Gastroenteritis

The Royal Children's Hospital Melbourne

This guideline has been endorsed by the Paediatric Improvement Collaborative

See also

Nasogastric fluids (https://www.rch.org.au/clinicalguide/guideline_index/Nasogastric_fluids/)
Vomiting (https://www.rch.org.au/clinicalguide/guideline_index/Vomiting/)
IV fluids (https://www.rch.org.au/clinicalguide/guideline_index/Intravenous_fluids/)
Dehydration (https://www.rch.org.au/clinicalguide/guideline_index/Dehydration/)

Key points

1. In a child with red flag features or a child with vomiting without diarrhoea, consider alternative diagnoses
2. Most children do not require investigations, including stool testing
3. Whenever possible, the enteral route (oral or nasogastric) should be used for rehydration

Background

- Gastroenteritis is a common childhood illness that causes vomiting, diarrhoea and fever, often in sporadic seasonal outbreaks
- The cause may be viral or bacterial, but knowing the cause rarely changes management
- It is important to assess the degree of dehydration (https://www.rch.org.au/clinicalguide/guideline_index/Dehydration/), as this influences route and rate of rehydration

Assessment

Any child with a red flag feature should prompt careful consideration of alternative diagnoses (see Vomiting (https://www.rch.org.au/clinicalguide/guideline_index/Vomiting/))

History

- Although vomiting may precede diarrhoea in the first 24–48 hours of gastroenteritis, in a vomiting child without diarrhoea other causes must be considered
- Age under 6 months
- Fever
- Infectious contacts
- Recent fluid intake: volume and type compared to usual (including hyper or hypotonic fluids)
- Volume and frequency of vomit and stool
- Bilious vomiting
- Blood or mucus in the stool – this suggests significant inflammation that may occur with bacterial infection or inflammatory bowel conditions
- Urine output
- Crampy abdominal pain (https://www.rch.org.au/clinicalguide/guideline_index/Abdominal_pain_-_acute/)

- Past GI / surgical history (eg short gut, Hirschsprung's, ileostomy) or complex medical history (eg renal, cardiac disease)
- History of slow weight gain (https://www.rch.org.au/clinicalguide/guideline_index/Slow_weight_gain/) and/or fortification of feeds
- Recurrent presentations for similar symptoms

Examination

- Many children will have a normal examination, or generalised abdominal tenderness
- Pallor, irritability, altered conscious state, decreased activity level
- Signs of shock
    - See Resuscitation: care of the seriously unwell child (https://www.rch.org.au/clinicalguide/guideline_index/Resuscitation__Care_of_the_seriously_unwell_child/)
- Focal abdominal tenderness
- Guarding
- Significant distension
- Absent or high-pitched bowel sounds
- Degree of dehydration
    - weight (bare in infants)
    - See Dehydration (https://www.rch.org.au/clinicalguide/guideline_index/Dehydration/)

Management

Investigations

- For most children with presumed and uncomplicated gastroenteritis, **no investigations** are required

Blood sugar and electrolyte measurement:

- All children requiring IV fluids (https://www.rch.org.au/clinicalguide/guideline_index/Intravenous_fluids/) should have serum electrolytes and glucose checked before commencing the infusion (typically when the IV is placed) and again within 24 hours if IV therapy is to continue

Blood sugar, ketones and electrolyte measurement may be required for children with:

- Severe dehydration, profuse or prolonged losses, or altered conscious state
- Inappropriate hypertonic fluid administration, eg sports drinks, or prolonged hypotonic fluid administration, eg diluted formula or water-only rehydration
    - See hypernatremia (https://www.rch.org.au/clinicalguide/guideline_index/Hypernatraemia/) and hyponatremia (https://www.rch.org.au/clinicalguide/guideline_index/Hyponatraemia/) guidelines
- Complex medical or surgical comorbidities or diuretic use

Stool culture or viral testing is **not recommended**, except in:

- Unwell children or young infants with bloody diarrhoea
- Returned travellers (https://www.rch.org.au/clinicalguide/guideline_index/Fever_in_the_recently_returned_traveller/) with prolonged symptoms (>10 days)
- Immunocompromised patients with fever

Treatment

Many cases are self-limiting and only require encouragement of fluid intake and monitoring of hydration

Failure of initial management should prompt reconsideration of the diagnosis and management plan

Oral rehydration

Aim for 10 mL/kg/hr of oral rehydration solution (eg Gastrolyte™, HYDRAlyte™, Pedialyte™)

- In children who are refusing ORS, diluted apple juice in 1:1 ratio with water can be offered, but is not appropriate for prolonged use as does not contain any electrolytes
- Stop any feed fortification (eg extra scoops of formula or Poly-JouleTM)
- If breastfed - continue breast feeding, but more often (or with additional ORS supplementation) to maintain hydration
- Once rehydrated, a normal diet can be recommenced - temporary lactose restriction should not routinely be advised but if stool frequency increases it may be considered

If oral rehydration fails and the child is ≥5% dehydrated, or if there are significant ongoing losses, rapid or slow NG rehydration may be appropriate. Failure to tolerate NG should lead to IV rehydration if clinically dehydrated (https://www.rch.org.au/clinicalguide/guideline_index/Nasogastric_fluids/)

IV rehydration may be preferred in older children if NG is not tolerated or is not appropriate
Refer to:

- Dehydration (https://www.rch.org.au/clinicalguide/guideline_index/Dehydration/)
- NG fluids (https://www.rch.org.au/clinicalguide/guideline_index/Nasogastric_fluids/)
- IV fluids (https://www.rch.org.au/clinicalguide/guideline_index/Intravenous_fluids/)
- Vomiting (https://www.rch.org.au/clinicalguide/guideline_index/Vomiting/)

Medications:

Children and infants >6months with nausea or vomiting may be given ondansetron and can assist with oral or enteral rehydration

Suggested ondansetron doses (oral):

Weight	Dose
8-15 kg	2 mg
15-30 kg	4 mg
>30 kg	6-8 mg

- Other anti-emetics are not routinely recommended due to side effects
- Response to anti-emetics does not confer diagnosis
- Anti-diarrhoeal medications are not recommended
- Probiotics are not effective at reducing symptoms of acute gastroenteritis
- Antibiotics should not be used for uncomplicated diarrhoeal illness
- Antibiotics should be reserved for treatment of enteritis-associated sepsis or specific bacterial pathogens in selected cases (eg *Salmonella typhi*, non-typhoidal salmonella in patients under 3 months, immunocompromised or with sepsis) or with severe C*lostridium difficile* infection. See Antimicrobial guidelines (https://www.rch.org.au/clinicalguide/guideline_index/Local_Antimicrobial_Guidelines/)

Consider consultation with local paediatric team when

- Initial rehydration unsuccessful and/or significant ongoing losses
- Complex comorbidities
- Electrolyte abnormalities
- Diagnosis is unclear
- Red flag features

Consider transfer when

- Severe electrolyte disturbance
- Shock requiring more than 40 mL/kg in fluid boluses

For emergency advice and paediatric or neonatal ICU transfers, see Retrieval Services. (https://www.rch.org.au/clinicalguide/guideline_index/Retrieval_services/)

Consider discharge when

- Tolerating oral intake and nil/mild dehydration

Parent information

Gastroenteritis Kid's Health Information (https://www.rch.org.au/uploadedFiles/Main/Content/kidsinfo/english-gastroenteritis.pdf)

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> Reference List

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