EHRLICHIOSIS
(also called human monocytic ehrlichiosis [HME])

1. **Agent:** In the United States, *Ehrlichia chaffeensis* and *E. ewingii* bacteria, and a third species provisionally called *Ehrlichia muris*-like (EML).

2. **Identification:**
   a. **Symptoms:** Symptoms are usually nonspecific; the most common complaints are fever, headache, anorexia, nausea, myalgia and vomiting. Symptoms can range from mild illness to a severe, life-threatening or fatal disease. The disease may be confused clinically with Rocky Mountain spotted fever (RMSF) but differs by rarity of a prominent rash. Rash is found in 30% of adults and 60% of children with *E. chaffeensis* infection, but less frequent in *E. ewingii* and EML infections. Laboratory findings include leukopenia, thrombocytopenia, and elevation of one or more liver-function tests. In hospitalized cases, the laboratory findings may be only slightly abnormal on admission, and become more abnormal during hospitalization.

   b. **Differential Diagnosis:** RMSF, bacterial sepsis, Lyme disease, flea-borne typhus, toxic-shock syndrome, gastro-enteritis, viral syndromes, tick-borne encephalitis and other multi-system febrile illnesses.

   c. **Diagnosis:** Preliminary diagnosis of ehrlichiosis in the US is based on clinical and laboratory findings. Confirmation is based on: the evaluation of a blood smear, development of serum antibodies to *E. chaffeensis* for ehrlichiosis; immunofluorescence test; PCR.

3. **Incubation:** 5 to 14 days.

4. **Reservoir:** White-tailed deer are a major host of lone star ticks and appear to represent one natural reservoir for *E. chaffeensis*.

5. **Source:** The lone star tick (*Amblyomma americanum*) in the southeastern and southcentral United States. The tick vector for the EML organism has not been established.

6. **Transmission:** Bite of an infected tick. Transmission has also been documented from blood transfusions.

7. **Communicability:** No evidence of person-to-person transmission.

8. **Specific Treatment:** A tetracycline such as doxycycline is the first line of treatment in children and adults.

9. **Immunity:** No data are available on protective immunity in humans from infections caused by these organisms. Reinfection is rare but has been reported.

REPORTING PROCEDURES

1. Reportable within 7 days of diagnosis (Title 17, Section 2500, *California Code of Regulations*).

   **EHRLICHIOSIS/ANAPLASMOSIS CASE REPORT (CDPH 8573)**

2. **Epidemiologic Data:**
   a. Recent travel to endemic areas.
   b. History of tick and other insect bites.
   c. History of possible exposure to ticks in wooded areas.
   d. Occupational exposure.

CONTROL OF CASE & CONTACTS:

CASE:

1. **Isolation:** None.

2. **Concurrent disinfection:** Remove any ticks.

CONTACTS: No restrictions.
PREVENTION-EDUCATION

1. Use of tick repellant in endemic areas.

2. Wear protective clothing in wooded areas.

3. Control ticks on domestic animals.

4. Avoid tick-infested areas when possible. Check skin periodically and remove attached ticks immediately.

DIAGNOSTIC PROCEDURES

1. **Blood smear**: During the acute phase of illness a morulae can be seen in the cytoplasm of white blood cells in about 20% of patients.

2. **Serology**: Indirect immunofluorescence.
   
   Container: Serum separator tube.
   
   **Laboratory Form**: CDPH – VRDL General Purpose Specimen Submittal Form.
   
   Examination Requested: Ehrlichiosis.
   
   Material: Whole blood.
   
   Amount: 10 ml.
   
   Storage: Refrigerate until transported.
   
   Remarks: Collect first (acute) blood specimen within 1 week of onset. Collect second (convalescent) blood specimen 2 to 4 weeks later.

3. **PCR**
   
   Container: Red top.
   
   **Laboratory Form**: CDPH – VRDL General Purpose Specimen Submittal Form.
   
   Examination Requested: Ehrlichiosis PCR
   
   Material: Whole blood.
   
   Amount: 1 ml.
   
   Storage: Refrigerate or freeze until transported.