



HEALTH ALERT: Pertussis (Whooping Cough)

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TO: Internal Medicine
Pediatrics
Obstetrics/Gynecology
Hospital Emergency Departments
Infection Control Specialists

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Health Officer

This fax contains 3 pages.

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ALL physicians at your location.

Pertussis is a cyclical disease that peaks every 2 – 5 years. There has been a marked increase in pertussis activity statewide, with triple the number of cases reported so far this year as compared to last year, and five infant deaths to date. The number of cases reported from the nine Bay Area counties is six times higher this year as compared to last year. We have not seen an increase in reported pertussis activity in Santa Clara County; however, we anticipate that it is only a matter of time.

Diagnosis

Think pertussis, or you may miss it. Classic pertussis is a cough illness lasting 6 – 10 weeks. The illness is characterized by a 1 – 2 week catarrhal stage with cold-like symptoms (coryza, sneezing, occasional cough), absent or minimal fever, and gradually worsening cough, followed by a 3 – 5 week long paroxysmal stage, with spasms of severe coughing, followed by a sudden deep inspiration, often resulting in a characteristic “whooping” noise. The final convalescent stage is characterized by decreasing frequency and severity of coughing, whooping and vomiting. Coughing paroxysms may recur with subsequent respiratory infections. In general, adolescents are likely to have milder illness. Post-tussive vomiting is common in all ages.

- **Young infants:** The diagnosis of pertussis is often delayed or missed because of a deceptively mild onset of runny nose. There usually is no fever. Cough may be undetectable or mild. Illness may present as apnea, hypoxia or seizures. After a few days, mild illness may suddenly transform into respiratory distress. A white blood cell count of $\geq 20,000$ cells/mm³ with $\geq 50\%$ lymphocytes is a strong indication of pertussis.
- **Adolescents and adults:** Most cases are not diagnosed. A misdiagnosis of bronchitis or asthma is common. The patient may report of episodes of a choking sensation or of sweating. Leukocytosis/lymphocytosis is not likely to occur in this population.

Laboratory Testing

Laboratory testing is important for prompt recognition of infection. The preferred methods for laboratory diagnosis are culture and/or polymerase chain reaction (PCR) of a nasal aspirate (preferred specimen) or nasopharyngeal swab. We do not recommend direct fluorescent antibody (DFA) tests because of poor sensitivity. Most commercially available serologic tests have not been clinically validated, however there are specific exceptions.



See http://www.cdph.ca.gov/programs/immunize/Documents/CDPH_Pertussis_laboratory_testing_March2010.pdf for more information about laboratory testing for pertussis.

Treatment

Delays in treatment before or after hospitalization may increase the risk of fatal illness. Because pertussis may progress rapidly in young infants we suggest treatment of suspected and confirmed cases promptly with azithromycin, close monitoring, and consideration of hospitalization in a facility that has direct access to intensive care (especially if the infant is <3 months of age). The white blood cell count may increase substantially during the illness. Almost all fatal cases have extreme leukocytosis with lymphocytosis, pneumonia, and pulmonary hypertension.

Age group	Azithromycin	Erythromycin*	Clarithromycin	Alternate agent: TMP-SMX†
<1 month	Recommended agent for infants <1 month; 10 mg/kg per day in a single dose x 5 days	Not preferred; associated with hypertrophic pyloric stenosis in infants <1 month. If azithromycin is unavailable use 40–50 mg/kg per day in 4 divided doses x 14 days	Not recommended	Contraindicated in infants <2 months (risk for kernicterus)
1–5 months	10 mg/kg per day in a single dose x 5 days	40–50 mg/kg per day in 4 divided doses x 14 days	15 mg/kg per day in 2 divided doses x 7 days	Contraindicated in infants <2 months For infants aged ≥2 months, TMP 8 mg/kg per day; SMX 40 mg/kg per day in 2 divided doses x 14 days
Infants aged ≥6 months and children	10 mg/kg as a single dose on day 1 (maximum 500 mg); then 5 mg/kg per day as a single dose on days 2–5 (maximum 250 mg/day)	See above (maximum 2 g/day)	See above (maximum 1 g/day)	See above
Adolescents and adults	500 mg as a single dose on day 1 then 250 mg as a single dose on days 2–5	2 g/day in 4 divided doses x 14 days	1 g/day in 2 divided doses x 7 days	TMP 300 mg/day, SMX 1600mg/day in 2 divided doses x 14 days

*Some experts prefer erythromycin estolate over erythromycin stearate or ethylsuccinate because it achieves higher serum levels with equal doses.

†Trimethoprim-sulfamethoxazole (TMP-SMX) can be used as an alternative agent to macrolides in patients aged ≥2 months who are not pregnant or nursing and are allergic to, cannot tolerate, or are infected with a rare macrolide-resistant strain of *B. pertussis*.



Prevention

Assess pertussis immunization status of all patients, and use every patient encounter as an opportunity to vaccinate. Infants < 6 months are at greatest risk of hospitalization and death, but are too young to be fully vaccinated, so vaccination, with the age-appropriate vaccine, of all persons (household members, caregivers and healthcare workers) in contact with infants is critical. The California Department of Public Health (CDPH) is initiating a short term Tdap project to make additional Tdap vaccine available to birthing hospitals to immunize post-partum women and their close household contacts. More information on the Tdap Expansion Program is available at www.getimmunizedca.org.

We recommend chemoprophylaxis of close contacts as appropriate to prevent infection and further transmission. The antibiotic, dose and duration for chemoprophylaxis of pertussis is the same as that for treatment of pertussis. Call Santa Clara County Disease Prevention and Control to discuss which contacts should receive post-exposure prophylaxis.

Reporting

Prompt reporting supports prevention and control efforts. Report suspected and confirmed cases of pertussis to Santa Clara County Disease Prevention and Control by calling 408-885-4214 during normal business hours, or by faxing a Confidential Morbidity Report (CMR) form to 408-885-3709.

Further information

The CDPH website: <http://www.cdph.ca.gov/HealthInfo/discond/Pages/Pertussis.aspx> has excellent resources. For further questions, you may also call the Disease Prevention and Control Program at 408-885-4214 during regular business hours. After hours and on weekends, healthcare providers may call County Communications at 408-998-3438 and ask to speak with the public health officer on call.