

## TULAREMIA

### Background:

Tularemia is caused by *Francisella tularensis*, one of the most infective agents known to man, with an exposure of as little as 10 to 50 organisms able to cause disease. If *F. tularensis* is used as a bioweapon, it most likely would be used as an airborne agent with infection via the inhalational route.

### Incubation Period:

Usually 3 to 5 days, with a range of 1 to 14 days.

### Signs/Symptoms:

- 1) Initial presenting symptoms are non-specific and may include sudden high fever, chills, headache, malaise, myalgias, arthralgias and progressive weakness. 🐻 *Acute febrile illness, progressing to pharyngitis, bronchiolitis, pneumonitis, pleuritis and lymphadenitis may occur in pediatric patients.* There is little evidence of respiratory disease initially.
- 2) The respiratory component of inhalational tularemia is a slow, indolent course with a dry cough and progressive symptoms over weeks to months with progressive debilitation including sepsis, pneumonia (evidenced by chest pain, dyspnea, bloody sputum) and respiratory failure.

### Laboratory and Diagnostic Testing:

Call the local department of public health and IDPH to inform the state of a possible case of tularemia and to obtain additional instructions for testing and treatment. Specimen collection should occur before the administration of antibiotics.

- 1) CXR may show peribronchial infiltrates, lobar consolidation (may be multilobar), pleural effusions and hilar adenopathy.
- 2) CSF specimens are needed if meningeal symptoms are present.
- 3) Obtain multiple blood cultures from different sites 10 to 30 minutes apart.
- 4) Sputum specimens for microscopy (fluorescent antibody staining or immunohistochemical stains) for specialized cultures.
- 5) Sputum and/or pharyngeal washings for specialized cultures using cysteine-enriched medium.
- 6) 🐻 *Sputum, tracheobronchial secretions, and blood should be cultured in pediatric patients.*
- 7) Serum for serologic testing to tularemia to compare acute and recovery phases.

### Treatment:

Infected patients do not need isolation as person-to-person spread is not expected with this disease.

*(see tables, next page)*

**Recommended Therapy For A Contained Casualty Setting** — Persons beginning treatment with intramuscular (IM) or intravenous (IV) doxycycline, ciprofloxacin, or chloramphenicol can switch to oral antibiotic administration when clinically indicated.

<p><b>Adults: Preferred Choices</b>                  Streptomycin: 1 g IM twice daily x 10 days <b>or</b>                  Gentamicin: 5 mg/kg IM or IV once daily x 10 days</p>	<p><i>Alternative Choices</i>                  Doxycycline: 100 mg IV twice daily x 14 days <b>or</b>                  Chloramphenicol: 15 mg/kg IV 4 times daily x 14 days <b>or</b>                  Ciprofloxacin: 400 mg IV twice daily x 10 days</p>
<p><b>Children: Preferred Choices</b>                  Streptomycin: 15 mg/kg IM twice daily (should not exceed 2 g/d) x 10 days <b>or</b>                  Gentamicin: 2.5 mg/kg IM or IV 3 times daily x 10 days</p>	<p><i>Alternative Choices</i>                  Doxycycline:                  If weight ≥ 45 kg, 100 mg IV twice daily x 14 to 21 days                  If weight &lt;45 kg, 2.2 mg/kg IV twice daily x 14 to 21 days <b>or</b>                  Chloramphenicol: 15 mg/kg IV 4 times daily x 14 days <b>or</b>                  Ciprofloxacin: 15 mg/kg IV twice daily x 10 days</p>
<p><b>Pregnant women and adolescents: Preferred Choices</b>                  Gentamicin: 5 mg/kg IM or IV once daily x 10 days <b>or</b>                  Streptomycin: 1g IM twice daily x 10 days</p>	<p><i>Alternative Choices</i>                  Doxycycline: 100 mg IV twice daily x 14 to 21 days <b>or</b>                  Ciprofloxacin: 400 mg IV twice daily x 10 days</p>
<p><b>Immunocompromised individuals: Preferred Choices</b>                  Same as non-immunocompromised adults</p>	<p><i>Alternative Choices</i>                  Same as non-immunocompromised adults</p>

**Mass Casualty Setting and Post-Exposure Prophylaxis** — One antibiotic, appropriate for patient age, should be chosen from among alternatives.

<p><b>Adults</b>                  Doxycycline: 100 mg orally twice daily x 14 days <b>or</b>                  Ciprofloxacin: 500 mg orally twice daily x 14 days</p>
<p><b>Children</b>                  Doxycycline: If ≥ 45 kg, 100 mg orally twice daily; If &lt;45 kg, 2.2 mg/kg orally twice daily x 14 to 21 days <b>or</b>                  Ciprofloxacin: 15 mg/kg IV orally twice daily (not to exceed 1 gm/day) x 10 days</p>
<p><b>Pregnant women and adolescents</b>                  Doxycycline: 100 mg orally twice daily x 14 to 21 days <b>or</b>                  Ciprofloxacin: 500 mg orally twice daily x 10 days (maximum dose for adolescents is 1 gm/day)</p>

**Precautions:** Decontamination with 10 percent bleach solution followed by 70 percent alcohol solution for contaminated surfaces. If workers come in contact with powder or liquid aerosol containing tularemia, wash body surfaces and clothing with soap and water.