Gastroenteritis – Emergency management in children – Flowchart

Child presents to ED with suspected acute gastroenteritis

Assessment
(aim to exclude alternative diagnoses (Box A) and ascertain hydration status (Box B))

Red flags? (Box C)

Management as clinically indicated

No clinical dehydration

Prevent dehydration
Encourage fluid intake
• Appropriate fluids: - ORS (preferred) - dilute apple juice - milk (breastmilk/other)
• Inappropriate fluids: - soft drink - cordial

No

Yes

Clinical dehydration

Rehydration required
Fluid administration route dependant on illness severity & age.
• +/- BGL, +/- U&Es
• Consider Ondanetron (age more than 6 months)

Mild to moderate:
Oral route preferred
(0.5 mL/kg every five minutes) with ORS

Responding to treatment?

↑ risk of dehydration? (see guideline)

Yes

No

Responding to treatment?

Observation period (1-4 hours)
• Oral fluids (0.5 mL/kg every five minutes)
• +/- Ondanetron
• Consider SSU admission (where available)
Maintain hydration?

Yes

No

Severe:
Rapid rehydration
(50 mL/kg over four hours)*
Usual first-line route:
• age ≤ 2 years: ORS via NG
• age > 2 years: Sodium Chloride 0.9% + Glucose 5% IV or ORS via NG

Consider:
- longer period of rehydration at maintenance
- IV vs NG
- alternative diagnosis
Seek senior advice if Na < 130 mmol/L or > 150 mmol/L

Shock

Resuscitate using ABCD
• Oxygen via NRBM
• Support ventilation (BVM)
• +/- ETT
• IV or IO access
• VBG, U&Es
• IV fluid bolus 20 mL/kg Sodium Chloride 0.9% as needed
• Check BGL - Glucose 10% (2 mL/kg) IV if ≤2.6 mmol/L on VBG or iSTAT

Shock after 2 fluid boluses?

Yes

No

Yes

No

No

Discharge
Consider discharge
Refer to inpatient service
Refer to Paediatric Critical Care

Maintain hydration?

Yes

No

Yes

No

Consider seeking senior emergency/paediatric advice as per local practices

Seek senior emergency/paediatric advice as per local practices

*Slower rate (50 mL/kg over 8-12 hours) is recommended in infants (age < 6 months) and children with significant co-morbidities

#See next page for Box A, B, C
Box A: Differential diagnoses for child presenting with gastrointestinal symptoms

<table>
<thead>
<tr>
<th>Surgical conditions</th>
<th>Appendicitis, intussusception, bowel obstruction, malrotation with volvulus, strangulated hernia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-enteric infections</td>
<td>Sepsis, UTI, meningitis, pneumonia, otitis media, other focal infections</td>
</tr>
<tr>
<td>Metabolic disease</td>
<td>DKA and inborn errors of metabolism</td>
</tr>
<tr>
<td>Other</td>
<td>Haemolytic uremic syndrome, inflammatory bowel disease, raised ICP</td>
</tr>
</tbody>
</table>

Box B: Hydration assessment

<table>
<thead>
<tr>
<th>Level of consciousness</th>
<th>None</th>
<th>Clinical dehydration (5-10% fluid loss)</th>
<th>Clinical shock (over 10% fluid loss)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin colour</td>
<td>Alert and responsive</td>
<td>Altered responsiveness</td>
<td>Decreased level of consciousness</td>
</tr>
<tr>
<td>Extremities</td>
<td>Skin colour unchanged</td>
<td>Skin colour unchanged</td>
<td>Pale or mottled skin</td>
</tr>
<tr>
<td>Eyes</td>
<td>Eyes not sunken</td>
<td>Sunken eyes</td>
<td>Sunken eyes</td>
</tr>
<tr>
<td>Mucous membranes</td>
<td>Moist</td>
<td>Dry</td>
<td>Dry</td>
</tr>
<tr>
<td>Heart rate</td>
<td>HR normal</td>
<td>HR normal</td>
<td>Increased HR</td>
</tr>
<tr>
<td>Breathing</td>
<td>RR normal</td>
<td>Increased RR</td>
<td>Increased RR</td>
</tr>
<tr>
<td>Peripheral pulses</td>
<td>Normal</td>
<td>Normal</td>
<td>Weak</td>
</tr>
<tr>
<td>Capillary refill</td>
<td>Capillary refill normal</td>
<td>Capillary refill normal</td>
<td>Prolonged (more than two seconds)</td>
</tr>
<tr>
<td>Skin turgor</td>
<td>Skin turgor normal</td>
<td>Decreased skin turgor</td>
<td>Decreased skin turgor</td>
</tr>
<tr>
<td>Blood pressure</td>
<td>BP normal</td>
<td>BP normal</td>
<td>Decreased BP (decompensated shock)</td>
</tr>
</tbody>
</table>

- More numerous/pronounced symptoms and signs indicate greater severity.
- For clinical shock, one or more of the symptoms or signs will be present.
- If in doubt, manage as if dehydration falls into the more severe category.

Box C: Red flags to suggest an alternative diagnosis

- severe or localised abdominal pain
- abdominal distension
- isolated vomiting
- bilious (green) vomit
- blood in stool or vomit
- child appears very unwell or is very drowsy
- high grade fever > 38.5°C if < 3 months of age, or > 39°C if > 3 months of age
- headache
- rash
- vomiting associated with polyuria and weight loss – consider hyperglycaemia

The very young infant and the malnourished child are more likely to have another diagnosis.

For more information refer to [CHQ-GDL-60015 - Gastroenteritis – Emergency management in children](#)