



Mitchell E. Daniels, Jr.
Governor

Judith A. Monroe, M.D.
State Health Commissioner

Indiana State Department of Health

An Equal Opportunity Employer

Recommended Pertussis Control Measures

Revised 8/2007

Disease Information

Incubation Period: 7-10 days; with a range of 4-21 days

Infectious Period: Prodrome onset to 3 weeks after cough onset. Persons are considered non-infectious five days after starting appropriate antibiotic treatment. The disease is highly contagious and is spread by direct contact with secretions or face to face exposure.

Course of Illness: Onset is insidious, with symptoms of URI (catarrhal stage) lasting about one week. Cough begins during the catarrhal stage and steadily progresses. The patient appears well between bouts of coughing, so the diagnosis may be missed. The classic symptoms appear during the paroxysmal stage and include whoop, vomiting following coughing spells, and apnea. This stage may last 2-6 weeks. During convalescence, cough may persist for many weeks. Adolescents and adults may get mild pertussis (e.g., chronic cough > 2 weeks) without severe complications and may not be recognized as cases. Treatment and prophylaxis of adolescent and adult cases is important to prevent disease in infants and young children.

Reporting

Per the Indiana Administrative Code (410 IAC 1-2.3), suspected and confirmed cases are to be reported immediately to your local health department. **Timely reporting is critical to the interruption of pertussis transmission.** If you cannot make contact with local health department staff, ISDH personnel can be reached at:

- 800.701.0704 during normal working hours, or
- 317.233.1325 on weekends or other non-regular working hours

ISDH Immunization Program staff and local health department staff will assist in identifying and recommending immunization and post-exposure prophylaxis to close contacts who are at risk of developing disease.

Diagnostic Testing of Suspect Cases

The organism, *Bordetella pertussis*, is most easily recovered from nasopharyngeal mucus in the catarrhal or early paroxysmal stages, and is rarely recovered after the fourth week of illness. It is recommended that both culture and DFA be done. A positive culture is diagnostic, whereas false-negative cultures are common. A positive DFA indicates a probable case, but does not confirm a case. False positive and false negative DFA results may occur.

Polymerase Chain Reaction (PCR) testing can be a rapid, specific and sensitive method for diagnosing pertussis. Although not currently available from the ISDH Laboratory, PCR testing is available from some private reference laboratories.

Currently there is no validated commercially available pertussis serological test and the Indiana State Department of Health discourages clinicians from using such tests for diagnostic purposes.

Because of difficulties with laboratory testing, clinicians often must make the diagnosis on the basis of clinical findings such as paroxysmal coughing, inspiratory whoop, post-tussive emesis, and lymphocytosis. All symptomatic contacts of cases should be cultured prior to receiving antibiotic treatment, and cultures should be considered for patients with an unexplained, prolonged sleep-disturbing cough. There is no charge for pertussis testing performed by the ISDH Laboratory. Pertussis 2A test kits (for culture and DFA testing) may be obtained by writing or calling:

Clinical Containers
Indiana State Department of Health (ISDH) Laboratories
550 West 16th Street, Suite B,
Indianapolis, IN 46202
(317) 921-5500
containers@isdh.in.gov

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 **Epidemiology Resource Center**
2525 N. Shadeland Ave. Suite E3, Indianapolis, IN 46219
317.356.7190 ext. 253

 **Laboratories**
550 West 16th Street, Suite B, Indianapolis, IN 46202
317.921.5500

 **Weights & Measures**
2525 N. Shadeland Ave. Suite D3, Indianapolis, IN 46219
317.356.7078 ext. 221

Directions for submitting specimens are enclosed in the test kit. For best results, pertussis specimens should be received in the ISDH Laboratory within 24 hours of collection (overnight express is preferred shipping method). For assistance with specimen handling and shipment or test result interpretation, call the Special Reference Bacteriology Laboratory at 317.921.5500.

Close Contacts

A close contact is defined as anyone who has had direct contact with respiratory, oral, or nasal secretions from a symptomatic case-patient. Direct contact includes an explosive cough or sneeze in the face, sharing food, sharing eating utensils during a meal, kissing; direct face-to-face contact, regardless of duration, with a case-patient who is symptomatic (during the catarrhal or paroxysmal period of illness); or shared confined space in close proximity for a prolonged period of time (such as ≥ 1 hour) with a symptomatic case-patient. Residents living in the same household are considered close contacts regardless of age or vaccination status. Assessing who may be a close contact of a case can be problematic. Immunization field staff conducting the case investigation will assist in determining who may be considered a close contact.

Recommended Action

Patients and Close Contacts: The macrolides erythromycin, clarithromycin, or azithromycin are the preferred antimicrobial agents for treatment, reduction of communicability, and prophylaxis of pertussis. Please refer to Table 1 (page 3) of this document for prescribing information by age group. Trimethoprim-sulfamethoxazole (TMP-SMZ) is an alternative antimicrobial agent for those who cannot tolerate erythromycin therapy or who are infected with a macrolide-resistant strain. Additional information on the use of antibiotics for the pertussis please review Recommended Antimicrobial Agents for the Treatment and Post-exposure Prophylaxis of Pertussis: 2005 CDC Guidelines found at <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5414a1.htm> .

Vaccination of Contacts

In addition to chemoprophylaxis, all household contacts younger than seven years of age should be considered for immediate diphtheria, tetanus, acellular pertussis (DTaP) immunization according to the following criteria:

- a. If the child has received no vaccine, give one dose and continue schedule.
- b. If the child has received four doses of vaccine, is 4-6 years of age and received the 4th dose before the fourth birthday, a 5th dose should be given.
- c. If the child has received less than four doses and the third dose was six months or more before exposure, a fourth dose should be administered.

Two pertussis containing vaccines (Tdap) are available for persons 10-64 years of age, depending on product manufacturer. Tdap is now the recommended vaccine for use to replace Td (tetanus-diphtheria) as a one time booster dose or one dose of a 3-dose primary series (if previously unvaccinated). Additional Advisory Committee on Immunization Practices (ACIP) recommendations for use of Tdap can be found at: <http://www.cdc.gov/nip/ACIP/>

Precautions for Pediatric Unit Exposure in Hospitals and Physician Office

- Cases isolated by droplet precautions: Only surveillance for additional cases is recommended.
- Cases not isolated by droplet precautions:
 - a. Chemoprophylaxis for staff with direct contact with respiratory secretions without wearing respiratory protection (e.g. face-to-face exposure during a paroxysmal coughing attack, performing a complete physical examination, including examination of nose and throat, suctioning the patient, intubation, bronchoscopy, or cardiopulmonary resuscitation).
 - b. Similar guidelines should be followed for prophylaxis of patients. Because neonates and young infants are extremely vulnerable to severe disease and complications, a more lenient definition of contact may be used.
 - c. Case should be in droplet isolation.
 - d. Surveillance of staff and patients for respiratory symptoms for 42 days.

Precautions for Day Care and School

Children with pertussis, if their medical condition allows, may return after completion of five days of appropriate antibiotic therapy or after 21 days of cough. Symptomatic children should be excluded from day care/school pending a physician's evaluation. Exposed children should be observed carefully for respiratory symptoms for at least 42 days

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Table 1: Recommended antimicrobial treatment and postexposure prophylaxis for pertussis in infants, children, adolescents, and adults

Age group	Primary agents			Alternate agent*
	Azithromycin	Erythromycin	Clarithromycin	TMP-SMZ
<1 month	10 mg/kg per day as a single dose for 5 days ¹	40-50 mg/kg per day in 4 divided doses for 14 days	Not recommended	Contraindicated at <2 months
1-5 months	See above	See above	15 mg/kg per day in 2 divided doses for 7 days	≥2 months of age: TMP, 8 mg/kg per day; SMX, 40 mg/kg per day in 2 doses for 14 days
≥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 in a single dose on day 1 then, 250 mg as a single dose 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, 300 mg per day; SMX, 1,600 mg/day in 2 divided doses for 14 days

- adapted from American Academy of Pediatrics, Red Book, 2006

TMP indicates trimethoprim; SMX, sulfamethoxazole. This drug can be used as an alternate in patients ≥2months who are allergic to macrolides, who cannot tolerate macrolides, or who are infected with a rare macrolide resistant strain of *Bordetella pertussis*

¹ Preferred macrolide for this age because of risk of idiopathic hypertrophic pyloric stenosis associated with erythromycin.

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2 North Meridian Street • Indianapolis, IN 46204 • 317.233.1325 • TDD 317.233.5577 • www.statehealth.in.gov

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