

Pertussis: Key Messages for Healthcare Providers in Washington

Background

Pertussis is cyclical and peaks every 3-5 years as the numbers of susceptible persons in the population increases due to waning of immunity following both vaccination and disease. Most recently, pertussis had peak years in Washington in 2012 with nearly 5,000 cases reported, and in 2015 with 1,383 cases reported. So far this year (May 2018), there have been 199 reported cases of pertussis, compared with 155 during the same time last year. Those most at risk for severe disease are infants. Vaccinations and good respiratory etiquette are the best tools we have for preventing pertussis and severe disease due to pertussis, especially among infants. A weekly, year-to-date summary of pertussis activity [is available online](#). The [2017 preliminary summary of pertussis cases](#) is also available.

Action Requested

- ✓ Recommend Tdap to all pregnant women with **each** pregnancy, preferably as early as possible between 27 and 36 weeks of gestation. Vaccination during each pregnancy reduces the risk of a mom with pertussis infecting the baby, and it can also provide passive protection for the baby in the first few months of life when they're most vulnerable and too young to be vaccinated. The timing of the dose is very important for optimal antibody transfer to the infant. Provide information on why the vaccine is beneficial and how it is safe for mother and infant. (Post-partum vaccination is acceptable for cocooning purposes if Tdap wasn't given during pregnancy.)
- ✓ Stock Tdap vaccine in your office. If you do not stock Tdap in your office, [make a "strong referral"](#) to get a Tdap vaccination by taking the steps listed at the link, as well as:
 - Provide specific information on where patients can get Tdap vaccine, such as a nearby pharmacy.
 - Have a plan in place to answer questions from other immunization providers concerned with vaccinating your pregnant patients.
- ✓ Fully immunize all children against pertussis. Ensure that infants and children receive the primary DTaP series on schedule; administration without delays is essential for reducing severe disease in young infants.
- ✓ Give one dose of Tdap to all adolescents and adults per national guidelines (see Table 1 for current recommendations). Recommend Tdap vaccination to household members and other close contacts of infants.
- ✓ Consider the diagnosis of pertussis in the following situations, *even if the patient has been immunized*:
- ✓ Persistent or worsening cough with no fever or a low-grade fever in an infant ≤ 3 months, or in an older infant without other explanation.
- ✓ Persistent or paroxysmal cough with no or low-grade fever in an infant < 1 year and any of the following: apnea, cyanosis, post-tussive vomiting, seizure, pneumonia, non-purulent coryza, or inspiratory whoop.
- ✓ Cough illness > 7 days that is paroxysmal, accompanied by gagging, post-tussive emesis, or inspiratory whoop in patients of any age.
- ✓ Cough illness of any duration and no alternative diagnosis in: 1) anyone with close contact with infants or pregnant women; 2) pregnant women in the third trimester; and 3) patients who have had contact with someone known to have pertussis or with prolonged cough illness.
 - Any cough illness > 2 weeks duration with no alternative diagnosis in patients of any age.
- ✓ To confirm pertussis, send a nasopharyngeal specimen for pertussis polymerase chain reaction (PCR) and/or culture. PCR is more sensitive and rapid than culture, but is more expensive and less specific. Testing is not necessary if the patient is a close contact of a lab-confirmed pertussis case.
- ✓ Report pertussis cases within 24 hours to your [local health jurisdiction](#).

Vaccination

Vaccination is the best tool we have for preventing pertussis. The most effective strategy to protect infants who are most at risk for severe pertussis disease is to vaccinate all pregnant women during **each** pregnancy, preferably as early

as possible between 27 and 36 weeks of gestation. It is also important to vaccinate all children with the DTaP series on time and give a Tdap dose to adolescents and adults (see Table 1 below). Although most children have been vaccinated for pertussis, protection from the vaccine wanes over time, so some who are fully vaccinated may still become infected.

Vaccinated children and adults who get pertussis are likely to present with milder symptoms.

In addition to vaccination, rapid identification of pertussis cases, appropriate treatment, isolation, and educating patients about good respiratory etiquette helps prevent ongoing transmission.

Testing

Pertussis should be considered in anyone with a severe or persistent cough. Testing is appropriate until at least three weeks after the onset of paroxysmal coughing. After three weeks of coughing, infectiousness and test accuracy decrease significantly. Testing is most critical for symptomatic persons who are either high risk or may expose someone who is high risk (see high-risk definition below).

If one member of a household tests positive, it is not necessary to test other family members who present with similar symptoms. If multiple members of a household present at the same time with symptoms, it is sufficient to test one, preferably the person with the most recent onset of symptoms.

If you have a high-risk patient whom you think should be tested but is uninsured, contact your [local health jurisdiction](#) to talk about possible testing options.

Persons considered at “high risk” of pertussis:

- Infants <1 year old
- Pregnant women (particularly those in their third trimester)
- Anyone who may expose infants <1 year old or pregnant women (e.g., members of a household with infants or pregnant women, child care workers who take care of infants <1 year old, healthcare workers with face-to-face contact with infants <1 year old or pregnant women, childbirth educators)

Treatment and prophylaxis

If you strongly suspect pertussis:

1. **Treat** the patient whether or not you test. Do not wait for test results. Negative test results do not rule out pertussis.
2. **Exclude** the patient from work, school, or child care until the patient completes five full days of appropriate antibiotics. Consult with your [local health jurisdiction](#) if you have questions about exclusion.
3. **Give preventive antibiotics** to the entire household and to any high-risk close contacts (see high-risk definition above).

See Table 2 below for recommended antibiotic treatment and prophylaxis.

Reporting

Report to your [local health jurisdiction](#) within 24 hours all patients with suspected or lab-confirmed pertussis.

- For infant pertussis cases, include the mother’s Tdap vaccination status, including date vaccine was given or reason not vaccinated, in the infant’s medical record and in your report to your [local health jurisdiction](#). This information is imperative to monitor the impact of the maternal Tdap vaccine recommendation.

Table 1. Pertussis vaccine recommendations by age group.

Birth-6 yrs	DTaP routinely recommended at 2, 4, and 6 months, at 15-18 months, and at 4-6 years. <i>Note: Infants that you consider to be at increased risk for exposure to pertussis can receive their first dose of DTaP as early as 6 weeks.</i>
7 - 10 years	Tdap recommended for those not fully vaccinated. Vaccinate according to the ACIP catch-up schedule, with Tdap preferred as the first dose.
11 - 18 yrs	Tdap routinely recommended as a single dose with preferred administration at 11- 12 years of age. If not fully vaccinated as a child, refer to the ACIP catch-up schedule to determine what vaccines are indicated. If no Tdap at 11 to 12 years of age, Tdap recommended at the next patient encounter, or sooner if close contact with infants.
Adults ≥19 yrs	Tdap is recommended to replace the next 10-year Td booster for any adult who has not received a previous Tdap dose. Tdap can be administered regardless of interval since the previous Td dose, especially if adult has close contact with infants.
Pregnant women	Tdap recommended with each pregnancy, preferably as early as possible between 27 and 36 weeks of gestation and at least 2 weeks before anticipated delivery. Tdap recommended in the immediate postpartum period before discharge if not vaccinated prior to or during pregnancy.
Close contacts of infants	DTaP or Tdap (depending on age) recommended for all family members and caregivers if not up to date, at least two weeks before coming into close contact with the infant.
Healthcare personnel	Tdap recommended for those who have not previously received a dose and who have direct patient contact. This is essential for those who have direct contact with babies younger than 12 months of age.

(Information in Table 1 includes [updated 2018 ACIP recommendations](#).)

Table 2. Recommended antimicrobial treatment and post-exposure prophylaxis for pertussis, by age group.

Age group	Primary agents			Alternate agent*
	Azithromycin	Erythromycin	Clarithromycin	TMP-SMZ
<1 month	Recommended agent. 10 mg/kg per day in a single dose for 5 days (only 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 aged <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 for 7 days	Contraindicated at age <2 months. For infants aged ≥2 months, TMP 8 mg/kg per day, SMZ 40 mg/kg per day in 2 divided doses for 14 days
Infants (aged ≥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 2–5	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 (maximum: 1 g per day) 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

* Trimethoprim sulfamethoxazole (TMP–SMZ) can be used as an alternative agent to macrolides in patients aged ≥2 months who are allergic to macrolides, who cannot tolerate macrolides, or who are infected with a rare macrolide-resistant strain of *Bordetella pertussis*.

(Table 2 reproduced from Recommended Antimicrobial Agents for the Treatment and Postexposure Prophylaxis of Pertussis: 2005 CDC Guidelines, available at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5414a1.htm>).