California Department of
PUBLIC HEALTH

Latent Tuberculosis Infection: Opportunities for Preventing Tuberculosis

Objectives

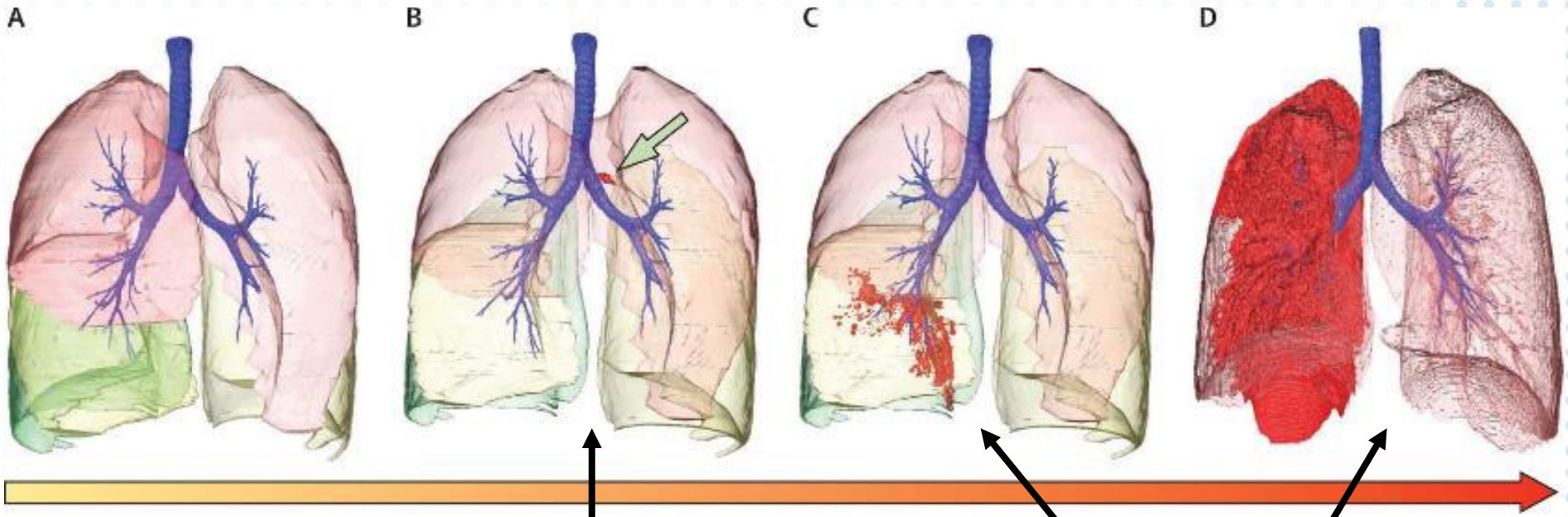
- Explain the burden of tuberculosis (TB)
- Explain the relevance of latent TB infection (LTBI)
- Describe patient populations at risk for LTBI and TB
- Establish importance of testing and treating for LTBI
- Review testing and treatment options
- Provide additional resources

Tuberculosis Basics

- Tuberculosis (TB): infectious disease caused by organisms of the ***Mycobacterium tuberculosis* complex**
- Discovered by Robert Koch in 1882
- Acid-fast, aerobic bacillus with high cell wall content of high-molecular-weight lipids
- **Airborne spread**, person-to-person, via droplet nuclei
- Usually attacks lungs, but can be found in any part of the body (kidney, spine, brain, lymph nodes, bones)

Image: CDC PHIL

The Spectrum of Tuberculosis



A – Clearance
B – Latent infection
C – Pulmonary disease (active)
D – Disseminated disease (active)

Latent TB Infection (LTBI)

Active TB Disease

Image: Dheda K. Lancet, 2016

Global Burden of Tuberculosis

- **TB**: major cause of morbidity and mortality worldwide; has affected persons and communities for thousands of years
- **#1** infectious disease killer globally
- In 2022 globally: **7.5 million** newly diagnosed; **1.36 million** died
- **~25%** of the world's population has latent TB infection (LTBI)

Image: WHO

WHO Global Tuberculosis Report 2023

Tuberculosis in the United States

- **8,331** TB cases reported in 2022
- **602** TB-related deaths in 2021
- Low-burden country: incidence of **2.5** per 100,000 persons in 2022

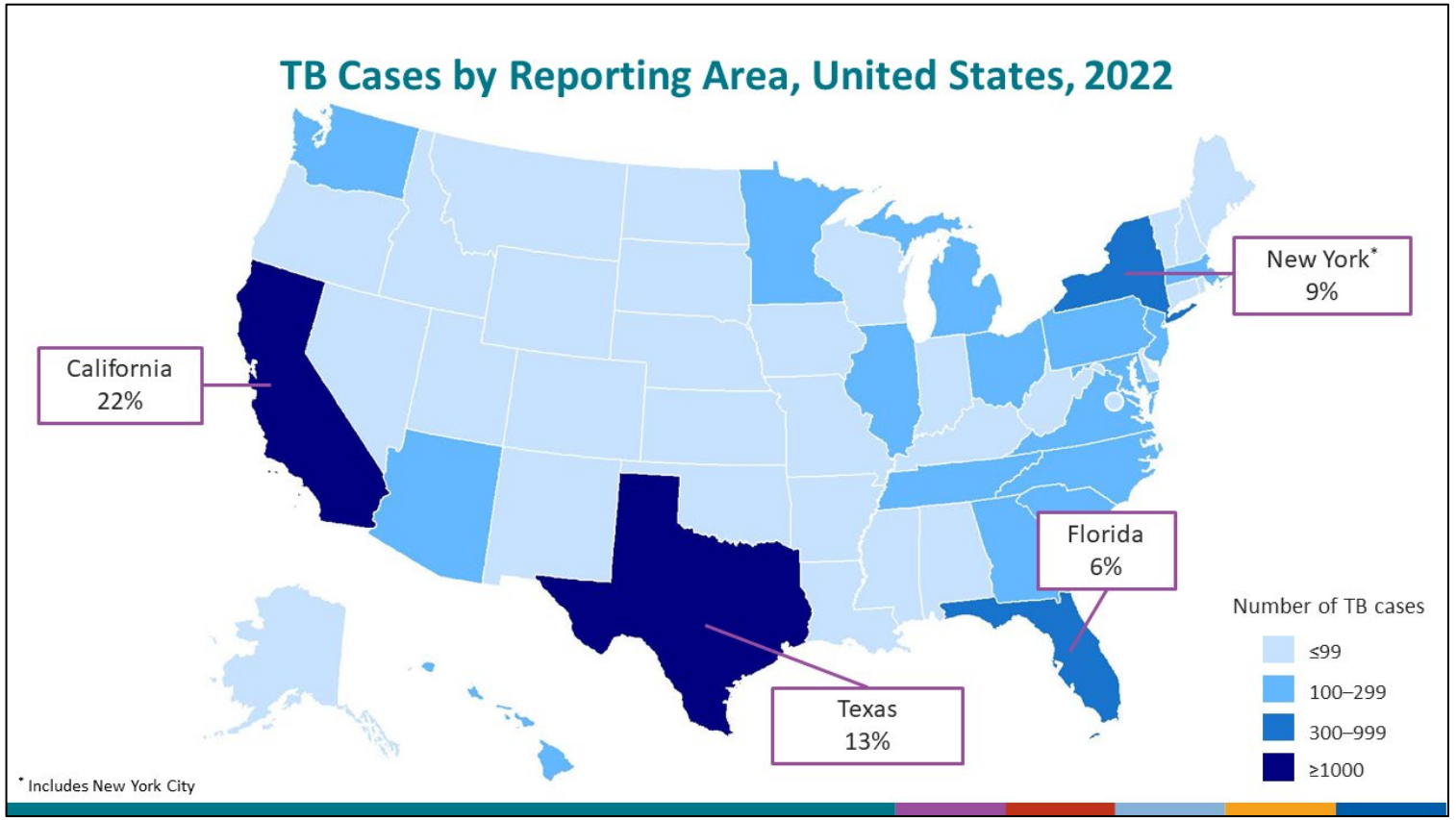


Image: CDC, 2023

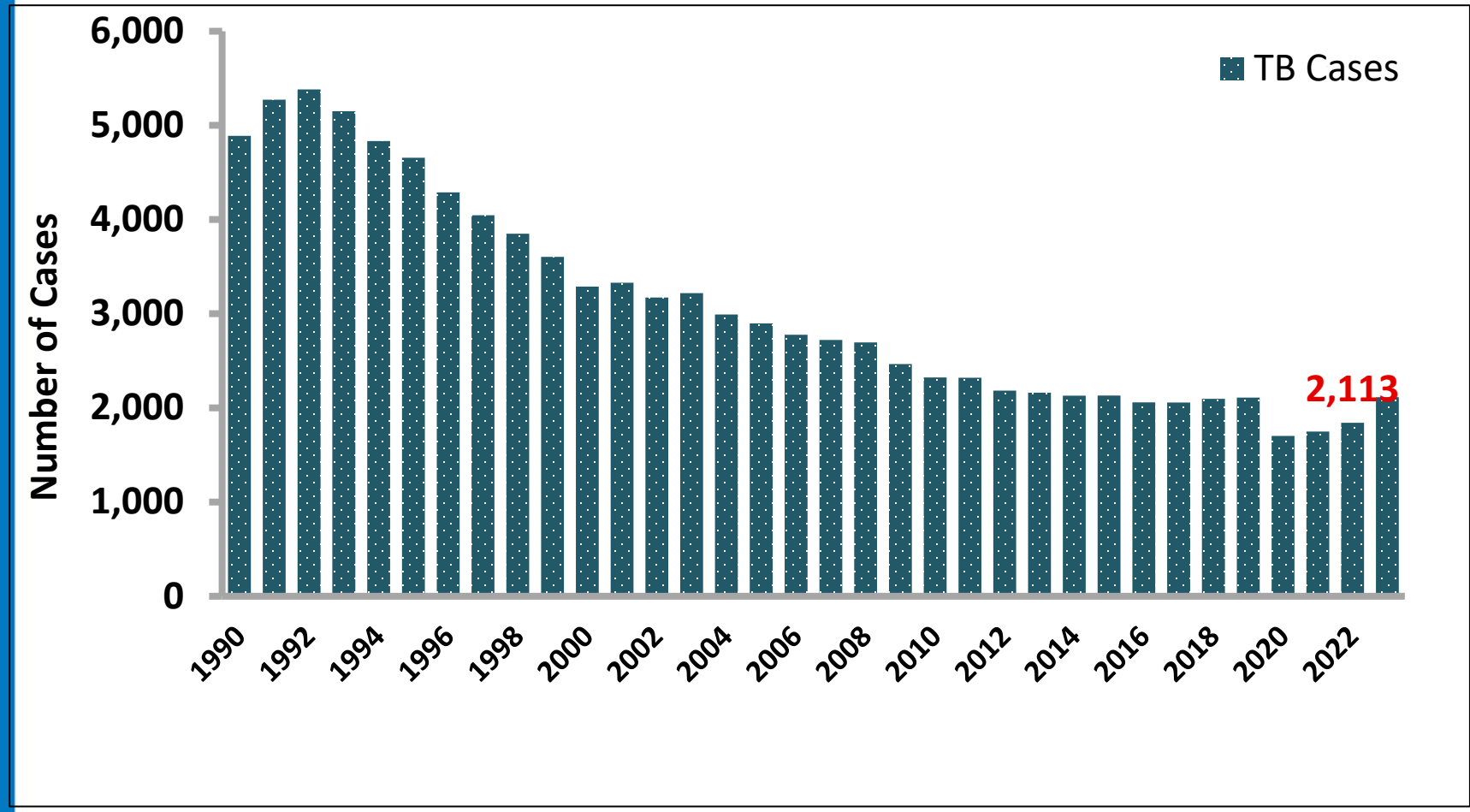
Tuberculosis in California

In 2023:

- **5.4 cases** per 100,000 persons
  - Nearly double the national incidence rate
- **2,113** new TB disease cases
  - Half are hospitalized
  - **1 in 6** die within 5 years of diagnosis
  - Survivors may suffer lifelong disability
- Cases reported in **45** of 61 local health jurisdictions
- **8** new outbreaks, **13** ongoing outbreaks

Trends in California TB Cases

Reported TB Cases: California, 1990 – 2023



TBCB CDPH, 2024

TB is a Health Disparity in California

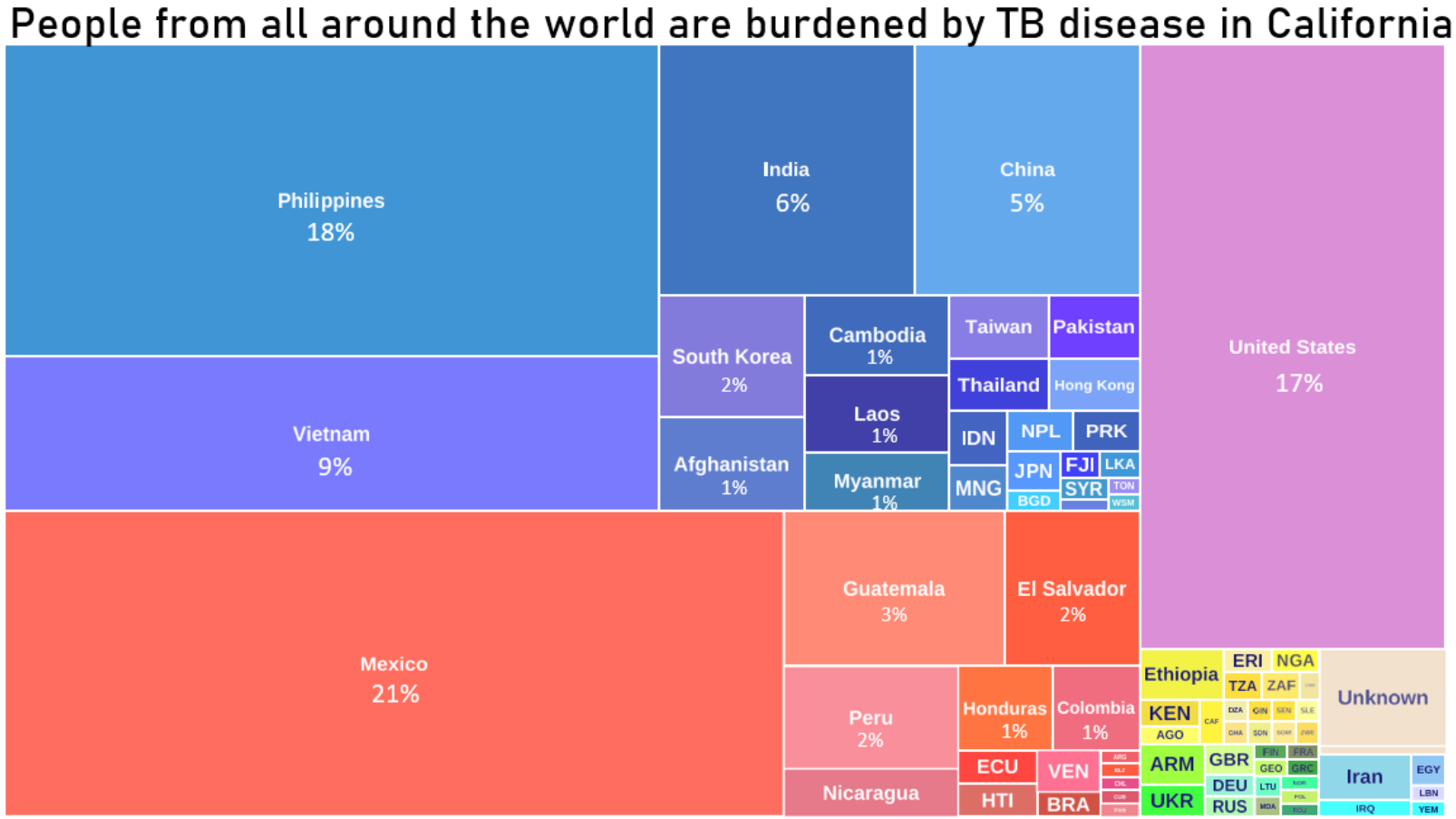
In 2023: **severe disparities** by race, ethnicity, and place of birth

- **47%** of TB cases occurred in Asians; **40%** occurred in Hispanics
- Rates of TB in non-U.S.-born persons were **13x higher** than those born in the U.S.
- Half of TB cases in non-U.S.-born persons occurred **≥ 20 years** after arrival to U.S.
- U.S.-born cases: Asian, Black, and Hispanic persons had higher rates than white persons

Image: AAFP

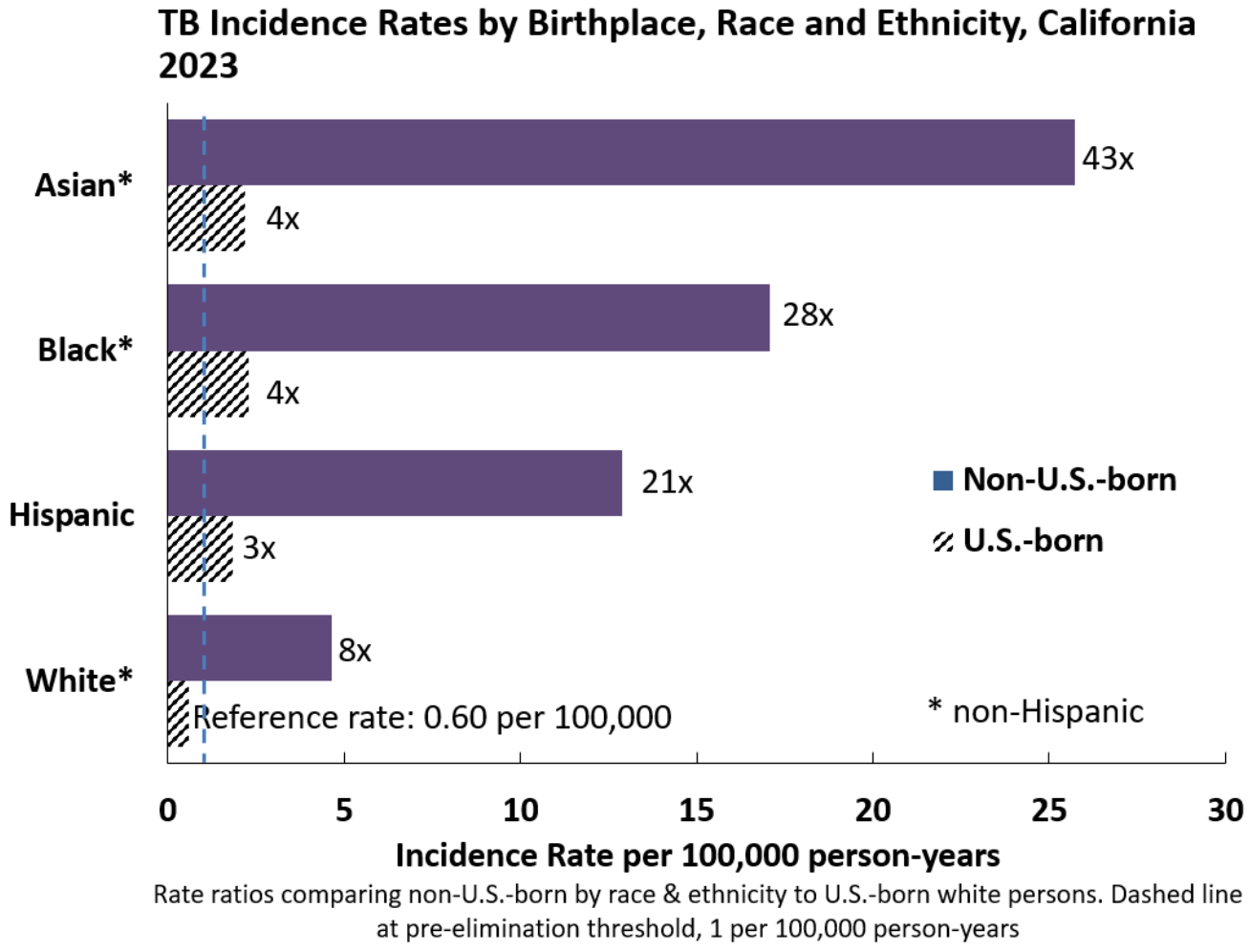
TB Cases in California: Country of Birth

83% born outside U.S.



Reported Verified Cases of Tuberculosis (RVCT) 2023

TB in California, 2023



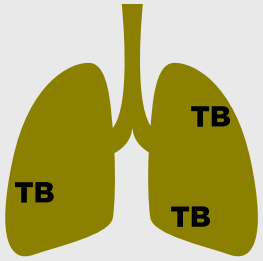
Rate ratios comparing non-U.S.-born by race & ethnicity to U.S.-born white persons. Dashed line at pre-elimination threshold, 1 per 100,000 person-years

LTBI vs. TB Disease

- **Latent TB Infection**
- *No TB symptoms*
- Not infectious
- Positive TB test (TST[1] or IGRA[2])
- Chest x-ray (CXR) normal
- May be unaware of infection

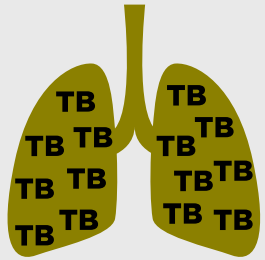
[1]TB skin test

[2]Interferon gamma release assay



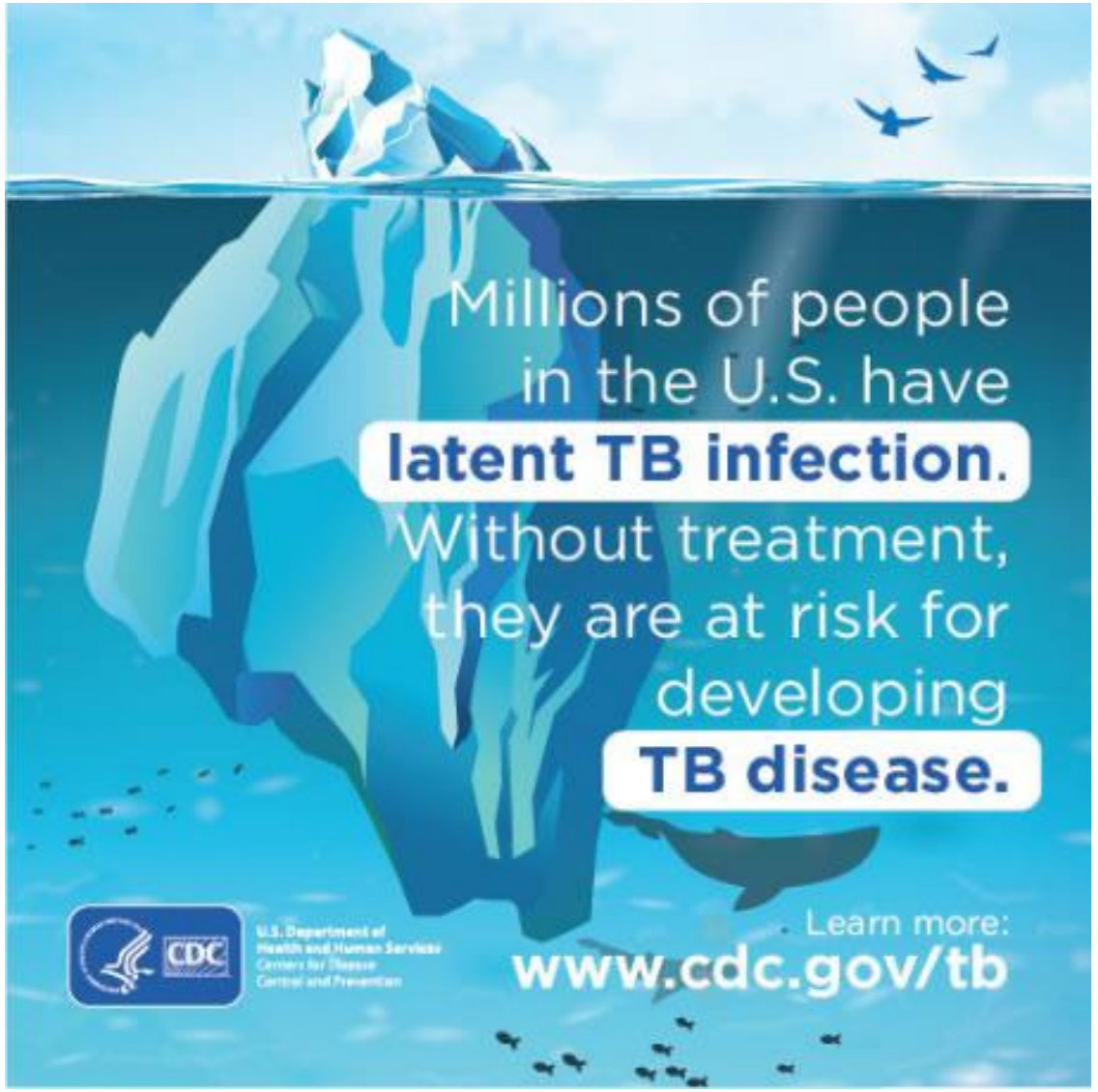
Active TB Disease

- *Symptoms (cough, fever, weight loss)*
- Infectious and can be deadly
- TST or IGRA usually positive
- CXR usually abnormal
- Respiratory specimens usually culture positive; smear positive for ~50%



CDC, 2020

Why is LTBI Important?



Why Treat LTBI in the U.S.?

- **Tragic consequences**:
  death, disability, hospitalization
- TB prevention cheaper than treating TB disease
  - TB prevention = **$857/person**
  - Treating TB disease = **$43,900/person**
- No effective TB vaccine
- Treatment of LTBI with recommended regimens greatly reduces risk of progression
- Protects both individuals and the community

USPSTF, 2023; TBCB 2021

TB Vaccine

- Many non-U.S. born persons vaccinated with **BCG** (bacilli Calmette-Guerin)
- Used in countries with **high prevalence** of TB to prevent peds TB meningitis and miliary disease
  - BCG World Atlas (to look up specific countries)
- Contraindications: immunosuppression, pregnancy
- **Not** generally recommended (or available) in U.S.

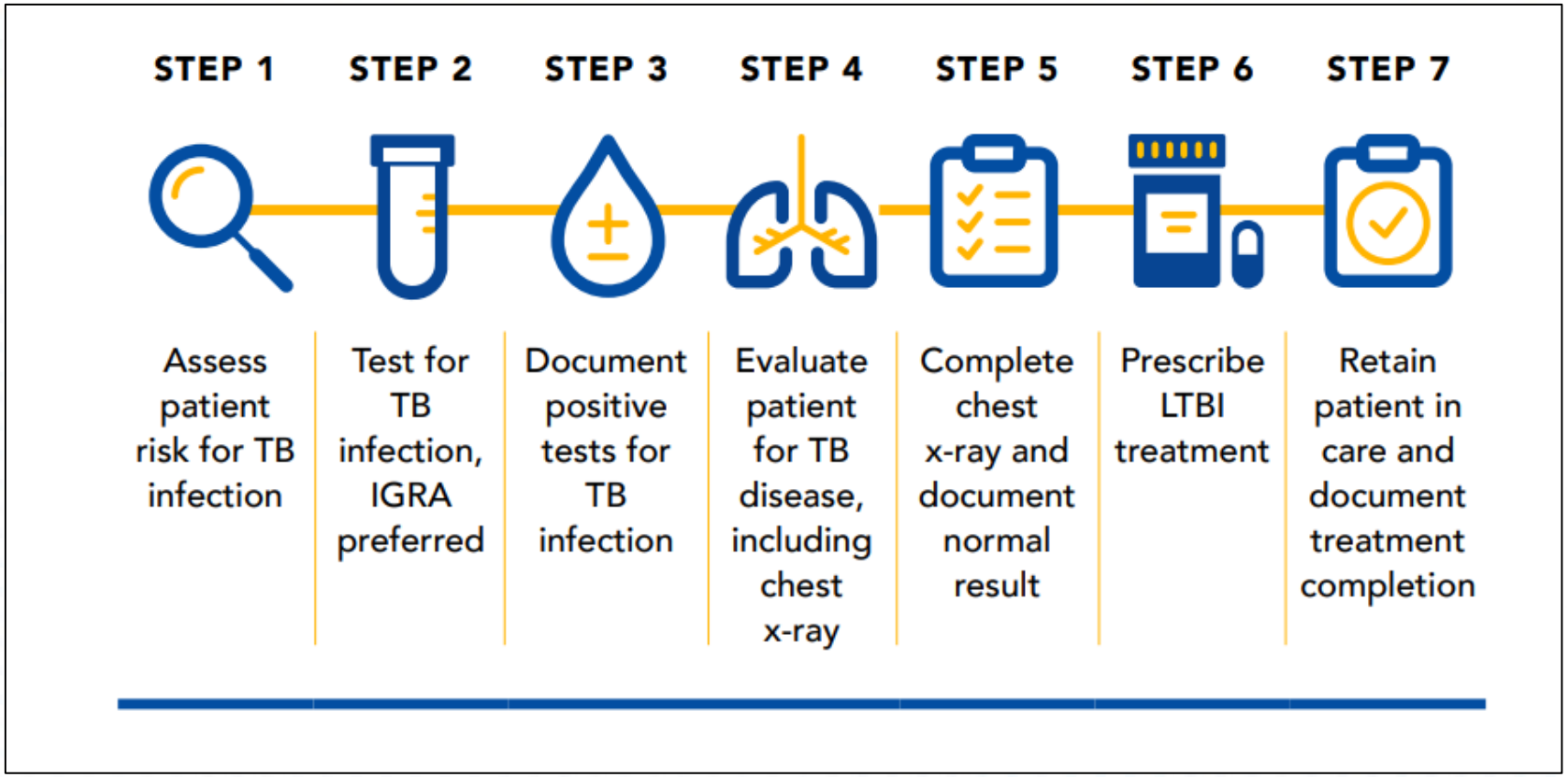
CDC, 2016; WHO, 2023; StatPearls, 2023

LTBI Care Cascade

TB PREVENTION GUIDEBOOK

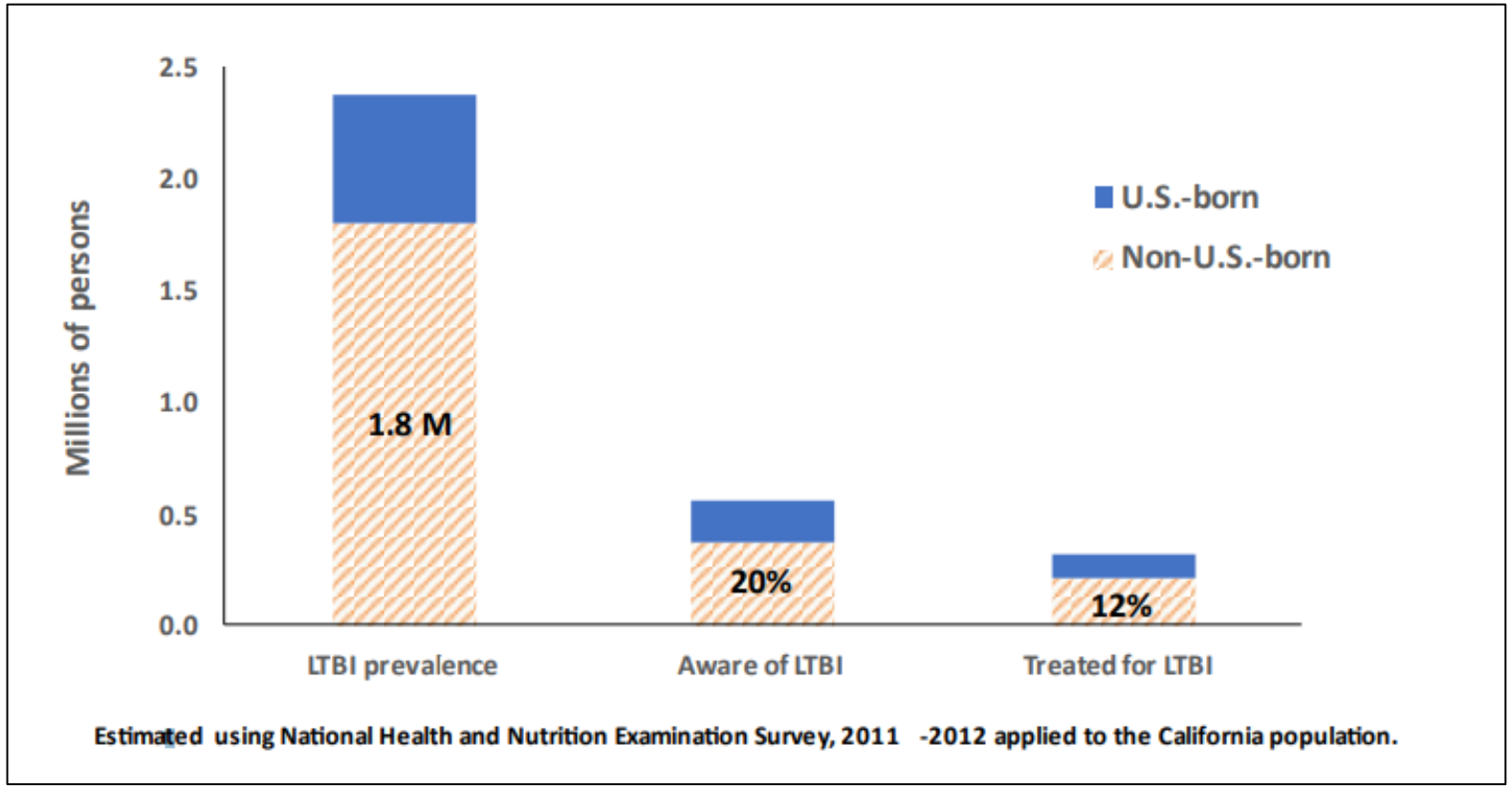
TB free CALIFORNIA

TBCB@cdph.ca.gov



LTBI in California

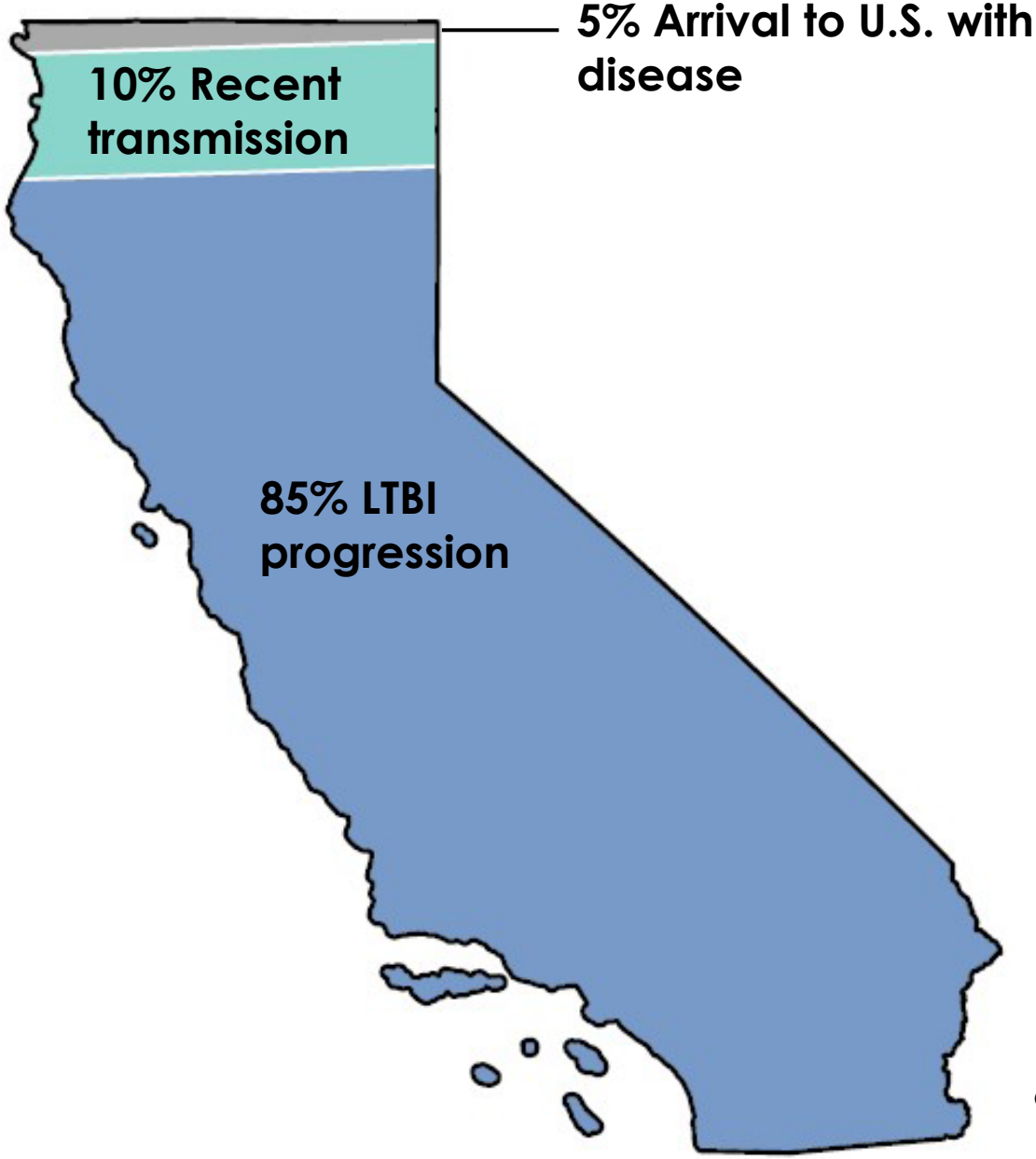
- **Estimated >2 million** infected with TB (~6% of the population)
- Majority **unaware and untreated**
- If current trends continue, estimated **4,200 deaths** from TB by 2040 that could have been prevented



CDPH TBCB, 2021 & 2022

Relevance of LTBI in CA

2,113 people with TB disease (2023)



CDPH TBCB, 2021

Why Test?

- **TB is preventable and treatable**
- Without treatment, **1 in 10** persons with LTBI will progress to TB disease
- Risk for progression greater for those with HIV or other immunosuppression, certain comorbidities, risk factors

CDC, 2023

Who to Test?

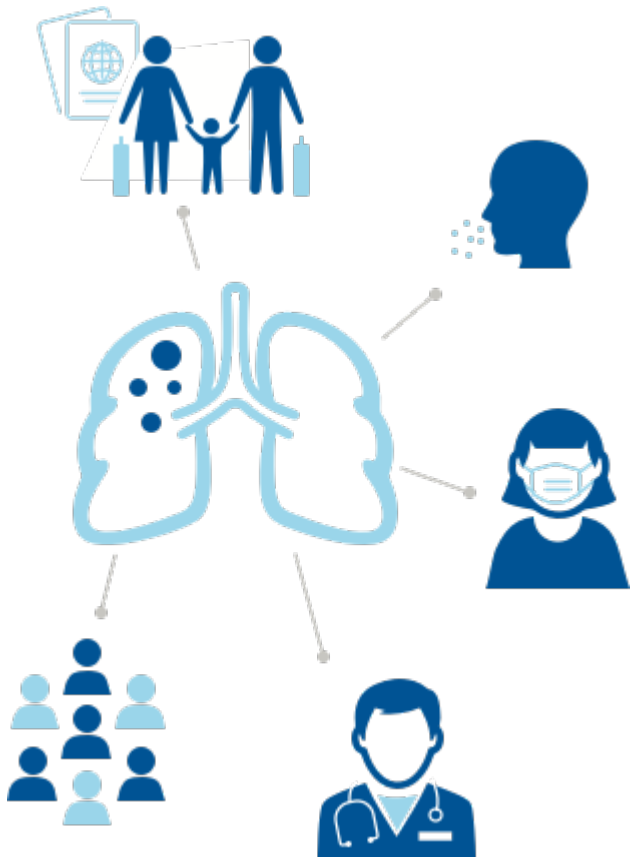
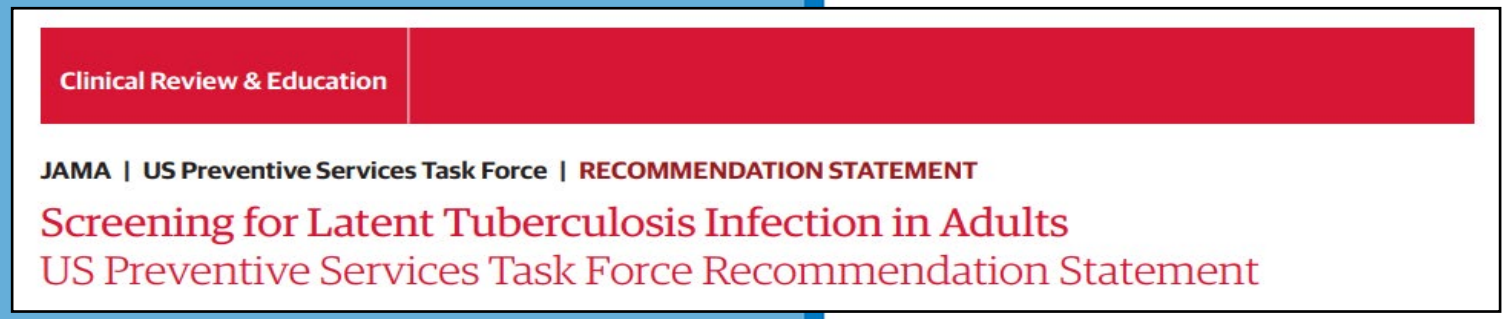


Image: CDC Think. Test. Treat TB

- Use [California TB Risk Assessment]
- Test patients with TB **risk factors**
  - Birth/travel/residence outside U.S. ≥1 month
  - Contacts of TB cases
  - Immunosuppressed
  - Homelessness or incarceration
- Note: testing populations with low prevalence may result in **false-positive** results
- Most with positive test should be treated, **after TB disease ruled out**

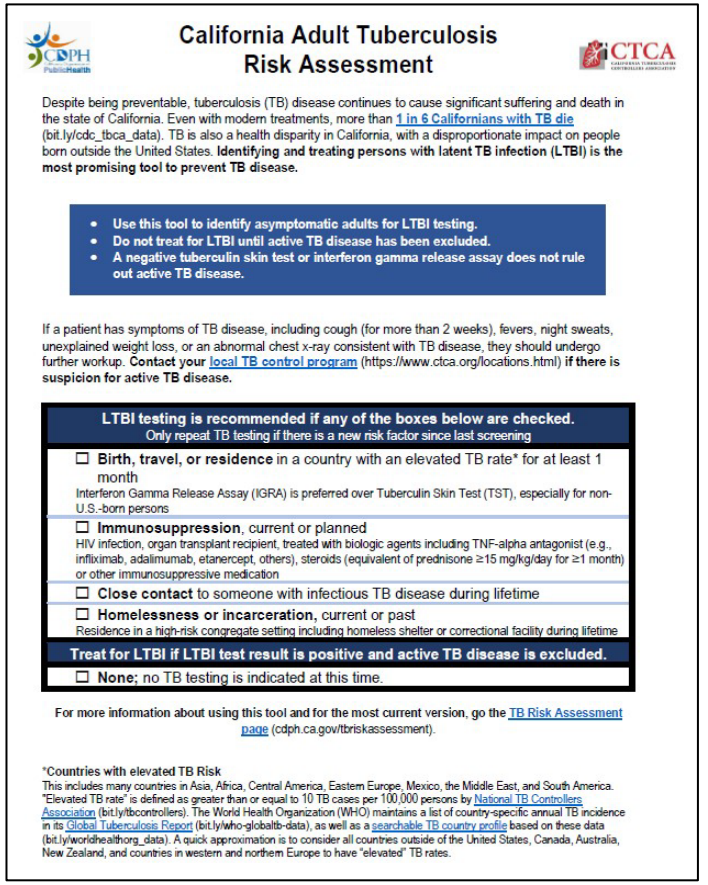


TB Risk Assessments

- CA TB risk assessments are based on **national guidelines**
  - USPSTF
  - CDC
  - NTCA
- **All** patients at increased risk for TB disease should be screened
- Test those with **risk factors**:
  - Persons born outside the U.S.
  - Contacts of TB cases
  - Immunosuppressed
  - Adults who have resided in congregate settings

California TB Risk Assessments

- All patients at increased risk for TB disease should be **screened**
- To prevent TB disease: **test** those who answer "yes" to any question(s)
- Some settings/counties utilize population-specific risk assessments



California Adult Tuberculosis Risk Assessment

Despite being preventable, tuberculosis (TB) disease continues to cause significant suffering and death in the state of California. Even with modern treatments, more than 1 in 6 Californians with TB die (bit.ly/cdc_tbca_data). TB is also a health disparity in California, with a disproportionate impact on people born outside the United States. **Identifying and treating persons with latent TB infection (LTBI) is the most promising tool to prevent TB disease.**

- **Use this tool to identify asymptomatic adults for LTBI testing.**
- **Do not treat for LTBI until active TB disease has been excluded.**
- **A negative tuberculin skin test or interferon gamma release assay does not rule out active TB disease.**

If a patient has symptoms of TB disease, including cough (for more than 2 weeks), fevers, night sweats, unexplained weight loss, or an abnormal chest x-ray consistent with TB disease, they should undergo further workup. **Contact your** local TB control program (https://www.ctca.org/locations.html) **if there is suspicion for active TB disease.**

LTBI testing is recommended if any of the boxes below are checked.
Only repeat TB testing if there is a new risk factor since last screening

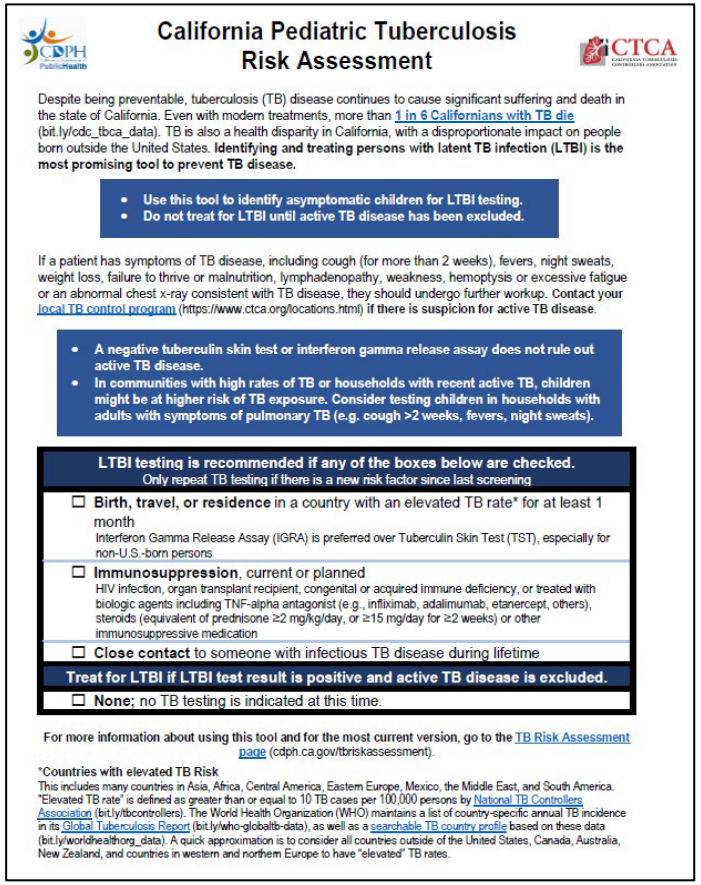
- ☐ **Birth, travel, or residence** in a country with an elevated TB rate* for at least 1 month
  Interferon Gamma Release Assay (IGRA) is preferred over Tuberculin Skin Test (TST), especially for non-U.S.-born persons
- ☐ **Immunosuppression**, current or planned
  HIV infection, organ transplant recipient, treated with biologic agents including TNF-alpha antagonist (e.g., infliximab, adalimumab, etanercept, others), steroids (equivalent of prednisone ≥15 mg/kg/day for ≥1 month) or other immunosuppressive medication
- ☐ **Close contact** to someone with infectious TB disease during lifetime
- ☐ **Homelessness or incarceration,** current or past
  Residence in a high-risk congregate setting including homeless shelter or correctional facility during lifetime

Treat for LTBI if LTBI test result is positive and active TB disease is excluded.

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

For more information about using this tool and for the most current version, go the TB Risk Assessment page (cdph.ca.gov/tbriskassessment).

*Countries with elevated TB Risk
This includes many countries in Asia, Africa, Central America, Eastern Europe, Mexico, the Middle East, and South America. "Elevated TB rate" is defined as greater than or equal to 10 TB cases per 100,000 persons by National TB Controllers Association (bit.ly/tbcontrollers). The World Health Organization (WHO) maintains a list of country-specific annual TB incidence in its Global Tuberculosis Report (bit.ly/who-globaltb-data), as well as a searchable TB country profile based on these data (bit.ly/worldhealthorg_data). A quick approximation is to consider all countries outside of the United States, Canada, Australia, New Zealand, and countries in western and northern Europe to have "elevated" TB rates.



California Pediatric Tuberculosis Risk Assessment

Despite being preventable, tuberculosis (TB) disease continues to cause significant suffering and death in the state of California. Even with modern treatments, more than 1 in 6 Californians with TB die (bit.ly/cdc_tbca_data). TB is also a health disparity in California, with a disproportionate impact on people born outside the United States. **Identifying and treating persons with latent TB infection (LTBI) is the most promising tool to prevent TB disease.**

- **Use this tool to identify asymptomatic children for LTBI testing.**
- **Do not treat for LTBI until active TB disease has been excluded.**

If a patient has symptoms of TB disease, including cough (for more than 2 weeks), fevers, night sweats, weight loss, failure to thrive or malnutrition, lymphadenopathy, weakness, hemoptysis or excessive fatigue or an abnormal chest x-ray consistent with TB disease, they should undergo further workup. Contact your local TB control program (https://www.ctca.org/locations.html) **if there is suspicion for active TB disease.**

- **A negative tuberculin skin test or interferon gamma release assay does not rule out active TB disease.**
- **In communities with high rates of TB or households with recent active TB, children might be at higher risk of TB exposure. Consider testing children in households with adults with symptoms of pulmonary TB (e.g. cough >2 weeks, fevers, night sweats).**

LTBI testing is recommended if any of the boxes below are checked.
Only repeat TB testing if there is a new risk factor since last screening

- ☐ **Birth, travel, or residence** in a country with an elevated TB rate* for at least 1 month
  Interferon Gamma Release Assay (IGRA) is preferred over Tuberculin Skin Test (TST), especially for non-U.S.-born persons
- ☐ **Immunosuppression**, current or planned
  HIV infection, organ transplant recipient, congenital or acquired immune deficiency, or treated with biologic agents including TNF-alpha antagonist (e.g., infliximab, adalimumab, etanercept, others), steroids (equivalent of prednisone ≥2 mg/kg/day, or ≥15 mg/day for ≥2 weeks) or other immunosuppressive medication
- ☐ **Close contact** to someone with infectious TB disease during lifetime

Treat for LTBI if LTBI test result is positive and active TB disease is excluded.

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

For more information about using this tool and for the most current version, go to the TB Risk Assessment page (cdph.ca.gov/tbriskassessment).

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TB Risk Factors

Exposure	Progression
Non-U.S. born*	Persons with HIV/AIDS
Known contact to infectious case (highest risk within 2 years)	Patients that received transplant(s)
Persons experiencing homelessness	Patients taking TNF-alpha inhibitors
Persons who are incarcerated/detained	Patients taking steroids
Persons who use drugs	Persons with cancer (head/neck, leukemia/lymphoma)
Persons living in long term care facilities	Patients with end stage renal disease on dialysis
Healthcare workers	Persons with a recent infection
	Persons with silicosis
	Persons with diabetes mellitus
	Persons who are underweight, have malabsorption
	Persons who smoke
*From a country with elevated TB rate	Children age < 5

LTBI Case 1 (Polling Q #1)

- 32-year-old female at primary care visit
- Born in Fresno, works as secretary for small insurance company
- Has two children, ages 2 and 4
- Uses public transportation
- Heard story about TB on the radio
- Requesting TB skin test (TST)

- ***Should this patient be tested for TB? Why or why not?***

LTBI Case 2 (Polling Q #2)

- 34-year-old male born in India
- Moved to the U.S. at age 15 on student visa
- Healthy with no other medical problems
- Now starting new job and has insurance coverage
- First primary care visit

- ***Should this patient be tested for TB? Why or why not?***

Retesting for New Risk Factors

- Only retest for **new risk factors**:
  - New close contact to person with infectious TB disease
  - Residence or travel in high-incidence country for >1 month
  - New or anticipated immunosuppressive therapy
  - Patient was <6 months of age at time of last test
- Especially important for those with **immunosuppressive conditions**

NTCA, 2021

Methods for Tuberculosis Testing

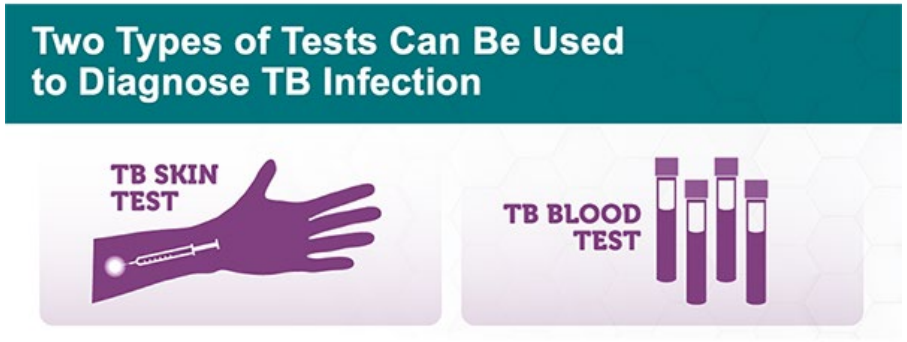


Image: CDC

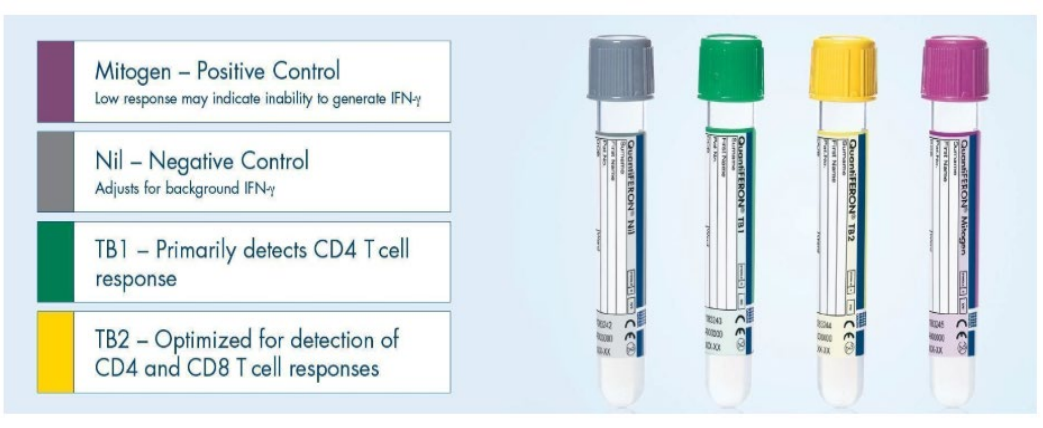
1. **IGRA: interferon-gamma release assays**
   - Blood test (drawn in clinic or lab, only 1 visit)
   - More **specific** than TST
   - Does not boost responses measured by subsequent tests
   - **Preferred test** for all ages (esp. hx of BCG)
2. **TST: tuberculin skin test**
   - Intradermal
   - Cheap
   - **Cross-reacts** with BCG and other non-TB Mycobacterium (NTM)
   - Requires 2 visits, 48-72 hours apart

Lewinsohn et al., 2017; NTCA, 2021; Turner et al, 2023

Interferon Gamma Release Assays

- 3 commercial tests approved by FDA:
  - **QuantiFERON-TB Gold Plus (QFT-Plus)** and **QuantiFERON-TB Gold In-Tube**: reported as pos, neg, or indeterminate
  - **T-SPOT.TB**: reported as pos, borderline, neg, or indeterminate
- Administered via blood test
- Measures cellular response to MTB complex-specific antigens, with positive and negative controls

NTCA, 2021



Images: Qiagen, www.quantiferon.com; Oxford Immunotec Ltd, www.tspot.com

Interpretation of IGRAs

Nil (IU/ml)	TB1 minus Nil (IU/ml)	TB2 minus Nil (IU/ml)	Mitogen minus Nil (IU/ml)	QFT-Plus Result	Result interpretation
≤8.0	≥0.35 and ≥25% of Nil	Any	Any	Positive	*M. tuberculosis* infection likely
	Any	≥0.35 and ≥25% of Nil			
	<0.35 or ≥0.35 and <25% of Nil	<0.35 or ≥0.35 and <25% of Nil	≥0.50	Negative	*M. tuberculosis* infection NOT likely
	<0.35 or ≥0.35 and <25% of Nil	<0.35 or ≥0.35 and <25% of Nil	<0.50	Indeterminate	Likelihood of *M. tuberculosis* infection cannot be determined
>8.0	Any				

Image: Qiagen QFT-Plus Kit Package Insert

Tuberculin Skin Test

- 2 FDA-approved tuberculin-purified protein derivative (PPD) solutions: **Aplisol and Tubersol**
- Administered via 0.1ml antigen solution
- Measure **induration** (not erythema) at 48-72hrs; record in mm
- Measures cellular response to antigens secreted by *M. tuberculosis*-complex organisms
- Positive test criteria:
  - ≥5mm for immunosuppressed, recent contacts, organ transplants, CXR findings **≥10mm for all others (in CA)**

Images: CDC, 2016

NTCA, 2021

Reliability of Test Results

- **Sensitivity:** a test's ability to identify an individual with a disease as positive

  Highly sensitive = few false negative results

- **Specificity:** a test's ability to identify an individual who does not have a disease as negative

  Highly specific = few false positive results

IGRAs and TST: similar high sensitivity for diagnosing infection among patients with culture-confirmed active TB disease (but **IGRA is more specific**)

NTCA, 2021

Discordance of Test Results

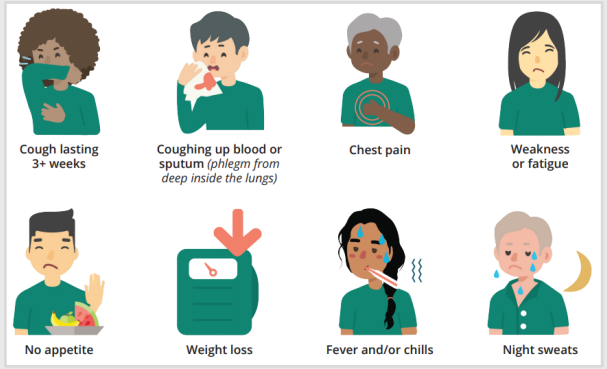
- Common but not well understood
- **TST+/IGRA-** or **TST-/IGRA+**
  - False positives more common with TST
  - More common in children, pregnant women, immunosuppressed
- Routine testing using both IGRA and TST **not** generally recommended
- Performing second test might be useful when initial IGRA result indeterminate, borderline, or invalid

NTCA, 2021

Ruling Out Active TB Disease

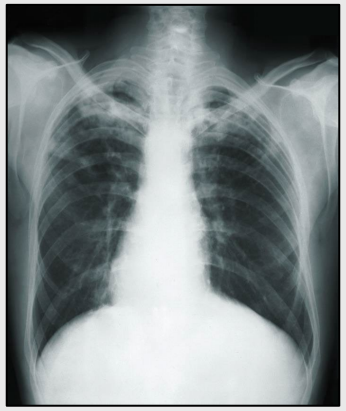
1. Symptom Screen:

- Cough
- Hemoptysis
- Weight loss
- Fevers/sweats
- Extreme fatigue



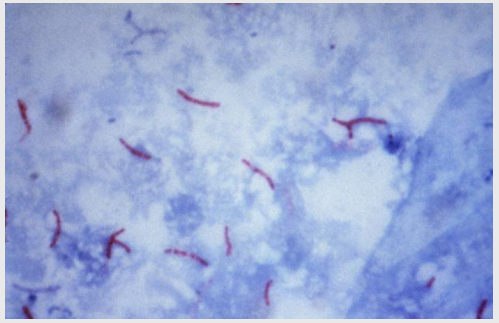
2. Chest X-Ray

- Infiltrate
- Cavitary lesion
- Nodule
- Effusion
- Hilar lymphadenopathy



3. Sputum Collection

- Only collect if symptoms &/or CXR findings present
- AFB smear and culture
- MTB PCR (Xpert)



NTCA, 2021

Images: CDC PHIL

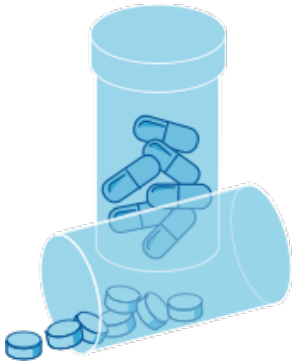
Treatment for LTBI

Regimen	Priority Rank	Recommendation	Quality of Evidence
3HP: 3 months of isoniazid and rifapentine once weekly	Preferred	Strong	Moderate
4R: 4 months of rifampin daily	Preferred	Strong	Moderate (HIV-negative)*
3HR: 3 months of isoniazid and rifampin daily	Preferred	Conditional	Very low (HIV-negative) Low (HIV-positive)
6H: 6 months of isoniazid daily or twice weekly	Alternative	Strong^ Conditional	Moderate (HIV-negative) Moderate (HIV-positive)
9H: 9 months of isoniazid daily or twice weekly	Alternative	Conditional	Moderate

* No evidence reported in persons with HIV infection.

^ Strong recommendation for persons unable to take a preferred regimen (e.g., because of drug intolerability or drug-drug interactions)

Source: Adapted from Sterling TR, et al. Guidelines for the treatment of latent tuberculosis infection: recommendations from the National Tuberculosis Controllers Association and CDC, 2020. *MMWR Recomm Rep.* 2020 Feb 14;69(1):1-11.



Strongly Preferred LTBI Treatment Regimens

4R: Rifampin (RIF) *daily* x 4mos

- First line TB drug, suitable for:
  - Adults (incl. pregnant), children
  - Avoid in most persons living with HIV
- Clinical Considerations:
  - RIF drug interactions (lowers plasma levels of some drugs)
  - Adverse drug reactions including hepatotoxicity, rash, GI upset
  - Orange discoloration of body fluids

Sterling, et al., 2020

Strongly Preferred LTBI Treatment Regimens

(Continued)

3HP: Rifapentine (RPT) + isoniazid (INH)
***once weekly* x 12 weeks**

- First line TB drugs, suitable for:
  - Ability to take weekly medication
  - Adults, children ≥ 2 years, HIV*
- Clinical Considerations:
  - High pill burden and higher dose
  - Drug interactions
  - Hypersensitivity or flu-like reaction, rash, hepatotoxicity

*not on ART, or no significant drug interactions

Sterling, et al., 2020

LTBI Treatment Regimen Dosing

	DRUG	DURATION	FREQUENCY	TOTAL DOSES	DOSE AND AGE GROUP
Preferred	ISONIAZID† AND RIFAPENTINE†† (3HP) 	3 months	Once weekly	12	**Adults and children aged ≥12 yrs** INH: 15 mg/kg rounded up to the nearest 50 or 100 mg; 900 mg maximum RPT: 10–14.0 kg; 300 mg 14.1–25.0 kg; 450 mg 25.1–32.0 kg; 600 mg 32.1–49.9 kg; 750 mg ≥50.0 kg; 900 mg maximum
					Children aged 2–11 yrs INH†: 25 mg/kg; 900 mg maximum RPT††: See above
	RIFAMPIN§ (4R) 	4 months	Daily	120	**Adults:** 10 mg/kg; 600 mg maximum
					Children: 15–20 mg/kg; 600 mg maximum
	ISONIAZID† AND RIFAMPIN§ (3HR) 	3 months	Daily	90	**Adults** INH†: 5 mg/kg; 300 mg maximum RIF§: 10 mg/kg; 600 mg maximum
					Children INH†: 10-20 mg/kg#; 300 mg maximum RIF§: 15-20 mg/kg; 600 mg maximum
Alternative	ISONIAZID† (6H/9H)	6 months	Daily	180	**Adults** Daily: 5 mg/kg; 300 mg maximum Twice weekly: 15 mg/kg; 900 mg maximum
			Twice weekly¶	52	
		9 months	Daily	270	**Children** Daily: 10-20 mg/kg#; 300 mg maximum Twice weekly: 20–40 mg/kg#; 900 mg maximum
			Twice weekly¶	76	

Image: CDC

Patient Monitoring

- Patients should be monitored **at least monthly***:
  - Assess for s/s of TB disease, med adherence, adverse effects
  - Perform baseline/periodic laboratory testing as indicated
  - Offer HIV testing for those with unknown status
- Educate patients to **STOP and CALL** if any symptoms of adverse drug effects suspected (i.e., hepatotoxicity)
- Frequent and effective **communication** is important to ensure patient does not miss doses or appointments

*Does not have to be in-person visit

NTCA, 2021

Adverse Drug Effects

- Patients on LTBI treatment should **report** signs/symptoms of adverse drug reactions:
  - Unexplained loss of appetite, nausea or vomiting, brown urine, or jaundice
  - Persistent tingling, numbness, or burning of hands or feet
  - Persistent weakness, fatigue, fever, or abdominal tenderness
  - Easy bruising or bleeding
  - Rash
  - Blurred or changed vision
- Management depends on type/severity of reaction
- Patients should provide **list of current meds**

NTCA, 2021

Drug-Drug Interactions

- Many rifamycin drug interactions can be managed with **clinical monitoring and/or dose adjustment**
- Utilize your favorite **resource**:
  - Lexicomp
  - Micromedex
  - Curry Center Rifamycin Drug-Drug Interactions guide
  - Heartland TB Medication Drug and Food Interactions guide
  - HIV.gov Guidelines for the Use of Antiretroviral Agents
  - University of Liverpool HIV Drug Interactions checker

Baseline Labs During LTBI Treatment

Image: Johns Hopkins Medicine

- **CBC, CMP**
- Who needs them?
  - Persons living with HIV
  - Pregnancy/early postpartum (<3 mos)
  - Liver disease (HBV, HCV, alcoholic hepatitis, cirrhosis)
  - Regular EtOH use or currently injecting drugs
  - Consider for others **based on clinical discretion**:
    - Statin/other hepatotoxic meds
    - Age >50 years
    - Other comorbidities (DM, renal disease, etc.)
    - Meds with known interactions with INH or RIF

NTCA, 2021

Treating LTBI in Pregnant Persons

Image: CDC.gov

- If LTBI treatment needed*:
  - **Provide immediately if:**
    - immunosuppressed, a TB contact, or TB test conversion in past 2 years
  - Preferred treatment: **4 months RIF (4R)**
    - 9H possible but not preferred
    - Avoid 3HP (not well studied)
  - Breastfeeding is <u>not</u> a contraindication
  - Many patients **lost to follow-up** postpartum

***Must always first rule out active TB disease!**

Kilpatrick et al., 2017; Miele et al., 2020; NTCA, 2021

Treating LTBI in Pediatrics

Image: TB Alliance

- *Reasons to treat:
  - **Higher risk for progression to TB disease**
  - Infection more likely to have been recent
  - Meds generally well tolerated
- Treatment options:
  - **No 3HP for <2 years of age** (not enough data)
  - Meds may be crushed, or capsules opened
  - Liquid formulations compounded by pharmacy
- Window period treatment
  - LTBI treatment given for neg test results if recent close contact to person with pulmonary TB disease
  - Usually for children <5 years of age
  - **8-10 weeks** after period of last potential exposure

***Must always first rule out active TB disease!**

Sterling, et al., 2020; NTCA, 2021

LTBI Case 3 (Polling Q #3)

- Healthy 5-year-old male from Los Angeles referred to pediatrician:
  - Positive TST (11 mm), part of routine screen for kindergarten
  - Born in U.S. but spent 2 months in the Philippines last summer visiting family
  - Has no symptoms and has had no previous TB testing
- ***What kind of workup should be completed?***

Treating LTBI in Older Adults

- LTBI prevalence increases with age
- **25-30% of TB cases** in 65+ age group
- Risk factor for death if active TB develops*
- No upper limit of age set for TB screening
  - Consider individual risks, comorbidities, life expectancy
- Risk factor for **hepatotoxicity**
  - Short-course, RIF-based, 3- or 4-month LTBI treatment regimens recommended

***Must always first rule out active TB disease!**

Wu et al., 2022; NTCA, 2021

LTBI Case 4 (Polling Q #4)

- 67-year-old female born in Vietnam immigrated to U.S. in her 40's
- Previous HbA1c was 6.0
- Medications: Metformin, Lipitor, ASA
- Seen at primary care visit

- ***Should this patient be tested for TB infection? Why or why not?***

Treating LTBI in TB Contacts

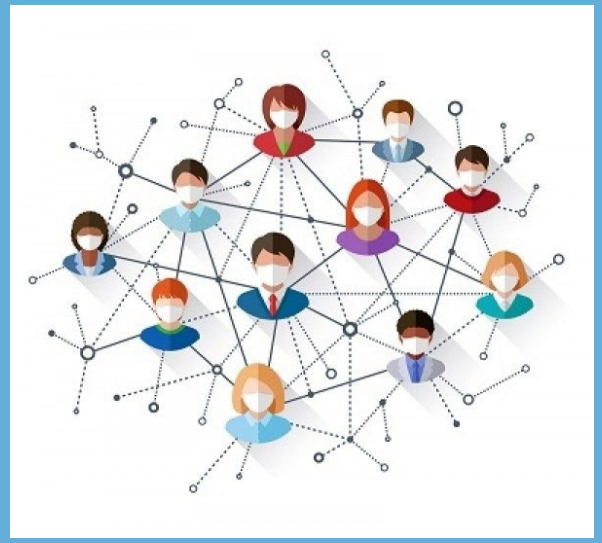


Image: NACCHO, 2022

- Recent (**within 2 years**) contacts at greatest risk of progression*
  - Especially those <5 years old and/or immunosuppressed
- Adjust treatment based on drug-susceptibility testing (DST) of source case
- For contacts of multi-drug resistant (MDR) TB:
  - 12 months fluroquinolone (FQ) +/- ethambutol (EMB) for 6-12 months

***Must always first rule out active TB disease!**

Bamrah S, et al., 2014; NTCA, 2021

LTBI Case 5 (Polling Q #5)

- 35-year-old U.S.-born nurse works in a long-term care facility
- Contact to active TB cases 3 years ago
  - TST positive
  - Completed 9 months of INH treatment
- Now:
  - Cough for 3 weeks, and unintentional weight loss 20lbs
  - Smear positive, cavitary lung lesion, INH resistant TB via DST
  - Genotype matches prior cases (INH sensitive)

- ***What happened?***

Common Patient Concerns

- **"Why should I take medication if I am not sick?"**
  - TB germs hide in the body…
- **"Why do I have to take medication for so long?"**
  - Slow-growing germ…
- **"I had the vaccine; how can I get TB?"**
  - Not completely effective…
- **"What will happen if people find out I have LTBI?"**
  - This infection is very common….
- **"How do I know if the treatment was successful?"**
  - No progression to TB disease…

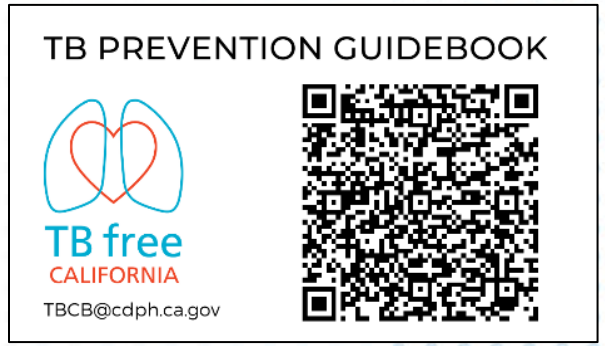
Education & Communication

- **Patient:**
  - Get to know the patient/family
  - Use patient's preferred language, method of communication
  - Be aware of common concerns; offer talking points at basic level
  - Focus on protecting patient's family/community
- **Community:**
  - Get to know the community
  - Develop trusting relationships
  - Provide appropriate and timely outreach and education
  - Collaborate with other leaders in the community

CDC Think. Test. Treat TB

LTBI Resources

1. CTCA Directory of TB Control Staff in California
2. CDPH TB Provider Resources
3. TB Free California (a project of the CDPH Tuberculosis Control Branch) (email: tbcb@cdph.ca.gov)
4. NTCA LTBI Clinical Guidelines 2021
5. Prevent Tuberculosis in 4 steps: A Guide for Medical Providers
6. CDC LTBI Patient & Provider Resources
7. CDC Guidelines for Diagnosis of Tuberculosis in Adults and Children
8. CA Adult TB Risk Assessment & CA Pediatric TB Risk Assessment
9. Curry Center Rifamycin Drug Interaction Guide
10. How to Talk to Adult Patients about LTBI & How to Talk to Pediatric Patients about LTBI



Summary

- TB is preventable!
- Use IGRA over TST when possible
- Neither TST nor IGRA can distinguish latent infection from TB disease
- Test persons with risk factors
- Treat LTBI with short-course regimens

Questions?

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