

Fortunately, only a small percentage of people bitten by infected mosquitoes will become sick. In those who do develop symptoms, the illness is usually similar to the flu, and the infected person fully recovers in a couple of days. People who are mildly affected may have headache, drowsiness, and fever. Those with severe disease may have intense headache, high fever, nausea, muscle tenderness, shivering, and mental confusion. Although unlikely, convulsions, coma, and even death may follow. The prevention of mosquito-borne encephalitis can be achieved through effective mosquito control and personal protection against mosquito bites.

Brucellosis

Brucellosis is primarily a bacterial illness of livestock, but it can be spread to people who work with animals or those who eat unpasteurized dairy products, especially cheese. In humans, the disease is characterized by malaise and recurring fevers. Human illness can be prevented by pasteurization of all dairy products, but ultimate control is dependent on the eradication of the disease in animals.

Roundworms

Human disease from the larvae of canine or feline roundworms (*Toxocara canis* and *Toxocara cati*) is known as visceral larva migrans (VLM), ocular larva migrans (OLM), or collectively as toxocariasis. Most cases are a result of a person eating dirt contaminated with animal feces. Symptoms in humans are frequently mild enough to go unnoticed and apparently produce no permanent damage. Common symptoms include abdominal pain, headache, weakness, lethargy, and wheezing; severe cases may be fatal.

All cases of toxocariasis come from pets. In the United States, the majority is associated with dogs, particularly puppies. Proper prevention includes public education and treatment to ensure that puppies are dewormed before they begin shedding roundworm eggs in their feces.

The common roundworm of raccoons can also infect man and other animals. This parasite, called *Baylisascaris procyonis*, has been implicated in cases of serious eye disease or central nervous system disorders in humans and can cause death. Thus, contact with raccoons or exposure to their feces should be avoided. Hunters, trappers, and wildlife rehabilitators should wash their hands after handling raccoons. Children should not play in areas that are contaminated with raccoon feces. Wild raccoons should be discouraged from inhabiting buildings or other areas used by humans.

Salmonellosis

Salmonellosis is a bacterial infection of the intestines characterized by sudden onset of fever, headache, abdominal pain, diarrhea, and nausea. Human infection results from eating foods that are contaminated with *Salmonella* bacteria or by having contact with poultry, reptiles, or amphibians that are carrying the organism.

The public can help prevent salmonellosis by purchasing only inspected food products of animal origin and pasteurized milk and egg products. Thoroughly cook all food, especially poultry, egg, and meat dishes. Food handlers should practice good personal hygiene and store food properly. Additionally, wash hands after having any contact with poultry, reptiles, or amphibians. These animals should not be kept in households where children less than 5 years of age are present.

Anthrax

Anthrax is a serious infectious disease caused by the spore-forming bacteria *Bacillus anthracis*. It occurs naturally in animals in the southern and southwestern parts of Texas. There may be an increase in anthrax cases when periods of cool, wet weather are followed by weeks of hot, dry conditions.

Many different types of animals, as well as people, can get the disease. Deer and livestock normally get the disease by swallowing anthrax spores while grazing on contaminated pasture.

Signs of the illness in infected animals usually appear 3 to 7 days after the spores are swallowed. Animals may stagger, have difficulty breathing, tremble, and finally collapse and die within two days. It is usually hopeless to treat animals that are sick. Sometimes, if the disease is diagnosed soon after infection, antibiotics and proper nursing care may help. A vaccine for livestock is commonly used in areas that have anthrax, but the vaccine must be used before the animal is exposed to the bacteria.

Handling or eating a dead or sick animal infected with anthrax can transmit anthrax to humans and other animals. Signs and symptoms of the disease in humans can vary greatly; the skin, lungs, or intestinal tract may be involved. Prompt medical attention and antibiotic treatment can prevent severe complications. Vaccines are only available for people under limited conditions, such as being in the military.



Zoonoses



Texas Department of Health
Zoonosis Control Division

Zoonoses

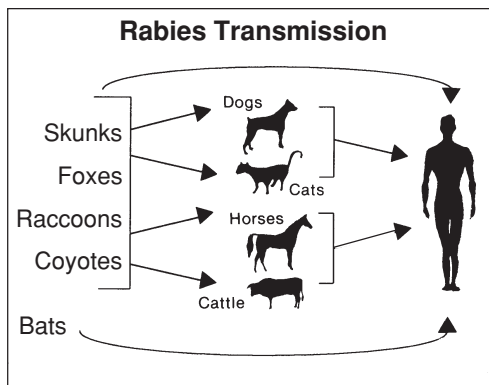
Zoonoses are diseases transmitted from animals to humans. The Zoonosis Control Division of the Texas Department of Health promotes public health through the prevention and control of these diseases. Although there are numerous recognized zoonoses, the ones that will be covered in this pamphlet include:

- Rabies
- Animal Bites
- Lyme Borreliosis
- Rocky Mountain Spotted Fever
- Human Ehrlichiosis
- Murine Typhus
- Plague
- Mosquito-borne Encephalitis
- Brucellosis
- Roundworms
- Salmonellosis
- Anthrax

Rabies

Rabies is a viral infection of the nervous system that may affect almost any warm-blooded animal. This disease is present in many wild animals in Texas, especially skunks, bats, coyotes, raccoons, and foxes. Humans are usually exposed to rabies by direct contact (bites) with rabid wildlife or by contact with dogs or cats that have acquired the infection from rabid wildlife.

Although rabies is universally fatal, vaccination is highly effective in preventing it. Control of rabies depends on public awareness of the signs and hazards of the



disease; stringent enforcement of animal control regulations; immunization of dogs and cats; and avoidance of wild animals.

Animal Bites

Injuries to humans caused by animal bites are a significant public health problem in Texas; more people are affected by animal bites, especially dog bites, than by any other zoonotic disease. Serious injury, viral and bacterial infections, psychological trauma, and even death can be complications of animal bites.

The number of animal bites can be reduced if the public practices responsible pet ownership by controlling stray pets and local authorities enforce animal control laws and ordinances. Young children are especially vulnerable to animal bites and should be properly educated to avoid bites.

Lyme Borreliosis

Lyme borreliosis, or Lyme disease, is the most frequently reported tick-borne disease in the United States and in Texas. In humans, infection is initially characterized by flu-like symptoms and a circular rash, but it can ultimately result in chronic joint, heart, and nervous system problems.

Control of Lyme disease consists of avoiding tick bites, thorough self examinations followed by prompt removal of attached ticks when engaging in outdoor activities, and keeping pets free of ticks since domestic animals can be responsible for bringing arthropods into the home environment.

Rocky Mountain Spotted Fever

Rocky Mountain spotted fever is a serious rickettsial disease that is transmitted by

several different species of ticks. Humans usually contract the illness either from the bite of an infected tick or by crushing infected ticks between their fingers. The initial symptoms of Rocky Mountain spotted fever are flu-like headaches, fever, chills, and muscle aches. A rash often appears a few days later. This disease can be fatal, so prompt medical care is important.

People can protect themselves by avoiding tick bites and by keeping pets tick-free. Prompt removal of attached ticks, using tweezers, may prevent disease transmission.

Human Ehrlichiosis

Human ehrlichiosis, another rickettsial disease, is caused by *Ehrlichia chaffeensis*. This tick-borne disease is similar to Rocky Mountain spotted fever; symptoms may include fever, headache, joint pain, muscle aches, nausea, and vomiting. Prevention of human ehrlichiosis is the same as the prevention of the other tick-borne diseases.

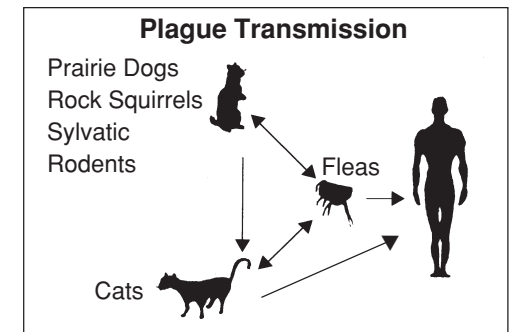
Murine Typhus

Murine, or flea-borne, typhus is also a rickettsial disease. Human disease occurs when a flea bite wound is contaminated with infected fecal material shed while a flea feeds. Symptoms include severe headache, fever, fatigue, muscle aches and, in about half of the cases, a rash. This disease is found in South Texas.

Prevention of murine typhus is maintained through an effective flea control program, followed by the elimination of rodents and exclusion of opossums from home and work environments. Pets should be regularly and routinely treated for fleas.

Plague

Plague, which can be found in rodent populations in West Texas, is a bacterial disease that is transmitted to humans by fleas or by direct contact with infected animals, such as cats. This dreaded disease is characterized by the sudden onset of fever and other flu-like symptoms and, in many cases, painful, swollen lymph nodes. If adequate treatment is not received, infection usually results in death. Avoidance of fleas and good flea control on pets are effective preventive measures.



Mosquito-borne Encephalitis

Encephalitis is an infection of the central nervous system that may be caused by one of several mosquito-borne encephalitis viruses (Eastern equine, Western equine, Venezuelan equine, St. Louis, California group, and West Nile). Signs in horses include fever, incoordination, restlessness, walking in circles, leaning on objects (head pressing), standing with legs spread wide or front legs crossed, facial paralysis (drooping lower lip), and the inability to swallow. The frequency of fatalities for the various viruses ranges from 25% to 90%; the Eastern equine encephalitis virus produces the most severe disease in horses. Vaccinations against Eastern, Western, and Venezuelan equine encephalitis and West Nile virus are available for horses.