

# **Constipation Pathway**

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## **Objectives of Pathway**



- To standardize the diagnosis of constipation in the acute care setting
- To standardize the evaluation of constipation in the acute care setting
- To outline the evidenced-based treatment of constipation in the acute care setting

# Why is Pathway Necessary?



- Common diagnosis with wide variation in workup and treatment
- Imaging is often obtained, but not necessary for diagnosis of constipation, which is a clinical diagnosis according to the Rome criteria. A clinical pathway can help decrease low-value care.
- A clinical pathway can also help determine disposition given the varied patient population that is diagnosed with constipation in the emergency department.

### Background



- Constipation in the child and adolescent is a common chief complaint and has a standard diagnosis per the Rome IV criteria<sup>1</sup>.
- Large variation noted in diagnoses, evaluation, and treatment in both ED and inpatient settings.
- Expert panel convened to standardize diagnosis, evaluation, treatment, and disposition of patients with constipation evaluated and treated at Connecticut Children's.

This is the Constipation Clinical Pathway.

We will be reviewing each component in the following slides.

Care is divided into Emergency Department (ED) and Inpatient pages

### **CLINICAL PATHWAY:** Constipation **Emergency Department Care**

#### Rome IV Criteria for Constipation

<4 years old: At least 2 of the

- Hx of painful or hard bowe
- Hx of large-diameter stoc Presence of a large fecal mass in rectum
- At least 1 episode/week of incontinence (if toilet Hx of large-diameter stools

≥4 years old; at least 2 of the following for at least 1x/week for a

- ≤2 defecations in toilet p At least 1 episode of feca incontinence per week Hx of retentive posturing of
- Hx of painful or hard bow movements Presence of a large fecal mass in the rectum
- Hx of large-diameter stools that may obstruct toilet Symptoms cannot be fully explained by another medica

roceed to final ED

care and admissio

Inclusion Criteria: ≥9 months old with suspicion for constipation

Exclusion Criteria: (1) oncology patients; (2) patients on chronic immunosuppressants (e.g., transplant recipients); (3) concern for bower obstruction (e.g., vomiting, profound abdominal pain, abdominal distention); (4) primary diagnosis of eating disorder; (5) patients with history of cystic fibrosis, short bowel syndrome, spina bifida, hirschsprung's, anorectal malformation, congenital heart disease, ıflammatory bowel disease (6) Red flags indicative of another etiology (e.g., recurrent fevers, unintentional weight loss, delayed growth, failure to thrive, recurrent mouth ulcers or canker sores, difficulty urinating/incontinence)



#### **Emergency Department Management**

Goal: relieve rectal stool ball (e.g., large amount of stool voided as expected for patient's size), avoid admission if possib Initial Evaluation

- Assess if patient has a hard stool burden/stool ball in the rectum via abdominal exam and rectal exam Findings supportive of constipation diagnosis: stool ball palpable in lower abdomen or on digital rectal exam
- If stool ball is not palpated: obtain 1-view abdominal XR or limited pelvic ultrasound to assess for rectal stool ball
- Note: amount of stool in colon alone does not diagnose constigation. Rectal diameter ≥3cm on U/S is abnormal



#### Rectal therapy followed by oral therapy IN midazolam 0.4-0.5 mg/kg once (max 10 mg) for procedural anxiolysis can be offered at

<2 yrs old:

Administer 1/2 pediatric-sized glycerin suppository x1

2-4 years old:

provider's discretion

- Administer mineral oil enema: 60 mL (½ bottle) x 1 AND
- Immediately follow with administration of ½ pediatric-sized fleet enema (29 mL) x 1
- o If not effective after 1 hr
- administer pediatric-sized glycerin suppository x1 5-11 years old:
- Administer mineral oil enema: 60 mL (½ bottle) x 1 AND
- Immediately follow with administration of pediatric-sized fleet enema (59 mL) x 1 If not effective after 1 hour:
- If 5 years old: administer pediatric-sized glycerin suppository x 1 If >5 years old: administer adult-sized glycerin suppository x 1
- ≥12 years old:
- Administer mineral oil enema: 120 mL (1 bottle) x 1 AND
- Immediately follow with administration of adult-sized fleet enema (118 mL) x 1
- If not effective after 1 hour:
- give adult-sized glycerin suppository x 1
- Consider manual disimpaction if: enemas not effective, provider feels it is of clinical use.

<sup>2</sup>Admission Criteria

Symptoms unable to be

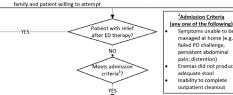
managed at home (e.g., failed PO challenge.

persistent abdominal pain; distention)

Enemas did not produc

outpatient cleanout

adequate stool Inability to complete



### Outpatient Follow-up:

 If patient not established with GI or Pediatric Surgery: patient to follow up with pediatrician within 1 week

Discharge home If no stool burden detected: start maintenar

If stool burden detected and still present afte

(and does not meet admission criteria2):

rectal therapy, or if patient declines rectal therap

Start acute home management for clean out

then maintenance bowel regimen to start

day after outpatient clean out finished

bowel regimen (Appendix A)

admission

If seen by GI or to Pediatric Surgery hx of surgical, condition that correlates to bowel movements within last year: place STAT ambulatory referr to that service

#### If able and no GT present: place NGT (with or without midazolam) and confirm placement (if no able to complete in ED, NGT can be placed on inpatient floors). Can consider deferring NGT placement if patient is a candidate for oral cleanout (discuss with admitting service)

- Admission Service: Gastroenterology: if patient seen by GI within last 24 months (inpatient, procedural, or
- outpatient)
- Pediatric Hospital Medicine: if patient unknown to GI
- Pediatric Surgery: if patient has hx of abdominal surgery that correlates to bowel movements

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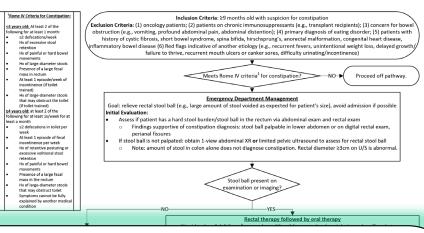


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 Exclusion criteria for this pathway are based on expert consensus of this pathway's multidisciplinary group of authors

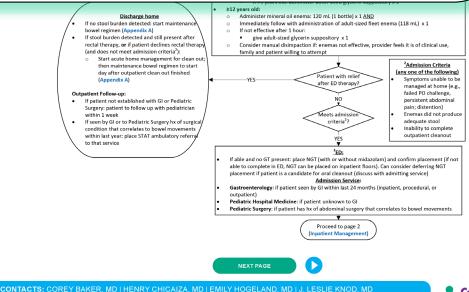


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### Inclusion Criteria: ≥9 months old with suspicion for constipation

Exclusion Criteria: (1) oncology patients; (2) patients on chronic immunosuppressants (e.g., transplant recipients); (3) concern for bowel obstruction (e.g., vomiting, profound abdominal pain, abdominal distention); (4) primary diagnosis of eating disorder; (5) patients with history of cystic fibrosis, short bowel syndrome, spina bifida, hirschsprung's, anorectal malformation, congenital heart disease, inflammatory bowel disease (6) Red flags indicative of another etiology (e.g., recurrent fevers, unintentional weight loss, delayed growth/failure to thrive, recurrent mouth ulcers or canker sores, difficulty urinating/incontinence)





Constipation diagnosis is made clinically by the Rome IV Criteria<sup>1</sup>

### **CLINICAL PATHWAY:** Constipation **Emergency Department Care**

### <sup>1</sup>Rome IV Criteria for Constipation:

<4 years old: At least 2 of the</p> following for at least 1 month:

- ≤2 defecations/week
- Hx of excessive stool retention
- Hx of painful or hard bowel mo vem ents
- Hx of large-diameter s to ols
- Presence of a large fecal mass in rectum
- At least 1 episo de/week of incontinence (if toilet trained)
- Hx of large-diameter s to ols that may obstruct the toilet (if toilet trained)

≥4 years old: at least 2 of the following for at least 1x/week for at least a month

- ≤2 defecations in toilet per week
- At least 1 episo de of fecal incontinence per week
- Hx of retentive posturing or excessive volitio nal stool retention
- Hx of painful or hard bowel mo vements
- Presence of a large fecal mass in the rectum
- Hx of large-diameter s to ols that may obstruct toilet
- Symptoms cannot be fully explained by another medical condition

#### Rome IV Criteria for Constipation

<4 years old: At least 2 of the

- Hx of painful or hard bowe
- Hx of large-diameter stool Presence of a large fecal mass in rectum
- At least 1 episode/week Hx of large-diameter stools
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#### **Emergency Department Management**

Goal: relieve rectal stool ball (e.g., large amount of stool voided as expected for patient's size), avoid admission if possib Initial Evaluation

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#### rectal therapy, or if patient declines rectal therap (and does not meet admission criteria2) family and patient willing to attempt Start acute home management for clean out then maintenance bowel regimen to start day after outpatient clean out finished

### Outpatient Follow-up: If patient not established with GI or Pediatric Surgery: patient to follow up with pediatrician

within 1 week If seen by GI or to Pediatric Surgery hx of surgical, condition that correlates to bowel movements within last year: place STAT ambulatory referr

Discharge home If no stool burden detected: start maintena

If stool burden detected and still present afte

bowel regimen (Appendix A)



#### <sup>2</sup>Admission Criteria (any one of the following) Symptoms unable to be

- managed at home (e.g., failed PO challenge. persistent abdominal pain; distention)
- Enemas did not produc adequate stool Inability to complete outpatient cleanout

- If able and no GT present: place NGT (with or without midazolam) and confirm placement (if no able to complete in ED, NGT can be placed on inpatient floors). Can consider deferring NGT placement if patient is a candidate for oral cleanout (discuss with admitting service) Admission Service:
- Gastroenterology: if patient seen by GI within last 24 months (inpatient, procedural, or
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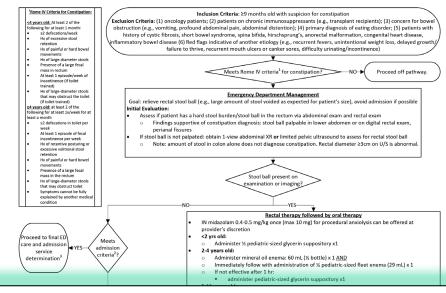


 As noted, diagnosis should be based on history and PE, with imaging deferred unless PE does not demonstrate rectal stool on abdominal or digital rectal exams.

 If imaging is indicated, AXR or limited pelvic ultrasound are options.

### CLINICAL PATHWAY: Constipation Emergency Department Care

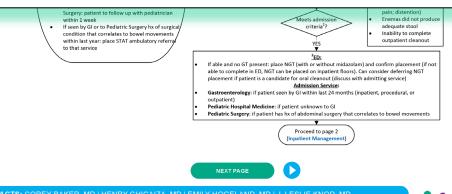
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### **Emergency Department Management**

Goal: relieve rectal stool ball (e.g., large amount of stool voided as expected for patient's size), avoid admission if possible **Initial Evaluation**:

- Assess if patient has a hard stool burden/stool ball in the rectum via abdominal exam and rectal exam
  - Findings supportive of constipation diagnosis: stool ball palpable in lower abdomen or on digital rectal exam, perianal fissures
  - If stool ball is not palpated: obtain 1-view abdominal XR or limited pelvic ultrasound to assess for rectal stool ball
    - Note: amount of stool in colon alone does not diagnose constipation. Rectal diameter ≥3cm on U/S is abnormal.





Of note, constipation is CANNOT be diagnosed by imaging alone and requires correlation with patient history<sup>3</sup>

**Emergency Department Management** Goal: relieve rectal stool ball (e.g., large amount of stool voided as expected for patient's size), avoid admission if possible

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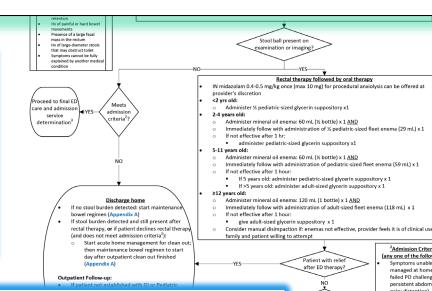
American Academy of Pediatrics – Section on Emergency Medicine and the Canadian Association of Emergency Physicians

American Academy of Pediatrics



Initial Evaluation:

**Five Things Physicians** and Patients Should Question



### Do not obtain abdominal radiographs for suspected constipation.

Functional constipation and nonspecific, generalized abdominal pain are common presenting complaints for children in emergency departments. Constipation is a clinical diagnosis and does not require testing, yet many of these children receive an abdominal radiograph. However, subjectivity and lack of standardization result in poor sensitivity and specificity of abdominal radiographs to diagnose constipation. Use of abdominal radiographs to diagnose constipation has been associated with increased diagnostic error. Clinical guidelines recommend against obtaining routine abdominal radiographs in patients with clinical diagnosis of functional constipation. The diagnosis of constipation or fecal impaction should be made primarily by history and physical examination, augmented by a digital rectal examination when indicated.

Proceed to page 2

Admission Service:

be placed on inpatient floors). Can consider deferring NGT

x of abdominal surgery that correlates to bowel movement

te for oral cleanout (discuss with admitting service)

<sup>2</sup>Admission Criteria

(any one of the following)

Symptoms unable to be

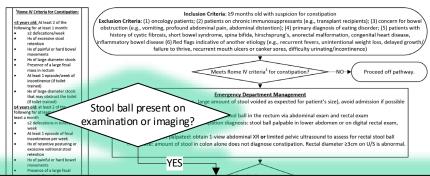
managed at home (e.g. failed PO challenge. persistent abdomina pain; distention)

Enemas did not produ adequate stool Inability to complet outpatient cleanout

- If stool ball present, follow the pathway regarding administration of rectal therapy followed by oral therapy
- Intranasal midazolam may be offered as procedural anxiolysis

### CLINICAL PATHWAY: Constipation Emergency Department Care

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### Rectal therapy followed by oral therapy

- IN midazolam 0.4-0.5 mg/kg once (max 10 mg) for procedural anxiolysis can be offered at provider's discretion
- <2 yrs old:</p>
  - Administer ½ pediatric-sized glycerin suppository x1
- 2-4 years old:
  - Administer mineral oil enema: 60 mL (½ bottle) x 1 AND
  - Immediately follow with administration of ½ pediatric-sized fleet enema (29 mL) x 1
  - O If not effective after 1 hr:
    - administer pediatric-sized glycerin suppository x1
- 5-11 years old:
  - o Administer mineral oil enema: 60 mL (½ bottle) x 1 AND
  - Immediately follow with administration of pediatric-sized fleet enema (59 mL) x 1
  - If not effective after 1 hour:
    - If 5 years old: administer pediatric-sized glycerin suppository x 1
    - If >5 years old: administer adult-sized glycerin suppository x 1
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  - Administer mineral oil enema: 120 mL (1 bottle) x 1 AND
  - Immediately follow with administration of adult-sized fleet enema (118 mL) x 1
  - If not effective after 1 hour:
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  - Consider manual disimpaction if: enemas not effective, provider feels it is of clinical use, family and patient willing to attempt

Admission Service:

Gastroenterology: if patient seen by GI within last 24 months (inpatient, procedural, or outpatient)

Pediatric Hospital Medicine: if patient unknown to GI

Pediatric Surgery: if patient has his of abdominal surgery that correlates to bowel movements

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(inpatient Management)





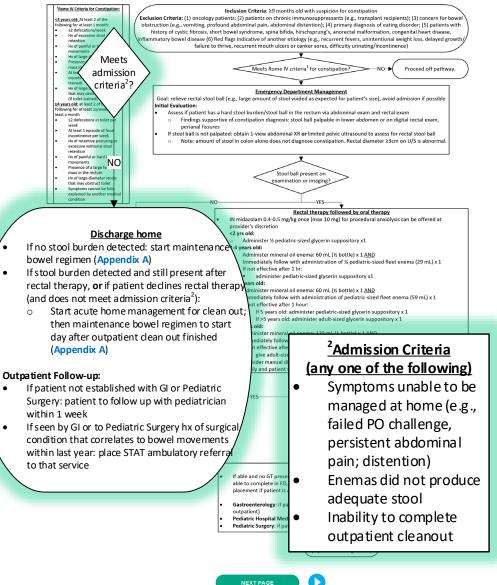
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- If patient does NOT meet admission criteria, either with or without stool ball burden, may be discharged home to continue treatment there
- Appendix A outlines outpatient clean-out and maintenance therapies (see next slide)
- Patient should follow up outpatient with his/her pediatrician or specialist if related condition managed by that specialty

### **CLINICAL PATHWAY:** Constipation **Emergency Department Care**





DNTACTS: COREY BAKER, MD | HENRY CHICAIZA, MD | EMILY HOGELAND, MD | J. LESLIE KNOD, MD



 Appendix A includes both acute and maintenance home management strategies

### CLINICAL PATHWAY: Constipation Appendix A: Acute and Maintenance Home Management

THIS PATHWAY SERVES AS A GUID AND DOES NOT REPLACE CLINICAL JUDGMENT

### **Acute Home Management:**

\*Preferred medication is polyethylene glycol, alternative is magnesium citrate:

Medication	Weight/Age Based	Dose & Frequency	
	Dosage		
Polyethylene glycol	≥ 9 months	2 g/kg once daily (Max 238 g	
<ul> <li>17 g per 1 cap packet</li> </ul>		once per day)	
mixed in 6 – 8 ounces			
of fluid			
Magnesium Citrate	≥ 6 years	4-6 mL/kg per day (Max 300	
<ul> <li>1.745 g/30 mL</li> </ul>		mL once per day)	

- . Cleanout is completed if stool is water in consistency AND yellow or clear in color OR after three days of daily cleanout
- · After cleanout is completed, initiate maintenance therapy the following day

### **Maintenance Home Management:**

\*Preferred osmotic agent is polyethylene glycol, alterative is lactulose:

Medication	Weight/Age Based	Dose & Frequency	Expected Onset of BM
Polyethylene glycol	9 months to 18 years of	0.4 - 0.8 g/kg per	24 – 96 hours
17 g per 1 cap packet	age	day (Max 17 g per	
mixed in 6 – 8 ounces		day)	
of fluid	≥ 18 years of age	17 g per day	]
Lactulose	9 months to 18 years of	1 mL/kg once or	24 – 48 hours
10 mg/15 mL solution	age	twice per day (Max	
		60 mL daily total)	
	≥ 18 years of age	15 - 30 mL once or	
		twice daily (Max 60	
		mL total per day)	

Continue maintenance therapy until follow up visit with provider for constipation







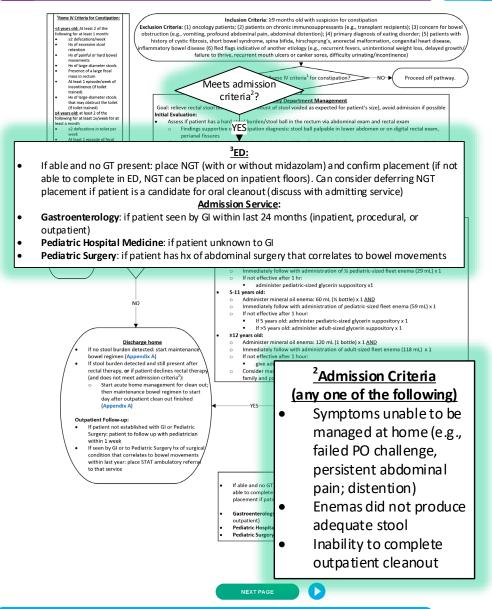
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- If patient meets admission criteria, consider placement of NG tube for assistance with cleanout if patient unable to do so orally
- Please see clinical pathway to determine the most appropriate admission service

### CLINICAL PATHWAY: Constipation Emergency Department Care

THIS PATHWAY SERVES AS A GUIDE IND DOES NOT REPLACE CLINICAL UDGMENT.

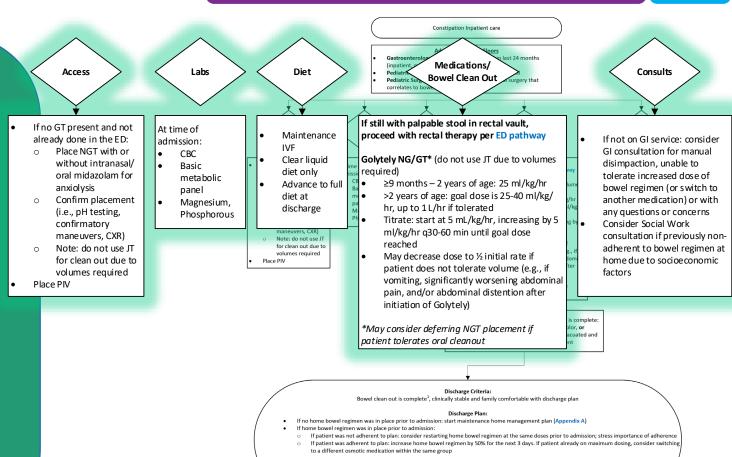


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- Inpatient care is outlined on page 2 of the clinical pathway
- The mainstay of inpatient therapy is golytely, most often administered via NG tube
- Fecal disimpaction may ultimately be necessary, but should be discussed in consultation with GI





If patient not established with GI or Pediatric Surgery; patient to follow up with pediatrician within 1 weel

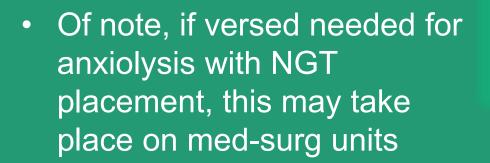


Outpatient Follow-up:

If seen by Pediatric Surgery for hx of surgical condition that correlates to bowel movements or seen by GI within last year: place urgent ambulatory

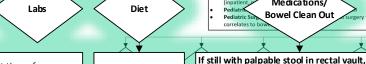






Access

- If no GT present and not already done in the ED:
  - Place NGT with or without intranasal/ oral midazolam for anxi ol vsis
  - Confirm placement (i.e., pH testing, confirmatory maneuvers, CXR)
  - Note: do not use JT for clean out due to volumes required
- Place PIV



### At time of admission:

- CBC
- Basic metabolic panel
- Magnesium, Phosphorous

### Maintenance proceed with rectal therapy per ED pathway

Advance to full

diet at

discharge

for clean out due to

- Golytely NG/GT\* (do not use JT due to volumes Clear liquid diet only
  - ≥9 months 2 years of age: 25 ml/kg/hr >2 years of age: goal dose is 25-40 ml/kg/ hr, up to 1L/hr if tolerated

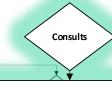
Constipation Inpatient care

Medications/

**Bowel Clean Out** 

- Titrate: start at 5 mL/kg/hr, increasing by 5 ml/kg/hr q30-60 min until goal dose reache d
- May decrease dose to 1/2 initial rate if patient does not tolerate volume (e.g., if vomiting, significantly worsening abdominal pain, and/or abdominal distention after initiation of Golytely)

\*May consider deferring NGT placement if patient tolerates oral cleanout



If not on GI service: consider GI consultation for manual disimpaction, unable to tolerate increased dose of bowel regimen (or switch to another medication) or with any questions or concerns Consider Social Work consultation if previously nonadherent to bowel regimen at home due to socioe conomic factors

#### Discharge Criteria:

Bowel clean out is complete, clinically stable and family comfortable with discharge plan

- If no home bowel regimen was in place prior to admission: start maintenance home management plan (Appendix A)
- - If patient was not adherent to plan: consider restarting home bowel regimen at the same doses prior to admission; stress importance of adherence If patient was adherent to plan: increase home bowel regimen by 50% for the next 3 days. If patient already on maximum dosing, consider switching to a different osmotic medication within the same group

#### Outpatient Follow-up:

If seen by Pediatric Surgery for hx of surgical condition that correlates to bowel movements or seen by GI within last year; place urgent ambulatory

If patient not established with GI or Pediatric Surgery: patient to follow up with pediatrician within 1 week











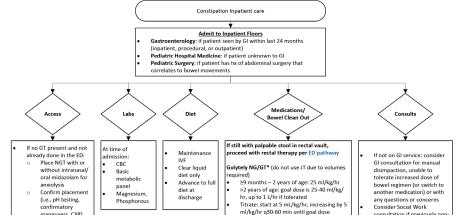
Inpatient treatment should continue until stool is loose, watery, and yellow/clear

Patient with symptomatic improvement after significant bowel movement

CLINICAL PATHWAY: Constipation **Inpatient Care** 

consultation if previously no adherent to bowel regimen at

home due to socioeconomic



<sup>1</sup>Continue above regimen until bowel clean out is complete:

Stool is loose, watery and yellow/clear in color, or

maneuvers, CXR)

If significant bowel movement has been evacuated and is associated with symptomatic improvement

#### Discharge Criteria:

Bowel clean out is complete1, clinically stable and family comfortable with discharge plan

- If no home bowel regimen was in place prior to admission: start maintenance home management plan (Appendix A)
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#### Outpatient Follow-up:

If seen by Pediatric Surgery for hx of surgical condition that correlates to bowel movements or seen by GI within last year; place urgent ambulatory referral to that service

If patient not established with GI or Pediatric Surgery: patient to follow up with pediatrician within 1 week







May decrease dose to 1/2 initial rate if





Discharge criteria and discharge instructions are clearly outlined in the clinical pathway discharge oval as well as Appendix A

# Admit to Inpatient Floors Gastroenterology: if patient seen by GI within last 24 months (inpatient, procedural, or outpatient) Pediatric Hospital Medicine: if patient unknown to GI Pediatric Surgery: if patient has hx of abdominal surgery that correlates to bowel movements

### Discharge Criteria:

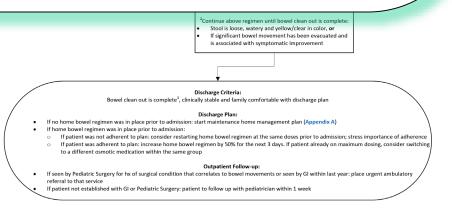
Bowel clean out is complete<sup>1</sup>, clinically stable and family comfortable with discharge plan

### Discharge Plan:

- If no home bowel regimen was in place prior to admission: start maintenance home management plan (Appendix A)
- If home bowel regimen was in place prior to admission:
  - If patient was not adherent to plan: consider restarting home bowel regimen at the same doses prior to admission; stress importance of adherence
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### **Outpatient Follow-up:**

- If seen by Pediatric Surgery for hx of surgical condition that correlates to bowel movements or seen by GI within last year: place urgent ambulatory
  referral to that service
- If patient not established with GI or Pediatric Surgery: patient to follow up with pediatrician within 1 week











### **Use of Order Sets**



- There are both ED and inpatient order sets
  - The ED order set includes orders for imaging (if indicated), rectal therapy, midazolam, and NG placement
  - o The inpatient order set includes IVFs, labs, Golytely, Zofran, Tylenol

## **Review of Key Points**



- Diagnosis of functional constipation is generally clinical and based on Rome IV criteria
- ED evaluation is based on history and physical exam, with imaging deferred unless diagnosis is unclear
- ED therapy is generally directed at rectal therapy via enemas and/or suppository
- Outpatient rescue and maintenance therapy are defined by expert consensus and outlined in Appendix A
- Admission service is determined by criteria on pathway
- Inpatient therapy mainstay is NG golytely with option for fecal disimpaction in consultation with GI

## **Quality Metrics**



- Percentage of patients with pathway order set
- Percentage of patients with an abdominal x-ray
- Percentage of patients with a pelvic ultrasound
- Percentage of patients with Gastroenterology consult (ED/inpatient)
- Percentage of patients with Pediatric Surgery consult (ED/inpatient)
- Percentage of patients receiving mineral oil enema
- Percentage of patients with intraoperative bowel disimpaction
- Percentage of patients requiring hospital admission
- Average LOS (ED/inpatient)
- Returns to ED with constipation within 6 months
- Readmissions with constipation within 6 months

## **Pathway Contacts**



- Corey Baker, MD
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- Emily Hogeland, MD
  - Hospital Medicine
- J. Leslie Knod, MD
  - Pediatric Surgery
- Henry Chicaiza, MD
  - Emergency Medicine
- Douglas Moote, MD
  - Radiology

### References



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### Thank You!



### **About Connecticut Children's Pathways Program**

Clinical pathways guide the management of patients to optimize consistent use of evidence-based practice. Clinical pathways have been shown to improve guideline adherence and quality outcomes, while decreasing length of stay and cost. Here at Connecticut Children's, our Clinical Pathways Program aims to deliver evidence-based, high value care to the greatest number of children in a diversity of patient settings. These pathways serve as a guide for providers and do not replace clinical judgment.