NICE National Institute for Health and Care Excellence

NICE Pathways

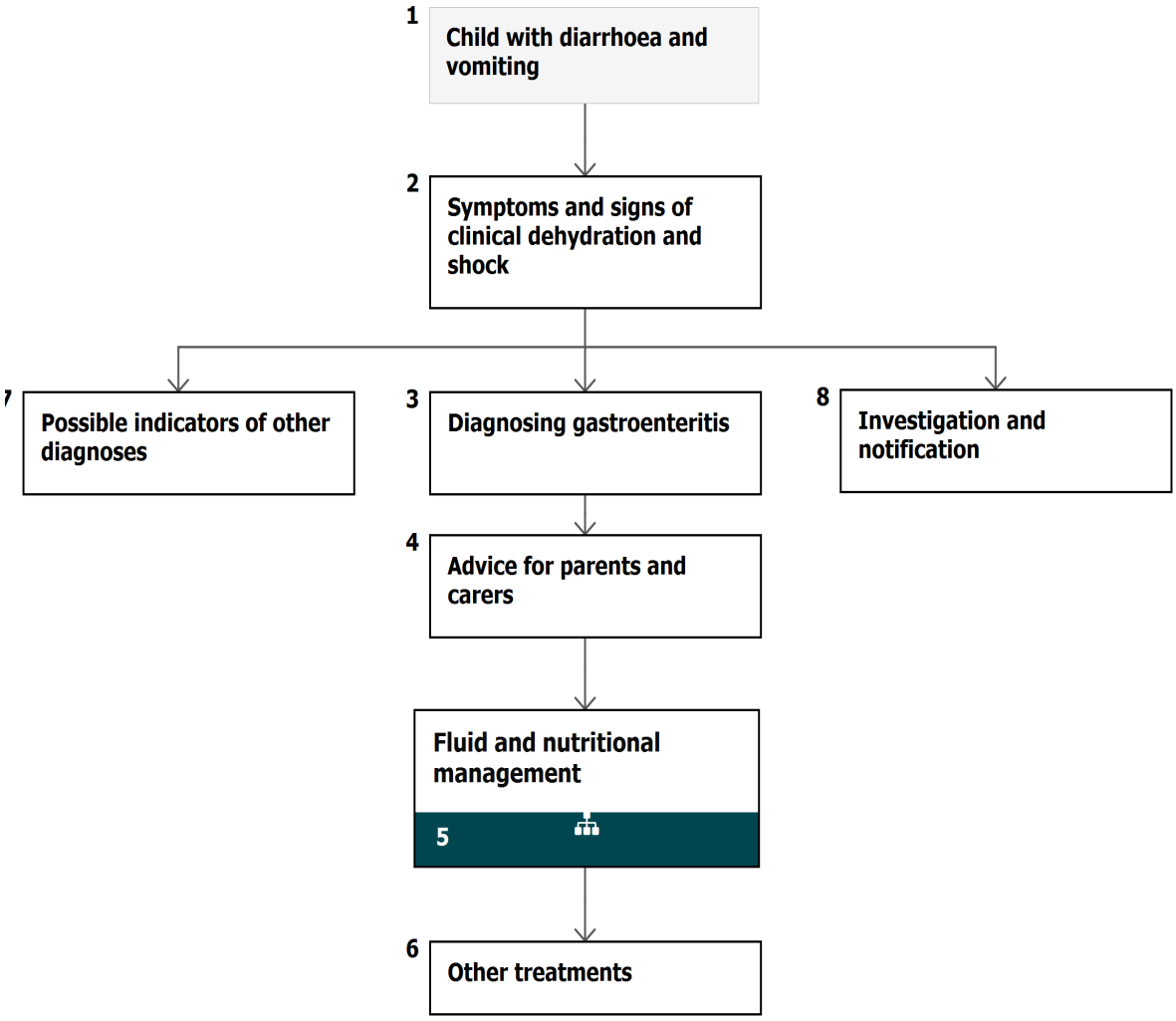
Diarrhoea and vomiting in children overview

NICE Pathways bring together everything NICE says on a topic in an interactive flowchart. NICE Pathways are interactive and designed to be used online.

They are updated regularly as new NICE guidance is published. To view the latest version of this NICE Pathway see:

http://pathways.nice.org.uk/pathways/diarrhoea-and-vomiting-in-children
NICE Pathway last updated: 10 January 2019

This document contains a single flowchart and uses numbering to link the boxes to the associated recommendations.



1 Child with diarrhoea and vomiting

No additional information

2 Symptoms and signs of clinical dehydration and shock

See symptoms and signs of clinical dehydration and shock [See page 10] or the NICE website for a colour version of the symptoms and signs table.

3 Diagnosing gastroenteritis

Suspect gastroenteritis if there is a sudden:

- change to loose or watery stools **or**
- onset of vomiting.

If you suspect gastroenteritis, ask about:

- recent contact with someone with acute diarrhoea and/or vomiting **and**
- exposure to a known source of enteric infection **and**
- recent travel abroad.

4 Advice for parents and carers

Caring for a child with gastroenteritis at home

Provide a 'safety net'. This should include:

- information on how to recognise red flag symptoms (see symptoms and signs of clinical dehydration and shock [See page 10] or the NICE website for a colour version of the symptoms and signs table).
- information on how to get immediate help if red flag symptoms develop
- arrangements for follow-up at a specified time and place if necessary.

Advise parents and carers:

- that most children with gastroenteritis can be safely managed at home
- that diarrhoea usually lasts for 5–7 days and stops within 2 weeks, and vomiting usually

- lasts for 1–2 days and stops within 3 days
- how to recognise dehydration (see symptoms and signs of clinical dehydration and shock [See page 10] or the NICE website for a colour version of the symptoms and signs table).

Advise parents and carers of children:

- who are not clinically dehydrated and are not at increased risk of dehydration (see children at increased risk of dehydration [See page 13]):
  - to continue usual feeds, including breast or other milk feeds
  - to encourage the child to drink plenty of fluids
  - to discourage the drinking of fruit juices and carbonated drinks
- who are not clinically dehydrated but who are at increased risk of dehydration (see children at increased risk of dehydration [See page 13]):
  - to continue usual feeds, including breast or other milk feeds
  - to encourage the child to drink plenty of fluids
  - to discourage the drinking of fruit juices and carbonated drinks
  - to offer ORS solution as supplemental fluid
- with clinical dehydration:
  - that rehydration is usually possible with ORS solution
  - to make up the ORS solution according to the instructions on the packaging
  - to give 50 ml/kg of ORS solution for rehydration plus maintenance volume over a 4-hour period
  - to give this amount of ORS solution in small amounts, frequently
  - to seek advice if the child refuses to drink the ORS solution or vomits persistently
  - to continue breastfeeding as well as giving the ORS solution
  - not to give other oral fluids unless advised
  - not to give solid foods.

Advise parents and carers to contact a healthcare professional if:

- symptoms of dehydration develop
- symptoms do not resolve as expected

Advise parents and carers 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 you consider that the child is at increased risk of dehydration (see children at increased risk of dehydration [See page 13]).

Preventing the spread of gastroenteritis

Advise parents, carers and children that[1]:

- washing hands with soap (liquid if possible) in warm running water and careful drying are the most important factors in preventing the spread of gastroenteritis
- hands should be washed after going to the toilet (children) or changing nappies (parents/ carers) and before preparing, serving or eating food
- towels used by infected children should not be shared
- children should not attend any school or other childcare facility while they have diarrhoea or vomiting caused by gastroenteritis.
- children should not go back to their school or other childcare facility until at least 48 hours after the last episode of diarrhoea or vomiting.
- children should not swim in swimming pools for 2 weeks after the last episode of diarrhoea.

For further information see what NICE says on immunisations for under 19s.

NICE has written information for the public on diarrhoea and vomiting in children.

5 Fluid and nutritional management

See Diarrhoea and vomiting in children / Fluid and nutritional management in children with diarrhoea and vomiting

6 Other treatments

Do not give antidiarrhoeals.

Do not routinely give antibiotics.

Give antibiotics to children:

- with suspected or confirmed septicaemia
- with extra-intestinal spread of bacterial infection
- younger than 6 months with salmonella gastroenteritis

[1] This recommendation is adapted from the following guidelines commissioned by the Department of Health: Public Health England (2017) Health protection in schools and other childcare facilities. Working Group of the former PHLS Advisory Committee on Gastrointestinal Infections (2004) Preventing person-to-person spread following gastrointestinal infections: guidelines for public health physicians and environmental health officers. Communicable Disease and Public Health 7(4):362–384.

- who are malnourished or immunocompromised with salmonella gastroenteritis
- with *Clostridium difficile*-associated pseudomembranous enterocolitis, giardiasis, dysenteric shigellosis, dysenteric amoebiasis or cholera.

Seek specialist advice about antibiotic therapy for children who have recently been abroad.

NICE has published evidence summaries on:

- management of vomiting in children and young people with gastroenteritis: ondansetron
- acute diarrhoea in children: racecadotril as an adjunct to oral rehydration.

See what NICE says on antimicrobial stewardship.

7 Possible indicators of other diagnoses

Diagnoses other than gastroenteritis

Any of the following may indicate diagnoses other than gastroenteritis:

- temperature of 38°C or higher (younger than 3 months)
- temperature of 39°C or higher (3 months or older)
- shortness of breath or tachypnoea
- altered conscious state
- neck stiffness
- bulging fontanelle (in infants)[1]
- non-blanching rash
- blood and/or mucus in stool
- bilious (green) vomit
- severe or localised abdominal pain
- abdominal distension or rebound tenderness.

See what NICE says on:

- bacterial meningitis and meningococcal septicaemia in under 16s
- fever in under 5s
- self-limiting respiratory tract and ear infections – antibiotic prescribing
- urinary tract infections in children and young people under 16 years.

[1] Infant: child younger than 1 year.

8 Investigation and notification

Laboratory investigations

Perform stool microbiology if:

- you suspect septicaemia **or**
- there is blood or mucus in the stool **or**
- the child is immunocompromised.

Consider performing stool microbiology if:

- the child has recently been abroad **or**
- the diarrhoea has not improved by day 7 **or**
- you are uncertain about the diagnosis of gastroenteritis.

If stool microbiology is performed:

- collect, store and transport stool specimens as advised by the investigating laboratory
- provide the laboratory with relevant clinical information.

Perform a blood culture if giving antibiotic therapy.

In children with STEC infection, seek specialist advice on monitoring for haemolytic uraemic syndrome.

Integrated multiplex PCR tests for identifying gastrointestinal pathogens

The following recommendations are from NICE diagnostics guidance on integrated multiplex PCR tests for identifying gastrointestinal pathogens in people with suspected gastroenteritis (xTAG Gastrointestinal Pathogen Panel, FilmArray GI Panel and Faecal Pathogens B assay).

There is currently insufficient evidence to recommend the routine adoption in the NHS of the integrated multiplex polymerase chain reaction tests, xTAG Gastrointestinal Pathogen Panel, FilmArray GI Panel and Faecal Pathogens B assay, for identifying gastrointestinal pathogens in people with suspected gastroenteritis.

The tests show promise but further research is recommended on their effect on health outcomes and resource use in clinical practice (see section 6 of NICE diagnostics guidance 26).

Medtech innovation briefings

NICE has published medtech innovation briefings on:

- Xpert Carba-R to identify people carrying carbapenemase-producing organisms
- BD MAX Enteric Bacterial Panel for identifying pathogens in contagious gastroenteritis.

Notifying public health authorities

Notify and act on the advice of the public health authorities if you suspect an outbreak of gastroenteritis.

Symptoms and signs of clinical dehydration and shock

Interpret symptoms and signs taking into account risk factors for dehydration. More numerous and more pronounced symptoms and/or signs of clinical dehydration indicate greater severity. For clinical shock, one or more symptoms or signs would be present.

Red flag (*) symptoms and signs may help to identify children at increased risk of progression to shock. If in doubt, manage as if there are red flag symptoms or signs. Dashes (–) indicate that these clinical features do not specifically indicate shock.

	No clinically detectable dehydration	Clinical dehydration	Clinical shock
Symptoms (remote and face-to-face assessments)	Appears well	***Appears to be unwell or deteriorating**	–
	Alert and responsive	***Altered responsiveness (for example, irritable, lethargic)**	Decreased level of consciousness
	Normal urine output	Decreased urine output	–
	Skin colour unchanged	Skin colour unchanged	Pale or mottled skin
	Warm extremities	Warm extremities	Cold extremities
Signs (face-to-face assessments)	Alert and responsive	***Altered responsiveness (for example, irritable, lethargic)**	Decreased level of consciousness
	Skin colour	Skin colour unchanged	Pale or mottled

	unchanged		skin
	Warm extremities	Warm extremities	Cold extremities
	Eyes not sunken	***Sunken eyes**	–
	Moist mucous membranes (except after a drink)	Dry mucous membranes (except for 'mouth breather')	–
	Normal heart rate	***Tachycardia**	Tachycardia
	Normal breathing pattern	***Tachypnoea**	Tachypnoea
	Normal peripheral pulses	Normal peripheral pulses	Weak peripheral pulses
	Normal capillary refill time	Normal capillary refill time	Prolonged capillary refill time
	Normal skin turgor	***Reduced skin turgor**	–
	Normal blood pressure	Normal blood pressure	Hypotension (indicates decompensated shock

The symptoms and signs table is also available in colour on the NICE website.

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Children at increased risk of dehydration

Children younger than 1 year, especially those younger than 6 months

Infants who were of low birth weight

Children who have passed six or more diarrhoeal stools in the past 24 hours

Children who have vomited three times or more in the past 24 hours

Children who have not been offered or have not been able to tolerate supplementary fluids before presentation

Infants who have stopped breastfeeding during the illness

Children with signs of malnutrition.

Glossary

IVT

intravenous fluid therapy

ORS

oral rehydration salt

ORT

oral rehydration therapy

Remote assessment

situation in which a child is assessed by a healthcare professional who is unable to examine the child because the child is geographically remote from the assessor

STEC

Shiga toxin-producing Escherichia coli

Sources

Diarrhoea and vomiting caused by gastroenteritis in under 5s: diagnosis and management (2009) NICE guideline CG84

Integrated multiplex PCR tests for identifying gastrointestinal pathogens in people with suspected gastroenteritis (xTAG Gastrointestinal Pathogen Panel, FilmArray GI Panel and Faecal Pathogens B assay) (2017) NICE diagnostics guidance 26

Your responsibility

Guidelines

The recommendations in this guideline represent the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, professionals and practitioners are expected to take this guideline fully into account, alongside the individual needs, preferences and values of their patients or the people using their service. It is not mandatory to apply the recommendations, and the guideline does not override the responsibility to make decisions appropriate to the circumstances of the individual, in consultation with them and their families and carers or guardian.

Local commissioners and providers of healthcare have a responsibility to enable the guideline to be applied when individual professionals and people using services wish to use it. They should do so in the context of local and national priorities for funding and developing services, and in light of their duties to have due regard to the need to eliminate unlawful discrimination, to advance equality of opportunity and to reduce health inequalities. Nothing in this guideline should be interpreted in a way that would be inconsistent with complying with those duties.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should assess and reduce the environmental impact of implementing NICE recommendations wherever possible.

Technology appraisals

The recommendations in this interactive flowchart represent the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, health professionals are expected to take these recommendations fully into account, alongside the individual needs, preferences and values of their patients. The application of the recommendations in this interactive flowchart is at the discretion of health professionals and their individual patients and do not override the responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or their carer or guardian.

Commissioners and/or providers have a responsibility to provide the funding required to enable the recommendations to be applied when individual health professionals and their patients wish to use it, in accordance with the NHS Constitution. They should do so in light of their duties to

have due regard to the need to eliminate unlawful discrimination, to advance equality of opportunity and to reduce health inequalities.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should assess and reduce the environmental impact of implementing NICE recommendations wherever possible.

Medical technologies guidance, diagnostics guidance and interventional procedures guidance

The recommendations in this interactive flowchart represent the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, healthcare professionals are expected to take these recommendations fully into account. However, the interactive flowchart does not 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 guardian or carer.

Commissioners and/or providers have a responsibility to implement the recommendations, in their local context, in light of their duties to have due regard to the need to eliminate unlawful discrimination, advance equality of opportunity, and foster good relations. Nothing in this interactive flowchart should be interpreted in a way that would be inconsistent with compliance with those duties.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should assess and reduce the environmental impact of implementing NICE recommendations wherever possible.