**National TB Indicators Project (NTIP)—Tennessee Performance, 2015 – 2019**

**Table 1. National TB Indicators Project (NTIP)—Tennessee Performance, 2015 – 2019**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **National TB Program Objective** | **2015** | **2016** | **2017** | **2018** | **2019\*** | **2020 Target** |
| **TB Incident Rates (cases/100,000 population)** | | | | | | |
| TB incidence rate | 2.0 | 1.5 | 1.8 | 2.1 | NA | **1.4** |
| U.S.-born persons | 1.1 | 1.0 | 1.0 | 1.2 | NA | **0.4** |
| Non-U.S.-born persons | 18.3 | 12.1 | 17.3 | 18.8 | NA | **11.1** |
| U.S.-born, non-Hispanic blacks | 3.1 | 3.4 | 3.0 | 3.7 | NA | **1.5** |
| Children younger than 5 years of age | 1.5 | 1.0 | 1.2 | 1.0 | NA | **0.3** |
| **Indicators for Case Management (%)** | | | | | | |
| Known HIV status | 98.4 | 97.0 | 97.5 | 97.0 | 96.4 | **98.0** |
| Treatment initiation | 84.2 | 90.5 | 94.1 | 93.0 | 100.0 | **97.0** |
| Recommended initial therapy | 95.3 | 90.0 | 95.9 | 96.2 | 91.0 | **97.0** |
| Sputum culture result reported | 96.9 | 97.6 | 97.0 | 96.4 | 91.4 | **98.0** |
| Sputum culture conversion | 87.1 | 90.0 | 82.4 | 85.0 | 61.2 | **73.0** |
| Completion of therapy | 95.3 | 95.3 | 95.2 | 92.6 | 27.3 | **95.0** |
| **Indicators for Laboratory Reporting (%)** | | | | | | |
| Turnaround time—culture | 32.0 | 52.5 | 53.9 | 59.7 | 61.8 | **78.0** |
| Turnaround time—NAA | 61.9 | 82.9 | 87.5 | 93.6 | 95.1 | **92.0** |
| Drug-susceptibility results | 94.4 | 96.2 | 100.0 | 98.9 | 79.5 | **100.0** |
| Universal genotyping | 94.4 | 93.8 | 100.0 | 97.8 | 82.4 | **100.0** |
| **Indicators for Examination of Immigrants and Refugees (%)** | | | | | | |
| Examination initiation | 76.6 | 75.4 | 71.7 | 60.8 | 58.8 | **84.0** |
| Examination completion | 67.2 | 64.5 | 61.4 | 56.3 | 42.0 | **76.0** |
| LTBI treatment initiation | 52.5 | 73.3 | 60.0 | 66.7 | 68.4 | **93.0** |
| LTBI treatment completion | 90.5 | 79.5 | 85.7 | 60.0 | 0.0 | **98.0** |
| **Indicators for Data Reporting (%)** | | | | | | |
| RVCT | 100.0 | 100.0 | 100.0 | 99.8 | 87.8 | **100.0** |
| ARPEs | 100.0 | 100.0 | 100.0 | 88.9 | NA | **100.0** |
| EDN | 94.3 | 93.7 | 91.3 | 87.0 | 61.5 | **93.0** |
| **Indicators for Contact Investigation (%)** | | | | | | |
| Contact elicitation | 97.3 | 100.0 | 100.0 | 100.0 | NA | **100.0** |
| Contact examination | 87.5 | 80.5 | 82.3 | 89.8 | NA | **93.0** |
| LTBI treatment initiation | 87.2 | 75.5 | 84.5 | 79.5 | NA | **91.0** |
| LTBI treatment completion | 68.3 | 90.0 | 91.4 | 71.4 | NA | **81.0** |

*Source: National TB Indicators Project (NTIP): Indicator Summary 2015 to 2019*

\*Data updated 12/10/19

**Table 2. Status of NTIP Objectives, 2018 – 2019 and Barriers to Meeting 2020 NTIP Targets**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NTIP Objective** | **2020 Target** | **2018 Tennessee Progress** | **2019\* Tennessee Progress** | **Barriers** |
| Known HIV status | **98.0** | 97.0 (unmet) | 96.4 (unmet) |  |
| Treatment initiation | **97.0** | 93.0 (unmet) | 100.0 (met) |  |
| Recommended initial therapy | **97.0** | 96.2 (unmet) | 91.0 (unmet) |  |
| Sputum culture results reported | **98.0** | 96.4 (unmet) | 91.4 (unmet) |  |
| Sputum culture conversion | **73.0** | 85.0 (met) | 61.2 (unmet) |  |
| Completion of treatment | **95.0** | 92.6 (unmet) | 27.3 (unmet) |  |
| TAT—culture | **78.0** | 59.7 (met) | 61.8 (unmet) |  |
| TAT—NAA | **92.0** | 93.6 (met) | 95.1 (met) |  |
| Drug-susceptibility results | **100.0** | 98.9 (unmet) | 83.0 (unmet) |  |
| Universal genotyping | **100.0** | 97.8 (unmet) | 79.5 (unmet) |  |
| Examination initiation Immigrants & refugees | **84.0** | 60.8 (unmet) | 58.2 (unmet) |  |
| Examination completion  Immigrants & refugees | **76.0** | 56.3 (unmet) | 44.0 (unmet) |  |
| LTBI treatment initiation  Immigrants & refugees | **93.0** | 66.7 (unmet) | 71.4 (unmet) |  |
| LTBI treatment completion  Immigrants & refugees | **98.0** | 60.0 (unmet) | 0.0 (unmet) |  |
| Data reporting—RVCT | **100.0** | 99.8 (unmet) | 87.8 (unmet) |  |
| Date reporting—ARPEs | **100.0** | 88.9 (unmet) | NA |  |
| Data reporting—EDN | **93.0** | 87.0 (unmet) | 62.3 (unmet) |  |
| Contact elicitation—Contact investigation | **100.0** | 100.0 (met) | NA |  |
| Contact examination—Contact investigation | **93.0** | 89.8 (unmet) | NA |  |
| LTBI treatment initiation  Contact investigation | **91.0** | 79.5 (unmet) | NA |  |
| LTBI treatment completion  Contact investigation | **81.0** | 71.4 (unmet) | NA |  |

*Source: National TB Indicators Project (NTIP): Indicator Summary 2015 to 2019*

\*Data updated 12/10/19

**Tennessee Tuberculosis (TB) Program Overview**

The Tennessee TB Elimination Program (TTBEP) is a centralized state program that provides programmatic oversight, clinical guidance, education, training, and resources to the 12 regional TB programs which serve the 95 counties in Tennessee. For the years 2015 – 2019, the average number of persons with active TB disease was 124.3 with an average case rate of 1.9 cases per 100,000 population. **Table 3** shows the number of cases and corresponding case rates for the grant period. In 2016, Tennessee experienced the lowest number of active TB cases on record with 103; however, the number of active TB cases steadily increased in subsequent years. Between 2015 and 2019, the state of Tennessee experienced an overall increase of 3.7% in the number of persons with active TB counted during this timeframe.

**Table 3. Tennessee TB Cases and Rates, 2015 – 2019**

|  |  |  |
| --- | --- | --- |
| **Year** | **Number of Active TB Cases** | **Case Rate (per 100,000)** |
| 2015 | 131 | 2.0 |
| 2016 | 103 | 1.5 |
| 2017 | 124 | 1.8 |
| 2018 | 139 | 2.1 |
| 2019 |  |  |

*Source*: National TB Indicators Project (NTIP), National Electronic Disease Surveillance System (NEDSS) TB Program Area Module (TB PAM)

**Cohort Review**

The TTBEP implemented the cohort review process in 2011 with the two (2) largest metropolitan areas, Memphis/Shelby County and Nashville/Davidson County, that consistently account for >50% of the state’s burden of active TB. Systems issues are identified during each review, and regional TB programs are asked to develop a plan to address each systems issue identified.

**Table 4. Tennessee TB Cohort Review Summary, 2015 – 2019**

|  |  |  |
| --- | --- | --- |
| **Year** | **Number of Cohort Reviews Held** | **Number of Active TB Patients Reviewed** |
| 2015 | 6 | 69 |
| 2016 | 4 | 48 |
| 2017 | 4 | 60 |
| 2018 | 3 | 45 |
| 2019 | 3 | 43 |

Consistent themes of systems issues identified include: need for improvement in contact investigations (e.g., expanding contact investigation if positivity rate >10%, timely initiation and completion, etc.), delayed notification to the public health department of persons with

suspected or confirmed TB from outside providers, and timely use of therapeutic drug monitoring (TDM) for patients with risk factors for malabsorption.

**Genotyping and Recent Transmission**

During the grant period (2015-2019), Tennessee had two (2) clusters that designated as a “High” alert level based on a representation of the 3-year LLR (high = 3-year LLT of 10+). GENType 07350 (G07350) is an ongoing cluster in Memphis/Shelby County. Characteristics of this cluster include: U.S.-born (100%), African-American (100%), substance abuse (46.2%), INH-

resistance (46.2%), and HIV-positive (15.4%). The other high alert cluster was GENType 15975 (G15975) located in Knox County and surrounding counties. Characteristics of this cluster include: U.S.-born (100%), white (75.0%), homeless within the past year from diagnosis (62.5%), resident of a correctional facility at the time of diagnosis (50.0%), and substance abuse (75.0%). Clusters such as these pose difficulties for contact investigation and source case finding due to the transient nature of the population and issues with substance abuse. Contact investigations into clusters such as these two (2) are very resource-intensive.

**Table 5** shows estimates of recent transmission 2015-2018 and **Table 5** shows the number of clusters by size reported during the grant timeframe.

**Table 5. Estimates of Recent Transmission—Tennessee, 2015 – 2018**

|  |  |  |  |
| --- | --- | --- | --- |
| **Timeframe** | **Number of Genotyped Cases\*** | **Cases Attributed to Recent Transmission\*\* (%)** | **Cases Attributed to Extensive Recent Transmission§ (%)** |
| 2015-2016 | 160 | 34 (21.3) | 19 (11.9) |
| 2016-2017 | 171 | 30 (17.5) | 17 (9.9) |
| 2017-2018 | 182 | 31 (17.0) | 13 (7.1) |

\*Total number of *M. tuberculosis* genotyped cases who are eligible to be evaluated for recent transmission (i.e., complete data for the plausible-source case method’s algorithm).

\*\*Number of cases attributed to recent transmission includes any given case with a plausible source case regardless of cluster size.

§Number of cases attributed to extensive recent transmission includes only cases in a plausible chain of transmission of six (6) or more cases (five secondary and one source case).

*Source*: USDHHS, CDC, TB Genotyping Information Management System (TB GIMS)

**Table 6. Genotype Clusters by Size—Tennessee, 2015 – 2019\***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Year Reported** | **Two (2)-Person Cluster** | **Three (3)-Person Cluster** | **Four (4) – Nine (9)-Person Cluster** | **10+-Person Cluster** |
| 2015 | 2 | 2 | 1 | 0 |
| 2016 | 5 | 3 | 1 | 0 |
| 2017 | 3 | 4 | 1 | 0 |
| 2018 | 5 | 1 | 2 | 0 |
| 2019 | 4 | 1 | 0 | 0 |

*Source*: USDHHS, CDC, TB Genotyping Information Management System (TB GIMS)

**Program Accomplishments/Successes**

1. Program Collaboration and Service Integration (PCSI)—In 2015, the Tennessee Department of Health (TDH) TB Elimination Program, HIV, STD, and Viral Hepatitis Program, Division of Laboratory Services, and the Tennessee Department of Correction (TDOC) began a collaborative initiative to test for TB infection (using QuantiFERON Gold In-Tube), HIV, syphilis, chlamydia and gonorrhea in all state inmates upon intake at the two (2) TDOC intake facilities in Tennessee. Labs are collected at each of the intake facilities and transported to the TDH state lab via a state lab courier. Results are available electronically and available to public health staff for monitoring. In 2017, this

collaborative serve was awarded a CDC U.S. TB Elimination Champions. In 2018, opt-out Hepatitis C virus (HCV) testing was added to the intake laboratory panel for all new intakes.

1. Revised Tennessee TB Elimination Program (TTBEP) TB manual—In 2015, the TTBEP completely revised the existing TB manual. The revised manual contains self-contained modules and standards of public health practice for each module. The standards of public health practice form the standards used during the program’s annual regional TB programmatic assessments that are conducted with each of the regional TB programs throughout the state.
2. Isoniazid-Rifapentine (3HP) short-course regimen for treatment of TB infection (TBI)—In 2015, the Tennessee TB Elimination Program began offering the 12-week 3HP regimen for the treatment of TB infection. A programmatic protocol was developed to include inclusion/exclusion criteria, dosage tables, monitoring, and medication delivery. Initially, all doses of 3HP were required to be given in person via directly observed therapy (DOT) at the local health department. However, after receiving feedback from regional TB program staff and patients regarding barriers to treatment with this regimen (i.e., in-person DOT), changes were made that allowed for DOT to be administered at sites other than the local health department and/or via electronic DOT (eDOT).
3. Addition of positive interferon gamma release assays (IGRA) and positive tuberculin skin test (TST) results to the Tennessee Reportable Conditions list—In 2017, positive IGRA results and positive TST results (for patients <18 years of age) were added to the Tennessee Reportable Conditions list. Providers now submit reports of positive tests via fax or electronically through the state surveillance system. Data from these reports are entered into a program-maintained database and provided to regional TB programs upon request.

**Program Barriers/Challenges**

1. Staffing

**Table 7. Strategies, Work Plan, and Activities**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Strategy** | **Task** | **Work Plan** | **Activities** | **Overall Progress &**  **2018-2019 Progress** |
| **Strategy 1**:  Improved Case Detection and Management | 1. Ensure case management and treatment of TB cases | Implementation of reviewed TTBEP Manual for all public health regions | Review TB Manual annually and revise as needed. Provide refresher training | The TB Manual was initially revised in 2015 (see “Program Accomplishments/Successes” section). A timetable for annual revisions was established. |
| 2018: Final revisions were made and the manual was made available in April 2018. |
| 2019: Final revisions were made and the manual was made available in March 2019. |
| 1. Assess adequacy and appropriateness of therapy | Review all drug regimens entered into surveillance system |  |  |
| Reiterate use of therapeutic drug monitoring (TDM) on patients with risk factors for malabsorption and provide guidance on use of TDM | Guidance for the use of TDM and examples of situations in which TDM should be useful were included in the TTBEP Manual. | In 2018 – 2019, the total percentage of patients that received TDMs with the following risk factors was:  Diabetes mellitus: 71.1%  Excessive alcohol use: 72.1%  Immunosuppression: 46.2%  Injecting drug use: 57.1%  Non-injecting drug use: 67.7%  HIV-positive: 63.6%  End-stage renal disease: 50.0% |
| Regional notification to central office nurse consultants of patients placed on non-standard regimen | Standard IV-18 in the 2019 TTBEP Manual states: “For each patient with suspected or confirmed TB disease placed on a non-standard regimen, the regional TB program provides documentation of the TB clinician’s order and rationale to TTBEP Central Office (C.O.) within two (2) business days. |  |
| 1. Seek expert consultation | Clarify circumstances which warrant seeking expert consultation with state TB program, Southeastern National TB Center (SNTC), and CDC |  | In 2018, the TTBEP had two (2) consultations with SNTC. |
| In 2019, there were 29 consultations between the TTBEP and SNTC as of 10/28/19. |
| 1. Collaborate with HIV/AIDS programs | Provide cross-match of TB/HIV co-infected patients to HIV program semi-annually |  |  |
| 1. Collaborate with external partners | Identify a liaison to collaborate with partners that serve high-risk populations (e.g., corrections, community health centers, A&D facilities, homeless shelters, etc.) |  |  |
| 1. Binational referral | Provide binational referral toolkit to all regional TB program managers |  |  |
| 1. Partner with DGMQ | Develop evaluation for TATs for B-notifications | Developed a state-maintained database for B-notifications received with corresponding dates notifications received and dates of evaluation initiation and completion. | In 2018, the TTBEP received 144 B-notifications. Of those, 77 (53.5%) initiated an evaluation within 30 days of receipt of notification. |
| <Enter 2019> |
| Clarify criteria for “Do Not Board” in updated TB Manual | Because the TTBEP central office (C.O.) staff work with DGMQ for all cases placed on the “Do Not Board” list, it was decided not to include this information for regional TB programs in the TB Manual. | |
| 1. Evaluate case management | Perform systematic annual programmatic assessments of TB cases and TBI cases |  |  |
| 1. TB elimination advisory committee | Establish a TB medical advisory committee |  |  |
| **Strategy 2**:  Surveillance of TB Cases and Case Reporting | 1. Report complete data on RVCT | Perform RVCT data quality assurance on all TB cases with a closed investigation |  |  |
| 1. Complete follow-up 1 and 2 forms | Perform RVCT data quality assurance on all TB cases with a closed investigation |  |  |
| 1. Genotyping and linkage to surveillance data | Request access to TB GIMS for additional TTBEP central office and train on use and functionality |  |  |
|  | 1. Notify CDC of large outbreaks | Review existing genotype clusters and work in a timely manner with CDC to identify large outbreaks |  |  |
|  | 1. Liaison with reporting sources | Identify reporting entities |  |  |
|  | 1. Active surveillance | Assess the feasibility of conducting active surveillance activities with reporting entities |  |  |
|  | 1. Complete, accurate, and timely reporting and counting of cases | Identify all TB cases that were reported by and outside provider (e.g., hospital, private physician office, correctional facility, etc.) |  |  |
|  | 1. HIV testing for all TB cases | Review HIV status of all cases at time of case counting, and notify central office nurse consultants of any unknown HIV results |  |  |
|  | 1. Data security and confidentiality | Implement data security and confidentiality guidelines according to NCHHSTP guidance |  |  |
|  | 1. Quality assurance | Provide training to central office staff on the *Quality Assurance for Tuberculosis Data* Guide and Toolkit |  |  |
| **Strategy 3**:  Contact Investigation | 1. Contact investigation activities are initiated and completed promptly | Implement revised contact investigation forms |  |  |
| 1. Assess reasons for no contacts or low number of contacts | Meet benchmarks set forth in the TTBEP program evaluation plan |  |  |
| 1. Submit ARPEs | Provide ARPE training for all new regional TB case managers and refresher training for existing staff |  |  |
| **Strategy 4**:  Evaluation of Immigrants and Refugees with TB or TBI | 1. Immigrants and refugees are located promptly and evaluated and treated appropriately | Provide B-notification training to all new regional TB case managers and provide annual refresher training for existing staff |  |  |
| **Strategy 5**:  Program Evaluation | See Program Evaluation section (page X) | | | |
| **Strategy 6**:  Human Resources Development | See Human Resources Development section (page X) | | | |

**Table 8. Barriers and Challenges to Implementation of the Proposed Level Strategies/Activities**

|  |  |  |  |
| --- | --- | --- | --- |
| **Strategy** | **Task** | **Barriers and Challenges** | **Activities in Response to Barriers and Challenges** |
| **Strategy 1**:  Improved Case Detection and Management | 1. Ensure case management and treatment of TB cases |  |  |
| 1. Assess adequacy and appropriateness of therapy |  |  |
| 1. Seek expert consultation |  |  |
| 1. Collaborate with HIV/AIDS programs |  |  |
| 1. Evaluate case management |  |  |
| **Strategy 2:**  Surveillance of TB Cases and Case Reporting | 1. Active surveillance |  |  |
| 1. HIV testing for all TB cases |  |  |
| **Strategy 3:**  Contact Investigation | 1. CI activities are initiated and completed promptly |  |  |
| 1. Assess reasons for no contacts or low number of contacts |  |  |
| **Strategy 4:**  Evaluation of Immigrants and Refugees with TB or LTBI | 1. Immigrants and refugees are located promptly and evaluated and treated appropriately |  |  |

**Program Evaluation**

**Table 9. Program Evaluations—Tennessee, 2015 – 2019**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Evaluation Years** | **Evaluation Topic** | **Objectives and Key Questions** | **Data Collection and Analysis** | **Conclusions and Discussion** |
| 2015 - 2017 | Contact Investigation (contacts to sputum AFB smear-positive patients) | Objective 1: Revise current (2015) contact investigation (CI) index case and contact forms | Minor changes were made to the contact investigation forms. The revised CI forms were used as a template to create a contact tracing page in the state TB surveillance system. | With the addition of contact tracing page, contacts that develop TB infection (TB) or active TB disease are now linked to source cases within the TB surveillance system. |
| Objective 2: Implement statewide use of the 12-week isoniazid/rifapentine (3HP) regimen | The TTBEP developed a state-specific medication administration record (MAR) and maintains a database of all patients who initiate 3HP. See **Table 8**. | 3HP for use for TB infection (TBI) started in Tennessee on April 1, 2015. Changes have been made to the TTBEP 3HP guidance document to allow for the use of off-site directly observed therapy (DOT) (i.e., non-health department site) and electronic DOT (eDOT). |
| Objective 3: Statewide implementation of revised contact investigation index case and contact forms | The CI contact form was implemented on January 1, 2015, and the CI index case record was implemented in April 2017. Completeness of randomly selected contact investigation forms are reviewed annually for each regional TB program. | Annual programmatic assessments of completeness and accuracy of contact investigation forms has increased annually since the implementation of the revised contact investigation forms and implementation of the contact tracing page. |
| Objective 4: Solicit input from regional TB program staff on revised contact investigation index case and contact forms | Regional input was solicited one (1) month after implementation of each of the CI forms. | Overall, regional input was positive regarding the revisions to the CI forms. |
| Key Questions: How many patients initiated the 3HP regimen? How many completed the 3HP regimen? How many stopped the 3HP regimen due to other reasons (e.g., adverse events)? | Regional TB programs submit and initial MAR when a patient starts 3HP and an “ending” MAR is sent when a patient stops 3HP for any reason. | See **Table 10** |
| 2017 - 2018 | TB Infection (TBI) Cascade of Care | Objective 1: By January 1, 2019, identify those patients with positive QuantiFERON Gold In-Tube or QuantiFERON-Plus (QFT) test result performed at the Tennessee Department of Health (TDH) Division of Laboratory Services (TDH State Lab) | An extract was created from the state lab StarLIMS system of all QFT specimens processed for a determined time period. In 2018, there were 815 patients with a positive QFT result collected by a health department in Tennessee. Add 2019 data. |  |
| Objective 2: By February 2019, compile a dataset of individuals diagnosed with TB infection (TBI) at local and regional health departments in Tennessee. | A data extract was developed to extract TBI case information from the Tennessee TB surveillance system. In 2018, there were 1153 TBI investigations for 1133 patients. Add 2019 data |  |
| Objective 3: By June 2019, identify the patients that initiate treatment for TBI and identify regimens used by public health for treatment of TBI as well as the completion of treatment rates for the cohort on each regimen. | In 2018, 958 patients started treatment for TBI. Of those 959, 20 patients did not complete treatment, were re-evaluated to rule out active TB, and started TBI treatment from the beginning again. Add regimens cohort |  |
| Objective 4: By December 2019, develop a brief survey that would be administered to patients that refuse treatment to identify the reason(s) why patients refuse treatment. |  |  |
| Objective 5: By December 2019, develop a brief survey that would be administered to patients that chose to stop treatment of TBI prior to completion to determine reason(s) by they chose to stop. |  |  |
| Objective 6: By January 2020, begin outreach to private providers that have reported positive interferon gamma release assay (IGRA) or positive tuberculin skin test (TST) results to evaluate TBI regimens used (if treating). |  |  |

**Table 10. Tennessee 12-Week Isoniazid/Rifapentine (3HP) Treatment Data**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Year** | **Number Initiated 3HP** | **Reason Therapy Stopped** | | | | |
| **Completed Therapy (%)** | **Adverse Event (%)** | **Lost to Follow-up (%)** | **Moved (%)** | **Other (%)** |
| 2015\* | 74 | 62 (83.8) | 7 (9.5) | 0 (0.0) | 0 (0.0) | 5 (6.8) |
| 2016 | 432 | 351 (81.3) | 30 (6.9) | 20 (4.6) | 3 (0.7) | 28 (6.5) |
| 2017 | 500 | 398 (79.6) | 33 (6.6) | 27 (5.4) | 2 (0.4) | 40 (8.0) |
| 2018 | 360 | 286 (79.4) | 26 (7.2) | 20 (5.6) | 1 (0.3) | 27 (7.5) |
| 2019\*\* | 335 | 206 (61.5) | 10 (3.0) | 5 (1.5) | 4 (1.2) | 21 (6.3) |

**Table 11. Human Resources Development—Objectives, Work Plan, Activities, and Progress, 2018-2019**

|  |  |  |  |
| --- | --- | --- | --- |
| **Objective** | **Sub-objective** | **Work Plan** | **Activities and Progress** |
| **Objective 1: Establish an improve existing in-service TB training and human resource development** | TB education and training focal point provides central office and regional TB staff timely announcements of education and training opportunities offered by internal and external partners. Attendance records for staff will be maintained by TB education and training focal point. | Develop and distribute announcements for educational and training opportunities. | All announcements or relevant education and training opportunities were distributed within two (2) days of receipt by the TB training and education focal point |
| Course attendance records will be maintained by the TB education and training focal point and detailed in the Cooperative Agreement. | **2018 in-person trainings**: 21 events with 455 attendees for a total of 1,417 training hours (includes statewide meeting and clinical symposium)  **2018 webinars and online courses**: 20 events with 146 participants for a total of 141 training hours  **2019 in-person trainings**: Seven (7) events with 310 attendees for a total of 694.3 training hours (includes statewide meeting)  **2019 webinars and online courses**: 19 events with 103 participants for a total of 158.1 training hours |
| Hold monthly statewide conference calls and an annual TTBEP statewide meeting to discuss TB topics including the TTBEP Manual for improved prevention, detection, and treatment of TB. | Monthly statewide conference calls for TTBEP staff planned with agenda and attendance records. | The decision was made in 2018 to have bi-monthly conference calls to accommodate staff. Per the schedule, six (6) conference calls were held in 2018 and six (6) were held in 2019. |
| **Object 2: Establish evaluation strategies to improve existing systems and to identify ongoing training and human resource needs** | TB education and training focal point will conduct an online survey of central office and regional TB staff to assess training and educational needs and preferred method(s) of delivery; suggestions will be explored to identify and promote opportunities throughout the following year. | Distribute online survey, tabulate results, and identify educational needs. | All 12 regional TB program managers responded to the survey in 2018 and 2019 and results were discussed on statewide conference calls. Results were communicated with the Southeastern National TB Center (SNTC) at their request to identify training needs for jurisdictions in the SNTC catchment area. Recurring themes from both surveys included requests for information and education on TB treatment and diagnostics. |
| Outcomes of surveys communicated on subsequent statewide conference calls and used to plan future statewide conference calls and annual statewide meeting. |
| **Objective 3: Establish and improve education and communications capacity within the program** | At least two (2) in-service training sessions (via webinar or in-person) will be identified, developed, and delivered to meet the needs identified by TTBEP central office and regional TB staff. | Access CDC and Center of Excellence (COE) websites to identify appropriate training materials; utilize regional TB staff expertise and invited guest speakers. | During the 2018 annual statewide meeting, five (5) regional or state TB staff presented at the meeting. The clinical symposium held that same year included invited speakers from two (2) academic-affiliated hospitals, state Medical Examiner’s office, SNTC, and regional TB programs. The 2019 statewide meeting included interactive discussions from all regional TB programs related to engaging community partners. |
| Deliver and evaluate training sessions. |
| **Objective 4: Coordinate training related to TB control with training for other disease control interventions such as HIV/AIDS, viral hepatitis, and STD** | Throughout the year, TB central office staff will provide education to and learn about other disease control program interventions (including HIV and STD programs) via participation in and presentations to programs. | Attend and present TB issues at a weekly communicable disease surveillance meeting that includes all programs within the Communicable and Environmental Disease and Emergency Preparedness (CEDEP) at the Tennessee Department of Health. | At least one (1) central office TB program attended the weekly CEDEP meetings to provide TB programmatic updates to the group. |
| Attend and present TB updates on a monthly CEDEP conference call that includes communicable disease program staff from all Tennessee public health regions. | At least one (1) central office TB program staff participated on the monthly CEDEP conference calls to provide TB programmatic updates. |
| Attend and present TB updates at the semi-annual statewide CEDEP meetings. | Central office TB program staff attended the semi-annual statewide CEDEP meetings in 2018 and 2019. In 2019, the TTBEP program manager presented on the TB program’s work with the Tennessee Department of Correction regarding intake testing. |
| **Objective 5: Target other health care providers and organizations serving high-risk populations** | Every other year, TTBEP will host a clinical TB update for regional and local TB staff as well as medical providers throughout the state. | Program evaluations from participants are used to plan future clinical updates. | **2018**: A statewide TB Clinical Symposium was held on November 1, 2018. Number of participants and general affiliations were:  Regional TB staff: 47  State TB staff: 11  TB staff from other states: 10  SNTC: 3  Other Tennessee agencies: 3  Hospital/university: 11  Other Tennessee Department of Health disease program: 1  **2019**: In observance of World TB Day on March 24, 2019, the TB program displayed a poster in the lobby of the Department of Health building and held an “It’s Time to End TB” facts contest where the winner won a Fitbit Charge 3. The TTBEP medical director provided TB education as an exhibitor at the 71st Tennessee Scientific Academy of Family Physician Scientific Assembly meeting. |

**Table 12. Human Resources Development—Overview of Activities, 2015-2017**

|  |  |  |
| --- | --- | --- |
| **Year** | **Objectives** | **Activities** |
| 2015 | 1. Establish and improve existing in-service TB training and human resource development 2. Establish evaluation strategies to improve existing systems and to identify ongoing training and human resource needs 3. Establish and improve patient education and communications capacity within the program 4. Coordinate training related to TB control with training for other disease control interventions such as HIV/AIDS, viral hepatitis and STD 5. Target other health care providers and organizations serving high-risk populations | Statewide meeting: Meeting held October 29-30, 2015 with 43 state and regional TB program attendees.  Trainings (in-person and webinar): 30 in-person trainings were held with 483 participants and 23 webinars were viewed by 83 participants.  Educational Needs Survey: 26 regional TB staff from 12 regional TB program completed the annual educational needs survey  Presentations: Central office TB staff (medical director, program manager, nurse consultants, and epidemiologists) delivered 30 presentations statewide with 483 total attendees (total of 1,737 hours of in-service training) |
| 2016 | Welcome to TN letters |
| 2017 | Addition of Welcome to TN letters |

**Laboratory Strengthening**