

Appendix B: Provincial Case Definitions for Diseases of Public Health Significance

Disease: Pertussis (Whooping Cough)

Effective: February 2019

Pertussis (Whooping Cough)

1.0 Provincial Reporting

Confirmed and probable cases of disease

2.0 Type of Surveillance

Case-by-case

3.0 Case Classification

3.1 Confirmed Case

Laboratory confirmation of infection: Isolation of *Bordetella pertussis* (*B. pertussis*) from an appropriate clinical specimen (e.g. nasopharyngeal swabs)

OR

Detection of *B. pertussis* deoxyribonucleic acid (DNA) by nucleic acid amplification test (NAAT) from an appropriate clinical specimen (e.g. nasopharyngeal swabs) 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

OR

Epidemiologic link to a laboratory-confirmed case AND one or more of the following for which there is no other known cause:

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

3.2 Probable case

Cough lasting 2 weeks or longer in the absence of appropriate laboratory tests and not epidemiologically linked to a laboratory-confirmed case for which there is no other known cause 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

4.0 Laboratory Evidence

4.1 Laboratory Confirmation

Any of the following will constitute a confirmed case of pertussis:

- Positive *B. pertussis* culture
- Positive NAAT for *B. pertussis*

4.2 Approved/Validated Tests

- Standard culture for *B. pertussis*
- NAAT for *B. pertussis*

4.3 Indications and Limitations

- NAAT assays for *B. pertussis* are available as either in-house or commercial assays, and are highly sensitive. These assays must be interpreted along with clinical and epidemiological data.
- Detection of *B. pertussis* by culture has a high specificity and a limited/low sensitivity. This may result in under-reporting of cases.

5.0 ICD-10 Code(s)

A37 Whooping cough (pertussis)

6.0 Comments

Laboratory test results should be interpreted in the context of the clinical and epidemiological presentation of the patient.

Laboratory testing, using nasopharyngeal swabs, should only be performed on patients with appropriate clinical signs and symptoms. The positive predictive value of the NAAT assay is low in cases which do not fit the clinical and epidemiological picture.

Testing asymptomatic persons who are household contacts of a person with pertussis should be avoided as the NAAT assay is very sensitive and will detect very low levels of the target DNA (e.g. including DNA from non-viable bacteria located in the nasopharynx). The positive predictive value of the test will be low in this situation.

Therefore, asymptomatic close contacts of confirmed cases should not be tested and testing of contacts should not be used for post-exposure prophylaxis decisions.

- Optimal timing for using NAAT assays for the detection of *B. pertussis* is within 3 weeks of cough onset when bacterial DNA is present in the nasopharynx.
- NAAT testing following antibiotic therapy is NOT recommended, as the exact duration of positivity is not well understood.
- There is no benefit in using NAAT as a test of cure after 5 days of antibiotic treatment, as the result may remain positive at this time.

7.0 Sources

California Department of Public Health. Pertussis: laboratory testing [Internet]. Richmond (CA): State of California; 2017 [cited March 8, 2018]. Available from: <https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/Immunization/pertussis.aspx>

Centers for Disease Control and Prevention. Best practices for health care professionals on the use of Polymerase Chain Reaction (PCR) for diagnosing pertussis [Internet]. Atlanta, GA: U.S. Department of Health & Human Services; 2015 [updated September 8, 2015; cited March 8, 2018]. Available from:

<https://www.cdc.gov/pertussis/clinical/diagnostic-testing/diagnosis-pcr-bestpractices.html>

Health Canada. National consensus conference on pertussis, Toronto, May 25-28, 2002. Canada Communicable Disease Report. 2003;29(Suppl 3):1-33.

Public Health Agency of Canada. Pertussis. In: Case Definitions for Communicable Diseases under National Surveillance. Canada Communicable Disease Report. 2009;35S2.

8.0 Document History

Table 1: History of Revisions

Revision Date	Document Section	Description of Revisions
December 2014	General	New template. Acronym for nucleic acid amplification test changed from “NAT” to “NAAT”. Section 5.0 “Clinical Evidence” removed, subsequent sections re-numbered. Title of Section 7.0 changed from “References” to “Sources”. Section 8.0 Document History added.
December 2014	3.1 Confirmed Case	Entire section revised.
December 2014	3.2 Probable Case	Entire section revised.
December 2014	4.2 Approved/Validated Tests	Third bullet (“ <i>B. pertussis</i> antigen test”) removed.
December 2014	4.3 Indications and Limitations	First bullet re-written to include “as either in-house or commercial assays” and “and epidemiological data”. Second bullet re-written to remove “and high specificity”.
December 2014	6.0 Comments	Entire section revised to include new second paragraph.
December 2014	7.0 Sources	Updated.
February 2019	General	Minor revisions were made to support the regulation change to Diseases of Public Health Significance and references were updated.

