ESP CASE DETECTION ALGORITHM

Lyme Disease

**Document Version 7.5**

**Prepared by the Department of Population Medicine at Harvard Medical School and Harvard Pilgrim Health Care Institute** **on behalf of the Massachusetts Department of Public Health.**

[esphealth@harvardpilgrim.org](file:///%5C%5Cn2fs009%5Ctide%5CTIDE%20Projects%5CMDPH_MDPHnet_ESPnet%5CESP%20Conditions%20Specs%5CTemplates%5Cesphealth%40harvardpilgrim.org)

**March 15, 2023**

**Modification History**

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| --- | --- | --- | --- |
| **Version** | **Date** | **Modification** | **By** |
| 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

## 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.

## CASE CRITERIA

Any one of the following:

1. Lyme ICD9 or ICD-10-CM (defined in [Table 1](#T1)) and Lyme antibiotics (defined in [Table 3](#T3)) 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 (MTTTA) (i.e. Zeus MTTT-2 test)
	* An acceptable implementation of this criterion is to look for the positive confirmatory MTTTA EIA test alone.

# **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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

1. **INITIAL CASE REPORTING CRITERIA**

All cases should be immediately reported to MDPH upon initial detection

1. **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).

## DATA TO INCLUDE IN REPORTS TO MDPH

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

1. **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 |

1. **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 |  |

1. **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 |

1. **Laboratory Results**

|  |  |
| --- | --- |
| Lyme ELISA |  |
| Lyme Western Blot |  |
| Lyme MTTTA |  |

1. **Symptoms**

If any of the diagnosis codes (see [Table 2](#T2) 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 |  |

1. **Medications**

If any of the medications in [Table 3](#T3) 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 |

1. **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.

## **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](https://www.google.com/url?q=http://www.icd9data.com/2014/Volume1/710-739/720-724/723/723.1.htm&sa=U&ved=0ahUKEwjq6d24tpPgAhUuh-AKHZxCBJMQFggGMAE&client=internal-uds-cse&cx=002446356171851566629:dllrgfayfjw&usg=AOvVaw2liFdM78z3nsFc2TjQvJ7U) |
| Paresthesias |  |  |  |
| ICD-10-CM | R20 – R20.X | Disturbance of skin sensation |

## Medications

**Table 3. Antibiotics used to treat Lyme disease**

|  |
| --- |
| Doxycycline |
| Amoxicillin  |
| Ceftriaxone  |
| Cefotaxime  |
| Azithromycin  |
| Tetracycline  |
| Cefuroxime axetil |

## 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) |