



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 See <http://www.cdc.gov/anaplasmosis/>.



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.

Amount: 1 ml.

Storage: Refrigerate or freeze until transported.

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](http://www.cdph.ca.gov/programs/vrdl/Documents/VRDL_General_Human_Specimen_Submittal_Form_Lab300.pdf).
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](http://www.cdph.ca.gov/programs/vrdl/Documents/VRDL_General_Human_Specimen_Submittal_Form_Lab300.pdf).
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Examination Requested: Anaplasmosis PCR

Material: Serum.