Challenges of ICF among PLHIV and how to move forward

13th Core Group Meeting of the TB/HIV Working Group
New York

G J Churchyard
17th April 2008
• Purpose of TB screening algorithms
  – Rule TB in: intensive TB case finding
  – Rule TB out: prior to starting IPT / ART

• Performance of TB screening algorithms
  – HIV
  – Setting

• Role of CXR

• The way forward
Performance characteristics

Definitions

- **Sensitivity:**
  \[
  \frac{\text{# with TB that have a positive test}}{\text{total # with TB}}
  \]

- **Specificity**
  \[
  \frac{\text{# without TB that have a negative test}}{\text{Total # without TB}}
  \]

- **PPV**
  \[
  \frac{\text{# with +ve test that have TB}}{\text{Total # with +ve test}}
  \]

- **NPV**
  \[
  \frac{\text{# with negative test that don’t have TB}}{\text{Total number with a negative test}}
  \]
Purpose of TB screening algorithms

• Provider initiated screening to find S+/S- TB
• Rule in TB: intensive TB case finding
  – High sensitivity to find as many TB cases as possible
  – High PPV to reduce # Ix inappropriately & load placed on clinics & labs
• Rule out TB: prior to starting IPT / ART
  – High sensitivity
  – High NPV to reduce # TB cases missed
Performance of TB screening algorithms

HIV

- Does not undermine performance of algorithms
- With increasing immunosuppression
  - Prevalence of respiratory symptoms increases
  - Prevalence of TB increases
    - Sensitivity unchanged or increases
    - PPV increases – 1x fewer people inappropriately
    - NPV decreases – more TB cases missed
Prevalence of symptoms & TB in PLHIV vary by setting

- Community
- ANC
- VCT
- Entry to HIV care
- Prior to ART
- On ART

TB prevalence

1.5% - 2%
10% - 20%
~2%
Role of CXR screening

<table>
<thead>
<tr>
<th></th>
<th>Sensitivity (%)</th>
<th>Specificity (%)</th>
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</thead>
<tbody>
<tr>
<td>Symptoms</td>
<td>51.7</td>
<td>75.0</td>
</tr>
<tr>
<td>Symptoms/CXR</td>
<td>93.1</td>
<td>49.7</td>
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(Day J, Int J Tuberc Lung Dis, 2006)
Role of CXR

- 11,077 screened (cough, night sweats, Wt loss & CXR) b/w Jun 06 and Oct 07 prior to starting IPT
- Screening detected 57.7% of all TB cases

<table>
<thead>
<tr>
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<th>Smear positive (N=56) n (%)</th>
<th>Smear negative (N=64) n (%)</th>
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<tbody>
<tr>
<td>Symptoms only</td>
<td>3 (5.3%)</td>
<td>12 (18.8%)</td>
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<tr>
<td>Abnormal CXR only</td>
<td>30 (53.6%)</td>
<td>43 (67.2%)</td>
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<tr>
<td>Symptoms &amp; abnormal CXR</td>
<td>23 (41.1%)</td>
<td>9 (14.0%)</td>
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The way forward

• Don’t wait for perfect algorithm. Start ICF now!
• Identify & address barriers to implementation
• Need to develop optimized screening algorithms, which may vary by
  — indication
  — Setting
  — Resources available, e.g. availability of CXR
• In TB endemic settings HIV-infected individuals should be screened routinely, including when on ART