

Study finds rotavirus vaccine greatly reduces hospitalizations for acute gastroenteritis in children

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Vaccinating infants against rotavirus, a leading cause of severe diarrhea and dehydration among babies and young children, was associated with a dramatic decline in U.S. hospitalization rates for acute gastroenteritis. The findings appear in a study, now available online, published in the June 1 issue of *The Journal of Infectious Diseases*.

Worldwide, [rotavirus infection](#) is estimated to cause more than 500,000 deaths each year. Before a [vaccine](#) was introduced, the virus led to an estimated 55,000 to 70,000 hospitalizations in the U.S. annually. A vaccine, RotaTeq, was licensed for use in the U.S. and recommended for routine use in infants in 2006.

In this study, Aaron T. Curns, MPH, and colleagues at the [Centers for Disease Control and Prevention](#) (CDC) and the Agency for Healthcare Research and Quality examined [hospitalization rates](#) for acute gastroenteritis during the typical rotavirus season among U.S. children under 5 years of age. They compared these rates over two periods: from 2000 to 2006, before the rotavirus vaccine was introduced; and after, from 2007 to 2008.

Using hospital discharge data from 18 states accounting for almost 50 percent of the U.S. population, researchers compared the median hospitalization rate for gastroenteritis from all causes during the two time periods. Researchers considered the months January through June

to be the rotavirus season.

Hospitalization rates for gastroenteritis were 16 percent lower in 2007 and 45 percent lower in 2008 compared with rates before the vaccine was introduced. During 2008, infants aged 0-2 months had a 28 percent reduction, while those 6-23 months of age had a 50 percent reduction. Rates among children aged 3-5 months and 24-59 months declined between 42 percent and 45 percent. The researchers estimated that approximately 55,000 acute gastroenteritis hospitalizations were prevented during the 2008 rotavirus season because of vaccination. Hospitalization rates during this season were substantially diminished with rates one-half to two-thirds lower at peak activity compared to previous seasons.

The researchers noted that the observed declines in hospitalizations exceeded their estimates and also occurred among age groups that were too young or too old to receive the vaccine, suggesting that these children may have been protected by the "herd immunity" caused by their peers being vaccinated.

In an accompanying editorial, Geoffrey A. Weinberg, MD, and Peter G. Szilagyi, MD, MPH, of the University of Rochester School of Medicine & Dentistry in New York, highlighted the importance of such vaccine effectiveness studies, which provide a real-world view that can improve the planning of public health initiatives. An advantage of the study design is its analysis of how well vaccination works within a population, they wrote.

"These encouraging findings are important for emphasizing the benefits and increasing the acceptance of rotavirus vaccination in the United States and will also help other countries assess the value of rotavirus vaccines for their children," the researchers said. In light of the study's results, "it remains essential to continue monitoring acute gastroenteritis

hospitalization rates during subsequent rotavirus seasons to fully understand and document the impact of vaccination as the program matures in this country."

Fast Facts:

- Rotavirus infection leads to more than 500,000 deaths worldwide each year. Before a vaccine was introduced in 2006, rotavirus resulted in an estimated 55,000 to 75,000 hospitalizations in the U.S. annually.
- Hospitalization rates for acute gastroenteritis among children were 16 percent lower during the 2007 rotavirus season and 45 percent lower in 2008, compared with rates before rotavirus vaccine was introduced.
- An estimated 55,000 acute gastroenteritis hospitalizations were prevented during the 2008 rotavirus season in the U.S. Reductions also occurred in other age groups that did not receive the vaccine, probably due to "herd immunity."

More information:

<http://www.journals.uchicago.edu/doi/abs/10.1086/652403>

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