



Report of Verified Case of Tuberculosis, 2020

**Training provided by
Division of Tuberculosis Elimination**

Reference and Training Materials

- **Surveillance Training Materials**
 - 2020 RVCT Instruction Manual
 - Recorded webinars with item-by-item review and related case studies
 - FAQs
- **IT Implementation Resources**
 - RVCT 2009 to RVCT 2020 Form Comparison Guide*
 - Message Mapping Guide* for IT staff handling transition to new RVCT

*These resources are to guide IT staff in design of the data collection tool in the surveillance system. Items marked as “optional” in these documents refer to being able to advance forward in the collection tool regardless if there is an answer. This does not mean that this item is “optional” to collect. All items on the RVCT are required for data collection in the cooperative agreement.

2020 RVCT overview

Reportable, countable, and summary of revisions

1. Is this case reportable?

- Reporting of all verified TB cases who are in a U.S. reporting area for ≥ 90 days (inclusive of the report date) is required
 - Based on the cooperative agreements between CDC and TB programs
 - Regardless of whether the case is counted as part of the jurisdiction's official TB case count

2. Is this case countable?

- **No** if already diagnosed with TB in another country
 - Even if unclear whether the other country is counting the case
- **No** if person was in U.S. reporting area <90 days when TB evaluation began *and*
 - did not start TB treatment in a U.S. reporting area (e.g., ICE detainee no longer in U.S. by time culture result came back) *or*
 - began TB treatment in a U.S. reporting area, but returned to other country without having lived ≥ 90 days in a U.S. reporting area

2. Is this case countable? (continued)

- **Yes, if person in a U.S. reporting area for ≥ 90 days** (inclusive of report date)
 - Regardless of whether any TB treatment provided
- **Also, border crossers* receiving TB treatment in the United States ≥ 90 consecutive days** (excluding weekends) should be counted by the U.S. locality where they receive treatment

*Border crosser is an alien resident of the United States reentering the country after an absence of less than 6 months in Canada or Mexico, or a nonresident alien entering the United States across the Canadian border for stays of no more than 6 months, or across the Mexican border for stays of no more than 72 hours.

3. Which U.S. reporting area should count the case?

- The reporting area where the patient was residing (however temporarily) **at the time the diagnostic evaluation for TB began**
 - Even if that reporting area not involved in treating the patient's TB
- **Exception is person who returns home to another U.S. reporting area to continue and complete TB treatment there**
 - The U.S. home reporting area should count this case
 - This patient's reporting address should instead be their home address
- CDC available to help arbitrate disagreements between reporting areas

3. Which U.S. reporting area should count the case?

- Recurrent TB only countable again if diagnosed >12 months after last dose
- If TB diagnosed again in a patient who was taking TB treatment within past 12 months, do not count again — but report in one of two ways:
 - Reopen the RVCT for the original TB episode and update the appropriate variables (e.g., sputum conversion, date of treatment completion)
 - This is preferred way to report
 - Submit a new RVCT and in item 5 indicate that the case has already been counted by another U.S. reporting area
 - Enter current reporting area as the “other” reporting area

2020 RVCT has 43 items

+ MDR TB Supplemental Form

The image displays the first 10 pages of the 2020 RVCT (Routine Vigilance Case Tracking) form. The pages are arranged in two rows of five. Each page contains various data entry fields, checkboxes, and tables for reporting tuberculosis cases. The forms include sections for patient information, clinical details, and treatment outcomes. The pages are numbered 1 through 10.

The image shows the MDR TB Supplemental Surveillance Form. It is a detailed form for reporting multidrug-resistant tuberculosis (MDR TB) cases. The form includes sections for patient information, clinical details, and treatment outcomes. It features a table for recording treatment outcomes and a section for reporting MDR TB cases. The form is titled "MDR TB SUPPLEMENTAL SURVEILLANCE FORM" and includes instructions for use.

What has been deleted?

- For all cases
 - Date form submitted to state health department
 - Within-state moves
 - Type of reporting laboratory or outpatient healthcare provider
 - Number of treatment doses given by directly observed therapy (DOT)
- For non-U.S.–born persons, initial visa type
- For persons incarcerated at TB diagnosis, the follow-up question of whether under custody of Immigration and Customs Enforcement (ICE)

Additions and Revisions

Administrative Information

Unchanged
item

1. **Date Reported:** / /

Revised item

2. **Date Counted**

a. MMWR Week:

b. MMWR Year:

Unchanged

3. **State Case Number:** - -

Unchanged

4. **Local Case Number:** - -

New item

5. **Case Already Counted by Another Reporting Area?**

___ Yes, another U.S. reporting area (State case number from other area:

- -)

___ Yes, another country (Specify country: _____)

___ No

Demographics and Initial Evaluation

6. Reporting Address

a. City: _____

b. Is the Patient's Residence within City Limits?

___ Yes

___ No

___ Unknown

c. County: _____

d. ZIP Code: -

e. Census Tract (11-digit GEOID):

7. Date of Birth: / /

Unchanged

Unchanged

Unchanged

Unchanged

New part

Unchanged

Revised

8. Sex at Birth

Male

Female

If Female, Was Patient Pregnant at Time of Diagnostic Evaluation?

Yes

No

Unknown

Unknown

Revised

9. Ethnicity

Hispanic or Latino

Not Hispanic or Latino

Unknown

Revised

10. Race

American Indian or Alaska Native

Asian (Specify: _____)

Black or African American

Native Hawaiian or Other Pacific Islander (Specify: _____)

White

Other Race (Specify: _____)

Unknown

Unchanged

Reworded
but unchanged

Unchanged

11. Nativity

- a. Country of Birth: _____
(If NOT United States, Date of First U.S. Arrival: / /)
- b. Eligible for U.S. Citizenship/Nationality at Birth (regardless of country of birth)?
___ Yes
___ No
___ Unknown
- c. Countries of Birth for Primary Guardian(s) (pediatric [<15 years old] cases only)
i. Guardian 1: _____
ii. Guardian 2: _____

New item

12. Country of Usual Residence

- a. Country of Usual Residence: _____
- b. If **NOT** U.S. Reporting Area, Has Been in United States for ≥ 90 days (inclusive of Report Date)?
___ Yes
___ No
___ Unknown

Revised

13. Status at TB Diagnosis

- ___ Alive
___ Dead *(Make sure to complete question 43)*

Revised

14. Initial Reason Evaluated for TB

- ___ Contact Investigation
___ Screening
___ TB Symptoms
___ Other
___ Unknown

Revised + new

15. Occupation and Industry

Revised + new

16. Other Risk Factors

Revised

17. If Resident of Correctional Facility at Diagnostic Evaluation,
Type of Facility?

Unchanged

18. If Resident of Long-Term Care Facility at Diagnostic Evaluation,
Type of Facility?

New item

19. Current Smoking Status at Diagnostic Evaluation

New item

20. Lived outside of United States for >2 months (uninterrupted)?

Revised item

21. Tuberculin Skin Test and All Non-DST TB Laboratory Test Results

Revised item

22. Chest Radiograph or Other Imaging Study Results

- Both these items use **repeating group blocks**
 - Can enter unlimited number of test results
 - Minimum expectations are prefilled in the tables
 - Minimum requirements depend on which criteria you used to verify case met the national TB surveillance case definition

Clinical History and Findings

23. **Has the Patient been Previously Diagnosed with TB Disease or LTBI?**

Yes

No

Unknown

If YES, Complete Table Below (unlimited number of rows may be entered):

Diagnosis Type (TB Disease/LTBI)	Date of Diagnosis	Previous State Case No.	Completed Treatment? (Yes/No/Unknown)
	□□/□□/□□□□	□□□□-□□-□□□□□□□□	
	□□/□□/□□□□	□□□□-□□-□□□□□□□□	
	□□/□□/□□□□	□□□□-□□-□□□□□□□□	

24. **Date of Illness Onset/Symptom Start Date:** □□/□□/□□□□

25. **Site of TB Disease** (select all that apply)

Pulmonary

Pleural

Lymphatic: Cervical

Lymphatic: Intrathoracic

Lymphatic: Axillary

Lymphatic: Other

Lymphatic: Unknown

Laryngeal

Bone and/or Joint

Genitourinary

Meningeal

Peritoneal

Other (Specify: _____)

Site Not Stated

Revised

New item

Unchanged

Epidemiologic Investigation

26. Case Meets Binational Reporting Criteria?

Yes

If Yes, Which Criteria were Met? (Select All That Apply)

Exposure to Suspected Product from Canada or Mexico (e.g., dairy product for *M. bovis* case)

Has Case Contacts In or From Mexico or Canada

Potentially Exposed by a Resident of Mexico or Canada

Potentially Exposed while in Mexico or Canada

Resident of Canada or Mexico

Other Situations that May Require Binational Notification or Coordination of Response

No

Unknown

27. Case Identified During the Contact Investigation of Another Case?

Yes

If Yes, Evaluated for TB During that Contact Investigation?

Yes

No

Unknown

No

Unknown

28. Contact Investigation Conducted for This Case?

Yes

No

Unknown

29. Complete Table Below for All Known TB and LTBI Cases Epidemiologically Linked to this Case (an unlimited number of rows may be entered):

State Case Number
□□□□ - □□ - □□□□□□□□□□
□□□□ - □□ - □□□□□□□□□□
□□□□ - □□ - □□□□□□□□□□

New item

Revised/new

New item

Revised/new

Unchanged

30. Date Therapy Started: / /

Revised

31. <u>Initial Drug Regimen</u>	
Drug Name	Used?
Isoniazid	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
Rifampin	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
Pyrazinamide	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
Ethambutol	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
Streptomycin	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
Rifabutin	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
Rifapentine	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
Ethionamide	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
Amikacin	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
Kanamycin	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
Capreomycin	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
Ciprofloxacin	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
Levofloxacin	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
Ofloxacin	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
Moxifloxacin	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
Cycloserine	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
Para-Amino Salicylic Acid	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
Linezolid	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
Bedaquiline	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
Delamanid	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
Clofazimine	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
Pretomanid	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
Other: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown



New item

32. If Initial Drug Regimen NOT RIPE/HRZE, Why Not?

___ Drug contraindication/interaction

___ Drug susceptibility testing results already known

___ Suspected drug resistance

___ Drug shortage

___ Other (Specify: _____)

___ Unknown

New item

Q36: Was the Patient Treated as an MDR TB Case?

- Asks whether patient considered to have MDR TB at any time during therapy (even if no lab results available to confirm MDR)

36. Was the Patient Treated as an MDR TB Case (Regardless of DST Results)?

Yes

No

Unknown

If YES, complete MDR TB Supplemental Data Form

- RVCT manual pg 59: ***Do not mark this item as “Yes” if 2nd-line TB drugs were used for reasons other than confirmed or presumed drug resistance***

MDR TB Supplemental Surveillance Form

MDR TB SUPPLEMENTAL SURVEILLANCE FORM TO BE COMPLETED FOR ALL CASES TREATED WITH MDR TB MEDICATIONS

1. HISTORY OF TREATMENT BEFORE CURRENT EPISODE WITH SECOND-LINE TB DRUGS FOR THE TREATMENT OF TB DISEASE (NOT LTBI)? Yes No Unknown

TREATMENT COURSE

2. Date MDR TB treatment started for current episode

Month Day Year

3. Drugs ever used for MDR TB treatment, from MDR start date (select one option for each drug)

Drug	Length of Time Administered (Not Used, <1 Month, ≥1 Month)
Isoniazid	
Rifampin	
Pyrazinamide	
Ethambutol	
Streptomycin	
Rifabutin	
Rifapentine	
Amikacin	
Kanamycin	
Capreomycin	
Ethionamide	
Levofloxacin	
Moxifloxacin	
Cycloserine	
Para-Amino Salicylic Acid	
Linezolid	
Bedaquiline	
Delamanid	
Clofazimine	
Pretomanid	
Other (Specify: _____)	

4. Date injectable medication was stopped

Month Day Year

Not applicable

5. Was surgery performed to treat MDR TB? Yes No Date: _____

6. SIDE EFFECTS

Side Effect	Experienced? (Yes, No, Unknown)	When? (During Treatment, At End of Treatment, Both)
Depression		
Suicide Attempt or Ideation		
Cardiac Abnormalities		
Hearing Loss		
Tinnitus		
Vestibular Dysfunction		
Peripheral Neuropathy		
Renal Dysfunction		
Vision Change/Loss		
Liver Toxicity		
Myalgia		
Arthralgia		
Other (Specify: _____)		

- Complete for all cases treated as MDR TB due to **confirmed or presumed MDR TB**
- Also complete for any cases **treated with MDR TB medications for other reasons**

Unchanged

Case Outcome

37. Sputum Culture Conversion Documented?

Yes (Date specimen collected for FIRST consistently negative sputum culture: //)

No

If No, Reason for Not Documenting Sputum Culture Conversion?

No Follow-up Sputum Despite Induction

No Follow-up Sputum and No Induction

Died

Patient Refused

Patient Lost to Follow-up

Other (Specify: _____)

Unknown

Unknown

Revised
nothing added;
in-state moves
removed

38. Moved During Therapy?

Yes

If Yes, Moved to Where? (select all that apply)

Out of State (Specify Destination: _____)

Out of United States (Specify Destination: _____)

Transnational Referral Made?

Yes

No

Unknown

No

Unknown

Unchanged

39. Date Therapy Stopped: / /

Revised

40. Reason Therapy Stopped or Never Started?

Completed Treatment

Lost

reworded

Patient Choice (Uncooperative or Refused)

Adverse Treatment Event

Not TB

Died

added

Dying (treatment stopped because of imminent death, regardless of cause of death)

added

Other (Specify: _____)

Unknown

Revised

41. Reason TB Disease Therapy Extended >12 Months, if applicable (select all that apply)

definition broadened

Inability to Use Rifampin (Resistance, Intolerance, etc.)

Adverse Drug Reaction

Nonadherence

Failure

Clinically Indicated for Reasons Other than Above

Other (Specify: _____)

added

Unknown

Revised

added

Revised

simplified

42. Treatment Administration (select all that apply)

DOT (Directly Observed Therapy, in person)

EDOT (Electronic DOT, via video call or other electronic method)

Self-Administered

43. Did the Patient Die (either before diagnosis or at any time while being followed by TB program)?

Yes (Date of Death: //)

Did TB or Complications of TB Treatment Contribute to Death?

Yes

No

Unknown

No

Unknown

Administrative Information

RVCT items Q1–Q5

Items Q2, Q5

Q2: Date Counted

2. Date Counted

a. MMWR Week:

b. MMWR Year:

- **Revision to Q2:** Instead of entering month/year, enter **MMWR week/year**
- Date that state health department or other designated counting authority verifies the case meets criteria in national TB surveillance case definition (*see Appendix B*)
 - This is just the decision to make this case **reportable in the USA**

MMWR Week

- This date type is used by the other reportable diseases in CDC's *Summary of Notifiable Diseases*
- Online guidance and calendars:
 - <https://wwwn.cdc.gov/nndss/downloads.html>
- Local software should be coded to calculate

calendar example

	Weeks Ending Saturday
MMWR Week	2020
1	Jan 4
15	Apr 11
16	Apr 18
22	May 30
25	Jun 20
26	Jun 27

MMWR Year \neq Calendar Year

- Some years (2020) have 53 weeks
- Some years (2021) have 52 weeks

Weeks ending Saturday	
Weeks	2020
1	Jan 4
52	Dec 26
53	Jan 2

Weeks ending Saturday	
Weeks	2021
1	Jan 9
51	Dec 25
52	Jan 1

- Decision based on day of week January 1 occurs
 - If Thur, Fri, Sat \rightarrow that week is MMWR week #52 or #53 for previous year
 - If Sun, Mon, Tue, Wed \rightarrow that week is MMWR week #1 of new year

New item

Q5: Case Already Counted by Another Reporting Area?

- Helps avoid double-counting in official national TB case counts
- Multiple jurisdictions might **report**; only one should **count**

Case Already Counted by Another Reporting Area?

___ Yes, another U.S. reporting area (State case number from other area:

- -)

___ Yes, another country (Specify country: _____)

___ No

Demographics and Initial Evaluation

RVCT items Q6–Q14

Item Q6e

Q6: Census Tract GEOID Available at U.S. Census Geocoder

e. Census Tract (11-digit GEOID):

- “Find Geographies” option on U.S. Census Geocoder web site <https://geocoding.geo.census.gov/>

- Will need **street address**
or GIS coordinates

United States
Census
Bureau

"FIND LOCATIONS USING..." OPTION

- One Line
- Address
- Address Batch

"FIND GEOGRAPHIES USING..." OPTION

- One Line
- Address**
- Address Batch
- Geographic Coordinates**

ABOUT DATA...

- Benchmarks
- Vintages

Welcome to Geocoder

Welcome to Geocoder

Census geocoder provides interested in matching addresses. Please see the Geocoding Services API PD

From street address to Census Tract GEOID

e. Census Tract (11-digit GEOID):

□	□	□	□	□	□	□	□	□	□	□	□
---	---	---	---	---	---	---	---	---	---	---	---

- Easy if have street address

"FIND GEOGRAPHIES USING..." OPTION

One Line
Address
Address Batch
Geographic Coordinates

United States
Census
Bureau

▼ Find Address Results

Street :	1600 Clifton Rd NE
City :	Atlanta
State :	GA
Zip :	30329
Benchmark :	Public_AR_Current ▼
Vintage :	Current_Current ▼
FIND	

Census Tracts:

GEOID: 13089022404

CENTLAT: +33.7965677

AREAWATER: 16247

STATE: 13

<https://geocoding.geo.census.gov/>

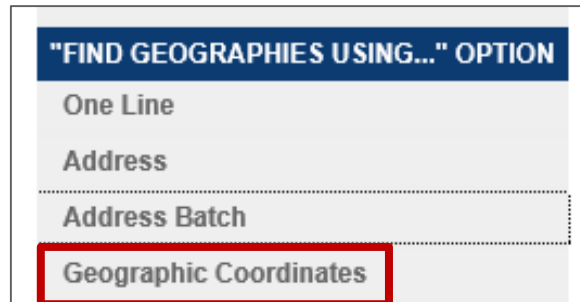
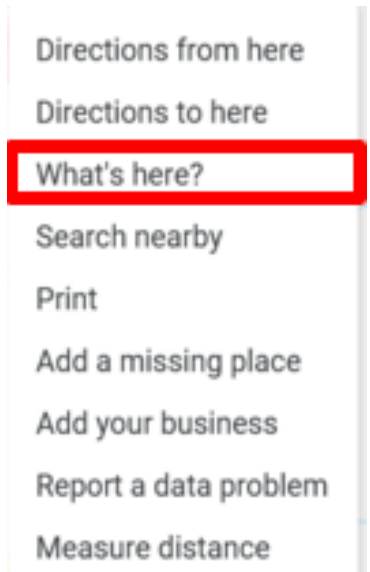
If don't have address, how to look up GIS coordinates?

- Can get these from apps, such as Google* Maps www.google.com/maps

1. Click on patient's residence



2. Then right-click red location icon, followed by "What's Here?"



3. Gives you **##.#####**, **-##.#####**
Y latitude X longitude

*Mention of specific brand names is for identification purposes only and does not imply any endorsement by CDC

From GIS coordinates to Census Tract GEOID

e. Census Tract (11-digit GEOID):

- Can also enter GIS coordinates (X longitude and Y latitude)
negative *positive*

"FIND GEOGRAPHIES USING..." OPTION

- One Line
- Address
- Address Batch
- Geographic Coordinates**

United States
Census
Bureau

Find Geographies Results

x: X longitude

y: Y latitude

Benchmark :

Vintage :

FIND

Census Tracts:
GEOID: 13089022404
CENTLAT: +33.7965677
AREAWATER: 16247
STATE: 13

Risk Factors

RVCT items Q15–Q20

Items 15, 16, 19, 20

Q15: Occupation and Industry

- Used to investigate possible occupational risk factors for TB

15. Occupation and Industry

a. Has the patient ever worked as one of the following? (select all that apply)

Revised
to “ever”

- Healthcare Worker
- Correctional Facility Employee
- Migrant/Seasonal Worker
- None of the above
- Unknown

b. Patient’s Current Occupation(s) and Industry(ies)

Occupation	Industry

Comprehensive
options for patient’s
current or most
recent work added
at CSTE’s request

Q15: Occupation and Industry, continued

- Complete for everyone who is ≥ 14 years old
- Ever employed or regularly volunteered in healthcare, corrections, or migrant/seasonal work (*select all that apply*)

15. Occupation and Industry

a. Has the patient ever worked as one of the following? (select all that apply)

- Healthcare Worker
- Correctional Facility Employee
- Migrant/Seasonal Worker
- None of the above
- Unknown

Q15: Occupation and Industry, continued

NIOSH Industry and Occupation Computerized Coding System (NIOCCS)

NIOCCS Home Page
Log On
Register for an Account
Census Alpha Index Lookup
Code a File
Code a Single Record -
I & O Coding
Crosswalk Coding
Help +

Nioccs

Promoting productive workplaces through safety and health research **NIOSH**

[CDC > NIOSH > NIOCCS Home Page](#)

Welcome to the NIOSH Industry and Occupation Computerized Coding System (NIOCCS)

Get the industry and occupation codes for a [single record](#) or [single record requiring crosswalk](#)
[Log on](#) or [Register](#) for a NIOCCS account to code a file

About NIOCCS:

- NIOCCS is a free web-based tool used to translate industry and occupation text into standardized codes.
- Coding is based on the U.S. Census I&O Classification system with options for coding to the Census 2000, 2002 and 2010 coding schemes.
- Output files include the North American Industry Classification System (NAICS) and U.S. Standard Occupation Classification (SOC) codes associated with the Census scheme selected for coding.

b. Patient's Current Occupation(s) and Industry(ies)

Occupation	Industry

NIOSH = National Institute of Occupational and Safety and Health: <https://www.cdc.gov/niosh>

NIOCCS = National Industry and Occupation Computerized Coding System: <https://wwwn.cdc.gov/nioccs3/>

Q15: Occupation and Industry, continued

What kind of work do you do?

- Nurse, janitor, student, engineer
- Unemployed, volunteer, child

What type of business or industry do you work in?

- Hospital, meat-processing plant, high school

b. Patient's Current Occupation(s) and Industry(ies)

Occupation	Industry

NIOSH = National Institute of Occupational and Safety and Health: <https://www.cdc.gov/niosh>

NIOCCS = National Industry and Occupation Computerized Coding System: <https://wwwn.cdc.gov/nioccs3/>

Q16: Other Risk Factors

- Used to evaluate potential risk factors for TB disease
- For each listed risk factor, indicate Yes, No, or Unknown
- **Revision:** risk factors now presented in repeating group blocks

Diabetic at diagnostic evaluation (unchanged)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
Homeless in past 12 months (unchanged)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
Homeless ever (new)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
Resident of correctional facility at evaluation (unchanged)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
Resident of correctional facility ever (new)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
Resident of long-term care facility at evaluation (unchanged)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
Injecting drug use in past 12 months (unchanged)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
Noninjecting drug use in past 12 months (unchanged)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
Heavy alcohol use in past 12 months (new definition)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
TNF-alpha antagonist therapy at evaluation (unchanged)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
Post-organ transplantation (unchanged)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
End-stage renal disease at evaluation (unchanged)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
Viral hepatitis B or C ever (new)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
Immunocompromise other than HIV/AIDS (unchanged)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
Other (Specify: _____) (unchanged)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown

New item

Q19: Current Smoking Status at Diagnostic Evaluation

- Refers to tobacco — either combustible or electronic **inhalation of nicotine**

19. Current Smoking Status at Diagnostic Evaluation

- ___ Current everyday smoker
- ___ Current someday smoker
- ___ Former smoker
- ___ Never smoker
- ___ Smoker, current status unknown
- ___ Unknown if ever smoked



New item

Q19: Current Smoking Status at Diagnostic Evaluation

- **Current everyday smoker:** Patient currently **inhales nicotine** every day
- **Current someday smoker:** Patient currently **inhales nicotine** some days, but not every day
- **Former smoker:** Patient smoked ≥ 100 cigarettes/cigars during lifetime, then quit
- **Never smoker:** Patient smoked 0–99 cigarettes/cigars during lifetime

Note: Q19 here is specifically about nicotine use.

Report any marijuana use in **Q16** Noninjection drug use

New item

Q20: Lived Outside the United States for >2 Months (Uninterrupted)



- Used to determine the extent to which persons lived or traveled outside the United States might be associated with a higher risk of TB exposure

20. Lived outside of the United States for >2 months (uninterrupted)?

Yes

No

Unknown

- For **Q20**, anywhere outside the 50 U.S. states, District of Columbia, Puerto Rico, or the U.S. Virgin Islands

Diagnostic Testing (Non-DST)

Items Q21–Q22

Q21: TST and all Non-DST Laboratory Test Results

Test Type	Specimen Source Site	Date Collected/ Placed	Date Reported/ Read	Qualitative Test Result	Quantitative Test Result	Test Result (Units of Measure)
TST	Skin Structure	□□/□□/□□□□	□□/□□/□□□□			mm
IGRA-QFT	Blood	□□/□□/□□□□	□□/□□/□□□□		N/A	N/A
IGRA-Tspot	Blood	□□/□□/□□□□	□□/□□/□□□□			spots
IGRA-Unknown	Blood	□□/□□/□□□□	□□/□□/□□□□		N/A	N/A
Smear	Sputum/Specify	□□/□□/□□□□	□□/□□/□□□□		N/A	N/A
Culture	Sputum/Specify	□□/□□/□□□□	□□/□□/□□□□		N/A	N/A
NAA	Sputum/Specify	□□/□□/□□□□	□□/□□/□□□□		N/A	N/A
HIV	Blood	□□/□□/□□□□	□□/□□/□□□□		N/A	N/A
CD4 Count	Blood	□□/□□/□□□□	□□/□□/□□□□	N/A		cells/mm ³
Hemoglobin A1c	Blood	□□/□□/□□□□	□□/□□/□□□□	N/A		%
Fasting Blood Glucose	Blood	□□/□□/□□□□	□□/□□/□□□□	N/A		mg/dL
Pathology	Specify	□□/□□/□□□□	□□/□□/□□□□		N/A	N/A
Cytology	Specify	□□/□□/□□□□	□□/□□/□□□□		N/A	N/A
Other (specify:)		□□/□□/□□□□	□□/□□/□□□□			

Q21: TST and all Non-DST Laboratory Test Results

Test Type	Specimen Source Site	Date Collected/ Placed	Date Reported/ Read	Qualitative Test Result	Quantitative Test Result	Test Result (Units of Measure)
TST	Skin Structure	□□/□□/□□□□	□□/□□/□□□□			mm
IGRA-QFT you specify	Blood	□□/□□/□□□□	□□/□□/□□□□		N/A	N/A
IGRA-Tspot IGRA type	Blood	□□/□□/□□□□	□□/□□/□□□□			spots
IGRA-Unknown used	Blood	□□/□□/□□□□	□□/□□/□□□□		N/A	N/A
Smear	Sputum/Specify	□□/□□/□□□□	□□/□□/□□□□		N/A	N/A
Culture	Sputum/Specify	□□/□□/□□□□	□□/□□/□□□□		N/A	N/A
NAA	Sputum/Specify	□□/□□/□□□□	□□/□□/□□□□		N/A	N/A
HIV	Blood	□□/□□/□□□□	□□/□□/□□□□		N/A	N/A

- These results are expected for every case, so test type is prefilled
 - But “Unknown” or “Not Done” is valid response option

Q21: TST and all Non-DST Laboratory Test Results

Test Type	Specimen Source Site	Date Collected/ Placed	Date Reported/ Read	Qualitative Test Result	Quantitative Test Result	Test Result (Units of Measure)
TST	Skin Structure	□□/□□/□□□□	□□/□□/□□□□			mm
IGRA-QFT	Blood	□□/□□/□□□□	□□/□□/□□□□		N/A	N/A
IGRA-Tspot	Blood	□□/□□/□□□□	□□/□□/□□□□			spots
IGRA-Unknown	Blood	□□/□□/□□□□	□□/□□/□□□□		N/A	N/A
Smear	Sputum/Specify	□□/□□/□□□□	□□/□□/□□□□		N/A	N/A
Culture	Sputum/Specify	□□/□□/□□□□	□□/□□/□□□□		N/A	N/A
NAA	Sputum/Specify	□□/□□/□□□□	□□/□□/□□□□		N/A	N/A
HIV	Blood	□□/□□/□□□□	□□/□□/□□□□		N/A	N/A
CD4 Count	Blood	□□/□□/□□□□	□□/□□/□□□□	N/A	###	cells/mm ³

- CD4 Count also expected for TB patients where HIV test result = Positive
 - But “Unknown” or “Not Done” is valid response option

Q21: TST and all Non-DST Laboratory Test Results

Test Type	Specimen Source Site	Date Collected/ Placed	Date Reported/ Read	Qualitative Test Result	Quantitative Test Result	Test Result (Units of Measure)
TST	Skin Structure	□□/□□/□□□□	□□/□□/□□□□			mm
IGRA-QFT	Blood	□□/□□/□□□□	□□/□□/□□□□		N/A	N/A
IGRA-Tspot	Blood	□□/□□/□□□□	□□/□□/□□□□			Spots
IGRA-Unknown	Blood	□□/□□/□□□□	□□/□□/□□□□		N/A	N/A
Smear	Sputum/Specify	□□/□□/□□□□	□□/□□/□□□□		N/A	N/A
Culture	Sputum/Specify	□□/□□/□□□□	□□/□□/□□□□		N/A	N/A
NAA	Sputum/Specify	□□/□□/□□□□	□□/□□/□□□□		N/A	N/A
HIV	Blood	□□/□□/□□□□	□□/□□/□□□□		N/A	N/A
CD4 Count	Blood	□□/□□/□□□□	□□/□□/□□□□	N/A		cells/mm ³
Hemoglobin A1c	Blood	□□/□□/□□□□	□□/□□/□□□□	N/A	##.	%
Fasting Blood Glucose	Blood	□□/□□/□□□□	□□/□□/□□□□	N/A	###	mg/dL

- At least 1 of these expected if reported in Q16 that patient has diabetes
 - But “Unknown” or “Not Done” is valid response option

Q22: Chest Radiograph of Other Chest Imaging Results

Study Type	Date of Study	Result	Cavitary?	Miliary?
Plain Chest X-Ray	□□/□□/□□□□			
CT Scan	□□/□□/□□□□			
MRI	□□/□□/□□□□			
PET	□□/□□/□□□□			
Other	□□/□□/□□□□			

- Prefilled for Chest X-ray + CT Scan
- Requires at least 1 Chest X-ray + CT scan
 - But “Unknown” or “Not Done” is valid response option

Response Options:
**Consistent with TB,
Not Consistent with TB,
Unknown, Not Done**

Response Options:
**Yes
No
Unknown**

Clinical History and Findings

RVCT items Q23–Q25

Items 23–24

Q23: Has the Patient been Previously Diagnosed with TB Disease or LTBI?

- **Revision:** Now also asks about previous LTBI

23. Has the Patient been Previously Diagnosed with TB Disease or LTBI?

Yes
 No
 Unknown

If YES, Complete Table Below (unlimited number of rows may be entered):

Diagnosis Type (TB Disease / LTBI)	Date of Diagnosis	Previous State Case No.	Completed Treatment? (Yes/No/Unknown)
	□□/□□/□□□□	□□□□-□□-□□□□□□□□□□	
	□□/□□/□□□□	□□□□-□□-□□□□□□□□□□	
	□□/□□/□□□□	□□□□-□□-□□□□□□□□□□	

- Also asks for additional details, if available
 - *If details not documented, self-report is acceptable*

New item

Q24: Date of Illness Onset/Symptom Start Date

- Used to estimate start of infectious period

24. Date of Illness Onset/Symptom Start Date: / /

- Symptom onset:** Approximate time when the patient first noticed TB signs and symptoms, such as cough onset, unintended weight loss, night sweats
- If patient reports not having experienced any TB signs or symptoms, record date of first clinical finding consistent with TB

Epidemiologic Investigation

Items Q26–Q29

New item

Q26: Case Meets Binational Reporting Criteria?

- Added at request of Council of State and Territorial Epidemiologists
- Any of six potential criteria (often >1 apply)

26. Case Meets Binational Reporting Criteria?

Yes

If Yes, Which Criteria were Met? (Select All That Apply)

Exposure to Suspected Product from Canada or Mexico (e.g., dairy product for *M. bovis* case)

Has Case Contacts In or From Mexico or Canada

Potentially Exposed by a Resident of Mexico or Canada

Potentially Exposed while in Mexico or Canada

Resident of Canada or Mexico

Other Situations that May Require Binational Notification or Coordination of Response

No

Unknown

- Consider this response independently of reporting and counting decisions

Binational Reporting Criteria (select all that apply)

- **First 5 criteria correspond to standard CSTE criteria used for other diseases that often require binational collaboration among public health agencies**
 1. Exposed to suspected product from Mexico or Canada
 2. Has case contacts in Mexico or Canada
 3. Potentially exposed by resident of Mexico or Canada
 4. Potentially exposed while in Mexico or Canada
 5. Resident of Mexico or Canada

- **Sixth criterion added to RVCT as more likely to apply to binational TB cases**
 6. “Other situations” such as border crossing during treatment or referral to U.S.-funded program for treatment

Q27: Case Identified During the Contact Investigation of Another Case?

27. Case Identified During the Contact Investigation of Another Case?

Yes

**new
part**

If Yes, Evaluated for TB During that Contact Investigation?

Yes

No

Unknown

No

Unknown

- **Revision:** This was previously asked less directly in other parts of RVCT

New item

Q28: Contact Investigation Conducted for this Case?

- Used to record whether a contact investigation was done

28. Contact Investigation Conducted for This Case?

Yes

No

Unknown

- This is a required variable, so please complete for all cases, even those that don't require a contact investigation
- As in **Q14**, “contact investigation” concept includes source case investigations

Q29: All Known Epi-Linked TB and LTBI Cases

new part

- **Revisions:** Item expanded to **include LTBI cases** and now able to list >3 epi-linked cases

29. Complete Table Below for All Known TB and LTBI Cases Epidemiologically Linked to this Case (an unlimited number of rows may be entered):

State Case Number
□□□□ - □□ - □□□□□□□□□□
□□□□ - □□ - □□□□□□□□□□
□□□□ - □□ - □□□□□□□□□□

- TB and LTBI found among contacts
- Links to earlier or later cases
- Any other epi links determined later

Initial Treatment Information

RVCT items Q30–Q32

Item Q32

New item

Q32: If Initial Regimen NOT RIPE/HRZE, Why Not?

- Skip this item if Q31 = isoniazid, rifampin*, pyrazinamide, and ethambutol

32. If Initial Drug Regimen NOT RIPE/HRZE, Why Not?

Drug contraindication/interaction

Drug susceptibility testing results already known

Suspected drug resistance

Drug shortage

Other (Specify: _____)

Unknown

* or rifabutin in place of rifampin

Genotyping and Drug Susceptibility Testing

RVCT items Q33–Q35

Item Q35

New item

Q35: Genotypic/Molecular DST Results



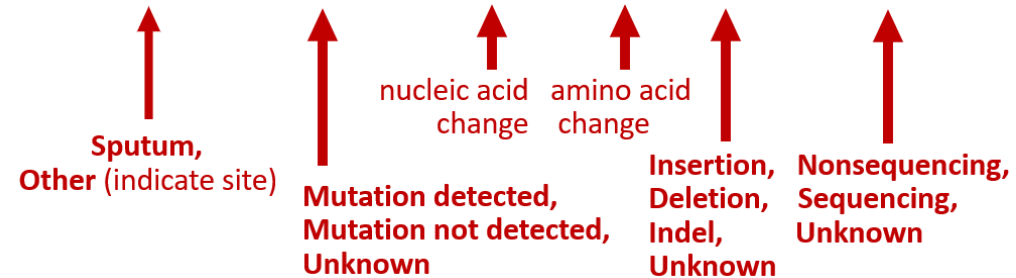
- Table not prepopulated
- Create row for each unique gene/test type combination** that was done, if any
- Enter all initial test results but only need subsequent results if they change from initial results

35. Was Genotypic/Molecular Drug Susceptibility Testing Done?

Yes
 No
 Unknown

If YES, Complete Table Below (an unlimited number of rows may be entered):
INCLUDE INITIAL RESULT FOR EACH COMBINATION OF GENE AND TEST TYPE AS WELL AS ANY SUBSEQUENT TESTS WHERE THE RESULT CHANGED

Gene Name	Date Collected	Date Reported	Specimen Source	Result	NA Change	AA Change	INDEL	Test Type
	00/00/0000	00/00/0000						
	00/00/0000	00/00/0000						
	00/00/0000	00/00/0000						
	00/00/0000	00/00/0000						
	00/00/0000	00/00/0000						
	00/00/0000	00/00/0000						
	00/00/0000	00/00/0000						
	00/00/0000	00/00/0000						
	00/00/0000	00/00/0000						



Selected genes associated with resistance to TB drugs

Gene Name	Date Collected	Date Reported	Specimen Source	Result	NA Change	AA Change	INDEL	Test Type
	□□/□□/□□□□	□□/□□/□□□□						
	□□/□□/□□□□	□□/□□/□□□□						

- ***inhA*** associated with resistance to **isoniazid** and **ethionamide**
- ***katG*** associated with resistance to **isoniazid**
- ***ahpC-oxyR*** associated with resistance to **isoniazid**
- ***rpoB*** associated with resistance to **rifampin**
- ***pncA*** associated with resistance to **pyrazinamide**
- ***embB*** associated with resistance to **ethambutol**
- ***ethA*** associated with resistance to **ethionamide**

Selected genes associated with resistance to TB drugs

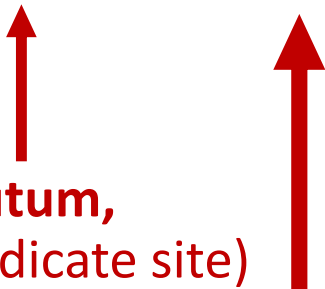
Gene Name	Date Collected	Date Reported	Specimen Source	Result	NA Change	AA Change	INDEL	Test Type
	□□/□□/□□□□	□□/□□/□□□□						
	□□/□□/□□□□	□□/□□/□□□□						

- ***gyrA*** and ***gyrB*** associated with resistance to the **fluoroquinolones**
- ***rrs*** associated with resistance to **streptomycin** and **second-line injectables**
 - *2nd line injectables include amikacin, kanamycin, capreomycin*
- ***eis*** also associated with resistance to **kanamycin**
- ***tlyA*** also associated with resistance to **capreomycin**
- Other genes are associated with resistance to new and repurposed MDR TB drugs **bedaquiline, clofazimine, delamanid, linezolid**
- *More comprehensive list of genes is provided in 2020 RVCT Instruction Manual*

Was a mutation detected for that gene?

Gene Name	Date Collected	Date Reported	Specimen Source	Result	NA Change	AA Change	INDEL	Test Type
	□□/□□/□□□□	□□/□□/□□□□						
	□□/□□/□□□□	□□/□□/□□□□						

Sputum,
Other (indicate site)



Mutation Detected,
Mutation Not Detected,
Unknown

Nonsequencing vs. sequencing test types

Gene Name	Date Collected	Date Reported	Specimen Source	Result	NA Change	AA Change	INDEL	Test Type
	00/00/0000	00/00/0000						
	00/00/0000	00/00/0000						

↑ Nonsequencing,
Sequencing,
Unknown



How to tell if the lab used sequencing methods

Are these results from sequencing or nonsequencing test methods?

- **Nonsequencing** methods
 - Line-probe assay, real-time PCR, NAAT (e.g., Gene Xpert MTB/RIF*)
- **Sequencing** methods probably used if word *sequencing* appears
 - Whole genome *sequencing* (WGS), next generation *sequencing* (NGS), *pyrosequencing*, *Sanger sequencing*, targeted-based *sequencing*, amplicon-based *sequencing*
- **Sequencing methods likely used if NA changes/AA changes are reported**

Nonsequencing vs. sequencing test types

Gene Name	Date Collected	Date Reported	Specimen Source	Result	NA Change	AA Change	INDEL	Test Type
	□□/□□/□□□□	□□/□□/□□□□						
	□□/□□/□□□□	□□/□□/□□□□						

↑ Nonsequencing,
Sequencing,
Unknown

- **Nonsequencing** test methods
 - Example: Gene Xpert MTB/RIF* detects changes in *rpoB* gene that may be associated with rifampin resistance
- **Sequencing** methods identify the underlying DNA and/or protein changes
 - Each nucleotide symbolized by single letter A, G, C, or T
 - Each amino acid has 3-letter abbreviation like Asp, Cys, Gly, Ser, Thr, Leu...

Multidrug-resistant (MDR) TB

RVCT item Q36

RVCT item Q36

National Action Plan for Combating MDR TB (2015)

- Objective 1.1 *Upgrade TB surveillance to ensure complete and accurate detection of drug-resistant TB*

NATIONAL ACTION PLAN FOR COMBATING MULTIDRUG-RESISTANT TUBERCULOSIS



“The updated system will
record information on treatment of cases of MDR TB and XDR TB”

Case Outcomes

RVCT item Q37 - 43

Thank You

Any Questions?

DTBESupport@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.

