**Project Narrative**

1. Background

Tuberculosis is an airborne disease and globally, a leading cause of death. One fourth of the world’s population is infected with TB. In 2017, 10.0 million people around the world because sick with TB disease. There were 1.3 million TB-related deaths world-wide, and TB is the leading killer of people who are infected with HIV. A total of 139 cases of active TB were reported in Tennessee in 2018, which represents a 12.1% increase in the number of cases reported in 2017. Meeting the U.S. TB elimination goal will require an added focus on testing and treating high-risk persons with TB infection (TBI) to prevent them from developing active TB disease. In 2018, regional TB programs in Tennessee evaluated and diagnosed 1,152 cases of TB infection, which represents a decrease of 17.9% compared to TBIs diagnosed at regional and local public health departments in 2017.

TB disproportionately affects certain populations, including those who are: non-U.S.-born, with human immunodeficiency virus (HIV) or diabetes, experiencing homelessness, incarcerated, and who use illicit substances. The incidence rate of active TB among non-U.S.-born persons in Tennessee in 2018 was 18.8 and represented 46.8% of the total cases of TB reported in Tennessee in that year. While the total number of active TB cases in Tennessee increased from 2017 to 2018, the proportion of total cases with the risk factors listed above decreased among all patients. Achieving TB elimination in Tennessee and in the United States will require focusing on persons in these high-risk groups.

1. Approach
	1. **Purpose**

Using current and historical data, the Tennessee TB Elimination Program (TTBEP) plans to work with regional TB programs to identify populations at high risk for developing active TB or progressing to active TB if infected. The TTBEP will continue to work with agencies/organizations/individuals outside of the state department of health who provides services populations at high-risk as well as identify opportunities to partner with agencies/organizations/individuals that could contribute to the elimination of tuberculosis in Tennessee.

* 1. **Outcomes**

**Strategy/Activity: Diagnosis/treatment of persons with TB disease**

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| **Short-Term Outcomes** | **Intermediate Outcomes**  | **Long-Term Outcomes** |
| Increase in TB patient knowledge of importance of knowing HIV status | Increase in the number of TB cases with a known HIV result | Decrease in the overall TB incidence in Tennessee Decrease in TB mortality in Tennessee |
| Increase in provider and lab knowledge of Tennessee reporting guidelines | Increase in the number of patients with a DST result reported |
| Increase health department provider knowledge regarding use of therapeutic drug monitoring | Increase in the number of patients responding to the appropriate treatment regimen and completing treatment within 12 months |

**Strategy/Activity: Diagnosis/treatment of persons with TB infection (TBI)**

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| **Short-Term Outcomes** | **Intermediate Outcomes**  | **Long-Term Outcomes** |
| Increase in the number of contacts elicited and fully evaluated | Increase in detection of TB infection in high-risk populationsIncrease in TBI treatment completion rates | Decrease in patients who progress from TBI to active TB diseaseDecrease in incidence of TB among high-risk populations |
| Increase in the number of patients diagnosed with TB infection (TBI) who initiate treatment |
| Increase in treatment initiation for patients with TBI/prior pulmonary TB who are recommended for treatment |

**Strategy/Activity: Program planning, evaluation, and improvement**

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| **Short-Term Outcomes** | **Intermediate Outcomes**  | **Long-Term Outcomes** |
| Increase in identification/dissemination of best practices within and between local and state TB programs | Increase in streamlined/more efficient processes | Increase in quality of care provided to patients |
| Implementation of program evaluation plan | Increase in non-public health laboratory knowledge about reporting requirements | Increase in meeting laboratory reporting NTIP objectives |

**Strategy/Activity: Surveillance**

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| **Short-Term Outcomes** | **Intermediate Outcomes**  | **Long-Term Outcomes** |
| Increase in national accuracy and completeness of surveillance, genotyping and whole-genome sequencing | Increase in the detection of clusters/outbreaks and identification of epidemiologic links | Decrease in overall incidence of TB in Tennessee; Decrease in transmission  |
| Increase in cases genotyped and linked to surveillance data |

**Strategy/Activity: Human resources development and partnerships**

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| **Short-Term Outcomes** | **Intermediate Outcomes**  | **Long-Term Outcomes** |
| Increase in availability and utilization of competency-based education/training | Increase in competency of providers | Increase in well-trained and informed work force; Decrease in overall incidence of TB in Tennessee |
| Increase in capacity to diagnose and treatment TB infection (TBI) |
| Increase the number of providers and organizations collaborating with the Tennessee TB Elimination Program | Increase in the knowledge and awareness of TB in Tennessee | Decrease in overall incidence of TB in Tennessee |

**Strategy/Activity: Laboratory strengthening**

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| **Short-Term Outcomes** | **Intermediate Outcomes**  | **Long-Term Outcomes** |
| Decrease in turnaround times for specimen receipt, AFB smear, NAA identification of MTBC, and growth-based or molecular DST testing | Decrease in the diagnosis time for TBIncrease in the number of patients responding to the appropriate treatment regimen and completing treatment within 12 months  | Decrease in overall incidence of TB in Tennessee Increase in positive patient outcomes |

* 1. **Strategies and Activities**

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| **Strategy** | **Program Activities** |
| 1: Diagnosis/treatment of persons with TB disease | Ensure that HIV testing is offered to all confirmed and suspected cases of TB; For hospitalized patients, health departments should review hospital records for HIV result; if no result, ask hospital to draw HIV or draw HIV at first clinic visit; Ensure that all providers are aware of the reportable disease requirements and timeframes; Encourage health departments to collect specimen from hospital for transport to TDH Division of Laboratory Services, when feasible; Stress the importance of using X-pert for release from isolation; Continue use of TDM for patients who are slow to convert smears and cultures and for patients with risk factors for malabsorption; Use of MDDR testing when drug resistance is suspected, when appropriate; Expanded use of eDOT |
| 2a: Conduct contact investigations for infectious TB cases | Ensure that all staff performing contact investigations are adequately trained in contact investigation (i.e., interviewing skills); Routinely review contact investigation data; Review and submit ARPEs to CDC |
| 2b: Examination of immigrants and refugees with TB or TB infection (TBI) | Partner with organizations providing primary care to immigrants and refugees; Provide culturally-appropriate education; Consider providing clinic-level access to EDN to regional TB program staff; Identify opportunities for expanded use of 3HP |
| 2c: Targeted testing and treatment of TB infection in high-risk populations | Implement “Community Partnerships to End TB”; Designate a liaison from the TB program to providers who serve high-risk populations; Identify and stratify high-risk populations for each public health region |
| 3: Program planning, evaluation, and improvement | Review NTIP indicators for state and regional TB programs on a quarterly basis; Develop program evaluation plan using NTIP data; Review best practices from other TB programs; Identify areas where processes could be improved/streamlined; Identify areas of duplication of effort or redundancy |
| 4: Epidemiologic surveillance and response | Implement QA procedures following CDC’s Quality Assurance for TB Surveillance Data Guide and Toolkit; Provide ongoing training on surveillance data variables; Ensure all new TB case managers and staff receive training on NBS TB Program Area Module (TB PAM); Ensure at least one (1) isolate for each culture-positive TB case is sent for genotyping; Ensure that at least one (1) specimen from each hospitalized patient is sent to Tennessee Department of Health, Division of Laboratory Services for testing; Ensure providers are aware or reportable conditions and timeframes associated with these conditions; Provide genotyping results and matching cases to regional TB programs; Provide whole-genome sequencing results to regional TB program; Ensure that TBI surveillance system data is consistent with TBI variables recommended by CDC |
| 4: Human resource development (HRD) and partnerships | Develop training calendar for regional TB program; Ensure access to culturally sensitive and relative training for all regional TB programs; Provide competency-based education and training for all regional TB programs; Identify and partner with organizations that serve high-risk populations; Ensure educational material is written in plain language |
| 5: Laboratory strengthening | Develop and implement cross-contamination/false-positive protocol; Ensure specimens are received in a timely manner from date of collection to avoid batching specimen transport; Improve communication and data sharing between laboratory and TB elimination program; Implement QA procedures to reduce the number of transcription and documentation errors; Improve reporting format for internal and external partners |

* + 1. Collaborations

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| **Outcome** | **Activities** |
| Collaborate with CDC programs and CDC-funded organizations | 1. Designate a liaison for the following programs with the Tennessee Department of Health: HIV/STD/Hepatitis, Healthcare-Associate Infections, and Immunizations; Whenever feasible, collaborate on presentations at programmatic conferences and other statewide meetings; (2) Partner with state HIV program to develop strategies to increase TBI treatment completion rate among persons living with HIV
 |
| Collaborate with organizations not funded by CDC | Designate a liaison for Department of Correction and Department of Mental Health and Substance Abuse; Foster “Community Partnerships to End TB” initiative |

* + 1. Target Populations and Health Disparities

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| **Outcome**  | **Activities** |
| Collaborate with partners throughout Tennessee that serve high-risk populations | Designate a liaison for Department of Correction and Department of Mental Health and Substance Abuse |
| Provide plain language educational materials in 10 most commonly spoken languages of TB and TBI patients | Identify 10 most commonly spoken languages of TB and TBI cases; utilize translation services contract |

1. Evaluation and Performance Measurement Plan
2. **Background**

The purpose of this evaluation plan is to improve progress toward the national TB program objectives that focus on laboratory reporting, with an emphasis on laboratories other than that state public health laboratory. The national TB objectives on laboratory reporting can be access at: <https://www.cdc.gov/tb/programs/evaluation/indicators/default.htm>

In the past, failure meet the national objectives on laboratory reporting have been due to delays or failures in the reporting of or sending of specimens on behalf of laboratories other than the state public health laboratory. The findings of this program evaluation will help assess (1) current practices among non-public health laboratories and (2) knowledge of reporting and submission requirements and provide opportunities for collaboration and education.

1. **Program Evaluation Plan**

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| **Objective or Key Question** | **Method for Data Collection and Analysis** | **Timeline** |
| Identify non-public health labs that report results for Tennessee TB cases counted 2018-2019 | Chart reviews, NTIP objective data | March 31, 2020 |
| Identify reporting hospitals in Tennessee and the laboratories used for specimen processing | Healthcare Associated Infections program, email or phone communication with hospitals | June 30, 2020 |
| Develop point-of-contact database for hospitals and non-public health laboratories | Email or phone communication with laboratories, state public health lab | July 31, 2020 |
| Provide each reporting entity with detailed guidance of reportable conditions in Tennessee | Email | December 31, 2020 |
| Review NTIP indicators to assess progress | NTIP  | March 31, 2021 |

1. **Data Management Plan**
	1. Line list data of investigations not meeting the NTIP objectives will be accessed from SAMS via a secure login. Line list data do not include any personally identifiable information (PII)
	2. Surveillance data for patients with active TB disease will be accessed from the NEDSS Based System (NBS) TB Program Area Module (TB PAM) via a secure login. These data will not be disseminated outside of the state TB program.
	3. Reporting entity point-of-contact information will be collected via online and/or paper survey or by utilizing already developed contact lists collected by the Healthcare Associated Infections (HAI) program within the state department of health.
	4. Point-of-contact information will be stored in a secure folder within a programmatic shared drive. Access to this drive is only granted to state employees within the state TB program.

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1. **Cohort Review Plan**

The TTBEP has been conducting cohort reviews since 2011 with the two (2) largest metropolitan regions that account for the largest burden of active TB in the state. Cohort reviews are held at least biannually with each region according to a schedule set forth by the regional TB program manager. Cases and contact investigation data are presented for a pre-determined cohort using a program-developed cohort review worksheet that includes RVCT data, data from patient charts, and contact investigation data. At the conclusion of each cohort review, NTIP objectives for that cohort are presented and discussed. Systems issues are identified from the cohort and recorded. The two (2) regional TB programs are asked to complete a “TB Cohort Review Action Plan” and submit to central office. Action steps and narrative progress reports are reviewed during the subsequent cohort review. The TTBEP will continue performing cohort review with these two regions using this process throughout the grant cycle.

1. Organizational Capacity

The Tennessee TB Elimination Program (TTBEP) is comprised on a central office program and 12 regional TB programs that oversee TB activities in all 95 counties in Tennessee. The central office provides programmatic oversight, clinical guidance and consultation, education, training, and resources to the 12 regional TB programs. Of the 12 regional TB programs, six (6) are regions that have TB staff responsible for patients within one (1) defined county (e.g., Nashville/Davidson County); five (5) are “rural” regions with full-time TB staff in a regional office (e.g., West Tennessee region which encompasses 19 counties). These staff oversee TB services (e.g., directly observed therapy) provided by local health department staff for residents of counties within that defined region; and one (1) TB program is a combined “rural” and “metropolitan” region that serves one metropolitan county and the surrounding “rural” counties. Each regional TB program has a TB program manager who is a registered nurse and additional staff that: (1) perform case management of persons with active TB, persons suspected of having active TB, and persons with TB infection (TBI); (2) conduct contact investigations around persons with active TB; (3) cluster investigations; and (4) provide education to patients, staff, and communities. In addition, the Tennessee Department of Health, Division of Laboratory Services Special Microbiology section provides and array of services to assist in the diagnosis and treatment of patients. These services include: smear and culture reflex testing; culture confirmation of *Mycobacterium* tuberculosis complex by MALDI-TOF, line probe assay, and DNA probe; GeneXpert® nucleic acid amplification testing on all new smear positive specimens (validated for sputum and other specimen sources) as well as smear-negative specimens as requested; drug-susceptibility testing; and shipping specimens for molecular detection of drug resistance (MDDR) and genotyping. The state TB program frequently utilizes resources external to the state program that includes: the Infectious Disease Pharmacokinetics Laboratory at the University of Florida for therapeutic drug monitoring (TDM); CDC’s Division of Tuberculosis Elimination (DTBE) Reference Laboratory for MDDR testing; and CDC’s Infectious Diseases Pathology Branch for testing of fixed specimens where TB is suspected.

1. Work Plan

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| **Strategy 1: Diagnosis/Treatment of Persons with TB Disease** |
| **Related Outcomes** | **Measures of Success** |
| 1. Earlier patient diagnosis Increase in: (2) TB cases with HIV results (3) Cases with drug-susceptibility testing results (4) Patients on/responding to appropriate treatment
 | National TB objectives for case management and treatment can be accessed at: <https://www.cdc.gov/tb/programs/evaluation/indicators/default.htm> |
| **Objectives** | **Activities** | **Data** | **Timeline** | **Responsible Party** |
| For patients with newly diagnosed TB disease for whom ≤12 months of treatment is recommended, increase the proportion who complete within 12 months. | Review all case records; Identify opportunities for incentives and enablers; Cohort review with two public health regions; Review NTIP quarterly; Ensure case management for all TB patients | Case records;Incentive logs;Cohort review;Treatment logs | 95 % by 2024 | Case managersTB nurse consultant mgr.TB medical directorTB epidemiologist |
| For TB patients with positive AFB sputum smear results, increase the proportion who initiated treatment within 7 days of specimen collection. | Identify providers who do not start patients on treatment within 7 days of specimen collection; Ensure case management for all TB cases and suspects; Review NTIP objectives quarterly | RVCT data; Case records; Cohort review | 97 % by 2024 | TB program mgr.TB epidemiologistCase managersRegional TB clinician |
| Increase the proportion of TB patients who have a positive or negative HIV test reported to 24. | Ensure case management for all TB cases and suspects; Ensure opt-out testing for all patients receiving a TST or QFT; Educate providers on the importance of collecting HIV when testing for TB infection; Quarterly cross-match with HIV | Case records;Cohort reviewRVCT data; eHARS | 98% by 2024 | Regional TB clinicianCase managersTB epidemiologistTB nurse consultant mgr.HIV epidemiologist |
| For patients whose diagnosis is likely TB disease, increase the proportion who are started on the recommended initial 4-drug regimen. | Create a database of patients not started on recommended 4-drug therapy that includes rationale for not starting regimen; Educate providers on importance of initiating 4-drug regimen for suspected TB; Ensure access to recommended 4 drugs for all patients | Case records;RVCT data; Cohort review | 97% by 2024 | TB epidemiologistRegional TB clinicianCase managerState pharmacist |
| For TB patients ages ≥12 years with a pleural or respiratory site of disease, increase the proportion who have a sputum culture result reported. | Ensure case management for all TB cases; Identify processing laboratories for hospitals statewide; Identify what commercial laboratories perform reflex testing; Ensure providers are aware of reportable conditions and timeframes | Case records;Hospital survey;Cohort review | 98% by 2024 | Case managerTB medical directorTB epidemiologistTB program manager |
| For patients with positive sputum culture results, increase the proportion who have documented conversion to negative within 60 days of treatment initiation. | Maintain sputum culture conversion log; Ensure case management for all TB cases; Maintain laboratory summary log | Case records; Case review; Cohort review; Lab log; Sputum conversion log | 73% by 2024 | TB epidemiologistCase managerTB nurse consultant manager |
| **Strategy 2A: Contact Investigations for Infectious TB Cases** |
| **Related Outcomes** | **Measures of Success** |
| Increase in: (1) Contacts elicited/examined (2) Patients initiating TBI treatment | National TB objectives for contact investigation can be accessed at: <https://www.cdc.gov/tb/programs/evaluation/indicators/default.htm> |
| **Objectives** | **Activities** | **Data** | **Timeline** | **Responsible Party** |
| For TB patient with positive AFB sputum-smear results, increase the proportion who have contact elicited. | Ensure that all staff conducting contact investigations are adequately trained in contact investigation (i.e., interviewing skills); Assess contact investigation data to determine if re-interviews of index cases are needed | ARPE reports;Cohort review;Program assessments | 100% by 2024 | TB nurse case mgr.TB epidemiologistContact investigatorsCase managers |
| For contacts to sputum AFB smear-positive TB cases, increase the proportion who are examined for infection and disease. | Ensure all TB know the requirements for “fully evaluated”; Ensure that contact investigations are prioritized  | ARPE; Cohort review;Program assessments | 93% by 2024 |
| For contacts to sputum AFB smear-positive TB cases diagnosed with LTBI, increase the proportion who start treatment. | Ensure providers provide culturally-appropriate education about TB infection and progress to disease; Ensure contacts are prioritized for treatment  | ARPE; TBI surveillance data; Cohort review | 91% by 2024 | TB cliniciansCase managers |
| For contacts to sputum AFB smear-positive cases who have started treatment for LTBI, increase the proportion who complete treatment. | Increase use of 3HP regimen; Expand use of eDOT (synchronous and asynchronous); Ensure case management of all cases of TBI | ARPE; TBI surveillance data; Cohort review | 81% by 2024 |
| **Strategy 2B: Evaluation of Immigrants and Refugees with TB or TBI** |
| **Related Outcomes** | **Measures of Success** |
| Increase in: (1) Treatment initiation for patients with TBI/prior pulmonary TB (2) TBI diagnoses and high-risk patients who initiate treatment | National TB objectives for the evaluation of immigrants and refugees can be accessed at:<https://www.cdc.gov/tb/programs/evaluation/indicators/default.htm> |
| **Objectives** | **Activities** | **Data**  | **Timeline** | **Responsible Party** |
| For immigrants and refugees with abnormal chest X-rays read overseas as consistent with TB, increase the proportion who initiate a medical examination within 30 days of notification  | Decrease the time from notification from central office to regional TB programs; Increase the number of clinic-level users in EDN | B-notification database; EDN data | 84% by 2024 | TB epidemiologistCase managers |
| For immigrants and refugees with abnormal chest X-rays read overseas as consistent with TB, increase the proportion who complete a medical examination with 90 days of notification  | Provide regional TB program managers an excel sheet with 90-day evaluation target dates for each B-notification received | 76 % by 2024 |
| For immigrants and refugees with abnormal chest X-rays read overseas as consistent with TB who are diagnosed with TBI or have radiographic findings consistent with prior pulmonary TB based on examination in the U.S., for whom treatment was recommended, increase the proportion who start treatment  | Ensure culturally-sensitive education is provided; Partner with agencies providing primary care to immigrants/refugees; Ensure provider stress the importance of TBI treatment and possibility of progressing to active disease; Ensure educational materials are translated appropriately and in plain language | TBI surveillance data; EDN data | 93% by 2024 | TB cliniciansTB medical directorTB program mgr. |
| For immigrants and refugees with abnormal chest X-rays read overseas as consistent with TB who are diagnosed with TBI or have radiographic findings consistent with prior pulmonary TB on basis of examination in the U.S., and who have started on treatment, increase the proportion who complete treatment  | Ensure case management of patients with TBI; Increase use of 3HP; Use of incentives and enablers when appropriate; Partner with agencies providing primary care to immigrants/refugees; Ensure information is provided in patient’s primary language | TBI surveillance data; EDN data | 83% by 2024 | Case managersTB clinicians |
| **Strategy 2C: Targeted Testing and Treatment of TBI** |
| **Related Outcomes** | **Measures of Success** |
| Increase in: (1) Treatment initiation for high-risk patients with TBI (2) Treatment completion for high-risk patients with TBI (3) Decrease in the number of TBI patients who progress to TB disease  | * + 1. 100% of regional TB programs in Tennessee will identify at least one (1) high-risk population for prioritized education and testing activities; (2) At least 33% of each regional high-risk population identified will be evaluated for TB infection; (3) At least 75% of each high-risk population identified and diagnosed with TB infection will start treatment for TB infection; (4) At least 65% of each high-risk population identified who start on treatment for TB infection will complete treatment
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| **Objectives** | **Activities** | **Data**  | **Timeline** | **Responsible Party** |
| Implement “Community Partnerships to End TB” initiative statewide | Hold meetings with each regional TB program leadership to discuss initiative | TB and TBI surveillance data | All meetings by January 31, 2020 | TB medical directorTB epidemiologist |
| Identify one (1) high-risk population for each public health region for prioritized education and testing | Review local/regional TB and TBI data with regional TB program leader | Local dataTB and TBI surveillance data | March 31, 2020 | Regional TB program staff |
| Screen and test high-risk population | Develop a plan to screen and test high-risk-population that includes culturally appropriate and plain language educational materials | Written planEducational materials | December 31, 2021 | Regional TB program staff |
| **Strategy 3: Program Planning, Evaluation, and Improvement** |
| **Related Outcomes** | **Measures of Success** |
| Increase: (1) Adoption of best practices (2) Meeting NTIP objectives (3) Use of findings to inform policy changes and clinical practice | 1. Increase in performance on NTIP performance targets (2) Annual TB Manual updates
 |
| **Objective** | **Activities** | **Data** | **Timeline** | **Responsible Party** |
| Develop program evaluation plan  | Review NTIP data; Ensure objectives are SMART | NTIP | Yearly (Aug) | TB medical directorTB program mgr.TB epidemiologist |
| Implement program evaluation plan | Develop program evaluation team; Monitor findings; Report findings | Program evaluation plan | Yearly (Sept) |
| Develop strategies to implement activities to address findings of program evaluation plan | Gather input from regional TB programs; Review program evaluation plan; Update TB Manual  | End of each fiscal year |
| **Strategy 4: Epidemiologic Surveillance and Response** |
| **Related Outcomes** | **Measures of Success** |
| Increase in: (1) Accuracy and completeness of surveillance, genotyping, and WGS data (2) Linkage of genotyping and surveillance data (3) Availability of data to inform cluster investigations (4) Submit TBI surveillance data to CDC | National TB objectives for data reporting can be accessed at: <https://www.cdc.gov/tb/programs/evaluation/indicators/default.htm> Increase the proportion of TB patients with a positive culture result who have a MTBC genotype result reported |
| **Objectives** | **Activities** | **Data** | **Timeline** | **Responsible Party** |
| Ensure the completeness of each core RVCT data item reported to CDC  | Provide quality assurance on TB case data prior to submission to CDC | RVCT data | 100% by 2024 | TB epidemiologist |
| Ensure completeness of each core ARPE data item reported to CDC  | Review contact investigation data; Provide quality assurance on ARPE data | ARPE data | 100% by 2024 | TB epidemiologistCase managers |
| Ensure the completeness of each core EDN system data item reported to CDC  | Maintain state EDN database; Review of EDN data | EDN; EDN database | 93% by 2024 | EDN point of contact |
| Report genotype cases and matches to regional TB programs | Provide genotype data and cluster snapshot data for each genotyped case | TB GIMSRVCT data | 100% Within 5 days | TB program mgr.Regional TB program mgr. |
| Submit TBI surveillance data to CDC | Ensure state surveillance database contains all CDC-recommended TBI variables; Ensure HL7 messaging | TBI surveillance data | 100% of data elements by 2020 | TB program mgr.Informatics program |
| **Strategy 5: Human Resource Development (HRD) and Partnerships** |
| **Related Outcomes** | **Measures of Success** |
| Increase in: (1) Availability/accessibility of competency-based education (2) Awareness and use of HRD resources (3) Awareness of TB among patients, providers, and community (4) Capacity to diagnosis/treat high-risk populations with TBI  | 1. Number of training sessions held (2) Number of trainings attended
 |
| **Objective** | **Activities** | **Data** | **Timeline** | **Responsible Party** |
| Designate a staff member to serve as TB training and education focal point | Identify staff member to serve as TB training and education focal point |  |  | TB program manager |
| Register focal point as a member of the TB Education and Training Network (TB ETN) | TB ETN membership form completed and emailed to CDC |  | 1/1/2020 | TB program manager |
| Identify Centers of Excellence (CoE) trainings for regional TB program staff | Sign up for CoE newsletter and training announcements |  | Monthly | Education focal point |
| Establish partnerships with organizations that serve high-risk populations | Community Partnerships to End TB (CPET) meetings with regional TB staff and leadership |  | 4/30/20 | TB medical directorTB epidemiologist |
| Hold bimonthly statewide conference calls with 100% regional attendance | Provide conference call calendar to regional TB programs |  | Yearly | TB program mgr.Education fpt.al pt. |
| Plan and execute a TB clinical symposium  | Organize symposium planning group to develop agenda; Identify external partners as presenters at symposium |  | 11/30/19 | TB medical dir.TB program mgr.Education focal pt. |
| Provider quarterly new case manager trainings | Develop calendar |  | 12/31/20 | TB nurse case mgr.Evaluation focal pt. |

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| **Strategy 6: Public Health Laboratory Strengthening**  |
| **Laboratory Element 1: Ensure availability of high-quality and prompt core laboratory services for tuberculosis (TB)** |
|  **Objectives** | **Measures of Success** |
| Reduce turnaround times (TAT) |  |
| **Activities** | **Measure of Success** | **Anticipated Obstacles** | **Responsible Laboratory Staff** | **Target Completion Date/Timeline** |
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| **Laboratory Element 2: Promote continual advancement of laboratory efficiency and quality assurance through the use of local data (i.e., your laboratory-specific data)** |
| **Objectives** | **Measures of Success** |
| Reduce laboratory pre- or post-analytical error rates |  |
| **Activities** | **Measure of Success** | **Anticipated Obstacles** | **Responsible Laboratory Staff** | **Target Completion Date/Timeline** |
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| **Laboratory Element 3: Collaborate with partners (e.g., healthcare providers, TB Programs, and other laboratories) to ensure optimal use of laboratory services and timely flow of information** |
| **Objectives** | **Measures of Success** |
| Increase collaboration with internal and external partners |  |
| **Activities** | **Measure of Success** | **Anticipated Obstacles** | **Responsible Laboratory Staff** | **Target Completion Date/Timeline**  |
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Laboratory Testing Algorithm

Laboratory Organizational Chart

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