Pertussis Cases Show Need for Adult Booster Shot

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Three recent hospital pertussis outbreaks and one infant death from the disease strongly point to the need for improved recognition and protection against transmission, the Centers for Disease Control and Prevention said.

The cases, from four states, also illustrate the potential benefit of vaccination against *Bordetella pertussis* in adolescents and adults, because immunity from infant immunization wanes after a decade. No vaccine is currently licensed for persons aged 7 years and above, but two manufacturers have filed for licensure with the Food and Drug Administration for vaccines that combine acellular pertussis, tetanus toxoid, and tetanus toxoid antigens. One would be indicated for persons aged 10-18 years, the other for ages 11-64 years.

All three hospital outbreaks, which occurred in August and September of 2003, involved hospitalized infants with cough illness. In Pennsylvania, a 3-week-old infant was hospitalized with cough, posttussive vomiting, and fever. Pertussis was considered unlikely, the infant wasn't tested for it, and hospital staff did not observe droplet precautions.

The infant was transferred to a referral hospital after 1 day, nasopharyngeal secretions were obtained, and *B. pertussis* was isolated 16 days later (MMWR 2005;54:67-71).

Meanwhile, the physician who had cared for the infant at the first hospital developed a cough 9 days after exposure. Despite remaining symptomatic, he continued to treat patients—and to have contact with coworkers, family, and friends—without wearing a mask. His nasopharyngeal secretions tested positive 22 days after the initial exposure, while a total of 16 other health care workers and two pediatric patients at the initial hospital developed cough illness and/or tested positive for pertussis.

Hospital infection control personnel subsequently screened exposed employees, treated all who were symptomatic with a 5-day course of azithromycin, and excluded them from work for 5 days. Another 307 close contacts of the symptomatic health care workers were given azithromycin prophylactically, the CDC reported.

The other two outbreaks, in Kentucky and Oregon, also involved acutely ill infants with cough illness, exposed health care workers, and potential transmission to a large number of contacts who subsequently received azithromycin as either treatment or prophylaxis.

All three cases illustrated the difficulties in the diagnosis of pertussis, particularly in older individuals in whom the symptoms during the catarrhal stage are usually nonspecific while the disease is already highly communicable. In infants, diagnosis may be delayed when the presentation is respiratory distress with apnea but without the typical cough.

Also problematic is the lack of adequate diagnostic tests for pertussis. Culture is not sensitive beyond 3 weeks of illness or after antibiotic therapy, polymerase chain reaction for pertussis is not standardized, and no serologic test is available, although the CDC and the FDA are developing one.

A second MMWR report illustrates the fact that incompletely immunized chil-

Finding, Treating Pertussis in Health Workers

Clinical Findings
- ▶ Incubation period: 7-10 days (range: 4-21 days).
- ▶ Catarrhal stage: 1-2 weeks; coryza, low-grade fever, and mild cough.
- ▶ Paroxysmal stage: 1-6 weeks; paroxysmal cough, posttussive vomiting, and inspiratory "whoop."
- ▶ Convalescent stage: at least 3 weeks; cough lessens and disappears.

Treatment/Prophylaxis
- ▶ Macrolides (erythromycin, azithromycin, or clarithromycin) are preferred.
- ▶ Trimethoprim-sulfamethoxazole is an alternative antibiotic for use in persons with allergy or intolerance to macrolides.

Source: Centers for Disease Control and Prevention

dren aged less than 6 months continue to be the most vulnerable to pertussis when the disease is circulating around them (MMWR 2005;54:71-2).

A 29-day-old West Virginia infant was brought to the emergency department with difficulty breathing. The infant's mother had had prolonged paroxysmal cough illness for 3 weeks before the infant's delivery; the father had onset of paroxysmal cough illness 2 weeks before the infant's illness.

The infant had been coughing for 5 days with increasing severity, resulting in posttussive vomiting and choking. At presentation, she was lethargic, tachycardic, and had a mild fever. Laboratory results indicated leukocytosis. Chest x-ray revealed pneumonia, and she developed respiratory failure. She died approximately 30 hours after admission to the pediatric intensive care unit, despite azithromycin treatment for presumed *B. pertussis*, high-frequency ventilation, nitric oxide administration, and a double-volume exchange transfusion.

The diagnosis of pertussis was based on history, clinical findings, and a positive polymerase chain reaction test. Around the time of the infant's death, two cousins, her paternal grandmother, and a great-grandmother all had cough illness as well. ■

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'To those men, I would put this question: "At what age would you like your genitalia to begin shrinking?"'

Dr. Murray Freedman, on genital atrophy that occurs in postmenopausal women who have stopped hormone therapy, p. 58