

Study: Tdap effectiveness declines steadily after first year

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Pertussis vaccination for adolescents provides only moderate protection and loses effectiveness rapidly over time, according to a new study.

Researchers from the Northern California Kaiser Permanente Vaccine Study Center undertook a study of tetanus diphtheria acellular pertussis (Tdap) vaccine following two pertussis outbreaks in their state.

Pertussis vaccination for adolescents provides only moderate protection and loses effectiveness rapidly over time, according to a new study.

“Waning immunity is seen for other vaccines, yet disease control can often be maintained in a population provided vaccine coverage is high enough in the right age groups. This is not the case for pertussis,” authors said in the study “Waning Tdap Effectiveness in Adolescents” (Klein NP, et al. *Pediatrics*. Feb. 5, 2016, www.pediatrics.org/cgi/doi/10.1542/peds.2015-3326).



They looked specifically at 279,493 adolescents who had only received acellular pertussis vaccines, which replaced whole cell vaccine in the 1990s. Among those children, there were 1,207 pertussis cases.

Researchers found Tdap vaccine effectiveness was 68.8% during the first year after vaccination, 56.9% the second year, 25.2% the third year and 8.9% in year four.

They said the waning effectiveness may in part reflect waning effectiveness of diphtheria, tetanus and acellular pertussis (DTaP) vaccine given to younger children in five doses. They also noted the study did not compare brands of Tdap.

The findings led them to question the benefits of routinely administering Tdap to 11- and 12-year-olds and suggest alternate strategies like administering it in anticipation of an outbreak. However, the Academy and Centers for Disease Control and Prevention just released [2016 immunization schedules](#) that continue to recommend five doses of DTaP for young children followed by a Tdap vaccine at age 11 or 12.

Resources

- [AAP Red Book chapter on pertussis](#)
- [AAP policy "Recommended Childhood and Adolescent Immunization Schedule — United States, 2016"](#)
- [Information for parents on Tdap vaccine](#)

- [Information for parents on pertussis](#)

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