

Tularemia

2006 Case Total 3
2005 Case Total 20

2006 Rate 0.09 per 100,000
2005 Rate 0.58 per 100,000

In 2006, three cases of tularemia were reported to the OSDH CDD. This represents an eighty-five percent decrease from 2005 and is likely due to the severe drought conditions that the state experienced in 2006, as tick vector populations are diminished during periods of high temperature and low rainfall. Cases were reported in June through August. During the past ten years, (1997-2006), the average number of cases reported was 10 cases per year. Tularemia is an immediately notifiable condition and is considered a bioterrorism agent. However, tularemia is endemic in Oklahoma, and CDD conducts an immediate investigation to determine the source of exposure. Surveillance activities and case investigations of tularemia are important to better target prevention messages for tick bite prevention and safe handling of animals. This article summarizes the epidemiologic, clinical, and laboratory information from the investigation of Oklahoma's three cases.

Case 1: Cherokee County Ulceroglandular Case

During July 2006, OSDH CDD was notified of a 34 year-old American-Indian/Alaskan Native female from Cherokee County who was hospitalized for 2 days with fever (102.7 degrees Fahrenheit), abdominal cramps, adenopathy of the groin, chest pain, chills, diarrhea, dyspnea, fatigue, headache, loss of appetite, malaise, photophobia, sore throat, vomiting, weakness, weight loss, blurred vision, and a necrotic lymph node. Lab results confirmed *Francisella tularensis* from positive EIA/ELISA serology titer of greater than or equal to 1:160. The case could not recall a tick bite although reported exposure to a tick infested area where a tick bite was possible. The case participated in hunting. There was no previous history of traveling out of state or to other areas of Oklahoma, which indicated exposure likely occurred within her county of residence.

Case 2: Oklahoma County Ulceroglandular Case

During August 2006, a 20 year-old white male from Oklahoma County was evaluated as an outpatient complaining of a rash, adenopathy, and an ulcer on his left finger. Wound exudate was collected and culture results confirmed *Francisella tularensis*. Epidemiologic investigation revealed the case was bitten by a cat prior to the development of the ulcer at the site of the bite.

Case 3: Garvin County Typhoidal Case

During June 2006, a 60 year-old white male from Garvin County was hospitalized with symptoms of fever (103.8 degrees Fahrenheit), abdominal cramps, chills, cough, diarrhea, dyspnea, fatigue, myalgia, vomiting, and sepsis. *Francisella tularensis* was isolated from a blood specimen. Exposure history collected during investigation indicated the case spent a lot of time outdoors with exposure to tick

infested areas and a history of multiple tick bites. The case did not have a history of traveling out of state or to other areas of Oklahoma, which indicated exposure likely occurred within her county of residence.

Symptoms of tularemia can present in a variety of clinical forms. Persons can experience an illness characterized by an indolent ulcer at the site of introduction of the organism along with swelling of the regional lymph nodes (ulceroglandular). Other persons may present with no apparent ulcer, but only with one or more enlarged and painful lymph nodes (glandular). Oropharyngeal symptoms will occur if a person ingests the organism in contaminated food or water resulting in a painful pharyngitis, abdominal pain, diarrhea and vomiting (oropharyngeal). Inhalation of the organism will result in a pneumonic involvement or a primary septicemic syndrome (typhoidal). Oculoglandular disease is characterized by a painful purulent conjunctivitis with regional lymphadenitis.¹ Clinical presentation is affected by the route of exposure. Common reservoirs for *Francisella tularensis* include wild and domestic animals and hard ticks, the dog tick and the lone star tick. Transmission can occur through a bite of an infected tick or animal, handling infected animals, drinking contaminated water, or inhaling dust from contaminated soil. There is no person-to-person transmission.

Since tularemia has a broad clinical spectrum and may be overlooked in the differential diagnosis of patients with suspected infectious diseases, tularemia should be considered in the differential diagnosis of any patient in Oklahoma who has unexplained febrile illness and exposure to ticks, biting flies, or animal tissue, particularly rabbits.

Reference

1. Heymann, David L., *Control of Communicable Disease Manual* 18th ed. American Public Health Association; 2004.

Reported Number of Tularemia Cases by Year, Oklahoma, 1997-2006

