FACT SHEET TULAREMIA

The following information will help you to become familiar with the epidemiology, symptomatology, ecology and control of Tularemia.

WHAT IS TULAREMIA?

Tularemia (also known as Rabbit Fever) is a bacterial disease transmitted through the bite of arthropods, ingestion, and handling animal carcasses.

Two biovars with different pathogenicity cause infection in humans. Jellison type A is more virulent with an untreated case-fatality rate of up to 15%. Jellison type B is a milder form which produces few fatalities even without treatment.

Tularemia is found through North America, Europe and Asia

HOW IS TULAREMIA TRANSMITTED?

Tularemia is transmitted through the bite of infected ticks (*Dermacentor andersoni, D. variabilis* and *Amblyomma americanum*) deer flys (*Chrysops discalis*) and in Europe, the mosquito, *Aedes cinereus*. The disease is also transmitted by inoculation of skin, conjunctival sac or oropharyngeal mucosa with contaminated water, blood or tissue while handling carcasses of infected animals; by drinking contaminated water; by inhalation of dust from contaminated soil, grain, or hay; and rarely through the bite or contact with infected animals.

Tularemia is not transmissible from person to person. Flies can be infective for 14 days and tick throughout their lifetime. Infective meat frozen at -15°C (5°F) has remained infective for more than 3 years.

Susceptibility in humans is apparently universal, and all ages are susceptible. Long term immunity from the disease follows recovery, however, reinfection is possible.

WHAT ARE THE SYMPTOMS?

Tularemia displays a variety of clinical manifestations, depending upon the route of entry and the virulence of the disease agent. In North America, the disease most often it manifests itself as an indolent ulcer at regional lymph nodes. A primary ulcer may not be present, instead, one or more enlarged and painful lymph nodes that suppurate may be found.

Inhalation of infected material may demonstrate pneumonic involvement or a primary septicemic syndrome with a 30% – 60% case fatality rate if untreated. Blood-borne organisms may localize in the lungs and pleural spaces.

Although rare, infection of the conjunctival sac results in a clinical disease of painful purulent conjunctivitis with regional lymphadenitis.

In Europe, the disease is most often transmitted through ingestion of the organism in contaminated food or water. Painful pharyngitis (with or without ulceration), abdominal pain, diarrhea and vomiting (oropharyngeal type) are often seen.

Pneumonia may compliment all clinical types and require prompt identification and specific treatment to prevent a fatality.

Clinically, the disease may be confused with plague, staphylococcal and streptococcal infections, cat scratch fever and sporotrichosis due to the buboes and/or severe pneumonia.

HOW IS TULAREMIA DIAGNOSED?

Diagnosis is made clinically and confirmed by a rise in specific serum antibodies that usually appear during the second week of the disease. Cross-reactions occur with *Brucella* species. FA tests can be used to provide rapid diagnosis from ulcer exudate, lymph node aspirates and other clinical specimens. Diagnostic biopsy of acutely infected lymph nodes should only be done under the cover of specific treatment since it may induce bacteremia. The bacteria can be cultured on

special media such as cysteine-glucose blood agar or by inoculation of laboratory animals with material from lesions, blood or sputum. Extreme care must be taken to avoid laboratory transmission of the agent through aerosolization.

WHAT IS THE TREATMENT FOR TULAREMIA?

Antibiotics are the treatment of choice for tularemia. Streptomycin or gentamicin given for 7 – 14 days is the preferred treatment. Tetracyclines and chloramphenicol are bacteriostatic and can be effective when continued for a minimum of 14 days, however, relapses occur more often than with streptomycin. Streptomycin resistance has been reported. Aspiration, incision and drainage, or biopsy of an inflamed lymph node must be treated promptly with specific antibiotics to prevent the spread of infection.

HOW IS TULAREMIA PREVENTED?

Minimizing exposure to biting arthropods prevents infection with Tularemia. Make sure windows and doors are covered with screens that are serviceable and do not have any holes. Wear long-sleeved shirt, long pants and socks whenever you are outdoors. Lose fitting clothing prevents mosquito bites through thin fabric. Use insect repellents that have been approved by the Environmental Protection Agency.

For your skin, use a product that contains 20-50% **DEET** (N,N-diethyl-meta-toluamide). **DEET** in higher concentrations is not more effective. Do not use **DEET** on children below the age of 3 Years. Apply **DEET** lightly and evenly to exposed skin; do not use beneath clothing. Avoid contact with eyes, lips and broken or irritated skin. To apply to your face, first place a small amount of **DEET** onto your hands and then carefully spread a thin layer. Do not inhale aerosol formulations. Wash **DEET** off when your exposure to mosquitoes ceases.

For your clothing, use an insect repellent spray to help prevent bites through the fabric. Use products that contain either **PERMETHRIN** or **DEET**. **PERMETHRIN** is available commercially as a 0.5% spray formulation. When using any insect repellent, always **FOLLOW THE LABEL DIRECTIONS.**

Risk of infection with Tularemia can be significantly reduced by using the **DOD INSECT REPELLENT SYSTEM**. In addition to the proper wear of the battle dress uniform (BDUs), which provide a physical barrier to insects, this system includes the concurrent use of both skin and clothing repellents:

Standard military skin repellent, INSECT/ARTHROPOD REPELLENT LOTION, 33% **DEET**, long acting formulation, 1 application lasts up to 12 hours, **NSN 6840-01-284-3982**

Standard military clothing repellents, either: PERMETHRIN ARTHROPOD REPELLENT, Clothing Application (aerosol spray), 0.5% **PERMETHRIN**, 1 application lasts through 5 – 6 washes **NSN 6840-01-278-1336**; or INSECT/ARTHROPOD REPELLENT TREATMENT (impregnation kit), 40% **PERMETHRIN**, 1 application lasts the life of the uniform, **NSN 6840-01-345-0237**. Dry cleaning uniforms will remove **PERMETHRIN** from the clothing and will require re-treatment.

When deployed to mosquito infested areas, additional protection may be required. INSECT NET PROTECTOR, FIELD (bed netting), **NSN 7210-01-364-2197** when treated with **PERMETHRIN** will protect troops from vector-borne diseases while sleeping.

Ensure that all food and water consumed is from an approved source. IAW AR 40-5, TB Med 530, TB Med 577.

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