





ACUTE DIARRHOEA, NO SIGNS OF DEHYDRATION

Also consider co-morbidity, including short bowel syndrome, ileostomies, CHD, Renal failure etc.

*Count vomits if they are more than an effortless, small volume posset.
*Count stools if they are a discrete bowel action. Do not underestimate watery stools where a substantial component is absorbed into the nappy.

Assess risk of dehydration

HIGH RISK:
Age < 6 months or vomits* > 4 /day
or liquid stools* > 8 /day.

LOW RISK:
Age ≥ 6 months and vomits* ≤ 4
per day and stools* ≤ 8 /day.

If 1 risk factor only may go home if parents happy with advice and information leaflet (although if < 6 months strongly consider admission.)
If > 1 risk factor ADMIT for observation
Continue usual fluids at at least maintenance **see Table 3.1** and encourage larger volumes. Replace substantial ongoing losses with ORS at 10ml/Kg per stool/vomit. Reassess at 4 hours

Advice to continue usual fluids at at least maintenance **see Table 3.1** and encourage larger volumes.
Give information leaflet with advice when to return.

Good hydration maintained?
No
Yes

Go to PAGE 2

Advice to carer, give information leaflet. ORS sachets for home use if substantial losses continue.

ADMIT for observation

High carer/doctor concern?
Yes
No

Carer happy to take child home?
No
Yes

Continue management and carer education in HOSPITAL

40
DISCHARGE. Stool sample if indicated (Table 4)

Throughout the guideline the word **ADMIT** refers to observation in any acute paediatric facility, short stay unit, observation area or paediatric ward.

Table 1: Broad differential diagnosis of the child presenting with acute diarrhoea (+/- vomiting). The latter diagnoses are more likely to present chronically.

NB. The following features may be indicative of diagnoses other than acute viral gastroenteritis:

- Abdominal pain with tenderness/guarding and/or bilious vomiting (?surgical)
- Pallor, jaundice, oligoanuria, bloody stool (?HUS)
- Systemically unwell, out of proportion to the level of dehydration (other infections, surgical, CAH etc)
- Shock

| <i>Category</i> | <i>Examples</i> |
|----------------------------|--|
| Infections | Enteral: viral (commonest cause), bacterial, parasitic Non enteral infections (UTI, Pneumonia, Otitis media)- vomiting predominates |
| Surgical | Appendicitis, Intussusception, Obstruction, Short bowel syndrome |
| Systemic illness | Endocrinopathy (Diabetes, Hyperthyroidism, Congenital Adrenal Hyperplasia, Addison's disease, Hypoparathyroidism), Immunodeficiency. |
| Antibiotic associated | Whilst taking antibiotics and rarely Pseudo-membranous colitis |
| Miscellaneous | Constipation with overflow, Toxins, Haemolytic-uraemic syndrome (HUS), Toddler diarrhoea, Child Abuse (Munchausen by proxy, sexual) |
| Dietary disturbance | Food allergy/ intolerance (Lactose, Cows milk protein), Starvation stools. |
| Malabsorption | Cystic fibrosis, Coeliac disease, |
| Inflammation | Ulcerative colitis/ Crohn's, Hirschsprung's enterocolitis |
| Idiopathic/ Psychogenic | Irritable bowel syndrome |

Table 2: Assessment of severity of dehydration

- Signs are ordered in each column by severity
- If a pre-illness accurate weight is available calculate deficit from weight loss
- Pinch test – Pinch skin of abdomen. Skin recoils instantly = normal, 1-2 sec = mild/moderate, >2sec = severe.

| <i>No dehydration (Less than 3% weight loss)</i> | <i>Mild- Moderate dehydration (3-8% weight loss) Ordered by increasing severity</i> | <i>Severe dehydration (≥9%weight loss)</i> |
|--|---|---|
| No signs | <ul style="list-style-type: none"> • Dry mucous membranes (be wary in the mouth breather) • Sunken eyes (and minimal or no tears) • Diminished skin turgor (pinch test 1-2 sec) • Altered neurological status (drowsiness, irritability) • Deep (acidotic) breathing | Increasingly marked signs from the mild-mod. group plus: <ul style="list-style-type: none"> • Decreased peripheral perfusion (cool/mottled/pale peripheries. capillary refill time>2 seconds) • Circulatory collapse |

Table 3: Calculation of fluid requirements in dehydration

- ◆ Ideally all children should be rehydrated orally (even if the child initially presented with severe dehydration and required IV resuscitation) see **table 3.1** for calculation of total volume.
- ◆ Intravenous fluids are indicated if the child is unable to tolerate oral rehydration (including a trial of NG fluids if appropriate) **OR** oral rehydration fails i.e. persistent vomiting or worsening dehydration (as assessed 2 hours following commencement of oral rehydration) see **table 3.2** for calculation of IV volume.

Table 3.1

Calculation of total ORAL rehydration requirements

Follow steps 1-3 in the table to work out the fluid requirement

| Fluid Requirement | Volume |
|---|---|
| <p>1. Deficit Estimate the level of dehydration from table 2 and work out the volume required Replace deficit over 4 hours NB In hypernatraemic dehydration give deficit over 12 hours if using the oral route. See note below for IV rehydration (*1)</p> | <p>Mild to moderate (3-8%) dehydration → 30-80mls/kg Severe dehydration (9% or more) → 100 mls/kg</p> <p>NB Any fluid given as a bolus should be subtracted from this volume</p> |
| <p>2 Maintenance Give over 24 hours</p> | <p>100ml per Kg per 24 hours for the first 10Kg body weight 50mls per Kg per 24 hours for the next 10 Kg body weight 20mls per Kg per 24 hours for the remaining Kg's body weight</p> |
| <p>3 Ongoing losses</p> | <p>10mls per Kg for any significant vomit or watery stool</p> |
| <p>e.g. A 12 Kg child who is 5% dehydrated with a <u>sodium < 150</u> would require Deficit 50mls/kg over 4 hours = 600mls (150mls/hour for the first 4 hours) Maintenance (10x100) + (2x50) = 1100mls over 24 hours or 45mls/hour Therefore 195mls/hour for the first 4 hours plus any additional losses. Decrease to maintenance plus ongoing losses at 4 hours if no signs of dehydration.</p> | |
| <p>The same child with a <u>sodium of >150</u> would require Deficit 50mls/kg over 12 hours = 600mls (50mls/hour for the first 12 hours) Maintenance (10x100) + (2x50) = 1100mls over 24 hours or 45mls/hour Therefore 95mls/hour for the first 12 hours plus any additional losses. Decrease to maintenance plus ongoing losses at 12 hours if no signs of dehydration.</p> | |

Practical Points:

- * Children who are dehydrated are thirsty and do not normally refuse ORS.
- * Give fluid little and often. If the child is vomiting decrease volumes and increase frequency (every 5-10 minutes).
- * Where carers are not willing/able to do this under supervision (or child is asleep) then rehydrate by NGT.
- * Suitable ORS are Dioralyte, Diocalm Junior or Electrolade.

*1 Oral rehydration is preferable in hypernatraemic dehydration.

If oral rehydration is not tolerated and the deficit has to be given by the IV route the speed of replacement should be agreed upon locally (no evidence available).

Table 3.2: Calculation of total intravenous fluid requirement

| Fluid Requirement | Volume |
|---|--|
| 1. Deficit Estimate the level of dehydration from table 2 and work out the volume required Replace deficit over 12 hours (See * ¹ above for use of IV fluids in hypernatraemic dehydration) | Mild to moderate (3-8%) dehydration → 30-80mls/kg Severe dehydration (9% or more) → 100 mls/kg NB Any fluid given as a bolus should be subtracted from this volume |
| 2 Maintenance Give over 24 hours | 100ml per Kg per 24 hours for the first 10Kg body weight 50mls per Kg per 24 hours for the next 10 Kg body weight 20mls per Kg per 24 hours for the remaining Kg's body weight |
| 3 Ongoing losses | 10mls per Kg for any significant vomit or watery stool |
| e.g. A 12 Kg child who is 5% dehydrated would require Deficit 50mls/kg over 12 hours = 600mls (50mls/hr) Maintenance (10x100) + (2x50) = 1100mls over 24 hours or 45mls/hour Therefore 95mls/hr for the first 12 hours then 45mls/hr plus any additional losses | |

Table 4: When to send a stool to the lab for microscopy, culture, sensitivity and virology.

- A history of blood +/- mucous in the stool
- A combination of abrupt onset of diarrhoea with > 4 stools per day and no vomiting pre-diarrhoea
- Temperature >40 degrees
- >5 stools in the previous 24 hours
- If the child is admitted to hospital (to be decided locally)
- A history suggestive of food poisoning
- Recent travel abroad

Table 5: Management of feeding during gastroenteritis.

- Breast fed Continue breastfeeding throughout rehydration and maintenance phases
- Formula fed Restart feed at full strength as soon as rehydration complete (ideally 4 hours)
- Weaned children Restart normal fluids and solids following rehydration. Avoid fatty foods or foods high in simple sugars.

Table 6: Guide to drug treatment.

- Antidiarrhoeals Infants and Children should not be treated with antidiarrhoeal agents.
- Antibiotics The use of antibiotics is beyond the scope of this guideline but they should be considered in patients with invasive salmonella typhi, shigella, amoebiasis and giardiasis following local microbiological advice.