





Best Practices in TB Control

TB Among the Homeless: Dealing with Unique Challenges

February 7, 2012




Sponsored by the New Jersey Medical School
Global Tuberculosis Institute


Objectives

Upon completion of this seminar, participants will be able to:


- Describe the extent of homelessness as a social problem in the US
- Discuss the burden of TB among the homeless population
- Outline effective strategies for prevention and treatment of TB among homeless persons and their contacts
- Discuss how health departments and homeless services agencies can work as partners to coordinate clinical care and contact investigations to effectively prevent TB



Faculty (1)



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Boston Health Care for the Homeless Program







Faculty (2)



Dean Carpenter, MSN, FNP-BC
Neighborhood Service Organization
Tumaini Center, Detroit




Monica Heltz, RN, MPH
TB Program Coordinator
Marion County Public Health Department,
Indianapolis

Polling Question

- **Approximately how many homeless clients with TB disease does your program see each year?**
 - 0
 - 1-10
 - 11-20
 - >20



Homelessness in the US and the Connections Between Homelessness and TB

James J. O'Connell, MD
Boston Health Care for the Homeless Program
February 7, 2012

HUD Definition of Homelessness December 5, 2011

- (1) Individuals and families who lack a fixed, regular, and adequate nighttime residence and includes a subset for an individual who resided in an emergency shelter or a place not meant for human habitation and who is exiting an institution where he or she temporarily resided (90 days now rather than 30);
- (2) individuals and families who will imminently (within 14 days) lose their primary nighttime residence (home, motel, hotel, doubled up);
- (3) unaccompanied youth and families with children and youth who are defined as homeless under other federal statutes who do not otherwise qualify as homeless under this definition (new category: no lease or ownership within 60 days, or have had 2 or more moves in last 60 days, and who are likely to continue to be unstably housed because of disability or multiple barriers to employment); and
- (4) individuals and families who are fleeing, or are attempting to flee, domestic violence, dating violence, sexual assault, stalking, or other dangerous or life-threatening conditions that relate to violence against the individual or a family member

Source: Federal Register, 2011

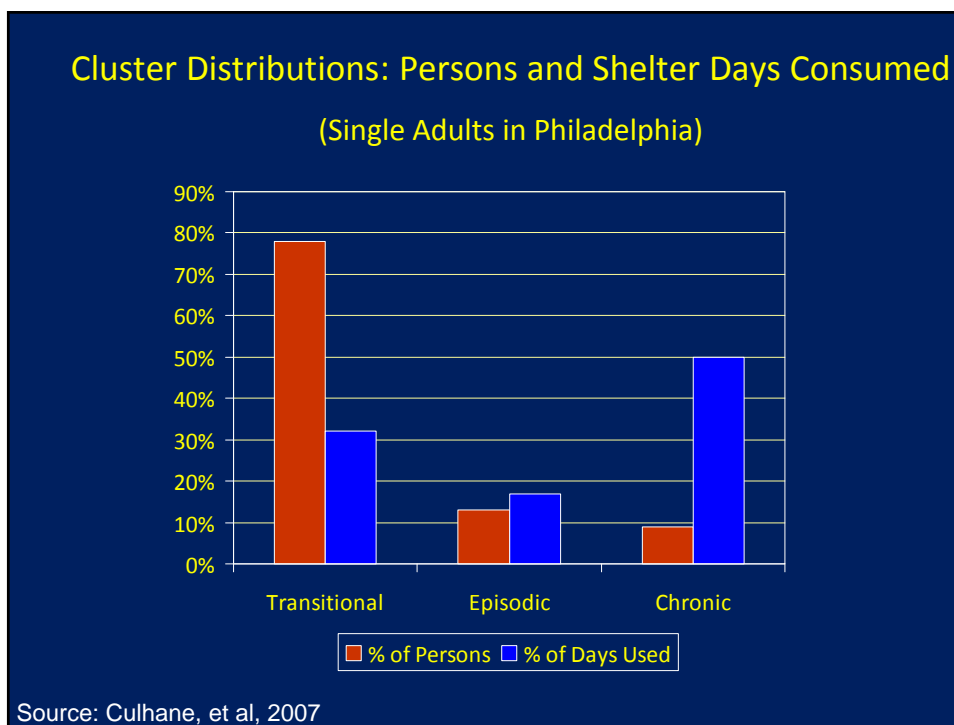
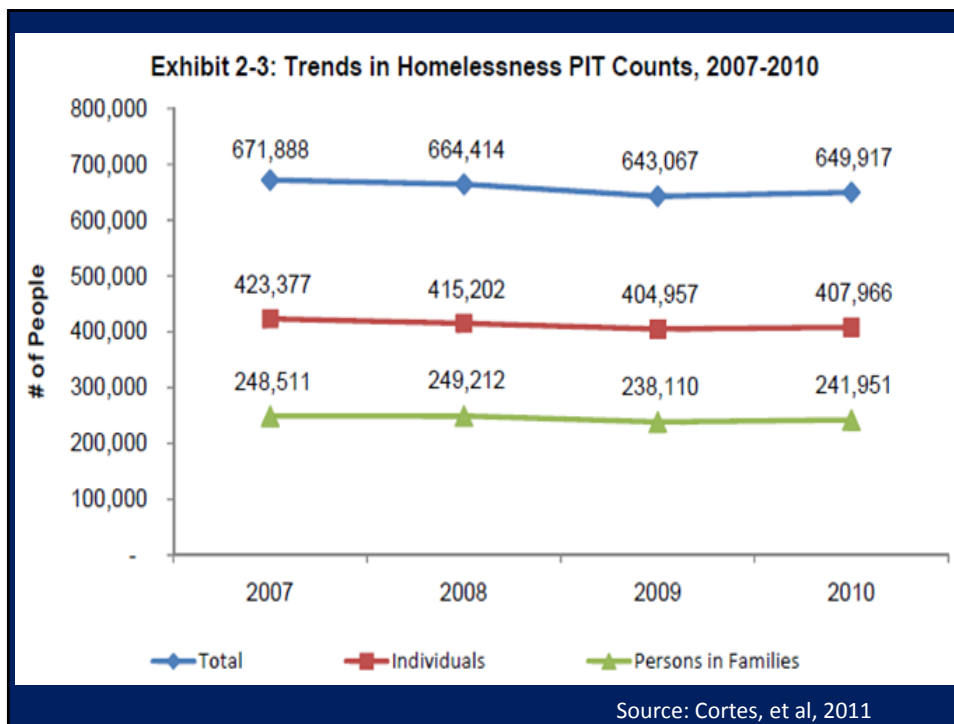
Homeless Persons Point in Time Count 2010

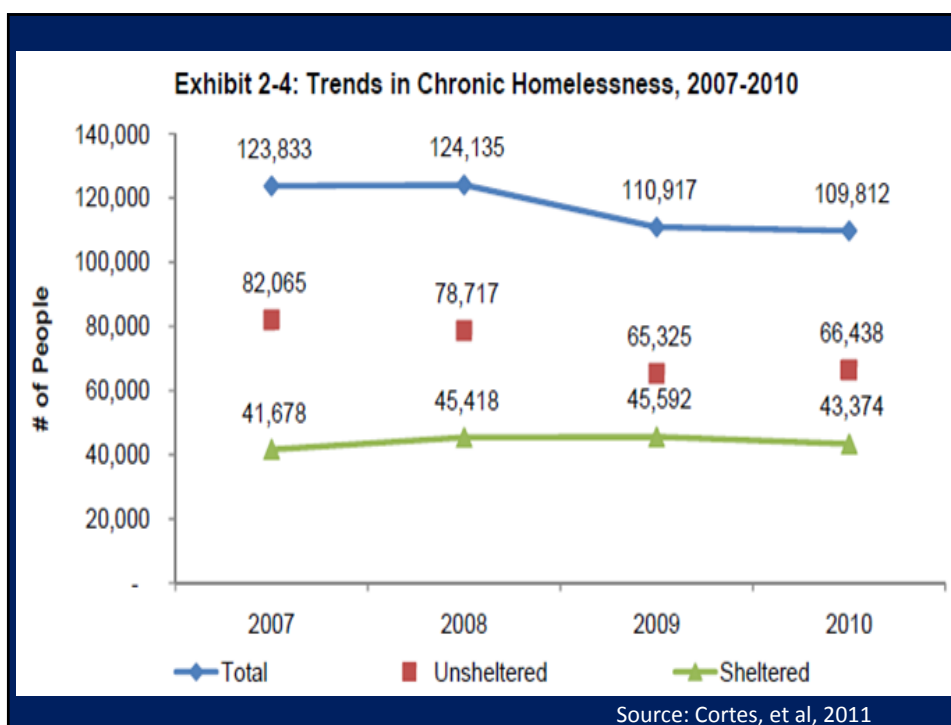
Household Type	Number	% of All Homeless Persons	% of Subcategory
Total People			
Sheltered ^a	403,543	62.1%	
Unsheltered	246,374	37.9%	
Total	649,917	100.0%	
Individuals^b			
Sheltered	212,218	32.7%	52.0%
Unsheltered	195,748	30.1%	48.0%
Total	407,966	62.8%	100.0%
Persons in Families			
Sheltered	191,325	29.4%	79.1%
Unsheltered	50,626	7.8%	20.9%
Total	241,951	37.2%	100.0%
Family Households			
Sheltered	62,305	-	78.4%
Unsheltered	17,141	-	21.6%
Total	79,446	-	100.0%

^a The sheltered homeless count includes people using safe havens.

^b Individuals includes persons in households without children and persons in households with only children.

Source: 2010 Continuum of Care Applications: Exhibit 1, CoC Point-in-Time Homeless Population and Subpopulations





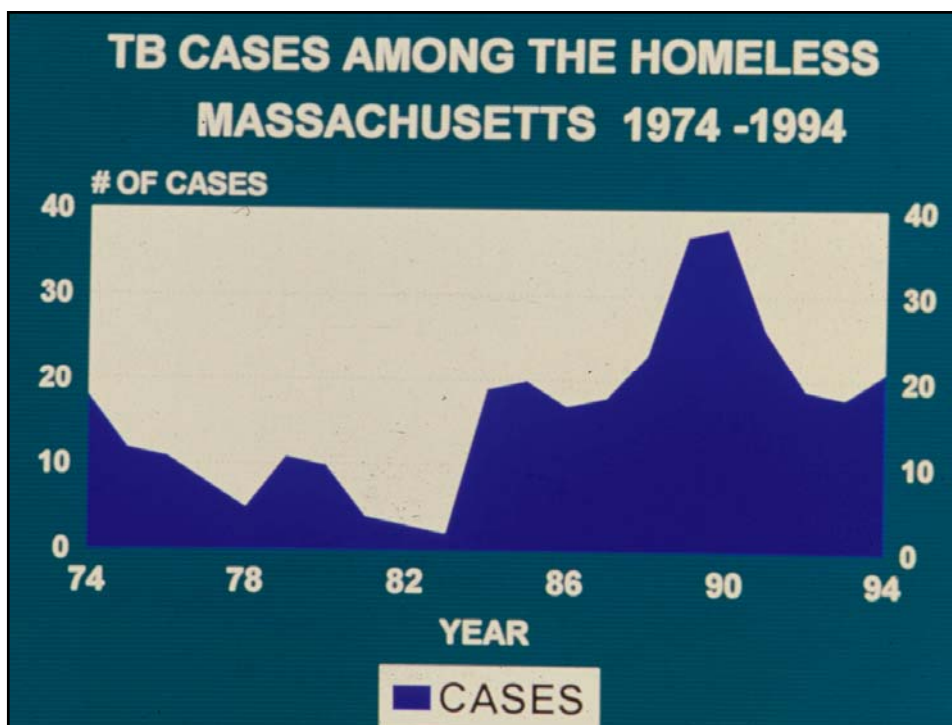
Characteristics of Outbreaks

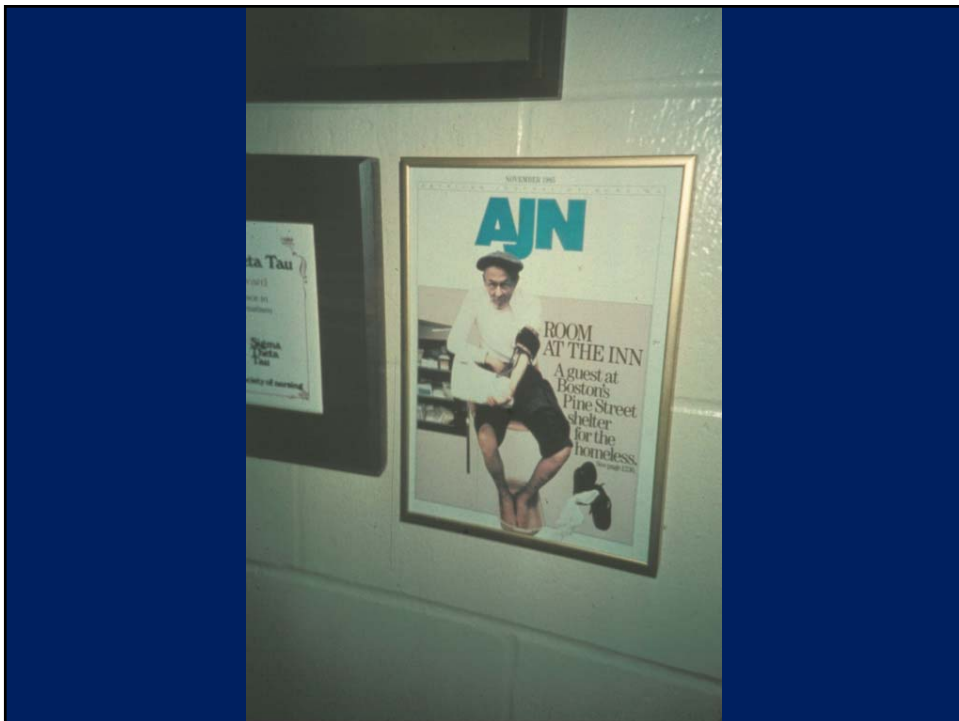
- Lax screening policies at shelters
- Unrecognized infectious cases
- Mobility of guests between shelters and other facilities (jails) and jurisdictions (NY)
- Inability to provide preventive treatment to high-risk, infected persons (contacts)
- High costs of screening and follow-up
 - Personal costs: *TB morbidity*
 - Actual screening costs: *Dollars*
 - » NY 1,093 contacts; 4 cases found
 - » ME 1,069 contacts; 0 cases found
 - » WA 471 contacts (+ intensified screening); 11 cases found

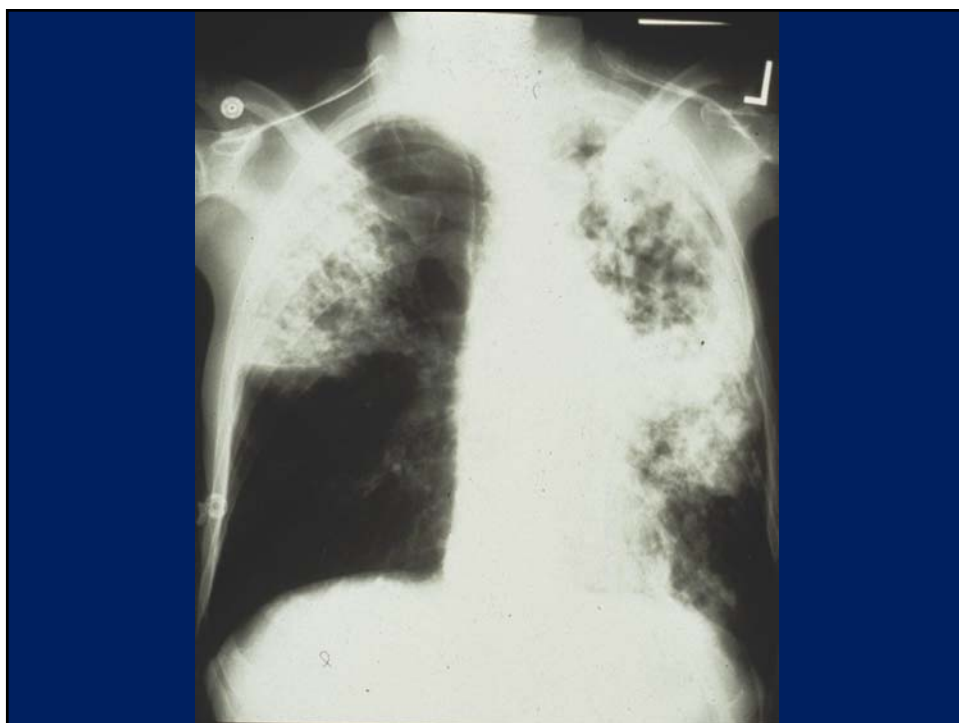
TB and Homelessness in Boston

- Tuberculosis (TB) among homeless persons traditionally is a great public health concern
- Boston's Pine Street Inn (PSI) shelter has been the center of several TB outbreaks
 - Outbreak in mid-1970's triggered Public Health Nurse intervention: on-site clinical TB services
 - Following a 2nd outbreak, with a peak incidence of 29 cases of active disease in 1990, rates have declined to approximately 4-8 annually
 - A recent one-year increase (15 Boston cases in 2000) likely represented coincident reactivation of latent infection
 - 11/15 similar RFLP; no epi contacts
- Targeted Public Health Intervention:
 - Increased surveillance
 - Development of a specialized, public health TB clinic at Pine Street

- from John Bernardo, MD







July 19, 1985 / Vol. 34 / No. 28

MORBIDITY AND MORTALITY WEEKLY REPORT

429 Drug-Resistant Tuberculosis among the Homeless — Boston
432 Update: Paint, Cadmium, and Monohalomethanes in the Workplace
440 Influenza — United States, 1984-1985 Season

Printed and distributed by the Massachusetts Medical Society, publishers of *The New England Journal of Medicine*

Epidemiologic Notes and Reports

Drug-Resistant Tuberculosis among the Homeless — Boston

In the period February 1984-March 1985, 26 confirmed cases of tuberculosis (TB) were reported among homeless people in Boston (Figure 1). All 26 cases have been associated with three large shelters. The estimated total population of homeless people in Boston is 6,000. Nineteen of the 26 cases were counted in 1984; this represents an incidence of 316.7 per 100,000, a greater than sixfold increase over the 1983 case rate of approximately 50.0/100,000. By comparison, the TB case rate for the rest of Boston in 1984 was 19.0/100,000, and the rate for Massachusetts excluding Boston was 4.8/100,000.

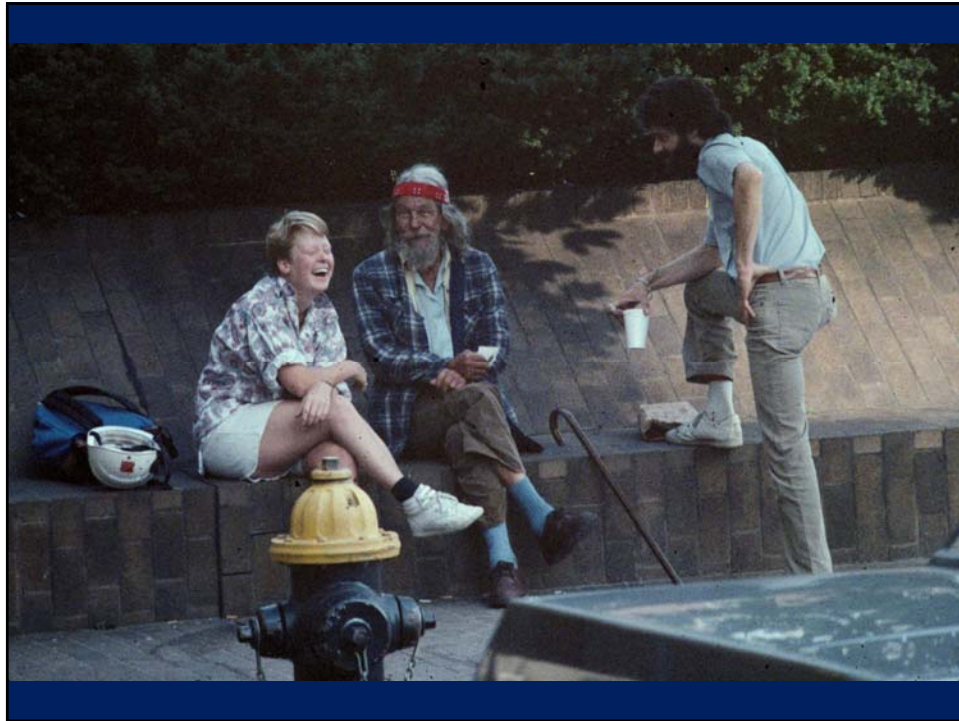
The outbreak was recognized because of reports among the homeless of a number of TB cases due to multiresistant organisms. As a result of this recognition, a screening program using Mantoux tuberculin skin tests, chest roentgenograms, and sputum examinations was

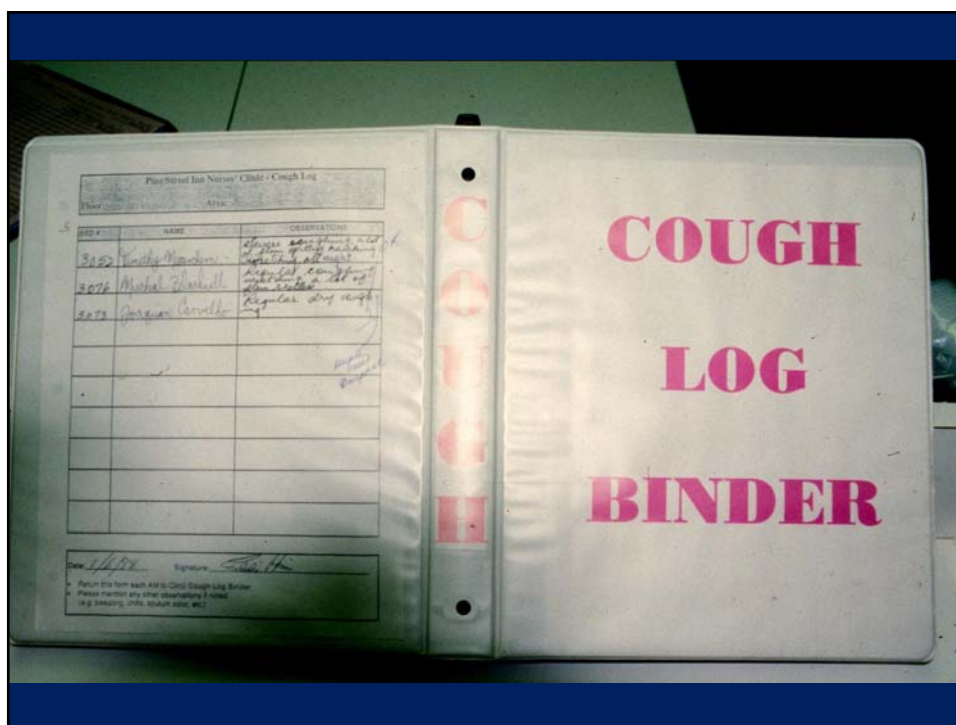
FIGURE 1. Reported tuberculosis cases among homeless persons, by month of report — Boston, Massachusetts, 1984-1985

Month	Bacteriologically negative	Susceptible to all drugs	Other resistance	INH-SM resistant*	Total
JAN 1984	0	0	0	0	0
FEB 1984	0	0	0	1	1
MAR 1984	0	0	0	0	0
APR 1984	0	0	0	0	0
MAY 1984	0	0	0	1	1
JUN 1984	0	0	1	1	2
JUL 1984	0	0	1	2	3
AUG 1984	0	0	1	1	2
SEP 1984	0	0	1	1	2
OCT 1984	0	0	1	1	2
NOV 1984	0	0	1	1	2
DEC 1984	0	0	1	1	2
JAN 1985	0	0	1	1	2
FEB 1985	0	0	1	2	3
MAR 1985	0	0	1	1	2

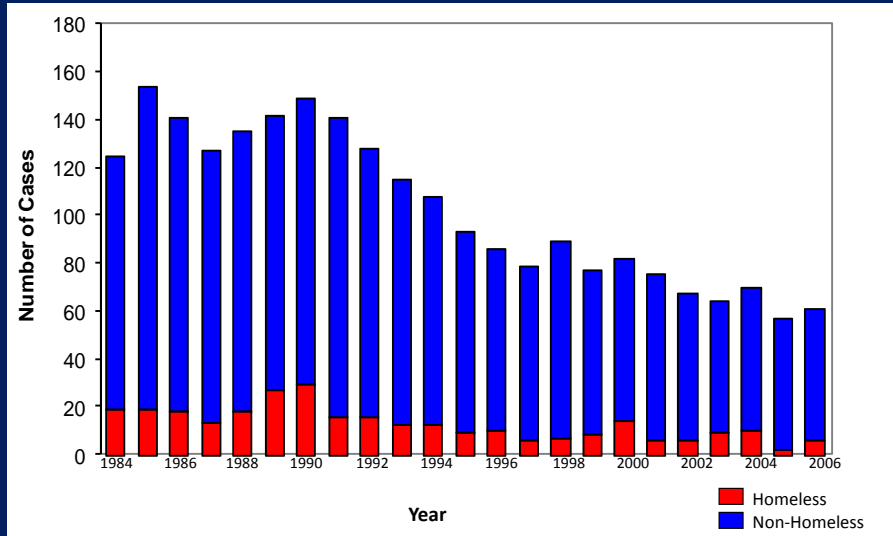
*Isoniazid and streptomycin resistant.







Tuberculosis in Boston 1984-2006





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PERSPECTIVE OF SHELTER STAFF

DEAN CARPENTER FNP-BC

FEBRUARY 7, 2012



"Always within Reach..."

NSO SERVICES

- Substance Abuse Treatment and Prevention Services
- Older Adult Service
- Emergency Telephone Service
- Harper-Gratiot Multi-Service Center
 - Food bank
 - Clothing
 - Utilities
- Youth Initiative Project
- Gambling Addiction Treatment
- Employment Training Services
- Life Choices (developmental disabilities)
- Homeless Services
 - Supportive Housing
 - Road Home
 - Tumaini Center

BELL BUILDING

- 155 One-bedroom apts
- NSO Corporate HQ
- FQHC
- Laundry
- Chapel
- Walk-out gardens



ROAD HOME

Outreach Homeless Services – seen here supporting Occupy Detroit at Grand Circus Park



NSO TUMAINI CENTER



Source: MSU "Spartan Sagas" 2011

The shelter of last resort in the Cass Corridor

SCOPE OF THE PROBLEM



D. Carpenter 2010



Source: Huffington Post, 2009

- Estimated 19,000 homeless in Detroit
- Unemployment rate 27% (officially)
- Jobless rate near 50%
- 17 FQHC's, no public hospital



DETROIT'S HOMELESS ARE VULNERABLE

Vulnerability Index: Homeless Death Prevention Study April 2010

Risk indicator	Nationally	Detroit
Sample Size	8575	211
Tri-morbid	54%	51%
3x ER or Hospital last year	34%	66%*
3x ER last 3 months	25%	43%*
> 60 years old	20%	13%
HIV+/AIDS	6%	7%
Liver Disease	19%	10%
Kidney Disease	9%	9%
Cold/Wet Weather Injury	15%	21%*
% vulnerable	42%	51%*

* Indicates higher than national average

Source : Corporation for Supportive Housing, 2010

DETROIT'S HOMELESS ARE TRANSIENT



D. Carpenter 2007

LEGAL/SOCIAL BARRIERS TO SERVICE

- Parole violators/open warrants
- Escaping domestic abuse
- Asylum seekers/illegal immigrants
- “Going ghost”
- Use of ‘street’ names
- Mental illness
- Organic brain disease
- Substance abuse
- Traumatic brain injury



Mexicantown



Largest Arabic Expatriate Community



TRAUMATIC BRAIN INJURY

Detroit Free Press

Fame, fortune have faded away for Detroit boxer Willie Edwards

MIKE BRUDENELL DETROIT FREE PRESS SPORTS WRITER
JUNE 12, 2011

He had a wife, two children and a dynamite right hand that could put you to sleep.

Willie (the Sandman) Edwards had the world at his feet and many opponents as well, whom he knocked down during his colorful boxing career in Detroit and across the country in the 1980s. Now the Sandman hides in a dark corner of a downtown homeless shelter, where his most precious possessions are an old folding chair and a few memories of his ring career.

"I don't want to cry about anything."



Source: Detroit Free Press 2011

UNDOCUMENTED IMMIGRANTS



Source: <http://www.d9.uscgnews.com/go/doc/443/73003/>

Busiest international border crossing in North America

TB SKIN TESTING – LOW FOLLOW UP

58-104

N90
TUBERCULOSIS SCREENING RECORD
30 Nov 19

Name	Date of Birth	Date of PPD #1 & Result	Date of PPD #2 & Result	X-Ray Date	Comments
ALTE	10-27-67	11-30-10			
ALLES	8-18-90	12-30-10	18 mm		
ALLEN	8-20-59				
ALLEN	6-7-77				
ALLEN	5-14-58		0 mm		
ALLEY	9-6-39				
ALTRON	11-25-76		0 mm		
ALVARO	10-10-54		0 mm		
ALVAREZ	8-7-92				
ALVAREZ	4-28-82				
ALVAREZ	1-8-49				
ALVA	5-25-71				
ALBA	9-15-58	12-3-10	18 mm		
ALBA	7-24-59		0 mm		
ALBA	7-13-84		0 mm		
ALBUQUERQUE	3-13-62				
ALBA	11-24-65	11-30-10	0 mm		
ALVAREZ	2-15-39	11-30-10	0 mm		
ALVAREZ	9-21-66				
ALVAREZ	10-15-65				
ALVAREZ	2-19-59	12-3-10	0 mm		CHEST XRAY ONLY
ALVAREZ	3-27-58				
ALVAREZ	11-14-61				
ALVAREZ	11-9-71				CHEST XRAY ONLY

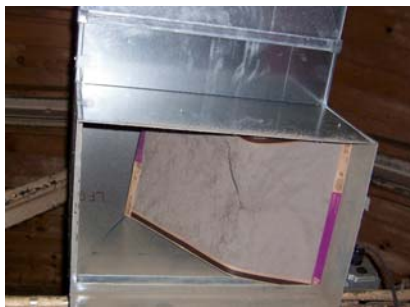
D. Carpenter 2012

20.2 % of individuals who had PPD placed had the test read

STEPS TAKEN TO MITIGATE OUTCOMES

- Improving Filtration
- Utilizing database for screening, referral and contact investigation
- Switching from TST to interferon - γ release assay (IGRA) testing
- Establishing close relationship with Detroit Health Department/other homeless service providers

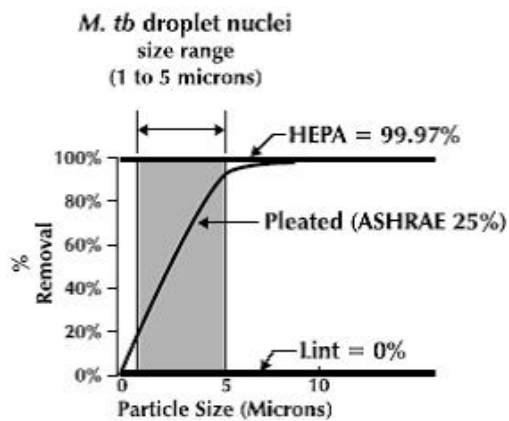
VENTILATION



D. Carpenter 2012

- Fiber filters capture no pathogens
- UVGI and HEPA filters are cost-prohibitive
- Pleated filters show some efficacy are affordable

FILTER EFFICACY



Source: Francis J Curry International TB Center

HMIS – HOMELESS MANAGEMENT INFORMATION SYSTEM



D. Carpenter 2012

A Statewide database - provides information on services rendered and a screening tool/searchable database for contact investigation

SCANNING A CONSUMER INTO HMIS

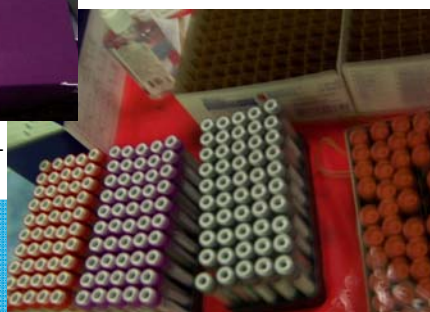


D. Carpenter 2012

QUANTIFERON – TB GOLD TESTING



D. Carpenter 2011



TB TESTING – DETROIT HEALTH DEPARTMENT



D. Carpenter 2011

The “Crew” – providing not only Quantiferon TB testing, but also HIV and syphilis testing.

RESULTS OF TESTING

- 92 Registered and screened
- 61 Tested (66.3%)
- 31 Refused (33.7%) or not available
- 5 Positive (8%)
 - +2 cases from contact investigation (not homeless and previously identified)
- 0 Active disease in reactors
- 1 Positive syphilis (1%)
- 0 Positive HIV test



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Case Study: TB and Shelter Staff

A TB Control and Case Management
Perspective

Monica Heltz, RN MPH

February 7, 2012



Day 1

- “David,” a 31 year-old man, presented to a local emergency department from the street with a two-month history of productive cough, fevers, night sweats and shortness of breath
- Chest X-ray showed infiltrate in left upper lobe, CT showed cavitation
- Had been staying in local homeless shelter
- Admitted for TB rule-out



Context



Dormitory sleeping arrangements in a shelter



David's History

- Positive Interferon Gamma Release Assay (IGRA) nine months prior, no treatment
- HIV positive for three years, no treatment, lost to follow-up
- Bipolar and schizophrenia, for which he received disability
- Alcohol addiction
- Incarceration
- Recent hospital encounters for: stab wound, suicidal ideation, TB rule out two and five months prior with negative X-rays
- Seen 1 week prior in emergency department for same. CXR showed patchy airspace opacities



What do you see as potential problems for TB case management?



Lunch patron at a local shelter



Day 11 - 16

- Client missing from hospital, smear positive, confirmed TB on probe



Day 23 – Discharge from hospital
Day 24 – Missing from shelter



What might you need to consider
when discharging clients to shelters?



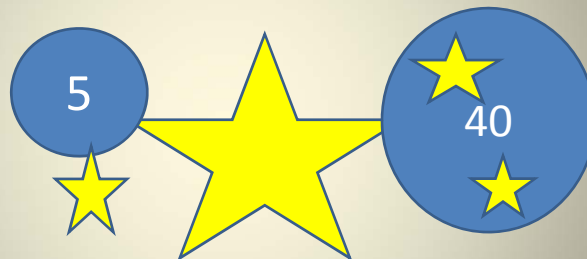
"Regulars" at a local shelter



Remainder of therapy



What about contacts?



Summary of this case

- 3 shelters involved: 1 day shelter, 1 discharge shelter, 1 overnight shelter
- Multiple interactions with health care system prior to diagnosis, but little follow-up
- Multiple co-morbidities
- Reluctance or inability to give up contacts
- Multiple challenges completing therapy
- Challenging contact investigation
- Completed therapy



If we could do it all over...

- Bed lists
- Use shelter staff
- Social work
- Communications
- Housing
- Alerts to providers



Lunch patron at area shelter



Regarding Homeless Clients



TB testing patron and me

- Be persistent
- Follow through on promises
- Be creative with incentives & enablers
- Housing is good, but don't forget food and other associated factors



Regarding Shelters



Resident and staff at a local shelter

- Resources, roles and rules are variable
- Education
- Respect
- Consistency
- Expertise



How can shelters and TB work together?

- Inclusive planning
- Teamwork
- Regular contact
- Capitalize on skills and services



Local shelter director and I showing off our great working relationship



Sign on door of room at local shelter



Planning for Homeless Clients



Our TB clinic

- Housing and food
- Social work involvement
- Contact investigations
- Notification systems
- Incentives & enablers
- Trust building



Outbreak Prevention

- Plan for homeless clients
- Maintaining relationships
- Technical assistance
- Screening
- Environmental measures
- Communicable disease code

TB Screening & Treatment Card			
NAME _____	DOB _____		
TST _____	mm induration	DATE PLACED _____	DATE READ _____
IGRA _____	results	DATE _____	
CHEST X-RAY DATE _____	RESULT	<input type="checkbox"/> normal	<input type="checkbox"/> abnormal
TREATMENT COMPLETED	<input type="checkbox"/> yes	<input type="checkbox"/> no (contact provider)	
NAME OF DRUG (S) _____			
STARTED _____	STOPPED _____	#of MONTHS _____	

TB Clearance Card for shelter residents



Outbreak Response



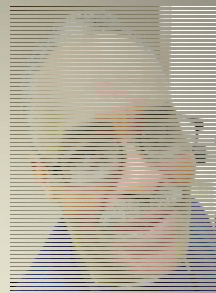
Providing TB testing with IGRA

- Targeted testing with immediate follow-up
- Incentives given only for follow-up
- Epi link investigation
- Short course therapy treatment DOT for LTBI
- Data management plan
- Data sharing plan
- Housing
- Ventilation improvements



Take Home

- The more you work with and involve your community partners, the easier it will be to find creative collaborative solutions when the need arises
- Trust-building is the most valuable activity you can perform



Circle City



INDY

























































































































































































































































































































































































































































