TB in Prisons and Jails
Albuquerque, New Mexico
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TB in Prisons and Jails: Public Health Challenges and Opportunities
Sarah Bur, RN, MPH
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Sarah Bur, RN, MPH has the following disclosures to make:

• No conflict of interests
• No relevant financial relationships with any commercial companies pertaining to this educational activity
Tuberculosis in Prisons & Jails: Public Health Challenges and Opportunities
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Objectives

• Review the rate of incarceration in the United States and contributing factors.
• Review factors that increase the risk of TB occurrence and TB transmission in correctional facilities.
• Identify public health challenges and opportunities related to TB prevention and control in correctional facilities.

Observation #1

Correctional facilities are high incidence TB settings with a high risk for TB transmission—and there are a lot of them.
In 2010, 2.3 million persons were incarcerated in the U.S.

**Incarceration in the United States**

- Incarceration Rate (2010): 962 inmates/100,000 adults
- From 1980 to 2008 incarcerated population increased >600%
- 2009 & 2010 showed first declines in incarcerated population since 1980
Epidemic of Incarceration

- Untreated mental illness
  - Deinstitutionalization / dissolution of mental health care facilities
- Untreated substance abuse (40-50%)
- Criminalization of drug use
  - Mandatory minimum sentencing, etc.
- Incarceration of undocumented immigrants

Correctional Facilities

- Jails/Detention Centers
  - Usually administered by local law enforcement
  - Incarcerates
    - pretrial inmates
    - inmates with < 1 year sentence
- State prisons
  - Sentenced inmates
- Federal prisons
  - Pretrial & sentenced inmates related to federal crimes
Private Correctional Facilities

- Private companies contract with governments that commit prisoners and pay per diem or monthly rate per prisoner.
- Privatization refers to:
  - management of existing public facilities by private operators.
  - building and operation of new and additional prisons by for-profit prison companies.
- In 2010, 12.7% of federal inmates and 7.5% state inmates were housed in privately run facilities.

Federal Correctional System

- Federal Bureau of Prisons (FBOP)
  - 132 facilities (includes 16 contract facilities)
  - Average census 2010: 196,166 (25% foreign born)
- U.S. Marshals Service (USMS)
  - Responsible for inmate transport
  - Contracts with ~1800 correctional facilities (often local jails)
  - Detained prisoners in 2010: 225,329
Federal Correctional System

- U.S. Immigration and Customs Enforcement (ICE)
  - 11 detention facilities (includes 5 contract facilities)
  - Contracts with ~240 additional correctional facilities (often local jails)
  - Removals in FY2010: 392,862 (100% foreign born)


![Map showing percent of designed prison capacity occupied in 2005](image-url)
TB incidence among inmates diagnosed in correctional facilities is 5 times greater than for the general population of the U.S.
**Tuberculosis & Incarceration**

- Inmates at high risk for TB:
  - HIV, foreign birth, substance abuse, lower socio-economic status
- Congregate setting
  - overcrowding / poor ventilation
- Frequent inmate movement

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**TB & Incarceration**

- Numerous outbreaks in correctional facilities reported in literature with evidence of transmission to nearby communities\(^1\,\(^2\)
- Outbreaks frequently associated with delay in diagnosis of active TB
- Crowding associated with higher incidence of TST conversion\(^3\)

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2. CDC. Tuberculosis Transmission in Multiple Correctional Facilities --- Kansas, 2002—2003. MMWR 53(32) 734-738
MDR-TB in a Federal Pretrial Facility

• 57 year old Tijuana taxi driver crossed Mexico border into U.S.
  • Picked up by Customs and Border Protection
  • Immediately hospitalized with alcoholic hepatitis
  • History of Type II Diabetes on metformin. Started prednisone→ insulin dependence
• One week later moved to FPF
  • Portable chest x-ray (CXR) read as “negative”. No TB symptoms

- Three months later diagnosed with pulmonary tuberculosis
  - Cavitary CXR, AFB smear positive
  - Cough x previous 6 weeks with hemoptysis
  - Two months later: Susceptibility Results →
    - Resistance to rifampin, isoniazid, pyrazinamide, streptomycin
    - Re-read of initial CXR: “subtle evidence of upper lobe disease”


- Index case housed on 120 bed unit during infectious period:
  - total of 131 days
    - including 41 days after returning from initial hospitalization on standard 4-drug therapy.
  - Very high turnover
  - Never left unit – meals/recreation occur on-unit
### MDR-TB in Federal Pretrial Facility (2010)

- 388 inmate contacts identified
  - Prior Positive TST: 155/384 = 40%
    - 25/117 (21%) U.S. Born
    - 130/267 (49%) Foreign Born
  - Inmate TST conversions: 29 /158 (18%)
    - 9/66 (14%) U.S. Born
    - 20/92 (22%) Foreign Born
    - 17/69 (25%) Housed in same Quarter
  - Staff TST conversions: 4/87 (4.6%)
  - One clinical case of lymphatic TB — HIV infected inmate.

### MDR-TB Contact Treatment Protocol

- Documented TST Convertors, HIV-infected, Prior Positive TST & Shared the Same Quarter
  - Daily Moxyfloxacin & Ethambutol
    - 9 months HIV-negative
    - 12 months HIV-positive
MDR-TB Contact Investigation: Dispersal of 388 Inmate Contacts 12 Weeks into the Investigation, 2010
Observation #1

Correctional facilities are high incidence TB settings with a high risk for TB transmission.

Observation #2

Correctional facilities are high TB incidence settings often located in low incidence communities that lack TB expertise.
TB in Correctional Facilities

• Correctional facilities are TB high incidence settings often located in low incidence communities

• Health care providers in low incidence communities often lack experience with TB diagnosis and treatment
  • Jail/Prison health services staff
  • Local community physicians

TB Case Study
28 year-old inmate from Dominican Republic

Intake Screen  4/23/12

Tuberculosis:
- Hx of Previous Disease: No
- Blood-tinged Sputum: No
- Night Sweats: No
- Weight Loss: No
- Fever: No
- Cough: No

PPD – 4/25/12 = 10 mm

History & Physical  5/2/12

Tuberculosis:
- Hx of Previous Disease: No
- Blood-tinged Sputum: No
- Night Sweats: No
- Weight Loss: No
- Fever: No
- Cough: No
Positive. RUL, RML and LUL changes c/w TB
5/2/12:

Inmate reports two months with productive cough, chills, weight loss, started in state prison.

Has a positive PPD. C X R --with right pulmonary infiltrates.

Temp = 97.9

Sent to Emergency Room

5/8/12

Hospital calls indicating that they are sending the inmate back:

TB ruled out. AFB smear negative x 3; RUL pneumonia diagnosed.

Prescribed: Azithromycin and Bactrim.

Intake Temperature: 100.0
Has TB been ruled out?

Admin Note: 5/11/12:

Patient has been kept in respiratory isolation since his discharge from community hospital.

Subsequently: MTD (Direct Test) = Positive MTB
Observation #3

Public health / corrections collaboration is key to TB prevention & control in correctional facilities.

Examples of Deliverables

**Public Health**
- Consultation
  - TB diagnosis & treatment of cases
  - Release Planning
  - Contact Investigation
  - Policies/Procedures
- TB education

**Correctional Facilities**
- Case Detection
- Case Reporting
- Active TB Treatment
- Release Planning
- Contact Investigation
- Treatment of Latent TB Infection
Ongoing TB education of correctional healthcare workers and custody staff, as well as inmates, poses major challenges.
Observation #5

Release planning for inmates with active TB is a critical aspect of TB control in correctional facilities.
Observation #6

Correctional facilities provide opportunities for TB prevention & control.

Opportunities for TB Control

- TB Case Detection
  - in hard-to-reach high risk populations
- Treatment of Latent TB Infection
  - INH/Rifapentine – Extraordinary Opportunity
    - INH: 72 twice weekly doses
    - INH/Rifapentine: 12 once weekly doses
Conclusion

Allocation of limited public health resources should reflect the fact that correctional facilities are high priority settings for TB prevention and control.
The challenge is implementation...