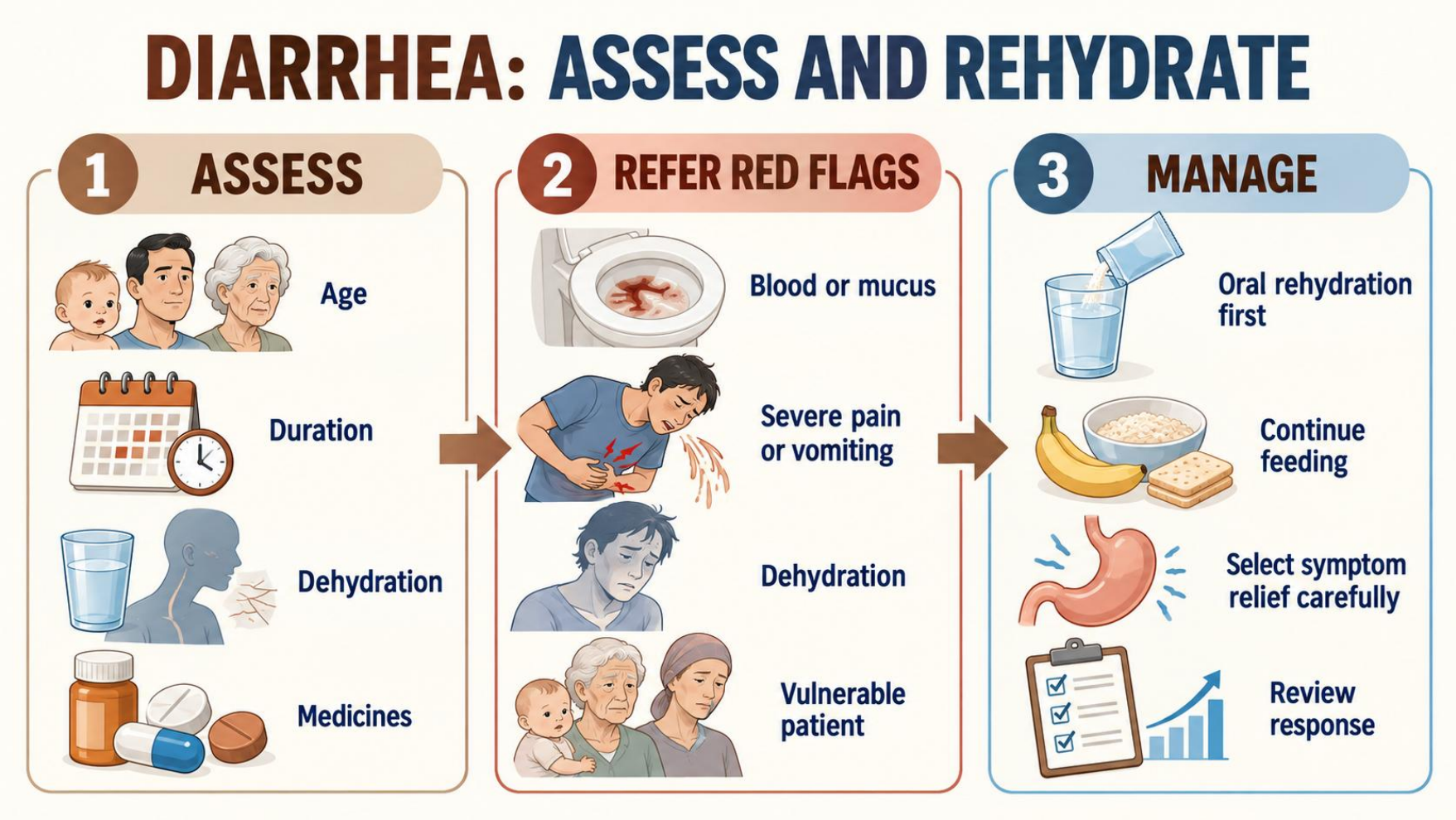
Diarrhea



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Classification and causes

Pattern	Key causes and implications
Acute: <14 days	Usually viral. Rotavirus mainly affects young children; vaccination is available. Norovirus spreads through contaminated food, surfaces and vomit.
Bacterial / protozoal	Salmonella, Shigella and E. coli may cause food-borne disease. Giardia and Entamoeba require stool investigation. Antibiotics are not routinely needed.
Persistent: 14 days–4 weeks **Chronic: >4 weeks**	Medical investigation: IBS, inflammatory bowel disease, malabsorption / coeliac disease, medicines.

Diarrhea: unusually loose / watery stools with increased frequency, commonly ≥3 stools/day.

Referral: age, duration and severity

Patient / finding	Referral threshold
Baby <3 months	Immediate assessment
Child <1 year	Diarrhea >24 hours
Child <3 years / older adult	Diarrhea >2 days
Older child / adult	Diarrhea >3 days
Diabetes	Diarrhea >24 hours
Severity / recurrence	≥6 unformed stools in 24 hours or recurrent diarrhea

High-risk patients may need earlier assessment. Review response after 1 day in children or 2 days otherwise.

Referral: clinical red flags

Clinical findings

Blood / mucus in stools; severe abdominal cramps or pain; high fever; severe vomiting or vomiting >1–2 days.

Recent foreign travel, suspected food-poisoning outbreak, persistent change in bowel habit or diarrhea after antibiotics.

Dehydration and vulnerability

Adults: thirst, dry mouth / tongue, reduced urine, weakness / lightheadedness.

Children: dry mouth / skin, few tears, <4 wet diapers/day, sunken eyes or fontanel, poor skin turgor, irritability / listlessness.

Pregnancy, frailty, major illness or immunosuppression lower the referral threshold.

Start oral rehydration while arranging referral when the patient can drink. Severe dehydration requires urgent care.

Medication and exposure assessment

Ask before supplying treatment

Which treatments have already been tried? Check suitability and response.

Record all prescribed and OTC medicines. Recent antibiotics, especially clindamycin, raise concern for C. difficile: refer.

Ask about recent travel, meals in the last few days and others with similar illness.

Medicines that may cause diarrhea

Magnesium antacids; ARBs; antibiotics; iron; colchicine; laxatives; methotrexate; metformin; allopurinol; NSAIDs; toxic digoxin levels; PPIs; SSRIs.

Suspected prescribed-drug reactions need medical review. Do not advise stopping a prescribed antibiotic without review.

Oral rehydration: role and preparation

Step	Practical instruction
First-line treatment	ORS replaces water and electrolytes in every age group. Preparations contain glucose, sodium salts (chloride / bicarbonate) and potassium. Glucose supports sodium absorption. Use premixed solution or sachets.
Prepare	Use water only, with the EXACT volume stated on the product. For infants <1 year use boiled, cooled water. Do not add juice, milk, sugar or salt.

Oral rehydration: storage and vomiting

Step	Practical instruction
Store	Discard after 1 hour at room temperature, or keep refrigerated for up to 24 hours. Check the product instructions.
Vomiting	Give small frequent amounts: 1 teaspoon every few minutes, or 10–20 mL every 5–10 minutes. Persistent inability to retain fluids requires review.

ORS replacement after each watery stool

Age	Replacement after each watery stool
1–11 months	1–1.5 × usual feed volume
1–11 years	200 mL
12–17 years / adults	200–400 mL according to losses

Replacement volumes after stool losses. Individualize infant requirements; fluid-deficit replacement requires a separate clinical assessment.

Feeding and reassessment

Fluids and feeding

Continue breastfeeding. Usual milk feeds continue when there is no dehydration; restart full-strength milk and normal food after rehydration. Avoid sugary / carbonated drinks. Temporary lactose intolerance may occur; routine milk avoidance is unnecessary.

Review and additional replacement

NICE: consider 5 mL/kg ORS after each large watery stool in children at risk after rehydration.

Review response after 1 day in children and 2 days otherwise.

Continue normal breast or bottle feeding when there is no dehydration. During active rehydration, continue breastfeeding and follow the clinical rehydration plan.

Seek medical advice if symptoms worsen or adequate fluid intake cannot be maintained.

Loperamide: dose and limits

Dose sequence

2 mg per tablet / capsule

START: 4 mg (2 tablets)

THEN: 2 mg (1 tablet) after each loose stool

Stop when symptoms settle. Seek advice if use exceeds 48 hours.

Eligibility and safety

OTC age eligibility depends on the product and country; UK guidance permits short-term use from age 12.

A maximum of 16 mg/day applies to prescribed use in UK guidance. UK NHS distinguishes 12 mg/day OTC from 16 mg/day prescribed. Follow the local label.

Avoid self-treatment with bloody diarrhea / fever, severe diarrhea after antibiotics, acute colitis, constipation or abdominal swelling. Excess doses can cause serious arrhythmias.

Co-phenotrope and adsorbents

Co-phenotrope

Diphenoxylate + atropine. It is less effective than loperamide.

Age threshold: >16 years.
Adult regimen: 4 tablets initially, then 2 tablets every 6 hours.

Atropine is included at a low dose to discourage abuse through unpleasant antimuscarinic effects at excessive doses.

Practical limitations

Verify the locally licensed preparation and maximum before applying this regimen. OTC status varies by country.

Adsorbents: pectin + kaolin (e.g. pectokaolin). Evidence is insufficient to recommend kaolin in acute diarrhea.

Symptom suppressants never replace ORS or referral.

Elemental zinc in children

Regimen	Dose and duration
Earlier WHO / UNICEF	<6 months: 10 mg elemental zinc/day. Older infants and children: 20 mg/day for 10–14 days.
WHO 2024	Children up to 10 years with acute watery or persistent diarrhea: 5 mg/day for up to 14 days. Conditional dose recommendation. Follow the adopted local protocol.
Clinical role	Zinc is an adjunct to rehydration. Earlier WHO guidance describes reduced severity and duration of diarrhea.

Probiotics and prebiotics

Definitions and clinical evidence

Probiotics are supplements containing live microorganisms, including Lactobacillus species, intended to support normal gastrointestinal microflora.

Prebiotics are food ingredients that stimulate beneficial gut bacteria.

Some preparations have reduced the duration of infectious or antibiotic-associated diarrhea in adults and children. Benefits depend on the strain, preparation and indication.

Pediatric recommendation

WHO 2024 suggests against probiotics for acute watery diarrhea in children up to 10 years.

For persistent diarrhea in this age group, WHO makes no recommendation because evidence is insufficient.

These recommendations do not establish a universal position for every adult or antibiotic-associated indication.

Probiotics do not replace ORS.

References

1-Alison Blenkinsopp, Paul Paxton and John Blenkinsopp. Symptoms in the pharmacy. A guide to the managements of common illness. 10th edition. 2025.
2-American pharmacists association. Handbook of Non-prescription drugs: An Interactive Approach to Self-Care. 20th edition. 2020.
3-Canadian American pharmacists association (CPhA). CTMA: Compendium of Therapeutics for Minor Ailments. 2018.
4-Nathan A. FastTrack. Managing Symptoms in the Pharmacy. Pharmaceutical Press. 2008.
5-Paul Rutter. Community Pharmacy. Symptoms, Diagnosis and Treatment. 6th edition. 2026.
6-https://www.medicinesforchildren.org.uk/medicines/oral-rehydration-salts. [accessed 9/5/2026].
7-BNF-90
8-Marie A. Chisholm-Burns. Pharmacotherapy Principles & Practice. 6th edition. 2022.
9-Joseph T. DiPiro, Robert L. Pharmacotherapy: A Pathophysiologic Approach, 13th edition. 2026.

Online verification

NICE CG84: gastroenteritis and feeding
Medicines for Children: oral rehydration salts
NHS: loperamide dosing and contraindications
WHO 2024: pneumonia and diarrhea guideline