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Constipation in children and young people

**Diagnosis and management of
idiopathic childhood constipation in
primary and secondary care**

NICE clinical guideline 99 Constipation in children and young people

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- The NICE guideline (this document) – all the recommendations.
- A quick reference guide – a summary of the recommendations for healthcare professionals.
- ‘Understanding NICE guidance’ – a summary for patients and carers.
- The full guideline – all the recommendations, details of how they were developed, and reviews of the evidence they were based on.

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Definitions of terms used in this guideline

Chronic constipation	Constipation lasting longer than 8 weeks.
Digital rectal examination	Examination of the lower rectum using a gloved, lubricated finger to check for abnormalities.
Idiopathic constipation	Constipation that cannot (currently) be explained by any anatomical, physiological, radiological or histological abnormalities.
Intractable constipation	Constipation that does not respond to sustained, optimum medical management.
Optimum management	Management as set out in this guideline.
Specialist	Healthcare professional with either interest, experience and/or training in the diagnosis and treatment of constipation in children and young people. Examples: specialist continence nurse, community paediatrician with an interest in the diagnosis and treatment of constipation.
Specialist services	Services for children and young people that include constipation management.

A larger glossary of terms can be found in the full guideline.

Introduction

Constipation is common in childhood. It is prevalent in around 5–30% of the child population, depending on the criteria used for diagnosis. Symptoms become chronic in more than one third of patients and constipation is a common reason for referral to secondary care. Morbidity may be under-reported because people may not seek advice because they are embarrassed.

The exact cause of constipation is not fully understood but factors that may contribute include pain, fever, dehydration, dietary and fluid intake, psychological issues, toilet training, medicines and familial history of constipation. Constipation is referred to as 'idiopathic' if it cannot be explained by anatomical or physiological abnormalities.

Many people don't recognise the signs and symptoms of constipation and few relate the presence of soiling to constipation. The signs and symptoms of childhood idiopathic constipation include: infrequent bowel activity, foul smelling wind and stools, excessive flatulence, irregular stool texture, passing occasional enormous stools or frequent small pellets, withholding or straining to stop passage of stools, soiling or overflow, abdominal pain, distension or discomfort, poor appetite, lack of energy, an unhappy, angry or irritable mood and general malaise.

Painful defecation is an important factor in constipation but it is not always recognised; withholding behaviours to prevent passage of painful stools are often confused with straining to pass stools. Families may delay seeking help for fear of a negative response from healthcare professionals. It has been suggested that some healthcare professionals underestimate the impact of constipation on the child or young person and their family. This may contribute to the poor clinical outcomes often seen in children and young people with constipation.

Soiling is debilitating but rarely life threatening so it might be expected to have little impact on healthcare provision. But many children and young people

experience social, psychological and educational consequences that require prolonged support.

Some children and young people with physical disabilities, such as cerebral palsy, are more prone to idiopathic constipation as a result of impaired mobility. Children and young people with Down's syndrome or autism are also more prone to the condition. It is important that assessment and ongoing management for these children and young people happen in the same way as is recommended for all children and young people.

Without early diagnosis and treatment, an acute episode of constipation can lead to anal fissure and become chronic. By the time the child or young person is seen they may be in a vicious cycle. Children and young people and their families are often given conflicting advice and practice is inconsistent, making treatment potentially less effective and frustrating for all concerned. Early identification of constipation and effective treatment can improve outcomes for children and young people. This guideline provides strategies based on the best available evidence to support early identification, positive diagnosis and timely, effective management. Implementation of this guideline will provide a consistent, coordinated approach and will improve outcomes for children and young people.

Patient-centred care

This guideline offers best practice advice on the care of children and young people with idiopathic constipation.

Treatment and care should take into account patients' needs and preferences. Children and young people with idiopathic constipation and their parents and carers should have the opportunity to make informed decisions about their care and treatment, in partnership with their healthcare professionals. If children do not have the capacity to make decisions, healthcare professionals should follow the Department of Health's advice on consent (available from www.dh.gov.uk/consent) and the code of practice that accompanies the Mental Capacity Act (summary available from www.publicguardian.gov.uk). In Wales, healthcare professionals should follow the advice on consent from the Welsh Assembly Government (available from www.wales.nhs.uk/consent).

If the patient is under 16, healthcare professionals should follow the guidelines in 'Seeking consent: working with children' (available from www.dh.gov.uk).

Good communication between healthcare professionals and patients is essential. It should be supported by evidence-based written information tailored to the patient's needs. Treatment and care, and the information children and young people and their parents or carers are given about it, should be culturally appropriate. It should also be accessible to people with additional needs such as physical, sensory or learning disabilities, and to people who do not speak or read English.

Families and carers should have the opportunity to be involved in decisions about treatment and care. Where appropriate, for example for older children, this should be with the child's agreement.

Families and carers should also be given the information and support they need.

Care of young people in transition between paediatric and adult services should be planned and managed according to the best practice guidance

described in 'Transition: getting it right for young people' (available from www.dh.gov.uk).

Adult and paediatric healthcare teams should work jointly to provide assessment and services to young people with idiopathic constipation. Diagnosis and management should be reviewed throughout the transition process, and there should be clarity about who is the lead clinician to ensure continuity of care.

Key priorities for implementation

History-taking and physical examination

- Establish during history-taking whether the child or young person has constipation. Two or more findings from [table 1](#) indicate constipation.
- If the child or young person has constipation, take a history using [table 2](#) to establish a positive diagnosis of idiopathic constipation by excluding underlying causes. If a child or young person has any 'red flag' symptoms, do not treat them for constipation. Instead, refer them urgently to a healthcare professional with experience in the specific aspect of child health that is causing concern.
- Do a physical examination. Use [table 3](#) to establish a positive diagnosis of idiopathic constipation by excluding underlying causes. If a child or young person has any 'red flag' symptoms do not treat them for constipation. Instead, refer them urgently to a healthcare professional with experience in the specific aspect of child health that is causing concern.
- Inform the child or young person and his or her parents or carers of a positive diagnosis of idiopathic constipation and also that underlying causes have been excluded by the history and/or physical examination. Reassure them that there is a suitable treatment for idiopathic constipation but that it may take several months for the condition to be resolved.

Digital rectal examination

- Do not perform a digital rectal examination in children or young people older than 1 year with a 'red flag' (see [tables 2](#) and [3](#)) in the history-taking and/or physical examination that might indicate an underlying disorder. Instead, refer them urgently to a healthcare professional competent to perform a digital rectal examination and interpret features of anatomical abnormalities or Hirschsprung's disease.

Disimpaction

- Assess all children and young people with idiopathic constipation for faecal impaction, including children and young people who were originally referred to the relevant services because of 'red flags' but in whom there were no significant findings following further investigations (see [tables 2](#) and [3](#)). Use

a combination of history-taking and physical examination to diagnose faecal impaction – look for overflow soiling and/or faecal mass palpable abdominally and/or rectally if indicated.

- Offer the following oral medication regimen for disimpaction if indicated:
 - Polyethylene glycol 3350 + electrolytes, using an escalating dose regimen (see [table 4](#)), as the first-line treatment¹.
 - Adjust the dose of polyethylene glycol 3350 + electrolytes according to symptoms and response. As a guide for children and young people who have had disimpaction, the starting maintenance dose might be half the disimpaction dose (see [table 4](#)).
 - Add a stimulant laxative (see [table 4](#)) if polyethylene glycol 3350 + electrolytes does not work.
 - Substitute a stimulant laxative if polyethylene glycol 3350 + electrolytes is not tolerated by the child or young person. Add another laxative such as lactulose or docusate (see [table 4](#)) if stools are hard.
 - Continue medication at maintenance dose for several weeks after regular bowel habit is established – this may take several months. Children who are toilet training should remain on laxatives until toilet training is well established. Do not stop medication abruptly: gradually reduce the dose over a period of months in response to stool consistency and frequency. Some children and young people may require laxative therapy for several years. A minority may require ongoing laxative therapy.

Diet and lifestyle

- Do not use dietary interventions alone as first-line treatment for idiopathic constipation.
- Treat constipation with laxatives and a combination of:
 - Negotiated and non-punitive behavioural interventions suited to the child or young person's stage of development. These could include scheduled

¹ At the time of publication (May 2010), Movicol Paediatric Plain is the only macrogol licensed for children under 12 years that includes electrolytes. It does not have UK marketing authorisation for use in faecal impaction in children under 5 years, or for chronic constipation in children under 2 years. Informed consent should be obtained and documented. Movicol Paediatric Plain is the only macrogol licensed for children under 12 years that is also unflavoured.

toileting and support to establish a regular bowel habit, maintenance and discussion of a bowel diary, information on constipation, and use of encouragement and rewards systems.

- Dietary modifications to ensure a balanced diet and sufficient fluids are consumed.

Information and support

- Offer children and young people with idiopathic constipation and their families a point of contact with specialist healthcare professionals, including school nurses, who can give ongoing support.

1 Guidance

The following guidance is based on the best available evidence. The full guideline (www.nice.org.uk/guidance/CG99/Guidance) gives details of the methods and the evidence used to develop the guidance.

1.1 *History-taking and physical examination*

- 1.1.1 Establish during history-taking whether the child or young person has constipation. Two or more findings from [table 1](#) indicate constipation.

Table 1 Key components of history-taking to diagnose constipation

Key components	Potential findings in a child younger than 1 year	Potential findings in a child/young person older than 1 year
Stool patterns	<ul style="list-style-type: none"> • Fewer than three complete stools per week (type 3 or 4, see Bristol Stool Form Scale – appendix D) (this does not apply to exclusively breastfed babies after 6 weeks of age) • Hard large stool • ‘Rabbit droppings’ (type 1, see Bristol Stool Form Scale – appendix D) 	<ul style="list-style-type: none"> • Fewer than three complete stools per week (type 3 or 4, see Bristol Stool Form Scale – appendix D) • Overflow soiling (commonly very loose [no form], very smelly [smells more unpleasant than normal stools], stool passed without sensation. Can also be thick and sticky or dry and flaky.) • ‘Rabbit droppings’ (type 1, see Bristol Stool Form Scale – appendix D) • Large, infrequent stools that can block the toilet
Symptoms associated with defecation	<ul style="list-style-type: none"> • Distress on stooling • Bleeding associated with hard stool • Straining 	<ul style="list-style-type: none"> • Poor appetite that improves with passage of large stool • Waxing and waning of abdominal pain with passage of stool • Evidence of retentive posturing: typical straight legged, tiptoed, back arching posture • Straining • Anal pain
History	<ul style="list-style-type: none"> • Previous episode(s) of constipation • Previous or current anal fissure 	<ul style="list-style-type: none"> • Previous episode(s) of constipation • Previous or current anal fissure • Painful bowel movements and bleeding associated with hard stools

- 1.1.2 If the child or young person has constipation take a history using [table 2](#) to establish a positive diagnosis of idiopathic constipation by excluding underlying causes. If a child or young person has any ‘red flag’ symptoms, do not treat them for constipation. Instead, refer them urgently to a healthcare professional with experience in the specific aspect of child health that is causing concern.

Table 2 Key components of history-taking to diagnose idiopathic constipation

Key components	Findings and diagnostic clues that indicate idiopathic constipation	'Red flag' findings and diagnostic clues that indicate an underlying disorder or condition: not idiopathic constipation
Timing of onset of constipation and potential precipitating factors	<ul style="list-style-type: none"> • In a child younger than 1 year: <ul style="list-style-type: none"> • Starts after a few weeks of life • Obvious precipitating factors coinciding with the start of symptoms: fissure, change of diet, infections • In a child/young person older than 1 year: <ul style="list-style-type: none"> • Starts after a few weeks of life • Obvious precipitating factors coinciding with the start of symptoms: fissure, change of diet, timing of potty/toilet training or acute events such as infections, moving house, starting nursery/school, fears and phobias, major change in family, taking medicines 	<ul style="list-style-type: none"> • Reported from birth or first few weeks of life
Passage of meconium	<ul style="list-style-type: none"> • Normal (within 48 hours after birth [in term baby]) 	<ul style="list-style-type: none"> • Failure to pass meconium/delay (more than 48 hours after birth [in term baby])
Stool patterns		<ul style="list-style-type: none"> • 'Ribbon stools' (more likely in a child younger than 1 year)
Growth and general wellbeing	<ul style="list-style-type: none"> • In a child younger than 1 year: <ul style="list-style-type: none"> • Generally well, weight and height within normal limits • In a child/young person older than 1 year: <ul style="list-style-type: none"> • Generally well, weight and height within normal limits, fit and active 	<ul style="list-style-type: none"> • No 'red flag', but see 'amber flag' below.
Symptoms in legs /locomotor development	<ul style="list-style-type: none"> • No neurological problems in legs (such as falling over in a child/young person older than 1 year), normal locomotor development 	<ul style="list-style-type: none"> • Previously unknown or undiagnosed weakness in legs, locomotor delay
Abdomen		<ul style="list-style-type: none"> • Abdominal distension with vomiting
Diet and fluid intake	<ul style="list-style-type: none"> • In a child younger than 1 year: <ul style="list-style-type: none"> • Changes in infant formula, weaning, insufficient fluid intake • In a child/young person older than 1 year: <ul style="list-style-type: none"> • History of poor diet and/or insufficient fluid intake 	
<p>'Amber flag': possible idiopathic constipation</p> <p>Growth and general wellbeing: Faltering growth (see recommendation 1.1.4)</p> <p>Personal/familial/social factors: Disclosure or evidence that raises concerns over possibility of child maltreatment (see recommendation 1.1.5)</p>		

- 1.1.3 Do a physical examination. Use [table 3](#) to establish a positive diagnosis of idiopathic constipation by excluding underlying causes. If a child or young person has any 'red flag' symptoms do not treat them for constipation. Instead, refer them urgently to a healthcare professional with experience in the specific aspect of child health that is causing concern.

Table 3 Key components of physical examination to diagnose idiopathic constipation

Key components	Findings and diagnostic clues that indicate idiopathic constipation	'Red flag' findings and diagnostic clues that indicate an underlying disorder or condition: not idiopathic constipation
Inspection of perianal area: appearance, position, patency, etc	<ul style="list-style-type: none"> • Normal appearance of anus and surrounding area 	<ul style="list-style-type: none"> • Abnormal appearance/position/patency of anus: fistulae, bruising, multiple fissures, tight or patulous anus, anteriorly placed anus, absent anal wink
Abdominal examination	<ul style="list-style-type: none"> • Soft abdomen. Flat or distension that can be explained because of age or excess weight 	<ul style="list-style-type: none"> • Gross abdominal distension
Spine/lumbosacral region/gluteal examination	<ul style="list-style-type: none"> • Normal appearance of the skin and anatomical structures of lumbosacral/gluteal regions 	<ul style="list-style-type: none"> • Abnormal: asymmetry or flattening of the gluteal muscles, evidence of sacral agenesis, discoloured skin, naevi or sinus, hairy patch, lipoma, central pit (dimple that you can't see the bottom of), scoliosis
Lower limb neuromuscular examination including tone and strength	<ul style="list-style-type: none"> • Normal gait. Normal tone and strength in lower limbs 	<ul style="list-style-type: none"> • Deformity in lower limbs such as talipes • Abnormal neuromuscular signs unexplained by any existing condition, such as cerebral palsy
Lower limb neuromuscular examination: reflexes (perform only if 'red flags' in history or physical examination suggest new onset neurological impairment)	<ul style="list-style-type: none"> • Reflexes present and of normal amplitude 	<ul style="list-style-type: none"> • Abnormal reflexes

- 1.1.4 If the history-taking and/or physical examination show evidence of faltering growth treat for constipation and test for coeliac disease² and hypothyroidism.
- 1.1.5 If either the history-taking or the physical examination show evidence of possible maltreatment treat for constipation and refer to NICE guidance on ‘When to suspect child maltreatment’, NICE clinical guideline 89 (2009)³.
- 1.1.6 If the physical examination shows evidence of perianal streptococcal infection, treat for constipation and also treat the infection.
- 1.1.7 Inform the child or young person and his or her parents or carers of a positive diagnosis of idiopathic constipation and also that underlying causes have been excluded by the history and/or physical examination. Reassure them that there is a suitable treatment for idiopathic constipation but that it may take several months for the condition to be resolved.

1.2 *Digital rectal examination*

- 1.2.1 A digital rectal examination should be undertaken only by healthcare professionals competent to interpret features of anatomical abnormalities or Hirschsprung's disease.
- 1.2.2 If a child younger than 1 year has a diagnosis of idiopathic constipation that does not respond to optimum treatment within 4 weeks, refer them urgently to a healthcare professional competent to perform a digital rectal examination and interpret features of anatomical abnormalities or Hirschsprung's disease.
- 1.2.3 Do not perform a digital rectal examination in children or young people older than 1 year with a ‘red flag’ (see [tables 2](#) and [3](#)) in the

² See also ‘Coeliac disease: recognition and assessment of coeliac disease’ (2009) NICE clinical guideline 86. Available from www.nice.org.uk/guidance/CG86

³ See ‘When to suspect child maltreatment’ (2009) NICE clinical guideline 89 (2009) Available from www.nice.org.uk/guidance/CG89

history-taking and/or physical examination that might indicate an underlying disorder. Instead, refer them urgently to a healthcare professional competent to perform a digital rectal examination and interpret features of anatomical abnormalities or Hirschsprung's disease.

1.2.4 For a digital rectal examination ensure:

- privacy
- informed consent is given by the child or young person, or the parent or legal guardian if the child is not able to give it, and is documented
- a chaperone is present
- the child or young person's individual preferences about degree of body exposure and gender of the examiner are taken into account
- all findings are documented.

1.3 Clinical investigations

Endoscopy

1.3.1 Do not use gastrointestinal endoscopy to investigate idiopathic constipation.

Coeliac disease and hypothyroidism

1.3.2 Test for coeliac disease⁴ and hypothyroidism in the ongoing management of intractable constipation in children and young people if requested by specialist services.

Manometry

1.3.3 Do not use anorectal manometry to exclude Hirschsprung's disease in children and young people with chronic constipation.

⁴ See also 'Coeliac disease: recognition and assessment of coeliac disease' (2009) NICE clinical guideline 86. Available from www.nice.org.uk/guidance/CG86

Radiography

- 1.3.4 Do not use a plain abdominal radiograph to make a diagnosis of idiopathic constipation.
- 1.3.5 Consider using a plain abdominal radiograph only if requested by specialist services in the ongoing management of intractable idiopathic constipation.

Rectal biopsy

- 1.3.6 Do not perform rectal biopsy unless any of the following clinical features of Hirschsprung's disease are or have been present:
- delayed passage of meconium (more than 48 hours after birth in term babies)
 - constipation since first few weeks of life
 - chronic abdominal distension plus vomiting
 - family history of Hirschsprung's disease
 - faltering growth in addition to any of the previous features.

Transit studies

- 1.3.7 Do not use transit studies to make a diagnosis of idiopathic constipation.
- 1.3.8 Consider using transit studies in the ongoing management of intractable idiopathic constipation only if requested by specialist services.

Ultrasound

- 1.3.9 Do not use abdominal ultrasound to make a diagnosis of idiopathic constipation.
- 1.3.10 Consider using abdominal ultrasound in the ongoing management of intractable idiopathic constipation only if requested by specialist services.

1.4 *Clinical management*

Disimpaction

- 1.4.1 Assess all children and young people with idiopathic constipation for faecal impaction, including children and young people who were originally referred to the relevant services because of 'red flags' but in whom there were no significant findings following further investigations (see [tables 2](#) and [3](#)). Use a combination of history-taking and physical examination to diagnose faecal impaction – look for overflow soiling and/or faecal mass palpable abdominally and/or rectally if indicated.
- 1.4.2 Start maintenance therapy if the child or young person is not faecally impacted.
- 1.4.3 Offer the following oral medication regimen for disimpaction if indicated:
- Polyethylene glycol 3350 + electrolytes, using an escalating dose regimen (see [table 4](#)), as the first-line treatment⁵.
 - Polyethylene glycol 3350 + electrolytes may be mixed with a cold drink.
 - Add a stimulant laxative (see [table 4](#)) if polyethylene glycol 3350 + electrolytes does not lead to disimpaction after 2 weeks.
 - Substitute a stimulant laxative singly or in combination with an osmotic laxative such as lactulose (see [table 4](#)) if polyethylene glycol 3350 + electrolytes is not tolerated.
 - Inform families that disimpaction treatment can initially increase symptoms of soiling and abdominal pain.

⁵ At the time of publication (May 2010), Movicol Paediatric Plain is the only macrogol licensed for children under 12 years that includes electrolytes. It does not have UK marketing authorisation for use in faecal impaction in children under 5 years, or for chronic constipation in children under 2 years. Informed consent should be obtained and documented. Movicol Paediatric Plain is the only macrogol licensed for children under 12 years that is also unflavoured.

Table 4 Laxatives: recommended doses

Laxatives	Recommended doses
Macrogols	
Polyethylene glycol 3350 + electrolytes	<p>Paediatric formula: Oral powder: macrogol 3350 (polyethylene glycol 3350)^a 6.563 g; sodium bicarbonate 89.3 mg; sodium chloride 175.4 mg; potassium chloride 25.1 mg/sachet (unflavoured)</p> <p>Disimpaction</p> <ul style="list-style-type: none"> • Child under 1 year: ½–1 sachet daily (non-BNFC recommended dose) • Child 1–5 years: 2 sachets on 1st day, then 4 sachets daily for 2 days, then 6 sachets daily for 2 days, then 8 sachets daily (non-BNFC recommended dose) • Child 5–12 years: 4 sachets on 1st day, then increased in steps of 2 sachets daily to maximum of 12 sachets daily (non-BNFC recommended dose) <p>Ongoing maintenance (chronic constipation, prevention of faecal impaction)</p> <ul style="list-style-type: none"> • Child under 1 year: ½–1 sachet daily (non-BNFC recommended dose) • Child 1–6 years: 1 sachet daily; adjust dose to produce regular soft stools (maximum 4 sachets daily) (for children under 2, non-BNFC recommended dose) • Child 6–12 years: 2 sachets daily; adjust dose to produce regular soft stools (maximum 4 sachets daily) <p>Adult formula: Oral powder: macrogol 3350 (polyethylene glycol 3350) 13.125 g; sodium bicarbonate 178.5 mg; sodium chloride 350.7 mg; potassium chloride 46.6 mg/sachet (unflavoured)</p> <p>Disimpaction</p> <ul style="list-style-type: none"> • Child/young person 12–18 years: 4 sachets on 1st day, then increased in steps of 2 sachets daily to maximum of 8 sachets daily (non-BNFC recommended dose) <p>Ongoing maintenance (chronic constipation, prevention of faecal impaction)</p> <ul style="list-style-type: none"> • Child/young person 12–18 years: 1–3 sachets daily in divided doses adjusted according to response; maintenance, 1–2 sachets daily
Osmotic laxatives	
Lactulose	<ul style="list-style-type: none"> • Child 1 month to 1 year: 2.5 ml twice daily, adjusted according to response • Child 1–5 years: 2.5–10 ml twice daily, adjusted according to response (non-BNFC recommended dose) • Child/young person 5–18 years: 5–20 ml twice daily, adjusted according to response (non-BNFC recommended dose)

Laxatives	Recommended doses
Stimulant laxatives	
Sodium picosulfate ^b	Non-BNFC recommended doses Elixir (5 mg/5 ml) <ul style="list-style-type: none"> Child 1 month to 4 years: 2.5–10 mg once a day Child/young person 4–18 years: 2.5–20 mg once a day
	Non-BNFC recommended dose Perles ^c (1 tablet = 2.5mg) <ul style="list-style-type: none"> Child/young person 4–18 years: 2.5–20mg once a day
Bisacodyl	Non-BNFC recommended doses By mouth <ul style="list-style-type: none"> Child/young person 4–18 years: 5–20 mg once daily By rectum (suppository) <ul style="list-style-type: none"> Child/young person 2–18 years: 5–10 mg once daily
	Senna syrup (7.5 mg/5 ml) <ul style="list-style-type: none"> Child 1 month to 4 years: 2.5–10 ml once daily Child/young person 4–18 years: 2.5–20 ml once daily
Senna ^d	Senna (non-proprietary) (1 tablet = 7.5 mg) <ul style="list-style-type: none"> Child 2–4 years: ½–2 tablets once daily Child 4–6 years: ½–4 tablets once daily Child/young person 6–18 years: 1–4 tablets once daily
	Docosate sodium ^e <ul style="list-style-type: none"> Child 6 months–2 years: 12.5 mg three times daily (use paediatric oral solution) Child 2–12 years: 12.5–25 mg three times daily (use paediatric oral solution) Child/young person 12–18 years: up to 500 mg daily in divided doses
<p>All drugs listed above are given by mouth unless stated otherwise.</p> <p>Unless stated otherwise, doses are those recommended by the British National Formulary for Children (BNFC) 2009. Informed consent should be obtained and documented whenever medications/doses are prescribed that are different from those recommended by the BNFC.</p> <p>^a At the time of publication (May 2010) Movicol Paediatric Plain is the only macrogol licensed for children under 12 years that includes electrolytes. It does not have UK marketing authorisation for use in faecal impaction in children under 5 years, or for chronic constipation in children under 2 years. Informed consent should be obtained and documented. Movicol Paediatric Plain is the only macrogol licensed for children under 12 years that is also unflavoured.</p> <p>^b Elixir, licensed for use in children (age range not specified by manufacturer). Perles not licensed for use in children under 4 years. Informed consent should be obtained and documented.</p> <p>^c Perles produced by Dulcolax should not be confused with Dulcolax tablets which contain bisacodyl as the active ingredient</p> <p>^d Syrup not licensed for use in children under 2 years. Informed consent should be obtained and documented.</p> <p>^e Adult oral solution and capsules not licensed for use in children under 12 years. Informed consent should be obtained and documented.</p>	

- 1.4.4 Do not use rectal medications for disimpaction unless all oral medications have failed and only if the child or young person and their family consent.
- 1.4.5 Administer sodium citrate enemas only if all oral medications for disimpaction have failed.
- 1.4.6 Do not administer phosphate enemas for disimpaction unless under specialist supervision in hospital/health centre/clinic, and only if all oral medications and sodium citrate enemas have failed.
- 1.4.7 Do not perform manual evacuation of the bowel under anaesthesia unless optimum treatment with oral and rectal medications has failed.
- 1.4.8 Review children and young people undergoing disimpaction within 1 week.

Maintenance therapy

- 1.4.9 Start maintenance therapy as soon as the child or young person's bowel is disimpacted.
- 1.4.10 Reassess children frequently during maintenance treatment to ensure they do not become reimpacted and assess issues in maintaining treatment such as taking medicine and toileting. Tailor the frequency of assessment to the individual needs of the child and their families (this could range from daily contact to contact every few weeks). Where possible, reassessment should be provided by the same person/team.

1.4.11 Offer the following regimen for ongoing treatment or maintenance therapy:

- Polyethylene glycol 3350 + electrolytes as the first-line treatment⁶.
- Adjust the dose of polyethylene glycol 3350 + electrolytes according to symptoms and response. As a guide for children and young people who have had disimpaction the starting maintenance dose might be half the disimpaction dose (see [table 4](#)).
- Add a stimulant laxative (see [table 4](#)) if polyethylene glycol 3350 + electrolytes does not work.
- Substitute a stimulant laxative if polyethylene glycol 3350 + electrolytes is not tolerated by the child or young person. Add another laxative such as lactulose or docusate (see [table 4](#)) if stools are hard.
- Continue medication at maintenance dose for several weeks after regular bowel habit is established – this may take several months. Children who are toilet training should remain on laxatives until toilet training is well established. Do not stop medication abruptly: gradually reduce the dose over a period of months in response to stool consistency and frequency. Some children may require laxative therapy for several years. A minority may require ongoing laxative therapy.

1.5 Diet and lifestyle

1.5.1 Do not use dietary interventions alone as first-line treatment for idiopathic constipation.

⁶ At the time of publication (May, 2010), Movicol Paediatric Plain is the only macrogol licensed for children under 12 years that includes electrolytes. It does not have UK marketing authorisation for use in faecal impaction in children under 5 years, or for chronic constipation in children under 2 years. Informed consent should be obtained and documented. Movicol Paediatric Plain is the only macrogol licensed for children under 12 years that is also unflavoured.

1.5.2 Treat constipation with laxatives and a combination of:

- Negotiated and non-punitive behavioural interventions suited to the child or young person's stage of development. These could include scheduled toileting and support to establish a regular bowel habit, maintenance and discussion of a bowel diary, information on constipation, and use of encouragement and rewards systems.
- Dietary modifications to ensure a balanced diet and sufficient fluids are consumed.

1.5.3 Advise parents and children and young people (if appropriate) that a balanced diet should include:

- Adequate fluid intake (see [table 5](#)).
- Adequate fibre. Recommend including foods with a high fibre content (such as fruit, vegetables, high-fibre bread, baked beans and wholegrain breakfast cereals) (not applicable to exclusively breastfed infants). Do not recommend unprocessed bran, which can cause bloating and flatulence and reduce the absorption of micronutrients.

Table 5 American dietary recommendations (Institute of Medicine, 2005).
Dietary reference intakes for water, potassium, sodium chloride and sulfate.
Washington DC: The National Academies Press

	Total water intake per day, including water contained in food	Water obtained from drinks per day
Infants 0–6 months	700 ml assumed to be from breast milk	
7–12 months	800 ml from milk and complementary foods and beverages	600 ml
1–3 years	1300 ml	900 ml
4–8 years	1700 ml	1200 ml
Boys 9–13 years	2400 ml	1800 ml
Girls 9–13 years	2100 ml	1600 ml
Boys 14–18 years	3300 ml	2600 ml
Girls 14–18 years	2300 ml	1800 ml
The above recommendations are for adequate intakes and should not be interpreted as a specific requirement. Higher intakes of total water will be required for those who are physically active or who are exposed to hot environments. It should be noted that obese children may also require higher total intakes of water.		

- 1.5.4 Provide children and young people with idiopathic constipation and their families with written information about diet and fluid intake.
- 1.5.5 In children with idiopathic constipation, start a cows' milk exclusion diet only on the advice of the relevant specialist services.
- 1.5.6 Advise daily physical activity that is tailored to the child or young person's stage of development and individual ability as part of ongoing maintenance in children and young people with idiopathic constipation.

1.6 Psychological interventions

- 1.6.1 Do not use biofeedback for ongoing treatment in children and young people with idiopathic constipation.
- 1.6.2 Do not routinely refer children and young people with idiopathic constipation to a psychologist or child and adolescent mental health

services unless the child or young person has been identified as likely to benefit from receiving a psychological intervention.

1.7 *Antegrade colonic enema procedure*

1.7.1 Refer children and young people with idiopathic constipation who still have unresolved symptoms on optimum management to a paediatric surgical centre to assess their suitability for an antegrade colonic enema (ACE) procedure.

1.7.2 Ensure that all children and young people who are referred for an ACE procedure have access to support, information and follow-up from paediatric healthcare professionals with experience in managing children and young people who have had an ACE procedure.

1.8 *Information and support*

1.8.1 Provide tailored follow-up to children and young people and their parents or carers according to the child or young person's response to treatment, measured by frequency, amount and consistency of stools. Use the Bristol Stool Form Scale to assess this (see appendix D). This could include:

- telephoning or face-to-face talks
- giving detailed evidence-based information about their condition and its management, this might include for example the 'Understanding NICE guidance' leaflet for this guideline
- giving verbal information supported by (but not replaced by) written or website information in several formats about how the bowels work, symptoms that might indicate a serious underlying problem, how to take their medication, what to expect when taking laxatives, how to poo, origins of constipation, criteria to recognise risk situations for relapse (such as worsening of any symptoms, soiling etc.) and the importance of continuing treatment until advised otherwise by the healthcare professional.

- 1.8.2 Offer children and young people with idiopathic constipation and their families a point of contact with specialist healthcare professionals, including school nurses, who can give ongoing support.
- 1.8.3 Healthcare professionals should liaise with school nurses to provide information and support, and to help school nurses raise awareness of the issues surrounding constipation with children and young people and school staff.
- 1.8.4 Refer children and young people with idiopathic constipation who do not respond to initial treatment within 3 months to a practitioner with expertise in the problem.

2 Notes on the scope of the guidance

NICE guidelines are developed in accordance with a scope that defines what the guideline will and will not cover. The scope of this guideline is available from www.nice.org.uk/guidance/CG99 – click on ‘How this guidance was produced’.

The scope includes: diagnosis of idiopathic constipation, management, indications for referral to specialist services, information and support needs for children and families. The scope does not cover: diagnosis and treatment of underlying disorders, diagnosis and management of comorbidity, care received in specialist services after referral, additional management required by children with an underlying congenital, genetic, metabolic, endocrine or neurological disorder.

How this guideline was developed

NICE commissioned the [National Collaborating Centre for Women's and Children's Health to develop this guideline. The Centre established a Guideline Development Group (see appendix A), which reviewed the evidence and developed the recommendations. An independent Guideline Review Panel oversaw the development of the guideline (see appendix B).

There is more information about how NICE clinical guidelines are developed on the NICE website (www.nice.org.uk/HowWeWork). A booklet, 'How NICE clinical guidelines are developed: an overview for stakeholders, the public and the NHS' (fourth edition, published 2009), is available from NICE publications (phone 0845 003 7783 or email publications@nice.org.uk and quote reference N1739).

3 Implementation

NICE has developed tools to help organisations implement this guidance (see www.nice.org.uk/guidance/CG99).

4 Research recommendations

The Guideline Development Group has made the following recommendations for research, based on its review of evidence, to improve NICE guidance and patient care in the future. The Guideline Development Group's full set of research recommendations is detailed in the full guideline (see section 5).

4.1 ***Polyethylene glycol 3350 + electrolytes in children under 1***

What is the effectiveness of polyethylene glycol 3350 + electrolytes in treating idiopathic constipation in children younger than 1 year old, and what is the optimum dosage?

Why this is important

There is some evidence that treatment of constipation is less effective if faecal impaction is not dealt with first. Disimpaction with oral macrogols is recommended for children and their use avoids the need for rectal treatments.

Rectal treatments are used more commonly in hospital than at home.

Although relatively few infants are admitted to hospital, there would be savings if initially all children were disimpacted at home.

Polyethylene glycol 3350 + electrolytes, an oral macrogol, is licensed for disimpaction in children older than 5 years. Increasing experience has shown that it is effective in infants younger than 1 year old, but evidence is limited to small case series. If dosage guidelines and evidence on macrogol use in infants were obtained and published, more healthcare professionals might be encouraged to try macrogols in this age group. It would also allow the guideline to be applicable across the whole paediatric age group.

4.2 *Age-specific information*

Is age-specific information more effective than non-age-specific information in increasing children's knowledge and understanding of constipation and its treatment, and what information should be given?

Why this is important

When treating idiopathic constipation it is helpful if children and young people understand how the bowel works, what can go wrong and what they can do about it. Younger children (pre toilet training) need to allow stools to come out. Older children and young people have a more active role and need to develop a habit of taking all prescribed medication, sitting on the toilet each day and pushing stools out. Volition from the child or young person is vital to establish and sustain a regular toilet habit. Intended learning outcomes are similar for all age groups.

Theory-based research has led to the development of some materials such as 'Sneaky-poo' that are not appropriate for young children. To help clinicians and parents motivate children and young people to fully participate in

managing their constipation it is important to discover how best to communicate information to them, what materials are most effective and, specifically, what works at different ages.

4.3 Specialist services

Do specialist nurse-led children's continence services or traditional secondary care services provide the most effective treatment for children with idiopathic constipation (with or without faecal incontinence) that does not respond fully to primary treatment regimens? This should consider clinical and cost effectiveness, and both short-term (16 weeks) and long-term (12 months) resolution.

Why this is important

By the time children reach tertiary care they have often suffered years of constipation with or without faecal incontinence and have intractable constipation.

Findings from one trial have suggested that children referred to a tertiary gastroenterology service and diagnosed as having idiopathic constipation are managed as effectively by nurse-led follow-up as by a consultant paediatric gastroenterology service. Parent satisfaction was improved by the nurse-led service. However, the nurse-led service may require increased resources because many more contacts are made. Several services with a similar model of care have been established but cost effectiveness has not been formally assessed.

For coherent services to develop across the UK, the cost effectiveness of specialist nurse-led services provided as first referral point if primary treatment regimens have not worked needs to be examined.

4.4 Colonic washouts

What is the effectiveness of different volumes and types of solutions used for colonic washouts in children who have undergone an antegrade colonic enema (ACE) procedure for intractable chronic idiopathic constipation?

Why this is important

The ACE procedure has a role in the management of people with treatment-resistant symptoms. Close follow-up is integral to the effectiveness of this technique to allow safe and effective administration of washout solutions.

The choice of washout solutions and frequency of administration differs between centres. Outcomes may be improved by evaluating how experienced centres choose washout solutions and by comparing techniques.

Centres offering the ACE procedure as treatment for children with chronic idiopathic constipation should be surveyed for their choice of washout solution. To determine the perceived strengths and weaknesses of each solution, the survey should cover enema, choice of washout fluid, volumes and frequency of administration.

4.5 *Models of service*

What is the impact of specific models of service on both clinical and social outcomes to deliver timely diagnosis and treatment interventions in children with chronic idiopathic constipation and their families?

Why this is important

There has been no research to explore the social impact on children with constipation and their families, and many of the clinical studies have been of mediocre quality. A comprehensive study is needed that investigates the effectiveness of specific models of care, and that takes into consideration both the clinical and social impact of this complex condition.

5 Other versions of this guideline

5.1 *Full guideline*

The full guideline, 'Constipation in children: the diagnosis and management of idiopathic childhood constipation in primary and secondary care' contains details of the methods and evidence used to develop the guideline. It is published by the [National Collaborating Centre for Women's and Children's Health, and is available from our website

(www.nice.org.uk/guidance/CG99/FullGuidance).

5.2 *Quick reference guide*

A quick reference guide for healthcare professionals is available from

www.nice.org.uk/guidance/CG99/QuickRefGuide

For printed copies, phone NICE publications on 0845 003 7783 or email publications@nice.org.uk (quote reference number N2174).

5.3 *'Understanding NICE guidance'*

A summary for patients and carers ('Understanding NICE guidance') is available from www.nice.org.uk/guidance/CG99/PublicInfo

For printed copies, phone NICE publications on 0845 003 7783 or email publications@nice.org.uk (quote reference number N2175).

We encourage NHS and voluntary sector organisations to use text from this booklet in their own information about childhood constipation.

6 Related NICE guidance

Published

- When to suspect child maltreatment. NICE clinical guideline 89 (2009). Available from www.nice.org.uk/guidance/CG89
- Coeliac disease. NICE clinical guideline 86 (2009). Available from www.nice.org.uk/guidance/CG86
- Urinary tract infection in children. NICE clinical guideline 54 (2007). Available from www.nice.org.uk/guidance/CG54

Under development

NICE is developing the following guidance (details available from www.nice.org.uk):

- Nocturnal enuresis. NICE clinical guideline. Publication expected October 2010.

7 Updating the guideline

NICE clinical guidelines are updated so that recommendations take into account important new information. New evidence is checked 3 years after publication, and healthcare professionals and patients are asked for their views; we use this information to decide whether all or part of a guideline needs updating. If important new evidence is published at other times, we may decide to do a more rapid update of some recommendations. Please see our website for information about updating the guideline.

Appendix A: The Guideline Development Group, National Collaborating Centre and NICE project team

Guideline Development Group

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Appendix B: The Guideline Review Panel

The Guideline Review Panel is an independent panel that oversees the development of the guideline and takes responsibility for monitoring adherence to NICE guideline development processes. In particular, the panel ensures that stakeholder comments have been adequately considered and responded to. The panel includes members from the following perspectives: primary care, secondary care, lay, public health and industry.

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Catherine Arkley

Chief Executive, Children's Liver Disease Foundation

Professor Mike Drummond (Chair)

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Appendix C: The algorithms

A care pathway can be found in the quick reference guide, available from www.nice.org.uk/guidance/CG99/QuickRefGuide

Appendix D: Bristol Stool Form Scale

Bristol Stool Form Scale		
Type 1		Separate hard lumps, like nuts (hard to pass)
Type 2		Sausage-shaped but lumpy
Type 3		Like a sausage but with cracks on its surface
Type 4		Like a sausage or snake, smooth and soft
Type 5		Soft blobs with clear-cut edges (passed easily)
Type 6		Fluffy pieces with ragged edges, a mushy stool
Type 7		Watery, no solid pieces; entirely liquid

First published: Lewis SJ, Heaton KW (1997) Stool form scale as a useful guide to intestinal transit time. *Scandinavian Journal of Gastroenterology* 32: 920–4.