Anaplasmosis
North Carolina 2024 Case Definition

NOTE: A surveillance case definition is a set of uniform criteria used to define a disease for public health surveillance. Surveillance case definitions enable public health officials to classify and count cases consistently across reporting jurisdictions. Surveillance case definitions are not intended to be used by healthcare providers for making a clinical diagnosis or determining how to meet an individual patient's health needs.

CSTE Position Statement 23-ID-01

Background

Anaplasmosis is a tickborne disease caused by the bacterium Anaplasma *phagocytophilum*. *Ixodes scapularis*, or the blacklegged tick, is the primary vector in the northeastern and midwestern United States. The western blacklegged tick, *Ixodes pacificus*, is the principal vector along the West Coast.

Clinical Description

Anaplasmosis 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.

Clinical Criteria

- Objective clinical evidence: fever as reported by patient or healthcare provider, anemia, leukopenia, thrombocytopenia, any hepatic transaminase elevation, or elevated C-reactive protein
- Subjective clinical evidence: chills/sweats, headache, myalgia, or fatigue/malaise

Laboratory Criteria*

Confirmatory laboratory evidence:

- Detection of *A. phagocytophilum* 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 testing
  OR
- Serological evidence of a four-fold change[1] in IgG-specific antibody titer to *A. phagocytophilum* antigen by indirect immunofluorescence assay (IFA) in paired serum samples (one taken in the first two weeks after illness onset and a second taken two to ten weeks after acute specimen collection)[2]
  OR
- Demonstration of anaplasmal antigen in a biopsy or autopsy sample by immunohistochemical methods
  OR
- Isolation of *A. phagocytophilum* from a clinical specimen in cell culture with molecular confirmation (e.g.,PCR or sequencing)

Presumptive laboratory evidence:

- Serological evidence of elevated IgG antibody reactive with *A. phagocytophilum* 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.

Case Classifications

*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**
  - at least one objective clinical evidence criterion, **OR**
  - 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).

Criteria to Distinguish a New Case of Anaplasmosis from Reports or Notifications which Should Not be Enumerated as a New Case for Surveillance

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.

**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.*

*** Patients should not be classified as cases for both anaplasmosis and ehrlichiosis based on serologic evidence alone.*

[1] A four-fold change in titer is equivalent to a change of two dilutions (e.g., 1:64 to 1:256).
[2] 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.