



Fact Sheet

Botulism: Avian Botulism and Human Health Implications

What is Botulism?

Botulism is a rare but serious paralytic illness caused by a neurotoxin that is produced by the oxygen-intolerant bacterium *Clostridium botulinum*. There are three main kinds of botulism. Foodborne botulism is caused by eating foods that contain the botulinum toxin. Wound botulism is caused by toxin produced from a wound infected with *Clostridium botulinum*. Infant botulism is caused by consuming the spores of the botulinum bacterium which then grow in the intestines and release toxin.

The bacterium is commonly found in soil, forming spores which allow them to survive until they are exposed to favorable conditions that can support their growth. There are 7 types of botulism designated by letters A through G; however, only A, B, E, and F cause human illness.

Symptoms of human botulism can include double vision, blurred vision, drooping eyelids, slurred speech, difficulty swallowing, dry mouth, and muscle weakness. Infants with botulism display signs of lethargy, poor feeding, poor muscle tone, and have a weak cry. If untreated, paralysis of the arms, legs, trunk, and respiratory muscles can occur.

What is Avian Botulism?

Avian botulism is a paralytic, often fatal disease for exposed birds. It is caused by the same bacterium that causes human illness but type C botulism primarily affects wild birds, cattle, horses, and poultry. Among the other types of naturally occurring botulinum neurotoxins, sporadic die-offs among fish-eating birds, such as common loons and gulls, have been caused by type E toxin. Type A botulinum toxin has also caused disease in birds, most frequently domestic chickens. Types B, D, F, and G are not known to cause avian botulism in North America.

Human Health Implications of Avian Botulism

Avian botulism, identified as type C toxin, is a wildlife health issue and poses extremely little or no threat to humans. There have been no adult cases of Type C botulism reported. Human cases of botulism are associated with toxin types A, B, E, F and are most often either foodborne, infant, or wound-associated. In the United States there are approximately 145 cases from these human associated toxins reported annually (of which 15% are foodborne, 65% are infant, and 20% are wound).

Implications to National Parks

Spores of the type C strain of *C. botulinum* are widely distributed in wetland sediments; they can also be found in the tissues of many wetland inhabitants, including aquatic insects, mollusks, crustaceans, and many vertebrates, including healthy birds. Botulinum toxin is only produced after spores germinate. Type C botulism outbreaks occur mostly during the summer and fall months when temperatures are high. Conditions that increase the probability for toxin production include increased wetland sediment temperatures coupled with decreased dissolved oxygen. The presence of decaying organic matter and shallow water may increase the risk of type C botulism outbreaks.

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