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Pertussis

Purpose

To prevent transmission of Pertussis. To provide guidance to healthcare provider on how to:

- Identify
- Isolate
- Notify

Definitions

Contact: Refer to Management of susceptible contacts in the healthcare setting section.

High risk contact: Refer to Management of susceptible contacts in the healthcare setting section.

Pertussis (also known as whooping cough): is an acute infectious disease caused by *Bordetella pertussis*, a Gram- negative bacterium. Pertussis is **highly contagious** and attack rates exceed 80% among susceptible persons. Neither vaccination nor natural disease provides complete or lifelong protective immunity against pertussis or re-infection. Older children, adolescents, and adults can become susceptible to pertussis after a complete course of vaccination during childhood.

Confirmed Case of pertussis:

1. Laboratory confirmed specimen culture of *B. pertussis* from an appropriate clinical specimen **OR**
   Laboratory PCR detection of *B. pertussis* from an appropriate clinical specimen **AND** one or more of the following:
   - Cough lasting 2 weeks or longer
   - Paroxysmal cough of any duration
   - Cough with inspiratory "whoop"
   - Cough ending in vomiting or gagging, or associated with apnea.

2. Epidemiological link to laboratory-confirmed case **AND** one or more of the following symptoms with no other cause:
   - Paroxysmal cough of any duration
   - Cough with inspiratory "whoop"
   - Cough ending in vomiting or gagging, or associated with apnea.

Probable Case of pertussis: Cough lasting 2 weeks or longer in the absence of appropriate laboratory tests and not epidemiologically linked to a laboratory-confirmed case **AND** one or more of the following with no other known cause:

- Paroxysmal cough of any duration
- Cough with inspiratory "whoop'
- Cough ending in vomiting or gagging, or associated with apnea

Note: in this document the term “patient” is inclusive of resident and client.

Overview

Illness Presentation:

There are three stages of clinical pertussis.

1. **Catarrhal stage** (usually lasts 1-2 weeks)
   - Runny nose
   - Nasal congestion
   - Low -grade fever
   - Mild, dry cough (intermittent)
   - Sore throat
   - Apnea (in infants)

   Symptoms may be indistinguishable from other minor respiratory infections and health care providers may not suspect or diagnose until more severe symptoms appear. Antibiotic treatment provided during the catarrhal phase can decrease the duration and severity of symptoms.

2. **Paroxysmal stage** (usually lasts 1-6 weeks but may persist up to 10 weeks)
   - repeated bursts, or paroxysms, of numerous rapid coughs that follow each other without inspiration.
   - Paroxysms may end in typical cases with an inspiratory "whoop" and can be followed by an expulsion of clear mucous or vomiting.
   - Feeling very tired after coughing fit, but usually seems well in-between.
   - Paroxysms usually increase in frequency and severity as the illness progresses.
   - Difficulty sleeping (Attacks occur frequency at night)
   - Cyanosis
   - Exhaustion

   Hear the sound whooping cough on Government of Canada Pertussis: for health professionals.

   Note* Infants less than 6 months old, vaccinated children, adolescents, and adults often have atypical manifestation when the cough is not paroxysmal or accompanied by the “whoop”.

   Antibiotic treatment provided after paroxysms have started will not alter the severity or duration of illness but will eliminate the bacteria from the nasopharynx and shorten the period of communicability.

3. **Convalescent stage** (lasts 2-6 weeks or longer)
   - Recovery period can be slow and gradual as coughing bouts become milder and less frequent over time.
   - Paroxysmal coughing can return during recovery period if person is experiencing a superimposed viral respiratory infection. This can occur for months after Pertussis.

After three weeks of paroxysmal coughing, antibiotic treatment does not provide any added benefit in terms of reducing the shedding of the bacteria as that will be beyond the period of

communicability. However, in the case of a lab specimen collected after this time that is still culture positive there is no outer limit for the start of antibiotic treatment.

The most common complication of pertussis, and the cause of most pertussis-related deaths, is secondary bacterial pneumonia. Unvaccinated or incompletely vaccinated infants aged <12 months have the highest risk for severe and life-threatening complications and death.

Mode of Transmission

- Direct person-person contact with infected droplets from saliva or nasal secretions (e.g., coughing, sharing food/utensils or cigarettes).

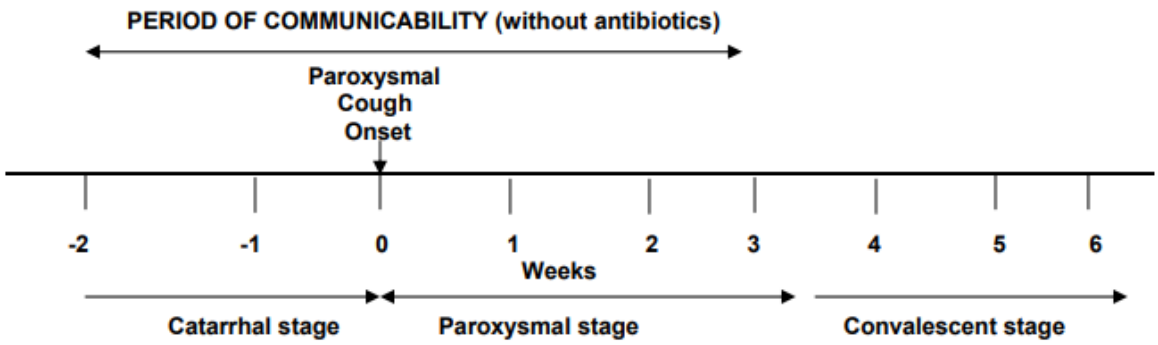
Incubation Period

- Pertussis symptoms usually develop within 7 to 10 days after exposure, but sometimes not for as long as 21 days.

Period of Communicability:

- Extends from the beginning of the catarrhal stage (one to two weeks before the onset of paroxysmal coughing) to three weeks after the onset of the paroxysmal cough.
- Individuals are considered most infectious in the catarrhal stage and the first two weeks of the paroxysmal stage of pertussis illness.
- Patients are no longer contagious after 5 days of appropriate antimicrobial treatment.

Pertussis period of communicability illustration adapted from BCCDC[3].



Diagnostic Testing

- Pertussis is diagnosed through collection of a nasopharyngeal swab (NP swab) that will be sent for culture and PCR testing at the BCCDC laboratory.
- Refer to IH Microbiology Lab test directory for specimen ordering, collection, and transportation, and handling.

Best Practices

Additional Precautions

- In addition to Routine Practices, place any suspected or confirmed patient cases on Droplet Precautions with appropriate Droplet Precautions signage posted outside of patient's door.

- Do not await laboratory confirmation to apply additional Droplet Precautions.

Patient Placement and Accommodation

- Single room with dedicated bathroom is preferred.
- Door may remain open.
- If single room unavailable refer to Recommendations for Cohorting Patients with strict bedside isolation, and dedicated toilet/commode and patient equipment.
- Droplet Precautions signage should be placed at the entrance to the patient room, cubicle, and designated bed space.

Patient Flow and Transport

- Limit transport to essential and diagnostic purposes only.
- Communication of Droplet Precautions is essential when a patient goes to another department or unit.
- Notify receiving department/facility and BC Emergency Health Services or other transport staff prior to transport.
- Transporting staff to wear a medical mask and eye protection within two metres of patient including during transport.
- Perform a Point of Care Risk Assessment prior to interacting with the patient to determine if additional personal protective equipment is required
- Don personal protective equipment as per Additional Precautions sign and Point of Care Risk Assessment
- After assisting patient, doff personal protective equipment inside patient room (except mask and eye protection) and clean hands prior to transport.
- Patient should wear medical mask during transport if tolerated. Contact Infection Prevention and Control if not tolerated.

Before transport consider/follow **the 5 C's**, educate, and assist the patient if necessary:

1. **C**ommunicate: notify receiving department if patient is on Additional Precautions.
2. **C**o-operative: is the patient able to follow instructions.
3. **C**lean hands: assist patient if required to clean their hands.
4. **C**lean clothes/clean sheet: patient to wear clean gown or clothes/cover with clean sheet.
5. **C**over/contain sources:
    - Cover wounds with clean dressings
    - Contain urine/feces or other body fluids
    - Cover cough: If coughing and/or on Contact and Droplet or Airborne Precautions, place medical mask on patient (if tolerated). Contact IPAC if not tolerated.

Personal Protective Equipment (PPE)

- Perform a Point of Care Risk Assessment prior to interacting with the patient to determine if additional PPE is required.
- PPE to be available directly outside the room.
- Perform hand hygiene before accessing any clean PPE.
- Medical mask and eye protection to be worn within two metres of the patient.
- Don PPE as per How to Don Personal Protective Equipment.
- Doff PPE as per How to doff Personal Protective Equipment and perform hand hygiene.
- The same PPE should not be worn for more than one patient.

Waste, Laundry, Dishes, and Cutlery

- Use Routine Precautions.

Discontinuing Precautions

- Contact Infection Preventionist and/or Medical Microbiologist on-call (PRIOR to discontinuing precautions.
- Precautions may be discontinued 5 days after patient has received appropriate antimicrobial therapy.
- If not treated patient requires additional precautions until 3 weeks after onset of paroxysmal stage.

Notification

- High risk contacts (infants less than 1 year old and pregnant persons in their third trimester) of lab-confirmed or probable pertussis cases are **immediately** notifiable to Communicable Disease Unit (1-866-778-7736) Monday – Friday 08:30-16:30 or Medical Health Officer on-call (1-866-457-5648) after hours, weekends, and STATs.
- Notify suspected or confirmed cases of pertussis to Infection Preventionist (and/or Medical Microbiologist on-call
- All laboratories notify all positive laboratory results to the Communicable Disease Unit.
- Infection Preventionist to investigate all pertussis cases as directed by Medical Health Officer and complete a Communicable Disease Notification Tool.

Management of Susceptible High Risk Contacts in Healthcare Setting

Contact: Identify contacts, as per the BCCDC Pertussis guideline, that have had the following types of contact with the case during the period of communicability:

- Face-to-face contact (unless it was only for a short period, e.g. less than 5 minutes).
- Sharing of the same confined air space for a prolonged period (e.g., 1 hour).
- Direct contact with the respiratory secretions of the infected person (e.g., an explosive cough or sneeze in the face, shared food or eating utensils, mouth-to-mouth resuscitation, or conducting a medical exam which includes nose and throat examination.

High Risk contact: Infants less than 1 year of age or pregnant persons in their third trimester. Chemoprophylaxis for high risk contacts as outlined by the BCCDC Pertussis guideline.

- Medical Health Officer will determine if susceptible high risk contacts require chemoprophylaxis (use of antimicrobials to prevent pertussis infection).
- Infection Preventionist to identify high risk contacts exposed in healthcare settings and complete follow-up for admitted patients.
- Communicable Disease Unit to follow-up with any high risk contacts that have been discharged.
- Non-high risk contacts may be prescribed chemoprophylaxis by the MRP as clinically indicated.

Management of Susceptible Exposed Health Care Provider

- Follow up provided by Medical Health Officer and/or Provincial Workplace Health Contact Centre (PWHCC) – See BCCDC Communicable Disease Pertussis
- Individuals who believe they have had a breach in PPE or exposure to a communicable disease should contact the PWHCC for an assessment 1-866-922-9464

or email OHN@WHcallcentre.ca.

- Additional information regarding exposure management for employees and the expectation to report vaccine and immunity status is outlined in Management of Occupational Exposure to Communicable Diseases policy AV0900.

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References

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3. BC Center for Disease Control (BCCDC). Pertussis/Whooping Cough http://www.bccdc.ca/health-info/diseases-conditions/whooping-cough-pertussis

4. Government of Canada (2024, March) Pertussis: For health professionals https://www.canada.ca/en/public-health/services/immunization/vaccine-preventable-diseases/mumps/health-professionals.html

5. ICP Diseases and Conditions Table Recommendations for Management of Patients Acute Care. Alberta Health Services. 2018. (https://www.albertahealthservices.ca/assets/healthinfo/ipc/hi-ipc-resource-manual-main-document.pdf)

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