**Introduction of Xpert MTB/RIF in national TB control programs of Nigeria and Indonesia: Experiences under TB CARE I**

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**Background:**

Xpert MTB/RIF is a new molecular assay to rapidly detect *Mycobacterium tuberculosis* (MTB) and rifampicin resistance. In March 2011, TB CARE I set out to support rapid implementation of this technique in routine laboratory services of the national TB control programs (NTPs) of Nigeria and Indonesia.

**Intervention:**

Workshops were held with the NTP and local stakeholders to establish an Xpert MTB/RIF advisory committee and develop a national implementation strategy. Diagnostic algorithms and clinical guidelines were developed. Sites were assessed and selected based on agreed criteria. Registers, operating procedures and training material were developed. Local trainers were trained, who trained health care staff on-site. Supply management and machines were set up: nine in Nigeria and five in Indonesia. Operator proficiency and challenges were assessed during supervision visits. Results continue to be monitored to evaluate impact.

**Results:**

Many consultation meetings were needed to decide on diagnostic algorithms and site selection. Both countries decided to use Xpert MTB/RIF to test HIV-positive and multidrug-resistant TB suspects. Registration of equipment took several months. On-site training, installation and operation showed minor problems with computer illiteracy, managing of error results, and occurrence of power outages. These were solved with re-trainings and infrastructure improvements. Linking up with clinics for patient referral and follow up was challenging. Capacity to treat MDR-TB patients and availability of second-line drugs were limiting factors for rapid scale up.

**Conclusion:**

Introduction of Xpert MTB/RIF was more complex than expected. Lessons learnt were that the Ministry of Health needs to orchestrate implementation by different in-country partners and donors based on a national strategic plan. Clinicians and health care staff should be involved in guideline development and trainings from the start together with laboratory experts. Implementation of Xpert MTB/RIF should be embedded in a comprehensive approach to expand and enhance program management of MDR-TB and TB/HIV in order to ensure effective treatment of newly diagnosed cases. TB CARE I will adjust its technical approach based upon these experiences.

**Overview of Xpert MTB/RIF machines, cartridges and tests performed under TB CARE I:**

<table>
<thead>
<tr>
<th>As of 30th September 2012</th>
<th>Nigeria</th>
<th>Indonesia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machines Procured</td>
<td>15</td>
<td>17</td>
</tr>
<tr>
<td>Machines Installed</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Cartridges Procured</td>
<td>7,800</td>
<td>1,709</td>
</tr>
<tr>
<td>Tests Performed</td>
<td>1,879</td>
<td>1,112</td>
</tr>
<tr>
<td>Tests MTB Positive</td>
<td>631 (34%)</td>
<td>688 (62%)</td>
</tr>
<tr>
<td>Tests Rifampicin Resistant</td>
<td>185 (10%)</td>
<td>234 (23%)</td>
</tr>
</tbody>
</table>

**The TB CARE I program approach to the introduction of Xpert MTB/RIF**

**Workshop NTP & local stakeholders**

- Establishment of National Advisory Committee
- Implementation Plan: - Suspect Selection - Diagnostic Algorithms - Pre-Selection Sites
- Site Assessments
- Final Site Selection
- Standard Operating Procedures Development
- Register & Request form development
- Training of Trainers
- On-site training & installation
- Routine Operation
- Monitoring & Supervision visits
- Refresher Trainings
- Infrastructure Improvements

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