose, and 5 (7 percent) had received no vaccine.

The investigators then compared the effectiveness of two doses of vaccine versus one dose in a case-control study, using 140 matched controls. The effectiveness of one dose in preventing varicella was 86.0 percent, while the effectiveness of two doses was 98.3 percent. According to Dr. Shapiro, "The odds of developing varicella were 95 percent lower in children who had received two doses of the vaccine compared with those who had received only one."

The results of this study suggest that countries immunizing children with only one dose of varicella vaccine should consider changing to a two-dose regimen. But, the authors emphasized, "There should be continued monitoring of the effectiveness of two doses to assure that its high degree of effectiveness is sustained."

In an accompanying editorial, David W. Kimberlin, MD, of the University of Alabama at Birmingham, agreed with the study authors, noting that this study is the first to evaluate the effectiveness of two doses of varicella vaccine in a "real-world" setting. "The high effectiveness of 98.3 percent found in this investigation supports the programmatic change instituted four years ago," Dr. Kimberlin noted.

Fast Facts:

- 1) In this study, the odds of developing varicella ([chickenpox](#)) were 95 percent lower in children > 4 years of age who had received two doses of the varicella vaccine compared with those who had received only one dose.
- 2) Of the 71 cases of varicella noted in the study, none of the subjects had received two doses of vaccine.
- 3) The effectiveness of two doses of [vaccine](#) in protecting against varicella in the study population was 98.3 percent.

More information: "Effectiveness of 2 Doses of Varicella Vaccine in Children"

www.oxfordjournals.org/our_journals/jid/jiq052.pdf

"Control of Varicella Disease, Version 2.0"

www.oxfordjournals.org/our_journals/jid/jiq053.pdf

Provided by Infectious Diseases Society of America

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