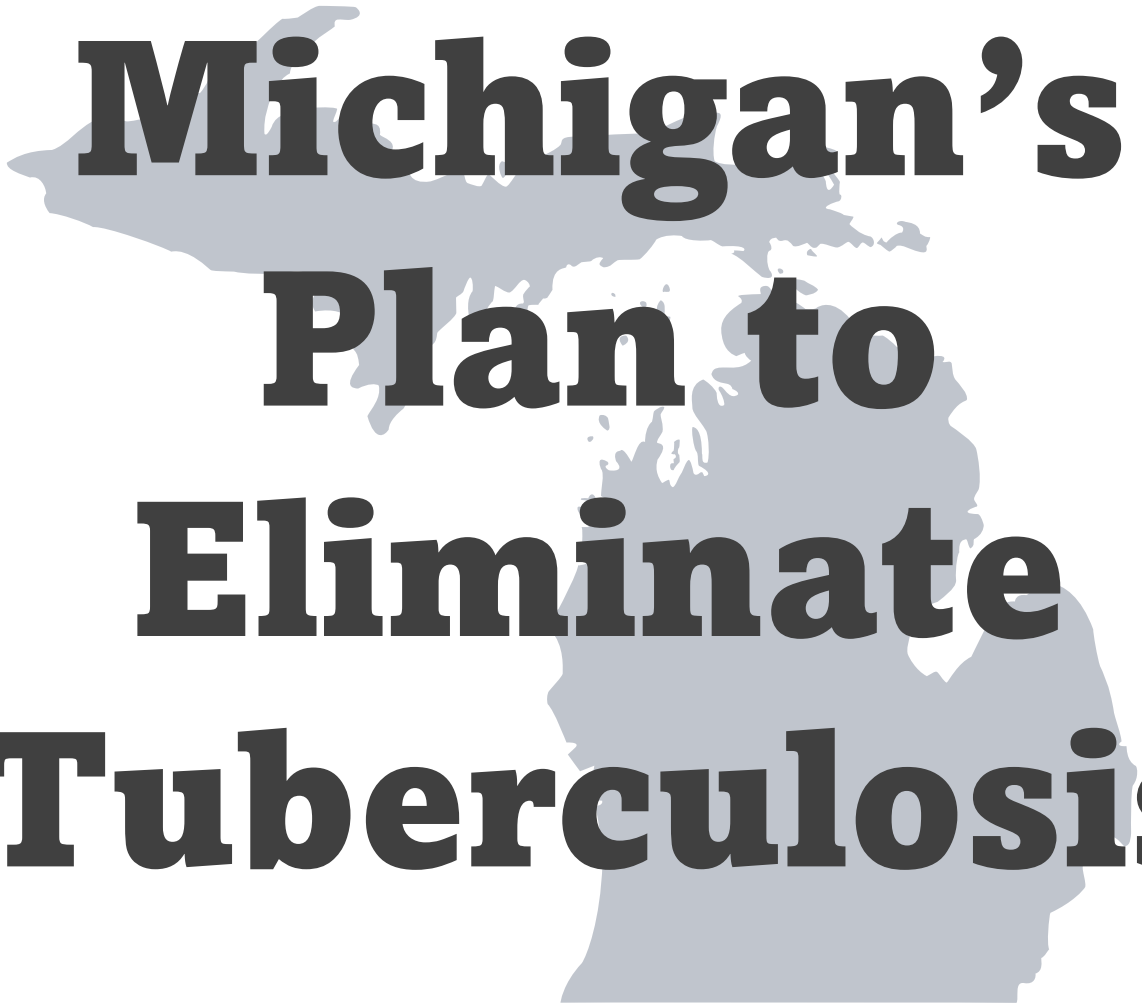


Michigan's Plan to Eliminate Tuberculosis

Table of Contents

Plan finalized November 2022.
Plan updated April 2024.

Introduction

The Michigan Department of Health and Human Services (MDHHS) is a recipient of funds from the Centers for Disease Control and Prevention (CDC) to address Tuberculosis (TB) prevention, control, and laboratory services. TB is a bacterial infection that can cause serious illness and death. This preventable and curable infection is one of the world's most deadly infectious diseases.

While the prevention and treatment programs built in the United States have afforded the country with relatively lower rates of TB than other parts of the world, the illness continues to impact morbidity, mortality, quality of life, and related health care costs within the US. Preliminary data from the Centers for Disease Control and Prevention (CDC) indicate that the COVID-19 pandemic has had mixed impact on patterns of TB infections – while TB infection rates have reduced during the pandemic, experts attribute this to synergistic effects of COVID-19 mitigation on TB prevention as well as reduced access to healthcare and potentially missed diagnoses.[1] As public health and healthcare systems adjust to a new phase in the COVID-19 pandemic, Michigan aims to mobilize efforts to reduce and eventually eradicate tuberculosis.

Tuberculosis, caused by *Mycobacterium tuberculosis,* is an illness that typically affects the lungs but can impact other areas of the body like the brain, kidneys, and spine. TB is spread through the air and can cause TB disease (TB) and latent TB infection (LTBI). TB disease can create serious, contagious illness and lead to death if not treated. People who have LTBI are infected but do not feel sick, they do not show symptoms, and they cannot spread the infection to others. LTBI can progress to TB disease if left untreated or if the person's immune system is compromised. Focus on both TB disease and LTBI are critical to the overall elimination of TB.

Partners in the system of organizations working to prevent, identify, and treat TB in Michigan worked together throughout 2022 to explore the current reality of TB in Michigan, identify actions to move Michigan toward the elimination phase of TB, and collaborate to make the following collective vision a reality:

By 2025, public and private partners involved in the testing, treatment, tracking, and prevention of tuberculosis will collaboratively implement practices and interventions to eliminate TB in Michigan.

The Michigan TB Program within MDHHS plans to work collaboratively with partners to implement actions in alignment with identified priorities over the coming years. A list of key partners involved in this process is included in Appendix A. This document provides relevant TB data, along with action plans that address identified priorities, objectives, and strategies.

[1]Centers for Disease Control and Prevention. (2021). *CDC Fact Sheet: TB in the United States, 2021.* https://www.cdc.gov/nchhstp/newsroom/docs/factsheets/TB-in-the-US-508.pdf

TB in Michigan

While incidence of TB and LTBI in Michigan is relatively low, there is still a lot of work needed toward elimination of the disease in the state.

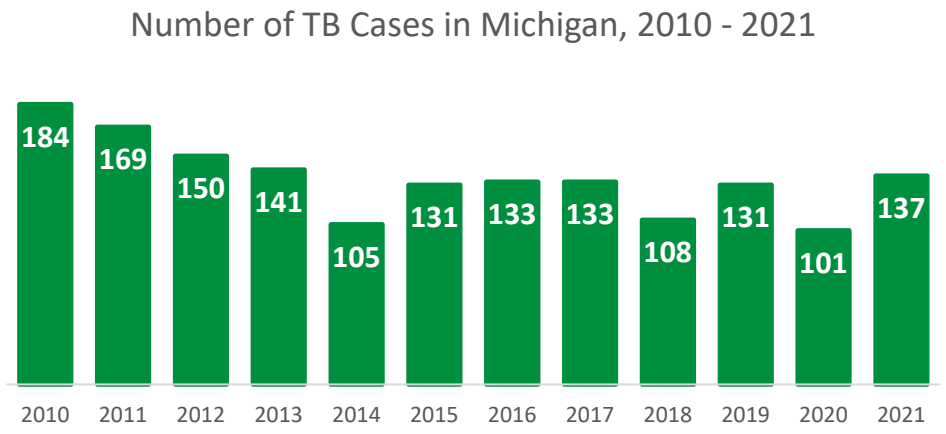


FIGURE 1

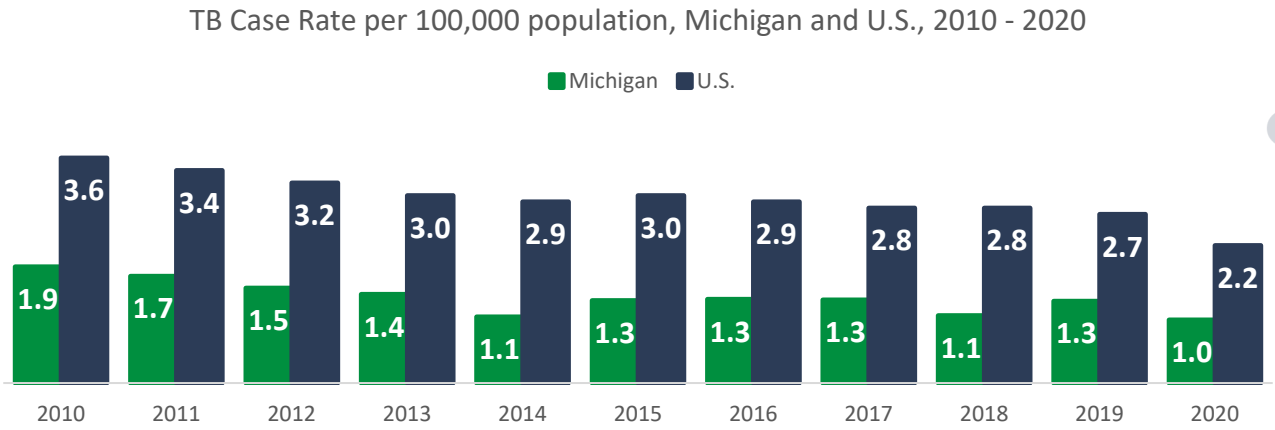


FIGURE 2

Overall, TB incidence has been declining in Michigan and in the U.S., with a slowing pace of decline in recent years, and a large decrease in 2020. While U.S. and Michigan TB incidence increased in 2021 over 2020 rates, the CDC provided the following reasoning[2] for the rates in both years, including:

2020 decrease in cases:

- A true reduction in TB disease resulting from reduced TB transmission because of pandemic mitigation efforts and fewer new arrivals from countries with higher TB incidence than the US.
- Also possibly delayed or missed TB diagnoses because of disruptions in health care access or assumptions that patents with respiratory symptoms had COVID-19.

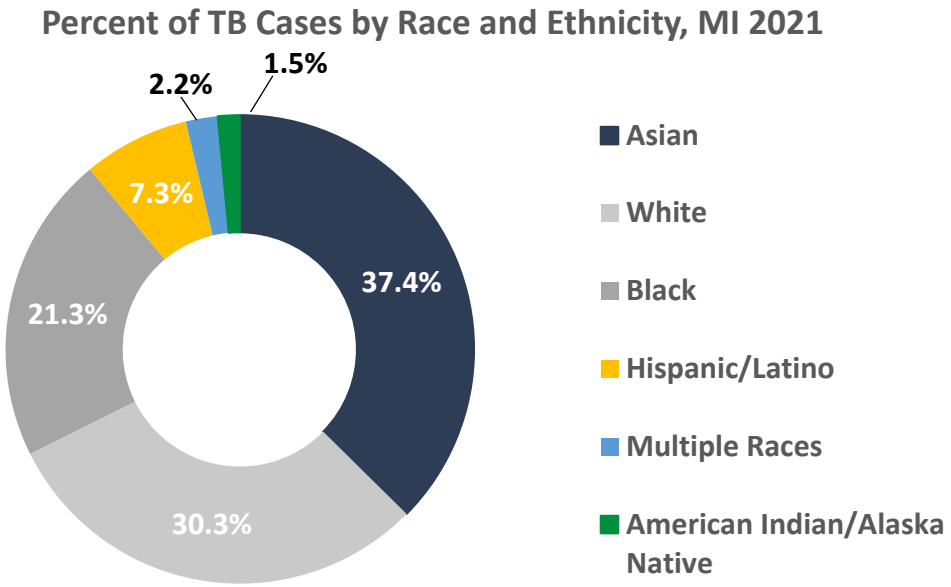
2021 increase in cases:

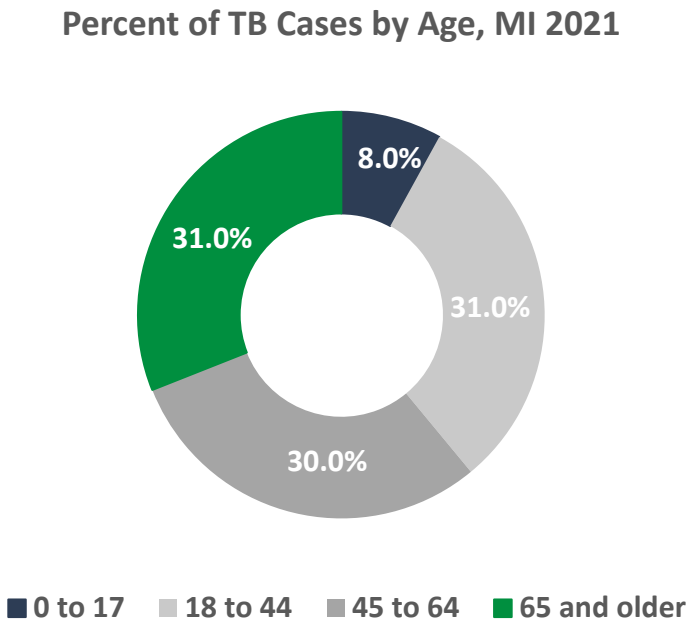
- Delayed detection of cases with symptom onset during 2020 because of reduced health care access.
- More advanced pulmonary disease due to delay in diagnosis.

[2]Centers for Disease Control and Prevention. (2021). *Morbidity and Mortality Weekly Report: Tuberculosis – United States, 2021.* https://www.cdc.gov/mmwr/volumes/71/wr/mm7112a1.htm?s_cid=mm7112a1_w

The highest percentage of 2021 MI TB cases, 37%, occurred among Non-Hispanic Asian persons, followed by Non-Hispanic white (31%), Non-Hispanic Black (21%), Hispanic (7%), Multiple/Other races (2%), and American Indian or Alaska Native (2%). Slightly more than half of 2021 MI TB cases, 57%, occurred among males, and cases were split fairly equally among ages for adults over the age of 18.

Of the 137 verified cases of TB in Michigan in 2021, 35% were in individuals born in the U.S., and 64% were from individuals born outside of the U.S., including (ordered from most cases to least): India, Bangladesh, the Philippines, and Yemen.





TB Prevention & Treatment Systems in MI

Due to the complicated nature of TB risk, exposure, and medical care, Michigan has a complex system of supports related to the disease. These components include infrastructure related to:

Screening
Assessing risks of exposure to TB, risks of progressing from LTBI to TB disease, and medical status.

Testing
The use of a tuberculin skin test or blood tests to assess for TB infection.

Diagnosis
Determining type and nature of TB disease.

Contact Investigation
Systematic identification of people potentially exposed to TB.

Treatment & Case Management
Use of medications and ongoing monitoring to treat TB and mitigate further risk of disease.

Workforce Development & Training
Assuring that staff working in spaces related to TB have what they need to do their work best.

Advocacy
Supporting positive movement in related policy, procedures, and macro systems.

Outreach
Building strong connections with TB-related providers, partners, and patients.

Evaluation
Checking to see if systems are performing as planned and are delivering the intended outcomes.

Surveillance
Ongoing systematic collection, analysis, and interpretation of TB related data.

Communication, collaboration, and aligned strategy across the above functions
Connection points between multiple components of TB Prevention and Treatment Systems in Michigan work together to create a balanced and unified system.

Developing the MI Plan to Eliminate TB

In early 2022, leaders in the Tuberculosis Control Program at the Michigan Department of Health and Human Services (MDHHS) initiated the process of creating a plan to eliminate tuberculosis in the state (referenced throughout as the Elimination Plan).

Work to develop the Elimination Plan took place from March to September of 2022. Due in part to the ongoing COVID-19 pandemic and an effort to create an inclusive process, all planning activities were completed virtually. MDHHS partnered with the Michigan Public Health Institute (MPHI) to guide and support the development of the Elimination Plan and serve as a neutral convener, facilitator, and data repository.

The process to create the Elimination Plan started with convening a Core Team of planning partners from MDHHS and MPHI. First steps involved basic timeline creation and building an inventory of critical partners representing all core functions of Michigan's TB-related systems. This Core Team also drafted the initial vision for TB Elimination in MI, which they later vetted with partners.

Partners were invited to participate in the process and asked to participate in the Elimination Plan's Steering Committee and/or one of two critical subcommittees that would inform the Elimination Plan: the Data Subcommittee and the Systems Subcommittee (see Appendix A for full list of partners). The role of steering committee members included the following:

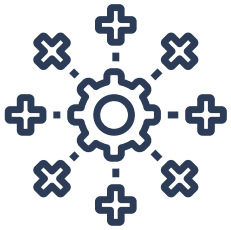
- Participate in Partner and Subcommittee meetings;
- Provide feedback for TB Elimination Plan Vision;
- Assist in gathering existing data and reports about the statewide impacts of TB in MI; and
- Provide input and guidance on priorities, objectives, and strategies.

An initial meeting of the Steering Committee kicked off the official planning process, providing an overview of the proposed process and gathering feedback to strengthen Michigan's approach, and finalizing the vision for the plan. Additionally, the team agreed on a shared definition of elimination for the plan of "a rate of less than one case in 100,000 population." The Steering Committee provided initial directions before breaking into several months of work completed at subcommittee meetings.

Data Subcommittee

The goal of the Data Subcommittee was to identify, collect, and examine TB-related data to ensure that MI's TB Elimination plan was securely grounded in the realities of what was currently known about TB in Michigan. Data Subcommittee members provided input on indicators of interest, and MPHI staff collected and organized available data in alignment with those indicators. Following a data presentation (included in Appendix C), Subcommittee members participated in a focused conversation to interpret and draw conclusions from the data, including what the data told us about health systems, geographic distribution of TB, and health disparities.

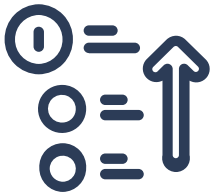
System Subcommittee



The goal of the System Subcommittee was to assess the strengths and limitations of Michigan's TB-related systems to be able to prepare recommendations for critical actions needed to make progress towards eradication. Using a facilitated process, the System Subcommittee completed a rapid assessment of the core functions of Michigan's TB-related systems and prepared recommended priorities for the Steering Committee to consider incorporating into the Elimination Plan.

Selecting Priorities

Once subcommittee recommendations were drafted, the full Steering Committee met to review outputs from each subcommittee and to use that information to identify and select final priority areas. From there, steering committee members participated in a series of meetings for each priority, brainstorming strategies and developing objectives that partners could implement to make meaningful progress in each priority area.



The next section of this plan details the plan vision, definition of elimination, priority areas and objectives. Appendix B contains detailed action plans.

MI Plan to Eliminate Tuberculosis – Vision Statement

By 2025, public and private partners involved in the testing, treatment, tracking, and prevention of tuberculosis will collaboratively implement practices and interventions to eliminate TB in Michigan.

Definition of Elimination for This Plan:

For the purposes of this plan, partners agreed on the following definition of elimination:

Less than 1 case per 100,000 population

Plan Priorities:

Priority 1

Encourage targeted LTBI testing and recommended steps for follow up among identified at risk populations.

Objectives:

- Objective 1: Assess gaps in the evaluation/testing of LTBI among at risk populations.
- Objective 2: Increase advocacy and outreach to educate partners and community organizations serving at risk populations.
- Objective 3: Provide tangible support to partners and community organizations serving at risk populations.
- Objective 4: Improve clinical testing practices.
- Objective 5: Broaden TB education in the community.
- Objective 6: Harness technological opportunities.

Priority 2

Improve provider education and awareness

Objectives:

- Objective 1: Support professional/academically focused education.
- Objective 2: Strengthen opportunities for practice-focused education.

Priority 3

Raise general awareness of TB.

Objectives:

- Objective 1: Build public awareness of TB at a State and Regional level.
- Objective 2: Work at the local level to engage and educate key partners.
- Objective 3: Tap into multi-level institutions to educate and serve critical communities.

Priority 4

Improve access to and sharing of medical records to augment case management and surveillance.

Objectives:

- Objective 1: Lay the groundwork.
- Objective 2: Expand awareness of existing supports to share/obtain records.
- Objective 3: Turn admission/discharge/transfer (ADT) data into meaningful action.

Appendix A: Planning Partners

We would like to appreciate the contributions of the following partners to the development of Michigan's Plan to Eliminate Tuberculosis:

Core Team:

MDHHS Tuberculosis Program Staff:

- Peter Davidson, Michigan TB Controller
- Shona Smith, TB Epidemiologist
- Claire Berlin, TB Public Health Consultant
- Seth Eckel, Unit Manager

Steering Committees:

Data Subcommittee

- Dr. Pamela Hackert, Genesee County Health Department
- Christie Clement, Oakland County Health Division
- Ann Williams, Oakland County Health Division
- Erika Garcia, MDHHS
- Tiffany Henderson, MDHHS
- Helen McGuirk, MDHHS
- Denise Parr, MDHHS

System Subcommittee

- Dr. Pamela Hackert, Genesee County Health Department
- Dr. Jim Sunstrum, Corewell Health
- Dr. Dana Kissner, Wayne Health
- Dr. Amanda Allmacher, MATEC Michigan
- Dr. Faiyaz Syed, Michigan Primary Care Association
- Tammy Cooper, Wayne State University
- Nnenna Wachuku, Wayne County Health Department
- April Hight, Kent County Health Department
- Dr. Jennifer Morse, Central Michigan District Health Department, Mid-Michigan District Health Department, District Health Department #10.

Appendix A: Planning Partners

Steering Committees:

System Subcommittee, continued

- Niki Mach, Macomb County Health Department
- April Swartout, Genesee County Health Department
- Mary McCloud, Washtenaw County Health Department
- Alissa Borowiak, District Health Department #4
- Dr. Amanda Allmacher, MATEC Michigan
- Bobbie Zagata, Tuscola County Health Department
- Christie Clement, Oakland County Health Division
- Denise Parr, MDHHS
- Erika Garcia, MDHHS
- Helen McGuirk, MDHHS
- Janet Graham, Ingham County Health Department
- Ronald Charles, Ingham County Health Department
- Katy Stanley, Samaritas
- Mihaela Mitrofan, Samaritas
- Kimberly Hassan, Arab-American and Chaldean Council (ACC)
- Lorna Elliott-Egan, MDHHS
- Lynn Nee, MHDDS
- Melissa Williams-Bowman, Oakland County Health Division
- Tiffany Henderson, MDHHS

Appendix B: Action Plans

Priority 1: Encourage targeted LTBI testing and recommended steps for follow up among identified at risk populations.	
Objective 1: Assess gaps in the evaluation/testing of LTBI among at risk populations.	**Measure:** • *# of groups identified as being 'missed'* • *# of barriers identified in evaluating/testing at risk groups* • *# of contacts per case (ARPE)* • *# of barriers to contact investigation found in cohort reviews*
Strategies:	**Responsible Parties:**
1. Evaluate LTBI Cascade of Care to identify opportunities for improvement	MDHHS TB Program
2. Work to identify more contacts in investigations who should be tested	MDHHS TB Program leads; LHD partners provide feedback/input
Objective 2: Increase advocacy and outreach to educate partners and community organizations serving at risk populations.	**Measure:** • *# of presentations/discussions completed* • *# of training opportunities leveraged* • *# of outreaches to partners*
Strategies:	**Responsible Parties:**
1. Present at conference - Annual Housing Conference; HIV and Housing Summit; HIV/STI Conference	MDHHS TB Program and Division of HIV/STI Programs
2. Work with housing and homeless services and MSHDA homeless program areas to distribute information/training opportunities	MDHHS TB Program, MI HOPWA, and MSHDA.
Objective 3: Provide tangible support to partners and community organizations serving at risk populations.	**Measure:** • *# of partners who are provided support* • *# of partners or agencies who are engaged*
Strategies	**Responsible Parties:**
1. Define areas for outreach	MDHHS TB Program and LHD partners
2. Identify infection prevention staff (IPCs)	MDHHS TB Program
3. Engage partners/community organizations serving at-risk populations (i.e. shelters, colleges with international student population, syringe service programs, farms with migrant workers, employers with temporary workers, etc.)	MDHHS TB Program

Appendix B: Action Plans

Objective 4: Improve clinical testing practices	**Measure:** • *Identify existing policies for co-testing; number of* • *Demonstrated example of a success in which clinical testing practices were improved.*
Strategies:	**Responsible Parties:**
1. Review/expand standing orders to support testing & treatment	Clinical consultants and LHD medical director community
2. Promote policies for co-testing for TB with other tests or services	MDHHS HBTV Section; Clinical consultants; MPCA; Michigan State Medical Society
3. Coordinate education of dermatology, rheumatology, gastro/intestinal, oncology, transplant, substance use disorder providers regarding proper testing and treatment	MDHHS TB Program with support from Rutgers, Michigan Hospital Association, Michigan State Medical Society, State Osteopathic Society
Objective 5: Broaden TB education in the community	**Measure:** • *% of identified needs addressed through educational materials distributed*
Strategies	**Responsible Parties:**
1. Gather information from communities affected by TB	MDHHS TB Program, PH Nurses, We Are TB, TB survivors
2. Develop/compile/secure educational materials	MDHHS TB Program
3. Connect information with people who need it	MDHHS TB Program
Objective 6: Harness technological opportunities	**Measure:** • *Creation of a model to share systems ('promo packet' – why we are reaching out, what it would look like, etc.)* • *# of systems that were reached out to about integration*
Strategies:	**Responsible Parties:**
1. Design and distribute a 'promo packet' for hospital/health systems (with input from key partners) to introduce and create a call to action for integration of flags into EHRs	Clinical consultants (and other partners as needed) and MDHHS TB Program
2. Work with or support hospital/health system to negotiate with their software providers to flag high risk factors to signal need for testing	Clinical consultants, someone from infection control, other medical directors, and MDHHS TB program

Appendix B: Action Plans

Priority 2: Improve provider education and awareness	
Objective 1: Support professional/academically focused education	**Measure:** • *# of identified contacts* • *# of contacts engaged* • *# of educational tools or sessions provided*
Strategies:	**Responsible Parties:**
1. Assess current TB education and gaps in medical, nursing, and other professional school curricula	MDHHS TB Program and partners/clinical consultants/Rutgers TB Center of Excellence
2. Collaborative with medical/hospital societies for ongoing provider education	MDHHS TB Program and partners/clinical consultants/Rutgers TB Center of Excellence
3. Outreach to state/national medical organizations to encourage TB education	MDHHS TB Program and partners/clinical consultants/Rutgers TB Center of Excellence
4. Increase TB presence in routine provider conferences (i.e., Immunizations or ACIP/IPC)	MDHHS TB Program and partners/clinical consultants/Rutgers TB Center of Excellence
5. Work with MI ID society to do grand rounds	MDHHS TB Program and partners/clinical consultants/Rutgers TB Center of Excellence
Objective 2: Strengthen opportunities for practice-focused education	**Measure:** • *# of participants at educational offerings (monthly seminars, etc.)* • *# of educational opportunities provided or leveraged*
Strategies:	**Responsible Parties:**
1. Review existing models to build efforts upon, potentially including: a. Disseminate CDC's "Think TB" campaign with posters, etc. b. Consider project ECHO program for Michigan	MDHHS TB Program
2. Increase collaboration between MDHHS TB, SHARP, IPRAT and other programs that interact directly with providers	MDHHS TB Program
3. Include pharmacy clinics; have screening tool available to them	MDHHS TB Program
4. Better advertise the monthly seminars offered by MDHHS	MDHHS TB Program

Appendix B: Action Plans

Strategies:	Responsible Parties:
5. Increased LHD outreach to local providers	MDHHS TB Program and relevant partners
6. Morbidity and Mortality conference	MDHHS TB Program and relevant partners
7. Leverage existing opportunities including: a. Maximize WTBD as an avenue for education b. Create a speakers bureau, opportunities for ambassadors	MDHHS TB Program

Priority 3: Raise General awareness of TB

Objective 1: Build public awareness of TB at a State and Regional level.	**Measure:** • *# of episodes of outreach* • *# of clicks on social media posts* • *# or types of partner agencies engaged in outreach* • *Consider pre/post surveys (esp. if working with marketing firm) for knowledge/improvement*
Strategies:	**Responsible Parties:**
1. Social media campaign to spread awareness of TB	MDHHS TB Program, MDHHS Communications, MDHHS PHA/Directors, and partner organizations
2. Engage with local media, radio, news, and personalities to get TB messaging out at a more targeted and local level	MDHHS TB Program, Public Information Office
3. Get a governor proclamations on World TB Day with press release	MDHHS TB Program, Team within Department Directors circle who are the Governor's liaisons.
Objective 2: Work at the local level to engage and educate key partners	**Measure:** • *# of education modules utilized/created by LHDs* • *# of individuals who attended the educational session* • *(for trainings) # of hits/views of TB training*
Strategies	**Responsible Parties:**
1. Create incentives for local health departments to educate locally	MDHHS TB Program and LHDs

Appendix B: Action Plans

Strategies	Responsible Parties:
2. Messaging tailored to key groups, e.g. shelters, food pantries, urgent cares, FQHCs for patients and public, in plain language and in language(s) preferred by each location's clientele	MDHHS TB Program
3. Recorded "TB 101" trainings that can be used by partners (HIV/STI/Homeless) to inform staff or even clients about TB	MDHHS TB Program
Objective 3: Tap into multilevel institutions to educate and serve critical communities.	**Measure:** • *# of outreach programs identified* • *# of outreach programs engaged* • *# of outreach activities*
Strategies	**Responsible Parties:**
1. Connect with medical school outreach programs (e.g. WSU has community programs that would lend themselves to adding TB screening, for instance)	MDHHS clinical consultants

Priority 4: Improve access to and sharing of medical records to augment case management and surveillance.	
Objective 1: Lay the groundwork	**Measure:** • *Creation of a master contact/partner list* • *Creation of a basic implementation plan/readiness assessment*
Strategies:	**Responsible Parties:**
1. Connecting with critical partners and colleagues to join the conversation	MDHHS TB Program staff; data systems or health information exchange experts within MDHHS; contact/s at high-burden LHDs.
2. Identify what actually can be done and how it can be done	MDHHS TB Program staff; data systems or health information exchange experts within MDHHS; contact/s at high-burden LHDs.

Appendix B: Action Plans

Objective 2: Expand awareness of existing supports to share/obtain records	**Measure:** • *Meeting with key stakeholders listed under strategies* • *# of collaborations established* • *Availability or sharing of existing resources* • *# of existing resources revised to be utilized* • *# of resources implemented*
Strategies	**Responsible Parties:**
1. State level help with notifying clinicians that they must share records and context of sharing. Raise awareness of process/details/legality for obtaining medical records	State and local health departments
2. Official request form/template to request medical records and radiographic images (perhaps at the state level)	State and local health departments
3. Use TB Nurse Network to raise awareness of existing supports with sharing/obtaining records	MDHHS TB Program, TB Nurse Network
4. Partner with MIHIN (can help with integrating data)	MDHHS TB Program
5. Highlight TB in Medicaid CC360 (software used by LHDs)	MDHHS TB Program; MDHHS Lifecourse Epi Division, Michigan Medicaid Data Warehouse; MiHIN
Objective 3: Turn ADT data into meaningful action	**Measure:** • *Identification of partners* • *Completion of assessment* • *# of actions identified* • *Count of ADT messages for TB/LTBI* • *Development of use case scenario/s*
Strategies	**Responsible Parties:**
1. Explore a stronger connection with ADT (Admission, Discharge, Transfer Information) system/messaging (light ping that would help case manager; use case scenario	Key people we know engaged at MALPH; MiHIN
2. Determine how to turn ADT data into meaningful action	State and local health departments; key contacts at MALPH; MiHIN
3. Admit, discharge, and transfer application – partner with the people using/looking at the data stream to add and use case example of TB	State and local health departments; MiHIN

Appendix C: Data Workgroup Presentation

Indicator Categories

- Michigan TB Epidemiology
- Testing
- Laboratories
- Tracking
- Treatment
- Other

Michigan TB Epidemiology

National TB Program Objectives and Performance Targets for 2025 CDC (subset)

Goal Area	2025 Target	MI 2020 Data
TB Incidence – Reduce the incidence of TB disease	1.3 cases per 100,000	1.4 cases per 100,000 MI Residents
Decrease the TB among US-born persons	0.4 cases per 100,000	0.5 per 100,000 MI Residents
Decrease the TB among non-US born persons	8.8 cases per 100,000	8.0 cases per 100,000 MI Residents
Decrease the incidence of TB among US-born non-Hispanic African Americans	1.0 per 100,000	2.0 cases per 100,000 MI Residents
Decrease the incidence of TB disease among children younger than 5 years of age	0.1 per 100,000	0.9 cases per 100,000 MI Residents

https://www.cdc.gov/tb/programs/evaluation/indicators/default.htm

Rates of TB: 2020 to 2021

- US and MI TB Incidence increased in 2021 over 2020 rates.

 ↑ 9.4%

 ↑ 36.0%

- Rates in TB in the US have been declining, with a slowing pace of decline in recent years and a large decrease in 2020.
- Despite the increase, US rates were still lower in 2021 than in 2019
  - MI had 5 more cases in 2021 than in 2019.

https://www.cdc.gov/mmwr/volumes/71/wr/mm7112a1.htm?s_cid=mm7112a1_w

Rates of TB: 2020 to 2021

Probable explanations:

2020 decrease in cases:

- A true reduction in TB disease resulting from reduced TB transmission because of pandemic mitigation efforts and fewer new arrivals from countries with higher TB incidence than the US.
- Also possibly delayed or missed TB diagnoses because of disruptions in health care access or assumptions that patents with respiratory symptoms had COVID-19.

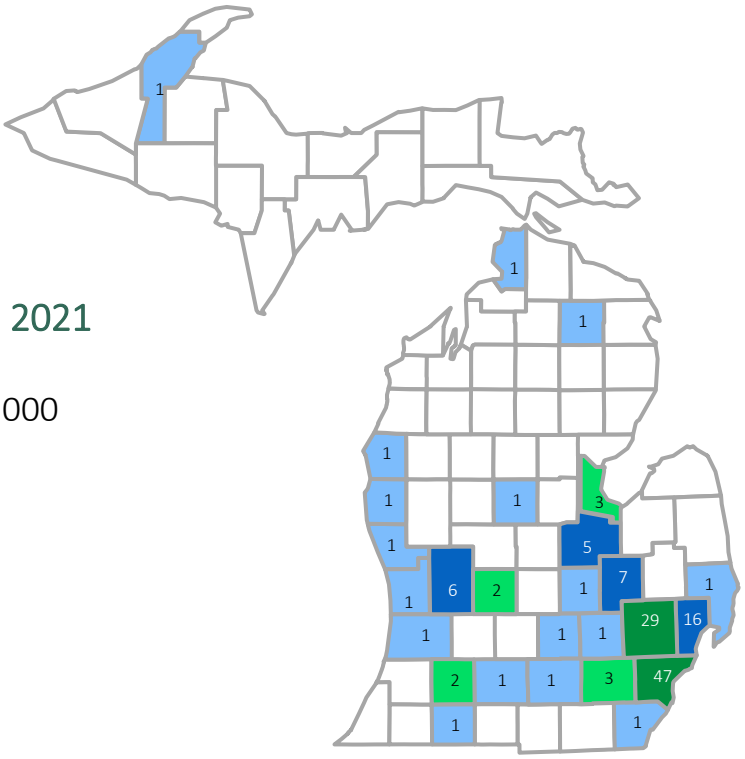
2021 increase in cases:

- Delayed detection of cases with symptom onset during 2020 because of reduced health care access.
- More advanced pulmonary disease due to delay in diagnosis.

https://www.cdc.gov/mmwr/volumes/71/wr/mm7112a1.htm?s_cid=mm7112a1_w

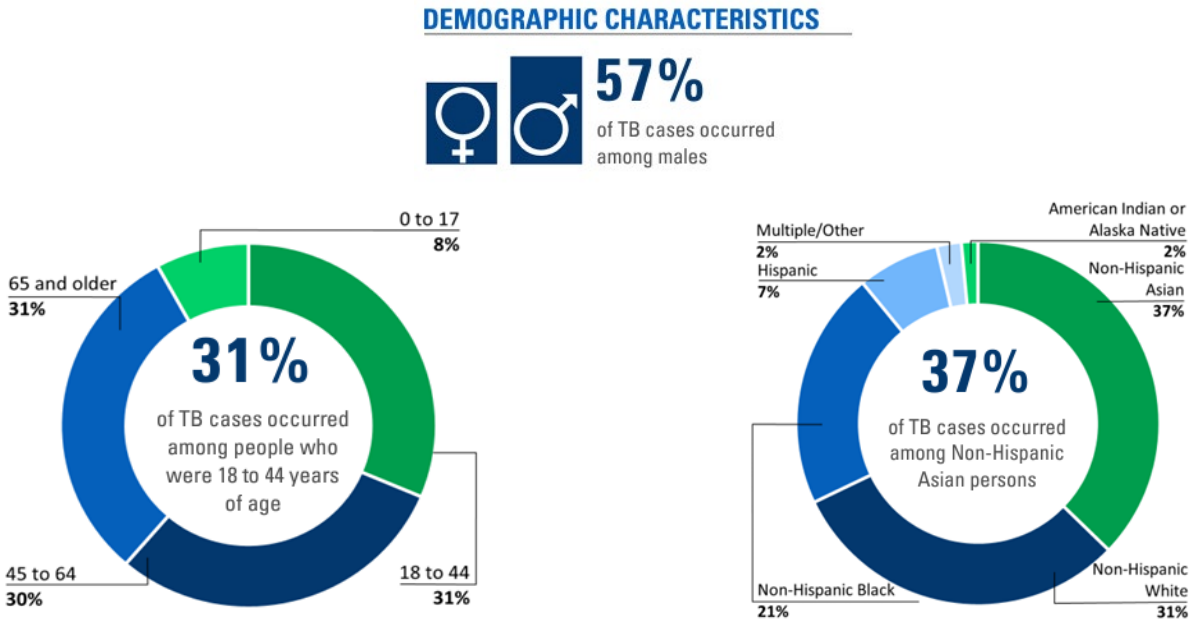
Michigan TB Cases, 2021

- 137 cases
- 1.4 cases per 100,000 population



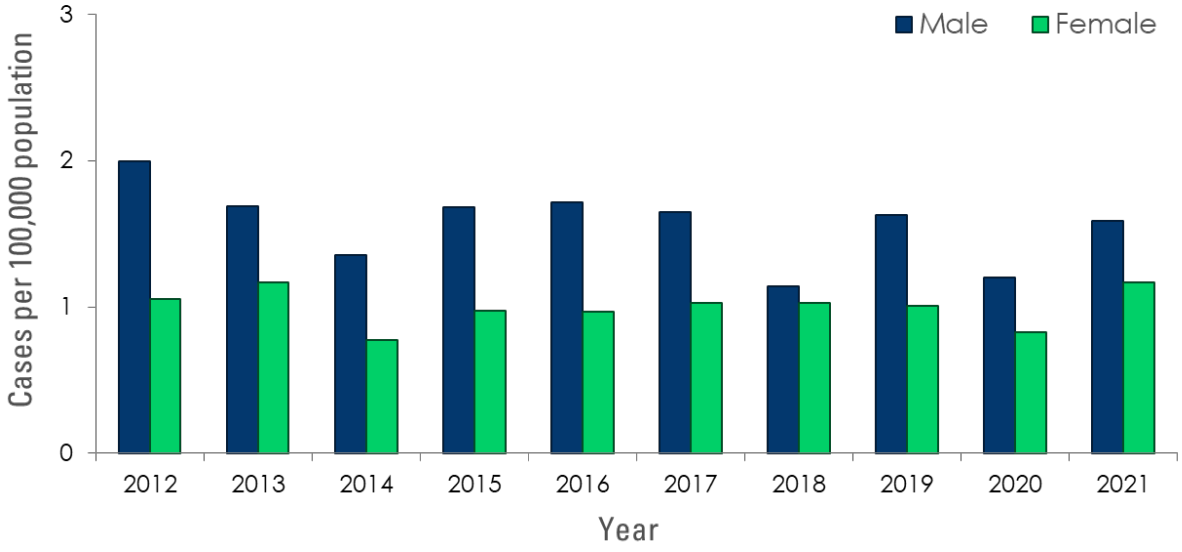
https://www.michigan.gov/mdhhs/-/media/Project/Websites/mdhhs/MDHHS-TB/2021MI_County_TUBERCULOSIS_CASES-03_15_2022.pdf?rev=f2fbaa0516a8496eab4a7871658c27e2&hash=254C9719DFBB288D5BE81761160248F5

TUBERCULOSIS
IN MICHIGAN, 2021



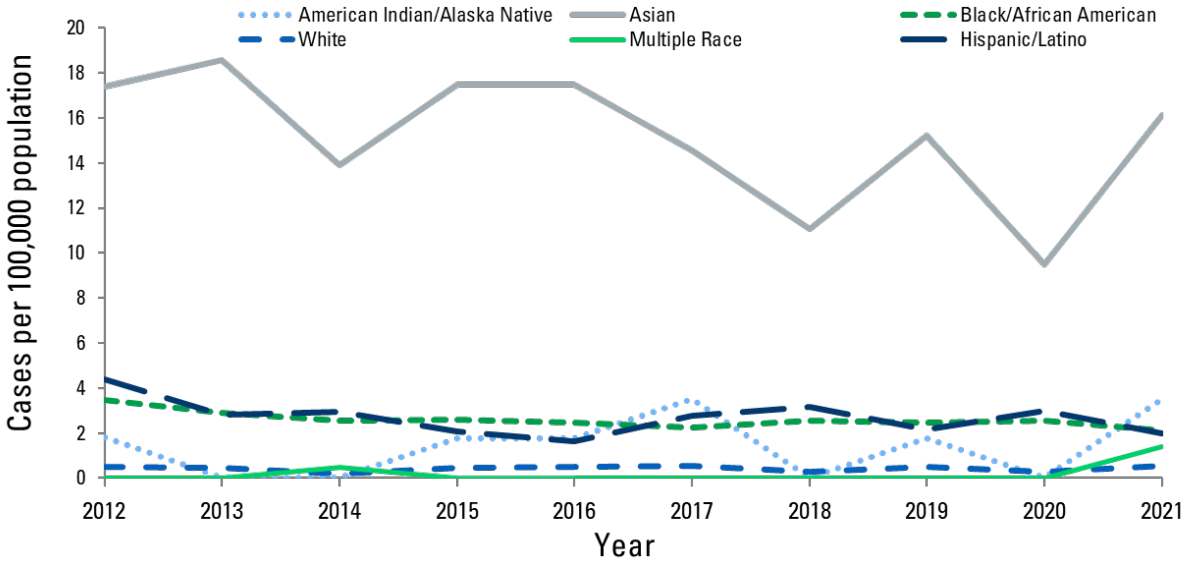
https://www.michigan.gov/mdhhs/-/media/Project/Websites/mdhhs/MDHHS-TB/2021MITBDataSummary.pdf?rev=2c38973383d6418795ffb4eab3cea6d8&hash=CF585F9AC6D151C7AEFFBFEB4DB5E3D6

TB Rates by Sex



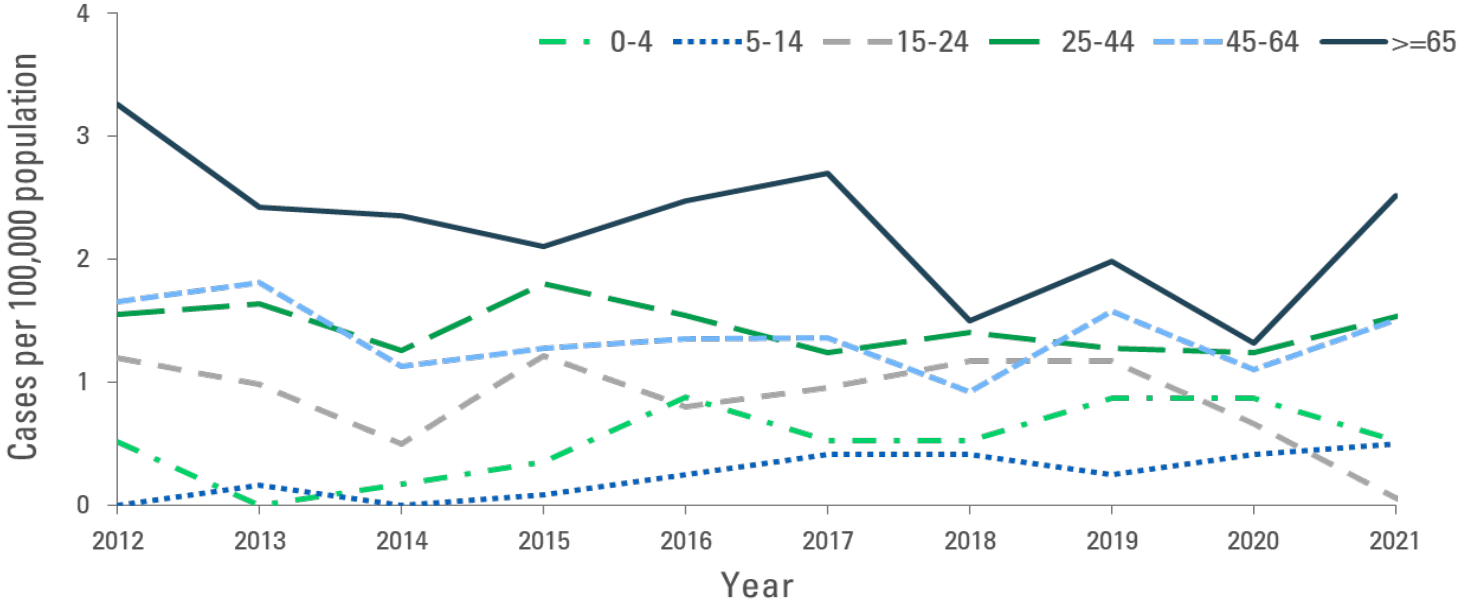
https://www.michigan.gov/mdhhs/keep-mi-healthy/communicablediseases/diseasesandimmunization/tb/training/eventpres/2022-world-tb-day-webinar

TB Rates by Race and Ethnicity



https://www.michigan.gov/mdhhs/keep-mi-healthy/communicablediseases/diseasesandimmunization/tb/training/eventpres/2022-world-tb-day-webinar

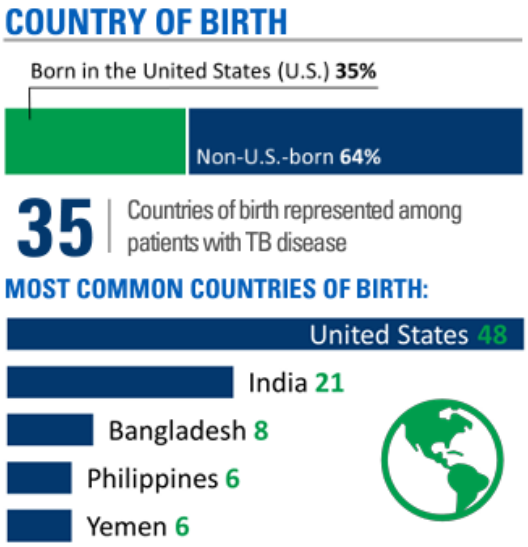
TB Rates by Age Group



https://www.michigan.gov/mdhhs/keep-mi-healthy/communicablediseases/diseasesandimmunization/tb/training/eventpres/2022-world-tb-day-webinar

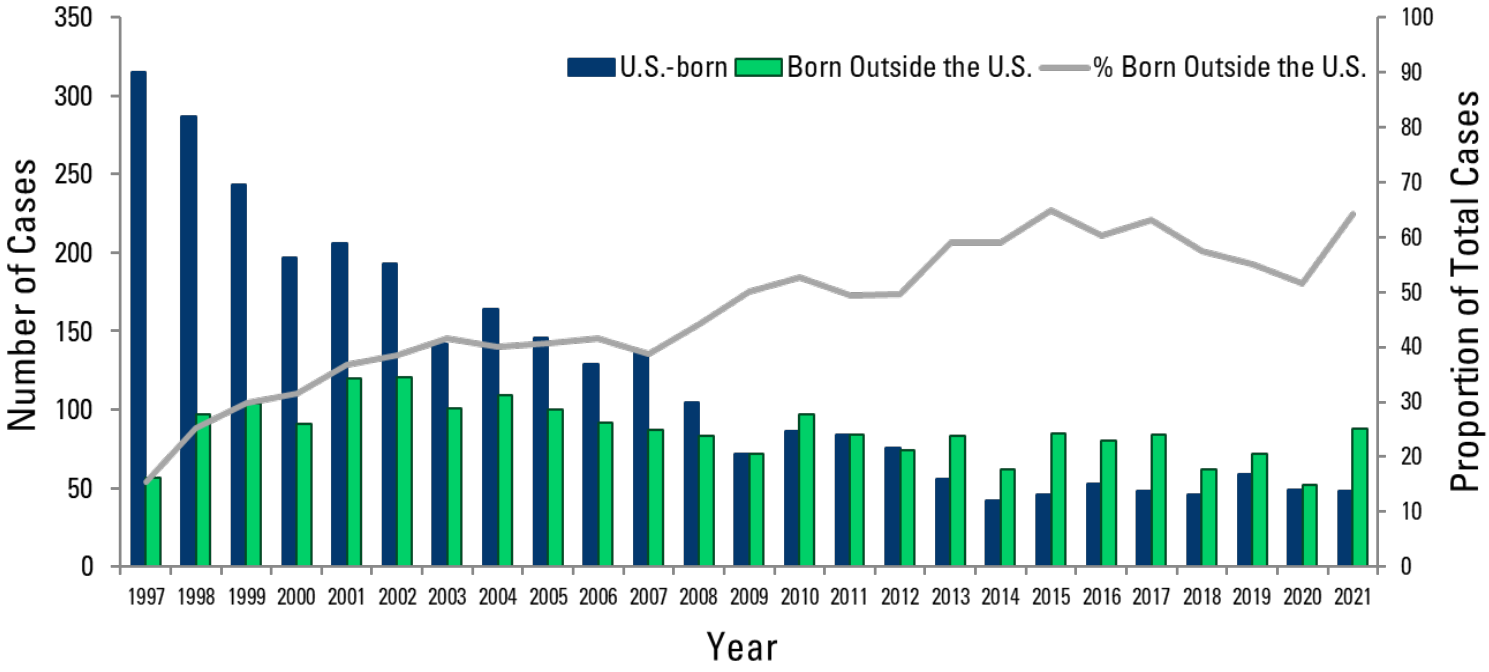
TUBERCULOSIS

IN MICHIGAN, 2021



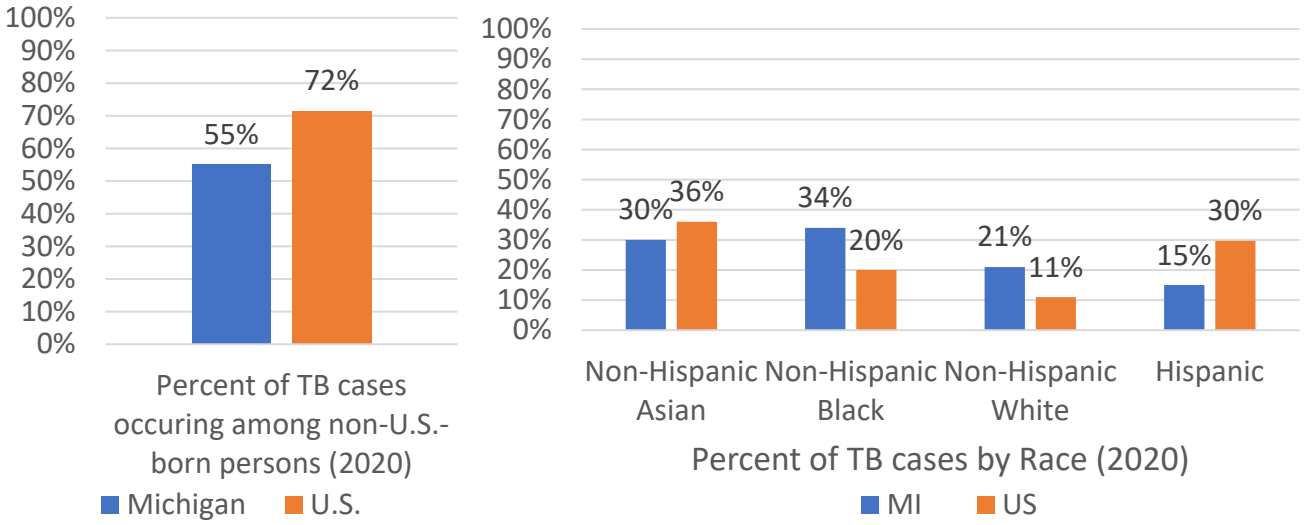
https://www.michigan.gov/mdhhs/-/media/Project/Websites/mdhhs/MDHHS-TB/2021MITBDataSummary.pdf?rev=2c38973383d6418795ffb4eab3cea6d8&hash=CF585F9AC6D151C7AEFFBFEB4DB5E3D6

TB Cases by Country of Origin



Source: https://www.michigan.gov/mdhhs/keep-mi-healthy/communicablediseases/diseasesandimmunization/tb/training/eventpres/2022-world-tb-day-webinar

MI to US Comparisons – Non-US-Born and Race/Ethnicity



https://www.michigan.gov/mdhhs/keep-mi-healthy/communicablediseases/diseasesandimmunization/tb/training/eventpres/2021-world-tb-day-webinar
https://www.cdc.gov/tb/publications/factsheets/statistics/tbtrends.htm

The following groups and behaviors are most at risk:

- Close contacts of a person with infectious TB disease
- Persons who have immigrated from areas of the world with high rates of TB
- Children less than 5 years of age who have a positive TB test
- Groups with high rates of TB transmission, such as homeless persons, injection drug users, and persons with HIV infection
- Persons who work or reside with people who are at high risk for TB in facilities or institutions such as hospitals, homeless shelters, correctional facilities, nursing homes, and residential homes for those with HIV

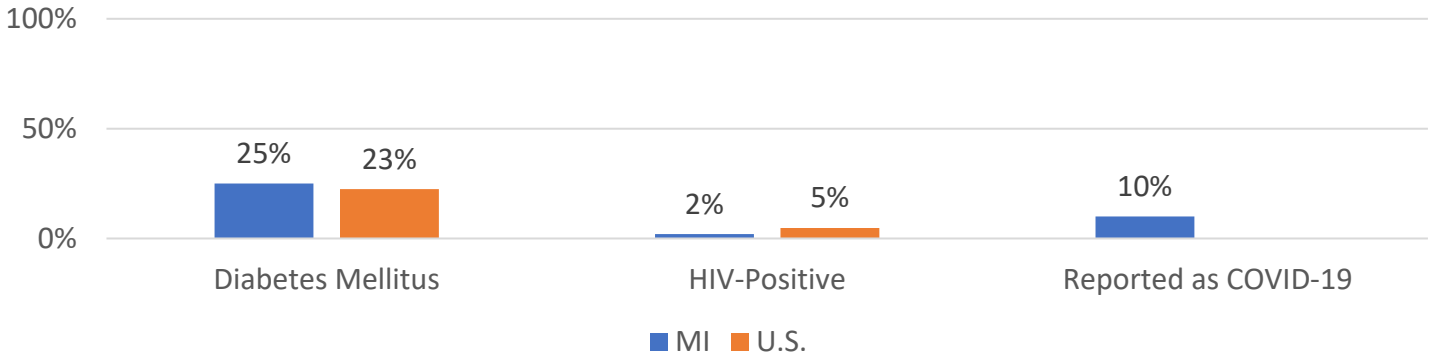
https://www.cdc.gov/tb/topic/basics/risk.htm

Persons with medical conditions that weaken the immune system including the following:

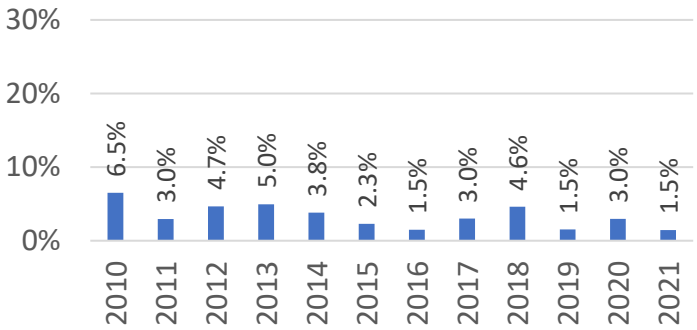
- Babies and young children
- HIV infection
- Substance abuse
- Silicosis
- Diabetes mellitus
- Severe kidney disease
- Low body weight
- Organ transplants
- Head and neck cancer
- Medical treatments such as corticosteroids or organ transplant
- Specialized treatment for rheumatoid arthritis or Crohn's disease

Risk Factors –

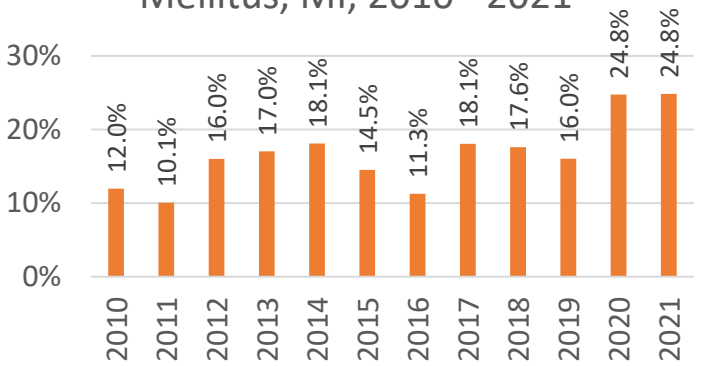
Co-Occurring Medical Conditions, MI vs. US - 2020



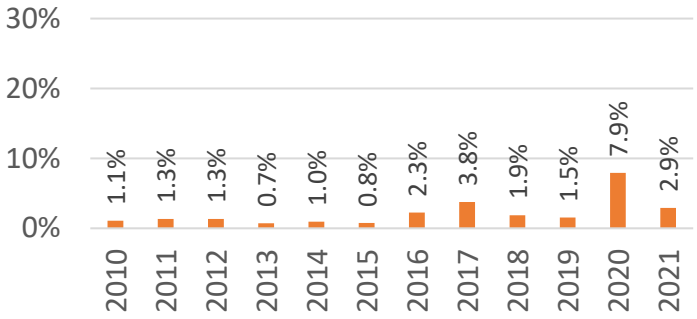
% of TB Cases HIV Positive, MI, 2010 - 2021



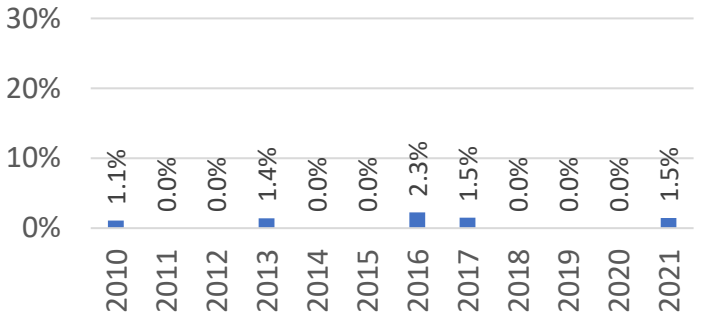
% of TB Cases w/Diabetes Mellitus, MI, 2010 - 2021



% of TB Cases w/End-Stage Renal Disease, MI, 2010 - 2021

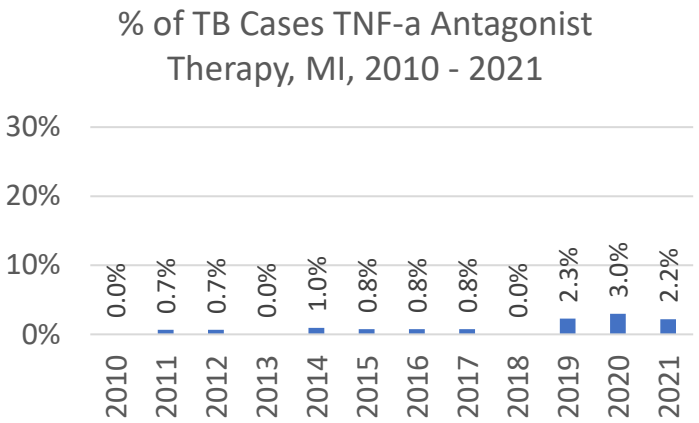


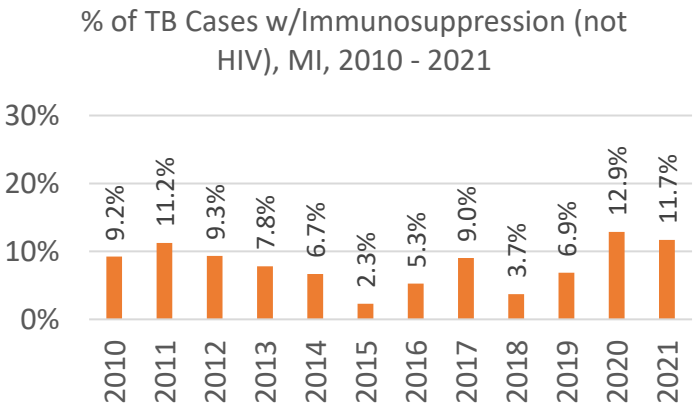
% of TB Cases w/Post-organ Transplantation, MI, 2010 - 2021

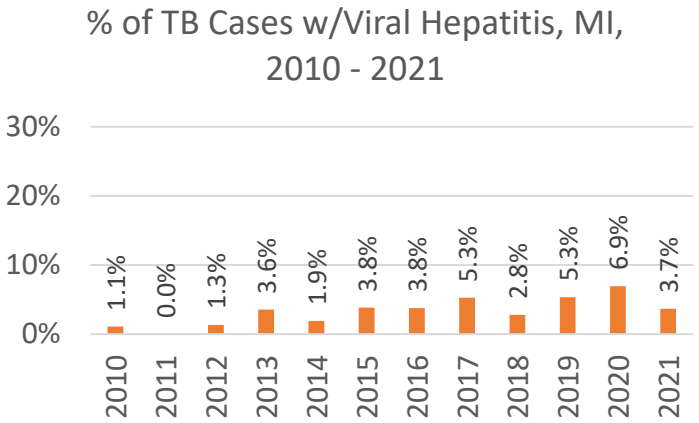


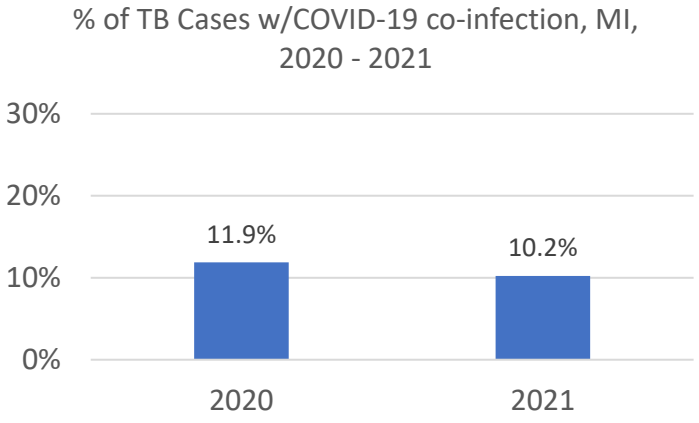
TB Testing
&
Laboratories

Risk Factors









Examination of Immigrants and Refugees Objectives CDC for 2025 (subset)

Goal Area	2025 Target	MI 2020 Data
Examination of Immigrants and Refugees: For immigrants and refugees with abnormal chest radiographs (X-rays) read overseas as consistent with TB, increase the proportion who initiate a medical examination within 30 days of notification.	72%	40%
Examination Completion: For immigrants and refugees with abnormal chest X-rays read overseas as consistent with TB, increase the proportion who complete a medical examination within 120 days of notification.	78%	49%

https://www.cdc.gov/tb/programs/evaluation/indicators/default.htm

Average cost for a TB Skin Test without insurance: $32, range from $20 to $50

Average cost for TB blood test without insurance $71

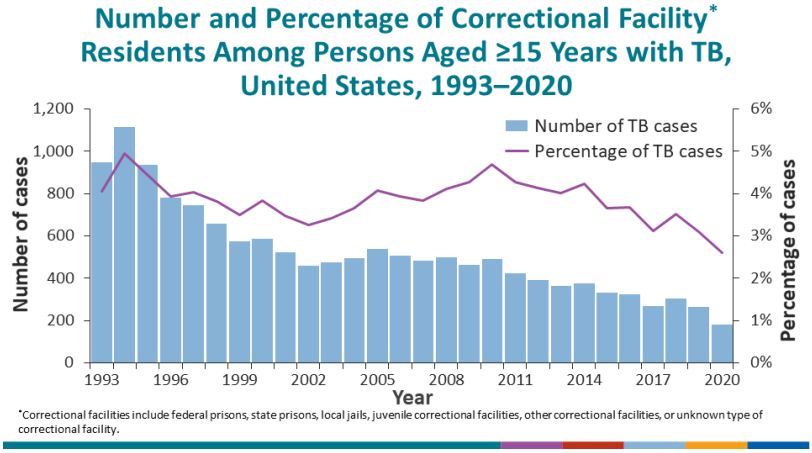
With insurance – cost of copay after meeting yearly deductible

Many health departments say they cannot bill insurance.

TB Testing – International Students

- Schools: Western Michigan, Eastern Michigan, Michigan State, University of Michigan, Central Michigan, and Wayne State
- All require testing of International Students who are from a list of countries specified by WHO as high risk for TB
  - Some have a questionnaire to determine testing, and if student reports high-risk activities they are also required to test.
- For those providing testing information, most use the Mantoux PPD or Quantiferon Gold. Others say "TB skin test."
- Central Michigan University, requires PPD skin testing for all students
- Some require students to pay out of pocket, remaining schools say they can bill insurance
- Penalty for not getting tested is not releasing records

TB Testing-Corrections



- Michigan DOC – policy states utilizes Mantoux TB Skin Test for employees
- No information publicly available regarding testing of inmates in prisons or jails
- Approximately 3% of TB Cases reported in the US occurred among people who were current residents of correctional facilities 15 years of age or older (2020)
- Among the TB cases reported among residents of correctional facilities
  - 10.1% were among residents of federal prisons
  - 25.1% were among residents of state prisons
  - 22.9% were among residents of local jails
  - 39.1% were among residents of other facilities

https://www.cdc.gov/tb/topic/populations/correctional/default.htm#:~:text=In%202020%2C%20U.S.%20state%2C%20local,7%2C174%20TB%20cases%20to%20CDC.&text=Approximately%203%25%20of%20TB%20cases,years%20of%20age%20or%20older.

National TB Laboratory Program Objectives and Performance Targets for 2025 (subset)

Goal Area	2025 Target	MI 2020 Data
Turn-around time for TB culture test	25 days, 78%	82.7%
Turn-around time for Nucleic Acid Amplification Test (NAAT)	6 days, 97%	95.7%
Increase the proportion of people who have initial drug susceptibility results reported	100%	100%
Universal Genotyping for TB patients with a positive culture result and increase proportion who have a MT BC genotyping result reported.	100%	98.6%

Source: https://www.cdc.gov/tb/programs/evaluation/indicators/default.htm

Contact Investigation/ Tracing & Treatment

National TB Program Objectives and Contact Performance for 2025 (subset)

Goal Area	2025 Target	MI 2020 Data
Contact Elicitation: For TB patients with positive AFB sputum-smear results, increase the proportion who have contacts elicited.	100%	98%
Examination: For contacts to sputum AFB smear-positive TB cases, increase the proportion who are examined for infection and disease.	94%	80%
Treatment Initiation: For contacts to sputum AFB smear-positive TB cases diagnosed with latent TB infection, increase the proportion who start treatment.	92%	98%
Treatment Completion: For contacts to sputum AFB smear-positive TB cases who have started treatment for latent TB infection, increase the proportion who complete treatment.	93%	95%

Examination of Immigrants and Refugees Objectives CDC for 2025 (subset)

Goal Area	2025 Target	MI 2020 Data
Treatment Initiation: For immigrants and refugees with abnormal chest X-rays read overseas as consistent with TB who are diagnosed with latent TB infection or have radiographic findings consistent with prior pulmonary TB (ATS/CDC Class 4) on the basis of examination in the United States, for whom treatment was recommended, increase the proportion who start treatment.	87%	80%
Treatment Completion: For immigrants and refugees with abnormal chest X-rays read overseas as consistent with TB who are diagnosed with latent TB infection or have radiographic findings consistent with prior pulmonary TB (ATS/CDC Class 4) on the basis of examination in the United States, and who have started on treatment, increase the proportion who complete treatment.	87%	50%

https://www.cdc.gov/tb/programs/evaluation/indicators/default.htm

Contact Investigations for Sputum Smear Positive Cases

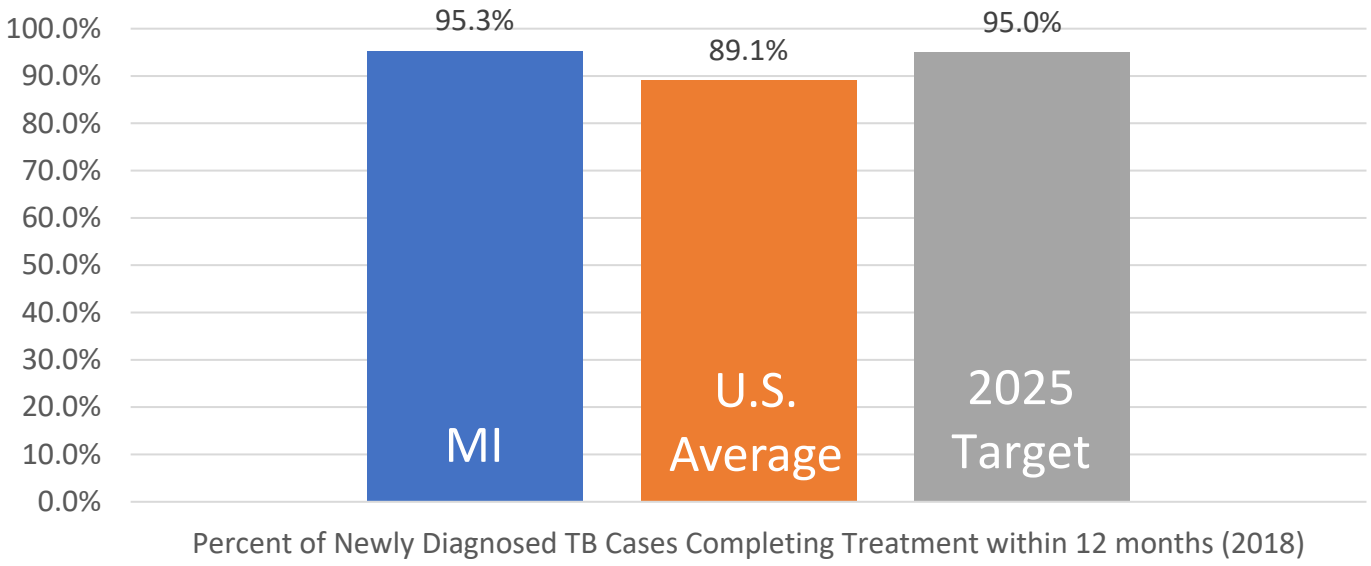
Year	# Cases	# Contacts	# Evaluated	TB Disease	LTBI	Started Tx	Completed Tx
2017	34	615	428	6	46	42	40
2018	30	1109	973	5	78	65	56
2019	45	1021	970	8	71	56	53
2020	40	5837	4657	4	64	63	60
2021 *(prelim)*	35	596	521	6	37	36	29

Cost of Treatment

Type of Tuberculosis	Direct Treatment Cost per Case
TB *(Drug-Susceptible, Not Multidrug Resistant TB, or Unknown)*	$20,000
Multidrug-Resistant TB	$182,000
Extensively Drug-Resistant TB	$568,000

Source: https://www.cdc.gov/tb/publications/infographic/images/2020/I_Social-Media-Graphic_Drug-Resistant-TB-Costs.jpg

Treatment Completion



Source: https://www.cdc.gov/tb/statistics/indicators/2020/completionTherapy.htm

Other Indicators

LTBI Incidence

- More than 80% of TB cases in the US result from longstanding, untreated latent TB infection.
- LTBI is not reported to the CDC; they rely on national prevalence estimates.
- CDC has the underpinnings of a Latent TB infection surveillance system under development

https://www.cdc.gov/tb/statistics/ltbi.htm#:~:text=Based%20on%20NHANES%20data%2C%20CDC,current%20estimates%20published%20by%20CDC.
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0249012

Latent TB Estimates	
U.S. Population	2.7%; 8.6 million people
U.S.-Born Persons	1.0%
Non-U.S.-Born Persons	13.9%
Populations with highest estimated LTBI prevalence	U.S.-Born Persons: - Aged 65 & older (2.1%) - Non-Hispanic Black individuals (3.1%) Non-U.S.-Born Persons: - Aged 45-64 (16.3%) - Asian and other racial/ethnic groups (19.1%)

https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0249012