TB in the Correctional Setting
Florence, Arizona
October 7, 2014

Implementing IGRA Testing in Correctional Facilities
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• No relevant financial relationships with any commercial companies pertaining to this educational activity
Implementing IGRA Testing in Correctional Facilities

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Conflict of Interest Disclosure

• The speaker is not receiving an honorarium for this presentation

• The speaker is not a member of any speakers' bureau of, nor a paid consultant to, any company involved in the manufacture/production of any diagnostic test or device related to tuberculosis and has no equity interest in any such company

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Overview

• Background on incarceration in the U.S.

• Overview of NYC jail system

• Decision to use QuantiFERON®-TB Gold In-Tube (QFT-GIT) in NYC jails

• Implementation of QFT-GIT pilot and program in NYC jails

• Lessons learned

Incarceration Rates of Selected Countries

Source: International Centre for Prison Studies, World Prison Brief
In 2012, ~2.23 million persons were incarcerated in the U.S.

Incarceration in the United States

In 2012
• 1 in every 35 persons behind bars or being monitored via probation or parole

In 2008
• 1 in 18 males, 1 in 89 females
• 1 in 11 non-Hispanic Blacks
• 1 in 27 Hispanics
• 1 in 45 non-Hispanic Whites

Source: U.S. Department of Justice, Bureau of Justice Statistics
Health Status of Inmates

Inmates more likely than general public to have:

• **Active tuberculosis** (5-15x)
• Mental illness (2-3x)
• Substance abuse disorders (3x)
• HIV / AIDS (6x)
• Hepatitis B or C infection (5-10x)
• Sexually Transmitted Infections (8-9x)


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Tuberculosis in Corrections

• High incidence and prevalence of TB among incarcerated populations
• Spread by airborne transmission
• Many TB outbreaks in correctional facilities, involving staff, inmates, and community
NYC Jail System

• 2nd largest municipal jail system in the US
  – Over 80,000 annual admissions
  – Average daily census: 12,300
  – Average Length of Stay: 32 (median: 8) days

• NYC Dept of Correction (DOC) operates jail facilities

• NYC DOHMH mandated by City Charter to provide health care to NYC jail inmates

• 2001-present: Prison Health Services (now Corizon, Inc.), a national correctional health vendor
Rikers Island Overview

Source: NYC Department of Correction

• Manhattan Detention Complex

• Brooklyn House of Detention

• Bronx - Vernon C. Bain Center
NYC Jail Health Services

- Admission history and physical exam: ~200/day
  - Public health screening
    - HIV: Insti rapid testing
    - STI: urine-based NAAT for Ct/Ng, RPR for syphilis
    - TB: IGRA, CXR
    - Hepatitis: one-time screening of persons born 1945-1965
- Sick call for anyone who requests: ~600/day
- Chronic care and medical f/u visits: ~1,800/day
- Emergencies ~30/day → ~8 hospital transfers

Intake TB Screening

- Intake history and physical exam within 24 hours
- TB symptom screen
- Chest radiographs for inmates with history of positive tuberculin skin test (TST) or HIV infection to look for active TB
- Historically, used TST for latent TB infection (LTBI) screening
- NYC DOHMH had long wanted to replace the TST with interferon gamma release assay (IGRA)
Why change to IGRA?

- Short-term stays in jail are the norm
- Most inmates are temporary detainees
  - ~25% leave within 3 days of admission
- 1/4 of TSTs implanted at intake could not be read
- Inmates need TST re-implanted on subsequent incarcerations
- Substantial amount of work to implant, read, and document TSTs

IGRA

- Newer technology for identifying TB infection
  - Test the body’s immune response to TB antigens
    - QFT-GIT (Qiagen)
    - T-SPOT.TB® (Oxford Immunotech)
- Similar to / better than TST in detecting TB infection
- Fewer false-positives than with TST
- More efficient testing and result process
CDC IGRA Guidelines

- IGRAs can be used in all situations in which currently use TST
  - Preferred in those who received BCG vaccine or with low likelihood of returning for TST read
- Management of positive IGRA is same as for reactive TST

QFT in NYC

- Used throughout city in hospitals, clinics
- Used in DOHMH TB Clinics since 2006
  - 66% reduction in positive tests when replaced TST with QFT
  - Devote resources to people who are likely infected with TB
IGRA Pilot in NYC Jails

• Main barrier to IGRA implementation: cost

• 2009: identified funding to do an IGRA pilot to determine feasibility, acceptability, and efficacy

• For cost and logistical reasons, selected QFT-GIT

• Selected the female jail Rose M. Singer Center (RMSC) for pilot
  – Minimal transfers in and out of facility
  – Most experience with electronic health record

Literature Review / Expert Opinion

• Conducted literature review

• Spoke with IGRA experts
  – Tiffany Harris, Bureau of TB Control, DOHMH
  – Gerry Mazurek, CDC
  – Masae Kawamura, San Francisco Health Dept

• Lessons learned, facilitators, barriers
TST Process and Cost Assessment

• Observed the TST implantation, reading, and documentation processes at RMSC

• Calculated the cost of using TST versus QFT-GIT
  – Assumed a 66% reduction in positivity based on DOHMH TB Clinic experience
  – Less chest radiographs, liver function tests, etc.

• Determined that, while cost-neutral, using QFT-GIT would result in significant process efficiencies

• Worth doing a pilot at RMSC

Key Stakeholders

• NYC DOC
• Corizon, Inc.
• NYC Board of Correction (BOC)
• NY State Commission on Correction
• NYS DOC
• Reference laboratories
Collaboration

• Involved key stakeholders from beginning
  – Explained rationale for using IGRA
  – Requested permission from NYC BOC to replace TST

• Solicited concerns and suggestions
  – Particularly from NYC BOC, DOC, and Corizon, Inc.
  – Assurance that using IGRA would not impede intake process or miss TB cases

• Involved in major aspects of planning (facility level)
• Kept them updated on progress

QFT-GIT Implementation

• Replace TST with QFT-GIT
  – Determine new workflow and new needs
  – Update jail TB screening policies and protocols
  – Remove TST from clinics

• Make changes to electronic health record
  – Facilitate QFT-GIT ordering and result retrieval
  – Develop training guides

• Establish protocols with new laboratory
  – Frequency of specimen pick-ups and tracking reports
  – Notification of priority results and troubleshooting

• Order QFT-GIT supplies and ensure proper storage
Staff Training

• On-site at jail facility
  – Each tour (8 hour shift)
• Comprehensive
  – Updated QFT-GIT policies and procedures
  – Electronic health record and laboratory changes
  – Specimen collection
• Included leadership, clinical, lab review, infection control, and quality assurance staff
• Resource binder in the clinic
• Available on-site/by phone during pilot go-live

Rose M. Singer Center QFT-GIT Pilot

• Initiated in March 2011; later became jail policy
• Continued all routine TB screening methods
• Replaced TST with QFT-GIT at jail intake
• Use of QFT-GIT was feasible, acceptable, and efficient in the jail setting
Expansion of QFT-GIT Program

- In 2011, expanded the program to all newly incarcerated females
  - >15,200 tests conducted among females

- In August 2012, expanded program to include all remaining NYC jail facilities
  - >41,000 tests conducted among males

QFT-GIT Program Results

- In 2013: overall tested >50,000 persons
  - 4% of females and 5% of males tested positive
  - Similar to historical TST data
  - Analyzing population sub-groups
  - Baseline indeterminates: <2%
  - Numerous process efficiencies realized
Process Efficiencies

- No separate process during intake
  - We were already doing blood draws at intake, so could easily incorporate 3 QFT-GIT tubes

- No need to have TST nurse track down the patient in the facility to "read" TSTs.

- Electronic health record made TB screening much faster/easier to track and follow

- As QFT-GIT is laboratory-based, can easily retrieve results in electronic health record and continue care

Lessons Learned- Facilitators

- Strong collaboration between DOC, DOHMH, & Corizon, Inc.
  - Must have buy-in from key stakeholders

- Pilot
  - Showed feasibility, acceptability, process efficiencies
  - Reassured stakeholders re: not disrupting intake process
  - Enabled us to expand the program

- TB Nurse- proactive, dedicated

- Ongoing quality assurance, staff feedback, and support

- Electronic health record- documentation and reporting
Lessons Learned - Challenges

• Two different laboratories - confusion on where to send specimens → "Test Not Performed"
• Documentation in electronic health record - new process → mistakes that needed correcting
• Per diem staff → need ongoing training in proper specimen collection, where to send specimens, etc
• Despite best planning, encountered new issues that required changes to electronic health record, retraining staff (e.g., intakes that cross midnight)

Lessons Learned - Challenges

• 2012 QFT-GIT Lot Recall
  - Likely affected NYC jails from May-Sept 2012
  - Still following up on possible false-positives
• Evidence of reversions on serial testing
  - TB Ag-Nil cut-point of ≥0.35 IU/mL
  - Need additional guidance
• 2013 QFT Indeterminate Issue
• Reminder that no screening tool is perfect!
Conclusion

- NYC jails have replaced TST with QFT-GIT as part of our LTBI screening program
- Realized numerous process efficiencies with QFT-GIT versus TST
- Operational considerations remain (e.g., how to handle reversions)
- Reviewing our QFT program data to further guide NYC jail program and policy

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