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, HME
Confidential Communicable Disease Report—Part 2
NC DISEASE CODE: 572

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 Collection Date (mm/dd/yyyy) _____ Specimen # _____ Titer/Result	Positive?	SEROLOGY 2 Collection Date (mm/dd/yyyy) _____ Specimen # _____ Titer/Result	Positive?
IFA-IgG	(_____)	☐Y ☐N	(_____)	☐Y ☐N
IFA-IgM	(_____)	☐Y ☐N	(_____)	☐Y ☐N
Other test:_____	(_____)	☐Y ☐N	(_____)	☐Y ☐N

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

Other Diagnostic Tests?	Positive?
PCR	☐Y ☐N
Morulae visualization	☐Y ☐N
Immunostain	☐Y ☐N
Culture	☐Y ☐N

Comments/details:

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

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 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

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 anaplasmal 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 ≥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).