

## **Tularemia**

Agent: *Francisella tularensis* (bacteria)

Mode of Transmission: Transmission in the United States is primarily by the bite of an infected tick such as the American dog tick, the lone star tick, or occasionally by the bite of an infected deer fly. Hunters can contract the disease while cleaning infected game or when eating infected meat that is raw or undercooked. Humans may also become infected by drinking water contaminated by infected animals, by contaminating their eyes with infected material, or by breathing *F. tularensis* spores from the dried carcasses or pelts of animals that died from tularemia. Because *F. tularensis* is highly infectious when grown in culture, laboratorians who work with the bacteria may become infected with the bacteria through wound contamination, or inhalation of aerosolized material. The bacteria are not transmitted directly from person to person.

Signs/Symptoms: Symptoms vary depending on the mode of transmission, but usually include sudden onset of high fever, chills, fatigue, general body aches, headache and nausea. An ulcer may occur at the site of infectious bites or wounds, and proximate lymph nodes may become swollen and painful. Ingestion may result in painful pharyngitis, abdominal pain, diarrhea and vomiting. Pulmonary infection results in pneumonia and requires prompt identification and treatment to prevent development of life-threatening illness.

Prevention: Preventive measures include minimizing bites by avoiding areas infested by ticks or deer flies, and avoiding untreated water in areas where tularemia is prevalent among wild animals. Impervious protective gloves should be used when skinning rabbits and other wild game. Utensils used for preparing meat from game should not be used to prepare other food items. Undercooked meat should not be consumed.

Other Important Information: Wild animals are the reservoir for *F. tularensis* and rabbits, hares, and rodents are especially susceptible to infection. Tularemia is classified as a potential bioweapon because its spores are relatively easy to disseminate as a breathable aerosol or as a food and water contaminant.

In 2011, six cases of tularemia were reported in Virginia residents. This was a substantial increase in incidence from the single case that was identified in 2010, and the five-year average of 1.0 case per year. Among the six cases in 2011, two occurred in children in the 1-9 year age group, and were thought to have been acquired through tick bites; two cases were seen in adults over age 50 that were thought to have been infected through wound contamination. One individual received a cut on the hand while working in a plant nursery, and the other received a cut while processing a recently killed rabbit. The two remaining cases occurred in adults aged between 30 and 59 years, who were thought to have been infected by inhalation of spores during lawn mowing activities. The majority of the tularemia cases in 2011 (67%) occurred in males. Additionally, most cases were reported from the eastern region (67%), with one tick-borne case reported from the central region and one wound contamination case seen in a resident of the southwestern region who became infected while working in another state.