TB Talk – New England

*TB - “The Disease that Keeps on Giving”*
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Objectives

• Discuss case management of infectious pulmonary TB case in foreign-born adult

• List social/medical, family and employer issues

• Discuss strategies to manage the home and work setting of active TB case
Case History

- Index case is a female in her 40s

- 9/24/11- Seen by provider for cough

- 10/3/11 - S/S persist - CXR shows LL pneumonia with bilat upper lobe infiltrates; Z-Pak/cough syrup

- 12/23/11 - Ongoing cough worsening since 12/14/11 - Strep negative; bronchitis, pharyngitis

- 12/28/11 – S/S persist and now fevers - dx. same Augmentin and Levoquin added
• 2/18/12 – persistent cough - TST planted, CXR & Zithro ordered; Pt. stopped after few doses

• 2/20/12 TST 40x50 mm, abnormal CXR with inflammatory process and question of TB

• 2/24/12 RISE TB Clinic received referral - RIDH called

• Pt. placed on isolation

• “Let the games begin...”
Physical Exam

- 2/27/12 Pt. evaluated at TB Clinic
- Admits to hx of TST+ with LTBI tx for 9 months in 1996-97; records confirmed
- Cough/fever/night sweats/wt. loss since 10/11
- Lungs clear and no cervical adenopathy
• HIV rapid test – negative

• Five sputa - 1 thru 3 specimen neg; 4 and 5 specimen few AFB

• CBC/WNL

• AST = 25
Social History

• Born in Cambodia and 1980 arrived in U.S.

• Lives with 2 daughters and intermittent BF of Dgtr 1

• Dgtr 2 and granddaughter visit frequently

• Brother’s family of 5 on 2nd floor and estranged from Pt.

• 2nd brother, wife and 2 children visit occasionally
Social History

• Both brothers with children not cooperating with testing

• Dgtr #2 not dependable for care of her dgtr (grddgtr of Pt.)
1st Floor – Pt. and Family:
Pt., Dgtr #1 and her BF, Dgtr #3

Dgtr #1 - diagnosed with active TB
Dgtr #3 - LTBI
BF - not fully evaluated
CP Household and Family Contacts

1st Floor – Pt. and Family:
Pt., Dgtr #1 and her BF, Dgtr #3

Dgtr #1 - Active TB
Dgtr #3 - LTBI
BF - not fully evaluated

Pt.’s Family:
Dgtr #2, BF, 1 yo

Dgtr #2 - never evaluated
1 yo – evaluated, window prophy, not infected
BF - TST+, never showed for further eval
# CP Household and Family Contacts

<table>
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<th>2nd Floor – Extended Family:</th>
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<tbody>
<tr>
<td>brother of Pt., his wife, and 3 children</td>
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<td>Both Pt. and the family deny contact</td>
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<td>despite multiple visits and letters from DOH</td>
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brother of Pt., his wife, and 3 children
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NOT EVALUATED
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1st Floor – Pt. and Family:
Pt., Dgtr #1 and her BF, Dgtr #3

Dgtr #1 – diagnosed with
active TB
Dgtr #3 - LTBI
BF - not fully evaluated

Pt. Family:
Dgtr #2, BF, 1 yo

Dgtr #2 - never evaluated
1yo – evaluated, window
prophy, not infected
BF - TST+, never showed for
further eval

Extended Family:
2nd brother of Pt., his wife, 3 yo, 4 yo
Pt. denies contact
Brother – LTBI
Wife – LTBI
3 yo – LTBI
4 yo – not infected
Pt.’s Treatment Course

- Started drug therapy 3/5/12
- Rifampin (RIF) 600mg
- Isoniazid (INH) 300mg
- Ethambutol (EMB) 1200mg
- Pyrazinamide (PZA) 1000mg
Drug Susceptibility Testing

- Sputum collected 2/18/12; susceptibility reported on 3/26/12
- INH and Streptomycin RESISTANT
- INH discontinued
- One contact already on INH was switched to RIF
- Other contacts were evaluated for treatment post-susceptibilities and RIF prescribed PRN
Isolation History

- 2/24/12 initiated after suspicious CXR at PCP
- 3/26/12 Pt. went to work site to pick up paycheck!
- 3/28/12 home visit to reinforce isolation to home
- 5/21/12 left house to appear at court
- 6/4/12 home isolation d/c’d
Work Site Evaluation/Plan

- 3/6/12 Initial interview - pt. states works with 7 others
- 3/9/12 Call placed to owner of company who stated 225 employees with 80% foreign born
- 3/12/12 Site visit with the 3 co-owners to discuss plan for employee informational session for 3/19/12 and owner compiles list of the possible exposed employees
- 3/15/12 Owner requests informational session sooner because employee anxiety and session held that day
- 3/27/12 1st TST clinic per owner request
Work TST Clinic

24 total contacts identified
Work TST Clinic – 1st Round

- 1st round of testing 3/27/12
- Results:
  - 24 contacts identified
    - 18 TST negative
    - 5 contacts are TST+
      - All foreign-born (4 from Guatemala, 1 from Cambodia)
      - All evaluated at RISE Clinic and started on LTBI meds
    - 1 contact had been treated for active TB in 2001
      - Evaluated at RISE for s/s active disease and negative
      - RISE would later determine to retreat based on contact investigation results
• 2nd round of testing 6/5/12
• Results:
  – 18 contacts negative 1st round to be retested
    • 16 contacts negative 2nd TST
    • 1 individual who never followed up for 2nd TST
  • 1 CONVERTER
• Summary results of testing
  – 24 contacts identified
    • 23 fully evaluated (1$^{\text{st}}$ and 2$^{\text{nd}}$ TST)
      – 16 Not infected
      – 7 Infected and started on LTBI therapy
        6 previously positive
      1 Converter
The Converter

- Converter was not originally on employee list for TST

- Remember, only those working in the same department as pt. were to be tested

- Converter added as a result of brief exposure when pt. went to worksite 3/26/12 to pick up paycheck!
Why this conversion?

- If the converter didn’t work in the same department, was this brief office encounter enough exposure or was she exposed somewhere else?

- This conversion required assessment to determine other work areas for possible exposure
*There were 12 lunch mates; 4 had already been screened in the first circle of testing

1st Circle Outcome:
7 LTBI (includes 1 TST conversion)

2nd Circle:
8 additional contacts identified
• 2nd circle of testing 7/17/12
• Pt.’s regular lunch mates tested (8 additional individuals)
• Results:
  – 5 TST negative
  – 1 QFT negative
  – 2 positive
    • 1 Cambodian male, claims never tested but then says had positive TST in 1986
    • 1 U.S. born female, reports negative TST 12 yrs ago, states she has lunch with index 2x/wk, no recent travel outside of U.S.
      – This person considered a “CONVERTER”
1st Circle Outcome: 7 LTBI (includes 1 conversion)
3/27/12

2nd Circle Outcome: 2 LTBI (includes 1 conversion)
7/17/12

3rd Circle: 27 additional contacts identified
8/21/12
3rd circle of testing 8/21/12

Increased TST testing to additional 27 individuals using lunch room in same shift as pt.

24 fully evaluated
- 21 TST negative
- 1 QFT negative
- 1 previous positive
  - Evaluated at RISE and started on 12wk DOT LTBI regimen
- 1 TST+
  - Portuguese female with no previous TST documentation
  - Evaluated at RISE and started on LTBI meds
3rd Circle Outcome: 2 LTBI

2nd Circle Outcome: 2 LTBI (includes 1 conversion)

1st Circle Outcome: 7 LTBI (includes 1 conversion)
59 total contacts identified over 5 months of investigation

3 circles of testing

93% of contacts were fully evaluated

Of those 93% evaluated, 20% were diagnosed with LTBI (11 individuals, including 2 conversions)

LTBI therapy completion for the 11 contacts

- 7 completed therapy
- 1 lost
- 1 d/c’ed for severe N/V
- 2 continue and expected to complete
Concentric Circle Discussion

• Was the 3rd circle necessary?

• Was “converter” from 2nd circle really a conversion?

• Time from exposure to testing – correct?
Worksite Considerations

• High volume of foreign-born employees, 75-80% of the total 225 employees
• Language barriers
• Educating employer and employees
• Employer’s concern regarding interruption in productivity
• Employer’s stress as a result of 3 clinics
• Question of increased employee anxiety regarding infection
• Undocumented status and job security
• Protecting confidentiality of index case and those requiring evaluation
Worksite, family & household, and a healthcare office

• 108 total contacts
• 84% fully evaluated
• Of those fully evaluated, 19% diagnosed with LTBI (17 individuals)
• 1 active TB conversion from household
• 2 LTBI conversions from worksite
• LTBI therapy completion for contacts:
  • 9 have completed therapy (56%)
  • 1 LTFU
  • 1 d/c’d for s/e
  • 5 continue and expected to complete
<table>
<thead>
<tr>
<th>Relationship to Index Case</th>
<th>Worksite</th>
<th>Healthcare Office</th>
<th>Family/Household</th>
<th>Total Contacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Contacts</td>
<td>59</td>
<td>34</td>
<td>15</td>
<td>108</td>
</tr>
<tr>
<td>Evaluation Status</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Not Evaluated</td>
<td>4</td>
<td>5</td>
<td>8</td>
<td>17</td>
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<tr>
<td>Fully Evaluated</td>
<td>55</td>
<td>29</td>
<td>7</td>
<td>91</td>
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<td>Outcomes of those Fully Evaluated</td>
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<tr>
<td>Not Infected</td>
<td>44</td>
<td>27</td>
<td>2</td>
<td>73</td>
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<tr>
<td>Active Disease</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Infected - no treatment</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Infected - treat</td>
<td>11</td>
<td>1</td>
<td>4</td>
<td>16</td>
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<tr>
<td>Status of LTBI Therapy for Infected-treat</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Completed</td>
<td>7</td>
<td>1</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>Lost to follow-up</td>
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<td>Side-effects</td>
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<tr>
<td>Continuing therapy</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>5</td>
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<tr>
<td>Conversions</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>3</td>
</tr>
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^ no treatment due to previous s/e with LTBI therapy
Case Management/DOT Issues

- Pt.’s family not trusting, does not disclose contacts
- Lack of trust/belief in medical system
- ? Understanding of medical complications
- Index case is breadwinner—needs to work
- Dgtr not reliable to follow thru with the care of child; sister stepped in to manage the care
Strategies for Success

- Pt.’s 1st dgtr willing to ensure the grdgtr receives meds on weekends

- RIDH worked with the most convenient schedule for all of them to prove we would support them

- The cooperation of the employer and diligent work of RIDH nurse made this a much easier situation to provide DOT at the worksite

- Consistent DOT worker strengthened the trust
Team Approach

- RISE medical staff stressed the same messages as public health staff in getting the family contacts in for testing.

- RISE physician and Cambodian DOT interpreter gains trust of Pt.

- In addition, the employer was on board with the necessary requirements for TST and getting employees to clinic.
• Discuss case management of infectious pulmonary TB case in foreign-born adult

• List social/medical, family and employer issues

• Discuss strategies to manage the home and work setting of active TB case
Lessons Learned

Remember the Importance of:

• Consistency in messages
• Developing trust with Pt. and family
• Consistency of DOT worker
• MOST of ALL – Anticipate worksite issues and strategies to keep things smooth