

**TB among Persons Experiencing Homelessness**

**Sapna Bamrah Morris, MD**

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National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention  
Division of TB Elimination

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**Overview**

- ❑ **Defining the problem**
  - Surveillance data (Tom Navin covered)
  - CDC investigation experience
  - New analysis of recent transmission data
- ❑ **Ways to address the problem and Why**
  - CDC's experience
- ❑ **Improving understanding of how programs address the problem (survey)**
- ❑ **Partners outside of DTBE**

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**DEFINING THE PROBLEM**

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**TB Incidence Rate 2007–2012\***

❑ **Homeless TB Incidence Rate:** 44 per 100,000

❑ **U.S. TB Incidence Rate:** 4 per 100,000

Year	Homeless TB cases by NTSS	Total number of homeless individuals (HMIS data)	TB incidence (homeless)
2007	828	1,588,595	52
2008	757	1,593,794	47
2009	667	1,558,917	43
2010	642	1,593,150	40
2011	599	1,502,196	40
2012	583	1,488,371	39

\*Sources include NTSS data and HUD Annual Homelessness Assessment Report

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**NTSS and NTGS Analysis**

INT J TUBERC LUNG DIS 17(11):1416–1419  
© 2013 The Union  
http://dx.doi.org/10.5588/ijtld.13.0270  
E published ahead of print 12 September 2013

**Tuberculosis among the homeless, United States, 1994–2010**

S. Bamrah, R. S. Yelk Woodruff, K. Powell, S. Ghosh, J. S. Kammerer, M. B. Haddad  
Centers for Disease Control and Prevention, Atlanta, Georgia, USA

❑ **First time we have published**

- National homeless TB incidence rate
- Homeless TB patients' clustering rates

❑ **Updated analysis from 2005**

- Similar conclusions regarding substance use and advanced disease at diagnosis

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**NTSS and NTGS Analysis (2)**

❑ **Important findings:**

❑ **20% of homeless TB patients are foreign born**

- Foreign-born TB patients who are homeless are similar in risk factors to U.S.-born homeless TB patients

❑ **Substance use continues to be a major problem among TB patients who are reported as homeless**

- Homeless patients with TB were 11 times more likely to report substance use than nonhomeless patients with TB

❑ **TB patients who are homeless are more often incarcerated at time of diagnosis**

- 9% homeless v. 3% nonhomeless

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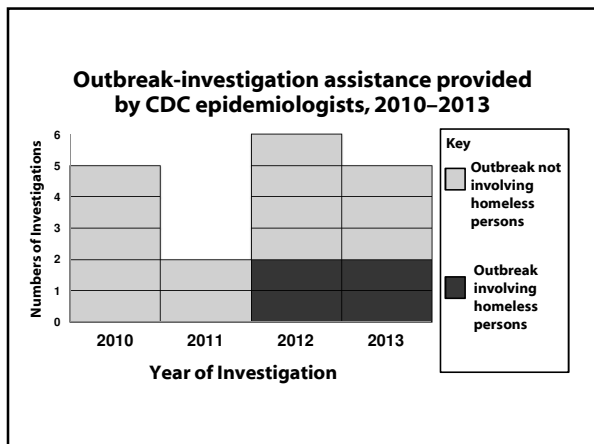
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### Comparison of outbreaks, by association with homelessness

Characteristic	Patients predominantly non-homeless (N=14)	>80% patients homeless (N=4)	Total (N=18)
<b>Number of cases investigated</b>	138	233	371
Mean per outbreak	10	58	
Median per outbreak	8	49	
Range	3–28	37–99	
<b>Number of contacts identified</b>	7,888	31,217	39,105
Mean per outbreak	563	7,804	
Median per outbreak	320	5,935	
Range	105–2,493	1,393–17,954	
<b>Corrections, n (%)</b>	3 (23%)	0	3 (18%)
<b>High-incidence jurisdiction, n (%)</b>	0	3 (75%)	3 (24%)

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- ### Common features of outbreaks, 2010–2013
- ❑ **Excluding 2 outbreaks in Puerto Rico, 14/16 (88%) outbreaks involved predominantly U.S.-born**
    - In remaining 2 outbreaks, all foreign-born patients had been in the United States ≥10 years
  - ❑ **Congregate settings were commonly implicated as primary sites of transmission**
    - 3 outbreaks involved health-care facilities
    - 4 outbreaks involved homeless shelters
    - 3 outbreaks involved corrections facilities
    - 9 outbreaks involved substance-use venues

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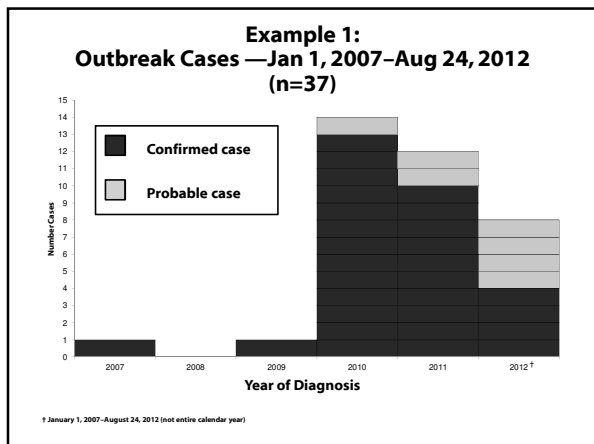
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**Example 2:  
Large outbreak in a high-incidence setting**

- Approximately 130 TB cases reported as homeless, but 45 cases linked by genotype and epidemiology
  - Suggesting recent transmission
- Patients stayed at 10 major shelters while infectious
- Investigation identified 17,954 unique people who stayed at the same shelter overnight with at least 1 infectious case
  - Over 4,700 people stayed >30 nights at the same shelter with at least one infectious case

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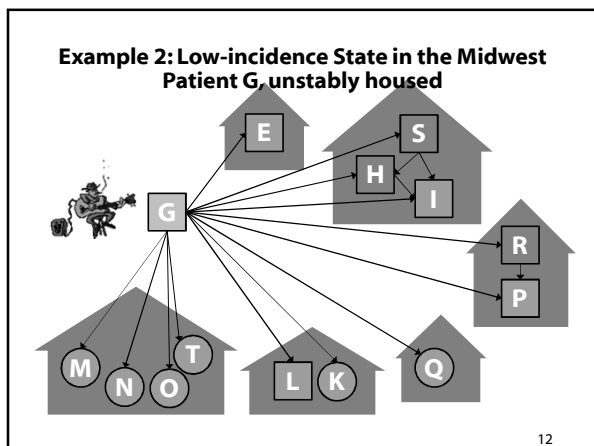
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**Preliminary Analysis using  
a Yet-to-be-Published Algorithm:  
Recent Transmission & Homelessness**

	Crude Odds Ratio (95% confidence intervals)		
	Not recent transmission	Limited recent transmission (cluster of ≤4 cases)	Elevated recent transmission (cluster of ≥5 cases)
Homeless (when compared to non-homeless TB patients)	Reference	2.0 (1.6-2.5)	9.1 (7.3-11.2)

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**Outcomes of homeless  
versus non-homeless TB patients**

- ❑ **Homeless patients were more likely to have had advanced disease than nonhomeless patients**
  - Higher prevalence of cavitory and AFB smear positive TB disease
- ❑ **Homeless TB patients had a greater likelihood of not completing treatment due to being lost to follow-up, having moved or refusing treatment**
  - US-born homeless TB patients had **2.3 times (2.2–2.5)** and foreign-born homeless TB patients **2.6 times (2.3–2.9)** the odds of not completing treatment.
  - Incarcerated homeless patients were less likely to complete treatment

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**ADDRESSING THE PROBLEM**

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**Why be concerned about an outbreak of TB among the homeless?**

- **Persons experiencing homelessness are at higher risk of TB than the general population**
  - Congregate settings (shelters)
  - Higher rates of incarceration
  - Mental illness
  - Substance use
  - Limited access to health care
  - Delays in diagnosis leading to more severe disease
- **While outbreaks may indicate that the majority of recent transmission is occurring in congregate settings, TB can and will spread to the community at large**

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**What are the best practices to control TB among the homeless?**

- **Limited literature, so unable to update recommendations based on literature review alone**
- **DTBE and local/state programs with experience during outbreak response**
  - Connecting Health Care for the Homeless (HCH) Grantees to TB programs
  - Leveraging knowledge of shelter directors during outbreak investigations
  - LTBI treatment for those who are infected
    - Large pool of potential cases at higher risk of progression
    - Providing DOT for LTBI treatment onsite at shelters or other satellite sites
- **Housing First programs**

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**Survey of county TB control programs**

- **Investigation of interventions for TB control among persons experiencing homelessness**
- **Surveyed 220 jurisdictions**
  - Inclusion criteria: >15 cases from 2009–2011, at least 1 homeless
  - Mean number of TB cases: 114.3 (median 48)
  - Mean number of homeless cases: 7 (median 3)
  - Questions regarding TB outbreaks, staff capacity, partnerships, contact investigations, housing interventions
- **161 responses (73%) from local jurisdictions**
  - 48% >500,000 population
  - 52% < 500,000 population

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**Survey: TB Outbreaks among Homeless**

Years	No outbreaks	1 outbreak	2 or more outbreaks	Total Jurisdictions Reporting
2011–2013	76%	12%	6%	151
2008–2010	78%	9%	1%	143
2005–2007	74%	11%	3%	140

\* Preliminary data

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**Survey: Perceptions of and Policies Regarding TB among Persons Experiencing Homelessness\* (N=161)**

- ❑ **48% of jurisdictions reported TB among homelessness to be a problem for their program**
  
- ❑ **Policies:**
  - 44% reported having a written policy on addressing TB among the homeless
  - 16% reported that they rely on other guidelines or policies including CDC guidelines from 1992

\* Preliminary data

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**ONGOING ACTIVITIES & PARTNERSHIPS**

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**Ongoing Activities & Collaborations  
with Partners**

- ❑ **Survey of TB programs to support best practices**
- ❑ **Collaboration with National Health Care for the Homeless Council (HRSA)**
  - Technical assistance onsite
  - Webinar
- ❑ **Collaboration with US Interagency Council on Homelessness (USICH)**
  - Working with multiple members to help agencies "THINK TB"
- ❑ **Curry TB Center Toolkit**
- ❑ **Homeless workgroup**

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For more information please contact Centers for Disease Control and Prevention

1600 Clifton Road NE, Atlanta, GA 30333  
Telephone: 1-800-CDC-INFO (232-4636)/TTY: 1-888-232-6348  
E-mail: [cdcinfo@cdc.gov](mailto:cdcinfo@cdc.gov) Web: <http://www.cdc.gov>

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

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