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

↑risk of dehydration? (see guideline)

Observation period (1-4 hours)
- Oral fluids
  (0.5 mL/kg every five minutes)
- +/- Ondansetron
- Consider SSU admission (where available)

Maintain hydration?

Discharge with advice

No

No

Yes

Yes

Responding to treatment?

No

No

Responding to treatment?

Yes

Yes

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

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

Refer to Paediatric Critical Care

No

Yes

Shock after 2 fluid boluses?

No

No

Yes

Yes

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

Consider:
- longer period of rehydration at maintenance
- IV vs NG
- alternative diagnosis

Seek senior advice if Na < 130 mmol/L or > 150 mmol/L

Reassess hourly
Replace significant fluid losses

Sodium Chloride 0.9% + Glucose 5%
IV (100 mL/kg) over eight hours

Commence fluid balance chart
Repeat VBG, U&Es, BGL

CHQ-GDL-60015-Appendix 1 V2.0

* 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

Consider seeking senior emergency/paediatric advice as per local practices

Seek senior emergency/paediatric advice as per local practices
Gastroenteritis – Emergency management in children

Box A: Differential diagnoses for child presenting with gastrointestinal symptoms

<table>
<thead>
<tr>
<th>Category</th>
<th>Diagnoses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgical conditions</td>
<td>Appendicitis, intussusception, bowel obstruction, malrotation with volvulus, strangulated hernia</td>
</tr>
<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>None</th>
<th>Clinical dehydration (5-10% fluid loss)</th>
<th>Clinical shock (over 10% fluid loss)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of consciousness</td>
<td>Alert and responsive</td>
<td>Altered responsiveness</td>
</tr>
<tr>
<td>Skin colour</td>
<td>Skin colour unchanged</td>
<td>Skin colour unchanged</td>
</tr>
<tr>
<td>Extremities</td>
<td>Warm extremities</td>
<td>Warm extremities</td>
</tr>
<tr>
<td>Eyes</td>
<td>Eyes not sunken</td>
<td>Sunken eyes</td>
</tr>
<tr>
<td>Mucous membranes</td>
<td>Moist</td>
<td>Dry</td>
</tr>
<tr>
<td>Heart rate</td>
<td>HR normal</td>
<td>HR normal</td>
</tr>
<tr>
<td>Breathing</td>
<td>RR normal</td>
<td>Increased RR</td>
</tr>
<tr>
<td>Peripheral pulses</td>
<td>Normal</td>
<td>Normal</td>
</tr>
<tr>
<td>Capillary refill</td>
<td>Capillary refill normal</td>
<td>Capillary refill normal</td>
</tr>
<tr>
<td>Skin turgor</td>
<td>Skin turgor normal</td>
<td>Decreased skin turgor</td>
</tr>
<tr>
<td>Blood pressure</td>
<td>BP normal</td>
<td>BP normal</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 – over 39°C or 38.5°C if aged less than three months
- headache
- rash

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