
ANNUAL REPORT

California
Tuberculosis
Elimination Plan
(2021-2025)

2
0
2
3



Artwork by Camille Hogan, all rights reserved.

PREPARED FOR THE
CALIFORNIA TUBERCULOSIS ADVISORY COMMITTEE (CTEAC)

MIDPOINT REVIEW

The December 2023 California Tuberculosis Elimination Advisory Committee (CTEAC) meeting marks the end of the third year of the California Tuberculosis Elimination Plan, 2021-2025, and a remarkable amount of progress achieved to date. This report describes the status of tuberculosis (TB) in California and progress, both quantitative and qualitative, towards TB Elimination Plan targets and actions. Statewide, public health staff have exhibited incredible resilience during a period marked by a world-wide public health emergency and continued dedication to eliminating TB in the state of California. With two years remaining of the TB Elimination Plan and renewed public health capacity for TB elimination, we are pleased to provide updated TB data, a summary of Plan implementation progress, and important next steps for the near future.

California TB elimination targets:

> Pre-elimination by 2035

> Elimination by 2050

OUTCOMES

The 2021-2025 TB Elimination Plan sets the following TB disease and LTBI targets for the Plan’s five year period.

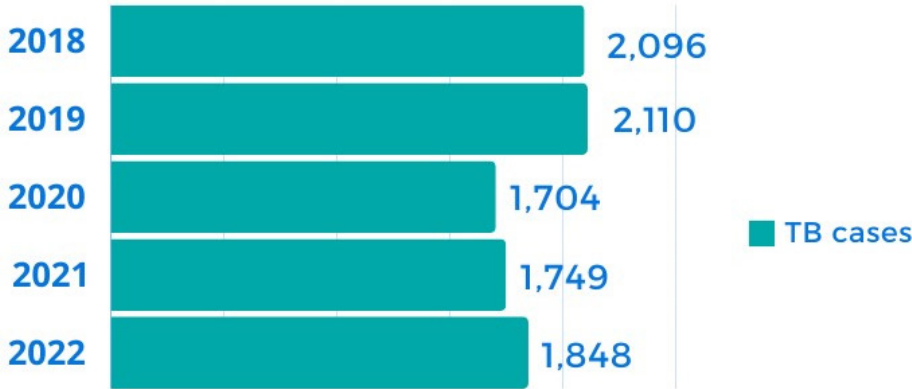
OUTCOMES	2019 BASELINE		CURRENT STATUS		2025 TARGET	
	CASES	RATE	CASES	RATE	CASES	RATE
Reduce TB cases by at least 30%	2,115	53/ million	1,845 (2022)	47.3/ million	1,500	38/ million
Reduce TB disparities — reduce non-U.S.-born case rate by at least 25%	1,772	163/ million	1,526 (2022)	146.6/ million	1,222	116/ million
Reduce TB deaths by at least 25%	200	5.3/ million	212 (2021)	5.4/ million	150	3.8/ million

OUTCOMES	2019 BASELINE	CURRENT STATUS	2025 TARGET
Increase LTBI testing to 80%*	75.7% (17,229/22,762)	86.3% (2022) (36,256/42,024)	80%
Increase LTBI treatment completion to 75%	25.3% (1,417/5,591)	27.6% (2021) (1,969/7130)	75%

*Among contacts, B1-notifications, status adjustors, local targeted testing reports

TB IN CALIFORNIA - BY THE NUMBERS

TB CASES



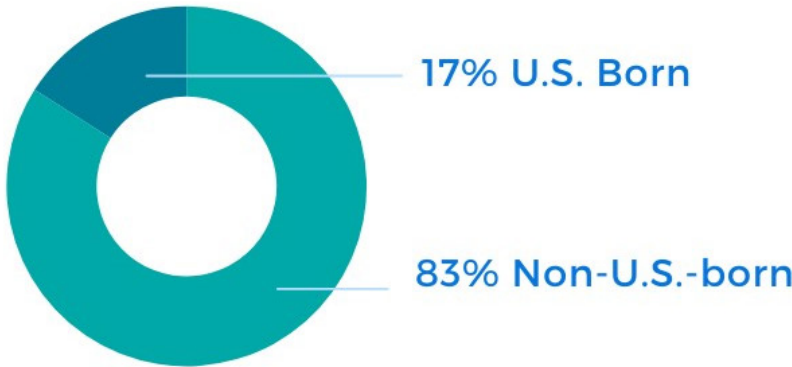
TB cases by year, 2018-2022

ETHNICITY



TB incident rate per 100,000 persons, 2022

NATIVITY



Proportion of TB cases by nativity, 2022

SPOTLIGHTS



George Rutherford
CTEAC Co-Chair
UCSF Professor

“COVID-19 has been an incredible obstacle to public health work in California, nationally, and internationally. I am mindful of the TB prevention work required to move the TB elimination agenda forward at a speed we haven’t been able to for the last several years. I am inspired and optimistic about our continued work towards TB elimination in California.”

“The California TB-free Coalition has made strides in the past two years through its legislative and budget advocacy, legislative briefings, and education outreach efforts. It is unacceptable that so many Californians still suffer and die from TB complications when the disease is preventable. The Coalition will continue to educate and provide real solutions and interventions to eliminate TB in the state.”



Jackie Cuen
CTCA Peer Support
Navigator

“It is difficult for me to accept the title ‘TB Survivor’ because I believe it is outrageous that people are still at risk of dying from a centuries-old disease. I use the term, however, because I want to acknowledge and stand with those who have found themselves questioning whether TB will take their lives and to pay homage to those whose lives were unfairly taken by TB.”



Vivian Liang
NEMS Government-
Community Relations
Representative



Chibo Shinagawa
TB Elimination Alliance
AAPCHO Senior Program
Manager

“Our priority is to connect with communities at highest risk for TB to raise awareness and normalize TB screening and care. Our commitment is to be there as a trusting healthcare provider organization to facilitate access for our patients and families to TB care; we know that a collaborative and multidisciplinary effort will help STOP TB transmission.”



Erica Pan
CTEAC Co-Chair
CDPH Deputy Director

“Partnerships with community leaders, trusted messengers, and outreach workers are crucial to increasing TB awareness and highlighting the importance of TB prevention and linkage to care. California must also continue to demonstrate to providers and health systems the important return on investment that TB prevention has in order to pave our pathway towards TB elimination.”

“The TB Elimination Alliance (TEA) is wholeheartedly dedicated to community-based projects, health equity, and TB elimination. Collaboration is at our core, and together with partners, we strive for greater outcomes. While long-term funding for community engagement and research projects is a goal, our commitment remains steadfast. The more we can collaborate, the better.”



Marissa Machaen
San Ysidro Health
Program Supervisor

KEY TB ELIMINATION ACCOMPLISHMENTS

In three years, incredible progress has been made towards completing the 40 California TB Elimination Plan action steps, recommended by CTEAC members, liaisons, and stakeholders. Due to successful partnerships across local TB programs; primary care providers and community clinics; public and private healthcare systems; community-based organizations; TB survivors; funders; and academic researchers, 93 percent of the Plan’s 40 action steps are in progress or complete. Below and on the next page are key accomplishments from 2021-2023, organized by Plan recommendation, towards achieving the goals and targets presented for 2025.

93% of the California TB Elimination Plan action steps are in progress or complete

Engagement and Partnerships

~700,000 providers notified of the 2023 U.S. Preventive Services Task Force (USPSTF) updated LTBI screening guidance through the Medical Board of California and California Board of Registered Nursing

55 non-licensed healthcare workers trained using the newly produced Community Health Worker TB Prevention curriculum

10+ healthcare entities focused on health equity/hep B initiatives serving AANHPI populations are implementing plans to increase LTBI testing and treatment

LTBI Testing and Treatment

12+ clinics that serve high risk populations measuring LTBI care cascades

5 resources/interventions developed to improve LTBI treatment outcomes for status adjustors

~1,700 organizations and individuals received the newly produced TB Prevention Guidebook (print and online)

27 unique drug classes reviewed for indications in the newly developed Rifamycin Drug-Drug Interaction Guide

KEY TB ELIMINATION ACCOMPLISHMENTS (CONT.)

LTBI Surveillance

2 California Association of Asian Pacific Community Health Organizations (AAPCHO) clinics that serve high risk populations measuring LTBI care cascades

1,300 positive IGRAs and 17,000 non-positive IGRAs submitted to CalREDIE every week.* Reporting of positive IGRAs and non-positive IGRAs mandated as of 10/2019 and 11/2022, respectively

1 analysis initiated on treatment completion rates for Medi-Cal participants with LTBI in California

2 pilot projects assessing the viability of enhancing IGRA ELRs with Medi-Cal and EHR data initiated

*not including San Diego and Los Angeles

Resources

\$1.5 million received in new, limited term grant monies to support TB prevention and elimination efforts

5 rifamycins (all) available at no cost on all Medi-Cal Managed Care plans

1 CDPH TB drug stockpile established, with routine monitoring of rifamycin inventory and price for early warning of supply disruptions

Research

2 large primary care organizations in California are conducting active intervention studies to improve LTBI care cascade outcomes (TBESC)

23 members engaged in the California LTBI Research Network

ON THE HORIZON

2024

⋮

2025

⋮

2026

2026-2030 TB Elimination Plan: CTEAC Think Tank Meeting (to prepare for new 5-year plan)

Development of 2026-2030 TB Elimination Plan

2026-2030 TB Elimination Plan Release

ACTION STEP PROGRESS

	2021	2022	2023	2024	2025
ACTION STEPS:					
1.1 - Outreach to priority primary care providers					
1.2 - Engage primary care medical organizations					
1.3 - Implement “CA TB Hero” program					
1.4 - Partner with health equity organizations					
1.5 - Train non-licensed health workers on TB prevention					
1.6 - Tailor communications to high risk populations					
1.7 - Integrate TB into non-TB prevention materials					
1.8 - Support TB survivors’ efforts					
1.9 - Build campaigns for ANHPI & Latinx populations					
1.10 - Select & post effective patient materials					
2.1 - Produce & disseminate TB prevention “Playbook”					
2.2 - Improve LTBI care cascades of community clinics					
2.3 - Disseminate care linkage steps to civil surgeons					
2.4 - Increase LTBI treatment of groups already tested					
2.5 - Couple LTBI & COVID prevention efforts					
2.6 - Enhance Medi-Cal Managed Care plans' LTBI efforts					
2.7 - Promote TB prevention for DHCS Innovation Awards					
3.1 - Publish annual LTBI report					
3.2 - Map TB & COVID cases					
3.3 - Establish statewide LTBI measures					
3.4 - Update Medi-Cal LTBI treatment completion rates					
3.5 - Implement statewide TB contact surveillance system					
3.6 - Enhance IGRA reporting to capture risk					
3.7 - Create EHR data flow for LTBI surveillance					
3.8 - Promote LTBI testing/treatment measurement					
3.9 - Outreach to CA health system QI managers					
4.1 - Define cost for 2021-2025 TB Elimination Plan					
4.2 - Develop TB prevention business case					
4.3 - Expand TB coalitions					
4.4 - Ensure coordination across CA TB elimination plans					
4.5 - Secure funding to support TB prevention efforts					
4.6 - Monitor inventory/price of rifmycins					
4.7 - Ensure all rifmycins are on Medi-Cal Rx formulary					
4.8 - Ensure full coverage of IGRAs by all CA health plans					
4.9 - Reduce TB prevention costs for healthcare systems					
5.1 - Establish CA LTBI research network					
5.2 - Establish TB case & disparity reduction targets					
5.3 - Promote TB prevention implementation research					
5.4 - Assess strategies to prevent care cascade attrition					
5.5 - Analyze non-traditional data on LTBI testing/treatment					

-  - Not Started
-  - In Progress
-  - Completed
-  - Ongoing Action
-  - Completed Action

PLAN PERFORMANCE TO DATE

Performance to date for the 2021-2025 TB Elimination Plan is shown below. These status updates reflect most recently available data for each action step. Completed action steps, many of which are ongoing, are highlighted in blue.

ACTION STEPS	2023 STATUS
RECOMMENDATION 1	
1.1 - Conduct outreach and education to engage priority primary care providers in TB prevention activities	≥13 local TB programs providing messaging to top primary care providers serving non-U.S.-born populations
1.2 - Engage primary care medical organizations to message the value of TB prevention (LTBI testing and treatment) to their memberships	1 medical organization, California Primary Care Association (CPCA), provided messaging to over 1,000 members to promote TB prevention
1.3 - Implement a visible “California TB Hero” program to recognize providers and organization leaders excelling in scale-up of LTBI testing and treatment	8 California TB heroes awarded in 2023; ongoing annual program
1.4 - Partner with healthcare organizations focused on health equity and hepatitis B initiatives serving Asian, Native Hawaiian and Pacific Islander populations to increase LTBI testing and treatment	≥10 healthcare entities implementing plans to increase LTBI testing and treatment
1.5 - Implement a curriculum to train non-licensed health workers in community health centers to provide TB prevention messaging and linkage to care to high risk individuals in ANHPI and Latinx communities in areas with TB disparities	55 non-licensed healthcare workers trained using the newly produced Community Health Worker TB Prevention curriculum
1.6 - Use findings from CDC’s LTBI Communications Campaign research to revise and tailor communication messages to high risk populations	Revising and tailoring communication messages - ongoing activity
1.7 - Integrate TB prevention messages into existing CDPH education materials and/or campaigns for diabetes, tobacco, HIV or other chronic diseases	CDPH communications campaign strategy initiated 2023; integrating TB prevention messages into existing CDPH education materials - ongoing activity
1.8 - Support TB survivors’ efforts to increase TB prevention awareness in California	California TB Patient Advocate provides ongoing support in group meetings and promotes TB prevention messaging
1.9 - Implement TB public awareness campaigns (in-language and culturally appropriate) for ANHPI and Latinx populations	TB public awareness campaigns implemented for ANHPI, Latinx, and Ukrainian populations
1.10 - Identify the most effective patient education materials and make accessible on a public website for use by TB programs, primary care settings and patient advocates	CDPH communications campaign strategy initiated 2023; identifying most effective patient education materials - ongoing activity

ACTION STEPS	2023 STATUS
RECOMMENDATION 2	
2.1 - Produce and disseminate a TB prevention “playbook” to at least 10 clinics/health systems serving high risk populations	TB Prevention Guidebook produced; print Guidebook distributed to 177 organizations and individuals; online Guidebook accessed 1,604 times
2.2 - Develop partnerships with clinics that serve high risk populations to measure and improve their LTBI care cascades	>12 clinics that serve high risk populations measuring LTBI care cascades
2.3 - Disseminate steps for linkage to care for LTBI treatment for immigration status adjustor to California civil surgeons	<ul style="list-style-type: none"> Document of LHJ points of contacts/sites for referral of treatment available on the CTCA website Ongoing project to optimize LTBI care continuum by partnering with civil surgeons; resources bundled for civil surgeons and will be available on CTCA website in 2024
2.4 - Implement interventions to improve LTBI treatment outcomes for groups already systematically tested (contacts, B notifications, status adjuster)	Resources developed for status adjustor: <ul style="list-style-type: none"> Clinic poster about immigrant LTBI testing, diagnosis, and treatment LTBI status adjustor brochure (multiple languages) Talking points for civil surgeon office staff Quarterly LHJ community of practice Resources in development: <ul style="list-style-type: none"> Linkage to care guide on improving LTBI treatment and linkage to care
2.5 - Demonstrate the feasibility of coupling LTBI testing, referral and care linkages into the COVID-19 testing/vaccine outreach efforts in communities with TB/COVID-19	Feasibility of coupling LTBI and COVID-19 outreach efforts demonstrated
2.6 - Provide technical assistance to Medi-Cal Managed Care plan leaders to implement LTBI testing and treatment quality improvement projects	1 health plan engaged in LTBI related quality improvement projects for Medi-Cal Managed Care sites; DHCS released LHD MOU template related to TB to the market
2.7 - Encourage Medi-Cal Managed Care plan leaders to seek CA DHCS Annual Innovation Awards for its LTBI quality improvement projects	Not started
RECOMMENDATION 3	
3.1 - Publish an annual LTBI report for California, describing LTBI test positivity and treatment completion rates for high risk populations with required evaluation (refugees, new arrivers, status adjustor and contacts)	Annual LTBI report will be finalized mid-December 2023 for CDPH clearance process
3.2 - Map TB and COVID-19 case overlap to identify hardest hit communities for outreach/testing	Revised analytic plan to re-match TB and COVID-19 cases under review; revised match will be used to map TB and COVID-19

ACTION STEPS	2023 STATUS
RECOMMENDATION 3	
3.3 - Establish statewide LTBI measures and submit measures to the National Quality Forum for endorsement and to the CMS Adult and Child Core Set Workgroup for addition to the Child and Adult Care Measure Set	Not started
3.4 - Update report on treatment completion rates for Medi-Cal participants with LTBI in California	Data received from Medi-Cal and analysis started; completion expected in 2024
3.5 - Implement a statewide surveillance system to track data on individual contacts to TB cases (LTBI test results and treatment outcomes)	Descriptive analysis of characteristics of individuals with LTBI initiated and included in LTBI report; CalConnect to support LTBI surveillance in 2024
3.6 - Enhance ELR of IGRAs to capture individual risk information and negative IGRA results	<ul style="list-style-type: none"> Both positive and non-positive IGRA results now required to be reported by laboratories to CDPH 2 pilot projects to assess viability of enhancing IGRA ELRs with Medi-Cal and EHR data sources initiated; Medi-Cal and EHR data received and analyses started CalConnect to support access to IGRA data in 2024
3.7 - Create routine transfer of EHR data to CDPH and local health departments from health care entities to measure TB prevention testing and treatment	1 pilot project matching EHR data to IGRA data initiated; CalConnect to support LTBI care connections in 2024
3.8 - Promote routine measurement of LTBI testing and treatment in AAPCHO’s clinic network	2 California clinics in AAPCHO’s clinic network engaged to promote routine measurement of LTBI testing and treatment
3.9 - Outreach to California health system quality improvement managers at top provider settings to measure USPSTF-recommended LTBI testing	Not started
RECOMMENDATION 4	
4.1 - Define the resources needed for successful implementation of the 2021-2025 California TB Elimination Plan action steps	Completed preliminary cost analyses to aid in the formulation of TB prevention funding proposals
4.2 - Develop a “business case” that describes the compelling human and economic benefit of preventing TB (LTBI testing and treatment)	“Costs and Consequences” fact sheet released and posted to CDPH TBCB website
4.3 - Expand California TB coalitions to include leaders and stakeholders of populations most affected by TB	State and local coalitions expanding memberships
4.4 - Ensure synergistic efforts and coordination across the four California TB elimination plans	Unique and common activities identified across the 4 California TB elimination plans

ACTION STEPS	2023 STATUS
RECOMMENDATION 4	
4.5 - Secure funding from philanthropic, industry, governmental and non-governmental health organizations to support key California TB prevention and elimination efforts	<ul style="list-style-type: none"> Secured 3 new limited term federal (CDC) grants (totaling \$1.25 million) and TEA grants (\$222,000) 2021-2024 Health equity funding secured for San Diego community outreach and engagement with high risk populations
4.6 - Establish routine monitoring of rifamycin inventory and price (through the top California distributors) for early warning of drug supply disruptions	Established direct access to and monitoring of availability and prices for TB drugs
4.7 - Ensure rifamycin LTBI medications are on the formulary of the Medi-Cal pharmacy benefit program’s (Medi-Cal Rx) formulary	All rifamycins available at no cost on all Medi-Cal plans
4.8 - Ensure full cost coverage of IGRAs by all California health plans, including Medi-Cal Managed Care, Covered CA and private plans	Discussions with DHCS planned for early 2024 to encourage LTBI testing and treatment best practices among Medi-Cal providers
4.9 - Reduce cost-sharing of IGRA testing and LTBI treatment for healthcare systems	<ul style="list-style-type: none"> Discussions conducted with community clinic partners to identify IGRA use policies, IGRA costs, IGRA barriers, and successful strategies for implementing risk-based testing with IGRAs Findings will inform a broader survey of community clinics in Q1 2024
RECOMMENDATION 5	
5.1 - Establish a research network focused on LTBI in California	California LTBI Research Network and LTBI research agenda established
5.2 - Use TB elimination modeling findings to establish targets for case reduction, TB/LTBI disparity reduction and for achieving TB pre-elimination – for California, Los Angeles, San Diego and San Francisco	5-year TB case and disparity reduction targets established, as well as 2 new targets for pre-TB elimination and TB elimination
5.3 - Promote research on implementation of new LTBI diagnostics and treatment in California	LTBI research agenda for California includes research on: <ul style="list-style-type: none"> feasibility and effectiveness of novel LTBI screening, testing, and treatment strategies contextual factors required to implement/ scale novel diagnostics/treatment regimens
5.4 - Conduct research to assess effectiveness and cost-effectiveness of strategies to reduce LTBI care cascade attrition	Research initiated to assess effectiveness and cost effectiveness of strategies to reduce attrition in the LTBI care cascade
5.5 - Analyze large health system and pharmaceutical data sets to provide current information on LTBI testing and treatment practices in California health-care settings serving high risk communities	Health Information exchange data matched to QFT+ lab reports (retrospective analysis). Quality analyses initiated

APPENDIX A - CTEAC MEMBERS AND LIAISONS

Members

Erica Pan, MD, MPH
CTEAC Co-Chair
State Epidemiologist, Deputy Director
Center for Infectious Diseases
California Department of Public Health

George Rutherford, MD
CTEAC Co-Chair
Professor, Epidemiology and
Biostatistics
School of Medicine
University of California, San Francisco

Lisa Albers, MD, MC II
Medical Consultant II
Managed Care Quality Monitoring
California Department of Health Care
Services

Jeannette Aldous, MD
Clinical Director of Infectious Disease
San Ysidro Health Center

Michael Carson, MSPM
Division Manager, Clinical Services
Orange County Health Care Agency
(Former employer)

Amit Chitnis, MD, MPH
TB Controller
TB Control Program
Alameda County Department of
Public Health

Jacqueline Cuen
TB Survivor
TB Peer Support Navigator
California TB Controllers Association

Barbara Cole, RN, PHN, MSN
Program Manager
TB Control Program
Riverside County Department of Public
Health

Jennifer Flood, MD, MPH
Chief
TB Control Branch
California Department of Public Health

Susannah Graves, MD, MPH
TB Controller and Director
TB Prevention and Control
San Francisco Department of
Public Health

Nicole Green, PhD
Laboratory Director
Los Angeles County Public Health
Laboratory

Anna Harte, MD
Medical Director
University Health Services
University of California, Berkeley

Julie Higashi, MD, PhD
TB Controller and Director
TB Control Program
Los Angeles County Department of
Public Health

Brenda Elaine Jones, MD
Associate Professor, Clinical Medicine
Keck School of Medicine
University of Southern California

Members (cont.)

Ankita Kadakia, MD
Deputy Public Health Officer
Public Health Services
San Diego County Health & Human
Services Agency
President
California TB Controllers Association

Olivia Kasirye, MD, MS
Health Officer
Sacramento County Department of
Health Services, Public Health

April King-Todd, RN, BSN, MPH
Nurse Manager, TB Control Program
Los Angeles County Department of Public
Health

Krystal Liang, PHN
PHN Nursing Supervisor
TB Control and Refugee Health Branch
San Diego County Health and Human
Services Agency

Ann M. Loeffler, MD
TB Controller
TB Control Program
Santa Clara County Public Health
Pediatric Consultant
Curry International Tuberculosis Center

Jeffrey Percak, MD, MPH
TB Controller
TB Control and Refugee Health Branch
San Diego County Health and Human
Services Agency

Chibo Shinagawa, MS, PMP
Senior Program Manager
TB Elimination Alliance
Association of Asian Pacific Community
Health Organizations

Liaisons

Lisa Chen, MD
Medical Director and Principal
Investigator
Curry International Tuberculosis Center

Kelly Musoke, MPH
Deputy Director
Curry International Tuberculosis Center

Priya Shete, MD, MPH
Assistant Professor
Division of Pulmonary and
Critical Care Medicine
School of Medicine
University of California, San Francisco

Judith Thigpen, MPH
Executive Administrator
California Tuberculosis Controllers
Association

Seema Jain, MD, FIDSA
Chief
Division of Communicable Disease
Control
California Department of Public Health

Donna Hope Wegener, MS
Executive Director
National Tuberculosis Controllers
Association

CTEAC includes many other dedicated partners who participate in its workgroups and attend its bi-annual meetings.

APPENDIX B - GLOSSARY OF ABBREVIATIONS

AAPCHO.....Association of Asian Pacific Community Health Organizations
ANHPI.....Asian and Native Hawaiian/Pacific Islander
CA.....California
CDPH.....California Department of Public Health
CDC.....Centers for Disease Control and Prevention
CHW.....community health worker
CMS.....Centers for Medicare and Medicaid Services
CTCA.....California TB Controllers Association
CTEAC.....California TB Elimination Advisory Committee
DHCS.....Department of Health Care Services
EHR.....electronic health records
ELR.....electronic lab reporting
Hep B.....Hepatitis B
IGRA.....interferon-gamma release assay
LHD.....local health department
LHJ.....local health jurisdiction
LTBI.....latent tuberculosis infection
NEMS.....North East Medical Services
NQF.....National Quality Forum
QI.....quality improvement
QFT+.....QuantiFERON-TB Gold Plus
TB.....tuberculosis
TBESC.....Tuberculosis Epidemiologic Studies Consortium
TEA.....Tuberculosis Elimination Alliance
USPSTF.....United States Preventive Services Task Force

APPENDIX C - AFTERWORD

Ongoing monitoring and evaluation of the California Tuberculosis Elimination Plan (2021-2025) is paramount to its success. The 2023 Annual Report was developed to monitor and report on Plan implementation. The successes highlighted represent the status of current TB prevention efforts among TB controllers, medical and public health experts, academic partners, and TB peers and survivors. The authors of this report thank CTEAC members and TB stakeholders throughout California for their continued efforts to eliminate TB in the state.

Acknowledgments

The TB Elimination Plan (2021-2025) Annual Report was developed by the California Department of Public Health Tuberculosis Control Branch. Special thanks to Araxi Polony, who designed, authored, and produced the Report, as well as Cathy Miller and Dr. Jennifer Flood for their contributions.

Copyright

All material contained in this report is in the public domain and may be used and reprinted without permission; citation to source, however, is appreciated.

Suggested Citation

California Department of Public Health, Tuberculosis Control Branch. California Tuberculosis Elimination Plan 2021-2025 - 2023 Annual Report. Richmond, CA. December 2023.

Disclaimers

This Plan was supported by the Centers for Disease Control and Prevention Cooperative Agreement Number NU52PS910219 and the California Department of Public Health Tuberculosis Control Branch. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the U.S. Centers for Disease Control and Prevention or the U.S. Department of Health and Human Services.