

TB and Latent TB Infection (LTBI) Education for Infection Preventionists in Skilled Nursing Facilities

Jeffrey Percak, MD, Medical Director, TB and
Refugee Health Branch,
Public Health Services, County of San Diego



HHSA
COUNTY OF SAN DIEGO
HEALTH AND HUMAN SERVICES AGENCY



February 26, 2025
LIVE WELL
SAN DIEGO



For internal use only. Not for distribution.

Disclosures



- Neither I nor my spouse have any financial disclosures to make relevant to the content of this presentation.

Learning Objectives



1. Understand the difference between active TB and latent TB infection.
2. Understand the epidemiology of TB and LTBI in San Diego County.
3. Describe what is required of a skilled nursing facility during a TB contact investigation
4. Describe how skilled nursing facilities can prevent tuberculosis transmission within their facilities
5. Describe who is at risk for TB infection, and how to test for TB.
6. Describe how to exclude active TB disease before treating LTBI.
7. Understand the importance of treating latent TB infection (LTBI) to prevent active TB disease.
8. Be able to effectively promote LTBI treatment to HCPs in your facility

For internal use only. Not for distribution.

What is Tuberculosis (TB)?

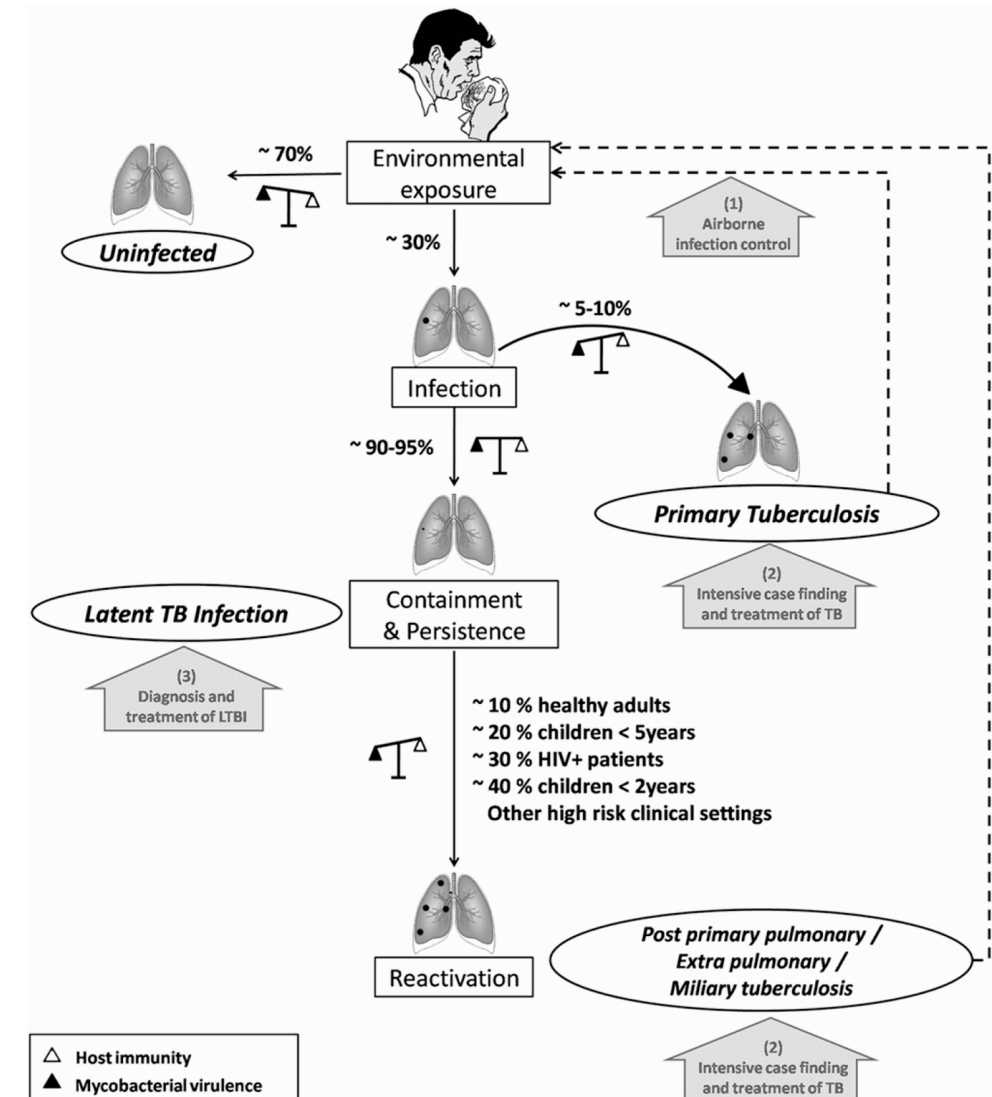
- TB is a communicable disease caused by a bacterium called *Mycobacterium tuberculosis*.
- TB bacteria usually attack the lungs but can attack any part of the body such as the kidney, spine, and brain.
- TB bacteria spreads through the air from one person to another when a person with TB disease of the lungs coughs, speaks, or sings.
- Those who have been infected, but are not sick, have **latent tuberculosis infection (LTBI)**.
- **Persons with LTBI can become sick with active TB in the future if not treated.**



TUBERCULOSIS (TB) INFECTION

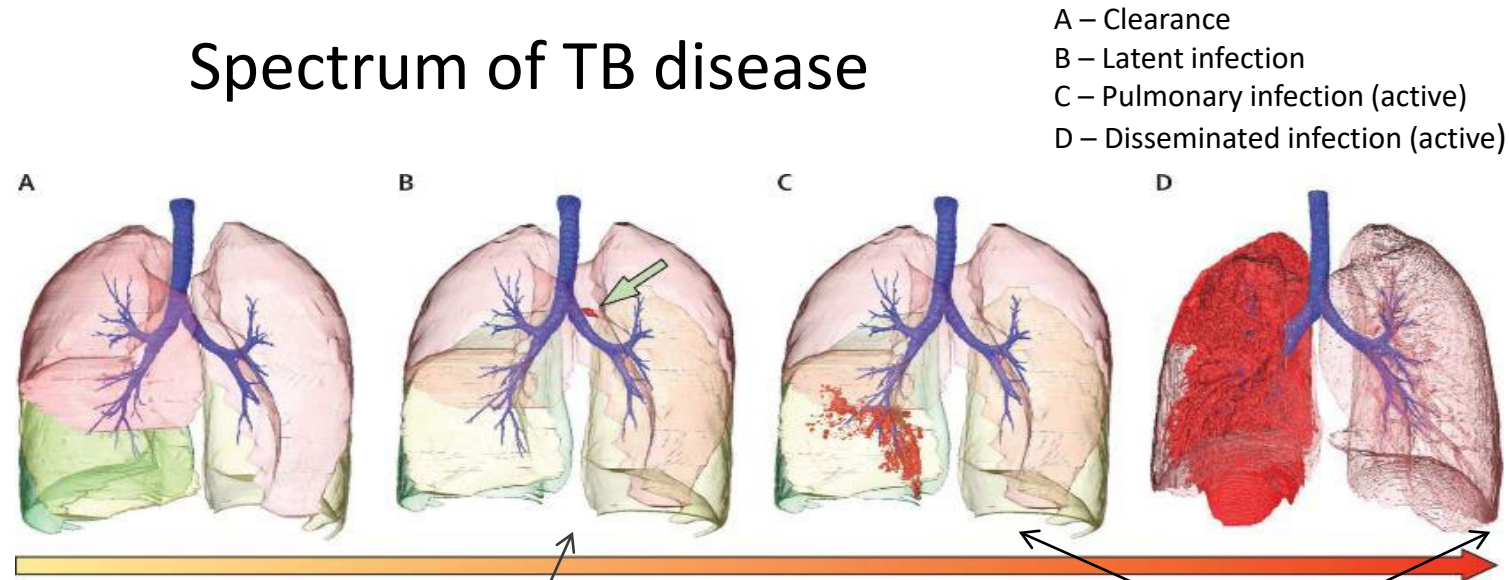
Airborne infection with *M. tuberculosis*

- 5-10% develop primary TB disease
- 90-95% of those who are infected will develop LTBI
- People with LTBI have a 5-10% lifetime risk of reactivation to active TB if LTBI not treated (higher with co-morbidities)



LTBI TREATMENT GOAL: **PREVENT** PROGRESSION TO ACTIVE TB DISEASE

Spectrum of TB disease



Latent TB Infection

- ***Absence of TB symptoms***
- Positive TST¹ or IGRA² result
- Chest radiograph normal
- Not infectious

¹TB skin test

²Interferon gamma release assay

Active TB Disease

- ***Symptoms such as cough, fever***
- TST or IGRA is usually positive
- Chest radiograph is usually abnormal
- Respiratory specimens usually culture positive

TB Symptoms

- Classic:
 - Fever
 - Night sweats
 - Weight Loss
 - Cough >3 weeks
- Hemoptysis: not always present
- Attributable to other sites of infection (CNS, larynx, pericardium, GU, bone/joint, intestine, lymph node...)

COSTS AND CONSEQUENCES OF TB IN CALIFORNIA



Death

- 1 in 6 die within five years of diagnosis
- 13% do not survive treatment



Disability

- After treatment, impaired lung function and shorter life expectancy
- >80% of children with CNS TB die or permanently disabled



Hospitalization

- 50% of TB patients are hospitalized
- 2x as expensive and 4x longer than hospitalizations for other conditions
- Cost MediCal \$21M (2017 estimate)



Cost

- Catastrophic costs to patients and families
- >\$217 million in direct and societal costs in California in 2022

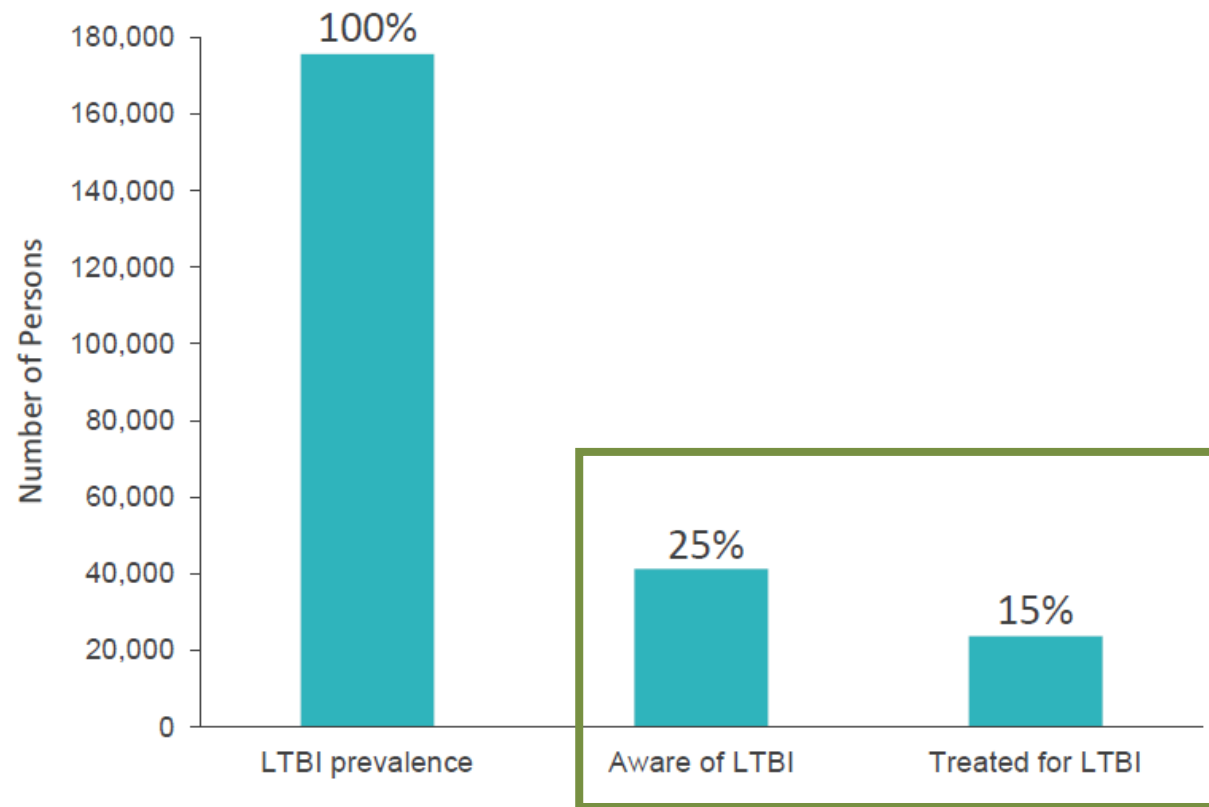


For internal use only. Not for distribution.

LTBI TREATMENT NEEDED TO PREVENT ACTIVE TB



85% of active TB cases begin as latent TB infection (LTBI) and can be prevented.



Approximately **175,000** San Diegans have LTBI, which can progress to active TB without treatment.

Estimated using methodology from the California TB Control Branch [Report on Tuberculosis in California, 2020](#) and associated Data Tables, applying national level data from the National Health and Nutrition Examination Survey, 2011-2012, to the San Diego County population.

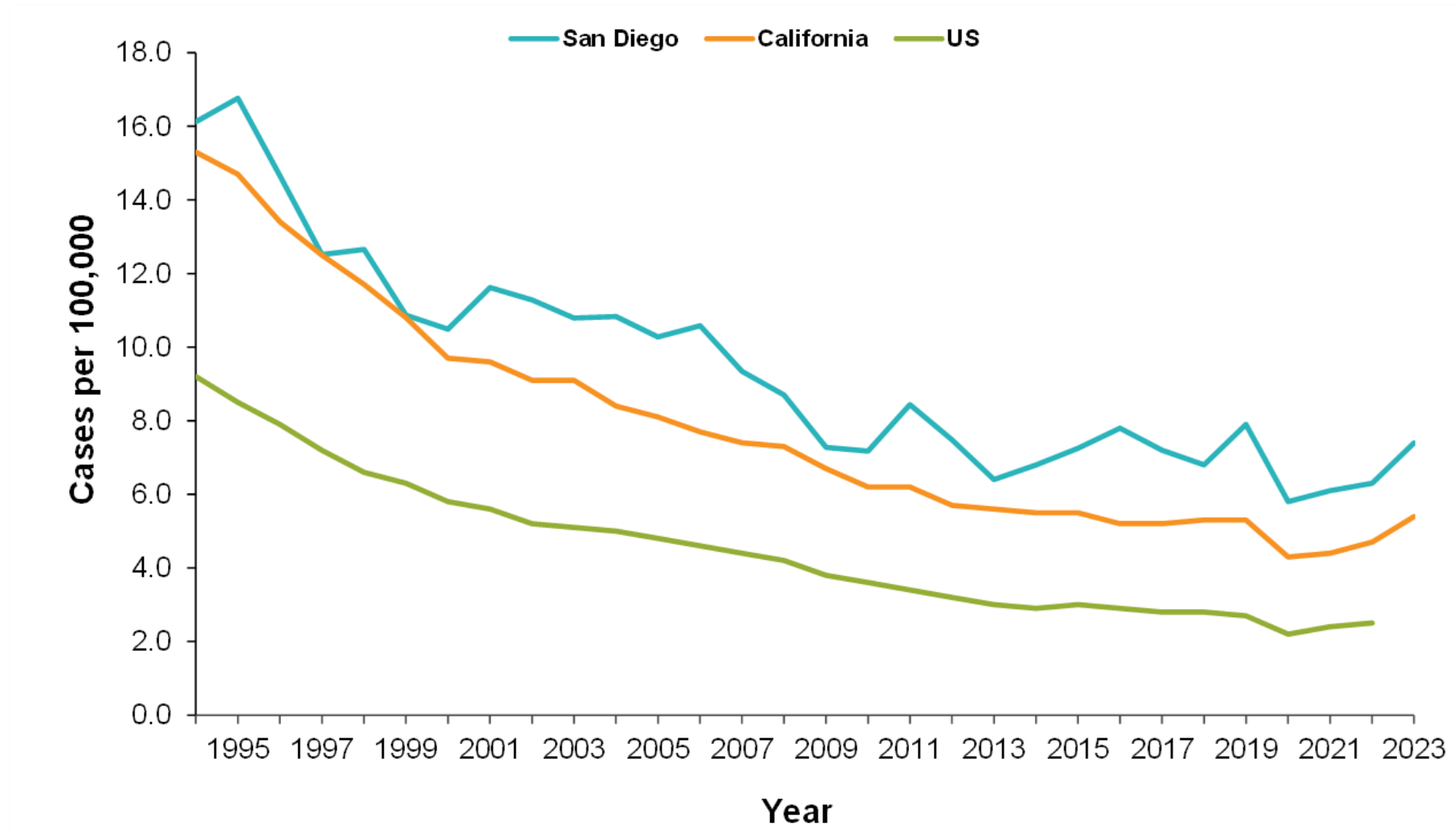
For internal use only. Not for distribution.



TB AND LTBI IN SAN DIEGO COUNTY

For internal use only. Not for distribution.

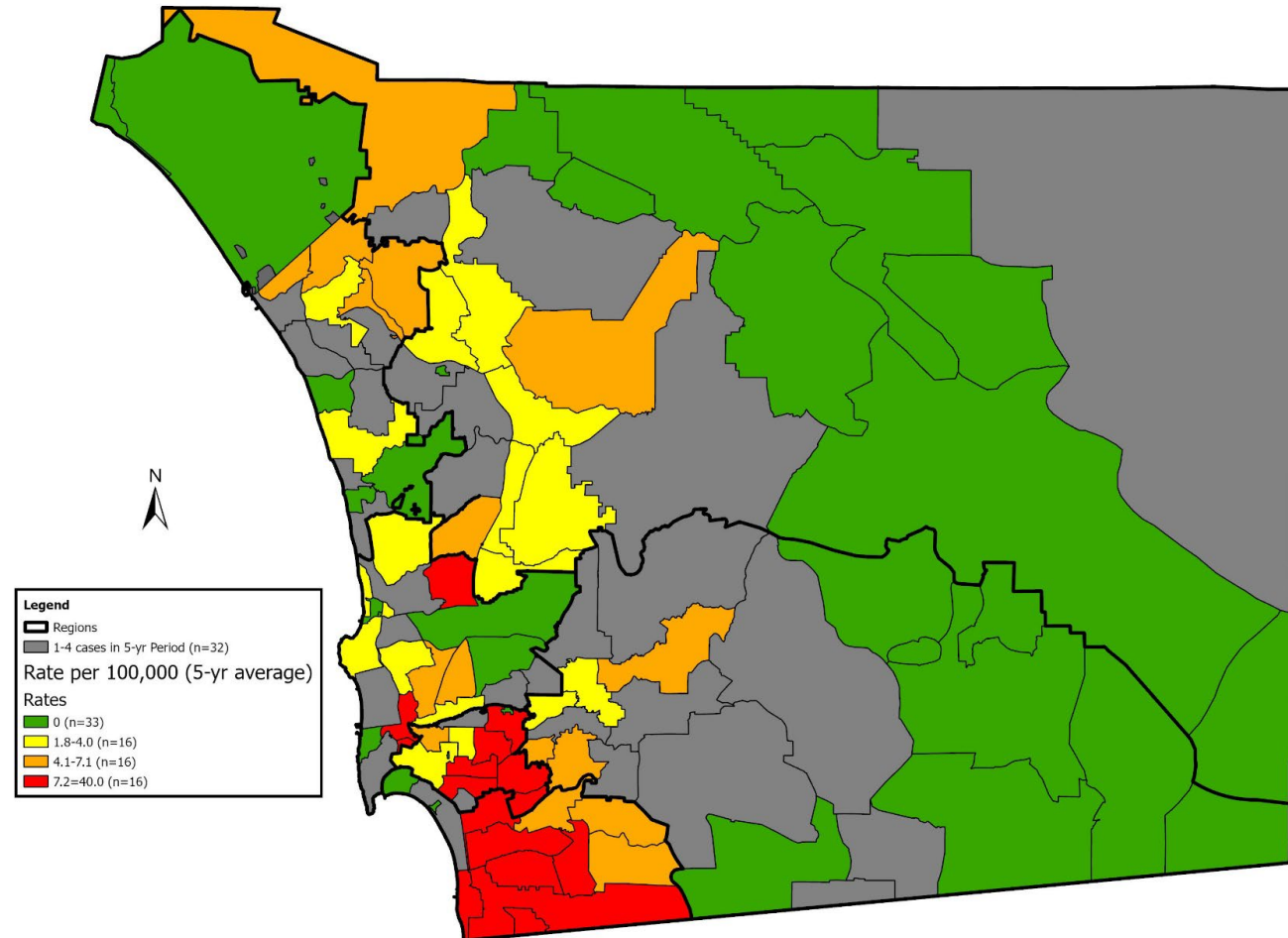
NATIONAL, STATE, AND LOCAL TB INCIDENCE RATES, 1994 – 2023



Source: County of San Diego, March 2024

For internal use only. Not for distribution.

TB INCIDENCE RATES BY ZIP CODE, SAN DIEGO COUNTY, 2018 – 2022

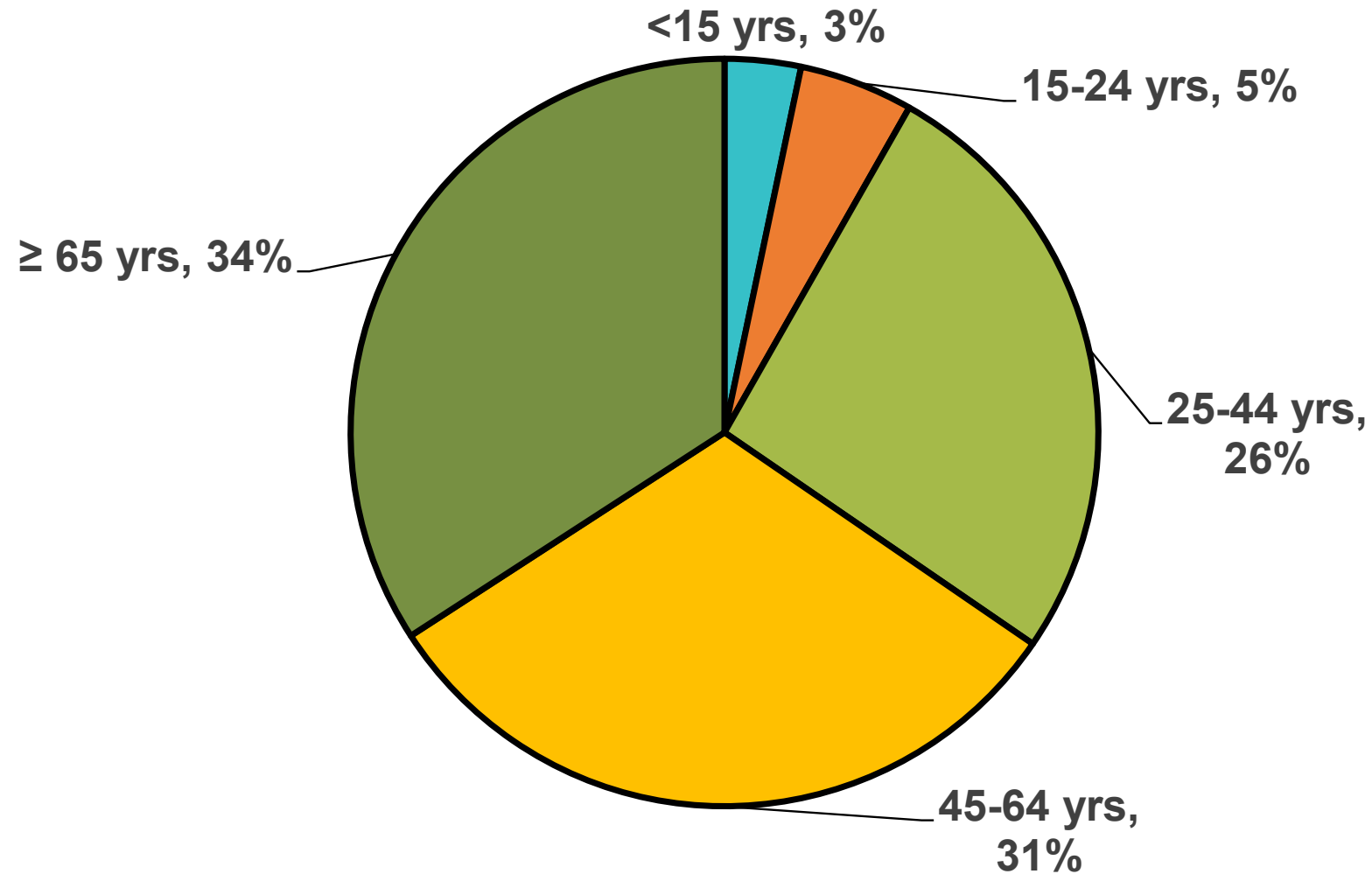


Tuberculosis Rates by Zip Code, San Diego County, 2018-2022
Source: County of San Diego, Health and Human Services Agency, Tuberculosis Control, RVCT Database
Map Date: November 28, 2023

Source: County of San Diego, November 2023

For internal use only. Not for distribution.

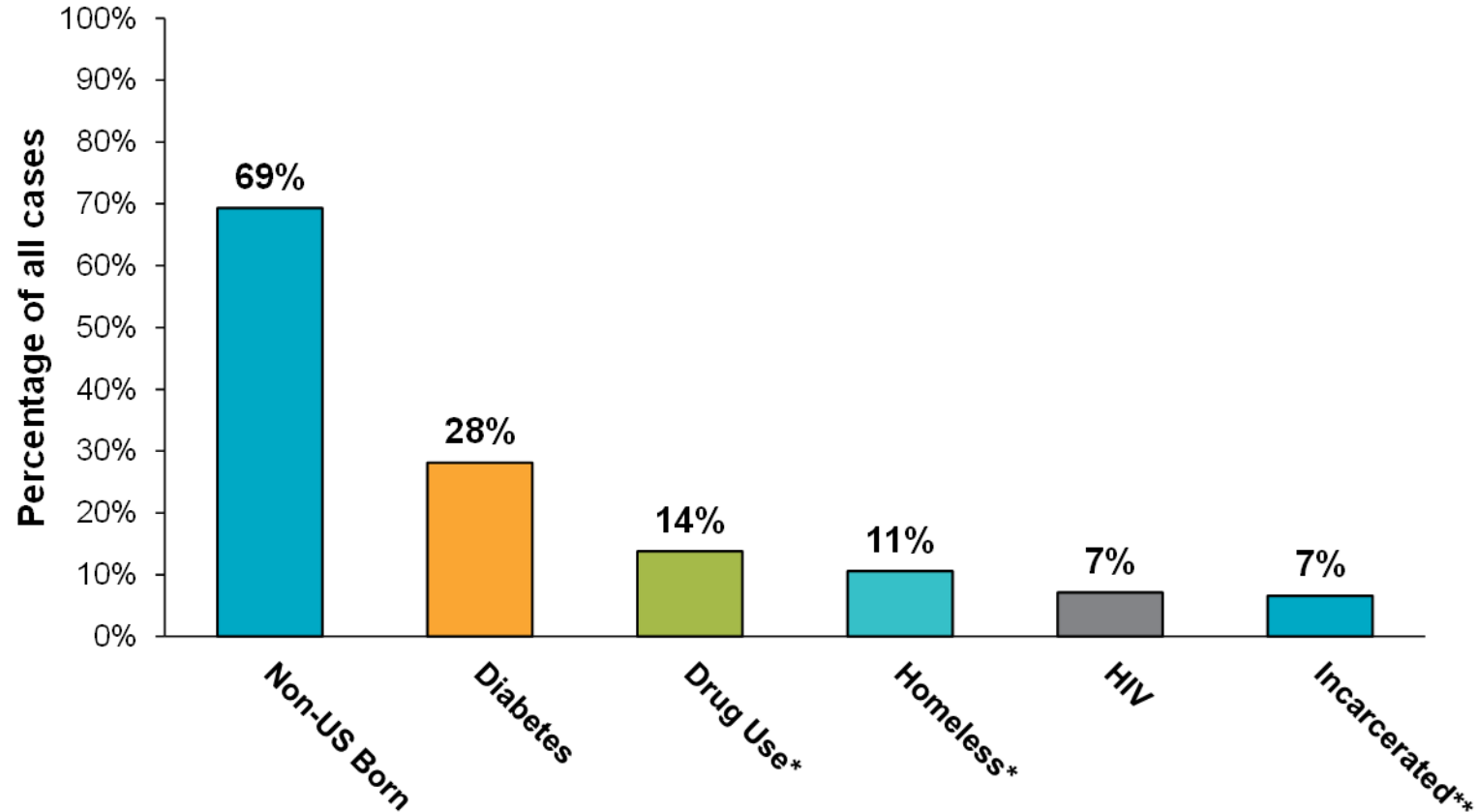
TB CASES BY AGE GROUP SAN DIEGO COUNTY, 2023



Source: County of San Diego, April 2024

For internal use only. Not for distribution.

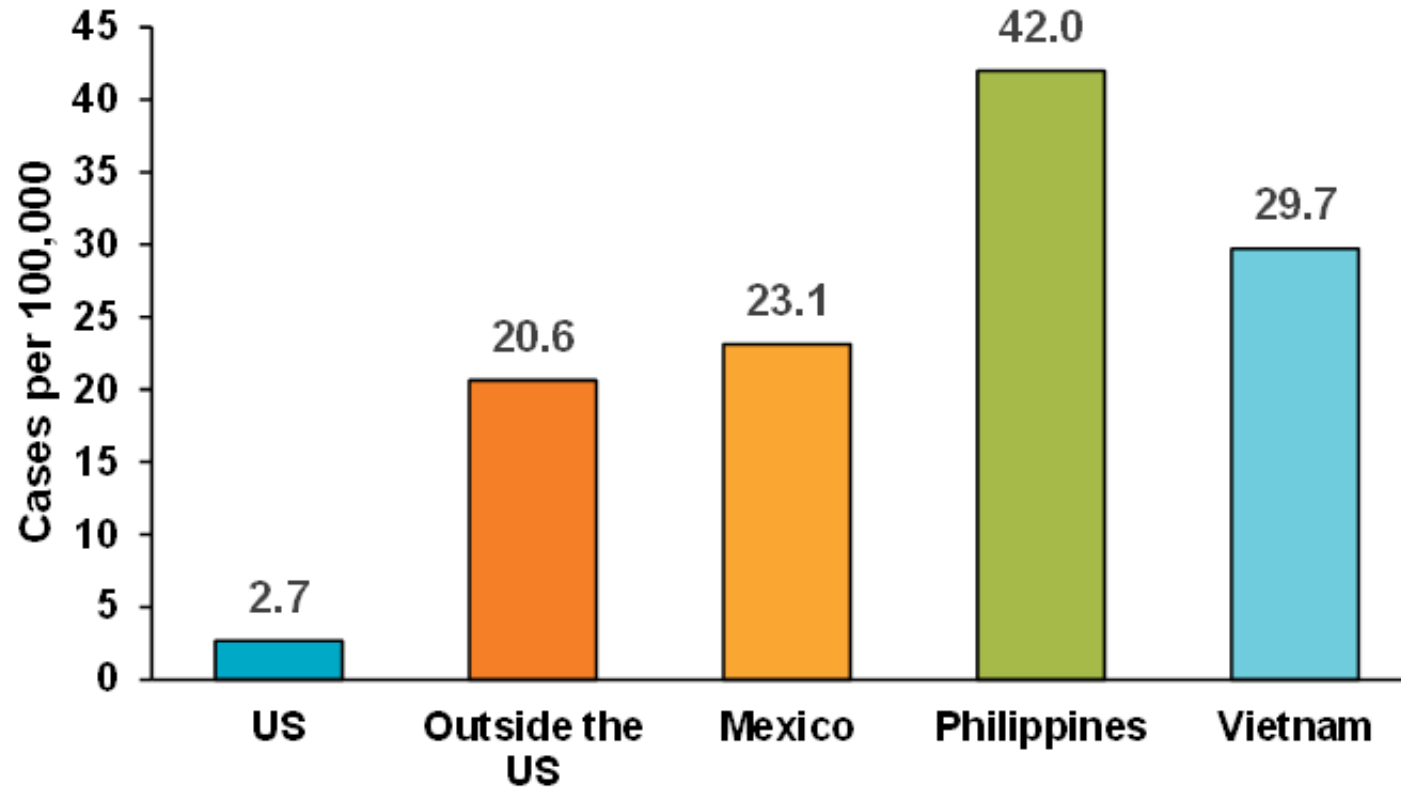
RISK FACTORS AMONG TB CASES, SAN DIEGO COUNTY, 2019 – 2023



* In year prior to TB diagnosis

** At TB diagnosis

TB INCIDENCE RATE BY BIRTH COUNTRY SAN DIEGO COUNTY, 2019 – 2023



Rates calculated with 2019-2022 American Community Survey Population Data

TB is on the Rise – Action Needed



- **WHO October Report – October 2024**

- Approximately 8.2 million people were newly diagnosed with TB in 2023 - **the highest number recorded since WHO began global TB monitoring in 1995.**
- TB again is the **leading infectious disease killer in 2023**, surpassing COVID-19.

- **CDPH and CTCA**

- Issued **action alerts about the rise in TB cases** from 2022-2023.

- **San Diego County**

- **3rd highest TB rate in US** among large metropolitan statistical areas.
- **17% increase in TB cases** from 2022-2023.



TB Transmission and Infection Prevention

For internal use only. Not for distribution.

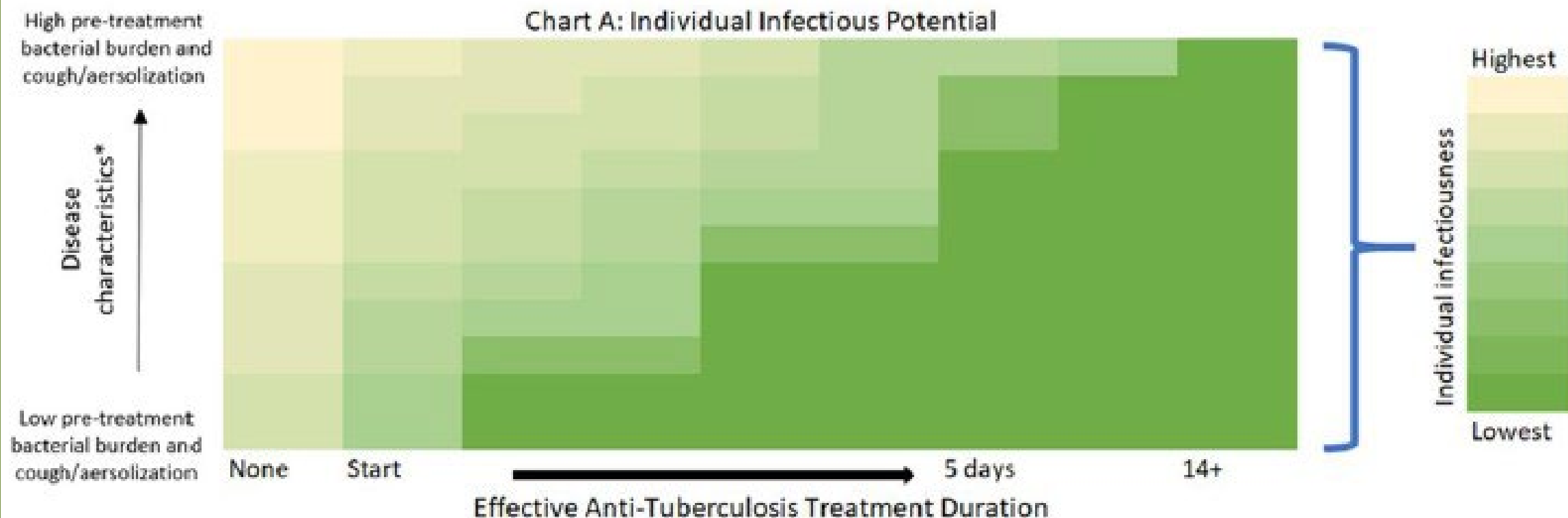


TB Transmission – Patient Characteristics

- TB bacteria carried in **airborne** droplet nuclei generated when person with pulmonary or laryngeal TB coughs, sneezes, shouts, sings, or even breathes
- **Patient characteristics** that increase risk of TB transmission
 - Presence of cough
 - Cavitation on CXR
 - AFB+ sputum smear (rated 0-4+)
 - Laryngeal TB
 - Uncovered nose/mouth when coughing
 - Untreated TB
 - Aerosol-generating procedures

For internal use only. Not for distribution.

TB Transmission: Impact of Patient Characteristics



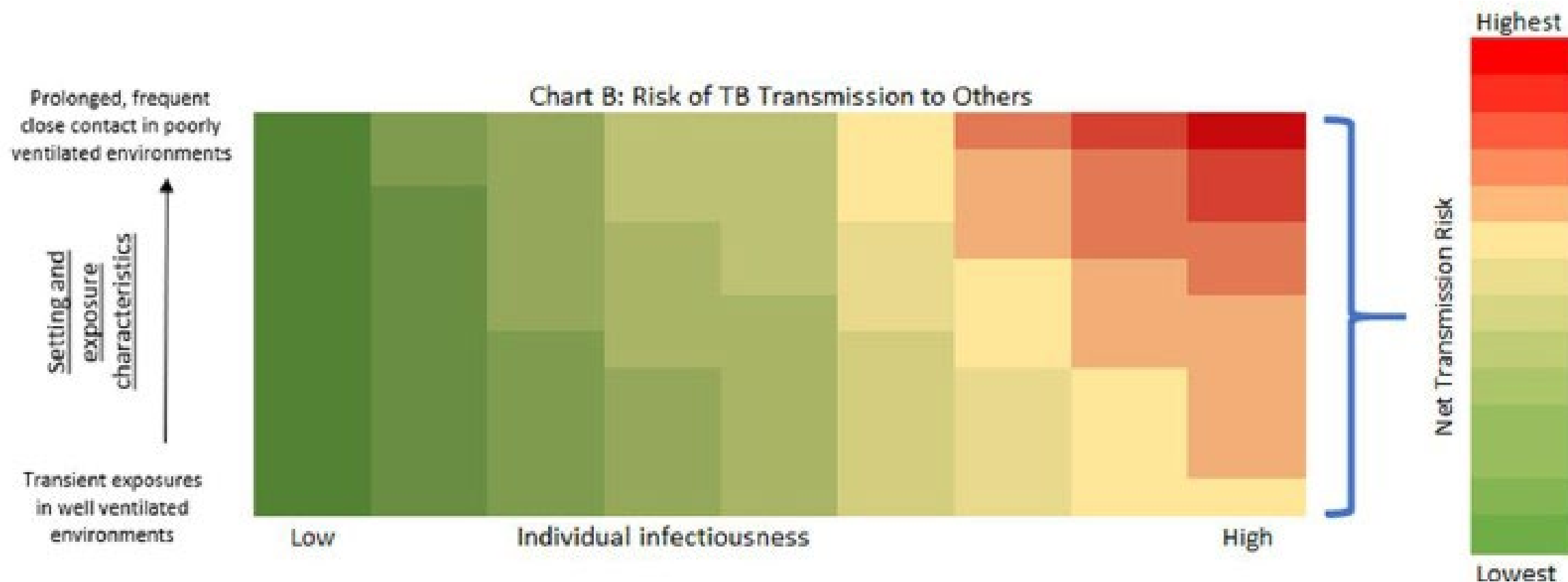
For internal use only. Not for distribution.

TB Transmission – Environmental Factors

- TB bacteria carried in **airborne** droplet nuclei generated when person with pulmonary or laryngeal TB coughs, sneezes, shouts, sings, or even breathes
- **Environmental factors** that increase risk of TB transmission:
 - Exposure in small, enclosed spaces
 - Inadequate ventilation
 - Recirculation of air containing infectious droplet nuclei
 - Duration of exposure

For internal use only. Not for distribution.

TB Transmission: Impact of Environment



For internal use only. Not for distribution.

TB Infection Prevention in Healthcare Settings

- Administrative Controls
- Environmental Controls
- Respiratory Precaution Controls

For internal use only. Not for distribution.

TB Infection Prevention in Healthcare Settings

- **Administrative Controls**
 - **Training and educating HCWs** regarding TB, with specific focus on prevention, transmission, and symptoms;
 - **Screening and evaluating HCWs** who are at risk for TB disease or who might be exposed to *M. tuberculosis*;
 - **Implementing effective work practices** for the management of patients with suspected or confirmed TB disease;
 - **Coordinating efforts with the local or state health department**
 - **Applying epidemiology-based prevention principles, including use of setting-related TB infection-control data**
- **Environmental Controls**
- **Respiratory Precaution Controls**

For internal use only. Not for distribution.

Regulations

- **Disclaimer: Always consult with relevant regulatory authorities**
- **Title 8: CalOSHA Aerosol Transmissible Diseases Standard**
- **Screening and evaluating HCWs** who are at risk for TB disease or who might be exposed to *M. tuberculosis*: Required of Skilled Nursing Facilities by [Title 22](#)
 - *“The initial health examination and subsequent annual examination shall include a purified protein derivative intermediate strength intradermal skin test for tuberculosis. A chest X-ray is indicated if the employee has previously had a positive reaction to a tuberculosis skin test or is currently being treated for tuberculosis... Evidence of tuberculosis screening within 90 days prior to employment shall be considered as meeting the intent of this Section.”*
- Recommendations from the National TB Controllers Association and CDC in 2019 endorsed departure from universal annual screening of HCPs, but Title 22 still applies unless facility has been granted program flexibility by CHCQ

For internal use only. Not for distribution.

2019 NTCA/CDC Recommendations on TB Screening of US HCP

TABLE. Comparison of 2005* and 2019[†] recommendations for tuberculosis (TB) screening and testing of U.S. health care personnel (HCP)

Category	2005 Recommendation	2019 Recommendation
Baseline (preplacement) screening and testing	TB screening of all HCP, including a symptom evaluation and test (IGRA or TST) for those without documented prior TB disease or LTBI.	TB screening of all HCP, including a symptom evaluation and test (IGRA or TST) for those without documented prior TB disease or LTBI (unchanged); individual TB risk assessment (new).
Postexposure screening and testing	Symptom evaluation for all HCP when an exposure is recognized. For HCP with a baseline negative TB test and no prior TB disease or LTBI, perform a test (IGRA or TST) when the exposure is identified. If that test is negative, do another test 8–10 weeks after the last exposure.	Symptom evaluation for all HCP when an exposure is recognized. For HCP with a baseline negative TB test and no prior TB disease or LTBI, perform a test (IGRA or TST) when the exposure is identified. If that test is negative, do another test 8–10 weeks after the last exposure (unchanged).
Serial screening and testing for HCP without LTBI	According to health care facility and setting risk assessment. Not recommended for HCP working in low-risk health care settings. Recommended for HCP working in medium-risk health care settings and settings with potential ongoing transmission.	Not routinely recommended (new); can consider for selected HCP groups (unchanged); recommend annual TB education for all HCP (unchanged), including information about TB exposure risks for all HCP (new emphasis).
Evaluation and treatment of positive test results	Referral to determine whether LTBI treatment is indicated.	Treatment is encouraged for all HCP with untreated LTBI, unless medically contraindicated (new).

For internal use only. Not for distribution.

[Tuberculosis Screening, Testing, and Treatment of U.S. Health Care Personnel: Recommendations from the National Tuberculosis Controllers Association and CDC, 2019 | MMWR](#)



2019 NTCA/CDC Recommendations on TB Screening of US HCP

- ☐ TB screening with individual risk assessment and symptom evaluation at baseline (pre-placement)

For internal use only. Not for distribution.

[Tuberculosis Screening, Testing, and Treatment of U.S. Health Care Personnel: Recommendations from the National Tuberculosis Controllers Association and CDC, 2019 | MMWR](#)

SAN DIEGO COUNTY TB RISK ASSESSMENT



San Diego Tuberculosis Risk Assessment



- Use this tool to identify asymptomatic persons for latent TB infection (LTBI) testing.
- **Do not repeat testing** unless there are **new risk factors** since the last negative test.
If initial negative screening test occurred prior to 6 months of age, repeat testing should occur at age 6 months or older.
- Do not treat for LTBI until active TB has been excluded:
*For patients with TB symptoms or abnormal chest x-ray consistent with active TB disease, evaluate for active TB disease with a chest x-ray, symptom screen, and if indicated, sputum AFB smears, cultures and nucleic acid amplification testing.
A negative tuberculin skin test or interferon gamma release assay does not rule out active TB disease.*

LTBI testing is recommended if any of the 5 boxes below are checked.	
<input type="checkbox"/>	Close contact to someone with infectious TB disease during lifetime
<input type="checkbox"/>	Foreign-born person from a country with an elevated TB rate <ul style="list-style-type: none">• Includes any country other than the United States, Canada, Australia, New Zealand, or a country in western or northern Europe• If resources require prioritization within this group, prioritize patients with at least one medical risk for progression• Interferon Gamma Release Assay is preferred over Tuberculin Skin Test for foreign-born persons ≥ 2 years old
<input type="checkbox"/>	US-born person <u>and</u> <ul style="list-style-type: none"><input type="checkbox"/> lives in or visits a country with an elevated TB rate <u>or</u><input type="checkbox"/> crosses the US-Mexico border frequently <u>or</u><input type="checkbox"/> eats queso fresco or other unpasteurized dairy from Mexico.• If resources require prioritization within this group, prioritize patients with at least one medical risk for progression
<input type="checkbox"/>	Immunosuppression , current or planned HIV infection, organ transplant recipient, treated with TNF-alpha antagonist (e.g., infliximab, etanercept, others), steroids (equivalent of prednisone ≥ 15 mg/day for ≥ 1 month) or other immunosuppressive medication
<input type="checkbox"/>	History of homelessness, incarceration, or drug abuse For children, this includes close or frequent contact to individuals with these risk factors
Treat for LTBI if LTBI test result is positive and active TB disease is ruled out.	

- ☐ **None**; no TB testing is indicated at this time.

Patient Name: _____
Date of Birth: _____

Provider Name: _____
Provider Signature: _____
Assessment Date: _____

See the TB Risk Assessment User Guide for more information about using this tool.
Adapted for local use from the California Tuberculosis Risk Assessment available on the PROVIDERS page at www.ctca.org

Dec 2017

[Available at: Tuberculosis Control and Refugee Health Program \(sandiegocounty.gov\)](http://sandiegocounty.gov)

For internal use only. Not for distribution.

2019 NTCA/CDC Recommendations on TB Screening of US HCP

- ☐ TB screening with individual risk assessment and symptom evaluation at baseline (pre-placement)
- ☐ TB testing with IGRA or TST for persons without DOCUMENTED prior TB disease or LTBI
- ☐ No routine serial TB testing absent known exposure or ongoing transmission
- ☐ **ENCOURAGEMENT OF TREATMENT FOR ALL HEALTH CARE PERSONNEL WITH UNTREATED LTBI** unless contraindicated
- ☐ **ANNUAL TB EDUCATION**

For internal use only. Not for distribution.


Regulations


- **Title 22 still applies** unless facility has been granted program flexibility by Center for Health Care Quality (CHCQ)
- California TB Controllers Association (CTCA) developed [recommended checklist](#) for facilities considering program flexibility requests, along with [guidance document](#)
 - ❑ Continuation of annual testing in HCP at higher risk for occupational exposure to TB
 - ❑ Mandated reporting for TB and suspected TB (CCR, Title 17, Section 2500)



For internal use only. Not for distribution.

[Ctca.org/guidelines/healthcarepersonnel/](https://ctca.org/guidelines/healthcarepersonnel/), as accessed 2/26/2025

- Healthcare providers required to **report suspected or confirmed active TB** within 24h of initial suspicion
- See sandiegotbcontrol.org for more details


Health & Human Services Agency


[MENU](#)
[PROGRAMS](#)
[ALL SERVICES A-Z](#)
[FACILITIES](#)
[ADVISORY BOARDS](#)
[CONTACT](#)

Active TB

Guidelines for screening, testing, and treatment of TB disease are provided below. Links to local, state, national, and global TB resources are also included.

Reporting forms may be Faxed or by Phone, Please call during business hours.

Reporting Phone #: (619) 692-8610

Reporting Fax #: (619) 692-5516

Reporting

Reporting forms may be faxed to (619) 692-5516 or by phone call (619) 692-8610, Please call during business hours.

Information for active TB cases is provided below. Discharge plans and procedures are included.

Active/Suspected TB Cases

In accordance with [California Regulations](#), and [California Health and Safety Code 121365](#) all patients with suspected or confirmed active TB disease must be reported to San Diego County TB Control within 24 hours of initial suspicion.

- [Suspect Case Form](#)

Discharge Plan

+

Adult Medicine

Guidelines

+

Pediatrics

Guidelines

+

Help us eliminate TB. Click the link below to find out more.

[San Diego County TB Elimination Initiative.](#)

For more information, call 619-692-5565 or send us an [email](#).



For internal use only. Not for distribution.

Regulations

- **Title 22 still applies** unless facility has been granted program flexibility by Center for Health Care Quality (CHCQ)
- California TB Controllers Association (CTCA) developed [recommended checklist](#) for facilities considering program flexibility requests, along with [guidance document](#)
 - ❑ Continuation of annual testing in HCP at higher risk for occupational exposure to TB
 - ❑ Mandated reporting for TB and suspected TB (CCR, Title 17, Section 2500)
 - ❑ Required local health department approval for discharge (Gotch Law HSC 121361)
 - ❑ Contact investigation outcome following a TB exposure within the facility
 - ❑ Annual documentation of percent TB test conversion for annual testing
 - ❑ Annual documentation of percent of contact investigations with possible or confirmed TB transmission

TB Infection Prevention in Healthcare Settings

- Administrative Controls
- **Environmental Controls**
 - Controlling the source of infection by using local exhaust ventilation (e.g., hoods, tents, or booths) and diluting and removing contaminated air by using general ventilation.
- Respiratory Precaution Controls

For internal use only. Not for distribution.

TB Infection Prevention in Healthcare Settings

- Administrative Controls
- Environmental Controls
- **Respiratory Precaution Controls – AIRBORNE DISEASE!**
 - Implementing a respiratory-protection program
 - Training HCWs on respiratory protection
 - Educating patients on respiratory hygiene and cough etiquette procedures

For internal use only. Not for distribution.

Post-Exposure Evaluations

For internal use only. Not for distribution.

- Following diagnosis of active TB, hospital infection preventionists initiate contact investigations for exposed healthcare personnel.
- May require public communications
- Postexposure screening and testing recommended for all HCPs exposed without use of adequate PPE
 - Symptom review and examination
 - For those with baseline negative TB test: test immediately and 8-10w after exposure
 - For those with baseline positive TB test: further evaluation if a concern for TB disease exists
- Also need to ensure testing of exposed residents/patients, visitors, contractors based on exposure thresholds

Sosa, LE et al. Tuberculosis Screening, Testing, and Treatment of U.S. Health Care Personnel: Recommendations from the National Tuberculosis Controllers Association and CDC, 2019. *MMWR. Morbidity and mortality weekly report*, 68(19), 439–443.
<https://doi.org/10.15585/mmwr.mm6819a3>

HCPs with new positive TB tests

- All should complete CXRs
- All should have symptom screen
- If asymptomatic, normal CXR, no other signs or symptoms suggestive of active TB, **take LTBI preventive treatment unless contraindicated**
 - 5-10% lifetime risk for developing active TB. ~50% of the lifetime risk is in first 2y following new infection
 - Higher for those with medical conditions that increase their risk of progression to active TB
 - HIV
 - Chronic steroids or other immunosuppressive medications (e.g. transplant meds, TNF-alpha inhibitors)
 - People with DM, CKD, Cancer
 - Gastric bypass

For internal use only. Not for distribution.

Test Comparison : TST v. IGRA

For internal use only. Not for distribution.

TST

- ▶ Fluid injected SQ in the forearm, reaction measured 48-72h after placement
 - INDURATION measured, not redness
 - 5mm, 10mm (or 15mm) cut points used depending on different social or medical risk factors
- ▶ Low cost
- ▶ **Requires two visits**
- ▶ **High interobserver variability** (induration can be interpreted differently by different providers)
- ▶ **Higher false positivity rate in people with history of BCG vaccination**
- ▶ **Note: BCG history should be disregarded when interpreting TST results!**

IGRA – PREFERRED!

- ▶ Two main types: T-spot, QuantiFERON
- ▶ Requires phlebotomy and lab analysis
- ▶ Higher cost (~10x TST)
- ▶ **Single visit**
- ▶ **Greater objectivity** (no variability in interpretation between providers)
- ▶ **Easier to locate results** in many records systems
- ▶ **Improved specificity for people with BCG vaccine history**
- ▶ **Appears to increase LTBI treatment uptake** compared to TST
- ▶ **Can be added to routine lab order sets**

BCG – Truth and Misconceptions

- BCG, the TB vaccine, is widely used in countries that have higher incidence of TB.
- BCG vaccine **IS** effective at reducing risk of severe forms of TB in childhood (e.g. TB meningitis)
- BCG can cause false positive TST results, but the likelihood of false positives decreases with time.
- BCG does NOT provide meaningful protection against TB into adulthood. If you've been vaccinated, you can absolutely still get TB!
- If you have been BCG vaccinated, IGRAs are preferred and are less likely to cause false positive results
- If you have been BCG vaccinated and have a positive skin test, that is still considered a positive result, and without treatment you are at risk for developing active TB.

TB TESTING



Key Points

- ▶ Both TST and IGRA can be used to test for TB infection.
- ▶ IGRA is preferred TB test.
 - No return visit needed
 - Greater specificity
 - Results easily tracked
- ▶ It is not recommended to repeat TB testing after a positive test – decision to test is decision to treat.

For internal use only. Not for distribution.

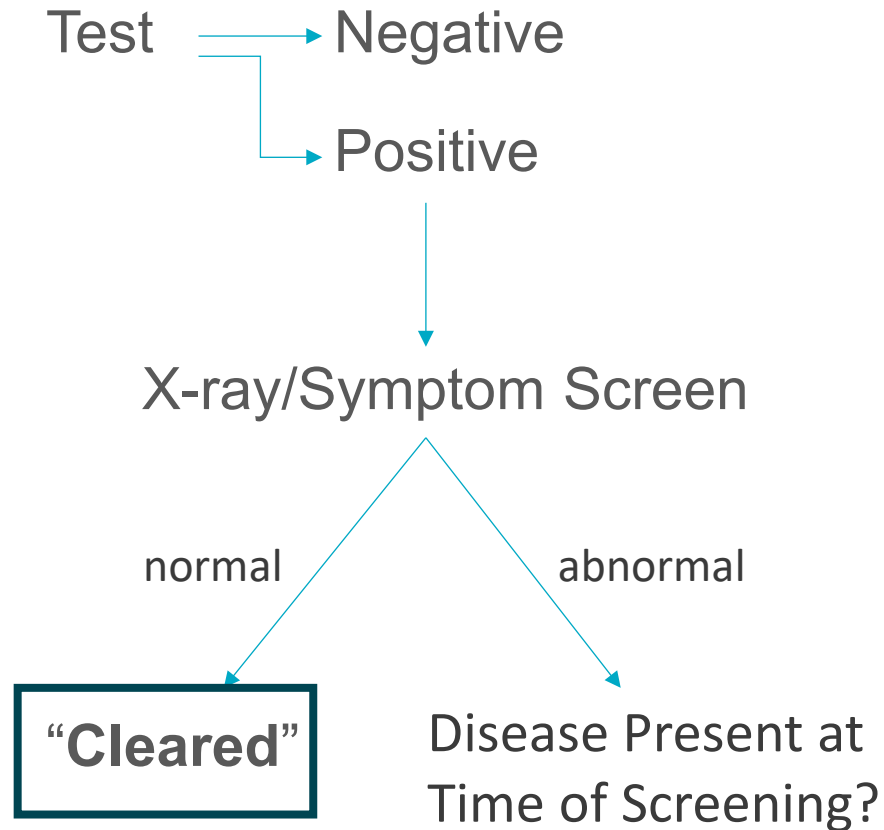
An Ounce of Prevention...

LTBI: DIAGNOSIS AND TREATMENT

Let's Shift the Mindset



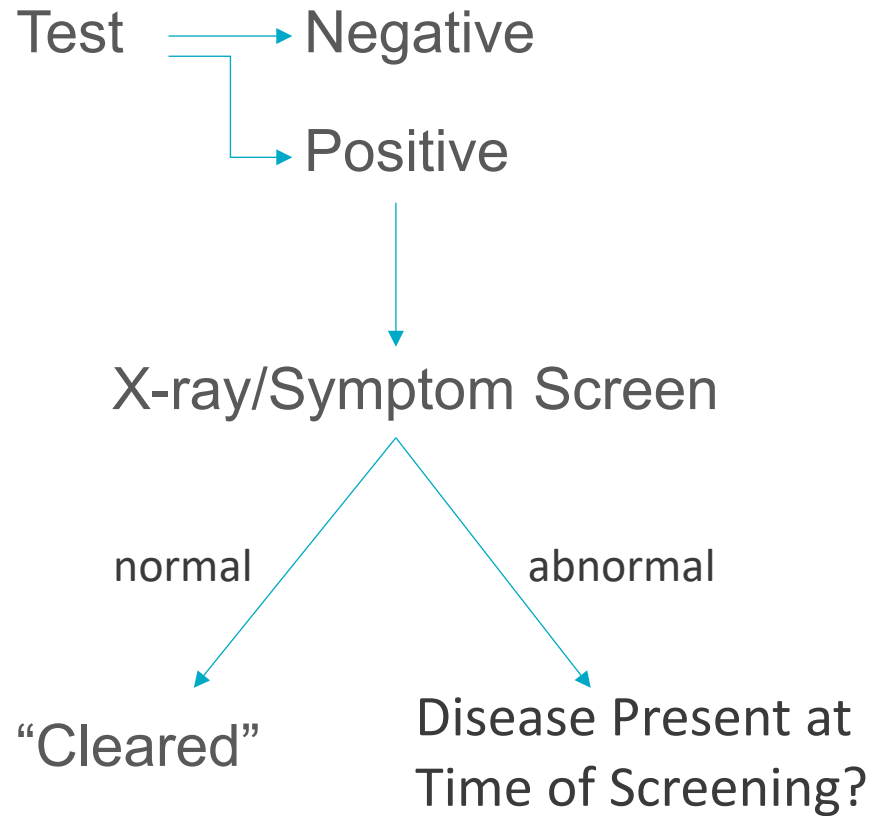
Old?



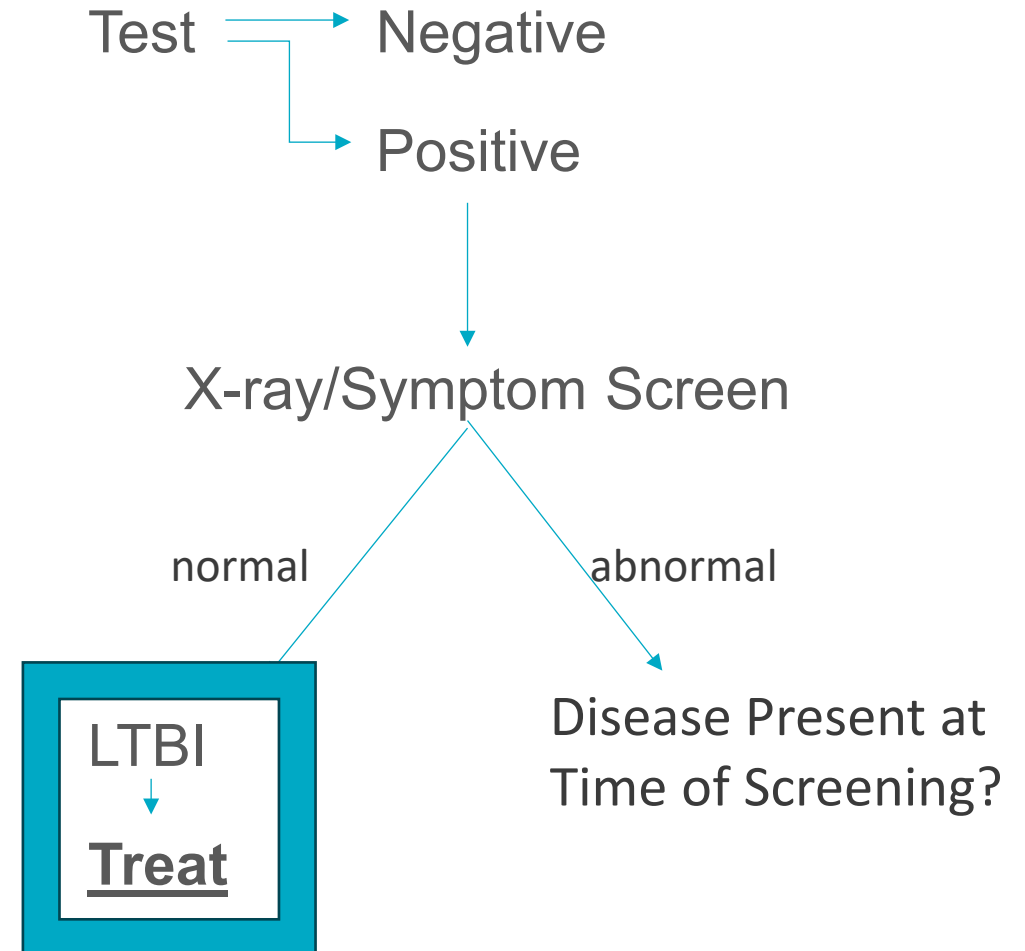
For internal use only. Not for distribution.

New Paradigm

Old?



New!



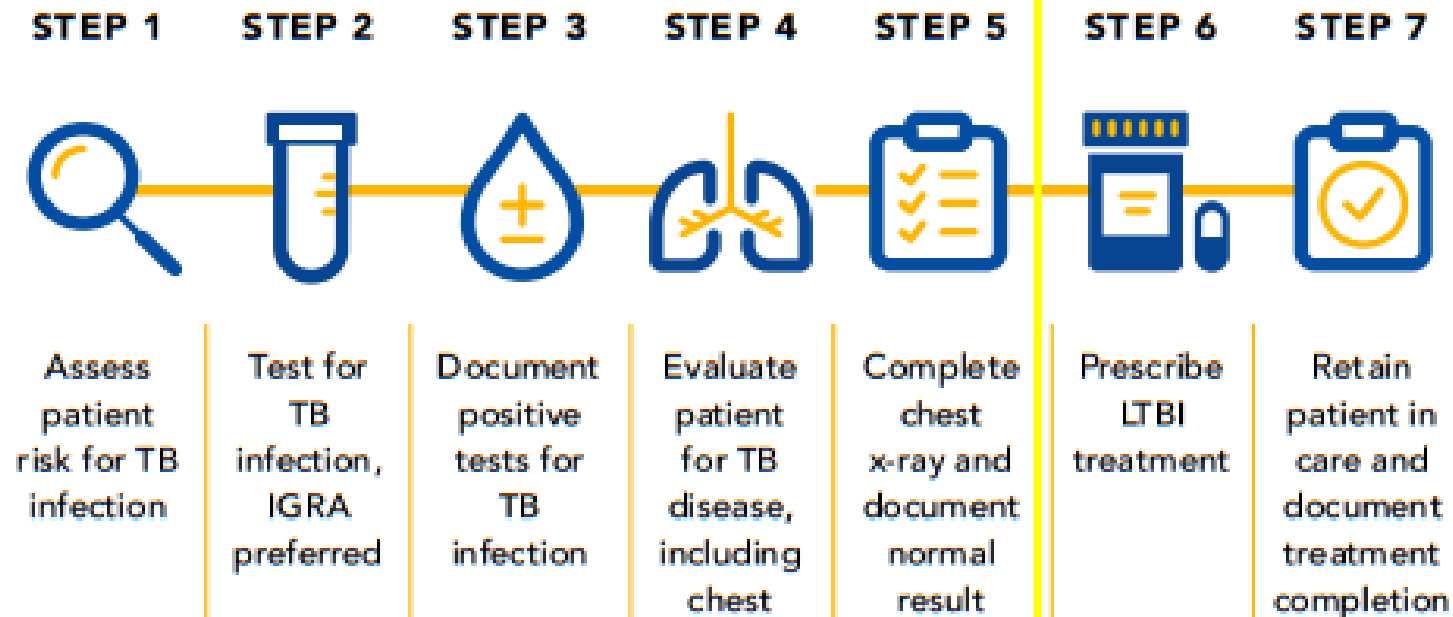
For internal use only. Not for distribution.

STEPS IN LTBI CARE CASCADE

For internal use only. Not for distribution.



The Latent TB Infection Care Cascade



POSITIVE TB TEST: RULE OUT ACTIVE TB DISEASE THEN TREAT



My patient has a positive TST or IGRA. Now what?

- ▶ **Neither TST nor IGRA distinguishes latent TB from active TB disease.**
- ▶ Before diagnosing and treating LTBI (or “clearing”), **you must rule out active TB disease.**

RULE OUT ACTIVE TB BEFORE LTBI TREATMENT



1. Symptom screen

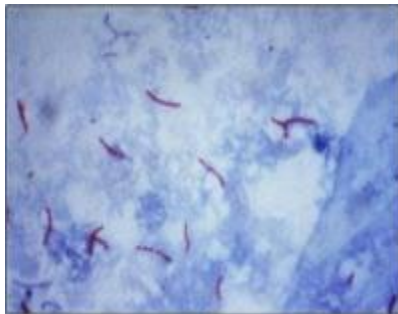
- Cough
- Fever
- Night Sweats
- Weight Loss
- Hemoptysis
- Extreme fatigue



2. Chest x-ray

- PA for all
- lateral for <5yo

- Infiltrate
- Cavitory lesion
- Nodule
- Effusion
- Hilar Lymphadenopathy



3. Sputum collection

- If abnormalities on symptom screen and/or chest x-ray

- AFB smear & culture
- MTB PCR (Xprt) or other NAAT (at least one sample)

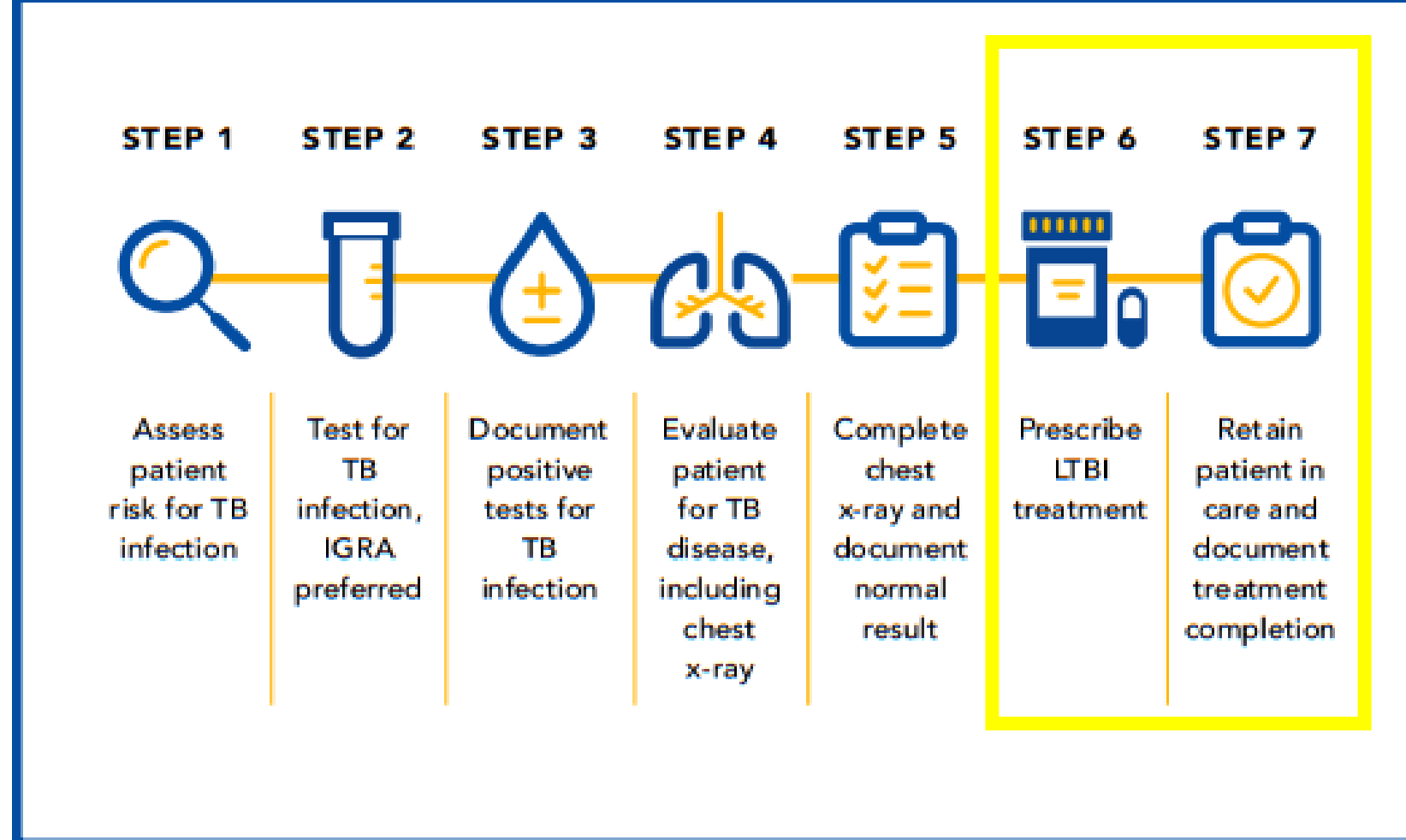
For internal use only. Not for distribution.

STEPS IN LTBI CARE CASCADE

For internal use only. Not for distribution.




The Latent TB Infection Care Cascade



SHORT-COURSE LTBI TREATMENT OPTIONS RECOMMENDED



CDC and NTCA recommend short-course treatment regimens:

- 
- **Effective,**
 - **Safe,**
 - **And have higher completion rates and have lower risk of hepatotoxicity** than longer 6 to 9 months of isoniazid monotherapy (6H/9H).

LTBI TREATMENT OPTIONS



STRONGLY PREFERRED



Isoniazid (INH) &
Rifapentine (RPT)

Treatment taken once
a week for 3 months.

Recommended for
adults and children >2
years old, and can be
used by people living
with HIV.



Rifampin
(RIF)

Treatment taken
every day for 4
months.

Recommended for
adults and children of
all ages. Not
recommended for
people living with HIV.



Isoniazid (INH) &
Rifampin (RIF)

Treatment is taken
every day for 3 months.

This is recommended for
adults, children of all ages,
and can be used by people
living with HIV.



OR



Isoniazid
(INH)

Treatment is taken every day
for 6 or 9 months.

Recommended for adults and
children of all ages. Sometimes
recommended for people living
with HIV.

For internal use only. Not for distribution.



CTCA

Guidance

Time point	Universal TB Evaluation Requirements for HCP	Targeted Recommendations for HCP
On-hire	<p>If no documented evidence of prior TB: TB risk assessment, symptom review, and TB testing.</p> <p>If documented evidence of prior TB with documented stable or normal chest X-ray (CXR) ≤ 90 days prior to employee health assessment: TB symptom review.</p> <p>If documented evidence of prior TB without documented stable or normal CXR ≤ 90 days prior to employee health assessment: TB symptom review and CXR.</p>	<p>HCP with untreated TB infection (i.e., latent TB): provide treatment OR encourage treatment and provide linkage-to-care. Document treatment outcome.</p> <p>Trainees with prior TB and documented stable or normal CXR ≤ 90 days prior to matriculation in a training program in which they will rotate through multiple healthcare settings may be cleared with a negative symptom review, alone.</p>
Annual	<p>All: Education about risks of TB disease exposure, signs and symptoms of TB disease, and benefits of testing if risk identified and treatment if TB is identified. Ability to opt into annual TB testing for any HCP should be included in the annual education for all HCP. Best practice for annual education would include individualized risk assessment for new TB disease exposures as per California Adult Tuberculosis Risk Assessment and User Guide and TB testing if new risk identified.</p> <p>If yes to any new risk factor on the CA TB Adult Risk Assessment questions, repeat TB testing shall be required. In addition, all HCP who opt in for annual TB testing should be provided the desired TB testing.</p>	<p>High-risk HCP (defined in text: high-hazard procedures, pre-triage areas, mycobacteriology bench, correctional/detention center) without documented evidence of prior TB: symptom review and TB testing.</p> <p>HCP with documented evidence of prior TB: symptom review and, if untreated TB infection (i.e., latent TB), provide treatment OR encourage treatment and provide linkage-to-care. Document treatment outcome.</p>
After exposure	<p>If no evidence of prior TB: symptom review, examination, and immediate TB testing. HCP who were wearing a fit tested respirator (i.e., N95, PAPR) during the entire TB disease exposure may opt out of post exposure TB testing. Repeat TB testing should be obtained 8-10 weeks after the last TB disease exposure if initial testing was prior to 8 weeks from exposure. It is best practice to use the same TB testing modality for post-exposure testing.</p> <p>For HCP with documented evidence of prior TB: symptom review, examination, and CXR.</p>	<p>HCP with untreated TB infection (i.e., latent TB): provide treatment OR encourage treatment and provide linkage-to-care. Document treatment outcome.</p> <p>Depending on exposure history, HCP with prior treated TB and certain medical risk factors (e.g., HIV, solid-organ transplant, treatment with TNF-alpha inhibitor) may benefit from re-treatment; and clinical consultation with your local public health TB program is strongly recommended.</p>
Any time	<p>Newly positive TST or IGRA result: TB risk assessment, symptom review, examination and CXR; consider clinical consultation.</p> <p>Positive TB disease symptom review: examination, TB testing and CXR; report to your local health department and consider clinical consultation.</p> <p>Abnormal CXR findings: prompt clinical consultation is recommended; report to your local health department immediately if TB disease is suspected.</p>	<p>With untreated TB infection (i.e., latent TB): provide treatment OR encourage treatment and provide linkage-to-care. Document treatment outcome.</p>

*HCP is defined as licensed healthcare personnel and other unlicensed staff working in direct clinical service settings, e.g., non-HCP sharing airspace with potential TB patients.

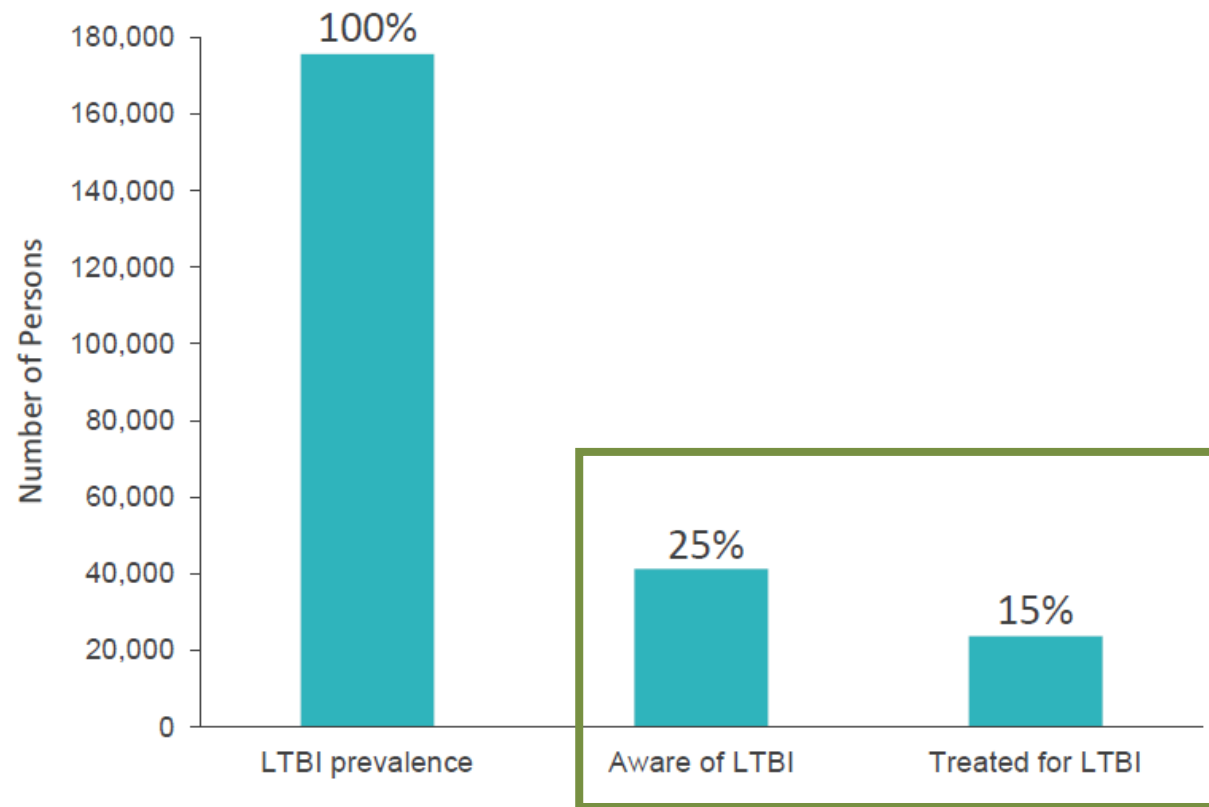
***TB** in the table refers to both TB disease and TB infection.

For internal use only. Not for distribution.

LTBI TREATMENT NEEDED TO PREVENT ACTIVE TB



85% of active TB cases begin as latent TB infection (LTBI) and can be prevented.

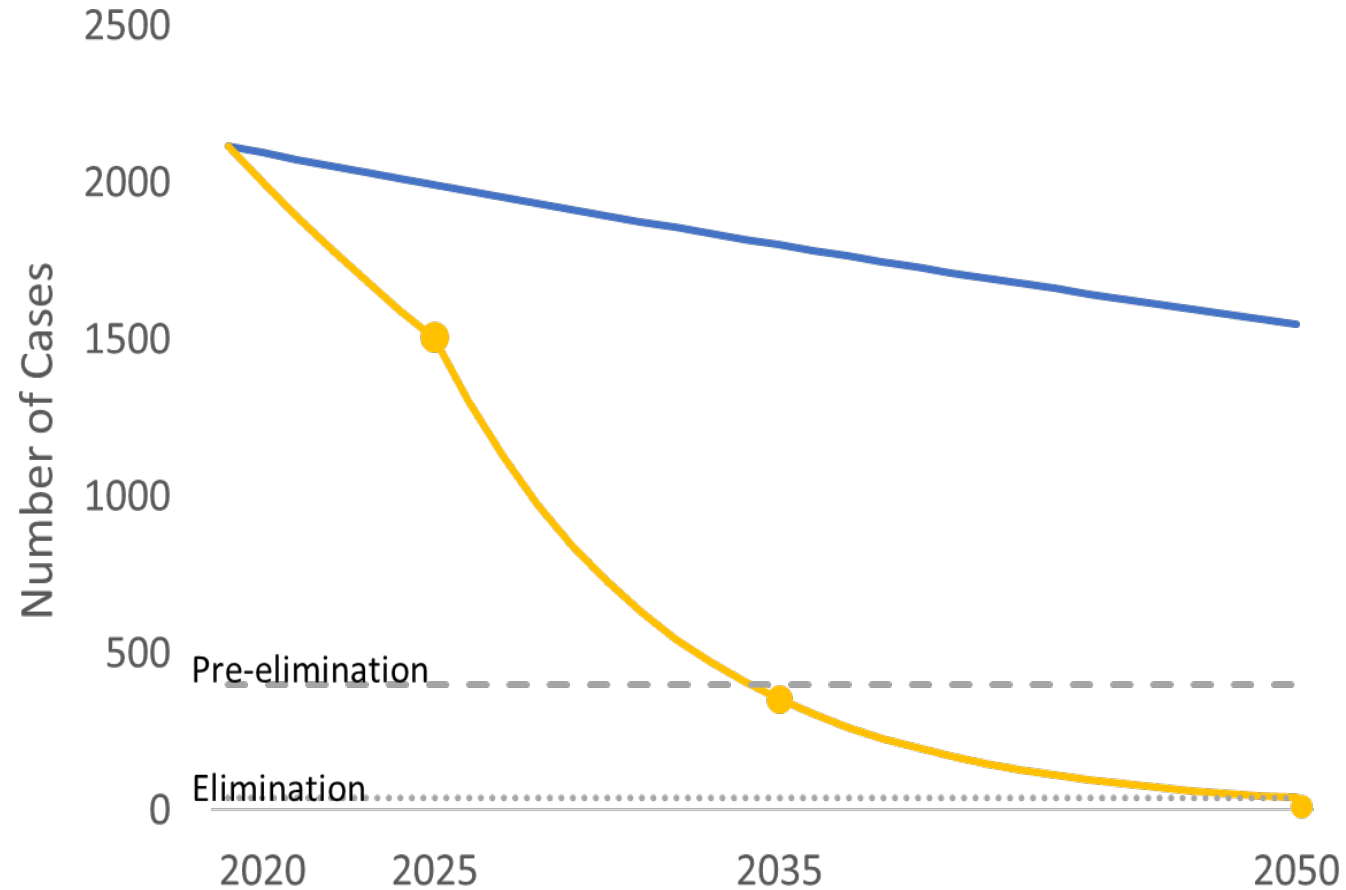


Approximately **175,000** San Diegans have LTBI, which can progress to active TB without treatment.

Estimated using methodology from the California TB Control Branch [Report on Tuberculosis in California, 2020](#) and associated Data Tables, applying national level data from the National Health and Nutrition Examination Survey, 2011-2012, to the San Diego County population.

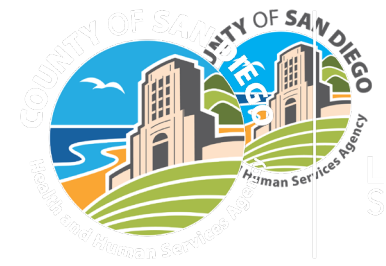
For internal use only. Not for distribution.

STATUS QUO VS. INTERVENTION IN CA



For internal use only. Not for distribution.

Source: TB Control Branch, CDPH



Thank You

Jeffrey Percak, M.D.

JeffreyM.Percak@sdcounty.ca.gov



County Customer Survey

For internal use only. Not for distribution.



The Public Health Services department, County of San Diego Health and Human Services Agency, has maintained national public health accreditation, since May 17, 2016, and was re-accredited by the Public Health Accreditation Board on August 21, 2023.



RESOURCES

For internal use only. Not for distribution.

TB AND LTBI RESOURCES - COUNTY OF SAN DIEGO TB CONTROL AND REFUGEE HEALTH BRANCH WEB SITE



Welcome to the Tuberculosis
Control and Refugee
Health Branch (TBCRHB)!
How may we help you today?



What is TB? Am I at Risk?



For internal use only. Not for distribution.

SAN DIEGO COUNTY LTBI TOOLKIT



Health & Human Services Agency

MENU PROGRAMS ALL SERVICES A-Z FACILITIES ADVISORY BOARDS CONTACT US

Home Clinic Services Health Care Providers Refugee Health Resources

Latent Tuberculosis Infection (LTBI) Toolkit

The Latent Tuberculosis Infection (LTBI) Toolkit consists of County, California Department of Public Health, TB Free California, and CDC resources for providers and their patients who may be at risk for LTBI.

To learn more about the San Diego County Tuberculosis Elimination Initiative (TBEI), please visit the [TBEI web site](#).

Resources provided may be downloaded.

Provider Resources

- LTBI FAQs: For Providers
- LTBI Care Cascade: Common Barriers and Recommendations
- San Diego County TB Risk Assessment
- CDPH Provider Resources and Tools Web Site
- TB Free CA - Preventing TB in Your Clinical Setting: A Practical Guidebook
- TB Free CA - Prevent TB in 4 Steps: A Guide for Medical Providers
- TB Free CA Scripts and Videos - Talking to Your Patient About LTBI
- CDC LTBI Testing and Treatment Recommendations
- CDC Think.Test.Treat TB Web Site

Patient Education Resources

- San Diego County TB Self Risk Assessment
- LTBI FAQs: Addressing Patient Questions
- LTBI Patient Education Resources
- TB Patient Education Resources
- CDC - What You Need to Know About Tuberculosis

ENHANCED BY Google

Select Language

Powered by Google Translate

COUNTY OF SAN DIEGO

LIVE WELL SAN DIEGO

Accredited Health Department

PHAB

Advancing Public Health Performance

Public Health Accreditation Board

Popular Services

- Aging & Independence Services
- Behavioral Health Services
- Children's Services
- Housing & Community Development Services
- Medical Care Services
- Public Health Services
- Self-Sufficiency Programs
- Support Divisions
- Find an office near you
- More Services

COUNTYNEWSCENTER

- WORKING TOGETHER Suicide Report Shows Small Increase in Suicide Deaths Overall.
- First Local Detection of Hantavirus in 2025
- Behind the Scenes Peek at the New Public



For internal use only. Not for distribution.

TB PREVENTION QUICK GUIDE FOR PROVIDERS

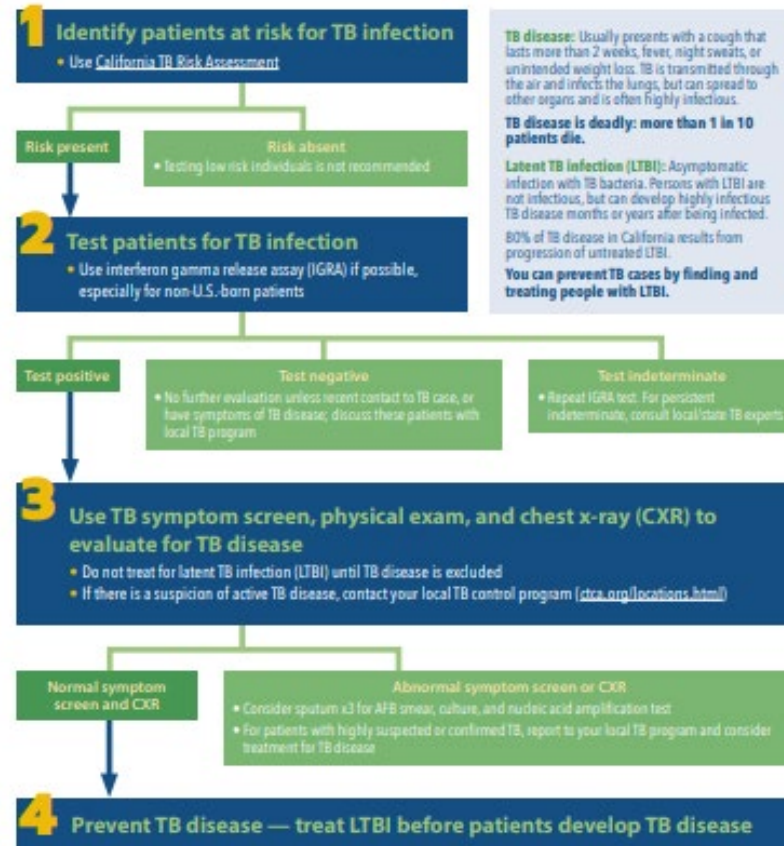
[LTBI_12-29-24.pdf \(ctca.org\)](https://ctca.org/LTBI_12-29-24.pdf)

For internal use only. Not for distribution.



PREVENTING TB DISEASE IN 4 STEPS

With the passage of AB 2132, all primary care providers in California are required to evaluate their adult patients for tuberculosis. To help providers implement this initiative, the California TB Controllers Association (CTCA) provides the following guidance for TB evaluation.



Latent Tuberculosis Treatment Regimens

Shorter treatment 3-4 months rifamycin based regimens are preferred and more likely to be completed than the isoniazid regimens. The limitations of the shorter regimens are potential drug-drug interactions with multiple classes of drugs such as oral contraceptives (OCs) and direct oral anticoagulants (DOACs). CTCA recommends the use of drug interactions guide such as Epocrates or Lexicomp prior to the initiation of rifamycin-based regimens.

Regimen	Adult Dosing	Duration	Treatment Considerations
Rifampin (4R)	10 mg/kg/day (max 600mg daily)	4 months	
Isoniazid and Rifapentine (3HP)	INH – 900mg weekly Rifapentine – 900mg weekly Pyridoxine – 50mg weekly	12 weeks	Monitor for hypersensitivity reaction ²
Isoniazid/Rifampin	Rifampin – 10 mg/kg/day (max 600 mg daily) Isoniazid – 5 mg/kg/day (max 300 mg daily) Pyridoxine – 25 mg daily; if patient has neuropathy comorbidities – 50mg daily	3 months	Hepatotoxicity risk – requires closer monitoring
Isoniazid	Isoniazid – 5mg/kg/daily 300mg daily (max) Pyridoxine – 25mg daily; if patient has neuropathy comorbidities – 50mg daily	6-9 months	Hepatotoxicity risk – requires closer monitoring Few drug-drug interactions

Initiating treatment

- Baseline liver function tests (LFTs) are needed prior to starting LTBI treatment for all pregnant patients and patients with the following medical conditions:
 - HIV infection, liver disease (including cirrhosis, non-alcoholic fatty liver disease, chronic hepatitis B/C), heavy alcohol use
 - use of hepatotoxic medication
 - age > 50 years
- If ALT is normal, proceed with LTBI treatment, routine LFT testing not needed
- If ALT is elevated <3x upper limit of normal, consult MD and consider LTBI treatment with monthly LFT testing

Monitoring while on LTBI treatment

- Monitor at least monthly for symptoms of liver toxicity (anorexia, fatigue, abdominal pain)
- Serial monitoring labs are recommended for patients with symptoms or evidence of liver toxicity, baseline elevated labs, or higher risk health conditions.

¹ California Department of Public Health, Rutgers Ernest Mario School of Pharmacy, Rutgers Global Tuberculosis Institute, and the Curry International Tuberculosis Center 2022: Rifamycin Drug-Drug Interactions: A Guide for Primary Care Providers Treating Latent Tuberculosis Infection (https://www.currytbccenter.ucsf.edu/sites/default/files/2022-12/Rifamycin_2022.pdf)

² National Society of Tuberculosis Clinicians (NSTC), a section of the National Tuberculosis Coalition of America, 2024: Testing and Treatment of Latent Tuberculosis Infection in the United States: A Clinical Guide for Health Care Providers and Public Health Programs (<https://www.tbcontrollers.org/resources/tb-infection/clinical-recommendations/>)

TB PREVENTION GUIDEBOOK



PREVENTING TB IN YOUR CLINICAL SETTING: A PRACTICAL GUIDEBOOK



Goals

- Provide instructions for clinics implementing TB prevention
- Share best practices
- Address common concerns and barriers
- Put forth standards for measuring and monitoring LTBI

Intended audience

- Clinic staff interested in improving LTBI care



A resource from TB Free CA
Available at: <https://ctca.org/toolbox>

For internal use only. Not for distribution.

CDC: THINK. TEST. TREAT TB MATERIALS



Provides free LTBI resources in 7 languages.

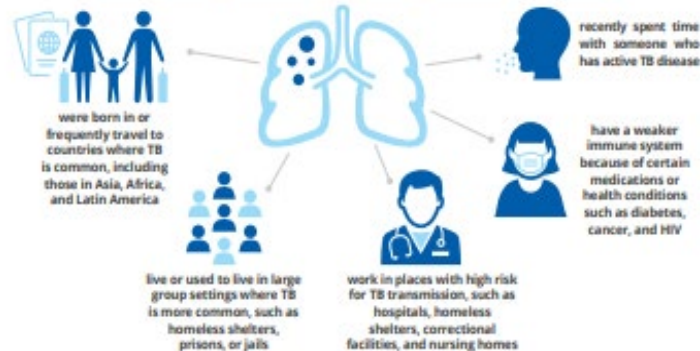
Why should I be tested for Inactive Tuberculosis (TB)?

Tuberculosis, or TB disease, is highly contagious and can be deadly. TB germs can live in your body for years without causing symptoms. This is called inactive TB or latent TB infection. Without treatment, inactive TB can become active TB disease at any time and make you sick. Once TB becomes active, it can spread from person to person through the air. **Getting tested and treated for inactive TB can protect yourself, your family and friends, and your community.**

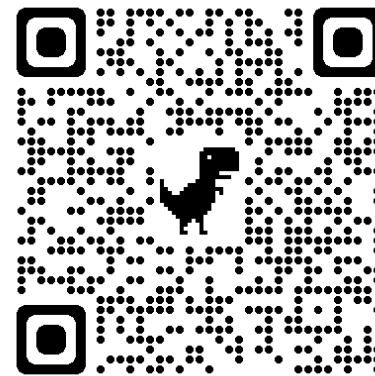
1 Think Are you at risk for TB infection?

Millions of people in the United States have inactive TB but don't know it.

Anyone can get TB, but you have a higher risk for TB if you:



You may be at risk for TB even if you have received the TB vaccine (also called the BCG vaccine) because its protection weakens over time.



What You Need to Know About Your Medicine for Latent Tuberculosis (TB) Infection

RIFAMPIN

You have been given medicine to treat your latent TB infection. You do not have TB disease and cannot spread TB to others. This medicine will help you **PREVENT** getting TB disease.

While on this Medicine:

- Tell your doctor or nurse if you have questions or concerns with the medicine.
- Go to your planned clinic visits.
- Discuss any alcohol use with your doctor. Alcohol use may cause side effects.
- Tell your doctor about all other medicines you are taking.
- Be sure to tell your other doctors that you are being treated for latent TB infection.
- Take all of your medicine as you were told by your TB doctor or nurse.
- Some people find that the medicine affects them less when taken with food.

Tips to Help You Take Your Medicine:

- ✓ Take your medicine at the same time every day.
- ✓ Set an alarm reminder for the time you should take your medicine.
- ✓ Ask a family member or friend to remind you.
- ✓ Use a pillbox.
- ✓ Put a reminder note on your mirror or refrigerator.
- ✓ Use a calendar to check off the day when you take your medicine.

Latent TB Infection Medicine Schedule:

(Providers: Indicate the appropriate number of pills)

Medicine	Schedule	Number of pills per day	Length of time
Rifampin	Daily		4 months

Your doctor may have you meet with a health care worker to take your medicine. This plan is called directly observed therapy (DOT).

IF YOU FORGET TO TAKE YOUR MEDICINE: If it is still the same day, take the dose as soon as you remember. Do not take 2 doses at the same time.

NOTES

Name of my doctor:

Name of my clinic:

Telephone number of my clinic:

National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention
Division of Tuberculosis Elimination



Watch for these Possible Problems:

STOP taking your medicine right away **AND** call your TB doctor or nurse if you have any of the problems below:

- Less appetite, or no appetite for food
- An upset stomach or stomach cramps
- Nausea or vomiting
- Cola-colored urine or light stools
- Easy bruising or bleeding
- Rash or itching
- Yellowing skin or eyes
- Severe weakness or tiredness
- Fever
- Head or body aches
- Dizziness

NOTE: It is normal if your urine, saliva, or tears become orange-colored. Soft contact lenses may become stained.



For internal use only. Not for distribution.

Questions?

For internal use only. Not for distribution.



JeffreyM.Percak@sdcounty.ca.gov

Catherine.Bender@sdcounty.ca.gov



The Public Health Services department, County of San Diego Health and Human Services Agency, has maintained national public health accreditation, since May 17, 2016, and was re-accredited by the Public Health Accreditation Board on August 21, 2023.

For internal use only. Not for distribution.



THANK YOU!



The Public Health Services department, County of San Diego Health and Human Services Agency, has maintained national public health accreditation, since May 17, 2016, and was re-accredited by the Public Health Accreditation Board on August 21, 2023.

