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# *Anthrax Fact Sheet*

(11/09/01 Update)

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Anthrax is caused by *Bacillus anthracis*, a bacterium that can form spores. Spores allow it to survive in the soil for long periods of time.

Anthrax is primarily an animal disease, occurring most often in hooved animals such as cattle, sheep, goats, camels, and antelopes, which can ingest anthrax spores while grazing. Horses can also acquire anthrax by grazing, but incidence is lower. Dogs, cats, lions, and pigs can contract the disease by eating undercooked meat from infected animals. Anthrax spores have been isolated from the crops of sparrows, and birds of prey (e.g., vultures) have been implicated in the spread of anthrax spores through fecal contamination. Amphibians, reptiles, and fish are not directly susceptible.

Incidence of anthrax in the United States is low, primarily due to effective control of the disease in animals. Areas of higher risk include Central and South America, Southern and Eastern Europe, Africa, Asia, the Caribbean, and the Middle East.

Anthrax infection in animals can be respiratory or intestinal. Clinical signs may include fever, respiratory difficulty, excitement followed by depression, incoordination, vomiting, diarrhea, bloody discharges, convulsions, and death.

Anthrax in humans is rare. Most cases develop in people whose occupations place them in close contact with livestock or the contaminated products of livestock such as wool, goatskin, and pelts. Direct human-to-human transmission of anthrax is extremely unlikely.

Three types of anthrax are seen in people: cutaneous (skin), intestinal, and inhalation. The incubation period for the disease is approximately 2 to 7 days.

In people, cutaneous anthrax accounts for about 95% of all natural infections and develops when *B. anthracis* enters the skin through existing cuts or abrasions. Without antibiotic treatment, the death rate from cutaneous anthrax is approximately 20%; if appropriately treated, death is rare.

Intestinal anthrax results from consumption of contaminated and undercooked meat. Affected individuals may experience nausea, inappetence, vomiting, and fever, followed by abdominal pain, blood in the vomitus, and severe diarrhea. Mortality is estimated at 25 to 75%. Human intestinal anthrax has not been reported in the United States during the 20<sup>th</sup> or 21<sup>st</sup> centuries.

Inhalational anthrax may initially present as a flu-like illness. A short period of improvement may follow, after which the patient rapidly deteriorates with high fever, respiratory distress, and shock. Fatalities approach 95% if not treated within the first 48 hours.

Standard bacteriologic culture of blood is the most widely available and useful diagnostic test. Biochemical and microbiologic tests can often provide a definitive diagnosis within 18 to 24 hours.

Infection can be prevented and treated with antibiotics. Because the course of the disease is rapid, prompt administration is essential. Effective antibiotics include ciprofloxacin, doxycycline, and amoxicillin.

Vaccination is effective at preventing infection in animals and people. Animal vaccines have not been approved for and should not be administered to humans. A vaccine is available for humans, but population-wide vaccination in the United States has not been recommended because risk has been considered to be low.

Use of *B. anthracis* as a biological weapon generally relies on aerosolization to cause inhalational anthrax. Aerosolization of infective doses of anthrax spores is not easily accomplished.

Decontamination protocols are situation-dependent and are based on anticipated aerosolization risk, spore survival, and environmental conditions.