

## PERTUSSIS PROTOCOL

### 1. Cause/Epidemiology

*Bordetella pertussis* is a small, aerobic gram-negative coccobacillus.

*Bordetella parapertussis*, a closely related organism causes a pertussis-like syndrome in humans. Parapertussis is similar, but usually a milder form of the disease. Parapertussis occurs in school-aged children and is relatively infrequent.

Pertussis is a highly infectious disease caused by the bacteria *Bordetella pertussis*. It is more commonly known as “whooping cough.” This name is derived from the most noticeable symptom of this infection, severe spells of cough followed by a “whoop” sound before the next breath. **It is the second most reported vaccine-preventable disease in Canada.** Although it can affect individuals of any age, severity is greatest among young infants.<sup>[7.3]</sup> Pertussis is a communicable disease which requires same day reporting to a live person by telephone.

Pertussis can be prevented by immunization. Primary immunization for all children is recommended at 2, 4 and 6 months of age. Booster doses are recommended at 12 to 23 months (generally given at 18 months of age), 4 to 6 years, and 14 to 16 years of age.<sup>[7.3]</sup>

One dose of acellular pertussis-containing vaccine (Tdap) vaccine should be administered to adults if they have not previously received pertussis vaccine in adulthood (18 years of age and older).<sup>[7.3]</sup>

Immunity from childhood vaccination wanes 5 to 10 years after the last dose (usually given at 4 to 6 years of age), with efficacy of the vaccine gradually falling from 100% in the first year following vaccination. Therefore, adolescents and adults who have not received a booster vaccination are at risk of infection and its consequent transmission of the bacteria to others.

Each year, between 1,000 and 3,000 people fall ill from pertussis in Canada. Worldwide there are about 20 to 40 million cases and 400,000 deaths from pertussis each year.<sup>[7.3]</sup>

Secondary attack rates are up to 90% in nonimmune household contacts. Disease confers immunity but not lifelong immunity.<sup>[7.1]</sup>

## 2. Clinical Presentation

Bacteria have been isolated from respiratory secretions or (less often) by large aerosol droplets from the respiratory tract of infected persons (at a range of 5 feet or less).

Onset is insidious with symptoms of an upper respiratory tract infection (URI) such as a runny nose lasting for about a week (catarrhal stage).

Symptoms generally appear between 7 to 10 days after being exposed to the germ and may be delayed for up to 20 days. Pertussis infection can cause symptoms similar to those of the common cold. These include a runny nose, red watery eyes, mild fever and cough. The cough may worsen until the infected individual experiences severe coughing spells followed by a "whoop" sound before the next breath. This cough can last 6 to 12 weeks. The whooping is more common in young children than in adolescents and adults.

Infants less than six months of age can be atypical with a short catarrhal stage, followed by gagging, gasping, bradycardia, or apnea (67%) as prominent early manifestations; absence of whoop; and prolonged convalescence. <sup>[7.4]</sup>

Complications among infants include pneumonia (23%) and pulmonary hypertension as well as complications related to severe coughing spells such as subdural bleeding, conjunctival bleeding, and hernia; and severe coughing spells leading to hypoxia and complications such as seizures (2%), encephalopathy (less than 0.5%), apnea, and death. <sup>[7.4]</sup>

## 3. Incubation

The incubation period is average 9-10 days; range 6-20 days. <sup>[7.5]</sup>

Non-immune contacts are considered infectious from day 12 to day 25 after exposure.

The period of communicability is until 3 weeks after onset of paroxysms if not treated; or until 5 days of appropriate antimicrobial therapy received. <sup>[7.5]</sup>



## 6. Occupational Health

Contact Occupational and Environmental Safety and Health (OESH) for staff assessment and/or concerns.

## 7. References

- 7.1. Heymann, D. L. (2015). Control of Communicable Diseases Manual; 20<sup>th</sup> ed. American Public Health Association.
- 7.2. Pertussis Frequently Asked Questions. (2015, September). Centres for Disease Control. Available at: <http://www.cdc.gov/pertussis/about/faqs.html>.
- 7.3. Pertussis (whooping cough). (2014, February). Public Health Agency of Canada. Available at: <http://www.phac-aspc.gc.ca/im/vpd-mev/pertussis-eng.php>.
- 7.4. Red Book Report of the Committee on Infectious Diseases; American Academy of Pediatrics; Section 3: Summaries of Infectious Diseases – Pertussis. (2015) David W. Kimberlin, MD, FAAP; Michael T. Brady, MD, FAAP; Mary Anne Jackson, MD, FAAP; Sarah S. Long, MD, FAAP. Available at: <https://redbook.solutions.aap.org/chapter.aspx?sectionid=88187212&bookid=1484>.
- 7.5. Routine Practices and Additional Precautions: Preventing the Transmission of Infection in Health Care. (2012, April). Manitoba Health. Available at: <http://www.gov.mb.ca/health/publichealth/cdc/docs/ipc/rpap.pdf>.

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