ANAPLASMOSIS  
(formerly termed human granulocytic ehrlichiosis [HGE])

1. **Agent:** *Anaplasma phagocytophila* bacteria

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. 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, gastroenteritis, viral syndromes, tick-borne encephalitis and other multi-system febrile illnesses.

c. **Diagnosis:** Preliminary diagnosis of anaplasmosis is based on clinical and laboratory findings. Confirmation is based on: the evaluation of a blood smear, development of serum antibodies to *A. phagocytophila*; immunofluorescence test; PCR.

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

4. **Reservoir:** Deer, elk, and wild rodents are likely reservoirs anaplasmosis.

5. **Source:** Blacklegged tick (*Ixodes scapularis*) in the northeast or upper Midwestern United States or western blacklegged tick (*Ixodes pacificus*) in Northern California.

6. **Transmission:** Bite of an infected tick. Most patients report a tick bite or association with wooded, tick-infested areas prior to onset of illness.¹

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

8. **Specific Treatment:** A tetracycline such as doxycycline; chloramphenicol for pregnant women and children under 8 years of age.

9. **Immunity:** Susceptibility is believed to be general. No data are available on protective immunity in humans from infections caused by these organisms. Re-infection is rare but has been reported.

**REPORTING PROCEDURES**

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

2. **Report Form:**  
   [EHRlichiosis/Anaplasmosis Case Report (CDPH 8573)]

3. **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 repellants 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. **Serology:** Indirect immunofluorescence. Paired acute and convalescent sera recommended.
   
   **Container:** Serum separator tube.
   
   **Laboratory Form:** CDPH – VRDL General Purpose Specimen Submittal Form. [Link](http://www.cdph.ca.gov/programs/vrdl/Documents/VRDL_General_Human_Specimen_Submittal_Form_Lab300.pdf)
   
   **Examination Requested:** Anaplasmosis serology.
   
   **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.

2. **PCR**
   
   **Container:** Red top or red-grey top tube.
   
   **Laboratory Form:** CDPH – VRDL General Purpose Specimen Submittal Form. [Link](http://www.cdph.ca.gov/programs/vrdl/Documents/VRDL_General_Human_Specimen_Submittal_Form_Lab300.pdf)
   
   **Examination Requested:** Anaplasmosis PCR
   
   **Material:** Serum.