




	Question	Answer
1.	Is tularemia contagious between humans?	No. Tularemia is not directly transmitted between humans.
2.	How do humans “catch” tularemia?	<p>A person can easily become infected with the tularemia germ by</p> <ol style="list-style-type: none"> Drinking or swimming in contaminated water, eating contaminated food (such as rabbit), or breathing in dust from contaminated soil, grain or hay. Receiving an insect bite from flies, ticks, or mosquitoes that carry the germ, Touching carcasses of infected rabbits, beavers, muskrats and other contaminated animals, or Breathing in air containing tularemia germs, such as in a bioterrorism air attack, or laboratories where the tularemia germ is splashed or splattered into the air.
3.	<p>What are the hallmarks of infection with the tularemia germ?</p>  <p>Thumb with skin ulcer of tularemia (1964)</p>	<p>Human infection with tularemia shows up two main ways depending on how the germ first enters the body:</p> <ol style="list-style-type: none"> <u>Fever, skin ulcer, and swollen/painful glands</u> (75 percent of infected persons will have this kind of tularemia infection), or (<i>see b</i>) <ol style="list-style-type: none"> A single sore develops wherever tularemia germs enter the body through breaks in the skin or the mucus membranes of the mouth and eyes. The size of the sore varies, but is usually about an inch across. The sore is an ulcer, meaning that its edges are higher up than its center. Swollen painful glands in the armpit or groin almost always accompany the sore. If the sore is on the hand or arm, the swollen painful lymph glands will likely be in the armpit on the same side of the body as the sore. If the sore is on the leg, the swollen painful lymph glands will likely be in the groin on the same side of the body as the sore. Sometimes infected persons will have swollen glands but no visible sore. When the sore is in the mouth, infected persons may have a sore throat, tonsillitis, and difficulty swallowing. Approximately 25 percent of persons infected with the tularemia germ will have a sore throat. Fever between 101 and 104 degrees Fahrenheit scale, chills, and body aches usually accompany the sore. The fever develops approximately 3-5 days (“incubation” period may be as short as one day or as long as 14 days) after the infected person came into contact with the tularemia germ. The tularemia germ is known to have a very quick “incubation” period, which is the time between when the germ enters the body to the time of symptoms and illness. Infected persons with the skin form of tularemia will usually be sick for 2-4 weeks and may require rest for up to 3 months. <u>Fever and difficulty breathing</u> (25 percent of infected persons will have this kind of tularemia infection) <ol style="list-style-type: none"> When tularemia germs are breathed in, they cause a high fever (between 101 and 104 degrees Fahrenheit scale) and difficulty breathing. Infected persons are too sick to leave bed. They have a poor appetite, a severe headache and body aches. The fever develops approximately 3-5 days after the infected person came into contact with the tularemia germ (“incubation” period may be as short as one day or as long as 14 days). The tularemia germ is known to have a very quick “incubation” period, which is the time between when the germ enters the body to the time of symptoms and illness. Infected persons with this form of tularemia infection can become extremely ill with severe pneumonia leading to breathing failure and death.



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4.	What else could the illness be?	<p>a. It could be many, many different diseases, including influenza, community-acquired pneumonias (“walking pneumonia”), Q fever, anthrax that has been inhaled, or plague that has been inhaled.</p> <p>b. In general, tularemia that has been inhaled will have a <u>slower</u> progression of illness from mild to severe, and a lower death rate than plague or anthrax germs that have been inhaled.</p> <p>b. One of the main reasons doctors sometimes have difficulty diagnosing tularemia in the early part of the infected person’s illness is because tularemia infection mimics many other diseases.</p>
5.	When is an infected person <u>most</u> contagious to other humans?	Tularemia is not directly transmitted from person to person.
6.	How can a non-infected person keep from catching tularemia?	<p>a. <u>Isolation</u>: There is NO need to stay away from someone infected with tularemia because direct human-to-human transmission does not occur.</p> <p>b. <u>Hand washing</u>: Always wash hands before and after touching the infected person’s body, the infected person’s body substances, or particles/surfaces contaminated with the infected person’s body substances.</p> <p>c. <u>Gloves</u>: Always wear disposable vinyl or latex gloves when entering the infected person’s care space. Sterile gloves are not necessary. Change gloves often and always when leaving the infected person’s care space. Always wash your hands after removing gloves. Dispose of gloves in container in infected person’s care space.</p> <p>d. <u>Gown</u>: There is no need to wear a paper (disposable) hospital gown in the infected person’s care space <i>unless there is a risk of splashing or splattering</i> the infected person’s body substances during a procedure. <i>Splashing or splattering</i> may cause some tularemia germs to be sprayed into the air where they may pose a threat if inhaled.</p> <p>e. <u>Mask/Eye Protection/Facemask</u>: There is no need to wear a high-quality mask or face shield to cover your eyes, nose and mouth when in an infected person’s care space <i>unless there is a risk of splashing or splattering the infected person’s body substances</i> during a procedure. Splashing or splattering may cause some tularemia germs to be sprayed into the air where they may pose a threat if inhaled.</p> <p>f. <u>Shoe covers</u>: There is no need to wear disposable shoe covers when in the infected person’s care space.</p> <p>g. <u>Lockdown procedures</u>: There is no need to implement “lockdown” procedures in hospital emergency departments, clinics, doctors’ offices, paramedic ambulances, and other facilities to prevent the spread of illness.</p> <p>h. <u>Endemic areas</u>: In some parts of the world, including the Midwest of the United States (see map-page 5), tularemia is “endemic,” meaning that the disease occurs continuously and with predictable regularity in a specific area or population. People who live in an area in which tularemia is endemic should do the following if there is an outbreak of tularemia in animals and humans:</p> <ol style="list-style-type: none">i. Keep your surroundings as clean as possible.ii. Disinfect or boil drinking water.iii. Keep food away from rats.iv. Cook food thoroughly.v. Do not handle dead rats or rabbits.vi. Avoid bites of ticks, flies and mosquitoes.vii. Cook meat of wild rabbit and rodents thoroughly.



SEMP BioQuickies: *Tularemia*

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7.	Where should infected persons receive care?	<ul style="list-style-type: none"> a. Infected persons should receive hospital care based on need of hospital resources. b. There is no need to isolate the person infected with tularemia.
8.	Who should be told of suspected, probable or confirmed case of tularemia?	<p>Immediately notify the following of a suspected case of tularemia:</p> <ul style="list-style-type: none"> a. Hospital epidemiologist or infection control practitioner. b. State and local public health department: IDPH: 217-782-4977; DuPage County Public Health: 630-682-7400 c. Illinois Region VIII POD Hospital (Loyola): 708-216-8705 d. Illinois Emergency Management Agency: 800-782-7860
9.	Who besides the infected person should be isolated because of possible infection with tularemia?	Isolation of the person with tularemia is unnecessary because the germ is not transmitted human-to-human.
10.	What laboratory studies need to be performed?	<ul style="list-style-type: none"> a. When inhalational tularemia is suspected, specimens of sputum, mouth secretions, and blood should be collected, and laboratory personnel should be notified of the need for special diagnostic and safety procedures. The germ that causes tularemia can be identified by direct examination of body substances through immunochemical stains or direct fluorescent antibody tests. b. Growth of the tularemia germ in culture is the surest way of confirming the diagnosis of tularemia. c. Other ways of identifying the tularemia germ are via antigen detection assay, polymerase chain reaction, enzyme-linked immunoassays, and other specialized techniques. d. The tularemia germ can be diagnosed in biological safety level 2 (BSL-2) laboratories typically found in community hospitals. Examination of cultures should be done in a biological safety cabinet because of the small chance that manipulation might cause <i>splash or splatter</i> resulting in some of the germs becoming airborne. d. Typically, the person ill with tularemia does not mount serum antibody titers until 10 or more days after the onset of illness.
11.	What can be done to help infected persons get better?	<ul style="list-style-type: none"> a. Isolation of a person infected with tularemia is NOT required because human-to-human transmission does not occur. b. Treatment with antibiotics depends on whether tularemia is causing illness in one or a few people or whether it is causing illness in a large number of people (as in a terrorist attack). <ul style="list-style-type: none"> i. When a small number of people are sick with tularemia, individual medical management with streptomycin or gentamicin given by injection is recommended for ten days. For a list of other antibiotics that may be used in place of streptomycin or gentamicin, see Question 16 Henderson, et al., page 182. ii. When a large number of people are sick with tularemia, doxycycline and ciprofloxacin taken by mouth are the preferred choices for treatment. These antibiotics are included in the national pharmaceutical stockpile maintained by the CDC. See Question 16 Henderson, et al., page 182 for dosages. iii. People who have been exposed to tularemia but are not yet ill may be protected from infection by treatment for 14 days with one of the antibiotics listed above.



SEMP BioQuickies: *Tularemia*

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12.	Is tularemia vaccination available?	A live vaccine for tularemia is available. However, it provides incomplete protection against tularemia that has been inhaled. In addition, tularemia has a very short incubation period, which makes vaccination after exposure questionable. Only laboratory workers who regularly work with the tularemia germ should be vaccinated with the tularemia vaccine.
13.	How many people die from the tularemia infection?	Approximately two percent of infected persons will die from tularemia in spite of treatment. Death rates from severe strains of the tularemia germ can reach 30-60 percent if no treatment is started, or 5-15 percent if treatment is started.
14.	What is important to know about housekeeping for a person infected with the tularemia germ?	<ul style="list-style-type: none"> a. <u>Soiled clothing and linens</u>: Should be disinfected per standard precaution protocols. b. <u>Environmental surfaces</u> (beds, bedrails, beside equipment, and other frequently touched surfaces and equipment): Should be disinfected per standard precaution protocols.
15.	How should the cadavers of infected persons be handled?	<ul style="list-style-type: none"> a. Cadavers should be handled using standard precautions, including handwashing and gloves. b. Autopsy procedures likely to cause tularemia germs to be <i>sprayed or splattered into the air</i>, such as bone sawing, should be avoided
16.	Where can I get more quality information on tularemia?	<ol style="list-style-type: none"> 1. MMWR, Tularemia-- United States, 1990-2000, vol 51(9); 182, 03/08/2002 (Also available in PDF format 369 KB, 24 pages].) 2. http://www.cdc.gov/ncidod/dvbid/misc/tularemiaFAQ.htm 3. http://www.bt.cdc.gov/agent/tularemia/index.asp 4. Henderson DA, Inglesby TV, O'Toole T: Bioterrorism: Guidelines for Medical and Public Health Management. AMA Press 2002, pp 167-190. 5. http://www.idph.state.il.us/public/hb/hbtulare.htm 6. http://jama.ama-assn.org/cgi/content/full/285/21/2763? 7. Images available at: http://library.uthct.edu/pdfs/02076794.pdf http://www.bt.cdc.gov/Agent/Tularemia/CaseDef.asp 8. http://www.hopkins-biodefense.org/pages/agents/agenttularemia.html 9. http://www.vnh.org/MedAspChemBioWar/chapters/chapter_24.htm 10. http://www.who.int/entity/csr/delibepidemics/Annex%203_Final_MM1.pdf



Question

Answer

Reported cases of tularemia — United States, 1990-2000

