Pertussis

Information for Physicians

Disease Information

Incubation Period: 7-10 days, with a range of 5 to 21 days

Infectious Period: Most contagious during the catarrhal stage and the first 3 weeks after cough onset. Patients are considered non-infectious five days after starting appropriate antibiotic treatment. The disease is highly contagious and is spread by close contact with infected cases via aerosolized droplets and secretions from respiratory mucus membranes of infected persons by the airborne route.

Pertussis in Infants younger than 6 months of age: Atypical symptoms with a short catarrhal stage, gagging, gasping, or apnea as prominent early manifestations; absence of whoop; and prolonged convalescence. Sudden unexpected death can be caused by pertussis.

Pertussis in Children: Onset is insidious, with symptoms of upper respiratory infection (catarrhal stage) lasting about one week. Cough begins during the catarrhal stage and progresses steadily. The patient appears well between bouts (paroxysms) of coughing (and the diagnosis may be missed). The classic symptoms include whoop, post-tussive vomiting, and apnea and may last 2-6 weeks. During convalescence, cough may persist many weeks.

Pertussis in Adults: Adults may get mild pertussis and unrecognized, (e.g., chronic cough > 2 weeks) without severe complications. Treatment and prophylaxis of adults is important to prevent disease in infants and young children.

Diagnostic Testing of Suspect Cases

The organism is most easily recovered from nasopharyngeal mucus in the catarrhal or early paroxysmal stages, and is rarely recovered after the fourth week of illness.

There are two tests available for pertussis diagnosis: PCR and culture. Culture is the gold standard for diagnosis. The West Virginia Office of Laboratory Services (OLS) provides *both* PCR and culture free of charge. To consult on laboratory diagnosis, please contact OLS at 304-558-3530 and visit http://www.wvdhhr.org/labservices/labs/micro/collection.cfm

Many commercial laboratories offer PCR testing; however caution should be exercised in relying on PCR results alone because pseudo-outbreaks have been reported in association with false-positive PCR results.

> **Serologic and DFA (direct fluorescent antibody) testing is neither diagnostic nor recommended.**

Droplet precautions should be in place while collecting nasopharyngeal swabs. Because of difficulties with laboratory testing, clinicians must often make the diagnosis on the basis of clinical findings such as paroxysmal cough, inspiratory whoop, post-tussive emesis, and lymphocytosis. Nonetheless, appropriate testing (culture and PCR) should always be performed before starting

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antibiotics. Special attention should be paid to infants and pregnant women, as well as adolescents and adults with mild illness that could represent pertussis.

Who <u>SHOULD BE</u> tested for pertussis

- Older children or adults presenting with the following manifestations of pertussis:
  - Cough illness lasting ≥14 days, WITH
  - Paroxysms, OR
  - Inspiratory whoop, OR
  - Post-tussive vomiting
- Symptomatic contacts of a person with pertussis.

Who <u>SHOULD NOT BE</u> tested for pertussis

- Asymptomatic individuals.
- Individuals who are NOT close contacts and who do not have symptoms of pertussis.
- The worried well.

Management of Close Personal Contacts

A close contact is defined as anyone who has had direct, personal contact with a person who has pertussis during the catarrhal and early paroxysmal stages of infection. This includes ALL residents of the same household; contacts in child care sittings; and close friends, regardless of immunization status. The disease is spread by direct contact with respiratory secretions or face-to-face exposure.

<u>Asymptomatic contacts</u> who are <u>within 3 weeks (21 days) of their last exposure</u> to an infectious case-patient:

1. Prophylax with a regimen in Table 1.
2. Bring immunizations up-to-date (Table 2).

<u>Asymptomatic contacts</u> who were <u>last exposed more than 3 weeks (21 days) previously:</u>

1. Chemoprophylaxis has limited value but should be considered in households that have high risk persons (infants, pregnant women or persons who have contact with infants).
2. Bring immunizations up-to-date (Table 2).

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Symptomatic contacts:

1. Evaluate,
2. Obtain culture and PCR, and then
3. Treat with a regimen in Table 1.
4. Bring immunizations up-to-date (Table 2).

Your local health department and the Division of Infectious Disease Epidemiology (800-423-1271) are available to help with contact tracing, cultures, prophylaxis or treatment and immunization.

Exposures in Hospitals/Physician Offices

Case isolated by droplet precautions: Surveillance only.

Case mistakenly admitted into open ward, open room, etc.:

a. Chemoprophylaxis is recommended 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 (e.g., being in an enclosed room with a documented case for one hour or longer).

c. Case should be in droplet isolation.

d. Surveillance of ward for URI symptoms for 21 days.

Exposures in Child Care

Exposed children and providers should be observed for respiratory tract symptoms for 21 days after contact with an infectious case-patient has been eliminated. Immunization and chemoprophylaxis (see Tables 1 and 2) should be administered as recommended for household and other close contacts. Symptomatic children or those with confirmed pertussis should be excluded from child care pending evaluation and completion of 5 days of recommended antibiotic therapy. Untreated adults should be excluded until 21 days have elapsed from cough onset.

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West Virginia Bureau for Public Health — Your Health Your Safety Our Purpose
Department of Health & Human Resources

Reporting

Report suspected and confirmed cases of pertussis to your local health department or the West Virginia Division of Infectious Disease Epidemiology at 1-304-558-5358, or 1-800-423-1271.

Timely reporting enables your local health department to follow up on contacts and interrupt the chain of transmission.

Table 1. Recommended Antimicrobial Therapy and Postexposure Prophylaxis for Pertussis in Infants, Children, Adolescents, and Adults

Age	Recommended Drugs			Alternative
	Azithromycin[1]	**Erythromycin**	**Clarithromycin**	**TMP-SMX[2,3]**
< 1 mo	10 mg/kg per day as a single dose for 5 days	40 mg/kg per day in 4 divided doses for 14 days	Not recommended	Contraindicated at < 2 mo of age
1-5 mo	See above	See above	15 mg/kg per day in 2 divided doses for 7 days	≥ 2 mo of age: TMP 8 mg/kg per day; SMX, 40 mg/kg per day in 2 divided doses for 14 days
≥ 6 mo 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 for 14 days	1 g/day in 2 divided doses for 7 days	TMP, 200 mg/day; SMX, 1600 mg/day in 2 divided doses for 14 days

[1]Azithromycin is the preferred agent for infants because of the risk of idiopathic hypertrophic pyloric stenosis associated with erythromycin
[2]TMP = trimethoprim and SMX = sulfamethoxazole
[3]TMP-SMX is contraindicated in pregnant women

Table 2: Immunization of persons exposed to pertussis

Situation	Recommended Action
Immunizations up-to-date for age	Reinforce importance of staying up-to-date
Age < 7 years and unimmunized or underimmunized	Initiate or continue pertussis immunization according to the recommended schedule
Age < 7 years and third dose was 6 months or more before exposure	Administer a fourth dose of DTaP now.
Age < 7 years and fourth dose was 3 years or more before exposure	Administer a fifth dose of DTaP now.
Age 11 or 12 years and childhood DTP/DTap vaccine series completed*	Tdap indicated as single booster dose. Tdap is preferred over Td as adolescents are susceptible to pertussis due to waning immunity, though Td may be indicated rather than Tdap in special situations@.
Adolescents who did not receive Tdap at age 11 or 12 years*	Should receive single dose of Tdap in place of single Td booster dose. Tdap can be administered regardless of interval since the last tetanus or diphtheria containing vaccine.
Age 7 to 18 years who have* • received tetanus and diphtheria containing vaccines (DT or Td) instead of DTP/DTaP for some or all doses of the childhood series • fewer than 5 doses of DTP/DTap or 4 doses if the 4th dose was given at age 4 years or older • never been vaccinated against tetanus, diphtheria, or pertussis	Single dose Tdap, followed by a dose of Td four weeks after the 1st dose and a 2nd dose of Td 6-12 months later. If not administered as the 1st dose, Tdap can be substituted for any of the other Td doses in the series. Tdap is preferred over Td as adolescents are susceptible to pertussis due to waning immunity, though Td may be indicated rather than Tdap in special situations@.
Pregnancy in an adolescent age 11 to 18	Pregnancy is not a contraindication to Tdap. Follow the adolescent guidelines (above).
Adults age 19 – 64 years	Administer Tdap, if not already documented, regardless of interval since last tetanus- or diphtheria-toxoid containing vaccine.

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