

Study identifies infants at highest risk of death from pertussis

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A study released today from the upcoming issue of the *Journal of the Pediatric Infectious Diseases Society* (JPIDS) found that taking early and repeated white blood cell counts (WBC) is critical in determining whether infants have pertussis and which of those children are at highest risk of death from the disease.

In 2010, California reported its highest pertussis rates in 60 years. Murray, et al.'s [retrospective study](#) used medical records from five Southern California [Pediatric Intensive Care](#) Units between September 2009 and June 2011. Of the 31 infants studied, eight comprised a group considered to have more severe infections, which included suffering from [pulmonary hypertension](#) and death from the pertussis.

The study showed that infants who had more severe disease had higher WBC counts and were more likely to show at least a 50% increase in WBC. Infants with more severe disease had median peak WBC counts of 74,100 compared to 24,200 among infants with less severe disease. All but one of those with more severe disease had at least a 50% increase in WBC within 48 hours, and none of those infants with less severe disease had more than a 50% increase in WBC.

Additionally, the group of infants with more severe infections had higher maximum heart and respiratory rates and was more likely to develop pneumonia. All of these conditions occurred earlier after illness onset among infants with more severe disease. This group was more likely to have seizures, hypotension/shock, [renal failure](#), and was more likely to

be intubated and receive exchange transfusions. Six of the infants received exchange transfusions, and four of those died. Those four were all in shock at the time of their transfusions; the two who survived were not in shock at the time of transfusion.

Also known as [whooping cough](#), pertussis is a highly contagious bacterial infection of the respiratory tract. Most children are vaccinated against pertussis at an early age, but infants are too young to complete the vaccination series. The U.S. Centers for Disease Control and Prevention reports that 2012 rates of the disease are at their highest level in 50 years and some states are reporting case counts not seen since the 1930s, which was prior to the vaccine era.

"Because very young infants have not yet been vaccinated and are at the highest risk for severe disease, we need to better manage and treat it," said Erin Murray, lead author of the study and epidemiologist at the California Department of Public Health. "This study shows the importance of aggressive pediatric intensive care and provides us additional metrics as we treat these very young patients."

Provided by Pediatric Infectious Diseases Society

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