Anthrax

Anthrax is a Class A Disease and a potential bioterrorist agent. Any case must be reported immediately to the state by calling the phone number listed on the website.

Anthrax is caused by toxins produced by *Bacillus anthracis*, a spore-forming bacteria. It is primarily a disease found in cows and sheep, but also can occur in humans via direct contact with spore-infected animals, animal products, or soil. The anthrax spore is very durable and can survive dormant in the soil for many years. When it is introduced into the lungs or a skin wound, it can germinate and produce toxins.

Most anthrax infections in humans are cutaneous, characterized by painless skin lesions. Inhalation anthrax, which occurs less frequently, has mild and nonspecific initial symptoms that include fever, malaise and mild cough or chest pain. If left untreated, inhalation anthrax can lead to respiratory distress, shock and death.

For centuries. anthrax has been known to cause illness. In 1830 in Louisiana, Dr. James Z. Ellison reported the first cases of anthrax in the United States. In his letter to the editor of the ***Western Journal of the Medical and Physical Sciences***, Dr. Ellison described anthrax with the following phrases: *"The disease begins with a small pimple surrounded with an areola either red or livid and a hardness in the cellular membrane under the integuments... The pimple in the centre shows a constant disposition to sphacelate, and forms a dark colored eschar; the swelling extends and increases, the pain becomes more acute and lancinating and eventually it is so excruciating, that it frequently destroys persons of robust constitution in five or six hours…".*

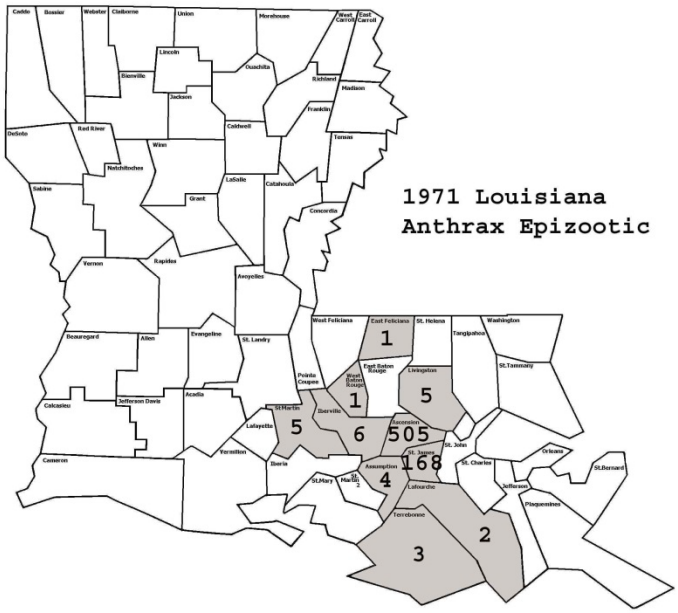
Anthrax can become a problem when cattle graze on open ranges. Historically, there have been several epizootics described in Louisiana (Sabine River in 1839, Ascension Parish 1940, Northern Louisiana in 1948, Mississippi Delta south of New Orleans in 1954, Monroe area in 1958, Ascension and St. James parishes in 1971). Some of these epizootics have been quite large, such as the 1958 Monroe outbreak when 1,439 animals died. The 1971 epizootics occurred in June and July. It affected 636 cattle and a few horses, pigs, mules, goats and dogs. Although the focus of the outbreak was Ascension and St. James parishes, there were also cases in the surrounding parishes. Death rates of 10% to 20% were observed in herds.

Anthrax seems to develop when the soil microenvironment becomes favorable. Soil moisture, temperature, pH, and nutritive contents are some of the factors leading to the propitious conditions. A dry period following high rainfall seems to be a contributing factor. The soil type seemed to play an important role in the disease distribution, with acid soils (Calhoun-Oliver types formed from loess type sediments over clay sediments) being the least favorable for anthrax.

Although hundreds of animals have died of anthrax in Louisiana, human cases have been rare. Anthrax in humans is an occupational hazard primarily of workers who process hides, wool, hair, bone and bone products; also of veterinarians, agriculture and wildlife workers who handle infected animals.

The last cases of anthrax in Louisiana were reported in 1971 (Figure 1).

Figure 1: Anthrax epizootic - Louisiana, 1971



Two veterinarians who were performing necropsies on infected animals contracted cutaneous anthrax but recovered fully after penicillin therapy.

Anthrax has been used as a bioterrorist agent in humans. In September and October 2001, letters containing weapons grade anthrax spores were sent through the U.S. Postal service triggering a massive reaction throughout all states. Louisiana was also affected by a huge wave of samples submitted for anthrax testing. By the end of 2001, 895 samples were examined. All were negative. In the following years, although there were many suspected samples tested, none were positive.