

PERTUSSIS IN OREGON INFORMATION AND GUIDELINES FOR CLINICIANS

How contagious is pertussis?

1. Pertussis cases are *contagious* for the first two weeks of illness (during the catarrhal period when cases have cold-like symptoms), before the onset of the classic paroxysmal whooping cough. Cases are contagious, though less so, for up to three weeks after the paroxysmal cough begins.
2. Pertussis is not airborne; it is spread by respiratory droplets that tend to fall to the ground a few feet from a person coughing, laughing, talking, shouting or singing.
3. Pertussis is quite contagious among "close contacts," usually:
 - a. everyone who lives with the case;
 - b. persons who were face-to-face and within "spitting distance" of a case for more than one hour while the case was contagious (*above*);
 - c. persons who had direct contact with respiratory, oral, or nasal secretions while the case was contagious (*above*).

How good is the current pertussis vaccine for young children?

1. The four-dose series of acellular pertussis vaccination protects about 80% of recipients from pertussis in small children.
2. Immunity wanes after 5–10 years, so that most adolescents and adults are susceptible.
3. Vaccination does not guarantee that the recipient will not be colonized with *Bordetella pertussis*.
4. The primary vaccination series is given as tetanus, diphtheria, and acellular pertussis (DTaP) at 2, 4, 6 and 12-18 months with a booster dose before entering school. Persons 7–9 years of age who have not been fully immunized against pertussis should receive a dose of Tdap.

Should adolescents and adults be vaccinated?

Those ≥ 10 (including persons ≥ 65) years of age who have not received Tdap should receive a single dose of Tdap. There is no need to observe any minimum interval between doses of Td and Tdap. A dose of Tdap vaccine should be administered during each pregnancy irrespective of the patient's prior history of receiving Tdap. Optimal timing for Tdap administration in pregnant women is at 27–36 weeks' gestation. If Tdap is not administered during pregnancy, Tdap should be administered immediately post-partum. The postpartum dose is only recommended for women who have not previously received Tdap.

Whom should I test for pertussis?

1. Anyone with an acute cough of at least 2 weeks duration.
2. Close contacts of a known case with an acute cough of any duration.
3. Any person in whom pertussis is highly suspected clinically — e.g., because of cough with whooping, gasping, or post-tussive emesis. In infants only, a lymphocyte count of over 20,000/ μ l in the setting of respiratory tract infection or apnea is highly suggestive of pertussis.

How to test:

1. Use Dacron polyester-tipped swabs on flexible wire shafts.
2. Bend the wire so that it mimics the curve of the nasal airway.
3. Gently pass the swab through the nostril to the posterior nasopharynx. *Do not* force the swab. A slight resistance will be felt when the posterior nasopharynx is reached.
4. Rotate the swab and leave in place for 30 seconds or until the patient coughs.
5. Submit the swab for either culture or PCR testing.

NP swabs for culture should be placed into Regan-Lowe transport (supplied by the Oregon State Public Health Laboratory). Contact the lab with transport-related questions (503-693-4100).

Multiple pseudo-outbreaks have occurred in which “cases” were only tested by PCR, later shown to be erroneous. For this reason, in the setting of an outbreak we recommend that some cases be confirmed by culture. Please contact your LHD for assistance with cultures if an outbreak is suspected.

Who should be isolated and how?

1. Cases should be isolated at home until the correct antibiotic (*below*) has been taken for at least 5 days.
2. At the discretion of the local health authority, inadequately immunized household contacts may be excluded from school and day care for 21 days after the last exposure.

Why Treat Cases?

1. Treatment with appropriate antibiotics will eliminate B. pertussis from the nasopharynx; symptoms unfortunately often continue.

2. Treatment, especially early in illness, will help limit further spread to close contacts.

What should be used for treatment?

The antibiotics and dosages used for treatment and post-exposure disease prevention are the same. Antibiotics given early in the catarrhal stage may attenuate the disease; when given during the paroxysmal stage communicability is reduced but there is little effect on the course or duration of illness. Azithromycin, erythromycin, clarithromycin and trimethoprim-sulfamethoxazole eradicate *B. pertussis* from the nasopharynx; infectivity is probably minimal 5 days after starting treatment with any of these agents. Azithromycin and erythromycin are both pregnancy category B (minimal risk); clarithromycin and trimethoprim-sulfamethoxazole are category C and should be used in consultation with prenatal care provider.

1. Azithromycin (Zithromax[®])
Azithromycin (total dose 30mg/kg for kids or 1.5 grams for adults) is as effective as a 10-day course of erythromycin; greater convenience and tolerability is accompanied by a high price (typically over \$50 for an adult course). The most frequently reported side effects are gastrointestinal; drug interactions are uncommon but always inquire about other concurrent medications.
2. Clarithromycin (Biaxin[®])
A 7-day course of clarithromycin is as effective as a 10-day course of erythromycin; again greater convenience and tolerability come at a higher price. Although uncommon, the most frequently reported side effects are gastrointestinal; drug interactions occur so inquire about concurrent medications.
3. Erythromycin (many brands and generic)
Erythromycin, especially the estolate preparation, has long been the recommended drug for pertussis treatment and prophylaxis. Patient compliance with the cumbersome 4-times-daily, 14-day course is poor and gastrointestinal side effects are common. A lower dose, shorter duration regimen that is more tolerable and equally effective is now recommended (see table). Use of erythromycin in infants can be complicated by infantile hypertrophic pyloric stenosis; parents and providers should be made aware if clients in this age group receive erythromycin. Overall, serious side-effects are rare with erythromycin UNLESS the patient is taking other medications; be sure to ask and consult with a pharmacist if there is any concern about interactions.
4. Trimethoprim-Sulfamethoxazole, TMP-SMX (Bactrim[®], Septra[®], generic):
TMP-SMX also appears to be effective in eradicating *B. pertussis* from the nasopharynx; it is recommended as an alternative antibiotic for patients who cannot tolerate any of the above macrolides. This drug can cause nausea, vomiting, and rash.

Table 1. Dosages of Antibiotics used for pertussis treatment and prophylaxis

Drug	Children	Adults
Azithromycin	<p>Minimum age: all ages *</p> <p>Age 0-5 months: 10 mg/kg p.o. x 5 days</p> <p>Age:>6 mo: 10 mg/kg day 1, then 5mg/kg days 2-5 (maximum 500 mg/dose)</p>	500 mg p.o. in a single dose day 1; then 250 mg p.o. as single daily dose on days 2 through 5
Clarithromycin	<p>Minimum age: 1 months *</p> <p>20 mg/kg/day p.o. in 2 divided doses for 7 days (maximum 1 g/day)</p>	500 mg p.o. twice daily for 7 days
Erythromycin **	<p>Minimum age: not preferred under age 1 month</p> <p>40 to 50 mg/kg/day p.o. in 3 divided doses for 7 days (maximum 1 g/day)</p>	1 g per day in 3 divided doses for 7 days
Trimethoprim-Sulfamethoxazole (TMP-SMX)	<p>Minimum age: 2 months</p> <p>4 mg/kg (TMP component) p.o. twice daily for 14 days (maximum 320 mg/day TMP component)</p>	One double strength tablet (160 mg TMP component) p.o. twice daily for 14 days
<p>* Use at age under 6 months is not FDA approved.</p> <p>** When prescribing erythromycin to infants under 3 months of age providers should inform parents about the possible risks for infantile hypertrophic pyloric stenosis (IHPS) and counsel them about signs of developing IHPS.</p>		

Who should get prophylaxis?

Oregon public health officials currently recommend that the following individuals receive prophylaxis. N.B.: Much broader prophylaxis is recommended in some other parts of the U.S.

Most pertussis in adults and adolescents is neither diagnosed nor reported and antibiotic prophylaxis does not control the transmission of pertussis when it is widespread in the community. The effort to provide antibiotic prophylaxis for pertussis must focus on infants under age 1 year, since serious complications and death are limited to this group. Recommend prompt antibiotic prophylaxis within 21 days of exposure for close contacts of confirmed, presumptive, and suspect cases who are:

- infants < 1 year of age
- pregnant women in the 3rd trimester, (since they will soon have contact with an infant).
- ALL household contacts of a case **IF** there is an infant < 1 year of age or a pregnant woman, even if the infant in the household is the case.
- woman in the 3rd trimester in the same household
- ALL those attending or working in a childcare setting (i.e. same room) of a case **IF** there is an infant < 1 year of age or a pregnant woman (3rd trimester) in the setting.
- Other contacts at the discretion of the Local Health Authority (e.g. pediatric healthcare workers, unimmunized contacts, other pregnant women, high-risk contacts of *suspect* cases).

Also see the article in the [CD Summary: Pertussis Prophylaxis—Passé?](#)
