

Constipation in children: diagnosis and management of idiopathic childhood constipation in primary and secondary care

NICE guideline

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If you wish to comment on this version of the guideline, please be aware that all the supporting information and evidence is contained in the full version.

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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 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: poor appetite, lack of energy, irregular 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, unhappy, angry or irritable mood and general malaise.

Painful defaecation 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 and family. This may contribute to the poor clinical outcomes often seen in children with constipation.

Soiling is debilitating but rarely life threatening so it might be expected to have little impact on healthcare provision. But many children experience social, psychological and educational consequences that require prolonged support.

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

Without early diagnosis and treatment, an acute episode of constipation can lead to anal fissure and become chronic. By the time the child is seen they may be in a vicious cycle. Children and 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. 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.

Patient-centred care

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

Treatment and care should take into account patients' needs and preferences. Children 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 guidelines – 'Reference guide to consent for examination or treatment' (2001) (available from www.dh.gov.uk). Healthcare professionals should also follow the code of practice that accompanies the Mental Capacity Act (summary available from www.publicguardian.gov.uk).

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 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

Assessment and diagnosis

- Establish during history-taking whether the child has constipation. Two or more findings from table 1, with symptoms lasting for more than 1 month, indicate constipation. [1.1.1]

Table 1 Key components of history taking to diagnose constipation

Key components of history taking	Potential findings in a child younger than 1 year	Potential findings in child/young person older than 1 year
Stool patterns	<ul style="list-style-type: none"> • Fewer than three complete stools per week (see Bristol Stool Form Scale – appendix D) • Hard large stool • ‘Rabbit droppings’ (see Bristol Stool Form Scale – appendix D) 	<ul style="list-style-type: none"> • Fewer than three complete stools per week (see Bristol Stool Form Scale – appendix D) • Overflow soiling (that is, very loose, very smelly stool passed without sensation) • ‘Rabbit droppings’ (see Bristol Stool Form Scale – appendix D) • Large, infrequent stools that can block the toilet
Symptoms associated with defaecation	<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
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

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- If the child has constipation take a history using table 2 to establish a positive diagnosis of idiopathic constipation by excluding underlying causes. If a child has any 'red flag' symptoms, do not treat them for constipation. Instead, refer them urgently to a healthcare professional experienced in child health. **[1.1.2]**

Table 2 Key components of history taking to diagnose idiopathic constipation

Key components of history taking	Potential findings and diagnostic clues in a child younger than 1 year	Potential findings and diagnostic clues in a child/young person older than 1 year
Timing of onset of constipation and potential precipitating factors	Starts after a few weeks of life Obvious precipitating factors coinciding with the start of symptoms: fissure, change of diet, infections	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 and acute event such as infections, moving house, starting nursery/school, fears and phobias, major change in family
	Reported from birth or first few weeks of life	Reported from birth or first few weeks of life
Passage of meconium	Normal, that is within 24 hours after birth (in term baby)	Normal, that is within 24 hours after birth (in term baby)
	Failure to pass/delay, that is more than 24 hours after birth (in term baby)	Failure to pass/delay, that is more than 24 hours after birth (in term baby)
Growth and general well being	Generally well, weight and height within normal limits	Generally well, weight and height within normal limits, fit and active
	Faltering growth	Faltering growth
Symptoms in legs /locomotor development	No neurological problems in legs, normal locomotor development	No neurological problems in legs (such as falling over), normal locomotor development
	Previously unknown or undiagnosed weakness in legs, locomotor delay	Previously unknown or undiagnosed weakness in legs, locomotor delay
Abdomen	Abdominal distension and vomiting	Abdominal distension and vomiting
Diet and fluid intake	Changes in formula, weaning, insufficient fluid intake	History of poor diet and/or insufficient fluid intake
Personal/familial/social factors	Disclosure or evidence that raises concerns over possibility of child maltreatment (see 'When to suspect maltreatment in children' NICE clinical guideline 89 for examples of evidence and subsequent management)	Disclosure or evidence that raises concerns over possibility of child maltreatment (see 'When to suspect maltreatment in children' NICE clinical guideline 89 for examples of evidence and subsequent management)
Green cells: indicative of idiopathic constipation. Amber cells: 'amber flag', possible idiopathic constipation. Red cells: 'red flag' for underlying disorder/condition, exclude idiopathic constipation.		

- Do a physical examination. Use table 3 to establish a positive diagnosis of idiopathic constipation by excluding underlying causes. If a child has any ‘red flag’ symptoms do not treat them for constipation. Instead, refer them urgently to a healthcare professional experienced in child health. **[1.1.5]**

Table 3 Key components of physical examination to diagnose idiopathic constipation

Key components of the physical examination	Potential findings and diagnostic clues
Inspection of perianal area: appearance, position, patency, etc	Normal appearance of anus and surrounding area
	Abnormal appearance/position/patency of anus: fistulae, bruising, multiple fissures, tight or patulous anus, anteriorly placed anus, absent anal wink
Abdominal examination	Soft abdomen. Flat or distension that can be explained because of age or overweight child
	Gross abdominal distension
Spine/lumbosacral region/gluteal examination	Normal appearance of the skin and anatomical structures of lumbosacral/gluteal regions
	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	Normal gait. Normal tone and strength in lower limbs
	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)	Reflexes present and of normal amplitude
	Abnormal reflexes
Red cells: ‘red flag’ for underlying disorder/condition, exclude idiopathic constipation Green cells: indicative of idiopathic constipation	

- Inform the child 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. **[1.1.6]**

Digital rectal examination

- Do not perform a digital rectal examination in children older than 1 year unless there is a 'red flag' (see tables 2 and 3) in the history-taking and/or physical examination that might indicate an underlying disorder. **[1.2.2]**

Clinical management

- Assess all children with idiopathic constipation for faecal impaction, including children who were referred because of 'red flags' but in whom there were no significant findings following further investigations (see tables 2 and 3) **[1.4.1]**
- Use the following oral medication regimen for disimpaction if indicated:
 - Use polyethylene glycol '3350' + electrolytes (Movicol Paediatric Plain) using an escalating dose regimen (see table 4) as the first-line treatment.¹ Polyethylene glycol '3350' + electrolytes (Movicol Paediatric Plain) may be mixed with a cold drink.
 - Add a stimulant laxative (see table 4) if polyethylene glycol '3350' + electrolytes (Movicol Paediatric Plain) 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 (Movicol Paediatric Plain) is not tolerated. **[1.4.2]**

¹ At the time of publication (October, 2009), Movicol Paediatric Plain did 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 which is also unflavoured

Table 4 Laxatives: recommended doses

Laxatives	Recommended doses
Macrogols	
Movicol	<p>Movicol Paediatric Plain (Norgine)^a Oral powder, macrogol '3350' (polyethylene glycol '3350') 6.563 g, sodium bicarbonate 89.3 mg, sodium chloride 175.4 mg, potassium chloride 25.1 mg/sachet. Given by mouth.</p> <p>Disimpaction</p> <ul style="list-style-type: none"> • Child under 1 year: half to 1 sachet daily (non-BNFC recommended dose) • Child 1–5 years: treat until impaction resolves or for maximum 7 days. Two sachets on 1st day, then 4 sachets daily for 2 days, then 6 sachets daily for 2 days, then 8 sachets daily for 2 days • Child 5–12 years: treat until impaction resolves or for maximum 7 days. Four sachets on 1st day, then increased in steps of 2 sachets daily to maximum of 12 sachets daily <p>Ongoing maintenance (chronic constipation, prevention of faecal impaction)</p> <ul style="list-style-type: none"> • Child under 1 year: half to 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) • Child 6–12 years: 2 sachets daily; adjust dose to produce regular soft stools (maximum 4 sachets daily)
Osmotic laxatives	
Lactulose	<p>By mouth</p> <ul style="list-style-type: none"> • Child 1 month to 1 year: 2.5 ml twice daily, adjusted according to response • Children 1–5 years: 2.5–10 ml twice daily, adjusted according to response (non-BNFC recommended dose) • Children 5–18 years: 5–20 ml twice daily, adjusted according to response (non-BNFC recommended dose)
Stimulant laxatives	
Sodium picosulphate ^b	<p>Non-BNFC recommended doses</p> <p>By mouth</p> <p>Child 1 month to 4 years: 2.5–10 mg once a day</p> <p>Child 5–18 years: 2.5–20 mg once a day</p>
Bisacodyl	<p>Non-BNFC recommended doses</p> <p>By mouth</p> <ul style="list-style-type: none"> • Child 4–18 years: 5–20 mg once daily <p>By rectum (suppository)</p> <ul style="list-style-type: none"> • Child 2–18 years: 5–10 mg once daily
Senna ^c	<p>Sennokot syrup</p> <p>By mouth</p>

	<ul style="list-style-type: none"> • Child 1 month to 4 years: 2.5–10 ml once daily • Child 5–18 years: 2.5–20 ml once daily
	<p>Senna (non-proprietary)</p> <p>By mouth</p> <ul style="list-style-type: none"> • Child 6–18 years: 1–4 tablets once daily
Docusate sodium ^d	<p>By mouth</p> <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 12–18 years: up to 500 mg daily in divided doses
<p>^a Movicol Paediatric Plain not licensed for use in faecal impaction in children under 5 years, or for chronic constipation in children under 2 years</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</p> <p>^c Syrup not licensed for use in children under 2 years</p> <p>^d Adult oral solution and capsules not licensed for use in children under 12 years</p>	

Note: unless otherwise stated, doses are those recommended by the British National Formulary for Children (BNFC) 2009. Syrup not licensed for use in children under 2 years.

Maintenance therapy

- Use the following regimen for ongoing treatment or maintenance therapy:
 - Use polyethylene glycol ‘3350’ + electrolytes (Movicol Paediatric Plain) as the first-line treatment.
 - Adjust the dose of polyethylene glycol ‘3350’ + electrolytes (Movicol Paediatric Plain) according to symptoms and response. As a guide for children 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 (Movicol Paediatric Plain) does not work.
 - Substitute a stimulant laxative if polyethylene glycol ‘3350’ + electrolytes (Movicol Paediatric Plain) is not tolerated by the child. 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. 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. **[1.4.10]**

Diet and lifestyle

- Do not use dietary interventions alone as first-line treatment for childhood constipation. **[1.5.1]**
- Treat constipation with laxatives and a combination of:
 - Negotiated and non-punitive behavioural interventions suited to the child's stage of development. This 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 (described in recommendation 1.5.4 below). **[1.5.3]**

Information and support

- Offer children with idiopathic constipation and their families a point of contact with specialist healthcare professionals who can give ongoing support. **[1.8.2]**

1 Guidance

The following guidance is based on the best available evidence. The full guideline ([\[add hyperlink\]](#)) gives details of the methods and the evidence used to develop the guidance.

Definitions of terms used in this guideline

Chronic constipation	Constipation lasting longer than 8 weeks.
Constipation	A term to describe the subjective complaint of passage of abnormally delayed or infrequent passage of dry, hardened faeces often accompanied by straining and/or pain.
Disimpaction	The evacuation of impacted faeces.
Faecal impaction	Severe constipation with a large faecal mass in either the rectum or the abdomen, and/or overflow soiling.
Hirschsprung's disease	A congenital abnormality in which the nerve cells in a section of the bowel are not present. As a result, faeces can become trapped in the bowel.
Idiopathic constipation	Constipation is termed idiopathic when it cannot (currently) be explained by any anatomical, physiological, radiological or histological abnormalities. The exact aetiology is not fully understood but it is generally accepted that a combination of factors may contribute to the condition.
Intractable constipation	Constipation which does not respond to sustained, optimum medical management.
Macrogols	A form of osmotic laxative. PEG 3350 and PEG 4000 are examples of macrogols.
Osmotic laxatives	Laxatives which increase the amount of water in the faeces thereby making them softer.
Side effects/adverse effects	An undesired effect resulting from treatment.
Specialist services/ specialist advice/ specialist care/ specialist management	Services/advice/care/management provided by health care professionals with expertise in constipation management in children and young people.
Stimulant laxatives	Laxatives which increase bowel motility.

1.1 *Assessment and diagnosis*

- 1.1.1 Establish during history-taking whether the child has constipation. Two or more findings from table 1, with symptoms lasting for more than 1 month, 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 child/young person older than 1 year
Stool patterns	<ul style="list-style-type: none"> • Fewer than three complete stools per week (see Bristol Stool Form Scale – appendix D) • Hard large stool • ‘Rabbit droppings’ (see Bristol Stool Chart – appendix D) 	<ul style="list-style-type: none"> • Fewer than three complete stools per week (see Bristol Stool Form Scale – appendix D) • Overflow soiling (that is, very loose, very smelly stool passed without sensation) • ‘Rabbit droppings’ (see Bristol Stool Form Scale – appendix D) • Large, infrequent stools that can block the toilet
Symptoms associated with defaecation	<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
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 has constipation take a history using table 2 to establish a positive diagnosis of idiopathic constipation by excluding

underlying causes. If a child has any 'red flag' symptoms, do not treat them for constipation. Instead, refer them urgently to a healthcare professional experienced in child health.

Table 2 Key components of history taking to diagnose idiopathic constipation

Key components	Potential findings and diagnostic clues in a child younger than 1 year	Potential findings and diagnostic clues in a child/young person older than 1 year
Timing of onset of constipation and potential precipitating factors	Starts after a few weeks of life Obvious precipitating factors coinciding with the start of symptoms: fissure, change of diet, infections	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 and acute event such as infections, moving house, starting nursery/school, fears and phobias, major change in family
	Reported from birth or first few weeks of life	Reported from birth or first few weeks of life
Passage of meconium	Normal, that is within 24 hours after birth (in term baby)	Normal, that is within 24 hours after birth (in term baby)
	Failure to pass/delay, that is more than 24 hours after birth (in term baby)	Failure to pass/delay, that is more than 24 hours after birth (in term baby)
Growth and general well being	Generally well, weight and height within normal limits	Generally well, weight and height within normal limits, fit and active
	Faltering growth	Faltering growth
Symptoms in legs /locomotor development	No neurological problems in legs, normal locomotor development	No neurological problems in legs (such as falling over), normal locomotor development
	Previously unknown or undiagnosed weakness in legs, locomotor delay	Previously unknown or undiagnosed weakness in legs, locomotor delay
Abdomen	Abdominal distension and vomiting	Abdominal distension and vomiting
Diet and fluid intake	Changes in formula, weaning, insufficient fluid intake	History of poor diet and/or insufficient fluid intake
Personal/familial/social factors	Disclosure or evidence that raises concerns over possibility of child maltreatment (see 'When to suspect maltreatment in children' NICE clinical guideline 89 for examples of evidence and subsequent management)	Disclosure or evidence that raises concerns over possibility of child maltreatment (see 'When to suspect maltreatment in children' NICE clinical guideline 89 for examples of evidence and subsequent management)
Green cells: indicative of idiopathic constipation. Amber cells: 'amber flag', possible idiopathic constipation. Red cells: 'red flag' for underlying disorder/condition, exclude idiopathic constipation.		

- 1.1.3 If the history-taking and/or physical exam show evidence of faltering growth test for coeliac disease and hypothyroidism.
- 1.1.4 If either the history taking or the physical examination show evidence of possible maltreatment refer to 'When to suspect child maltreatment', NICE clinical guideline 89 (2009).
- 1.1.5 Do a physical examination. Use table 3 to establish a positive diagnosis of idiopathic constipation by excluding underlying causes. If a child has any 'red flag' symptoms do not treat them for constipation. Instead, refer them urgently to a healthcare professional experienced in child health.

Table 3 Key components of physical examination to diagnose idiopathic constipation

Key components	Potential findings and diagnostic clues
Inspection of perianal area: appearance, position, patency, etc	Normal appearance of anus and surrounding area
	Abnormal appearance/position/patency of anus: fistulae, bruising, multiple fissures, tight or patulous anus, anteriorly placed anus, absent anal wink
Abdominal examination	Soft abdomen. Flat or distension that can be explained because of age or overweight child
	Gross abdominal distension
Spine/lumbosacral region/gluteal examination	Normal appearance of the skin and anatomical structures of lumbosacral/gluteal regions
	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	Normal gait. Normal tone and strength in lower limbs
	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)	Reflexes present and of normal amplitude
	Abnormal reflexes
Red cells: 'red flag' for underlying disorder/condition, exclude idiopathic constipation Green cells: indicative of idiopathic constipation	

1.1.6 Inform the child 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.

1.2 *Digital rectal examination*

- 1.2.1 Perform a digital rectal examination in all children younger than 1 year with a diagnosis of idiopathic constipation that does not respond to adequate treatment within 4 weeks.
- 1.2.2 Do not perform a digital rectal examination in children older than 1 year unless there is a 'red flag' (see tables 2 and 3) in the history-taking and/or physical examination that might indicate an underlying disorder.
- 1.2.3 A digital rectal examination should be undertaken only by healthcare professionals competent to interpret features of anatomical abnormalities or Hirschsprung's disease.
- 1.2.4 For a digital rectal examination ensure:
- informed consent is given by the child, or the parent or legal guardian if the child is not able to give it, and is documented
 - a chaperone is present
 - individual preferences about degree of body exposure and sex 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

- 1.3.2 Test for coeliac disease in the ongoing management of intractable constipation in children if requested by specialist services.

Manometry

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

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 24 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 with idiopathic constipation for faecal impaction, including children who were referred because of 'red flags' but in whom there were no significant findings following further investigations (see tables 2 and 3).
- 1.4.2 Use the following oral medication regimen for disimpaction if indicated:
- Use polyethylene glycol '3350' + electrolytes (Movicol Paediatric Plain) using an escalating dose regimen (see table 4) as the first-line treatment.² Polyethylene glycol '3350' + electrolytes (Movicol Paediatric Plain) may be mixed with a cold drink.
 - Add a stimulant laxative (see table 4) if polyethylene glycol '3350' + electrolytes (Movicol Paediatric Plain) 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 (Movicol Paediatric Plain) is not tolerated.

² At the time of publication (October, 2009), Movicol did not have UK marketing authorisation for this indication. Informed consent should be obtained and documented.

Table 4 Laxatives: recommended doses

Laxatives	Recommended doses
Macrogols	
Movicol	<p>Movicol Paediatric Plain (Norgine)^a Oral powder, macrogol '3350' (polyethylene glycol '3350') 6.563 g, sodium bicarbonate 89.3 mg, sodium chloride 175.4 mg, potassium chloride 25.1 mg/sachet. Given by mouth.</p> <p>Disimpaction</p> <ul style="list-style-type: none"> • Child under 1 year: half to 1 sachet daily (non-BNFC recommended dose) • Child 1–5 years: treat until impaction resolves or for maximum 7 days. Two sachets on 1st day, then 4 sachets daily for 2 days, then 6 sachets daily for 2 days, then 8 sachets daily for 2 days • Child 5–12 years: treat until impaction resolves or for maximum 7 days. Four sachets on 1st day, then increased in steps of 2 sachets daily to maximum of 12 sachets daily <p>Ongoing maintenance (chronic constipation, prevention of faecal impaction)</p> <ul style="list-style-type: none"> • Child under 1 year: half to 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) • Child 6–12 years: 2 sachets daily; adjust dose to produce regular soft stools (maximum 4 sachets daily)
Osmotic laxatives	
Lactulose	<p>By mouth</p> <ul style="list-style-type: none"> • Child 1 month to 1 year: 2.5 ml twice daily, adjusted according to response • Children 1–5 years: 2.5–10 ml twice daily, adjusted according to response (non-BNFC recommended dose) • Children 5–18 years: 5–20 ml twice daily, adjusted according to response (non-BNFC recommended dose)
Stimulant laxatives	
Sodium picosulphate ^b	<p>Non-BNFC recommended doses</p> <p>By mouth</p> <p>Child 1 month to 4 years: 2.5–10 mg once a day</p> <p>Child 5–18 years: 2.5–20 mg once a day</p>
Bisacodyl	<p>Non-BNFC recommended doses</p> <p>By mouth</p> <ul style="list-style-type: none"> • Child 4–18 years: 5–20 mg once daily <p>By rectum (suppository)</p> <ul style="list-style-type: none"> • Child 2–18 years: 5–10 mg once daily
Senna ^c	<p>Sennokot syrup</p> <p>By mouth</p>

	<ul style="list-style-type: none"> • Child 1 month to 4 years: 2.5–10 ml once daily • Child 5–18 years: 2.5–20 ml once daily
	<p>Senna (non-proprietary) By mouth</p> <ul style="list-style-type: none"> • Child 6–18 years: 1–4 tablets once daily
Docusate Sodium ^d	<p>By mouth</p> <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 12–18 years: up to 500 mg daily in divided doses
<p>^a Movicol Paediatric Plain not licensed for use in faecal impaction in children under 5 years, or for chronic constipation in children under 2 years ^b Elixir, licensed for use in children (age range not specified by manufacturer). Perles not licensed for use in children under 4 years ^c Syrup not licensed for use in children under 2 years ^d Adult oral solution and capsules not licensed for use in children under 12 years</p>	

Note: unless otherwise stated, doses are those recommended by the British National Formulary for Children (BNFC) 2009. Syrup not licensed for use in children under 2 years.

- 1.4.3 Do not use rectal medications for disimpaction unless all oral medications have failed.
- 1.4.4 Administer sodium citrate enemas only if all oral medications for disimpaction have failed.
- 1.4.5 Do not administer phosphate enemas for disimpaction unless under specialist supervision in hospital, and only if all oral medications and sodium citrate enemas have failed.
- 1.4.6 Do not perform manual evacuation of the bowel under anaesthesia unless optimum treatment with oral and rectal medications has failed.
- 1.4.7 Review children undergoing disimpaction within 1 week.

Maintenance therapy

- 1.4.8 Start maintenance therapy as soon as the child's bowel is disimpacted.

- 1.4.9 Reassess children frequently during maintenance treatment to ensure they do not become reimpacted.
- 1.4.10 Use the following regimen for ongoing treatment or maintenance therapy:
- Use polyethylene glycol '3350' + electrolytes (Movicol Paediatric Plain) as the first-line treatment.
 - Adjust the dose of polyethylene glycol '3350' + electrolytes (Movicol Paediatric Plain) according to symptoms and response. As a guide for children 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 (Movicol Paediatric Plain) does not work.
 - Substitute a stimulant laxative if polyethylene glycol '3350' + electrolytes (Movicol Paediatric Plain) is not tolerated by the child. 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. 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.

1.5 Diet and lifestyle

- 1.5.1 Do not use dietary interventions alone as first-line treatment for childhood constipation.
- 1.5.2 Advise 60 minutes of physical activity per day as part of ongoing treatment or maintenance in children with idiopathic constipation. This activity should be tailored to the child's stage of development and individual ability.
- 1.5.3 Treat constipation with laxatives and a combination of:

- Negotiated and non-punitive behavioural interventions suited to the child’s stage of development. This 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 (described in recommendation 1.5.4 below).

1.5.4 Advise parents and children (where appropriate) that a balanced diet should include:

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

Table 5 UK dietary reference values for fluid requirements by age groups

Age	Fluid requirements (ml per kg per day)
0–3 months	150
4–6 months	130
7–9 months	120
10–12 months	110
1–3 years	95
4–6 years	85
7–10 years	75
11–14 years	55
15–18 years	50

1.5.5 Provide children with idiopathic constipation and their families with written information about diet and fluid intake.

1.5.6 In children with idiopathic constipation, start a cows’ milk exclusion diet only on the advice of specialist services.

1.6 *Psychological and behavioural interventions*

- 1.6.1 Do not use biofeedback for ongoing treatment in children with idiopathic constipation.
- 1.6.2 Do not routinely refer a child with idiopathic constipation to a psychologist or child and adolescent mental health services unless the child has been identified as having psychological needs.

1.7 *Antegrade colonic enema procedure*

- 1.7.1 Refer children with idiopathic constipation who still have symptoms on optimum specialist management to a specialist surgical centre to assess their suitability for an antegrade colonic enema (ACE) procedure.
- 1.7.2 Ensure that all children who are referred for an ACE procedure have access to support, information and follow-up from paediatric healthcare professionals with experience in managing children who have had an ACE procedure.

1.8 *Information and support*

- 1.8.1 Provide tailored follow-up to children and their parents or carers according to a child'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, 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.

- 1.8.2 Offer children with idiopathic constipation and their families a point of contact with specialist healthcare professionals who can give ongoing support.
- 1.8.3 If idiopathic constipation does not respond to initial treatment within 3 months, refer the child 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/NICEtoadddetails.

The scope includes: diagnosis of idiopathic constipation, management, indications for referral to specialist services, information and support needs for children and families. The scope did 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/guidelinesprocess). 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/CGXX).

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 (Movicol Paediatric Plain) in children under 1*

What is the effectiveness of polyethylene glycol '3350' + electrolytes (Movicol Paediatric Plain) 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, especially in hospital, are more common than oral treatments 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 (Movicol Paediatric Plain), 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 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 have a more active role and need to develop a habit of sitting on the toilet each day, pushing stools out and taking any medication. Volition from the child 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 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

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.

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

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 www.ncc-wch.org.uk and our website (www.nice.org.uk/CGXXfullguideline). **[Note: these details will apply to the published full guideline.]**

5.2 Quick reference guide

A quick reference guide for healthcare professionals is available from www.nice.org.uk/CGXXquickrefguide

For printed copies, phone NICE publications on 0845 003 7783 or email publications@nice.org.uk (quote reference number N1XXX). **[Note: these details will apply when the guideline is published.]**

5.3 'Understanding NICE guidance'

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

For printed copies, phone NICE publications on 0845 003 7783 or email publications@nice.org.uk (quote reference number N1XXX). **[Note: these details will apply when the guideline is published.]**

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

- Coeliac disease. NICE clinical guideline 86 (2009). Available from www.nice.org.uk/CG86
- Urinary tract infection in children. NICE clinical guideline 54 (2007). Available from www.nice.org.uk/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.

Appendix A: The 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.

[NICE to add]

[Name; style = Unnumbered bold heading]

[job title and location; style = NICE normal]

Appendix C: The algorithm

The algorithm appears in a separate file on the NICE website.

Appendix D: The Bristol Stool Form Scale



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