



BY  
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# Protecting the Young Against Pertussis

**T**he current pertussis outbreak occurring in California clearly demonstrates that we need to make a greater effort to vaccinate

adults in order to protect infants too young to be completely vaccinated.

To quote the 2010 editorial by Dr. Alfred DeMaria Jr. and Dr. Susan Lett (Clin. Infect. Dis. 2010;50:1346-8), "If it does take a village to raise a child, then that village should be fully immunized against pertussis."

Between January and July of this year, the California Department of Public Health received reports of a total 1,337 confirmed or probable cases of pertussis, which represents a fourfold increase from the 258 cases reported during the first half of 2009. If these rates persist throughout 2010, California will have its highest annual rate of pertussis since 1963 and the most cases reported since 1958, according to the Centers for Disease Control and Prevention (MMWR 2010; 59:817).

During this outbreak, the CDPH expanded recommendations to off-label situations, including vaccination of those who are pregnant, older than 65 years, and aged 7-10 years.

As we've seen in the past, infants younger than 6 months of age—too young to have received the recommended three protective diphtheria-tetanus-acellular pertussis (DTaP) doses yet—are bearing the brunt of the illness, accounting for 89% of all the California cases. Disease incidence in children younger than 1 year of age was 38.5 cases per 100,000 population vs. 3.4 per 100,000 for all ages.

Of 634 case reports with available data, 105 (17%) were hospitalized, with 63% being younger than 3 months old. And, sadly, all six of the pertussis deaths reported as of July 13, 2010, were in previously healthy infants aged younger than 2 months at disease onset.

These deaths could have been prevented. A 2006-2008 study in the Netherlands demonstrated why the so-called "cocooning" effect really works. Of 560 not recently immunized household contacts of 164 hospitalized infants who were tested for *Bordetella pertussis* infection, 53% were infected and 14% had no symptoms. Among 96 households for which the most likely source of infection was established, 41% were siblings, 38% were mothers, and 17% were fathers.

The authors concluded that maintaining or boosting immunity to pertussis in parents and relatives could prevent 35%-55% of infant cases (Clin. Infect. Dis. 2010;50:1339-45).

The adolescent/adult tetanus-diphtheria-acellular pertussis vaccine (Tdap) has now been recommended for all adults as a replacement for the old Td vaccine. In practice, however, beyond

the adolescent years, most adults receive it only if both they require tetanus prevention and the provider is aware of recent changes in the immunization recommendations.

As clinicians caring for children, we routinely vaccinate children as old as 6 years of age with DTaP and 10- to 18-year-olds with Tdap. But I believe we also have a role in helping to ensure that our

youngest patients are protected by encouraging their adult contacts to be immunized with Tdap.

Certainly, most family physicians and med-ped (combined internal medicine and pediatrics) physicians are already doing this. Pediatricians who feel comfortable vaccinating parents/adult caregivers in their offices have a great opportunity, but others could still recommend that

parents get the booster from their personal physician or a local health department clinic. And don't forget to suggest pertussis immunization for other adults who come into regular contact with the young infant, including grandparents and babysitters. Some health departments offer a price reduction if they're told that the Tdap is to protect a new infant in your family.



# The cou

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Pregnant women are a special situation. The U.S. Advisory Committee on Immunization Practices (ACIP) recommends pertussis immunization for women prior to conception and after birth if they have not received it within the past 2 years. The ACIP did not recommend Tdap for routine use during pregnancy because there is too little safety and efficacy data (MMWR 2008; 57[RR-4]:1-51).

However, the American College of Obstetricians and Gynecologists suggests vaccinating pregnant women if the risk is felt to be higher than the un-

defined risks of vaccine (Obstet. Gynecol. 2009;114:398-400). The American Academy of Pediatrics, for its part, recommends Tdap for pregnant adolescents in the same way as for nonpregnant adolescents (Pediatrics 2006; 117:965-78).

Dr. DeMaria and Dr. Lett also went on to write in their editorial that—when Tdap is given to pregnant women in the second or third trimester—counseling and administration is recommended.

Pediatricians might consider suggesting pertussis immunization to pregnant women who come in to “pediatrician

shop,” and to those who have their older children accompanying them.

By the time this column is published, I will have a new grandchild. During talks with my son, it became clear to me that the cocooning concept has not reached enough health care professionals. I advised him that he, my daughter-in-law, and other in-laws receive Tdap before the baby’s birth to maximize the chance of protection. My wife made sure she got hers.

In my view, Tdap for adult contacts is just as important as making sure the crib and car seat you buy for your baby are

safe. Here’s a potentially lethal disease that’s resurgent in parts of the country, and we have a tool to protect our newborns against it. Shouldn’t we make every effort to do so? ■

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