

Health Alert

Cluster of Pertussis at a Philadelphia School

November 21, 2019

The Philadelphia Department of Public Health has received twelve reports of confirmed and probable pertussis among students at a Philadelphia high school. Affected students presented with a prolonged cough illness and were fully immunized. Pertussis incidence has been increasing in recent years due to waning immunity after both vaccination and natural infection and clusters of pertussis are currently being observed within schools from other jurisdictions. Ongoing case identification is essential to ensure timely control and prevention strategies.

Pertussis (*Bordetella pertussis*)

Pertussis is a bacterial infection caused by *Bordetella pertussis*, a gram-negative bacillus. Typical disease presents in three stages: mild respiratory symptoms (catarrhal, 7-10 days), paroxysms of cough (paroxysmal, 1-6 weeks) that may be accompanied by a characteristic inspiratory whoop, and a convalescent stage during which symptoms gradually wane over several weeks. Disease is most severe in young infants <6 months old in whom complications include pneumonia, pulmonary hypertension, hypoxia leading to seizures and death. Among older children, adolescents and adults, complications include pneumonia, fainting and rib fractures from severe coughing. Unvaccinated persons are at highest risk for complications. Symptoms are less severe and may mimic other causes of prolonged cough, like asthma, among previously vaccinated persons.

Pertussis is a highly contagious vaccine-preventable disease and is spread through close contact with respiratory droplets from coughing or sneezing. Infected persons are most contagious during the catarrhal stage through three weeks after cough onset and the incubation period is 7 to 10 days (range 5-21 days). Antibiotic treatment is available and can reduce the duration of symptoms and shedding when started within the first 3 weeks of cough onset. Antibiotics are also recommended as post-exposure prophylaxis to household and other close contacts at high risk for complications regardless of immunization status.

Pertussis Diagnosis, Management and Prevention

Early case identification is crucial to implement strategies to prevent ongoing transmission. Providers should:

- Ensure that all patients are up-to-date with pertussis-containing vaccines. Vaccination remains the most important prevention tool for pertussis.
- Suspect pertussis in patients with potential pertussis exposure who present with prolonged cough illness without fever, regardless of immunization status. Young infants and previously vaccinated persons may not present with typical paroxysmal cough or whoop.
- Collect a nasopharyngeal respiratory specimen using a Dacron swab for *Bordetella pertussis* PCR testing for all patients with suspected pertussis. PCR testing is most sensitive within 3 weeks of cough onset. Testing is not recommended for exposed persons who are asymptomatic.
- Initiate antibiotic treatment (5-day course of azithromycin is the first-line choice) in symptomatic patients with no alternative diagnosis while awaiting test results as early treatment is more effective.
- Provide post-exposure prophylaxis to close contacts of pertussis cases who are immunocompromised or have household contacts who are immunocompromised, pregnant or <12 months old.
- Advise patients with pertussis to remain home from school or work for 5 days from initiation of appropriate antibiotics or 21 days for untreated infections.
- Report all cases of suspected and confirmed pertussis to the health department so that control measures can be implemented. To report, call (215) 685-6742 during business hours.

Resources: CDC Pertussis Information for Clinicians: <https://www.cdc.gov/pertussis/clinical/index.html>

SUMMARY POINTS

- There is a cluster of pertussis in a Philadelphia high school.
- Providers should consider pertussis in patients with a prolonged cough illness without fever, even when fully immunized.
- Notify PDPH [(215) 685-6742, after hours: (215) 686-4514] of any patient with confirmed or suspected pertussis.