



Tuberculosis and Latent Tuberculosis Infection Message Mapping Guide (TB & LTBI MMG)

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Agenda

- MMG Overview
- How to Use the TB & LTBI MMG to Build a Message
- Key TB & LTBI Information
- Objectives of the External Review and Timeline

Audience

- State health department informatics and epidemiology staff involved with implementing the RVCT revision

Tuberculosis and Latent Tuberculosis Infection Message Mapping Guide (TB & LTBI MMG) Overview

TB & LTBI MMG Overview

- Includes information for the following conditions and supplemental information:
 - Tuberculosis (TB)
 - Latent Tuberculosis Infection (LTBI)
 - Multidrug-Resistant (MDR) Tuberculosis
- Update to the previous TB MMG
- Based on the updated draft Report of Verified Case of Tuberculosis (RVCT)
- Incorporates information from the new Tuberculosis Latent Infection Surveillance System (TBLISS) and the MDR TB Supplemental Surveillance Form to streamline reporting

TB & LTBI MMG Layout – Test Scenario

Category	Data Element (DE) Name	DE Identifier Sent in HL7 Message	DE Code System	Data Element Description	Data Type	CDC Priority	May Repeat	Value Set Name (VADS Hyperlink)	Value Set Code
	Message Profile Identifier	N/A: MSH-21	N/A	Message Profile Identifiers provide a literal value to use for the references in MSH-21. MSH-21 will always contain a reference to the notification type in the "PHINProfileID" namespace and a reference to the implemented version of the Generic MMG in the	Text	R	Y/3	N/A	N/A
START: EPIDEMIOLOGIC INFORMATION SECTION: The observations in this section will be mapped under an "Epidemiologic Information" category OBR segment with an OBR-4 value of '68991-9^Epidemiologic Information									
START: Report of Verified Case of Tuberculosis (RVCT) & Tuberculosis Latent Infection Surveillance System (TBLISS) Questions									
Epidemiology	TB State Case Number	INV1107	PHINQUESTION	State case number for the case specific to TB investigations	Text	P	N	N/A	N/A
Epidemiology	City or County Case Number	INV1108	PHINQUESTION	City or county case number assigned to this case	Text	P	N	N/A	N/A

dy

Introduction MMG Column Descriptions Data Elements **Test Scenario**

Test Scenarios Now a Tab in the MMG Instead of a Separate Document

TB & LTBI MMG Layout – Header Rows for Conditions

Category	Data Element (DE) Name	DE Identifier Sent in HL7 Message	DE Code System	Category	Data Element (DE) Name	DE Identifier Sent in HL7 Message	DE Code System
Epidemiology	Evaluation During Contact Investigation	INV1123	PHINQUESTION	Clinical	Completed Treatment for Previous Diagnosis	INV1137	PHINQUESTION
START: RVCT & TBLISS Contact Investigation Repeating Block				END: RVCT Previous Disease Repeating Block			
START: RVCT Treatment Questions							
Epidemiology	Linked Case Number	INV1124	PHINQUESTION	Treatment	Initially Treated with RIPE	INV1138	PHINQUESTION

Category	Data Element (DE) Name	DE Identifier Sent in HL7 Message	DE Code System	Category	Data Element (DE) Name	DE Identifier Sent in HL7 Message	DE Code System
Treatment	Date Treatment or Therapy Stopped	63939-3	LN	Treatment	Date MDR Treatment Started	INV1157	PHINQUESTION
END: RVCT & TBLISS Treatment Information Questions				START: MDR TB Previously Administered Drugs Repeating Group			
END: RVCT & TBLISS Questions							
START: TBLISS Specific Questions							
Treatment	Treatment Started	INV1128	PHINQUESTION	Treatment	Drug Used to Treat MDR TB	INV1158	PHINQUESTION

TB & LTBI MMG Layout – Comment Column

Sample Segment	Legacy Variable	Legacy Variable Code System	Comments
OBX nn CWE INV1119^Type of Correctional Facility^PHINQUESTION PHC26^State Prison^CDCPHINVS F	TB129	PHINQUESTION	RVCT 21 TBLISS 20
OBX nn CWE INV1120^Type of Long-Term Care Facility^PHINQUESTION PHC221^Hospital-Based Facility^CDCPHINVS F	TB131	PHINQUESTION	RVCT 22 TBLISS 21

Comment information refers back to the RVCT, TBLISS, and MDR forms

How to Use the TB & LTBI MMG

MMG Overview

- RVCT, TBLISS, and MDR Form were the basis for the TB & LTBI MMG
 - Includes data elements to be used in HL7 case notifications sent to CDC



Example TB Notification

ID, age, sex,
hospitalized...

Lab test
results, epi
exposure ...

Additional drug
information,
adverse
events...

Order
Number, Test
Ordered
Name...



One HL7 message

Supporting Documentation

Annotated Case Report Forms and Worksheets

- Report of Verified Case of Tuberculosis (RVCT)
- Tuberculosis Latent Infection Surveillance System (TBLISS)
- MDR TB Supplemental Surveillance Form
- <https://wwwn.cdc.gov/nndss/case-notification/message-mapping-guides.html>, click “MMGs in Development”
- Form information is also embedded in the MMG for reference

Annotated Case Report Forms

DRAFT

NOT FOR DISSEMINATION

PREDECISIONAL

Proposed Data Collection Form—R.C. 8 Report of Verified Case of Tuberculosis (RVCT) – Updated 2/22/2018

Administrative Information

1. **Date Reported:** __/__/__ [77995-9]
2. **Date Counted¹**
 - a. MMWR Week: _____ [77991-8]
 - b. MMWR Year: _____ [77992-6]
3. **State Case Number:** ___ ___ _____ [INV1107]
 Year State Number
4. **City/County Case Number:** ___ ___ _____ [INV1108]
 Year State Number
5. **Case Already Counted by Another Reporting Area?²** [INV1109]
 ___ Yes, another U.S. reporting area (State case number from other area: _____) [INV1110]
 ___ Yes, another country (Specify country: _____) [INV1111]
 ___ No

Red Text = Gen v2

Black text = TB & LTBI MMG

Sample Test Scenarios and Messages will be Available

- <https://www.cdc.gov/nndss/case-notification/message-mapping-guides.html>,
- “MMGs in Development”
- Included in the same workbook as the MMG

Data Element (DE) Name	DE Identifier Sent in HL7 Message	DE Code System	Data Element Description	Data Type	CDC Priority	May Repeat	Value Set Name (VADS Hyperlink)	Value Set Code	LTBI Test Record 01
City or County Case Number	INV1108	PHINQUESTION	City or county case number assigned to this case	Text	P	N	N/A	N/A	N/A
Previously Counted Case	INV1109	PHINQUESTION	(Proposed) Has this case already been counted by another reporting area?	Coded	P	N	Case Count Status (TB)	PHVS_CaseCountStatus_TB	N=No
Previously Reported State Case Number	INV1110	PHINQUESTION	(Proposed) If case previously counted, provide the state case number from the other reporting area.	Text	P	N	N/A	N/A	N/A

Key TB & LTBI Information

TB Form Differences

- New forms
 - TBLISS
 - TB Infection is not currently nationally notifiable
 - Volunteers may use this message to submit TB Infection cases
 - Significant overlap with RVCT questions
 - MDR Supplemental
 - Expected from all jurisdictions for all MDR cases

Proposed RVCT Form Differences

- New to RVCT
 - Census Tract, Pregnancy Status, Country of Usual Residence, Diabetes Status, Industry, Homeless Ever Risk Factor, Smoking Status, Travel to Certain Countries, Previous LTBI episodes, Date of Illness, Contact Investigation Status, Epi Link Status, Additional Drug Regimen Questions, Molecular Drug Susceptibility Testing, Treatment Administration, Final Disease Outcome
- Modifications to RVCT
 - Modifications to line up with Gen v2 Questions, Initial Reason Evaluated, Occupation using NIOSH coding, Previous TB Disease expansion, New TB Medications, Medication Administration
- Removals from RVCT
 - Date Submitted, Corrections ICE Status, Immigration Status, Within State Moves, Type of Healthcare Provider

TB MMG Guide Differences – v2 (current) to v3

- Designed to be used in conjunction with Generic v2 MMG
 - Reporting City changes from GNIS coded to PID-11 text
 - State Case ID INV173 now maps to INV1107
- Designed to include the optional Laboratory Template
- Includes two condition codes – TB (10220) and LTBI (new-50258)
- Includes multiple repeating groups
- Includes a shift from TB specific elements to shared INV and LN elements where possible

Repeating Groups

- Capture information where the same group of questions can be answered multiple times
- Value sets are designed flexibly to apply across conditions
- Repeating Groups included within the TB MMG
 - Epidemiology Laboratory, Chest Study, Industry and Occupation, Risk Factor, Contact Investigation, Previous Disease, Initial Drug Regimen, Phenotypic Drug Susceptibility Testing, Molecular Drug Susceptibility Testing, MDR TB Previously Administered Drugs, MDR TB Side Effects from Treatment

Repeating Group Structure

Group

START: RVCT & TBLISS Epidemiology Laboratory Repeating Group		
Test Type	INV290	Lab Test Type (TB)
Test Result	INV291	Lab Test Interpretation (TB)
Date/Time of Lab Result	82773-3	N/A
Specimen Source Site	31208-2	Microscopic Exam Culture Site (TB)
Specimen Collection Date/Time	68963-8	N/A
Test Result Quantitative	LAB628	N/A
Result Units	LAB115	Units of Measure
END: RVCT & TBLISS Epidemiology Laboratory Repeating Group		

Concept Code	Concept Name
24467-3	CD3+CD4+ (T4 helper) cells [#./volume] in Blood
76629-5	Fasting glucose [Moles/volume] in Blood
55454-3	Hemoglobin A1c in Blood
55277-8	HIV Status
LAB671	IGRA-QFT
LAB672	IGRA-TSpot
50941-4	Mycobacterium sp [Presence] in Unspecified specimen by Organism specific culture
58931-7	Mycobacterium tuberculosis DNA [Presence] in Body fluid by NAA with probe detection
71773-6	Mycobacterium tuberculosis stimulated gamma interferon [Presence] in Blood
LAB673	Nucleic Acid Amplification Test
LAB608	Other Test Type
TB119	Skin Test at Diagnosis

Concept Code	Concept Name
82334004	Indeterminate (qualifier value)
260385009	Negative (qualifier value)
385660001	Not done (qualifier value)
10828004	Positive (qualifier value)
UNK	unknown

Concept Code	Concept Name
23451007	Adrenal structure (body structure)
362102006	All teeth, gums and supporting structures (body structure)
53505006	Anal structure (body structure)
66754008	Appendix structure (body structure)
C0541696	Bile and pancreatic fluid
87612001	Blood (substance)
59820001	Blood vessel structure (body structure)
14016003	Bone marrow structure (body structure)

Repeating Group Sample – Epi Lab

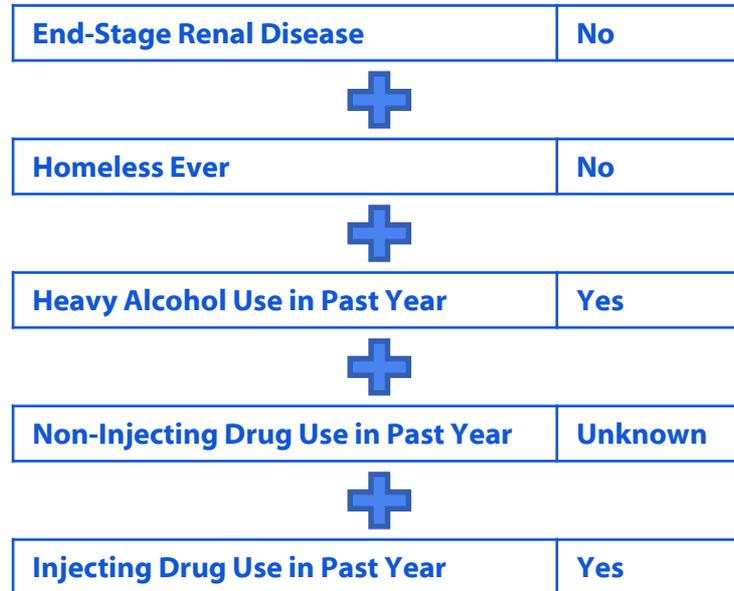
START: RVCT & TBLISS Epidemiology Laboratory Repeating Group		
Test Type	INV290	Lab Test Type (TB)
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Date/Time of Lab Result	82773-3	N/A
Specimen Source Site	31208-2	Microscopic Exam Culture Site (TB)
Specimen Collection Date/Time	68963-8	N/A
Test Result Quantitative	LAB628	N/A
Result Units	LAB115	Units of Measure
END: RVCT & TBLISS Epidemiology Laboratory Repeating Group		

TST	Positive	1/13/2018		1/10/2018	13	MM
+						
Smear	Positive	1/20/2018	Sputum	1/14/2018		
+						
Culture	Positive	3/16/2018	Sputum	1/14/2018		
+						
IGRA-Unk	Not Done					
+						
Fasting Blood Glucose		3/1/2018			150	MG/DL

...repeat blocks as needed

Repeating Group Sample – Risk Factors

START: RVCT & TBLISS Risk Factor Repeating Group		
Patient Epidemiological Risk Factors	INV1117	Epidemiological Risk Factors (TB)
Patient Epidemiological Risk Factors Indicator	INV1118	Yes No Unknown (YNU)
END: RVCT & TBLISS Risk Factor Repeating Group		



...repeat blocks as needed

Expectations from Repeating Groups

- Epidemiology Laboratory
 - Please provide a response for each of the main test types (culture, smear, pathology/cytology, NAA, TST, IGRA, HIV, diabetes) and if test was not done please indicate so.
- Chest Study
 - Please provide a response for each of the main test types (plain chest radiograph, CT Scan) and if test was not done please indicate so.
- Industry and Occupation
 - Please provide the narrative text and/or NIOSH code for this case's current occupation and industry.

Expectations from Repeating Groups

- Risk Factor
 - Please provide a response for all risk factors in the value set with an associated indicator.
- Contact Investigation
 - Please provide a response for all case numbers of cases identified during investigation with linking information.
- Previous Disease History
 - Please provide only 1 response for LTBI; however multiple responses for TB are allowed.
- Initial Drug Regimen
 - Please provide a response for each medication in the value set with an associated indicator.

Expectations from Repeating Groups

- Phenotypic Drug Susceptibility Testing
 - Please provide a response for each medication in the value set with an associated indicator and if test was not done please indicate so. For each patient, report the full test results for the samples that have unique features, such as specimen type (sputum or another anatomic site), date and interpretation.
- Molecular Drug Susceptibility Testing
 - Please report the full test results for the samples that have unique features, such as specimen type (sputum or another anatomic site), test type (sequencing or non-sequencing) or mutation (detected or not detected). There is no need to report test results that differ only by date or laboratory and where all other aspects are identical in regards to specimen type, test type, and/or the results of mutation.

Expectations from Repeating Groups

- MDR TB Previously Administered Drugs
 - Please provide a response for each medication in the value set with an associated indicator. Medications should be recorded as part of the regimen beginning with the MDR TB therapy start date.
- MDR TB Side Effects from Treatment
 - Please provide a response for all side effects in the value set with an associated indicator.

Objectives of the External Review and Timeline

What we expect from the external review

- **Identify data elements that you cannot map with your current system**
- **Review value sets and determine if they are adequate**
- **Identify potential implementation issues related to the data elements requested**

TB & LTBI MMG Timeline

- **3/27/2018:** External review for draft MMG began
- **4/9/2018:** Webinar to present draft MMG for feedback
- **4/24/2018:** External review for draft MMG closes
- **Late April – Early May 2018:** CDC review of feedback and update of MMG
- **Mid May 2018:** Pilot Test-Ready TB & LTBI MMG

How to submit feedback

- Please provide feedback by 4/24/2018
- To report your feedback, please use the TB & LTBI MMG feedback document: <https://wwwn.cdc.gov/nndss/case-notification/message-mapping-guides.html>, click “MMGs in Development” tab
- Email feedback to: edx@cdc.gov
- Subject line: “Draft TB & LTBI MMG Feedback”
- Feedback will be reviewed by CDC; outcome of reconciliation available
 - To submit a request for reconciled feedback, please contact edx@cdc.gov, subject line “Request for TB & LTBI Reconciled Feedback”

Questions?

For more information, contact CDC
1-800-CDC-INFO (232-4636)
TTY: 1-888-232-6348 www.cdc.gov

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

