**TULAREMIA**

Tularemia is a disease of animals and humans caused by the bacterium *Francisella tularensis*. Rabbits, hares, and rodents are especially susceptible and often die in large numbers during animal outbreaks. People can become infected with tularemia bacteria through several routes; the signs and symptoms vary depending on the route of infection. Please visit the ISDH tularemia page for more information ([https://www.in.gov/isdh/28082.htm](https://www.in.gov/isdh/28082.htm)).

**TRANSMISSION**

The bacterium that causes tularemia can enter the body through the skin, eyes, mouth, or lungs. In the US, the most common routes of infection are:

- Tick and deer fly bites
- Handling infected animals or animal tissues
- Breathing contaminated air or dust

In Indiana, the American dog tick (*Dermacentor variabilis*), and the Lone Star tick (*Amblyomma americanum*) can transmit tularemia bacteria. In the western US, the Rocky Mountain wood tick (*Dermacentor andersoni*) and deer fly (*Chrysops spp.*) can also transmit the bacteria.

People can become infected with tularemia bacteria by having contact with infected animals or handling infected animal tissue. This can occur when hunting or skinning infected rabbits, muskrats, prairie dogs, and other rodents. Domestic cats are susceptible to tularemia and may transmit the bacteria to humans through bites or scratches.

People can become infected by breathing air or dust that is contaminated with tularemia bacteria. This can occur during farming or landscaping activities, especially when tractors or lawn mowers run over infected animals or carcasses.
SIGNS AND SYMPTOMS

The signs and symptoms of tularemia can vary depending on how the bacteria entered the body. All forms of tularemia are accompanied by fever. Common forms of tularemia include:

- **Ulceroglandular**: This is the most common form of tularemia. It usually occurs following a tick or deer fly bite or after handling infected animal tissues. A skin wound called an ulcer appears at the site of infection, followed by swelling of nearby lymph nodes, usually in the armpits or groin.
- **Glandular**: This form of tularemia is similar to ulceroglandular tularemia, but without an ulcer. It usually occurs following a tick or deer fly bite or after handling infected animal tissues.
- **Oculoglandular**: This form of tularemia occurs when the bacterium enters the eye, which may occur when a person wipes their eyes immediately after butchering an infected animal. Symptoms include irritation of the eye and swelling of the lymph nodes in front of the ear.
- **Oropharyngeal**: This form of tularemia results from eating or drinking contaminated food or water. Symptoms include sore throat, ulcers in the mouth, tonsillitis, and swelling of the lymph nodes in the neck.
- **Pneumonic**: This is the most serious form of tularemia. Symptoms include cough, chest pain, and difficulty breathing. This form results from breathing contaminated air or dust. It can also occur when other forms of tularemia are left untreated and the bacteria spread through the bloodstream to the lungs.
- **Typhoidal**: This form of tularemia does not affect any one specific part of the body and may be accompanied by one or more of the signs and symptoms described above.

DIAGNOSIS

Diagnosis of tularemia is based upon the patient’s signs and symptoms, a history of possible exposure (e.g., deer fly or tick bite, contact with animals or animal tissues, breathing potentially contaminated air or dust) and appropriate laboratory testing. Early recognition of symptoms is important for prompt diagnosis and treatment. If you think that you have tularemia, contact your health care provider.

People who have removed an attached tick sometimes wonder if they should have it tested for tick-borne diseases. Although some laboratories offer this testing, ISDH does not recommend it. If the tick tests positive, it does not necessarily mean that you have been infected; if the tick tests negative, it may provide a false sense of security because you may have been unknowingly bitten by a different tick that was infected.

TREATMENT

Patients treated with appropriate antibiotics in the early stages of tularemia usually recover completely.
PREVENTION

The best way to prevent tularemia is to avoid exposure to the bacterium. You can take the following steps to limit your exposure:

- Prevent deer fly and tick bites. Please see our tick prevention page (https://www.in.gov/isdh/20491.htm) for more information.
- Wear gloves when handling, hunting, trapping, or skinning animals such as rabbits, muskrats, prairie dogs, and other rodents.
- Cook game meat thoroughly before eating, especially rabbits, muskrats, prairie dogs, and other rodents.
- Avoid running over sick or dead animals with a lawnmower.
- Using a mask while mowing or landscaping may reduce your risk of breathing contaminated air or dust, but this has not been studied.
- Do not drink untreated water.

For more information about tularemia, please visit the CDC tularemia page (https://www.cdc.gov/tularemia/index.html).

STATISTICS

Tularemia is rare in Indiana. Twelve cases were reported from 2013–2017. For more information, please visit our annual report pages (https://www.in.gov/isdh/20667.htm).

National statistics for tularemia can be found at the CDC Tularemia Statistics webpage (https://www.cdc.gov/tularemia/statistics/index.html).

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