Tularemia

Important Notice:
*All public health recommendations for routine investigations are based on "Control of Communicable Diseases Manual, 20th edition, 2015" (CCDM) unless otherwise stated. Use the CCDM as primary resource for case investigations that meet routine follow up. In cases of complicated situations or unique issues not addressed by this manual, please refer to the Administrative Rules of Montana (ARM) Chapter **37.114** or contact the designated subject matter expert at Communicable Disease Epidemiology section at the Montana DPHHS for further clarification.*

PROTOCOL CHECKLIST

- ☐ Confirm diagnosis, see case definition (see section 3.3 and 4.1)
- ☐ Review background information on the disease and its epidemiology (see section 2)
- ☐ Prioritize reported cases for follow up, investigate and interview as appropriate (see section 1.2)
- ☐ Contact provider to gather more information, if necessary
- ☐ Immediately notify state health department of case per (ARM) **37.114.204**. (see section 1.3)
- ☐ Retrieve Tularemia reporting form (see SharePoint → CDEpi → CDEpi Disease Forms)
- ☐ Review for use, specific technical assistance guidance documents (see SharePoint →CDEpi →CDEpi Technical Guidance [Diseases A to Z] → Tularemia → Guidance Documents)
- ☐ Interview patient, cover the following:
  - ☐ Review disease facts with patient (see section 2.2)
  - ☐ Educate patient on prevention (see section 6)
  - ☐ Ask about exposures to relevant risk factors (see section 4.3)
  - ☐ Determine sensitive occupation (see section 4.3)
  - ☐ Identify symptomatic contacts (see section 4.4)
  - ☐ Implement Control Measures (see section 5)
  - ☐ Address patient's questions or concerns
- ☐ Follow-up on special situations, including outbreaks or infected persons in sensitive situations (see section 5 and CCDM, review references and additional information or contact CDEpi at 406-444-0273)
- ☐ Enter additional information obtained from interview into MIDIS and fax completed form to DPHHS
- ☐ Attach any additional lab reports to case investigation in MIDIS (Manage Associations)
- ☐ When done with investigation, close case in MIDIS

1 DISEASE REPORTING

1.1 Provider notification to Public Health Authorities

Any person, including, but not limited to a physician, dentist, nurse, medical examiner, other health care practitioner, administrator of a health care facility or laboratory, public or private school administrator, or laboratory professional who knows or has reason to believe that a case exists of a reportable disease or condition defined in (ARM) **37.114.203** must immediately report to the local health officer.

1.2 Local Health Department Follow-up Responsibilities

Immediately after being notified of a case or a potential outbreak of a reportable condition, a local health officer must investigate and implement control measures as indicated by the CCDM to prevent or control the transmission of disease per (ARM) **37.114.314**.

1.3 Local Health Department Reporting to State Public Health Authorities

Tularemia must be reported to the Montana Department of Public Health and Human Services (DPHHS) **IMMEDIATELY** as established in (ARM) **37.114.204** by calling CDEpi at 406-444-0273. The CDC tularemia form needs to be submitted to DPHHS as part of the disease investigation process.

2 THE DISEASE AND ITS EPIDEMIOLOGY

2.1 Public Health Significance in Montana:

Tularemia is a somewhat rare disease in Montana caused by the bacterium, *Francisella tularensis*. On average there are fewer than five cases reported each year in this state. This illness is more common during spring and summer months and is often associated with tick and deer fly bites, skin contact with infected animals, ingestion of contaminated water, laboratory exposures, and inhalation of contaminated dust or aerosols.

2.2 Clinical Description of Illness

Refer to CCDM for relevant disease information and its epidemiology.

3 CASE DEFINITION

3.1 Clinical Description

An illness characterized by several distinct forms, including the following:

Ulceroglandular: cutaneous ulcer with regional lymphadenopathy

Glandular: regional lymphadenopathy with no ulcer

Oculoglandular: conjunctivitis with preauricular lymphadenopathy

Oropharyngeal: stomatitis or pharyngitis or tonsillitis and cervical lymphadenopathy

Intestinal: intestinal pain, vomiting, and diarrhea

Pneumonic: primary pleuropulmonary disease

Typhoidal: febrile illness without early localizing signs and symptoms

3.2 Laboratory Criteria for Diagnosis

Presumptive

- Elevated serum antibody titer(s) to *F. tularensis* antigen (without documented fourfold or greater change) in a patient with no history of tularemia vaccination, OR
- Detection of *F. tularensis* in a clinical specimen by fluorescent assay

Confirmed

- Isolation of *F. tularensis* in a clinical specimen, OR
- Fourfold or greater change in serum antibody titer to *F. tularensis* antigen

3.3 Case Classification

Probable

- A clinically compatible case with laboratory results indicative of presumptive infection

Confirmed

- A clinically compatible case with confirmatory laboratory results

Comment(s):

Exposure

Clinical diagnosis is supported by evidence or history of a tick or deerfly bite, exposure to tissues of a mammalian host of *F. tularensis*, or exposure to potentially contaminated water.

4 ROUTINE CASE INVESTIGATION

In accordance with (ARM) **37.114.314** conduct an epidemiologic investigation to determine the source and possible transmission of infection. Refer to the CCDM regarding additional aspects related to investigation.

4.1 Confirm the Diagnosis

Review the clinical presentation and laboratory results to confirm the diagnosis. Consult with the CCDM and current CSTE case definition (**http://wwwn.cdc.gov/NNDSS/script/casedef.aspx?CondYrID=880&DatePub=1/1/1999%2012:00:00%20AM)** to determine if this is a case.

4.2 Laboratory Requirements

An isolate of tularemia does NOT need to be sent to MTPHL for confirmation as identified in (ARM) **37.114.313.**

For more information on analysis and specimen collection please contact the laboratory conducting the test or the Montana Public Health Laboratory (MTPHL) at 1-800-821-7284. The MTPHL Laboratory Services Manual can be accessed http://dphhs.mt.gov/publichealth/LaboratoryServices/PublicHealthLabTesting

4.3 Case Investigation

a. Contact the medical provider who ordered testing or is attending the patient. Utilize the case reporting form to assist in obtaining all of the information necessary to complete a tularemia case report as outlined in (ARM) **37.114.205**.
b. Contact and interview the patient to determine source, risk factors, and transmission settings.

Ask about possible exposures in the 1 to 14 days before symptom onset. Consider occurrence, reservoir, and routes of transmission when asking about risk factors and potential exposures. For many tick-borne illnesses, these include, but are not limited to:

- Tick exposures
- Hiking or outdoor activities (hunting/trapping/falconeering, camping, mowing, landscaping)
- Water
- Animals (especially rabbits)
- Food
- Travel history

4.4 Contact Investigation

- Any person in contact with the source of infection is defined as a contact. This may include physical contact with an infected animal or a contaminated product, ingestion of contaminated food, or inhalation of dust from contaminated soil, grain, or hay.
- Examine all potential exposures based on the possible source and potential modes of transmission to define who may be at-risk.
- Identify those who participated in high-risk activities and contact them to identify if they are experiencing any symptoms. Refer to Contact Management.
- Investigate the clinical laboratory that handled the *F. tularensis* isolates to ensure standard procedures were in place to minimize the risk of transmission.

Based on identified activities, examine dates and locations during the period from illness onset until the resolution of symptoms to identify potential contacts. Collect the name, age, and phone number of contacts with a similar illness. These persons should be investigated as probable cases. Follow up per CCDM.

4.5 Environmental Evaluation

Conduct an environmental evaluation if an ongoing source of exposure is suspected.

5 CONTROL MEASURES

In accordance with (ARM) **37.114.501** utilize the control measures indicated in the CCDM for this disease. Contact DPHHS CDEpi for consultation and questions at 406-444-0273.

5.1 Case Management

Report any changes in patient status.

5.2 Contact Management

- Symptomatic contacts (as determined by risk of exposure to source) should be strongly urged to contact their physician for a medical evaluation and are followed-up as suspect cases. Ensure that the physician is aware of possible exposure in order to facilitate proper diagnosis and therapy.
- Asymptomatic persons who were potentially exposed should continue to monitor themselves for any fever illness for14 days following last exposure.
- Contacts developing fever or flu-like illness within 14 days of presumed exposure should be referred to their medical provider for evaluation.
- Antimicrobial prophylaxis is usually not recommended, except in certain laboratory situations or where there is aerosolized exposure to significant quantities of agent.

5.3 Environmental Measures

- Laboratory personnel should be alerted when tularemia is suspected. Routine diagnostic procedures can be performed in biosafety level 2 conditions, with examination of cultures done in a biological safety cabinet. Manipulation of cultures and other procedures that might produce aerosols should be conducted under biosafety level 3 conditions.
- Clothing or linens contaminated with body fluids of patients with tularemia should be disinfected per standard hospital procedure.
- *Francisella tularensis* can remain alive for weeks in a cold, moist environment including water and soil.
- Contact CDEpi with any questions at 406-444-0273.

5.4 Special Circumstances

Bioterrorism:

F. tularensis has been classified as a potential bioterrorism agent because of its very low infectious dose, ability to survive in the environment, and potential for dissemination via aerosol. One should suspect bioterrorist spread of tularemia if a cluster of patients with a non-specific febrile illness and pulmonary symptoms occur in about one-quarter of the cases. Chemoprophylaxis with doxycycline or ciprofloxacin might be appropriate for persons exposed in a bioterrorism event. If bioterrorism is suspected, call CDEpi immediately (24/7) at 406-444-0273.

6 ROUTINE PREVENTION

6.1 Immunization Recommendations: not applicable.

6.2 Prevention Recommendations

- When hiking, camping, or working outdoors: use insect repellants containing 20–30% DEET (N.N-diethyl-meta-toluamide), picaridin or IR3535; wear appropriate clothing (long pants, long sleeves, long socks); remove attached ticks properly; and do not drink untreated surface water.
- While mowing or landscaping, do not mow over sick or dead animals, and consider using dust masks to reduce your risk of inhaling the bacteria.
- Use gloves while handling dead or live animals, and cook game meat thoroughly before consumption.

7 ESCALATION/ACTIVATION OF EMERGENCY OPERATIONAL PLANNING

Investigation guidelines are designed to assist local health jurisdictions in the steps and actions needed to report, investigate and control reported cases of communicable diseases. In the event individual case investigations or other reported cases lead to clusters and/or outbreaks, or investigations outside of a local health jurisdiction, local health jurisdictions need to contact DPHHS under the Administrative Rules of Montana 37.114.314 and 37.114.315 so DPHHS can consider emergency operational escalation or activation under the Communicable Disease Annex to the DPHHS Emergency Operation Plan.

8 REFERENCES AND ADDITIONAL INFORMATION

Important references:

A. "Control of Communicable Diseases Manual, 20th edition, 2015" (CCDM) American Public Health Association https://secure.apha.org/imis/ItemDetail?iProductCode=978-087553-0185&CATEGORY=BK
B. CDC Tularemia website http://www.cdc.gov/tularemia/index.html