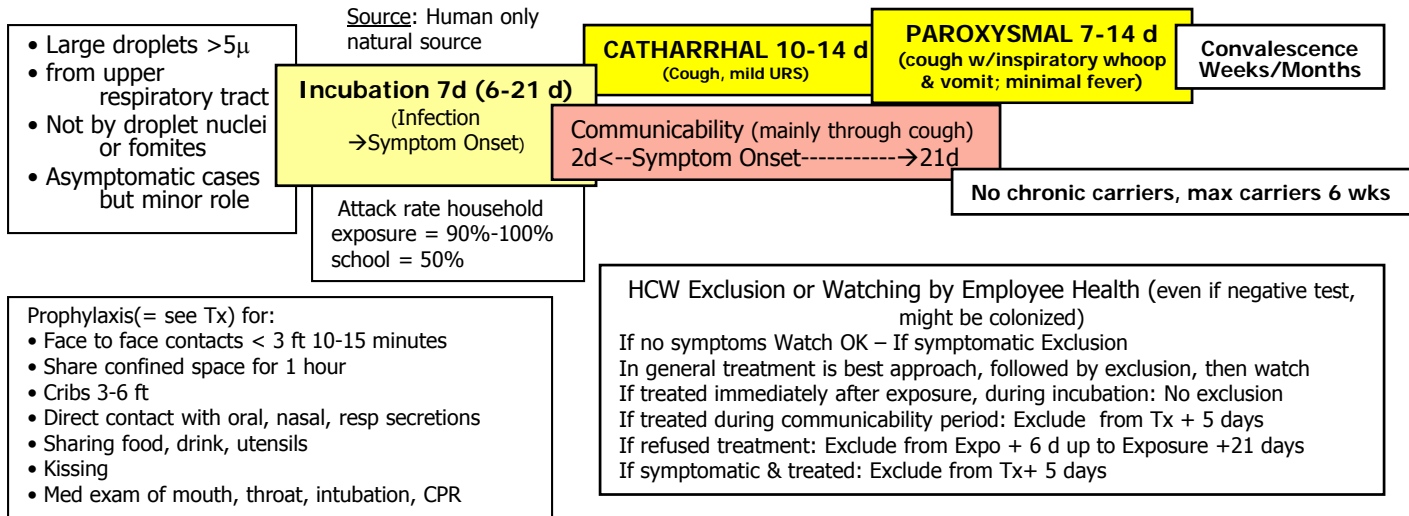


Pertussis

Transmission, Exclusion



Diagnosis

Microbiology

Caused by bacterium *Bordetella pertussis*, Gram-negative aerobic coccobacillus, nutritionally fastidious, cultivated on rich media supplemented with blood., grows slowly and in 3-6 days to form pinpoint colonies.

Send culture to State Lab

Differential

whooping cough syndrome similar to pertussis:

- *Bordetella parapertussis*, *Bordetella bronchiseptica*, *Bordetella holmsei*
- *Chlamydia pneumoniae*
- *Mycoplasma pneumoniae*
- Adenoviruses

Lab Diagnosis

- **Culture: Nasopharynx. Not throat.**
culture + from beginning of catarrhal stage \Rightarrow 3 weeks, positive in 5 days
 - nasopharyngeal mucus collected on Dacron or calcium alginate swab then inoculated on special culture media: Bordet Gengou agar with sheep's blood, Regan-Lowe medium, Stuart's transport medium if delay
- **Direct ImmunoFluorescence Assay (DFA) : not as specific or as sensitive as culture**
- **Serology: useless for diagnosis of recent disease**
- **PCR most reliable if accompanied by clinical criteria or epidemiologic link**

Case Definition

Confirmed: Acute cough illness of any duration, with isolation of *B. pertussis* from a clinical specimen
OR

Cough illness lasting ≥ 2 weeks, with at least one of the following symptoms:

paroxysms of coughing;
inspiratory "whoop", or
post-tussive vomiting, AND
polymerase chain reaction (PCR) positive for pertussis,

OR

Cough illness lasting ≥ 2 weeks, with at least one of the following symptoms:

paroxysms of coughing;
inspiratory "whoop", or
post-tussive vomiting, AND,
contact with a laboratory-confirmed case of pertussis.

Probable: In the absence of a more likely diagnosis, a cough illness lasting ≥ 2 weeks, with at least one of the following symptoms:

paroxysms of coughing;
inspiratory "whoop", or
post-tussive vomiting, AND
absence of laboratory confirmation, and
no epidemiologic linkage to a laboratory-confirmed case of pertussis.

Treatment, Prophylaxis

- Immune persons are protected against new disease but not against infection; they can be transmitters, they need prophylaxis
- Erythromycin po (40 to 50 mg/kg/day in 4 divided doses, maximum 2 g)
 - for 14 days ⇒ compliance poor
 - eliminates carriage, may prevent disease if early
- Azithromycin po 10mg/kg on day one (maximum: 500mg), followed by 5 mg/kg per day (maximum: 250 kg) on days 2-5
- Clarithromycin - 7 days
- Trimethoprim-Sulfamethoxazole alternate
- Penicillin & derivatives ineffective at clearing pertussis from naso-pharynx
- Quinolones and cyclines contra-indicated in children
- Treatment useful for up to 3 wks after exposure. Repeat of Tx OK

Droplet precautions

Control



Identify close contacts + prophylaxis

Case finding: Cough, URT symptoms

- Patients
- Staff

- Household
- Daycare Center
- Patients
- Staff

Case investigation: for confirmed cases and for probable cases when a susceptible population may have been exposed

Outbreak = 2 or more epidemiologically linked cases

Household investigation: Immediately after report (even if suspected); emphasis on infants or potential transmitter to infants; include child's care giver and frequent visitors; ask about unreported cases;

Day care center and school: 2 or more cases clustered in time and space

1)-Identify High-Risk Contacts and Close Contacts: contacts should be identified on a case by case basis

Close contacts to observe for acute cough illness and to consider for chemoprophylaxis can include the following persons:

- | | |
|--|--|
| 1. Household contacts and family members | 2. Infants, children and other individuals at high risk for severe disease |
| 3. Caregivers, staff, aides and volunteers | 4. Children attending a regular after-school care group or a play group |
| 5. Close friends, social contacts | 6. Students who work closely together |
| 7. Students sitting next to a case-patient in school | 7. Students in same school or extracurricular activities, field trips |
| 8. Bus seat-mates and carpool contacts | 9. Contacts at regular social or church activities, or part-time jobs |

One Case

- Child care centers: extensive contact with each other; go for entire class, or entire child care center if no class separation.
- Home child-care settings: All children, child-care provider and members of his/her family
- Schools: chemoprophylaxis to groups with significant exposure to case. Determine any patterns of interaction increasing exposure ; If students do not change classes frequently or in high-risk settings (residential schools for developmentally delayed children) prophylaxis for entire school
- Extra-curricular activity groups: Teammates =close contacts, chemoprophylaxis to entire team; decision based on extent of exposure; -
- **More than one laboratory-confirmed case:**

For classrooms, teams and other groups: prophylaxis for everyone

Providing chemoprophylaxis to an entire school or child care center is generally not recommended. Widespread chemoprophylaxis may be considered if there are a large number of laboratory confirmed cases in multiple classes and a high degree of student interaction across classes and grades, or if there is a high absenteeism rate together with a small number of students in the entire school.

2)-Initiate Active Surveillance: in affected child care centers/schools and be continued until 6 weeks after onset of the last confirmed - Determine exposed groups:

3. Assess the immunization status of ≤6years, refer for immunization as needed
4. Notify class instructor and other staff to refer students with cough illness ≥7 days, or paroxysmal cough
5. Refer symptomatic and all high-risk contacts to HCP for nasopharyngeal swab, treatment, or chemoprophylaxis.

3)-Exclusion:

- Symptomatic persons excluded from child care or school for the first 5days of a full course of antimicrobial treatment.
- Symptomatic persons who do not take treatment excluded from child care or school for 21 days from onset of cough.
- Asymptomatic contacts who elect no treatment, or those not up-to-date with pertussis immunizations (especially infants) →exclusion from child care or school for 21 days after their last exposure.

4)- Immunization: confirmed case of pertussis do not need to receive additional pertussis immunizations, use pediatric DT only

5)-Health care facilities see Epi Manual