ESP CASE DETECTION ALGORITHM

Anaplasmosis

Document Version 1.4

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Modification History

Version	Date	Modification	By
1.4	11/25/2019	Hospitalization data is a future consideration	DPM
1.3	07/15/2019	Revised case criteria and case update criteria	DPM/DPH/CII
1.2	2/26/2018	Revised laboratory tests and medications	DPM/DPH
1.1	02/14/2018	Revised to include comments from CII, DPM, and DPH	DPM
1.0	12/18/18	Initial Draft	ESP Working group

Section 1. *Overview*

The purpose of this document is to describe the criteria used to identify and report cases of anaplasmosis from electronic medical records (EMR) using ESP and report them to the Massachusetts Department of Public Health (MDPH).

Section 2. *Criteria used to identify cases using ESP data*

I. CASE TYPES

This document includes an algorithm to identify incident cases of anaplasmosis.

II. TIME WINDOW

The recurrence interval for anaplasmosis is one year

III. CASE CRITERIA

Any one of the following:

1. Positive *A. phagocytophilum* PCR [anaplasmosis_pcr]

2. *A. phagocytophilum* HGA IGG IFA assay value greater than or equal to 1:80 [anaplasmosis_hga_igg_80] OR *A. phagocytophilum* HGE IGG IFA assay value greater than or equal to 1:64 [anaplasmosis_hge_igg_64] AND at least one of the following up to 14 days before or 14 days after the IFA collection date:
    a. Diagnosis code for a symptom related to Anaplasmosis (Section 4, Table 1)
    b. Medication order to treat Anaplasmosis (Section 4, Table 3)

3. *A. phagocytophilum* HGA IGM IFA assay value greater than or equal to 1:16 [anaplasmosis_hga_igm_16] OR *A. phagocytophilum* HGE IGM IFA assay value greater than or equal to 1:20 [anaplasmosis_hge_igm_20] AND at least one of the following up to 14 days before or 14 days after the IFA collection date:
    a. Diagnosis code for a symptom related to Anaplasmosis (Section 4, Table 1)
    b. Medication order to treat Anaplasmosis (Section 4, Table 3)

4. Diagnosis code for Anaplasmosis (Section 4, Table 2) and a prescription for an antibiotic to treat Anaplasmosis (Section 4, Table 3) within 14 days of one another

IV. CRITERIA TO REVOKE A CASE

None.

Section 3. *Specifications for reporting diseases/conditions to the Massachusetts Department of Public Health*

I. INITIAL CASE REPORTING CRITERIA

All cases should be immediately reported to MDPH upon initial detection.

II. CASE REPORT UPDATE CRITERIA

ESP will send an updated report to MDPH based on new laboratory result (Section 4, Table 4), symptom (Section 4, Table 1), and/or fever up to 14 days before or after the case date.

III. DATA TO INCLUDE IN INITIAL REPORTS TO MDPH

Once a patient is identified, gather the following data to generate a report:

A. Demographic

Name	Last, first, middle
Date of birth	yyyy/mm/dd
Gender	Male / Female
Race	American Indian / Asian / Black / White / Other / Unknown
Ethnicity	Hispanic / Non-Hispanic / Unknown
Address	Line 1, line 2, city, state, zip, country
Phone	xxx-xxx-xxxx
Language spoken	
Medical record number	
PCP	Name, office address, phone number, email

B. Encounter Facility Information

Facility name	
Facility address	Line 1, line 2, city, state, zip
Facility contact person	
Contact person email	
Contact person phone	xxx-xxx-xxxx
Facility phone	xxx-xxx-xxxx
Facility NPI	

C. Encounter data

Lab test ordering provider	Name, NPI, office address, phone number, email
Prescribing provider	Name, NPI, office address, phone number, email
Primary care provider	Name and NPI

Managing treatment provider	Name and NPI
Treatment encounter facility name	
Treatment encounter facility address	Line 1, line 2, city, state, zip
Treatment encounter facility NPI	

D. Laboratory Results

Please see Table 4 below for specific labs that can be included in the initial case report.

Date specimen obtained	yyyy/mm/dd
LOINC code of positive test	LOINC
Specimen source	Blood, plasma
Result	SNOMED

E. Pregnancy

Pregnancy flag active	Yes or No. If EpicCare pregnancy flag active then pregnancy = yes.
Expected date of delivery	=EDD
Number of weeks pregnant	=40 – [(EDD – present date) / 7]
Date of pregnancy status	Date of medical encounter that pregnancy data was collected

F. Symptoms

If any of the following are present in diagnosis codes (see Table 2, below), laboratory results (see Table 4, below), or vital signs in the 14 days preceding or 14 days following the case date then symptoms=yes, and the symptoms are reported, otherwise symptoms=no.

Fever	
Headache	
Myalgia	
Anemia	
Thrombocytopenia	
Leukopenia	
Chills	

G. Medications

Report the medications from the specified anaplasmosis medications list (see Table 3, below) given at any point from the case date until 14 days after the positive test result date.

Treatment given	Yes or No
Date of treatment	yyyy/mm/dd
Prescription for chlamydia medication	See Table 3. Report drug name, dose, route, and duration.

IV. FUTURE CONSIDERATIONS

A. Hospitalizations

Report hospitalizations up to 30 days after the case date

Date of hospitalization	If yes, date of hospital admission
Hospital name	If yes, name of hospital
Hospital phone number	If yes, phone number for hospital

Section 4. *Codes, laboratory tests, and medications used to identify criteria listed in Section 2 and supplementary reporting information in Section 3.*

I. DIAGNOSES CODES

Table 1. Diagnosis Codes Used to Identify Symptoms

Symptom	Code Type	Code	Description
Fever	N/A	Temperature >100.4	Measured temperature if available, ELSE "fever".
	ICD-9-CM	780.60	Fever, unspecified
	ICD-10-CM	R50.9	Fever, unspecified
Chills	ICD-9-CM	780.64	Chills, without fever
	ICD-10-CM	R68.83	Chills, without fever
Headache	ICD-9-CM	784.0	Headache
	ICD-10-CM	R51	Headache
Myalgia	ICD-9-CM	729.1	Myalgia and myositis, unspecified
	ICD-10-CM	M60.9	Myositis, unspecified
	ICD-10-CM	M79.1, M79.10	Myalgia, unspecified
	ICD-10-CM	M79.11	Myalgia of mastication muscle
	ICD-10-CM	M79.12	Myalgia of auxiliary muscles, head and neck
	ICD-10-CM	M79.18	Myalgia, other site
Anemia	ICD-9-CM	285.9	Anemia, unspecified
	ICD-10-CM	D64.9	Anemia, unspecified
Thrombocytopenia	ICD-9-CM	287.5	Thrombocytopenia, unspecified
	ICD-10-CM	D69.6	Thrombocytopenia, unspecified
Leukopenia	ICD-9-CM	288.5	Leukocytopenia, unspecified
	ICD-10-CM	D72.819	Decreased white blood cell count, unspecified

Table 2. Diagnosis codes used to identify Anaplasmosis

Code Type	Code	Description
ICD-9-CM	082.49	Other ehrlichiosis
ICD-10-CM	A77.49	Other ehrlichiosis

II. MEDICATIONS

Table 3. Anaplasmosis Medications

Treatment
Doxycycline
Rifampin

III. LABORATORY TESTS

Table 4. Anaplasmosis Laboratory Tests

LOINC Code	LOINC Name	SNOMED Code	SNOMED Name
1742-6	ALT SerPl-cCnc	NA	Numeric result only
1920-8	AST SerPl-cCnc	NA	Numeric result only
13056-7	Platelet # Plas Auto	NA	Numeric result only
26464-8	Leukocytes [#/volume] in Blood	NA	Numeric result only
	Erythrocytes [#/volume]	NA	Numeric result only
30039-2	Ehrlichia phagocytophila DNA : ACnc : Pt : Bld : Ord : Probe.Amp.Tar	10828004	Positive
		260385009	Negative
MDPH-112	Human granulocytic ehrlichiosis Ab.IgM : ACnc : Pt : Ser : Ord : EIA	10828004	Positive
		42425007	Equivocal
		260385009	Negative
MDPH-113	Human granulocytic ehrlichiosis Ab.IgG : ACnc : Pt : Ser : Ord : EIA	10828004	Positive
		42425007	Equivocal
		260385009	Negative
MDPH-114	Human granulocytic ehrlichiosis Ab.IgM : Titr : Pt : Ser : Qn : IF	10828004	Positive
		260385009	Negative
		42425007	Equivocal
		MDPH-R411	Titer 1:32
		MDPH-R414	Titer 1:256
		MDPH-R413	Titer 1:128
		MDPH-R412	Titer 1:64
		MDPH-R410	Titer 1:16
		MDPH-R465	Titer greater than 1:256
MDPH-115	Human granulocytic ehrlichiosis Ab.IgG : Titr : Pt : Ser : Qn : IF	10828004	Positive
		42425007	Equivocal
		260385009	Negative
		MDPH-R429	Titer 1:1280
		MDPH-R428	Titer 1:640
		MDPH-R427	Titer 1:320
		MDPH-R425	Titer 1:80
		MDPH-R426	Titer 1:160
		MDPH-R466	Titer greater than 1:1280

IV. NA CODES

Table 4. NA Codes for provider reporting fields

NA code	Description
NA-1746	Prescribing provider name

NA-1747	Prescribing provider NPI
NA-1748	Treatment encounter facility name
NA-1749	Treatment encounter facility address
NA-1750	Treatment encounter facility city
NA-1751	Treatment encounter facility state
NA-1752	Treatment encounter facility NPI
NA-1753	Primary care provider name
NA-1754	Primary care provider NPI
NA-1755	Ordering provider name
NA-1756	Ordering provider NPI
NA-1757	Lab ordering facility name
NA-1758	Lab ordering facility address
NA-1759	Lab ordering facility city
NA-1760	Lab ordering facility state
NA-1761	Lab ordering facility NPI
NA-1762	Managing treatment provider name
NA-1763	Managing treatment provider NPI