



ESP CASE DETECTION ALGORITHM

Lyme Disease

Document Version 7.6

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Modification History

Version	Date	Modification	By
7.6	3/29/2024	Updated case criteria to include abx duration	DPM
7.5	1/31/2023	Revised case criteria – put back ICD9 codes and PCR lab	CII
7.4	10/19/2022	Revised case criteria	DPM/CII
7.3	7/22/2022	Revised case criteria	DPM/DPH
7.1	2/26/2019	Revised case criteria	DPM/DPH
7.0	02/13/2019	Revised case criteria	DPM/DPH
6.2	10/11/2017	Added ESP Logo and MDPH branding	DPM
6.1	6/30/2017	Transferred to new template	DPM
6.0	8/11/2016	Initial	-



Section 1. Overview

The purpose of this document is to describe the criteria used to identify Lyme Disease for reporting to MDPH

Section 2. Criteria used to identify cases using ESP data

I. TIME WINDOW

The minimum episode length for Lyme disease is one year, meaning that all events that occur within one year of the index event (diagnosis code or laboratory test) are all considered to be part of the same episode. If more than one-year elapses from the last episode until the next Lyme event, then a new episode begins.

II. CASE CRITERIA

Any one of the following:

1. Lyme ICD9 or ICD-10-CM (defined in [Table 1](#)) and ≥ 7 day course of Lyme antibiotics (defined in [Table 3](#)) within a 14-day period
2. Positive Lyme Western Blot
3. Positive Lyme PCR
4. Two Positive EIA from a single collection date from an FDA-approved modified two-tiered testing algorithm (MTTA) (i.e. Zeus MTTT-2 test)
 - An acceptable implementation of this criterion is to look for the positive confirmatory MTTA EIA test alone.

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

I. INITIAL CASE REPORTING CRITERIA

All cases should be immediately reported to MDPH upon initial detection

II. CASE REPORT UPDATE CRITERIA

An updated report should be sent to MDPH if additional clinical information is recorded, including new lab tests, Lyme antibiotics, or Lyme-related ICD-10 diagnosis codes (defined Table D).

III. DATA TO INCLUDE IN REPORTS TO MDPH

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



A. Demographics

Name	Last, first, middle
Date of birth	yyyy/mm/dd
Social security number	Last 4 digits
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

D. Laboratory Results

Lyme ELISA	
Lyme Western Blot	
Lyme MTTA	

E. Symptoms

If any of the diagnosis codes (see [Table 2](#) below) or vital signs are present in the 30 days preceding or 30 days following the case date, then the following symptoms are reported:

Fever	Diagnosis code or measured temperature >100.4 degrees Fahrenheit
Fatigue	
Rash	
Arthritis	
Bell's palsy	
Radiculoneuropathy	
Meningitis	
Myocarditis	



A-V block	
Chills	
Headache	
Joint Pain	
Muscle Pain	
Paresthesias	
Neck Pain	

F. Medications

If any of the medications in [Table 3](#) are ordered, report the following information:

Treatment given	Yes or No
Prescription for Lyme	Text string including medication name, dose, frequency, and duration (calculated using start and end date). See Table 4 for specific medications
Treatment date	Date on which each prescription was ordered

G. Pregnancy

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

Section 4. Codes, laboratory tests, and medications used to identify criteria listed in Sections 2 and 3.

I. Diagnosis codes

Table 1. Diagnosis codes used to identify Lyme Disease

Component Name	Code Type	Code	Description
Lyme disease	ICD-9-CM	088.81	Lyme Disease
	ICD-10-CM	A69.20	Lyme disease, unspecified
	ICD-10-CM	A69.21	Meningitis due to Lyme disease
	ICD-10-CM	A69.22	Other neurologic disorders in Lyme disease
	ICD-10-CM	A69.23	Arthritis due to Lyme disease
	ICD-10-CM	A69.29	Other conditions associated with Lyme disease

Table 2. Diagnosis codes used to identify symptoms

Symptom	Code Type	Code	Description
Rash			
	ICD-10-CM	R21	Rash and other nonspecific skin eruption
Fever	N/A	Temperature >100.4	Measured temperature if available, ELSE “fever”.
	ICD-10-CM	R50.9	Fever, unspecified



Fatigue	ICD-9-CM	780.79	Other malaise and fatigue
	ICD-10-CM	G93.3	Post-viral fatigue syndrome
	ICD-10-CM	R53.1	Weakness
	ICD-10-CM	R53.81	Other malaise
	ICD-10-CM	R53.83	Other fatigue
Arthropathy			
	ICD-10-CM	M01.X0 – M01.X9	Arthropathy associated with other infections and parasitic diseases
Meningitis			
	ICD-10-CM	G01	Meningitis
Bell’s palsy			
	ICD-10-CM	G51.0	Bell’s palsy
Radiculoneuropathy			
	ICD-10-CM	M54.1 – M54.1X	Radiculopathy
Myocarditis			
	ICD-10-CM	I41	Myocarditis
A-V block			
	ICD-10-CM	I44.2	A-V block, complete
	ICD-10-CM	I44.1	A-V block, second degree
Chills			
	ICD-10-CM	R68.83	Chills without fever
Headache			
	ICD-10-CM	R51	Headache
Joint Pain			
	ICD-10-CM	M25.5 – M25.5XX	Pain in joint
Muscle Pain	ICD-10-CM	M79.1X	Myalgia
Neck Pain			
	ICD-10-CM	M54.2	Cervicalgia
Paresthesias			
	ICD-10-CM	R20 – R20.X	Disturbance of skin sensation

II. Medications

Table 3. Antibiotics used to treat Lyme disease

Doxycycline
Amoxicillin
Ceftriaxone
Cefotaxime
Azithromycin
Tetracycline
Cefuroxime axetil



III. Laboratory Tests

Table 4. Laboratory Test LOINC Mapping

Component Name	LOINC	LOINC Name
Lyme PCR	4991-6	Borrelia burgdorferi DNA [Presence] in Specimen by NAA with probe detection
Lyme MTTTA	22384	Lyme Disease Screen Reflex Immunoassay (IGG, IGM, MTTT2)
Lyme Western Blot	20246	Lyme Disease Screen Reflex Western Blot
Lyme Western Blot	20718	Lyme Disease Screen Reflex Western Blot
Lyme Western Blot	22385	Lyme Disease Screen Reflex Immunoassay (IGG, IGM, MTTT2)
Lyme Western Blot	22386	Lyme Disease Screen Reflex Immunoassay (IGG, IGM, MTTT2)
