

Childhood Whooping Cough Vaccine Protects Most Children For At Least 5 years

The results from a large 2010 study show that diphtheria-tetanus-acellular pertussis (DTaP) vaccines do a very good job of protecting 4 through 10 year old children from pertussis, or whooping cough. Overall, DTaP vaccination is effective for between 8 and 9 out of every 10 children who receive it, which is similar to the levels found in clinical trials done before the vaccines were licensed.

The results were presented at the 49th Annual Meeting of the Infectious Diseases Society of America in Boston, by CDC epidemiologist Lara Misegades, Ph.D. The study also found that the vaccine is very effective for children who received their fifth DTaP dose within the past year — nearly all children (98 out of 100) are fully protected. For each year after this, there was a modest decrease in protection. The report showed that by the time children were five or more years past their last DTaP dose, about 7 out of 10 children were fully protected and the other 3 were protected against serious disease.

CDC researchers expected that protection would fade over time, but before now did not have concrete estimates on long-term duration of protection. The study also determined that children who never received any doses of DTaP vaccine faced odds of having whooping cough at least eight times higher than children who received all five doses of the vaccine.

“Our study was carefully designed to evaluate waning immunity, and the case-control methodology allowed us to directly estimate vaccine effectiveness,” Misegades said. “The results reassure us that DTaP is working and reinforce the need for a booster dose of Tdap at 11 or 12 years of age.”

In collaboration with the California Department of Public Health, CDC reviewed medical records of more than 4,000 children from 15 California counties during the state’s 2010 whooping cough epidemic and reviewed these medical records with personal visits to more than 250 medical practices to read through each chart. The final analysis included more than 600 children with whooping cough and more than 2,000 children without infection in a comparison group.

Whooping cough is a serious and highly contagious respiratory disease that can cause long, violent coughing fits and the characteristic “whooping” sound when a person gasps for air. It takes a toll on anyone, but for infants it can be deadly. In 2012, 48,000 cases of whooping cough were reported nationally with 20 deaths, most of which were in babies younger than 3 months old. Worldwide, there are about 16 million cases of whooping cough per year resulting in about 195,000 deaths.

CDC officials stress that vaccines are the best way to prevent whooping cough. In addition, people who do catch whooping cough after being vaccinated are much less likely to be hospitalized or die from the disease. Because of the vaccines, the US no longer sees 200,000 cases of whooping cough each year. “Vaccines are our best protection against whooping cough, and they protect us well against severe and fatal disease,” said Misegades.

CDC recommends that infants and children get DTaP vaccine at 2 months, 4 months, 6 months, and 15 through 18 months of age. A booster of DTaP is given at 4 through 6 years of age. Because protection from DTaP fades over time, CDC recommends another dose of whooping cough vaccine, known as Tdap, for adolescents (ideally at 11 or 12 years) and women during each pregnancy (ideally in the third trimester). Adults who have never received Tdap should get one dose now. By protecting themselves, older children, new mothers, and other adults can form a “cocoon of protection” around the babies in their lives that may be too young to be fully protected by DTaP vaccine.

To learn more, visit CDC’s whooping cough website at www.cdc.gov/whoopingcough or call 800-CDC-INFO.