



Wednesday, March 19, 2008

80

## **Pertussis Outbreak in a Highly-Vaccinated School Population, Faulkner County, Arkansas 2007**

[Cynthia F. Hinton](#)<sup>1</sup>, Eric J. Stern<sup>2</sup>, Altino McKelvey<sup>3</sup>, Terri Iacobacci<sup>4</sup>, Andrew L. Baughman<sup>5</sup>, Linda Gladden<sup>4</sup>, Sandra L. Snow<sup>4</sup>, and Tejpratap Tiwari<sup>6</sup>. (1) NCBDDD, CDC, 1600 Clifton Rd, NE, MS-E86, Atlanta, GA, USA, (2) Rady Children's Hospital San Diego, (3) Sacramento County Department of Health, Sacramento, CA, (4) Communicable Disease/Immunization Team, Arkansas Department of Health, (5) National Center for Immunization and Respiratory Diseases/DBD/Biostatistics Office, Centers for Disease Control and Prevention, Atlanta, USA, (6) Meningitis & Vaccine Preventable Diseases Branch, Center for Disease Control, 1600 Clifton Rd, NE, M/S C-25, Atlanta, GA, USA

### **Learning Objectives for this Presentation:**

By the end of the presentation, participants will be able to understand the role of pertussis vaccination and recognize need for research in outbreak disruption.

### **Background:**

A pertussis outbreak occurred among school children in Faulkner County, Arkansas from February to May 2007. Widespread post-exposure antimicrobial prophylaxis was administered to contacts of cases.

### **Objectives:**

The objectives of this investigation were to confirm pertussis as the cause of outbreak and characterize the epidemiology and vaccination status of pertussis cases in affected schools.

### **Methods:**

Cases were classified according to CSTE definitions. CDC Pertussis Laboratory (CDCPL) used IS481 and ptxS1 primers to corroborate PCR results from the Arkansas Public Health Laboratory (APHL). We reviewed case surveillance records and accessed school vaccination records for grades K-7.

### **Results:**

We identified 37 cases among school children in grades K-12. The attack rate was 2.2% in primary school (K-4), 1.4% in elementary school (K-4), 1.5% in middle school (5-7), 0.9 % in junior high school (8-9), 0.6% in high school (10-12). The attack rate was highest among third and fourth graders (3.2%); 11 of 15 children were in primary school. The median cough duration was 21 days (range, 14 -59 days). There were no complications. Overall, 87% cases were treated with appropriate antimicrobial agents based on clinical suspicion of pertussis (macrolides, co-trimoxazole). CDCPL corroborated 3 of 4 positive PCR results from APHL. No cultures were obtained. About 95% of children (K-7) were fully vaccinated. The attack rate among vaccinated K-7 children was 2.2%; no case occurred among the undervaccinated.

**Conclusions:**

Pertussis was confirmed as the cause of outbreak. Pertussis outbreaks can occur in highly-vaccinated school populations as vaccine efficacy is approximately 85% for severe disease. More research is needed to determine factors that contribute to disruption of transmission and resolution of outbreaks.

See more of [Pertussis: What's Hot!](#)

See more of [The 42nd National Immunization Conference \(NIC\)](#)