

Which patients with suspected exposure to pertussis should receive prophylaxis?

Marguerite Elliott, DO, MS
and Elizabeth Couchene, MD
Department of Family Medicine,
University of Wisconsin, Madison

Diane Davis Luft, MLS
SUNY Upstate Medical
University, Syracuse, NY

Evidence-based answer

Only high-risk close contacts of known cases should receive prophylactic antibiotics, according to the Centers for Disease Control and Prevention (CDC). The CDC defines high-risk as (1) infants who are <12 months, (2) those especially vulnerable to the complications of pertussis, or (3) those, such as health care workers, in

close contact with high-risk individuals (strength of recommendation [SOR]: **C**, based on consensus/expert opinion). Evidence is insufficient to support a benefit of prophylactic antibiotic treatment for all household pertussis contacts to prevent the development or spread of illness (SOR: **B**, based on a systematic review of studies).

Clinical commentary

Give special attention to high-risk close contacts, especially infants

Recently, in the medical college where I teach, a student came down with pertussis. Several weeks after the onset of symptoms, she was diagnosed and determined to be no longer contagious. When she coughed in class, however, I worried that she could have infected us all. No one received

prophylactic antibiotics. To date, I do not know of anyone who was in close contact with this student who has come down with the illness. However, direct special attention to high-risk close contacts, especially infants, as they can have devastating results from infection.

Jose Rodriguez, MD
Florida State University College of Medicine,
Tallahassee

FAST TRACK

All household contacts do not need prophylaxis to prevent the spread of pertussis

Evidence summary

A Cochrane review¹ of antibiotic use for pertussis prophylaxis, including studies published through 2002, found only 2 randomized, well-controlled trials (RCTs) that compared attack rates between contacts receiving placebo or antibiotic therapy. Neither trial included infants under age 6 months. The reviewers concluded that evidence was insufficient to determine a treatment benefit. The larger study² included 310 household or family contacts, randomized by house-

hold to 10 days of erythromycin estolate or placebo. Positive cultures or clinical pertussis developed in 4.8% of treated contacts and 6.1% of controls (relative risk [RR]=0.8; 95% confidence interval [CI], 0.3–2.2). Adverse side effects occurred in 34% of the erythromycin group and 16% of controls (RR=2.2; 95% CI, 1.4–3.3; number needed to harm=5.6).

Focus on those at high risk

Despite the paucity of RCTs, the CDC and other public health agency guide-

TABLE

Recommendations for pertussis prophylaxis

| ORGANIZATION | RECOMMENDATION |
|----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Canadian guidelines ⁴ | Reserve prophylaxis for <ul style="list-style-type: none"> • Vulnerable (high-risk) contacts • Those who care for vulnerable individuals Prophylaxis must be started within 21 days of exposure |
| Public Health Seattle and King County ⁵ | Prophylax only high-risk individuals with <ul style="list-style-type: none"> • Prolonged (>1 hour) exposure to catarrhal stage disease • Contact within 3 feet • Direct contact with secretions (ie, kissing) |
| CDC ⁶ | During institutional outbreaks <ul style="list-style-type: none"> • Treat early in symptomatic course • Prophylax only those at high risk • Warn healthy contacts to report new symptoms |

lines recommend postexposure prophylaxis for certain close contacts to protect high-risk individuals, defined as those who could develop severe disease or experience adverse outcomes if pertussis developed.³⁻⁶

High-risk individuals include:

- Infants <1 year old
- Pregnant women in their third trimester
- the immunocompromised
- those with underlying medical condition such as chronic lung disease, respiratory insufficiency, or cystic fibrosis
- those who have close contact with any of the above high-risk individuals (eg, household members or health-care workers providing face-to-face care).

Close contact is defined as:

- confinement in a closed space for >1 hour with a known case, or
- direct contact with respiratory, oral, or nasal secretions from a symptomatic person, or
- face-to-face exposure within 3 feet of a symptomatic patient.

Clinical trials involving such patients have not been conducted.^{6,7} Maintenance of active vaccination status is an effective means to prevent the spread of pertussis

among the general population and has been suggested as a means to control local outbreaks,⁶ though it has no role in immediate postexposure prophylaxis for an individual. In one RCT, no (0/60) fully immunized child in a household with pertussis developed whooping cough, with or without antibiotic prophylaxis. Among unimmunized children, pertussis developed in 4/20 receiving erythromycin prophylaxis and 2/11 receiving placebo.⁸

Macrolides (erythromycin, clarithromycin, or azithromycin) are recommended for postexposure prophylaxis. Trimethoprim-sulfamethoxazole is a second-line agent.⁵ A short course of erythromycin (7 days), azithromycin (3-5 days), or clarithromycin (7 days) is as effective as a 2-week course of erythromycin in eradicating *Bordetella pertussis* from the nasopharynx.⁹

Recommendations from others

Recommendations from others are in the **TABLE**. ■

References

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FAST TRACK

Maintenance of active vaccination status is an effective way to prevent pertussis spread among the general population