Parapertussis (*Bordetella parapertussis*): Public Health Recommendations

What is parapertussis?
Parapertussis is a bacterial illness that is similar to pertussis (whooping cough) but is typically milder than pertussis. Parapertussis is caused by the bacterium *Bordetella parapertussis*, and pertussis is caused by *Bordetella pertussis*.

How do the symptoms of parapertussis differ from pertussis?
The signs and symptoms of parapertussis are similar to those associated with pertussis, but of shorter duration. Several reports, including a report from Wisconsin, have described the similarity in symptoms between parapertussis and pertussis. These symptoms include cough, paroxysmal cough, whoop, and post-tussive vomiting (vomiting after a coughing spell). Durations of cough and paroxysmal cough are typically shorter among patients with parapertussis compared to patients with pertussis. For example, in Wood County, Wisconsin during 2011–2012, the median duration of cough illness was significantly shorter among patients with parapertussis compared to patients with pertussis (14 days versus 28 days).

How prevalent is parapertussis?
B. parapertussis infections occur less frequently than *B. pertussis* infections. Based on *Bordetella* testing data from Wisconsin and other states, among diagnosed *Bordetella* infections, approximately 10-15% are *B. parapertussis* infections and 85-90% are *B. pertussis* infections. These proportions can vary from year to year and place to place.

What age group can contract the illness?
Persons of all ages can be infected with *B. parapertussis* and experience illness; however, parapertussis occurs most frequently among children aged <10 years. Young infants can have a more severe course of parapertussis.

Are the incubation and transmission periods for parapertussis the same as pertussis?
Limited data suggest that both illnesses have similar incubation and transmission periods.

How is parapertussis confirmed?
Cases are identified based on a positive PCR or culture result. The Wisconsin State Laboratory of Hygiene (WSLH) can confirm *B. parapertussis* infection using PCR and culture. All test requests sent to the WSLH for *B. pertussis* include testing for *B. parapertussis*. Additionally, some hospital and regional laboratories provide PCR testing for *B. parapertussis.* Contact the laboratory to determine which *Bordetella* species are detected by their test. Few commercial laboratories perform *Bordetella* culture.

Can a person be infected with *B. pertussis* and *B. parapertussis* at the same time?
Yes, co-infection with both *B. pertussis* and *B. parapetussis* can occur. During the Wisconsin 2011-2012 outbreak, patients with co-infection had longer durations of cough illness than the patients with *B. parapertussis* or *B. pertussis* infection alone.

Do pertussis vaccines prevent parapertussis?
No. Pertussis vaccines provide little to no protection against disease caused by *B. parapertussis*.

Is parapertussis a reportable disease?
Parapertussis is not listed as an official reportable disease. However, because many laboratories test and report to the Wisconsin Electronic Disease Surveillance System results for *B. parapertussis*, local

health departments are encouraged to follow up on all individuals with positive test results for *B. parapertussis*.

What is the case management for parapertussis?
There are no national guidelines for the treatment or public health management of parapertussis. However, the Wisconsin Division of Public Health recommends the following steps be taken to stop parapertussis from spreading to young infants.

Treatment of cases
- All persons, particularly infants, with parapertussis should promptly receive treatment with an appropriate antibiotic*.
- Observations from the extensive investigation of Wisconsin's 2011–2012 parapertussis outbreak suggest that patients who receive antibiotic treatment early during the course of illness have shorter durations of cough illness than patients who are not treated or are treated later (>14 days after cough onset) in the course of illness.

Prophylaxis of contacts
- If a case of parapertussis occurs in a household and there is an infant aged <6 months in the household, prophylaxis of all household members with an appropriate antibiotic* should be strongly considered.
- All infants aged <6 months should receive antibiotic prophylaxis if they have been in contact with a person who has parapertussis.
- Prophylaxis of asymptomatic contacts (except in the case of household members when there is an infant aged <6 months in the same household) is not recommended.

Isolation/exclusion
- Persons with *B. parapertussis* infection should avoid contact with infants aged <6 months until they have received five days of appropriate antibiotic treatment or 21 days have passed since cough onset.
- Persons with *B. parapertussis* infection are not recommended to be isolated or furloughed from school or work.

*Limited data suggest *B. parapertussis* is susceptible to both macrolides and trimethoprim-sulfamethoxazole (TMP-SMX). The dosing and dose schedule for *B. parapertussis* infection is the same as for *B. pertussis* infection. Information regarding the dosing schedule for treating *B. pertussis* infection can be found in the pertussis control guidelines:
https://www.dhs.wisconsin.gov/publications/p0/p00637.pdf

References

Widespread *Bordetella parapertussis* Infections–Wisconsin, 2011-2012: Clinical and Epidemiologic Features and Antibiotic Use for Treatment and Prevention. *Clin Infect Dis*. 2015 Jun 25. pii: civ514
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