



# Tick-Borne Rickettsial Disease Case Report

Use for: Spotted fever rickettsiosis (SFR) including Rocky Mountain spotted fever (RMSF), Ehrlichiosis (*E. chaffeensis*, *E. ewingii*, & undet.), and Anaplasmosis (*A. phagocytophilum* & undet.).

Visit <http://www.cdc.gov> and use "Search" for complete Case Definition(s) or

visit the disease web site(s) for a fillable/downloadable PDF version of this Case Report.



Form Approved  
OMB 0920-0009

CDC#     (1-4)

Patient's name: \_\_\_\_\_ Date submitted: \_\_\_\_/\_\_\_\_/\_\_\_\_ (mm/dd/yyyy)  
Address: \_\_\_\_\_ Physician's name: \_\_\_\_\_ Phone no.: \_\_\_\_\_  
(number, street)  
City: \_\_\_\_\_ NETSS ID No.: (if reported)            
Case ID (13-18) Site (19-21) State (22-23)

1. State of residence: \_\_\_\_\_ 2. County of residence: (26-50) \_\_\_\_\_ 3. Zip code: (51-59) \_\_\_\_\_ 4. Sex: (60)  
Postal abrv:   (24-25) History of travel outside county of residence within 30 days of onset of symptoms?: 1 YES 2 NO 9 Unk  
1 Male 9 Unk  
2 Female

5. Date of birth: \_\_\_\_/\_\_\_\_/\_\_\_\_ (mm/dd/yyyy) 6. Race: (69) 1 White 3 American Indian Alaskan Native 5 Pacific Islander 7. Hispanic ethnicity: (70) 1 Yes 2 No 9 Unk  
(61-62) (63-64) (65-68)

8. Indicate Disease (Presumed) To Be Reported: (71) 1 SFR (including RMSF) 3 Anaplasmosis - *A. phagocytophilum* 5 Ehrlichiosis/Anaplasmosis - Undetermined  
2 Ehrlichiosis - *E. chaffeensis* 4 Ehrlichiosis - *E. ewingii*

9. Was a clinically compatible illness present? (72) If there is no presence of clinical illness, then this is not a case. Clinical evidence - fever and one or more of the following: rash (primarily SFR), headache, myalgia, anemia, leukopenia (Ehrlich. & Anaplas.), thrombocytopenia, or elevated hepatic transaminases. 1 YES 2 NO 9 Unk  
Eschar (aka tache noire) or black, necrotic area around site of known/possible tick bite present? 1 YES 2 NO 9 Unk  
10. Date of Onset of Symptoms: \_\_\_\_/\_\_\_\_/\_\_\_\_ (mm/dd/yyyy) (73-80)

11. Was an underlying immunosuppressive condition present? (81) 1 YES 2 NO 9 Unk Specify condition(s): \_\_\_\_\_  
12. Specify any life-threatening complications in the clinical course of illness: (82) 1 Adult respiratory distress syndrome (ARDS) 3 Meningitis/encephalitis  
2 Disseminated intravascular coagulopathy (DIC) 4 Renal failure 9 None  
8 Other: \_\_\_\_\_

13. Was the patient hospitalized because of this illness? (83) (If yes, date) 1 YES 2 NO 9 Unk \_\_\_\_/\_\_\_\_/\_\_\_\_ (mm/dd/yyyy) (84-85) (86-87) (88-91)  
14. Did the patient die because of this illness? (92) (If yes, date) 1 YES 2 NO 9 Unk \_\_\_\_/\_\_\_\_/\_\_\_\_ (mm/dd/yyyy) (93-94) (95-96) (97-100)

15. Name of laboratory: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
Below, indicate Y (Yes) or N (No), ONLY if the test or procedure was performed. Lack of selection indicates that the test or procedure was not performed.

16. Serologic Tests	COLLECTION DATE (mm/dd/yyyy)			COLLECTION DATE (mm/dd/yyyy)		
	Serology 1 Titer	(101-2) (103-4) (105-8) Positive?	Serology 2* Titer	(109-10) (111-12) (113-16) Positive?	17. Other Diagnostic Test? (Use # 16, S1 for collection date)	Positive?
IFA - IgG	(_____) 1 YES 2 NO (117)	(_____) 1 YES 2 NO (118)	PCR	1 YES 2 NO (133)		
IFA - IgM	(_____) 1 YES 2 NO (119)	(_____) 1 YES 2 NO (120)	Morulae visualization*	1 YES 2 NO (134)		
Other test: (121-130)	(_____) 1 YES 2 NO (131)	(_____) 1 YES 2 NO (132)	Immunostain	1 YES 2 NO (135)		
			Culture	1 YES 2 NO (136)		

\* Visualization of morulae not applicable for SFR.

\* Was there a fourfold change in antibody titer between the two serum specimens? 1 YES 2 NO (137)

18. Classify case BASED ON the CDC case definition (see criteria below): (138) 1 SFR (including RMSF) 2 Ehrlichiosis - *E. chaffeensis* 3 Anaplasmosis - *A. phagocytophilum* 4 Ehrlichiosis - *E. ewingii* 5 Ehrlichiosis/Anaplasmosis - Undetermined  
State Health Department Official who reviewed this report: (149) Name: \_\_\_\_\_ Title: \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_ (mm/dd/yyyy)

COMMENTS:

**Confirmed SFR (including RMSF):** A clinically compatible case with evidence of a fourfold change in IgG antibody titer reactive with *Rickettsia rickettsii* or other SFR antigens by IFA between paired serum specimens, one taken during the first week of illness and a second 2-4 weeks later, OR detection of *R. rickettsii* or other SFR DNA in a clinical specimen via amplification of a specific target by PCR assay, OR demonstration of SFR antigen in a biopsy/autopsy specimen by IHC, OR isolation of *R. rickettsii* or other SFR species from a clinical specimen in cell culture.  
**Probable SFR (including RMSF):** A clinically compatible case with evidence of elevated IgG or IgM antibody reactive with *R. rickettsii* or other SFR antigens by IFA, enzyme-linked immunosorbent assay (ELISA), dot-ELISA, or latex agglutination (CDC uses an IFA IgG cutoff of  $\geq 1:64$  and does not use IgM test results as independent diagnostic support criteria).  
**Note:** Current commercially available ELISA tests cannot evaluate changes in antibody titer. IgM tests may be unreliable because they lack specificity. IgM antibody may persist for lengthy periods of time. When sera demonstrate elevated antibody responses to multiple infectious agents among rickettsial species, and between ehrlichial and anaplasmal species, the greater antibody response is generally directed at the actual agent involved.

**Confirmed Ehrlichiosis/Anaplasmosis:** A clinically compatible case with evidence of a fourfold change in IgG antibody titer reactive with *Ehrlichia chaffeensis* or *Anaplasma phagocytophilum* antigen by IFA between paired serum specimens (one taken during the first week of illness and a second 2-4 weeks later) OR detection of *E. chaffeensis* or *A. phagocytophilum* DNA in a clinical specimen via amplification of a specific target by PCR assay, OR demonstration of ehrlichial or anaplasmal antigen in a biopsy/autopsy specimen by IHC, OR isolation of *E. chaffeensis* or *A. phagocytophilum* from a clinical specimen in cell culture.  
**Probable Ehrlichiosis/Anaplasmosis:** A clinically compatible case with evidence of elevated IgG or IgM antibody reactive with *E. chaffeensis* or *A. phagocytophilum* antigen by IFA, enzyme-linked immunosorbent assay (ELISA), dot-ELISA, or assays in other formats (CDC uses an IFA IgG cutoff of  $\geq 1:64$  and does not use IgM test results as independent diagnostic support criteria), OR identification of morulae in the cytoplasm of monocytes or macrophages (Ehrlichiosis) or in the cytoplasm of neutrophils or eosinophils (Anaplasmosis) by microscopic examination.

Public reporting burden of this collection of information is estimated to average 10 minutes per response. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. Please send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to CDC/ATSDR Reports Clearance Officer, 1600 Clifton Rd., NE (MS D-74); Atlanta, GA 30333; ATTN: PRA (0920-0009).



# Tick-Borne Rickettsial Disease Case Report

Use for: Spotted fever rickettsiosis (SFR) including Rocky Mountain spotted fever (RMSF), Ehrlichiosis (*E. chaffeensis*, *E. ewingii*, & undet.), and Anaplasmosis (*A. phagocytophilum* & undet.).

Visit <http://www.cdc.gov> and use "Search" for complete Case Definition(s) or

visit the disease web site(s) for a fillable/downloadable PDF version of this Case Report.



Form Approved  
OMB 0920-0009

CDC#     (1-4)

	Date submitted: _____ (mm/dd/yyyy) <small>(5-6) (7-8) (9-12)</small>
	Physician's name: _____ Phone no.: _____
	NETSS ID No.: (if reported) <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <small>Case ID (13-18) Site (19-21) State (22-23)</small>

1. State of residence: Postal abrv: <input type="text"/> <input type="text"/> (24-25)	2. County of residence: (26-50) History of travel outside county of residence within 30 days of onset of symptoms?: 1 YES 2 NO 9 Unk	3. Zip code: (51-59) _____ - _____	4. Sex: (60) 1 Male 9 Unk 2 Female
---	---	------------------------------------	--

5. Date of birth: (61-62) (63-64) (65-68) _____ (mm/dd/yyyy)	6. Race: (69) 1 White 3 American Indian Alaskan Native 5 Pacific Islander 2 Black 4 Asian 9 Not specified	7. Hispanic ethnicity: (70) 1 Yes 2 No 9 Unk
--	---	---

8. Indicate Disease (Presumed) To Be Reported: (71) 1 SFR (including RMSF) 3 Anaplasmosis - <i>A. phagocytophilum</i> 5 Ehrlichiosis/Anaplasmosis - Undetermined 2 Ehrlichiosis - <i>E. chaffeensis</i> 4 Ehrlichiosis - <i>E. ewingii</i>
--

9. Was a clinically compatible illness present? (72) <small>Clinical evidence - fever and one or more of the following: rash (primarily SFR), headache, myalgia, anemia, leukopenia (Ehrlich. &amp; Anaplas.), thrombocytopenia, or elevated hepatic transaminases.</small> 1 YES 2 NO 9 Unk <small>Eschar (aka tache noire) or black, necrotic area around site of known/possible tick bite present?</small> 1 YES 2 NO 9 Unk	10. Date of Onset of Symptoms: (73-80) _____ (mm/dd/yyyy)
--	---

11. Was an underlying immunosuppressive condition present? (81) 1 YES 2 NO 9 Unk Specify condition(s): _____	12. Specify any life-threatening complications in the clinical course of illness: (82) 1 Adult respiratory distress syndrome (ARDS) 3 Meningitis/encephalitis 2 Disseminated intravascular coagulopathy (DIC) 4 Renal failure 9 None 8 Other: _____
--	--

13. Was the patient hospitalized because of this illness? (83) (If yes, date) 1 YES 2 NO 9 Unk _____ (mm/dd/yyyy) <small>(84-85) (86-87) (88-91)</small>	14. Did the patient die because of this illness? (92) (If yes, date) 1 YES 2 NO 9 Unk _____ (mm/dd/yyyy) <small>(93-94) (95-96) (97-100)</small>
--	--

15. Name of laboratory: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
Below, indicate Y (Yes) or N (No), **ONLY** if the test or procedure was performed. **Lack of selection** indicates that the test or procedure was not performed.

16. Serologic Tests	COLLECTION DATE (mm/dd/yyyy)			COLLECTION DATE (mm/dd/yyyy)		
	Serology 1 Titer	Positive?		Serology 2* Titer	Positive?	
IFA - IgG	(_____) 1	YES 2 NO (117)	(_____) 1	YES 2 NO (118)		
IFA - IgM	(_____) 1	YES 2 NO (119)	(_____) 1	YES 2 NO (120)		
Other test: (121-130)	(_____) 1	YES 2 NO (131)	(_____) 1	YES 2 NO (132)		

17. Other Diagnostic Test? (Use # 16, S1 for collection date)	Positive?	
PCR	1 YES 2 NO (133)	
Morulae visualization*	1 YES 2 NO (134)	
Immunostain	1 YES 2 NO (135)	
Culture	1 YES 2 NO (136)	

\* Visualization of morulae not applicable for SFR.

\* Was there a fourfold change in antibody titer between the two serum specimens? 1 YES 2 NO (137)

18. Classify case BASED ON the CDC case definition (see criteria below): <small>(138)</small> 1 SFR (including RMSF) 2 Ehrlichiosis - <i>E. chaffeensis</i> 3 Anaplasmosis - <i>A. phagocytophilum</i> 4 Ehrlichiosis - <i>E. ewingii</i> 5 Ehrlichiosis/Anaplasmosis - Undetermined	<small>(149)</small> 1 <b>CONFIRMED</b> 2 <b>PROBABLE</b>	State Health Department Official who reviewed this report: Name: _____ Title: _____ Date: _____ (mm/dd/yyyy)
--	---	--

COMMENTS:

**Confirmed SFR (including RMSF):** A clinically compatible case with evidence of a fourfold change in IgG antibody titer reactive with *Rickettsia rickettsii* or other SFR antigens by IFA between paired serum specimens, one taken during the first week of illness and a second 2-4 weeks later, OR detection of *R. rickettsii* or other SFR DNA in a clinical specimen via amplification of a specific target by PCR assay, OR demonstration of SFR antigen in a biopsy/autopsy specimen by IHC, OR isolation of *R. rickettsii* or other SFR species from a clinical specimen in cell culture.

**Probable SFR (including RMSF):** A clinically compatible case with evidence of elevated IgG or IgM antibody reactive with *R. rickettsii* or other SFR antigens by IFA, enzyme-linked immunosorbent assay (ELISA), dot-ELISA, or latex agglutination (CDC uses an IFA IgG cutoff of  $\geq 1:64$  and does not use IgM test results as independent diagnostic support criteria).

**Note:** Current commercially available ELISA tests cannot evaluate changes in antibody titer. IgM tests may be unreliable because they lack specificity. IgM antibody may persist for lengthy periods of time. When sera demonstrate elevated antibody responses to multiple infectious agents among rickettsial species, and between ehrlichial and anaplasma species, the greater antibody response is generally directed at the actual agent involved.

**Confirmed Ehrlichiosis/Anaplasmosis:** A clinically compatible case with evidence of a fourfold change in IgG antibody titer reactive with *Ehrlichia chaffeensis* or *Anaplasma phagocytophilum* antigen by IFA, enzyme-linked immunosorbent assay (ELISA), dot-ELISA, or assays in other formats (CDC uses an IFA IgG cutoff of  $\geq 1:64$  and does not use IgM test results as independent diagnostic support criteria), OR identification of morulae in the cytoplasm of monocytes or macrophages (Ehrlichiosis) or in the cytoplasm of neutrophils or eosinophils (Anaplasmosis) by microscopic examination.

**Probable Ehrlichiosis/Anaplasmosis:** A clinically compatible case with evidence of elevated IgG or IgM antibody reactive with *E. chaffeensis* or *A. phagocytophilum* antigen by IFA, enzyme-linked immunosorbent assay (ELISA), dot-ELISA, or assays in other formats (CDC uses an IFA IgG cutoff of  $\geq 1:64$  and does not use IgM test results as independent diagnostic support criteria).

Public reporting burden of this collection of information is estimated to average 10 minutes per response. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. Please send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to CDC/ATSDR Reports Clearance Officer, 1600 Clifton Rd., NE (MS D-74); Atlanta, GA 30333; ATTN: PRA (0920-0009).



# Tick-Borne Rickettsial Disease Case Report

Use for: Spotted fever rickettsiosis (SFR) including Rocky Mountain spotted fever (RMSF), Ehrlichiosis (*E. chaffeensis*, *E. ewingii*, & undet.), and Anaplasmosis (*A. phagocytophilum* & undet.).

Visit <http://www.cdc.gov> and use "Search" for complete Case Definition(s) or

visit the disease web site(s) for a fillable/downloadable PDF version of this Case Report.



Form Approved  
OMB 0920-0009

CDC#     (1-4)

Patient's name: \_\_\_\_\_ Date submitted: \_\_\_\_/\_\_\_\_/\_\_\_\_ (mm/dd/yyyy)  
Address: \_\_\_\_\_ Physician's name: \_\_\_\_\_ Phone no.: \_\_\_\_\_  
(number, street)  
City: \_\_\_\_\_ NETSS ID No.: (if reported)            
Case ID (13-18) Site (19-21) State (22-23)

1. State of residence: \_\_\_\_\_ Postal abrv:   (24-25)  
2. County of residence: (26-50) \_\_\_\_\_ History of travel outside county of residence within 30 days of onset of symptoms?: 1 YES 2 NO 9 Unk  
3. Zip code: (51-59) \_\_\_\_\_ - \_\_\_\_\_  
4. Sex: (60)  
1 Male 9 Unk  
2 Female

5. Date of birth: \_\_\_\_/\_\_\_\_/\_\_\_\_ (mm/dd/yyyy)  
(61-62) (63-64) (65-68)  
6. Race: (69)  
1 White 3 American Indian Alaskan Native 5 Pacific Islander  
2 Black 4 Asian 9 Not specified  
7. Hispanic ethnicity: (70)  
1 Yes  
2 No  
9 Unk

8. Indicate Disease (Presumed) To Be Reported: (71)  
1 SFR (including RMSF) 3 Anaplasmosis - *A. phagocytophilum* 5 Ehrlichiosis/Anaplasmosis - Undetermined  
2 Ehrlichiosis - *E. chaffeensis* 4 Ehrlichiosis - *E. ewingii*

9. Was a clinically compatible illness present? (72) If there is no presence of clinical illness, then this is not a case.  
Clinical evidence - fever and one or more of the following: rash (primarily SFR), headache, myalgia, anemia, leukopenia (Ehrlich. & Anaplas.), thrombocytopenia, or elevated hepatic transaminases. 1 YES 2 NO 9 Unk  
Eschar (aka tache noire) or black, necrotic area around site of known/possible tick bite present? 1 YES 2 NO 9 Unk  
10. Date of Onset of Symptoms: \_\_\_\_/\_\_\_\_/\_\_\_\_ (mm/dd/yyyy)  
(73-80)

11. Was an underlying immunosuppressive condition present? (81)  
1 YES 2 NO 9 Unk  
Specify condition(s): \_\_\_\_\_  
12. Specify any life-threatening complications in the clinical course of illness: (82)  
1 Adult respiratory distress syndrome (ARDS) 3 Meningitis/encephalitis  
2 Disseminated intravascular coagulopathy (DIC) 4 Renal failure 9 None  
8 Other: \_\_\_\_\_

13. Was the patient hospitalized because of this illness? (83) (If yes, date)  
1 YES 2 NO 9 Unk \_\_\_\_/\_\_\_\_/\_\_\_\_ (mm/dd/yyyy)  
(84-85) (86-87) (88-91)  
14. Did the patient die because of this illness? (92) (If yes, date)  
1 YES 2 NO 9 Unk \_\_\_\_/\_\_\_\_/\_\_\_\_ (mm/dd/yyyy)  
(93-94) (95-96) (97-100)

15. Name of laboratory: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
Below, indicate Y (Yes) or N (No), ONLY if the test or procedure was performed. Lack of selection indicates that the test or procedure was not performed.

16. Serologic Tests	COLLECTION DATE (mm/dd/yyyy)			COLLECTION DATE (mm/dd/yyyy)		
	Serology 1 Titer	(101-2) (103-4) (105-8) Positive?	Serology 2* Titer	(109-10) (111-12) (113-16) Positive?	17. Other Diagnostic Test? (Use # 16, S1 for collection date)	Positive?
IFA - IgG	(_____) 1 YES 2 NO (117)	(_____) 1 YES 2 NO (118)	PCR	1 YES 2 NO (133)		
IFA - IgM	(_____) 1 YES 2 NO (119)	(_____) 1 YES 2 NO (120)	Morulae visualization*	1 YES 2 NO (134)		
Other test: (121-130)	(_____) 1 YES 2 NO (131)	(_____) 1 YES 2 NO (132)	Immunostain	1 YES 2 NO (135)		
			Culture	1 YES 2 NO (136)		

\* Visualization of morulae not applicable for SFR.

\* Was there a fourfold change in antibody titer between the two serum specimens? 1 YES 2 NO (137)

18. Classify case BASED ON the CDC case definition (see criteria below):  
1 SFR (including RMSF) 2 Ehrlichiosis - *E. chaffeensis*  
3 Anaplasmosis - *A. phagocytophilum* 4 Ehrlichiosis - *E. ewingii*  
5 Ehrlichiosis/Anaplasmosis - Undetermined  
(138) (149)  
1 CONFIRMED  
2 PROBABLE  
State Health Department Official who reviewed this report:  
Name: \_\_\_\_\_ Title: \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_ (mm/dd/yyyy)

COMMENTS:

**Confirmed SFR (including RMSF):** A clinically compatible case with evidence of a fourfold change in IgG antibody titer reactive with *Rickettsia rickettsii* or other SFR antigens by IFA between paired serum specimens, one taken during the first week of illness and a second 2-4 weeks later, OR detection of *R. rickettsii* or other SFR DNA in a clinical specimen via amplification of a specific target by PCR assay, OR demonstration of SFR antigen in a biopsy/autopsy specimen by IHC, OR isolation of *R. rickettsii* or other SFR species from a clinical specimen in cell culture.  
**Probable SFR (including RMSF):** A clinically compatible case with evidence of elevated IgG or IgM antibody reactive with *R. rickettsii* or other SFR antigens by IFA, enzyme-linked immunosorbent assay (ELISA), dot-ELISA, or latex agglutination (CDC uses an IFA IgG cutoff of  $\geq 1.64$  and does not use IgM test results as independent diagnostic support criteria).  
**Note:** Current commercially available ELISA tests cannot evaluate changes in antibody titer. IgM tests may be unreliable because they lack specificity. IgM antibody may persist for lengthy periods of time. When sera demonstrate elevated antibody responses to multiple infectious agents among rickettsial species, and between ehrlichial and anaplasma species, the greater antibody response is generally directed at the actual agent involved.

**Confirmed Ehrlichiosis/Anaplasmosis:** A clinically compatible case with evidence of a fourfold change in IgG antibody titer reactive with *Ehrlichia chaffeensis* or *Anaplasma phagocytophilum* antigen by IFA between paired serum specimens (one taken during the first week of illness and a second 2-4 weeks later) OR detection of *E. chaffeensis* or *A. phagocytophilum* DNA in a clinical specimen via amplification of a specific target by PCR assay, OR demonstration of ehrlichial or anaplasma antigen in a biopsy/autopsy specimen by IHC, OR isolation of *E. chaffeensis* or *A. phagocytophilum* from a clinical specimen in cell culture.  
**Probable Ehrlichiosis/Anaplasmosis:** A clinically compatible case with evidence of elevated IgG or IgM antibody reactive with *E. chaffeensis* or *A. phagocytophilum* antigen by IFA, enzyme-linked immunosorbent assay (ELISA), dot-ELISA, or assays in other formats (CDC uses an IFA IgG cutoff of  $\geq 1.64$  and does not use IgM test results as independent diagnostic support criteria), OR identification of morulae in the cytoplasm of monocytes or macrophages (Ehrlichiosis) or in the cytoplasm of neutrophils or eosinophils (Anaplasmosis) by microscopic examination.

Public reporting burden of this collection of information is estimated to average 10 minutes per response. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. Please send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to CDC/ATSDR Reports Clearance Officer, 1600 Clifton Rd., NE (MS D-74); Atlanta, GA 30333; ATTN: PRA (0920-0009).