Pertussis

Tacoma - Pierce County Health Department
Healthy People in Healthy Communities

Information for Pierce County Healthcare Providers

Communicable Disease Control
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Pertussis is cyclical and peaks every 3-5 years, as the number of susceptible people increases due to waning immunity following both vaccination and disease. During 2012—the last peak year in Washington—pertussis activity was at epidemic levels with nearly 5,000 cases reported in Washington and 783 cases in Pierce County. The disease can occur at any age, but the highest incidence is in infants. Very young infants are most at risk for severe illness and death; infants 1 month of age or younger account for 69% of pertussis deaths during 1980-2009.[1]

Symptoms

Early symptoms include coryza and mild non-purulent conjunctival injection, followed by development of an initially mild cough. Fever is absent or minimal. The cough becomes severe and paroxysmal and inspiratory whoop and/or post-tussive vomiting may occur. Disease in older children and adults may be much less severe, manifesting as just a prolonged (longer than 2 weeks) cough. Residual coughing may last up to 3 months. Very young infants may present with apnea, poor feeding and/or failure to thrive. A history of immunization **does not** preclude the diagnosis. Pertussis is under-diagnosed in adults. The incubation period is 5-21 days (usually 7-10 days).

Diagnosis

Polymerase chain reaction (PCR) is currently the most common method of diagnosis. Culture of nasopharyngeal secretions is the "gold standard"—however, *Bordetella pertussis* is very difficult to culture and PCR provides more rapid and sensitive results. For the best diagnostic yield, obtain specimens within the first 2 weeks of infection and before the patient receives antibiotics. **A negative PCR and/or a negative culture does not rule out pertussis.** Serology is not recommended for diagnostic purposes. For instructions on how to collect nasopharyngeal specimens, see www.tpchd.org/Home/ShowDocument?id=2081.

Treatment and Chemoprophylaxis

Macrolides are the preferred treatment. If pertussis is suspected, a preferred antibiotic should be given without waiting for test results. Antibiotic prophylaxis should be administered to all members of the household and high-risk asymptomatic close contacts of a confirmed case. Women in the last trimester of pregnancy and infants younger than 1 year of age are considered high-risk. Healthcare or childcare workers who may have close contact with people at high risk for acquiring severe or complicated disease should be given prophylaxis. See table for prescribing details.

Immunization

Immunization is highly effective for infants, and since widespread immunization, pertussis rates have fallen more than 75%. However, immunity from pertussis immunization quickly wanes, and public health efforts are now highly focused on preventing newborn cases of pertussis through vaccination of pregnant women at 27-36 weeks of every pregnancy. Passive antibody transfer from mother to fetus has been shown to offer protection in the first weeks of life when prevention of pertussis is critical.[3,4] This recommendation was made in 2012 and is supported by the American College of Obstetricians and Gynecologists (ACOG) and the American College of Nurse-Midwives.

The primary series is DTaP (diphtheria, tetanus and pertussis) given at 2 months, 4 months, 6 months and 15-18 months of age (the fourth dose can be given as early as 12 months of age if 6 months have passed since the third dose). A booster is given at age 4-6 years. Tdap (tetanus, diphtheria and pertussis) immunization should be given at age 10 or 11 and is

recommended as a 1-time dose for adults, except for pregnant women as noted above. Every effort should be made to protect newborns from this disease by immunizing their mothers and those close to them, including caregivers and healthcare workers.

Recommended Regimens for Treatment and Prophylaxis of Pertussis[2]

Age Group	Azithromycin	Erythromycin	Clarithromycin	TMP-SMZ (Alternative)
Younger than 1 month	Recommended agent. 10 mg/kg per day in a single dose for 5 days. Limited safety data available.	Not preferred. Erythromycin is associated with infantile hypertrophic 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 younger than 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 (maximum 1 g per day) for 7 days.	Contraindicated for infants younger than 2 months. For infants older than 2 months, TMP 8 mg/kg per day, SMZ 40mg/kg per day in 2 divided doses for 14 days.
Infants older than 6 months and children	10 mg/kg in a single dose on day 1, then 5 mg/kg per day (maximum 500 mg) on days 2-15.	40-50 mg/kg per day (maximum 2 g per day) in 4 divided doses for 14 days.	15 mg/kg per day in 2 divided doses for 7 days.	TMP 8 mg/kg per day, SMZ 40 mg/kg per day in 2 divided doses for 14 days.
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.

Additional Prevention Measures

People with confirmed or suspected pertussis are considered contagious and excluded from school, daycare or work until 5 days after the start of appropriate antimicrobial therapy **or** 3 weeks have passed after the onset of paroxysmal cough. Healthcare workers with pertussis, or healthcare workers who are symptomatic after exposure to a case, should be relieved from direct patient contact until 5 days after the start of effective antibiotic therapy or from the beginning of the symptoms through 21 days after onset of paroxysms.

To report a confirmed or suspect case of pertussis, call our 24-Hour Reporting Line at **(253) 798-6534**.

References

1. Pertussis epidemiology and vaccination in the United States. Presentation to NVAC, June 2012, accessed Oct. 27, 2016 at www.hhs.gov/sites/default/files/nvpo/nvac/meetings/pastmeetings/2012/clark_and_messonnier_062512.pdf.
2. Recommended antimicrobial agents for the treatment and post-exposure prophylaxis of pertussis. MMWR Dec. 9, 2005/54(RR14).
3. Winter K, Cherry JD, Harriman K. Effectiveness of prenatal versus postpartum Tdap vaccination in preventing infant pertussis. *Clin Infect Dis*. Sept. 13, 2016.
4. Dabrera G, Amirthalingam G, Andrews N, Campbell H, Ribeiro S, Kara E, Fry NK, Ramsay M. A case-control study to estimate the effectiveness of maternal pertussis vaccination in protecting newborn infants in England and Wales, 2012-2013. *Clin Infect Dis*. 2015;60(3):333–7.