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

Consider discharge

Responding to treatment?

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 NG

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

Reassess hourly
Replace significant fluid losses

Shock after 2 fluid boluses?

No

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

Reassess hourly
Replace significant fluid losses

No

Yes

Refer to Paediatric Critical Care

Refer to inpatient service

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

Responding to treatment?

Yes

No

No

Yes

No

Yes

Discharge

with advice

Consider discharge

Refer to
inpatient service

#See next page for Box A, B, C

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

Consider seeking senior emergency/paediatric advice as per local practices

Seek senior emergency/paediatric advice as per local practices

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Gastroenteritis – Emergency management in children

Box A: Differential diagnoses for child presenting with gastrointestinal symptoms

<table>
<thead>
<tr>
<th>Category</th>
<th>Conditions</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>Symptom</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>Level of consciousness</td>
<td>Alert and responsive</td>
<td>Altered responsiveness</td>
<td>Decreased level of consciousness</td>
</tr>
<tr>
<td>Skin colour</td>
<td>Skin colour unchanged</td>
<td>Skin colour unchanged</td>
<td>Pale or mottled skin</td>
</tr>
<tr>
<td>Extremities</td>
<td>Warm extremities</td>
<td>Warm extremities</td>
<td>Cold extremities</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 (&gt; 2 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 – 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.