

# New York State Department of Health

## Anthrax (malignant edema, woolsorters' disease)

Last Reviewed: November 2006

### What is anthrax?

Anthrax is a rare infectious disease caused by the bacterium *Bacillus anthracis*. Anthrax occurs naturally around the world in wild and domestic hoofed animals, especially cattle, sheep, goats, camels and antelopes. It can also occur in humans when they are exposed to the bacterium, usually through handling animals or animal hides. There are three forms of anthrax infection: cutaneous (skin), inhalation (lungs) and gastrointestinal (stomach and intestine). If people have been intentionally exposed, as in a bioterrorist release, contact with skin would be the most likely route of exposure. Breathing in the spores that have been spread through the air could cause inhalation anthrax.

### How common is anthrax and who can get it?

Anthrax can be found around the world. It is most common in agricultural regions where it occurs in animals. It is more common in developing countries or countries without veterinary public health programs. Anthrax is reported more often in some regions of the world (South and Central America, Southern and Eastern Europe, Asia, Africa, the Caribbean and the Middle East) than in others. It has been extremely rare in the United States in recent decades, and until cases in Florida and New York City in 2001, has been limited to the cutaneous (skin) form. When anthrax affects humans, it is usually due to an occupational exposure to infected animals or their products. However, anthrax is considered to be one of a number of potential agents for use in biological terrorism.

### How is anthrax spread?

Anthrax is usually spread in the form of a spore. (A spore is a dormant form that certain bacteria take when they have no food supply. Spores can grow and cause disease when better conditions are present, as in the human body.) Anthrax is generally spread in one of three ways. Most persons who are exposed to anthrax become ill within one week:

- Skin (cutaneous) - Most anthrax infections occur when people touch contaminated animal products like wool, bone, hair and hide. The infection occurs when the bacteria enters a cut or scratch in the skin.
- Inhalation (lung) - Some anthrax infections occur when people breathe in the spores of the bacteria. However, the infectious dose for inhalational anthrax is quite high, and requires exposure to a large number of spores (8,000-10,000).
- Gastrointestinal - Some people may get anthrax by eating infected meat that has not been properly cooked.

### What are the symptoms of anthrax?

- Skin (cutaneous) - This is the most common form of anthrax. Infection requires a break in the skin. The first symptoms include itching where the skin has been exposed. Then, a large boil or sore appears. The sore becomes covered by a black scab. If not treated, the infection can spread to the lymph nodes and bloodstream.
- Inhalation - Inhalation anthrax has been very rare in the U.S. First symptoms include fever, fatigue, malaise and a cough or chest pain. High fever, rapid pulse and severe difficulty breathing follow in two to five days. Inhalation anthrax is often fatal.
- Gastrointestinal - This form occurs only after eating infected, undercooked meat. First symptoms include fever; abdominal pain; loose, watery bowel movements; and vomiting with blood.

## How soon after exposure do symptoms develop?

Symptoms usually develop between one and seven days after exposure but prolonged periods up to 12 days for cutaneous (skin) anthrax and 60 days for inhalation anthrax are possible, though rare.

## Can anthrax be spread person to person?

Inhalation (lung) anthrax is not spread from person to person. Even if you develop symptoms of inhalation anthrax, you are not contagious to other persons. If you develop cutaneous (skin) anthrax, the drainage from an open sore presents a low risk of infection to others. The only way cutaneous (skin) anthrax can be transmitted is by direct contact with the drainage from an open sore. Anthrax is not spread from person to person by casual contact, sharing office space or by coughing and sneezing.

## How is it diagnosed?

Anthrax is diagnosed when the *Bacillus anthracis* bacterium is found in the blood, skin lesions or respiratory secretions by a laboratory culture. It can also be diagnosed by measuring specific antibodies in the blood of infected persons. Nasal swabs are not a good way to diagnose anthrax because a swab cannot definitively determine if someone has not been exposed to anthrax.

## What is the treatment for illness caused by anthrax?

There are several antibiotics that are used successfully to treat anthrax. Treatment is highly effective in cases of cutaneous (skin) anthrax and is effective in inhalation and gastrointestinal anthrax if begun early in the course of infection. The United States has a large supply of these antibiotics and can quickly manufacture more if needed.

## Is there a way to prevent infection?

Persons known to be exposed to confirmed anthrax spores will be given antibiotics, usually ciprofloxacin (cipro) or doxycycline, to prevent infection.

## Do I need to disinfect myself or my belongings if I believe I was exposed to anthrax?

Most threats regarding anthrax have proven to be hoaxes. However, in the event of a possible exposure to a powder or other unknown substance with a threat that may indicate anthrax, call 911 and leave the material alone. To prevent infection if you have a skin exposure to the powder or other substance, wash your hands vigorously with soap and water, and shower with soap and water if necessary. Similarly, washing possibly contaminated clothes in the regular laundry will safely remove any possible anthrax. To be inhaled, anthrax spores must first be aerosolized (dispersed in the air) which does not usually occur. In the unlikely event that you do inhale spores, medical evaluation and treatment is needed, usually after spores are identified.

Revised: November 2006