Local ID Number: _____

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

EHRLICHIOSIS CASE REPORT

Check one:	☐ Ehrlichia chaffeensis
	☐ Ehrlichia ewingii
	☐ Ehrlichia muris eauclairensis
	☐ Ehrlichia, other spp. or unspeciated

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 cases should be reported using the Anaplasmosis Case Report Form. Spotted fever rickettsioses (such as Rocky Mountain spotted fever) should be reported on the appropriate 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 I	Vame		Middle Name Suff			ffix	Primary Language					
										☐ English			
Social Security Number (9 digit	ts)			DOB (mm/da	d/yyyy)		Age		Years	☐ Spanish			
				☐ Month						☐ Other:			
					1				Бауѕ	Ethnicity (check one)			
Address Number & Street – Re	esidence			Apartment / Unit Number						☐ Hispanic/Latino	☐ Hispanic/Latino		
							-			☐ Non-Hispanic/Non-La	atino		
City / Town				State	9	Zip	Code		☐ Unknown				
										Race(s) (check all that apply, race descriptions on page			
Census Tract	Coun	ty of Resid	denc	е	Country of Acondonice					, , , , ,	, , ,		
		1	1		notio						m should be based on the		
Country of Birth			If not U.S. Born - Date of Arrival				in U.S. (i	(mm/d	d/yyyy)	patient's self-identity or self-reporting. Therefore, patients should be offered the option of selecting more than one racial designation.			
Home Telephone		Cellular	Phon	ne / Pager	Work / School Telephone			hone	☐ American Indian or Alaska Native				
			-							☐ Asian (check all that a	apply, see list on page 8)		
E-mail Address				Other Electron	Other Electronic Contact Information					☐ Asian Indian	☐ Korean		
					Monte / Onless of Oninterat					□ Bangladeshi	☐ Laotian		
Work / School Location				Work / School Contact						□ Cambodian	☐ Malaysian		
Gender										☐ Chinese	☐ Pakistani		
☐ Female ☐ Trans female /	transwo	man [7 Cor	ndergueer er nen binen.						☐ Filipino	☐ Sri Lankan		
☐ Male ☐ Trans male/ tra				enderqueer or non-binary ☐ Unknown entity not listed ☐ Declined to answer					☐ Hmong	☐ Taiwanese			
Pregnant?	insman				f Yes, Est. Delivery Date (mm/dd/yyyy)					□ Indonesian	□ Thai		
☐ Yes ☐ No ☐ Unknown				11 100, Lot. De	Silvery	Date (III	<i></i> αα, y y j	<i>yy/</i>		□ Japanese	☐ Vietnamese		
Medical Record Number				Patient's Pare	ent/Gu	ardian Na	ame			☐ Other:			
Wedical Record Wallioci				T diletti 3 T die	in Gu	araiaii ive	arric			☐ Black or African-Ame	rican		
Occupation Setting (see list on page 9) Other De			Other Describ	e/Spe	cify				 □ Native Hawaiian or O (check all that apply, 				
									□ Native Hawaiian	☐ Samoan			
Occupation (see list on page 9)			Other Describ	e/Spe	cify				□ Fijian	☐ Tongan		
										☐ Guamanian			
										☐ Other:			
										☐ White			
										☐ Other:			
										□ Unknown			

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EHRLICE	110515	CASE F	KEPUKI	
First three letters of patient's last name:				

ADDITIONAL PATIENT DEN	/IOGR/	APHIC	S							
Sex Assigned at Birth Female Unknown Male Declined to answ		□ Hete	, lesbiar	ation al or straight n, or same-gender loving	sn't know □ Declined to answer □ Unknown					
CLINICAL INFORMATION										
Physician Name - Last Name First Name Telephone Number							Telephone Number			
SIGNS AND SYMPTOMS										
Symptomatic? Onset Date (mm/dd/yyyy) Date First Sought Medical Care (mm/dd/yyyy) □ Yes □ No □ Unknown						Medical Care (mm/dd/yyyy)				
Signs and Symptoms	Yes	No	Unk	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 / appeara	nce					
Chills										
Sweats										
Joint pain				Joint(s)						
Eye pain										
Abdominal pain										
Diarrhea										
Cough										
Hypotension				Date measured (mm/dd/	(уууу)	Systolic /	Diastolic			
Other signs / symptoms (specify)										
HOSPITALIZATION										
Did patient visit the emergency ro □ Yes □ No □ Unknown	oom for	illness:	>							
Was the patient hospitalized? ☐ Yes ☐ No ☐ Unknown			If Yes,	how many total hospital r		Still hospitalized as	of (mm/dd/yyyy)			
During any part of the hospitaliza ☐ Yes ☐ No ☐ Unknown	tion, did	d the pa	tient sta	ay in an intensive care uni	t (ICU) or a critical ca	are unit (CCU)?				
If there were any ER visits or hos	pital sta	ays rela	ted to th	nis illness, specify details i	in the Hospitalization	– Details section or	n next page.			

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EHRLICH	HOSIS	CASE F	REPOR	
First three letters of				

									ent's last				
HOSPITALIZATIO	N – DE	TAILS											
Hospital Name 1	Stre	et Addre	ss					Admit Date (mi	n/dd/yyyy	<i>'</i>)			
	City	,						Discharge / Transfer Date (mm/dd/yyyy)					
	Stat	te Zip	Code	Telephor	ne Number		Medical Record				d Number Discharge Diagnosis		
Hospital Name 2	Stre	et Addre	ss					Admit Date (mi	n/dd/yyyy	<i>'</i>)			
	,						Discharge / Tra	ansfer Da	te (mm/dd	/уууу)			
	Stat	te Zip	Code	Telephor	ne Number		Medical Record Num					nosis	
TREATMENT/MA	NAGEI	MENT											
Received treatment? □ Yes □ No □ U	Jnknown	If Yes, specify the treatments below.											
TREATMENT / MA	NAGEI	MENT D	ETAILS										
Treatment Type 1 ☐ Antibiotic ☐ Other	er	If Antib	iotic, spec	rify route	Treatment	Name	Name Date Started (mm/dd/yy			Date Ended (mm/dd/yyyy)			
Treatment Type 2 ☐ Antibiotic ☐ Other	er	If Antib	iotic, spec	ify route	Treatment	Name	Date Started (mm/dd/yyyy)			Date End	led (mm	/dd/yyyy	y)
OUTCOME	•						•						
Outcome? □ Survived □ Died	□ Un	ıknown	If Survive	•		(mm/dd/yyyy)			Date of	Death (mi	m/dd/yyy	<i>'y)</i>	
LABORATORY INF	ORMA	TION											
LABORATORY RE	SULTS	SUMM	ARY - SE	EROLOGY	/								
Specimen Type 1		Colle	ection Date	e (mm/dd/y)	/yy)	Type of Test			Antigen				
Results						Laboratory Name			Telephone Number				
Specimen Type 2		Colle	ection Date	e (mm/dd/y)	/yy)	Type of Test	Type of Test			1			
		Resu	ılts			Laboratory Name			Telepho	one Numbe	er		
LABORATORY RE	SULTS	SUMM	ARY - O	THER									
Hematology? □ Yes □ No □ U	Jnknown	Colle	ection Date	e (mm/dd/y)	/yy)	WBC HCT			Hb Platelets				
Serum chemistry?	7. II. I. I. OVVII	Colle	ection Date	e (mm/dd/y)	/yy)	ALT			AST				
□ Yes □ No □ U	Inknown												
	Other laboratory diagnostics performed (e.g., PCR, buffy coat smear)? If Yes, describe												

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EHRLICE	110515	CASE	KEPORI	
First three letters of patient's last name:				

EPIDEMIC	IDEMIOLOGIC INFORMATION											
INCUBATION PERIOD: UP TO 14 DAYS BEFORE ILLNESS ONSET												
ANIMAL A	ANIMAL AND INSECT EXPOSURES											
				period <u>at or around</u> □ Fleas □ Tic		<u>me</u> ?	Describe					
If pets in the prevention i		e, how often are cation?	e they treated	with flea Typ	e(s)	of Treatment			Date(s) of Last Treatme	ent (mm/dd/yyyy)		
				period <u>away from l</u>		<u>e</u> ?	Describe					
-		observed, were □ Indoor □ C		ay, indoor, or outdo her:	or c	ats?						
21 days (inc	cludin			without shelter, in street, or in a temp			Describe					
Did patient recall any insect bites in the 10 days prior to illness? ☐ Yes ☐ No ☐ Unknown If Yes, specify all locations, type of insect bite, and dates below.												
INSECT BITE HISTORY - DETAILS												
Bite 1	Loca	ation (city, count	ty, state, count	ry)		Date of Insec	ct Bite (mm/dd/yyyy)	Type of Inse	ect Bite Tick □ Other:			
Bite 2	Loca	ation (city, count	ty, state, count	ry)		Date of Insect Bite (mm/dd/yyyy) Type of Inse			ect Bite Tick □ Other:			
EXPOSU	RES	/ RISK FACT	ORS – TRAI	NSFUSION / TRA	4 <i>NS</i>	SPLANTATI	ON					
Was patien ☐ Yes ☐		fection transfusi □ Unknown	ion or solid-org	gan-transplantation	ass	ociated?	If Yes, describe					
a solid-orga	an do			transfusion investig antation investigation		on or	lf Yes, describe					
TRAVEL	HIST	ORY										
Did patient travel outside county of residence during the incubation period? ☐ Yes ☐ No ☐ Unknown If Yes, specify all locations and dates below.												
TRAVEL HISTORY – DETAILS												
Travel Type	е		State Country Other location details (city, resort, etc.) Date Travel Started (mm/dd/yyyy) Date Travel Ended (mm/dd/yyyy)						Date Travel Ended (mm/dd/yyyy)			
□ Domesti		□ Unknown										
□ Domesti		□ Unknown										
□ Domesti		□ Unknown										

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Case Classification (see case definition on page 6)

☐ Suspect

☐ Suspect ☐ Not a case

☐ Probable

☐ Confirmed

STATE USE ONLY State Case Classification ☐ Confirmed ☐ Probable

California Department of Public He	alth							EHRLI	CHIOSIS	CASE R	REPORT
							nree letters of t's last name:				
ILL CONTACTS											
Any contacts with similar illness (i □ Yes □ No □ Unknown	ncluding hous	ehold cor	ntacts)	1?		If Yes,	specify details below.				
ILL CONTACTS - DETAILS											
Name 1	Age	Gende	r	Telephone	Nun	nber	Type of Contact / Relationship Date of Contact (mm/dd/yyy				
Street Address Exposure Event Illne					Illness Onse	t Date (mr	n/dd/yyy	ry)			
	City			State	Zip	Code	Occupation				
Name 2	Age	Gende	r	Telephone	Nun	nber	Type of Contact / Relationship	tionship Date of Contact (mm/dd/yyyy)			
	Street Address Exposure Event Illness Onset Date (mr.							n/dd/yyy	<i>'y)</i>		
	City			State	Zip	Code	e Occupation				
EPIDEMIOLOGICAL LINKA	3E										
Epi-linked to known case? ☐ Yes ☐ No ☐ Unknown			Cont	tact Name / C	ase	Number					
NOTES / REMARKS											
REPORTING AGENCY											
Investigator Name		Local	Healtl	h Jurisdiction			Telephone Number	Date (i	mm/dd/yyy	<i>y)</i>	
First Reported By ☐ Clinician ☐ Laboratory ☐	Other (specify	'):			_			•			
DISEASE CASE CLASSIFICA	ATION										

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☐ Need additional information

LITTLIOI	110010	OAGET	CLI OICI
First three letters of			
patient's last name:			

EHRLICHIOSIS CASE REPORT

CASE DEFINITION

EHRLICHIOSIS (2024)

SUBTYPES

Ehrlichia chaffeensis Ehrlichia ewingii Ehrlichia muris eauclairensis Ehrlichia, other spp. or unspeciated

BACKGROUND

Ehrlichiosis is the general name given to the diseases caused by obligate intracellular bacteria in the genus *Ehrlichia* within the family Anaplasmataceae. *Ehrlichia* species are tickborne pathogens and are the most commonly reported species transmitted by *Amblyomma americanum*, the lone star tick¹. The majority of reported human infections are caused by either *Ehrlichia chaffeensis* or *Ehrlichia ewingii*. Most cases of ehrlichiosis occur across the south-central, southeastern, and mid-Atlantic states, although *Ehrlichia muris eauclairensis*, which is transmitted by *Ixodes scapularis*, the blacklegged tick, has been reported from travelers to, or residents of, Minnesota and Wisconsin².³. Ehrlichiosis typically presents 5 to 14 days after a tick bite with a combination of nonspecific clinical symptoms, such as fever, fatigue, and headache. Illness is often accompanied by laboratory abnormalities including leukopenia, thrombocytopenia, and mildly elevated liver enzymes. Ehrlichiosis may result in severe illness or even death in older or immunocompromised individuals or if treatment is delayed. Serologic testing is commonly used to diagnosis ehrlichiosis, but antibodies to *Anaplasma* and *Ehrlichia* spp. can cross-react.

CLINICAL CRITERIA

Objective clinical evidence: 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.

Subjective clinical evidence: Any reported fever and one or more of the following: headache, myalgia, anemia, leukopenia, thrombocytopenia, or any

hepatic transaminase elevation.

LABORATORY CRITERIA

Confirmatory laboratory evidence:

- Detection of *E. chaffeensis**, *E. ewingii**, *E. muris eauclairensis**, unspeciated *Ehrlichia* spp., or other *Ehrlichia* spp. DNA in a clinical specimen via amplification of a specific target by polymerase chain reaction (PCR) assay, nucleic acid amplification tests (NAAT), or other molecular method, **OR**
- Serological evidence of a fourfold change** in immunoglobulin G (IgG)-specific antibody titer to Ehrlichia spp. antigen by indirect immunofluorescence
 assay (IFA) in paired serum samples (one taken in first two weeks after illness onset and a second taken two to ten weeks after acute specimen
 collection)***, OR
- $\bullet \ \ \, \text{Demonstration of ehrlichial antigen in a biopsy or autopsy sample by immunohistochemical methods } \textbf{OR}$
- Isolation of *E. chaffeensis**, *E. ewingii**, *E. muris eauclairensis**, unspeciated *Ehrlichia* spp., or other *Ehrlichia* spp. from a clinical specimen in cell culture with molecular confirmation (e.g., PCR or sequence).

Presumptive laboratory evidence:

- Serological evidence of elevated IgG antibody reactive with *Ehrlichia* spp. antigen by IFA at a titer ≥1:128 in a sample taken within 60 days of illness onset, **OR**
- · Microscopic identification of intracytoplasmic morulae in leukocytes in a sample taken within 60 days of illness onset.

Note: The categorical labels used here to stratify laboratory evidence are intended to support the standardization of case classifications for public health surveillance. The categorical labels should not be used to interpret the utility or validity of any laboratory test methodology.

- * Ehrlichia chaffeensis infection was formerly included in the category Human Monocytic Ehrlichiosis (HME); Ehrlichia ewingii infection was formerly included in the category Ehrlichiosis (unspecified, or other agent); Ehrlichia muris eauclairensis infection was formerly included in the category Undetermined Anaplasmosis/Ehrlichiosis.
- ** A four-fold change in titer is equivalent to a change of two dilutions (e.g., 1:64 to 1:256).
- *** A four-fold rise in titer should not be excluded as confirmatory laboratory criteria if the acute and convalescent specimens are collected within two weeks of one another.

CRITERIA TO DISTINGUISH A NEW CASE FROM AN EXISTING CASE

A person previously reported as a probable or confirmed case-patient may be counted as a new case-patient when there is an episode of new clinically compatible illness with confirmatory laboratory evidence.

(continued on page 7)

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LITTELO	110010	0/1021	CLI OICI
First three letters of			
patient's last name:			

EHRI ICHIOSIS CASE REPORT

CASE DEFINITION (continued)

CASE CLASSIFICATION

Confirmed

· Meets confirmatory laboratory evidence AND at least one of the objective or subjective clinical evidence criteria.

Probable

- Meets presumptive laboratory evidence with fever as reported by patient or healthcare provider AND at least one other objective or subjective clinical evidence criterion (excluding chills/sweats), OR
- · Meets presumptive laboratory evidence without a reported fever but with chills/sweats AND
 - o at least one objective clinical evidence criterion, OR
 - o two other subjective clinical evidence criteria.

Suspect

• Meets confirmatory or presumptive laboratory evidence with no or insufficient clinical information to classify as a confirmed or probable case (e.g., a laboratory report only).

COMMENTS

- Ehrlichiosis is reported at the species level only if molecular testing is performed, as antibodies to closely-related species of *Ehrlichia* can cross-react with multiple antigens; serologic assays cannot definitively distinguish between species. Therefore, *E. chaffeensis*, *E.* ewingii, and *E. muris* eauclairensis ehrlichiosis reported cases should only be classified as "Confirmed." Cases reported within the "*Ehrlichia*, other spp. or unspeciated" can be classified as either "Probable" or "Confirmed".
- Patients should not be classified as cases for both anaplasmosis and ehrlichiosis based on serologic evidence alone.
- Ehrlichia spp. bacteria are closely related to A. phagocytophilum, and many patients are tested using serologic panels that include targets for both species. As a result, it is not uncommon for jurisdictions to receive positive antibody results for both Ehrlichia spp. and Anaplasma with the same collection date for a single patient. Public health agencies should use a combination of titer levels, information about the location of possible exposures, clinical manifestations, and the incidence of a particular disease in the geographic areas of exposure to help determine the appropriate disease type for individual patients.

REFERENCES

- 1. Killmaster LF, Loftis AD, Zemtsova GE, Levin ML. Detection of Bacterial Agents in Amblyomma americanum (Acari: Ixodidae) From Georgia, USA, and the Use of a Multiplex Assay to Differentiate Ehrlichia chaffeensis and Ehrlichia ewingii. J Med Entomol 2014 Jul;51(4):868-872.
- 2. Pritt BS, Allerdice MEJ, Sloan LM, et al. Proposal to reclassify Ehrlichia muris as Ehrlichia muris subsp. muris subsp. nov. and description of Ehrlichia muris subsp. eauclairensis subsp. nov., a newly recognized tick-borne pathogen of humans. Int J Syst Evol Microbiol 2017 Jul;67(7):2121-2126.
- 3. Lynn GE, Burkhardt NY, Felsheim RF, et al. Ehrlichia Isolate from a Minnesota Tick: Characterization and Genetic Transformation. Appl Environ Microbiol 2019 Jul;85(14).

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EHRLICHIOSIS CASE REPORT

First three letters of		
patient's last name:		

RACE DESCRIPTION	NS					
Race	Descri	Description				
American Indian or Alasl	ka Native Patient	Patient has origins in any of the original peoples of North and South America (including Central America).				
Asian	(e.g., in	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 Sam			ican Samoa, or other Pacific Islands.			
White	Patient	Patient has origins in any of the original peoples of Europe, the Middle East, or North Africa.				
ASIAN GROUPS						
Bangladeshi	 Filipino 	 Japanese 	Maldivian	Sri Lankan		
Bhutanese	 Hmong 	 Korean 	 Nepalese 	 Taiwanese 		
Burmese	 Indian 	 Laotian 	 Okinawan 	• Thai		
 Cambodian 	 Indonesian 	 Madagascar 	 Pakistani 	 Vietnamese 		
• Chinese	 Iwo Jiman 	 Malaysian 	 Singaporean 			
NATIVE HAWAIIAN	AND OTHER PACIFIC ISLA	ANDER GROUPS				
Carolinian	Kiribati	Micronesian	 Pohnpeian 	Tahitian		
Chamorro	 Kosraean 	 Native Hawaiian 	 Polynesian 	 Tokelauan 		
Chuukese	Mariana Islander	New Hebrides	 Saipanese 	 Tongan 		
• Fijian	 Marshallese 	 Palauan 	 Samoan 	 Yapese 		
 Guamanian 	 Melanesian 	Papua New Guinean	 Solomon Islander 			

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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

- 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 waiter or waitress
- · 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 registered nurse
- · Medical other/unknown
- · Military officer
- · Military recruit or trainee
- · Protective service police officer
- · Protective service other
- · Professional, technical, or related profession
- Retired
- · Sex worker
- · Student preschool or kindergarten
- · Student elementary or middle school
- · Student high (secondary) school
- · Student college or university
- · Student other/unknown
- Teacher/employee preschool or kindergarten
- Teacher/employee elementary or middle school
- Teacher/employee high (secondary) school
- Teacher/instructor/employee college or university
- · Teacher/instructor/employee other/unknown
- Unemployed seeking employment
- · Unemployed not seeking employment
- Unemployed other/unknown
- Other
- Refused
- Unknown

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