

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. During the last peak year in Washington, 2012, pertussis activity was at epidemic levels with nearly 5,000 cases reported in the state. Now pertussis is definitely on the rise again. So far this year there have been 319 reported cases of pertussis compared to 49 during the same time last year; the burden of cases is among school-aged children and teens. However, those most at risk for severe disease are infants, and the rate in babies is also increasing. 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 summary of pertussis activity for 2015](#) is available online. The [preliminary 2014 annual summary of pertussis cases](#) is also available online.

Action Requested

- ✓ Recommend Tdap to all pregnant women with **each** pregnancy, preferably between 27 and 36 weeks 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 hadn't been given.)
- ✓ Consider stocking Tdap vaccine in your practice. If you do not stock Tdap in your office, make a "[strong referral](#)" [to get a Tdap vaccination](#) by taking the following steps:
 - Provide specific information on where patients can get Tdap vaccine — examples may include a nearby pharmacy or your patient's primary care provider.
 - Always write a patient-specific prescription in case it is required.
 - Anticipate and be prepared to answer questions on why patients cannot get vaccinated in your office.
 - Emphasize the fact that just because you do not stock a specific vaccine in your office does not reduce the importance of vaccination or indicate that you have concerns about its safety.
 - Have a plan in place to answer questions from other immunization providers who are concerned with vaccinating your pregnant patients.
- ✓ Fully immunize all children against pertussis. Ensure that infants and children receive the primary DTaP series on-schedule; timely administration is essential for reducing severe disease in young infants and should not be delayed.
- ✓ Give a single dose of Tdap to all adolescents and adults as recommended by 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 fever or a 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 between 27 and 36 weeks gestation. It is also important to vaccinate all children with the childhood 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. Adults and school-aged children are now the major reservoir for pertussis in Washington.

In addition to vaccination, rapid identification of pertussis cases, appropriate treatment, isolation, and educating patients about good respiratory etiquette also help 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 who 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 who is uninsured, contact your [local health jurisdiction](#) to talk about possible testing options.

Persons considered “high risk” from 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, health care workers with face-to-face contact with infants <1 year-old or pregnant women, childbirth educators)

Treatment & 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	<ul style="list-style-type: none"> DTaP routinely recommended at 2, 4, and 6 months, at 15 through 18 months, and at 4 through 6 years. 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.
7 - 10 years	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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.
19 - 64 yrs	<ul style="list-style-type: none"> 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.
>65 yrs	<ul style="list-style-type: none"> Tdap recommended for those who have not previously received a dose and who have close contact with children under age 12 months. Others not in contact with an infant who have not previously received a dose of Tdap may receive a single dose of Tdap in place of Td.
Pregnant women	<ul style="list-style-type: none"> Tdap recommended with each pregnancy, preferably between 27 and 36 weeks 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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 [2012 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>)