State of California—Health and Human Services Agency

California Department of Public Health
Center for Infectious Diseases
Division of Communicable Disease Control
Infectious Diseases Branch
Surveillance and Statistics Section
MS 7306, P.O. Box 997377
Sacramento, CA 95899-7377

Local ID Number ___________________________

(*Please use the same ID Number on the preliminary and final reports to allow linkage to the same case.)*

Report Status (check one)

☐ Preliminary ☐ Final

EHRLICHIOSIS / ANAPLASMOSIS CASE REPORT

Check one:
☐ *Ehrlichia chaffeensis* infection (formerly Human Monocytic Ehrlichiosis [HME])
☐ *Ehrlichia ewingii* infection (formerly Ehrlichiosis [unspecified, or other agent])
☐ *Anaplasma phagocytophilum* infection (formerly Human Granulocytic Ehrlichiosis [HGE])
☐ Ehrlichiosis/Anaplasmosis, human, undetermined

Jurisdictions that choose to use this form should send completed forms to the Surveillance and Statistics Section by mail through your communicable disease reporting staff. For jurisdictions participating in CalREDIE, entry of information into the CalREDIE form will facilitate investigations and surveillance. This form is only for cases of ehrlichiosis/anaplasmosis. Spotted fever rickettsioses (such as Rocky Mountain spotted fever) should be reported on the Spotted Fever Rickettsioses Case Report form. Cases of typhus and other non-spotted fever rickettsioses should be reported on the Typhus and Other Non-Spotted Fever Rickettsioses Case Report form.

PATIENT INFORMATION

Last Name	*First Name*	*Middle Name*	*Suffix*

Social Security Number (9 digits)	*DOB (mm/dd/yyyy)*	*Age*	☐ *Years* ☐ *Months* ☐ *Days*

Address Number & Street - Residence	*Apartment/Unit Number*

City/Town	*State*	*Zip Code*

Census Tract	*County of Residence*	*Country of Residence*

Country of Birth	*If not U.S. Born - Date of Arrival in U.S. (mm/dd/yyyy)*

Home Telephone	*Cellular Phone/Pager*	*Work/School Telephone*

E-mail Address	*Other Electronic Contact Information*

Work/School Location	*Work/School Contact*

Gender

☐ Female ☐ Trans female / transwoman ☐ Genderqueer or non-binary ☐ Unknown
☐ Male ☐ Trans male / transman ☐ Identity not listed ☐ Declined to answer

Pregnant? ☐ Yes ☐ No ☐ Unk	*If Yes, Est. Delivery Date (mm/dd/yyyy)*
Medical Record Number	*Patient's Parent/Guardian Name*
Occupation Setting (see list on page 7)	*Other Describe/Specify*
Occupation (see list on page 7)	*Other Describe/Specify*

Primary Language

☐ English
☐ Spanish
☐ Other:____________________

Ethnicity (check one)

☐ Hispanic/Latino
☐ Non-Hispanic/Non-Latino
☐ Unk

Race(s)
(check all that apply, race descriptions on page 7)

The response to this item should be based on the patient's self-identity or self-reporting. Therefore, patients should be offered the option of selecting more than one racial designation.

☐ American Indian or Alaska Native
☐ Asian *(check all that apply)*
- ☐ Asian Indian ☐ Japanese
- ☐ Cambodian ☐ Korean
- ☐ Chinese ☐ Laotian
- ☐ Filipino ☐ Thai
- ☐ Hmong ☐ Vietnamese
- ☐ Other:____________________

☐ Black or African-American
☐ Native Hawaiian or Other Pacific Islander
(check all that apply)
- ☐ Native Hawaiian ☐ Samoan
- ☐ Guamanian
- ☐ Other:____________________

☐ White
☐ Other:____________________
☐ Unk

ADDITIONAL PATIENT DEMOGRAPHICS

Sex Assigned at Birth

☐ Female ☐ Unknown
☐ Male ☐ Declined to answer

Sexual Orientation

☐ Heterosexual or straight ☐ Questioning, unsure, or patient doesn't know ☐ Declined to answer
☐ Gay, lesbian, or same-gender loving ☐ Orientation not listed ☐ Unknown
☐ Bisexual

First three letters of patient's last name: | | |

CLINICAL INFORMATION

Physician Name - Last Name	*First Name*	*Telephone Number*

SIGNS AND SYMPTOMS

Symptomatic? ☐ Yes ☐ No ☐ Unk	*Onset Date (mm/dd/yyyy)*	*Date First Sought Medical Care (mm/dd/yyyy)*

Signs and Symptoms	Yes	No	Unk	If Yes, Specify as Noted	
Fever				*Highest temperature (specify °F/°C)*	
Muscle pain					
Headache					
Nausea or vomiting					
Rash or other cutaneous lesion				*Location / size / appearance*	
Chills					
Sweats					
Joint pain				*Joint(s)*	
Eye pain					
Abdominal pain					
Diarrhea					
Cough					
Hypotension				*Date measured (mm/dd/yyyy)*	*Systolic / Diastolic*
Other signs / symptoms (specify)					

HOSPITALIZATION

Did patient visit emergency room for illness? ☐ Yes ☐ No ☐ Unk	*Was patient hospitalized?* ☐ Yes ☐ No ☐ Unk	*If Yes, how many total hospital nights?*
If there were any ER or hospital stays related to this illness, specify details below.		

HOSPITALIZATION - DETAILS

Hospital Name 1	*Street Address*			*Admit Date (mm/dd/yyyy)*	
	City			*Discharge / Transfer Date (mm/dd/yyyy)*	
	State	*Zip Code*	*Telephone Number*	*Medical Record Number*	*Discharge Diagnosis*
Hospital Name 2	*Street Address*			*Admit Date (mm/dd/yyyy)*	
	City			*Discharge / Transfer Date (mm/dd/yyyy)*	
	State	*Zip Code*	*Telephone Number*	*Medical Record Number*	*Discharge Diagnosis*

First three letters of patient's last name: ☐☐☐

TREATMENT / MANAGEMENT

Received treatment? ☐ Yes ☐ No ☐ Unk	If Yes, specify the treatments below.

TREATMENT / MANAGEMENT DETAILS

Treatment Type 1 ☐ Antibiotic ☐ Other	If Antibiotic, specify route	Treatment Name	Date Started (mm/dd/yyyy)	Date Ended (mm/dd/yyyy)
Treatment Type 2 ☐ Antibiotic ☐ Other	If Antibiotic, specify route	Treatment Name	Date Started (mm/dd/yyyy)	Date Ended (mm/dd/yyyy)

OUTCOME

Outcome? ☐ Survived ☐ Died ☐ Unk	If Survived, Survived as of ______________________(mm/dd/yyyy)	Date of Death (mm/dd/yyyy)

LABORATORY INFORMATION

LABORATORY RESULTS SUMMARY - SEROLOGY

Specimen Type 1	Collection Date (mm/dd/yyyy)	Type of Test	Antigen
	Results	Laboratory Name	Telephone Number
Specimen Type 2	Collection Date (mm/dd/yyyy)	Type of Test	Antigen
	Results	Laboratory Name	Telephone Number

LABORATORY RESULTS SUMMARY - OTHER

Hematology? ☐ Yes ☐ No ☐ Unk	Collection Date (mm/dd/yyyy)	WBC	HCT	Hb	Platelets
Serum chemistry? ☐ Yes ☐ No ☐ Unk	Collection Date (mm/dd/yyyy)	ALT		AST	
Other laboratory diagnostics performed (e.g., PCR, buffy coat smear)? ☐ Yes ☐ No ☐ Unk		If Yes, describe			

EPIDEMIOLOGIC INFORMATION

INCUBATION PERIOD: UP TO 14 DAYS BEFORE ILLNESS ONSET

ANIMAL AND INSECT EXPOSURES

Observe any of the following during incubation period at or around home? ☐ Dogs ☐ Cats ☐ Rodents ☐ Opossums ☐ Fleas ☐ Ticks	Describe	
If pets in the home, how often are they treated with flea prevention medication?	Type(s) of Treatment	Date(s) of Last Treatment (mm/dd/yyyy)
Observe any of the following during incubation period away from home? ☐ Dogs ☐ Cats ☐ Rodents ☐ Opossums ☐ Fleas ☐ Ticks	Describe	
If any cats were observed, were they feral / stray, indoor, or outdoor cats? ☐ Feral / stray ☐ Indoor ☐ Outdoor ☐ Other:____________		
Did the patient spend any nights living outside, without shelter, in the past 21 days (including in a car, unsheltered on the street, or in a temporary shelter)? ☐ Yes ☐ No ☐ Unk	Describe	
Did patient recall any insect bites in the 10 days prior to illness? ☐ Yes ☐ No ☐ Unk	If Yes, specify all locations, type of insect bite, and dates on page 4.	

First three letters of patient's last name: | | | |

INSECT BITE HISTORY - DETAILS

	Location (city, county, state, country)	Date of Insect Bite (mm/dd/yyyy)	Type of Insect Bite
Bite 1			☐ Flea ☐ Tick ☐ Other:____________________
Bite 2			☐ Flea ☐ Tick ☐ Other:____________________

TRAVEL HISTORY

Did patient travel **out of county of residence** during the **incubation period** ? ☐ Yes ☐ No ☐ Unk	If Yes, specify all locations and dates in the Travel History - Details Table.

TRAVEL HISTORY - DETAILS

Location (city, county, state, country)	Date Travel Started *(mm/dd/yyyy)*	Date Travel Ended *(mm/dd/yyyy)*

ILL CONTACTS

Any contacts with similar illness (including household contacts)? ☐ Yes ☐ No ☐ Unk	If Yes, specify details below.

ILL CONTACTS - DETAILS

Name 1	Age	Gender	Telephone Number	Type of Contact / Relationship	Date of Contact (mm/dd/yyyy)
	Street Address			Exposure Event	Illness Onset Date (mm/dd/yyyy)
	City	State	Zip Code	Occupation	
Name 2	Age	Gender	Telephone Number	Type of Contact / Relationship	Date of Contact (mm/dd/yyyy)
	Street Address			Exposure Event	Illness Onset Date (mm/dd/yyyy)
	City	State	Zip Code	Occupation	

EPIDEMIOLOGICAL LINKAGE

Epi-linked to known case? ☐ Yes ☐ No ☐ Unk	Contact Name / Case Number

NOTES / REMARKS

First three letters of patient's last name: | | | |

REPORTING AGENCY

Investigator Name	*Local Health Jurisdiction*	*Telephone Number*	*Date (mm/dd/yyyy)*

First Reported By
☐ Clinician ☐ Laboratory ☐ Other (specify):______________________

DISEASE CASE CLASSIFICATION

Case Classification (see case definition below)
☐ Confirmed ☐ Probable ☐ Suspect

STATE USE ONLY

State Case Classification
☐ Confirmed ☐ Probable ☐ Suspect ☐ Not a case ☐ Need additional information

CASE DEFINITION

EHRLICHIOSIS/ANAPLASMOSIS (2010)

Ehrlichia chaffeensis infection (formerly Human Monocytic Ehrlichiosis [HME])
Ehrlichia ewingii infection (formerly Ehrlichiosis [unspecified, or other agent])
Anaplasma phagocytophilum infection (formerly Human Granulocytic Ehrlichiosis [HGE])
Ehrlichiosis/Anaplasmosis, human, undetermined

CLINICAL DESCRIPTION

Clinical presentation: A tick-borne illness characterized by acute onset of fever and one or more of the following symptoms or signs: headache, myalgia, malaise, anemia, leukopenia, thrombocytopenia, or elevated hepatic transaminases. Nausea, vomiting, or rash may be present in some cases.

Clinical evidence: Any reported fever and one or more of the following: headache, myalgia, anemia, leukopenia, thrombocytopenia, or any hepatic transaminase elevation.

LABORATORY CRITERIA FOR DIAGNOSIS

***Ehrlichia chaffeensis* infection (formerly Human Monocytic Ehrlichiosis [HME])**

Confirmatory laboratory evidence:

- Serological evidence of a fourfold change in immunoglobulin G (IgG)-specific antibody titer to *E. chaffeensis* antigen by indirect immunofluorescence assay (IFA) between paired serum samples (one taken in first week of illness and a second 2-4 weeks later), **OR**
- Detection of *E. chaffeensis* DNA in a clinical specimen via amplification of a specific target by polymerase chain reaction (PCR) assay, **OR**
- Demonstration of ehrlichial antigen in a biopsy or autopsy sample by immunohistochemical methods, **OR**
- Isolation of *E. chaffeensis* from a clinical specimen in cell culture.

Supportive laboratory evidence:

- Serological evidence of elevated IgG or IgM antibody reactive with *E. chaffeensis* antigen by IFA, enzyme-linked immunosorbent assay (ELISA), dot-ELISA, or assays in other formats (CDC uses an IFA IgG cutoff of ≥1:64 and does not use IgM test results independently as diagnostic support criteria.), **OR**
- Identification of morulae in the cytoplasm of monocytes or macrophages by microscopic examination.

***Ehrlichia ewingii* infection (formerly Ehrlichiosis [unspecified, or other agent])**

Confirmatory laboratory evidence:

- Because the organism has never been cultured, antigens are not available. Thus, *Ehrlichia ewingii* infections may only be diagnosed by molecular detection methods: *E. ewingii* DNA detected in a clinical specimen via amplification of a specific target by polymerase chain reaction (PCR) assay.

***Anaplasma phagocytophilum* infection (formerly Human Granulocytic Ehrlichiosis [HGE])**

Confirmatory laboratory evidence:

- Serological evidence of a fourfold change in IgG-specific antibody titer to *A. phagocytophilum* antigen by indirect immunofluorescence assay (IFA) in paired serum samples (one taken in first week of illness and a second 2-4 weeks later), **OR**
- Detection of *A. phagocytophilum* DNA in a clinical specimen via amplification of a specific target by polymerase chain reaction (PCR) assay, **OR**
- Demonstration of anaplasmal antigen in a biopsy/autopsy sample by immunohistochemical methods, **OR**
- Isolation of *A. phagocytophilum* from a clinical specimen in cell culture.

Supportive laboratory evidence:

- Serological evidence of elevated IgG or IgM antibody reactive with *A. phagocytophilum* antigen by IFA, enzyme-linked immunosorbent Assay (ELISA), dot-ELISA, or assays in other formats (CDC uses an IFA IgG cutoff of ≥1:64 and does not use IgM test results independently as diagnostic support criteria.), **OR**
- Identification of morulae in the cytoplasm of neutrophils or eosinophils by microscopic examination.

***Ehrlichiosis/Anaplasmosis,* human, undetermined**

- See case classification

(continued on page 6)

CASE DEFINITION (continued)

EXPOSURE

History of having been in potential tick habitat in the 14 days prior to the onset of illness or history of tick bite or history of tick bite.

CASE CLASSIFICATION

Confirmed

- A clinically compatible case (meets clinical evidence criteria) that is laboratory confirmed..

Probable

- A clinically compatible case (meets clinical evidence criteria) that has supportive laboratory results. For ehrlichiosis/anaplasmosis – an undetermined case can only be classified as probable. This occurs when a case has compatible clinical criteria with laboratory evidence to support *Ehrlichia/Anaplasma* infection, but not with sufficient clarity to definitively place it in one of the categories previously described. This may include the identification of morulae in white cells by microscopic examination in the absence of other supportive laboratory results.

Suspect

- A case with laboratory evidence of past or present infection but no clinical information available (e.g. a laboratory report).

COMMENT

There are at least three species of bacteria, all intracellular, responsible for ehrlichiosis/ anaplasmosis in the United States: *Ehrlichia chaffeensis*, found primarily in monocytes, and *Anaplasma phagocytophilum* and *Ehrlichia ewingii*, found primarily in granulocytes. The clinical signs of disease that result from infection with these agents are similar, and the range distributions of the agents overlap, so testing for one or more species may be indicated. Serologic cross-reactions may occur among tests for these etiologic agents.

Four sub-categories of confirmed or probable ehrlichiosis/anaplasmosis should be reported: 1) human ehrlichiosis caused by *Ehrlichia chaffeensis*, 2) human ehrlichiosis caused by *E. ewingii*, 3) human anaplasmosis caused by *Anaplasma phagocytophilum*, or 4) human ehrlichiosis/anaplasmosis - undetermined. Cases reported in the fourth sub-category can only be reported as “probable” because the cases are only weakly supported by ambiguous laboratory test results.

Problem cases for which sera demonstrate elevated antibody IFA responses to more than a single infectious agent are usually resolvable by comparing the levels of the antibody responses, the greater antibody response generally being that directed at the actual agent involved. Tests of additional sera and further evaluation via the use of PCR, IHC, and isolation via cell culture may be needed for further clarification. Cases involving persons infected with more than a single etiologic agent, while possible, are extremely rare and every effort should be undertaken to resolve cases that appear as such (equivalent IFA antibody titers) via other explanations.

Current commercially available ELISA tests are not quantitative, cannot be used to evaluate changes in antibody titer, and hence are not useful for serological confirmation. Furthermore, IgM tests are not always specific and the IgM response may be persistent. Therefore, IgM tests are not strongly supported for use in serodiagnosis of acute disease.

RACE DESCRIPTIONS

Race	Description
American Indian or Alaska Native	Patient has origins in **any** of the original peoples of North and South America (including Central America).
Asian	Patient has origins in **any** of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent (e.g., including Bangladesh, Cambodia, China, India, Indonesia, Japan, Korea, Malaysia, Nepal, Pakistan, the Philippine Islands, Thailand, and Vietnam).
Black or African American	Patient has origins in **any** of the black racial groups of Africa.
Native Hawaiian or Other Pacific Islander	Patient has origins in **any** of the original peoples of Hawaii, Guam, American Samoa, or other Pacific Islands.
White	Patient has origins in **any** of the original peoples of Europe, the Middle East, or North Africa.

OCCUPATION SETTING

- Childcare/Preschool
- Correctional Facility
- Drug Treatment Center
- Food Service
- Health Care - Acute Care Facility
- Health Care - Long Term Care Facility
- Health Care - Other
- Homeless Shelter
- Laboratory
- Military Facility
- Other Residential Facility
- Place of Worship
- School
- Other

OCCUPATION

- Adult film actor/actress
- Agriculture - farmworker or laborer (crop, nursery, or greenhouse)
- Agriculture - field worker
- Agriculture - migratory/seasonal worker
- Agriculture - other/unknown
- Animal - animal control worker
- Animal - farm worker or laborer (farm or ranch animals)
- Animal - veterinarian or other animal health practitioner
- Animal - other/unknown
- Clerical, office, or sales worker
- Correctional facility - employee
- Correctional facility - inmate
- Craftsman, foreman, or operative
- Daycare or child care attendee
- Daycare or child care worker
- Dentist or other dental health worker
- Drug dealer
- Fire fighting or prevention worker
- Flight attendant
- Food service - cook or food preparation worker
- Food service - host or hostess
- Food service - server
- Food service - other/unknown
- Homemaker
- Laboratory technologist or technician
- Laborer - private household or unskilled worker
- Manager, official, or proprietor
- Manicurist or pedicurist
- Medical - emergency medical technician or paramedic
- Medical - health care worker
- Medical - medical assistant
- Medical - pharmacist
- Medical - physician assistant or nurse practitioner
- Medical - physician or surgeon
- Medical - nurse
- Medical - other/unknown
- Military
- Police officer
- Professional, technical, or related profession
- Retired
- Sex worker
- Stay at home parent/guardian
- Student - preschool or kindergarten
- Student - elementary or middle school
- Student - high school
- Student - college or university
- Student - other/unknown
- Teacher/employee - preschool or kindergarten
- Teacher/employee - elementary or middle school
- Teacher/employee - high school
- Teacher/instructor/employee - college or university
- Teacher/instructor/employee - other/unknown
- Unemployed - seeking employment
- Unemployed - not seeking employment
- Unemployed - other/unknown
- Volunteer
- Other
- Refused
- Unknown