



# Anthrax Information Sheet

## NORAD-USNORTHCOM/SG

SG

### What is Anthrax?

Anthrax is a highly lethal infection caused by the bacteria, *Bacillus anthracis*. The Center for Disease Control classifies it as a Category A agent (poses a great threat for a bad effect on public health, may spread across a large area or needs public awareness, and needs planning to protect public health).

### Why are we concerned with anthrax as a bioweapon?

Anthrax bacteria are easy to cultivate and spore production is readily induced. Moreover, the spores are highly resistant to sunlight, heat and disinfectants - properties that could be advantageous when choosing a bacterial weapon. Anthrax spores can be processed into a powder and was used in the U.S. postal system. There is also a theoretical health risk associated with *B. anthracis* spores being introduced into food products or water supplies.

### Does this disease occur naturally?

In the United States, an incidence of naturally-acquired anthrax is extremely rare (~ 1-2 cases of cutaneous disease per year). Gastrointestinal anthrax is also rare, but may occur as an explosive outbreak associated with eating infected meat. Unreliable reporting makes it difficult to estimate the global incidence of human anthrax, but worldwide *B. anthracis* is present in most of the world.

**Are there different forms of this disease?** There are three different types of diseases associated with anthrax: Inhalational anthrax (also known as pulmonary anthrax) is the most serious and affects the lungs (mortality if treated: > 50%), Gastrointestinal anthrax affects the digestive tract (mortality if treated: estimated 25%-60%), and Cutaneous anthrax is the most common and affects the skin (mortality if treated: < 1%).

**Is the disease seasonal in its occurrence?** No

### Where is the disease currently established?

Anthrax is found globally. It is more common in developing countries or countries without strong veterinary public health programs. Certain regions of the world (South and Central America, Southern and Eastern Europe, Asia, Africa, the Caribbean, and the Middle East) report more anthrax in animals than other areas.

### How does it spread?

For humans, the source of infection in naturally-acquired disease is through contact with infected livestock, wild animals, or contaminated animal products (including carcasses, hides, hair, wool, meat, and bone meal). Airborne transmission occurs rarely, but direct contact with skin lesions may result in a cutaneous infection.

### What is the risk of catching Anthrax? Locale, age, gender.

Person-to-person transmission does not occur with pulmonary anthrax and is extremely unlikely with other forms of anthrax. Contact with discharges from skin may result in infection (cutaneous anthrax). No factors associated with age, locale, and gender.

### What are the symptoms of anthrax (clinical presentation)

1. *Inhalational*: The first symptoms of inhalation anthrax are cold or flu-like symptoms and can include a sore throat, mild fever and muscle aches. Later symptoms include dry cough, chest discomfort, shortness of breath, tiredness and muscle aches. Incubation period: 2-60 days. Mortality (even if treated): > 50%
2. *Gastrointestinal*: The first symptoms are nausea, loss of appetite, bloody diarrhea, and fever, followed by severe stomach pain. Incubation period: 1-7 days. Mortality (even if treated): estimated- 25%-60%
3. *Cutaneous*: Cutaneous is the most common form of anthrax. The first symptom is a small sore that develops into a blister. The blister then develops into a skin ulcer with a black area in the center. The sore, blister and ulcer do not hurt. Incubation period: 1-7 days. Mortality (if treated): < 1%

### How soon do infected people get sick/incubation period?

Most people start to feel ill a day or two after exposure but the incubation period may be as long as 60 days.

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### **How is anthrax diagnosed?**

Anthrax is diagnosed by laboratory tests that isolate *B. anthracis* from the blood, skin lesions, or respiratory secretions or by measuring specific antibodies in the blood of persons with suspected cases.

### **Is a vaccine available to prevent anthrax?**

As of 2002, there is a limited supply of the licensed anthrax vaccine AVA currently available (BioPort Corporation, Lansing, Michigan).

### **Can Anthrax be treated? Yes.**

Pre – exposure: Vaccinate as stated above (limited scope at this time to populations at greatest risk, for example military forces, veterinarians, meat packers etc.).

Post exposure/prior to onset of symptoms: Both military doctrine and a public health consensus panel recommend prophylaxis with ciprofloxacin (500 mg po bid) as the first-line medication in a situation with anthrax as the presumptive agent. Ciprofloxacin recently became the first medication approved by the FDA for prophylaxis after exposure to a biological weapon (anthrax).

Post exposure/after onset of symptoms: Should an attack be confirmed as anthrax, antibiotics such as ciprofloxacin, doxycycline should be continued for at least 4 weeks in all those exposed and until all those exposed have received three doses of the vaccine. Those who have already received three doses within 6 months of exposure should continue with their routine vaccine schedule. In the absence of vaccine, chemoprophylaxis should continue for at least 60 days. Upon discontinuation of antibiotics, patients should be closely observed. If clinical signs of anthrax occur, therapy for anthrax is indicated, pending diagnosis. Optimally, patients should have medical care available upon discontinuation of antibiotics, from a fixed medical care facility with intensive care capabilities and infectious disease consultants. Pregnant and immunosuppressed patients should receive the normal post exposure treatment protocol. This recommendation is based upon anthrax's high death rate (CDC study).

### **Where will the medications/immunizations to treat infected individuals come from?**

Medications will most likely come from regionally dependent resources based on national stockpiles.

### **Are there any contraindications to the vaccine, antibiotic therapy, and other treatments (ie. Pregnancy, immunosuppression, etc)**

Pregnant women should not be vaccinated. Contraindications for use of this vaccine include hypersensitivity reaction to a previous dose of vaccine and age < 18 or > 65. Reasons for temporary deferment of the vaccine include pregnancy, active infection with fever, or a course of immune suppressing drugs such as steroids. Pregnant and immunosuppressed patients should receive the normal post exposure treatment protocol. This recommendation is based upon anthrax's high death rate (CDC study). Alternative drugs are available for people with allergic reactions to ciprofloxacin.

### **How long can Anthrax exist in the environment?**

The spores are very stable and highly resistant to drying or sunlight. They may remain viable for many years contaminated soil and water. They resist sunlight for varying periods

### **Are there ways to test for Anthrax in the environment?**

No field expedient methods are available for testing. Samples must be sent to a laboratory for testing

### **What should someone do if they suspect they or others have been exposed to Anthrax?**

Contact public health officials or contact a medical care provider immediately for further instructions.

### **What can I do to reduce the risk of getting Anthrax or giving it to someone else?**

Person-to-person transmission is extremely unlikely and only reported with cutaneous anthrax where discharges from cutaneous lesions are potentially infectious. In countries where anthrax is common and vaccination levels of animal herds are low, humans should avoid contact with livestock and animal products and avoid eating meat that has not been properly slaughtered and cooked.

#### References:

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