

ANTHRAX

(*Bacillus anthracis*)

Last revised: June 01, 2011

I. IDENTIFICATION

A. CLINICAL DESCRIPTION:

- **Cutaneous Anthrax:** An acute illness, or post-mortem examination revealing a painless skin lesion developing over 2 to 6 days from a papular through a vesicular stage into a depressed black eschar with surrounding edema. Fever, malaise and lymphadenopathy may accompany the lesion.
- **Inhalation Anthrax:** An acute illness, or post-mortem examination revealing a prodrome resembling a viral respiratory illness, followed by hypoxia, dyspnea or acute respiratory distress with resulting cyanosis and shock. Radiological evidence of mediastinal widening or pleural effusion is common.
- **Gastrointestinal Anthrax:** An acute illness, or post-mortem examination revealing severe abdominal pain and tenderness, nausea, vomiting, hematemesis, bloody diarrhea, anorexia, fever, abdominal swelling and septicemia.
- **Oropharyngeal Anthrax:** An acute illness, or post-mortem examination revealing a painless mucosal lesion in the oral cavity or oropharynx, with cervical adenopathy, edema, pharyngitis, fever, and possibly septicemia.
- **Meningeal Anthrax:** An acute illness, or post-mortem examination revealing fever, convulsions, coma, or meningeal signs. Signs of another form will likely be evident as this syndrome is usually secondary to the above syndromes.

B. REPORTING CRITERIA: Clinical diagnosis or clinical suspicion of anthrax

C. LABORATORY CRITERIA FOR CONFIRMATION:

1. Confirmed: A clinically compatible illness with one of the following:

- Culture and identification of *B. anthracis* from clinical specimens by the Laboratory Response Network (LRN);
- Demonstration of *B. anthracis* antigens in tissues by immunohistochemical staining using both *B. anthracis* cell wall and capsule monoclonal antibodies;
- Evidence of a four-fold rise in antibodies to protective antigen between acute and convalescent sera or a fourfold change in antibodies to protective antigen in paired convalescent sera using Centers for Disease Control and Prevention (CDC) quantitative anti-PA IgG ELISA testing;
- Documented anthrax environmental exposure AND evidence of *B. anthracis* DNA (for example, by LRN-validated polymerase chain reaction) in clinical specimens collected from a normally sterile site (such as blood or CSF) or lesion of other affected tissue (skin, pulmonary, reticuloendothelial, or gastrointestinal).

2. Probable: A clinically compatible illness that does not meet the confirmed case definition, but with one of the following:

- Epidemiological link to a documented anthrax environmental exposure;

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- Evidence of *B. anthracis* DNA (for example, by LRN-validated polymerase chain reaction) in clinical specimens collected from a normally sterile site (such as blood or CSF) or lesion of other affected tissue (skin, pulmonary, reticuloendothelial, or gastrointestinal);
- Positive result on testing of clinical serum specimens using the Quick ELISA Anthrax-PA kit;
- Detection of Lethal Factor (LF) in clinical serum specimens by LF mass spectrometry
- Positive result on testing of culture from clinical specimens with the RedLine Alert test.

D. WISCONSIN CASE DEFINITION:

A clinically compatible illness that is laboratory confirmed with one of the following:

- Culture and identification of *B. anthracis* from clinical specimens by the Laboratory Response Network (LRN);
- Demonstration of *B. anthracis* antigens in tissues by immunohistochemical staining using both *B. anthracis* cell wall and capsule monoclonal antibodies;
- Evidence of a four-fold rise in antibodies to protective antigen between acute and convalescent sera or a fourfold change in antibodies to protective antigen in paired convalescent sera using Centers for Disease Control and Prevention (CDC) quantitative anti-PA IgG ELISA testing;
- Documented anthrax environmental exposure AND evidence of *B. anthracis* DNA (for example, by LRN-validated polymerase chain reaction) in clinical specimens collected from a normally sterile site (such as blood or CSF) or lesion of other affected tissue (skin, pulmonary, reticuloendothelial, or gastrointestinal).

II. ACTIONS REQUIRED / PREVENTION MEASURES

A. WISCONSIN DISEASE SURVEILLANCE CATEGORY I:

Report **IMMEDIATELY BY TELEPHONE** to the patient's local health department upon identification of a confirmed or suspected case. The local health department shall then notify the state epidemiologist **immediately** of any confirmed or suspected cases. Within 24 hours submit a case report electronically through the Wisconsin Electronic Disease Surveillance System (WEDSS), by mail or fax using an Acute and Communicable Disease Case Report ([F-44151](#)), or by other means.

B. EPIDEMIOLOGY REPORTS REQUIRED:

Electronically Report through WEDSS, including appropriate disease specific tabs

or

Paper Copy - Acute and Communicable Diseases Case Report ([F-44151](#))

C. PUBLIC HEALTH INTERVENTIONS:

In accordance with Wisconsin Administrative rule DHS 145.05, local public health should follow the methods of control recommended in the current edition of *Control of Communicable Diseases Manual*, edited by David L. Heymann, published by the American Public Health Association.

D. PREVENTION MEASURES:

Educate employees handling potentially contaminated articles about modes of transmission, care of abrasions, controlling dust, and ventilating hazardous industries, especially those that handle raw animal products.

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E. PUBLIC HEALTH INTERVENTIONS:

Source investigation by LHD and BCDER/CDES for direct involvement. Search for history of exposure to infected animals or animal products and trace to place of origin.

III. CONTACTS FOR CONSULTATION

A. LOCAL HEALTH DEPARTMENTS – REGIONAL OFFICES – TRIBAL AGENCIES:
<http://www.dhs.wisconsin.gov/localhealth/index.htm>

B. BCDER / COMMUNICABLE DISEASE EPIDEMIOLOGY SECTION: (608) 267-9003

C. WISCONSIN STATE LABORATORY OF HYGIENE / Bacteriology: (608) 263-3421

IV. RELATED REFERENCES

- Anthrax Basics (Rev 12/23/03) <http://www.bt.cdc.gov/agent/anthrax/index.asp>
- Heymann DL, ed. Anthrax. In: *Control of Communicable Diseases Manual*. 19th ed. Washington, DC: American Public Health Association, 2008: 23-31
- Pickering LK, ed. Anthrax. In: *Red Book: 2009 Report of the Committee on Infectious Diseases*. 28th ed. Elk Grove Village, IL: American Academy of Pediatrics, 2009: 211-214.