

# Refusing immunizations puts children at increased risk of pertussis infection

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Children of parents who refuse vaccines are 23 times more likely to get whooping cough compared to fully immunized children, according to a new study led by a vaccine research team at Kaiser Permanente Colorado's Institute for Health Research.

The study will appear in the June 2009 issue of the journal *Pediatrics*, the journal of the American Academy of Pediatrics.

Funded by the National Institute of Allergy and Infectious Diseases, this is the first study to use electronic health records to look for immunization refusal and possible pertussis infections, making it the most definitive on the risk of vaccine refusal to date.

While most families vaccinate their [children](#), leading to dramatic reductions in several serious childhood illnesses, the number of parents refusing immunizations appears to be increasing in the [United States](#), researchers say. The study could not determine from the information available why parents elected to refuse vaccines. The study also did not evaluate the side effects of vaccines.

The study findings are important for parents who cite low risk of infection as a reason to choose fewer or no immunizations, and for researchers who are concerned that decreased immunization rates could lead to more disease outbreaks across the country.

"This study helps dispel one of the commonly held beliefs among

vaccine-refusing parents: that their children are not at risk for vaccine preventable diseases," said study lead author Jason Glanz, Ph.D., a senior scientist at Kaiser Permanente's Institute for Health Research. "It also shows that the decision to refuse immunizations could have important ramifications for the health of the entire community. Based on our analysis, we found that one in 10 additional whooping cough infections could have been prevented by immunization."

Pertussis - more commonly known as whooping cough - is a highly contagious bacterial disease that causes uncontrollable, violent coughing and can be deadly in infants, especially those under two months of age who are too young to be fully vaccinated. In 1976 there were just over 1,000 reported cases of pertussis in the United States; by 2004, it climbed to nearly 26,000 cases. Between 2000 and 2005 there were 140 deaths resulting from pertussis in the United States.

The best way to prevent pertussis is through vaccinations. The childhood vaccine, DTaP, is a "3-in-1" immunization that protects against diphtheria, pertussis, and tetanus. It is given in a series to children at two months, four months, six months and 15-18 months of age, and a booster is given before kindergarten. The DTaP vaccine, like other routine childhood immunizations, has been shown to be more than 98 percent effective.

To assess the risk of DTaP refusal, researchers reviewed the [electronic health records](#) of children between the ages of two months and 18 years who were members of Kaiser Permanente Colorado between 1996 and 2007. First, investigators confirmed which children had pertussis infections. Next, they verified whether parents had refused some or all vaccines for their children.

The researchers found 156 laboratory-confirmed pertussis cases that met the study's criteria. They compared these cases to four times as many

children of the same age and gender who were not infected with pertussis. Based on this analysis, the researchers discovered that children of vaccine refusers were 23 times more likely to be infected with [whooping cough](#) than vaccinated children.

"As a father of young children, I understand that vaccines can pose confusing and difficult choices, so the purpose of this research is to give parents more information to weigh the benefits and risks, and to provide pediatricians with more information to help participate in the discussion," Glanz said.

According to pediatrician and co-author Matthew F. Daley, MD, of The Children's Hospital Denver and Kaiser Permanente's Institute for Health Research: "Parents want to do what is best for their children and need information to make good decisions regarding immunizations. This study will benefit parents and pediatric health care providers because it helps us better understand some of the risks of not vaccinating against childhood diseases."

Source: Kaiser Permanente ([news](#) : [web](#))

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