Module 7: Training of drug distributors (community drug distributors and teachers)

20.08.15

Session 7.1. Drugs and dosages
Session 7.2. Drug delivery approaches/mechanisms
Session 7.3. Job aids
Objectives

1. Learners will be able to define and identify target populations (both eligible and ineligible populations) for treatment.
2. Learners will be able to list the recommended drugs for treatment of PCT NTDs.
3. Learners will be able to specify the dosage of drugs for treatment of specific NTDs.
4. Learners will be able to outline the different drug delivery mechanisms.
5. Learners will be able to clearly outline the steps involved in the administration of drugs.
6. Learners will be able to list possible side effects/adverse reactions.
Target population-Schistosomiasis

- School-aged children (5<15 years old)
- Women of childbearing age (15-39 years old)
- Special occupational groups:
  - Workers in water irrigation schemes
  - Fishermen
## Target population-worms (STH)

<table>
<thead>
<tr>
<th>Category</th>
<th>Prevalence of any STH in SAC</th>
<th>Action</th>
<th>Also treat</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>≥50%</td>
<td>Treat all SAC enrolled and non-enrolled twice yearly</td>
<td>PSC WCBA including pregnant women in 2&lt;sup&gt;nd&lt;/sup&gt; and 3&lt;sup&gt;rd&lt;/sup&gt; trimester At risk workers: farmers, miners, etc</td>
</tr>
<tr>
<td>Low</td>
<td>20-50%</td>
<td>Treat all SAC enrolled and non-enrolled annually</td>
<td>PSC WCBA including pregnant women in 2&lt;sup&gt;nd&lt;/sup&gt; and 3&lt;sup&gt;rd&lt;/sup&gt; trimester At risk workers: farmers, miners, etc</td>
</tr>
<tr>
<td>&lt;20%</td>
<td>Case by case treatment</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

District Level Management NTD Training Course
Drugs for treatment of worms and schistosomiasis

Worms/STH
Drug- Albendazole (ALB) or Mebendazole (MBZ)

Schistosomiasis
Drug- Praziquantel (PZQ)

Note: Drugs must always be stored in a clean, safe, dry and cool location
## Drugs and dosages for treatment of worms and bilharzia

<table>
<thead>
<tr>
<th>Disease</th>
<th>Drug</th>
<th>Dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worms/STH</td>
<td>Mebendazole</td>
<td>One tablet (500mg)</td>
</tr>
<tr>
<td></td>
<td>Albendazole</td>
<td>One tablet (400mg)</td>
</tr>
<tr>
<td>Bilharzia</td>
<td>Praziquantel(PZQ)</td>
<td>Use Tablet Pole</td>
</tr>
</tbody>
</table>
Side effects

- Albendazole are effective and safe.
- Adverse events are very rare and mild. They include nausea, abdominal pain, vomiting and fatigue.
- The most common side effect is mild abdominal pain, which does not require treatment, and will go away.
- Adverse events are mostly experienced by children with the most worms.
Lymphatic filariasis
Target population

- Whole communities if LF prevalence is ≥1%
- MDA is based on the principle of directly observed treatment (DOT)
- ‘Effective’ MDA is defined by these goals:
  - Epidemiological coverage ≥65%
    \[
    \frac{\text{# treated}}{\text{total at risk population}} \times 100\%
    \]
  - Geographic coverage should scale-up to 100%
  - Program coverage ≥80% (before full scale up)
    \[
    \frac{\text{# treated}}{\text{total eligible targeted in endemic area}} \times 100\%
    \]
  - National coverage ≥80% (when full scale up achieved)
    \[
    \frac{\text{# treated}}{\text{total eligible requiring PC at national level}} \times 100\%
    \]
Lymphatic filariasis and Onchocerciasis treatment

- WHO strategy aims both at transmission control and elimination through community-directed (MDA) treatment programmes and at disease control through individual patient management.

- In areas where LF is co-endemic with onchocerciasis, (ivermectin + albendazole) reduces blood microfilariae by 99% for a full year; even a single dose of ivermectin administered annually can result in 90% reductions;
Drugs for treatment of lymphatic filariasis

Community-wide treatment, once-yearly, with a single-dose, 2-drug regimen in tablet form:

**ivermectin**
Mectizan 3mg

**albendazole**, 400 mg
same dose for all ages

Both drugs are administered at the same time under supervision (direct observation therapy)
Ivermectin dosage

**Dosage:** The dosage is determined by the client’s height.

<table>
<thead>
<tr>
<th>Height (cm)</th>
<th>Dosage (No. of tablets)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 90</td>
<td>0</td>
</tr>
<tr>
<td>90-119</td>
<td>1</td>
</tr>
<tr>
<td>120-140</td>
<td>2</td>
</tr>
<tr>
<td>141-158</td>
<td>3</td>
</tr>
<tr>
<td>&gt;158</td>
<td>4</td>
</tr>
</tbody>
</table>
Onchocerciasis treatment

- Community Directed Treatment with Ivermectin (CDTI)
- Entire communities are treated
- Single dose of IVM per annum can kill first stage larvae (mf) in those infected and prevent transmission
- To be ‘effective’
  - Epidemiological (therapeutic/drug) coverage ≥80%
  - Geographic coverage 100%
Drug for treatment of onchocerciasis

Ivermectin (Mectizan 3mg)

Dosing Schedule

<table>
<thead>
<tr>
<th>Height (cm)</th>
<th>Dosage (No. of tablets)</th>
</tr>
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<tbody>
<tr>
<td>Less than 90</td>
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</table>
Trachoma

The SAFE strategy is the recommended approach of the World Health Organization (WHO) for attaining the control and eventual elimination of blinding trachoma.

Antibiotics treat active disease (TF or TI).

The antibiotic component of the SAFE strategy aims to suppress transmission in the community by treating the pool of infection found in specific groups of individuals.
Criteria for treatment of trachoma

- TF ≥10% @ district: treat entire district
- TF 5 - 9% @ sub-district: treatment of entire communities
- TF <5% @ sub-district: no MDA, but family treatment may be needed
Drug for treatment of trachoma

The recommended antibiotic, oral Zithromax® (single dose of 20 mg/kg) to eliminate infection and decrease the occurrence of clinical signs.
Zithromax® dosages

All individuals older than 6 months should be offered a single oral dose of Zithromax®
The dose is to be determined by the individual’s height.

- Children aged 6 months to 5 years (or those weighing Less than 15 kgs) should receive Zithromax® pediatric oral suspension (POS).
- Children over the age of 5 years who can swallow tablets and adults should receive Zithromax® tablets.
Height-based dosing schedule for zithromax

Children aged 5 to 15 years receiving tablets

- Height (cm): > 137.7
  - Dose: 1000 mg (4 tablets)

- Height (cm): 120.4–137.6
  - Dose: 750 mg (3 tablets)

- Height (cm): 87.9–120.3
  - Dose: 500 mg (2 tablets)

- Height (cm): 74.0–87.8
  - Dose: 250 mg (1 tablet)

Children aged 6 months to 5 years receiving POS

- Height (cm): 122.3–130
  - Dose: 16 ml

- Height (cm): 110.3–122.2
  - Dose: 14 ml

- Height (cm): 98.4–110.2
  - Dose: 12 ml

- Height (cm): 87.5–98.3
  - Dose: 10 ml

- Height (cm): 76.5–87.4
  - Dose: 8 ml

- Height (cm): 65.5–76.4
  - Dose: 6 ml

- Height (cm): 53.8–65.4
  - Dose: 4 ml

- Height (cm): 50.6–53.7
  - Dose: 2 ml

* From Basillon et al., 2005.
Instructions for the preparation of the pediatric oral suspension

- Before opening the bottle, shake it firmly to loosen the Zithromax® powder.

- The bottles are equipped with special squeeze-and-turn safety caps. To open, squeeze opposite sides of the bottle cap and, while still squeezing, turn the cap while holding the bottle firmly in the other hand.

- Mix the powder first with 5 ml of water, replace the cap and shake.

- Add an additional 10 ml of water. The 15 ml of water plus the Zithromax® powder will make a total of 30 ml of POS.

- Indicate the date of preparation of the oral suspension. Suspension not finished on the day it is made must be used before new ones are prepared for the next day.
Instructions for the preparation of the pediatric oral suspension (2)

• After mixing, POS should be kept in a cool place and out of direct sunlight.
• Any suspension that has not been dispensed within 3 days of preparation should be discarded.
• POS may be given to older children in case of shortage of tablets.
• In order to facilitate measuring of POS, measuring cups provided with each carton of Zithromax® POS can be used.

Note: Zithromax tablets and suspension are administered under direct observation
Side effects of zithromax

- Zithromax® is well tolerated with minimal incidence of side effects.
- Communities undergoing treatment should be informed in advance that some people will have these reactions. However, these mild reactions do not indicate that the drug is harmful.
- Individuals who experience mild side effects should be reassured that their symptoms do not mean they should not take zithromax in subsequent MDA rounds.
Drug delivery mechanisms for treatment of PCT NTDs

1. School based delivery mechanism

2. Community directed and health system approaches to treatment of NTDs
School-based approaches to treatment of helminths

Why schools?

• Many children are infected with worms.
• Distributing drugs will reduce the number of worms in each child.

• A child that is regularly treated for worms:
• Attends school more regularly
• Is more active in school
• Grows faster and learns better
• Is more resistant to other infections
Requirements for drug administration

- Drugs
- Data collection forms—forms to record details of children receiving treatment and school register
- Safe and clean water
- Tablet poles
- Food if PZQ is given
Steps in drug distribution at schools - Teachers

- Register the names of all children on the class register book provided.
- Ask all the children to stand in a queue.
Administration of ALB at schools

Albendazole (ALB)

• Give **ONE TABLET** of Albendazole to every child and record in the register book.
• Make sure that every child chews and swallows the tablet.
• Write the name of each Non enrolled child on the form provided as they receive treatment.
Administration of PZQ at schools

Praziquantel (PZQ)

- If you are distributing PZQ, use a Tablet Pole to determine the number of tablets for each child.
- Record Treatment for Enrolled Children on Register for enrolled children (blue) Form for enrolled children.
- Record Treatment for Non-Enrolled Children on non-enrolled register (pink) Form for non-enrolled children.

Only distribute PZQ to children 5 years or above.

Exclusion

- Do not give PZQ to children with a history of seizures
- Remember that children who have not eaten should not receive treatment.

- SEND CHILDREN 5 YEARS AND ABOVE TO THE PZQ TREATMENT POINT, IF APPLICABLE
Requirement for mass drug administration using CDDs

- Drugs-tablets and zithromax® POS
- Forms to record details of community members receiving treatment
- Tablet pole
Steps in drug distribution by CDDs

• Drugs will be distributed by trained community distributors identified by district level personnel
• Tablets should be swallowed with water.
• **Drugs should be administered under supervision (DOT)**
Steps for drug distribution by CDDs

1) Recruitment and selection of CDDs
Those identified as CDDS are community members who will be selected by the communities to undertake the task of drug distribution.

- As many persons as possible should be selected so that there will be a CDD available to provide treatment in the communities.
- Train as two CDDs per hamlet.
- Selected CDDs should be a person held in high-esteem by the communities they represent.
- As much as possible choose a team of two people, a man and a woman.
2) Training of CDDs

• Training of CDDs is important to harmonize the mass drug administration.

• The training period should take between 2 days.

• The distribution teams should be trained to perform the following tasks as well as others that are locally determined:
  – Prepare and educate communities on the targeted NTD and treatment to be provided
  – Measure those receiving treatment
  – Keep records on the registers provided.
  – Monitor and report on serious adverse experience.

**Note:** For zithromax POS-Mix and administer Pediatric Oral Suspension (POS) including removal of child-safe bottle caps.
Steps in drug distribution by CDDs (3)

2) Determine the drug delivery strategy to be adopted

   Note: District NTD coordinator should determine delivery strategies that are appropriate for local condition

Delivery approaches may include

- House-to-house administration
- Distribution of drugs at a central point
- Administering drugs to special populations
- Areas where community members congregate such as market centres, religious gathering-churches
Drug delivery strategy

- The mass drug administration may be organized as a national day or a week with an intensive campaign approach.

- If such a focused approach cannot be adopted due to logistical constraints, the distribution could be staggered over a period of 1 to 4 weeks.

- The period of the campaign should be acceptable to both the health authorities and the communities.

- Communities, through their representatives, should be involved in decisions on the timing of drug distribution at local levels.
CDD personnel and responsibilities

• The drug distribution team number and structure depends on factors such as the strategy of drug distribution, population size, terrain of the land, and local logistics.

• The district NTD coordinator is the overall coordinator for the distribution of drugs.

• The health facility staff assists in monitoring the activity of community distribution.
Instructions on how to make the height dosing poles

• Height-dosing poles should be painted on pieces of lightweight wood about 200 cm long, 4 cm wide, and 1 cm thick.

• Each dosing section should be painted a different color (using oil-based paint) to distinguish clearly between height ranges.

• The appropriate number of tablets can also be painted on each section, in black or white, to clearly mark the dosing schedule for those administering the tablets.

Note: Children aged 6 months to 5 years (or those weighing less than 15 kgs) should receive Zithromax® POS.

Children over the age of 5 years who can swallow tablets and adults should receive Zithromax® tablets
Instructions on how to make the height dosing poles (2)

How to use the height dosing poles:
The person should be asked to stand erect, without shoes on a flat floor. The stick is placed vertically against their back, with the end touching the floor. The horizontal level at the top of the individual’s head indicates the number of tablets to be dispensed.

Adults or children with disorders that prevent full extension should be given the same dose as someone of similar age and build.

Note:
• Make sure that the stick is vertical, not leaning to one side.
• Record in the register the number of tablets to be given.
• From time to time, check the pole for bending or curving.
• If using a paper tape rather than a wooden stick, the tape should be fixed to a wall and the person can then stand next to the wall. Do not attempt to use a loose tape on its own as a measuring device.
## Community drug distribution personnel and responsibilities

<table>
<thead>
<tr>
<th>Personnel involved in drug distribution</th>
<th>Responsibilities</th>
</tr>
</thead>
</table>
| **District NTD coordinator**           | Coordinates the overall distribution of drugs  
|                                        | Trains the community-directed distribution team  
|                                        | Coordinates the overall logistics and supply for the distribution  
|                                        | Liaise with community sensitization team to publicize the MDA  
|                                        | Ensures the drug is delivered at the temporary store on time  
|                                        | Assigns responsibilities to supervisors and the teams to be involved in the distribution  
|                                        | Reports and investigates all adverse experiences ensuring communication to the country program manager  
|                                        | Approves drug quantity before given to the CDD team |
| **Field Supervisor**                   | Monitors the activities of CDD teams  
|                                        | Ensures that the distributors have the right documents (census), materials and drugs before they leave the central distribution point  
|                                        | Distributes received drugs to the dispensers  
|                                        | Ensures that the CDD teams are working in their respective communities as per schedule  
|                                        | Supervises that all eligible people are taking the drug  
|                                        | Facilitates the work of the distribution team by solving problems encountered during the day  
|                                        | Monitors drug balances prepared by dispensers each day and assists dispensers to calculate coverage of the distribution  
|                                        | Reports and investigates any adverse experiences  
|                                        | Checks drug balance at the end of the distribution |
# Community drug distribution personnel and responsibilities

<table>
<thead>
<tr>
<th>Personnel</th>
<th>Responsibilities</th>
</tr>
</thead>
</table>
| Dispenser | Leads the CDD team at the community level  
Takes the drug from the field supervisor as per the census of the given community population  
Makes sure that they have the proper census list  
Ensures (with the support of community members) that each person has come with the household head and family  
Makes sure that each person is getting treatment as per the census registry  
Supervises the proper measurement of height  
Observes that everybody swallows the drug  
Checks that everybody on the census registry has come and has taken the drug  
Reports all adverse experiences to the field supervisor  
At the end of each day, calculates balance of issued drug from the field supervisor and then signs with the assistant on the balance sheet |
### Dosing poles for ALB, PZQ and Mectizan for the treatment of worms, bilharzia, elephantiasis, river blindness

#### ALBendazole

<table>
<thead>
<tr>
<th>Height</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>More than 90cm</td>
<td>1</td>
</tr>
<tr>
<td>Less than 90cm</td>
<td>No tablet</td>
</tr>
</tbody>
</table>

#### Praziquantel

<table>
<thead>
<tr>
<th>Height</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>More than 178cm</td>
<td>5</td>
</tr>
<tr>
<td>160-177cm</td>
<td>4</td>
</tr>
<tr>
<td>150-159cm</td>
<td>3</td>
</tr>
<tr>
<td>138-149cm</td>
<td>2.5</td>
</tr>
<tr>
<td>125-137cm</td>
<td>2</td>
</tr>
<tr>
<td>110-124cm</td>
<td>1.5</td>
</tr>
<tr>
<td>94-109cm</td>
<td>1</td>
</tr>
<tr>
<td>Less than 94cm</td>
<td>No tablet</td>
</tr>
</tbody>
</table>

#### Ivermectin

<table>
<thead>
<tr>
<th>Height</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>More than 158cm</td>
<td>4</td>
</tr>
<tr>
<td>141-158cm</td>
<td>3</td>
</tr>
<tr>
<td>120-140cm</td>
<td>2</td>
</tr>
<tr>
<td>90-119cm</td>
<td>1</td>
</tr>
<tr>
<td>Less than 90cm</td>
<td>No tablet</td>
</tr>
</tbody>
</table>
Dosing poles for azithromycin in the treatment of trachoma

### 6 Months to 5 years (paediatric oral suspension)

<table>
<thead>
<tr>
<th>Height</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>122.3-130cm</td>
<td>16ml</td>
</tr>
<tr>
<td>110.3-122.2cm</td>
<td>14ml</td>
</tr>
<tr>
<td>98.4-110.2cm</td>
<td>12ml</td>
</tr>
<tr>
<td>87.5-98.3cm</td>
<td>10ml</td>
</tr>
<tr>
<td>76.5-87.4cm</td>
<td>8ml</td>
</tr>
<tr>
<td>65.5-76.4cm</td>
<td>6ml</td>
</tr>
<tr>
<td>53.8-65.4cm</td>
<td>4ml</td>
</tr>
<tr>
<td>50.6-53.7cm</td>
<td>2ml</td>
</tr>
<tr>
<td>Less than 50.6cm</td>
<td>None</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Height</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>More than 137.7cm</td>
<td>4</td>
</tr>
<tr>
<td>120.4-137.6cm</td>
<td>3</td>
</tr>
<tr>
<td>87.9-120.3cm</td>
<td>2</td>
</tr>
<tr>
<td>74.0-87.8cm</td>
<td>1</td>
</tr>
<tr>
<td>Less than 74.0cm</td>
<td>No tablet</td>
</tr>
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</table>
## Summary table of drug, dosage, and frequency of treatment for PCT NTDs

<table>
<thead>
<tr>
<th>PCT NTD</th>
<th>Drug and dosages</th>
<th>Threshold for treatment</th>
<th>Frequency of treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soil transmitted helminths (STH)</td>
<td>ALB 400 mg&lt;br&gt;MBZ 500 mg</td>
<td>Presence of infection</td>
<td>1 or 2 treatment per year</td>
</tr>
<tr>
<td>Schistosomiasis</td>
<td>PZQ 40 mg/kg Presence of infection According to&lt;br&gt;using PZQ tablet-pole</td>
<td>Presence of infection</td>
<td>1 or 2 treatment per year</td>
</tr>
<tr>
<td>Lymphatic filariasis (in countries where Onchocerciasis is co-endemic)</td>
<td>IVM according to height&lt;br&gt;using IVM tablet-pole plus&lt;br&gt;ALB 400 mg</td>
<td>Prevalence of infection ≥1%</td>
<td>Annually</td>
</tr>
<tr>
<td>Lymphatic filariasis (in countries where Onchocerciasis is not co-endemic)</td>
<td>ALB 400 mg</td>
<td>Prevalence of infection ≥1%</td>
<td>Annually</td>
</tr>
<tr>
<td>Onchocerciasis</td>
<td>IVM according to height&lt;br&gt;using IVM tablet-pole</td>
<td>Prevalence of infection – 40% or&lt;br&gt;prevalence of palpable nodules – 20%</td>
<td>Annually</td>
</tr>
<tr>
<td>Trachoma</td>
<td>Azithromycin 20mg/kg (using height-based dosing pole)</td>
<td>Active trachoma (TF) prevalence of &gt;5% in 1-9 year olds at the district level</td>
<td>Annually</td>
</tr>
</tbody>
</table>