

Tularemia in Cats-Causes, Symptoms & Treatment

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What is tularemia?

Also known as *rabbit fever*, tularemia is a rare bacterial infection caused by *Francisella tularensis*. It is of particular importance because it is a zoonotic disease, which means it can be it can spread to people. It also has potential to be used as a biological weapon.

The bacteria can survive for long periods of time in the environment, particularly in warm, moist conditions. It is an intracellular bacteria, predominantly living within the macrophages (a type of white blood cell).

How do cats become infected?

The disease can infect more than 100 species of mammal and is widespread through the rabbit, hare, and rodent population. Infection can also occur in birds, amphibians, fish, and reptiles. Cats (and humans) can pick up the disease the following ways:

- Eating infected animals, usually rabbits or rodents
- Inhaling the bacteria in contaminated soil or via infected animals
- Drinking contaminated water
- Tick, biting-fly, flea or mosquito bite, intermediate hosts feed on an infected animal, during which time they ingest the bacteria, the next time the insect feeds, the bacteria enters the new host

The bacteria can survive for weeks or months in the environment. In the United States, the most common tick vectors include the Lone Star Tick, American Dog Tick and the Rocky Mountain Wood Tick. Tularemia is most prevalent in the warmer months, between April and September. Kittens are usually sicker than healthy adults.

The disease occurs in the Northern Hemisphere which includes the United States, Europe, and Asia.

There are three strains of this bacteria. A, B and C.

- Type A (*F tularensis tularensis*) – The most virulent strain, can be found in North America and has recently been found in arthropods in Northern Europe. This strain typically infects wild and domesticated mammals.
- Type B (*F tularensis holarctica*) – Produces milder symptoms. Can be found in the Northern Hemisphere, including Continental Europe, North America and parts of Asia. It occurs in water animals.
- Type C (*F novicida*) – Has low virulence and is much less common than A and B.

What does tularemia do to infected animals?

- Ulceroglandular tularemia – This is the most prevalent form of the disease and is acquired by direct contact with an infected animal or vector-borne.
- Glandular tularemia – Similar to ulceroglandular tularemia, however, there is no ulcer present.
- Oculoglandular tularemia – This is a form of ulceroglandular tularemia, only the conjunctiva is affected.
- Oropharyngeal tularemia – Eating or drinking contaminated food or water or inhaling the organism can

cause this form of tularemia.

- Typhoidal tularemia – The systemic form of tularemia without an obvious route of exposure. Micro-abrasions on the skin or via inhalation could explain how exposure occurred.
- Pneumonic tularemia (respiratory) – This form is rare but the most severe and is acquired via inhaling the organism or when the organism spreads from other infected sites within the cat's body.

Symptoms:

The incubation period of tularemia is between 1-10 days. The severity of the disease varies according to the route of exposure and the strain. Some infected cats will remain subclinical. The most common first symptom to appear is a sudden onset high fever, other symptoms may include:

- Respiratory infection
- Lethargy
- [Loss of appetite](#)

In addition, symptoms can vary depending on the type of tularemia your cat has.

- **Ulceroglandular tularemia** – An inflamed papule develops at the site of exposure, over time this ulcerates, lymph nodes close to the site become swollen and painful.
- **Glandular tularemia** – Swollen lymph nodes close to the site of inoculation.
- **Oculoglandular tularemia** – Purulent conjunctivitis, most often in one eye with enlarged lymph nodes.
- **Oropharyngeal tularemia** – Ulcers on the tonsils, [stomatitis](#) (inflamed and sore mouth), swelling of localised lymph nodes, vomiting, and diarrhea.
- **Typhoidal tularemia** – Symptoms of typhoidal tularemia can be a combination of generalised symptoms such as fever, anorexia, and lethargy.
- **Pneumonic (respiratory) tularemia** – Coughing, difficulty breathing.

As the disease progresses, septicemia, jaundice, enlarged liver and/or spleen. Possible complications include kidney failure, meningitis, sepsis, hepatitis, disseminated intravascular coagulation and acute respiratory distress.

Diagnosis:

Your veterinarian will perform a physical examination of your cat and obtain a medical history from you. He will want to some tests, which may include:

- Biochemical profile and complete blood count which may reveal [elevated liver enzymes](#) if there is liver involvement.
- Culture and identification of the bacteria from tissue samples such as lymph nodes, liver or spleen, blood, exudates ulcers.
- Serology to look for the presence of antibodies in the blood serum. The result may be negative if your cat is tested early as it can take some time for antibodies to develop.
- The polymerase chain reaction (PCR) test to detect minute amounts of DNA or RNA which can identify the bacteria when the above tests are inconclusive.

Depending on local regulations, it may be mandatory to report tularemia to the appropriate authorities.

Treatment:

Antibiotics are used to treat tularemia in cats. The course lasts for 14 days and during this period your cat must

be in isolation to avoid spreading the infection. Medical personnel and pet owners will need to take extra precautions while caring for a cat who has tularemia.

Supportive care such as fluids to treat dehydration and nutritional support.

How can cats pass on tularemia to humans?

Transmission can occur by contact with respiratory secretions, bites, and scratches, infected cats can also indirectly pass on the disease via a tick, flea or mosquito.

How can you prevent tularemia:

At the moment there is no vaccine for tularemia, therefore prevention is better than cure.

- Avoid letting your cat outdoors, especially in high-risk areas.
- If he does go outside, always use either a tick collar or a tick prevention product.
- Always check your cat for ticks if he has been outside, start at the head and work your way down to the tail.
- Make sure his flea treatment is up to date.
- Avoid letting your cat hunt.
- Avoid handling dead or dying animals. If you do need to dispose of one, wear insect repellent to avoid tick or flea bites and move the animal with a long shovel. Wash clothes immediately afterward.
- Don't keep containers of water lying around your property to reduce mosquito numbers.
- Always wash your hands after touching any animal.

Credits:

Rabbit image courtesy of [Robert Allen](#).