ESP CASE DETECTION ALGORITHM

Syphilis

Document Version 4.1

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Modification History

Version	Date	Modification	By
4.1	6/24/2022	Updated ICD codes	DPM/CII
4.0	12/19/2019	Reporting titer values of 1:1 and greater	DPM/CII/MDPH
3.1	7/25/2019	Added a new syphilis test to criteria 2	DPM/CII
3.0	3/1/2019	Added new provider reporting fields	DPM
2.22	10/11/2017	Added ESP Logo and MDPH branding	DPM
2.21	7/6/2017	Transferred to updated algorithm template	DPM
2.2	2/22/2017	• Required all positive RPR values to contain a titer value. • Modified time window in which to report previous reportable lab results.	DPM/MDPH
2.1	11/10/2016	Updated recurrence interval from 1 year to 6 months.	DPM/MDPH
2.0	5/24/2016	Added appropriated ICD-10-CM diagnosis codes.	DPM/MDPH
1.0	4/17/2013	Original circulated version.	DPM/MDPH

Section 1. *Overview*

The purpose of this document is to describe the criteria used to identify and report cases of Syphilis from electronic medical records (EMR) using ESP. All patients who meet the criteria will be reported to the Massachusetts Department of Public Health (MDPH). In addition, supplementary information (e.g., demographic information) will be included with the initial case repot, as described in Section 3.

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

I. CASE TYPES

This document includes an algorithm to identify syphilis.

II. TIME WINDOW

The recurrence window for syphilis is 6 months (180 days).

III. CASE CRITERIA

Any one of the following:

1. (Diagnosis code (ICD-9 Code 090-097 or ICD10 A50-A53) or TP-IGM) AND an order/prescription for at least ONE of the following antibiotics within a 14-day period:
    a. "PENICILLIN G" or "PEN G"
    b. "DOXYCYCLINE" for ≥7 days[1]
    c. "CEFTRIAXONE" dose ≥1 gram[2]

2. Serum RPR or VDRL[3] value greater than or equal to 1:1[4,5] and any of the following:
    a. Lab test TPPA with result "reactive" ever in the past and up to 1 month following the positive RPR or VDRL OR
    b. Lab test FTA-ABS with result "reactive" ever in the past and up to 1 month following the positive RPR or VDRL OR
    c. Lab test TP-IGG with result “positive” or “reactive” ever in the past and up to 1 month following positive RPR or VDRL
    d. Lab test TP-CIA or TP-CIA L with result “reactive” ever in the past and up to 1 month following the positive RPR or VDRL

3. Positive CSF test for syphilis. Any of the following:
    a. VDRL-CSF value “reactive” or ≥ 1:1[4]
    b. TPPA-CSF with result “reactive” or “positive” or equivalent
    c. FTA-ABS-CSF with result “reactive” or “positive” or equivalent

IV. NOTES

1. If doxycycline prescription does not include a specified duration ≥ 7 days or a stop date ≥7 days following the prescription date, then a "quantity" field result of ≥14 is an adequate proxy for ≥7 days of doxycycline.
2. If dose value for ceftriaxone is not populated it is sometimes possible to discern the minimum dose by looking at the drug name. For example, in Atrius Health there are some preparations of ceftriaxone that include the terms "1G" or "2G" within the drug name in addition to the word "CEFTRIAXONE". Examples:
    a. ROCEPHIN VIAL 2G IJ (CEFTRIAXONE SODIUM)
    b. ROCEPHIN VIAL 1G IJ (CEFTRIAXONE SODIUM)
3. VDRL is distinct from VDRL-CSF. We must ensure that only titer ratios are evaluated. Other result values such as "positive" or "reactive" are ignored.
4. RPR and VDRL results are expressed as dilutions (e.g. 1:2, 1:4, 1:8, etc.). The higher the number in the denominator the more 'positive' the test result. An RPR ≥ 1:1 means a value of (1:1, 1:2, 1:4, etc.). RPR results of "positive" without a titer value should not be considered positive.
5. ESP also creates cases with "active syphilis" as the condition name. The only difference between "active syphilis" cases and syphilis cases are that "active syphilis" requires an RPR of ≥ 1:8 (versus 1:1). All other criteria are the same.

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

Any serum RPR or CSF VDRL results that arise following case identification should be sent to MDPH. This should continue indefinitely.

III. DATA TO INCLUDE IN REPORTS TO MDPH

A. Demographic

Name	Last, first, middle
Date of birth	yyyy/mm/dd
Age	
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. Lab Ordering 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

See Table 5 below for the NA codes to send provider fields in HL7 messages

Lab test ordering provider	Name and NPI
Prescribing provider	Name and NPI
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

Laboratory results occurring within 7 to 0 days prior to the case date should be reported.
See Section 4 for LOINC mappings.

RPR	Specimen source, value, date
TPPA	Specimen source, value, date
FTA-ABS	Specimen source, value, date
VDRL-CSF	CSF, value, date
TP-IGM	Specimen source, value, date
TP-IGG	Specimen source, value, date
TP-CIA	Specimen source, value, date
TP-CIA L	Specimen source, value, date
TPPA-CSF	CSF, value, date
FTA-ABS-CSF	CSF, value, date

E. Pregnancy

Pregnancy flag active	Yes or No
Expected Date of Delivery (EDD)	

F. Disease Stage

If an ICD-9 or ICD-10 diagnosis code indicating disease stage occurs within 28 days of case being established, then disease stage is reported. *See Section 4 for specific diagnosis codes.*

G. Clinical Diagnosis

If an ICD-9 or ICD-10 diagnosis code indicating a clinical diagnosis for syphilis occurs within 28 days of case being established, then the precise ICD-9/ICD-10 code and ICD-9/ICD-10 text is reported. *See Section 4 for specific diagnosis codes.*

H. Treatment

If patient is prescribed medication for syphilis treatment within 28 days before or after case established, then report the date, medication, dose, route, and duration of treatment. *See Section 4 for specific medications.*

IV. CRITERIA TO REVOKE A CASE

None.

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

I. DIAGNOSIS CODES

Table 1. Diagnosis Codes Used to Identify Disease Stage

Code Type	Code	Description
ICD-9-CM	091.0 to 091.2	Primary
ICD-9-CM	091.3 to 091.9	Secondary
ICD-9-CM	092.x	Early latent
ICD-9-CM	096.x	Late latent
ICD-9-CM	094.x	Neurosyphilis
ICD-9-CM	090.0 to 090.4, 090.9	Congenital (infant)
ICD-9-CM	090.5 to 090.7	Late congenital
ICD-10-CM	A50*	Congenital
ICD-10-CM	A51.0 to A51.2	Primary
ICD-10-CM	A51.3 to A51.4	Secondary
ICD-10-CM	A51.5	Early syphilis, latent
ICD-10-CM	A51.9	Early syphilis, unspecified
ICD-10-CM	A52.0	Cardiovascular syphilis
ICD-10-CM	A52.1 to A52.3	Neurosyphilis
ICD-10-CM	A52.7	Other symptomatic late syphilis
ICD-10-CM	A52.8	Late syphilis, latent
ICD-10-CM	A52.9	Late syphilis, unspecified
ICD-10-CM	A53.0	Latent syphilis, unspecified as early or late
ICD-10-CM	A53.9	Syphilis, unspecified

Table 2. Diagnosis Codes Used to Identify Clinical Diagnosis

Code Type	Code	Description
ICD-9-CM	090.x to 097.x	Syphilis
ICD-9-CM	098.12	Gonococcal prostatitis (acute)
ICD-10-CM	A51 to A53	Syphilis
ICD-10-CM	z20.2	Syphilis - Contact with and (suspected) exposure to infections with a predominantly sexual mode of transmission

II. LABORATORY TEST LOINCS

Table 3. Laboratory Test LOINC Mapping

Test Name	LOINC	LOINC Name
TPPA	11597-2	Treponema pallidum Ab : ACnc : Pt : Ser : Qn
RPR	20507-0	Reagin Ab : ACnc : Pt : Ser : Ord : Rapid test
VDRL	20507-0	Reagin Ab : ACnc : Pt : Ser : Ord : Rapid test
FTA-ABS	34147-9	Treponema pallidum Ab.IgG+IgM : ACnc : Pt : Ser : Ord :
TP-IGG	22592-0	Treponema pallidum Ab.IgG : ACnc : Pt : Ser : Qn :
VDRL-CSF	5290-2	Reagin Ab presence, VDRL, CSF
TP-CIA	24110-9	Treponema pallidum Ab : ACnc : Pt : Ser : Ord : EIA
TP-CIA L	24110-9	Treponema pallidum Ab : ACnc : Pt : Ser : Ord : EIA

III. MEDICATIONS

Table 4. Syphilis Medications

Generic Name
Penicillin G or “Pen G”
Ceftriaxone
Doxycycline

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

V. CODE MAINTENANCE STRATEGY

Continuously screen all incoming Lx_Component_Name fields for the text strings: "SYPH" or "RPR" or "VDRL" or "TP" or "FTA" or "TREP" or "PALLIDUM".