

Gastroenteritis in children

ED Care pathway

In a child presenting with gastroenteritis (sudden change in stool consistency to loose or watery, and /or a sudden onset of vomiting).

Are any of the following present?

- Fever, 38° or higher in children younger than 3 months or 39° or higher in children aged 3 months or older
- Shortness of breath or tachypnoea
- Altered consciousness level
- Neck stiffness
- Bulging fontanelle in infants
- Non-blanching rash
- Blood or mucus in stool
- Bilious (green) vomiting
- Severe or localised abdominal pain
- Abdominal distension, rebound tenderness

If **YES** seek expert advice
(consider use of another pathway)

If **NO** suspect gastroenteritis and assess for
presence and severity of dehydration
(refer to the table below)

Assess risk factors for dehydration*

No clinical dehydration

- Commence at triage maintenance fluid +additional loses every 5 min with **Oral Rehydration Solution (ORS- Diorylate)** using bottle, syringe or spoon (see fluid calculation guide below)
- Continue breastfeeding and other milk feeds
- Encourage fluid intake **BUT NOT** fruit juices or carbonated drinks until

Clinical dehydration (including hyponatremia)

- Commence rehydration fluid - calculate over 4 hours maintenance + deficit (50mls/kg/hr for deficit) with **ORS** every 5 min (see fluid requirement below)
- Continue breast feeding
- Consider supplementing with usual fluids if child refuses sufficient ORS
- Consider giving ORS via **NG tube** if child unable to drink or vomits persistently

Clinical shock suspected or confirmed

Contact Paed SpR

- IV access, venous gas, bloods (FBC/U&E/CRP/HCO3/Ot hers/ Blood sugar)
- Rapid IV bolus 20 ml/kg 0.9% sodium chloride
- Repeat boluses of 0.9% saline 10 ml/kg up to total dose of 40ml/kg (given since arrival)
- if child remains in shock consider other causes of shock and
- consider ITU review

Monitor regularly. Re-assess at 2 hours

If still all green features
HOME with advice

Clinical evidence of dehydration
ADMISSION to PAU

If any red features
refer to red column

High Risk Factors

- ☐ Children younger than 1 year, particularly those younger than 6 months
- ☐ Infants who are of low birth weight
- ☐ Children who passed more than 5 diarrhoeal stools in the previous 24 hours
- ☐ Children who have vomited more than twice in the previous 24 hours
- ☐ Children unable to tolerate supplementary fluids before presentation
- ☐ Infants who have stopped breastfeeding during the illness

Maintenance fluid requirement for non dehydrated child

Weight (kg)	Oral fluid per 5 min (ml)
5-7	2
8-10	3
11-16	4
17-25	5
26-40	6

$1^{st} \ 10 \text{ kg} = 4 \text{ ml/kg/hr}$
 $2^{nd} \ 10 \text{ kg} = 2 \text{ ml/kg/hr}$
 $> 20 \text{ kg} = 1 \text{ ml/kg/hr}$

Example: 24kg child

$10 \times 4 = 40$

$10 \times 2 = 20$

$4 \times 1 = 4$

64 ml/hr

Therefore for syringe every 5 minutes $64/12 = 5.3 \text{ ml/5min}$

Rehydration fluid requirement for clinically dehydrated child – 5% dehydration

Weight (kg)	Oral fluid per 5 min (ml)
5	7
6	8
7	10
8	11
9	12
10	14
11	15
12	16
13	17
14	19
15	20
16	21
17	22
18	23
19	25
20	26
21	27
22	28
23	29
24	30
25	31
26	33
27	34
28	35
29	36
30	37

Example Calculation

Deficit given over 4 hours

$5 \times 10 \times \text{weight} = \text{total}/4 \text{ hours} = \text{hourly rate}$

Maintenance as opposite

Example: 24kg child:

$5 \times 10 \times 24 = 1200$

$1200/4 = 300$

Maintenance = 64

364 ml/hr

Therefore for syringe every 5 min

$364/12 = 30 \text{ ml/5 min}$

Traffic light system for identifying signs and symptoms of clinical dehydration and shock:

	Green – low risk	Amber- intermediate risk	Red – high risk
Activity	• Responds normally to social cues • Content/smiles • Stays awake/awakens quickly • Strong normal cry/not crying	• Altered response to social cues • Decreased activity • No smile	• Not responding normally to or no response to social cues • Appears ill to healthcare professional • Unable to rouse or if rouse does not stay awake • Weak, high-pitched or continues cry
Skin	• Normal skin colour • Normal turgor	• Normal skin colour • Warm extremities	• Pale/mottled/Ashen blue • Cold extremities
Respiratory	• Normal breathing	• Tachypnoea	• Tachypnoea
Hydration	• CRT ≤ 2 sec • Moist mucous membranes (except after drink) • Normal urine	• CRT 2-3 sec • Dry mucous membranes (except after drink) • Reduced urine output	• CRT > 3sec
Pulse/Heart rate	• Heart rate normal • Peripheral pulses normal	• Tachycardia • Peripheral pulses weak	• Tachycardia • Peripheral pulses weak
Blood Pressure	• Normal	• Normal	• Hypotensive
Eyes	• Normal eyes	• Sunken eyes	• Sunken eyes

Gastroenteritis in children *background*

Aetiology

Viruses (~70%): Rotaviruses (most common), Enteric adenoviruses, Caliciviruses, Astroviruses, Enteroviruses

Bacteria (~15%): Campylobacter jejuni, Salmonella, Enteropathogenic E. Coli, Shigella, Yersinia enterocolitica, Salmonella typhi and Salmonella paratyphi

Protozoa: Cryptosporidium, Giardiasis, Amoebiasis

Investigations

1. Indications for stool culture, sensitivity , and virology in acute diarrhoea
 - A history of blood with or without mucus in the stool
 - Systemically unwell/septicaemia, severe or prolonged diarrhoea
 - immuno-compromised children
 - A history suggestive of food poisoning
 - Recent travel abroad
2. Serum electrolytes in severe cases or those requiring intravenous rehydration
3. If diarrhoea persists for >2 weeks in a baby receiving cow's milk, consider lactose or Cow's milk protein intolerance. Test for lactose in stool, and if positive offer Cow's milk free substitute formula milk

Gastroenteritis in children *treatment/advice*

Drug treatment in acute gastroenteritis:

- **Anti-diarrhoeal agents:**
 - Infants and children should not be treated with anti-diarrhoeal agents
- **Antibiotics:**
 - Patients with confirmed Salmonella typhi, amoebiasis and giardiasis infection
 - Infants < 6 months with other salmonella infections
 - Children systemically unwell
 - Immunocompromised

Advise parents that after rehydration:

- The child should be encouraged to drink plenty of their usual fluids, including milk feeds if these were stopped
- They should avoid giving the child fruit juices and carbonated drinks until the diarrhoea has stopped
- They should reintroduce the child's usual diet
- They should give 5 ml/kg ORS solution after each large watery stool if the child is at increased risk of dehydration
- Advise parents/carers:
 - Diarrhoea usually lasts 5-7 days and in most children it stops within 2 weeks
 - Vomiting usually lasts 1-2 days and stops within 3 days
 - Children with diarrhoea and vomiting should not attend school or nursery until 48 hrs after their last episode
 - Children should not swim in swimming pools for 2 weeks after their last episode of vomiting or diarrhoea
 - Emphasise good basic hygiene practise
 - Towels should not be shared between children when infected

Parental Tick Sheet for D&V in under 5s

You have presented with your child to the emergency department and they have symptoms of diarrhoea or vomiting. In order to ensure your child is able to tolerate fluid you have been asked to commence a fluid trial while waiting assessment by a doctor.

Please use the syringes and oral rehydration solution provided by the nurse to start this trial.

Please could you provide your child with ____ mls of the fluid into the mouth ever 5 minutes and record this below.

Start time: __:__

Please inform the triage nurse if you child vomits after each syringe of fluid or if they appear to have become more unwell

Time	Dose Given	Vomited	Comments
5mins			
10 mins			
15 mins			
20 mins			
25 mins			
30 mins			
35 mins			
40 mins			
45 mins			
50 mins			
55 mins			
60 mins			
65 mins			
70 mins			
75 mins			
80 mins			
85 mins			
90 mins			
95 mins			
100 mins			
105 mins			
110 mins			
115 mins			
120 mins			

Gastroenteritis (Diarrhoea and/or Vomiting) Advice Sheet (0-5 years)

Name of Child Age Date / Time advice given

Further advice / Follow up

Name of Professional Signature of Professional

How is your child? (traffic light advice)

 Red	If your child: - becomes difficult to rouse / unresponsive - becomes pale and floppy - is finding it difficult to breathe - has cold feet and hands - has diabetes	You need urgent help please phone 999 or go to the nearest Hospital Emergency (A&E) Department
 Amber	If your child: - seems dehydrated: ie. dry mouth, sunken eyes, no tears, sunken fontanelle (soft spot on baby's head), drowsy or passing less urine than normal - has blood in the stool (poo) or constant tummy pain - has stopped drinking or breastfeeding and / or is unable to keep down - becomes irritable or lethargic - their breathing is rapid or deep - is under 3 months old	You need to contact a doctor or nurse today please ring your GP surgery or call NHS 111 – dial 111
 Green	If none of the above features are present, most children with Diarrhoea and / or Vomiting can be safely managed at home. <i>(However some children are more likely to become dehydrated including: children younger than 1 year old or if they had a low birth weight. In these cases or if you still have concerns about your child please contact your GP surgery or call NHS 111)</i>	Self Care Using the advice overleaf you can provide the care your child needs at home

Most children with diarrhoea and / or vomiting get better very quickly, but some children can get worse. You need to regularly check your child and follow the advice given to you by your healthcare professional and / or as listed on this sheet.

Some useful phone numbers (You may want to add some numbers on here too)

	GP Surgery (make a note of number here)	NHS 111 dial 111 (available 24 hrs – 7 days a week)	Gloucester Health Access Centre 01452 336290 (Open from 8am to 8pm, 7 days a week including bank holidays)	GP Out of Hours Service: appointments booked via the NHS 111 service (Open from 6.30pm to 8am on weekdays and bank holidays)
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For online advice: NHS Choices www.nhs.uk (available 24 hrs – 7 days a week)

If you need language support or translation please inform the member of staff to whom you are speaking.

For more copies of this document, please email:

Gastroenteritis (Diarrhoea and/or Vomiting) Advice Sheet (0-5 years)

About Gastroenteritis

Severe diarrhoea and / or vomiting can lead to dehydration, which is when the body does not have enough water or the right balance of salts to carry out its normal functions. If the dehydration becomes severe it can be dangerous. Children at increased risk of dehydration include: young babies under 1 year old (and especially the under 6 months), those born at a low birth weight, those who have stopped drinking or breastfeeding during the illness and children with malnutrition or with faltering growth.

How can I look after my child?

Based on: Diarrhoea and vomiting in children under 5, 2009 NICE clinical guideline 84 *Reference: BNF for Children Volume 1.4.2 (Page 47)

- Diarrhoea can often last between 5 – 7 days and stops within 2 weeks. Vomiting does usually not last for more than 3 days. If your child continues to be ill longer than these periods, seek advice.
- Continue to offer your child their usual feeds, including breast or other milk feeds.
- Encourage your child to drink plenty of fluids – little and often. Water is not enough and ideally Oral Rehydration Solution (ORS) is best. ORS can be purchased over the counter at large supermarkets and pharmacies and can help prevent dehydration from occurring.
- Your healthcare professional may recommend that you give your child a special fluid known as Oral Rehydration Solution (ORS) eg. Dioralyte. It is also used to treat children who have become dehydrated.
- Mixing the contents of the ORS sachet in dilute squash (not "sugar-free" squash) instead of water may improve the taste.
- Do not worry if your child is not interested in solid food, but offer food if hungry. It is advisable not to give fizzy drinks and/or fruit juices as they can make diarrhoea worse.
- If your child has other symptoms like a high temperature, neck stiffness or rash please ask for advice from a health care professional.
- Your child may have stomach cramps; if simple painkillers do not help please seek further advice.
- If your child is due routine immunisations please discuss this with your GP or practice nurse, as they may not need to be delayed.
- **Hand washing is the best way to stop gastroenteritis spreading.**

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After Care

*Reference: BNF for Children Volume 1.4.2 (Page 47)

Once your child is rehydrated and no longer vomiting:

- Reintroduce the child's usual food.
- If dehydration recurs, start giving ORS again.
- Anti-diarrhoeal medicines (also called Antimotility drugs) should not be given to children*.

Preventing the spread of Gastroenteritis (diarrhoea and / or vomiting):



You and/or your child should wash your hands with soap (liquid if possible) in warm running water and then dry them carefully:

- After going to the toilet
- After changing nappies
- Before touching food



Your child should not:

- Share his or her towels with anyone
- Go to school or any other childcare facility until 48 hours after the last episode of diarrhoea and / or vomiting
- Swim in swimming pools until 2 weeks after the diarrhoea has stopped

This guidance is written in the following context: This document was arrived at after careful consideration of the evidence available including but not exclusively NICE, SIGN, EBM data and NHS evidence, as applicable. Healthcare professionals are expected to take it fully into account when exercising their clinical judgement. The guidance does not, however, override the individual responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient in consultation with the patient and / or carer.