

# **Functional Constipation**

## **Clinical Protocol**

Approved by: Seattle Children's Care Network Quality & Care Transformation Committee

Updated September 2019

## Introduction

Standardization is the basis for improvement; it allows us to determine which intervention(s) are (or are not) beneficial. Recommendations are based on the best available evidence or expert opinion, if evidence is not available. The SCCN Quality and Care Transformation Committee and Seattle Children's Division of Gastroenterology developed this protocol.

## Scope of the Problem

Childhood constipation has a significant impact on the cost and resources of the overall healthcare system. Studies indicate an estimated 1.7 million children reported constipation over a 2 year period. Approximately 3% of general pediatric outpatient visits and 25% of pediatric gastroenterology consultations are related to constipation.

Children with constipation utilize more health services than children without constipation, resulting in significantly higher costs: this has been estimated at \$3.9 billion/year. Children with constipation have more frequent outpatient consultations, emergency room visits and hospitalizations than children without constipation. Additionally, screening costs for constipation are estimated at \$4.7 million. As a result of this, the estimated cost per year for children with constipation is 3 times that in children without constipation.

These numbers are likely an underrepresentation of the actual impact constipation has on a child's quality of life. Personal financial cost to families for items such as diapers, toileting supplies, and over the counter medications as well as struggles with ongoing symptoms of painful stool and fecal incontinence have both financial and emotional effect. Considering that approximately 30% of children struggle with constipation beyond puberty, the healthcare team has an opportunity to influence both individual and system-wide change through ongoing, collaborative partnerships with patients and families in standardized treatment of constipation.

## Target Populations

Inclusion:

The target population for the Functional Constipation Clinical Protocol includes all healthy infants, children and adolescents ages 12 months to 18 years who meet the Rome IV criteria<sup>1</sup> or equivalent definition of functional constipation.

Exclusion:

Presence of alarm signs or symptoms which suggest organic cause of constipation.

## Diagnosis

There are three specific stages of development when infants and children are at risk to develop functional constipation. The first occurs with transition to a solid diet, the second around toilet training and the third around the start of school or daycare. Proactively including anticipatory guidance around constipation during infant, toddler and early school age preventative visits, may go a long way in preventing development of functional constipation.

Painful stooling is a common trigger for stool withholding which contributes to the development and often persistence of constipation. Toilet training and school entry frequently lead to less frequent stooling and at times hard, painful stools which in turn lead to further withholding. The modern American diet, high in processed foods at the expense of fruits, vegetables and fiber, likely contributes to childhood constipation as well as lack of regular physical activity and inadequate intake of liquids (primarily water).

## Differential Diagnosis

Functional constipation, toilet phobia, cystic fibrosis, celiac disease, hypothyroidism, dietary protein allergy, Hirschsprung disease (HD), anatomic malformations, sacral teratoma, spinal cord anomalies, prune belly, gastroschisis, pseudoobstruction, sexual abuse, depression, multiple endocrine neoplasia (MEN) type 2B, trauma, botulism, pharmacologic side-effect, infant dyschezia, irritable bowel syndrome

## Functional constipation definition: Rome IV criteria <sup>1</sup>

### Infants and toddlers up to four years old:

At least two of the following present at least once per week for at least one month

- Two or fewer defecations per week
- History of excessive stool retention
- History of painful or hard bowel movements
- History of large-diameter stools
- Presence of large fecal mass in the rectum

In toilet-trained children, following additional criteria may be used

- At least one episode per week of incontinence after the acquisition of toileting skills
- History of large-diameter stools that may obstruct the toilet

### Children with developmental age of at least four years old:

At least two of the following present at least once per week for at least one month

- Two or fewer defecations in the toilet per week
- At least one episode of fecal incontinence per week
- History of retentive posturing or excessive volitional stool retention
- Presence of a large fecal mass in the rectum
- History of large-diameter stools that may obstruct the toilet

## History

History should focus on characteristics that suggest functional constipation as well as assess for attributes that raise concern for infrequent but serious organic causes of constipation.

### Red flags or alarm signs:

- Delayed passage of meconium (after first 48 hours of life)
- Constipation starting extremely early in life (less than 1 month)
- Fever, vomiting or diarrhea

- Blood in stools (without evidence of anal fissure)
- Severe abdominal distension
- ‘Ribbon’ stools
- Urinary incontinence
- Failure to thrive
- Neurologic deficits
- Congenital anomalies or syndromes associated with Hirschsprung disease
  - Trisomy 21
  - MEN2A
  - Smith-Lemli Opitz
  - Mowat-Wilson
- History of physical or sexual abuse
  - Note: There is a strong association between fecal incontinence and physical/emotional/sexual abuse. Patients with fecal incontinence have lower HRQoL scores than their healthy counterparts.
  - Sensitivity to this history also guides options for evaluation and treatment (example: may not recommend anorectal manometry )

**Additional questions to consider:**

- Onset of symptoms:
    - Preceding change in diet or diarrheal illness
    - Onset around time or toilet training or around precipitating event
    - Problems with toilet training
  - Stool quality and appearance:
    - Painful defecation
    - Hard or soft stools
    - Stool form pellets in diaper or toilet, stools clog the toilet
    - If toilet trained, accidents in underwear
    - Stool withholding behavior (“dance”, hide or appear to be trying not to have a bowel movement)
    - Consider use of the Bristol Stool Chart as a visual aid for patients and families to describe stool appearance
      - Type 1-2 is constipation
      - Type 6-7 is diarrhea
      - Goal is type 4-5
- [SCH Patient Education - Bristol Stool Chart](#)
- Diet:
    - Unusual diet
      - Note: Ensure adequate caloric intake from all food groups to meet optimum nutritional goals
    - Sources of fiber
    - Fluid intake
    - Coincides with change in diet (transition to solid foods or milk?)

**Medication History:**

Medications and/or alternate therapies including oral laxatives, enemas, suppositories, herbal treatments, and other medications

**Development and psychosocial history:**

- Disruption of child or family life
- Interaction with peers
- Temperament

**Family History:**

- Gastrointestinal diseases (HD, inflammatory bowel disease, celiac disease, food allergies)
- Thyroid or parathyroid disease
- Cystic fibrosis

**Physical examination****Red flags or alarm signs:**

- Abnormal thyroid gland
  - Consider hyper or hypo-thyroidism
- Severe abdominal distension
  - Consider bowel obstruction, fecal impaction, colonic dilation
- Perianal fistula
  - Consider IBD
- Abnormal position of anus
  - Consider anorectal malformation
- Decreased lower extremity strength, tone or reflex
  - Consider spinal cord abnormalities (spina bifida, tethering/lipoma, tumor)
- Tuft of hair on spine, sacral dimple
  - Consider spinal cord abnormalities (spina bifida, tethering/lipoma, tumor)
- Gluteal cleft deviation
  - Consider spinal cord abnormalities (spina bifida, tethering/lipoma, tumor)
- Anal scars
  - Consider physical or sexual abuse
- Extreme fear during anal inspection
  - Consider physical or sexual abuse, extreme anxiety
- Explosive stools with digital rectal examination
  - Consider Hirschsprung disease, anal stenosis (if the digital examination is difficult or anal complex is small)
- Signs of physical or sexual abuse

## Growth parameters

### Abdominal exam:

- Muscle tone
- Distension
- Fecal mass

### Perianal:

- Anal position/Abnormal anal opening: Consider as highly suspicious of anorectal malformation



Abnormal anal opening (female).  
Photo courtesy of Dr. Avansino.



Abnormal anal opening (male).  
Photo courtesy of Dr. Ambartsumyan.

- Perianal fistula
- Skin tags
  - Consider IBD
- Stool present around anus or on undergarments
- Erythema
- Anal fissure
- Digital rectal exam

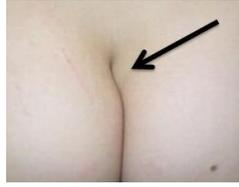
### Spine:

- Sacral dimple  
See Figure 6: <https://pedsinreview.aappublications.org/content/32/3/109>



- Tuft of hair
- Gluteal cleft deviation

See Photo 4: <http://pediatricneurosurgery.org/diagnosis/tethered-spinal-cord> (a crooked crease between the buttocks)



- Flat buttocks

#### **Neurologic:**

- Lower extremity strength/tone/reflex
- Anal and cremasteric reflex
  - Consider neurogenic bowel/bladder from spinal cord abnormalities (spina bifida, tethering/lipoma, tumor)

#### **Diagnostic evaluation**

In most cases, organic causes of constipation can be excluded based on careful history and physical exam. Focused laboratory and radiologic testing should be considered IF warning signs of possible organic causes of constipation are present. Testing may also be considered for patients who fail to respond to carefully administered intervention program including disimpaction, laxatives and behavioral management.

#### **Imaging:**

- Abdominal films are NOT indicated for the routine evaluation of functional constipation. May be considered when inadequate historical information to determine if patient has constipation or if the physical exam is limited by patient cooperation, obesity or deferred for psychosocial concerns.
- Barium enema is NOT recommended.
- Spine films of lumbosacral spine should be performed in infants and children with evidence of spinal dysraphism or neurological impairment of perianal region or lower extremities.
- Magnetic resonance imaging (MRI) of spine should be considered if high suspicion of neurologic dysfunction. MRI should not be ordered routinely for patient with intractable constipation in the absence of neurologic abnormalities.

#### **Laboratory:**

Routine laboratory testing is NOT recommended in children with constipation in the absence of alarm signs or symptoms.

#### **Consider :**

- CBC and serologic screening for celiac disease in patient with failure to thrive or recurrent abdominal pain

- Urinalysis and culture in patients with fecal impaction and encopresis
- Thyroid stimulating hormone and free thyroxine in children with impaired linear growth and depressed reflexes or history of central nervous system disease
- Electrolytes and calcium for children at risk for electrolyte abnormalities
- Blood lead level for children with lead toxicity risk factors

**Other testing:**

- Rectal biopsy is the gold standard for diagnosis of Hirschsprung disease (HD)
- Colonic manometry may be indicated in patients with intractable constipation
- Anorectal manometry as screening for Hirschsprung’s disease

## Treatment

### Phase 1: The Initial Cleanout

- Stimulant laxative
  - Note: There is no evidence to support or refute that stimulant laxatives have a negative effect on the colon
  - During initial cleanout, it is important to actively empty the colon to “clean out the pipes” and “maintain the water supply”
  - Consider also, this is short term use of stimulant laxative in the initial cleanout phase. If longer term use of stimulant laxative is indicated, the PCP will have support from gastroenterology providers for patients treated with long term stimulant therapy.
- Stool softener
- Schedule timely phone or office follow-up (1-2 weeks)
  - Opportunity for RN phone call to family as an alternative to an office visit
- Cleanout can be repeated x2. If no success after second cleanout, refer to GI.

### Phase 2: Maintenance

- Medications: Stool softener
  - Continue maintenance therapy at least 3 months
  - Wean over 6-12 months
- Schedule follow-up communication to confirm patient/family is adherent to treatment plan (monthly to 3-month intervals)
  - Medication dosage, frequency, efficacy
  - Behavior changes in place
  - Reiterate patient education as needed

### Phase 3: Behavior Change

- Schedule toilet time

- Recommendation: sit on the toilet for 5 minutes, schedule this to occur 20 minutes after each meal
- Add high-fiber foods to diet
  - Consider child's age plus "5" in grams of fiber
- Consider 2-4 week trial of cow's milk elimination
- Increase liquids in diet
  - Particularly water vs. soda, juice etc.
- Increase physical activity
- Encourage older children to take responsibility
  - 20-25% are dependent on therapy through adolescence
- Use positive reinforcement (praise, incentives/rewards)
  - Consider star charts, small prizes appropriate for developmental level
  - Recommendation: reward the effort of the behavior change, not the product

#### Phase 4: Managing relapses

- ***Consider the management of relapses as an expected yet critical phase of the treatment plan***
  - 50% of children will relapse within 1 year
  - 50% will relapse in another 5 years
  - Educate families regarding the importance of monitoring and addressing constipation status for 1-5 years after initiating this clinical protocol
  - Consider routine intervals to monitor constipation status, such as during the annual checkup and mid-year by phone or during a clinic visit
- Watch for cues of constipation
- Assess adherence to behavior changes and maintenance therapy
- Consider if adjustments to maintenance therapy are indicated
- Cleanout with success can be repeated as often as every 2 weeks
- Cleanout x2 without success = referral to GI

## Referral

### Indicate reason for referral

- Constipation with concern for organic etiology (include any pertinent information including growth charts, lab results, etc)
  - Include any workup completed to date
- Functional constipation - failed treatment, noting the specific reason for failed treatment: cleanout, maintenance, or relapse
  - Name and dose of medications utilized in cleanout, including length of treatment with specific medications
  - Number of cleanouts completed
  - Adherence to current treatment protocol

- Duration of functional constipation issues
- How often patient is following up with PCP
- These details will help the gastroenterology team create a more targeted treatment plan for the patient
- Consider referral to behavioral health (not to gastroenterology) if the reasons for failed treatment is relative to failed behavior modifications
  - Such as child will only defecate in certain area of the home, or will not defecate at school etc.
- Incontinence despite appropriate laxative/stimulant therapy
  - Medications utilized and length of treatment with specific medications
- Reason for referral in this clinical protocol is not relative to functional abdominal pain
- *Consider creation of a documentation template within your practice's EMR to facilitate inclusion of the details above*

#### **Inform patient/parent or guardian of goal of referral**

- Clarify diagnosis
  - If organic cause, primary care provider to coordinate additional and/or ongoing specialist consultation
- Re-vise treatment plan for functional constipation

#### **Continue treatment plan initiated by specialist once initial success demonstrated**

#### **Follow-up with specialist as needed for future treatment plan modification**

- Call the Provider-to-Provider line at 206-987-7777 to reach a gastroenterology provider to discuss your management and treatment options for your patient

## References

### Bibliography

Can J Gastroenterol. 2013 Dec; 27(12): e35-e38.

Constipation Care Package (NASPGHAN, 2017)

J Pediatr. 2009 Feb; 154(2):258-62. Doi: 10.1016/j.peds.2008.07.060. Epub 2008 Sep 25.

J Pediatr Gastroenterol Nutr. 2011 Jan; 52(1): 47-54. Doi: 10.1097/MPG.0b013e318e67058

JPGN. 2014; 58: 258-274

(North American Society for Pediatric Gastroenterology, Hepatology and Nutrition, 2017)

(Seattle Children's Hospital Gastroenterology and Hepatology, 2017)

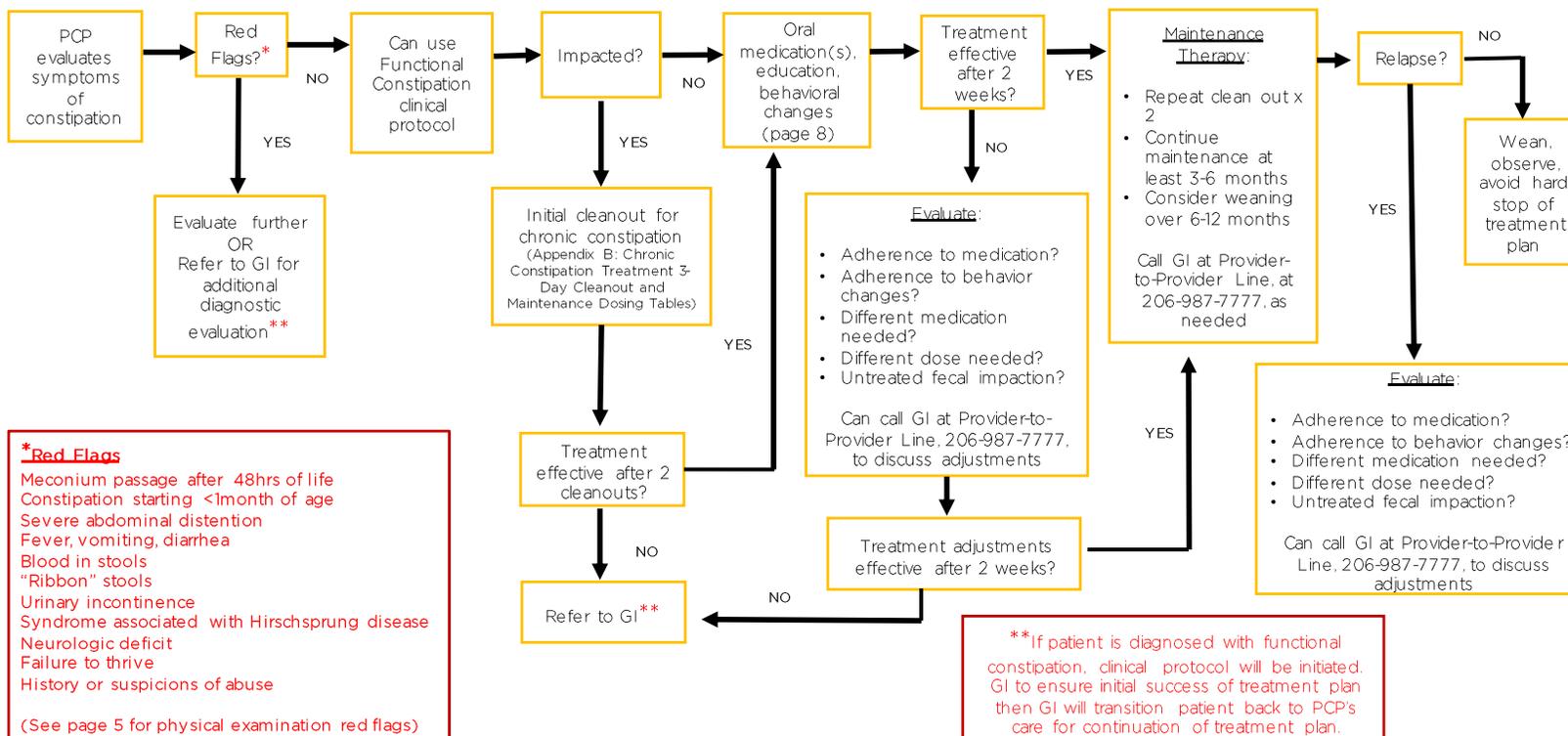
## Footnotes

1. Data from:

- *Benninga MA, Faure C, Hyman PE, et al. Childhood Functional Gastrointestinal Disorders: Neonate/Toddler. Gastroenterology 2016.*
- *Hyams JS, Di Lorenzo C, Saps M, et al. Functional Disorders: Children and Adolescents. Gastroenterology 2016.*

## Appendix A: SCCN Functional Constipation Clinical Protocol (Algorithm)

### Algorithm: Functional Constipation Clinical Protocol



## Appendix B: Supporting Evidence

### External Resources

Constipation Telephone Triage (NASPGHAN, NASPGHAN Foundation, GI Kids, APGNN)  
<https://indd.adobe.com/view/58a350d3-35e3-4566-8447-9a55006189fe>

The Poo in You video (GI Kids)  
<https://gikids.org/constipation/>

Constipation Fact Sheet (NASPGHAN and APGNN)  
<https://www.gikids.org/files/documents/digestive%20topics/english/Constipation.pdf>

NASPGHAN Constipation and Fecal Soiling (NASPGHAN and APGNN)  
<https://www.gikids.org/files/documents/digestive%20topics/english/Constipation%20and%20fecal%20soiling.pdf>

Polyethylene Glycol (PEG 3350) Frequently Asked Questions (NASPGHAN)  
[https://www.gikids.org/files/PEG\\_3350\\_FAQ\\_formatted.pdf](https://www.gikids.org/files/PEG_3350_FAQ_formatted.pdf)

Toilet Training Tips (NASPGHAN)  
<https://indd.adobe.com/view/4d69a64b-e6ce-402c-8a44-3964493d299f>

Fiber and Your Child (Spanish) (KidsHealth)

- **English:** <https://kidshealth.org/en/parents/fiber.html?ref=search&WT.ac=msh-p-dtop-en-search-clk>
- **Spanish:** <https://kidshealth.org/es/parents/fiber-esp.html?WT.ac=pairedLin>

### Seattle Children's Division of Gastroenterology - Patient Education Resources

Mild Constipation: Polyethylene Glycol (Miralax) Dosage Table  
<https://www.seattlechildrens.org/pdf/PE1303.pdf>

Severe or Chronic Constipation: Polyethylene Glycol (Miralax) Dosage Table  
<https://www.seattlechildrens.org/pdf/PE1696.pdf>

Chronic Constipation Treatment 3-Day Cleanout and Maintenance Dosing Tables  
<https://www.seattlechildrens.org/pdf/PE1071.pdf>

Bowel Cleanout and Maintenance Program At-a-Glance  
<https://www.seattlechildrens.org/pdf/PE1755.pdf>

Bristol Stool Chart  
<https://www.seattlechildrens.org/globalassets/documents/for-patients-and-families/pfe/pe2405.pdf>