

Whooping cough vaccine fades in pre-teens: study

RELATED TOPICS

[Health »](#)

By Kerry Grens

NEW YORK | Tue Apr 3, 2012 2:13pm EDT

(Reuters Health) - During a whooping cough outbreak in California in 2010, immunized children between eight and 12 years old were more likely to catch the bacterial disease than kids of other ages, suggesting that the childhood vaccine wears off as kids get older, according to new research.

"We have a real belief that the durability (of the vaccine) is not what was imagined," said Dr. David Witt, an infectious disease specialist at Kaiser Permanente Medical Center in San Rafael, California, and senior author of the study.

Whooping cough, or pertussis, is caused by *Bordetella pertussis* bacteria. The infection produces an intense cough that lasts weeks and can lead to pneumonia, an inability to breathe or death -- although most cases don't reach such extremes.

According to the Centers for Disease Control and Prevention (CDC), about nine out of every 100,000 Americans get pertussis each year, and while that number is considerably smaller than before the vaccine was introduced, it has been rising for the past two decades.

The pertussis vaccine, a five-shot series referred to as DTaP, is recommended for children at ages two-, four-, six- and 18-months, and at four to six years old.

The CDC recommends that at age 11 or 12 kids get the booster shot called Tdap.

In early 2010, a spike in cases appeared at Kaiser Permanente in San Rafael, and it was soon determined to be an outbreak of whooping cough -- the largest seen in California in more than 50 years.

Witt had expected to see the illnesses center around unvaccinated kids, knowing they are more vulnerable to the disease.

"We started dissecting the data. What was very surprising was the majority of cases were in fully vaccinated children. That's what started catching our attention," said Witt.

To figure out just how well the vaccine was working, Witt and his colleagues collected information on every patient who had tested positive for pertussis between March and October, 2010.

Of the 132 patients under age 18, 81 percent were up to date on recommended whooping cough shots and eight percent had never been vaccinated. The other 11 percent had received at least one shot, but not the complete series.

The rate of cases for each age, two through 18 years old, peaked among kids in their pre-teens.

Among fully immunized kids, there were about 36 cases for every 10,000 children two to seven years old, compared to 245 out of every 10,000 kids aged eight to 12.

"The longer you went from your last vaccine, the greater your risk of disease," Witt told Reuters Health.

At age 13, the number of cases dropped, presumably because that's the age when children are eligible for their booster shot.

Comparing the kids who got pertussis to the more than 22,000 kids in the medical center's database who didn't, Witt's group wrote in the journal *Clinical Infectious Diseases* that the vaccine is effective about half of the time for all kids, and just 24 percent of the time in the eight to 12 year old age group.

"For pertussis, having even 24 percent helps (mitigate an epidemic), but you'd sure like it higher than that," he said.

Dr. Tom Clark, a medical epidemiologist with the CDC, said it's understood that vaccine protection wanes over time.

"That's why we have an adolescent booster dose recommendation," he said.

Clark said CDC's data from the California outbreak also show the vaccine's effect dropping off as children get farther away from their last shot, but that the vaccine appears more effective than what Witt's group found.

Witt and his colleagues suggest that the booster seems to come too late, leaving pre-teens at an increased risk of catching pertussis.

But moving up the Tdap booster shot to an earlier age is not so easy, Clark said, and it might not fix the problem.

"It's likely if we move doses around we'd shift the burden of disease, but not necessarily reduce it," Clark said.

Additionally, the booster shot is not approved for seven to nine year olds.

A spokesperson for GSK, one of the pertussis vaccine makers, wrote in an email to Reuters Health that studies conducted by the company have shown the vaccine is about 78 percent effective in warding off disease up until the age of six years.

GSK has never studied the duration of the vaccine's protection after the shot given to four- to six-year-olds, the spokesperson said.

Dr. Joel Ward at the Los Angeles Biomedical Research Institute said it's still important for parents to get their kids immunized, even though it doesn't provide lasting protection from whooping cough.

"The disease has diminished markedly with the use of it. The benefit has been enormous," he said.

Ward, who did not participate in the new study, also said that immunized kids who catch whooping cough don't get as sick as unimmunized kids.

Newborns and infants are most at risk of catching whooping cough because they have not yet been immunized.

The CDC has expanded recommendations for adults and pregnant women, encouraging them to get a booster shot to "cocoon" babies by preventing everyone around the infants from catching the bacterium and passing it on.

In February this year, the CDC included adults over age 65 in their recommendations for the booster shot.

SOURCE: bit.ly/HdfLsU Clinical Infectious Diseases, online March 15, 2012.

Source: Agence de presse internationale Reuters

<http://www.reuters.com/article/2012/04/03/us-whoopingcough-idUSBRE8320TM20120403>