

Sample Condition-based LOINC and SNOMED Encoding Guidelines for Reportable Laboratory Results

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Introduction:

This document is in draft form and for this reason, the reader may see comments and questions throughout which would normally be resolved and removed in a final document. This encoding guideline is meant to assist with assigning LOINC and SNOMED codes to reportable laboratory results (RLR) in the context of HL7 ELR 2.5.1 Electronic Laboratory Reporting to Public Health (ELR2PH 251) on a condition-by-condition basis. It was developed in response to requests for guidance in selecting relevant LOINC and SNOMED codes related to reportable conditions from among the vast LOINC and SNOMED data sets. An encoding guideline is essentially a constrained list of preferred LOINC and SNOMED codes for each condition. This guide has been entirely derived from the RCMT tables (<https://phinivads.cdc.gov/vads/SearchVocab.action>) by consultants with the Association of Public Health Laboratories (APHL) and made available to state and metropolitan public health jurisdictions. The Iowa Department of Public Health (IDPH) has adopted this document in its draft form to assist facilities as they implement electronic laboratory reporting. The goal of this guide is to remove barriers to the adoption and implementation of ELR2PH 251 reporting by facilitating standard vocabulary content.

Assumptions:

1. The context is ELR messaging of positive laboratory results using the ELR2PH 251 messaging structure.
2. The laboratory focus is on samples and tests, and the Agency focus is on cases and conditions.
3. Public Health Agencies (PHA) will need to assign a condition to a laboratory result when it is received via ELR.
 - a. Usually, the condition will not be explicitly provided in the HL7 message.
 - b. Most tests and results lead to a condition - simple.
 - i. The rest are exceptions
4. One purpose of the RCMT lookup table is to match test and results to conditions.
5. Both LOINC codes for the tests and the SNOMED code for non-numeric results are required in order to automate the process of assigning positive tests to condition using the RCMT tables.
6. Both LOINC code for the tests, UCUM units for numeric results and the definition of a numeric "positive" results needs to be determined (threshold value) in order to automate the process of assigning positive test results to condition using the RCMT tables.
7. Public Health Agencies will provide guidance to ELR partners (Hospitals, Providers) on what lab tests to report via ELR based upon current capacity to handle a given condition/test in their automated process.
8. Public Health Agencies will provide guidance to ELR partners (Hospitals, Providers) on what LOINC and SNOMED standard codes to use for each condition in order to constrain the RCMT making it more manageable.

Justification:

1. By Public Health Agency providing a constrained list of standard LOINC and SNOMED codes for ELR partners makes ELR more manageable because there are fewer codes to maintain.
2. Mapping Standard LOINC and SNOMED codes to the local code is easier since the Agency can search and map through fewer concept codes.
3. Level of granularity of SNOMED and LOINC code is defined by the Agency to meet its needs.
4. Data aggregation is achieved through mapping step.
5. No information is lost when local terms are also sent in HL7 message.

Risks:

Approach:

1. Base the encoding guideline upon the RCMT consolidated table
 - a. Add a column in RCMT table to assign "IsPreferred" flag to indicate which codes are published in encoding guidelines.
 - b. Add a column in RCMT table for "Result Value Set" to provide a link to the expected results.
2. Assume only Positive Lab Reportable Results (RLR)
3. As a starting point for identifying a set of codes, sample laboratory "use cases" are presented. These use cases are:
 - a. Based upon CSTE position statements, or reportable laboratory case definition taken from a state jurisdiction or from the CDC.
 - b. Used as a starting point for identification and may not reflect any or all of a jurisdiction's laboratory criteria for a particular condition.
 - c. Divided into "simple" and "not simple" from the context of vocabulary and HL7 messaging.
4. Created the "Ordinal Value Set" by empirically selecting common SNOMED concepts from the "Presence" and "Absence" SNOMED Hierarchy.
5. For each condition, reviewed RCMT feedback documents, Lookup tables from the NY (ECLARS) and MADPH mapping portal as well as lab catalogs from several state public health labs and online catalogs for commercial laboratory (Mayo, ARUP)
 - a. For informational purposes, many RCMT feedback comments have been copied into this document.
6. Empirically created non-condition specific LOINC Value sets for Bacteria, Viruses, Parasites, Fungi, Mycobacteria, and Rickettsia using the non-condition specific codes in the RCMT.
7. To reduce the number of LOINC choices, unspecified specimen ("XXX") LOINCS are selected when available, since specimen is defined in another part of the HL7 message for ELR2PH 251.
8. To reduce the number of LOINC choices, "methodless" LOINCS are selected where method is not part of laboratory case definitions. The laboratory method can be defined in another field in the HL7 message for ELR2PH 251.
9. Both numeric and qualitative ("ordinal") LOINCS are selected when case definition is not specific (e.g. the terms "titer" or "Positive" are absent).

10. Deprecated terms are avoided.
11. The RCMT's SNOMED codes for each condition are presented intact.
12. Occasionally concepts are presented that are not yet in the RCMT but that are anticipated additions in a future edition.

Non-Organism specific LOINCs

Non-specific Bacterial agent LOINCs limited to:

| NonSpecific Bacterial Agent LOINCs | | |
|------------------------------------|--|------------------------|
| LOINC_NUM | LONG_COMMON_NAME | Method |
| 42803-7 | Bacteria identified in Isolate | |
| 43409-2 | Bacteria identified in Isolate by Culture | Culture |
| 23667-9 | Bacteria identified in Unspecified specimen | |
| 6463-4 | Bacteria identified in Unspecified specimen by Culture | Culture |
| 11475-1 | Microorganism identified in Unspecified specimen by Culture | Culture |
| 41852-5 | Microorganism or agent identified in Unspecified specimen | |
| 660-1 | Microscopic observation : Prld : Pt : xxx : Nom : Dark field examination | Dark field examination |
| 11546-9 | Microscopic observation : Prld : Pt : xxx : Nom : xxx stain | xxx stain |

Table 1: Non-specific bacterial agent LOINCs

Non-specific Viral agent LOINCs limited to:

| NonSpecific Viral Agent LOINCs | | |
|--------------------------------|---|---------|
| LOINC | LOINC Name | Method |
| 41461-5 | Virus identified in Unspecified specimen | |
| 42808-6 | Virus identified in Isolate | |
| 41852-5 | Microorganism or agent identified in Unspecified specimen | |
| 6584-7 | Virus identified in Unspecified specimen by Culture | Culture |
| 6608-4 | Virus identified in Isolate by Culture | Culture |
| 11475-1 | Microorganism identified in Unspecified specimen by Culture | Culture |

Table 2: Non-specific viral agent LOINCs

Non-specific Rickettsial agent LOINCs limited to:

| NonSpecific Rickettsial Agent LOINCs | | |
|--------------------------------------|---|---------------------------|
| LOINC_NUM | LONG_COMMON_NAME | METHOD_TYP |
| 6546-6 | Rickettsia sp identified in Unspecified specimen by Organism specific culture | Organism specific culture |
| 11475-1 | Microorganism identified in Unspecified specimen by Culture | Culture |
| 41852-5 | Microorganism or agent identified in Unspecified specimen | |

Table 3: Non-specific rickettsial agent LOINCs

Non-specific Fungal agent LOINC limited to:

| NonSpecific Fungal Agent LOINCs | | |
|---------------------------------|---|---------------------------|
| LOINC_NUM | LONG_COMMON_NAME | METHOD_TYP |
| 580-1 | Fungus identified in Unspecified specimen by Culture | Culture |
| 42805-2 | Fungus identified in Unspecified specimen | Organism specific culture |
| 11475-1 | Microorganism identified in Unspecified specimen by Culture | Culture |
| 41852-5 | Microorganism or agent identified in Unspecified specimen | |

Table 4: Non-specific fungal agent LOINCs

Non-specific Mycobacterial agent LOINC limited to:

| NonSpecific Mycobacterial Agent LOINCs | | |
|--|--|---------------------------|
| LOINC_NUM | LONG_COMMON_NAME | Method |
| 23667-9 | Bacteria identified in Unspecified specimen | |
| 6463-4 | Bacteria identified in Unspecified specimen by Culture | Culture |
| 11475-1 | Microorganism identified in Unspecified specimen by Culture | Culture |
| 41852-5 | Microorganism or agent identified in Unspecified specimen | |
| 40699-1 | Mycobacterium sp identified in Unspecified specimen | |
| 543-9 | Mycobacterium sp identified in Unspecified specimen by Organism specific culture | Organism Specific Culture |
| 43854-9 | Mycobacterium sp rRNA [Presence] in Unspecified specimen by DNA probe | Probe |
| 14974-0 | Mycobacterium sp DNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar |
| 11545-1 | Microscopic observation [Identifier] in Unspecified specimen by Acid fast stain | Acid Fast Stain |

Table 5: Non-specific mycobacterial agent LOINCs

Non-specific Parasite LOINC limited to:

| CreatePreferredLOINCforParasitesTable | | |
|---------------------------------------|--|---------------------|
| LOINC | LOINC Name | Method |
| 11475-1 | Microorganism identified in Unspecified specimen by Culture | Culture |
| 41852-5 | Microorganism or agent identified in Unspecified specimen | |
| 26885-4 | Ova+Parasites identified in Unspecified specimen by Concentration | Concentration |
| 11546-9 | Microscopic observation : PrId : Pt : xxx : Nom : xxx stain | XXX Stain |
| 41446-6 | Parasite identified in Unspecified specimen by Culture | Culture |
| 637-9 | Microscopic observation [Identifier] in Blood by Malaria thick smear | Malaria thick smear |

| CreatePreferredLOINCforParasitesTable | | |
|---------------------------------------|--|------------------------------|
| LOINC | LOINC Name | Method |
| 33271-8 | Microscopic observation [Identifier] in Blood by Malaria thin smear | Malaria thin smear |
| 673-4 | Microscopic observation [Identifier] in Unspecified specimen by Ova & Parasite Preparation | Ova and parasite preparation |
| 9785-7 | Microscopic observation [Identifier] in Stool by Ova & Parasite Preparation | Ova and parasite preparation |
| 6470-9 | Microscopic observation [Identifier] in Unspecified specimen by Wet preparation | Wet preparation |

Table 6: Non-specific parasite LOINCs

Presence (Positive) / Absence (Negative) SNOMEDS limited to:

| Ordinal Results Value Set | | |
|---------------------------|-------------------------------------|------------|
| Concept Code | ConceptName | IsPositive |
| 260411009 | Presence findings (qualifier value) | Y |
| 52101004 | Present (qualifier value) | Y |
| 10828004 | Positive (qualifier value) | Y |
| 46651001 | Isolated (qualifier value) | Y |
| 260373001 | Detected (qualifier value) | Y |
| 373066001 | Yes (qualifier value) | Y |
| 11214006 | Reactive (qualifier value) | Y |
| 131194007 | Non-Reactive (qualifier value) | N |
| 2667000 | Absent (qualifier value) | N |
| 272519000 | Absence findings (qualifier value) | N |
| 260385009 | Negative (qualifier value) | N |
| 373067005 | No (qualifier value) | N |
| 264868006 | No growth (qualifier value) | N |
| 260415000 | Not detected (qualifier value) | N |
| 264887000 | Not isolated (qualifier value) | N |
| 419984006 | Inconclusive (qualifier value) | ? |
| 82334004 | Indeterminate (qualifier value) | ? |
| 42425007 | Equivocal (qualifier value) | ? |

Table 7: Positive/Negative SNOMED list

Condition: Chlamydia Trachomatis

NND: 10274 Chlamydia trachomatis infection

Chlamydia trachomatis: **Laboratory Criteria (CSTE)**

“Simple” ELR Message Use cases

- isolation of C. trachomatis by culture of a clinical specimen
- detection of C. trachomatis antigen by direct fluorescent antibody staining in a clinical specimen
- detection of C. trachomatis antigen by enzyme-linked immunosorbent assay in a clinical specimen
- detection of C. trachomatis nucleic acid by hybridization with a nucleic acid probe in a clinical specimen
- detection of C. trachomatis by nucleic acid amplification (e.g., PCR) in a clinical specimen

“Not Simple” ELR Message Use case

- None

Preferred LOINCs for Chlamydia trachomatis limited to:

- [Generic LOINCs for bacterial identification](#) and

| Chlamydia | | | |
|-----------|---|---------------------------|-------------------------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 6354-5 | Chlamydia trachomatis Ag [Presence] in Unspecified specimen by Immunoassay | EIA | Ordinal Value Set |
| 6355-2 | Chlamydia trachomatis Ag [Presence] in Unspecified specimen by Immunofluorescence | IF | Ordinal Value Set |
| 560-3 | Chlamydia sp identified in Unspecified specimen by Organism specific culture | Organism specific culture | Chlamydia Value Set |
| 6349-5 | Chlamydia trachomatis [Presence] in Unspecified specimen by Organism specific culture | Organism specific culture | Ordinal Value Set |
| 4993-2 | Chlamydia trachomatis rRNA [Presence] in Unspecified specimen by DNA probe | Probe | Ordinal Value Set |
| 43404-3 | Chlamydia trachomatis DNA [Presence] in Unspecified specimen by Probe & signal amplification method | Probe.amp.sig | Ordinal Value Set |
| 43304-5 | Chlamydia trachomatis rRNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |
| 21613-5 | Chlamydia trachomatis DNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |
| 49096-1 | Chlamydia trachomatis DNA [Units/volume] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Numeric Result |
| 47212-6 | Chlamydia trachomatis DNA [Identifier] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Chlamydia Value Set |

Table 8: Preferred LOINCs for *Chlamydia trachomatis*

Chlamydia trachomatis specific SNOMEDs for limited to:

Use these with Nominal Chlamydia LOINC and with Non- Organism specific nominal LOINC (see below for use of these) for bacterial identification. See implementation guideline for messaging results when SNOMED code is unavailable.

| SNOMED | Concept Name 2 |
|-----------|------------------------------------|
| 115328009 | Chlamydia trachomatis, serotype H |
| 115289001 | Chlamydia trachomatis, serotype A |
| 115290005 | Chlamydia trachomatis, serotype B |
| 115291009 | Chlamydia trachomatis, serotype Ba |
| 115292002 | Chlamydia trachomatis, serotype C |
| 115293007 | Chlamydia trachomatis, serotype D |
| 115294001 | Chlamydia trachomatis, serotype E |
| 63938009 | Chlamydia trachomatis |
| 115319008 | Chlamydia trachomatis, serotype G |
| 115318000 | Chlamydia trachomatis, serotype L3 |
| 115296004 | Chlamydia trachomatis, serotype I |
| 115297008 | Chlamydia trachomatis, serotype J |
| 442505006 | Chlamydia trachomatis, serotype Ja |
| 115298003 | Chlamydia trachomatis, serotype K |
| 115299006 | Chlamydia trachomatis, serotype L |
| 115300003 | Chlamydia trachomatis, serotype L1 |
| 115301004 | Chlamydia trachomatis, serotype L2 |
| 115295000 | Chlamydia trachomatis, serotype F |

Table 9: SNOMED codes for *Chlamydia trachomatis*



Condition: Neisseria gonorrhoeae (Gonorrhea)

NND: 10280 Gonorrhea

Neisseria gonorrhoeae: Laboratory Criteria (IDPH)

“Simple” ELR Message Use cases

- Isolation of typical gram-negative, oxidase-positive diplococci (presumptive *Neisseria gonorrhoeae*) from a clinical specimen, or
- Demonstration of *N. gonorrhoeae* in a clinical specimen by detection of antigen or nucleic acid, or

“Not Simple” ELR Message Use case

- Observation of gram-negative intracellular diplococci in a urethral smear obtained from a male

Preferred LOINC for *Neisseria gonorrhoeae* limited to:

- [Generic LOINC for bacterial identification](#) and

| Gonorrhea | | | |
|-----------|--|---------------------------|-------------------------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 31906-1 | Neisseria gonorrhoeae Ag [Presence] in Unspecified specimen | | Ordinal Value Set |
| 24111-7 | Neisseria gonorrhoeae DNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Gonorrhea Value Set |
| 43305-2 | Neisseria gonorrhoeae rRNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |
| 5028-6 | Neisseria gonorrhoeae rRNA [Presence] in Unspecified specimen by DNA probe | Probe | Ordinal Value Set |
| 698-1 | Neisseria gonorrhoeae [Presence] in Unspecified specimen by Organism specific culture | Organism specific culture | Ordinal Value Set |
| 43387-0 | Neisseria sp identified in Unspecified specimen by Organism specific culture | Organism specific culture | Gonorrhea Value Set |

Table 10: Preferred LOINC for *Neisseria gonorrhoeae*

Neisseria gonorrhoeae specific SNOMEDs limited to:

Use these with Nominal Neisseria gonorrhoeae LOINC and with Non-Organism specific nominal LOINC (see below for use of these) for bacterial identification. See implementation guideline for messaging results when SNOMED code is unavailable.

| SNOMED | Concept Name 2 |
|-----------|---|
| 277503000 | cephalosporin-resistant Neisseria gonorrhoeae |
| 409805000 | fluoroquinolone-resistant Neisseria gonorrhoeae |
| 59083001 | Neisseria |
| 68704007 | Neisseria gonorrhoeae |
| 414809001 | Neisseria gonorrhoeae, beta lactamase negative |
| 131340008 | Neisseria species |
| 277501003 | penicillinase-producing Neisseria gonorrhoeae |
| 277504006 | spectinomycin-resistant Neisseria gonorrhoeae |
| 277502005 | tetracycline-resistant Neisseria gonorrhoeae |

Table 11: SNOMED codes for *Neisseria gonorrhoeae*

Condition: Bordetella pertussis (Pertussis)

NND: 10190 Pertussis

Pertussis: **Laboratory Criteria (CSTE)**

“Simple” ELR Message Use cases

- Isolation of Bordetella pertussis from a clinical specimen

- Positive PCR for Bordetella pertussis

“Not Simple” ELR Message Use case

- None

Preferred LOINC for Bordetella pertussis limited to:

- [Generic LOINC for bacterial identification](#) and

| CreatePreferredLOINCforConditionTable | | | |
|---------------------------------------|--|---------------------------|---------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 6317-2 | Bordetella sp identified in Unspecified specimen by Organism specific culture | Organism specific culture | Pertussis Value Set |
| 549-6 | Bordetella pertussis [Presence] in Unspecified specimen by Organism specific culture | Organism specific culture | Ordinal Value Set |
| 62428-8 | Bordetella sp DNA [Identifier] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Pertussis Value Set |
| 23826-1 | Bordetella pertussis DNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |

Table 12: Preferred LOINC for Bordetella pertussis

Bordetella pertussis specific SNOMEDs limited to:

Use these with Nominal Bordetella pertussis LOINC and with Non- Organism specific nominal LOINC (see below for use of these) for bacterial identification. See implementation guideline for messaging results when SNOMED code is unavailable.

| Pertussis Results Value Set | |
|-----------------------------|---------------------|
| SNOMED | SNOMED Concept Name |
| 5247005 | Pertussis |

Table 13: SNOMED codes for Bordetella pertussis

Condition: Hepatitis C

SCT: 50711007 Viral hepatitis C (disorder) (RCMT Condition code)

(NND: 10101 Hepatitis C, acute and NND 10106 Hepatitis C, chronic are subsumed under this concept)

Hepatitis C: **Laboratory Criteria (IDPH)**

“Simple” ELR Message Use cases

- EIA (ELISA) HCV antibody

- Hepatitis C Virus Recombinant Immunoblot Assay (HCV RIBA) positive
- Viral RNA by RT-PCR or bDNA
- HCV Genotype testing

“Not Simple” ELR Message Use case

- None

Preferred LOINCs for Hepatitis C Limited to:

| Hepatitis C | | | |
|-------------|--|---------------|-----------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 51657-5 | Hepatitis C virus Ab [Presence] in Body fluid | | Ordinal Value Set |
| 48159-8 | Hepatitis C virus Ab Signal/Cutoff [Ratio] in Serum or Plasma by Immunoassay | EIA | Numeric |
| 13955-0 | Hepatitis C virus Ab [Presence] in Serum by Immunoassay | EIA | Ordinal Value Set |
| 5199-5 | Hepatitis C virus Ab [Presence] in Serum by Immunoblot (IB) | IB | Ordinal Value Set |
| 48575-5 | Hepatitis C virus genotype [Identifier] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Hepatitis C Value Set |
| 51824-1 | Hepatitis C virus IgM Ab [Units/volume] in Serum by Immunoassay | EIA | Numeric |
| 49376-7 | Hepatitis C virus RNA [Units/volume] (viral load) in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Numeric |
| 5012-0 | Hepatitis C virus RNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |

Table 14: Preferred LOINCs for Hepatitis C

Hepatitis C specific SNOMEDs limited to:

Use these with Nominal Hepatitis C LOINC identification. See implementation guideline for messaging results when SNOMED code is unavailable.

| Hepatitis C | |
|-------------|---------------------|
| SNOMED | SNOMED Concept Name |
| 62944002 | Hepatitis C virus |

Table 15: SNOMED code for Hepatitis C virus

Condition: HIV

NND: 10560 AIDS

HIV/AIDs: Laboratory Criteria (IDPH)

“Simple” ELR Message Use cases

- Confirmed positive results on any HIV diagnostic test, including antibody tests, antigen tests, cultures, and qualitative polymerase chain reaction (PCR) tests.
- **All levels** of quantitative tests (viral loads), including RT-PCR, branched chain DNA, and NASBA viral load assays. Results less than the detectable limit of the test **should** be reported.

“Not Simple” ELR Message Use case

- **All levels** of CD4+ T-lymphocyte cell counts. Values for the absolute count and the percentage of total lymphocytes should be included.

Preferred LOINCs for HIV Limited to:

- Generic LOINCs for viral identification and

| CreatePreferredLOINCforConditionTable | | | |
|---------------------------------------|--|---------------------------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 48345-3 | HIV 1+O+2 Ab [Presence] in Serum or Plasma | | Ordinal Value Set |
| 24012-7 | HIV 1 Ag [Presence] in Serum | | Ordinal Value Set |
| 30361-0 | HIV 2 Ab [Presence] in Serum by Immunoassay | EIA | Ordinal Value Set |
| 42600-7 | HIV 1+2 Ab [Presence] in Unspecified specimen by Immunoassay | EIA | Ordinal Value Set |
| 31201-7 | HIV 1+2 Ab [Presence] in Serum by Immunoassay | EIA | Ordinal Value Set |
| 56888-1 | HIV 1+2 Ab+HIV1 p24 Ag [Presence] in Serum by Immunoassay | EIA56888-1 | Ordinal Value Set |
| 69668-2 | HIV 1 and 2 Ab [Identifier] in Serum by Immunoassay | EIA | AIDS Value Set |
| 29893-5 | HIV 1 Ab [Presence] in Serum by Immunoassay | EIA | Ordinal Value Set |
| 5225-8 | HIV 2 Ab [Presence] in Serum by Immunoblot (IB) | IB | Ordinal Value Set |
| 44873-8 | HIV 1+2 Ab [Presence] in Serum by Immunoblot (IB) | IB | Ordinal Value Set |
| 34592-6 | HIV 1 Ab [Presence] in Body fluid by Immunoblot (IB) | IB | Ordinal Value Set |
| 14092-1 | HIV 1 Ab [Presence] in Serum by Immunofluorescence | IF | Ordinal Value Set |
| 6431-1 | HIV identified in Unspecified specimen by Organism specific culture | Organism specific culture | HIV Value Set |
| 5018-7 | HIV 1 RNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |
| 44871-2 | HIV 1 DNA [Presence] in Blood by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |
| 49890-7 | HIV 1 RNA [Log #/volume] (viral load) in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | numeric |

| CreatePreferredLOINCforConditionTable | | | |
|---------------------------------------|---|---------------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 25842-6 | HIV 2 DNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |
| 25836-8 | HIV 1 RNA [# /volume] (viral load) in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | numeric |

Table 16: Preferred LOINC for HIV

HIV specific SNOMEDs limited to:

Use these with Nominal HIV LOINC and with Non-Organism specific nominal LOINC (see below for use of these) for viral identification. See implementation guideline for messaging results when SNOMED code is unavailable.

| HIV | |
|----------|-------------------------------------|
| SNOMED | Concept Name 2 |
| 19030005 | human immunodeficiency virus |
| 36115006 | human immunodeficiency virus type 2 |
| 89293008 | human immunodeficiency virus type 1 |

Table 17: SNOMED codes for HIV

Condition: Salmonella

NND: 11000 Salmonellosis

Salmonellosis: Laboratory Criteria (CSTE)

“Simple” ELR Message Use cases

- Culture positive for Salmonella sp. (eh-other than *Salmonella typhi*) from a clinical specimen
 - Organism specific or generic culture summary conclusion results

“Not Simple” ELR Message Use case

- Culture positive for Salmonella sp. (eh-other than *Salmonella typhi*) from a clinical specime
 - Serotyping
 - Sensitivity
 - PFGE

Preferred LOINC for Salmonellosis limited to:

- Generic LOINC for bacterial identification and

Salmonella

| LOINC | LOINC Name | Method | Results Value Set |
|---------|---|---------------------------|-------------------|
| 20951-0 | Salmonella sp serotype [Identifier] in Isolate by Agglutination | Aggl | Salmonella |
| 56475-7 | Salmonella sp antigenic formula [Identifier] in Isolate by Agglutination | Aggl | Salmonella |
| 17563-8 | Salmonella sp identified in Unspecified specimen by Organism specific culture | Organism specific culture | Salmonella |

Table 18: Preferred LOINC codes for Salmonellosis

Salmonellosis specific SNOMEDs: and top 400 Salmonella serovars – many of which do not currently have a SNOMED code.

Use these with Nominal Salmonellosis LOINC codes and with Non-Organism specific nominal LOINC codes (see below for use of these) for bacterial identification. See implementation guideline for messaging results when SNOMED code is unavailable.

| CreateConditionSpecificSNOMEDList | |
|-----------------------------------|--|
| SNOMED | Concept Name 2 |
| 27268008 | Salmonella |
| 398393000 | Salmonella bongori |
| 110378009 | Salmonella enterica |
| 397502001 | Salmonella enterica subsp. arizonae |
| 398428002 | Salmonella enterica subsp. diarizonae |
| 398508004 | Salmonella enterica subsp. enterica |
| 398371005 | Salmonella enterica subsp. houtenae |
| 398620001 | Salmonella enterica subsp. indica |
| 398488004 | Salmonella enterica subsp. salamae |
| 73525009 | Salmonella Enteritidis |
| 398429005 | Salmonella group O:11 |
| 398349000 | Salmonella group O:13 |
| 398426003 | Salmonella group O:2 |
| 398436006 | Salmonella group O:3,10 |
| 398467008 | Salmonella group O:4 |
| 398364000 | Salmonella group O:8 |
| 398559003 | Salmonella group O:9 |
| 79128009 | Salmonella Paratyphi A |
| 85908006 | Salmonella Paratyphi B |
| 32488009 | Salmonella Paratyphi C |
| 372342007 | Salmonella species |
| 415358000 | Salmonella species, unable to serotype |
| 50136005 | Salmonella Typhimurium |

| CreateConditionSpecificSNOMEDList | |
|-----------------------------------|--------------------|
| SNOMED | Concept Name 2 |
| | Plus Many More.... |

Table 19: SNOMED codes for Salmonellosis

| Top400SalmonellaSerovars | | | |
|--------------------------|----------------------|-----------|--------------------------------------|
| Serotype Name | Formula | SNOMED | SNOMED Concept Name |
| Oakland | I 6,7:z:1,6 | 1009003 | Salmonella Oakland |
| Pensacola | I 9,12:m,t:- | 10183008 | Salmonella Pensacola |
| Adelaide | I 35:f,g:- | 10343005 | Salmonella Adelaide |
| Norwich | I 6,7:e,h:1,6 | 10556004 | Salmonella Norwich |
| Sandiego | I 4,12:e,h:e,n,z15 | 112287008 | Salmonella Sandiego |
| Sandiego | I 4,5,12:e,h:e,n,z15 | 112287008 | Salmonella Sandiego |
| Virginia | I 8:d:1,2 | 112296008 | Salmonella Virginia |
| Orientalis | I 16:k:e,n,z15 | 112309005 | Salmonella Orientalis |
| Pomona | I 28:y:1,7 | 112314009 | Salmonella Pomona |
| Aqua | I 30:k:1,6 | 11325004 | Salmonella Aqua |
| Anatum | I 3,15:e,h:1,6 | 114274001 | Salmonella Anatum var 15+ |
| Amsterdam | I 3,15:g,m,s:- | 114277008 | Salmonella Amsterdam var. 15+ |
| Uganda | I 3,15:l,z13:1,5 | 114282001 | Salmonella Uganda var 15+ |
| IV 11:z4,z23:- | IV 11:z4,z23:- | 114342005 | Salmonella IV 11:z4,z23:- |
| IIIa 13,22:z4,z23:- | IIIa 13,22:z4,z23:- | 114366004 | Salmonella IIIa 13,22:z4,z23:- |
| IIIa 13,23:z4,....:- | IIIa 13,23:z4,....:- | 114367008 | Salmonella IIIa 13,23:z4,z23,[z32]:- |
| Yoruba | I 16:c:l,w | 114394007 | Salmonella Yoruba |
| II 16:m,t:- | II 16:m,t:- | 114401008 | Salmonella II 16:m,t:[z42] |
| IV 16:z4,z32:- | IV 16:z4,z32:- | 114413003 | Salmonella IV 16:z4,z32:- |
| Dahra | I 17:b:1,5 | 114425000 | Salmonella Dahra |
| Ohio | I 6,7,14:b:l,w | 114533002 | Salmonella Ohio var 14+ |
| Livingstone | I 6,7,14:d:l,w | 114539003 | Salmonella Livingstone var 14+ |
| II 21:z10:- | II 21:z10:- | 114662009 | Salmonella II 21:z10:[z6] |
| II 30:l,z28:z6 | II 30:l,z28:z6 | 114698001 | Salmonella II 30:l,z28:z6 |
| IIIb 38:(k):z35 | IIIb 38:(k):z35 | 114718008 | Salmonella IIIb 38:(k):z35 |
| II 40:c:e,n,x,z15 | II 40:c:e,n,x,z15 | 114736008 | Salmonella II 1,40:c:e,n,x,z15 |
| Burundi | I 41:a:- | 114770009 | Salmonella Burundi |
| IV 43:z4,z23:- | IV 43:z4,z23:- | 114826005 | Salmonella IV 43:z4,z23:- |
| IV 44:z4,z32:- | IV 44:z4,z32:- | 114838001 | Salmonella IV 1,44:z4,z32:- |
| II 47:b:1,5 | II 47:b:1,5 | 114864007 | Salmonella II 47:b:1,5 |
| II 47:b:e,n,x,z15 | II 47:b:e,n,x,z15 | 114865008 | Salmonella II 47:b:e,n,x,z15 |
| Sundsvall | I 6,14:z:e,n,x | 11488000 | Salmonella Sundsvall |

| Top400SalmonellaSerovars | | | |
|--------------------------------------|--------------------|-----------|--------------------------------|
| Serotype Name | Formula | SNOMED | SNOMED Concept Name |
| II 48:d:z6 | II 48:d:z6 | 114881003 | Salmonella II 48:d:z6 |
| IV 48:g,z51:- | IV 48:g,z51:- | 114885007 | Salmonella IV 48:g,z51:- |
| 48:z35:- | 48:z35:- | 114898003 | Salmonella V 48:z35:- |
| 48:z81:- | 48:z81:- | 114902009 | Salmonella V 48:z81:- |
| IV 50:g,z51:- | IV 50:g,z51:- | 114910005 | Salmonella IV 50:g,z51:- |
| IIIb 50:z:z52 | IIIb 50:z:z52 | 114916004 | Salmonella IIIb 50:z:z52 |
| IV 50:z4,z32:- | IV 50:z4,z32:- | 114919006 | Salmonella IV 50:z4,z32:- |
| IIIb 53:z10:z | IIIb 53:z10:z | 114954004 | Salmonella IIIb 53:z10:z |
| II 55:k:z39 | II 55:k:z39 | 114959009 | Salmonella II 55:k:z39 |
| II 58:l,z13,z28:z6 | II 58:l,z13,z28:z6 | 114972005 | Salmonella II 58:l,z13,z28:z6 |
| IIIb 61:r:z | IIIb 61:r:z | 114991005 | Salmonella IIIb 61:r:z |
| 66:z81:- | 66:z81:- | 115003009 | Salmonella V 66:z81:- |
| I 4,5,12:-:1,2 | I 4,5,12:-:1,2 | 116049009 | Salmonella serotype B, 5:-:1,2 |
| Kiambu | I 4,12:z:1,5 | 11901002 | Salmonella Kiambu |
| Indiana | I 4,12:z:1,7 | 12278000 | Salmonella Indiana |
| Paratyphi B var. L (+) tartrate + | I 4,5,12:b:1,2 | 128388007 | Salmonella Java |
| Madelia | I 6,14,25:y:1,7 | 13009006 | Salmonella Madelia |
| I 4,12:-:1,2 | I 4,12:-:1,2 | 131282009 | Salmonella serotype B, :-:1,2 |
| Freetown | I 38:y:1,5 | 13411008 | Salmonella Freetown |
| IV 44:z4,z24:- | IV 44:z4,z24:- | 14528002 | Salmonella IV 44:z4,z24:- |
| Riverside | I 45:b:1,5 | 14966006 | Salmonella Riverside |
| Ealing | I 35:g,m,s:- | 15319009 | Salmonella Ealing |
| Coeln | I 4,5,12:y:1,2 | 16109000 | Salmonella Coeln |
| Brandenburg | I 4,12:l,v:e,n,z15 | 16888008 | Salmonella Brandenburg |
| Mississippi | I 13,23:b:1,5 | 17330008 | Salmonella Mississippi |
| Senftenberg | I 1,3,19:g,s,t:- | 18163008 | Salmonella Senftenberg |
| Manhattan | I 6,8:d:1,5 | 20073008 | Salmonella Manhattan |
| Soerenga | I 30:i:l,w | 20862000 | Salmonella Soerenga |
| Saphra | I 16:y:1,5 | 21146003 | Salmonella Saphra |
| Ekpoui | I 47:z29:- | 2191008 | Salmonella Ekpoui |
| Georgia | I 6,7:b:e,n,z15 | 22117007 | Salmonella Georgia |
| Maricopa | I 42:g,z51:1,5 | 22590000 | Salmonella Maricopa |
| Bukavu | I 40:l,z28:1,5 | 22729005 | Salmonella Bukavu |
| Grumpensis | I 13,23:d:1,7 | 22752009 | Salmonella Grumpensis |
| Agbeni | I 13,23:g,m:- | 2286000 | Salmonella Agbeni |
| Falkensee | I 3,10:i:e,n,z15 | 22899009 | Salmonella Falkensee |

| Top400SalmonellaSerovars | | | |
|--------------------------|------------------------|----------|---------------------------|
| Serotype Name | Formula | SNOMED | SNOMED Concept Name |
| London | I 3,10:l,v:1,6 | 2291004 | Salmonella London |
| Uganda | I 3,10:l,z13:1,5 | 2434007 | Salmonella Uganda |
| Worthington | I 13,23:z:l,w | 24666009 | Salmonella Worthington |
| Matopeni | I 30:y:1,2 | 24680002 | Salmonella Matopeni |
| Beaudesert | I 6,14:e,h:1,7 | 25535004 | Salmonella Beaudesert |
| Umbilo | I 28:z10:e,n,x | 25695005 | Salmonella Umbilo |
| Liverpool | I 1,3,19:d:e,n,z15 | 25767003 | Salmonella Liverpool |
| Lattenkamp | I 45:z35:1,5 | 26443001 | Salmonella Lattenkamp |
| Nima | I 28:y:1,5 | 26455007 | Salmonella Nima |
| Hartford | I 6,7:y:e,n,x | 26463008 | Salmonella Hartford |
| Gnesta | I 1,3,19:b:1,5 | 26622005 | Salmonella Gnesta |
| Lome | I 9,12:r:z6 | 28106004 | Salmonella Lome |
| Saintpaul | I 4,12:e,h:1,2 | 2820001 | Salmonella Saintpaul |
| Saintpaul | I 4,5,12:e,h:1,2 | 2820001 | Salmonella Saintpaul |
| Cannstatt | I 1,3,19:m,t:- | 28206007 | Salmonella Cannstatt |
| Waycross | I 41:z4,z23:- | 28717009 | Salmonella Waycross |
| Singapore | I 6,7:k:e,n,x | 29019008 | Salmonella Singapore |
| Benin | I 9,46:y:1,7 | 29192003 | Salmonella Benin |
| Tennyson | I 4,5,12:g,z51:e,n,z15 | 29469006 | Salmonella Tennyson |
| IV 45:g,z51:- | IV 45:g,z51:- | 30430002 | Salmonella IV 45:g,z51:- |
| II 58:a:z6 | II 58:a:z6 | 30552009 | Salmonella II 58:a:(z6) |
| Richmond | I 6,7:y:1,2 | 31517006 | Salmonella Richmond |
| Gatuni | I 6,8:b:e,n,x | 31608001 | Salmonella Gatuni |
| Fischerstrasse | I 44:d:e,n,z15 | 32379001 | Salmonella Fischerstrasse |
| Paratyphi C | I 6,7:c:1,5 | 32488009 | Salmonella Paratyphi C |
| Carrau | I 6,14:y:1,7 | 32624003 | Salmonella Carrau |
| Orion | I 3,10:y:1,5 | 32681008 | Salmonella Orion |
| Ituri | I 4,12:z10:1,5 | 32771001 | Salmonella Ituri |
| Fresno | I 9,46:z38:- | 3312002 | Salmonella Fresno |
| Elisabethville | I 3,10:r:1,7 | 33136001 | Salmonella Elisabethville |
| Holcomb | I 6,8:l,v:e,n,x | 33613006 | Salmonella Holcomb |
| Ibadan | I 13,22:b:1,5 | 3373000 | Salmonella Ibadan |
| Eastbourne | I 9,12:e,h:1,5 | 34547007 | Salmonella Eastbourne |
| Braenderup | I 6,7:e,h:e,n,z15 | 35225001 | Salmonella Braenderup |
| Istanbul | I 8:z10:e,n,x | 35373008 | Salmonella Istanbul |
| Oslo | I 6,7:a:e,n,x | 35454005 | Salmonella oslo |
| Poano | I 6,14:z:l,z13,z28 | 3596001 | Salmonella Poano |

| Top400SalmonellaSerovars | | | |
|------------------------------|-----------------------|-----------|---|
| Serotype Name | Formula | SNOMED | SNOMED Concept Name |
| Sanger | I 16:b:e,n,z15 | 36588009 | Salmonella Sanger |
| Choleraesuis var. Kunzendorf | I 6,7:c:1,5 | 370577001 | Salmonella Choleraesuis var. Kunzendorf |
| Typhimurium | I 4,12:i:1,2 | 370578006 | Salmonella Typhimurium var. Copenhagen |
| Derby | I 4,12:f,g:- | 37091006 | Salmonella Derby |
| Anatum | I 3,10:e,h:1,6 | 37261005 | Salmonella Anatum |
| Amsterdam | I 3,10:g,m,s:- | 38658003 | Salmonella Amsterdam |
| Havana | I 13,23:f,g:- | 38788001 | Salmonella Havana |
| Florida | I 6,14:d:1,7 | 38849007 | Salmonella Florida |
| Amoutive | I 28:d:1,5 | 39015005 | Salmonella Amoutive |
| Kottbus | I 6,8:e,h:1,5 | 39664003 | Salmonella Kottbus |
| IIIb 61:i:z | IIIb 61:i:z | 398359004 | Salmonella IIIb 61:i:z |
| IIIb 61:l,v,z13:z35 | IIIb 61:l,v,z13:z35 | 398369005 | Salmonella IIIb 61:l,v,z13:z35 |
| IIIb 61:c:z35 | IIIb 61:c:z35 | 398387008 | Salmonella IIIb 61:c:z35 |
| IIIb 53:z10:z35 | IIIb 53:z10:z35 | 398388003 | Salmonella IIIb 53:z10:z35 |
| IIIb 60:r:e,n,x,z15 | IIIb 60:r:e,n,x,z15 | 398407006 | Salmonella IIIb 60:r:e,n,x,z15 |
| IIIb 61:l,v,z13:1,5 | IIIb 61:l,v,z13:1,5 | 398423006 | Salmonella IIIb 61:l,v:1,5,7:[z57] |
| IIIb 61:l,v:1,5 | IIIb 61:l,v:1,5 | 398423006 | Salmonella IIIb 61:l,v:1,5,7:[z57] |
| IIIb 61:l,z13:1,5 | IIIb 61:l,z13:1,5 | 398423006 | Salmonella IIIb 61:l,v:1,5,7:[z57] |
| Lomalinda | I 9,12:a:e,n,x | 398483008 | Salmonella Lomalinda |
| IIIb 60:z52:z53 | IIIb 60:z52:z53 | 398495008 | Salmonella IIIb 60:z52:z53 |
| IIIb 61:z52:z53 | IIIb 61:z52:z53 | 398497000 | Salmonella IIIb 61:z52:z53 |
| IIIb 65:k:z35 | IIIb 65:k:z35 | 398512005 | Salmonella IIIb 65:(k):z35 |
| IIIa 13,23:g,z51:- | IIIa 13,23:g,z51:- | 398532006 | Salmonella IIIa 1,13,23:g,z51:- |
| Zaiman | I 9,12:l,v:e,n,x | 398550004 | Salmonella Zaiman |
| IIIb 61:i:z53 | IIIb 61:i:z53 | 398563005 | Salmonella IIIb 61:i:z53 |
| IIIb 65:(k):z53 | IIIb 65:(k):z53 | 398581008 | Salmonella IIIb 65:(k):z53 |
| IIIb 65:k:z53 | IIIb 65:k:z53 | 398581008 | Salmonella IIIb 65:(k):z53 |
| IIIa 56:z4,z23:- | IIIa 56:z4,z23:- | 398582001 | Salmonella IIIa 56:z4,z23:- |
| IIIb 65:(k):z | IIIb 65:(k):z | 398615001 | Salmonella IIIb 65:(k):z |
| Lexington | I 3,10:z10:1,5 | 39877005 | Salmonella Lexington |
| Panama | I 9,12:l,v:1,5 | 40114001 | Salmonella Panama |
| IIIb 16:z10:e,n,x,z15 | IIIb 16:z10:e,n,x,z15 | 404259009 | Salmonella IIIb 16:z10:e,n,x,z15 |
| IIIa 17:z29:- | IIIa 17:z29:- | 404287000 | Salmonella IIIa 17:z29:- |
| IIIa 18:z4,z23:- | IIIa 18:z4,z23:- | 404300004 | Salmonella IIIa 18:z4,z23:- |
| IIIa 21:g,z51:- | IIIa 21:g,z51:- | 404320003 | Salmonella IIIa 21:g,z51:- |

| Top400SalmonellaSerovars | | | |
|------------------------------------|--------------------|-----------|--|
| Serotype Name | Formula | SNOMED | SNOMED Concept Name |
| IIIa 35:z4,z23:- | IIIa 35:z4,z23:- | 404346004 | Salmonella IIIa 35:z4,z23:- |
| Alachua | I 35:z4,z23:- | 404347008 | Salmonella Alachua |
| IIIb 38:(k):z35 | IIIb 38:(k):z35 | 404374009 | Salmonella IIIb 38:(k):z35:(z56) |
| IIIa 40:z4,z23:- | IIIa 40:z4,z23:- | 404410007 | Salmonella IIIa 40:z4,z23:- |
| IV 40:z4,z32:- | IV 40:z4,z32:- | 404411006 | Salmonella IV 40:z4,z32:- |
| IIIa 40:z4,z32:- | IIIa 40:z4,z32:- | 404412004 | Salmonella IIIa 40:z4,z32:- |
| IIIa 41:z4,z23:- | IIIa 41:z4,z23:- | 404427004 | Salmonella IIIa 41:z4,z23:- |
| IIIa 42:z4,z24:- | IIIa 42:z4,z24:- | 404450005 | Salmonella IIIa 42:z4,z24:- |
| IIIa 43:z4,z23:- | IIIa 43:z4,z23:- | 404464005 | Salmonella IIIa 43:z4,z23:- |
| IIIa 44:z4,z24:- | IIIa 44:z4,z24:- | 404475009 | Salmonella IIIa 44:z4,z24:- |
| IIIa 44:z4,z23:- | IIIa 44:z4,z23:- | 404478006 | Salmonella IIIa 44:z4,z23:- |
| IV 44:z4,z23:- | IV 44:z4,z23:- | 404479003 | Salmonella IV 44:z4,z23:- |
| IIIb 47:(k):z35 | IIIb 47:(k):z35 | 404539009 | Salmonella IIIb 47:k:z35 |
| IIIb 47:k:z35 | IIIb 47:k:z35 | 404539009 | Salmonella IIIb 47:k:z35 |
| IIIa 48:z4,z24:- | IIIa 48:z4,z24:- | 404567000 | Salmonella IIIa 48:z4,z24:- |
| IIIb 48:i:z | IIIb 48:i:z | 404570001 | Salmonella IIIb 48:i:z |
| IIIb 48:z52:z | IIIb 48:z52:z | 404586008 | Salmonella IIIb 48:z52:z |
| IIIa 48:g,z51:- | IIIa 48:g,z51:- | 404587004 | Salmonella IIIa 48:g,z51:- |
| IIIb 50:k:z | IIIb 50:k:z | 404604000 | Salmonella IIIb 50:k:z |
| IIIb 50:r:z | IIIb 50:r:z | 404612008 | Salmonella IIIb 50:r:z |
| IIIb 50:r:z35 | IIIb 50:r:z35 | 404613003 | Salmonella IIIb 50:r:z35 |
| IIIb 50:z52:z35 | IIIb 50:z52:z35 | 404622002 | Salmonella IIIb 50:z52:z35 |
| IV 50:z4,z23:- | IV 50:z4,z23:- | 404623007 | Salmonella IV 50:z4,z23:- |
| IIIa 50:z4,z23:- | IIIa 50:z4,z23:- | 404624001 | Salmonella IIIa 50:z4,z23:- |
| Berta | I 9,12:f,g,t:- | 40697005 | Salmonella Berta |
| Israel | I 9,12:e,h:e,n,z15 | 41533007 | Salmonella Israel |
| Choleraesuis var. Decatur | I 6,7:c:1,5 | 416057009 | Salmonella Choleraesuis var. Decatur |
| IIIa 53:z4,z23:- | IIIa 53:z4,z23:- | 417719009 | Salmonella IIIa 53:z4,z23:- |
| Uzaramo | I 6,14:z4,z24:- | 42614009 | Salmonella Uzaramo |
| Toucra | I 48:z:1,5 | 42615005 | Salmonella Toucra |
| Shubra | I 4,5,12:z:1,2 | 42648005 | Salmonella Shubra |
| Mikawasima | I 6,7:y:e,n,z15 | 42709001 | Salmonella Mikawasima |
| Bahrenfeld | I 6,14:e,h:1,5 | 43575001 | Salmonella Bahrenfeld |
| Thompson | I 6,7:k:1,5 | 4361005 | Salmonella Thompson |
| I 4,5,12:b:- var. L (+) tartrate + | I 4,5,12:b:- | 441745001 | Salmonella enterica subspecies enterica serovar 4,[5],12:b:- |
| Paratyphi B | I 4,5,12:b:- | 441745001 | Salmonella enterica subspecies enterica |

| Top400SalmonellaSerovars | | | |
|---------------------------------------|--------------------|-----------|-----------------------------------|
| Serotype Name | Formula | SNOMED | SNOMED Concept Name |
| | | | serovar 4,[5],12:b:- |
| I 4,12:i:- | I 4,12:i:- | 441800005 | Salmonella serovar I 4,[5],12:i:- |
| I 4,5,12:i:- | I 4,5,12:i:- | 441800005 | Salmonella serovar I 4,[5],12:i:- |
| I 4,5,12:e,h:- | I 4,5,12:e,h:- | 441840004 | Salmonella serovar I 4,5,12:e,h:- |
| I 6,7:k:- | I 6,7:k:- | 441853001 | Salmonella serovar I 6,7:k:- |
| I 9,12:l,z28:- | I 9,12:l,z28:- | 441860007 | Salmonella serovar I 9,12:l,z28:- |
| I 4,5,12:b:- var. L (+) tartrate + | I 4,5,12:b:- | 441896006 | Salmonella serovar I 4,5,12:b:- |
| Paratyphi B | I 4,5,12:b:- | 441896006 | Salmonella serovar I 4,5,12:b:- |
| I 9,12:-:1,5 | I 9,12:-:1,5 | 441979009 | Salmonella I 9,12:-:1,5 |
| I 4,12:i:- | I 4,12:i:- | 442071007 | Salmonella serovar I 4,12:i:- |
| I 6,7:-:1,5 | I 6,7:-:1,5 | 442103008 | Salmonella serovar I 6,7:-:1,5 |
| I 6,8:-:1,2 | I 6,8:-:1,2 | 442161007 | Salmonella serovar I 6,8:-:1,2 |
| I 4,5,12:i:- | I 4,5,12:i:- | 442455001 | Salmonella serovar I 4,5,12:i:- |
| Roodepoort | I 13,22:z10:1,5 | 44451005 | Salmonella Roodepoort |
| Putten | I 13,23:d:l,w | 44768008 | Salmonella Putten |
| Corvallis | I 8:z4,z23:- | 45548005 | Salmonella Corvallis |
| Napoli | I 9,12:l,z13:e,n,x | 45645001 | Salmonella Napoli |
| Schwarzengrund | I 4,5,12:d:1,7 | 45651006 | Salmonella Schwarzengrund |
| Schwarzengrund | I 4,12:d:1,7 | 45651006 | Salmonella Schwarzengrund |
| Schwarzengrund | I 4,12,27:d:1,7 | 45651006 | Salmonella Schwarzengrund |
| IV 44:z36,z38:- | IV 44:z36,z38:- | 46340008 | Salmonella IV 44:z36,(z38):- |
| IV 44:z36:- | IV 44:z36:- | 46340008 | Salmonella IV 44:z36,(z38):- |
| Apapa | I 45:m,t:- | 46399008 | Salmonella Apapa |
| Oranienburg | I 6,7:m,t:- | 46667007 | Salmonella Oranienburg |
| Essen | I 4,12:g,m:- | 4687003 | Salmonella Essen |
| Altona | I 8:r:z6 | 47229009 | Salmonella Altona |
| Bere | I 47:z4,z23:z6 | 47420006 | Salmonella Bere |
| Stanleyville | I 4,5,12:z4,z23:- | 47441000 | Salmonella Stanleyville |
| Johannesburg | I 40:b:e,n,x | 47508001 | Salmonella Johannesburg |
| Clackamas | I 4,12:l,v:1,5 | 47569006 | Salmonella Clackamas |
| Nottingham | I 16:d:e,n,z15 | 4868006 | Salmonella Nottingham |
| Weslaco | I 42:z36:- | 48884009 | Salmonella Weslaco |
| Michigan | I 17:l,v:1,5 | 49079007 | Salmonella Michigan |
| Cotham | I 28:i:1,5 | 49452001 | Salmonella Cotham |
| Hadar | I 6,8:z10:e,n,x | 49491006 | Salmonella Hadar |
| Brazil | I 16:a:1,5 | 49666004 | Salmonella Brazil |

| Top400SalmonellaSerovars | | | |
|--------------------------|------------------|----------|---------------------------|
| Serotype Name | Formula | SNOMED | SNOMED Concept Name |
| Typhimurium | 4,5,12:i:1,2 | 50136005 | Salmonella Typhimurium |
| Urbana | 30:b:e,n,x | 50428006 | Salmonella Urbana |
| Kingston | 4,12:g,s,t:- | 51008005 | Salmonella Kingston |
| Bonariensis | 6,8:i:e,n,x | 51196000 | Salmonella Bonariensis |
| Lansing | 38:i:1,5 | 51706003 | Salmonella Lansing |
| Overschie | 51:l,v:1,5 | 51799003 | Salmonella Overschie |
| Rissen | 6,7:f,g:- | 51985007 | Salmonella Rissen |
| Idikan | 13,23:i:1,5 | 52400005 | Salmonella Idikan |
| Kisangani | 4,5,12:a:1,2 | 52492008 | Salmonella kisangani |
| Plymouth | 9,46:d:z6 | 52941007 | Salmonella Plymouth |
| Goettingen | 9,12:l,v:e,n,z15 | 53230005 | Salmonella Goettingen |
| Emek | 8,20:g,m,s:- | 53814008 | Salmonella Emek |
| Praha | 6,8:y:e,n,z15 | 54131009 | Salmonella Praha |
| Chester | 4,12:e,h:e,n,x | 5461002 | Salmonella Chester |
| Edinburg | 6,7:b:1,5 | 55274005 | Salmonella Edinburg |
| II 6,7:b:1,5 | II 6,7:b:1,5 | 55274005 | Salmonella Edinburg |
| Saarbruecken | 9,12:a:1,7 | 55395003 | Salmonella Saarbruecken |
| Daytona | 6,7:k:1,6 | 55580001 | Salmonella Daytona |
| Cubana | 13,23:z29:- | 55932005 | Salmonella Cubana |
| Typhi | 9,12:d:- | 5595000 | Salmonella Typhi |
| Typhi | 9,12,Vi:d:- | 5595000 | Salmonella Typhi |
| Newport | 8:e,h:1,2 | 56077000 | Salmonella Newport |
| Durham | 13,23:b:e,n,z15 | 56632001 | Salmonella Durham |
| Poona | 13,22:z:1,6 | 57101009 | Salmonella Poona |
| Ago | 30:z38:- | 57255003 | Salmonella Ago |
| Aberdeen | 11:i:1,2 | 57322006 | Salmonella Aberdeen |
| Inverness | 38:k:1,6 | 57585007 | Salmonella Inverness |
| Durban | 9,12:a:e,n,z15 | 57664002 | Salmonella Durban |
| Takoradi | 6,8:i:1,5 | 57786005 | Salmonella Takoradi |
| IV 40:z4,z24:- | IV 40:z4,z24:- | 5837001 | Salmonella IV 40:z4,z24:- |
| Baildon | 9,46:a:e,n,x | 5864000 | Salmonella Baildon |
| Larochelle | 6,7:e,h:1,2 | 58723002 | Salmonella Larochelle |
| Kumasi | 30:z10:e,n,z15 | 58946009 | Salmonella Kumasi |
| Fluntern | 18:b:1,5 | 59107001 | Salmonella Fluntern |
| Virchow | 6,7:r:1,2 | 5929008 | Salmonella Virchow |
| Colindale | 6,7:r:1,7 | 59551003 | Salmonella Colindale |
| Gaminara | 16:d:1,7 | 59598006 | Salmonella Gaminara |

| Top400SalmonellaSerovars | | | |
|--------------------------|-------------------|----------|-------------------------|
| Serotype Name | Formula | SNOMED | SNOMED Concept Name |
| Agama | 4,12:i:1,6 | 60073009 | Salmonella Agama |
| Meleagridis | 3,10:e,h:l,w | 60651003 | Salmonella Meleagridis |
| Elomrane | 9,12:z38:- | 60794003 | Salmonella Elomrane |
| II 50:b:z6 | II 50:b:z6 | 62024006 | Salmonella II 50:b:z6 |
| Westhampton | 3,10:g,s,t:- | 62099009 | Salmonella Westhampton |
| Dublin | 9,12:g,p:- | 62136003 | Salmonella Dublin |
| II 58:c:z6 | II 58:c:z6 | 62209006 | Salmonella II 58:c:z6 |
| Hato | 4,12:g,m,s:- | 63142006 | Salmonella Hato |
| Herston | 6,8:d:e,n,z15 | 64578002 | Salmonella Herston |
| Teitelkebir | 13,23:d:e,n,z15 | 64636003 | Salmonella Teitelkebir |
| Miami | 9,12:a:1,5 | 64802006 | Salmonella Miami |
| Haardt | 8:k:1,5 | 64842001 | Salmonella Haardt |
| Chicago | 28:r:1,5 | 64975005 | Salmonella Chicago |
| Monschau | 35:m,t:- | 65132007 | Salmonella Monschau |
| Luciana | 11:a:e,n,z15 | 65211006 | Salmonella Luciana |
| Kintambo | 13,23:m,t:- | 65422007 | Salmonella Kintambo |
| Livingstone | 6,7:d:l,w | 66713000 | Salmonella Livingstone |
| Ohio | 6,7:b:l,w | 67210008 | Salmonella Ohio |
| Hvittingfoss | 16:b:e,n,x | 67392004 | Salmonella Hvittingfoss |
| Muenster | 3,10:e,h:1,5 | 68916009 | Salmonella Muenster |
| Carmel | 17:l,v:e,n,x | 6938001 | Salmonella Carmel |
| Cerro | 18:z4,z23:- | 70344002 | Salmonella Cerro |
| Cerro | 6,14,18:z4,z23:- | 70344002 | Salmonella Cerro |
| Sanjuan | 6,7:a:1,5 | 70940001 | Salmonella Sanjuan |
| Guinea | 44:z10:1,7 | 71316008 | Salmonella Guinea |
| Give | 3,10:l,v:1,7 | 71768003 | Salmonella Give |
| Heidelberg | 4,12:r:1,2 | 71865006 | Salmonella Heidelberg |
| Heidelberg | 4,5,12:r:1,2 | 71865006 | Salmonella Heidelberg |
| Albany | 8:z4,z24:- | 72033009 | Salmonella Albany |
| Kingabwa | 43:y:1,5 | 72119007 | Salmonella Kingabwa |
| Enteritidis | 9,12:g,m:- | 73525009 | Salmonella Enteritidis |
| Widemarsh | 35:z29:- | 74115000 | Salmonella Widemarsh |
| Suelldorf | 45:f,g:- | 74705004 | Salmonella Suelldorf |
| Chandans | 11:d:- | 748001 | Salmonella Chandans |
| Kimuenza | 4,12,27:l,v:e,n,x | 75090001 | Salmonella Kimuenza |
| Abaetetuba | 11:k:1,5 | 75848006 | Salmonella Abaetetuba |
| Albert | 4,12:z10:e,n,x | 75923007 | Salmonella Albert |

| Top400SalmonellaSerovars | | | |
|--------------------------|--------------------|----------|-----------------------------|
| Serotype Name | Formula | SNOMED | SNOMED Concept Name |
| Nyanza | 11:z:z6 | 76350003 | Salmonella Nyanza |
| Muenchen | 6,8:d:1,2 | 77584005 | Salmonella Muenchen |
| Amager | 3,10:y:1,2 | 77822004 | Salmonella Amager |
| Mgulani | 38:i:1,2 | 77843003 | Salmonella Mgulani |
| Arechavaleta | 4,5,12:a:1,7 | 78139003 | Salmonella Arechavaleta |
| Newmexico | 9,12:g,z51:1,5 | 78243006 | Salmonella Newmexico |
| Vancouver | 16:c:1,5 | 78256004 | Salmonella Vancouver |
| Paratyphi A | 2,12:a:- | 79128009 | Salmonella Paratyphi A |
| Tennessee | 6,7:z29:- | 79153007 | Salmonella Tennessee |
| Tennessee | 6,7,14:z29:- | 79153007 | Salmonella Tennessee |
| Kokomlemlé | 39:l,v:e,n,x | 79570007 | Salmonella Kokomlemlé |
| Anecho | 35:g,s,t:- | 79905007 | Salmonella Anecho |
| Offa | 41:z38:- | 800007 | Salmonella Offa |
| Concord | 6,7:l,v:1,2 | 80014004 | Salmonella Concord |
| Choleraesuis | 6,7:c:1,5 | 80232006 | Salmonella Choleraesuis |
| Montevideo | 6,7:g,m,s:- | 80268001 | Salmonella Montevideo |
| Bareilly | 6,7:y:1,5 | 8044005 | Salmonella Bareilly |
| Rubislaw | 11:r:e,n,x | 80456008 | Salmonella Rubislaw |
| Agouevé | 13,22:z29:- | 8052008 | Salmonella Agouevé |
| Agona | 4,12:f,g,s:- | 80627004 | Salmonella Agona |
| Litchfield | 6,8:l,v:1,2 | 81614007 | Salmonella Litchfield |
| Marshall | 13,22:a:l,z13,z28 | 81807008 | Salmonella Marshall |
| Bovismorbificans | 6,8:r:1,5 | 81938008 | Salmonella Bovismorbificans |
| Infantis | 6,7:r:1,5 | 82071007 | Salmonella Infantis |
| Bredeney | 4,12:l,v:1,7 | 82364007 | Salmonella Bredeney |
| Denver | 6,7:a:e,n,z15 | 8249007 | Salmonella Denver |
| Hull | 16:b:1,2 | 82997004 | Salmonella Hull |
| Chailey | 6,8:z4,z23:e,n,z15 | 83013006 | Salmonella Chailey |
| Kedougou | 13,23:i:l,w | 83141008 | Salmonella Kedougou |
| Jangwani | 17:a:1,5 | 8339007 | Salmonella Jangwani |
| Tucson | 6,14:b:1,7 | 8379003 | Salmonella Tucson |
| Koketime | 44:z38:- | 83795006 | Salmonella Koketime |
| Minnesota | 21:b:e,n,x | 84044008 | Salmonella Minnesota |
| Duval | 40:b:e,n,z15 | 84287002 | Salmonella Duval |
| na | na | 84346001 | Salmonella Bardo |
| Newport | 6,8:e,h:1,2 | 84346001 | Salmonella Bardo |
| Kentucky | 8:i:z6 | 8455004 | Salmonella Kentucky |

| Top400SalmonellaSerovars | | | |
|--------------------------|--------------------|----------|----------------------------|
| Serotype Name | Formula | SNOMED | SNOMED Concept Name |
| Friedrichsfelde | 28:f,g:- | 85186008 | Salmonella Friedrichsfelde |
| Tallahassee | 6,8:z4,z32:- | 85277006 | Salmonella Tallahassee |
| Tilene | 40:e,h:1,2 | 85424004 | Salmonella Tilene |
| Potsdam | 6,7:l,v:e,n,z15 | 8544001 | Salmonella Potsdam |
| Paratyphi B | 4,5,12:b:1,2 | 85908006 | Salmonella Paratyphi B |
| Anfo | 39:y:1,2 | 86397006 | Salmonella Anfo |
| Krefeld | 1,3,19:y:l,w | 86656007 | Salmonella Krefeld |
| Barranquilla | 16:d:e,n,x | 87933008 | Salmonella Barranquilla |
| Javiana | 9,12:l,z28:1,5 | 88022005 | Salmonella Javiana |
| Stanley | 4,5,12:d:1,2 | 88091007 | Salmonella Stanley |
| Matadi | 17:k:e,n,x | 88149008 | Salmonella Matadi |
| Haifa | 4,5,12:z10:1,2 | 88255008 | Salmonella Haifa |
| Isangi | 6,7:d:1,5 | 89032008 | Salmonella Isangi |
| Weltevreden | 3,10:r:z6 | 91661006 | Salmonella Weltevreden |
| Molade | 8,20:z10:z6 | 9393004 | Salmonella Molade |
| Wandsworth | 39:b:1,2 | 9479007 | Salmonella Wandsworth |
| Mbandaka | 6,7:z10:e,n,z15 | 9506004 | Salmonella Mbandaka |
| Mbandaka | 6,7,14:z10:e,n,z15 | 9506004 | Salmonella Mbandaka |
| 1,3,19:nonmotile | 1,3,19:nonmotile | na | na |
| 11:a:- | 11:a:- | na | na |
| 13,23:-:1,5 | 13,23:-:1,5 | na | na |
| 13,23:b:- | 13,23:b:- | na | na |
| 16:a:- | 16:a:- | na | na |
| 16:nonmotile | 16:nonmotile | na | na |
| 3,10:nonmotile | 3,10:nonmotile | na | na |
| 3,10:z:e,n,z15 | 3,10:z:e,n,z15 | na | na |
| 35:nonmotile | 35:nonmotile | na | na |
| 4,12:nonmotile | 4,12:nonmotile | na | na |
| 4,5,12:-:1,5 | 4,5,12:-:1,5 | na | na |
| 4,5,12:nonmotile | 4,5,12:nonmotile | na | na |
| 4,5,12:r:- | 4,5,12:r:- | na | na |
| 42:l,v:1,6,7 | 42:l,v:1,6,7 | na | na |
| 45:b:- | 45:b:- | na | na |
| 45:undetermined | 45:undetermined | na | na |
| 47:z4,z23:- | 47:z4,z23:- | na | na |
| 6,7,14:nonmotile | 6,7,14:nonmotile | na | na |
| 6,7:e,h:- | 6,7:e,h:- | na | na |

| Top400SalmonellaSerovars | | | |
|--------------------------|-------------------------|--------|---------------------|
| Serotype Name | Formula | SNOMED | SNOMED Concept Name |
| I 6,7:l,w:- | I 6,7:l,w:- | na | na |
| I 6,7:nonmotile | I 6,7:nonmotile | na | na |
| I 6,8:d:- | I 6,8:d:- | na | na |
| I 6,8:e,h:- | I 6,8:e,h:- | na | na |
| I 6,8:nonmotile | I 6,8:nonmotile | na | na |
| I 9,12:l,v:- | I 9,12:l,v:- | na | na |
| I 9,12:nonmotile | I 9,12:nonmotile | na | na |
| I Mucoïd:nonmotile | I Mucoïd:nonmotile | na | na |
| I Rough:-:1,5 | I Rough:-:1,5 | na | na |
| I Rough:b:- | I Rough:b:- | na | na |
| I Rough:b:1,5 | I Rough:b:1,5 | na | na |
| I Rough:b:e,n,x | I Rough:b:e,n,x | na | na |
| I Rough:d:e,n,x | I Rough:d:e,n,x | na | na |
| I Rough:d:e,n,z15 | I Rough:d:e,n,z15 | na | na |
| I Rough:e,h:1,2 | I Rough:e,h:1,2 | na | na |
| I Rough:e,h:1,6 | I Rough:e,h:1,6 | na | na |
| I Rough:e,h:e,n,z15 | I Rough:e,h:e,n,z15 | na | na |
| I Rough:g,m,s:- | I Rough:g,m,s:- | na | na |
| I Rough:g,m:- | I Rough:g,m:- | na | na |
| I Rough:i:1,2 | I Rough:i:1,2 | na | na |
| I Rough:i:1,5 | I Rough:i:1,5 | na | na |
| I Rough:m,t:- | I Rough:m,t:- | na | na |
| I Rough:nonmotile | I Rough:nonmotile | na | na |
| I Rough:r:1,5 | I Rough:r:1,5 | na | na |
| I Rough:r:e,n,x | I Rough:r:e,n,x | na | na |
| I Rough:undetermined | I Rough:undetermined | na | na |
| I Rough:y:1,5 | I Rough:y:1,5 | na | na |
| I Rough:y:1,7 | I Rough:y:1,7 | na | na |
| I Rough:y:e,n,x | I Rough:y:e,n,x | na | na |
| I Rough:z:1,6 | I Rough:z:1,6 | na | na |
| I Rough:z10:- | I Rough:z10:- | na | na |
| I Rough:z10:e,n,z15 | I Rough:z10:e,n,z15 | na | na |
| I Rough:z29:- | I Rough:z29:- | na | na |
| II 4,12:b:- | II 4,12:b:- | na | na |
| II 48:z81:z39 | II 48:z81:z39 | na | na |
| II 60:z10:- | II 60:z10:- | na | na |

| Top400SalmonellaSerovars | | | |
|--------------------------|------------------------|--------|---------------------|
| Serotype Name | Formula | SNOMED | SNOMED Concept Name |
| II 60:z10:z39 | II 60:z10:z39 | na | na |
| IIIa 17:g,z51:- | IIIa 17:g,z51:- | na | na |
| IIIa 44:z4,...:- | IIIa 44:z4,...:- | na | na |
| IIIa 48:z29:- | IIIa 48:z29:- | na | na |
| IIIa 50:z4,...:- | IIIa 50:z4,...:- | na | na |
| IIIa 51:z4,z23:- | IIIa 51:z4,z23:- | na | na |
| IIIa 53:z4,...:- | IIIa 53:z4,...:- | na | na |
| IIIa Rough:z4,z23:- | IIIa Rough:z4,z23:- | na | na |
| IIIb 35:l,v,z13:z35 | IIIb 35:l,v,z13:z35 | na | na |
| IIIb 38:l,v,z13:z53 | IIIb 38:l,v,z13:z53 | na | na |
| IIIb 50:nonmotile | IIIb 50:nonmotile | na | na |
| IIIb 61:-:1,5 | IIIb 61:-:1,5 | na | na |
| IIIb Rough:i:z | IIIb Rough:i:z | na | na |
| IIIb Rough:r:e,n,x,z15 | IIIb Rough:r:e,n,x,z15 | na | na |
| IV 44:undetermined | IV 44:undetermined | na | na |
| IV Rough:g,z51:- | IV Rough:g,z51:- | na | na |
| IV Rough:z4,z23:- | IV Rough:z4,z23:- | na | na |
| Maumee | I 16:k:1,6 | na | na |
| Senftenberg | I 1,3,19:z27:- | na | na |
| Typhi | I 9,12:nonmotile | na | na |
| Typhi | I Rough:nonmotile | na | na |

 Table 20: List of the top 400 *Salmonella* serovars

Other Reportable Results

Condition: Amebiasis

NND: 11040 Amebiasis

Entamoeba histolytica is a protozoan parasite that causes amebiasis. Infected persons can shed both trophozoites and cysts in stool.

Amebiasis: **Laboratory Criteria (MDPH)**

“Simple” ELR Message Use cases

- Demonstration of trophozoites of *E. histolytica* in extraintestinal tissue, tissue biopsy, or ulcer scrapings (by culture or histopathology).
- Demonstration of cysts or trophozoites of *E. histolytica* in stool.
- Demonstration of specific antibody against *E. histolytica*

“Not Simple” ELR Message Use case

- None

Preferred LOINC codes for Amebiasis limited to:

- Generic LOINC codes for parasite identification and

| CreatePreferredLOINCforAmebiasisTable | | | |
|---------------------------------------|---|---------------------------|---------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 22286-9 | Entamoeba histolytica Ab [Titer] in Serum | | numeric |
| 7880-8 | Entamoeba histolytica Ab [Units/volume] in Serum | | numeric |
| 22285-1 | Entamoeba histolytica Ab [Presence] in Serum | | Ordinal Value Set |
| 6594-6 | Amoeba identified in Unspecified specimen by Organism specific culture | Organism specific culture | Amebiasis Value Set |
| 6396-6 | Entamoeba histolytica DNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |
| 14125-9 | Entamoeba histolytica [Presence] in Stool by Trichrome stain | Trichrome stain | Ordinal Value Set |

Table 21: Preferred LOINC codes for Amebiasis

Amebiasis specific preferred SNOMEDs limited to:

Use these with Nominal Amebiasis LOINC codes and with Non-Organism specific nominal LOINC codes (see below for use of these) for bacterial identification.

| CreatePreferredSNOMEDforAmebiasisTable | |
|--|---------------------|
| SNOMED CT | SNOMED Concept Name |
| | |

| CreatePreferredSNOMEDforAmebiasisTable | |
|--|--|
| SNOMED CT | SNOMED Concept Name |
| 4716008 | Entamoeba histolytica |
| 110390006 | Entamoeba histolytica cysts |
| 110389002 | Entamoeba histolytica trophozoites |
| 363769000 | Entamoeba histolytica/Entamoeba dispar complex |
| 372407009 | Entamoeba species |

Table 22: Preferred SNOMED codes for Amebiasis

Condition: Anthrax - Bacillus anthracis

NND: 10350 Anthrax

(Optional Condition notes)

Anthrax - Bacillus anthracis : Laboratory Criteria (IDPH)

“...any positive laboratory result pertaining to anthrax”

“Simple” ELR Message Use cases

- Isolation of Bacillus anthracis - generic culture and organism specific culture
- Detection of Bacillus anthracis DNA by PCR
- Detection of Bacillus anthracis Antigen (including LF)
- Detection of Bacillus anthracis Antibody (including anti-PA)

*This list may be incomplete

“Not Simple” ELR Message Use case

- Paired serology.
- Identification of gram positive bacilli or spores
 - issue is how to result spore finding with SNOMED.- need examples of this
 - SNOMED for gram positive bacilli:
Gram-positive bacillus (organism)

ConceptId: 83514008

Gram-positive spore-forming bacillus (organism)

ConceptId: 44143003

*This list may be incomplete

Preferred LOINCs for Anthrax - Bacillus anthracis limited to:

- [Generic LOINC for bacterial identification](#) and

| Anthrax | | | |
|---------|--|---------------------------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 31726-3 | Bacillus anthracis Ag [Presence] in Unspecified specimen | | Ordinal Value Set |
| 22109-3 | Bacillus anthracis Ab [Units/volume] in Unspecified specimen | | numeric |
| 22859-3 | Bacillus anthracis Ab [Titer] in Serum | | numeric |
| 22860-1 | Bacillus anthracis Ab [Presence] in Serum | | Ordinal Value Set |
| 11469-4 | Bacillus anthracis [Presence] in Unspecified specimen by Organism specific culture | Organism specific culture | Ordinal Value Set |
| 41623-0 | Bacillus anthracis DNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |
| 41622-2 | Bacillus anthracis DNA [Identifier] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Anthrax Value Set |

Table 23: Preferred LOINC for Anthrax

Anthrax - Bacillus anthracis specific preferred SNOMEDs limited to:

Use these with Nominal Anthrax - Bacillus anthracis LOINC and with Non-Organism specific nominal LOINC (see below for use of these) for bacterial identification.

| Anthrax | |
|--------------|--------------------|
| ConceptCode2 | Concept Name 2 |
| 21927003 | Bacillus anthracis |

Table 24: Preferred SNOMED codes for Anthrax

Condition: Arsenic poisoning

SNOMED Condition Code: 81844008 Toxic effect of arsenic AND/OR its compounds (disorder)

(Optional Condition notes)

Arsenic poisoning: **Laboratory Criteria (NYDOH)**

“Simple” ELR Message Use cases

- Arsenic at or above 50 µg/L (urine) - spot
- Arsenic at or above 50 µg (urine) for 24-hour urinet

“Not Simple” ELR Message Use case

- None

Preferred LOINCs for Arsenic poisoning limited to:

| CreatePreferredLOINCforConditionTable | | | |
|---------------------------------------|--|--------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 13463-5 | Arsenic/Creatinine [Mass ratio] in Urine | | numeric |
| 5583-0 | Arsenic [Mass/volume] in Blood | | numeric |
| 5587-1 | Arsenic [Mass/time] in 24 hour Urine | | numeric |
| 21074-0 | Arsenic [Mass/volume] in 24 hour Urine | | numeric |

Table 25: Preferred LOINCs for Arsenic poisoning

Condition: Babesiosis

NND: 12010 Babesiosis

Babesiosis is caused by microscopic blood borne parasites (protozoa) of the genus *Babesia*. The species responsible for causing the disease in humans in the U.S. are *B. microti* and its close relatives. The primary vectors for babesiosis are *Ixodes* ticks.

Babesiosis: **Laboratory Criteria (CDC)**

“Simple” ELR Message Use cases

- Identification of intraerythrocytic *Babesia* organisms by light microscopy in a Giemsa, Wright, or Wright-Giemsa–stained blood smear (laboratory confirmatory)
- Detection of *Babesia microti* DNA in a whole blood specimen by polymerase chain reaction (PCR) (laboratory confirmatory)
- Detection of *Babesia* spp. genomic sequences in a whole blood specimen by nucleic acid amplification (laboratory confirmatory)
- Isolation of *Babesia* organisms from a whole blood specimen by animal inoculation (laboratory confirmatory)
- Positive serologic results (laboratory supportive of clinical case)

- Demonstration of a Babesia microti Indirect Fluorescent Antibody (IFA) total immunoglobulin (Ig) or IgG antibody titer of greater than or equal to (\geq) 1:256 (or \geq 1:64 in epidemiologically linked blood donors or recipients)
- Demonstration of a Babesia microti Immunoblot IgG positive result
- Demonstration of a Babesia divergens IFA total Ig or IgG antibody titer of greater than or equal to (\geq) 1:256
- Demonstration of a Babesia duncani IFA total Ig or IgG antibody titer of greater than or equal to (\geq) 1:512.

“Not Simple” ELR Message Use case

- Example: Isolation of Babesiosis species from any clinical specimen.
 - Serotyping
 - Sensitivity
 - PFGE
 - Many Parent-Child use cases here
 - Some Vocabulary and messaging concepts not standardized

Preferred LOINCs for Babesiosis limited to:

- [Generic LOINCs for parasite identification](#) and

| CreatePreferredLOINCforBabesiaTable | | | |
|-------------------------------------|---|------------------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 16426-9 | Babesia sp IgM Ab [Titer] in Serum | | numeric |
| 22107-7 | Babesia sp IgG Ab [Titer] in Serum | | numeric |
| 22106-9 | Babesia sp Ab [Titer] in Serum | | numeric |
| 16118-2 | Babesia microti IgM Ab [Titer] in Serum | | numeric |
| 16117-4 | Babesia microti IgG Ab [Titer] in Serum | | numeric |
| 9585-1 | Babesia sp IgM Ab [Titer] in Serum by Immunofluorescence | IF | numeric |
| 9584-4 | Babesia sp IgG Ab [Titer] in Serum by Immunofluorescence | IF | numeric |
| 5054-2 | Babesia sp Ab [Titer] in Serum by Immunofluorescence | IF | numeric |
| 10347-3 | Babesia microti identified in Blood by Light microscopy | Microscopy.light | Babesia Value Set |
| 42641-1 | Babesia sp DNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |
| 47396-7 | Babesia microti DNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |
| 10647-6 | Babesia sp identified in Blood by Thick film | Thick film | Babesia Value Set |
| 10648-4 | Babesia sp identified in Blood by Thin film | Thin film | Babesia Value Set |

Table 26: Preferred LOINCs for Babesia

Babesiosis specific preferred SNOMEDs for limited to:

Use these with Nominal Babesiosis LOINC and with Non-Organism specific nominal LOINC (see below for use of these) for parasite identification.

| CreatePreferredSNOMEDforBabesiaTable | |
|--------------------------------------|---------------------|
| SNOMED CT | SNOMED Concept Name |
| 415979007 | Babesia CA3 |
| 86432002 | Babesia divergens |
| 418101009 | Babesia EU1 |
| 76828008 | Babesia microti |
| 415981009 | Babesia MO1 |
| 372376003 | Babesia species |
| 415983007 | Babesia WA1 |

Table 27: Preferred SNOMED codes for Babesia

Condition: Bartonellosis

SNOMED: 266123003 Bartonellosis(disorder)

What are we dealing with here? These species are included in the SNOMED list for "Bartonellosis":

| | |
|--|---|
| Bartonella | |
| Bartonella bacilliformis | Carrion's disease/Verruga peruana (Peruvian wart) |
| Bartonella henselae | Cat scratch disease, bacillary angiomatosis, bacteremia, endocarditis |
| Bartonella quintana | Trench fever, bacteremia, bacillary angiomatosis, endocarditis |
| Bartonella species | |
| Bartonella clarridgeiae | add to RCMT |
| Bartonella elizabethae | add to RCMT |
| Bartonella vinsonii | add to RCMT |
| Bartonella vinsonii ss berkhoffii | add to RCMT |
| Bartonella vinsonii ss vinsonii | add to RCMT |
| Bartonella vinsonii subsp. arupensis | add to RCMT |

Table 28: Species including in the SNOMED codes for Bartonellosis

Bartonella vinsonii ss *berkhoffii* can cause endocarditis. Several other *Bartonella* species (including *Bartonella elizabethae*, *B. rochalimaea*, *B. clarridgeiae*, and *Bartonella vinsonii* subsp. *arupensis*) have caused cases of human disease.

Bartonellosis: Laboratory Criteria (Using 2008 criteria from WI – no longer reportable there)

“Simple” ELR Message Use cases

- *B. henselae* is isolated from a clinical specimen
- A positive PCR assay for *Bartonella*

“Not-Simple” ELR Message Use cases

- Probable Parent-Child use case: A fourfold change in IgG antibody titer to *B. henselae* antigen in acute and convalescent serum samples
- Need clinical diagnosis for this use case: A person with lymphadenopathy or with a clinical diagnosis of bacillary angiomatosis/ peliosis and a single high IgG antibody titer to *B. henselae* antigen

Preferred LOINCs for Bartonellosis limited to:

- [Generic LOINCs for Rickettsial identification](#) and

| CreatePreferredLOINCfor Bartonellosis Table | | | |
|---|---|---------------------------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 9360-9 | Bartonella quintana IgG Ab [Titer] in Serum | | numeric |
| 22110-1 | Bartonella henselae IgG Ab [Titer] in Serum | | numeric |
| 49208-2 | Bartonella elizabethae IgG Ab [Titer] in Serum | | numeric |
| 49212-4 | Bartonella bacilliformis IgG Ab [Titer] in Serum | | numeric |
| 38354-7 | Bartonella sp identified in Unspecified specimen by Organism specific culture | Organism specific culture | |
| 48864-3 | Bartonella sp DNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |
| 57910-2 | Bartonella quintana DNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |

| CreatePreferredLOINCfor Bartonellosis Table | | | |
|---|---|---------------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 33986-1 | Bartonella henselae DNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |

Table 29: Preferred LOINC for Bartonellosis

Bartonellosis specific SNOMEDs for limited to:

Use these with Nominal Bartonellosis LOINC and with Non- Organism specific nominal LOINC (see below for use of these) for Rickettsial identification. See implementation guideline for messaging results when SNOMED code is unavailable.

| SNOMED CT | SNOMED Concept Name |
|-----------|--------------------------------------|
| 62496009 | Bartonella |
| 243352007 | Bartonella bacilliformis |
| 103510000 | Bartonella henselae |
| 103511001 | Bartonella quintana |
| 131413007 | Bartonella species |
| 114223009 | Bartonella clarridgeiae |
| 103513003 | Bartonella elizabethae |
| 103512008 | Bartonella vinsonii |
| 114228000 | Bartonella vinsonii ss berkhoffii |
| 114229008 | Bartonella vinsonii ss vinsonii |
| 417657001 | Bartonella vinsonii subsp. arupensis |

Table 30: Preferred SNOMED codes for Bartonellosis

Condition: Blastomycosis

SNOMED Condition Code: 69996000 Blastomycosis (disorder)

Not nationally reportable condition and not reportable in many local jurisdictions

Blastomycosis is a disease caused by the fungus *Blastomyces dermatitidis*. The fungus lives in moist soil and in association with decomposing organic matter such as wood and leaves and is endemic in the Southeast and the Midwest.

Blastomycosis: Laboratory Criteria (MO DPH)

“Simple” ELR Message Use cases

- Isolation of *Blastomyces dermatitidis* from a clinical specimen or
- Visualization of broad-based budding yeast in an appropriate clinical specimen
- Nucleic acid tests and serology tests also being done

“Not Simple” ELR Message Use case

- None

Preferred LOINCs for Blastomycosis limited to:

- [Non-specific LOINC for fungal identification](#) and

| CreatePreferredLOINCforBlastomycosisTable | | | |
|---|---|--------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 31259-5 | Blastomyces dermatitidis Ab [Presence] in Body fluid | | Ordinal Value Set |
| 4990-8 | Blastomyces dermatitidis rRNA [Presence] in Unspecified specimen by DNA probe | Probe | Ordinal Value Set |

Table 31: Preferred LOINC for Blastomycosis

Blastomycosis specific preferred SNOMEDs limited to:

Use these with Nominal Blastomycosis LOINC and with Non- Organism specific nominal LOINC (see below for use of these) for fungal identification

| CreatePreferredSNOMEDforBlastomycosisTable | |
|--|--------------------------|
| SNOMED CT | SNOMED Concept Name |
| 65205008 | Blastomyces |
| 65615007 | Blastomyces dermatitidis |
| 115995005 | Blastomyces species |

Table 32: Preferred SNOMED codes for Blastomycosis

Condition: Botulism - *Clostridium botulinum*

SNOMED Condition code: 398565003 Infection due to *Clostridium botulinum* (disorder)

(Optional Condition notes)

Botulism - Clostridium botulinum: **Laboratory Criteria (CSTE)**

“Simple” ELR Message Use cases

- Isolation of Clostridium botulinum from stool or a wound – culture or organism specific culture or identified LOINC
- Detection of botulinum toxin in stool or Serum or patient’s food – summary conclusion resulting or reporting of individual toxins A B E or F

*may need to validate specimen source in SPM.8

“Not Simple” ELR Message Use case

- **Order** of above tests is reportable as well - For electronic ordering, how to identify (if a generic culture is ordered for example?)
 - Options:
 - use only organism specific tests
 - OBR.31- Reason for study
- Park this issue for now Example: Isolation of Botulism - Clostridium botulinum species from any

Preferred LOINCs for Botulism - Clostridium botulinum limited to:

- [Generic LOINC](#)s for bacterial identification and

| Botulism | | | |
|----------|--|--------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 33709-7 | Clostridium botulinum toxin A [Presence] in Unspecified specimen | | Ordinal Value Set |
| 33713-9 | Clostridium botulinum toxin B [Presence] in Unspecified specimen | | Ordinal Value Set |
| 33710-5 | Clostridium botulinum toxin E [Presence] in Unspecified specimen | | Ordinal Value Set |
| 33711-3 | Clostridium botulinum toxin F [Presence] in Unspecified specimen | | Ordinal Value Set |
| 33708-9 | Clostridium botulinum toxin [Presence] in Unspecified specimen | | Ordinal Value Set |

| Botulism | | | |
|----------|---|---------------------------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 33694-1 | Clostridium botulinum [Presence] in Unspecified specimen by Organism specific culture | Organism specific culture | Ordinal Value Set |

Table 33: Preferred LOINC for Botulism

Botulism - Clostridium botulinum specific preferred SNOMEDs limited to:

Use these with Nominal Botulism - Clostridium botulinum LOINC and with Non-Organism specific nominal LOINC (see below for use of these) for bacterial identification.

| ConceptCode2 | Concept Name 2 |
|--------------|---|
| 108890005 | botulinum toxin type A |
| 129471005 | botulinum toxin type B |
| 385331001 | botulinum toxin type C |
| 385332008 | botulinum toxin type D |
| 385333003 | botulinum toxin type E |
| 385334009 | botulinum toxin type F |
| 385335005 | botulinum toxin type G |
| 113565009 | Clostridium argentiense |
| 31169007 | Clostridium baratii |
| 13080008 | Clostridium botulinum |
| 11894001 | Clostridium botulinum toxin |
| 413880008 | Clostridium botulinum, non-toxin production |
| 18065004 | Clostridium botulinum, type A |

| ConceptCode2 | Concept Name 2 |
|--------------|-------------------------------|
| 20785008 | Clostridium botulinum, type B |
| 20017000 | Clostridium botulinum, type C |
| 37081000 | Clostridium botulinum, type D |
| 8386006 | Clostridium botulinum, type E |
| 32829006 | Clostridium botulinum, type F |
| 19084008 | Clostridium butyricum |

Table 34: Preferred SNOMED codes for Botulism

Condition: Campylobacteriosis (99% C. jejuni)

NND: 11020 Campylobacteriosis

Campylobacteriosis: **Laboratory Criteria (IDPH)**

(Per RCMT notes: The most common lab methods in use currently are culture and stool antigen testing. So the antigen testing Use case added below although not part of printed Lab Criteria)

“Simple” ELR Message Use cases

- Isolation of Campylobacter from any clinical specimen
 - Organism specific or generic culture summary conclusion results to the species level
- Stool antigen testing

“Not Simple” ELR Message Use case

- Culture positive for Campylobacter sp. from a clinical specimen
 - Serotyping
 - Sensitivity
 - PFGE
 - Many Parent-Child use cases here
 - Some vocabulary and messaging concepts not standardized

LOINC for Campylobacteriosis limited to:

- [Generic LOINC for bacterial identification](#) and

| CreatePreferredLOINCfor Campylobacteriosis Table | | | |
|--|--|---------------------------|------------------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 57768-4 | Campylobacter jejuni+Campylobacter coli Ag [Presence] in Stool | | Ordinal Value Set |
| 6332-1 | Campylobacter sp identified in Unspecified specimen by Organism specific culture | Organism specific culture | Campylobacteriosis Value Set |

Table 35: Preferred LOINCs for Campylobacteriosis

Campylobacteriosis specific SNOMEDs limited to:

Use these with Nominal Campylobacteriosis LOINCs and with Non- Organism specific nominal LOINCs (see below for use of these) for bacterial identification:

| CreatePreferredSNOMEDfor Campylobacteriosis Table | |
|---|--|
| SNOMED CT | SNOMED Concept Name |
| 35408001 | Campylobacter |
| 40614002 | Campylobacter coli |
| 84210007 | Campylobacter fetus |
| 64589009 | Campylobacter fetus ss. fetus |
| 60817000 | Campylobacter fetus ss. venerealis |
| 66543000 | Campylobacter jejuni |
| 113523003 | Campylobacter jejuni ss doylei |
| 113524009 | Campylobacter jejuni ss jejuni |
| 116386003 | Campylobacter lari |
| 446191000 | Campylobacter lari subspecies concheus |
| 116457002 | Campylobacter species |
| 103427005 | Campylobacter upsaliensis |

Table 36: Preferred SNOMED codes for Campylobacteriosis

From RCMT notes, these will be added to the RCMT table as well.

| Campylobacteriosis Table | |
|--------------------------|--|
| conceptId | SNOMED Name |
| 448130009 | Campylobacter avium (organism) |
| 447727006 | Campylobacter canadensis (organism) |
| 9892000 | Campylobacter concisus (organism) |
| 447728001 | Campylobacter cuniculorum (organism) |
| 116037008 | Campylobacter curvus (organism) |
| 113528007 | Campylobacter gracilis (organism) |
| 113522008 | Campylobacter helveticus (organism) |
| 416679003 | Campylobacter hominis (organism) |
| 9041007 | Campylobacter hyointestinalis (organism) |

| Campylobacteriosis Table | |
|--------------------------|--|
| conceptId | SNOMED Name |
| 113527002 | Campylobacter hyointestinalis ss hyointestinalis (organism) |
| 432459009 | Campylobacter hyointestinalis subspecies lawsonii (organism) |
| 432460004 | Campylobacter insulaenigrae (organism) |
| 432537009 | Campylobacter lanienae (organism) |
| 448945001 | Campylobacter lari subspecies lari (organism) |
| 87402003 | Campylobacter mucosalis (organism) |
| 447797004 | Campylobacter peloridis (organism) |
| 243356005 | Campylobacter rectus (organism) |
| 113525005 | Campylobacter rectus (organism) |
| 113526006 | Campylobacter showae (organism) |
| 91524009 | Campylobacter sputorum (organism) |
| 58928003 | Campylobacter sputorum ss. Sputorum (organism) |
| 448403005 | Campylobacter sputorum biovar paraureolyticus (organism) |
| 243357001 | Campylobacter sputorum biovar fecalis (organism) |
| 445776001 | Campylobacter subantarcticus (organism) |
| Pending | Campylobacter ureolyticus (organism) |
| Pending | Campylobacter volucris (organism) |

Table 37: Preferred SNOMED codes to be added to RCMT table for Campylobacteriosis

Condition: Carbon Monoxide Poisoning

Snomed Condition Code: 17383000 Toxic effect of carbon monoxide (disorder)

Carbon monoxide is an odorless, colorless gas that can cause sudden illness and death.

Carbon Monoxide Poisoning: **Laboratory Criteria (<<source>>)**

“Simple” ELR Message Use cases

- Carboxyhemoglobin (COHb) levels above 10%

“Not Simple” ELR Message Use case

- Example

Preferred LOINCs for Carbon Monoxide Poisoning limited to:

eatePreferredLOINCforConditionTable

| LOINC | LOINC Name | Method | Results Value Set |
|---------|---|--------|-------------------|
| 20563-3 | Carboxyhemoglobin/Hemoglobin.total in Blood | | numeric |

Table 38: Preferred LOINC for Carbon Monoxide poisoning

Condition: Chagas Disease

SCT Condition Code: 77506005 Infection by *Trypanosoma cruzi* (disorder)

Not nationally reportable condition and not reportable in many local jurisdictions

Chagas disease, also known as American trypanosomiasis, is caused by the protozoan *Trypanosoma cruzi*. *T. cruzi* is transmitted to humans by triatomines, blood-sucking insects of the family Reduviidae, subfamily Triatominae. The infectious stage of *Trypanosoma cruzi* is in the insect. Transmission occurs to blood or via blood transfusions. One can find Trypanosomes in infected organs, blood using stain microscopy and serology. Trypanosomes are not intracellular. They are often mistaken for platelets.

Chagas Disease: Laboratory Diagnosis (CDC)

“Simple” ELR Message Use cases

- Microscopic examination in acute disease: a) of fresh anticoagulated blood, or its buffy coat, for motile parasites; and b) of thin and thick blood smears stained with Giemsa, for visualization of parasites.
- Serology or tissue biopsy

“Not Simple” ELR Message Use case

- Isolation of the agent: a) inoculation in culture with specialized media (e.g. NNN, LIT); b) inoculation into mice; and c) xenodiagnosis, where uninfected triatomine bugs are fed on the patient's blood, and their gut contents examined for parasites 4 weeks later.

Preferred LOINC for Chagas Disease limited to:

- [Generic LOINC for parasite identification](#) and

| CreatePreferredLOINCforChagasTable | | | |
|------------------------------------|--|--------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 13290-2 | Trypanosoma cruzi IgM Ab [Units/volume] in Serum | | numeric |
| 32726-2 | Trypanosoma cruzi IgM Ab [Presence] in Serum | | Ordinal Value Set |
| 13291-0 | Trypanosoma cruzi IgG Ab [Units/volume] in Serum | | numeric |

| CreatePreferredLOINCforChagasTable | | | |
|------------------------------------|---|------------------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 32725-4 | Trypanosoma cruzi IgG Ab [Presence] in Serum | | Ordinal Value Set |
| 8045-7 | Trypanosoma cruzi Ab [Units/volume] in Serum | | numeric |
| 23785-9 | Trypanosoma cruzi Ab [Presence] in Serum | | Ordinal Value Set |
| 14839-5 | Trypanosoma sp identified in Buffy Coat by Light microscopy | Microscopy.light | Chagas Value Set |
| 10729-2 | Trypanosoma sp identified in Blood by Light microscopy | Microscopy.light | Chagas Value Set |
| 10731-8 | Trypanosoma sp identified in Blood by Thick film | Thick film | Chagas Value Set |
| 10732-6 | Trypanosoma sp identified in Blood by Thin film | Thin film | Chagas Value Set |

Table 39: Preferred LOINCs for Chagas

Chagas Disease specific preferred SNOMEDs for limited to:

Use these with Nominal Chagas Disease LOINCs and with Non- Organism specific nominal LOINCs (see below for use of these) for parasite identification

| CreatePreferredSNOMEDforChagasTable | |
|-------------------------------------|---------------------|
| SNOMED CT | SNOMED Concept Name |
| 88274000 | Trypanosoma cruzi |
| 372366001 | trypanosoma species |

Table 40: Preferred SNOMED codes for Chagas

Condition: Chancroid

NND: 10273 Chancroid

Chancroid is a sexually transmitted disease characterized by painful genital ulceration and inflammatory inguinal adenopathy. The disease is caused by infection with *Haemophilus ducreyi*. (http://www.cdc.gov/osels/ph_surveillance/nndss/casedef/chancroid_current.htm)

Chancroid: **Laboratory Criteria (CDC)**

“Simple” ELR Message Use cases

- Example: Isolation of Chancroid species from any clinical specimen.
 - Organism specific or generic culture summary conclusion results to genus or species level

“Not Simple” ELR Message Use case

- None

Preferred LOINC for Chancroid limited to:

- [Generic LOINC for bacterial identification](#) and

| CreatePreferredLOINCfor Chancroid Table | | | |
|---|---|---------------------------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 11255-7 | Haemophilus ducreyi [Presence] in Unspecified specimen by Organism specific culture | Organism specific culture | Ordinal Value Set |
| 29559-2 | Haemophilus ducreyi DNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |

Table 41: Preferred LOINC for Chancroid

Chancroid specific preferred SNOMEDs limited to:

Use these with Nominal Chancroid LOINC and with Non-Organism specific nominal LOINC (see below for use of these) for bacterial identification.

| CreatePreferredSNOMEDfor Chancroid Table | |
|--|---------------------|
| SNOMED CT | SNOMED Concept Name |
| 64889004 | Haemophilus ducreyi |

Table 42: SNOMED code for Chancroid

Condition: Cholera (Vibrio cholerae)

NND: 10470 Cholera (toxigenic Vibrio cholerae O1 or O139)

Cholera: Laboratory Criteria (IDPH)

“Simple” ELR Message Use cases

- Isolation of V. cholerae O1 or O139 from stool or vomitus
 - In the US only CDC does the serotyping and biotyping
- Serologic evidence of recent infection. Organism specific or generic culture summary conclusion

“Not Simple” ELR Message Use case

- None

LOINC for Cholera limited to:

- [Generic LOINC for bacterial identification](#) and

| CreatePreferredLOINCforCholeraTable | | | |
|-------------------------------------|------------|--------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |

| CreatePreferredLOINCforCholeraTable | | | |
|-------------------------------------|---|---------------------------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 53941-1 | Vibrio cholerae toxin Ag [Identifier] in Isolate | | Cholera Value Set |
| 31698-4 | Vibrio cholerae Ab [Units/volume] in Serum | | numeric |
| 6581-3 | Vibrio sp identified in Unspecified specimen by Organism specific culture | Organism specific culture | Cholera Value Set |

Table 43: Preferred LOINCs for Cholera

Cholera specific SNOMEDs limited to:

Use these with Nominal Cholera LOINCs and with Non- Organism specific nominal LOINCs (see below for use of these) for bacterial identification:

| CreatePreferredSNOMEDforConditionTable | |
|--|---------------------------------------|
| SNOMED CT | SNOMED Concept Name |
| 255821009 | cholera toxin |
| 302577003 | Vibrio cholerae O1 classical Hikojima |
| 302575006 | Vibrio cholerae O1 classical Inaba |
| 302576007 | Vibrio cholerae O1 classical Ogawa |
| 302574005 | Vibrio cholerae O1 El Tor Hikojima |
| 302572009 | Vibrio cholerae O1 El Tor Inaba |
| 302573004 | Vibrio cholerae O1 El Tor Ogawa |
| 125048009 | Vibrio cholerae serogroup O:139 |
| 24763006 | Vibrio cholerae serotype Hikojima |
| 112351003 | Vibrio cholerae serotype Inaba |
| 66635002 | Vibrio cholerae serotype Ogawa |
| 76436009 | Vibrio cholerae, classical biotype |
| 58735003 | Vibrio cholerae, El Tor biotype |
| 62987004 | Vibrio cholerae, O1 |

Table 44: Preferred SNOMED codes for Cholera



Condition: Ciguatera fish poisoning (Ciguatera)

SNOMED Condition Code: 241774007 Ciguatoxin causing toxic effect (disorder) (currently not in RCMT)

Ciguatera is a foodborne illness caused by eating certain reef fish whose flesh is contaminated with toxins originally produced by dinoflagellates such as Gambierdiscus toxicus which lives in tropical and subtropical waters. (Wikipedia)

Ciguatera fish poisoning (Ciguatera): **Laboratory Criteria (FLDPH)**

There is no laboratory testing method to detect ciguatoxin in humans. Therefore, fish testing is strongly encouraged when a leftover sample is available and the clinical and epidemiologic evidence are consistent with CFP.

Condition: CJD [Including Creutzfeldt-Jakob Disease and Classic (CJD), Variant Creutzfeldt-Jakob Disease (vCJD)]

SNOMED Condition Code: 20484008 Prion disease (disorder)

CJD is a human prion disease. It is a neurodegenerative disorder with characteristic clinical and diagnostic features.

Surveillance for CJD is not done at CDC. Some health departments do it and there is a national center at Case Western Reserve University (CWRU): The National Prion Disease Pathology Surveillance Center (NPDPS). There is also a center at UCSF (University of California, San Francisco), and a lab in NY. Some state health departments do surveillance based on death certificates, other medical records sent by clinicians, and reports from the NPDPS. The NPDPS is a reference lab for brain autopsies and biopsies.

- According to the NPDPS, *"Only frozen brain tissue examination definitely confirms or excludes the diagnosis of prion disease and provides the information to identify the type of prion disease. The immunohistochemical examination provides a definitive diagnosis only when positive. The CSF and blood examinations provide information that may be very helpful to caring physicians in making a clinical diagnosis."* NPDPS, <http://www.cjdsurveillance.com/>

Per RCMT feedback notes, this is really a clinical/neuropathological diagnosis and not a laboratory diagnosis. Although LOINC codes and SNOMED codes exist for diagnostic tests for the condition, they have been removed from the RCMT.

Condition: Coccidiomycosis

SNOMED Condition Code: 60826002 Coccidioidomycosis (disorder)

Coccidioidomycosis (commonly known as "Valley fever", as well as "California fever", "Desert rheumatism", and "San Joaquin Valley fever") is a fungal disease caused by *Coccidioides immitis* or *C. posadasii*. It is endemic in certain parts of Arizona, California, Nevada, New Mexico, Texas, Utah and northwestern Mexico. (Wikipedia)

Not nationally reportable condition and not reportable in many local jurisdictions. However, it is a select agent, so it is likely only to be identified in a state laboratory.

Coccidiomycosis: Laboratory Criteria (CSTE)

“Simple” ELR Message Use cases

- Evidence of presence of *Coccidioides* species by Culture
- Evidence of presence of *Coccidioides* species by Histopathology
- Evidence of presence of *Coccidioides* species by Molecular methods (Probe, PCR)
- Serology in serum, CSF or other body fluids
 - IgM by immunodiffusion (IDTP) , enzyme immunoassay (EIA), latex agglutination, or tube precipitin
 - IgG by immunodiffusion, EIA, or complement fixation
 - Coccidioidal skin-test

“Not Simple” ELR Message Use case

- Coccidioidal skin-test

Preferred LOINC for Coccidiomycosis limited to:

- [Non-specific LOINC for fungal identification](#) and

| CreatePreferredLOINCforCoccidiomycosisTable | | | |
|---|--|------------------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 51452-1 | Coccidioides immitis Ab [Titer] in Body fluid | | numeric |
| 31309-8 | Coccidioides immitis Ab [Presence] in Body fluid | | Ordinal Value Set |
| 62458-5 | Coccidioides immitis IgM Ab [Presence] in Serum by Immune diffusion (ID) | Immune diffusion | Ordinal Value Set |
| 14205-9 | Coccidioides immitis Ag [Presence] in Isolate by Immune diffusion (ID) | Immune diffusion | Ordinal Value Set |
| 4994-0 | Coccidioides immitis rRNA [Presence] in Unspecified specimen by DNA probe | Probe | Ordinal Value Set |
| 48588-8 | Coccidioides sp rRNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |

Table 45: Preferred LOINC for Coccidiomycosis

Coccidiomycosis specific preferred SNOMEDs limited to:

Use these with Nominal Coccidiomycosis LOINC and with Non- Organism specific nominal LOINC (see below for use of these) for fungal identification

| CreatePreferredSNOMEDforCoccidiomycosisTable | |
|--|------------------------|
| SNOMED CT | SNOMED Concept Name |
| 8672004 | Coccidioides |
| 23439005 | Coccidioides immitis |
| 406645005 | coccidioides posadasii |

| CreatePreferredSNOMEDforCoccidiomycosisTable | |
|--|--------------------------------------|
| SNOMED CT | SNOMED Concept Name |
| 115996006 | Coccidioides species |
| 414754009 | mold resembling Coccidioides immitis |

Table 46: Preferred SNOMED codes for Coccidiomycosis

Condition: Cryptococcosis

SNOMED Condition Code: **42386007** Cryptococcosis (disorder)

Cryptococcosis is caused by *C. neoformans*, *C. gattii*, and *C. grubii*. These three species are phenotypically indistinguishable and can only be identified by sequencing. It is not a nationally reportable condition and is not reportable in many local jurisdictions.

Cryptococcosis: **Laboratory Criteria** (<<source>>)

“Simple” ELR Message Use cases

- Culture
- PCR
- Antigen

“Not Simple” ELR Message Use case

- None

Preferred LOINC for *Cryptococcus neoformans* limited to:

- [Generic LOINC for fungal identification](#) and

| CreatePreferredLOINCfor Cryptococcosis Table | | | |
|--|--|---------------------------|--|
| LOINC | LOINC Name | Method | Results Value Set |
| 11472-8 | Cryptococcus neoformans Ag [Presence] in Unspecified specimen | | Ordinal Value Set |
| 38376-0 | Cryptococcus sp identified in Unspecified specimen by Organism specific culture | Organism specific culture | Cryptococcus Value Set |
| 4995-7 | Cryptococcus neoformans rRNA [Presence] in Unspecified specimen by DNA probe | Probe | Ordinal Value Set |
| 49098-7 | Cryptococcus neoformans rRNA [Units/volume] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | numeric |

Table 47: Preferred LOINC for Cryptococcosis

Cryptococcus neoformans specific preferred SNOMEDs limited to:

Use these with Nominal *Cryptococcus neoformans* LOINC codes and with Non- Organism specific nominal LOINC codes (see below for use of these) for fungal identification

| CreatePreferredSNOMEDfor Cryptococcosis Table | |
|---|--|
| SNOMED CT | SNOMED Concept Name |
| 17579001 | Cryptococcus |
| 67168003 | Cryptococcus neoformans |
| 243467007 | Cryptococcus neoformans var gattii |
| 243468002 | Cryptococcus neoformans var neoformans |
| 415904003 | Cryptococcus neoformans var. grubii |

Table 48: Preferred SNOMED codes for Cryptococcosis

Condition: Cyclosporiasis

NND: 11575 Cyclosporiasis

This disease is caused by *Cyclospora cayetanensis*, a single cell microscopic protozoan parasite.

Cyclosporiasis: **Laboratory Criteria (IDPH)**

“Simple” ELR Message Use cases

- Demonstration of *C. cayetanensis* oocysts in stool or the parasite in duodenal/jejunal aspirates or small bowel biopsies;
- Demonstration of *C. cayetanensis* DNA in stool, duodenal/jejunal aspirates, or small bowel biopsies.

“Not Simple” ELR Message Use case

- None

Preferred LOINC codes for Cyclosporiasis limited to:

- [Generic LOINC codes for parasite identification](#) and

| CreatePreferredLOINCfor Cyclosporiasis Table | | | |
|--|---|-----------------|----------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 10850-6 | Cyclospora cayetanensis [Presence] in Unspecified specimen | | Ordinal Value Set |
| 10659-1 | Cyclospora sp identified in Stool by Acid fast stain | Acid fast stain | Cyclospora Value Set |
| 41436-7 | Cyclospora cayetanensis DNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |

Table 49: Preferred LOINCs for Cyclosporiasis

Cyclosporiasis specific preferred SNOMEDs limited to:

Use these with Nominal Cyclosporiasis LOINCs and with Non- Organism specific nominal LOINCs (see below for use of these) for parasite identification

| CreatePreferredSNOMEDforConditionTable | |
|--|------------------------|
| SNOMED CT | SNOMED Concept Name |
| 103560006 | Cyclospora |
| 103561005 | Cyclospora cayetanesis |

Table 50: Preferred SNOMED codes for Cyclosporiasis

Condition: Dengue**NND: 10680 Dengue**

Dengue infection is caused by any one of four distinct but closely related dengue virus (DENV) serotypes (called DENV-1, -2, -3, and -4). These dengue viruses are single-stranded RNA viruses that belong to the family Flaviviridae and the genus Flavivirus—a family which includes other medically important vector-borne viruses (e.g., West Nile virus, Yellow Fever virus, Japanese Encephalitis virus, St. Louis Encephalitis virus, etc.). Dengue viruses are arboviruses (arthropod-borne virus) that are transmitted primarily to humans through the bite of an infected *Aedes* species mosquito.

Dengue: Laboratory Criteria (CDC)

“Simple” ELR Message Use cases

- Isolation of virus from tissue, blood, cerebrospinal fluid (CSF), or other body fluid.
- Demonstration of specific arboviral antigen or genomic sequences in tissue, blood, cerebrospinal fluid (CSF), or other body fluid by immunofluorescence, or immunohistochemistry.
- Demonstration of specific genomic sequences in tissue, blood, cerebrospinal fluid (CSF), or other body fluid by polymerase chain reaction (PCR) test.
- Virus-specific immunoglobulin M (IgM) antibodies demonstrated in CSF.
- Dengue-specific IgM antibodies present in serum with a P/N ratio ≥ 2 . (presumptive)

“Not Simple” ELR Message Use case

- (paired titer use case) Seroconversion from negative for dengue-specific serum IgM antibody in an acute phase (≤ 5 days after symptom onset) specimen to positive for dengue-specific serum IgM antibodies in a convalescent-phase specimen collected ≥ 5 days after symptom onset.
- (paired titer use case) Demonstration of a ≥ 4 -fold rise in reciprocal IgG antibody titer or hemagglutination inhibition titer to dengue antigens in paired acute and convalescent serum samples.

- (paired titer use case) Demonstration of a ≥ 4 -fold rise in PRNT (plaque reduction neutralization test) end point titer (as expressed by the reciprocal of the last serum dilution showing a 90% reduction in plaque counts compared to the virus infected control) between dengue viruses and other flaviviruses tested in a convalescent serum sample, or

Preferred LOINC for Dengue limited to:

- [Generic LOINC for viral identification](#) and

| CreatePreferredLOINCforConditionTable | | | |
|---------------------------------------|---|-------------------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 6812-2 | Dengue virus IgM Ab [Titer] in Serum | | numeric |
| 23968-1 | Dengue virus IgM Ab [Units/volume] in Serum | | numeric |
| 34721-1 | Dengue virus IgM Ab [Presence] in Cerebral spinal fluid | | Ordinal Value Set |
| 6811-4 | Dengue virus IgG Ab [Titer] in Serum | | numeric |
| 23958-2 | Dengue virus IgG Ab [Units/volume] in Serum | | numeric |
| 31799-0 | Dengue virus Ag [Presence] in Unspecified specimen | | Ordinal Value Set |
| 55438-6 | Dengue virus Ab [Titer] in Serum by Neutralization test | Neut | numeric |
| 60419-9 | Dengue virus 3 RNA [Presence] in Serum by Probe & target amplification method | Probe.amp.t ar | Ordinal Value Set |
| 60420-7 | Dengue virus 2 RNA [Presence] in Serum by Probe & target amplification method | Probe.amp.t ar | Ordinal Value Set |
| 7855-0 | Dengue virus 1+2+3+4 RNA [Presence] in Serum by Probe & target amplification method | Probe.amp.t ar | Ordinal Value Set |
| 60262-3 | Dengue virus 1 RNA [Presence] in Serum by Probe & target amplification method | Probe.amp.t ar | Ordinal Value Set |

Table 51: Preferred LOINC for Dengue

Dengue specific preferred SNOMEDs for limited to:

Use these with Nominal Dengue LOINC and with Non- Organism specific nominal LOINC (see below for use of these) for viral identification.

| CreatePreferredSNOMEDforDengueTable | |
|-------------------------------------|-----------------------|
| SNOMED CT | SNOMED Concept Name |
| 34348001 | Dengue virus |
| 243604005 | Dengue virus subgroup |
| 60588009 | Dengue virus, type 1 |
| 41328007 | Dengue virus, type 2 |

| CreatePreferredSNOMEDforDengueTable | |
|-------------------------------------|----------------------|
| SNOMED CT | SNOMED Concept Name |
| 8467002 | Dengue virus, type 3 |
| 36700002 | Dengue virus, type 4 |

Table 52: Preferred SNOMED codes for Dengue

Condition: Diphtheria

NND Code: 10040 Diphtheria

Diphtheria is caused by toxin-producing strains of *Corynebacterium diphtheriae*, a gram-positive, irregularly staining bacterium. Rarely, other *Corynebacterium* species (*C. ulcerans* or *C. pseudotuberculosis*) may produce diphtheria toxin and can cause classic diphtheria. Whether diphtheria bacteria produce toxin depends on infection by a virus bacteriophage carrying the tox gene. There are four strains or biotypes of *C. diphtheriae*: *gravis*, *mitis*, *intermedius*, and *belfanti*. Toxin-producing strains of all biotypes produce an identical exotoxin. There is no consistent difference in pathogenicity or severity of disease among the biotypes; however, the order of their likelihood of producing toxin is: *gravis*, *mitis*, *intermedius*, and *belfanti*.

Diphtheria: Laboratory Criteria (CDC)

“Simple” ELR Message Use cases

- Isolation of *Corynebacterium diphtheriae* from the nose or throat.
 - Organism specific or generic culture summary conclusion results to species level

“Not Simple” ELR Message Use case

- None

Preferred LOINCs for Diphtheria limited to:

- [Generic LOINCs for bacterial identification](#) and

| CreatePreferredLOINCforConditionTable | | | |
|---------------------------------------|---|---------------------------|----------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 24102-6 | Corynebacterium toxin [Identifier] in Unspecified specimen by Immune diffusion (ID) | Immune diffusion | Diphtheria Value Set |
| 567-8 | Diphtheria identified in Unspecified specimen by Organism specific culture | Organism specific culture | Diphtheria Value Set |
| 16676-9 | Corynebacterium diphtheriae [Presence] in Unspecified specimen by Organism specific culture | Organism specific culture | Ordinal Value Set |

Table 53: Preferred LOINCs for Diphtheria

Diphtheria specific preferred SNOMEDs limited to:

Use these with Nominal Diphtheria LOINC and with Non- Organism specific nominal LOINCs (see below for use of these) for bacterial identification

| CreatePreferredSNOMEDforConditionTable | |
|--|--|
| SNOMED CT | SNOMED Concept Name |
| 77086004 | Corynebacterium |
| 5851001 | Corynebacterium diphtheriae |
| 83675005 | Corynebacterium diphtheriae type gravis |
| 70876001 | Corynebacterium diphtheriae type intermedius |
| 13755001 | Corynebacterium diphtheriae type mitis |
| 243255007 | Corynebacterium diphtheriae var belfanti |
| 103428000 | Corynebacterium ulcerans |
| 443401009 | nontoxicogenic Corynebacterium diphtheriae |
| 397426001 | toxigenic Corynebacterium |
| 443377006 | toxigenic Corynebacterium diphtheriae |
| 55084001 | Corynebacterium pseudotuberculosis |

Table 54: Preferred SNOMED codes for Diphtheria

Condition: Anaplasmosis/Ehrlichiosis (includes Ehrlichia chaffeensis/ (HME), Ehrlichia ewingii, Anaplasma phagocytophilum/(HGE))

NNDs: 11090 Anaplasma phagocytophilum

11088 Ehrlichia chaffeensis

11089 Ehrlichia ewingii

11091 Ehrlichiosis/Anaplasmosis, undetermined

Because Ehrlichia ewingii has never been cultured, antigens are not available. Thus, Ehrlichia ewingii infections may only be diagnosed by molecular detection methods: E. ewingii DNA detected in a clinical specimen via amplification of a specific target by polymerase chain reaction (PCR) assay.

Anaplasmosis/Ehrlichiosis: Laboratory Criteria (CSTE/CDC)

“Simple” ELR Message Use cases

- Isolation of *E. chaffeensis* or *A. phagocytophilum* from a clinical specimen in cell culture (confirmed)
 - Organism specific or generic culture summary conclusion results to genus or species level
- Detection of *E. chaffeensis*, *A. phagocytophilum*, or *E. ewingii*, DNA in a clinical specimen via amplification of a specific target by polymerase chain reaction (PCR) assay (confirmed)
- Demonstration of ehrlichial or anaplasma antigen in a biopsy or autopsy sample by immunohistochemical method (confirmed)

- Serological evidence of elevated IgG or IgM antibody reactive with *E. chaffeensis* antigen by IFA, enzyme-linked immunosorbent assay (ELISA), dot-ELISA, or assays in other formats (CDC uses an IFA IgG cutoff of $\geq 1:64$ and does not use IgM test results independently as diagnostic support criteria.) (Supportive)
- Identification of morulae in the cytoplasm of monocytes or macrophages by microscopic examination

“Not Simple” ELR Message Use case

- Serological evidence of a fourfold change in immunoglobulin G (IgG)-specific antibody titer to *E. chaffeensis*, *A. phagocytophilum* antigen by indirect immunofluorescence assay (IFA) between paired serum samples (one taken in first week of illness and a second 2-4 weeks later) - Parent – Child use case (confirmed)

LOINC for Anaplasmosis/Ehrlichiosis limited to:

- [Generic LOINC for Rickettsial identification](#) and

| Create Preferred LOINC for Anaplasmosis/Ehrlichiosis Table | | | |
|--|---|---------------------------|------------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 9783-2 | Ehrlichia chaffeensis IgG Ab [Titer] in Serum | | numeric |
| 32691-8 | Anaplasma phagocytophilum IgG Ab [Titer] in Serum | | numeric |
| 29794-5 | Anaplasma phagocytophilum IgM Ab [Presence] in Unspecified specimen by Immunoblot (IB) | IB | Ordinal Value Set |
| 29793-7 | Anaplasma phagocytophilum IgG Ab [Presence] in Unspecified specimen by Immunoblot (IB) | IB | Ordinal Value Set |
| 54035-1 | Ehrlichia chaffeensis Ag [Presence] in Tissue by Immune stain | Immune stain | Ordinal Value Set |
| 54034-4 | Anaplasma phagocytophilum Ag [Presence] in Tissue by Immune stain | Immune stain | Ordinal Value Set |
| 48982-3 | Ehrlichia sp [Presence] in Unspecified specimen by Light microscopy | Microscopy.light | Ordinal Value Set |
| 48981-5 | Anaplasma sp [Presence] in Unspecified specimen by Light microscopy | Microscopy.light | Ordinal Value Set |
| 48873-4 | Ehrlichia sp identified in Unspecified specimen by Organism specific culture | Organism specific culture | Ehrlichiosis Value Set |
| 48872-6 | Anaplasma phagocytophilum [Presence] in Unspecified specimen by Organism specific culture | Organism specific culture | Ordinal Value Set |
| 48866-8 | Ehrlichia sp DNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |
| 48865-0 | Ehrlichia ewingii DNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |
| 24042-4 | Ehrlichia chaffeensis DNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |

| CreatePreferredLOINCfor Anaplasmosis/Ehrlichiosis Table | | | |
|---|---|---------------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 29560-0 | Anaplasma phagocytophilum DNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |

Table 55: Preferred LOINC for Anaplasmosis/Ehrlichiosis

Anaplasmosis/Ehrlichiosis specific SNOMEDs for limited to:

Use these with Nominal Anaplasmosis/Ehrlichiosis LOINC and with Non-Organism specific nominal LOINC (see below for use of these) for bacterial identification.

| CreatePreferredSNOMEDfor Anaplasmosis/Ehrlichiosis Table | |
|--|--------------------------------------|
| SNOMED CT | SNOMED Concept Name |
| 420364006 | Anaplasma phagocytophilum (organism) |
| 131419006 | Anaplasma species (organism) |
| 59250001 | Ehrlichia chaffeensis |
| 243360008 | Ehrlichia ewingii |
| 27334000 | Ehrlichia |
| 131415000 | Ehrlichia species |
| pending | Ehrlichia muris-like |

Table 56: Preferred SNOMED codes for Anaplasmosis/Ehrlichiosis

Condition: E. coli -Pathogenic (Shiga toxin producing E. coli, STEC, EHEC)

NND: 11563 Shiga toxin-producing Escherichia coli (STEC)

E. coli -Pathogenic: Laboratory Criteria (IDPH)

“Simple” ELR Message Use cases

- Probable: A case with isolation of E. coli O157 from a clinical specimen, without confirmation of H antigen or Shiga toxin production.
 - Organism specific or generic culture summary conclusion results
- Probable: Identification of an elevated antibody titer to a known Shiga toxin-producing E. coli serotype from a clinically compatible case.
 - Assuming is a clinical case

“Not Simple” ELR Message Use case

- Confirmed: Isolation of Shiga toxin-producing Escherichia coli from a clinical specimen. Escherichia coli O157:H7 isolates may be assumed to be Shiga toxin-producing. For all other E. coli isolates, Shiga toxin production or the presence of Shiga toxin genes must be determined to

be considered STEC. When available, O and H antigen serotype characterization should be reported.

- Many Parent-Child use cases here
- Serotyping
- PFGE
- Some Vocabulary and messaging concepts not standardized

Preferred LOINC for E. coli -Pathogenic limited to: (note the term “verotoxin” means the same as shiga toxin)

- [Generic LOINC for bacterial identification](#) and

| Create Preferred LOINC for E. coli -Pathogenic Table | | | |
|--|--|---------------------------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 16283-4 | Escherichia coli verotoxin [Presence] in Unspecified specimen | | Ordinal Value Set |
| 53946-0 | Escherichia coli shiga toxin Ag [Identifier] in Unspecified specimen | | STEC Value Set |
| 44087-5 | Escherichia coli O157 Ag [Presence] in Unspecified specimen | | Ordinal Value Set |
| 16835-1 | Escherichia coli shiga-like identified in Stool by Organism specific culture | Organism specific culture | STEC Value Set |
| 44089-1 | Escherichia coli O157:H7 [Identifier] in Unspecified specimen by Organism specific culture | Organism specific culture | STEC Value Set |
| 33764-2 | STX (Shiga toxin) gene [Identifier] in Unspecified specimen by Probe & target amplification method | Probe.amp.ta | STEC Value Set |
| 53947-8 | Escherichia coli SXT gene+H7 gene [Identifier] in Unspecified specimen by Probe & target amplification method | Probe.amp.ta | STEC Value Set |
| 63428-7 | Bacterial beta-glucuronidase (uidA) gene [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.ta | Ordinal Value Set |
| 63427-9 | Bacterial shiga-like toxin 2 (STX2) gene [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.ta | Ordinal Value Set |

Table 57: Preferred LOINC for E. coli - Pathogenic

Preferred E. coli -Pathogenic specific SNOMEDs limited to:

Use these with Nominal E. coli -Pathogenic LOINCs and with Non- Organism specific nominal LOINCs (see below for use of these) for bacterial identification. Note in SNOMED STEC is considered to be a synonym for EHEC.

| CreatePreferredSNOMEDforConditionTable | |
|--|---|
| SNOMED CT | SNOMED Concept Name |
| 116395006 | EHEC, Escherichia coli |
| 407249004 | EHEC, serotype O not typeable:nonmotile |
| 407251000 | EHEC, serotype O1:nonmotile |
| 407281008 | EHEC, serotype O103:H2 |
| 407284000 | EHEC, serotype O104:H2 |
| 407283006 | EHEC, serotype O104:nonmotile |
| 407160000 | EHEC, serotype O111:H2 |
| 407285004 | EHEC, serotype O111:H8 |
| 407159005 | EHEC, serotype O111:nonmotile |
| 407287007 | EHEC, serotype O113:H21 |
| 407290001 | EHEC, serotype O118:H12 |
| 407291002 | EHEC, serotype O118:H16 |
| 407289005 | EHEC, serotype O118:H2 |
| 407293004 | EHEC, serotype O121:H19 |
| 407222004 | EHEC, serotype O128:H2 |
| 407295006 | EHEC, serotype O128:H45 |
| 407294005 | EHEC, serotype O128:nonmotile |
| 407297003 | EHEC, serotype O137:H41 |
| 407260008 | EHEC, serotype O14:nonmotile |
| 407299000 | EHEC, serotype O145:nonmotile |
| 407300008 | EHEC, serotype O153:H2 |
| 407301007 | EHEC, serotype O153:H25 |
| 103429008 | EHEC, serotype O157:H7 |
| 124994003 | EHEC, serotype O157:non-motile |
| 407303005 | EHEC, serotype O163:H19 |
| 407306002 | EHEC, serotype O165:H25 |
| 407305003 | EHEC, serotype O165:nonmotile |
| 407308001 | EHEC, serotype O172:nonmotile |
| 407253002 | EHEC, serotype O2:H6 |
| 407254008 | EHEC, serotype O2:H7 |
| 407262000 | EHEC, serotype O22:H5 |
| 407263005 | EHEC, serotype O22:H8 |
| 407265003 | EHEC, serotype O26:H11 |



| CreatePreferredSNOMEDforConditionTable | |
|--|------------------------------|
| SNOMED CT | SNOMED Concept Name |
| 407264004 | EHEC, serotype O26:nonmotile |
| 407267006 | EHEC, serotype O45:H2 |
| 407269009 | EHEC, serotype O48:H21 |
| 407256005 | EHEC, serotype O5:nonmotile |
| 407271009 | EHEC, serotype O50:H7 |
| 407199008 | EHEC, serotype O55:H7 |
| 407273007 | EHEC, serotype O79:H7 |
| 407275000 | EHEC, serotype O83:H1 |
| 407258006 | EHEC, serotype O9:nonmotile |
| 407278003 | EHEC, serotype O91:H10 |
| 407279006 | EHEC, serotype O91:H21 |
| 407277008 | EHEC, serotype O91:nonmotile |
| 407310004 | EHEC, serotype Orough:H9 |

Table 58: Preferred SNOMED codes for E. coli - Pathogenic

Condition: Genital Warts

NND: <<Condition code>> << Condition name>>

Genital warts is an infection characterized by the presence of visible, exophytic (raised) growths on the internal or external genitalia, perineum, or perianal region caused by some sub-types of human papillomavirus (HPV, where types 6 and 11 are responsible for 90% of genital warts cases (CDC, Wikipedia)

Not nationally reportable condition and not reportable in many local jurisdictions.

Genital Warts: Laboratory Criteria (CDC 1996)

“Simple” ELR Message Use cases

- Histopathologic changes characteristic of human papillomavirus infection in specimens obtained by biopsy or exfoliative cytology or
- Demonstration of virus by antigen or nucleic acid detection in a lesion biopsy

“Not Simple” ELR Message Use case

- None

Preferred LOINCs for Genital Warts limited to:

- [Generic LOINCs for bacterial identification](#) and

LOINC MethodLongName

11481-9 Human papilloma virus identified in Unspecified specimen

Genital Warts specific preferred SNOMEDs limited to:

Use these with Nominal Genital Warts LOINCs and with Non- Organism specific nominal LOINCs (see below for use of these) for bacterial identification

Parent(s):
(Select a parent to make it the "Current Concept".)
[Genus Papillomavirus \(organism\)](#)

Current Concept:
Human papillomavirus (organism)

Child(ren):
(N=9) (Select a child to make it the "Current Concept".)

- [Human papillomavirus type 2 \(organism\)](#)
- [Human papillomavirus type 3 \(organism\)](#)
- [Human papillomavirus type 4 \(organism\)](#)
- [Human papillomavirus type 5 \(organism\)](#)
- [Human papillomavirus type 6 \(organism\)](#)
- [Human papillomavirus type 7 \(organism\)](#)
- [Human papillomavirus type 9 \(organism\)](#)
- [Human papillomavirus, type 16 \(organism\)](#)
- [Human papillomavirus, type 18 \(organism\)](#)

Condition: Giardiasis

NND: 11570 Giardiasis

Giardia lamblia is a protozoan parasite that has two forms: cyst (inactive form) and trophozoite (active form). Infected persons can shed both trophozoites and cysts in stool

Giardiasis: **Laboratory Criteria (MDPH)**

“Simple” ELR Message Use cases

- Demonstration of G. lamblia cysts in stool;
- Demonstration of G. lamblia trophozoites in stool, duodenal fluid, or small-bowel biopsy; or
- Demonstration of G. lamblia antigen in stool by a specific immunodiagnostic test (e.g., enzyme immunoassay etc.)

“Not Simple” ELR Message Use case

- None

Preferred LOINCs for Giardiasis limited to:

- [Generic LOINC for parasite identification](#) and

| CreatePreferredLOINCforGiardiaTable | | | |
|-------------------------------------|---|--------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 48064-0 | Giardia lamblia+Cryptosporidium parvum Ag [Presence] in Stool | | Ordinal Value Set |
| 16899-7 | Giardia lamblia Ag [Presence] in Unspecified specimen | | Ordinal Value Set |

Table 59: Preferred LOINC for Giardiasis

Giardiasis specific preferred SNOMEDs limited to:

Use these with Nominal Giardiasis LOINC and with Non- Organism specific nominal LOINC (see below for use of these) for bacterial identification

| CreatePreferredSNOMEDforGiardiasisTable | |
|---|----------------------|
| SNOMED CT | SNOMED Concept Name |
| 61419001 | Giardia |
| 19122007 | Giardia intestinalis |
| 78181009 | Giardia lamblia |
| 372412005 | Giardia species |

Table 60: Preferred SNOMED codes for Giardiasis

Condition: GLANDERS - Burkholderia mallei/Melioidosis - Burkholderia pseudomallei

SNOMED Condition Code: 4639008 Glanders (disorder)

SNOMED Condition Code: 428111003 Melioidosis (disorder)

Rare in US, Bioterror –agent

GLANDERS - *Burkholderia mallei*:/ Meliodiosis - *Burkholderia pseudomallei*: **Laboratory Criteria (CDC)**

“Simple” ELR Message Use cases

- Isolation *Burkholderia mallei* from blood, sputum, urine, or skin lesions.
- Isolation *Burkholderia pseudomallei* from blood, sputum, urine, or skin lesions, or abscesses

*may need to validate specimen source in SPM.4,8

“Not Simple” ELR Message Use case

- Detecting an antibody response to *Burkholderia pseudomallei* (paired titer) probably parent child best approach for these

Preferred LOINC for GLANDERS - *Burkholderia mallei* / Meliodiosis - *Burkholderia pseudomallei* limited to:

- [Generic LOINC for bacterial identification](#) and

| Preferred LOINC for Meliodiosis | | | |
|---------------------------------|---|--------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 11604-6 | <i>Burkholderia pseudomallei</i> Ab [Units/volume] in Serum | | numeric |

Table 61: Preferred LOINC for GLANDERS - *Burkholderia mallei*/Meliodiosis - *Burkholderia pseudomallei*

GLANDERS - *Burkholderia mallei*/Meliodiosis - *Burkholderia pseudomallei* specific preferred SNOMEDs limited to:

Use these with Nominal GLANDERS - *Burkholderia mallei*/Meliodiosis - *Burkholderia pseudomallei* LOINC and with Non-Organism specific nominal LOINC (see below for use of these) for bacterial identification.

| Preferred SNOMED for Glanders and Meliodiosis | |
|---|----------------------------------|
| SNOMED CT | SNOMED Concept Name |
| 113674000 | <i>Burkholderia mallei</i> |
| 116399000 | <i>Burkholderia pseudomallei</i> |

Table 62: Preferred SNOMED code for GLANDERS - *Burkholderia mallei*/Meliodiosis - *Burkholderia pseudomallei*

Condition: Granuloma inguinale/Klebsiella (Calymmatobacterium) granulomatis

NND: 10276 Granuloma inguinale (GI)

Granuloma inguinale (GI) is a slowly progressive ulcerative disease of the skin and lymphatics of the genital and perianal area caused by infection with *Klebsiella granulomatis* (nee *Calymmatobacterium granulomatis*). A case would have one or more painless or minimally painful granulomatous lesions in the anogenital area. (http://www.doh.state.fl.us/disease_ctrl/std/clinical/STD_Case_Definitions.html)

Not nationally reportable condition and not reportable in many local jurisdictions.

Granuloma inguinale/Klebsiella (Calymmatobacterium) granulomatis: **Laboratory Criteria (<<source>>)**

“Simple” ELR Message Use cases

- Example: Isolation of Granuloma inguinale/Klebsiella (Calymmatobacterium) granulomatis species from any clinical specimen.
 - Organism specific or generic culture summary conclusion results to genus or species level
- Demonstration of intracytoplasmic Donovan bodies in Wright or Giemsa-stained smears or biopsies of granulation tissue

“Not Simple” ELR Message Use case

- None

Preferred LOINCs for Granuloma inguinale/Klebsiella (Calymmatobacterium) granulomatis limited to:

- [Generic LOINCs for bacterial identification](#) and

| Create Preferred LOINC for Granuloma inguinale/Klebsiella (Calymmatobacterium) granulomatis Table | | | |
|---|--|---------------------------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 32158-8 | Calymmatobacterium granulomatis [Presence] in Genital specimen by Light microscopy | Microscopy.light | Ordinal Value Set |
| 6595-3 | Calymmatobacterium granulomatis [Presence] in Isolate by Organism specific culture | Organism specific culture | Ordinal Value Set |

Table 63: Preferred LOINCs for Granuloma inguinale/Klebsiella (Calymmatobacterium) granulomatis

Granuloma inguinale/Klebsiella (Calymmatobacterium) granulomatis specific preferred SNOMEDs limited to:

Use these with Nominal Granuloma inguinale/Klebsiella (Calymmatobacterium) granulomatis LOINCs and with Non- Organism specific nominal LOINCs (see below for use of these) for bacterial identification

| Create Preferred SNOMED for Granuloma inguinale/Klebsiella (Calymmatobacterium) granulomatis Table | |
|--|-------------------------|
| SNOMED CT | SNOMED Concept Name |
| 417443008 | Klebsiella granulomatis |

Table 64: Preferred SNOMED code for Granuloma inguinale/Klebsiella (Calymmatobacterium) granulomatis

Condition: Haemophilus influenzae, invasive disease

NND: 10590

Haemophilus influenza (Hib): Laboratory Criteria (IDPH)

“Simple” ELR Message Use cases

- Isolation (culture) of Hib from a normally sterile body site (blood, cerebrospinal fluid, joint fluid, pleural fluid, or pericardial fluid)
- Detection of Hib antigen in CSF
- PCR on CSF?
- Serology?
- Other serotypes may be reportable as well in other jurisdictions?

“Not Simple” ELR Message Use case

- None

Preferred LOINC for Haemophilus influenza (Hib) limited to:

- [Generic LOINC for bacterial identification](#) and

| Haemophilus influenza (Hib) | | | |
|-----------------------------|--|---------------------------|---|
| LOINC | LOINC Name | Method | Results Value Set |
| 31834-5 | Haemophilus influenzae B Ag [Presence] in Unspecified specimen | | Ordinal Value Set |
| 69410-9 | Haemophilus influenza identified in Unspecified specimen by Organism specific culture | Organism specific culture | Haemophilus influenza Value Set |
| 58473-0 | Haemophilus influenzae serogroup DNA [Identifier] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Haemophilus influenza Value Set |
| 29907-3 | Haemophilus influenzae B DNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |

Table 65: Preferred LOINC for Haemophilus influenza (Hib)

Haemophilus influenza (Hib) specific SNOMEDs limited to:

Use these with Nominal Haemophilus influenzae LOINCs and with Non- Organism specific nominal LOINCs (see below for use of these) for bacterial identification. See implementation guideline for messaging results when SNOMED code is unavailable.

| Haemophilus influenzae (Hib) | |
|------------------------------|-------------------------------|
| SNOMED CT | SNOMED Concept Name |
| 103442008 | Haemophilus influenzae type B |

Table 66: Preferred SNOMED code for Haemophilus influenza (Hib)

Condition: Hansen disease (leprosy)

NND: 10380 Hansen disease (leprosy)

(RCMT notes)

Hansen's disease is a clinical diagnosis and there is no laboratory surveillance for it.

CDC does not do testing for Hansen's Disease. All lab testing is done by the National Hansen's Disease Program (under HHS / Health Resources and Services Admin).

Hansen disease (leprosy): **Laboratory Criteria : Hansen's disease is a clinical diagnosis**

Condition: Hantavirus pulmonary syndrome

NND: 11590 Hantavirus pulmonary syndrome

The genus Hantavirus, family Bunyaviridae, comprises at least 14 viruses, including those that cause hemorrhagic fever with renal syndrome (HFRS) and hantavirus pulmonary syndrome (HPS). Hantaviruses are primarily rodent-borne.

Hantavirus pulmonary syndrome (HPS) occurs in the U.S. with most of the cases being associated with Sin Nombre virus (SNV). Other agents include Black Creek Canal virus and Bayou virus. (IDPH)

Hantavirus pulmonary syndrome: Laboratory Criteria (IDPH)

“Simple” ELR Message Use cases

- Detection of hantavirus-specific immunoglobulin M (IgM)
- Detection of hantavirus-specific ribonucleic acid sequence by polymerase chain reaction in clinical specimens
- Detection of hantavirus antigen by immunohistochemistry

“Not Simple” ELR Message Use case

- (Paired titer example) Rising titers of hantavirus-specific immunoglobulin G (IgG)

Preferred LOINCs for Hantavirus pulmonary syndrome limited to:

- [Generic LOINCs for viral identification](#) and

| CreatePreferredLOINCforHantaVirusTable | | | |
|--|---|---------------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 23868-3 | Hantavirus sin nombre IgM Ab [Titer] in Serum | | numeric |
| 31409-6 | Hantavirus sin nombre IgM Ab [Units/volume] in Serum | | numeric |
| 26650-2 | Hantavirus sin nombre IgM Ab [Presence] in Serum | | Ordinal Value Set |
| 23867-5 | Hantavirus sin nombre IgG Ab [Titer] in Serum | | numeric |
| 31408-8 | Hantavirus sin nombre IgG Ab [Units/volume] in Serum | | numeric |
| 7899-8 | Hantavirus RNA [Presence] in Serum by Probe and target amplification method | Probe.amp.tar | Ordinal Value Set |

Table 67: Preferred LOINCs for Hantavirus

Hantavirus pulmonary syndrome specific preferred SNOMEDs limited to:

Use these with Nominal Hantavirus pulmonary syndrome LOINCs and with Non-Organism specific nominal LOINCs (see below for use of these) for viral identification.

| CreatePreferredSNOMEDforHantaVirusTable | |
|---|-------------------------|
| SNOMED CT | SNOMED Concept Name |
| 442001008 | Andes virus |
| 116665009 | Bayou virus |
| 442615006 | Bermejo virus |
| 116664008 | Black Creek Canal virus |
| 49445003 | Genus Hantavirus |
| 116663002 | Sin Nombre virus |

Table 68: Preferred SNOMED codes for Hantavirus

Condition: Hepatitis A

SCT Condition code: 40468003 Viral hepatitis, type A (disorder)

(Optional Condition notes)

Hepatitis A: **Laboratory Criteria** (<<source>>)

“Simple” ELR Message Use cases

- Immunoglobulin M (IgM) antibody to hepatitis A virus (anti-HAV) positive

“Not Simple” ELR Message Use case

- none

LOINC for Hepatitis A limited to:

- [Generic LOINC for viral identification](#) and

| CreatePreferredLOINCfor Hepatitis A Table | | | |
|---|--|--------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 22315-6 | Hepatitis A virus IgM Ab [Units/volume] in Serum | | numeric |
| 22314-9 | Hepatitis A virus IgM Ab [Presence] in Serum | | Ordinal Value Set |

Table 69: Preferred LOINC for Hepatitis A

Hepatitis A specific SNOMEDs for limited to:

Use these with Nominal Hepatitis A LOINC and with Non- Organism specific nominal LOINC (see below for use of these) for bacterial identification.

| CreatePreferredSNOMEDfor Hepatitis A Table | |
|--|-------------------------|
| SNOMED CT | SNOMED Concept Name |
| 32452004 | HAV - Hepatitis A virus |

Table 70: Preferred SNOMED code for Hepatitis A

Condition: Hepatitis B

SCT Condition code: 66071002 Type B viral hepatitis (disorder)

There are separate case definitions for Acute, Chronic and Acute Perinatal HBV infections. Important components of the viral particle include hepatitis B surface antigen (HBsAg), hepatitis B core antigen (HBcAg), and hepatitis B e antigen (HBeAg).

| Interpretation of the Hepatitis B Panel (IDPH) | | |
|--|----------------------------------|---------------------------------|
| Tests | Results | Interpretation |
| HBsAg anti-HBc anti-HBs | negative negative negative | Susceptible |
| HBsAg anti-HBc | negative positive | |
| | | Immune due to natural infection |

| | | |
|--------------|----------|---|
| anti-HBs | positive | Immune due to hepatitis B vaccination** |
| HBsAg | negative | |
| anti-HBc | negative | |
| anti-HBs | positive | Acutely infected |
| HBsAg | positive | |
| anti-HBc | positive | |
| IgM anti-HBc | positive | Chronically infected |
| anti-HBs | negative | |
| HBsAg | positive | |
| anti-HBc | positive | Four interpretations possible * |
| IgM anti-HBc | negative | |
| anti-HBs | negative | |
| HBsAg | negative | Four interpretations possible * |
| anti-HBc | positive | |
| anti-HBs | negative | |

* Four Interpretations:

1. Might be recovering from acute HBV infection.
2. Might be distantly immune and test not sensitive enough to detect very low level of anti-HBs in serum.
3. Might be susceptible with a false positive anti-HBc.
4. Might be undetectable level of HBsAg present in the serum and the person is actually chronically infected.

** Antibody response (anti-HBs) can be measured quantitatively or qualitatively. A protective antibody response is reported quantitatively as 10 or more millinternational units (>=10mIU/mL) or qualitatively as positive. Post-vaccination testing should be completed 1-2 months after the third vaccine dose for results to be meaningful.

Table 71: Interpretation of the Hepatitis B Panel (IDPH)

Hepatitis B: Laboratory Criteria (MA DPH, IDPH)

“Simple” ELR Message Use cases

- Acute HBV
 - IgM antibody to hepatitis B core antigen (anti-HBc) positive;
 - Hepatitis B surface antigen (HBsAg) positive AND IgM antibody to hepatitis A virus (anti-HAV) negative (if done).
- Chronic HBV
 - IgM antibody to hepatitis B core antigen (anti-HBc) negative AND ;
 - Hepatitis B e antigen (HBeAg) positive OR
 - Hepatitis B e antibody (anti-HBe) positive OR
 - Hepatitis B DNA (HBV DNA or PCR) positive.
- Acute Perinatal HBV
 - Hepatitis B surface antigen (HBsAg) positive

“Not Simple” ELR Message Use case

- Chronic

- Paired results use case: HBsAg positive or HBV DNA positive or HBeAg positive two times at least 6 months apart (Any combination of these tests performed 6 months apart is acceptable.)

Preferred LOINC for Hepatitis B limited to:

- [Generic LOINC for viral identification](#) and

| Create Preferred LOINC for Hepatitis B Table | | | |
|--|---|----------------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 5195-3 | Hepatitis B virus surface Ag [Presence] in Serum | | Ordinal Value Set |
| 22322-2 | Hepatitis B virus surface Ab [Presence] in Serum | | Ordinal Value Set |
| 31844-4 | Hepatitis B virus e Ag [Presence] in Serum | | Ordinal Value Set |
| 22320-6 | Hepatitis B virus e Ab [Presence] in Serum | | Ordinal Value Set |
| 31204-1 | Hepatitis B virus core IgM Ab [Presence] in Serum | | Ordinal Value Set |
| 16933-4 | Hepatitis B virus core Ab [Presence] in Serum | | Ordinal Value Set |
| 6421-2 | Hepatitis B virus rRNA [Presence] in Unspecified specimen by DNA probe | Probe | Ordinal Value Set |
| 5009-6 | Hepatitis B virus DNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.t ar | Ordinal Value Set |

Hepatitis B specific SNOMEDs limited to:

Use these with Nominal Hepatitis B LOINC and with Non- Organism specific nominal LOINC (see below for use of these) for bacterial identification.

| Create Preferred SNOMED for Hepatitis B Table | |
|---|---------------------|
| SNOMED CT | SNOMED Concept Name |
| 81665004 | hepatitis B virus |

Condition: Hepatitis C

SCT: 50711007 Viral hepatitis C (disorder) (RCMT Condition code)

(NND: 10101 Hepatitis C, acute and NND 10106 Hepatitis C, chronic are subsumed under this concept)

Hepatitis C: Laboratory Criteria (IDPH)

“Simple” ELR Message Use cases

- EIA (ELISA) HCV antibody
- Hepatitis C Virus Recombinant Immunoblot Assay (HCV RIBA) positive
- Viral RNA by RT-PCR or bDNA
- HCV Genotype testing

“Not Simple” ELR Message Use case

- None

Preferred LOINCs for Hepatitis C Limited to:

- Generic LOINCs for viral identification

| Hepatitis C | | | |
|-------------|--|---------------|---------------------------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 48159-8 | Hepatitis C virus Ab Signal/Cutoff [Ratio] in Serum or Plasma by Immunoassay | EIA | Numeric |
| 13955-0 | Hepatitis C virus Ab [Presence] in Serum by Immunoassay | EIA | Ordinal Value Set |
| 5199-5 | Hepatitis C virus Ab [Presence] in Serum by Immunoblot (IB) | IB | Ordinal Value Set |
| 48575-5 | Hepatitis C virus genotype [Identifier] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Hepatitis C Value Set |
| 51824-1 | Hepatitis C virus IgM Ab [Units/volume] in Serum by Immunoassay | EIA | Numeric |
| 49376-7 | Hepatitis C virus RNA [Units/volume] (viral load) in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Numeric |
| 5012-0 | Hepatitis C virus RNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |

Table 72: Preferred LOINCs for Hepatitis C

Hepatitis C specific SNOMEDs limited to:

Use these with Nominal Hepatitis C LOINC identification. See implementation guideline for messaging results when SNOMED code is unavailable.

| Hepatitis C | |
|-------------|---------------------|
| SNOMED | SNOMED Concept Name |
| | |

| Hepatitis C | |
|-------------|---------------------|
| SNOMED | SNOMED Concept Name |
| 62944002 | Hepatitis C virus |

Table 73: Preferred SNOMED code for Hepatitis C

Condition: Histoplasmosis

SCT Condition Code: 12962009 Histoplasmosis (disorder)

Not nationally reportable condition and not reportable in many local jurisdictions

A fungus called *Histoplasma capsulatum*, which exists in two distinct forms, a mold and yeast, causes histoplasmosis. The mold form is found in the soil, often in areas where bird and bat droppings are located. The bird droppings are found to enhance growth of the fungus. The yeast form is found in infected people. Histoplasmosis is a disease that usually involves the lungs, but may affect other areas of the body. In the U.S., most cases are found along the Ohio and Mississippi River Valleys. (Source IDPH).

Histoplasmosis: Laboratory Criteria (MIDPH)

“Simple” ELR Message Use cases

- Identification of the organism in tissues by histopathology(confirmed)
- Isolation of the organism from cultures – (confirmed)
- Complement fixation titer to the yeast-phase antigen $\geq 1:32$ (probable)
- H band detected by Immunodiffusion testing (probable)
- Detection of antigen in body fluids including urine, serum, cerebral spinal fluid,and broncho-alveolar lavage (probable)
- (Qualitative PCR are available too)

“Not Simple” ELR Message Use case

- A four-fold rise in compliment fixation titer between serum specimens collected 2-4 weeks apart (paired titer)

Preferred LOINCs for Histoplasmosis limited to :

- [Non-organism specific LOINCs for fungal identification](#) and

| CreatePreferredLOINCforHistoplasmosisTable | | | |
|--|--|--------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 34171-9 | Histoplasma capsulatum Ag [Units/volume] in Unspecified specimen | | numeric |
| 19109-8 | Histoplasma capsulatum Ag [Presence] in Unspecified specimen | | Ordinal Value Set |

| CreatePreferredLOINCforHistoplasmosisTable | | | |
|--|---|------------------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 22347-9 | Histoplasma capsulatum Ab [Titer] in Serum | | numeric |
| 40827-8 | Histoplasma capsulatum Ab [Presence] in Body fluid | | Ordinal Value Set |
| 31070-6 | Histoplasma capsulatum yeast phase Ab [Titer] in Body fluid by Complement fixation | Comp fix | numeric |
| 35733-5 | Histoplasma capsulatum M Ab [Presence] in Serum by Immune diffusion (ID) | Immune diffusion | Ordinal Value Set |
| 35732-7 | Histoplasma capsulatum H Ab [Presence] in Serum by Immune diffusion (ID) | Immune diffusion | Ordinal Value Set |
| 5016-1 | Histoplasma capsulatum rRNA [Presence] in Unspecified specimen by DNA probe | Probe | Ordinal Value Set |
| 5015-3 | Histoplasma capsulatum DNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |
| 51771-4 | Histoplasma capsulatum DNA [#]/volume] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | numeric |

Table 74: Preferred LOINC for Histoplasmosis

Histoplasmosis specific preferred SNOMEDs limited to:

Use these with Nominal Histoplasmosis LOINC and with Non-Organism specific nominal LOINC (see below for use of these) for bacterial identification.

| CreatePreferredSNOMEDforHistoplasmosisTable | |
|---|---------------------------------------|
| SNOMED CT | SNOMED Concept Name |
| 81951003 | Histoplasma |
| 56596006 | Histoplasma capsulatum |
| 243509006 | Histoplasma capsulatum var capsulatum |
| 37220005 | Histoplasma duboisii |
| 115997002 | Histoplasma species |

Table 75: Preferred SNOMED codes for Histoplasmosis

Condition: Lead poisoning

NND: 32010 Lead poisoning

Most if not all jurisdictions require all blood lead results to be reported

<<Condition>>: **Laboratory Criteria (CSTE)**

“Simple” ELR Message Use cases

- Blood lead concentration – most if not all jurisdictions require all blood lead results to be reported.

“Not Simple” ELR Message Use case

- None

Preferred LOINC for lead limited to:

| CreatePreferredLOINCforLeadTable | | | |
|----------------------------------|-----------------------------|--------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 5671-3 | Lead [Mass/volume] in Blood | | numeric |

Table 76: Preferred LOINC code for Lead

Lead specific preferred SNOMEDs for limited to:

- None

Condition: Legionellosis

NND code: 10490 Legionellosis

Legionellosis is an infection caused by Legionella species, with Legionella pneumophila being the most common. Numerous serogroups are commonly recognized, although Legionella pneumophila serogroup 1 is most commonly associated with serious illness.

Legionellosis: **Laboratory Criteria (MDPH, CDC)**

“Simple” ELR Message Use cases

- Isolation of Legionellosis species from respiratory secretions, lung tissue, pleural fluid, or other normally sterile site. (Confirmed)
 - Organism specific or generic culture summary conclusion results to genus or species level
- The detection of specific Legionella antigen or staining of the organism in respiratory secretions, lung tissue, or pleural fluid by direct fluorescent antibody (DFA) staining, immunohistochemistry (IHC), or other similar method. (Suspected)
- The detection of L. pneumophila serogroup 1 antigens in urine. (Confirmed)
- The detection of Legionella species by a validated nucleic acid assay. (Suspected)

“Not Simple” ELR Message Use case

- Isolation of Legionellosis species from respiratory secretions, lung tissue, pleural fluid, or other normally sterile site. (Confirmed)
 - Serotyping

- Sensitivity
- PFGE
- Many Parent-Child use cases here
- Some Vocabulary and messaging concepts not standardized
- Paired Serology: A four-fold or greater rise in antibody titer to specific species or serogroups of Legionella, including L. pneumophila serogroup 1. (Suspected and Confirmed depending on serogroup)

Preferred LOINCs for Legionellosis limited to:

- [Generic LOINCs for bacterial identification](#) and

| CreatePreferredLOINCforLegionellosisTable | | | |
|---|--|---------------------------|-------------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 26621-3 | Legionella sp Ag [Presence] in Unspecified specimen | | Ordinal Value Set |
| 17060-5 | Legionella pneumophila 1 Ab [Titer] in Serum | | numeric |
| 31454-2 | Legionella pneumophila 1 Ab [Units/volume] in Serum | | numeric |
| 32696-7 | Legionella pneumophila 1+2+3+4+5+6 Ab [Titer] in Serum | | numeric |
| 31870-9 | Legionella pneumophila Ag [Presence] in Urine | | Ordinal Value Set |
| 22396-6 | Legionella pneumophila Ab [Titer] in Serum | | numeric |
| 31471-6 | Legionella pneumophila Ab [Units/volume] in Serum | | numeric |
| 46195-4 | Legionella pneumophila 2+3+4+5+6+8 Ab [Titer] in Serum | | numeric |
| 53742-3 | Legionella pneumophila 2+3+4+5+6+8 Ab [Presence] in Serum | | Ordinal Value Set |
| 588-4 | Legionella pneumophila Ag [Presence] in Unspecified specimen by Immunofluorescence | IF | Ordinal Value Set |
| 593-4 | Legionella sp identified in Unspecified specimen by Organism specific culture | Organism specific culture | Legionellosis Value Set |
| 49616-6 | Legionella sp DNA [Identifier] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Legionellosis Value Set |
| 21363-7 | Legionella pneumophila DNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |

Table 77: Preferred LOINCs for Legionellosis

Legionellosis specific preferred SNOMEDs limited to:

Use these with Nominal Legionellosis LOINCs and with Non- Organism specific nominal LOINCs (see below for use of these) for bacterial identification.

CreatePreferredSNOMEDforLegionellosisTable

| SNOMED CT | SNOMED Concept Name |
|-----------|-------------------------------------|
| 113719008 | Fluoribacter bozemanæ |
| 113720002 | Fluoribacter dumoffii |
| 7527002 | legionella |
| 103447002 | Legionella adelaidensis |
| 18214000 | Legionella anisa |
| 432714000 | Legionella beliardensis |
| 22592008 | Legionella birminghamensis |
| 103448007 | Legionella brunensis |
| 433050009 | Legionella busanensis |
| 52462004 | Legionella cherrii |
| 58923007 | Legionella cincinnatiensis |
| 432325006 | Legionella drancourtii |
| 432712001 | Legionella drozanskii |
| 28109006 | Legionella erythra |
| 103449004 | Legionella fairfieldensis |
| 432453005 | Legionella fallonii |
| 17083009 | Legionella feeleii |
| 103450004 | Legionella geestiana |
| 103451000 | Legionella gratiana |
| 433052001 | Legionella gresilensis |
| 58939000 | Legionella hackeliae |
| 3128001 | Legionella israelensis |
| 89709001 | Legionella janestowniensis |
| 39739007 | Legionella jordanis |
| 103452007 | Legionella lansingensis |
| 103453002 | Legionella londiniensis |
| 89605004 | Legionella longbeachae |
| 115515003 | Legionella longbeachae, serogroup 1 |
| 115516002 | Legionella longbeachae, serogroup 2 |
| 113806002 | Legionella lytica |
| 103454008 | Legionella moravica |
| 103455009 | Legionella nautarum |
| 638008 | Legionella oakridgensis |
| 38322001 | Legionella parisiensis |
| 80897008 | Legionella pneumophila |
| 103463005 | Legionella pneumophila serogroup 1 |
| 103464004 | Legionella pneumophila serogroup 2 |
| 103465003 | Legionella pneumophila serogroup 3 |

| CreatePreferredSNOMEDforLegionaellosisTable | |
|---|--|
| SNOMED CT | SNOMED Concept Name |
| 103466002 | Legionella pneumophila serogroup 4 |
| 103467006 | Legionella pneumophila serogroup 5 |
| 103468001 | Legionella pneumophila serogroup 6 |
| 103469009 | Legionella pneumophila serogroup 7 |
| 103470005 | Legionella pneumophila serogroup 8 |
| 103471009 | Legionella pneumophila serogroup 9 |
| 103456005 | Legionella pneumophila ss. fraseri |
| 103457001 | Legionella pneumophila ss. pascullei |
| 103458006 | Legionella pneumophila ss. pneumophila |
| 131322009 | Legionella pneumophila serogroup 10 |
| 131323004 | Legionella pneumophila serogroup 11 |
| 131324005 | Legionella pneumophila serogroup 12 |
| 131325006 | Legionella pneumophila serogroup 13 |
| 131326007 | Legionella pneumophila serogroup 14 |
| 113807006 | Legionella quateirensis |
| 103459003 | Legionella quinlivanii |
| 432713006 | Legionella rowbothamii |
| 17298000 | Legionella rubilucens |
| 87271006 | Legionella sainthelens |
| 72814000 | Legionella santicrucis |
| 401198008 | Legionella serotype |
| 103460008 | Legionella shakespearei |
| 115514004 | Legionella species |
| 64930007 | Legionella spiritensis |
| 14121003 | Legionella steigerwaltii |
| 433048001 | Legionella taurinensis |
| 103461007 | Legionella tucsonensis |
| 8147000 | Legionella wadsworthii |
| 113808001 | Legionella waltersii |
| 103462000 | Legionella worsleiensis |
| 115517006 | Legionella, non-pneumophia species |
| 116379006 | Tatlockia macaechernii |
| 116380009 | Tatlockia micdadei |

Table 78: Preferred SNOMED codes for Legionaellosis

Condition: Leptospirosis**NND: 10390 Leptospirosis**

Leptospirosis is a bacterial disease caused by spirochetes. It is no longer a nationally reportable condition and is only reportable in some, not all, local jurisdictions.

The *Leptospira* taxonomy has changed substantially.

(*Leptospira* classification (from <http://emedicine.medscape.com/article/965698-overview>)

The genus *Leptospira* belongs to the Leptospiraceae family of the order Spirochaetales. The nomenclature system used to organize leptospires has been revised, making review of the literature often confusing. The traditional system divided the genus into 2 species: the pathogenic *Leptospira interrogans* and the nonpathogenic *Leptospira biflexa*. These species were divided further into serogroups, serovars, and strains based on shared antigens. *L. interrogans* included more than 250 serovars.

The current classification system is based on DNA homology and recognizes the heterogeneity of the classic leptospires, dividing *L. interrogans* and *L. biflexa* into 12 named species, 4 unnamed species, and 2 additional genera.

Within these species, leptospires are further grouped by serogroups, serovars, and strains on the basis of microscopic agglutination testing (MAT). Serologic grouping may, however, cross DNA based species boundaries. Although certain species (eg, *L. interrogans*) have a classic association with Weil disease, knowledge of the species type does not necessarily help predict disease severity.

Leptospirosis: Laboratory Criteria (MDPH)**“Simple” ELR Message Use cases**

- Isolation of Leptospirosis species from any clinical specimen.
 - Organism specific or generic culture summary conclusion results to genus or species level
- Demonstration of *Leptospira* in a clinical specimen by immunofluorescence.
- Possible more recently PCR,

“Not Simple” ELR Message Use case

- Isolation of Leptospirosis species from any clinical specimen.
 - Serotyping
 - Sequencing
 - Vocabulary and messaging concepts not standardized
- Paired Serology: Fourfold or greater increase in *Leptospira* agglutination titer between acute- and convalescent-phase serum specimens obtained >2 weeks apart and studied at the same laboratory

Preferred LOINC for Leptospirosis limited to:

- [Generic LOINC for bacterial identification](#) and

| CreatePreferredLOINCforConditionTable | | | |
|---------------------------------------|---|---------------------------|--------------------------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 23202-5 | Leptospira sp IgM Ab [Presence] in Serum | | Ordinal Value Set |
| 23200-9 | Leptospira sp IgG Ab [Presence] in Serum | | Ordinal Value Set |
| 23198-5 | Leptospira sp Ab [Titer] in Serum by Agglutination | Aggl | numeric |
| 23203-3 | Leptospira sp Ag [Presence] in Tissue by Immunofluorescence | IF | Ordinal Value Set |
| 594-2 | Leptospira sp identified in Unspecified specimen by Organism specific culture | Organism specific culture | Leptospira Value Set |
| 35491-0 | Leptospira sp DNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |

Table 79: Preferred LOINC for Leptospirosis

Leptospirosis specific preferred SNOMEDs limited to:

Use these with Nominal Leptospirosis LOINC and with Non- Organism specific nominal LOINC (see below for use of these) for bacterial identification

| CreatePreferredSNOMEDfor Leptospirosis Table | | | |
|--|---------------------------|--------------|---------------|
| SNOMED CT | SNOMED Concept Name | IsReportable | IsIAPreferred |
| 26764003 | leptospira | Yes | Yes |
| 432579003 | Leptospira alexanderi | Yes | Yes |
| 113809009 | Leptospira borgpetersenii | Yes | Yes |
| 432580000 | Leptospira fainei | Yes | Yes |
| 113810004 | Leptospira inadai | Yes | Yes |
| 116401006 | Leptospira interrogans | Yes | Yes |
| 113811000 | Leptospira kirschneri | Yes | Yes |
| 113812007 | Leptospira meyeri | Yes | Yes |
| 113813002 | Leptospira noguchii | Yes | Yes |
| 113815009 | Leptospira santarosai | Yes | Yes |
| 116200009 | Leptospira species | Yes | Yes |
| 113816005 | Leptospira weilii | Yes | Yes |

Table 80: Preferred SNOMED codes for Leptospirosis

Condition: Listeriosis (L. monocytogenes)

NND:

Listeriosis: Laboratory Criteria (IDPH)

“Simple” ELR Message Use cases

- Isolation of *L. monocytogenes* from a normally sterile site e.g., blood or cerebrospinal fluid or, less commonly, joint, pleural or pericardial fluid)
 - Organism specific or generic culture summary conclusion results to species level

“Not Simple” ELR Message Use case

- Isolation of *L. monocytogenes* from a normally sterile site e.g., blood or cerebrospinal fluid or, less commonly, joint, pleural or pericardial fluid)
 - Serotyping
 - Sensitivity
 - PFGE
 - Many Parent-Child use cases here
 - Some Vocabulary and messaging concepts not standardized

LOINC for Listeriosis limited to:

- [Generic LOINC for bacterial identification](#) and

Listeriosis specific SNOMEDs limited to:

Use these with Nominal Listeriosis LOINC and with Non- Organism specific nominal LOINC (see below for use of these) for bacterial identification.

Condition: Lyme Disease (*Borrelia burgdorferi*)

NND: 11080 Lyme Disease

Lyme Disease: Laboratory Criteria (IDPH, MPDH, CDC)

“Simple” ELR Message Use cases

- Isolation of the spirochete from tissue or body fluid
- PCR? (From RCMT notes : PCR is for Lyme disease is not clinically useful except in certain situations where sensitivity may be increased, such as erythema migrans skin biopsy.)

“Not-Simple” ELR Message Use cases

- Probable Parent-Child use case: a significant change in antibody levels in paired acute and convalescent serum samples
- **Possible Parent-Child use case:** Diagnostic levels of IgM or IgG antibodies to the spirochete in serum or cerebrospinal fluid(CDC recommends initial testing of serum specimens by a sensitive test, such as enzyme immunoassay (EIA) or immunofluorescent assay (IFA) and confirmatory testing via Western blot.)

- **From RCMT notes:** . IFA is not done much any more but it is in the 1995 case definition, which is still current. IFA requires a skilled microscopist. In almost all labs IFA has been replaced by EIA, which is more rigorous.
- C6Ab testing approved in tier1 testing – may become a single step test in future using this.
- Positive IgM is sufficient only when ≤30 days from symptom onset
- Positive IgG is sufficient at any point during illness
- IB requires evaluating several bands for conclusion.

Preferred LOINCs for Lyme Disease limited to:

- [Generic LOINCs for Micro-organism identification](#) and

| CreatePreferredLOINCfor Lyme Disease Table | | | |
|--|---|--------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 34148-7 | Borrelia burgdorferi IgG+IgM Ab [Units/volume] in Serum | | numeric |
| 22131-7 | Borrelia burgdorferi IgG+IgM Ab [Presence] in Serum | | Ordinal Value Set |
| 40612-4 | Borrelia burgdorferi IgM Ab [Presence] in Serum by Immunoassay | EIA | Ordinal Value Set |
| 16482-2 | Borrelia burgdorferi IgM Ab [Units/volume] in Body fluid by Immunoassay | EIA | numeric |
| 16480-6 | Borrelia burgdorferi IgG Ab [Presence] in Serum by Immunoassay | EIA | Ordinal Value Set |
| 16481-4 | Borrelia burgdorferi IgG Ab [Units/volume] in Body fluid by Immunoassay | EIA | numeric |
| 23982-2 | Borrelia burgdorferi IgM Ab [Presence] in Body fluid by Immunoblot (IB) | IB | Ordinal Value Set |
| 18203-0 | Borrelia burgdorferi IgG+IgM Ab [Presence] in Serum by Immunoblot (IB) | IB | Ordinal Value Set |
| 23980-6 | Borrelia burgdorferi IgG Ab [Presence] in Body fluid by Immunoblot (IB) | IB | Ordinal Value Set |

| CreatePreferredLOINCfor Lyme Disease Table | | | |
|--|--|---------------------------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 11550-1 | Borrelia burgdorferi [Presence] in Unspecified specimen by Organism specific culture | Organism specific culture | Ordinal Value Set |
| 4991-6 | Borrelia burgdorferi DNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |

Table 81: Preferred LOINC for Lyme Disease

Lyme Disease specific SNOMEDs limited to:

Use these with Nominal Lyme Disease LOINC and with Non-Organism specific nominal LOINC (see below for use of these) for Rickettsial identification. See implementation guideline for messaging results when SNOMED code is unavailable.

| sctid | snomed_concept | comments |
|-----------|----------------------|----------------------------------|
| 76327009 | Borrelia burgdorferi | US, Europe |
| 131221004 | Borrelia species | |
| 416551001 | Borrelia afzelii | Europe, Asia |
| 113497007 | Borrelia garinii | Europe, Asia |
| 113503004 | Borrelia valaisiana | Europe, Not in RCMT. Add to list |
| pending | Borrelia spielmanii | Europe |

Table 82: Preferred SNOMED codes for Lyme disease

Condition: Malaria

NND: 10130 Malaria

There are 4 Plasmodium species (sporozoan parasites) that cause malaria in humans. They are Plasmodium vivax, P. malariae, P. ovale and P. falciparum.

Malaria: Laboratory Criteria (IDPH)

“Simple” ELR Message Use cases

- Detection of species specific parasite DNA in a sample of peripheral blood using a Polymerase Chain Reaction test*
- Detection of malaria parasites in thick or thin peripheral blood films.
- Detection of circulating malaria-specific antigens using rapid diagnostic test (RDT)
 - Rapid diagnostic tests for malaria have various combinations of antibodies

(Serology testing done but not useful for diagnosis - RCMT feedback notes)

“Not Simple” ELR Message Use case

- None

LOINC for Malaria limited to:

- [Generic LOINC for parasite identification](#) and

| CreatePreferredLOINCforMalariaTable | | | |
|-------------------------------------|--|------------------------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 50687-3 | Plasmodium sp Ag [Presence] in Blood | | Ordinal Value Set |
| 51865-4 | Plasmodium sp Ag [Identifier] in Blood | | Malaria Value Set |
| 32206-5 | Plasmodium sp identified in Blood by Light microscopy | Microscopy.ligh t | Malaria Value Set |
| 47085-6 | Plasmodium sp DNA [Presence] in Blood by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |
| 47260-5 | Plasmodium sp DNA [Identifier] in Blood by Probe & target amplification method | Probe.amp.tar | Malaria Value Set |
| 637-9 | Microscopic observation [Identifier] in Blood by Malaria thick smear | Malaria thick smear | Malaria Value Set |
| 33271-8 | Microscopic observation [Identifier] in Blood by Malaria thin smear | Malaria thin smear | Malaria Value Set |

Table 83: Preferred LOINC for Malaria

Malaria specific SNOMEDs limited to:

Use these with Nominal Malaria LOINC and with Non-Organism specific nominal LOINC (see below for use of these) for parasite identification.

| CreatePreferredSNOMEDforConditionTable | |
|--|-----------------------|
| SNOMED CT | SNOMED Concept Name |
| 34706006 | Plasmodium |
| 30020004 | Plasmodium falciparum |
| 49918008 | Plasmodium knowlesi |

| CreatePreferredSNOMEDforConditionTable | |
|--|---------------------|
| SNOMED CT | SNOMED Concept Name |
| 56395006 | Plasmodium malariae |
| 18508006 | Plasmodium ovale |
| 372332005 | Plasmodium species |
| 74746009 | Plasmodium vivax |

Table 84: Preferred SNOMED codes for Malaria

Condition: Measles

NND code: 10140 Measles (rubeola), total

Measles is caused by the measles virus (genus Morbillivirus, family Paramyxoviridae).

Measles: Laboratory Criteria (IDPH)

“Simple” ELR Message Use cases

- Isolation of Measles virus from any clinical specimen.
 - Organism specific or generic culture summary conclusion results to species level
- Detection of Measles nucleic acid (e.g., standard or real time RT-PCR assays)
- Detection of Measles IgM antibody

“Not Simple” ELR Message Use case

- Paired serology message: Significant rise between acute- and convalescent-phase titers in serum measles immunoglobulin G (IgG), or total antibody level by any standard serologic assay

Preferred LOINCs for Measles limited to:

- [Generic LOINCs for viral identification](#) and

| CreatePreferredLOINCforConditionTable | | | |
|---------------------------------------|---|--------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 22506-0 | Measles virus IgM Ab [Titer] in Serum | | numeric |
| 7963-2 | Measles virus IgM Ab [Units/volume] in Serum | | numeric |
| 21503-8 | Measles virus IgM Ab [Presence] in Serum | | Ordinal Value Set |
| 22502-9 | Measles virus IgG Ab [Titer] in Serum | | numeric |
| 29242-5 | Measles virus IgG Ab [Units/volume] in Body Fluid | | numeric |
| 20479-2 | Measles virus IgG Ab [Presence] in Serum | | Ordinal Value Set |

| CreatePreferredLOINCforConditionTable | | | |
|---------------------------------------|---|-------------------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 48508-6 | Measles virus RNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.t ar | Ordinal Value Set |

Table 85: Preferred LOINC for Measles

Measles specific preferred SNOMEDs limited to:

Use these with Nominal Measles LOINC and with Non- Organism specific nominal LOINC (see below for use of these) for viral identification

| CreatePreferredSNOMEDforConditionTable | |
|--|---------------------|
| SNOMED CT | SNOMED Concept Name |
| 52584002 | Measles virus |

Table 86: Preferred SNOMED for Measles

Condition: Meningococcal disease (Neisseria meningitidis)

NND: 10590

Meningococcal disease (Neisseria meningitidis): **Laboratory Criteria (CSTE, MDPH, CPDPH)**

“Simple” ELR Message Use cases

- Isolation of Neisseria meningitidis from a normally sterile site
- Evidence of N. meningitidis DNA using a validated polymerase chain reaction (PCR), obtained from a normally sterile site
- N. meningitidis antigen identified by immunohistochemistry (IHC) on formalin-fixed tissue (IF only, EIA not reportable ??)
- N. meningitidis antigen identified in CSF by latex agglutination
- Gram-negative diplococci in CSF or peripheral blood smear

“Not Simple” ELR Message Use case

- None

Preferred LOINC for Meningococcal disease (Neisseria meningitidis) limited to:

- [Generic LOINC for bacterial identification](#) and

| CreatePreferredLOINCfor Meningococcal disease (Neisseria meningitidis)Table | | | |
|---|---|--------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 32841-9 | Neisseria meningitidis C+w135 Ag [Presence] in Unspecified specimen | | Ordinal Value Set |

| CreatePreferredLOINCfor Meningococcal disease (Neisseria meningitidis)Table | | | |
|---|--|---------------------------|--|
| LOINC | LOINC Name | Method | Results Value Set |
| 31910-3 | Neisseria meningitidis A+C+w135+Y Ag [Presence] in Unspecified specimen | | Ordinal Value Set |
| 32848-4 | Neisseria meningitidis A+Y Ag [Presence] in Unspecified specimen | | Ordinal Value Set |
| 31912-9 | Neisseria meningitidis Ag [Presence] in Unspecified specimen | | Ordinal Value Set |
| 31913-7 | Neisseria meningitidis B Ag [Presence] in Unspecified specimen | | Ordinal Value Set |
| 31908-7 | Neisseria meningitidis A Ag [Presence] in Unspecified specimen | | Ordinal Value Set |
| 31917-8 | Neisseria meningitidis C Ag [Presence] in Unspecified specimen | | Ordinal Value Set |
| 31920-2 | Neisseria meningitidis w135 Ag [Presence] in Unspecified specimen | | Ordinal Value Set |
| 45183-1 | Neisseria meningitidis [Identifier] in Isolate by Agglutination | Aggl | Neisseria meningitidis Value Set |
| 32800-5 | Neisseria meningitidis C+w135 Ag [Presence] in Unspecified specimen by Latex agglutination | LA | Ordinal Value Set |
| 30095-4 | Neisseria meningitidis B Ag [Presence] in Unspecified specimen by Latex agglutination | LA | Ordinal Value Set |
| 30097-0 | Neisseria meningitidis w135 Ag [Presence] in Unspecified specimen by Latex agglutination | LA | Ordinal Value Set |
| 32851-8 | Neisseria meningitidis A+Y Ag [Presence] in Unspecified specimen by Latex agglutination | LA | Ordinal Value Set |
| 19259-1 | Neisseria meningitidis A+C+w135+Y Ag [Presence] in Unspecified specimen by Latex agglutination | LA | Ordinal Value Set |
| 30098-8 | Neisseria meningitidis Y Ag [Presence] in Unspecified specimen by Latex agglutination | LA | Ordinal Value Set |
| 30094-7 | Neisseria meningitidis A Ag [Presence] in Unspecified specimen by Latex agglutination | LA | Ordinal Value Set |
| 30096-2 | Neisseria meningitidis C Ag [Presence] in Unspecified specimen by Latex agglutination | LA | Ordinal Value Set |
| Pending | Neisseria meningitidis [Identifier] in Unspecified specimen by Organism specific culture | Organism specific culture | Neisseria meningitidis Value Set |
| 16134-9 | Neisseria meningitidis [Presence] in Unspecified specimen by Organism specific culture | Organism specific culture | Ordinal Value Set |
| 5029-4 | Neisseria meningitidis rRNA [Presence] in Unspecified specimen by DNA probe | Probe | Ordinal Value Set |
| 49671-1 | Neisseria meningitidis DNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |

Table 87: Preferred LOINCs for Meningococcal disease (Neisseria meningitidis)

Meningococcal disease (Neisseria meningitidis) specific SNOMEDs limited to:

Use these with Nominal Meningococcal disease (Neisseria meningitidis) LOINC and with Non- Organism specific nominal LOINC (see below for use of these) for bacterial identification. See implementation guideline for messaging results when SNOMED code is unavailable.

| CreatePreferredSNOMEDfor Meningococcal disease (Neisseria meningitidis)Table | |
|--|------------------------------------|
| SNOMED CT | SNOMED Concept Name |
| 17872004 | Neisseria meningitidis |
| 103482001 | Neisseria meningitidis group Y |
| 414810006 | Neisseria meningitidis non-typable |
| 103479006 | Neisseria meningitidis serogroup A |
| 103480009 | Neisseria meningitidis serogroup B |
| 103481008 | Neisseria meningitidis serogroup C |
| 443023002 | Neisseria meningitidis serogroup D |
| 125041003 | Neisseria meningitidis serogroup X |
| 125042005 | Neisseria meningitidis serogroup Z |
| 103483006 | Neisseria meningitidis W135 |
| 131340008 | Neisseria species |

Table 88: Preferred SNOMED codes for Meningococcal disease (Neisseria meningitidis)

Condition: Mercury poisoning

SNOMED Condition Code: 85180002 Toxic effect of mercury AND/OR its compounds (disorder)

Mercury in any form is toxic. Mercury poisoning can result from vapor inhalation, ingestion, injection, or absorption through the skin.

Mercury poisoning: **Laboratory Criteria (NYDOH)**

“Simple” ELR Message Use cases

- Mercury at or above 5 ng/mL (blood), 20 ng/mL (urine)

“Not Simple” ELR Message Use case

- None

Preferred LOINC for Mercury poisoning limited to:

| CreatePreferredLOINCforConditionTable | | | |
|---------------------------------------|------------|--------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| | | | |

| CreatePreferredLOINCforConditionTable | | | |
|---------------------------------------|--|--------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 12774-6 | Mercury [Mass/volume] in Red Blood Cells | | numeric |
| 5685-3 | Mercury [Mass/volume] in Blood | | numeric |
| 6693-6 | Mercury [Mass/time] in 24 hour Urine | | numeric |
| 21383-5 | Mercury [Mass/volume] in 24 hour Urine | | numeric |
| 13961-8 | Mercury [Presence] in 24 hour Urine | | Ordinal Value Set |

Table 89: Preferred LOINC for Mercury

Condition: Monkey Pox

SNOMED Condition Code: 359814004 Monkeypox (disorder)

The disease is caused by *Monkeypox virus*, which belongs to the orthopoxvirus group of viruses. Other orthopoxviruses that can cause infection in humans include variola (smallpox), vaccinia (used in smallpox vaccine), and cowpox viruses. (CDC)

There are no commercial tests for Monkeypox virus. There are some in-house developed serologic tests. There are no commercial PCRs for Monkeypox. Even Orthopox PCR is not generally available, just in some research labs. (RCMT Feedback notes)

Monkey Pox: Laboratory Criteria (CDC)

“Simple” ELR Message Use cases (see above notes)

- Isolation of monkeypox virus in culture
- Demonstration of monkeypox virus DNA by polymerase chain reaction testing of a clinical specimen
- Demonstration of virus morphologically consistent with an orthopoxvirus by electron microscopy in the absence of exposure to another orthopoxvirus
- Demonstration of presence of orthopoxvirus in tissue using immunohistochemical testing methods in the absence of exposure to another orthopoxvirus.

“Not Simple” ELR Message Use case

- None

Preferred LOINC for Monkey Pox limited to:

- [Generic LOINC for viral identification](#) and

CreatePreferredLOINCforMonkeyPoxTable

| LOINC | LOINC Name | Method | Results Value Set |
|---------|---|---------------|-------------------|
| 41853-3 | Orthopoxvirus DNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |

Table 90: Preferred LOINC for Monkey Pox

Monkey Pox specific preferred SNOMEDs limited to:

Use these with Nominal Monkey Pox LOINC and with Non- Organism specific nominal LOINC (see below for use of these) for viral identification.

| CreatePreferredSNOMEDforMonkeyPoxTable | |
|--|---------------------|
| SNOMED CT | SNOMED Concept Name |
| 59774002 | Monkeypox virus |
| 29724001 | orthopoxvirus |

Table 91: Preferred SNOMED codes for Monkey Pox

Condition: Mumps

NND code: 10180 Mumps

Mumps is caused by the mumps virus (genus *Paramyxovirus*, family *Paramyxoviridae*).

Mumps: **Laboratory Criteria (IDPH)**

“Simple” ELR Message Use cases

- Isolation of Mumps virus from any clinical specimen.
 - Organism specific or generic culture summary conclusion results to species level
- Detection of mumps nucleic acid (e.g., standard or real time RT-PCR assays)
- Detection of mumps IgM antibody

“Not Simple” ELR Message Use case

- Paired serology message: Demonstration of specific mumps antibody response in absence of recent vaccination, either a four-fold increase in IgG titer as measured by quantitative assays, or a seroconversion from negative to positive using a standard serologic assay of paired acute and convalescent serum specimens.

Preferred LOINC for Mumps limited to:

- [Generi LOINC for viral identification](#) and

| CreatePreferredLOINCfor Mumps Table |
|-------------------------------------|
|-------------------------------------|

| LOINC | LOINC Name | Method | Results Value Set |
|---------|---|---------------|-------------------|
| 22420-4 | Mumps virus IgM Ab [Titer] in Serum | | numeric |
| 7967-3 | Mumps virus IgM Ab [Units/volume] in Serum | | numeric |
| 22418-8 | Mumps virus IgM Ab [Presence] in Serum | | Ordinal Value Set |
| 22417-0 | Mumps virus IgG Ab [Titer] in Serum | | numeric |
| 29241-7 | Mumps virus IgG Ab [Units/volume] in Serum | | numeric |
| 22415-4 | Mumps virus IgG Ab [Presence] in Body fluid | | Ordinal Value Set |
| 47532-7 | Mumps virus RNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |

Table 92: Preferred LOINC for Mumps

Mumps specific preferred SNOMEDs for limited to:

Use these with Nominal Mumps LOINC and with Non- Organism specific nominal LOINC (see below for use of these) for viral identification.

| CreatePreferredSNOMEDforMumpsTable | |
|------------------------------------|---------------------|
| SNOMED CT | SNOMED Concept Name |
| 50384007 | Mumps virus |

Table 93: Preferred SNOMED code for Mumps

Condition: Norovirus

SNOMED Disorder Code: 445152004 Inflammation of intestine due to Norovirus (disorder)

Norovirus is also known as Norwalk virus or Norwalk-like virus and is one of two genera within the family of *Caliciviridae* that are associated with acute gastroenteritis in humans.

Norovirus: Laboratory Criteria (MDPH, CDC)

“Simple” ELR Message Use cases

- Identification of Norovirus species from stool, vomitus, or serum by RT-PCR
- Identification of Norovirus species from stool, vomitus, or serum by EIA

“Not Simple” ELR Message Use case

- Paired serology message: Demonstration of a fourfold increase of Norovirus antibodies in acute- and convalescent-phase blood

Preferred LOINC for Norovirus limited to :

- [Generic LOINC for bacterial identification](#) and

| CreatePreferredLOINCforConditionTable | | | |
|---------------------------------------|---|----------------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 49117-5 | Norovirus Ag [Presence] in Stool | | Ordinal Value Set |
| 56748-7 | Norovirus RNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.t ar | Ordinal Value Set |

Table 94: Preferred LOINCs for Norovirus

Norovirus specific preferred SNOMEDs for limited to:

Use these with Nominal Norovirus LOINCs and with Non- Organism specific nominal LOINCs (see below for use of these) for bacterial identification.

| CreatePreferredSNOMEDforConditionTable | |
|--|---------------------|
| SNOMED CT | SNOMED Concept Name |
| 407359000 | Norovirus |
| 10514003 | Norwalk virus |

Table 95: Preferred SNOMED codes for Norovirus

Condition: Nontuberculous Mycobacteria

SCT: (110379001) Mycobacterium, non-TB (organism)

(Optional Condition notes)

In the United States, the vast majority of TB cases are caused by *Mycobacterium tuberculosis*, sometimes referred to as the tubercle bacillus. *M. tuberculosis* and six very closely related mycobacterial species (*M. bovis*, *M. africanum*, and *M. microti*, *M. canetii*, *M. caprae*, *M. pinnipeddi*) can cause tuberculosis disease, and they compose what is known as the *M. tuberculosis* complex. Mycobacteria other than those comprising the *M. tuberculosis* complex are called nontuberculous mycobacteria may cause pulmonary disease resembling TB (Source IDPH).

Nontuberculous Mycobacteria: Laboratory Criteria () - not NND, no specific references found. Using the TB criteria above.

“Simple” ELR Message Use cases

- Isolation of Mycobacteria species from any clinical specimen.
 - Organism specific or generic culture summary conclusion results to species level
- Demonstration of Nontuberculous Mycobacteria from a clinical specimen by nucleic acid amplification test
- Demonstration of acid-fast bacilli in a clinical specimen when a culture has not been or cannot be obtained or is falsely negative or contaminated

“Not Simple” ELR Message Use case

- Isolation of Nontuberculous Mycobacteria species from any clinical specimen.
 - Sensitivity
 - Sequencing

Preferred LOINCs for Nontuberculous Mycobacteria limited to :

- [Generic LOINCs for mycobacterial identification](#) and

| CreatePreferredLOINCforNontuberculous MycobacteriaTable | | | |
|---|---|----------------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 5026-0 | Mycobacterium kansasii rRNA [Presence] in Unspecified specimen by DNA probe | Probe | Ordinal Value Set |
| 5025-2 | Mycobacterium intracellulare rRNA [Presence] in Unspecified specimen by DNA probe | Probe | Ordinal Value Set |
| 5024-5 | Mycobacterium gordonae rRNA [Presence] in Unspecified specimen by DNA probe | Probe | Ordinal Value Set |
| 5022-9 | Mycobacterium avium complex rRNA [Presence] in Unspecified specimen by DNA probe | Probe | Ordinal Value Set |
| 45117-9 | Mycobacterium kansasii rRNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp. tar | Ordinal Value Set |
| 45116-1 | Mycobacterium gordonae rRNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp. tar | Ordinal Value Set |
| 23245-4 | Mycobacterium avium ss paratuberculosis DNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp. tar | Ordinal Value Set |
| 20463-6 | Mycobacterium avium complex rRNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp. tar | Ordinal Value Set |

Table 96: Preferred LOINCs for Nontuberculous Mycobacteria

Preferred Nontuberculous Mycobacteria specific SNOMEDs limited to:

| CreatePreferredSNOMEDfor Nontuberculous Mycobacteria Table | |
|--|-------------------------|
| SNOMED CT | SNOMED Concept Name |
| 113838007 | Mycobacterium abscessus |
| 29111009 | Mycobacterium agri |
| 66940008 | Mycobacterium aichiense |
| 113839004 | Mycobacterium alvei |
| 44760001 | Mycobacterium asiaticum |
| 48134004 | Mycobacterium aurum |

| Create Preferred SNOMED for Nontuberculous Mycobacteria Table | |
|--|---|
| SNOMED CT | SNOMED Concept Name |
| 27365009 | Mycobacterium austroafricanum |
| 83723009 | Mycobacterium avium |
| 243376004 | Mycobacterium avium brunese |
| 113840002 | Mycobacterium avium ss avium |
| 113841003 | Mycobacterium avium ss paratuberculosis |
| 113842005 | Mycobacterium avium ss silvaticum |
| 428166002 | Mycobacterium bolletii |
| 302561004 | Mycobacterium borstelense |
| 113844006 | Mycobacterium brumae |
| 243377008 | Mycobacterium chelonae |
| 89896008 | Mycobacterium chitae |
| 385505002 | Mycobacterium chlorophenicus |
| 20498000 | Mycobacterium chubuense |
| 113845007 | Mycobacterium confluentis |
| 113846008 | Mycobacterium conspicuum |
| 113847004 | Mycobacterium cookii |
| 6199007 | Mycobacterium diernhoferi |
| 66838002 | Mycobacterium duvalii |
| 385509008 | Mycobacterium elephantis |
| 9939008 | Mycobacterium fallax |
| 61708000 | Mycobacterium farcinogenes |
| 5885000 | Mycobacterium flavescens |
| 243378003 | Mycobacterium fortuitum |
| 8584005 | Mycobacterium fortuitum biovar. fortuitum |
| 103474001 | Mycobacterium fortuitum complex |
| 75356003 | Mycobacterium fortuitum ss. acetamidolytica |
| 333873003 | Mycobacterium fortuitum subsp fortuitum |
| 74917007 | Mycobacterium gadium |
| 70463000 | Mycobacterium gastris |
| 103476004 | Mycobacterium genavense |
| 24618002 | Mycobacterium gilvum |
| 127522008 | Mycobacterium goodii |
| 24871004 | Mycobacterium gordonae |
| 21996001 | Mycobacterium haemophilum |
| 113848009 | Mycobacterium hassiacum |
| 113849001 | Mycobacterium hiberniae |
| 113850001 | Mycobacterium hodleri |

| Create Preferred SNOMED for Nontuberculous Mycobacteria Table | |
|--|--------------------------------|
| SNOMED CT | SNOMED Concept Name |
| 113851002 | Mycobacterium interjectum |
| 113852009 | Mycobacterium intermedium |
| 83841006 | Mycobacterium intracellulare |
| 1507005 | Mycobacterium kansasii |
| 36249008 | Mycobacterium komossence |
| 113853004 | Mycobacterium lentiflavum |
| 26733000 | Mycobacterium lepraemurium |
| 113854005 | Mycobacterium madagascariense |
| 385507005 | Mycobacterium mageritense |
| 73576007 | Mycobacterium malmoense |
| 113855006 | Mycobacterium mageritense |
| 58869008 | Mycobacterium marinum |
| 9679001 | Mycobacterium moriokaense |
| 113856007 | Mycobacterium mucogenicum |
| 385506001 | Mycobacterium murale |
| 51459000 | Mycobacterium neoaurum |
| 21433000 | Mycobacterium nonchromogenicum |
| 113857003 | Mycobacterium novocastrense |
| 41304005 | Mycobacterium obuense |
| 909007 | Mycobacterium parafortuitum |
| 74028009 | Mycobacterium paratuberculosis |
| 113859000 | Mycobacterium peregrinum |
| 78112006 | Mycobacterium phlei |
| 16914000 | Mycobacterium piscium |
| 91336002 | Mycobacterium porcinum |
| 58768005 | Mycobacterium poriferae |
| 62644004 | Mycobacterium pulveris |
| 72130005 | Mycobacterium rhodesiae |
| 20141004 | Mycobacterium scrofulaceum |
| 74212009 | Mycobacterium senegalense |
| 385508000 | Mycobacterium septicum |
| 79817008 | Mycobacterium shimoidei |
| 84180005 | Mycobacterium simiae |
| 53114006 | Mycobacterium smegmatis |
| 78444002 | Mycobacterium sphagni |
| 65613000 | Mycobacterium szulgai |
| 45662006 | Mycobacterium terrae |

| Create Preferred SNOMED for Nontuberculous Mycobacteria Table | |
|---|---|
| SNOMED CT | SNOMED Concept Name |
| 428765006 | Mycobacterium terrae complex |
| 60558000 | Mycobacterium thamnophis |
| 20973006 | Mycobacterium thermoresistibile |
| 72477006 | Mycobacterium tokaiense |
| 113860005 | Mycobacterium triplex |
| 40333002 | Mycobacterium triviale |
| 40713003 | Mycobacterium ulcerans |
| 54925005 | Mycobacterium vaccae |
| 127523003 | Mycobacterium wolinskyi |
| 58663006 | Mycobacterium xenopi |
| 58503001 | Mycobacterium, avium-intracellulare group |
| 110379001 | mycobacterium, non-TB |
| 116492005 | photochromogenic mycobacteria |
| 116494006 | rapid growing mycobacteria |
| 116495007 | Scotochromogenic mycobacteria |

Table 97: Preferred SNOMED codes for Nontuberculous Mycobacteria

Use these with Nominal Nontuberculous Mycobacteria LOINC codes and with Non- Organism specific nominal LOINC codes for bacterial identification.

Non-specific Mycobacterial agent LOINC codes limited to:

| NonSpecific Mycobacterial Agent LOINC Codes | | |
|---|--|---------------------------|
| LOINC_NUM | LONG_COMMON_NAME | Method |
| 23667-9 | Bacteria identified in Unspecified specimen | |
| 6463-4 | Bacteria identified in Unspecified specimen by Culture | Culture |
| 11475-1 | Microorganism identified in Unspecified specimen by Culture | Culture |
| 41852-5 | Microorganism or agent identified in Unspecified specimen | |
| 40699-1 | Mycobacterium sp identified in Unspecified specimen | |
| 543-9 | Mycobacterium sp identified in Unspecified specimen by Organism specific culture | Organism Specific Culture |
| 43854-9 | Mycobacterium sp rRNA [Presence] in Unspecified specimen by DNA probe | Probe |
| 14974-0 | Mycobacterium sp DNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar |
| 11545-1 | Microscopic observation [Identifier] in Unspecified specimen by Acid fast stain | Acid Fast Stain |

Table 98: Preferred LOINC codes for Non-specified Mycobacterial agents

Condition: Polio

Snomed Condition Code: 398102009 Acute poliomyelitis (disorder)

Because of the success of the routine childhood immunization program in the U.S. and the Global Polio Eradication Initiative, polio has been eliminated in the Americas since 1991. Polio testing is mostly cultures and IF to identify the isolate. All positives would be sent to CDC for further testing.

Polio: **Laboratory Criteria (CDC)**

“Simple” ELR Message Use cases

- None

“Not Simple” ELR Message Use case

- Poliovirus isolate identified in an appropriate clinical specimen (e.g., stool, cerebrospinal fluid, oropharyngeal secretions), with confirmatory typing and sequencing performed by the CDC Poliovirus Laboratory, as needed.

Preferred LOINCs for Polio limited to:

- [Generic LOINCs for virus identification](#) and

Polio specific preferred SNOMEDs limited to:

Use these with Nominal Polio LOINCs and with Non- Organism specific nominal LOINCs (see below for use of these) for virus identification.

| CreatePreferredSNOMEDforConditionTable | |
|--|---------------------|
| SNOMED CT | SNOMED Concept Name |
| 44172002 | human poliovirus |
| 22580008 | human poliovirus 1 |
| 55174004 | human poliovirus 2 |
| 16362001 | human poliovirus 3 |

Table 99: Preferred SNOMED codes for Poliovirus

Condition: Plague

Plague *Yersinia pestis*: **Laboratory Criteria (CDC/CSTE/RCMT notes)**

Note, Bioterror –agent, usually done at Public Health lab

“Simple” ELR Message Use cases

- Isolation *Yersinia pestis* from clinical specimen

- Confirmation of the *Yersinia pestis* isolate is done by phage lysis or PCR. No commercial lab is doing phage lysis for *Y. pestis* - there are no kits available.
- Serology (Serology can be useful to make a diagnosis if the patient has already been treated.)
 - Presumptive - Elevated serum antibody titer(s) >1:10 to *Yersinia pestis* F1 by agglutination (HA and HAI are still standard methods for serology.)
 - Confirmatory - Elevated serum antibody titer(s) >1:128 to *Yersinia pestis* F1 by agglutination (HA and HAI are still standard methods for serology.)
- Presumptive - Detection of *Yersinia pestis* F1 antigen *in* a clinical specimen using immunofluorescence

“Not Simple”? ELR Message Use case

- Confirmatory - detecting a fourfold or greater change antibody response to *Yersinia pestis* (paired titer) probably parent child best approach for these.

Preferred LOINC for Plague limited to:

- [Generic LOINC for bacterial identification](#) and

| CreatePreferredLOINCforPLAGUETable | | | |
|------------------------------------|---|---------------------------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 33707-1 | Yersinia pestis Ab [Titer] in Serum | | numeric |
| 33687-5 | Yersinia pestis Ag [Presence] in Unspecified specimen by Immunofluorescence | IF | Ordinal Value Set |
| 33685-9 | Yersinia pestis [Presence] in Unspecified specimen by Organism specific culture | Organism specific culture | Ordinal Value Set |
| 33693-3 | Yersinia pestis [Presence] in Isolate by Phage lysis | Phage lysis | Ordinal Value Set |
| 48646-4 | Yersinia sp DNA [Identifier] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Plague Value Set |

| CreatePreferredLOINCforPLAGUETable | | | |
|------------------------------------|---|---------------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 33691-7 | Yersinia pestis DNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |

Table 100: Preferred LOINC for Plague

Specific SNOMEDs for Plague limited to:

Use these with Nominal LOINCs and with Non-Organism specific nominal LOINCs for bacterial identification.

| CreatePreferredSNOMEDforPlagueTable | |
|-------------------------------------|---------------------|
| SNOMED CT | SNOMED Concept Name |
| 54365000 | Yersinia pestis |

Table 101: Preferred SNOMED code for Plague

Condition: Psittacosis

Psittacosis (Parrot Fever) *Chlamydophila psittaci* (The change to in species name from Chlamydia psittaci to Chlamydophila psittaci was fairly recent and maybe not all labs have switched to the new name for reporting.)

Note, Bioterror –agent = reported through LRN

Laboratory Criteria (IDPH/CDC)

“Simple” ELR Message Use cases

Isolation of *C. psittaci* from respiratory secretions

- Presence of immunoglobulin M antibody (IgM) against *C. psittaci* by microimmunofluorescence MIF to a reciprocal titer of greater than or equal to 16. (>1:16)
- Detection of *C. psittaci* DNA in a respiratory specimen (e.g. sputum, pleural fluid or tissue) via amplification of a specific target by polymerase chain reaction (PCR) assay.

“Not Simple”? ELR Message Use case

- Fourfold or greater increase in antibody against *C. psittaci* by complement fixation (CF); or microimmunofluorescence (MIF) to a reciprocal titer of greater than or equal to 32 between paired acute- and convalescent-phase serum specimens- probably parent child best approach for these.

Other notes: (RCMT SME comments)

- IGA testing is uncommon.
- There are eleven LOINC codes for Chlamydomphila psittaci antigen, which is uncommon in human testing. These LOINC codes might be more relevant to veterinary medicine.

Preferred LOINC codes for Psittcosis limited to:

- [Generic LOINC codes for bacterial identification](#) and

| CreatePreferredLOINCforPsittcosisTable | | | |
|--|---|---------------------------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 22181-2 | Chlamydomphila psittaci IgM Ab [Titer] in Serum | | numeric |
| 44977-7 | Chlamydomphila psittaci IgM Ab [Presence] in Serum | | Ordinal Value Set |
| 22176-2 | Chlamydomphila psittaci Ab [Titer] in Serum | | numeric |
| 22175-4 | Chlamydomphila psittaci Ab [Presence] in Serum | | Ordinal Value Set |
| 5079-9 | Chlamydomphila psittaci Ab [Titer] in Serum by Complement fixation | Comp fix | numeric |
| 6917-9 | Chlamydomphila psittaci IgM Ab [Titer] in Serum by Immunofluorescence | IF | numeric |
| 14198-6 | Chlamydomphila psittaci Ab [Titer] in Serum by Immunofluorescence | IF | numeric |
| 20752-2 | Chlamydomphila psittaci [Presence] in Unspecified specimen by Organism specific culture | Organism specific culture | Ordinal Value Set |

| CreatePreferredLOINCforPsitticosisTable | | | |
|---|--|---------------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 23001-1 | Chlamydophila psittaci DNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |

Table 102: Preferred LOINC for Psitticosis

NOTE:

(There are 116 LOINC for Chlamydia sp tests. Many of these are probably outdated. These Chlamydia species LOINC are not be included in the RCMTs for psittacosis.)

These Chlamydia sp. LOINC could conceivably be used for psittacosis:

| loinc_num | component | property | time_aspct | system | scale_typ | method_typ |
|-----------|-------------------------|----------|------------|-----------|-----------|---------------------------|
| 24005-1 | Chlamydia sp identified | Prid | Pt | Bronchial | Nom | Organism specific culture |
| 6348-7 | Chlamydia sp identified | Prid | Pt | Sputum | Nom | Organism specific culture |

Table 103: Chlamydia sp. LOINC that may be used for psittacosis

Specific SNOMEDs for Psitticosis limited to:

Use these with Nominal LOINC and with Non-Organism specific nominal LOINC for bacterial identification.

| CreatePreferredSNOMEDforPsitticosisTable | |
|--|------------------------|
| SNOMED CT | SNOMED Concept Name |
| 14590003 | Chlamydophila psittaci |

Table 104: Preferred SNOMED code for Psitticosis

The CDC SMEs are not familiar with the C. psittaci var. subtypes. These are seen in veterinary medicine (goopy eyed cats) and should be removed from the RCMT.

Condition: Q Fever (Coxiella burnetii)

SNOMED Condition Code: 186788009 Q Fever (disorder)

Q Fever: Laboratory Criteria (CSTE using the RSMF case criteria)

Basically any positive lab test

“Simple” ELR Message Use cases

- Detection of C. burnetii DNA in a clinical specimen via amplification of a specific target by polymerase chain reaction (PCR) assay *
- Demonstration of C. burnetii antigen in a clinical specimen by immunohistochemical methods (IHC)
- Isolation of C. burnetii from a clinical specimen by culture* *

* There are no commercial PCR kits for Coxiella in the US but there is an LRN PCR assay for Coxiella burnetii

**Very few labs would culture for Coxiella. Cultures only done in select labs, and not all of those even do them (CA does not).

***CDC does sequencing too

“Not-Simple” ELR Message Use cases

- Probable Parent-Child use case : serological evidence of a fourfold change in immunoglobulin G (IgG)-specific antibody titer to C. burnetii phase II antigen by indirect immunofluorescence assay (IFA) between paired serum samples
- From RCMT notes: “The serologic testing strategy for Coxiella burnetii is to do a screening test followed by an IFA titer. . You need to test for both antibody phases and both IgG and IgM antibodies.”
 - Single IFA IgG titer of =1:128 to phase II antigen
 - Serologic evidence of elevated IgG or IgM antibody reactive with C. burnetii antigen by enzyme-linked Immunosorbent assay (ELISA), dot -ELISA, latex agglutination
 - Serological evidence of IgG antibody to C. burnetii phase I antigen = 1:800 by IFA (laboratory confirmed)
 - C. burnetii phase I titer > C. burnetii phase II titer
 - Antibody titer to C. burnetii phase I IgG antigen =1:128 and < 1:800 by IFA (laboratory probable)

Preferred LOINCs for Q Fever limited to:

- [Generic LOINCs for Rickettsial identification](#) and

| CreatePreferredLOINCfor Q Fever Table | | | |
|---------------------------------------|---|--------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 32645-4 | Coxiella burnetii phase 1 IgM Ab [Presence] in Serum | | Ordinal Value Set |
| 31784-2 | Coxiella burnetii Ag [Presence] in Unspecified specimen | | Ordinal Value Set |

| CreatePreferredLOINCfor Q Fever Table | | | |
|---------------------------------------|---|---------------------------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 22211-7 | Coxiella burnetii Ab [Titer] in Serum | | numeric |
| 23020-1 | Coxiella burnetii Ab [Presence] in Serum | | Ordinal Value Set |
| 44814-2 | Coxiella burnetii phase 2 IgM Ab [Titer] in Serum by Immunofluorescence | IF | numeric |
| 43928-1 | Coxiella burnetii phase 2 IgM Ab [Presence] in Serum by Immunofluorescence | IF | Ordinal Value Set |
| 34717-9 | Coxiella burnetii phase 2 IgG Ab [Titer] in Serum by Immunofluorescence | IF | numeric |
| 48719-9 | Coxiella burnetii phase 2 IgG Ab [Presence] in Serum by Immunofluorescence | IF | Ordinal Value Set |
| 47075-7 | Coxiella burnetii phase 1 IgM Ab [Titer] in Serum by Immunofluorescence | IF | numeric |
| 34716-1 | Coxiella burnetii phase 1 IgG Ab [Titer] in Serum by Immunofluorescence | IF | numeric |
| 48720-7 | Coxiella burnetii phase 1 IgG Ab [Presence] in Serum by Immunofluorescence | IF | Ordinal Value Set |
| 23023-5 | Coxiella burnetii Ag [Presence] in Unspecified specimen by Immunofluorescence | IF | Ordinal Value Set |
| 44799-5 | Coxiella burnetii [Presence] in Unspecified specimen by Organism specific culture | Organism specific culture | Ordinal Value Set |
| 23024-3 | Coxiella burnetii DNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |

Table 105: Preferred LOINCs for Q Fever

Q Fever specific SNOMEDs limited to:

Use these with Nominal Q Fever LOINC and with Non-Organism specific nominal LOINC (see below for use of these) for Rickettsial identification. See implementation guideline for messaging results when SNOMED code is unavailable.

| CreatePreferredSNOMEDfor Q Fever Table | |
|--|----------------------------|
| SNOMED CT | SNOMED Concept Name |
| 12220009 | Coxiella |
| 22533000 | Coxiella burnetii |
| 103508002 | Coxiella burnetii, phase I |

Table 106: Preferred SNOMED codes for Q Fever

Generic LOINC for Rickettsial identification:

| NonSpecific Rickettsial Agent LOINC | | |
|-------------------------------------|---|---------------------------|
| LOINC_NUM | LONG_COMMON_NAME | METHOD_TYP |
| 6546-6 | Rickettsia sp identified in Unspecified specimen by Organism specific culture | Organism specific culture |
| 11475-1 | Microorganism identified in Unspecified specimen by Culture | Culture |
| 41852-5 | Microorganism or agent identified in Unspecified specimen | |

Table 107: Preferred LOINC for Non-specific Rickettsial identification

Condition: Rabies

SCT Condition code: 14168008 Rabies (disorder)

This includes both human and animal rabies. The virus that causes rabies is a rhabdovirus of the genus Lyssavirus.

Human Rabies: Laboratory Criteria (IDPH)

“Simple” ELR Message Use cases

- Detection by direct fluorescent antibody of viral antigens in a clinical specimen, preferably the brain. (Results of testing the nerves surrounding hair follicles in the nape of the neck are not definitive) - Testing limited to public health labs

- Isolation of rabies virus from saliva, cerebrospinal fluid (CSF), or central nervous system tissue (in cell culture or in a laboratory animal) –per RCMT feedback “Culture for Rabies virus is only done in research labs, not clinical labs”
- Identification of a rabies-neutralizing antibody titer ?1:5 (complete neutralization) in the serum or CSF of an unvaccinated person. Note: Antemortem testing limited to CDC and 1-2 State laboratories.

“Not Simple” ELR Message Use case

- none

Animal Rabies: **Laboratory Criteria (CDC)**

“Simple” ELR Message Use cases

- A positive direct fluorescent antibody test (preferably performed on central nervous system tissue) - Testing limited to public health laboratories
 - If reporting only results and not reporting other actors/roles in message
- Isolation of rabies virus (in cell culture or in a laboratory animal) –per RCMT feedback “Culture for Rabies virus is only done in research labs, not clinical labs”

“Not Simple” ELR Message Use case

- A positive direct fluorescent antibody test (preferably performed on central nervous system tissue)
 - If reporting actors/roles in message such as bite victim{ s} owner(s), human health care provider(s)

Preferred LOINC for Human Rabies limited to:

- [Generic LOINC for viral identification](#) and

<<pending>>

Preferred LOINC for Animal Rabies limited to:

- [Generic LOINC for viral identification](#) and

| CreatePreferredLOINCforAnimalRabiesTable | | | |
|--|--|--------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 6532-6 | Rabies virus Ag [Presence] in Unspecified specimen by Immunofluorescence | IF | Ordinal Value Set |
| 6533-4 | Rabies virus Ag [Units/volume] in Unspecified specimen by Immunofluorescence | IF | numeric |

Table 108: Preferred LOINC for Animal Rabies

Rabies specific preferred SNOMEDs limited to:

Use these with Nominal Rabies LOINC and with Non- Organism specific nominal LOINC (see below for use of these) for bacterial identification

| CreatePreferredSNOMEDforAnimalRabiesTable | |
|---|---------------------|
| SNOMED CT | SNOMED Concept Name |
| 59881000 | rabies virus |

Table 109: Preferred SNOMED code for Animal Rabies

Condition: Ricin toxicity

SNOMED Condition Code: 409617000 Ricin poisoning (disorder)

Ricin is a poison found naturally in castor beans. It is a possible BT agent.

Ricin toxicity: Laboratory Criteria (CDC)

“Simple” ELR Message Use cases

- urinary ricinine testing
- (other test available on clinical specimens – see LOINC below)

“Not Simple” ELR Message Use case

- None

Preferred LOINC for Ricin toxicity limited to:

- [Generic LOINC for agent identification:](#)

| CreatePreferredLOINCforConditionTable | | | |
|---------------------------------------|---|---------------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 54934-5 | Ricinine [Mass/volume] in Urine | | numeric |
| 41641-2 | Ricin toxin [Presence] in Unspecified specimen by Immunofluorescence | IF | Ordinal Value Set |
| 41854-1 | Castor Bean DNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |

Table 110: Preferred LOINC for Ricin toxicity

Condition: Rubella

NND code: 10200 Rubella

Rubella is caused by rubella virus (genus Rubivirus, family Togaviridae). There are separate laboratory criteria for congenital rubella syndrome vs. rubella.

Rubella: Laboratory Criteria (IDPH)

“Simple” ELR Message Use cases

- Isolation of Rubella virus from any clinical specimen. (both congenital rubella syndrome and rubella)
 - Organism specific or generic culture summary conclusion results to species level
- Detection of Rubella nucleic acid - e.g., standard or real time RT-PCR assays. (both congenital rubella syndrome and rubella)
- Detection of Rubella IgM antibody(both congenital rubella syndrome and rubella)

“Not Simple” ELR Message Use case

- Paired serology message: Significant rise between acute- and convalescent-phase titers in serum Rubella immunoglobulin G (IgG), or total antibody level by any standard serologic assay (rubella)
- Paired serology message: Infant rubella antibody level that persists at a higher level and for a longer period than expected from passive transfer of maternal antibody -i.e., rubella titer that does not drop at the expected rate of a twofold dilution per month. (congenital rubella syndrome)

Preferred LOINCs for Rubella limited to:

- [Generic LOINCs for viral identification](#) and

| CreatePreferredLOINCfor Rubella Table | | | |
|---------------------------------------|---|--------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 49107-6 | Rubella virus IgM Ab [Titer] in Serum | | numeric |
| 31616-6 | Rubella virus IgM Ab [Presence] in Serum | | Ordinal Value Set |
| 31047-4 | Rubella virus IgM Ab [Units/volume] in Body fluid | | numeric |
| 41763-4 | Rubella virus IgG Ab [Titer] in Serum | | numeric |
| 25514-1 | Rubella virus IgG Ab [Presence] in Serum | | Ordinal Value Set |
| 29343-1 | Rubella virus IgG Ab [Units/volume] in Body fluid | | numeric |
| 22497-2 | Rubella virus Ab [Titer] in Serum | | numeric |
| 8013-5 | Rubella virus Ab [Units/volume] in Serum | | numeric |
| 22496-4 | Rubella virus Ab [Presence] in Serum | | Ordinal Value Set |

| CreatePreferredLOINCfor Rubella Table | | | |
|---------------------------------------|---|---------------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 54091-4 | Rubella virus RNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |

Table 111: Preferred LOINCs for Rubella

Rubella specific preferred SNOMEDs limited to:

Use these with Nominal Rubella LOINC and with Non- Organism specific nominal LOINC (see below for use of these) for viral identification.

| CreatePreferredSNOMEDfor Rubella Table | |
|--|---------------------|
| SNOMED CT | SNOMED Concept Name |
| 5210005 | Rubella virus |

Table 112: Preferred SNOMED code for Rubella

Condition: Severe Acute Respiratory Syndrome-associated Coronavirus (SARS-CoV) disease

NND: 10575 Severe Acute Respiratory Syndrome (SARS)-associated Coronavirus disease (SARS-CoV)

SARS is caused by a member of the family coronaviridae, called SARS-associated coronavirus (SARS-CoV). The disease was first reported in Asia in 2003. (IDPH)

SARS coronavirus is not currently circulating. CDC developed assays for SARS virus and deployed them through LRN. (RCMT Feedback Documents).

Severe Acute Respiratory Syndrome-associated Coronavirus (SARS-CoV) disease: Laboratory Criteria (CDC)

“Simple” ELR Message Use cases

- Isolation in cell culture of SARS-CoV from a clinical specimen, with confirmation using a test validated by CDC;
- Detection of SARS-CoV RNA by RT-PCR validated by CDC, with confirmation in a reference laboratory, from:
 - Two clinical specimens from different sources, or
 - Two clinical specimens collected from the same source on two different days
- Detection of Serum antibodies to SARS-CoV in a single serum specimen by a validated test, with confirmation in a reference laboratory:

“Not Simple” ELR Message Use case

- Detection of any of the following by a validated test, with confirmation in a reference laboratory:
 - A four-fold or greater increase in SARS-CoV antibody titer between acute- and convalescent-phase serum specimens tested in parallel, *or*
 - Negative SARS-CoV antibody test result on acute-phase serum and positive SARS-CoV antibody test result on convalescent-phase serum tested in parallel;

Preferred LOINCs for Severe Acute Respiratory Syndrome-associated Coronavirus (SARS-CoV) disease limited to:

- [Generic LOINC for viral identification](#) and

| CreatePreferredLOINCforConditionTable | | | |
|---------------------------------------|--|---------------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 33968-9 | SARS coronavirus Urbani Ab [Presence] in Serum by Immunoassay | EIA | Ordinal Value Set |
| 41458-1 | SARS coronavirus RNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |

Table 113: Preferred LOINC for Severe Acute Respiratory Syndrome-associated Coronavirus (SARS-CoV) disease

Severe Acute Respiratory Syndrome-associated Coronavirus (SARS-CoV) disease specific preferred SNOMEDs limited to:

Use these with Nominal Severe Acute Respiratory Syndrome-associated Coronavirus (SARS-CoV) disease LOINC and with Non- Organism specific nominal LOINC (see below for use of these) for viral identification.

| CreatePreferredSNOMEDforConditionTable | |
|--|---------------------|
| SNOMED CT | SNOMED Concept Name |
| 415360003 | SARS coronavirus |

Table 114: Preferred SNOMED code for Severe Acute Respiratory-associated Coronavirus (SARS-CoV) disease

Condition: Saxitoxin poisoning including paralytic shellfish poisoning (PSP)

SNOMED Condition Code: 77889005 Paralytic shellfish poisoning (disorder) (currently not in RCMT)

Saxitoxin (STX) is a neurotoxin naturally produced by certain species of marine dinoflagellates and cyanobacteria. Ingestion of saxitoxin (usually through shellfish contaminated by toxic algal blooms) is responsible for the human illness known as paralytic shellfish poisoning (PSP). (Wikipedia)

Saxitoxin poisoning including paralytic shellfish poisoning (PSP): **Laboratory Criteria (CDC)**

“Simple” ELR Message Use cases

- Detection of Saxitoxin in Urine

“Not Simple” ELR Message Use case

- none

Preferred LOINC for Saxitoxin poisoning including paralytic shellfish poisoning (PSP) limited to

- [Generic LOINC for agent identification:](#)

| CreatePreferredLOINCforConditionTable | | | |
|---------------------------------------|---|--------|-------------------------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 41852-5 | Microorganism or agent identified in Unspecified specimen | | Saxitoxin Value Set |

Table 115: Preferred LOINC for Saxitoxin

Saxitoxin poisoning including paralytic shellfish poisoning (PSP) specific preferred SNOMEDs limited to:

Use these with Nominal Saxitoxin poisoning including paralytic shellfish poisoning (PSP) LOINC and with Non- Organism specific nominal LOINC (see below for use of these) for agent identification.

| Snomed CT | SNOMED Concept Name |
|-----------|---------------------------------------|
| 23317009 | Saxitoxin (substance) |
| 32500002 | Shellfish toxin (substance) |
| 83897009 | Paralytic shellfish toxin (substance) |

Table 116: Preferred SNOMED codes for Saxitoxin

Condition: Shigella

NND: 11010 Shigellosis

Shigellosis refers to disease caused by any bacteria in the genus Shigella. There are 4 Shigella species: S. dysenteriae (Group A), S. flexneri (Group B), S. boydii (Group C), and S. sonnei (Group D). Groups A, B, C, and D are further divided into 12, 14, and 18 serotypes, respectively, but S. sonnei consists of only one serotype. Some strains produce enterotoxin and Shiga toxin. (RCMT notes)

Shigella: **Laboratory Criteria (MDPH)**

“Simple” ELR Message Use cases

- Isolation of Shigella species from any clinical specimen.
 - Organism specific or generic culture summary conclusion results to genus or species level

“Not Simple” ELR Message Use case

- Isolation of Shigella species from any clinical specimen.
 - Serotyping
 - Sensitivity
 - PFGE
 - Many Parent-Child use cases here
 - Some Vocabulary and messaging concepts not standardized

LOINC for Shigella limited to:

- [Generic LOINC for bacterial identification](#) and

| CreatePreferredLOINCforShigellaTable | | | |
|--------------------------------------|---|---------------------------|--------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 46454-5 | Shigella sp [Presence] in Unspecified specimen by Organism specific culture | Organism specific culture | Ordinal Value Set |
| 17576-0 | Shigella sp identified in Unspecified specimen by Organism specific culture | Organism specific culture | Shigella Value Set |
| 42190-9 | Shigella sp DNA [Identifier] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Shigella Value Set |

Table 117: Preferred LOINC for Shigella

Shigella specific SNOMEDs limited to:

Use these with Nominal Shigella LOINC and with Non- Organism specific nominal LOINC (see below for use of these) for bacterial identification.

| CreatePreferredSNOMEDforConditionTable | |
|--|--------------------------------------|
| SNOMED CT | SNOMED Concept Name |
| 406478008 | provisional shigella 3065-93 |
| 406479000 | provisional shigella 3162-96 |
| 406480002 | provisional shigella 88-893 [-: (6)] |
| 406481003 | provisional shigella 89-141 |
| 406482005 | provisional shigella 93-119 |
| 406483000 | provisional shigella 96-204 |
| 406484006 | provisional shigella 96-265 |
| 406485007 | provisional shigella E28938 |
| 406486008 | provisional shigella E670/74 |
| 406487004 | provisional shigella Y394 |
| 77352002 | shigella |

| CreatePreferredSNOMEDforConditionTable | |
|--|--|
| SNOMED CT | SNOMED Concept Name |
| 55462008 | Shigella boydii |
| 406488009 | Shigella boydii 16 |
| 406489001 | Shigella boydii 17 |
| 406490005 | Shigella boydii 18 |
| 406491009 | Shigella boydii 19 [Provisional Serotype E16553] |
| 406492002 | Shigella boydii 20 [Provisional Serotype SH108(99-4528)] |
| 406493007 | Shigella boydii serotype undetermined (Subgroup C) |
| 125022001 | Shigella boydii, serovar 1 |
| 125031001 | Shigella boydii, serovar 10 |
| 125032008 | Shigella boydii, serovar 11 |
| 125033003 | Shigella boydii, serovar 12 |
| 125034009 | Shigella boydii, serovar 13 |
| 125035005 | Shigella boydii, serovar 14 |
| 125036006 | Shigella boydii, serovar 15 |
| 125023006 | Shigella boydii, serovar 2 |
| 125024000 | Shigella boydii, serovar 3 |
| 125025004 | Shigella boydii, serovar 4 |
| 125026003 | Shigella boydii, serovar 5 |
| 125027007 | Shigella boydii, serovar 6 |
| 125028002 | Shigella boydii, serovar 7 |
| 125029005 | Shigella boydii, serovar 8 |
| 125030000 | Shigella boydii, serovar 9 |
| 43612004 | Shigella dysenteriae |
| 406494001 | Shigella dysenteriae 11 |
| 406495000 | Shigella dysenteriae 12 |
| 406496004 | Shigella dysenteriae 13 |
| 406498003 | Shigella dysenteriae 14 |
| 406497008 | Shigella dysenteriae 15 |
| 406499006 | Shigella dysenteriae serotype undetermined (Subgroup A) |
| 124995002 | Shigella dysenteriae, serovar 1 |
| 125004004 | Shigella dysenteriae, serovar 10 |
| 124996001 | Shigella dysenteriae, serovar 2 |
| 124997005 | Shigella dysenteriae, serovar 3 |
| 124998000 | Shigella dysenteriae, serovar 4 |
| 124999008 | Shigella dysenteriae, serovar 5 |

| CreatePreferredSNOMEDforConditionTable | |
|--|--|
| SNOMED CT | SNOMED Concept Name |
| 125000008 | Shigella dysenteriae, serovar 6 |
| 125001007 | Shigella dysenteriae, serovar 7 |
| 125002000 | Shigella dysenteriae, serovar 8 |
| 125003005 | Shigella dysenteriae, serovar 9 |
| 85729005 | Shigella flexneri |
| 406500002 | Shigella flexneri 4c [IV:7,8] |
| 406501003 | Shigella flexneri 5a [V:3,4] |
| 406502005 | Shigella flexneri 5b [V:7,8] |
| 406503000 | Shigella flexneri serotype undetermined (Subgroup B) |
| 125005003 | Shigella flexneri, serovar 1 |
| 125006002 | Shigella flexneri, serovar 1a |
| 125007006 | Shigella flexneri, serovar 1b |
| 125008001 | Shigella flexneri, serovar 2 |
| 125009009 | Shigella flexneri, serovar 2a |
| 125010004 | Shigella flexneri, serovar 2b |
| 125011000 | Shigella flexneri, serovar 3 |
| 125012007 | Shigella flexneri, serovar 3a |
| 125013002 | Shigella flexneri, serovar 3b |
| 125014008 | Shigella flexneri, serovar 3c |
| 125015009 | Shigella flexneri, serovar 4 |
| 125016005 | Shigella flexneri, serovar 4a |
| 125017001 | Shigella flexneri, serovar 4b |
| 125018006 | Shigella flexneri, serovar 5 |
| 125019003 | Shigella flexneri, serovar 6 |
| 125020009 | Shigella flexneri, serovar X |
| 125021008 | Shigella flexneri, serovar Y |
| 4298009 | Shigella sonnei |
| 406504006 | Shigella sonnei (Subgroup D) |
| 116498009 | Shigella species |

Table 118: Preferred SNOMED codes for Shigella

Condition: Syphilis

SCT Condition code: 76272004 Syphilis (disorder)

Syphilis is a sexually transmitted disease (STD) caused by the bacterium *Treponema pallidum*, subspecies *pallidum*, a spirochete. There are several different case definitions developed by CDC and CSTE for surveillance purposes with different clinical and laboratory criteria which are summarized below:

- [Syphilis, primary](#)
- [Syphilis, secondary](#)
- [Syphilis, latent](#)
- [Syphilis, early latent](#)
- [Syphilis, late latent](#)
- [Syphilis, latent unknown duration](#)
- [Neurosyphilis](#)
- [Syphilis, late, with clinical manifestations other than neurosyphilis \(late benign syphilis and cardiovascular syphilis\)](#)
- [Syphilitic Stillbirth](#)
- [Syphilis, congenital](#)

Syphilis: Laboratory Criteria (IDPH)

“Simple” ELR Message Use cases

- Darkfield examinations and direct fluorescent antibody tests of lesion exudates or tissue are the definitive methods for diagnosing early syphilis.
- A presumptive diagnosis is possible with the use of two types of serologic tests for syphilis:
 - nontreponemal tests
 - Venereal Disease Research Laboratory [VDRL]
 - Rapid Plasma Reagin [RPR]
 - treponemal tests
 - fluorescent treponemal antibody absorbed [FTA-ABS] – Note: CDC discourages the use of these tests (RCMT feedback notes)
 - T. pallidum particle agglutination [TP-PA].
 - The use of only one type of serologic test is insufficient for diagnosis, because false-positive nontreponemal test results may occur secondary to various medical conditions.

“Not Simple” ELR Message Use case

- Paired titers

Preferred LOINCs for Syphilis limited to:

- [Generic LOINCs for bacterial identification](#) and

| CreatePreferredLOINCforConditionTable | | | |
|---------------------------------------|--|--------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 24312-1 | Treponema pallidum Ab [Presence] in Serum by Agglutination | Aggl | Ordinal Value Set |

| CreatePreferredLOINCforConditionTable | | | |
|---------------------------------------|---|--------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 24110-9 | Treponema pallidum Ab [Presence] in Serum by Immunoassay | EIA | Ordinal Value Set |
| 29310-0 | Treponema pallidum [Presence] in Unspecified specimen by Immunofluorescence | IF | Ordinal Value Set |
| 5393-4 | Treponema pallidum Ab [Presence] in Serum by Immunofluorescence | IF | Ordinal Value Set |
| 31147-2 | Reagin Ab [Titer] in Serum by RPR | RPR | numeric |
| 20507-0 | Reagin Ab [Presence] in Serum by RPR | RPR | Ordinal Value Set |
| 47235-7 | Reagin Ab [Titer] in Unspecified specimen by VDRL | VDRL | numeric |
| 14904-7 | Reagin Ab [Presence] in Unspecified specimen by VDRL | VDRL | Ordinal Value Set |

Table 119: Preferred LOINCs for Syphilis

Syphilis specific preferred SNOMEDs limited to:

Use these with Nominal Syphilis LOINCs and with Non- Organism specific nominal LOINCs (see below for use of these) for bacterial identification.

| CreatePreferredSNOMEDfor Syphilis Table | |
|---|----------------------------------|
| SNOMED CT | SNOMED Concept Name |
| 30345008 | Treponema |
| 72904005 | Treponema pallidum |
| 44106000 | Treponema pallidum ss. endemicum |
| 43454006 | Treponema pallidum ss. pallidum |
| 6246005 | Treponema pallidum ss. pertenue |
| 125047004 | Treponema species |

Table 120: Preferred SNOMED codes for Syphilis

Condition: Tetanus- Clostridium tetani**NND: 10210 Tetanus- Clostridium tetani**

Tetanus is considered a clinical diagnosis and not a laboratory diagnosis since the organism is rarely isolated from wound (CDC, CSTE). Despite this may be lab reportable in your jurisdiction.

Tetanus- Clostridium tetani: Laboratory Criteria (CSTE)

“Simple” ELR Message Use cases

- Isolation of Clostridium tetani from a wound – culture
*may need to validate specimen source in SPM.8

“Not Simple” ELR Message Use case

- None (see above notes)

Preferred LOINCs for Tetanus - Clostridium tetani limited to:

- [Generic LOINCs for bacterial identification](#)

Tetanus - Clostridium tetani specific preferred SNOMEDs limited to:

Use these with Non- Organism specific nominal LOINCs (see below for use of these) for bacterial identification.

| Tetanus | |
|--------------|--------------------|
| ConceptCode2 | Concept Name 2 |
| 30917009 | Clostridium tetani |

Table 121: Preferred SNOMED code for Tetanus - Clostridium tetani

Condition: Toxic Shock Syndrome other than streptococcal

NND: 10520 Toxic-shock syndrome (staphylococcal)

Toxic-shock syndrome is usually caused by exotoxin producing strains of *Staphylococcus aureus*, a bacterium.

Toxic Shock Syndrome other than streptococcal: **Laboratory Criteria (CDC)**

“Simple” ELR Message Use cases

- None (but there are laboratory tests for this)

“Not Simple” ELR Message Use case

- NEGATIVE for Blood or cerebrospinal fluid cultures blood culture may be positive for *Staphylococcus aureus*)
- NEGATIVE serologies for Rocky Mountain spotted fever, leptospirosis, or measles

Preferred LOINCs for Toxic Shock Syndrome other than streptococcal limited to:???

Toxic Shock Syndrome other than streptococcal specific preferred SNOMEDs limited to:

Use these with Nominal Toxic Shock Syndrome other than streptococcal LOINCs and with Non-Organism specific nominal LOINCs (see below for use of these) for agent identification.

Condition: Trichinellosis (Trichinosis)

NND: 10270 Trichinellosis

Trichinosis is caused by *Trichinella spiralis*, a parasitic intestinal roundworm. Multiple species of *Trichinella* are capable of causing infection in mammals, but *T. spiralis* is the most common cause of human infection.

The most important source of human infection worldwide is the domestic pig, but, e.g., in Europe, meats of horses and wild boars have played a significant role during outbreaks within the past three decades. Hunters can get trichinellosis from eating big game animals like bear.

Trichonella: Laboratory Criteria (<<source>>)

“Simple” ELR Message Use cases

- Demonstration of *Trichinella* larvae in tissue obtained by muscle biopsy, or
- Positive serologic test for *Trichinella*

“Not Simple” ELR Message Use case

- None

Preferred LOINCs for Trichonella limited to:

- [Generic LOINCs for parasite identification](#) and

| CreatePreferredLOINCforConditionTable | | | |
|---------------------------------------|---|------------------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 17735-2 | Trichinella spiralis IgM Ab [Presence] in Serum | | Ordinal Value Set |
| 8043-2 | Trichinella spiralis IgG Ab [Presence] in Serum | | Ordinal Value Set |
| 17733-7 | Trichinella spiralis IgA Ab [Presence] in Serum | | Ordinal Value Set |
| 22595-3 | Trichinella spiralis Ab [Presence] in Serum | | Ordinal Value Set |
| 23499-7 | Trichinella spiralis [Presence] in Tissue by Light microscopy | Microscopy.light | Ordinal Value Set |

Table 122: Preferred LOINCs for Trichonella

Trichonella specific preferred SNOMEDs limited to:

Use these with Nominal Trichonella LOINCs and with Non- Organism specific nominal LOINCs (see below for use of these) for parasite identification.

| CreatePreferredSNOMEDforConditionTable | |
|--|---|
| SNOMED CT | SNOMED Concept Name |
| 37900004 | Trichinella |
| 372360007 | Trichinella species |
| 16439004 | Trichinella spiralis |
| 264433000 | Trichinella spiralis nativa |
| 264434006 | Trichinella spiralis nelsoni |
| Pending | Trichinella genotype T6 |
| Pending | Trichinella britovi |
| Pending | Trichinella murrelli (synonym: Trichinella genotype T5) |
| Pending | Trichinella pseudospiralis |
| Pending | Trichinella papuae |

Condition: Tuberculosis

NND: 10220 Tuberculosis

In the United States, the vast majority of TB cases are caused by Mycobacterium tuberculosis, sometimes referred to as the tubercle bacillus. M. tuberculosis and six very closely related mycobacterial species (M. bovis, M. africanum, and M. microti, M. canettii, M. caprae, M. pinnipeddi) can cause tuberculosis disease, and they compose what is known as the M. tuberculosis complex. Mycobacteria other than those comprising the M. tuberculosis complex are called nontuberculous mycobacteria. Nontuberculous mycobacteria may cause pulmonary disease resembling TB. (source IDPH)

Tuberculosis: Laboratory Criteria (IDPH)

“Simple” ELR Message Use cases

- Isolation of M. tuberculosis species from any clinical specimen.
 - Organism specific or generic culture summary conclusion results to species level
- Demonstration of M. tuberculosis complex from a clinical specimen by nucleic acid amplification test
- Demonstration of acid-fast bacilli in a clinical specimen when a culture has not been or cannot be obtained or is falsely negative or contaminated

“Not Simple” ELR Message Use case

- Isolation of M. tuberculosis species from any clinical specimen.
 - Sensitivity
 - Sequencing
- Positive interferon gamma release assay for M. tuberculosis
 - Associated with clinical diagnosis
- A positive tuberculin skin test
 - Associated with clinical diagnosis

Preferred LOINCs for Tuberculosis limited to:

- [Generic LOINCs for mycobacterial identification](#)

| CreatePreferredLOINCforTuberculosisTable | | | |
|--|---|---------------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 45323-3 | Mycobacterium tuberculosis tuberculin stimulated gamma interferon [Presence] in Blood | | Ordinal Value Set |
| 5027-8 | Mycobacterium tuberculosis rRNA [Presence] in Unspecified specimen by DNA probe | Probe | Ordinal Value Set |
| 17296-5 | Mycobacterium tuberculosis complex rRNA [Presence] in Unspecified specimen by DNA probe | Probe | Ordinal Value Set |
| 13956-8 | Mycobacterium tuberculosis DNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |
| 48174-7 | Mycobacterium tuberculosis complex rRNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |
| 38379-4 | Mycobacterium tuberculosis complex DNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |

Table 123: Preferred LOINCs for Tuberculosis

For identification of MDR-TB consider these NAATs (INNO-LIPA, HAIN):

| AssignFavoriteandResultSetQuery | |
|---------------------------------|---|
| Concept Code | Preferred Name |
| 48176-2 | Mycobacterium tuberculosis.rifampin resistant [Presence] by Probe & target amplification method |
| 46244-0 | Mycobacterium tuberculosis DNA rpoB [Identifier] in Isolate by Probe & target amplification method |
| 63072-3 | Mycobacterium tuberculosis isoniazid low level resistance (inhA) gene [Presence] by Probe & target amplification method |

Table 124: Preferred NAATs for identification of MDR-TB

Mycobacterial Sensitivities (AST) Panel LOINC:

| CreatePreferredLOINCforMycobacterialASTPanelTable | | | |
|---|--|--------|-------------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 29579-0 | Mycobacterial susceptibility panel in Isolate | Panel | Panel (Order only code) |
| 60564-2 | Amikacin 1 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 48169-7 | Amikacin 1.5 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 25177-7 | Amikacin 12 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 25175-1 | Amikacin 16 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 42642-9 | Amikacin 2 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 25178-5 | Amikacin 30 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 25176-9 | Amikacin 32 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 60565-9 | Amikacin 4 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 25179-3 | Amikacin 6 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 25174-4 | Amikacin 8 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 25210-6 | Capreomycin 10 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 25211-4 | Capreomycin 20 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 48170-5 | Capreomycin 3 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 25212-2 | Capreomycin 30 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 61355-4 | Capreomycin 5 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 25180-1 | Ciprofloxacin 2 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 25181-9 | Ciprofloxacin 4 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 25189-2 | Ciprofloxacin 5 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 25188-4 | Ciprofloxacin 8 ug/mL [Susceptibility] by Method for Slow- | MGIT | Ordinal or |

| CreatePreferredLOINCforMycobacterialASTPanelTable | | | |
|---|---|--------|--------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| | growing mycobacteria | | Numeric |
| 25207-2 | Cycloserine 10 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 25208-0 | Cycloserine 20 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 25209-8 | Cycloserine 30 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 25195-9 | Ethambutol 10 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 55674-6 | Ethambutol 2 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 25230-4 | Ethambutol 2.5 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 25194-2 | Ethambutol 5 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 25187-6 | Ethambutol 7.5 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 56025-0 | Ethambutol 8 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 55154-9 | Ethambutol+Rifampin [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 25231-2 | Ethionamide 10 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 25183-5 | Ethionamide 11 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 25198-3 | Ethionamide 15 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 25196-7 | Ethionamide 5 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 25217-1 | Isoniazid 0.1 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 25218-9 | Isoniazid 0.2 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 29315-9 | Isoniazid 0.4 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 25219-7 | Isoniazid 1 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 55685-2 | Isoniazid 10 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |

| CreatePreferredLOINCforMycobacterialASTPanelTable | | | |
|---|--|--------|--------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 45215-1 | Isoniazid 2 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 42651-0 | Isoniazid 5 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 49080-5 | Kanamycin 1 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 25214-8 | Kanamycin 30 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 25182-7 | Kanamycin 5 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 25213-0 | Kanamycin 6 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 48173-9 | Levofloxacin 1.5 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 41500-0 | Linezolid [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 41502-6 | Moxifloxacin [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 41408-6 | Ofloxacin 1 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 41409-4 | Ofloxacin 2 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 41410-2 | Ofloxacin 4 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 48685-2 | Para aminosalicylate 10 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 25215-5 | Para aminosalicylate 2 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 25216-3 | Para aminosalicylate 8 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 25229-6 | Pyrazinamide 100 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 55711-6 | Pyrazinamide 200 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 25186-8 | Pyrazinamide 25 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 56026-8 | Pyrazinamide 300 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 42655-1 | Rifabutin 0.5 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |

| CreatePreferredLOINCforMycobacterialASTPanelTable | | | |
|---|--|--------|--------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 25199-1 | Rifabutin 1 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 25200-7 | Rifabutin 2 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 25201-5 | Rifabutin 4 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 25202-3 | Rifampin 1 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 25184-3 | Rifampin 14 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 25203-1 | Rifampin 2 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 55712-4 | Rifampin 40 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 25204-9 | Rifampin 5 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 48177-0 | Streptomycin 1 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 25206-4 | Streptomycin 10 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 25205-6 | Streptomycin 2 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 46719-1 | Streptomycin 4 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |
| 25185-0 | Streptomycin 6 ug/mL [Susceptibility] by Method for Slow-growing mycobacteria | MGIT | Ordinal or Numeric |

Table 125: Mycobacterial Sensitivities (AST) Panel LOINCs

Preferred specific SNOMEDs for Tuberculosis limited to:

| CreatePreferredSNOMEDforTuberculosisTable | |
|---|--------------------------|
| SNOMED CT | SNOMED Concept Name |
| 51320008 | Mycobacterium africanum |
| 27142009 | Mycobacterium bovis |
| 414789006 | Mycobacterium canetti |
| 430579009 | Mycobacterium caprae |
| 70801007 | Mycobacterium microti |
| 430914003 | Mycobacterium pinnipedii |

| CreatePreferredSNOMEDforTuberculosisTable | |
|---|---|
| SNOMED CT | SNOMED Concept Name |
| 113861009 | Mycobacterium tuberculosis |
| 243372002 | Mycobacterium tuberculosis African I variant |
| 243373007 | Mycobacterium tuberculosis African II variant |
| 243371009 | Mycobacterium tuberculosis Asian variant |
| 243370005 | Mycobacterium tuberculosis classical variant |
| 113858008 | Mycobacterium tuberculosis complex |
| 36354002 | Mycobacterium tuberculosis hominis |

Table 126: Preferred SNOMED codes for Tuberculosis

Use these with Nominal Tuberculosis LOINCs and with Non-Organism specific nominal LOINCs (see below for use of these) for bacterial identification.

Non-specific Mycobacterial agent LOINCs limited to:

| NonSpecific Mycobacterial Agent LOINCs | | |
|--|--|---------------------------|
| LOINC_NUM | LONG_COMMON_NAME | Method |
| 23667-9 | Bacteria identified in Unspecified specimen | |
| 6463-4 | Bacteria identified in Unspecified specimen by Culture | Culture |
| 11475-1 | Microorganism identified in Unspecified specimen by Culture | Culture |
| 41852-5 | Microorganism or agent identified in Unspecified specimen | |
| 40699-1 | Mycobacterium sp identified in Unspecified specimen | |
| 543-9 | Mycobacterium sp identified in Unspecified specimen by Organism specific culture | Organism Specific Culture |
| 43854-9 | Mycobacterium sp rRNA [Presence] in Unspecified specimen by DNA probe | Probe |
| 14974-0 | Mycobacterium sp DNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar |
| 11545-1 | Microscopic observation [Identifier] in Unspecified specimen by Acid fast stain | Acid Fast Stain |

Table 127: Non-specific Mycobacterial agent LOINCs

Tularemia (Rabbit Fever)

Francisella tularensis tularensis et holarctica are most common

Laboratory Criteria (CDC/CSTE)

Note, extremely rare, Bioterror –agent

“Simple” ELR Message Use cases

- Confirmatory - Isolation *F. tularensis* from clinical specimen

- Presumptive - Detection of *F. tularensis* in a clinical specimen using direct fluorescent antibody, immunohistochemical staining, or PCR
- Presumptive - Elevated serum antibody titer(s) to *F. tularensis* antigen (without documented fourfold or greater change) in a patient with no history of tularemia vaccination
 - **This requires patient history that lab may not have.

“Not Simple”? ELR Message Use case

- Confirmatory - detecting a fourfold or greater change antibody response to *Francisella tularensis* (paired titer) probably parent child best approach for these.

Preferred LOINCs for Tularemia limited to:

- [Generic LOINCs for bacterial identification](#) and

| CreatePreferredLOINCforTularemiaTable | | | |
|---------------------------------------|--|---------------------------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 16875-7 | Francisella tularensis Ab [Titer] in Serum | | numeric |
| 31396-5 | Francisella tularensis Ab [Units/volume] in Serum | | numeric |
| 7888-1 | Francisella tularensis Ab [Presence] in Serum | | Ordinal Value Set |
| 6408-9 | Francisella tularensis Ag [Presence] in Unspecified specimen by Immunofluorescence | IF | Ordinal Value Set |
| 23126-6 | Francisella tularensis Ag [Presence] in Tissue by Immune stain | Immune stain | Ordinal Value Set |
| 33676-8 | Francisella tularensis [Presence] in Unspecified specimen by Organism specific culture | Organism specific culture | Ordinal Value Set |
| 33679-2 | Francisella tularensis DNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |

Table 128: Preferred LOINCs for Tularemia

Specific SNOMEDs for Tularemia limited to:

Use these with Nominal LOINCs and with Non-Organism specific nominal LOINCs for bacterial identification.

| CreatePreferredSNOMEDforTularemiaTable | |
|--|--|
| SNOMED CT | SNOMED Concept Name |
| 77712002 | Francisella novicida |
| 131308009 | Francisella species |
| 51526001 | Francisella tularensis |
| 60502008 | Francisella tularensis ss. holarctica |
| 23930001 | Francisella tularensis ss. mediasiatica |
| 91508008 | Francisella tularensis ss. tularensis |
| 432830002 | Francisella tularensis subspecies japonica |
| 432832005 | Francisella tularensis subspecies novicida |

Table 129: Preferred SNOMED codes for Tularemia

Condition: Typhus fever

NND: 10260 Typhus Fever, (endemic fleaborne, Murine)

Notes from RCMT: When the term "typhus" is used without qualification it usually means Epidemic typhus. Also, historical references to "typhus" are now generally considered to be this condition.

| Condition | Synonyms | Bacterium | Arthropod vector |
|-----------------|----------------------------------|-----------------------|------------------|
| Epidemic typhus | Louse-borne typhus | Rickettsia prowazekii | lice on humans |
| Endemic typhus | Murine typhus, Flea-borne typhus | Rickettsia typhi | fleas on rats |

Table 130: Synonyms, Bacterium, and Anthropod vector for Typhoid conditions

Typhus fever: Laboratory Criteria (CSTE using the RSMF case criteria)

“Simple” ELR Message Use cases

- Laboratory confirmed:
 - Detection of R. prowazekii or other typhus group DNA in a clinical specimen via amplification of a specific target by PCR assay, or
 - ~~Demonstration of typhus group antigen in a biopsy or autopsy specimen by IHC (immunohistochemistry)– no Ag tests in RCMT?~~
 - Isolation of R. prowazekii or other typhus group from a clinical specimen in

cell culture.

- Laboratory supportive:
 - Has serologic evidence of elevated IgG or IgM antibody reactive with R. prowazekii or other typhus group antigen by IFA, enzyme-linked immunosorbent assay (ELISA), dot-ELISA, or latex agglutination.

“Not-Simple” ELR Message Use cases

- Laboratory confirmed:
 - Probable Parent-Child use case : Serological evidence of a fourfold change in immunoglobulin G (IgG)-specific antibody titer reactive with R. prowazekii or other typhus group antigen by indirect immunofluorescence assay (IFA) between paired serum specimens (one taken in the first week of illness and a second 2-4 weeks later)

Preferred LOINCs for Typhus fever limited to:

- [Generic LOINCs for Rickettsial identification](#) and

| CreatePreferredLOINCfor Typhus fever Table | | | |
|--|---|--------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 22493-1 | Rickettsia typhus group IgG Ab [Titer] in Serum | | numeric |
| 22480-8 | Rickettsia typhus group IgG Ab [Titer] in Cerebral spinal fluid | | numeric |
| 22492-3 | Rickettsia typhus group Ab [Titer] in Serum | | numeric |
| 22491-5 | Rickettsia typhus group Ab [Presence] in Serum | | Ordinal ValueSet |
| 31076-3 | Rickettsia typhi IgG Ab [Titer] in Body fluid | | numeric |
| 49148-0 | Rickettsia prowazekii IgG Ab [Titer] in Body fluid | | numeric |
| 29682-2 | Rickettsia prowazekii Ab [Titer] in Serum | | numeric |
| 29683-0 | Rickettsia prowazekii Ab [Presence] in Serum | | Ordinal Value Set |

| CreatePreferredLOINCfor Typhus fever Table | | | |
|--|---|---------------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 48871-8 | Rickettsia typhus group DNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |

Table 131: Preferred LOINC for Typhus fever

Typhus fever specific SNOMEDs limited to:

Use these with Nominal Typhus fever LOINC and with Non-Organism specific nominal LOINC (see below for use of these) for Rickettsial identification. See implementation guideline for messaging results when SNOMED code is unavailable.

| CreatePreferredSNOMEDfor Typhus fever Table | |
|---|--------------------------|
| SNOMED CT | SNOMED Concept Name |
| 28499009 | Rickettsia prowazekii |
| 79284001 | Rickettsia typhi |
| 415343008 | rickettsia, typhus group |

Table 132: Preferred SNOMED codes for Typhus fever

Condition: Varicella

NND: 10030 Varicella (Chickenpox)

Varicella is caused by varicella-zoster virus (VZV), which is a DNA virus that is a member of the herpesvirus group. After the primary infection, VZV stays in the body (in the sensory nerve ganglia) as a latent infection. Primary infection with VZV causes varicella. Reactivation of latent infection causes herpes zoster (shingles). (source CDC)

Varicella: Laboratory Criteria (IDPH)

“Simple” ELR Message Use cases

- Isolation of varicella-zoster virus (VZV) from a clinical specimen.
- Demonstration of VZV antigen by direct fluorescent antibody (DFA) from a clinical specimen.
- Demonstration of VZV by polymerase chain reaction (PCR) tests from a clinical specimen.

- Positive serologic test for varicella-zoster immunoglobulin M (IgM) antibody.

“Not Simple ELR Message Use case

- (Paired titer use case) Significant rise in serum varicella immunoglobulin G (IgG) antibody level by any standard serological assay.

Preferred LOINCs for Varicella limited to:

- [Generic LOINCs for virus identification](#) and

| CreatePreferredLOINCforConditionTable | | | |
|---------------------------------------|--|---------------------------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 22602-7 | Varicella zoster virus IgG Ab [Titer] in Serum | | numeric |
| 29249-0 | Varicella zoster virus IgG Ab [Units/volume] in Body fluid | | numeric |
| 53535-1 | Varicella zoster virus IgM Ab [Presence] in Body fluid by Immunoassay | EIA | Ordinal Value Set |
| 5882-6 | Varicella zoster virus Ag [Presence] in Unspecified specimen by Immunofluorescence | IF | Ordinal Value Set |
| 10860-5 | Varicella zoster virus [Presence] in Unspecified specimen by Organism specific culture | Organism specific culture | Ordinal Value Set |
| 11483-5 | Varicella zoster virus DNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |

Table 133: Preferred LOINCs for Varicella

Varicella specific preferred SNOMEDs limited to:

Use these with Nominal Varicella LOINCs and with Non- Organism specific nominal LOINCs (see below for use of these) for virus identification.

| CreatePreferredSNOMEDforVaricellaTable | |
|--|---------------------|
| SNOMED CT | SNOMED Concept Name |
| 19551004 | human herpesvirus 3 |

Table 134: Preferred SNOMED code for Varicella

Condition: Viral Hemorrhagic Fever(s) (Ebola, Marburg, Lassa, Machupo)

NND: 11647 Viral hemorrhagic fever

SNOMED Condition Code: **73730005** Arenaviral hemorrhagic fever (disorder)

Viral hemorrhagic fevers (VHFs) include numerous zoonotic diseases, all of which cause a hemorrhagic syndrome in humans. VHFs are known to be caused by filoviruses, arenaviruses, bunyaviruses, and

flaviviruses. Some of the specific VHF's include Ebola, Marburg, Lassa, Junin (Argentine VHF), Machupo (Bolivian VHF), Sabia (Brazilian VHF), Guanarito (Venezuelan VHF), Crimean Congo hemorrhagic and Rift Valley fever. Because of its extremely high fatality rate and the importation of the virus into the United States in non-human primates, Ebola hemorrhagic fever has been most publicized in the United States. VHF's have been recognized by the Centers for Disease Control and Prevention (CDC) as being among the top agents of concern for potential bioterrorist weapons. (IDPH)

Viral Hemorrhagic Fever(s) (Ebola, Marburg, Lassa, Machupo): Laboratory Criteria (<<source>>)

“Simple” ELR Message Use cases

“Not Simple” ELR Message Use case

Preferred LOINC's for Viral Hemorrhagic Fever(s) (Ebola, Marburg, Lassa, Machupo) limited to:

- [Generic LOINC's for viral identification](#) and

| Create Preferred LOINC for Viral Hemorrhagic Fever Table | | | |
|--|---|--------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 31867-5 | Lassa virus Ag [Presence] in Serum | | Ordinal Value Set |
| 11581-6 | Ebola virus Ab [Units/volume] in Serum | | numeric |
| 22263-8 | Ebola virus Ab [Titer] in Serum | | numeric |
| 22371-9 | Junin virus Ab [Presence] in Serum | | Ordinal Value Set |
| 11607-9 | Junin virus Ab [Units/volume] in Serum | | numeric |
| 22377-6 | Lassa virus IgG Ab [Presence] in Serum | | Ordinal Value Set |
| 31452-6 | Lassa virus IgG Ab [Units/volume] in Serum | | numeric |
| 22378-4 | Lassa virus IgG Ab [Titer] in Serum | | numeric |
| 22379-2 | Lassa virus IgM Ab [Presence] in Serum | | Ordinal Value Set |
| 31453-4 | Lassa virus IgM Ab [Units/volume] in Serum | | numeric |
| 22380-0 | Lassa virus IgM Ab [Titer] in Serum | | numeric |
| 7942-6 | Lassa virus IgG Ab [Presence] in Serum by Immunoassay | EIA | Ordinal Value Set |
| 7937-6 | Junin virus Ab [Presence] in Serum by Immunoassay | EIA | Ordinal Value Set |
| 7944-2 | Lassa virus IgM Ab [Presence] in Serum by Immunoassay | EIA | Ordinal Value Set |
| 7946-7 | Lassa virus Ag [Presence] in Serum by Immunoassay | EIA | Ordinal Value Set |

| CreatePreferredLOINCfor Viral Hemorrhagic Fever Table | | | |
|---|---|---------------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 41638-8 | Marburg virus RNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |
| 41621-4 | Arenavirus RNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |
| 41636-2 | Ebola virus RNA [Presence] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Ordinal Value Set |

Table 135: Preferred LOINC for Viral Hemorrhagic Fever

Viral Hemorrhagic Fever(s) (Ebola, Marburg, Lassa, Machupo) specific preferred SNOMEDs limited to:

Use these with Nominal Viral Hemorrhagic Fever(s) (Ebola, Marburg, Lassa, Machupo) LOINC and with Non-Organism specific nominal LOINC (see below for use of these) for viral identification.

| CreatePreferredSNOMEDfor Viral Hemorrhagic Fever Table | |
|--|---------------------------------------|
| SNOMED CT | SNOMED Concept Name |
| 58234003 | Arenavirus |
| 79875007 | Crimean-Congo hemorrhagic fever virus |
| 424206003 | Ebolavirus |
| 311506003 | Guanarito virus |
| 68684004 | Hazara virus |
| 423042009 | Ivory Coast ebolavirus |
| 26352009 | Junin virus |
| 67732000 | Khasan virus |
| 422839008 | Lake Victoria marburgvirus |
| 85944001 | Lassa virus |
| 71489006 | Machupo virus |
| 424421007 | Marburgvirus |
| 422448009 | Reston ebolavirus |
| 311508002 | Sabia virus |
| 424116003 | Sudan ebolavirus |
| 425092008 | zaire virus |
| 58234003 | Arenavirus |
| 311506003 | Guanarito virus |
| 26352009 | Junin virus |
| 71489006 | Machupo virus |
| 311508002 | Sabia virus |
| pending | Bundibugyo ebolavirus |
| pending | Lujo virus |

Table 136: Preferred SNOMED codes for Viral Hemorrhagic Fever

Condition: Vibriosis (non-cholera Vibrio species infections)

NND: 11545 Vibriosis (non-cholera Vibrio species infections)

Vibriosis: **Laboratory Criteria (IDPH)**

“Simple” ELR Message Use cases

- Isolation of a species of the family Vibrionaceae (other than toxigenic Vibrio cholerae O1 or O139, which are reportable as cholera) from a clinical specimen.
 - Organism specific or generic culture summary conclusion results to the species level

“Not Simple” ELR Message Use case

- Isolation of a species of the family Vibrionaceae (other than toxigenic Vibrio cholerae O1 or O139, which are reportable as cholera) from a clinical specimen.
 - Serotyping
 - Sensitivity
 - PFGE
 - Many Parent-Child use cases here

LOINCs for Vibriosis limited to:

- [Generic LOINCs for bacterial identification](#) and

| CreatePreferredLOINCforVibriosisTable | | | |
|---------------------------------------|---|---------------------------|---------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 6581-3 | Vibrio sp identified in Unspecified specimen by Organism specific culture | Organism specific culture | Vibriosis Value Set |
| 49609-1 | Vibrio sp DNA [Identifier] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Vibriosis Value Set |

Table 137: Preferred LOINCs for Vibriosis

Vibriosis specific SNOMEDs limited to:

Use these with Nominal Vibriosis LOINCs and with Non- Organism specific nominal LOINCs (see below for use of these) for bacterial identification:

| CreatePreferredSNOMEDforConditionTable | |
|--|------------------------|
| SNOMED CT | SNOMED Concept Name |
| 433669003 | Grimontia hollisae |
| 398367007 | non-cholerae vibrio |
| 387798006 | Photobacterium damsela |

| CreatePreferredSNOMEDforConditionTable | |
|--|----------------------------------|
| SNOMED CT | SNOMED Concept Name |
| 34872001 | vibrio |
| 45749000 | Vibrio alginolyticus |
| 398506000 | Vibrio cholerae, non-O1 |
| 415819003 | Vibrio cholerae, non-O1/non-O139 |
| 415820009 | Vibrio cholerae, non-O139 |
| 36764009 | Vibrio cincinnatiensis |
| 43199008 | Vibrio fluvialis |
| 6387008 | Vibrio furnissii |
| 7064002 | Vibrio hollisae |
| 28382009 | Vibrio metschnikovii |
| 11776003 | Vibrio mimicus |
| 11736008 | Vibrio parahaemolyticus |
| 131373001 | Vibrio species |
| 55905000 | Vibrio vulnificus |

Table 138: Preferred SNOMED codes for Vibriosis

Condition: Yellow Fever

NND: 10660 Yellow fever

Yellow fever virus (YFV) is a single-stranded RNA virus that belongs to the genus *Flavivirus*. Tests in the US specific for Yellow fever virus are only done at CDC in Fort Collins. (RCMT Feedback notes)

Yellow Fever: Laboratory Criteria (<<source>>)

“Simple” ELR Message Use cases

- Demonstration of yellow fever virus in tissue, blood, or other body fluid
- Demonstration of yellow fever antigen in tissue, blood, or other body fluid
- Demonstration of yellow fever genome in tissue, blood, or other body fluid

“Not Simple” ELR Message Use case

- (paired titer use case) Fourfold or greater rise in yellow fever antibody titer in a patient who has no history of recent yellow fever vaccination and cross-reactions to other flaviviruses have been excluded

Preferred LOINCs for Yellow Fever limited to:

- [Generic LOINCs for viral identification](#) and

| CreatePreferredLOINCforYellowFeverTable | | | |
|---|---|----------------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 22618-3 | Yellow fever virus Ab [Titer] in Serum | | numeric |
| 8054-9 | Yellow fever virus Ab [Units/volume] in Serum | | numeric |
| 6591-2 | Yellow fever virus Ab [Units/volume] in Serum by Neutralization test | Neut | numeric |
| 8057-2 | Yellow fever virus RNA [Presence] in Serum by Probe & target amplification method | Probe.amp. tar | Ordinal Value Set |

Table 139: Preferred LOINCs for Yellow Fever

Yellow Fever specific preferred SNOMEDs limited to:

Use these with Nominal Yellow Fever LOINCs and with Non- Organism specific nominal LOINCs (see below for use of these) for viral identification.

| CreatePreferredSNOMEDforYellowFeverTable | |
|--|---------------------|
| SNOMED CT | SNOMED Concept Name |
| 26630006 | yellow fever virus |

Table 140: Preferred SNOMED codes for Yellow Fever

Condition: Yersiniosis

Yersinia enterocolitica or *Yersinia pseudotuberculosis* (pork, pets and kids): **Laboratory Criteria (MDPH-BCDC)**

“Simple” ELR Message Use cases

- Isolation any isolation of *Y. enterocolitica* or *Y. pseudotuberculosis* from the patient’s blood or feces.
- Laboratories performing examinations on any specimens that yield evidence of *Yersinia* infection - Serology, PCR, etc

Preferred LOINC for Yersiniosis limited to:

- [Generic LOINC for bacterial identification](#) and

| CreatePreferredLOINCforYersiniosisTable | | | |
|---|--|--------|-------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 6967-4 | <i>Yersinia pseudotuberculosis</i> Ab [Titer] in Serum | | numeric |

| CreatePreferredLOINCforYersiniosisTable | | | |
|---|---|---------------------------|-----------------------|
| LOINC | LOINC Name | Method | Results Value Set |
| 40936-7 | Yersinia pseudotuberculosis Ab [Presence] in Serum | | Ordinal Value Set |
| 6963-3 | Yersinia enterocolitica Ab [Titer] in Serum | | numeric |
| 40941-7 | Yersinia enterocolitica Ab [Presence] in Serum | | Ordinal Value Set |
| 48646-4 | Yersinia sp DNA [Identifier] in Unspecified specimen by Probe & target amplification method | Probe.amp.tar | Yersiniosis Value Set |
| 701-3 | Yersinia sp identified in Unspecified specimen by Organism specific culture | Organism specific culture | Yersiniosis Value Set |

Table 141: Preferred LOINCs for Yersiniosis

Specific SNOMEDs for for Yersiniosis limited to:

Use these with Nominal LOINCs and with Non-Organism specific nominal LOINCs for bacterial identification.

| CreatePreferredSNOMEDforYersiniosisTable | |
|--|---|
| SNOMED CT | SNOMED Concept Name |
| 4668009 | Yersinia |
| 65255000 | Yersinia enterocolitica |
| 415854005 | Yersinia enterocolitica non-serogroupable |
| 415855006 | Yersinia enterocolitica serogroup O:1,2a,3 |
| 415856007 | Yersinia enterocolitica serogroup O:12, 25 |
| 415857003 | Yersinia enterocolitica serogroup O:13a,13b |
| 415858008 | Yersinia enterocolitica serogroup O:19 |

| CreatePreferredSNOMEDforYersiniosisTable | |
|--|--|
| SNOMED CT | SNOMED Concept Name |
| 415859000 | Yersinia enterocolitica serogroup O:20 |
| 415860005 | Yersinia enterocolitica serogroup O:21 |
| 415861009 | Yersinia enterocolitica serogroup O:2a,3 |
| 103430003 | Yersinia enterocolitica serogroup O:3 |
| 415862002 | Yersinia enterocolitica serogroup O:4,32 |
| 363762009 | Yersinia enterocolitica serogroup O:48 |
| 103431004 | Yersinia enterocolitica serogroup O:5 |
| 415863007 | Yersinia enterocolitica serogroup O:5, 27 |
| 103432006 | Yersinia enterocolitica serogroup O:8 |
| 103433001 | Yersinia enterocolitica serogroup O:9 |
| 415864001 | Yersinia enterocolitica, not O:3; O:8; or O:5,27 |
| 116502002 | Yersinia enterocolitica, serogroup O:13 |
| 428139002 | Yersinia enterocolitica, serogroup O:14 |
| 116503007 | Yersinia enterocolitica, serogroup O:8,14 |
| 90530002 | Yersinia pseudotuberculosis |
| 131295004 | Yersinia species |

Table 142: Preferred SNOMED codes for Yersiniosis

THESE Yersinia orgs are missing from RCMT yersiniosis Result Value set will notify them to add these to table - comments?

| LOCAL Concept (MA, NY) | SNOMED CT | ConceptName |
|------------------------|-----------|-----------------------------|
| Yersinia aldovae | 91246002 | Yersinia aldovae (organism) |

| | | |
|-----------------------------------|----------|-----------------------------------|
| Yersinia ruckeri | 64125009 | Yersinia ruckeri (organism) |
| Yersinia kristensenii | 91042006 | Yersinia kristensenii (organism) |
| Yersinia intermedia | 10334001 | Yersinia intermedia (organism) |
| Yersinia frederiksenii | 85159008 | Yersinia frederiksenii (organism) |
| Yersinia enterocolitica 1A | ? | |
| Yersinia enterocolitica 1B | ? | |
| Yersinia enterocolitica biotype 4 | ? | |
| Yersinia enterocolitica biotype 2 | ? | |
| Yersinia frederiksenii | 85159008 | Yersinia frederiksenii (organism) |
| Yersinosis (non-plague) | ? | |

Table 143: Yersinosis orgs missing from RCMT value set