PAEDIATRIC ACUTE CARE GUIDELINE	
Gastroenteritis	
Scope (Staff):	All Emergency Department Clinicians
Scope (Area):	Emergency Department

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Gastroenteritis

Gastroenteritis is vomiting or diarrhoea or both caused by viruses in 70% of cases, bacteria in 20% and protozoa in 10%

Background

- Vomiting may occur before the onset of diarrhoea. However, vomiting in isolation may be due to a wide range of other potentially serious conditions.
- Concerning features suggesting an alternate diagnosis are significant abdominal pain, co-morbidities, < 6 mths old, high fever, prolonged symptoms, or signs suggesting a surgical cause.
- In infants, vomiting must be distinguished from the normal phenomenon of regurgitation.
- Oral/NGT rehydration is preferable to intravenous except in severe cases.

Risk factors

- Attending childcare
- Recent travel overseas

Assessment

- Evaluation of the severity of dehydration is difficult even by a senior doctor
- Non dehydrated patients do **not** need a fluid trial in the ED

Examination

Clinical Severity of Dehydration		
No or mild dehydration (< 3% weight loss)	**Moderate dehydration (4 - 6% weight loss)**	**Severe dehydration (7 - 10% weight loss)**
• No physical signs **OR** • Thirst • Dry mucous membranes • Reduced urine output	• Dry mucous membranes • Reduced urine output • Tachycardia • Sunken eyes (and minimal or no tears • Diminished skin turgor • Altered neurological status (drowsiness, irritability)	*Increasingly marked signs from the moderate group, **plus***: • Decreased peripheral perfusion (cool, mottled, pale peripheries; capillary refill time > 2 sec) • Anuria • Hypotension • Circulatory collapse

Investigations

- No investigations are required in mild cases of gastroenteritis
- Stool specimen is required for patients with bloody stool, prolonged diarrhoea and recent travel overseas
- FBC, U&E and VBG should be done if inserting an intravenous cannula to commence intravenous fluids

Differential diagnoses

- Urinary tract infection (UTI)
- Appendicitis
- Meningitis
- Diabetic ketoacidosis (DKA)
- Haemolytic uraemic syndrome (HUS)
- Congenital adrenal hyperplasia (CAH)
- Irritable bowel disease
- Intussusception

Management

- Non dehydrated children can be discharged after reassurance, education and a health facts sheet to go home.
- Non dehydrated children can eat as tolerated, but should avoid sweet and fatty foods.

- Continue breastfeeding but add extra fluids as required.
- Ondanestron may be used in the Emergency Department before a fluid trial but not as a discharge medication. It can make the diarrhoea last longer.
- In moderately dehydrated childen oral/nasogastric rehydration is preferrable to intravenous as it corrects acidosis quicker, the diarrhoea and vomiting settle faster and appetite returns sooner.
- Severe dehydration needs admission for intravenous rehydration and electrolytes need to be checked.

Further management

Mild Dehydration
◦ Oral fluids (1mL/kg every 10 minutes of oral rehydration solution) can be provided while awaiting medical assessment ◦ Use ED Oral Fluid Trial Form ◦ Fluids high in sugar (such as cola, apple juice, and sports drinks, which contain ≤ 20 mmol/l sodium and have a high osmolality of 350-750 mOsm/l) may exacerbate diarrhoea and should be avoided ◦ Solids and milk can be continued if the child is interested and not dehydrated ◦ Most mildly dehydrated children (<3%) can be discharged ◦ **On Discharge**: Ensure the carers are discharged with appropriate education on gastroenteritis, such as how to provide fluid and signs of dehydration
Moderate Dehydration
◦ Consider Ondansetron (0.1 - 0.2mg/kg PO or IV) ◦ **Oral fluid trial** 1mL/kg (maximum 20 mL) every 10 minutes of oral rehydration solution (ORS) for 1-2 hours ◦ Use ED Oral Fluid Trial Form ◦ Fluids high in sugar (such as cola, apple juice, and sports drinks, which contain ≤ 20 mmol/l sodium and have a high osmolality of 350-750 mOsm/l) may exacerbate diarrhoea and should be avoided ◦ Solids and milk can be continued if the child is interested and not dehydrated otherwise wait until rehydrated **If the child fails oral fluid trial:** ◦ Nasogastric tube (NGT) rapid rehydration: 50mL/kg over 4 hours with oral rehydration solution (ORS). This corrects for 5% dehydration. ◦ Admit to the Emergency Department Observation Ward (4E) ◦ If the child vomits reduce the rapid rehydration rate to 50mL/kg over 6 hours **If the child fails NGT rapid rehydration (> 2 vomits):** ◦ Admit to General Paediatric Team ◦ Hourly observations (at least) HR, RR, temperature, BP, Capillary refill ◦ **Option 1:** NGT fluid (maintenance + deficit) ◦ **Option 2:** IV fluids 0.9% saline + 5% dextrose (maintenance + deficit)
Severe Dehydration
◦ Insert IV cannula, check FBC, U&E and BGL (VBG) ◦ **IV fluid bolus**: 20 mL/kg bolus of 0.9% saline (repeated if required) ◦ Admit under the General Paediatric Team ◦ Investigate possible underlying causes ◦ **Continue IV fluids**: 0.9% saline + 5 % glucose (maintenance + deficit over 24 hours) ◦ If hypernatramic (Na > 150mmol/L) IV fluids are to be given over 48-72 hours

Fluid Calculation
1. Deficit volume Deficit volume = weight (kg) x % dehydration x 10mL
2. Maintenance < 10kg = 100mL / kg / 24 hours 10 - 20kg = 1000mL + (50mL for each kg over 10kg) / 24 hours > 20kg = 1500mL + (20mL for each kg over 20kg) / 24 hours
3. Hourly rate Hourly rate = (deficit volume + 24 hours maintenance fluids) divided by 24

Use the following paediatric fluid rate calculator:

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Medications

- Ondansetron can be used before a fluid trial or if the child vomits during rapid rehydration. It is not recommended as a discharge medication.
- No other anti-emetics or anti-diarrhoeal agents are to be used in infants or children with suspected gastroenteritis.

Admission criteria

- Failed rapid rehydration with nasogastric tube (NGT)
- Severe dehydration requiring intravenous fluids

Referrals and follow-up

- Mild dehydration who are sent home after oral fluid trial should have a GP review at 24 hours

Nursing

- Ensure all children are weighed (bare weight < 12 months old, light clothing for all other children)
- Ensure the child is reweighed prior to discharge
- Utilise the appropriate rehydration form if the child is having a trial of fluids

Observations

- Baseline observations include HR, RR, temperature, BP and capillary refill
- Minimum of hourly observations should be recorded whilst in the Emergency Department
- Any significant changes should be reported immediately to the medical team
- Fluid input/output is to be monitored and documented

References

• NICE Guidelines UK Diarrhoea and vomiting in children under 5 (CG84)2011
• Practice parameter: the management of acute gastroenteritis in young children. American Academy of Pediatrics, Provisional Committee onQuality Improvement, Subcommittee on Acute Gastroenteritis. Paediatrics 1996;97424-35
• European Society for Paediatric Gastroenterology, Hepatology,and Nutrition/European Society for Paediatric Infectious Diseases
• Evidence-based Guidelines for the Management of Acute Gastroenteritis in Children in Europe
• Journal of Pediatric Gastroenterology and Nutrition 46: S181-S184 2008
• PMH Policy on IV Fluids: WA Health. Child and Adolescent Health Service. PMH Pharmacy Manual: IV Fluids for Children at PMH - Change in Practice

This document can be made available in alternative formats on request for a person with a disability.

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