Module 3. Setting up an Integrated NTDP

Session 2. Mapping
Objectives

- Understand the purpose of mapping.
- Understand the methods used to map specific NTDs.
- Understand the importance of and where to obtain existing epidemiological data.
- Discuss the mapping needs for their own countries and best operational approaches.
- Understand the limitations of diagnostic tools and the need for quality control.
Starting a Programme

Module 3. Setting Up an Integrated NTDP
Session 2. Mapping

Setting up

- Situation analysis
- National NTD Master Plan

Mapping

- Stakeholder meeting
- Infection prevalence
- Disease Prevalence
Purpose of Mapping

To determine the endemicity and related intervention strategy.
FIRST – Conduct Situation Analysis and Assess Usefulness of Existing Data

Data are available in:
- Ministry of Health
- Academic theses
- Non-Governmental Organizations reports
- In-country published literature
- In-country disease-specific specialists
- Health facility records/statistics

Assess:
- When was the data collected?
- Have interventions been done?
- Has the local ecology changed?
- Is it suitable for decision making for PC and morbidity control?
- Are the maps complete? Are there gaps for any of the NTDs?
Specific NTD Data Sources

WHO/NTD country profiles
Endemic country profiles presenting an estimate of the population at risk, epidemiological maps, progress towards coverage goals:

WHO/NTD PC databank
Reports regularly on progress, annual data on the # and coverage of SAC and Pre-SAC receiving PC. For each endemic country, the following data is available by year:
Specific NTD Data Sources 2

Global atlas of helminth infections
http://www.thiswormyworld.org/

Global atlas on schistosomiasis
http://www.who.int/wormcontrol/documents/maps/en/

Global atlas on trachoma
http://www.trachomaatlas.org
Issues for Discussion

• Maps are for programme planning.
• Pro and cons of coordinated mapping.
• Frequency of mapping exercise.
• How to implement when funds for mapping are not available.
• How to proceed when mapping data are not reliable.
## Exercise:

Complete the Table Below Based on Information Presented in the Next Slides

<table>
<thead>
<tr>
<th>NTD</th>
<th>Diagnostic for mapping</th>
<th>Threshold for PC</th>
<th>PC strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>LF</td>
<td></td>
<td>Prevalence ≥1% in adults</td>
<td>IVM/DEC+ALB once a year</td>
</tr>
</tbody>
</table>
| STH          | **High-risk:** Prevalence ≥50% in SAC  
**Moderate-risk:** Prevalence ≥20% but <50% in SAC  
**Low-risk:** Prevalence <20% in SAC | ALB/MBD twice a year  
ALB/MBD once a year  
No MDA | |
| Schistosomiasis | **High-risk:** Prevalence ≥50% in school-age children (SAC)  
**Moderate-risk:** Prevalence ≥10% but <50% in SAC  
**Low-risk:** Prevalence <10% in SAC | PZQ once a year  
PZQ Once every two years  
Individual treatment | |
| Onchocerciasis | Prevalence of infection >40% or  
Prevalence of palpable nodules >20%  
Prevalence of palpable nodules >5% or where transmission indicated  
*Delineation guidelines under revision* | IVM once a year | |
| Trachoma     | **High risk:** TF prevalence ≥10% in 1- to 9-year-olds  
**Low risk:** TF prevalence 5%-10% in 1- to 9-year-olds | AZT once a year at district level  
AZT once a year at village level | |
LF Mapping: ICT

- Prevalence of W. bancrofti antigen
- Performed with 100 µl of blood
- Blood applied to test card
- Results must be read at 10 minutes – training required!
- 50-100 persons for ICT prevalence
- Test cards must be stored at 4°C prior to use
New ICT Version – Filariasis Test Strip (FTS)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>ICT</th>
<th>FTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Shelf life</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Results window</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Sensitivity*</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Specificity*</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Labelling</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Handling</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Cost</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Disease Specific Mapping – LF

- Indicator: prevalence of W. Bancrofti microfilariae
- Sampling frame: at least 1 village/site in an implementation unit
- Sample size: 50-100 persons for ICT prevalence
- Persons tested: >15 year old who have lived in the community for more than 10 years
- Sites are purposeful selected based upon local knowledge of LF prevalence
Mapping – Schistosomiasis and STH

Infection prevalence and intensity in SAC:
- Kato Katz,
- Point of care CCA

Morbidity
- Ultrasounds and nutritional indicators
- Not recommended to include in control programmes, but may be undertaken by universities with separate research funding.

Note:
1. Hookworm eggs disappear if slides are not read promptly
2. Timing of impact assessment should be as close to next MDA as possible
Disease Specific Mapping – STH

**Indicator:** prevalence of eggs in stool and intensity (eggs/gramme)

**Sampling frame:** 5 villages with expected high prevalence in each ecological zone

**Sample size:** 50 SAC per school or site

**Persons tested:** School age children (5-14 olds)
Disease Specific Mapping – Schistosomiasis

**Indicator:** prevalence of eggs in stool or CCA

**Sampling frame:** 5 villages with expected high prevalence in each ecological zone

**Sample size:** 50 SAC per school or site

**Persons tested:** School age children (5-14 olds)
Clinical Exam – Trachoma

- Children examined for follicular trachomatous inflammation (TF) and/or intense trachomatous inflammation (TI).
- Adults examined for trichiasis (TT).
- Grading is subjective, therefore persons performing the mapping must be trained and their grading standardized.
### Disease Specific Mapping – Trachoma

**Indicator:** prevalence of active trachoma (TF) and trichiasis (TT)

**Sampling frame:** probability sample

**Sample size:** 50–100 children per cluster

**Persons tested:**
- 1-9 year-old children for active trachoma (TF)
- >15 year-olds for TT
Diagram on Decision Making for the Antibiotic Treatment of Trachoma

**Baseline TF_{1-9} ≥ 50%**
- A, F, E
- Implementation ≥ 7 rounds of MDA

*Program evidence has shown that areas with baseline TF_{1-9} ≥ 50% often require at least 7 rounds of MDA.

**Baseline TF_{1-9} 30-49.9%**
- A, F, E
- Implementation ≥ 5 rounds of MDA

**Baseline TF_{1-9} 10-29.9%**
- A, F, E
- Implementation ≥ 3 rounds of MDA

**Baseline TF_{1-9} 5-9.9%**
- Targeted** A
- as appropriate to program needs (1 round); Conduct F, E

**Baseline TF_{1-9} < 5%**
- No A needed; Conduct F, E

**The need for “targeted” antibiotic treatment is determined by the Ministry of Health based on its judgment and contextual knowledge. Zithromax® may be requested from the Trachoma Expert Committee.**

*Program evidence has shown that areas with baseline TF_{1-9} ≥ 50% often require at least 7 rounds of MDA.*
Programme Manager Considerations

- Good training and field supervision are essential.
- Quality control is an important component of data collection.
- Communities should be informed about the purpose of the surveys and treatment provided for those infected.
- WHO thresholds are to guide not restrict MoH decision making and drug donations.
- Ethical standards for data collection and storage should be observed.
- Submitting an M&E plan for ethical approval of all activities is advisable.
- Mapping data will be required for TIPAC (budgeting).
- Resources can be requested for mapping (TA/support from international partners or local universities) but should not drain resources for control activities.
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<tr>
<td>LF</td>
<td>Antigen detection (ICT) or mf detection in blood</td>
<td>Prevalence ≥1% in adults</td>
<td>DEC+ALB once a year (MDA 2)</td>
</tr>
<tr>
<td>STH</td>
<td>Detecting eggs in stool</td>
<td>High-risk: Prevalence ≥50% in SAC Moderate-risk: Prevalence ≥20% but &lt;50% in SAC</td>
<td>ALB/MBD twice a year (T3)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Low-risk: Prevalence &lt;20% in SAC</td>
<td>ALB/MBD once a year (T3)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>No MDA</td>
</tr>
<tr>
<td>Schistosomiasis</td>
<td>1. Detecting eggs in urine or stool</td>
<td>High-risk: Prevalence ≥50% in school-age children (SAC)</td>
<td>PZQ once a year</td>
</tr>
<tr>
<td></td>
<td>2. Detecting blood in urine (hemastix or questionnaires)</td>
<td>Moderate-risk: Prevalence ≥10% but &lt;50% in SAC</td>
<td>PZQ Once every two years</td>
</tr>
<tr>
<td></td>
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<td>Low-risk: Prevalence &lt;10% in SAC</td>
<td>Individual treatment</td>
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<td>Onchocerciasis</td>
<td>Prevalence infection/ Palpable nodules / mf in skin snips</td>
<td>Prevalence of infection &gt;40% or Prevalence of palpable nodules &gt;20% Prevalence</td>
<td>IVM once a year</td>
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<tr>
<td></td>
<td></td>
<td>of palpable nodules &gt;5% or where transmission indicated Delineation guidelines under revision</td>
<td></td>
</tr>
<tr>
<td>Trachoma</td>
<td>Eyelid examination for follicular inflammation (TF)</td>
<td>High risk: TF prevalence ≥10% in 1- to 9-year-olds</td>
<td>AZT once a year at district level</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Low risk: TF prevalence 5%-10% in 1- to 9-year-olds</td>
<td>Targeted AZT</td>
</tr>
</tbody>
</table>
What do you think are the key messages from this session?
Key Messages

• Most data for selecting appropriate NTD intervention is already available.
• Mapping is used to support public health decisions.
• In areas where part, or all of the data is not available a survey should be organized but not delay implementation of control activities in areas for which data is available.
• Collection of new data should be conducted in a way that minimizes travel and duplication of effort.
• Mapping data will serve as the baseline for NTD programme monitoring and evaluation.
Group Work: Mapping

- Prepare country map presenting the different interventions needed in the different areas by shading the districts according to prevalence.
- Identify country areas for which the available epidemiological information are not sufficient and survey should be conducted.
- Plan for the possible integration of the different activities: assess areas/districts where coordinated mapping should be conducted.