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Recommended Antibiotic Treatment and Prophylaxis of Pertussis

Antibiotics administered during the catarrhal stage of pertussis may ameliorate the disease. After the cough is established, antibiotic treatment may have no discernible effect on the course of illness but is recommended to reduce the duration of spread of *Bordetella pertussis* to 5 days after initiation of appropriate antibiotic treatment. The duration of spread from an untreated person is approximately 21 days.

A macrolide (typically azithromycin but also erythromycin or clarithromycin) is the antibiotic of choice for pertussis related treatment and prophylaxis. Following are age-specific antibiotic treatment and prophylaxis recommendations with a summary Table at the end of this document. The dosage, frequency, and duration of use of these antibiotics when used for prophylaxis are the same as when used for treatment. Any treatment schedule which differs from those described in this document are not recommended.

Providers should consider safety, potential interactions with concurrent medications, adherence to the prescribed regimen, and cost when choosing an appropriate antibiotic for any patient.

When a provider's index of suspicion is sufficiently high to test a patient for pertussis, we recommend that the patient be treated and counseled regarding prevention of spread, especially to contacts at high risk for acquiring severe disease (e.g., infants aged <1 year, pregnant women in last 3 weeks of pregnancy, persons with some immunodeficiency conditions or other underlying medical conditions such as chronic lung disease, respiratory insufficiency, or cystic fibrosis). The patient should be treated or prescribed prophylaxis regardless of vaccination status (with a pertussis-containing vaccine) and treatment should not be discontinued if a negative test result is received after starting antibiotics. It is also important for the patient's illness to be expeditiously reported to the local health department of jurisdiction. All Category 1 reportable diseases (pertussis included) shall be reported immediately by phone upon identification of a case or suspected case. Within 24 hours submit a case report online through the Wisconsin Electronic Disease Surveillance System (WEDSS) or by mail using an Acute and Communicable Disease Case Report (F44151).

No antibiotic treatment is indicated when a patient with a positive test result has been coughing for 21 days or more or when the patient with a positive test result is an infant aged <1 year who has been coughing for 42 days or more.

Treatment

Initiate treatment of persons aged ≥ 1 year within 21 days of cough onset. Initiate treatment of infants aged < 1 year within 42 days of cough onset.

1. Azithromycin

Recommended regimen (Azithromycin is administered as a single daily dose):

- Infants aged < 6 months: 10 mg/kg per day for 5 days.
- Infants aged ≥ 6 months and children: 10 mg/kg (maximum: 500 mg) on day 1, followed by 5 mg/kg per day (maximum: 250 mg) on days 2-5.
- Adults: 500 mg on day 1, followed by 250 mg per day on days 2-5.

2. Erythromycin

Recommended regimen:

- Infants aged < 1 month: not preferred because of risk for infantile hypertrophic pyloric stenosis (IHPS). Azithromycin is the recommended antimicrobial agent. If azithromycin is not available and erythromycin is used, the dose is 40-50 mg/kg per day in 4 divided doses for 14 days. Monitor infant for IHPS.
- Infants ≥ 1 month and older children: 40-50 mg/kg per day (maximum: 2 g per day) in 4 divided doses for 14 days.
- Adults: 2 g per day in 4 divided doses for 14 days.

A 14-day course of erythromycin is recommended for treatment or for postexposure prophylaxis of close contacts of pertussis patients because relapses have been reported after completion of 7-10 days of treatment.

3. Clarithromycin

Recommended regimen:

- Infants aged < 1 month: not recommended.
- Infants aged ≥ 1 month and children: 15 mg/kg per day (maximum: 1 g per day) in 2 divided doses each day for 7 days.
- Adults: 1 g per day in 2 divided doses for 7 days.

4. Trimethoprim-Sulfamethoxazole (TMP-SMX) Alternative treatment for patients who have contraindications to the use of macrolides.

TMP-SMX may be used as an alternative agent in patients who are allergic to macrolides, who cannot tolerate macrolides, or who are infected, rarely, with a macrolide-resistant strain of *B. pertussis*. TMP-SMX should not be administered to pregnant women, nursing mothers, or infants aged < 2 months.

Recommended regimen:

- Infants aged < 2 months: contraindicated.
- Infants aged ≥ 2 months and children: trimethoprim 8 mg/kg per day, sulfamethoxazole 40 mg/kg per day in 2 divided doses for 14 days.
- Adults: trimethoprim 320 mg per day, sulfamethoxazole 1,600 mg per day in 2 divided doses for 14 days.

5. Other antimicrobial agents

Although in vitro activity against *B. pertussis* has been demonstrated for other macrolides (e.g. roxithromycin and ketolides), no published data exist on the clinical effectiveness of these agents. No other antimicrobial agents are recommended for

treatment or postexposure prophylaxis of pertussis because their clinical effectiveness has not been proven or because of their potentially harmful side effects in children.

Prophylaxis of Close Contacts

In general, antibiotic prophylaxis of close contacts is recommended if it is initiated within 21 days of close contact with the index case (the person with pertussis to whom the contact was exposed) while the index case was infectious (see Algorithm II).

If you have any questions contact the Immunization Program at 608-267-9959.

References:

CDC. Recommended antimicrobial agents for the treatment and postexposure prophylaxis of pertussis: 2005 CDC guidelines. MMWR 2005.
<http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5414a1.htm>

Table. Recommended antimicrobial treatment and postexposure prophylaxis for pertussis, by age group.

Age group	Azithromycin	Erythromycin	Clarithromycin	<u>Alternate agent*</u> TMP-SMX
<1 month ^a	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, SMX 40 mg/kg per day in 2 divided doses for 14 days
Infants (aged ≥6 months) and children	10 mg/kg (maximum: 500 mg) in a single dose on day 1 then 5 mg/kg per day (maximum: 250 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, SMX 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, SMX 1,600 mg per day in 2 divided doses for 14 days

*Trimethoprim sulfamethoxazole (TMP–SMX) 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*. Because of the potential risk for kernicterus among infants, TMP-SMX should not be administered to pregnant women, nursing mothers or infants aged <2 months.

^aInfants <1 month of age who receive any macrolide should be monitored for the development of IHPS for one month after completing the course.