# ESP CASE DETECTION ALGORITHM
# Babesiosis

**Document Version 1.5**

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**Modification History**

| Version | Date | Modification | By |
|---------|------|-------------|-----|
| 1.5 | 2/14/2020 | Updated Abstract Lab Names for Criteria #5/dX codes | CII |
| 1.4 | 12/20/2019 | Revised laboratory criteria | DPH/CII/DPM |
| 1.3 | 12/9/2019 | Comments from DPH | DPH |
| 1.2 | 2/26/19 | Revised laboratory criteria and medications | DPM/DPH |
| 1.1 | 2/14/19 | Revisions based upon feedback from CII, DPH, and DPM | 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 babesiosis from electronic medical records (EMR) using ESP and report them to the Massachusetts Department of Public Health (MDPH).

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

### I.    CASE TYPES

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

### II.    TIME WINDOW

The recurrence interval for babesiosis is one year.

### III.    CASE CRITERIA

At least one of the following:
1.  Diagnosis code for babesiosis (Table 2) and orders for both of the following antibiotics on the same day:
    a.  Atovaquone and Azithromycin
        or
    b.  Clindamycin and Quinine
    The diagnosis code and prescriptions occur within 14 days of one another.
2.  Positive (Babesia species identified) stained blood smear **[babesia_blood_smear]**
3.  Positive *Babesia microti* PCR **[babesia_microti_pcr]**
4.  Positive *Babesia* spp. PCR **[babesia_spp_pcr]** or nucleic acid amplification test **[babesia_naat]**
5.  Positive *Babesia microti or duncani* IgG IFA with any of the following currently configured IgG Labs:
    **[babesia_igg_10   or babesia_igg_16   or babesia_igg_64   or babesia_igg_256]**
    a.  Result Titer value to be greater than or equal to the cutoff for that lab
    b.  *Babesia microti* IgM IFA tests will not be used via ESP
    c.  *Babesia ducani* IgM IFA tests will not be used via ESP

### 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

An updated report should be set to MDPH whenever any of the following occur up to 14 days before or after the case date:
1.   New symptom noted (Table 1)
2.   Prescription for new antibiotic (Table 3)
3.   Positive laboratory result (Table 4)

## 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 |
| 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 |
| 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 laboratory tests

| Date specimen obtained | yyyy/mm/dd |
| --- | --- |
| LOINC code of positive test | LOINC |
| Specimen source | Blood, tissue, etc |
| Result | SNOMED |

### E. Pregnancy

| Pregnancy flag active | Yes or Blank. If EpicCare pregnancy flag active then pregnancy = yes. |
| --- | --- |
| Expected date of confinement | =EDC |
| Number of weeks pregnant | =40 − [(EDC − present date) / 7] |
| Date of pregnancy status | Date of medical encounter in which pregnancy data was collected |

### F. Symptoms

If any of the following diagnosis codes (see Table 1, below) or vital sign findings are present in the 14 days preceding or 14 days following the case date then symptoms=yes and the following symptoms are reported, otherwise symptoms=no.

| Fever | Diagnosis code or measured temperature >100.4 degrees Fahrenheit |
| --- | --- |
| Chills | |
| Sweats | |
| Headache | |
| Myalgia | |
| Arthralgia | |
| Anemia | |
| Thrombocytopenia | |

### G. Medications

Report all of the medications from the specified babesiosis medications list (see Table 3, below) given at any point from the case date until 14 days after the case date.

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

## IV.  FUTURE CONSIDERATIONS

### A.  Hospitalizations

Report hospitalizations that occur up to 30 days after the case date

| Case hospitalized | Yes or No |
|---|---|
| Date of hospitalization | If yes, date of hospital admission |
| Hospital name | |
| Hospital phone number | |

### B.  Medical History

| Blood transfusion, tissue product, or organ transplant 12 months prior to case date | Yes or No |
|---|---|
| Date of transfusion, tissue product, or organ transplant | If yes, date of transfusion, tissue product, or organ transplant |
| What was received? | Blood transfusion, organ transplant, tissue product |
| Organ type | If organ transplant, which organ? |

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*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 |
| Sweats | ICD-9-CM | 780.8 | Generalized hyperhidrosis |
| | ICD-10-CM | R61 | Generalized hyperhidrosis |
| 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 |

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| | 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 |
| Arthralgia | ICD-9-CM | 719.40 | Pain in joint, site unspecified |
| | ICD-10-CM | M25.50 | Pain in unspecified joint |
| 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 |

**Table 2. Diagnosis Codes Used to Identify Babesiosis**

| Code Type | Code | Description |
|---|---|---|
| ICD-9-CM | 088.82 | Babesiosis |
| ICD-10-CM | B60.0 | Babesiosis |

## II.    MEDICATIONS

**Table 3. Babesiosis Medications**

| | Treatment |
|---|---|
| 1 | Atovaquone |
| 2 | Azithromycin |
| 3 | Azithromycin |
| 4 | Clindamycin |
| 5 | Clindamycin |
| 6 | Quinine |

## III.    LABORATORY TESTS

**Table 4. Laboratory tests**

| LOINC Code | LOINC Name | SNOMED Code | SNOMED Name |
|---|---|---|---|
| 13056-7 | Platelet # Plas Auto | NA | Numeric result only |
| 11546-9 | Microscopic observation : PrId : Pt : xxx : Nom : xxx stain | 372376003 | Babesia species |
| 21089-8 | Babesia microti DNA : ACnc : Pt : Bld : Ord : Probe.Amp.Tar | 10828004 | Positive |
| | | 260385009 | Negative |
| | | 419984006 | Inconclusive |
| 42641-1 | Babesia sp DNA XXX Ql PCR | 10828004 | Positive |
| | | 260385009 | Negative |
| | | 419984006 | Inconclusive |
| 9584-4 | Babesia sp Ab.IgG : Titr : Pt : Ser : Qn : IF | 10828004 | Positive |
| | | 260385009 | Negative |
| | | 42425007 | Equivocal |

| LOINC Code | LOINC Name | SNOMED Code | SNOMED Name |
|---|---|---|---|
| MDPH-303 | Babesia duncani Ab.IgG: Titr: Pt: Ser: Qn: IF | 10828004 | Positive |
| | | 260385009 | Negative |
| | | 42425007 | Equivocal |
| MDPH-155 | Babesia sp Ab.IgG : Titr : Pt : Ser : Qn : IB | 10828004 | Positive |
| | | 42425007 | Equivocal |
| | | 260385009 | Negative |
| 26453-1 | Red blood cell | NA | Numeric result only |
| 20570-8 | Hematocrit | NA | Numeric result only |

## IV. NA CODES

**Table 5. 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 |

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