HIV Drug Resistance Surveillance and Monitoring in the Southeast Asia Region

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The HIV epidemic in Southeast Asia

- Estimated 3.5 million persons living with HIV (PLHIV) in the region
- Five countries account for >99% of disease burden
- Concentrated epidemic – IDUs, MSM, sex workers and their clients

<table>
<thead>
<tr>
<th>Country</th>
<th>Estimated number of PLHIV</th>
<th>% adult population infected with HIV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bangladesh</td>
<td>7,500</td>
<td>&lt;0.1</td>
</tr>
<tr>
<td>Bhutan</td>
<td>&lt;500</td>
<td>&lt;0.1</td>
</tr>
<tr>
<td>DPR Korea</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>India</td>
<td>2,300,000</td>
<td>0.36</td>
</tr>
<tr>
<td>Indonesia</td>
<td>270,000</td>
<td>0.2</td>
</tr>
<tr>
<td>Maldives</td>
<td>&lt;100</td>
<td>&lt;0.1</td>
</tr>
<tr>
<td>Myanmar</td>
<td>242,000</td>
<td>0.7</td>
</tr>
<tr>
<td>Nepal</td>
<td>70,000</td>
<td>0.4</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>4,000</td>
<td>&lt;0.1</td>
</tr>
<tr>
<td>Thailand</td>
<td>530,000</td>
<td>1.2</td>
</tr>
<tr>
<td>Timor-Leste</td>
<td>&lt;100</td>
<td>&lt;0.1</td>
</tr>
</tbody>
</table>
HIV treatment scale-up in SE Asia

- Estimated 1 million PLHIV in need of antiretroviral therapy (ART)

- Approximately 440,000 persons receiving ART in public sector

- Large-scale expansion of government sponsored ART programs in region since 2004
  - First-line therapy: standard NNRTI-based regimen
Factors that may affect the development of drug resistance in the region

• ART has been available in private sector for over 10 years in several countries
  – Receipt of non-standard regimens
  – Availability of protease inhibitors, other “salvage” drugs

• PMTCT scale-up is ongoing
  – Use of sd-NVP still common

• Increasing availability of second-line therapy
## Regional HIVDR Strategy and Progress

<table>
<thead>
<tr>
<th>Focus Country</th>
<th>Funding</th>
<th>EWI</th>
<th>Transmitted DR Survey</th>
<th>Monitoring Survey</th>
<th>Lab Accreditation</th>
</tr>
</thead>
<tbody>
<tr>
<td>India</td>
<td>SEARO GFATM (applied)</td>
<td>Pilot in 2009</td>
<td>Two completed</td>
<td>Two pilot surveys under analysis</td>
<td>2 National Reference Labs</td>
</tr>
<tr>
<td>Indonesia</td>
<td>Gates GFATM</td>
<td>Piloted 2008-9</td>
<td>One completed</td>
<td>Pilot ongoing</td>
<td>Assessment completed; capacity building</td>
</tr>
<tr>
<td>Myanmar</td>
<td>GFATM R9 (applied)</td>
<td>Pilot in 2010</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thailand</td>
<td>Other</td>
<td>2009</td>
<td>Two previous–2005/06</td>
<td></td>
<td>2 National Reference Labs</td>
</tr>
</tbody>
</table>
HIV DR assessment: India

- Threshold survey to evaluate transmitted resistance in two sites:
  - Mumbai VCT: completed in 2007
    - <5% transmitted HIVDR detected
    - Submitting for publication
  - Andhra Pradesh ANC: completed 2009
    - Analysis ongoing

- Monitoring survey in two pilot sites
  - Mumbai: enrollment and follow-up completed; specimens tested & analysis ongoing
    - 13% resistance at baseline; half of these patients had prior ART
  - Chennai: enrollment and follow-up completed, analysis & testing ongoing
HIV DR Activities: India

• Laboratory accreditation
  – National AIDS Research Institute, Pune: accredited since 2007
  – Tuberculosis Research Centre, Chennai: accredited since 2009
  – Interest to pursue training in DBS genotyping

• Collection of EWIs planned in 16 pilot sites in December 2009
  – To be combined with ART cohort analysis activities

• Development of five year workplan still to be planned
  – Expansion of EWI collection
  – Expansion of monitoring surveys—rolling sites
HIV DR activities: Indonesia

- Pilot of Early Warning Indicators (EWIs) collection and analysis initiated at four sites in Jakarta
  - First needed to strengthen/update routine record keeping at sites
  - Preliminary analysis ongoing

- Pilot monitoring survey initiated in 2008 in Jakarta
  - Enrolment completed, endpoint data collection ongoing
HIV DR planned activities: Indonesia

• Threshold survey to measure transmitted HIV drug resistance completed among IDUs in Jakarta in 2007
  – Sequencing completed at laboratory in Australia
  – <5% transmitted resistance detected

• Five-year HIV DR workplan drafted and finalized by national working group in 2008
  – Expansion of EWI collection
  – Rolling sites for monitoring surveys
  – Repeat threshold survey– planned for 2010 in Bali

• Work towards accreditation of national reference laboratory
  – University of Indonesia acquired sequencer in 2009
  – Keenly interested in developing capacity
HIVDR Activities: Myanmar

- HIVDR Working group just established in October 2009
  - Skeletal country workplan outlined

- Plan for EWI pilot in 5 sites (3 government sites, 2 NGO sites, including large MSF site) in 2010

- Country has applied for funds for HIVDR activities in GFATM Round 9 application
  - Focus for next 2-3 years primarily on EWI
  - Plan to initiate HIVDR prevention/monitoring survey in 2011-2012
HIV DR assessment: Thailand

- Three threshold surveys completed
  - VCT clinic (2005)
  - Blood bank (2005)
  - Sentinel surveillance of CSW in multiple provinces (2007)
  - Additional surveys in planning phase

- Monitoring surveys planned in three year cycles at representative sites
  - Working group revising protocol
HIVDR activities: Thailand

• Revised EWIs collection plan developed in 2009-09
  – Data downloaded from national computerized patient database
  – Representative of >700 hospitals
  – Analysis of all 6 EWI and two additional (Viral load, and AIDS defining illnesses)
  – Data validation, recommendations ongoing

• Two accredited HIVDR national reference laboratories since 2008/2009
  – National Institute of Health, Bangkok
  – Siriraj Hospital, Bangkok
Additional planned activities

• Establishment of national working group and workplan, with focus of EWI for NEPAL
  – Strategy was introduced at regional workshop

• Introduction of some elements of EWIs (as a routine use of ART data) for lower HIV burden countries
  – ART data/cohort analysis workshop November 2009 (Bangladesh, Bhutan, Maldives, Sri Lanka, Timor Leste)
Summary

• Reasonably high level commitment to HIV DR prevention and assessment in high burden countries

• Countries recognize importance and potential use of EWI data
  – Need to integrate to other routine ART data analyses

• Developing appropriate recommendations from EWIs is challenging— and still a work in progress
Issues and Challenges

- Sustainability of survey implementation in rolling cycle
  - Limited human resources and funding
  - Laboratory capacity

- Long delays in clearance of protocols by national and institutional IRBs; lack of clarity at country level at times on need for special ethical clearance for transmitted resistance surveys (surveillance vs. special survey)

- EWIs highlight the need to strengthen overall M&E systems and records
  - Including appropriate assessment of adherence
Additional issues raised by countries

- Countries beginning to ask about extending monitoring surveys beyond 12 months
  - Recognizing that even conducting at 12 month survey is a challenge

- Re-assessing targets for EWIs
  - Have been told by countries: “Targets are “lenient”; if LFU is 20% is that really an “early” indicator?”

- Difficult to implement strategies for HIVDR prevention and assessment in the private sector
  - Raised again and again as the “likely source” of HIVDR by national level stakeholders