Clinical Guideline

CONSTIPATION AT SECONDARY CARE LEVEL

SETTING	Secondary Healthcare Institutions in the Western Cape which refer to Red Cross War Memorial Children's Hospital (RCWMCH)
FOR STAFF	Primary and Secondary Doctors and Nurses who refer patients to RCWMCH
PATIENTS	Patients under the age of 13 years old constipation

Introduction

Constipation is a common condition seen in childhood. Most cases can be successfully managed at primary and secondary level of care.

Using this guideline will enable doctors and nurses to manage constipation safely, including identifying patients who need referral for further investigation or specialist management at a tertiary level.

Background

True constipation should be differentiated from a short period of hard stools or a child who stools infrequently but is otherwise well with no complications or concerns arising from this. Normal stooling patterns vary according to age.

Most cases of constipation are "functional" and related to inadequate fibre or water in diet, and/or faecal with-holding (retentive) behaviour (being especially common during or following potty training). This should respond to first-line treatment at primary care level.

It is important to follow up patients with functional constipation after this initial intervention to confirm success of treatment, to adjust treatment and to identify patients who are not improving and thus need referral.

In a small proportion of cases an underlying "organic" condition or structural abnormality is the cause, and "red flags" indicate an appropriate specialist team referral is needed.

Important details on history

- Age at onset of constipation
- Time of passage of meconium
- Number of stools per week
- Consistency of stools
- Associated symptoms & behaviours
    - Cramping, anal pain, straining
    - Relief of abdominal symptoms after passage of stool
    - Withholding behaviours (holding stool in, scissoring etc)
    - Episodes of soiling or faecal incontinence
    - History of urinary tract infections/incontinence
- Factors which predispose to constipation
    - Whether or not the patient has any comorbidities that may predispose to constipation
    - If the patient is on any constipating medications
    - Whether or not the patient's dietary intake is contributing to their constipation

- If there are psychosocial stressors or social issues that are contributing to constipation

Common comorbidities which predispose to constipation:

- Cerebral palsy or other central nervous system abnormalities
- Inherited and genetic abnormalities (Trisomy 21, cystic fibrosis, etc)
- Spinal defects (myelomeningiogocele, tethered cord, sacral agenesis, previous pelvic or spinal surgery, traumatic spinal cord injury, etc)
- Autism
- Hypothyroidism
- Any anorectal disorder (imperforate anus, Hirschsprung's disease)

Medications that contribute to constipation:

- Recent use of opioid analgesia
- ADHD & anti-depressant medication
- Iron supplementation

Diet

Poor diet frequently plays a significant role in functional constipation and so a detailed account of the patient's diet can often elicit problem areas. It is important to ask very specific questions in order not to miss problematic additions or omissions from a diet.

Infants <6 months old

- Establish breast vs formula vs mixed feeds
- Establish how formula is mixed (correct powder to water ratio)
- Establish total volume given in a 24-hour period
- Determine if any other feeds are being given such as:
  - Cereals & other weaning foods
  - Cow's milk
  - Juice
  - Water

Infants 6 – 12 months old

- Establish which solids the infant is being fed
  - Cereals
  - Vegetables
  - Protein
    For each of these, specifically elicit which types

- Establish frequency of meals
- Establish ratio of breast or formula milk feeds to solid feeds (ie: how many millilitres or bottles a day, & how many meals a day)
- Enquire about any additional fluids
  - Cow's milk
  - Juice
  - Water

Children >1 year old

- Enquire about number of meals per day
- Enquire about ratio of solids to liquids, & volume of liquids
- Enquire about nature of liquids
    - Cow's milk
    - Follow-on formula
    - Juice
    - Water

Home & social factors

- Psychological stressors
    - School: new school, issues such as bullying and teasing, poor school performance
    - Family: divorce, recent deaths, abusive or aggressive family or household members

- Social issues
    - Lack of access to clean, safe toilets at home or at school
    - Lack of time to complete bowel movement (leaving home very early or getting back very late, insufficient numbers of toilets at school, etc)

A 'Stool diary' is a useful tool to gain insight in a patient's stooling patterns.

This is a daily record of the following:

- Number of stools passed
- Consistency & size of stools
- Episodes of soiling and accidents
- Associated urinary symptoms
- Water and diet consumed

Important details on examination

The purpose of examination is to confirm that the child has no physical findings that may indicate an underlying organic cause for the constipation.

RED FLAGS that should prompt referral or further investigation include:

- An acutely ill child with vomiting, abdominal distension, peritonism, dehydration or sepsis.
- Chronic abdominal distension
- A child with malnutrition or failure to thrive
- Any evidence of an occult spinal defect
- Any evidence of an anorectal malformation

General examination:
- Nutritional status: look for evidence of malnutrition and obesity
- Is the child acutely ill?
- Are developmental milestones on track, or is there evidence of delay?
- Is there obvious evidence of abnormal or inappropriate behaviour for the child's age?

Look for evidence of overt or occult spinal dysraphism
- Dimple, sinus, mass, naevus, or tuft of hair on the lower back
- Asymmetry of buttocks or back
- Flat buttock muscles
- Low-rising gluteal crease

- Abnormal lower limb neurology (check power, reflexes and gait are all normal)

Abdomen
- Distension
- Visible loops of bowel
- Palpable bladder
- Obvious masses: Tumour, hepato- or splenomegaly, Palpable faecaloma

Perineum & anus
- Is anus the expected size and in the correct position
- Evidence of skin tags and fissures
- Evidence of active or previous peri-anal fistulae or abscesses?

Digital rectal examination

- This is important to detect pre-sacral masses
- Useful in infants when Hirschsprung's is suspected (look for explosive release of gas and liquid stool)
- DO NOT force a rectal examination on any child who is not compliant but note very clearly that the examination was omitted to alert the next clinician to the fact that there may be missing information in your assessment.

Important baseline investigations

All patients:
- Thyroid Stimulating Hormone to exclude hypothyroidism
- Haemoglobin level +/- MCV to exclude iron-deficiency anaemia
- Calcium and albumin to assess for hypercalcaemia

Patients with a history of UTI
- Kidney, ureter and bladder ultrasound

Referral guidance

Refer patient with **Red Flags** or underlying organic pathology

Clinical scenario	Referral guidance
Failure to thrive, wasting, abdominal distension and vomiting	Refer to **general paediatric service** for further assessment
Evidence of occult spinal dysraphism	Refer to **general paediatric service** for further assessment and imaging - Kidney, ureter and bladder ultrasound - Xray spinal and sacrum - Proceed to MRI if indicated on Xray
Evidence of anorectal malformation	Refer to **paediatric surgery service**
Evidence of possible underlying motility disorder (e.g.: Hirschsprung's disease)	Refer to **paediatric surgery service**

Hypothyroidism on baseline bloods	Refer to **paediatric endocrinology** service
Constipation as part of a global syndrome	Ensure enrolment in appropriate **specialist clinic or support system**
Treatment failure, despite adequate doses of correct medication & good compliance	Refer to **paediatric gastroenterology**

Most other patients can be managed at the primary and secondary care levels

Management guidance:

Patients with simple constipation, no red flags and no palpable faecaloma, should be managed at the primary health care level. These patients will usually respond well to appropriate dietary changes and simple stool softeners. Patient managed at primary care level who do not respond to first line treatment will be referred for secondary level care for re-assessment and management.

The other group of patients which may have management at secondary level are those with a palpable faecaloma at presentation This is because the initial management of these patients is best done with fleet enemas which are not widely available at primary level care. This initial evacuation is sometime best done as an inpatient – depending on the patient profile.

The goal of management is to empty the colon of impacted stool and then maintain regular soft bowel movements. If the colon has been distended with stool for an extended period, it may take months for the bowel to remodel and function normally again. It is helpful to manage patient and parent expectations by advising them that they will be on maintenance therapy for at least as long a time as the time that they were constipated for.

EMPTY THE COLON

This can be done for patients with a faecaloma. It is usually done on an outpatient basis in patients who are first time presenters with a history of less than 3 month. There should be no sinister signs (vomiting, distension) and there should be a reliable caregiver to administer the enemas safely and effectively. Patients with previous failed attempts at evacuation may benefit from a short admission to facilitate inpatient management.

Outpatient:
- Daily paediatric phosphate ('Fleet') enemas for 2 – 3 days to evacuate rectal plug (recommended over a weekend if at home)

Inpatient:
- Daily paediatric phosphate ('Fleet') enemas for 2 – 3 days to evacuate rectal plug
- Polyethylene glycol (Movicol, Go-lytely, Pegicol) orally or via a nasogastric tube at 10 – 30ml/kg/hour for 6 – 8 hours. Repeat until stool is watery & clear
- Serum electrolytes must be monitored during this process

Surgical input: Manual disimpaction is the absolute last resort if the above measures have failed convincingly – it is hardly ever needed if the above management is done as described.

MAINTAINANCE THERAPY

Maintenance therapy is a combination of behavioural modification , dietary advice and medications outlined below:

Behavioural Modification

- Allow adequate time for stooling every day (20 – 30 minutes), after a meal to take advantage of the gastrocolic reflex
- Educate parents about withholding behaviours and encourage them to remind and regularly encourage their child to stool
- Encourage parents to avoid scolding
- Suggest 'star' or 'rewards' chart (No sweets or chips as rewards)
- Encourage regular exercise

Dietary advice

The goal of dietary advice is to counsel caregivers regarding the content of a healthy, balanced childhood diet with adequate sources of fibre and minimal processed foods.

Common pitfalls:

- 'Filling up on liquids' – children may be drinking significant quantities of cow's milks and/or juice and eating relatively little as a result
- 'Empty calories' – children may be filling up on highly processed, low fibre foods that have very little nutritional value, such as crisps, sweets & refined cereals.

Infants <6 months old

- Infants in this age category should only drink breast milk or formula milk
- No cow's milk, water, or juice should be drunk at this stage
- The volume ingested should be 120 – 150ml/kg/day
- Formula should be mixed according to package instructions
    - Care givers should not add extra powder to make the baby feel "fuller"
    - Care givers should not add less powder to save on costs
- Care givers may start weaning to solids at around 6 months of age (usually when the infant is sitting confidently with support)

Infants 6 – 12 months old

- At 6 months, solids will likely have been introduced
- A variety of solids can be introduced at once, in order to expose the infant to multiple flavours & textures
- Usually care-givers start with one meal a day & gradually increase this to 3 meals/day at 10 months & 5 small meals per day at a year
- The infant will still be heavily dependent on formula or breast milk at this stage
- Small volumes of water in a sippy cup can be offered with each meal
- Cow's milk & juice should not be given

Children >1 year old

- Sugar should be used sparingly and not between mealtimes
- By this stage, the child should be eating 5 small meals a day with a variety of food items. Children have small stomachs & therefore have to eat small meals more often
- Water with every meal & whenever requested
- <500ml dairy/day
- Avoid juice and cold drinks.
- Meal composition: the daily intake should consist of a combination of the following

Starch

- Encourage: high fibre, unprocessed starches (brown bread, high-fibre cereals, bran, brown rice and potatoes or starchy veg with skins on)
- Discourage: low fibre, highly processed starches (white bread, refined cereals, chips and sweets etc)

Fruit & vegetables
- 3– 5 servings per day
- A mixture of green, yellow, orange and red.
- 'As raw as possible' as over cooking techniques deplete these items of many of their natural nutrients

Protein intake daily

- Vegetable protein should be eaten at least twice a week: chickpeas, lentils, beans, soya
- Animal protein: red meat, fish, chicken, eggs

Medications

Clinical scenario	Hard stools	Pain +/- blood on stooling with a fissure	Prolonged constipation	Intractable constipation
Medication type	Stool softeners or fibre	Topical chemical sphincter relaxation	Stimulant laxatives	Polyethylene glycol and electolytes
Medication names	**Lactulose** or **Sorbitol**	**Isosorbide mononitrate** paste	**Senakot (PO)** or **Bisacodyl(PO/PR)**	**Movicol, go-lytely** or **pegicol**
Details and dosing	0.5 – 1 ml/kg/dose daily (escalate to BD as needed)	1 mg/kg in 10 ml of remicaine jelly or Vaseline. Apply a small amount to the anus after meals	**S:** 6 months – 2 yrs: 7.5mg; 3 – 10 yr 7.5 – 15 mg; >10 yr 15-30 mg **B:** <1 yr: 2.5 mg; 1 -5 yr: 5mg; >5 yr 10mg (PO or PR)	½ - 2 sachets per day
Mechanism of action	Non absorbable sugars with osmotic pull of fluid into bowel lumen to soften stool	Smooth muscle relaxation	Simulates smooth muscle contraction to encourage gut motility	Osmotic laxatives with added electrolytes.
Side effects	Loose stools and gas bloating with abdominal cramping	Headaches	Abdominal Cramps	Electrolyte derangement Over use can lead to loose stools.

Comments	Start on a small dose, and explain to the patients to increase every 48-72 hrs until the stool is the consistency of a rotten banana. If the patient can afford to buy **Movicol,** use that as first line instead (start with a half sachet daily and escalate to 2 full sachets daily as required in a stepwise manner)	Considered using crushed **nifedipine tablets** instead of isosorbide mononitrate if headaches occur (10mg/kg in 10 ml of ointment)	Start on a low dose, titre up to an effective dose that causes a daily stool without cramping. Ensure there is no faecaloma present prior to starting. Note : PR bisacodyl has a predictable fast action which makes it appealing. If the family can afford this it may be preferable.	Start on a small dose (half sachet daily),and explain to the patients to increase every 48-72 hrs until the stool is the consistency of a rotten banana. (Max dose 2 sachet per day) Note: this is a safe agent, but availability is limited due to cost. Families may buy it over the counter if they can afford it.

We do not advise the use of **glycerine suppositories** in children beyond infancy as the effect is limited.

Soluble fibre is an effective bulking agent. This is not available through state pharmacies but can be bought by parents and added to the diet. Good options include chia seeds or psyllium husks which can be added to meals. These options are expensive, and it should be noted that a unprocessed, high fibre diet is as effective in the case of idiopathic constipation.

Parental Counselling

Duration of therapy[4]

- In general, laxative therapy will be necessary after successful disimpaction
- Continuation of laxative therapy is recommended for at least one month after symptoms resolve completely
- Parents can be counselled that their child will probably require therapy for at least as long as the symptoms were present, and probably for a month or two extra
- Once symptoms are well controlled, laxatives can be titrated to treatment response

Recurrence of symptoms

- Recurrence of symptoms is common and is no cause for panic
- Parents and clinicians should not hesitate to initiate a short course of ‘rescue therapy’ in the form of senekot or other stimulant laxatives

Concerns about medication[4]

- Dependency’
  Many parents are concerned that their children will become ‘dependent’ on medication for regular stooling. They can be advised that the medications assist the colon in it’s function, are safe to use under medical guidance, & will not make the colon ‘lazy’ in the long term if they are used appropriately & correctly

- Medication 'not working'
  Parents may say that they see no results with the medication. In this case, compliance and dosing needs to be evaluated, and the importance of consistently using medication every day must be reinforced. If the child is using Pegicol, this needs to be consumed as a single dose in the morning, & not sipped at throughout the day

Concerns about 'psychological problems' and 'naughtiness'

- Many parents will voice concerns that the constipation is evidence of a psychological or behavioral problem
- A thorough history should be taken & every effort should be made by the attending clinician to exclude the possibility that there are significant psychological stressors at school or at home
- The child should also be screened for any developmental delay or abnormality
- In the absence of obvious psychological stressors or developmental delays or abnormalities, functional constipation is not an independent indicator that a child is psychologically abnormal, or has abnormal behavioral problems
- Parents should be encouraged not to scold their children for having accidents or struggling to pass stool, & should rather try to remain calm & supportive

Toilet training[5]

- Caregiver expectations regarding toilet training may vary with socioeconomic status and education level. Parents of young children may complain that their child 'refuses' to toilet train, or perceive the child's ongoing stooling in the nappy as a form of incontinence or disobedience, leading to inappropriate discipline measures which may exacerbate retentive behaviour.
- While most children toilet train between the ages of 2 and 3, There is significant variation when it comes to the age at which children are able to go to the toilet independently
- Social stressors such as a new baby in the family, divorce, death, moving homes and perceived unsafe or unhygienic school toilet environments may lead to faecal retentive behaviour, affecting toilet training and leading to constipation.
- If there are no red flags indicating that toilet training is pathologically delayed, parents should be reassured and encouraged to support their children.

Long-term prognosis[4]

- With appropriate management, the majority of children with constipation will have symptom resolution by 8 years of age. However, one or more relapses are common.
- About half of patients with constipation will have symptoms that persist into adulthood.

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