

Anthrax – What You Need to Know

Anthrax is a disease found in most areas of the world, and it has been reported throughout recorded history. It is an acute bacterial disease caused by a bacterium known as *Bacillus anthracis*. The source of infection is through exposure to a contaminated environment. Virtually all animals are susceptible to anthrax, but herbivores including cattle, sheep, goats and horses are especially susceptible. Omnivores such as pigs and humans are somewhat less susceptible, while carnivores such as dogs, cats, wolves and bears are relatively resistant. Birds are least susceptible.

Important information about anthrax

Anthrax has been reported in most Canadian provinces, including Alberta. It is a reportable disease under the federal *Health of Animals Act*, which requires that all cases be reported to the Canadian Food Inspection Agency (CFIA).

Anthrax in animals is almost always fatal, and it causes death very rapidly. Death loss can vary from a single animal to a scenario where large numbers of animals die in a very short period of time. Economic losses to producers can be significant.

The anthrax bacterium forms very hardy spores, which means the potential for infection can persist for many years after soil has become contaminated. Spores in soil are the source for outbreaks that are often separated by several years. CFIA treatment and control protocols are designed to deal with an immediate outbreak, minimize soil contamination and reduce the chance the disease will persist and reoccur in the future.

Where and when anthrax occurs

Anthrax is a sporadic disease that may not occur for many years, then suddenly reappear

in areas where it has been reported in past years. It may also appear in areas where there is no recorded occurrence. Anthrax is more common during the summer months, but it has been reported in every season, including winter, in Canada.

There are environmental factors that increase the risk of occurrence. These include any disruption of soil from tillage or excavation, flooding or drought, especially after flooding. Once anthrax has been seen in any area, the risk in subsequent years is higher because of increased environmental contamination with spores.

In Canada, anthrax cases have occurred from Alberta to western Ontario, with repeated outbreaks in the Mackenzie Bison Range in the Northwest Territories and in Wood Buffalo National Park in northern Alberta.

Anthrax in animals is almost always fatal

Anthrax can affect humans

Humans can become infected with one of three forms of the disease, which are cutaneous, gastrointestinal and pulmonary. Skin infections are most common and are contracted by handling infected animal tissues without protective barriers to prevent the organism from entering broken skin. These infections are rarely fatal if properly treated with antibiotics.

Consumption of contaminated meat can cause gastrointestinal infections. Modern meat inspection and food safety processes have made this type of anthrax very uncommon, but there are reports of infections arising from carcasses slaughtered for personal use.

Inhalation of large quantities of anthrax spores can cause severe, often fatal respiratory infections. Handling of infected animal carcasses generally does not pose a risk of pulmonary anthrax because there are insufficient airborne spores around the carcass to cause infection. Pulmonary anthrax is seen in situations where

there are large numbers of air-borne spores, for example in tanneries where spores from multiple infected carcasses may be concentrated and thrown into the air by hide drying and tanning processes.

Signs of anthrax in animals

In ruminants:

- most commonly found dead with no premonitory signs
- staggering, trembling and difficulty breathing may be observed a few hours before collapse, terminal convulsions and death
- occasionally see an acute form with signs for up to two days before death; including fever and excitement progressing to depression, stupor, disorientation, tremors, difficulty breathing, abortion, congested mucous membranes and bloody discharge from orifices
- a chronic form with subcutaneous swellings of the neck, thorax and shoulders is uncommon

In horses:

- a sudden, rapid death is less common than in ruminants
- can see fever, chills, loss of appetite, depression and severe colic with bloody diarrhea for up to a week before death
- subcutaneous swellings in the neck, sternum, lower abdomen and inguinal region are common

In pigs:

- inflammatory swelling of the face and throat is quite characteristic
- may also be found dead or with signs similar to ruminants and horses

Contact information

If anthrax is suspected, your farm veterinarian is the first person to contact. Because anthrax is a reportable disease in Canada, an official with the CFIA will be contacted by your local veterinarian to lead an investigation, and direct treatment and control protocols. Provincial animal health authorities may also be contacted to assist with outbreaks of this disease.

Additional information can be obtained from your CFIA district veterinarian or at: <http://www.inspection.gc.ca/english/anima/disemala/anthchar/anthchare.shtml>

Information is also available from Alberta Agriculture and Rural Development's Ag-Info Centre by calling 310-FARM (3276).

For additional information, please contact the Animal Health Branch and Animal Health Division - 780-427-6535.