

CONSTIPATION

Facilitators Guide

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Duration **30 mins - 1 hour**

Facilitator level **Senior trainee/ ANP and above**

Learner level **Junior trainee/Staff nurse and Senior trainee/ ANP**

Equipment required: **None**

OUTLINE

- Basics (10 mins)
- Main session: (2 x 15 minute) case discussions covering the key points and evidence
- Advanced session: (2 x 20 minutes) case discussions covering grey areas, diagnostic dilemmas; advanced management and escalation
- Quiz (10 mins)
- 5 take home learning points

We also recommend printing/sharing a copy of your local guideline to review treatment options.

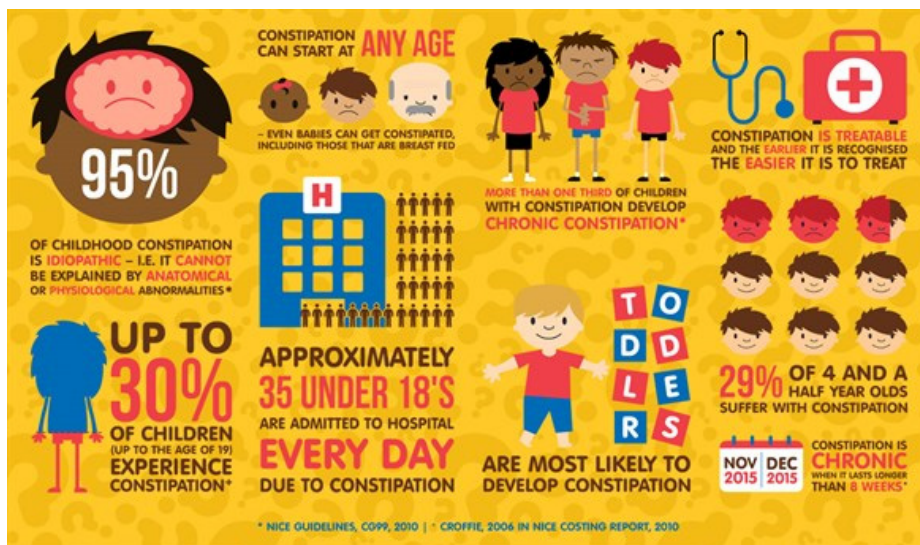
PRE-READING FOR LEARNERS

DFTB constipation week: Constipation week

NICE guidance: 1 Guidance | Constipation in children and young people: diagnosis and management | Guidance

BMJ Childhood constipation Clinical Review : Childhood constipation

Constipation in Children: Dates for Your Diary - Constipation in Children



ERIC Bowel and Bladder Charity <https://www.eric.org.uk/letstalkaboutpoo>

BASICS

Constipation is common, affecting 5-30% of children with symptoms becoming chronic in more than 1/3 of patients. Constipation and its sequelae result in a large number of presentations to primary care and A&E, and can cause significant psychological and social stress for affected children and their parents.

Definition

Constipation may have underlying organic pathology (see below), but is functional in most cases. Functional constipation is best defined using the Rome IV Criteria.

ROME IV CRITERIA FOR FUNCTIONAL CONSTIPATION

≥ 2 criteria present for at least 1 month

- ≤2 stools/week
- History of retentive posturing or excessive volitional stool retention (i.e. withholding or incomplete evacuation)
- History of painful or hard bowel movements
- History of large-diameter stools
- Presence of a large faecal mass in the rectum
- At least 1 episode per week of soiling/incontinence after the acquisition of toileting skills

After appropriate evaluation, the symptoms cannot be fully explained by another medical condition

Physiology

Formation of stool and defecation is a surprisingly complex physiological undertaking involving integrated sensorimotor function. In basic terms, undigestible food (chyme) moves from the ileum into the colon, where water, vitamins and electrolytes are absorbed as the bowel propels the faeces towards the rectum to await defecation.

Pathophysiology

Functional constipation

Functional constipation is a term for difficult, painful or infrequent defecation

without an underlying anatomical or physiological abnormality. The exact cause of functional constipation is not fully understood, and is likely multifactorial. Dehydration, pain, problems with toilet training, defecation avoidance and psychosocial stressors may all play a role. Subsequently, stools become larger, harder and more painful to pass, worsening withholding behaviours.

Organic causes of constipation

In 5% of cases, there is an underlying organic pathology causing the child's constipation. These pathologies can be ruled out with careful history and examination, and only occasionally need further investigation. These alternative diagnoses should always be considered when assessing a child with constipation (see "red flags" in history and examination below)

Faecal Impaction, Reservoir Constipation & Encopresis

Box 2 Causes of constipation by age group²

For most children the causes of constipation are unknown.¹⁰ Common organic and non-organic causes (which may coexist) include:

For infants and toddlers

From history

- Genetic predisposition
- Nutritional change—for example, from human milk (breast feeding) to cows' milk (bottle feeding)
- Cows' milk protein allergy
- Lack of fibre in the diet
- Stool withholding behaviour
- Retentive posturing
- Coeliac disease

From examination

- Anal fissure(s)
- Spina bifida
- Anorectal malformations
- Hirschsprung's disease

For schoolchildren and adolescents

From history

- Inadequate food intake
- Toilet training coerced
- Attention-deficit disorders
- Developmental handicaps
- Toilet phobia, school bathroom avoidance
- Excessive anal interventions

From examination

- Anorexia nervosa
- Depression
- Slow transit constipation

Auth MK, Vora R, Farrelly P, Baillie C. Childhood Constipation: Clinical Review. *BMJ* 2012;345:e7309

Continuous avoidance of painful or distressing toileting may lead to build up of large, hard stools in the rectum. Collection of increasing amounts of hard stool in the rectum leads to functional obstruction, sometimes with overflow diarrhoea or encopresis.

Similarly, a build up of stool in the rectum in turn causes stretching of the rectum, leading to decreased sensation and atonicity. Children are then often unable to tell when they need to pass stool, leading to soiling events.








Rarely, if untreated, chronic constipation can result in megarectum, requiring surgical intervention with regular washouts and colostomy for management of overflow foiling.

Constipation, Urinary Incontinence and UTI

In constipation, the distended rectum can compress the urethral and bladder walls causing obstruction to urine flow, and detrusor muscle impairment. Subsequent urinary retention and voiding dysfunction can lead to urinary incontinence in previously dry children, and an increased incidence of urinary tract infections in constipated children. Constipation is an important differential to consider in children with new onset urinary incontinence and/or recurrent UTI.

History

As well as covering the Rome IV criteria, history taking should include family history (ie: coeliac disease, hirschprungs), general health, stooling patterns and consistency (with bristol stool chart), evidence of systemic disease, medication history (especially previous laxatives and how effective they were), dietary habits including introduction of cow's milk, and any recent psychosocial stressors.

| | | |
|--------|---|--|
| 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 the surface |
| Type 4 |  | Like a sausage or snake, smooth and soft |
| Type 5 |  | Soft blobs with clear-cut edges |
| Type 6 |  | Fluffy pieces with ragged edges, a mushy stool |
| Type 7 |  | Watery, no solid pieces. Entirely liquid |

Don't forget to use the bristol stool chart in your history taking!

Key components of history taking to diagnose idiopathic constipation from NICE clinical guideline

<https://cks.nice.org.uk/constipation-in-children>

| 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: 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: 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: Generally well, weight and height within normal limits ● In a child/young person older than 1 year: 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: Changes in infant formula, weaning, insufficient fluid intake ● In a child/young person older than 1 year: History of poor diet and/or insufficient fluid intake | |

'Amber flag': possible idiopathic constipation

Examination

Examination should include height and weight plotted on your hospital's relevant growth chart. A focussed examination should include the abdomen, perineal, lumbosacral areas, and the lower limbs. Rectal examination should not be performed routinely, and if required should be by someone with expertise to detect anatomical abnormalities or Hirschprung's disease.

Key components of physical examination to diagnose idiopathic constipation, from NICE clinical guideline <https://cks.nice.org.uk/constipation-in-children>

| 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 |

Note: always be aware of red flags for neglect, maltreatment or non accidental injuries when assessing children. Constipation may be a response to a significant life event, and in some cases this is physical or sexual abuse.

Soiling, rectal discomfort, anorexia, vomiting, urinary symptoms and abdominal mass may be signs of impaction.

Investigations

In most cases, investigations are not required to make a diagnosis of functional constipation, with a few exceptions:

- Constipation with failure to thrive/ faltering growth OR intractable constipation

Test for coeliac disease and hypothyroidism

- Constipation with Hirschprung's features (delayed passage of meconium, baby <6 weeks, abdominal distension & vomiting, failure to thrive, family history)

Rectal biopsy

Abdominal mass

May represent impacted faeces

Consider using radiological investigations only if requested by specialty services if concerns re: malignancy

There is no indication for plain abdominal radiographs in idiopathic constipation.

Treatment

Early initiation of non pharmacological and pharmacological treatment is important to avoid chronic constipation, fissures and/or reservoir constipation.

Non- pharmacological management

Education and appropriate toileting behaviours are essential for long term success.

- Position

Children should sit on the toilet with feet supported and knees just above hips (a footstool can be used to help achieve this)

Encourage children to have a straight back and bulge out their abdomen

- Stool Diary

Keep track of stooling frequency and consistency using a bristol stool chart

Document any soiling incidents

- Toilet Sitting

Children should be encouraged to sit on the toilet for 5 minutes after meals. This should be a positive activity.

Toileting has likely become a painful and worrying process for the child- encourage toilet sitting with star charts, books, music or other rewards.

- Diet

Increase in fibre and water intake will improve stool consistency and improve long term outcomes.

Consider referral to dieticians where appropriate

- Exercise

Exercise improves bowel motility. Encourage daily exercise (30 minutes of activity each day).

Resources for parents & Children (check your local resources)

ERIC Children's Bowel & Bladder Charity

<https://dftbubbl.es/2XKJA3D>

RCH Melbourne Kids Health Info:

<https://dftbubbl.es/3haYZ4R>

Dr. Ranj "Let's Talk about Poo"

Let's Talk About Poo

<https://dftbubbl.es/3fbkZLs>

The Treatment of Idiopathic Constipation in Children

Something's missing!
Increasing dietary fibre and improving fluid intake alone will not resolve constipation in children. If it is bad enough to cause symptoms then it needs to be treated pharmacologically to begin with.

Non-pharmacological Rx

- Good fluid and fibre intake gives the bowel what it needs to work as well as possible
- Good toileting habits avoid the re-establishing of insensitive, weak and stretched bowels
- **These changes are important in keeping the child free from constipation**

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Pharmacological management

There are a wide range of laxatives available to treat constipation. Generally speaking, constipation in children is managed with osmotic laxatives as first line, with the possible addition of a stimulant. On the basis of systematic reviews and a meta-analysis of 4 trials, NICE recommends Polyethylene Glycol as first line treatment. If the child isn't impacted, start maintenance therapy - this is usually 4-1 sachets of a macrogol daily, depending on age and titrated to effect. Check your local guideline when prescribing.

- Stimulant laxatives such as senna, sodium picosulfate, or docusate sodium increase gut motility to encourage propagation of stool through the bowel. There is some suggestion that overuse of stimulant laxatives can lead to dependence and “lazy bowel syndrome”. These are often used in the short term as a second line agent in intractable constipation.
- Osmotic laxatives like Lactulose increase the stool water content, softening the stool and making it easier to pass. Macrogols (Polyethylene Glycol 3350, or PEG 3350 - Movicol, Osmolax) are classified as osmotic laxatives but have both an osmotic and stimulant effect. They increase gut motility and cause water retention in the stool, softening stools and making them easier to pass. Cramps and abdominal pain are common due to increased gut motility.

Disimpaction

If there are any symptoms/signs of faecal impaction (overflow diarrhoea, soiling, faecal mass), children should be treated with a disimpaction regime before commencing maintenance therapy. Effective disimpaction is required for successful treatment. This is generally an escalating dose regime of PEG 3350. NICE recommends disimpaction with PEG 3350 for all age groups.

If macrogols alone are ineffective after 2 weeks of therapy, the addition of a stimulant is recommended.

Counselling and education is important here. Families should be made aware that disimpaction may initially cause an increase in symptoms of soiling and abdominal pain. Difficulty managing these symptoms may lead to early cessation of disimpaction and subsequent treatment failure. Parents should

expect the child to pass large amounts of dark, hard, often foul smelling

stools. This represents the “old stool”, and once this has passed and the child is passing paler, softer and less smelly stools parents can wean the disimpaction regime.

Another reason for treatment failure is that parents often run into difficulties getting their children to drink increasing volumes of movicol. It is important that they know that they can mix this product with any cold liquid that will disguise the taste - including yoghurt. Children undergoing oral disimpaction should be reviewed at least weekly.

If families and children are non compliant or unable to tolerate oral disimpaction, admission for a nasogastric insertion +/- rectal medications may be required. Generally, this is continuous PEG 3350 at 25ml/kg/day via NGT with normal oral maintenance fluids.

Rectal medications should not be used unless all oral medications have failed. NICE recommends sodium citrate enemas only. Rarely, manual evacuation under general anaesthetic may be required if all oral and rectal medications have failed.

Maintenance

Maintenance therapy should be started as soon as disimpaction is achieved. Again, this is generally with PEG 3350, adjusted according to response, and a stimulant laxative can be added if macrogols alone are ineffective. The aim is for the child to be passing one soft, easy to pass stool every day. Medications need to be continued for several weeks, and often months, after a regular bowel pattern has been established, with some children requiring years of laxative therapy. Medications should then be slowly weaned and not stopped suddenly. Regular follow up and support of families through this process is essential.

CASE 1 (15 MINS)

Billy is an otherwise well 4 year old boy who presents to A&E with a 4 week history of abdominal pain. His pain comes and goes, and seems to be worse after eating. Today he has been doubling over with pain and crying inconsolably.

He has had no fevers or vomiting. He is drinking well but parents think he is a bit off his food. His last poo was 3 days ago, and parents think it was normal but aren't sure.

What else would you like to know?

What would you look for on examination?

How would you treat Billy?

When should he be seen again?

What is your next step if he doesn't respond to your treatment?

Discussion points:

- Red flags - make sure learners have thought to exclude red flags in their history and examination

Red flags in constipated children:

- History of delay >48hrs in passing meconium
- Ribbon stools
- Faltering growth
- Abdominal distension with vomiting
- Abnormal anatomical appearance of the anus
- Severe abdominal distension
- Abnormal motor development
- Abnormal gluteal muscles or sacrum
- Spine or limb deformity (including talipes)
- Abnormal tone, power or reflexes
- Safeguarding concerns

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- Ensure external examination of anus for haemorrhoids/fissures that may need treatment
- Treatment - assess Billy for signs of impaction and start disimpaction regime if indicated. Discuss non pharmacological treatments.
- Counselling - prepare parents for duration of treatment, possible side effects and importance of adherence
- Follow up - prompt and regular follow up, tailored to the families needs
- Treatment failure - discuss reasons for treatment failure, methods to tackle common problems

- Further investigations- consider referral/further investigation if:
- Red flags
- not responding to treatment after 3 months (Thyroid, coeliac, allergy)
- Failure to thrive
- Safeguarding concerns

CASE 2 (15 MINS)

Jakob is a 9 day old baby boy who is brought to the emergency department with vomiting. He is mum's 3rd baby. Mum is worried that he is vomiting everything he drinks, and is sleepier than she would expect. He seems distressed when awake. He is having 3-4 light wet nappies per day but has only passed a few small stools in his short life.

What else would you like to know?

What would you look for on physical exam?

Would you order any investigations?

What is your initial management?

Discussion Points

- Red flags on history - delayed passage of meconium and bilious vomiting
- Examination- look for abdominal distention, careful examination of external genitalia and anus. Document weight and weight loss.
- Discussion of PR examination - should only be performed by experienced practitioner. May result in forceful expulsion of gas/stool (highly suggestive of Hirschsprung's).
- Investigations- order in consultation with surgical team. Consider abdominal XR to assess for obstruction but keep in mind the surgical team will likely perform contrast study. Rectal biopsy (under surgeons) for definitive diagnosis.
- Initial management - resuscitation. NG tube and IV fluids, correction of any electrolyte abnormalities. Look for signs of sepsis (enterocolitis).

ADVANCED CASE 1

Lily is an 8 year old girl with Trisomy 21. She had an AVSD repair as an infant, and is otherwise well and takes no medications. She has been referred to A&E by her GP with worsening constipation. She has been constipated on and off for most of her life, but this has usually been easily managed with movicol. This time around, she has been constipated for 3-4 months and is passing painful, hard stools approximately once per week. Her GP started her on Movicol 3 months ago, which parents say she has been happily taking but it doesn't seem to be working.

What else would you like to know?

What investigations would you order?

What do you think might be going on?

How would you treat Lily?

Discussion points

- T21 and constipation. Constipation is very common in Trisomy 21. Most often it is not due to an underlying disease, but a combination of low muscle tone, decreased mobility and/or a restricted diet. However, T21 is associated with an increased risk of autoimmune disease, including thyroid dysfunction, diabetes and coeliac disease - all of which might cause constipation.
- Investigations - can be done in an outpatient setting, in this scenario should be followed up by a community paediatrician. Screen for all of the above.
- Treatment - laxative treatment is unlikely to be entirely effective until the underlying problem is corrected. However, depending on the severity of symptoms treatment escalation is appropriate. Lily doesn't have any symptoms of impaction, but it may be worth escalating her movicol dose or considering the addition of a stimulant laxative whilst awaiting test results.

ADVANCED CASE 2 (20 MINUTES)

Georgie is a 12 year old girl with severe autism. She is non verbal. She is otherwise well, but has had trouble with constipation in the past. Her parents attribute this to her being a “picky eater”. Georgie has had abdominal pain for the last 2 weeks, and has been passing small, pellet - like stools every 4-5 days. She has been having more “accidents”, and has been back in nappies for the last 7 days. She has been seen by the GP who has diagnosed constipation and prescribed movicol. She took this as prescribed for the first couple of days, but she is now refusing her medications. Over the past 4 or 5 days, Georgie has begun to refuse all food and will only drink sips of juice with a lot of encouragement. When parents try to give her medications or take her to the toilet, Georgie becomes very upset and aggressive. Her parents are very distressed and not sure what to do.

What are your management options for Georgie?

Discussion points:

- Constipation and autism - children on the autistic spectrum are more likely to have problems with constipation. Often this is due to a restricted diet, but may also be due to increased levels of anxiety around toileting.
- Management options: Georgie requires disimpaction and this is not being achieved despite the best efforts of the family. There is no right approach to this scenario. Options include
 - Optimise setting and motivators for toileting
 - Change/optimize medications - try mixing movicol into juice, try changing to lactulose, add stimulant laxative
 - Admission for washout - nasogastric tube for washout +/- enema. Strongly consider sedation
 - General anaesthetic for manual disimpaction + washout
 - Support parents and empower them in decision making process
 - Involve multidisciplinary team - community supports will be important on discharge

Quiz

**1. Macrogol laxatives may cause “lazy bowel” if used for more than 2 months.
True or false?**

There is some evidence of patients developing dependence on stimulant laxatives if used long term. However, macrogols are safe to use indefinitely without complication.

2. Which of the following is NOT supportive of a diagnosis of idiopathic constipation?

- | | | | |
|------------------|--------------------|----------------------|---------------------|
| A | B | C | D |
| Loss of appetite | Ribbon like stools | Urinary incontinence | Faecal incontinence |

Ribbon like stools suggest an anorectal malformation, and any history of this warrants further investigation. Loss of appetite, urinary and faecal incontinence can all be the result of constipation or faecal impaction.

**3. In a child with abdominal pain, the diagnosis of UTI makes constipation less likely.
True or false?**

Constipation can lead to urinary retention and UTI, and as such the two can, and often do, co-exist. A positive urine dip or culture doesn't rule out constipation as a cause of abdominal pain. Don't forget to think about constipation in the child with a history of recurrent UTI.

Top Tips

- 1** Don't forget your red flags when assessing a child for constipation - could there be an underlying cause?
- 2** Do not treat with lifestyle change only - by the time children are symptomatic they require pharmacological management
- 3** Plain radiographs are of no clinical benefit in idiopathic constipation
- 4** Early pharmacological and non pharmacological treatment with lots of education and support is vital for successful management and prevention of long term complications
- 5** Think about functional constipation as the underlying cause of different presentations - Urinary incontinence and UTI, faecal soiling, behavioural change.

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