Pertussis (Whooping Cough)

Pertussis Preventive, Diagnostic and Treatment Recommendations

Clinical Characteristics

Catarrhal Stage: Insidious onset of coryza (runny nose), sneezing, and a mild, occasional cough, similar to the common cold. Fever is absent or minimal.

Paroxysmal Stage: Cough becomes more severe. Repeated violent coughing episodes without inhalation (paroxysms), ended by characteristic high-pitched inspiratory whoop. Post-tussive vomiting or gagging can occur without whoop. Can last 1-2 months.

Convalescent Stage: Gradual recovery. Cough becomes less paroxysmal.

Infants under 6 months of age: May have cough, choking, apnea, cyanosis, without whoop or paroxysms. Leukocytosis and lymphocytosis are common during the early paroxysmal stage. Complications include hospitalization, pneumonia, seizures, encephalopathy, and death.

Adults, adolescents and immunized children: Have milder illness, hacking cough, usually with mucus production and occasional paroxysms. Post-tussive vomiting or gagging can occur without whoop. Mimics bronchitis.

Be vigilant! Always observe infants while awake and consider pertussis when a young infant presents with a cough or cold-like symptoms, a child presents with a respiratory illness of unknown cause, or a parent reports a history of paroxysms. Young infants often do not exhibit the whoop and patients may seem asymptomatic between paroxysms.

Vaccination Recommendations

5 doses of DTaP are recommended for children <7 years of age.

- 3 primary doses are routinely recommended at ages 2, 4, and 6 months.
  During periods of increased pertussis cases, providers may consider an accelerated schedule at 6 weeks, 10 weeks, and 14 weeks of age.
- Boosters are routinely recommended at 15-18 months AND 4-6 years of age.

A single Tdap dose is recommended for individuals ≥ 10 years of age.

A booster dose is needed because vaccine protection decreases over time, with little or no protection 5-10 years following receipt of the last dose.

- A dose of Tdap is routinely recommended for pre-teens between 11 and 12 years of age and adults under 65 years of age who have not previously received a Tdap dose. Boostrix® may be given as early as 10 years of age.

  Td should be used for subsequent booster doses. No minimum interval is specified between doses of Td and Tdap.

Individuals who have close contact with persons <12 months of age and health care personnel with direct patient contact should be prioritized for receipt of Tdap.

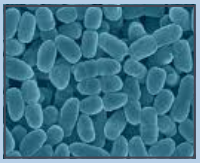
Women of childbearing age should be vaccinated before, during, or immediately after pregnancy.

Immunity following pertussis illness is not permanent.

During the pertussis epidemic, the California Department of Public Health recommends off-label use of Tdap for:

- *Persons 7 through 9 years of age who have not received all recommended DTaP doses.*
- *Adults 65 years of age and older who have not received a Tdap dose.*

Pertussis… The Basics



The Agent

Bordetella pertussis, a gram negative pleomorphic bacillus

Transmission

Contact with respiratory tract secretions or droplets of infected individuals

Incubation

Usually 7-10 days (range 5-21 days)

Communicability

Greater in the catarrhal stage before paroxysms. Tapers off until 21 days after onset of paroxysms, if untreated

If treated, 5 days after start of appropriate antibiotics

Secondary attack rate of 70 – 100% among susceptible household contacts

Pertussis peaks every 3-5 years.

The most recent peak year is 2010.

Vaccination is the best way to prevent pertussis.

09/21/2010

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Assays Accepted as Laboratory Confirmation of Pertussis

Culture: A negative culture does not rule out the diagnosis. All suspected cases of pertussis should have a nasopharyngeal aspirate or swab obtained for culture from the posterior nasopharynx before starting antibiotics and within 3 weeks of the cough onset. Additionally, plating the specimen immediately onto culture media, as opposed to using transport media, results in a higher percentage of positive results.

Bordet-Gengou or Regan-Lowe agar are the only media which can be used for culturing *Bordetella pertussis*. Check with the laboratory beforehand to determine the availability of the correct culture media. Consult the Public Health Lab (562-658-1310) or the Immunization Program (213-351-7800) if technical assistance is needed.

PCR Tests: A negative PCR does not rule out diagnosis. Numerous studies demonstrate the potential for PCR tests to detect *Bordetella pertussis* with greater sensitivity and more rapidly than culture. However, false positive results can pose a problem.

Positive PCR must be accompanied by positive clinical signs and symptoms. A specimen obtained by nasopharyngeal swab or aspirate is adequate for the PCR test.

Assays Not Accepted as Laboratory Confirmation of Pertussis

Direct Fluorescent Antibody (DFA) Tests: The DFA test has variable sensitivity and specificity, resulting in false negative as well as false positive results.

Serological Tests: Serological tests are not yet standardized enough to be highly reliable and are difficult to interpret for previously immunized individuals.

Treatment and Chemoprophylaxis

All cases, their household members, and other close contacts, regardless of age and immunization status, should receive treatment or chemoprophylaxis to reduce spread of infection within the household and the community. Dosing for chemoprophylaxis is the same as for treatment. Initiating treatment ≥ 3 weeks after cough onset has limited benefit to patient or contacts. Initiating chemoprophylaxis ≥ 3 weeks after last exposure has limited benefit for the contact.

Age	Azithromycin	Erythromycin	Clarithromycin	TMP-SMX
<1 month	10 mg/kg as single dose/day x 5 days	Not preferred. Associated with hypertrophic pyloric stenosis.	Not recommended. No safety data.	Contraindicated if< 2 months old
1-5 months	10 mg/kg as single dose/day x 5 days	40-50 mg/kg/day in 4 divided doses x 14 days	15 mg/kg/day in 2 divided doses x 7 days	**Only if ≥2 months old** TMP, 8 mg/kg/day & SMX-40 mg/kg/day in 2 divided doses x 14 days
6 months through child-hood	10 mg/kg as single dose on day 1 then 5mg/kg/day (max:500 mg) x 4 more days	40-50 mg/kg/day in 4 divided doses x 14 days (max:2 g/day)	15 mg/kg/day in 2 divided doses x 7 days (max: 1 g / day)	TMP, 8 mg/kg/day & SMX, 40 mg/kg/day in 2 divided doses x 14 days (max 320 mg/day)
Adult	500 mg single dose on day 1, then 250 mg/day x 4 more days	2 g/day in 4 divided doses x 14 days	1 g/day in 2 divided doses x 7 days	TMP, 320 mg/day & SMX, 1600 mg/day in 2 divided doses x 14 days

Report Cases Promptly to Prevent Spread

Under the California Code of Regulations, Title 17, Section 2500, all confirmed and suspected cases of pertussis are to be reported to the local health department within one working day.

Do not wait for lab confirmation to report.

For Los Angeles County residents, report to the Morbidity Central Reporting Unit. Call 888-397-3993 or fax a Confidential Morbidity Report (CMR) to 888-397-3778.

Download CMR forms at www.publichealth.lacounty.gov/acd/cdrs.htm or call 213-240-7821.

Download additional resources, including provider and patient educational materials at www.publichealth.lacounty.gov/ip and www.eziz.org.