Anthrax

Disease Fact Sheet

What is anthrax?

Anthrax is an acute infectious disease caused by a bacterium called *Bacillus anthracis*. Anthrax most commonly occurs in livestock, but it can also occur in humans when they are exposed to infected animals or to tissue from infected animals or when anthrax spores are used as a bioterrorist weapon.

How common is anthrax and who can get it?

Anthrax is most common in agricultural regions where it occurs in animals. Although anthrax can be found globally, it is more often a risk in countries with less standardized and effective public health and animal health programs. Areas currently listed as high risk are South and Central America, Southern and Eastern Europe, Asia, Africa, the Caribbean, and the Middle East. When anthrax affects humans, it is usually due to an occupational exposure to infected animals or their products. Workers who are exposed to dead animals and animal products from countries where anthrax is more common may become infected with *B. anthracis*. Anthrax in animals rarely occurs in the United States, and consequently human anthrax is rare here. A few human cases in the U.S. have been acquired through contact with drums made from goatskins imported from Africa.

How is anthrax transmitted?

Anthrax infection can occur in three forms: cutaneous (skin), inhalation, and gastrointestinal. Spores of the bacterium *B. anthracis* can live in the soil for many years, and livestock can become infected by grazing on contaminated pasture. Humans can become infected with anthrax by handling infected animals or animal products, or by inhaling anthrax spores from contaminated animal products. Eating undercooked meat from infected animals can also spread anthrax. Anthrax spores can be used as a bioterrorist weapon, as was the case in 2001, when *B. anthracis* spores were intentionally distributed through the postal system, causing 22 human cases of anthrax, including five deaths.

What are the symptoms of anthrax?

Symptoms of disease vary depending on how the disease was contracted, but symptoms usually occur within seven days.

- **Cutaneous:** Most anthrax infections occur when the bacterium enters a cut or abrasion on the skin, such as when handling contaminated wool, hides, leather or hair products (especially goat hair) of infected animals. Skin infection begins as a raised itchy bump that resembles an insect bite but within one or two days the lesion will blister and then develop into a painless ulcer, usually 1-3 cm in diameter, with a characteristic black necrotic (dying) area in the center. Lymph nodes in the adjacent area may swell. About 20 percent of untreated cases of cutaneous anthrax are fatal. Deaths are rare with appropriate antimicrobial therapy.
- **Inhalation:** Initial symptoms may resemble a common cold. After several days, the symptoms may progress to severe breathing problems and shock. Inhalation anthrax usually results in death one to two days after onset of the severe symptoms.
- **Intestinal:** The intestinal disease form of anthrax may follow consumption of contaminated meat. It is characterized by acute inflammation of the intestinal tract. Initial signs of illness are nausea, loss of appetite, vomiting, fever and then followed by abdominal pain, severe diarrhea and vomiting of blood. Intestinal anthrax results in death in 25-60 percent of cases.

What is the treatment for anthrax?

Doctors can prescribe effective antibiotics. The selection of an antibiotic is guided by the organism's culture and sensitivity results; the patient's history of allergic reactions, age and health status factors; and antibiotic availability. When no information is available about the antimicrobial susceptibility of the implicated strain of *B. anthracis*, initial therapy with ciprofloxacin or doxycycline is recommended for adults and children, or levofloxacin for adults. If left untreated, the disease can be fatal.

How is anthrax diagnosed?

Anthrax is diagnosed by isolating *B. anthracis* from blood, skin lesions, respiratory secretions, or by measuring specific antibodies in the blood of suspected cases.

Can anthrax be spread from person to person?

Direct person-to-person spread of anthrax most likely does not occur.

Is there an anthrax vaccine for humans?

A protective vaccine has been developed for anthrax; however, it is primarily given to military personnel. Vaccination is recommended only for those at high risk, such as workers in research laboratories that handle anthrax bacteria routinely. Anthrax vaccines intended for use in animals should not be used in humans.