

What is Tularemia?

Francisella tularensis is an intercellular bacterial pathogen that causes the zoonotic disease tularemia and can affect a wide range of animals including small mammals, birds and humans. Hunters, hikers and people in rural settings are more likely to come in contact with infected rabbits or ticks that have fed on a diseased animal. The organism is spread to people from the insect bites; direct contact from skinning a wild rabbit or by preparing or eating improperly cooked game meat. Occurrence of the disease follows a bimodal cycle with higher numbers of humans infected in July due to ticks and in December due to the hunting season. Inhalation exposure can occur if large numbers of the organism are aerosolized in a confined space.

What are the clinical signs associated with tularemia?

In animals, the signs are often associated with tick infestation resulting in a high fever, weight loss and death. Sheep have been noted to abort and dogs have the ulceroglandular disease that is common in human tularemia. The organism incubates for 1 - 14 days in humans and symptoms vary with the site of entry. Most humans will present with a lymphadenitis and ulcers, if inoculated through direct contact. If infected meat was consumed, the oropharynx will be affected and gastrointestinal signs will surface.

How can infection with *Francisella tularensis* be diagnosed?

Serologic testing, with a four-fold rise in titer, is the standard method of identifying infection. Culture and inoculation of hamsters can also be performed, but poses a health risk for laboratory workers. Necropsy of animals will reveal massive organ involvement with necrosis of liver, spleen, and lymph nodes, and poses a significant health risk to the veterinarian.

How is tularemia treated?

The first step is removal of any ticks as soon as possible. The best way is to use tweezers to grab the tick as close to the skin as possible and pull it straight out. Do not squeeze the tick's body when removing it. Do not handle ticks with bare hands. Wash your hands after removing a tick. You may want to apply an antiseptic on the bite. Streptomycin or gentamycin given for 7 – 14 days is the drug of choice for humans. Tetracycline has been found to inhibit *Francisella tularensis* in sheep that have been diagnosed with tularemia abortion.

How can tularemia be prevented?

Tick and insect repellents should be used when walking in the outdoors. A thorough tick check of humans and their pets should be performed often and upon returning inside. All ticks should be removed from humans and dogs as soon as possible. Skinning wild rabbits should be performed in a well-ventilated area and protective gloves should be worn. *Francisella tularensis* is killed by heat, but not by freezing. Thorough cooking of rabbit and other game meat will render it safe for consumption, but placing raw meat in the freezer will maintain the organisms' viability. Also in recent years tularemia transmission has occurred during landscaping work or lawn mowing over or around dead animals. It is best to remove dead animals before mowing, roto-tilling, bailing or other landscaping activity.