



# New Hampshire Health Alert Network

## Health.Alert@nh.gov

**Message Type:** Alert  
**Status:** Actual  
**Severity:** Moderate  
**Sensitive:** No  
**Message Identifier:** NH-HAN #20091226 Confirmed Case of Anthrax in NH  
**Delivery Time:** 12 hours  
**Acknowledgement:** No  
**Originating Agency:** NH Department of Health and Human Services, Division of Public Health Services

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**DATE:** December 26, 2009

**TIME:** 0930 EST

**TO:** Infection Control Practitioners, Infectious Disease Specialists, Physicians, Nurses, Dentists, NHHA, Hospital Emergency Departments, Hospital CEOs, Family Planning Programs, Health Officers, MMRS, MRC, NH School Nurses and Administrators, Community Health Centers, NH Treatment Centers, Community Mental Health Centers, Influenza Sentinels, Manchester Health Department, Nashua Health Department, Long-Term Care Facilities, Dialysis and Transplant Clinics, DHHS Outbreak Team, DHHS Management Team, Laboratory Response Network, Public Health Network, Corrections, EMS, Daycare Providers, Post-Secondary Schools

**FROM:** José T. Montero, MD, Director of the NH Division of Public Health Services

**SUBJECT:** Confirmed Case of Anthrax in New Hampshire

### NH Department of Health and Human Services (NH DHHS) announces:

- There is a confirmed case of naturally occurring gastrointestinal anthrax in New Hampshire. Providers are reminded to consider the diagnosis of anthrax in a clinically compatible human case with exposure as outlined below.
- There is no clinical or epidemiological indication that this is a deliberate act.
- The source is not yet clear, and is being thoroughly investigated.
- Cases and suspect cases of human anthrax should be promptly reported to New Hampshire Department of Health and Human Services. Consultation may be obtained at (603) 271-4496 during business hours or (603) 271-5300 after hours.
- Laboratory testing is recommended and may be arranged by calling (603) 271-4496 during business hours or (603) 271-5300 after hours. Forms are available at <http://www.dhhs.nh.gov/DHHS/PHL/default.htm>

The New Hampshire Department of Health and Human Services (NH DHHS) announces that a NH resident has been diagnosed with gastrointestinal anthrax caused by wild type *Bacillus anthracis*. Symptoms started December 5<sup>th</sup>, and the patient is currently in critical condition. An investigation of the possible source is ongoing and may include ingestion of spores or inhalation of spores from African drums.

**1) Background:** Anthrax is caused by *Bacillus anthracis*, an aerobic, spore-forming, gram-positive rod-shaped bacteria. On exposure to the air, vegetative cells sporulate and *B. anthracis* spores may remain viable in contaminated soil for years (resisting adverse environmental conditions and disinfection.) The disease is transmitted to humans by direct contact with tissues of infected animals; contact with contaminated hair, wool, hides, or products made from them (e.g., drums, brushes, rugs); contact with

soil associated with infected animals or contaminated bone meal used in gardening. *B. anthracis* produces toxins that correlate with its virulence.

**Naturally occurring anthrax infection in humans can present as inhalational anthrax, cutaneous anthrax, or gastrointestinal anthrax.**

Although 2000 cases of cutaneous anthrax are reported annually worldwide, in the United States only four cases of naturally occurring anthrax have been reported since 1957. Three of the US cases were cutaneous anthrax and one case was inhalational (described below). Naturally occurring inhalational anthrax is a rare cause of human disease (a single case since 1976), and usually results from inhalation of spores in risky industrial processes such as tanning hides and processing wool or bone.

- 2007 cutaneous anthrax - West African drum maker in Connecticut.
- 2006 inhalational anthrax - African drum maker in New York City with exposure to aerosolized anthrax spores from contaminated animal hides that were scraped to remove hairs and make them into drums.
- 1957 - 9 cases (4 cutaneous and 5 inhalational) in employees of textile mill in Manchester, NH.

**2) Clinical Presentation:**

**a. Gastrointestinal anthrax (rare)**

- Ingestion of undercooked meat from infected ruminants (cattle, sheep, goat, deer). There is no evidence of transmission from milk. Inhalation of *B.anthraxis* spores with subsequent ingestion is possible.
- Usual incubation period 3 to 7 days (up to 60 days is possible).
- Symptoms:
  - Oropharyngeal: oral ulcers (can be necrotic), fever, sore throat, dysphagia, marked neck swelling and regional lymphadenopathy
  - Intestinal: anorexia, nausea, vomiting, fever, severe abdominal pain, ascites, hematemesis, bloody diarrhea, cyanosis, sepsis, shock.
- Case-fatality rate is 25% to 60% with treatment. The impact of early antibiotic therapy is not known.

**b. Cutaneous anthrax**

- 95% of naturally occurring cases worldwide
- Introduction of *B.anthraxis* spores into a break in the skin
- Incubation period is within 7 days
- Symptoms:
  - Pruritic papule on arms, hands, face, or neck forms a vesicle that ruptures in 1 to 6 days to form painless, depressed ulcers. Characteristic black necrotic central eschar with local edema then forms (1-3cm in size). After 1 to 2 weeks, the lesion dries and the black eschar separates from the skin leaving a scar.
  - Fever, headache, lymphadenopathy, extensive edema, and other systemic signs may be present as well. Antibiotics decrease edema and systemic symptoms.
- Case-fatality rate < 1% with appropriate therapy

**c. Inhalational Anthrax**

- 5% of naturally occurring cases worldwide
- Inhalation of *B. anthracis* spores
- Usual incubation period 4 –6 days (up to 60 days)
- Symptoms are biphasic:

1 to 3 days of low-grade fever, chills, headache, myalgias, drenching sweats, profound fatigue, minimally productive cough, nausea or vomiting, and chest discomfort. Rhinorrhea and productive cough are uncommon. These symptoms are followed by clinical improvement. Then, sudden onset of high fever, dyspnea, stridor, dry cough, tachypnea, and diaphoresis that progresses to septic shock and death in 1 to 2 days.

- Can be confused with symptoms of viral influenza.
- Chest radiograph may show mediastinal widening, paratracheal fullness, hilar fullness, and pleural effusions and/or infiltrates (this may be subtle on initial films). A chest CT showing hyperdense mediastinal and hilar adenopathy plus mediastinal edema suggest anthrax.
- Case-fatality rate for appropriately treated patients  $\geq 50\%$

### 3) Diagnostic Testing

- Testing for anthrax should only be done for those with clinically compatible syndromes.
- Testing is ideally performed PRIOR to receipt of antibiotics.
- Gram stain and culture can be performed on blood, pleural fluid, cerebrospinal fluid, tissue biopsy or discharge from cutaneous lesions.
- The receiving lab should be informed that anthrax is in the differential diagnosis.
- When a culture grows *Bacillus* spp. it may not be a contaminant.
- Preliminary identification of anthrax should be confirmed at the Public Health Lab. Laboratory test request forms are available at <http://www.dhhs.nh.gov/DHHS/PHL/default.htm>
- For questions regarding testing please call (603) 271-4660 during business hours or (603) 271-5300 after hours.

### 4) Treatment:

- High index of clinical suspicion and rapid administration of effective antibiotics to suspect cases are essential for successful treatment.
- Ciprofloxacin 400 mg IV Q12 OR Doxycycline 100 mg IV q12 + 1-2 additional active antibiotics (such as rifampin, vancomycin, clindamycin) are recommended as first-line treatment for patients with serious illness with anthrax. Anthrax vaccine may also be required. Consultation with an expert in Infectious Disease is recommended.
- Patients with systemic illness should be assumed to have CNS spread and regimens should be chosen with good CNS penetration.
- Cephalosporins and trimethoprim-sulfamethoxazole should be avoided due to intrinsic resistance and constitutive and inducible *B lactamase* enzymes have been reported.

### 5) Infection Control

- Person-to-person transmission is extremely unlikely. It has only been reported with cutaneous anthrax following direct contact with draining lesions.
- Contact precautions should be implemented if draining cutaneous lesions are present.
- Contaminated dressings and bedclothes should be incinerated or steam sterilized to destroy spores.
- In the absence of cutaneous lesions, standard precautions are recommended for anthrax.
- Autopsies performed on patients with systemic anthrax require special precautions.

**Reporting Criteria:** clinicians, hospitals, and laboratories are **required to report** any patient with suspected or confirmed anthrax. All suspect or confirmed cases should first be immediately reported to the NH DHHS by telephone at (603) 271-4496 during business hours or (603) 271-5300 after hours. Within 24 hours, a completed case report form (available at <http://www.dhhs.state.nh.us/DHHS/CDCS/LIBRARY/Form/disease-form.htm>) should be faxed to the

NH Communicable Disease Control Section (603-271-0545) and a copy submitted with the laboratory specimen(s) to the NH Public Health Laboratories.

To review general information for anthrax, visit the CDC website at:  
<http://emergency.cdc.gov/agent/anthrax/> and the NH DHHS website at:  
<http://www.dhhs.nh.gov/DHHS/CDCS/LIBRARY/Fact+Sheet/anthrax.htm>

**For any questions regarding the contents of this message, please contact NH DHHS Communicable Disease Control and Surveillance Section at 603-271-4496 (after hours 1-800-852-3345 ext.5300 or 603-271-5300).**

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## DEFINITION OF TERMS AND ALERTING VOCABULARY

### Message Type

Alert: Indicates an original alert  
Update: Indicates prior alert has been updated and superseded  
Cancel: Indicates prior alert has been cancelled  
Error: Indicates prior alert has been retracted

### Status

Actual: Communication or alert refers to a live event  
Exercise: Designated recipients must respond to the communication or alert  
Test: Communication or alert is related to a technical, system test and should be disregarded

### Severity

Extreme: Extraordinary threat to life or property  
Severe: Significant threat to life or property  
Moderate: Possible threat to life or property  
Minor: Minimal threat to life or property  
Unknown: Unknown threat to life or property

### Sensitive

Sensitive: Indicates the alert contains sensitive content  
Not Sensitive: Indicates non-sensitive content

**Message Identifier:** A unique alert identifier that is generated upon alert activation.

**Delivery Time:** Indicates the timeframe for delivery of the alert.

**Acknowledgement:** Indicates whether an acknowledgement on the part of the recipient is required to confirm that the alert was received, and the timeframe in which a response is required.

**Originating Agency:** A guaranteed unique identifier for the agency originating the alert.

**Alerting Program:** The program sending the alert or engaging in alerts and communications using PHIN Communication and Alerting (PCA) as a vehicle for their delivery.

**You have received this message based upon the information contained within our emergency notification database.**

**If you have a different or additional e-mail or fax address that you would prefer to be used please contact:**

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**Business Hours 8:00 AM – 4:00 PM**  
Tel: 603-271-4596  
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