Diarrhoea Management in Children

Training of Drug Shop Owners and Attendants
Training agenda

Setting the stage (introduction)

Introduction of the problem

Recognizing diarrhoea in children

Recommended diarrhoea treatment

Danger of other drugs in diarrhoea management

Talking to customers about Zinc + ORS
Goal of the training

To improve private providers’ knowledge of correct use and effectiveness of Zinc + Oral Rehydration Salts (ORS) as a treatment for diarrhoea
Objectives of the training

Participants should be able to:

1) Recognize the signs and symptoms of diarrhoea
2) Recognize danger signs and know when to refer
3) Use the recommended MOH standard treatment guidelines for diarrhoea
4) Counsel caregivers on the care of a child with diarrhoea:
   – The right way to administer prescribed treatments
   – When to return
   – When to seek care at a health facility
### Training agenda

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Introduction—Mortality of children under 5 (U/5 mortality)

- Worldwide, of the 6.6 million deaths of children under 5 (U/5 mortality) in 2012, most were from preventable and treatable childhood infections (pneumonia, diarrhoea, or malaria)
- Deaths like these are avoidable
- We have lifesaving preventive and curative interventions. We just need to deliver them

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What is diarrhoea?

- Diarrhoea is the passage of unusually loose or watery stools, usually at least 3 times in a 24-hour period.

- However, it is the consistency of the stools rather than the number that is most important. Frequent passing of formed stools is not diarrhoea.
Diarrhoea: Recognizing the symptoms

Most diarrhoea in children is acute, uncomplicated, and caused by a viral infection (eg, rotavirus). Symptoms include:

- Loose stool
- Vomiting
- Abdominal pains
- Inability to control defecation

Most childhood diarrhoeas are caused by: Viruses, not bacteria
Diarrhoea: What happens to the body?

- During diarrhoea, there is an increased loss of water and electrolytes (zinc, sodium, chloride, potassium, and bicarbonate).

- Dehydration occurs when these losses are not replaced adequately and a deficit of water and electrolytes develops.

- Dehydration can be fatal, especially in children.
Diarrhoea: What happens to the body? (cont’d)

• In addition to causing severe dehydration, acute diarrhoea:
  – Worsens malnutrition
  – Weakens the immune system
  – And these, in turn, increase risk of death from other diseases

• There is significant loss of fluids and zinc during diarrhoea that interferes with the body’s ability to work normally
Ask the caregiver

☑️ How long has the child had diarrhoea? More than 14 days?

☑️ Is there blood in the stool?

☑️ Are there signs of dehydration?
  − Is the child not able to drink or drinking poorly?
  − If the child is present with the caregiver, look at the child’s general condition: Is the child lethargic or unconscious?

If the answer is yes to any of these questions: Give the child Zinc + ORS and refer immediately to a health center
For all children, ask and look for general danger signs and refer

For all children, ask and look for general danger signs and refer

Any child or newborn with...

- Vomiting
  - Vomits everything

- Diarrhoea
  - For 14 days or with blood

- Convulsions

- Not able to breastfeed or drink

- Very sleepy or unconscious

A newborn with...

- Infected umbilical cord

- Many skin pustules

A child with...

- Cough
  - For 21 days or more

- Chest in-drawing

- Fever
  - For 7 days or more

Refer the child to the health center
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What is the recommended treatment?

- In 2004, WHO/UNICEF recommended a new regimen: Zinc + ORS, specifically:
  - low-osmolarity (less glucose and salts) oral rehydration salts (ORS)
  - 10-20 mg zinc for 10 days, depending on the age of the child
What does ORS do?

- Replaces lost fluids and essential salts (sodium) needed to maintain body functions
- Right balance of essential glucose and salts—which work together to ensure that fluids are absorbed at an optimal rate

- Sodium allows water to be absorbed through the intestinal wall
- Glucose enables the intestine to absorb the fluid and the salts more efficiently
- Potassium stimulates the appetite and activity of the child
Why is low-osmolarity ORS better?

- Osmolarity refers to how concentrated a substance is in a liquid. Low-osmolarity ORS has lower concentrations of glucose and salts compared with standard ORS.

- Efficacy and safety of ORS treatment are improved by reducing osmolarity (from 311 mOsm/L to 245 mOsm/L):
  - Stool output is lower compared with standard ORS.
  - Lower risk of hypernatremia (too much salt in the blood).
The differences between original ORS and low-osmolarity ORS (L-ORS)

Original ORS vs L-ORS: what are they made of?

<table>
<thead>
<tr>
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<th>Original ORS (mOsm/L)</th>
<th>Low-osmolarity ORS (mOsm/L)</th>
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<tr>
<td>Glucose</td>
<td>111</td>
<td>75</td>
</tr>
<tr>
<td>Sodium</td>
<td>90</td>
<td>75</td>
</tr>
<tr>
<td>Chloride</td>
<td>80</td>
<td>65</td>
</tr>
<tr>
<td>Potassium</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Citrate</td>
<td>30</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total osmolarity</strong></td>
<td><strong>311</strong></td>
<td><strong>245</strong></td>
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Benefits of L-ORS over ORS

- Lower stool output: Total stool output is 39% greater with original ORS vs L-ORS
- Shorter duration of diarrhoea: Duration of diarrhoea is 22% longer with original ORS vs L-ORS
What does zinc do?

• Zinc supplementation in children less than 5 years of age significantly:
  a) Strengthens the child’s immune system and thus the body’s own ability to fight the virus causing the diarrhoea
  b) Reduces the severity of diarrhoea
  c) Reduces the duration of diarrhoea
  d) Reduces the incidence of diarrhoea in the subsequent 2 to 3 months after the diarrhoea episode

• Zinc is well tolerated by children
If the child has diarrhoea with NO danger signs, give the following treatment and advice to the caregiver:

**Rule 1:** Give ORS

**Rule 2:** Give zinc supplement for **10 days**

**Rule 3:** Continue feeding

**Rule 4:** Know when to return or take the child to the clinic
Rule 1: Give ORS

- Teach the mother how to mix and give ORS:
  - Give the mother 2 packets of ORS to use at home

- Show the mother how much fluid to give in addition to usual fluid intake:
  - Under 2 years—50 to 100 mL after each loose stool
  - 2 to 10 years—100 to 200 mL after each loose stool
ORS mixing

• Instructions
  – Mix contents in 1 litre of boiled drinking water (or as directed on the package)
  – Give frequent small sips from a cup
  – If the child vomits, wait 10 minutes. Then continue, but more slowly
  – **Continue giving ORS until the diarrhoea stops**
  – Breastfeed more frequently and for longer at each feed
  – If the child is exclusively breastfed, give ORS solution in addition to breastmilk
Rule 2: Give zinc supplementation

Tell the mother how much zinc to give:

• Up to 6 months — 10 mg daily (1/2 tablet) for 10 days or
  — One 5-mL teaspoon syrup daily for 10 days

• 6 months or more — 20 mg daily (1 tablet) for 10 days or
  — Two 5-mL teaspoons syrup daily for 10 days
Show the mother how to give zinc supplements:

- Dissolve tablet in a small amount of expressed breastmilk, ORS, or clean water in a cup

Note: Mother should continue to give zinc for 10 days even if the diarrhoea stops earlier
Rule 3: Continue feeding

The infant’s/child’s usual diet should be continued during diarrhoea and increased afterwards:

- Food should *never* be withheld and the child's usual foods should *not* be diluted

- Continued feeding also speeds the recovery of normal intestinal function, including the ability to digest and absorb various nutrients
Rule 4: Know when to return or take the child to the clinic or hospital

Instruct the caregiver to take the child to the clinic or hospital when the child experiences any of the following:

- Has not improved in 3 days
- Has profuse diarrhoea
- Becomes weaker
- Has repeated vomiting
- Is eating or drinking poorly
- Has fever
- Has marked thirst
- Has blood in the stool
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Antibiotics should rarely be used for diarrhoea

- Antibiotics only work on bacterial infections, but most diarrhoea is caused by viruses.
- Antibiotics can cause side effects and increase antibiotic resistance.
- Antibiotics should only be used for dysentery, cholera, shigellosis, or serious nonintestinal infections (like pneumonia).
Why anti-diarrhoeals are not recommended

Antidiarrhoeal agents (including loperamide, Imodium®, Pepto-Bismol®, and Kaopectate®) are never recommended for children. These drugs:

• Can mask worsening symptoms and delay recovery
• Can have dangerous side effects (such as paralyzing the child’s intestines)
• Do not help rehydration
• Do not kill the infectious organisms
• Can prevent the immune system from clearing the infection from the body
• Can prevent the body from creating its own antigens against the virus
Why antiparasitic drugs are not recommended

- Antiparasitics are only helpful if the child has confirmed giardiasis, amoebiasis, or strongyloidiasis.

- Antiprotozoal drugs are rarely indicated.
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Talking to customers about Zinc + ORS

• Treating diarrhoea with both Zinc + ORS will be new to many mothers. Each mother may need extra guidance.

• You can tell mothers that Zinc + ORS:
  – *Stops diarrhoea* quickly
  – *Restores strength* to the child
  – *Prevents diarrhoea from returning* for 2 to 3 months
Talking to customers about Zinc + ORS (cont’d)

• Zinc tablets can and should be promoted instead of antidiarrhoeals and unnecessary antibiotics
  – Antidiarrhoeals are dangerous for children
  – Antibiotics often don’t stop diarrhoea and don’t improve the child’s energy

• Make sure customers understand the importance of giving a zinc tablet daily for 10 days, even **after** the diarrhoea stops

• Make sure customers understand the importance of giving ORS **until** the diarrhoea stops