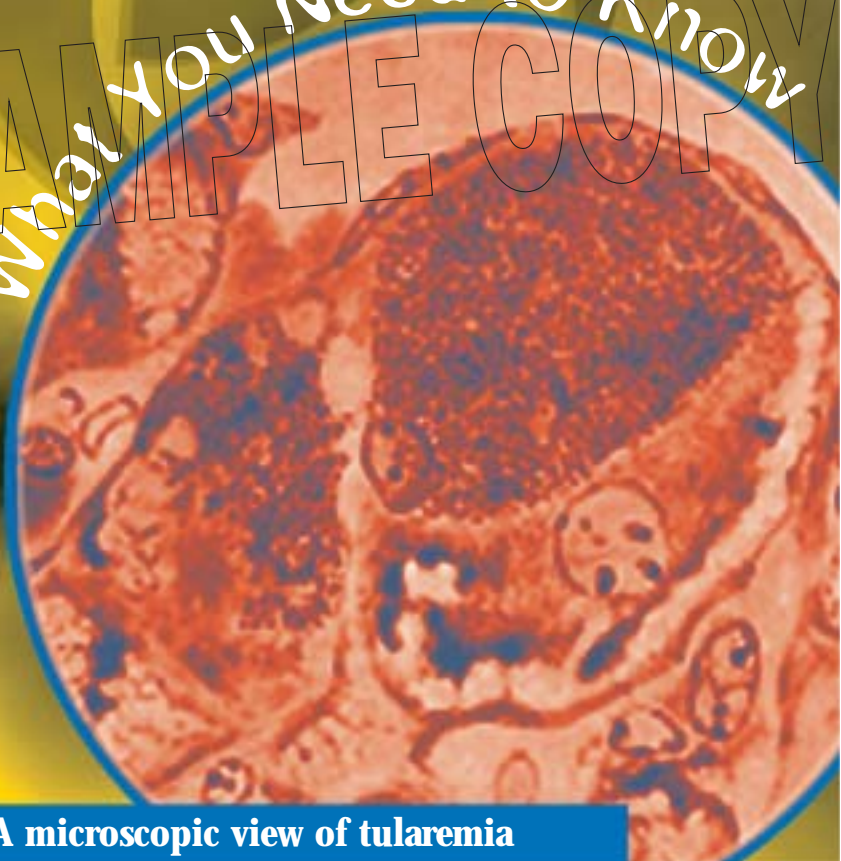


# Biothreat: Tularemia

What You Need to Know

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A microscopic view of tularemia



# Diseases as Weapons

Many diseases could be used as weapons, but most are hard to obtain, preserve, and spread. Terrorists first have to buy or steal a sample of the disease. This alone can be difficult and very expensive.

Terrorists must protect themselves from the disease, which can require complex, expensive equipment.

Changing a test tube sample of a disease into a form that can be spread easily is hard to do. Terrorists need large amounts of the disease to hurt many people.

A laboratory version of a disease is usually fragile. Outside of a test tube, it would die quickly. For a disease to be spread, it has to be “weaponized,” which is a complicated scientific task.



## If You Have Symptoms

Any time you have symptoms like those of early tularemia, you should see a doctor. Whether you have ordinary bronchitis, mono, or even tularemia, your doctor can offer treatment.

Early symptoms of tularemia caused either naturally or by terrorism may include:

- Sore, swollen insect bites.
- Swollen glands, especially in the throat.
- Fever and lack of energy.
- Sore throat, cough, or wheezing breath.
- Severe abdominal pain, vomiting, or diarrhea.



**Treatment**

**“Antibiotic treatment reduces death rates from 15-60% down to less than 2%.”**

Known forms of tularemia are curable with the proper antibiotics.

In a contained, small outbreak of the disease, patients would receive injected or intravenous antibiotics for about 10 days. This type of treatment reduces death rates from 15-60% down to less than 2%.

In a widespread outbreak of tularemia, most patients would be treated with oral antibiotics for 14 days. People believed to have been exposed would be treated whether or not they showed any symptoms.

# Natural Spread of the Disease

Tularemia is caused by the bacterium *Francisella tularensis*. There are two types of the bacteria, A and B. Type A is more common in North America, and type B is found in Europe and Asia. Type A is more deadly than type B.

Tularemia is found in nature in small animals like mice and rabbits. The bacteria can live for weeks in cold, damp environments like ponds, soil, hay, or dead animals. Humans may get tularemia in several ways:

- Through a mosquito, tick, or fly bite
- By handling infected, dead animals or their blood
- By directly contacting, eating, or drinking contaminated soil, water, or food
- By breathing in aerosols (mists) containing the bacteria

It is rare for a human to get tularemia through any natural route.



## Types of Tularemia

Seven types of tularemia may appear in humans. The disease types are identified by the part of the body they affect or the types of symptoms they cause.

### Ulceroglandular, Oculoglandular and Glandular Tularemia

Ulceroglandular, oculoglandular, and glandular tularemia come from handling contaminated dead animals or from an insect bite. People with these types of the disease have swollen glands.

### Oropharyngeal Tularemia

A person gets an oropharyngeal tularemia infection by eating or drinking contaminated food or water or by breathing in contaminated droplets. Symptoms include sores and swelling in the throat.

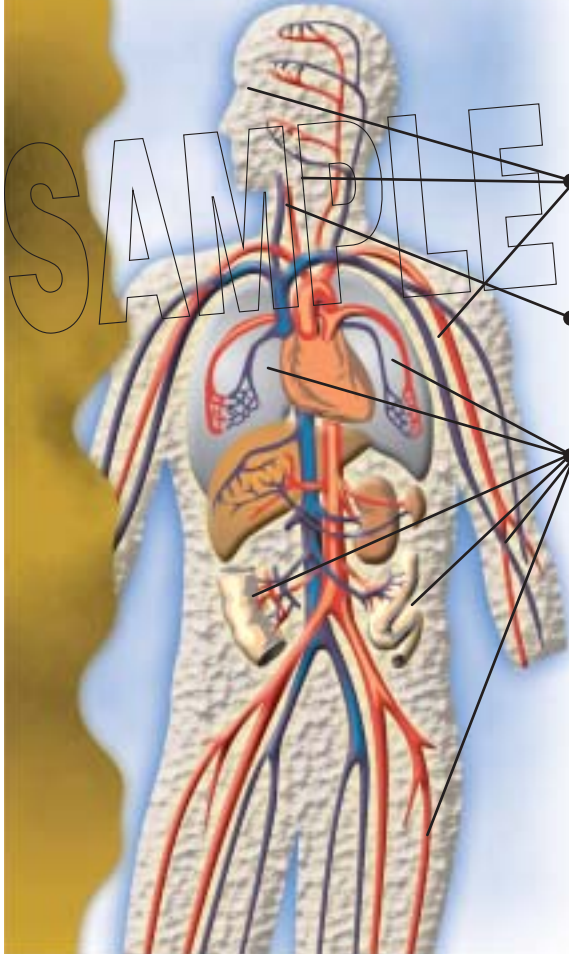
### Pneumonic, Typhoidal, and Septic Tularemia

Pneumonic, typhoidal, and septic tularemia are the most deadly types of the disease. Someone may get one of these types of the disease by eating or drinking contaminated food or water, by breathing in contaminated droplets, or by breathing in an aerosol (mist) form of the bacteria. These probably would be the types of the disease that terrorism victims would get.

The pneumonic infection settles in the lungs. The typhoidal infection settles in the intestines (gut). Septic infection means that the tularemia is spread throughout the blood.

Symptoms of typhoidal and septic tularemia include fever, vomiting, severe diarrhea, and abdominal (belly) pain. Septic tularemia may progress into either internal bleeding or coagulating (thickening) of the blood, inability to breathe, shock, and organ failure.

Pneumonic tularemia typically begins with fever and lack of energy, along with inflammation of the throat, lungs, and/or lymph nodes. If left untreated, it progresses to pneumonia.



## A Terrorist Attack

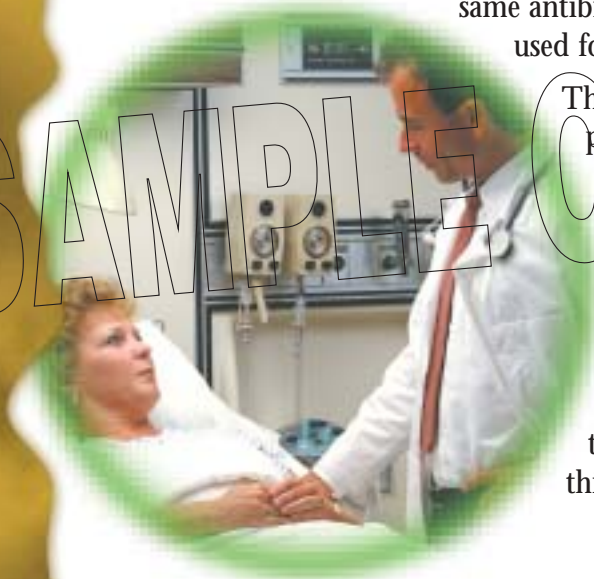
If terrorists wanted to use tularemia as a weapon, they would probably change it into an aerosol (mist or spray) form. Victims would begin to develop throat or lung infections within a few days.

At first, doctors probably would not recognize the infections as tularemia. When many more people than usual appeared in clinics with the same kinds of illnesses, a pattern would appear. The public health system would be alerted that something unusual had happened.

In the mean time, some infected people might die. Others might be treated for some other illness, but treated with the same antibiotics that would be used for tularemia anyway.

The most frightening possibility is that terrorists would have a form of weaponized tularemia that could resist antibiotics.

No one knows if terrorists could have this technology.



**“No one knows if terrorists have the technology to develop tularemia that can resist antibiotics.”**

# Is Tularemia a Serious Threat?

Tularemia is a dangerous disease and could be a cause for real concern. The bacterium that causes tularemia is one of the most infectious bacteria known. However, tularemia cannot be spread from person to person.

The number of people who might die of a tularemia infection would vary depending on how they got the disease and how early they received treatment.

Without treatment, the death rate might be from 15 to 60 people out of every 100 infected.

In the 1950s and 60s several countries, including the U.S., developed weapons using tularemia. The weapons were supposed to be destroyed in the 1970s. The former Soviet Union continued to work on types of tularemia that would resist antibiotics until the early 1990s. It is not known if those weapons were destroyed or if other countries could have obtained some of them.

A vaccine for tularemia does exist, but large stocks of the vaccine are not yet available.

Tularemia can be cured with antibiotics. With the proper treatment, only about 2 out of every 100 infected people die.



**“The bacterium that causes tularemia is one of the most infectious bacteria known.”**

## Keep in Mind

Although tularemia is highly infectious, it cannot be spread from person to person. It can lead to death, but common antibiotics can cure it if treatment begins early. See a doctor if you have any reason to believe you have been infected or if you have any symptoms like those of tularemia.

### **For More Information:**

#### **Online Terrorism Resource Site**

[www.syndistar.com/terrorism](http://www.syndistar.com/terrorism)

#### **Centers for Disease Control and Prevention (CDC)**

1-800-311-3435 [www.cdc.gov](http://www.cdc.gov)

#### **U.S. Department of Health and Human Services (DHHS)**

1-877-696-6775 [www.os.dhhs.gov](http://www.os.dhhs.gov)

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