PERTUSSIS CASE AND OUTBREAK QUICKSHEET

California Department of Health Services – updated November 2006

Infectious agent: *Bordetella pertussis* (a bacterium)
Mode of transmission: Transmission most commonly occurs by contact with respiratory secretions or large droplets from the respiratory tracts of infected persons.
Incubation period: The incubation period is commonly 7-10 days (range 4-21 days) and rarely up to 42 days.
Period of communicability: Persons with pertussis are most infectious during the catarrhal stage when they have cold-like symptoms and up to 2-3 weeks after onset of paroxysmal cough. Untreated and unvaccinated infants can remain culture positive for > 6 weeks. With antibiotics, communicability ends after 5 days of treatment.

CDC CASE DEFINITION AND CLASSIFICATION (for purposes of public health reporting*)*

Clinical case definition: A cough illness lasting at least 2 weeks with one or more of the following: paroxysms of coughing, inspiratory "whoop", post-tussive vomiting, AND without other apparent cause.
Laboratory Criteria for Diagnosis: Isolation of *B. pertussis* from clinical specimen or positive polymerase chain reaction (PCR) test for *B. pertussis*.

Case Classification (both probable and confirmed cases should be reported**)**
Probable: A case that meets the clinical case definition, is not laboratory confirmed, and is not epidemiologically linked to a laboratory confirmed case.
Confirmed: A case that is culture positive and in which an acute cough illness of any duration is present; OR a case that meets the clinical case definition and is confirmed by positive PCR; OR a case that meets the clinical case definition and is epidemiologically linked directly to a case confirmed by either culture or PCR.

CLINICAL FEATURES

The illness usually has three stages: catarrhal, paroxysmal, and convalescent.
Catarrhal stage: Onset of cold-like symptoms (coryza, sneezing, mild fever, occasional cough). Fever is absent or minimal. Lasts approximately 1-2 weeks with cough gradually becoming more severe.
Paroxysmal stage: Spasms of severe coughing are followed by a sudden massive inspiratory effort. A characteristic whoop may occur as air is inhaled forcefully through a narrowed glottis. Post-tussive vomiting is common. In infants < 6 mos, whoop is rare and other respiratory manifestations are commonly confused with those due to respiratory viruses. Adolescents/adults are likely to have milder illness and whoop is uncommon.
Convalescent stage: The convalescent stage is characterized by a decreasing frequency and severity of coughing episodes, whooping and vomiting. Some cases have temporary recurrence of paroxysms with respiratory infections.

RECOMMENDED TREATMENT AND POSTEXPOSURE PROPHYLAXIS, BY AGE GROUP

Age group	Azithromycin	Erythromycin	Clarithromycin	Alternate agent* TMP-SMZ
<1 month	Recommended agent. 10 mg/kg per day in a single dose for 5 days (only limited safety data available.)	Not preferred. Erythromycin is associated with infantile hyper-trophic pyloric stenosis. Use if azithromycin is unavailable; 40–50 mg/kg per day in 4 divided doses for 14 days	Not recommended (safety data unavailable)	Contraindicated for infants aged <2 months (risk for kernicterus)
1–5 months	10 mg/kg per day in a single dose for 5 days	40–50 mg/kg per day in 4 divided doses for 14 days	15 mg/kg per day in 2 divided doses for 7 days	Contraindicated for infants <2 months For infants aged >2 months, TMP 8 mg/kg per day, SMZ 40 mg/kg per day in 2 divided doses for 14 days
Infants aged >6 months and children	10 mg/kg in a single dose on day 1 (maximum: 500 mg if ≥ 50 kg) then 5 mg/kg per day on days 2–5 (max 250 mg per day if ≥ 50 kg)	40–50 mg/kg per day (maximum: 2 g per day if ≥ 40-50 kg) in 4 divided doses for 14 days	15 mg/kg per day in 2 divided doses (maximum: 1 g per day if ≥ 33 kg) for 7 days	TMP 8 mg/kg per day, SMZ 40 mg/kg per day in 2 divided doses for 14 days (maximum: TMP 320 mg per day, SMZ 1,600 mg per day if ≥ 40 kg)
Adults	500 mg in a single dose on day 1 then 250 mg per day on days 2–5	2 g per day in 4 divided doses for 14 days	1 g per day in 2 divided doses for 7 days	TMP 320 mg per day, SMZ 1,600 mg per day in 2 divided doses for 14 days

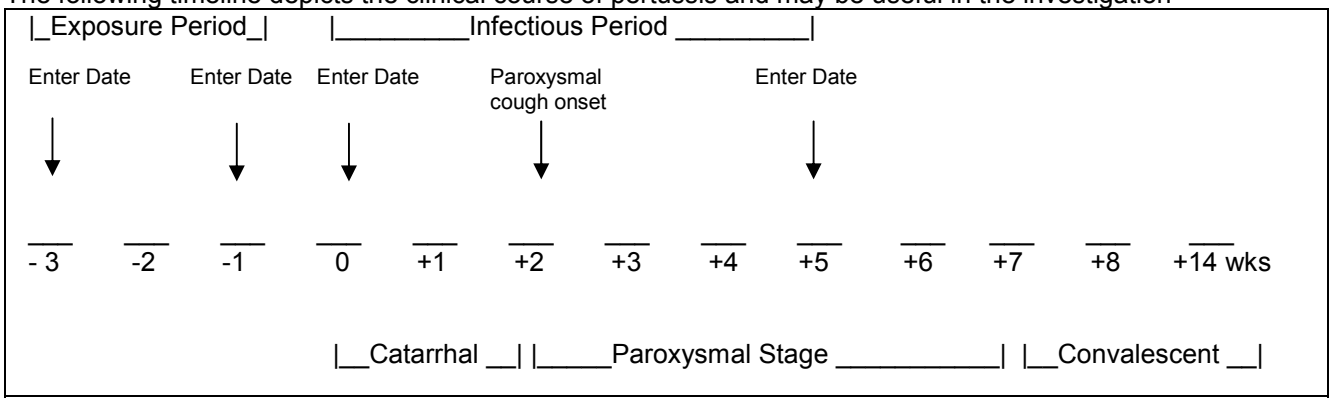
*****Trimethoprim sulfamethoxazole (TMP–SMZ) can be used as an alternative agent to macrolides in patients aged >2 months who are allergic to macrolides, who cannot tolerate macrolides, or who are infected with a rare macrolide-resistant strain of *B pertussis*.

PERTUSSIS CASE INVESTIGATION AND OUTBREAK MANAGEMENT

The main purpose for responding to a pertussis case or outbreak is to prevent transmission to susceptible persons at increased risk of complications of pertussis, especially very young infants.

1. Confirm report that suspected case(s) meets case definition and/or is highly suspected.
2. Collect a naso-pharyngeal specimen using a flexible dacron or rayon swab for laboratory diagnosis.
3. Start antibiotic treatment of case and symptomatic contacts.
4. Identify and notify contacts. Special emphasis should be given to identifying those at high risk for severe pertussis or those who may transmit the disease to persons at high risk for severe disease.
5. Alert clinicians and educate the public.
6. Recommend chemoprophylaxis as appropriate. If chemoprophylaxis is necessary, it should be implemented as soon as possible (and within 21 days of exposure to infectious case).
7. Exclude symptomatic persons until 5 days after the start of antibiotic therapy.
8. Vaccinate all persons who are not up-to-date for pertussis.
9. Active surveillance of contacts. In childcare/school, hospital and other high risk settings, close contacts should be monitored for acute illness for at least 21 days after their last exposure to an infectious case.
10. Report both clinically confirmed and probable cases to CDHS on the CDHS pertussis case report form.

The following timeline depicts the clinical course of pertussis and may be useful in the investigation



CONTROL MEASURES

- Vaccination of persons who are not up-to-date for pertussis provides long term protection but may not protect close contacts against the current exposure.
- Limited data from epidemiologic studies suggest that the early initiation of chemoprophylaxis of close contacts (within 2-3 weeks of cough onset of index case) may limit transmission of pertussis in households and in high risk settings (e.g., residential institutions for developmentally handicapped persons, hospitals).
- **Close contacts** include those who have had: Direct contact with respiratory, oral or nasal secretions from a symptomatic case (e.g., an explosive cough or sneeze in the face, sharing food/ eating utensils during a meal, kissing); Shared confined space in close proximity for a prolonged period of time; such as ≥ 1 hour with a symptomatic case.
- **High-risk contacts** are contacts of a pertussis case who may transmit disease to persons at high risk for severe illness and adverse outcomes (e.g., infants < 6 mos; unimmunized children; immunocompromised persons; persons who have underlying severe disease such as chronic lung disease or cystic fibrosis).
- Persons at highest priority for chemoprophylaxis include: Close contacts in household and child care settings; Close contacts in a hospital setting; Close contacts at risk for severe disease and adverse outcomes; Close contacts who may transmit disease to persons at high risk for severe disease; Close contacts in group settings where close interactions occur (e.g. after-school care groups, playgroups, group of close friends, teammates).
- In general, chemoprophylaxis is not indicated for non-household, non-high risk contacts of a case during a school or community outbreak or for close contacts who are up-to-date for DTaP or Tdap.
- If chemoprophylaxis is necessary, it should be recommended on a case-by-case basis depending on infectiousness of case, type of exposure and age and vaccination status of contact.
- Initiating chemoprophylaxis ≥ 3 weeks after exposure to an infectious case is probably of no benefit to the contact.