Which patients with suspected exposure to pertussis should receive prophylaxis?

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.

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Evidence summary

A Cochrane review 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 study included 310 household or family contacts, randomized by household 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

<table>
<thead>
<tr>
<th>ORGANIZATION</th>
<th>RECOMMENDATION</th>
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<tbody>
<tr>
<td>Canadian guidelines&lt;sup&gt;4&lt;/sup&gt;</td>
<td>Reserve prophylaxis for • Vulnerable (high-risk) contacts • Those who care for vulnerable individuals Prophylaxis must be started within 21 days of exposure</td>
</tr>
<tr>
<td>Public Health Seattle and King County&lt;sup&gt;6&lt;/sup&gt;</td>
<td>Prophylax only high-risk individuals with • Prolonged (&gt;1 hour) exposure to catarhal stage disease • Contact within 3 feet • Direct contact with secretions (ie, kissing)</td>
</tr>
<tr>
<td>CDC&lt;sup&gt;5&lt;/sup&gt;</td>
<td>During institutional outbreaks • Treat early in symptomatic course • Prophylax only those at high risk • Warn healthy contacts to report new symptoms</td>
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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.<sup>6,7</sup> 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,<sup>4</sup> 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.<sup>8</sup>

Macrolides (erythromycin, clarithromycin, or azithromycin) are recommended for postexposure prophylaxis. Trimethoprim-sulfamethoxazole is a second-line agent.<sup>5</sup> 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.<sup>9</sup>

**Recommendations from others**

Recommendations from others are in the TABLE. ■

**References**


**FAST TRACK**

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