Xpert MTB/RIF Implementation: Results, Impact and Lessons Learned

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Geneva

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Stop TB Partnership
TB REACH

• Promotes **early** and **increased** TB case detection using **innovative** approaches
  – Especially in poor, underserved & vulnerable
• Supported by Canada (UNITAID for Waves 3 & 4)
• Administered by the Stop TB Partnership
• Grants provided to projects selected on a competitive basis
• Provides programmatic evidence introducing new approaches in different settings
4 Funding Waves 46 Countries
142 Grants and over 90 Million USD Committed

51 Projects currently reporting Xpert testing data
Locations

• Placement
  – Mobile vans
  – Chest camps
  – Private laboratories
  – Health centers
  – District hospitals
Testing Algorithms

- All SS- (some using LED Mx)
- SS- with suggestive CXR
- SS- and HIV+

- All with symptoms
- All HIV+
- All with abnormal/suggestive CXR
- Seriously ill

Xpert General Results

- Data reported to TB REACH through December 31, 2013
- Data from 51 projects
- **295,342 tests performed**
- Programmatic evidence in a variety of settings

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Results from early programmatic implementation of Xpert MTB/RIF testing in nine countries

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Towards elimination of tuberculosis
Xpert Test Results

- Detected 38,668 MTB+ individuals
- Overall Crude Positivity 11%
- Effective Positivity (% among individuals tested - not including failed tests) 14.2%
  - Range per quarter (6.4 - 41.0%) - Median 12.5%
- Rif Resistant 4,621 (1.7% of individuals tested)
  - Range per quarter (0-14.2%) - Median 0.9%
- Failure Rate 7.9%
  - Slowly decreasing but widely variable
  - Range per quarter (1.2-28.4%) - Median 6.9%
Cost Per Test

- Not 9.98 USD
- Costs include machine and tests +, +, +
  - Port clearance, infrastructure, warranty, training, maintenance, reporting, transport networks
- How many tests do you do a year per machine?
- How many machines do you have?

<table>
<thead>
<tr>
<th>Country</th>
<th>Retreatment Cases</th>
<th>HIV+ TB Inc (Est)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRC</td>
<td>7,492</td>
<td>16,000</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>4,089</td>
<td>23,000</td>
</tr>
<tr>
<td>Nigeria</td>
<td>7,548</td>
<td>46,000</td>
</tr>
</tbody>
</table>

Running 500 tests a year costs you easily 60 USD per test in year one.

Most machines are not running at full capacity (or even near it).

Transforming the Fight
TOWARDS ELIMINATION OF TUBERCULOSIS
# Xpert Impact on Notifications

<table>
<thead>
<tr>
<th>Country</th>
<th>Algorithm</th>
<th>Successful Xpert Tests</th>
<th>MTB+ Yield</th>
<th>New B+ Crude Additional Cases</th>
<th>All Forms TB Crude Additional Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>DR Congo</td>
<td>After SM</td>
<td>6,180</td>
<td>507 (8.2%)</td>
<td>637 (+22.5%)</td>
<td>-401 (-16.1%)</td>
</tr>
<tr>
<td>Malawi</td>
<td>Direct &amp; After SM</td>
<td>5,780</td>
<td>649 (11.2%)</td>
<td>405 (+23.9%)</td>
<td>-467 (-10.3%)</td>
</tr>
<tr>
<td>Mozambique</td>
<td>After FM</td>
<td>6,267</td>
<td>907 (14.5%)</td>
<td>324 (+9.7%)</td>
<td>240 (+3.0%)</td>
</tr>
<tr>
<td>Nepal</td>
<td>After SM &amp; CXR</td>
<td>8,574</td>
<td>1,774 (20.7%)</td>
<td>1,219 (+34.3%)</td>
<td>-174 (-2.1%)</td>
</tr>
</tbody>
</table>

Transforming the Fight

TOWARDS ELIMINATION OF TUBERCULOSIS
Recoding and Reporting

• Uptake of WHO reporting guidelines is improving
• Different systems are found within same provinces - inhibits proper monitoring of impact
• As more machines are placed in service, reporting becomes more challenging
• Automated reporting systems are needed
Automated Tracking, Errors, Cartridges
What Happened?
Cartridges and Calibration

- Biggest problem so far is expired tests
  - Restrictive algorithms, poor planning
  - Customs clearance – and storage
  - Need to share tests – but what tests are you getting?
- Failed tests have a large cost, tracking user stats and error codes is critical, sputum quality
- Calibration compliance has improved but still not 100%
- Vast variations in module failure (5-100%)
  - Depends on infrastructure, location, electric supply?
Conclusions

• Lab interventions alone are unlikely to increase number of people put on TB treatment
• Other strategies are needed to test more people to increase case detection
• Who are we missing? People in or outside of health care system?
• Training – reporting - and good algorithms are critical
Thank You!

http://www.stoptb.org/global/awards/tbreach/xpertmtbrif.asp