

2023 Tuberculosis Learning Collaborative Publication

**"Quality Improvement Strategies for LTBI
Prevention and Care in A/AA and NH/PI-Serving
Health Centers: National Clinical Quality
Measure Development" Learning Collaborative**



**Thursday, April 6
Thursday, April 13
Thursday, April 20
Thursday, April 27**

**9-10:30am HT
12-1:30pm PT
3-4:30pm ET**

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About AAPCHO

The Association of Asian Pacific Community Health Organizations (AAPCHO) is a national association of community health organizations dedicated to promoting advocacy, collaboration, and leadership that improves the health status and access of Asian Americans (AAs) and Native Hawaiians/Pacific Islanders (NH/PIs) within the United States, its territories, and freely associated states.

About TEA

The TB Elimination Alliance (TEA), led by the Association of Asian Pacific Community Health Organizations (AAPCHO), Asian & Pacific Islander American Health Forum (APIAHF), Hepatitis B Foundation (HBF), and Stop TB USA, with the support of the Centers for Disease Control and Prevention (CDC), is a national partnership of community leaders dedicated to eliminating TB and LTBI inequities among Asian American and Native Hawaiian/Pacific Islander populations through education, raising awareness, and innovation. For more information on TEA, please visit www.tbeliminationalliance.org.

A/AA and NH/PI Landscape

Tuberculosis (TB) continues to disproportionately affect Asian, Asian American (A/AA), Native Hawaiian, and Pacific Islander (NH/PI) communities compared to other racial and ethnic groups. Notably, non-United States-born Asians and PIs, coming from countries such as the Philippines, India, Vietnam, China, Myanmar, and the Marshall Islands, bear the highest burden of TB ([CDC, 2022](#)). This is a matter of significant concern. Recent immigrants from these countries are at a higher risk of TB, and U.S. citizens or residents who visit their families in these nations may also be at an increased risk of contracting TB.

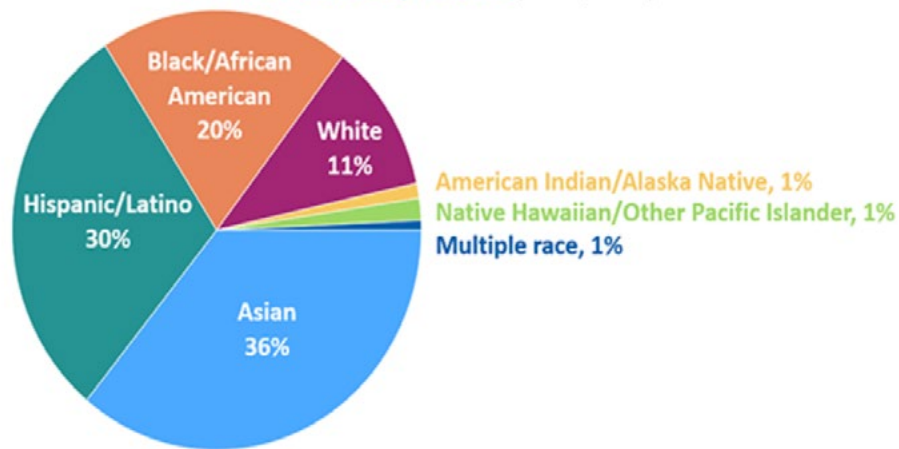
In 2021, more than 7,860 cases of TB were reported in the United States¹ ([Tuberculosis — United States, 2021 | MMWR](#)). NH/PI populations have the highest TB incidence rate of 19.0 cases per 100,000 persons, and Asian populations have the second highest TB incidence rate of 14.4 cases per 100,000 persons. Incidence rates vary widely when A/AA and NH/PI subgroups are disaggregated.

U.S. TB incidence increased during 2022, compared to the previous years in 2020 and 2021. However, TB incidence remained lower than incidence during the pre-pandemic years. After a substantial 20.2% decline in 2020 and partial rebound (9.8% increase) in 2021¹, incidence appears to be returning to pre-pandemic levels among U.S.-born and non-U.S.-born populations.

To address these TB incidence inequalities, the TEA aims to conduct outreach to underserved A/AA and NH/PI communities disproportionately impacted by TB; increase awareness and understanding of culturally and linguistically appropriate latent TB infection (LTBI) and TB screening, testing, and treatment strategies; share resources and best practices among providers; and develop partnerships to scale existing initiatives.

¹ Filardo TD, Feng P, Pratt RH, Price SF, Self JL. Tuberculosis — United States, 2021. *MMWR Morb Mortal Wkly Rep* 2022;71:441–446. DOI: <http://dx.doi.org/10.15585/mmwr.mm7112a1>

**Percentage of TB Cases by Race/Ethnicity*,
United States, 2020 (N=7,142)[†]**



*All races are non-Hispanic; multiple race indicates two or more races reported for a person but does not include persons of Hispanic or Latino origin.
[†]Excludes unknown race/ethnicity

Source: [CDC Division of Tuberculosis Elimination, 2022](#)

Schildknecht KR, Pratt RH, Feng PI, Price SF, Self JL. Tuberculosis — United States, 2022. MMWR Morb Mortal Wkly Rep 2023;72:297–303. DOI: <http://dx.doi.org/10.15585/mmwr.mm7212a1>.

Learning Collaborative Initiative

TB remains a pressing public health concern in the U.S., affecting both those diagnosed with TB disease and the estimated 13 million individuals living with LTBI in 2021. The impact of this disease is disproportionately felt by marginalized populations.

In 2021, 36% of all reported TB cases were among Asian persons, while the reported rate of TB disease among (NH/PI) in 2020 was 40 times higher than the rate of TB disease in non-Hispanic whites. Additionally, the TB incidence rate in 2021 was the highest among 31% of Hispanic or Latinx populations and 18% of Black/African American populations. It is worth noting that of these 13 million individuals living with LTBI, 10% of LTBI cases advance into active TB, underscoring the urgent need for targeted interventions to prevent the development of TB disease.

What are behind the gaps in LTBI/TB prevention? What can health centers and other organizations do to support A/AA and NH/PI patients with LTBI?

To prioritize LTBI and TB disease management, AAPCHO and the TEA organized a third online Learning Collaborative in April 2023 for interdisciplinary healthcare providers and administrators from health centers, community-based organizations, and public health departments to explore quality improvement strategies to gain in-depth knowledge and best practices on how to empower patients at health centers and to engage in peer learning to share challenges and budding practices.

This Learning Collaborative, supported by the Centers for Disease Control & Prevention (CDC) and the Health Resources & Services Administration (HRSA), was modeled after quality improvement initiatives created by TB Free California with the sponsorship of the Curry International TB Center for CME/CEU credits. AAPCHO and the TB Elimination Alliance would like to recognize the following Subject Matter Experts:

- Jonathan Wortham, MD, *Molecular Epidemiology and Outbreak Investigations Team Lead*, CDC
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Learning Collaborative Goals and Lessons Learned

The Learning Collaborative focused on the following goals:

Explain the importance of tuberculosis prevention and its contribution to overall goals of TB elimination;

Describe easy-to-use tools and other resources to engage and encourage patients during LTBI treatment to improve care cascade outcomes;

Identify how to measure the steps in the LTBI care cascade to advocate and reduce preventable losses to improve program performance; and

Identify strategies to overcome barriers to each step in the LTBI care cascade to successfully implement and improve patient diagnosis and treatment

The Learning Collaborative provided educational resources on the following:

- Quality Improvement Tools (Page 10)
 - LTBI Care Cascade
- TB Risk Assessment (Page 12)
 - Understanding TB Risk Factors
- TB Prevention Guidebook (Page 14)
 - Best Practices for TB Prevention
- TB is a Health Disparity (Page 16)
 - Best Practices for TB Testing
- Spectrum of TB Disease (Page 18)
 - LTBI is the Primary Cause of TB Disease
- Case Studies: Screen/Think, Test, Treat TB (Page 20)

The 2023 Learning Collaborative was instrumental in providing healthcare providers and organizations with a comprehensive range of educational resources on TB prevention and care. These resources covered quality improvement tools, the LTBI care cascade, risk assessments, best practices for prevention, and TB's role as a health disparity. The collaborative also explored the spectrum of TB disease, focusing on LTBI as the primary cause of TB, and included practical case studies on TB management.

Quality Improvement Tools

LTBI Care Cascade

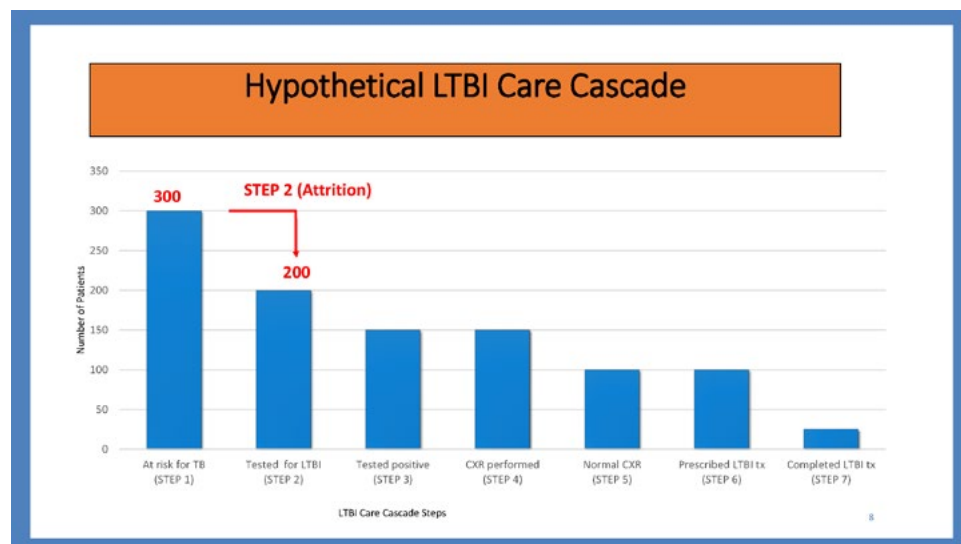
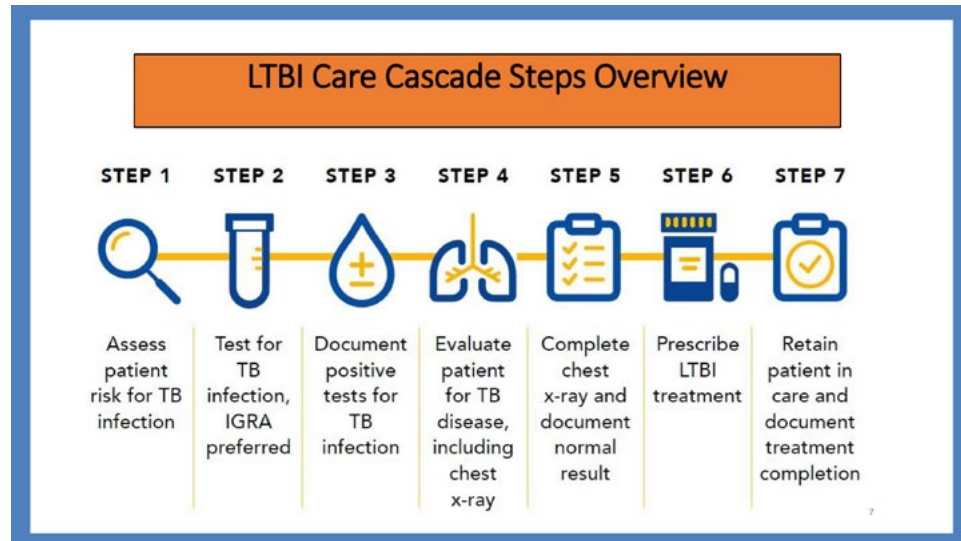


Photo courtesy of TB Free CA, CDPH

In order to provide quality care for persons with LTBI, it is necessary to understand the complex, multi-staged patient journey known as the LTBI cascade of care (Hannah & Dick, 2020). The LTBI cascade

Hannah A, Dick M. "Identifying gaps in the quality of latent tuberculosis infection care." *Journal of Clinical Tuberculosis and Other Mycobacterial Diseases*. 2020 Jan 5;18:100142. doi: 10.1016/j.jctube.2020.100142. PMID: 31956699; PMCID: PMC6957813

of care essentially outlines a comprehensive process that comprises seven distinct steps from the initial TB screening to the ultimate goal of providing effective treatment for LTBI. This comprehensive approach recognizes the importance of a holistic view of the patient's journey, offering insights into opportunities for improved diagnosis, engagement, and treatment outcomes within the context of TB prevention and control.

TB Risk Assessment

Understanding TB Risk Factors

When it comes to LTBI testing and treatment for diverse populations, a tailored approach is essential. In congregate settings or among the homeless, as well as in pregnant individuals and children under the age of five, the need for testing and treatment should be carefully considered. For older adults, there is no specific upper age limit for LTBI screening and treatment. However, it is vital to take their overall health and the potential risks and benefits into account, as is the case with any screening for older individuals.

The key in all scenarios is to use risk-based testing and promptly rule out TB disease. For those at a high risk of LTBI progression, prioritizing treatment is advisable. In the case of pregnant individuals, it is important to rule out TB disease immediately. If there is a high risk of progression, treatment should be initiated promptly; otherwise, it may be appropriate to delay LTBI treatment until approximately three months postpartum.

TB Risk Factors



Exposure	Progression
• Non-U.S.-born*	• HIV/AIDS
• Known contact to infectious case (highest risk within 2 years)	• Transplant
• Homeless	• TNF-alpha inhibitors
• Corrections	• Steroids
• IV drug abuse	• Cancer (head/neck, leukemia/lymphoma)
• Long term care facilities	• ESRD on dialysis
• Healthcare workers	• Recent infection
	• Silicosis
	• Diabetes mellitus
	• Underweight, malabsorption
	• Smoking
*From a country with elevated TB rate	• Children age < 5

Photo courtesy of TB Free CA, CDPH

The assessment of TB risk factors is a crucial step in the TB risk assessment tool. This tool is designed to target individuals with identifiable “TB risk factors”, which may encompass both a risk of exposure to TB and a risk of progression from LTBI to active TB disease.

Applying this tool to populations with low TB prevalence may yield a significant number of false-positive results. Once a person tests positive for LTBI, they should generally be considered for treatment, but only after active TB disease has been conclusively ruled out. To use this tool effectively, it should be employed to identify asymptomatic adults for LTBI testing, with no need for repeated testing unless new risk factors have emerged since the last assessment.

In cases where patients exhibit TB symptoms or have an abnormal chest X-ray consistent with active TB disease, a comprehensive evaluation for active TB disease is necessary, which may involve a chest X-ray, symptom screening, and, if indicated, sputum Acid-Fast Bacilli (AFB) smears, cultures, and nucleic acid amplification testing. It is important to underline that a negative result from a tuberculin skin test or interferon gamma release assay does not definitively rule out the presence of active TB disease.



California Tuberculosis Risk Assessment



LTBI testing is recommended if any of the boxes below are checked.	
<input type="checkbox"/>	Birth, travel, or residence in a country with an elevated TB rate for at least 1 month <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 (see the California Adult Tuberculosis Risk Assessment User Guide for this list). Interferon Gamma Release Assay is preferred over Tuberculin Skin Test for non-U.S.-born persons ≥2 years old
<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"/>	Close contact to someone with infectious TB disease during lifetime
Treat for LTBI if LTBI test result is positive and active TB disease is ruled out.	

<https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/TBCB-CA-TB-Risk-Assessment-and-Fact-Sheet.pdf>

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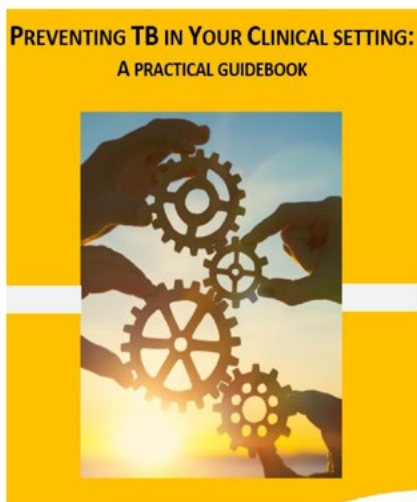
Photo courtesy of TB Free CA, CDPH

TB Prevention Guidebook

Best Practices for TB Prevention

To achieve effective TB prevention, a standardized approach emphasizes consistency and efficacy. The “Preventing Tuberculosis in Your Clinical Setting” practical guidebook is a valuable resource, offering clear instructions, best practices, and standards for LTBI measurement and monitoring. It equips clinic staff to identify at-risk individuals, conduct Interferon Gamma Release Assays (IGRAs), and administer rifamycin-based regimens. Adherence to these guidelines enhances the overall impact of TB prevention efforts in communities.

Need for standardizing the Approach: Enter the “TB Prevention Guidebook”



Goals

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

Intended audience

- Clinic staff interested in improving LTBI care

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Photo courtesy of TB Free CA, CDPH

Best practices for TB prevention

Screen	Screen to identify patients experiencing risk
Test	Test using an IGRA
Treat	Treat with short-course, rifamycin-based regimens

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Photo courtesy of TB Free CA, CDPH

TB Health Disparity

Best Practices for TB Testing

Testing patients for TB risk factors, which encompass both the risk of exposure and progression to active TB, is considered a best practice. Acknowledging that testing in populations with low TB prevalence can produce many false-positive results, the emphasis remains on ensuring that individuals testing positive for LTBI should be considered for treatment. This consideration, however, should only occur after a comprehensive rule-out of active TB disease. This approach aligns with a prudent and calculated strategy to prevent the progression of TB and enhance overall public health to address TB as a health disparity.

TB is a health disparity in California



In 2022 in California:

- **Nearly half (49%)** of all TB cases occurred in Asians
- The rates of TB in **Asians born outside the U.S. were 70x higher** than those of U.S.-born whites
- For TB cases in persons born outside the U.S., half of TB cases occurred **≥ 20 years after arrival** to the U.S.

Tuberculosis Control Branch, California Department of Public Health, March 2023

Photo courtesy of TB Free CA, CDPH

Who to test for TB infection



Test patients who have “TB risk factors”

– Risk of exposure and/or risk of progression

Testing populations with low prevalence will result in many false-positive results

Most persons with a positive test for LTBI should be treated, after TB disease ruled out

1. CDC, MMWR, 2000, 2. Miramontes, PLOS One, 2015

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Photo courtesy of TB Free CA, CDPH

Spectrum of TB Disease

LTBI is the Primary Cause of TB Disease

There exists a spectrum in the context of TB disease, with LTBI as the primary precursor to active TB disease - a notable concern in the U.S., where 80% of LTBI cases advance to active disease ([Tuberculosis — United States, 2022 | MMWR](#)) and California, where 86% of LTBI cases advance to active TB. Active TB disease is characterized by symptoms such as cough and fever, typically accompanied by positive results in tuberculin skin tests (TST) or IGRA. Chest radiographs often reveal abnormalities, and respiratory specimens tend to culture positive, with smear positivity observed in about 50% of patients. In contrast, LTBI presents without TB symptoms, showcasing positive TST or IGRA results, normal chest radiographs and, importantly, it is not infectious. This distinction between active and LTBI highlights the critical importance of early detection and intervention to prevent the progression of TB to its active and potentially contagious form.

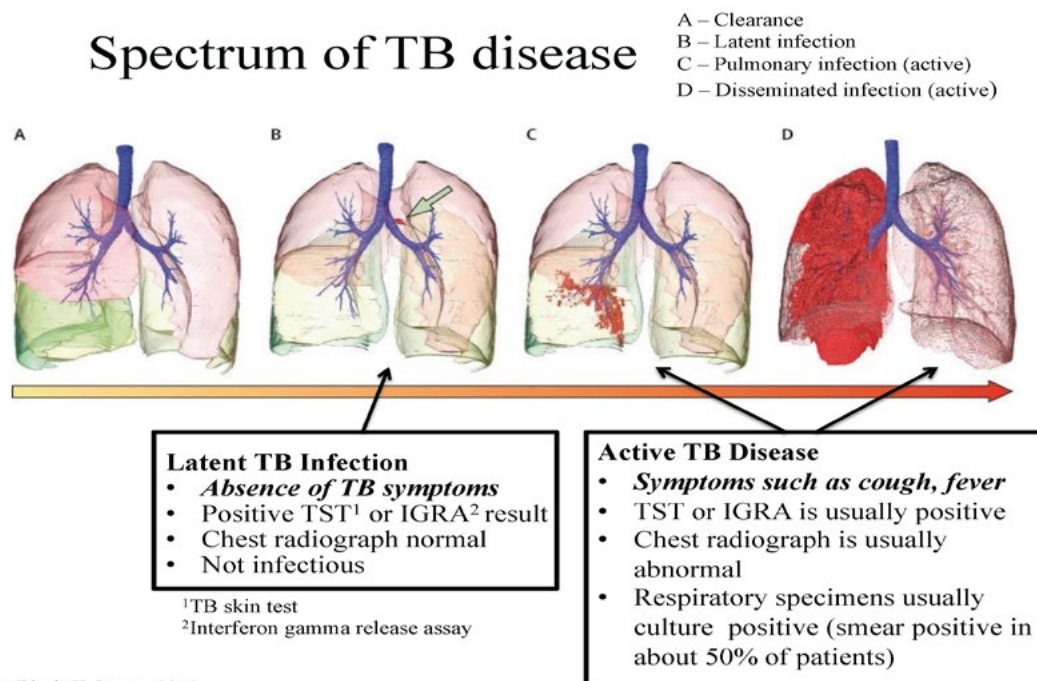
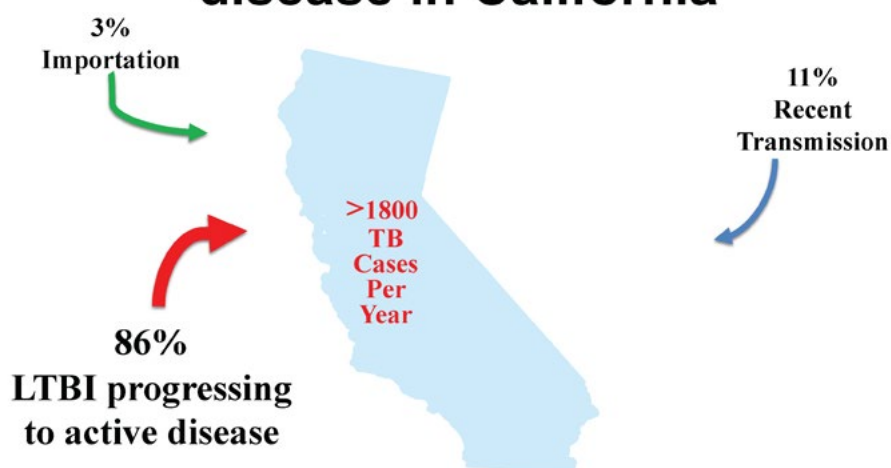


Image: Dheda K. Lancet, 2016

Photo courtesy of TB Free CA, CDPH

LTBI is the primary cause of TB disease in California



Tuberculosis Control Branch. California Department of Public Health, Feb 2022.

Photo courtesy of TB Free CA, CDPH

Schildknecht KR, Pratt RH, Feng PI, Price SF, Self JL. Tuberculosis — United States, 2022. MMWR Morb Mortal Wkly Rep 2023;72:297–303. DOI: <http://dx.doi.org/10.15585/mmwr.mm7212a1>

Case Studies: Screen/Think, Test, Treat TB

The Learning Collaborative represented a significant and collaborative effort that involved a diverse cohort of healthcare providers and administrators who hailed from a range of healthcare settings, including health centers, community-based organizations, and public health departments. This collective endeavor was designed to delve into the world of quality improvement (QI) strategies that were specifically tailored to enhance the care provided to patients with LTBI. The case studies presented within this collaborative effort offered valuable insights and real-world examples that shed light on the practical application of QI methodologies.

By examining these cases, the collaborative participants aimed to gain a deeper understanding of how to effectively address the complexities and challenges associated with LTBI care, ultimately striving to raise the bar in providing optimal care to individuals at risk of LTBI and, subsequently, to enhance public health outcomes. These case studies served as illuminating and instructive tools in the ongoing quest to improve the quality of LTBI care within the healthcare system.

Case 1

53 M, with positive IGRA. Born in China, in U.S. since 1980s. IGRA sent by Derm during workup for Erythema nodosum. He has CAD s/p stenting and DM2, but is otherwise healthy with no personal hx of TB or TB contacts.

What do you do?

- Nothing – he's had sufficient evaluation
- Additional workup is needed
- Offer treatment for LTBI
- Encourage treatment for LTBI
- Other

Photo courtesy of TB Free CA, CDPH

Case 3

20 M with ongoing meth use. PMHx includes +HIV testing in 2022; he was lost from care and never received ART. Born in Modesto. One week ago he was a close contact to a TB case; his IGRA testing today is negative. Besides starting ART, what do you do next?

- a) Nothing – evaluation is complete
- b) Retest with IGRA in 8-10 weeks
- c) Evaluate for TB disease, retest with IGRA in 8-10 weeks
- d) Evaluate for TB disease, if no e/o disease start LTBI therapy, retest with IGRA in 8-10 weeks
- e) Something else

Window prophylaxis protects high risk contacts

- IGRA and TST may take 8-10 weeks to become positive after exposure
- “Window prophylaxis” = treating contacts at high risk of progression with LTBI therapy when they are ***IGRA/TST negative***
 - Purpose is to abort early TB infection / progression
 - Need to exclude TB disease first (sx and CXR)
 - Consider window ppx for:
 - immune-compromised (including PLHIV)
 - children <5
 - Follow up: repeat IGRA/TST 8-10 weeks after exposure

Photo courtesy of TB Free CA, CDPH

Recommendations

Health centers, community-based organizations, and public health departments should actively embrace quality improvement strategies aimed at systematically overcoming the obstacles and enhancing the processes for TB screening, diagnosis, and treatment. Utilizing a sustained quality improvement approach to fortify the LTBI care cascade, providers can notably augment their screening, testing, and treatment efforts, offering critical support to vulnerable Asian/Asian American and Native Hawaiian/Pacific Islander communities. Moreover, this proactive approach extends its impact to U.S.-born African Americans and non-U.S.-born Latino Americans, who, alongside the aforementioned communities, also experience a disproportionate burden of LTBI and TB. By prioritizing this comprehensive strategy, healthcare providers can foster more equitable and effective healthcare outcomes across these populations.

In conclusion, while it is imperative to prioritize quality improvement efforts for TB within A/AA and NH/PI communities, it is equally important to extend our reach and recommendations. Beyond these communities, the focus should encompass an even broader spectrum of vulnerable populations, including U.S.-born African Americans and non-U.S.-born Latino Americans who also grapple with a disproportionate burden of LTBI and TB. By embracing and expanding our scope, healthcare providers can usher in a more equitable and effective era of healthcare for all, fostering healthier outcomes and a stronger, more resilient public health system.

For more information about the TB Elimination Alliance and future training opportunities, visit <https://tbeliminationalliance.org/>.

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