

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

Disease: Anthrax

Effective: February 2019

Anthrax

1.0 Provincial Reporting

Confirmed, probable and suspect cases of disease

2.0 Type of Surveillance

Case-by-case

3.0 Case Classification

3.1 Confirmed Case

Laboratory confirmation of infection with clinically compatible signs and symptoms:

- Culture of *Bacillus anthracis* (*B. anthracis*) from a clinical specimen (e.g., blood)
OR
- Identification of *B. anthracis* in a clinical specimen (e.g., blood) using the fluorescent antibody technique

3.2 Probable Case

Clinically compatible signs and symptoms in a person in whom *B. anthracis* deoxyribonucleic acid (DNA) is detected and with an epidemiologic link to a confirmed case or suspected source.

4.0 Laboratory Evidence

4.1 Laboratory Confirmation

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

- Positive *B. anthracis* culture with confirmation (See Section 4.2)
- Positive *B. anthracis* direct fluorescent antibody (DFA) test

4.2 Approved/Validated Tests

- Standard culture for *B. anthracis* with confirmation
- DFA for *B. anthracis*
- Nucleic acid amplification test (NAAT) for *B. anthracis*
- Confirmatory methods include combinations of Gram stain, motility, morphology, haemolysis, spores, demonstration of capsule and lysis by gamma phage

4.3 Indications and Limitations

Potential for false negative NAAT exists if virulence gene is lacking.

5.0 Clinical Evidence

Four clinical forms are recognized: cutaneous, inhalational, gastrointestinal and injection:

- With the cutaneous form, the skin begins to itch and a papule appears at the inoculation site, followed by formation of a vesicle. Within two to six days the vesicle develops into a depressed black eschar accompanied by swelling. If inoculation site involves face or neck, swelling may involve obstruction of airway. Untreated infections can spread to lymph nodes or meninges and result in septicemia.
- The inhalational form begins with fever, malaise, a mild cough or chest pain. Three to four days later the symptoms of respiratory distress appear (including cyanosis, shock and excessive sweating), followed by death.
- Gastrointestinal anthrax is rare and usually occurs in food poisoning outbreaks where patients experience abdominal pain, nausea and vomiting, followed by fever, septicemia and death.
- Injection anthrax has never been reported in Canada, but occurs in patients with a history of heroin use, and case presentation has been varied. Most cases present with serious localized soft tissue infections accompanied by soft tissue edema. Fever is not a prominent feature, and pain is less severe than with other serious soft tissue infections. Not all cases have localized injection-related lesions; some have presented with features more typical of systemic anthrax infections.

6.0 ICD 10 Code(s)

A22 Anthrax

7.0 Sources

Acha P, Szyfres B. Zoonoses and Communicable Diseases Common to Man and Animals. Vol. 1. 3 ed. Washington, DC: Pan American Health Organization; 2001.

Centers for Disease Control and Prevention. National Notifiable Disease Surveillance System: Anthrax (*Bacillus anthracis*) - 2018 Case Definition [Internet]. Atlanta, GA: U.S. Department of Health & Human Services; 2018 [cited May 15, 2018]. Available from: <https://wwwn.cdc.gov/nndss/conditions/anthrax/case-definition/2018/>

Heymann DL, editor. Control of Communicable Diseases Manual. 20 ed. Washington, D.C: American Public Health Association; 2015.

Public Health Agency of Canada. Anthrax. 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. Nucleic acid amplification test abbreviation “(NAT)” replaced with “(NAAT)” throughout document. Section 8.0 title changed from “References” to “Sources”. Section 9.0 Document History added.
December 2014	4.3 Indications and Limitations	Bullet one converted into sentence format.
December 2014	5.0 Clinical Evidence	Entire section revised.
December 2014	6.0 ICD Code(s)	Subheading added, “6.1 ICD-10 Code(s)” with “A22” listed as normal text below.
December 2014	8.0 Sources	Updated.
February 2019	General	Minor revisions were made to support the regulation change to Diseases of Public Health Significance and additional information regarding injection anthrax in the Clinical Evidence section.

