Module 5: Facilitator Instructions for Severe Dehydration Skills Station

1. Preparation
   a. Assemble equipment beforehand.
   b. Make sure that you have what you need and that it is functioning properly.

2. Equipment
   a. Manikin for demonstration and practice of nasogastric tube placement
   b. Nasogastric tubes
   c. Syringes (20cc or more)
   d. Lubricant
   e. Stethoscope
   f. Job aids for IV and oral fluid calculation

3. General principles
   a. Begin by demonstrating the equipment/skill. Each student should practice using the equipment and performing each skill.
   b. Give each student immediate, constructive feedback.
   c. You may use case scenarios to illustrate important points.

4. Record keeping: complete participant evaluation forms

5. Specific skills
   a. Skill 1: nasogastric tube placement
      i. Learning objectives
         1. Learn indications for nasogastric tube placement
         2. Describe and demonstrate nasogastric tube placement
         3. Describe verification of placement
         4. Describe risks of nasogastric tube placement
      ii. Technical/teaching information
          1. How to measure length of nasogastric tube (nare to epigastrum) (see following)
          2. Placement of nasogastric tube (see following)
          3. Verification of nasogastric tube placement
             a. If blue litmus paper is available, aspirate stomach contents and verify acid pH (blue paper will NOT turn pink).
             b. If you cannot aspirate stomach contents, inject a small amount of air into the nasogastric tube while listening over the stomach with your stethoscope. You should be able to hear the air gurgling in the stomach.
          4. Risks of nasogastric tube placement
             a. Placement into airway and infusion of fluids into the lungs. Signs of placement into the trachea include:
                i. Respiratory distress
                ii. Abnormal cry
                iii. Cyanosis
             b. Nose bleed
b. Skill 2: Using Plan C
   i. Learning objectives
      1. Learn indications for using Plan C (severe dehydration).
      2. Describe algorithm for using Plan C. Follow the “yes” branch points first, then go back and follow the “nos”.
ii. Technical/teaching information: Review the algorithm below, explaining each step.

Plan C: for well-nourished children with severe dehydration

Can you give IV fluids immediately?
- Yes
  - Begin Ringer's lactate:
    - For <12 months:
      - Initial bolus: 30mL/kg over 1 hour
      - Maintenance: 70mL/kg over 5 hours
    - For >12 months:
      - Initial bolus: 30mL/kg over 30 min
      - Maintenance: 70mL/kg over 2 1/2 hours
  - Is IV treatment nearby (within 30 min)?
    - Yes
      - Refer urgently to hospital
    - No
      - Give ORS by mouth in route (5mL/kg/hour)

Are you trained to use a nasogastric tube or can the child drink?
- Yes
  - Start ORS by NG tube or mouth
    - Give 20mL/kg/hour for 6 hours
    - For vomiting or gastric distention, give fluid more slowly.
    - Reassess every hour.
    - If hydration status is not improving, send for IV therapy.
    - After 6 hours, re-classify degree of dehydration and choose appropriate plan (A, B, or C) for continued therapy.
  - No
    - Refer urgently to hospital for IV or NG treatment

- No
  - Refer urgently to hospital for IV or NG treatment

C. Skill 3: IV fluid therapy for well-nourished children based on age with severe dehydration

i. Learning objectives
   1. Determine amount and rate of bolus fluid for well-nourished children with severe dehydration.
      a. <12 months of age
      b. One to five years of age
   2. Determine amount and rate of maintenance fluid for well-nourished children with severe dehydration.
      a. <12 months of age
      b. One to five years of age

ii. Technical/teaching information
   1. Present a scenario of a well-nourished child <12 months who is severely dehydrated (history of vomiting and dehydration, sunken eyes, delayed skin pinch). Give the child’s weight. Ask participants to determine the following (using job aids):
      a. How much fluid should be given as an initial bolus?
      b. Over what time should the bolus be given?
      c. How much fluid should be given as maintenance?
      d. Over what time should the maintenance fluid be given?
      e. What is the hourly drip rate for the maintenance fluid?
d.  Skill 4: Oral fluid therapy for well-nourished or severely malnourished children with severe dehydration
   i.  Learning objectives
       1.  Learn amount and rate for administering oral fluids to severely dehydrated children.
       2.  Learn how to make ReSoMal (for children who are severely malnourished)
   ii.  Technical/teaching information
       1.  Present a scenario of a severely malnourished child who is severely dehydrated (history of vomiting and dehydration, severe muscle wasting, new sunken eyes). Give the child’s weight. Ask participants to determine the following (using job aids):
           a.  Signs of severe dehydration
               i.  History of fluid loss from vomiting and/or diarrhea AND
               ii.  Recent (hours or days) development of sunken eyes or delayed skin pinch OR
               iii.  Recent change (hours or days) change in appearance of eyes or skin.
           b.  What type of fluid should this child receive?
               i.  By what route?
               ii.  Over what time and at what rate should the bolus be administered?
               iii.  Over what time and at what rate should the maintenance fluid be administered?
c. Present another scenario using a different weight.

2. Review the recipe for ReSoMal

### Summary: treatment of severe dehydration

#### Treatment of severe dehydration

<table>
<thead>
<tr>
<th>If the child has NO severe malnutrition</th>
<th>If the child HAS severe malnutrition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Does the child have shock?</strong></td>
<td><strong>Does the child have shock?</strong></td>
</tr>
<tr>
<td>If YES</td>
<td>If YES</td>
</tr>
<tr>
<td>- See TREATMENT OF SHOCK (Table 3) in Module 3: Circulation</td>
<td>- See TREATMENT OF SHOCK (Table 3) in Module 3: Circulation</td>
</tr>
<tr>
<td>If NO</td>
<td>If NO</td>
</tr>
<tr>
<td>- Give Ringer's lactate</td>
<td>- Do not give IV fluids</td>
</tr>
<tr>
<td>- For infants:</td>
<td></td>
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<tr>
<td>- 30 ml/kg in the first hour</td>
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<tr>
<td>- 70 ml/kg in the next 5 hours</td>
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<tr>
<td>- For children &lt; 1 year of age</td>
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<tr>
<td>- 30 ml/kg in the first 30 minutes</td>
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<tr>
<td>- 70 ml/kg in the next 2.5 hours</td>
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<tr>
<td>- Assess the child every 1-2 hours</td>
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<td>If the signs of dehydration are not improving:</td>
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<tr>
<td>- give fluid more rapidly</td>
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<tr>
<td>- inform doctor or senior staff</td>
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<tr>
<td>As soon as the child can drink:</td>
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<tr>
<td>- give oral fluids in addition to the dropper</td>
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<tr>
<td>- give ORS 5 ml/kg every hour</td>
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</tbody>
</table>

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### ReSoMal Recipe

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>2 litres</td>
</tr>
<tr>
<td>WHO-ORS</td>
<td>One-1L packet</td>
</tr>
<tr>
<td>Sucrose (household sugar)</td>
<td>50 grams</td>
</tr>
<tr>
<td>Electrolyte/mineral solution</td>
<td>40 mL</td>
</tr>
</tbody>
</table>
Does the child have severe malnutrition?

Yes

Is the child in shock?

Yes

See treatment of shock job aids

No

Is the child in shock?

Yes

See treatment of shock job aids

No

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**Treatment of severe dehydration: summary**

- **Use Plan C**
- **Begin Ringer’s lactate:**
  - For ≤12 months:
    - Initial bolus: 30mL/kg over 1 hour
    - Maintenance: 70mL/kg over 5 hours
  - For > 12 months:
    - Initial bolus: 30mL/kg over 30 min
    - Maintenance: 70mL/kg over 2 1/2 hours
- **Assess every 1-2 hours**
- **If signs of dehydration are NOT improving**
  - Give fluid more rapidly
  - Inform senior staff
- **As soon as the child can drink**
  - Give ORS in addition to drip at 5 mL/kg/hour

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**Do NOT IV fluids**
- **Give ReSoMal**
  - 5 mL/kg every 30 min for first 2 hours
  - Then 5-10 mL/kg/hour for the next 4 to 10 hours
  - Give more ReSoMal if the child wants more or has large losses (vomit or stool)
  - Check blood glucose. Treat if <3mmol/L (see hypoglycemia job aid)

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**Does the child have severe malnutrition?**

Yes

Is the child in shock?

Yes

See treatment of shock job aids

No

Is the child in shock?

Yes

See treatment of shock job aids

No