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**: [EHRICHIOSIS/ANAPLASMOSIS CASE REPORT (CDPH 8573)](http://www.cdc.gov/anaplasmosis/)

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**

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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–VDRL General Purpose Specimen Submittal Form
   - **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–VDRL General Purpose Specimen Submittal Form
   - **Examination Requested**: Anaplasmosis PCR
   - **Material**: Serum.
   - **Amount**: 1 ml.
   - **Storage**: Refrigerate or freeze until transported.