The 1st National TB Prevalence Survey
The Gambia
December 2011-January 2012

(Very, very) Preliminary Results

29th April 2013

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Medical Research Council Unit-The Gambia

(MRC Unit - The Gambia)
**Background**

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Population size</td>
<td>1.776 million</td>
<td>500 ($US)</td>
</tr>
</tbody>
</table>

**Estimated TB Burden (2011)**

<table>
<thead>
<tr>
<th>Estimated TB Burden (2011)</th>
<th>Number</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cases (all forms)</td>
<td>2241</td>
<td>N/A</td>
</tr>
<tr>
<td>Mortality</td>
<td>79</td>
<td>5 per 100,000</td>
</tr>
<tr>
<td>TB cases with HIV</td>
<td>17%</td>
<td>N/A</td>
</tr>
<tr>
<td>Case notifications</td>
<td>1429</td>
<td>84 per 100,000</td>
</tr>
<tr>
<td>Treatment success</td>
<td>88%</td>
<td>88 %</td>
</tr>
</tbody>
</table>

Gambia NLTP Report, 2012
Methodology
Sampling design

80 clusters × 691 people = 55,281 Target
Selection criteria and health seeking behaviour

Individual inclusion criteria for eligibility:
- Age ≥ 15 years
- Residents who normally live in the area and spent at least one night in the household in the last 4 weeks before the census day
- Visitors who arrived in the household 4 weeks or more before the census day

Individual inclusion criteria for study participation
- Eligible individuals, based on study criteria
- Individual informed consent provided (or parent/legal guardian/family member 18 years or older for persons < 18 years or disabled persons who are unable to provide written consent by themselves).

Health seeking behaviour
- Interviews conducted for individuals eligible for sputum examination
Selection criteria and health seeking behaviour

Screening Positive

- The symptoms considered suggestive for TB in the guidelines of the National Leprosy and TB control programme are
  
  A. Cough that has lasted for 2 weeks or more,
  B. Chest pain
  C. Night sweats
  D. Shortness of breath
  E. Loss of appetite
  F. Weight loss

Eligibility for sputum examination is defined as

1) Any participant with a cough for 2 weeks or more
2) Any participant with a cough lasting <2 weeks and 2 or more symptoms from 1B-F
3) Any participant without a cough AND 3 or more symptoms from 1B-F
Laboratory methods

- **Smear:**
  - Direct and Concentrated smear microscopy utilized
    - LED fluorescence for direct microscopy on samples from field
    - ZN stain for concentrated microscopy for decontaminated samples

- **Culture media:**
  - BD BACTEC™ MGIT™ and BD MGIT™ TBc Identification Test used for cultures

- **Other:**
  - All samples processed at 1 central laboratory
  - GeneXpert MTB/RIF available but not used
  - Drug sensitivity testing of positive samples- planned
  - Participants were not screened for HIV testing
Main Challenges
Main challenges of survey implementation

- **Participation targets**
  - were not reached especially for the 25-44 years age group despite our efforts.

- **Procurement delays**
  - X-ray equipment went through EU tender process because of unit cost
  - Stock out for falcon tubes as a result of change in procurement policy

- **Equipment malfunction**
  - Hardware: X-ray tube and X-ray stand
  - Software: X-ray work station, X-ray reader work stations, connections-frequently damaged network cables
  - High ambient temperatures affected X-ray unit

- **Laboratory**
  - Burden of samples for lab
  - Symptom criteria was refined with a consequence that some eligibles were not asked to give sputum. Bulk in the early part of the survey but this reduced laboratory load.
  - High contamination rate with liquid cultures despite precautions (~12% in survey but 5% in another study on TB suspects from health facilities that was running concurrently
Main challenges of survey implementation

- **Logistics**
  - Transport, significant dependence on MRC transport pool as budget not sufficient to cover all vehicular needs
  - Bad terrain and the rainy season made some areas inaccessible
  - Delays in crossing The River Gambia using ferries for teams working on the North Bank of the country
  - One RTA during adverse weather conditions

- **Finding suitable survey sites**
  - Getting a suitable place to accommodate the x-ray equipment
  - Some areas had no suitable central sites and affected participation
  - Some areas were sparsely populated and participants had to travel long distances or be transported to get to the survey site
  - Suitable accommodation for staff in remote parts of the country

- **Data Flow**
  - Significant burden but well compensated for by MRC data entry pool
RESULTS
## Participants

<table>
<thead>
<tr>
<th>Category</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total census</strong></td>
<td>100,678</td>
</tr>
<tr>
<td><strong>Eligible to participate</strong></td>
<td>55,832 (55.5%)</td>
</tr>
<tr>
<td></td>
<td>41,570 (41.3%) children</td>
</tr>
<tr>
<td></td>
<td>3276 (3.3%) non-residents</td>
</tr>
<tr>
<td><strong>Participants</strong></td>
<td>43,100 (77.2%)</td>
</tr>
</tbody>
</table>
Eligibility by age group and sex

![Bar chart showing eligibility rates by age group and sex. The y-axis represents the percentage eligible (%), and the x-axis represents age groups (15 to 24, 25 to 34, 35 to 44, 45 to 54, 55 to 64, 65+). The chart compares male and female eligibility rates across different age groups.]
Participation by age group and sex

Overall participation rate: 77.2%
Participation by cluster (Chronological order)
**Screening and laboratory investigations**

<table>
<thead>
<tr>
<th>Category</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total screened</td>
<td>43,100</td>
</tr>
<tr>
<td>Symptom positive</td>
<td>2,382 (40.1%)</td>
</tr>
<tr>
<td>CXR positive</td>
<td>2,382 (40.1%)</td>
</tr>
<tr>
<td>Both symptom and CXR positive</td>
<td>1,025 (17.2%)</td>
</tr>
<tr>
<td>Screened positive</td>
<td>5,947 of 43,100 (13.8%)</td>
</tr>
<tr>
<td>Total specimens obtained</td>
<td>5,517 (spot 1) 5,382 (spot 2)</td>
</tr>
<tr>
<td>Number of participants with lab results</td>
<td>5,376 (2 samples/2 cultures)-97.4%</td>
</tr>
</tbody>
</table>
Lessons Learnt
Major lessons and implications to the NTP

- Only a few of the prevalent smear positives were known to the NLTP
- The burden of survey defined TB was significantly higher in males compared to females and particularly those aged 35-54 years.
  - Male targeted interventions may be needed
- There is a significant burden of TB among the elderly especially males
- The current TB diagnostic strategy (symptom screen and smear microscopy) will identify a little more than half of all cases
- Increased access to Chest X-ray and bacteriologic confirmation-culture/GeneXpert should be part of the response to survey data
- Burden of TB previously overestimated (highly likely)
Acknowledgements

- MRC Unit
  - leadership
  - Research Support Office
  - Data management team
  - Operations-Transport/Finance

- Ministry of Health Gambia
  - Permanent secretary
  - Director of Health Services
  - Mr. Adama Jallow -TB Programme Manager
  - TB programme senior staff
  - Directors and staff, Regional Health Teams

- The Gambia Survey Steering Committee

- Gambia survey field team

- Survey participants

- Ethiopia
  - Ministry of Health, and
  - TB survey team leader-Dr. Tibebu

- Technical Advisory Group
  - Marina Tadolini
  - Sian Floyd

- WHO HQ
  - Ikushi Onozaki
  - Babis Sismanidis
  - Katherine Floyd

- WHO Gambia
  - Dr. Thomas Sukwa

Investing in our future

The Global Fund
To Fight AIDS, Tuberculosis and Malaria
Supplementary slides
<table>
<thead>
<tr>
<th>Category</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total specimens obtained</td>
<td>5518</td>
<td>0.55%</td>
</tr>
<tr>
<td>Any smear positive</td>
<td>36</td>
<td>0.65%</td>
</tr>
<tr>
<td>Any culture MTB</td>
<td>64</td>
<td>1.16%</td>
</tr>
<tr>
<td>S+C+</td>
<td>21</td>
<td>0.38%</td>
</tr>
<tr>
<td>S-C+</td>
<td>43</td>
<td>0.78%</td>
</tr>
</tbody>
</table>
## Study cases

<table>
<thead>
<tr>
<th></th>
<th>Smear positive MTB cases</th>
<th>Bacteriologically confirmed MTB cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of study cases</td>
<td>33</td>
<td>43</td>
</tr>
<tr>
<td><strong>Definite case</strong></td>
<td>21</td>
<td>43</td>
</tr>
<tr>
<td><strong>Probable case</strong></td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td><strong>Possible case</strong></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Non-study cases</strong></td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>Number of cases that are smear positive</td>
<td>-</td>
<td>33</td>
</tr>
</tbody>
</table>

**Definite cases:**  
<smear + or – but culture + and MTBc identified>  
**Probable cases:**  
<smear + culture – but CXR suggestive of TB>
## Health seeking behaviour

<table>
<thead>
<tr>
<th>Indicator</th>
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<tbody>
<tr>
<td>Total number of TB survey cases</td>
</tr>
<tr>
<td>Number of TB survey cases who were not on treatment at the time of the interview</td>
</tr>
<tr>
<td>Number of TB survey cases who were symptomatic</td>
</tr>
<tr>
<td>Number of symptomatic TB survey cases not on treatment at the time of the interview</td>
</tr>
<tr>
<td>Number of TB cases detected by the survey who were already on treatment (Where did they seek care?)</td>
</tr>
<tr>
<td>Number of symptomatic TB cases not on treatment but who sought care (Where did they seek care?)</td>
</tr>
<tr>
<td>Number of TB survey cases that started on treatment after being detected by the survey</td>
</tr>
</tbody>
</table>