



Outdoor Enthusiasts: Protect Yourself from Diseases!

The cooler weather that fall brings also brings many people outside to hike, camp, fish, and hunt, among other outdoor activities. However, billions of critters that can carry diseases will be out there too, warns the Texas Department of State Health Services (DSHS) Zoonosis Control Branch (ZCB). Outdoor activities bring a greater risk of exposure to diseases transmitted by animals, ticks, fleas, and mosquitoes.

Although ticks are most active in the warmer months of spring and summer, they are also active in the fall and can transmit a variety of diseases, including anaplasmosis, ehrlichiosis, Lyme disease, Rocky Mountain spotted fever (RMSF), tick-borne relapsing fever (TBRF) and tularemia. Clinical signs and symptoms of **anaplasmosis** and **ehrlichiosis** are non-specific and typically include fever, headache, muscle aches, and fatigue. **Lyme disease**, the most frequently diagnosed tick-borne illness in the United States, is not commonly acquired in Texas (Texas is considered a low incidence state for Lyme disease). Infection may cause skin lesions or rash, fever, fatigue, headache, muscle and joint aches, and, in some cases, if left untreated, severe damage to the joints, heart, and nervous system. **RMSF**, which is one of several related diseases known as spotted fever group rickettsioses, is typically characterized by fever and a measles-like rash and can cause serious illness and even death if not treated quickly. **TBRF** can cause recurring bouts of fever, headache, muscle and joint aches, and nausea. Signs and symptoms of **tularemia** can vary widely depending on the route of exposure, but typically they are non-specific and may include fever,

malaise, skin lesions, and swollen lymph nodes. Tularemia can also be transmitted directly through handling infected animals, particularly wild rabbits and rodents, or through exposure to mud or water containing the bacteria.

Plague is a bacterial disease common in the wild rodent and rabbit populations of West Texas and is transmitted to people by fleas or by direct contact with infected animals, such as prairie dogs, squirrels, rats, and mice. Signs and symptoms of this dreaded disease often include fever, malaise, and painful, swollen lymph nodes; more severe forms of the disease can affect the lungs (pneumonic plague) or spread in the bloodstream (septicemic plague). Without prompt treatment, plague can be fatal.

West Nile virus (WNV) is spread through the bite of infected mosquitoes and is most commonly transmitted to humans in the summer and early fall months. Although most people infected by WNV do not become ill, about 20% may develop a self-limiting febrile illness, and a very small percentage will develop a more severe infection of the nervous system, such as encephalitis. Encephalitis is inflammation of the brain and may be caused by any of several mosquito-borne viruses, among other causes. Those persons who develop the more severe forms of West Nile disease may have intense headache, high fever, nausea, weakness, and neurologic deficits, including altered consciousness and coma. In a small percentage of cases, WNV infections may be fatal, particularly in the elderly. Precautions to avoid mosquito bites should be taken any time mosquitoes are active.

Rodents can spread **hantavirus** infection to people. Infected rodents shed the virus in their droppings, urine, and saliva. When these excretions dry out, the virus can spread in the air on dust particles. "You can become

infected by inhaling dust that contains the virus," said Dr. Tom Sidwa, Manager of the DSHS ZCB. "Follow CDC guidelines when cleaning up after rodents, especially for heavy infestations in cabins, sheds, hunting blinds, or barns." Early signs and symptoms of hantavirus usually involve fever, fatigue, body aches, vomiting, and dry cough. The disease may rapidly lead to extreme difficulty with breathing, requiring hospitalization and respiratory support; about 1/3 of hantavirus infections result in death.

Hunters should be aware that deer can carry **anthrax**, a bacterium that can cause a severe, life-threatening disease in both humans and animals. Anthrax infection in humans usually involves infection of the skin. The typical skin lesion is itchy, painless and forms a coal-black scab several days after it appears. During the summer of 2019, a large outbreak of anthrax in western Texas killed many wild and domestic animals and resulted in one reported human infection. The person infected had handled a dead deer carcass without taking proper handling precautions, suffered a wound from an antler, and developed a cutaneous (skin) anthrax infection. Feral hogs can carry **brucellosis**, a bacterial disease that can cause a prolonged febrile, systemic illness in humans, and **trichinella** ("pork worm"), a nematode parasite that invades the intestines and muscles. Trichinella is transmitted through consumption of undercooked wild game, particularly feral pigs and bears.

Rabies is a viral infection of the nervous system that may affect almost any mammal. This disease is present in many wild animal populations in Texas, especially skunks, bats, raccoons, coyotes, and foxes. Humans usually are infected through a bite by a rabid animal. "It is impossible to tell by looking at an animal whether it is infected with the rabies virus, so avoid contact with any wild animals. Especially do not handle injured animals as they may

bite you in self-defense," warned Sidwa. "If you need assistance, contact a game warden, a park employee, or an animal control or law enforcement officer." If you are bitten or scratched by any animal, wild or domestic, contact your physician or local health department to discuss the need for preventive rabies treatment. Rabies is almost always fatal once signs and symptoms begin, but the disease can be prevented if treatment is initiated soon after exposure.

When engaged in outdoor activities, take the following precautions to minimize your chances of contracting these or other diseases transmitted by wildlife:

- Use an effective insect repellent (those containing DEET, picaridin, IR3535, oil of lemon eucalyptus, para-menthane-diol, and 2-undecanone provide longer lasting protection) and follow package directions carefully.
- Use flea and tick control products on your pet(s). Again, follow package directions carefully.
- Stay on trails and avoid areas of overgrown brush and tall grasses.
- Avoid camping or picnicking near rodent and prairie dog burrows.
- Wear protective clothing such as a hat, long-sleeved shirt, and long pants tucked into boots or socks. Wear light-colored clothes so that you may more easily see ticks that are on your body.
- Check your body thoroughly for ticks every few hours. Ticks are small, easy to miss, and will attach to any part of the body from head to toe, so look carefully. Check for ticks on your pet(s) as well.
- Do not touch dead animals you find or their remains, including antlers, bones, and hides.
- Wear latex-type gloves when dressing game.

- Wear eye protection when dressing game to prevent potentially infectious fluids or tissues from splashing into your eyes. Shooting glasses provide an acceptable level of eye protection in most cases.
- Avoid eating, drinking, using tobacco, or rubbing your eyes while dressing game.
- Wash your hands thoroughly with soap and water after handling game. If soap is not available, rinse thoroughly with water and then apply an alcohol-based hand sanitizer.
- Cook all game meats thoroughly. Do not give raw scraps to your pets.
- Follow CDC guidelines when cleaning up after rodents (<http://www.cdc.gov/rodents/cleaning/index.html>)

For more information, contact your DSHS Regional Zoonosis Control office (see <https://www.dshs.texas.gov/idcu/health/zoonosis/contact/>) or visit www.TexasZoonosis.org.