

ANTHRAX

What is Anthrax?

Anthrax is an acute infectious disease caused by the spore-forming bacterium *Bacillus anthracis*. Found in nature, *B. anthracis* lives in soil and is usually associated with occupations that involve contact with animals such as sheep, cattle, goats, and bison. *B. anthracis* produces a spore that is highly tolerant of heat, cold, and drying. There are three types of Anthrax: cutaneous, gastrointestinal, and pulmonary.



How is it transmitted?

Anthrax is not spread from person-to-person. *B. anthracis* can cause infection in the skin, gastrointestinal system, or the lungs. To do so the organism must be rubbed into abraded skin, swallowed, or inhaled, respectively.

Cutaneous anthrax is acquired through exposure of non-intact skin to material containing anthrax spores. Gastrointestinal anthrax is acquired by ingestion of spores from contaminated meat or drink, or by putting contaminated objects in the mouth. Pulmonary anthrax is acquired by directly inhaling spores from a contaminated source.

What is the risk of a biological terrorist event in Canada?

Because *B. anthracis* is readily aerosolized, it makes an ideal organism for use by terrorist groups.

The risk remains of low probability. Hospitals may have the first opportunity to recognize and initiate a response to a bioterrorism-related outbreak.

How to handle a suspicious letter or package?

- Do not shake or empty the contents.
- Place the envelope or package in a plastic bag or some other container.
- Then leave the room and close the door, prevent others from entering the room.
- Wash your hands with soap and water.
- Report the incident to security and your supervisor.
- List all people who were in the room.

What are the symptoms of anthrax?

They vary depending on how the disease was contracted.

Cutaneous:

- Local skin involvement after direct contact with spores.
- Commonly seen on the head, forearms or hands.
- An itchy papular lesion that develops into an ulcer surrounded by vesicles, and within two to six days develops into a depressed black eschar.
- Usually non-fatal if treated with antibiotics.

Gastrointestinal:

- Abdominal pain, nausea, vomiting and fever following ingestion of contaminated meat.
- Bloody diarrhea, bloody emesis.
- Usually fatal after progression to toxemia and sepsis.

Pulmonary:

- Non-specific prodrome of Influenza Like Illness (ILI) symptoms follows inhalation of spores.
- Possible brief interim improvement.
- Two to four days after initial symptoms, abrupt onset of respiratory failure and hemodynamic collapse, possibly accompanied by thoracic edema and a widened mediastinum on chest radiograph suggestive of mediastinal lymphadenopathy and hemorrhagic mediastinitis.
- Gram-positive bacilli on blood culture, usually after two to three days of illness.
- Treatable in early prodromal stage. Mortality nears 90% despite antibiotic treatment if it is initiated after onset of respiratory symptoms.
- Because early symptoms are nonspecific, the possibility of anthrax would be suggested only by the appearance of many people seeking treatment for ILI symptoms and rapid progression to life-threatening illness.

What is the incubation period following exposure?

1 – 7 days following cutaneous exposure or ingestion.

2 – 60 days following pulmonary exposure.

Can anthrax be spread from person to person?

There are no known cases of person-to-person transmission; re-aerosolization of anthrax is unlikely.

Thus, Routine Practices are recommended for hospitalized patients with all forms of anthrax infection.

Skin lesions may be infectious, but requires direct skin contact only.

How should a patient be managed post exposure?

In situations where the threat of gross exposure to B. anthracis spores exists, the goals are:

- to contain the contamination to prevent further spread
- to prevent aerosolizing the contaminate
- to prevent contact with open or skin mucus membranes

The plan for decontaminating patients exposed to anthrax may include the following:

- Instruct patients to remove contaminated clothing and store in labeled, plastic bags. Handling clothing minimally to avoid agitation.
- Instruct patient to shower thoroughly with antimicrobial soap and water. Potentially harmful practices, such as bathing patients with bleach solutions, are unnecessary and should be avoided.

Personnel should use Routine Practices and wear appropriate barriers (e.g. gloves, gown and respiratory protection) when handling contaminated clothing and other contaminated fomites.

Decontaminate environmental surfaces using 0.5% hypochlorite solution (one part household bleach added to nine parts water) mixed fresh daily.

References:

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3. Hagstad D. Emergency; Bioterrorism. Am J Nurs. 2000; 12:33-35.
4. CDC Department of Health and Human Services Anthrax Chapter (Pink Book) 2006.
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