Tuberculosis prevention in primary care

Matthew Murrill and Priya Shete

University of California, San Francisco

January 7, 2025

Center for Tuberculosis UCSF

Outline

1) Why is this important?

2) What are the gaps?

3) What is California Assembly Bill 2132?

4) What can we do?

Outline

1) Why is this important?
2) What are the gaps?
3) What is California Assembly Bill 2132?
4) What can we do?

Tuberculosis disease in the United States

Key points:

- TB disease incidence: increased every year since 2020[1]
  - 2024 had the highest number of diagnoses since 2011
  - Two large outbreaks since 2024 (Kansas and Long Beach, CA)[2,3]

- 85% of TB disease is attributed to reactivation of TB infection rather than recent transmission[4]

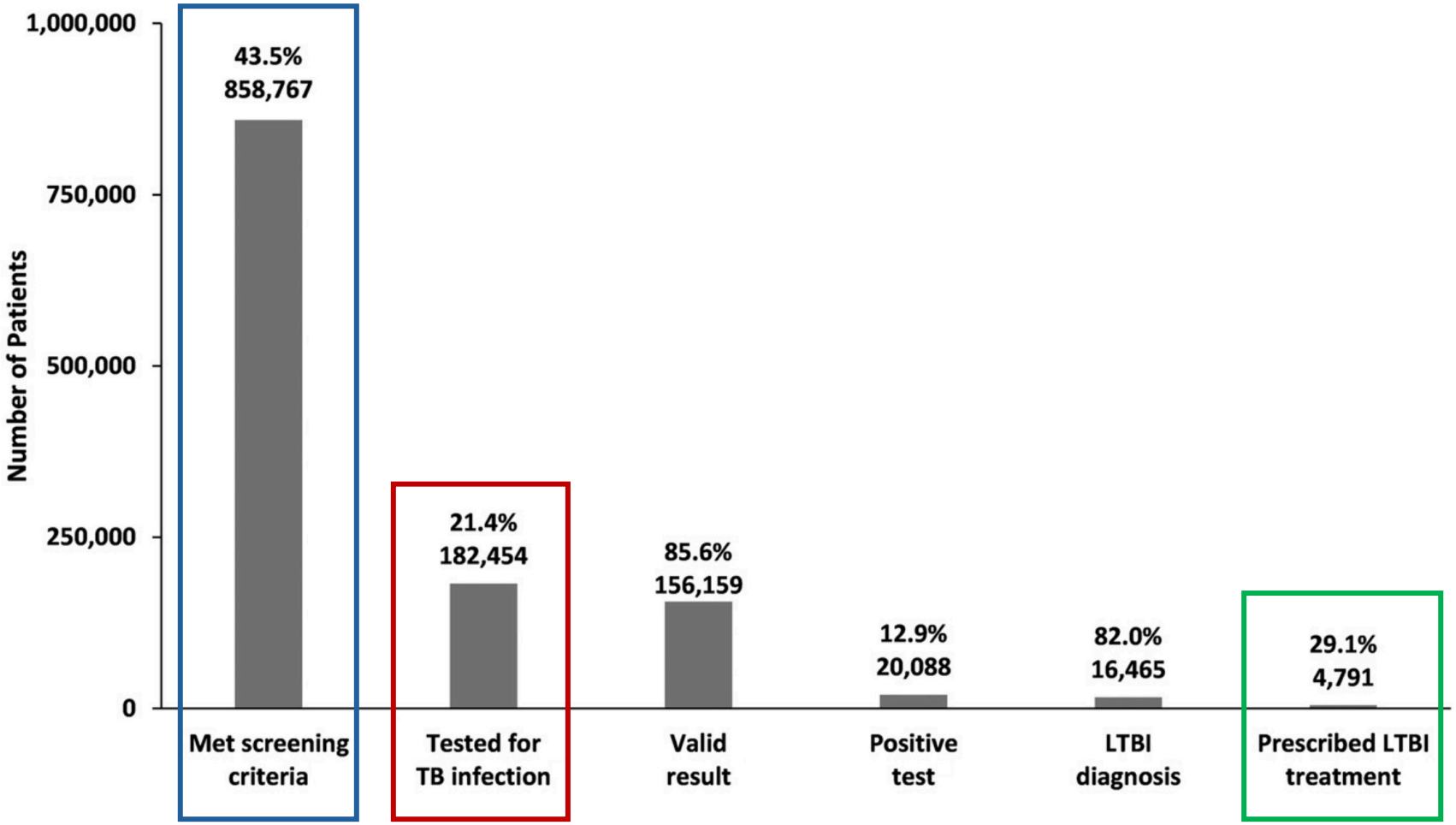
- 76% of TB disease diagnosed among non-U.S. born[1]

(1) CDC, Provisional 2024 Tuberculosis Data, United States.
(2) Furlow, B. Lancet Respir Med, 2025, 13(4):E23.
(3) Campa, AJ. Los Angeles Times, May 2, 2024.
(4) Williams et al. Tuberculosis – United States, 2023, MMWR, 2024.

Outline

1) Why is this important?
2) What are the gaps?
3) What is California Assembly Bill 2132?
4) What can we do?

What are the gaps in TB prevention?



Key gaps:

1) Risk factor screening
   - Birth, residence or travel in high TB incidence place
   - Immunosuppression
   - Close contacts
   - Congregate settings

2) Testing for TB infection

3) Treatment initiation

Reference: Vonnahme et al. AJPM Focus, 2023, 2(4):100148 - OCHIN Clinical Network 2012-2019

Outline

1) Why is this important?
2) What are the gaps?
3) What is California Assembly Bill 2132?
4) What can we do?

What is California Assembly Bill 2132?

CTCA
CALIFORNIA TUBERCULOSIS CONTROLLERS ASSOCIATION

- **Sponsor:** California Tuberculosis Controllers Association (CTCA)
- **Timeline:** signed into law on 9/29/24; effective 1/1/25
- **Law:**
  - "Requires" adult patients receiving primary care services to be offered TB risk factor screening and testing if covered by health insurance
  - If a test is positive, provider should also offer appropriate follow-up
  - NO disciplinary or legal consequences
- **Motivation:** nudge providers to screen, test and treat LTBI

Outline

1) Why is this important?
2) What are the gaps?
3) What is California Assembly Bill 2132?
4) What can we do?

Spaced learning!

Screen	Screen for risk of TB infection or progression to TB disease (*non-U.S.-born, immunosuppression, close contact, history of homelessness or incarceration)

Preventing tuberculosis in primary care

California Adult Tuberculosis Risk Assessment (>18 years old)

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** for at least 1 month, or frequent border crossing in a country with an elevated TB rate*
  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/day for ≥1 month) or other immunosuppressive medication
- ☐ **Close contact** to someone with infectious TB disease during lifetime
- ☐ **Homelessness or incarceration,** current or past
  Persons experiencing homelessness or residing in high-risk congregate settings including homeless shelter or correctional facility during lifetime

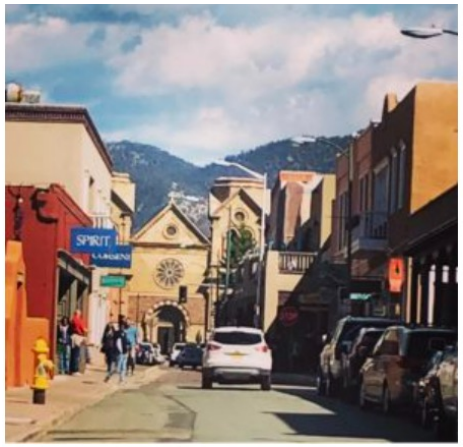
Treat for LTBI if LTBI test result is positive and active TB disease is excluded.

(1) Advisory Council for the Elimination of TB (ACET), 2021.
(2) USPSTF. JAMA, 2023 May 2;329(17):1487-94
(3) California Department of Public Health. TB risk assessment, 2024.

Spaced learning!

Screen	Screen for risk of TB infection or progression to TB disease (*non-U.S.-born, immunosuppression, close contact, history of homelessness or incarceration)
Test	Test using an IGRA, if risk factor(s) present
Treat	Treat with 3- to 4-month rifamycin-based regimens

Your home, your priorities, your practice….



Key populations in your area?
Who gets tested for TB?

Lessons learned

1) Insurance coverage for TB prevention: challenges + tips

2) System-level changes can lead to large improvements

3) Collaboration and additional resources

Lessons learned

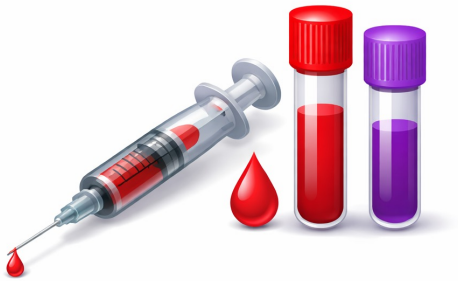
1) **Insurance coverage for TB prevention: challenges + tips**

2) System-level changes can lead to large improvements

3) Collaboration and additional resources

Insurance coverage of LTBI services

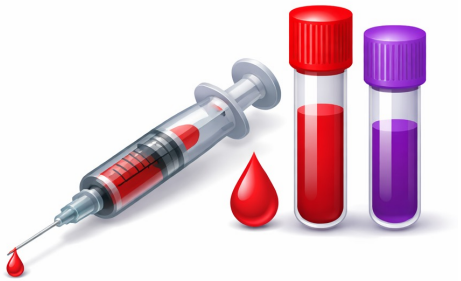
- **LTBI testing with IGRAs:**
  - Private insurance: yes*
  - Medi-Cal: yes*
  - Medicare: variable coverage



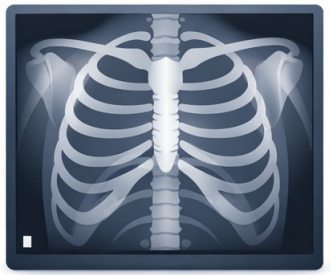
Ref: https://www.cdc.gov/high-quality-care/hcp/resources/tuberculosis-preventive-service-coverage.html

Insurance coverage of LTBI services

- **LTBI testing with IGRAs:**
  - Private insurance: yes*
  - Medi-Cal: yes*
  - Medicare: variable coverage



- **Medical evaluation:** generally covered
  - Chest imaging
  - Sputum testing

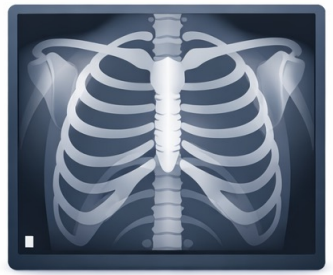


Ref: https://www.cdc.gov/high-quality-care/hcp/resources/tuberculosis-preventive-service-coverage.html

Insurance coverage of LTBI services

- **LTBI testing with IGRAs:**
  - Private insurance: yes*
  - Medi-Cal: yes*
  - Medicare: variable coverage

- **Medical evaluation:** generally covered
  - Chest imaging
  - Sputum testing



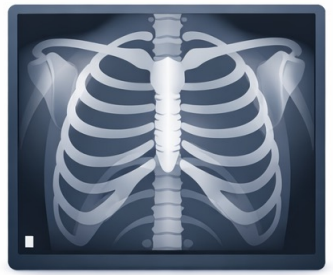
- **LTBI treatment:** generally covered
  - Rifampin (4R)
  - Isoniazid (6H, 9H, 3HR)
  - Isoniazid/rifapentine (3HP)

Ref: https://www.cdc.gov/high-quality-care/hcp/resources/tuberculosis-preventive-service-coverage.html

Insurance coverage of LTBI services

- **LTBI testing with IGRAs:**
  - Private insurance: yes*
  - Medi-Cal: yes*
  - **Medicare: variable coverage**

- **Medical evaluation:** generally covered
  - Chest imaging
  - Sputum testing



- **LTBI treatment:** generally covered
  - Rifampin (4R)
  - Isoniazid (6H, 9H, 3HR)
  - Isoniazid/rifapentine (3HP)

Ref: https://www.cdc.gov/high-quality-care/hcp/resources/tuberculosis-preventive-service-coverage.html

Medicare coverage of IGRA tests

- **Coverage decisions for Medicare:**
  - (1) National coverage determination (NCD): currently waitlisted
  - (2) Local coverage determination (LCD): not possible (screening test)
  - (3) Case-by-case basis → “reasonable and necessary” standard

Medicare coverage of IGRA tests

- **Coverage decisions for Medicare:**
  - (1) National coverage determination (NCD): currently waitlisted
  - (2) Local coverage determination (LCD): not possible (screening test)
  - (3) Case-by-case basis → "reasonable and necessary" standard

- **Reasons an IGRA would be covered:**
  - "Diagnosis of TB disease" or high risk for TB disease
    - Prior positive TST
    - Close contact
    - Symptoms concerning for possible TB disease
    - Immunosuppression
    - Chest imaging with findings concerning for TB disease or prior infection
    - Possibly other medical risk factors: diabetes, ESRD, autoimmune disease, cancer
  - <u>Document as much as possible</u>

Medicare coverage of IGRA tests

- **Coverage decisions for Medicare:**
  - (1) National coverage determination (NCD): currently waitlisted
  - (2) Local coverage determination (LCD): not possible (screening test)
  - (3) Case-by-case basis → "reasonable and necessary" standard

- **Reasons an IGRA would be covered:**
  - "Diagnosis of TB disease" or high risk for TB disease
    - Prior positive TST
    - Close contact
    - Symptoms concerning for possible TB disease
    - Immunosuppression
    - Chest imaging with findings concerning for TB disease or prior infection
    - Possibly other medical risk factors: diabetes, ESRD, autoimmune disease, cancer
  - Document as much as possible
  - **Not covered: screening test, no risk factors (e.g. non-U.S. birth only)**

Lessons learned

1) Insurance coverage for TB prevention: challenges + tips

2) System-level changes can lead to large improvements

3) Collaboration and additional resources

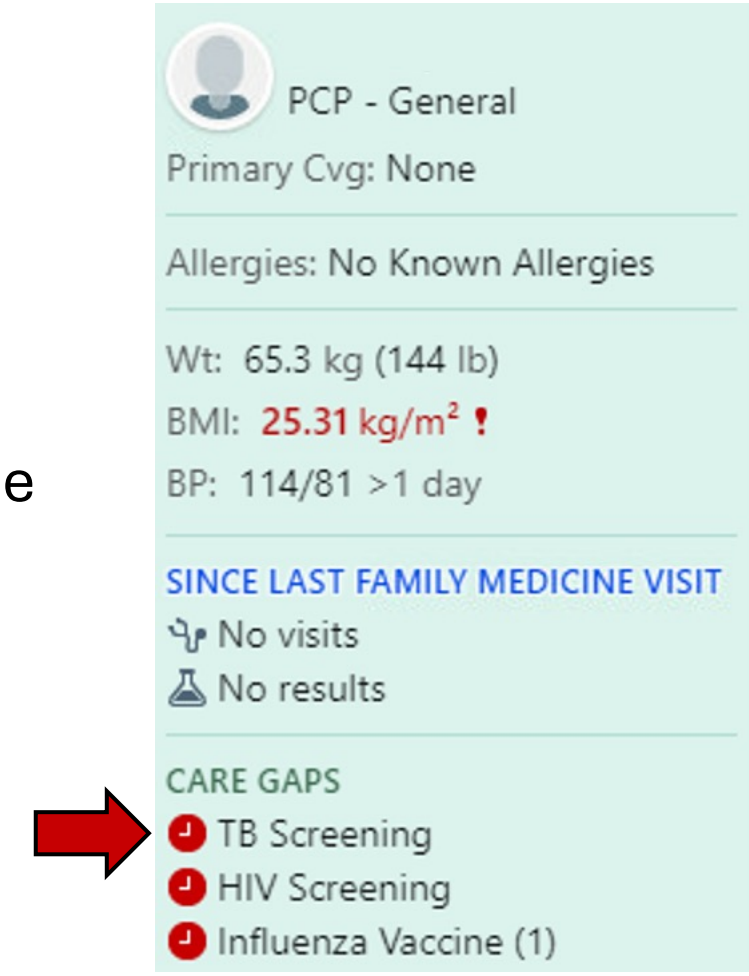
Care gap for TB infection testing

Care gap appears on patient's Storyboard IF:

1) Place of birth in high-risk TB region AND

2) No prior TB infection test (IGRA/TST) AND

3) No prior ICD-code for TB infection or TB disease



Care gap for TB infection testing

Care gap appears on patient's Storyboard IF:

1) Place of birth in high-risk TB region AND

2) No prior TB infection test (IGRA/TST) AND

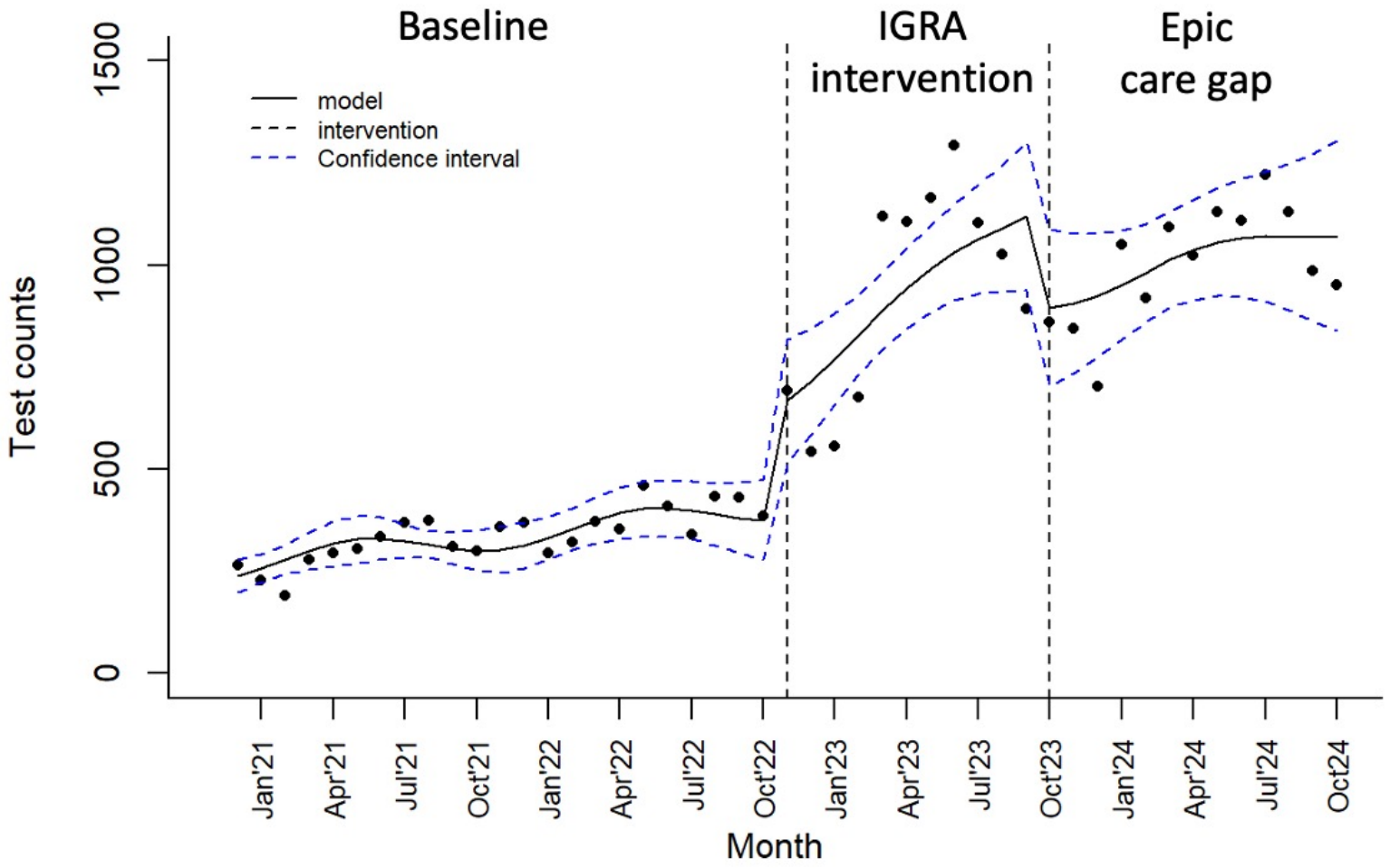
3) No prior ICD-code for TB infection or TB disease

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** for at least 1 month, or frequent border crossing in a country with an elevated TB rate*
  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/day for ≥1 month) or other immunosuppressive medication
- ☐ **Close contact** to someone with infectious TB disease during lifetime
- ☐ **Homelessness or incarceration,** current or past
  Persons experiencing homelessness or residing in high-risk congregate settings including homeless shelter or correctional facility during lifetime

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

Effectiveness of care gap for TB infection testing



Key points:

- Interventions
  - Community health worker (CHW) letter and phone outreach (Nov 2022 to Oct 2023)
  - Epic EHR tools (Oct 2023 to present)
- Effectiveness:
  - Increase from 19% to 59% of eligible persons tested for TB infection from baseline to intervention period
  - No difference in effectiveness comparing care gap to resource-intensive CHW outreach

Lessons learned

1) Insurance coverage for TB prevention: challenges + tips

2) System-level changes can lead to large improvements

3) **Collaboration and additional resources**

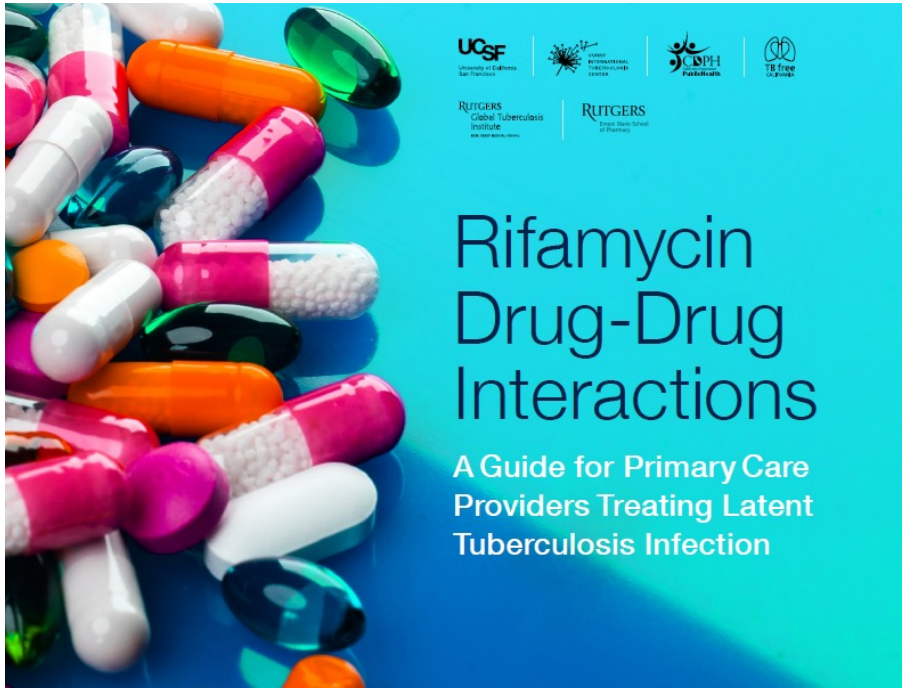
Collaboration

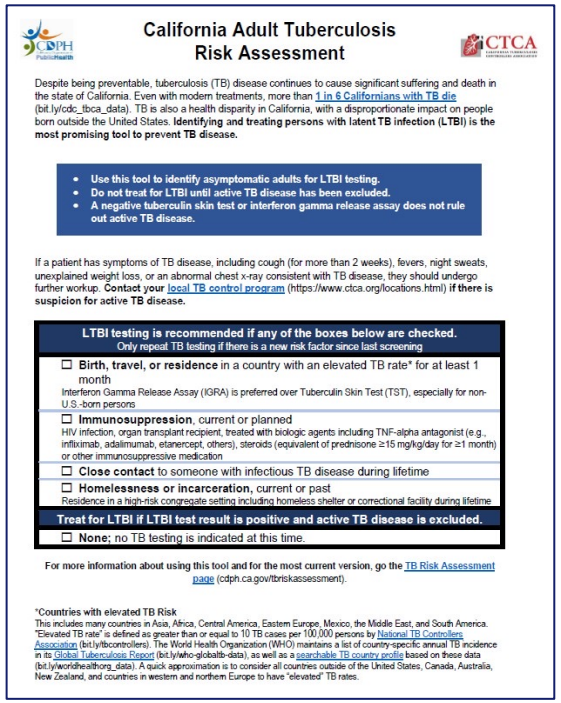
Health system	Public health	Quality improvement

• Map care pathways:
  • Person with LTBI
  • Person with TB disease
• Understand roles of different providers and staff in these pathways
• Identify a TB champion
	• Identify local TB clinic and public health providers
	• Understand workflows, reasons to refer to TB clinic, handoffs of care
		• Identify key populations in your area and understand gaps in care
		• Don’t recreate the wheel!
		• TB Community of Practice (SF Bay Area)
		• E-mails:
		TBFreeCATraining@cdph.ca.gov
		matthew.murrill@ucsf.edu

Additional resources

- **Who to test**
  - Adult Risk Assessment
  - Pediatric Risk Assessment
- **How to test and treat**
  - Prevent TB in 4-steps
  - Rifamycin Drug-Drug Interaction Guide
- **Why to test and treat**
  - Cost and Consequences of TB in California
  - AB2132 Resources





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.

Reference: https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/TB_Provider_Resources.aspx

Outline

1) Why is this important?

2) What are the gaps?

3) What is California Assembly Bill 2132?

4) What can we do?