# Maternal DTaP Vaccination Protected Newborns

BY M. ALEXANDER OTTO

FROM THE ANNUAL MEETING OF THE INFECTIOUS DISEASES SOCIETY OF AMERICA

VANCOUVER, B.C. – Infants born to women who receive diphtheria-tetanus-acellular pertussis vaccine during pregnancy have higher pertussis antibody levels during their first few months of life than infants born to unvaccinated women, Dr. Abbey Hardy-Fairbanks reported.

The levels are sufficient to protect infants against pertussis prior to their first diphtheria-tetanus-acellular pertussis (DTaP) shot at around 2 months, a period of "significant pertussis morbidity and mortality," said Dr. Hardy-Fairbanks, an ob.gyn. at the University of Iowa, Iowa City.

"This is the first evidence to document that pertussis immunization during pregnancy is likely to be beneficial to infants when they are most vulnerable to pertussis disease. [Physicians] should consider vaccination of women during pregnancy with DTaP," she said at the meeting.

In the prospective cohort study, 16 (23%) of 70 pregnant women received DTaP vaccine; 54 (77%) pregnant women selected as controls did not and had not been vaccinated for at least 2 years.

Four of the women (25%) in the DTaP group were vaccinated in the first trimester, eight (50%) in the second, and four (25%) in the third. Vaccination did not cause any adverse pregnancy outcomes.

Maternal blood and cord blood were collected at delivery. Blood was also collected from children before and after their primary DTaP series and toddler booster doses at 12-18 months.

Blood samples were measured for pertussis antigens, including pertussis toxoid, filamentous hemagglutinin, pertactin, and fimbriae, by enzyme-linked immunosorbent assay.

Newborns in the DTaP group had higher pertussis antibody concentrations than their mothers, "showing efficient placental transfer of antibodies to the infant," Dr. Hardy-Fairbanks explained.

They also had substantially higher concentrations than infants in the control group prior to the start of the primary DTaP series, and the differences were statistically significant.

However, at month 7, following completion of the DTaP series, infants born to vaccinated mothers had slightly lower antibody levels than infants in the control group.

The differences were not statistically significant, but "may represent some blunting of the infant immune response to the [vaccine]," Dr. Hardy-Fairbanks said.

By the time they got their toddler booster doses, however, antibody levels "were essentially equivalent" in the two groups, she said.

Dr. Hardy-Fairbanks said she had no conflicts of interest. The study was funded by Sanofi-Pasteur, maker of Daptacel DTaP vaccine. ■



VIEW ON THE NEWS

## DTaP Response Blunted?

Dr. Sarah Long thanked the study authors for their work. "Your findings are so very helpful. We don't have this kind of information."

She was concerned, however, that infants born to vaccinated mothers mounted only a blunted immune response to their primary DTaP vaccine series, and wondered if responses would be blunted to other vaccines. The study's presenter said the question is currently being investigated, but so far that does not appear to be the case.

DR. SARAH LONG *is the chief of the section of infectious diseases at St. Christopher's Hospital for Children in Philadelphia. She said she had no conflicts of interest.*