

Anthrax

Reporting Obligations

Anthrax is designated as a disease of public health significance and is reportable under the *Ontario Health Protection and Promotion Act*. Report all suspect and confirmed cases **immediately by phone** to the health unit.

One case is deemed a public health emergency.

Epidemiology

Aetiologic Agent:

The aetiological agent of anthrax is the bacterium *Bacillus anthracis* (*B. anthracis*), an aerobic, Gram-positive, encapsulated, spore forming, nonmotile rod. *B. anthracis* is a potential bioterrorist agent.

Clinical Presentation:

Depending on the route of transmission, anthrax infection can result in three clinical syndromes: cutaneous, inhalation and gastrointestinal.

Cutaneous anthrax is characterized by initial itching of the exposed skin surface; an initial vesicle at the site of inoculation develops into a painless black eschar; fever, malaise and headache may be present.

Inhalational anthrax is the most lethal form of disease. Initial presentation includes sweats, malaise, mild cough, dyspnea, nausea or vomiting, and this is followed by acute onset of respiratory distress and shock; there is also radiological evidence of mediastinal widening and pleural effusion present. The case fatality rate is extremely high. Anthrax meningitis begins with hypotension, quickly followed by delirium or coma, refractory seizures, cranial nerve palsies, and myoclonus have been reported.

Gastrointestinal anthrax cases present with acute vomiting, abdominal distension, gastrointestinal (GI) bleeding and peritonitis.

Modes of transmission:

Transmission occurs by inoculation through open skin via contact with infected animal tissue, other animal products and contaminated soil and by ingestion of undercooked, contaminated, or raw meat. Inhalation anthrax results from the inhalation of anthrax spores, particularly in risky industrial settings.

Incubation Period:

From 1-7 days, although incubation periods of up to 60 days are possible

Period of Communicability:

Person to person transmission is rare. Articles and soil contaminated with spores may remain infective for years.

Risk Factors/Susceptibility

There is some evidence of in-apparent infection among people in frequent contact with the infectious agent; second attacks can occur, but reports are rare.

- Contact with animal skin/hide related products (rugs, drums, etc.)
- Deliberate use (bioterrorism)
- Injection drug use
- Occupational
 - Farm worker
 - Laboratory worker
 - Veterinarian
 - Animal or animal product handler

Diagnosis & Laboratory Testing

Laboratory demonstration of *B. anthracis* obtained from blood, CSF, pleural fluid, ascitic fluid, vesicular fluid, or lesion exudates.

Approved/Validated tests:

- Standard culture for *B. anthracis* with confirmation
- Direct fluorescent antibody (DFA) for *B. anthracis*
- Nucleic acid amplification test (NAT) for *B. anthracis*

TESTING INFORMATION & REQUISITION

Treatment & Case Management

One case is deemed a public health emergency. Cases may potentially signal a bioterrorism incident. Public Health staff will be involved to obtain specific information to determine the source of infection and whether other cases may have been exposed. Persons who may have been exposed to anthrax are not contagious, so quarantine is not appropriate. Persons with draining lesions should be cared for using contact precautions.

Dressings with drainage from the lesions should be incinerated, autoclaved, or otherwise disposed of as biohazard waste.

Patient Information

PATIENT FACT SHEET

References

1. [Ministry of Health, Infectious Diseases Protocol - Ontario Public Health Standards, 2022.](#)

Additional Resources

1. [Public Health Ontario, "Anthrax", Dec 2022.](#)
2. Heymann, D.L. Control of Communicable Disease Manual (21st Ed.). Washington, American Public Health Association, 2022.