

POPULATION HEALTH DIVISION
PROTECTING AND PROMOTING HEALTH AND EQUITY

Costs and Benefits of Homeless TB Screening in
San Francisco

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Outline

- Overview of TB screening of homeless shelter residents in San Francisco
- TB program-associated costs of homeless screening
- Benefits of the homeless TB screening program in San Francisco
- Questions for the future



Homeless TB Screening in San Francisco

- Mandatory TB screening for residents of City-operated shelters began in 2005
- Coincided with –
 - Widespread adoption of QFT-Gold in SFDPH clinics
 - Implementation of the CHANGES shelter registration system



TB & Homeless Task Force Developed in 2000 to Produce Guidelines

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TB Screening Policy

- All clients receiving San Francisco shelter services for more than 3 days (cumulative within a 30-day period) are required to complete TB screening and evaluation within 10 working days of entering the shelter system
- Includes city-operated emergency shelters and resource centers but not private or faith-based shelters



Initial Screening

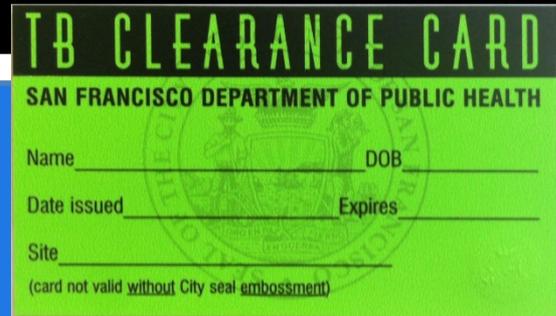
Screening Results	Follow-up	Data Entry
TST or QFT negative and asymptomatic	<ul style="list-style-type: none"> • None (until following year) • Provide green TB clearance card 	Enter shelter clearance date in the LCR
TST or QFT+ and asymptomatic	<ul style="list-style-type: none"> • Chest x-ray • Medical evaluation at TB Clinic (refer with TB47 form) 	TB Control enters shelter clearance date or clinical alert in the LCR
Symptomatic	<ul style="list-style-type: none"> • New chest x-ray • Urgent medical evaluation • TST or QFT 	All TB suspects should be sent to TB Clinic for evaluation. If work-up by provider is negative, enter clearance in the LCR

Annual Follow-up Screening

Client Type	Treatment History	Evaluation Required
HIV– or HIV+ / TST or QFT–	No prior treatment	<ul style="list-style-type: none"> • Annual TST/QFT • Annual symptom review
HIV– or HIV unknown/ TST or QFT+	Completed LTBI treatment	<ul style="list-style-type: none"> • Annual symptom review
HIV– or HIV unknown/ TST or QFT+	No prior or incomplete treatment	<ul style="list-style-type: none"> • Annual symptom review and medical risk assessment for diabetes, cancer, immune modulating medication intake, end-stage renal disease and HIV • If new risk present, repeat chest x-ray annually if patient remains untreated
HIV+ / TST or QFT+	Completed preventive treatment	<ul style="list-style-type: none"> • Annual symptom review • Low threshold to repeat CXR
HIV+ / TST or QFT+	No prior or incomplete treatment	<ul style="list-style-type: none"> • Minimum annual symptom review and repeat CXR • Should be followed by SF TB Control (please refer to TB clinic if necessary)



Clearance



TB CLEARANCE CARD
SAN FRANCISCO DEPARTMENT OF PUBLIC HEALTH

Name _____ DOB _____
Date issued _____ Expires _____
Site _____
(card not valid without City seal embossment)

- Shelter client issued a TB clearance card upon completion of screening
- Expiration date is entered into the DPH Lifetime Clinical Record (LCR)
- Client presents card to shelter/resource center staff at check-in
- Expiration date is entered into the CHANGES registration system
 - Date color-coded based on whether clearance is **about to expire (orange)** or **has expired (red)**



TB Screening and Evaluation Process

- Client referred to DPH clinic/affiliated clinic for TST/QFT
- If QFT/TST+ or prior positive or symptomatic, client is referred to TB clinic for chest x-ray and MD evaluation
- Clearance card given to client –
 - At DPH/affiliated clinic if TST/QFT negative (select sites)
 - At TB clinic if TST/QFT+, prior positive, or symptomatic
- Temporary clearance given as needed



TB Program Costs – Assumptions and Estimates (1)

- 2005-2012
 - Annual average of 1,729 homeless needing screening¹
- QFT-Gold In-tube cost²: \$32.86 (includes labor and supplies)
- QFT-Gold In-tube positive rate³: 7%
- Chest X-ray and MD visit cost²: \$82.50

¹San Francisco Human Services Agency. San Francisco Sheltered and Unsheltered Homeless Count. (2009 & 2011)

²Estimates from unpublished cost effectiveness analysis of QFT in San Francisco.



TB Program Costs – Assumptions and Estimates (2)

- TB Clinic staff time per patient needing chest x-ray and MD evaluation¹
 - Clerical (registration) – 15 minutes
 - Health Worker (registration) – 7 min
 - Nurse (provide clearance) – 5 min

¹Based on TB Clinic time survey data collected February-March 2012. Time estimates do not include time to draw



Annual TB Program Cost

QFT-Gold In-tube Test: 1,729 x \$32.86 =	\$56,827
# needing chest x-ray and MD evaluation: 0.07 x 1,729 = 121	
Chest X-ray and MD evaluation: 121 x \$82.50 =	\$9,987
TB Clinic staff time: Clerical: 30.26 hours x \$28.59 = \$865 Health Worker: 14.12 hours x \$27.69 = \$392 Nurse: 18.23 min. x 10.09 hours = \$665	\$1,922
TOTAL ANNUAL COST	\$68,736



Homeless Cases, 2005-2013

Year	Shelter		SRO	Street/Other
	City	Private		
2005 (n=17)	3 (18%)	0	7 (41%)	7 (41%)
2006 (n=22)	2 (9%)	1 (5%)	11 (50%)	8 (36%)
2007 (n=25)	3 (12%)	1 (4%)	12 (48%)	9 (36%)
2008 (n=15)	3 (20%)	0	5 (33%)	7 (47%)
2009 (n=15)	0	0	6 (40%)	9 (60%)
2010 (n=7)	1 (14%)	1 (14%)	2 (29%)	3 (43%)
2011 (n=11)	4 (36%)	0	5 (46%)	2 (18%)
2012 (n=12)	0	0	8 (67%)	4 (33%)
2013 (n=18)	2	0	4	12
Total (n=142)	18 (13%)	3 (2%)	60 (42%)	61 (43%)



Characteristics SF City Shelter Cases, 2005-2012 (1)

	City Shelter	SRO
Pulm. Smear +	47%	45%
Pulm. Culture +	80%	73%
Pulm. Cavitory	0	36%
HIV +	36%	33%
Died	6%	14%

Characteristics SF HSA Shelter Cases, 2005-2012 (2)

	City Shelter	SRO
Converters	1	8
Clustered Cases ¹	0	9 ²

¹Clustered to another case in the same shelter or SRO at any time, 2005-2012.

Other Benefits (1)

- Developed close working relationship with homeless providers and shelter staff
 - Facilitates timely response to exposures
 - Opportunities for education and training for shelter staff
- Brings TB awareness to shelter staff
- Use CHANGES to target contact investigations
- Overlapping mechanisms to track screening and clearance
 - TB Control, CHANGES (shelters), LCR (EHR)
- Addresses the disparity in TB rates among the homeless



Other Benefits (2)

- Screening provides opportunity to link patients to other services
 - HIV, cancer, viral hepatitis, diabetes, mental health services, primary care
- Indirectly provides screening for clients being transferred from shelters to SRO housing
- QFT allows for LTBI surveillance in this population
- Green card is powerful motivation for getting TST read



Questions for the future...

- With established relationships and tracking systems...
 - Are there opportunities to reduce costs?
 - Reduce frequency of annual screening?
 - How can we expand treatment for LTBI in this population?
 - Use 3HP?
 - Is it cost effective?
 - ?
 - Does screening program have an impact on health outcomes?
 - TB? Overall health of the population?



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