



HOSPITALS • RESEARCH • FOUNDATION

# Constipation in Children

Guideline developed and finalized by Courtney L. Edgar-Zarate, MD in collaboration with the ANGELS Team. Last revised by Dr. Edgar-Zarate February 2019.

## Key Points

- Functional constipation is common within the pediatric population but requires education of the families and anticipatory guidance from the provider to treat adequately.
- Diagnosis can be made by the history and physical exam in the majority of cases, ensuring that alarm signs have been evaluated.
- Polyethylene glycol (PEG), found most effective in many studies, can be used for maintenance therapy and for treatment of fecal impaction.
- Treatment may be required for months to years, depending on the severity.
- Behavior modification is integral in treatment and may include timed toileting, reward systems, and monitoring of stool patterns by the caregivers.
- Referral to a pediatric gastroenterologist is necessary if child has any alarm signs or constipation that is refractory to optimal medical and behavioral therapy.

## Epidemiology

- Constipation is a very common pediatric problem. Approximately 3% of all visits to pediatricians are due to constipation. Prevalence is equal between sexes.
- In more than 95% of cases, functional constipation is the source of constipation in healthy children >1 year of age.

## Pathophysiology

- Functional constipation is usually triggered by the urge to avoid defecation due to pain or social reasons.
- Withholding causes colonic mucosa to absorb more water, making the stool more difficult to pass.
- As stool retention continues, the rectum becomes more dilated. Fecal incontinence and loss of the urge to defecate ensues. This becomes a vicious cycle that is difficult to stop.

## Definitions

The Rome IV criteria are the international standard for defining functional constipation ([Table I](#)). It is divided into 2 subgroups: children <4 years of age and children ≥4 years of age. Criteria for children who are toilet trained are included.

### Table I. Rome IV Criteria for Functional Constipation

To view a larger image on your device, please click or touch the image.

Table 1. Rome IV Criteria for Functional Constipation

Child must have <i>2 or more</i> of the following that are present for at least 1 month with an absence of organic pathology to explain symptoms.	
Developmental age <4 years old	Developmental age ≥4 years old
≤2 bowel movements per week	
At least 1 episode of incontinence per week if toilet trained	At least 1 episode of incontinence per week
History of stool retention	History of volitional stool retention
History of painful bowel movements	
Large fecal mass present in the rectum	
History of clogging the toilet or large diameter stools	
Symptoms such as early satiety, fussiness, poor appetite that disappears immediately after having a bowel movement	Does not meet criteria for irritable bowel syndrome.

Sources:

Hyams JS, Di Lorenzo C, Saps M, Shulman RJ, Staiano A, van Tilburg M. Functional disorders: children and adolescents. *Gastroenterology*. 2016;150(6):1456-1468. doi:10.1053/j.gastro.2016.02.015.

Tabbers MM, DiLorenzo C, Berger MY, et al. Evaluation and treatment of functional constipation in infants and children: evidence-based recommendations from ESPGHAN and NASPGHAN. *J Pediatr Gastroenterol Nutr*. 2014;58(2):258-274. doi:[10.1097/MPG.0000000000000266](https://doi.org/10.1097/MPG.0000000000000266).

## Assessment and Diagnosis

### Assessment

Assessment consists of patient history and physical exam.

#### Patient History

##### Table 2. Patient History for Assessment of Constipation

To view a larger image on your device, please click or touch the image.

**Table 2. Patient History for Assessment of Constipation**

History Type	Description
History of present illness	<ul style="list-style-type: none"><li>• Age of symptom onset</li><li>• Toilet training status</li><li>• Frequency and consistency of stool</li><li>• Pain or bleeding with bowel movements</li><li>• Fecal incontinence, especially at night</li><li>• Presence of abdominal pain</li><li>• 3-day diet history to assess fluid and fiber intake (helpful)</li></ul>
Past medical history	<ul style="list-style-type: none"><li>• Presence of other medical problems that can contribute to constipation, including recent illnesses or change in diet</li><li>• Any medications with constipation as a side effect</li><li>• Prior treatment attempts or hospitalizations for constipation</li><li>• Developmental and psychosocial history</li><li>• Surgical history</li></ul>
Family history	<ul style="list-style-type: none"><li>• Family members who may have other gastrointestinal diseases (eg, inflammatory bowel disease, celiac disease, Hirschsprung disease)</li><li>• Other disease processes (eg, cystic fibrosis, hypothyroidism, parathyroid disease)</li></ul>
Social history	<ul style="list-style-type: none"><li>• Contributing social stressors, including food insecurity</li></ul>

### Physical Exam

- **Typical examination.** Most of the time it will be normal; however, you should rule out evidence of any organic cause.
- **Growth parameters.** Evaluate growth parameters. Evidence of failure to thrive may indicate an organic cause to the constipation.
- **Abdominal examination.** Evaluate for a mass in the lower left or suprapubic areas, representing a fecal mass. Depending on the chronicity of the constipation, there may be some abdominal distension present.
- **Perianal examination.** Take note of the anal position and skin tags or fissures.
- **Lumbosacral region.** Note any dimple, tuft of hair, or gluteal cleft to evaluate for signs of neural tube defects.
- **Rectal examination.** Evaluate for presence of anal stenosis or evidence of a fecal mass. No evidence exists to support performance of a rectal exam to diagnosis functional constipation. It is necessary when the diagnosis is in question, only 1 of the Rome IV criteria are present, or any alarm signs are present ([Table 3](#)).

**Table 3. Alarm Signs**

To view a larger image on your device, please click or touch the image.

**Table 3. Alarm Signs**

<b>Alarm Signs</b>
<ul style="list-style-type: none"><li>• Constipation began extremely early in life (&lt;1 month of age)</li><li>• Passage of initial meconium occurred after 48 hours of birth</li><li>• Blood in stools in absence of anal fissures</li><li>• Failure to thrive</li><li>• Fever</li><li>• Bilious vomiting</li><li>• Abnormal exam of the lumbosacral area</li><li>• Extreme fear during perianal inspection (may indicate abuse)</li><li>• Abnormal position of anus</li><li>• Severe abdominal distension</li></ul>

## **Diagnosis**

- Diagnosis relies heavily on the history and physical exam, using the Rome IV criteria ([Table 1](#)).
- Abdominal radiograph is not necessary for diagnosis but should be performed if there is concern for fecal impaction or if any alarm signs ([Table 3](#)) are present.
- Evidence does not support laboratory testing to rule out other organic causes of constipation unless alarm signs or other concerning symptoms are present. This includes testing for milk protein allergies, hypothyroidism, celiac disease, and hypercalcemia.

## **Management and Treatment Recommendations**

### **General Recommendations**

Management and treatment recommendations depend upon the child's age and whether the constipation is acute or recurrent ([Table 4](#)).

**Table 4. Management and Treatment Recommendations for Acute and Recurrent Constipation in Infants, Toddlers, and Children**

To view a larger image on your device, please click or touch the image.

**Table 4. Management and Treatment Recommendations for Acute and Recurrent Constipation in Infants, Toddlers, and Children**

<b>Acute Constipation</b>									
Infants	<ul style="list-style-type: none"> <li>Start with sorbitol containing juices and purees (eg, pears, prunes, apples, peas).</li> <li>Try switching to multigrain cereal instead of rice cereal.</li> <li>Glycerin suppositories may be used; however, use sparingly because infants can learn to rely on rectal stimulation to stool.</li> </ul>								
Toddlers and children	<ul style="list-style-type: none"> <li>If stool withholding is <i>not</i> present, start with dietary changes (eg, increased fiber, decreased cow's milk intake, if excessive).</li> <li>If stool withholding behavior is present, treat with osmotic laxatives (eg, PEG, lactulose).</li> </ul> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <th colspan="2">Dosing</th></tr> <tr> <td>PEG</td><td>0.2 to 0.8 g/kg/day, can be divided twice daily</td></tr> <tr> <td>Lactulose</td><td>1 to 2 g/kg daily or twice a day</td></tr> </table> <ul style="list-style-type: none"> <li>If anal fissures are present, may treat with petroleum jelly to the area.</li> </ul>	Dosing		PEG	0.2 to 0.8 g/kg/day, can be divided twice daily	Lactulose	1 to 2 g/kg daily or twice a day		
Dosing									
PEG	0.2 to 0.8 g/kg/day, can be divided twice daily								
Lactulose	1 to 2 g/kg daily or twice a day								
<b>Recurrent Constipation</b>									
Recurrent constipation in infants	<ul style="list-style-type: none"> <li>Begin with the recommendations outlined in "Acute Constipation" for infants (above).</li> <li>May introduce PEG or lactulose if needed. See dosing above.</li> <li>Avoid stimulant laxatives (eg, bisacodyl, senna).</li> <li>Reevaluate for presence of any possible organic causes or alarm signs (Table 3). This is an important step.</li> <li>If the treatments outlined here are not effective, referral to a pediatric gastroenterology specialist may be necessary.</li> </ul>								
Recurrent constipation in toddlers and children	<ul style="list-style-type: none"> <li>This usually involves a long process—one in which patient and family education is critically important.</li> <li>Bowel retraining usually involves a 4-step process:</li> </ul> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>1</td><td>Disimpaction</td></tr> <tr> <td>2</td><td>Prolonged laxative treatment to maintain soft, regular stools</td></tr> <tr> <td>3</td><td>Dietary changes to keep stools soft</td></tr> <tr> <td>4</td><td>Eventual tapering/withdrawal of laxatives</td></tr> </table>	1	Disimpaction	2	Prolonged laxative treatment to maintain soft, regular stools	3	Dietary changes to keep stools soft	4	Eventual tapering/withdrawal of laxatives
1	Disimpaction								
2	Prolonged laxative treatment to maintain soft, regular stools								
3	Dietary changes to keep stools soft								
4	Eventual tapering/withdrawal of laxatives								

Abbreviation: PEG, polyethylene glycol.

## Disimpaction Treatment Phase

- Commonly, children who seek medical attention for chronic constipation present with a fecal impaction.
- The mainstay treatment is a clean out, which can be done either as an outpatient or an inpatient. Inpatient is usually chosen after multiple failed outpatient attempts.

**Table 5. Disimpaction Treatment Dosing**

To view a larger image on your device, please click or touch the image.

**Table 5. Disimpaction Treatment Dosing**

	Dosing	Precautions
Mineral oil enema	2 to 11 years: 30 to 60 mL daily >11 years: 60 to 150 mL daily	Not recommended for use in children <2
Bisacodyl suppositories or sodium phosphate enemas	2.5 mL/kg; maximum 133 mL/dose	<ul style="list-style-type: none"><li>• Sodium phosphate enemas can cause severe hypocalcemia and/or hypophosphatemia, which can be life threatening</li><li>• Avoid in children &lt;2 years old</li><li>• Limit to daily or every 12 hours</li></ul>
PEG or PEG with electrolytes (oral medication)	1 to 1.5 g/kg/day for 3 days (most successful dose)	<ul style="list-style-type: none"><li>• Most effective used in combination with rectal softening/stimulant medications</li></ul>

Abbreviation: PEG, polyethylene glycol.

## Maintenance Phase

### Daily Maintenance Regimen

- Immediately after successful disimpaction, the child should begin a daily maintenance regimen with the goal of 1 to 2 soft stools (type 4) daily. Stools consistency is defined by the [Bristol Stool Form Scale](#).
- Because many studies show that PEG is more effective and has fewer side effects than lactulose or milk of magnesia, it is recommended for first-line maintenance treatment ([Table 6](#)).

**Table 6. Maintenance Dosing for Chronic Functional Constipation**

To view a larger image on your device, please click or touch the image.

**Table 6. Maintenance Dosing for Chronic Functional Constipation**

	<b>Dosing</b>
PEG	<ul style="list-style-type: none"><li>• 0.2 to 0.8 g/kg/day</li><li>• If child &gt;20 kg, start with 1 capful mixed with 6 to 8 ounces of liquid, once or twice a day</li><li>• Titrate dose up or down by <math>\frac{1}{2}</math> or 1 teaspoon every other day to achieve 1 to 2 soft bowel movements per day</li></ul>

Abbreviation: PEG, polyethylene glycol.

### **Family Education**

- Provide the family with education about what to expect, as well as how to titrate the dose up or down to achieve 1 to 2 soft bowel movements per day.
- Inform family that there may be some initial leakage due to dilation of the rectum and anal sphincter. This should improve within a few days. If not educated properly, they may want to stop the medication.

### **Toileting**

- Child should have timed toileting, about 5 to 10 minutes after meals, especially breakfast and dinner.
- If the child is not toilet trained, then do not force this until there has been about 2 to 4 weeks of effective laxative treatments.
- If there is no bowel movement in 2 to 3 days, try enema or increase the laxative dose.
- If fecal incontinence reoccurs, return to the disimpaction phase.

### **Dietary Recommendations**

- Ensure intake of recommended dietary fiber ([Table 7](#)).
- May try fiber supplements as well. However, avoid if fecal impaction and stool withholding are not resolved. In that case, fiber supplements can make impaction worse.

**Table 7. Dietary Recommendations for Children with Functional Constipation**

To view a larger image on your device, please click or touch the image.

**Table 7. Dietary Recommendations for Children with Functional Constipation**

	<b>Recommendation</b>
<b>Dietary fiber</b>	<ul style="list-style-type: none"><li>• Age (yrs) + 5 or 10 = grams/day</li><li>• 7 to 15 grams/day for 2 to 5 years of age recommended</li></ul>
<b>Adequate hydration</b>	32 to 64 ounces of water and nondairy liquids per day
<b>Foods</b>	<p>A diet rich in fruits, vegetables, and fiber</p> <p><i>For infants</i></p> <ul style="list-style-type: none"><li>• Examples include<ul style="list-style-type: none"><li>• Pears, plums, peaches, prunes</li><li>• Brown rice, whole wheat pasta</li></ul></li></ul> <p><i>For toddlers and children</i></p> <ul style="list-style-type: none"><li>• Similar foods as for infants</li><li>• Examples include<ul style="list-style-type: none"><li>• Breakfast: instant oatmeal, fiber rich cereals, yogurt with addition of high fiber granola</li><li>• Lunch: sandwiches made with high fiber bread</li><li>• Dinner: brown rice or whole wheat pasta</li></ul></li></ul>

## **Behavior Modification**

Behavior modification is an integral part of treatment, including

- Scheduled time for toileting about 5 to 10 minutes after meals, especially breakfast and dinner; use of a foot rest or toddler potty chair may be beneficial.
- Reward system, such as stickers, for when child has a bowel movement.
- Monitoring of stooling patterns, especially for older children, so that parents can be aware of frequency and consistency of stool. Use of the [Bristol Stool Form Scale](#) is helpful.

## **Discontinuation**

- May begin weaning laxatives once child has regular stools and no episodes of acute constipation or fecal incontinence for 2 to 6 months.
- If reoccurrence occurs once weaning has started, it is important to have a rescue plan in place for the family (eg, increasing the maintenance dose or enema use).
- Discontinuation of the maintenance phase may take months to years.

## **Referral**

Referral to a pediatric gastroenterology specialist is indicated for children who have

- Any alarm signs ([Table 3](#))
- Constipation refractory to optimal medical and behavioral therapy

## **Prognosis**

- Recovery rate at 6 to 12 months is about 60%.
- Patients with shorter duration of symptoms and earlier initiation of treatment have better chance of recovery.

## **Prevention and Education**

- The key to prevention is for the child to
  - Eat a good, well-balanced diet that includes fruits, vegetables, and fiber
  - Maintain good hydration, which includes water
  - Engage in regular physical activity
- Educating the family about key prevention steps is important.
- Anticipatory guidance about constipation around key transition times is helpful. These times include switching from formula to cow's milk, toilet training, and beginning school.

## **Resources**

### **For Healthcare Providers**

- [North American Society for Pediatric Gastroenterology, Hepatology and Nutrition, Clinical Guideline for Functional Constipation](#)

### **For Parents**

- [GI Kids: Children's Digestive Help Information for Children and Parents](#)
- [Kids Health: Fiber and Your Child](#)
- [Bristol Stool Form Scale](#)

*This guideline was developed to improve health care access in Arkansas and to aid health care providers in making decisions about appropriate patient care. The needs of the individual patient, resources available, and limitations unique to the institution or type of practice may warrant variations.*

### **References**

## **References**

1. Benninga MA, Nurko S, Faure C, Hyman PE, St James-Roberts I, Schechter NL. Childhood functional gastrointestinal disorders: neonate/toddler. *Gastroenterology*. 2016;150(6):1443-1455. doi:10.1053/j.gastro.2016.02.016.
2. Hyams JS, Di Lorenzo C, Saps M, Shulman RJ, Staiano A, van Tilburg M. Functional disorders: children and adolescents. *Gastroenterology*. 2016;150(6):1456-1468. doi:10.1053/j.gastro.2016.02.015.
3. Pijpers MA, Bongers ME, Benninga MA, Berger MY. Functional constipation in children: a systematic review on prognosis and predictive factors. *J Pediatr Gastroenterol Nutr*. 2010;50(3):256-268.
4. Sood MR. Chronic functional constipation and fecal incontinence in infants and children: treatment. In: Li BUK, ed. *UpToDate*. Waltham, MA: UpToDate; 2016. www.uptodate.com.

Accessed June 30, 2016.

5. Tabbers MM, DiLorenzo C, Berger MY, et al. Evaluation and treatment of functional constipation in infants and children: evidence-based recommendations from ESPGHAN and NASPGHAN. *J Pediatr Gastroenterol Nutr.* 2014;58(2):258-274.
6. van den Berg MM, Benninga MA, Di Lorenzo C. Epidemiology of childhood constipation: a systematic review. *Am J Gastroenterol.* 2006;101(10):2401-2409.  
doi:<http://dx.doi.org/10.1111>.
7. Youssef NN, Peters JM, Henderson W, Shultz-Peters S, Lockhart DK, Di Lorenzo C. Dose response of PEG 3350 for the treatment of childhood fecal impaction. *J Pediatr.* 2002;141(3):410-414.