Indonesia’s Experience in Introducing Xpert MTB/RIF

The 4th Annual Global Laboratory Initiative (GLI) partners meeting
Veyrier-du-Lac, France, 17-19th April 2012
BY DYAH ERTI MUSTIKAWATI, NTP Manager, MOH-Indonesia
Earlier and improve TB case detection to reduce the diagnostic delays are global and national priorities for TB control.

- Alarming increases in MDR-TB → TBMDR pilot implementation and KAP survey of Private Practitioners in 12 provinces
- Low reported of HIV-associated TB largely goes undetected due to the limitations of current diagnostic techniques
- WHO endorsed Xpert MTB/RIF in December 2010 and recommended to implement it in specific settings
- Xpert MTB/RIF expect to improve TB diagnosis in HIV patient and expand capacity as proxy to diagnose MDR-TB.
Initial Input of Xpert Implementation

- Procurement of 17 Xpert machines (support by USAID through TBCARE I project)
- Supply of 1700 Xpert MTB/RIF cartridges (support by USAID through TBCARE I project)
- TA for Xpert roll-out by TBCARE I in close coordination with NTP, Directorate of Medical Services Support (DMSS)
- Successful negotiation to include cartridge at SSF 1 – TB funding (75,000 cartridge up to December 2013)
- OR component:
  Monitoring implementation and collecting evidence for further scale-up of Xpert, in collaboration with local research group (TORG)
Country Focal Person and Partners

- **Focal Person:**
  Dyah Mustikawati (NTP) & Sri Widyastuti (DMSS)

- **Country GeneXpert Advisory Team (CGAT) consist of:**

<table>
<thead>
<tr>
<th>NTP &amp; BPPM</th>
<th>USAID</th>
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<tbody>
<tr>
<td>TB Expert committee</td>
<td>KNCV</td>
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<tr>
<td>PMDT Working Group</td>
<td>WHO</td>
</tr>
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<td>TB Lab Working Group</td>
<td>FHI</td>
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<tr>
<td>TORG</td>
<td>MSH</td>
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</tbody>
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- **National Reference Lab:** Microbiology UI
- **Supranational Lab:** IMVS, Adelaide, Australia
- **Local Service Provider:** PT Fajar Mas Murni
GeneXpert Implementation Steps

- **Step 1**: Workshop
- **Step 2**: Select the team
  - Xpert focal person
  - Country GeneXpert Advisory team (C-GAT)
  - Research institutes for OR
- **Step 3**: Selection of sites
- **Step 4**: Developing country specific implementation action plan
- **Step 5**: Develop OR plan
- **Step 6**: ToT and training
- **Step 7**: Implementation, supervision & monitoring
### Main Activities

<table>
<thead>
<tr>
<th>Date</th>
<th>Activities</th>
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<tbody>
<tr>
<td>12-18 Jun 2011</td>
<td>Visit by PMU TBCARE I to assist in developing implementation plan</td>
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<tr>
<td>July 2011</td>
<td>Procurement process for 17 unit Xpert MTB/RIF and 1700 cartridge through TBCARE I support, negotiation with TGF for continuation support of Cartridge</td>
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<tr>
<td>24 Aug 2011</td>
<td>Coordination meeting of CGAT (Country GeneXpert Advisory Team)</td>
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<td>Aug 2011</td>
<td>Assessment to several GeneXpert sites</td>
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<tr>
<td>20 Sept 2011</td>
<td>Final decision for 17 GeneXpert sites</td>
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<tr>
<td>19-23 Sept 2011</td>
<td>Workshop for preparation of ToT and GeneXpert training including training material, curricula etc.</td>
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## Main Activities (2)

<table>
<thead>
<tr>
<th>Date</th>
<th>Activities</th>
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</thead>
<tbody>
<tr>
<td>26-30 Sept 2011</td>
<td>GeneXpert Training for Trainer</td>
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<tr>
<td>03-05 Oct 2011</td>
<td>Training for 6 GeneXpert sites from Jakarta and Bandung</td>
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<tr>
<td>15 Nov 2011</td>
<td>CGAT meeting to finalize algorithm and M &amp; E forms</td>
</tr>
<tr>
<td>24 Jan 2012</td>
<td>Signing of Mou between MoH and 6 initial sites</td>
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<tr>
<td>February 2012</td>
<td>Final assessment to review readiness of 6 GeneXpert initial sites and meeting with TORG to finalize OR protocol.</td>
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<tr>
<td>March 2012</td>
<td>GeneXpert on site training and machine installation at 5 sites:</td>
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<tr>
<td></td>
<td>1. Persahabatan Hosp.,</td>
</tr>
<tr>
<td></td>
<td>2. Microbiology UI,</td>
</tr>
<tr>
<td></td>
<td>3. Moewardi Hosp.,</td>
</tr>
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*All above sites start implementation directly after on site training.

*Implementation at Hasan Sadikin Hosp. will be started once preparation of PMDT and collaboration of TB HIV are finalized.*
Diagnostic algorithms: 2 risk groups (HIV TB & MDR TB suspects)

A. Individuals at risk of MDR-TB
- Diagnosed with TB or
- Suspected of having TB

B. HIV (+) individuals (or HIV unknown in high HIV settings) suspected of having TB

Primary considerations

HIV (-) individuals not at risk of MDR-TB with either:
- Abnormal CXR
- Sputum smear (-) but still suspected of having TB

Secondary considerations

Individuals accessing health centre

Xpert MTB/RIF

TB, Rif resistance
- Enrol on MDR-TB regimen
- DST FLD and SLD
- ART if HIV +

TB, no Rif resistance
- Treatment regimen based on patient history
- ART if HIV +

No TB detected
- Appropriate further clinical management
- IPT if HIV +
Certified DST Lab. for confirmation of Xpert result

Certified lab

Under capacity building process towards certified lab
GeneXpert Workshop/TOT
Signing of MoU between MoH and GeneXpert Sites
GeneXpert On site training

Soetomo Hospital

Moewardi Hospital

Persahabatan Hospital

Hasan Sadikin Hospital
GeneXpert Operational research

- Based on the WHO ‘Rapid Implementation’ document.
- Hired 2 researcher to conduct GeneXpert Operational Research
- OR objectives: compare Xpert with currently used diagnostic algorithms by assessing the effect on:
  - Case notification rates and diagnostic delays
  - Operational implications of Xpert introduction
  - Service satisfaction of patients, lab-technicians and clinicians
Up to March 2012, 4 GeneXpert sites already operated in Indonesia:

1. Microbiology – UI
2. Persahabatan Hosp.
## Preliminary Data up to 31 Mar 2012

<table>
<thead>
<tr>
<th>No</th>
<th>Sites</th>
<th>Date start implementation</th>
<th>Number of Suspects</th>
<th>MDR TB</th>
<th>TB HIV</th>
<th>Total</th>
<th>MTB positive/Rif resistant</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Persahabatan Hosp.</td>
<td>05 March 2012</td>
<td>69</td>
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<td>69</td>
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<td>2</td>
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<td>23</td>
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<td>3</td>
<td>Microbiology UI</td>
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<td>4</td>
<td>Soetomo Hosp.</td>
<td>20 March 2012</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td></td>
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<tr>
<td></td>
<td><strong>Total</strong></td>
<td></td>
<td><strong>117</strong></td>
<td><strong>40</strong></td>
<td><strong>117</strong></td>
<td><strong>40</strong></td>
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Note: All patients who diagnosed Rif Resistant by GeneXpert were refer to MDR TB Treatment Centre/Clinic for treatment.
Challenges in introduction and roll out of Xpert MTB/RIF

- Expensive machines and consumables.
- Quality assurance, maintenance and calibration.
- Capacity to treat more MDR TB patients (Human Resources, infrastructure, funding etc)
- Availability of SL Drugs, not only in country level but also globally (Global Stock Scarcity)
- Limited Quality assured Culture/DST lab to support confirmation of Xpert TB/Rif result.
- Limited MDR TB treatment centre.
Next step

- Regular supervision and monitoring to all operating sites
- Assessment to other 11 GeneXpert sites to review readiness
- Speed up expansion of MDR TB treatment centre
- Increase capacity to treat more MDR TB patients (Human Resources, infrastructure, funding etc)
- Ensure availability of SL Drugs to cover more MDR TB patients.
- Speed up expansion of Quality assured DST lab and its networking to support confirmation of Xpert TB/Rif result.
Thank You