

**North Carolina Department of Health and Human Services  
Division of Public Health • Epidemiology Section  
Communicable Disease Branch**



**ATTENTION HEALTH CARE PROVIDERS:**

Please report relevant clinical findings about this disease event to the local health department.

**EHRlichiosis, HGA  
Confidential Communicable Disease Report—Part 2  
NC DISEASE CODE: 571**

**REMINDER to Local Health Department staff: If sending this form to the Health Care Provider, remember to attach a cover letter from your agency indicating the part(s) of the form the provider should complete.**

Patient's Last Name	First	Middle	Suffix	Maiden/Other	Alias	Birthdate (mm/dd/yyyy) / /
						SSN / /

**NC EDSS LAB RESULTS** Verify if lab results for this event are in NC EDSS. If not present, enter results.

Name of laboratory \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ ZIP \_\_\_\_\_

SEROLOGIC TESTS Indicate Y(es) or N(o) ONLY if the test was performed.	SEROLOGY 1		SEROLOGY 2		Other Diagnostic Tests?	Positive?
	Collection Date (mm/dd/yyyy)	Specimen #	Collection Date (mm/dd/yyyy)	Specimen #		
IFA-IgG	( )	<input type="checkbox"/> Y <input type="checkbox"/> N	( )	<input type="checkbox"/> Y <input type="checkbox"/> N	PCR	<input type="checkbox"/> Y <input type="checkbox"/> N
IFA-IgM	( )	<input type="checkbox"/> Y <input type="checkbox"/> N	( )	<input type="checkbox"/> Y <input type="checkbox"/> N	Morulae visualization	<input type="checkbox"/> Y <input type="checkbox"/> N
	( )	<input type="checkbox"/> Y <input type="checkbox"/> N	( )	<input type="checkbox"/> Y <input type="checkbox"/> N	Immunostain	<input type="checkbox"/> Y <input type="checkbox"/> N
Other test: _____	( )	<input type="checkbox"/> Y <input type="checkbox"/> N	( )	<input type="checkbox"/> Y <input type="checkbox"/> N	Culture	<input type="checkbox"/> Y <input type="checkbox"/> N

Comments/details: \_\_\_\_\_

Was there a fourfold change in antibody titer between the two serum specimens?  Y  N

**NC EDSS PART 2 WIZARD COMMUNICABLE DISEASE**

Is/was patient symptomatic for this disease?  Y  N  U

If yes, symptom onset date (mm/dd/yyyy): \_\_\_/\_\_\_/\_\_\_

CHECK ALL THAT APPLY:

Fever  Y  N  U

Headache  Y  N  U

Meningitis  Y  N  U

Encephalitis  Y  N  U

Muscle aches/pains (myalgias)  Y  N  U

Thrombocytopenia  Y  N  U

Leukopenia  Y  N  U

Anemia  Y  N  U

Elevated liver enzymes  Y  N  U

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**CLINICAL FINDINGS**

Acute respiratory distress syndrome (ARDS)  Y  N  U

Acute renal failure  Y  N  U

Disseminated intravascular coagulation  Y  N  U

Other symptoms, signs, clinical findings, or complications consistent with this illness  Y  N  U

If yes, specify: \_\_\_\_\_

**TREATMENT**

Did patient take an antibiotic as treatment for this illness?  Y  N  U

If yes:

Check all antibiotics that apply:

Doxycycline  Chloramphenicol

Unknown

Other (specify) \_\_\_\_\_

Date antibiotic began (mm/dd/yyyy): \_\_\_/\_\_\_/\_\_\_

If no:

Did patient refuse treatment?  Y  N  U

**PREDISPOSING CONDITIONS**

Any immunosuppressive conditions  Y  N  U

Please specify: \_\_\_\_\_

**HOSPITALIZATION INFORMATION**

Was patient hospitalized for this illness >24 hours?  Y  N  U

Hospital name: \_\_\_\_\_

City, State: \_\_\_\_\_

Hospital contact name: \_\_\_\_\_

Telephone: ( ) - -

Admit date (mm/dd/yyyy): \_\_\_/\_\_\_/\_\_\_

Discharge date (mm/dd/yyyy): \_\_\_/\_\_\_/\_\_\_

**CLINICAL OUTCOMES**

Discharge/Final diagnosis: \_\_\_\_\_

Survived?  Y  N  U

Status at time of report:

Fully recovered

Survived but experiencing sequelae (residual deficit from illness) at time of report

Died?  Y  N  U

Died from this illness?  Y  N  U

Date of death (mm/dd/yyyy): \_\_\_/\_\_\_/\_\_\_

Patient's Last Name	First	Middle	Suffix	Maiden/Other	Alias	Birthdate (mm/dd/yyyy) / /
						SSN

**TRAVEL/IMMIGRATION**

The patient is:  
 Resident NC  
 Resident of another state or US territory  
 None of the above

Did patient have a travel history during the 14 days prior to onset of symptoms? .....  Y  N  U

List travel dates and destinations \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Additional travel/residency information:

**VECTOR EXPOSURES**

During the 14 days prior to onset of symptoms, did the patient have an opportunity for exposure to ticks? .....  Y  N  U

Exposed on (mm/dd/yyyy): \_\_\_\_/\_\_\_\_/\_\_\_\_  
 Until (mm/dd/yyyy): \_\_\_\_/\_\_\_\_/\_\_\_\_

Frequency  
 Once  
 Multiple times within this time period  
 Daily

Exposure setting \_\_\_\_\_  
 City/county of exposure \_\_\_\_\_  
 State of exposure \_\_\_\_\_  
 Country of exposure \_\_\_\_\_

Was the tick embedded? .....  Y  N  U

How long? \_\_\_\_\_  
 Hours  
 Days  
 Unknown

Notes:

**CASE INTERVIEWS/INVESTIGATIONS**

Was the patient interviewed? .....  Y  N  U  
 Date of interview (mm/dd/yyyy): \_\_\_\_/\_\_\_\_/\_\_\_\_

Medical records reviewed (including telephone review with provider/office staff)? .....  Y  N  U

Specify reason if medical records were not reviewed:

Notes on medical record verification:

**GEOGRAPHICAL SITE OF EXPOSURE**

In what geographic location was the patient MOST LIKELY exposed?

Specify location:  
 In NC  
 City \_\_\_\_\_  
 County \_\_\_\_\_  
 Outside NC, but within US  
 City \_\_\_\_\_  
 State \_\_\_\_\_  
 County \_\_\_\_\_  
 Outside US  
 City \_\_\_\_\_  
 Country \_\_\_\_\_  
 Unknown

Is the patient part of an outbreak of this disease? .....  Y  N

Notes:

## **Ehrlichiosis/Anaplasmosis**

### **2008 Case Definition**

#### **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. Intracytoplasmic bacterial aggregates (morulae) may be visible in the leukocytes of some patients.

#### **Clinical evidence**

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

#### **Laboratory evidence**

For the purposes of surveillance,

1. ***Ehrlichia chaffeensis* infection** (formerly included in the category Human Monocytic Ehrlichiosis [HME]):

Laboratory confirmed:

- 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.

Laboratory supportive:

- 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.

2. ***Ehrlichia ewingii* infection** (formerly included in the category Ehrlichiosis [unspecified, or other agent]):

Laboratory confirmed:

- 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.

3. ***Anaplasma phagocytophilum* infection** (formerly included in the category Human Granulocytic Ehrlichiosis [HGE]):

Laboratory confirmed:

- 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 anaplasma antigen in a biopsy/autopsy sample by immunohistochemical methods, **or**
- Isolation of *A. phagocytophilum* from a clinical specimen in cell culture.

Laboratory supportive:

- 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  $\geq$ 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.

4. **Human ehrlichiosis/anaplasmosis – undetermined:**

- See case classification

#### **Exposure**

Exposure is defined as having been in potential tick habitats within the past 14 days before onset of symptoms. A history of a tick bite is not required.

#### **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).