JOHNS HOPKINS ALL CHILDREN'S HOSPITAL

Constipation Clinical Pathway

JOHNS HOPKINS
All Children's Hospital

Johns Hopkins All Children's Hospital

Constipation Clinical Pathway

Table of Contents

Updated September 2020
Owners: Meghan Martin, MD; Courtney Titus PA-C, EMT-P

Johns Hopkins All Children's Hospital

Constipation Clinical Pathway

Rationale

This protocol was developed by a consensus group of JHACH Pediatric Emergency Medicine Physicians, Advanced Practice Providers, Gastroenterologists, and Pediatric Hospitalists to standardize the management of children evaluated or admitted for constipation and symptomatic fecal impactions. It addresses the following clinical questions or problems:

1. When to perform digital exam
2. When to obtain imaging, and what type
3. When to provide follow up with GI
4. Which therapy is appropriate by age
5. When to admit
6. Diagnostic terms, billing reminders

Diagnosis

Constipation is a common childhood problem that is often associated with abdominal pain, fecal incontinence or impaction, causing distress to the child and family. When it is chronic, it is referred to as functional constipation. There are diagnostic criteria for functional constipation, and fecal impaction which, in addition to history and physical exam, can support the diagnosis of acute constipation in the ED setting. It is important to consider other etiologies as the cause for abdominal pain, as the presence of red flag symptoms suggest higher risk for underlying disease and should be evaluated accordingly.

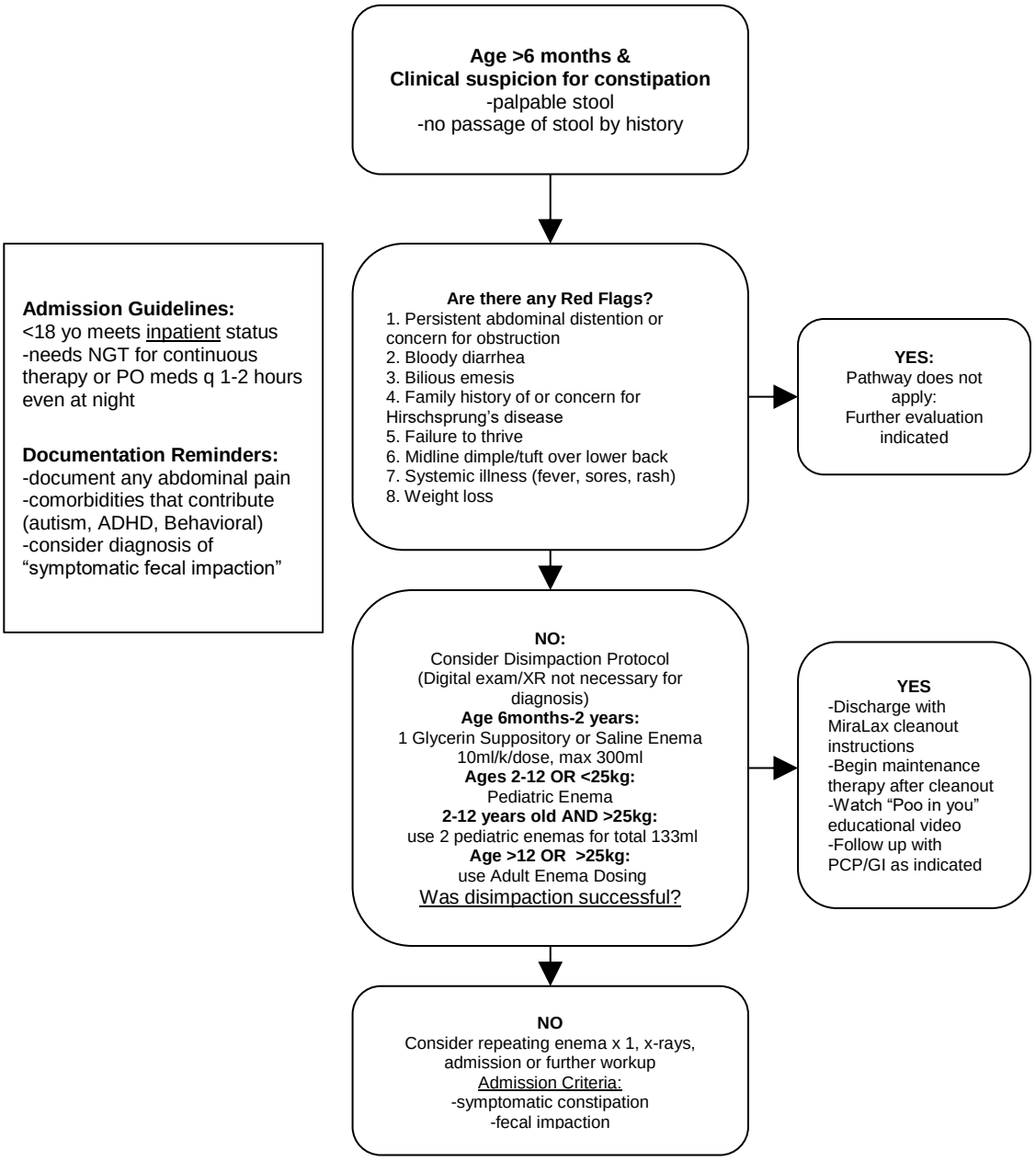
Diagnostic criteria for functional constipation includes at least 2 of the following criteria[8]:

1. Less than 2 defecations per week
2. One or more episodes of incontinence per week after acquisition of toileting skills
3. History of excessive stool retention
4. History of painful or hard bowel movements
5. Presence of a large fecal mass in rectum
6. History of large diameter stools that may obstruct the toilet

Diagnosis of fecal impaction

1. No stool passage for seven days or nausea or vomiting
2. History of encopresis
3. Stool in rectum on exam or imaging (if either was performed)
4. Palpable abdominal stool mass on physical exam

Emergency Center Constipation Clinical Pathway



Emergency Center Clinical Pathway

Most patients evaluated in the emergency center for constipation can be discharged. Inclusion criteria for the pathway includes patient over six months of age with history suspicious of constipation such as no passage of stool and/or palpable stool on exam. If the patient has any red flags or another diagnosis is likely, then the patient falls off the pathway and further evaluation is indicated. Studies show imaging and digital exam is not necessary for diagnosis, though can be helpful to rule out other diagnoses. If the patient is well appearing and has symptoms suggestive of fecal impaction, the provider can follow disimpaction protocol, using enema and reassess for improvement. If successful, then patient should also perform a MiraLax cleanout at home as noted in Appendix I. If not successful, then consider further evaluation including a repeated enema or imaging to rule out other diagnoses. If patient's fecal impaction does not resolve and patient remains symptomatic, then consider admission for nasogastric cleanout.

Evaluation

When to consider digital exams-

Though there is evidence to support that a digital rectal exam (DRE) may be a useful test when there is diagnostic uncertainty, the *routine* use of DRE is not recommended[8]. DREs are more invasive, especially in younger children and because they only assess the rectum, do not correlate with the degree of fecal loading.

Imaging-

A meta-analysis review of the diagnostic benefit of using abdominal radiographs concluded that evidence supports constipation can be diagnosed without the use of imaging[8]. These five studies all compared the clinical diagnosis of constipation to the abdominal images, using different scoring systems to determine if the radiographs indicated constipation. They showed sensitivity of the imaging was as low as 60% and high as 80%. Abdominal imaging may be indicated in circumstances where the clinician must rule out other diagnoses or is unsure of the diagnoses, however, imaging is not required for the diagnosis of constipation.

Management

Constipation symptoms can be improved immediately with the use of an enema, followed by home MiraLax cleanout instructions. To prevent return Emergency Center visits, the importance of daily home maintenance with an oral medication such as MiraLax or Magnesium Citrate should be stressed at discharge.

Acute Pharmacologic Management

Oral Laxatives

Polyethylene Glycol or PEG (brand name MiraLax) was found in multiple studies to be the most efficacious compared to others[1, 8]. Magnesium Citrate has also been used in the outpatient setting and is optional. There are many studies that support different regimens and doses of these

medications. Giving oral laxatives in the EC is not likely to benefit the patient immediately, and home MiraLax cleanout instructions should be given, see Appendix I for home instructions.

Glycerin

Glycerin suppositories are useful in children less than 2 years old, as they can help soften and ease the passage of stool that is in the rectum[2].If used at home, glycerin should not be used for more than three days without medical evaluation[2]. If the glycerin suppository does not improve symptoms, then consider a saline enema in the six month to two year old group.

Enemas

Enemas are beneficial in the acute setting, though invasive. Trials have shown that enema disimpaction provides superior, immediate symptoms relief compared to oral laxatives[3]. Sodium phosphate enemas (Fleet brand) are contraindicated in patients with increased risk of electrolyte disturbance, such as children under age two, or those with renal failure[3] and are not suggested in those at risk for rectal perforation (chronic steroid treatment) or immunocompromised patients. Saline enemas are options for those under age two but over six months, strength equivalent to ½ level teaspoon salt per 11oz water[6].

Enema Dosing[1]:

Age or weight	**Medication**	**Dose**
6m-2y	Glycerin Saline Enema	1 suppository 10ml/kg/dose of saline, max 300ml/dose[6]
2-12y or less than 25kg	Pediatric Fleet (sodium phosphate)	67.5ml, 1 pediatric enema Max: 2 doses in 24 hours
<12 years, >25kg	Pediatric Fleet (sodium phosphate)	133ml, 2 pediatric enemas* Max: Two doses (266ml) in 24 hours
>12 or over 25kg	Adult Fleet (sodium phosphate)	133ml, 1 adult enema Max: 2 doses in 24 hours

*Due to nozzle diameter, pediatric sized fleets should be administered for age <12 years.

Discharge

Gastroenterology consultations and follow up
EC consult for acute constipation or fecal impaction is typically not indicated.

When to follow up with GI:

- Refractory to therapy
- Repeat visits
- Red flag symptoms
- Family History of Constipation
- Parental concern
- Short stature
- Food Allergies

EC Discharge instructions
-See Appendix I
-Parents and patient should watch the “Poo in You” educational video
-MiraLax Cleanout instructions per Appendix I

Maintenance Therapy
-Follow up with Pediatrician or gastroenterologist in 1-2 weeks.
-Higher initial dose of 1 g/kg of Polyethylene glycol have been suggested[5]; Maximum daily dose: 17g (1 capful) per day. May be required for 1-2 months.
-Stress the importance of behavioral modifications, hydration and a balanced diet including fruits and vegetables[2]

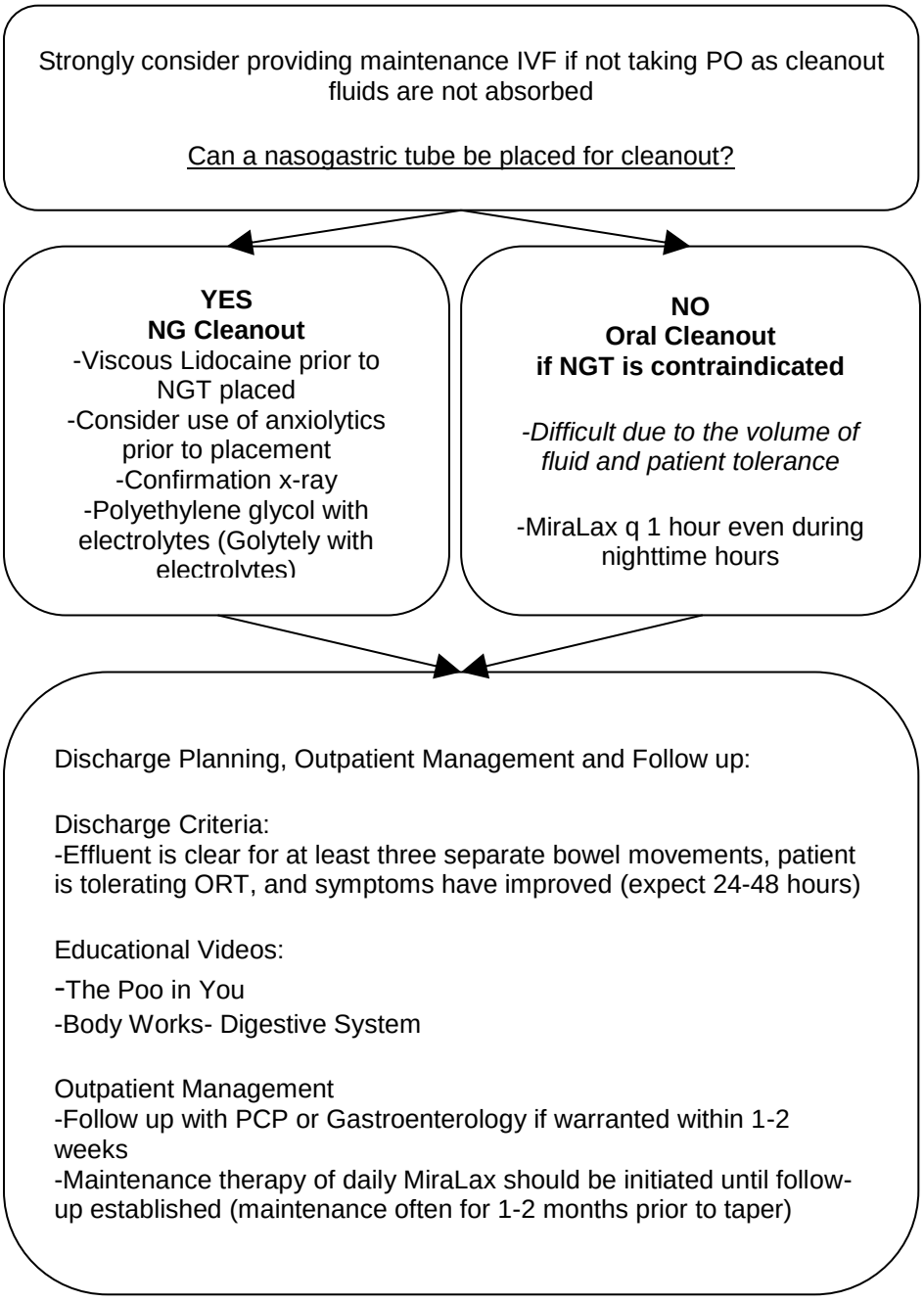
Admission

If disimpaction was not successful in EC, or patient remains symptomatic, then admission for nasogastric cleanout may be indicated.

Criteria
-symptomatic constipation
-fecal impaction
-unsuccessful disimpaction in EC

Other Considerations
-patients under the age of eighteen meet inpatient status criteria, over age eighteen is often not covered by insurance, consider observation or ambulatory status
-All patients who are admitted to JHACH for a gastrointestinal cleanout need a nasogastric tube (NGT) placed for continuous therapy. If NGT is not possible, oral laxatives will be given every 1-2 hours even at nighttime.

Inpatient Management of Acute Constipation/Fecal Impaction



Inpatient Management of Constipation

Most patients who are admitted to the hospital for cleanout will get a nasogastric (NG) tube for delivery of medications. Viscous lidocaine can be ordered to decrease the discomfort during placement, which should then be confirmed with an x-ray. The dose of Golytely can be noted below. On rare occasions where NGT is not possible, then oral MiraLax can be considered, but is undesirable due to patient intolerance.

Inpatient Cleanout Pharmacotherapy:

Age	Route	Medication	Dose	Comments
>/=2 years	**Rectal**	Fleet Enema (sodium phosphate)	See dosing chart above	
>/=2 years	**Oral/NGT**	Polyethylene Glycol (MiraLax)	17 grams PO/NGT q 1 hour, until effluent is clear	
>/=2 years	**NGT**	Polyethylene Glycol with Electrolytes (Golytely with electrolytes)	20 ml/kg/hr [4]	Consider IVF if not taking PO as these solutions provide no net fluid input

Other Considerations
If patient vomits, pause the therapy for an hour, and restart at a lower rate, consider running at half the previous rate. Advance as tolerated. As of 2017, the current maximum rate for NGT pump is 300ml/hr (10 ounces).

Diet for inpatient can be either nothing by mouth or clear liquids. Once the patient has clear effluent for three separate bowel movements, advance as patient tolerates.

Documentation reminders
-document any attempted medications which failed in the outpatient setting
-document any abdominal pain
-comorbidities that contribute (autism, ADHD, Behavioral)
-consider diagnosis of “symptomatic fecal impaction”

References

1. Benavides, S., Nahata, M. C., Chicella, M., Condren, M., Eiland, L. S., Hagemann, T. M., et al. (2013). In Sandra Benavides, Pharm.D., Milap C. Nahata, Pharm.D, FCCP (Ed.), *Pediatric pharmacotherapy* (1st ed.) American College of Clinical Pharmacy.

2. Blackmer, A. B., & Farrington, E. A. (2010). Constipation in the pediatric patient: An overview and pharmacologic considerations. *Journal of Pediatric Health Care : Official Publication of National Association of Pediatric Nurse Associates & Practitioners, 24*(6), 385-399.

3. Freedman, S. B., Thull-Freedman, J., Rumantir, M., Eltorki, M., & Schuh, S. (2014). Pediatric constipation in the emergency department: Evaluation, treatment, and outcomes. *Journal of Pediatric Gastroenterology and Nutrition, 59*(3), 327-333.

4. Lexi-Comp, I. Retrieved from Lexi-Comp, Inc. (Lexi-Drugs®). Lexi-Comp, Inc. database.

5. Loening-Baucke, V., Krishna, R., & Pashankar, D. S. (2004). Polyethylene glycol 3350 without electrolytes for the treatment of functional constipation in infants and toddlers. *Journal of Pediatric Gastroenterology and Nutrition, 39*(5), 536-539.

6. *Oregon health & science university PediatricGastroenterology: Constipation in children- medical management.* (2011). Retrieved September 20, 2017, from http://www.ohsu.edu/xd/health/services/doernbecher/programs-services/upload/ohsu-constipation-guide.pdf

7. Scott Moses, M. (2017). *Pediatric constipation management.* Retrieved September 20, 2017, from http://www.fpnotebook.com/mobile/GI/Peds/PdtrcCnstptnMngmnt.htm

8. Tabbers, M. M., DiLorenzo, C., Berger, M. Y., Faure, C., Langendam, M. W., Nurko, S., et al. (2014). Evaluation and treatment of functional constipation in infants and children: Evidence-based recommendations from ESPGHAN and NASPGHAN. *Journal of Pediatric Gastroenterology and Nutrition, 58*(2), 258-274.

9. Yale School of Medicine, Pediatric Surgery. (2017). *Bowel management.* Retrieved September 20, 2017, from https://medicine.yale.edu/surgery/pediatric/care/information/general/bowel.aspx

Outcome Measures:

Goal: reduce repeated EC visits for constipation, provide education to families on home management.

Outcome Measures: Length of Stay in EC, Days admission, number of patients admitted, number of enemas given, number of revisits/readmits

Clinical Pathway Team

Constipation Clinical Pathway

Johns Hopkins All Children's Hospital

Owner(s): Meghan Martin, MD; Courtney Titus PA-C, EMT-P

Also Reviewed by:

Gastroenterologist: Michael Wilsey, MD
Hospitalists: Robert Dudas, MD

Clinical Pathway Management Team: Joseph Perno, MD; Courtney Titus, PA-C

Date Approved by JHACH Clinical Practice Council: 8/22/17

Date Available on Webpage: 9/20/17

Reformatted: October 2019

Reviewed: August 2020 by Meghan Martin, MD; Courtney Titus, PA-C

Last Revised: 9/1/2020

Disclaimer

Appendix I- EC Discharge Instructions

CONSTIPATION

What is constipation?

Constipation is defined as either a decrease in the frequency of bowel movements or the painful passage of bowel movements. Children 1 to 4 years of age typically have a bowel movement 1-2 times a day and over 90% of them go at least every other day. When children are constipated for a long time they may begin to soil their underwear. This fecal soiling is involuntary and the child has no control over it.

How common is constipation?

Constipation is very common in children of all ages especially during potty-training and in school-aged children. Of all visits to the pediatrician, 3% are in some way related to constipation. At least 25% of visits to a pediatric gastroenterologist are due to problems with constipation. Millions of prescriptions are written every year for laxatives and stool softeners.

Why does constipation happen?

Constipation is often defined as being organic or functional. Organic means there is an identifiable cause such as colon disease or a neurological problem. Fortunately, most constipation is functional meaning there is no identifiable cause. The constipation is still a problem, but there is usually no worrisome cause behind it.
In some infants, straining and difficulties in expelling a bowel movement (often a soft one) are due to their immature nervous system and uncoordinated defecation. Also, it should be remembered that some healthy breast-fed infants can skip several days without having a movement.
In children, constipation can begin when there are changes in the dies or routine, during toilet training or after an illness. Occasionally, children may hold stools when they are reluctant to use unfamiliar toilet facilities. School or summer camps, with facilities that are not clean or private enough, are common triggers for withholding in this age group.
Once the child has been constipated for more than a few days, the retained stool can fill up the large intestine and cause it to stretch. An over-stretched colon cannot work properly and more stools are retained. Defecation becomes very painful and many children will attempt to withhold stool because of the pain. Withholding behaviors include tensing up, crossing the legs or tightening up leg/buttock muscles when the urge to have a bowel movement is felt. Many times these withholding behaviors are misinterpreted as attempts to push the stool out. Stool withholding will make constipation worse and treatment more challenging.

How does your health care provider know this is a problem for your child?

- If your child has hard or small stools that are difficult or painful to pass
- If your child consistently skips days without having normal bowel movements
- If your child has large stools that clog the toilet

- Other symptoms that can accompany constipation are stomach pain, poor appetite, crankiness and bleeding from a fissure (tear in the anus from passing hard stool).
In most cases there is no need for testing prior to treatment for constipation. However, sometimes, depending on the severity of the problem your doctor may order X-rays or other tests to clarify the situation.

Other information:

<u>Toilet Training</u>

It is often helpful to start a bowel training routine where the child sits on the toilet for 5-10 minutes after every meal or before the evening bath. It is important to do this consistently in order to encourage good behavior

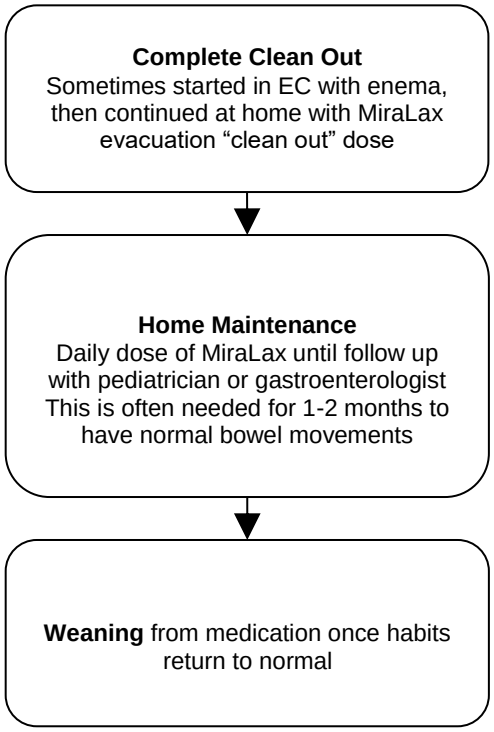
habits. Praise your child for trying. If the child is not toilet trained yet, it is best to wait until constipation is under control.
Other Information:

Videos about Constipation:
"The Poo in You" by the North American Society for Pediatric Gastroenterology Hepatology and Nutrition
https://youtu.be/SgBj7Mc_4sc

For more information please visit www.naspghan.org.
North American Society for Pediatric Gastroenterology, Hepatology and Nutrition. 2011

How is constipation treated?

There are three major parts to managing constipation in children.



MiraLax Evacuation "Clean Out" Dosing Instructions:

Age--2 to 5 year olds: MiraLax: 6 capfuls mixed in 24 ounces of Gatorade or juice. Give 3 ounces every 30 minutes for 4 hours. If your child's stool does not appear clear, you can repeat the same dose the next day. Then give your child 1 capful mixed in 8 ounces of Gatorade or juice twice a day for a week.

Age--6 to 9 year olds: MiraLax (small bottle 238 grams): Mix one bottle of MiraLax in 32 ounces of Gatorade or juice. Give the child 4 ounces every 30 minutes over the course of 4 hours. If your child's stool does not appear clear, you can repeat the same dose the next day. Then put your child on MiraLax one capful mixed in 8 ounces of Gatorade or juice twice a day for a week and then start one capful mixed in 8 ounces of Gatorade or juice in the morning.

Age--10 to 13 years olds: MiraLax (small bottle 238 grams): Mix one and a half bottles of MiraLax in 48 ounces of Gatorade or juice. Give your child 6 ounces every 30 minutes over the course of 4 hours. If your child's stool does not appear clear, you can repeat the same dose the next day. Then put your child on MiraLax one capful mixed in 8 ounces of Gatorade or juice twice a day for a week and then start one capful mixed in 8 ounces of Gatorade or juice in the morning. Optional: Give Magnesium Citrate--10 ounces in 10 ounces of Gatorade or juice in 2 doses one day apart.

Age 14 years and up: MiraLax (large bottle, 510 grams): Mix one bottle of MiraLax in 64 ounces of Gatorade or juice. Give your child 8 ounces every 30 minutes over the course of 4 hours. If your child's stool does not appear clear, you can repeat the same dose the next day. Then put your child on MiraLax one capful mixed in 8 ounces of Gatorade or juice twice a day for a week and then start one capful mixed in 8 ounces of Gatorade or juice in the morning. Optional: Give Magnesium Citrate--10 ounces in 10 ounces of Gatorade or juice in 2 doses one day apart.

What to do if your child becomes constipated again

Repeat the MiraLax Evacuation clean out instructions above, then start taking MiraLax every day.

Reasons to return to the Emergency Center:

- Vomiting
- Worsening pain
- Fever
- Blood in stool
- Child is lethargic

It is very important to follow up with your primary care physician for ongoing care.