

Implementation Science to Improve TB Prevention Among Immigrant Communities in California



a california *health+* center

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Center
for
Tuberculosis



University of California
San Francisco



Learning Objectives

Identify barriers and facilitators to LTBI care in a predominantly non-USB primary care setting

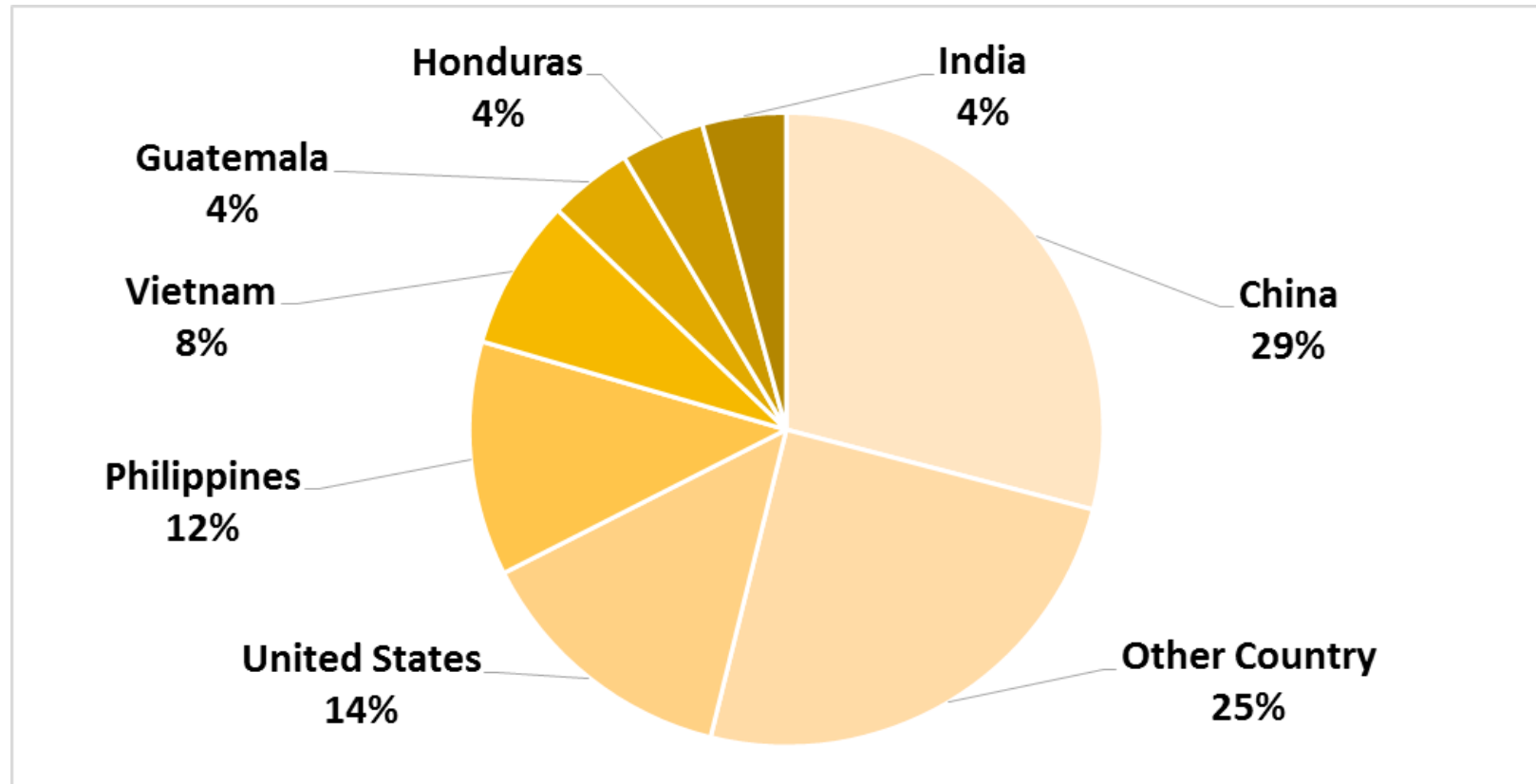
Describe how to use implementation science frameworks to help co-design LTBI care interventions with community health partners

San Francisco Bay Area: A High TB-incidence Region

Jurisdiction	2019 TB incidence per 100,000 population
United States	2.7
California	5.3
San Francisco	11.9
San Mateo	8.5
Santa Clara	8.4
Los Angeles	5.6

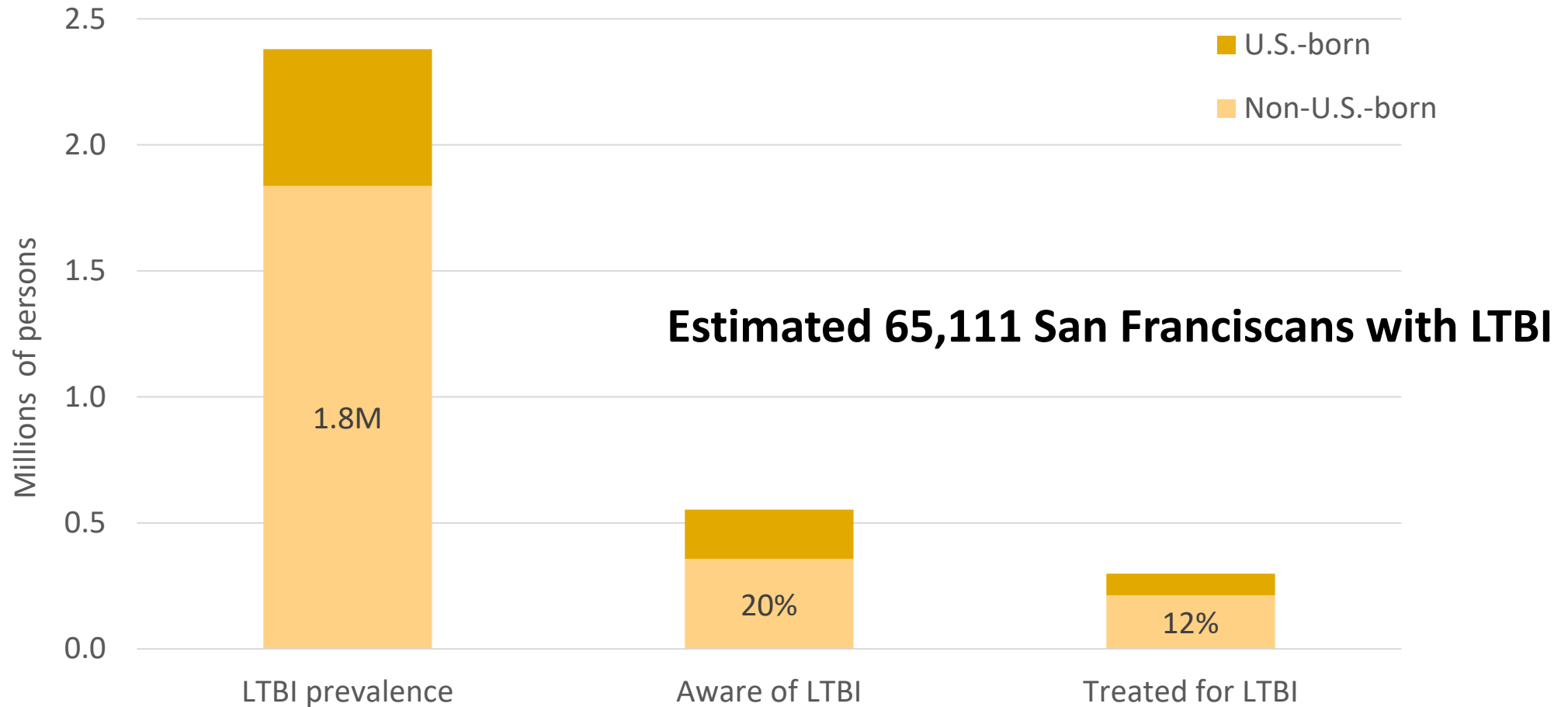
Data source: CDPH TB Control Branch provisional data tables 2019
cdph.ca.gov/Programs/CID/DCDC/Pages/TB-Disease-Data.aspx

86% of San Francisco TB Cases are Born Outside of the U.S. (~50% Born in Asia)



2018 TB Cases by national origin, San Francisco

Untreated LTBI – A Prevention Opportunity!



NHANES 2011-2012 applied to California population
Estimates from 2018 CDPH TB Control Branch Report

North East Medical Services (NEMS)



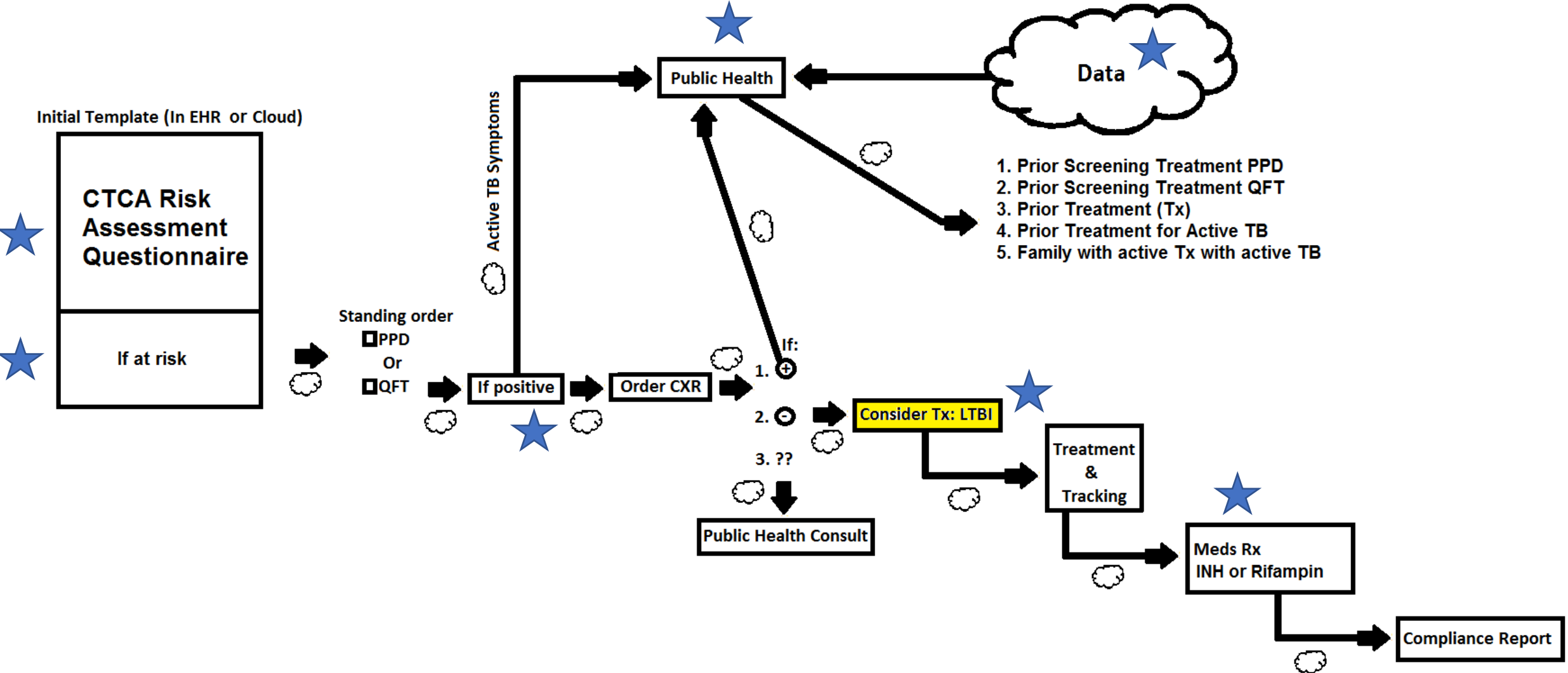
NEMS Background

- Private, non-profit community health center in San Francisco Bay Area
- Serving the medically underserved since 1971
- Federally Qualified Health Center (FQHC) since 1992
- Today, NEMS serves over 67,000 patients annually across 13 clinic locations

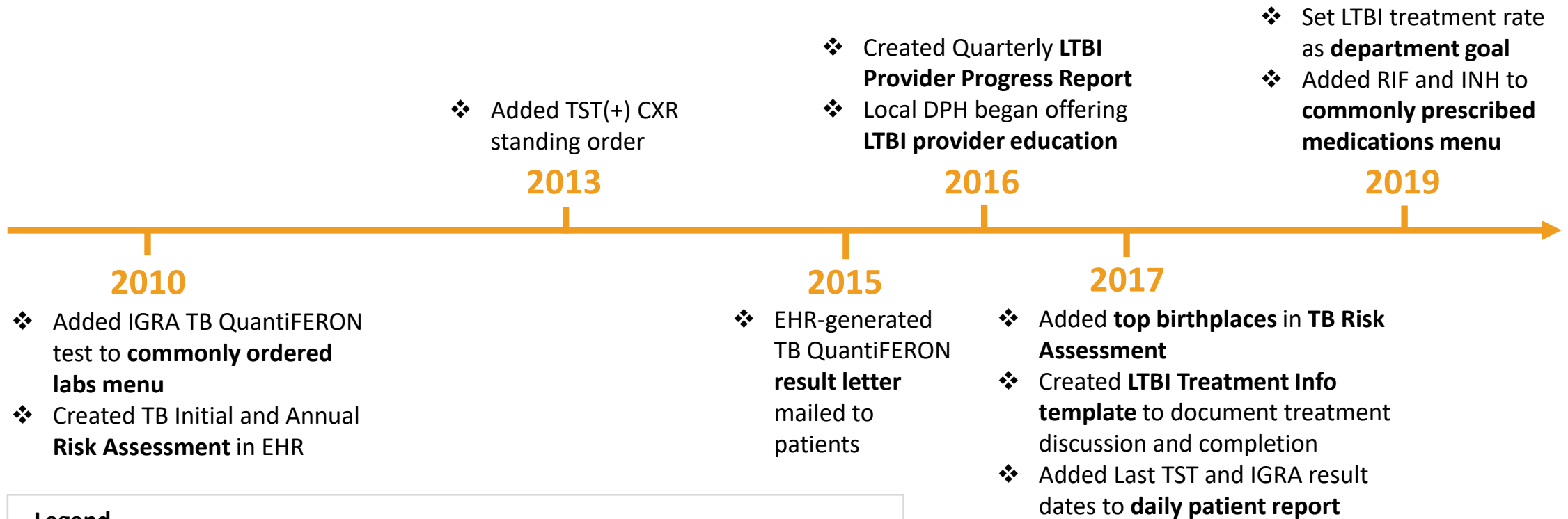
Patient Demographics

- **89%** Asian
- **80%** Better served in a language other than English
- **77%** Medicaid (includes 17% Medicare-Medicaid dual eligible)
- **7.5%** Uninsured
- **24%** 65 years and older

LTBI Care Cascade Workflow: a Complex System



Timeline of NEMS' LTBI Program QI Interventions



Legend

TB : Tuberculosis

LTBI : Latent tuberculosis infection

IGRA : Interferon-gamma release assay

TST : Tuberculin skin test

CXR : Chest x-ray

EHR : Electronic health record

DPH : Department of public health

RIF : Rifampin

INH : Isoniazid

What is the current state of LTBI Care at NEMS?

ORIGINAL PAPER



Can Primary Care Drive Tuberculosis Elimination? Increasing Latent Tuberculosis Infection Testing and Treatment Initiation at a Community Health Center with a Large Non-U.S.-born Population

Amy S. Tang¹  · Tessa Mochizuki² · Zinnia Dong¹ · Jennifer Flood² · Shereen S. Katrak^{2,3}

Accepted: 7 December 2022
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Factors associated with LTBI testing and treatment at NEMS

	Overall N (%)*	Tested for TB N (%)*	Percent Tested for TB among subgroup	Unadjusted Odds ratio (95% CI and p-value)	Positive Result N (%)^	Treatment prescribed N (%)	Unadjusted odds ratio (95% CI)	Adjusted odds ratio** (95% CI)
Total	124695	49767	40%		10018 (20)	4658 (46)		
Gender								
Female	67706 (54)	28511 (57)	42%	REF	<.0001	5248 (18)	2378 (45)	REF
Male	56989 (46)	21256 (43)	37%	0.82 (0.80,0.84)		4770 (22)	2280 (48)	1.11 (1.02,1.20)
Age [median, IQR]	39 [22,56]	30 [12, 51]			<.0001	52 [38,61]	52 [40,61]	
0-5	11523 (9)	8433 (17)	73%	4.94 (4.72,5.16)		82 (1)	42 (51)	1.29 (0.83,2.00)
6-17	12384 (10)	7937 (16)	64%	3.23 (3.10,3.36)		313 (4)	169 (54)	1.44 (1.15,1.82)
18-49	56332 (45)	20060 (40)	36%	REF		4145 (21)	1860 (45)	REF
50-64	30347 (24)	10143 (20)	33%	0.91 (0.88,0.94)		3888 (39)	1916 (49)	1.19 (1.09,1.30)
65-79	11907 (10)	2853 (6)	24%	0.57 (0.54,0.60)		1453 (39)	632 (44)	0.95 (0.84,1.07)
≥80	2202 (2)	341 (1)	15%	0.33 (0.30,0.37)		137 (30)	39 (28)	0.49 (0.34,0.71)
Place of Birth					<.0001			
United States	23495 (19)	8717 (18)	37%	0.85 (0.83,0.88)		165 (2)	71 (43)	0.86 (0.63,1.18)
Outside United States	99766 (80)	40777 (82)	41%	REF		9812 (24)	4579 (47)	REF
Unknown	1434 (1)	273 (1)	19%	0.34 (0.30,0.39)		41 (15)	8 (20)	--
Hepatitis B	5683 (8)	2342 (7)	41%	0.85 (0.80,0.90)	<.0001	879 (38)	359 (41)	0.71 (0.62,0.82)
No hepatitis B						8166 (27)	4028 (49)	REF
Diabetes	11030 (10)	3651 (10)	33%	0.92 (0.88,0.96)	<.0001	1379 (38)	642 (47)	1.02 (0.91,1.14)
No diabetes						8470 (25)	3912 (46)	REF
Current smoker	12247 (15)	4437 (13)	36%	0.82 (0.79,0.86)	<.0001	1716 (39)	884 (52)	1.13 (1.02,1.26)
Not a smoker						7052 (24)	3419 (48)	REF
Insurance status								
Medi-Cal	71256 (57)	35276 (71)	50%	REF	<.0001	6853 (19)	3469 (51)	REF
Private	19916 (16)	6411 (13)	32%	0.48 (0.47,0.50)		1145 (18)	478 (42)	0.70 (0.62,0.79)
Medicare only	1652 (1)	366 (1)	22%	0.29 (0.26,0.33)		128 (35)	67 (52)	1.07 (0.76,1.52)
Other publicly funded	5098 (4)	1417 (3)	28%	0.39 (0.37,0.42)		363 (26)	146 (40)	0.66 (0.53,0.81)
Uninsured	26773 (21)	6297 (13)	24%	0.31 (0.30,0.32)		1529 (24)	498 (33)	0.47 (0.42,0.53)

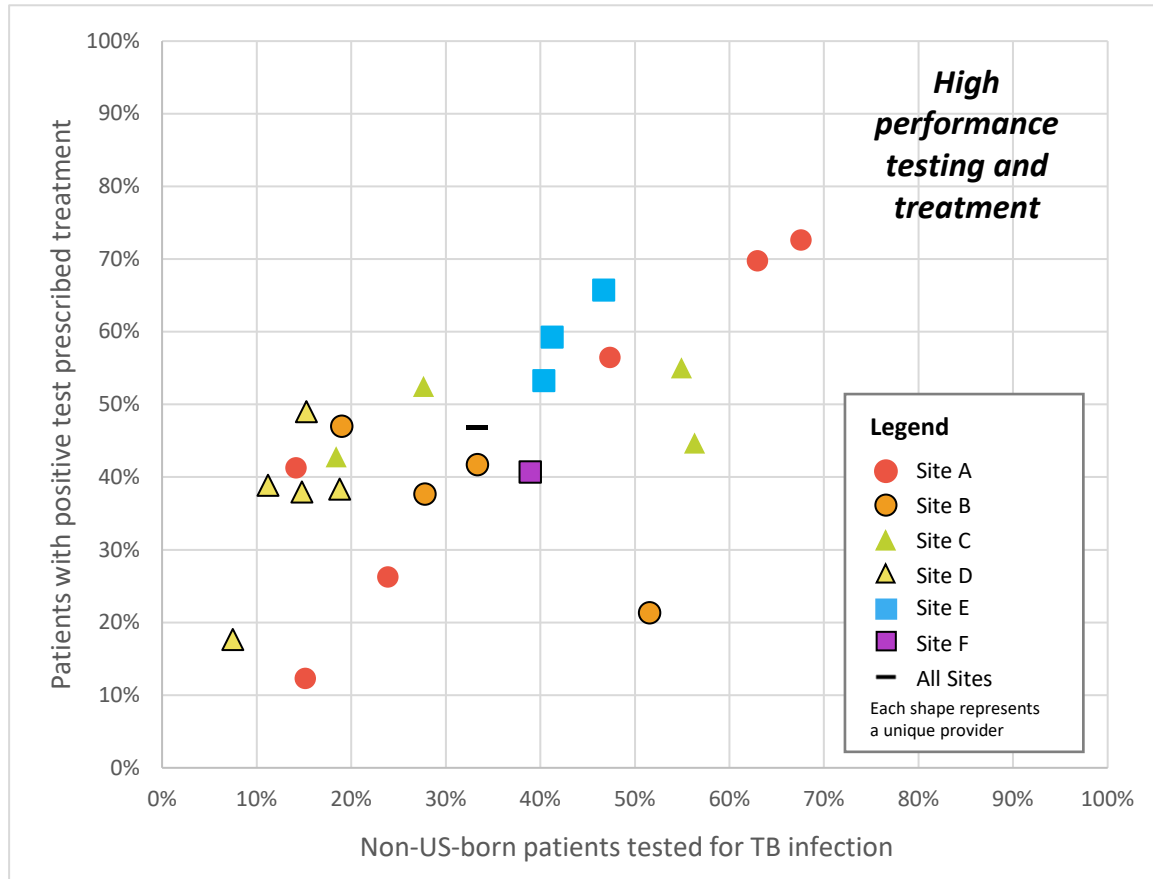
*Percent of total cohort

^Positive is defined as a positive result on first IGRA test performed or the first TST, if IGRA was not performed.

**Logistic regression model included: Gender, Age, Place of Birth, Insurance status, Number of years with a visit (N=9977)

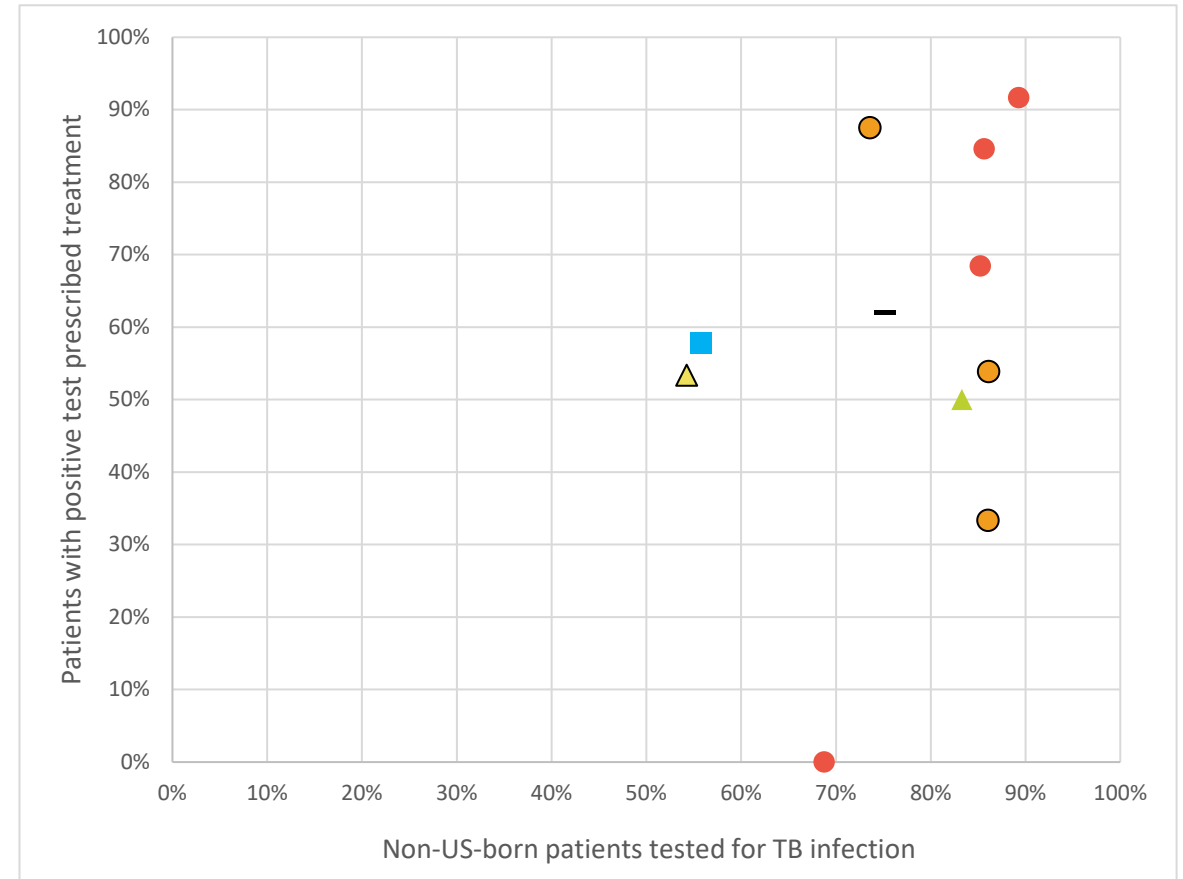
Substantial Heterogeneity in Provision of Testing and Treatment Among Providers

A. Adult Medicine Providers



*Providers included are those that were assigned as the primary care provider for >1800 patients in the cohort at the time of data extraction (N=23).

B. Pediatric Providers



*Providers included are those that were assigned as the primary care provider for >1300 patients in the cohort at the time of data extraction (N=10).

LTBI Counseling and Messaging Best Practices from NEMS Providers

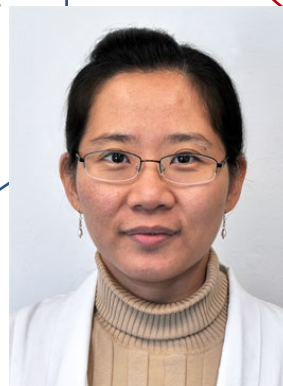
“When I counsel patients, I talk about:

1. Risks of not getting treatment, like developing active TB when it can be transmitted to the family members, especially kids (they worry too much with the grandkids or kids).
2. When can they get active TB, like when they have other serious disease, immunocompromised conditions etc.

...my strategy is scaring the patients with the possible complications without treatment (might not be a good way to practice even though it works).”

Thinn Thinn Khaing, MD
NEMS Stockton Clinic
Internal Medicine

Languages spoken: Burmese and Mandarin



“I explain to them they have been infected by the TB bacteria, which is not currently making them sick. However, the bacteria live within them and can reactivate. By taking a 4-month course of an anti-bacteria medicine (which have relatively low side effects), they can minimize that risk.

I also explain the drug is not only for them but for their elders and children at home who have weaker immune systems”

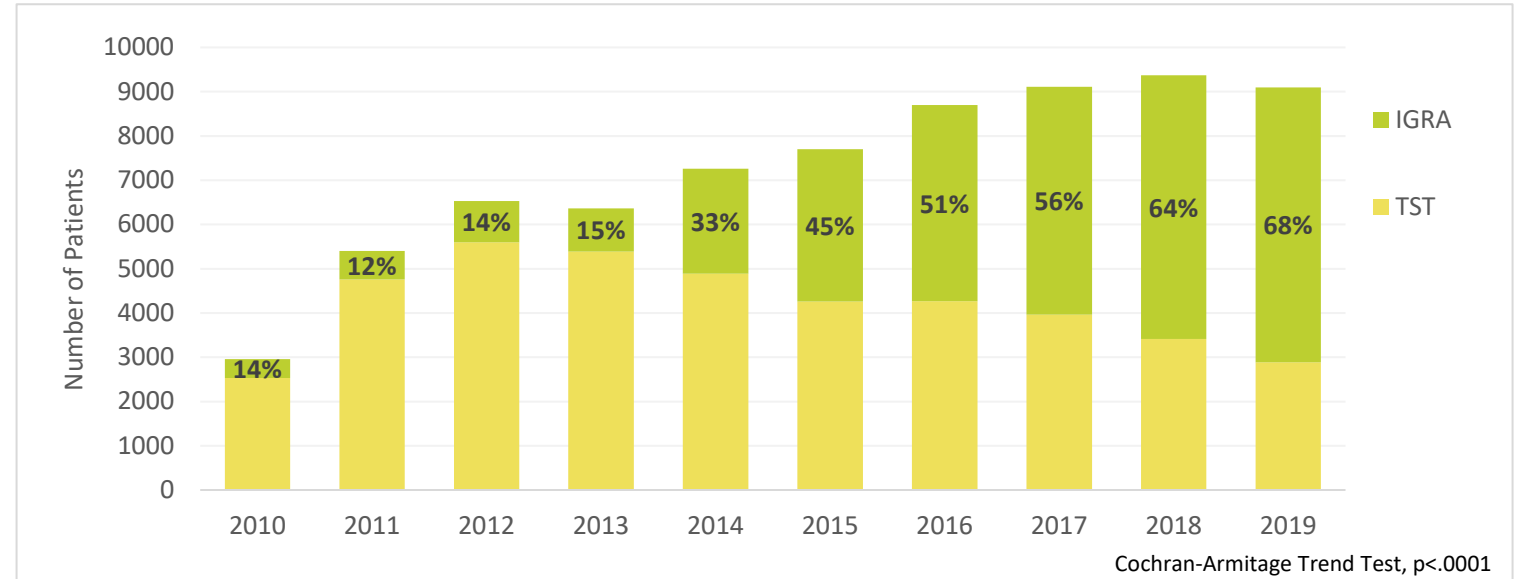
Priscilla Tang, NP
NEMS Stockton Clinic
Family Medicine

Languages spoken: Cantonese and Mandarin

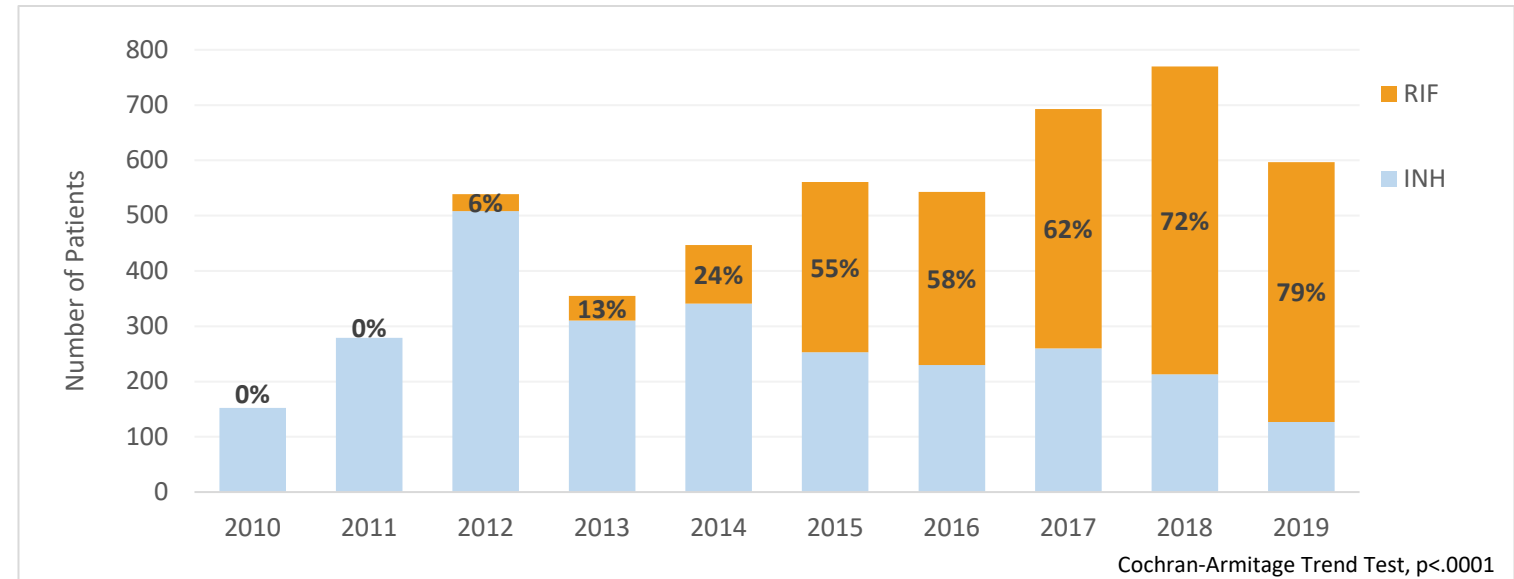


Latent tuberculosis testing and treatment practices over time, 2010-2019

A. Patients with interferon-gamma release assay (IGRA) or tuberculin skin test (TST) performed

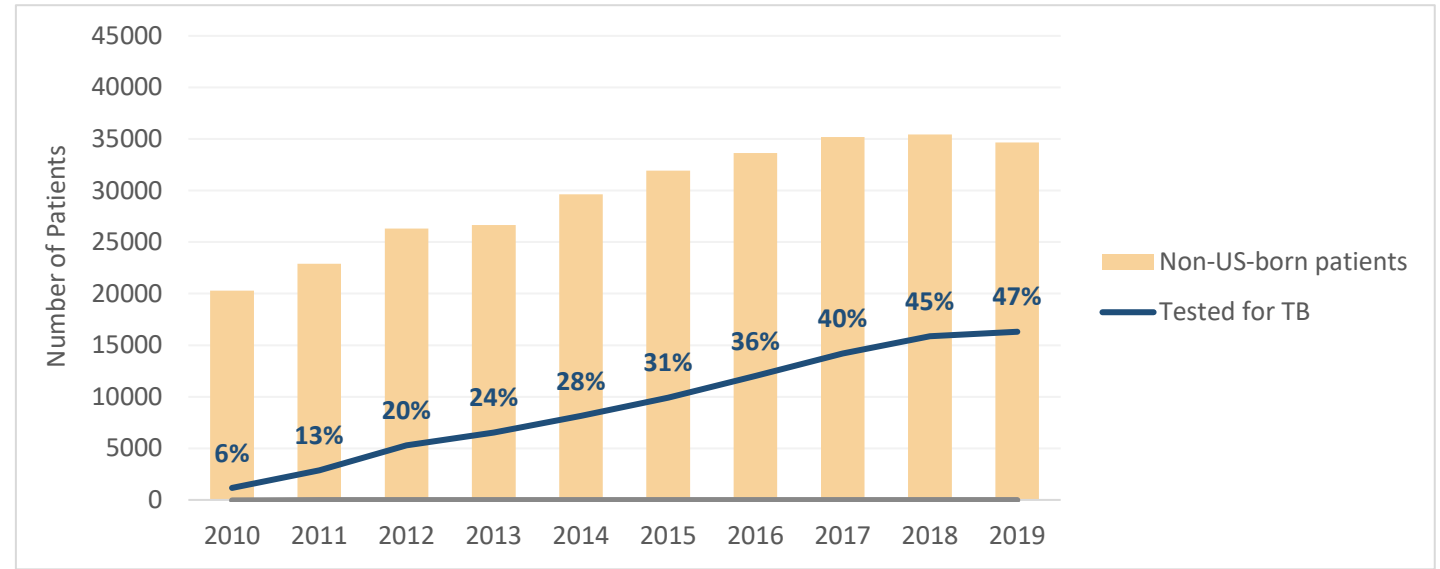


B. Patients with LTBI treatment by prescribed regimen

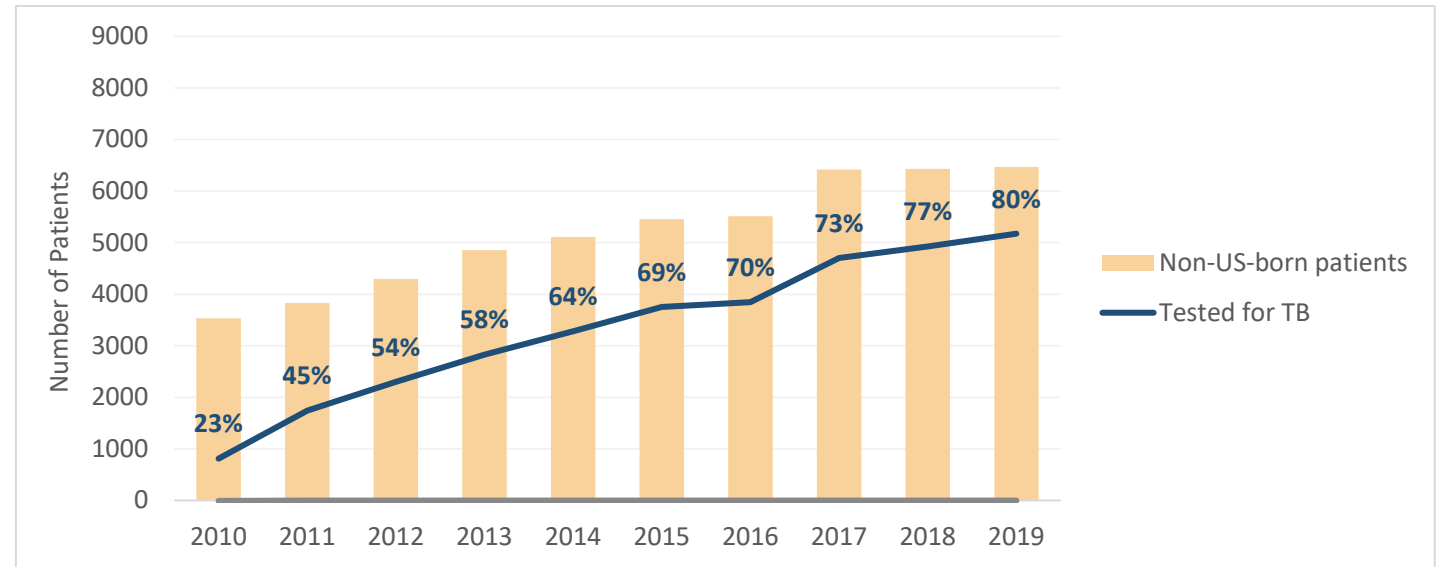


Non-US-born patients with a primary care visit and tested for tuberculosis over time, 2010-2019¹

A. Adult Patients



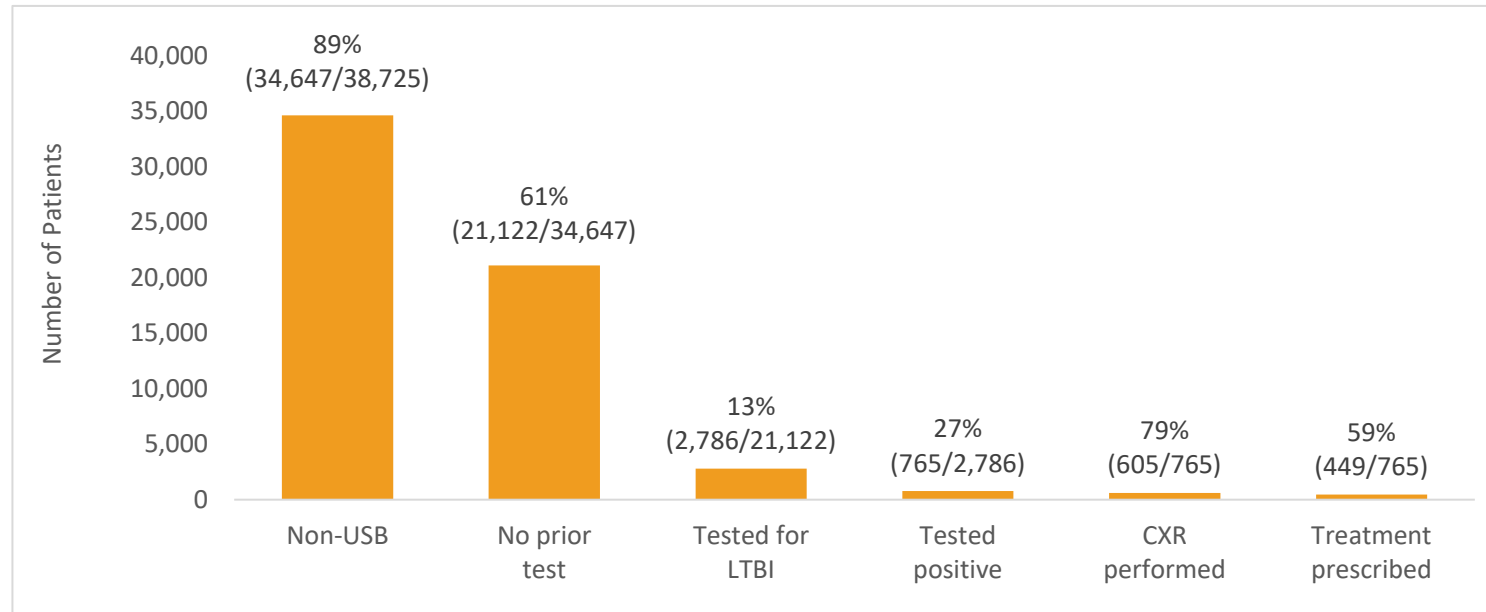
B. Pediatric Patients



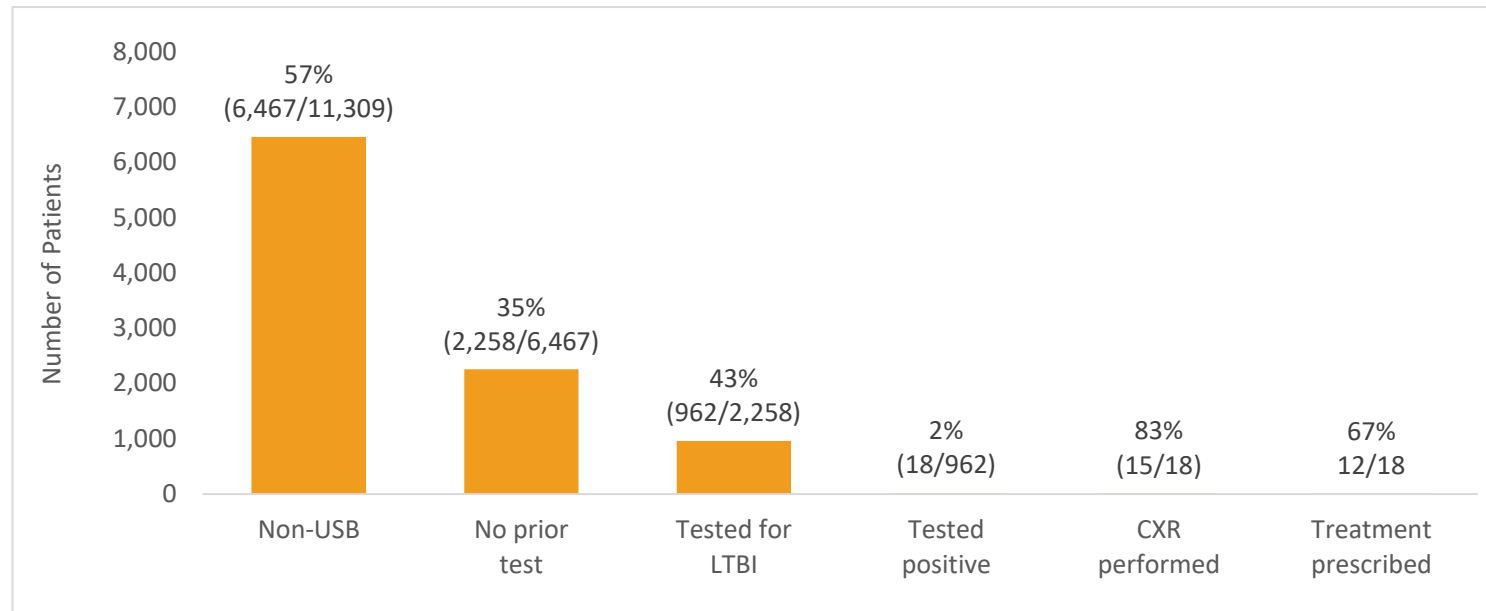
¹Patients with at least one primary care visit during the calendar year, who were tested for TB in that year or prior to that year.

Latent tuberculosis infection cascade of care for adult and pediatric patients seen for primary care visits, 2019

A. Adult Patients



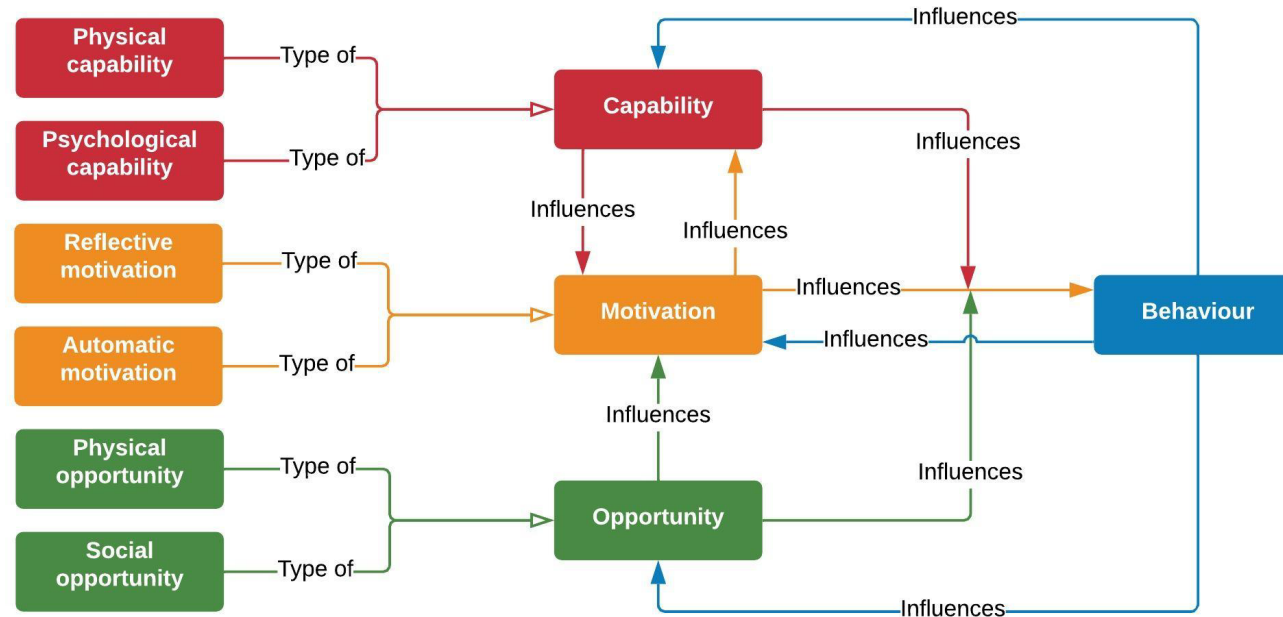
B. Pediatric Patients



Summary of Barriers and Facilitators to LTBI care among non-US born primary care population

Barriers	Facilitators
Competing demands and priorities (providers and patients)	<ul style="list-style-type: none"> • Onsite lab, radiology, and pharmacy • EHR prompts/modifications • Patient activation via TB promotion/education and QFT automated result letter with f/u instructions • Provider progress reports on LTBI testing and treatment
Cost and insurance coverage for testing and treatment	<ul style="list-style-type: none"> • On-site QFT processing to minimize IGRA costs for uninsured and underinsured • 340B pharmacy program for self-pay
Lack of buy-in from providers and patients on the benefits of LTBI treatment (e.g. for older patients with multiple medical conditions and polypharmacy, and for transnational patients with reinfection risk)	Language concordant and culturally sensitive providers to explain risks and benefits of treatment in preferred language and familiarity with patients' circumstances (e.g. congregate housing, risk for TB progression)
Difficulty staying up to date on latest LTBI testing and treatment recommendations (e.g. target populations, preferred testing and treatment regimens)	Annual TB provider education with local DPH

Despite Some Gains, Gaps in LTBI Care Remain



Capability is an attribute of a person that together with opportunity makes a behaviour possible or facilitates it.

Opportunity is an attribute of an environmental system that together with capability makes a behaviour possible or facilitates it.

Motivation is an aggregate of mental processes that energise and direct behaviour

Behaviour is individual human activity that involves co-ordinated contraction of striated muscles controlled by the brain.

Physical capability is capability that involves a person's physique, and musculoskeletal functioning (e.g. balance and dexterity).

Psychological capability is capability that involves a person's mental functioning (e.g. understanding and memory).

Reflective motivation is motivation that involves conscious thought processes (e.g. plans and evaluations).

Automatic motivation is motivation that involves habitual, instinctive, drive-related, and affective processes (e.g. desires and habits).

Physical opportunity is opportunity that involves inanimate parts of the environmental system and time (e.g. financial and material resources).

Social opportunity is opportunity that involves other people and organisations (e.g. culture and social norms).

Designing Targeted Interventions

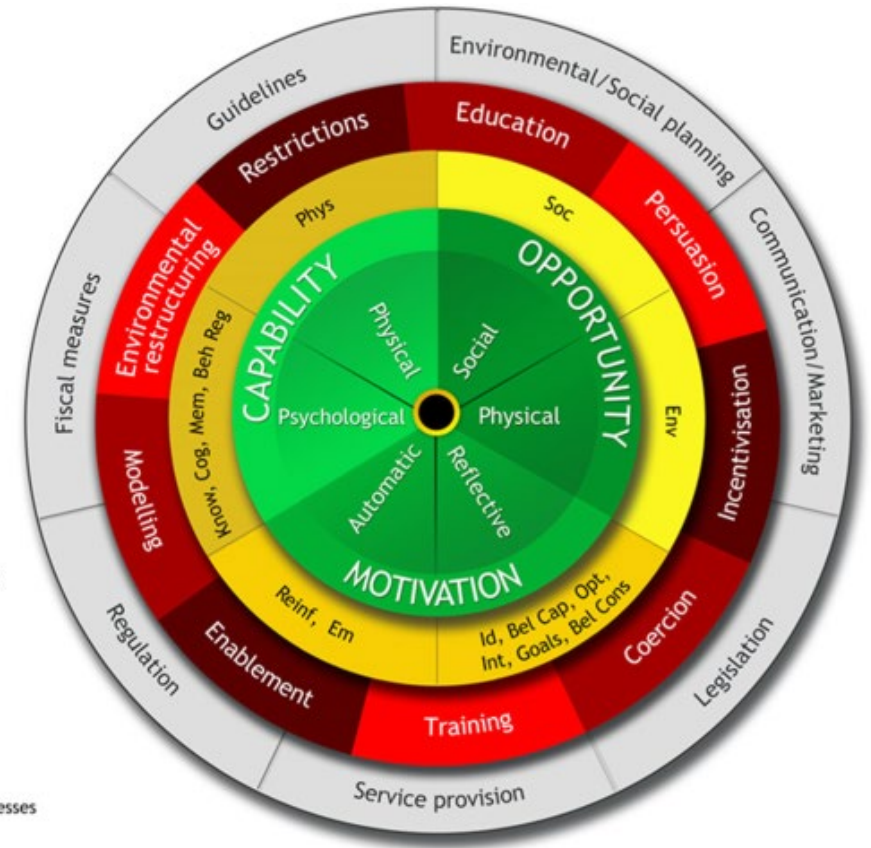
Potential Intervention Components	Level of Intervention			COM-B Domain Addressed
	System	Provider	Patient	
SCREENING INTERVENTIONS				
LTBI risk assessment simplification and collection of place and region of birth and detailed ethnicity during patient registration	X			Psy-C
TESTING INTERVENTIONS				
Provider alert added if no prior TST or IGRA and at risk due to place of birth	X	X		Phys-O,Ref-M
EHR alert to provider to order TB test (not just to complete risk assessment) because patient is at risk due to place of birth	X	X		
EHR based opt-out of testing and include mandatory reason for opt-out	X	X		
Patient one-time LTBI testing eligibility letter, including TB education, reminder to bring in past TB/LTBI treatment info			X	Psy-C,Ref-M,Soc-O
TREATMENT INTERVENTIONS				
LTBI Treatment documentation template	X			Phys-O
EHR triggered medication therapy management (MTM) pharmacy follow-up treatment documentation, patient counseling and AE management.	X	X		Psy-C,Soc-O
TBI test (QFT) automated result letter with linked health messaging and assigned health navigator	X		X	Psy-C,Soc-O
Patient socioeconomic support (cash, food basket, gift card)			X	Phys-O
CROSS-CUTTING INTERVENTIONS				
Patient care coordination / linkage to social development benefits through member services	X		X	Phys-O,Ref-M
LTBI provider champion	X			Soc-O
Focused LTBI clinic / half day, with multidisciplinary staffing.	X			Phys-C,Soc-O
LTBI Provider Progress Report with performance feedback and comparative metrics linked to provider incentives.		X		Ref-M,Soc-O
Targeted provider training for low-LTBI treating providers: 1-on-1 or small group training		X		Psy-C

Strategy Components

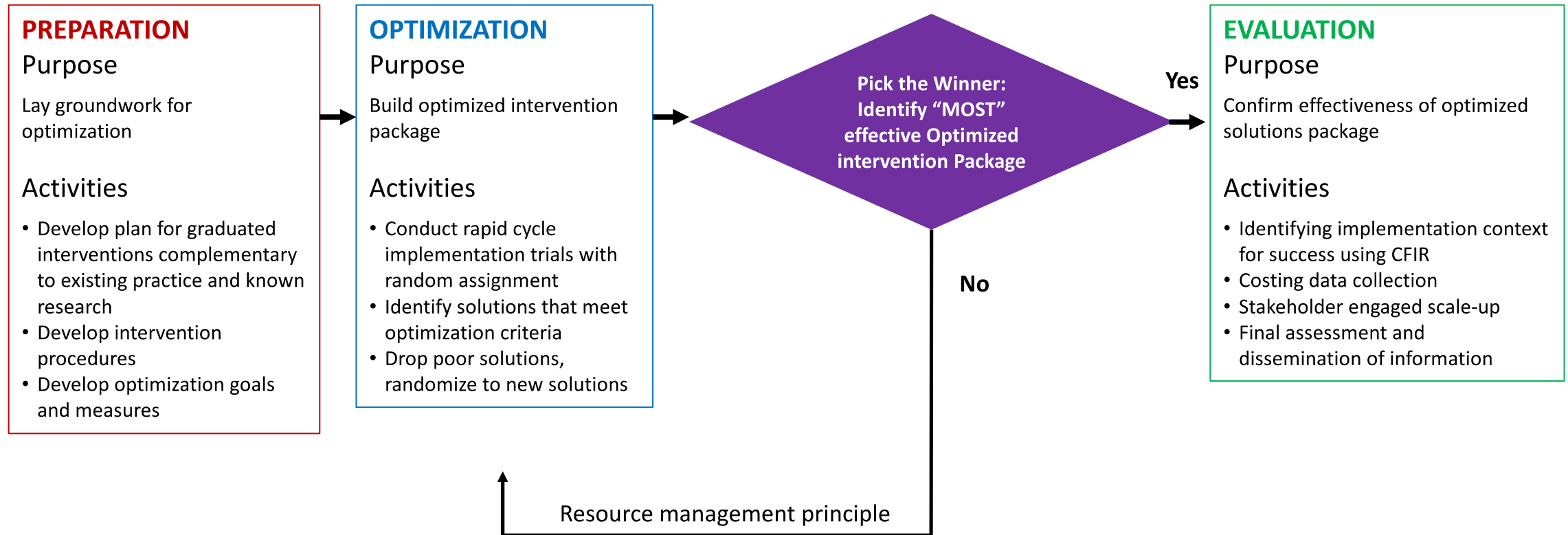
1. No intervention is really stand alone: Trainings, piloting, revising templates, refining clinical algorithms and SOPs to improve implementation.
2. Measuring implementation is essential. Process metrics, implementation outcomes, and stakeholder feedback.



Soc - Social influences
 Env - Environmental Context and Resources
 Id - Social/Professional Role and Identity
 Bel Cap - Beliefs about Capabilities
 Opt - Optimism
 Int - Intentions
 Goals - Goals
 Bel Cons - Beliefs about Consequences
 Reinf - Reinforcement
 Em - Emotion
 Know - Knowledge
 Cog - Cognitive and interpersonal skills
 Mem - Memory, Attention and Decision Processes
 Beh Reg - Behavioural Regulation
 Phys - Physical skills



Implementing and Evaluating Interventions to Address the Gap

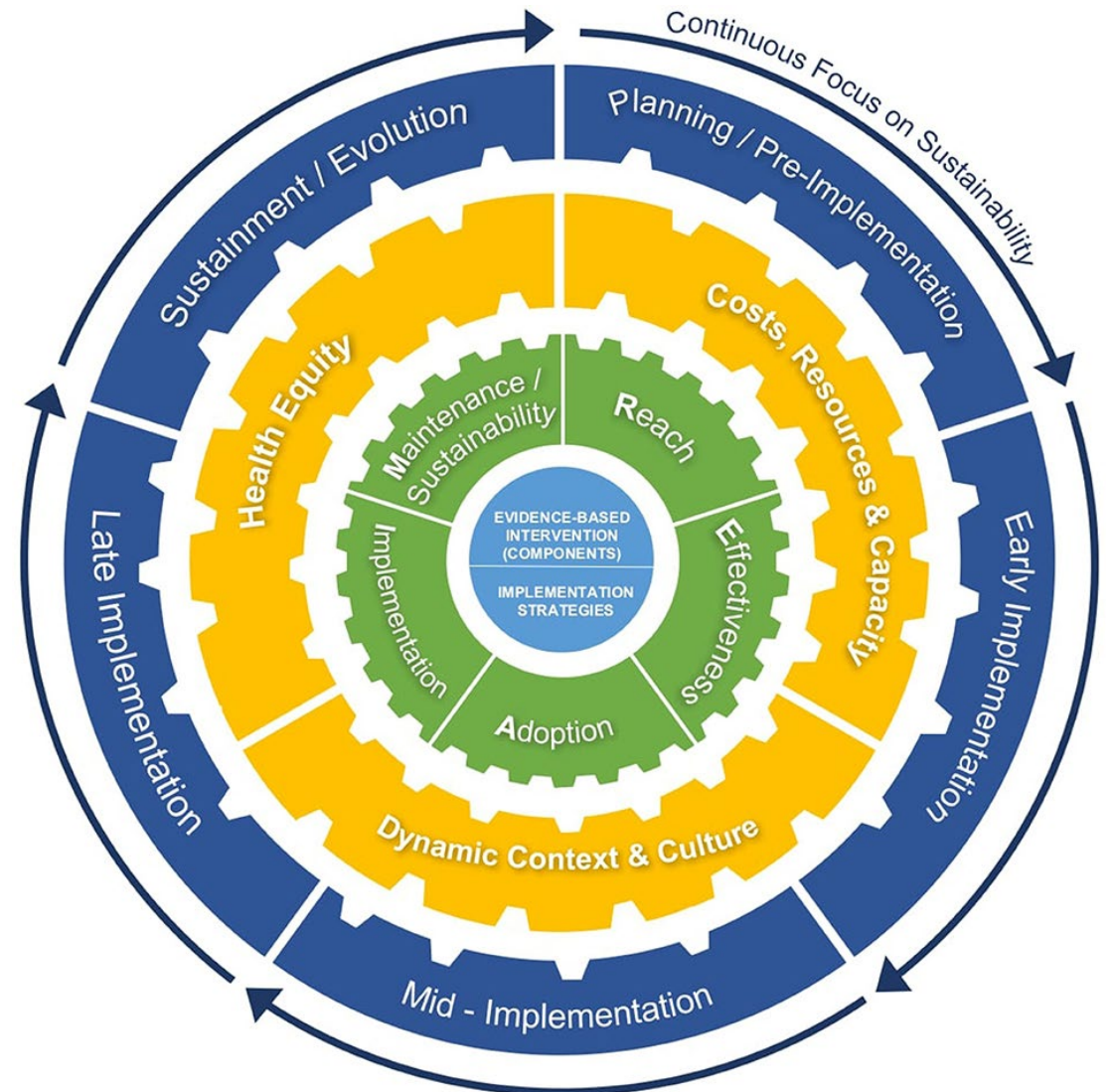


Adapted from Collins, L. M. (2018). *Optimization of behavioral, biobehavioral, and biomedical interventions: the multiphase optimization strategy (MOST)*. Springer

Formative research/stakeholder engagement is essential to refining implementation strategy, design, and understanding why some components worked and some did not.

Evaluating Interventions: RE-AIM

- **Reach:** Are we equitably reaching all the target population over time? Why/why not?
- **Effectiveness:** Are positive outcomes equitably distributed across groups by social and demographic characteristics? Why/why not?
- What **adaptations** worked better in what contexts?
- Do all contexts equitably **implement** the intervention? Do all contexts have the resources and capacity to implement the strategy?
- Is the intervention **maintained** over time equitably? Do adaptations reduce or exacerbate inequity?



What have we learned? Key Operational and Policy Challenges

- 1. Who should we focus on and what are their preferences?**
Implementation is not specified in existing guidance.
- 2. Who's paying?** Coding and Remuneration for different payers is extremely challenging and not streamlined. CMS has not adopted TB prevention into its list of covered conditions despite USPSTF guidance in 2016. This is a major challenge!
- 3. How much TB are we willing to miss?** What is the cost-benefit Conservative evaluation vs. LTFU for treatment initiation among LTBI patients. We need primary care friendly consensus on approach to CXR, sputum evaluation, and TB Clinic referrals.
- 4. How do we scale?** Quality metrics need to be considered for sustainability. Health systems respond to carrots and sticks. Currently, LTBI care provides neither.



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California Department of
PublicHealth

THANK YOU!

POPULATION HEALTH DIVISION
SAN FRANCISCO DEPARTMENT OF PUBLIC HEALTH

DISEASE PREVENTION & CONTROL



Appendix Slides

Barriers to LTBI care in a non-USB primary care setting

- 1. Competing priorities and demands (amongst providers and patients)**
2. Cost and insurance coverage for LTBI testing and treatment
3. Lack of buy-in from providers and patients on the benefits of LTBI treatment (e.g. for older patients with multiple medical conditions and polypharmacy, and for transnational patients with reinfection risk)
4. Difficulty staying up to date on latest LTBI testing and treatment recommendations (e.g. target populations, preferred testing and treatment regimens)

NEMS Services

Onsite lab, radiology, and pharmacy facilitate easy access to TB testing, eval, and treatment

SERVICES 服務範圍

 Adult Medicine 成人內科	 Pharmacy 藥房	 Health Education 健康教育部
 Pediatrics 兒科	 Laboratory 化驗部	 Member Services 會員服務部
 Obstetrics & Gynecology 婦產科	 Radiology 放射部/X光	 Chiropractic 脊椎神經科
 Dental 牙科	 Behavioral Health Services 心理健康服務部	 Acupuncture 針灸科
 Optometry 驗眼/配鏡科	 Social Services 社會服務部	 Physical Therapy 物理治療中心

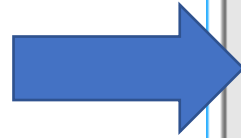
Medical Specialties 醫療專科

- Cardiology 心臟科
- Endocrinology 內分泌科
- Gastroenterology 腸胃科
- Hand Surgery Consultation 手外科
- Hepatology 肝臟科
- Neurology 神經內科
- Ophthalmology 眼科
- Otolaryngology 耳鼻喉科
- Podiatry 足科
- Psychiatry 精神科
- Surgery 外科



EHR prompts based on TB risk factors

Place of Birth collected upon patient registration to assist with TB risk stratification



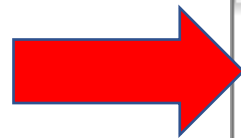
12/10/2020 11:10 AM : "NEMS Patient Assessment" x

Member Service Patient Assessment

Demographics

Place of Birth (Country)	China	Region of Birth (Region or City)	Beijing
Race	Asian	Ethnicity	Declined to specify
		Ethnicity Details	Chinese, Japanese

A place of birth outside of the US, Canada, Australia, New Zealand, or western/northern Europe will automatically notify provider patient is at-risk and to complete the risk assessment to indicate any prior history of TB and/or order TB screening test if not previously ordered.



12/17/2020 12:47 PM : "*Intake" x

Care Team 0 Contagion Risk 0 HCC Pt Type: (B)+DY

Specialty Internal Medicine Visit Type Office Visit

Intake | Histories | SOAP | Finalize | Checkout

Standing Orders | Adult Immunizations | Screening Summary | My Plan | Procedures | Order Management

14 Care Guidelines Ins1: Ins2: Ins3: Patient Status (EPM): Panel C

General Make Today's Encounter Confidential


Established patient New patient | Historian: Enable HCC for this patient

Incomplete visit

Provider Alerts

Patient does not have TB Risk Assessment and is at risk due to place of birth

Simplified EHR Annual TB Risk Assessment Form

 NEMS TB Annual ✕

Annual TB Risk Assessment Place of Birth: Region of Birth: Year in US:

Name: Adult Test DOB: 02/29/1992 MRN: 000001052853

TB Screening and Treatment History (REQUIRED)

1. Have you ever had a positive TB skin or blood test? Yes No/Unsure
If yes, did you complete preventive treatment? Yes No/Unsure

2. Have you ever had active TB disease? Yes No/Unsure
If yes, did you complete treatment (6 months or longer)? Yes No/Unsure

TB Risk Factors All Negative

1. Have you spent at least 1 month outside of the US, Canada, Australia, New Zealand, or Western/Northern Europe? Yes No

2. Are you immunosuppressed (e.g. HIV, organ transplant recipient) or currently on/ plan to start immunosuppressive medications (e.g. TNF-alpha antagonist, steroids equivalent of prednisone > 15 mg/d for > 1 month)? Yes No

3. Have you had close contact to someone with infectious TB disease? Yes No

4. Are you on hemodialysis for end stage renal disease? Yes No

5. Have you stayed in a homeless shelter? Yes No

Last TB Risk Assessment: 10/26/2017 Not At Risk

AT RISK

NOT AT RISK

X-Ray Orders

Date Ordered	Status	Order

TB Screening (skin/blood) and IGRA History

Status	Order	Completed Date	Interpretation
result received	PPD 0.1 mL ID	03/14/2018	positive
completed	PPD 0.1 mL ID	/ /	negative

QFT Lab Results (In House)

Order	Date	Result

Outside TB Screening (skin/blood) Results, QFT Results or T-Spot Results

TB QFT T-Spot

Date	Result	Interpretation
<input type="text" value="/ /"/>	<input type="text"/>	<input type="text"/>

Estimated order date

Automated QFT
result letter mailed
to patient prompts
patient to follow-
up with their PCP
for TB evaluation



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1520 Stockton Street, San Francisco, CA 94133
2574 San Bruno, San Francisco, CA 94134
82 Leland Avenue, San Francisco, CA 94134
1450 Noriega Street, San Francisco, CA 94122
1400 Noriega Street, San Francisco, CA 94122
(415) 391-9686 | (650) 550-3923 | (408) 573-9686 | www.nems.org

2308 Taraval Street, San Francisco, CA 94116
1033 Clement Street, San Francisco, CA 94118
211 Eastmoor Avenue, Daly City, CA 94015
1715 Lundy Avenue #108-116, San Jose, CA 95131
1870 Lundy Avenue, San Jose, CA 95131

Date [REDACTED]

Date of QFT Test

檢驗日期: [REDACTED]

NEMS Provider

醫生姓名: Amy Tang MD

Dear [REDACTED]

The result of your QuantiFERON test (QFT) was **ABNORMAL**. The test result showed that you may have been exposed to tuberculosis. It is important for you to follow up with your primary care provider for additional testing.

Please call us at the phone number listed below to schedule an appointment to see your primary care provider to discuss about additional testing.

Thank you for choosing North East Medical Services (NEMS) for your care.

尊敬的東北會員，

我們想通知您最近在東北醫療中心所做的QuantiFERON測試 (結核菌測試，簡稱QFT) 的結果**不正常**。這意味著您可能受到結核菌感染。跟您的主診醫生作進一步檢驗是非常重要的。

請致電以下的電話號碼預約時間和您的主診醫生討論進一步的檢驗。



1 in 7  **Asian Americans** in California
is living with
TUBERCULOSIS (TB)
infection

Keep your family safe.
Find out your TB status!

在加州, 每 **7**  位 **美籍亞裔** 中就有 **1** 位
肺結核 (TB) 感染

保護您的家人
確認您是否有肺結核感染

Graphics promoting TB awareness on patient waiting rooms televisions raise patient awareness of tuberculosis and encourage discussions with their providers

EHR LTBI template to document treatment discussion or prior treatment

The screenshot displays the 'NEMS Assess Plan Details' interface. The 'My Plan' tab is active, showing a plan for 'Nonspecific reaction to tuberculin skin test without active tuberculosis'. A red box highlights the 'Last LTBI discussed: 05/01/2017' field, with a red circle '1' next to it. Below this, the 'Provider Details' section includes a link for 'LTBI Additional Info', which is highlighted with a red box and a red circle '2'. A red circle '4' is placed over the 'Provider note go here.' section, which contains the text 'LTBI discussed: Already Treated. Done outside'. An 'LTBI Treatment Info' dialog box is open in the foreground, featuring a 'Last Discussed Date' field with '05/01/2017' and a red box around the radio button options. A red circle '3' is next to the 'Already Treated' option. The dialog box also includes a 'Comment' field with the text 'Done outside' and a 'Cancel' button.

1. Last LTBI discussed

- Date indicates if LTBI treatment is necessary
- Patients who are +LTBI, but don't have a "Last LTBI discussed" date will require the following steps

2. LTBI Additional Info

- Clicking on "Additional Info" will open up the "LTBI Treatment Info" box

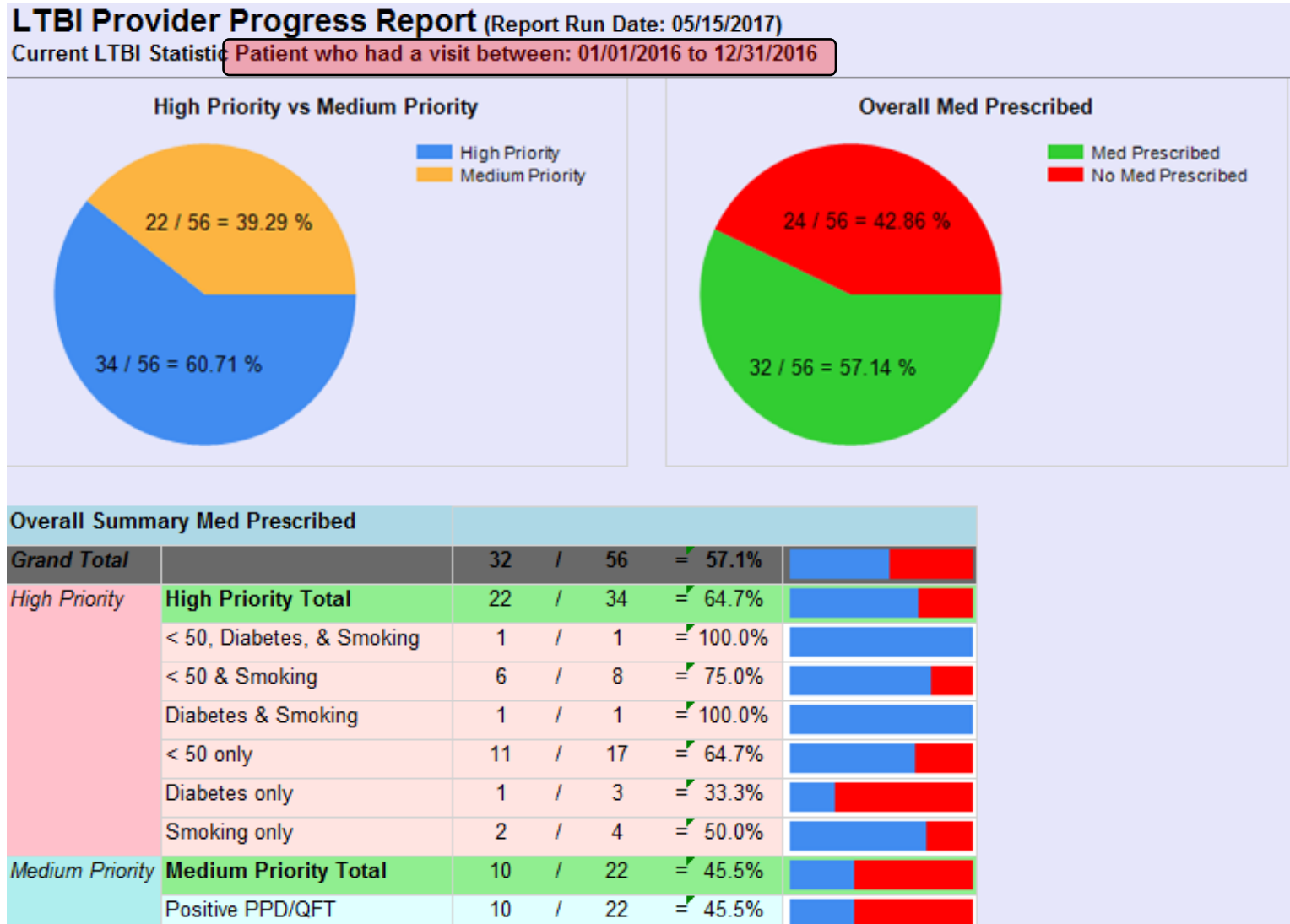
3. LTBI Treatment Info

- LTBI Treatment Info box will display all the necessary follow-up statuses to help providers keep track of LTBI patients.
- Status Options:
 - Will Rx Today
 - Pt Refuse Tx, risks and benefits discussed
 - Already Treated (Report this only if you are confident that duration and treatment was appropriately done)
 - Refer to PCP for Evaluation
 - Other:

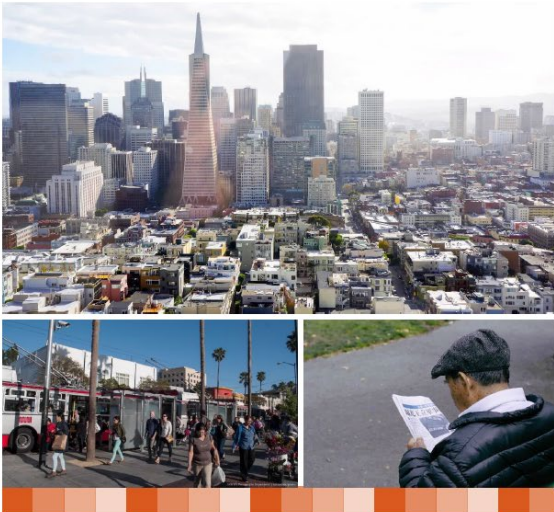
4. Provider Note

- Once LTBI Treatment Info is filled out, the provider note will display the LTBI Treatment Info's selected status

Individualized Provider Report on LTBI Testing and Treatment



Annual TB provider education by local public health department keeps primary care providers up to date on latest recommendations



UPDATES IN LTBI TREATMENT

Susannah Graves, MD, MPH
Director, TB Prevention and Control Program, SFDPH
Assistant Adjunct Professor, Infectious Diseases, UCSD

POPULATION HEALTH DIVISION
SAN FRANCISCO DEPARTMENT OF PUBLIC HEALTH



Latent Tuberculosis Infection (LTBI) 101

Janice Louie, MD, MPH, Medical Director
Rocio Agraz-Lara, RN, PHN, Nurse Manager
San Francisco Tuberculosis Control and Prevention Program
2019



a california *health+*.center

Rifampin and Isoniazid Listed under Commonly Prescribed Antibiotics Tab

All	ABX	Allergy	Antispa	ANTIVIRAL	COUGH	DERM-TOP
Description						
doxycycline hyc (N) 100 mg capsule Sig: take 1 capsule by oral route 2 times every day Quantity: 28 Units: Capsule Refills: 0 Duration: 0 Generic OK: Yes						
doxycycline monohydrate 50 mg tablet Sig: take 1 tablet by oral route every day Quantity: 30 Units: Tablet Refills: 0 Duration: 0 Generic OK: Yes						
doxycycline monohydrate 100 mg tablet Sig: Take 1 tablet by oral route every day Quantity: 30 Units: Tablet Refills: 0 Duration: 0 Generic OK: Yes						
isoniazid (N) 300 mg tablet Sig: take 1 tablet by oral route every day Quantity: 90 Units: Tablet Refills: 0 Duration: 0 Generic OK: Yes						
levofloxacin (N) 500 mg tablet Sig: take 1 tablet by oral route every 24 hours Quantity: 7 Units: Tablet Refills: 0 Duration: 0 Generic OK: Yes						
metronidazole (N) 0.75 % vaginal gel Sig: Insert 1 applicatorful (37.5MG) by vaginal route every day at bedtime Quantity: 70 Units: Gram Refills: 0 Duration: 0 Generic OK: Yes						
metronidazole (N) 500 mg tablet Sig: take 1 tablet by oral route every 8 hours Quantity: 30 Units: Tablet Refills: 0 Duration: 0 Generic OK: Yes						
minocycline 100 mg capsule Sig: take 1 capsule by oral route every 12 hours Quantity: 60 Units: Capsule Refills: 0 Duration: 0 Generic OK: Yes						
penicillin V potassium (N) 500 mg tablet Sig: Take 1 tablet (500MG) by oral route every 8 hours for 10 days Quantity: 30 Units: Tablet Refills: 0 Duration: 0 Generic OK: Yes						
rifampin (N) 300 mg capsule Sig: Take 2 capsule (600MG) by oral route every day with water, 1 hour before or 2 hours after a meal Quantity: 60 Units: Capsule Refills: 0 Duration: 0 Generic OK: Yes						
sulfamethoxazoletrimethopr (N) 800-160 mg tablet Sig: take 1 tablet by oral route every 12 hours Quantity: 10 Units: Tablet Refills: 0 Duration: 0 Generic OK: Yes						
tetracycline 500 mg capsule Sig: Take 1 capsule (500MG) by ORAL route 4 times every day for 14 days Quantity: 56 Units: Capsule Refills: 0 Duration: 0 Generic OK: Yes						



isoniazid 300 mg tablet

Sig: take 1 tablet by oral route 1 time every day [Edit Sig...](#) [Remove Sig](#)

PRN Reason:

Quantity: 90 Units: Tablet Refills: 0

Start: 03/05/2021 Stop: 03/05/2021 Duration:

Dispense As Written

Prescribed Elsewhere Source:

Problem: [Add...](#)

Non-Clinical Notes to Pharmacy: *This field is for nonclinical comments to the pharmacist. Any additional clinical instructions for this prescription should be added using the 'Additional Instructions' segment of the Sig Builder.*

Provider: Tang, Amy MD

Location: 3F Adult Stockton NEMS

rifampin 300 mg capsule

Sig: Take 2 capsule (600MG) by oral route every day with water, 1 hour before or 2 hours after a meal [Edit Sig...](#) [Remove Sig](#)

PRN Reason:

Quantity: 60 Units: Capsule Refills: 0

Start: 03/05/2021 Stop: 03/05/2021 Duration:

Dispense As Written

Prescribed Elsewhere Source:

Problem: [Add...](#)

Non-Clinical Notes to Pharmacy: *This field is for nonclinical comments to the pharmacist. Any additional clinical instructions for this prescription should be added using the 'Additional Instructions' segment of the Sig Builder.*

Provider: Tang, Amy MD

Location: 3F Adult Stockton NEMS