

# CONSTIPATION CLINICAL PATHWAY

## EXECUTIVE SUMMARY

Physician Owner(s): David Freestone, DO

### Primary Objective

The goal of this clinical pathway is to reduce variability in management of constipation. The pathway would standardize Emergency Department and Urgent Care classification and identification of constipation along with treatment and discharge education/instructions.

Patients who meet clinical definition for functional constipation based on Rome Criteria and do not show any alarm signs or symptoms that would warrant further investigation should be treated for constipation **without** routinely obtaining Digital Rectal Exam (DRE) or imaging, according to literature review and consensus of the North American Society of Pediatric Gastroenterology, Hepatology, and Nutrition (NASPGHAN). DRE is uncomfortable for the patient and presence of stool in rectal vault is not critical to diagnosing constipation. Imaging is known to show presence of stool in nearly as many patients who meet clinical criteria for constipation as those who do not. It can both increase admission for cleanout unnecessarily and cause anchoring bias, leading clinicians away from diagnosing other intra-abdominal processes.

### Recommendations

#### Xrays

- Patients without alarm signs/symptoms who meet clinical definition for functional constipation should be treated for constipation without first obtaining DRE or imaging according to the consensus of the North American Society of Pediatric Gastroenterology, Hepatology, and Nutrition (NASPGHAN).<sup>10</sup>
- DRE is uncomfortable and the presence of stool in the rectal vault is not critical to diagnosing constipation.<sup>10</sup>
- Imaging shows presence of stool in nearly as many patients who meet clinical criteria for constipation as those who do not so is not helpful in diagnosing constipation (49% positive predictive value, only 27% sensitive for diagnosis of constipation) <sup>1</sup>
- Imaging can lead to missing alternative intra-abdominal diagnoses by causing anchoring bias. In one retrospective study, 70% of those patients with missed alternative diagnosis had imaging as opposed to 49% who did not.<sup>10</sup>
- Patients with abdominal imaging at certain centers may be up to 50% more likely to be admitted for constipation cleanout, rather than discharged home from pediatric ER. <sup>2</sup>

#### Unnecessary Admissions

- Among patients referred to pediatric gastroenterologists 50% will recover (3 bowel movements per week without fecal incontinence) and be without laxatives after 6 to 12 months.<sup>10</sup>
- Approximately an additional 10% are well while taking laxatives, and 40% will still be symptomatic despite use of laxatives.<sup>10</sup>
- 50% and 80% of the children are recovered after 5 and 10 years, respectively, with the vast majority of patients no longer taking laxatives.<sup>10</sup>
- Delay in initial medical treatment for >3 months from symptom onset correlates with longer duration of symptoms.<sup>10</sup>
- Inpatient management of constipation can be 50 times higher cost than 12 months management outpatient.<sup>13</sup>

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- At one institution, admissions were reduced from 10% to 3.6% with the utilization of a regimented approach.<sup>3</sup>

### **Standardize care for a common diagnosis**

Clinical pathways are used to provide a standardized approach to medicine using up to date literature to guide patient care. The goal is to provide high quality care with efforts to reduce unnecessary tests while minimizing errors and complications which often reduces overall cost.<sup>12,</sup>

<sup>8</sup> There are multiple publications that demonstrate reduction in abdominal radiographs when a standardized approach to management of constipation is used at an institution.<sup>3,9</sup>

### **Medication recommendations**<sup>10</sup>

#### **Fecal Disimpaction**

- Oral Polyethylene glycol 3350 (PEG) 1 – 1.5 g/kg/day once daily is first-line treatment for max of 3 days. If patient needs more than one day regimen, utilize fluids with electrolytes.
  - If they need more than 3 days would recommend follow-up with PCP (if not established with GI yet) or GI to reassess.
- If PEG is not available, a daily enema for 3-6 days is recommended.
  - First line enema is Sodium Phosphate (e.g. Fleet) but any on table in algorithm are acceptable depending on age.

#### **Maintenance Therapy**

- Oral Polyethylene glycol 3350 (PEG) beginning at 0.4 g/kg/day once daily or divided twice daily is recommended for maintenance.
- Dose can be adjusted based on clinical response (range 0.2- 0.8 g/kg/day adjusted to effect).
- Lactulose is recommended if PEG is unavailable. Dosing recommendations are 1-2g/kg/day (1.5-3mL/kg/day) divided 1-2 times a day (max 90mL/day).
- Chronic use of enemas is not recommended for maintenance therapy.
- Milk of magnesia, mineral oil, and stimulant laxatives may be utilized as additional or second-line treatments.
- It is recommended to continue treatment for 2 months with constipation symptoms resolving at least one month before discontinuation of treatment.

### **Inclusion/Exclusion**

- **Inclusion:**
  - ≥ 6 months of age
- **Exclusions:**
  - < 6 months of age
  - Neurogenic Bowel
  - Spinal Cord Injury
  - Neuromuscular weakness
  - Hirschsprung disease
  - Inflammatory bowel disease

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- Cystic Fibrosis
- Ostomy
- Cecostomy/Jejunostomy tube
- Intestinal Failure/Short Gut
- Abnormalities of pelvic floor
- Special Considerations – Use with caution in these patients
  - Anorexia
  - Failure to Thrive/Malnutrition

### **Rome IV Criteria for Functional Constipation in Children**<sup>14</sup>

- Infants and toddlers up to 4 years old
  - At least 2 of the following present for at least 1 month:
    - ≤ 2 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 rectum
      - Rectal exams are often not necessary but may be performed if there is a clinical indication.<sup>10</sup>
    - In toilet trained children, the following additional criteria may be used
      - At least 1 episode/week of incontinence after acquisition of toileting skills
      - History of large diameter stools that may obstruct the toilet
  - [Rome IV Diagnostic Criteria for Infant Functional Constipation - MDCalc](#)<sup>6</sup>
- Children and adolescents (developmental age ≥ 4 years)
  - At least 2 of the following present at least once per week for at least 1 month:
    - ≤ 2 defecations in the toilet per week
    - At least 1 episode of fecal incontinence per week
    - History of retentive posturing or excessive volitional stool retention
    - History of painful or hard bowel movements
    - Presence of large fecal mass in rectum
      - Rectal exams are often not necessary but may be performed if there is a clinical indication.<sup>10</sup>
    - History of large-diameter stools that may obstruct the toilet
  - The symptoms cannot be fully explained by another medical conditions
  - [Rome IV Diagnostic Criteria for Child Functional Constipation - MDCalc](#)<sup>5</sup>
- [Rome IV Diagnostic Criteria for Functional Constipation - MDCalc](#)<sup>4</sup>
- For Bristol Stool Chart (2018), refer [here](#).

## Rationale

A constipation pathway will standardize patient care in the ED and will improve timeliness and efficiency of care. Abdominal radiographs for constipation are not supported by the evidence as noted above. Therefore, by utilizing this pathway we will be reducing x-rays performed on patients with constipation and reduce radiation exposure from those x-rays. X-rays are not also without cost. The average charge of x-rays related to constipation in the Children's Hospital and Medical Center

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Emergency Department is \$489.95 per case. This pathway also will provide parents with education on constipation and fecal impaction. With this education, there will hopefully be less visits to the ED for constipation and fewer admission for constipation. It will standardize the medication regimens used for bowel clean-out, maintenance and enemas based on the literature supporting those medications.

There are potential barriers and negative consequences to this pathway. One potential barrier is that families are at times hesitant to attribute significant abdominal pain to constipation based solely on the clinical assessment. In current practice, clinicians often rely on radiographs to support the diagnosis of constipation. There are also families of children with chronic constipation that have become accustomed to viewing radiographs to assess their condition. As such, extensive education with providers and patient/families may be necessary for the pathway to be successful. Another potential negative consequence is prolonging the length of stay in the emergency department if parents do not get the expected x-ray, which may lead to requests or longer lengths of stay.

### Metrics

Inclusion ICD codes: Fecal Impaction (K56.41), Fecal Impaction in Rectum (K56.41), Acute Constipation (K59.00), Constipation, acute (K59.00), Constipation in pediatric patient (K59.00), Constipation, unspecified constipation type (K59.00), Drug-induced constipation (K59.04), Chronic idiopathic constipation (K59.04), Functional constipation (K59.04), Chronic constipation (K59.09), Chronic constipation with overflow incontinence (K59.09), Constipation, chronic (K59.09), Other constipation (K59.09), Bowel and bladder incontinence (R15.9), Encopresis (R15.9), Full incontinence of feces (R15.9), Incontinence of feces, unspecified fecal incontinence type (R15.9)

1. Reduce abdominal x-rays in ED patients with constipation, obstipation, fecal impaction, and encopresis (inclusion ICD codes) to 65% in a 1-year period (August 2023). – Outcome Measure
2. Increase utilization of ED GI/ABD pain Order Set (PRL ED GI/ABD Pain [160682]) in the ED for patients with constipation, fecal impaction, obstipation, encopresis (inclusion ICD codes) to 40% in 1 calendar year (August 2023). – Process Metric
3. Maintain rate of admissions for a primary (number 1) diagnosis Constipation or fecal impaction, obstipation, encopresis (inclusion ICD codes) at 3% for 1 calendar year (August 2023). – Outcome & Balancing Metric
4. Monitor patients with multiple visits (3+) within 3 months to the ED for constipation, fecal impaction, and encopresis (inclusions ICD codes) for 1 calendar year (August 2023) – Outcome & Balancing Metric
5. Monitor length of stay in minutes in ED pre and post intervention over a calendar year for patients with diagnosis of constipation, or fecal impaction, obstipation, encopresis (inclusion ICD codes) for 1 calendar year (August 2023). – Balancing Metric

### Team Members

Champion:

- David Freestone D.O. (Gastroenterology Medical Director)

Members:



**Disclaimer:** Pathways are intended as a guide for practitioners and do not indicate an exclusive course of treatment nor serve as a standard of medical care. These pathways should be adapted by medical providers, when indicated, based on their professional judgement, and taking into account individual patient and family circumstances.

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Physician Owner(s): David Freestone, DO



- Zebulon Timmons, M.D. (Emergency Department Division Chief)
- Andrew Huang, M.D. (Gastroenterology Physician)
- Scheherzade Aslam, M.D. (Gastroenterology Fellow)
- Diane Kocovsky, APRN-NP (Medical Surgical Acute Care Nurse Practitioner)
- Katie MacKrell, M.D. (Hospitalist)
- Lauren Maskin, M.D. (Medical/Surgical Units Medical Director)
- Melissa St. Germain, M.D. (VP Children's Physicians & Urgent Care Medical Director)
- Heidi Killefer, M.D. (Interim Division Chief Urgent Care)
- Larisa Bos, RN (Hospital Clinical Education Resource Nurse)
- Krisi Kult MSN, RN, CPEN, CPN (Emergency Department Clinical Education Specialist)
- Jennifer King, PharmD, MBA (Director of Pharmacy Systems)
- Kelsey Spackler, DNP, APRN-NP, CPNP-AC/PC (Clinical Effectiveness Program Manager)
- Abby Vipond, MSN, APRN, FNP-C (Clinical Effectiveness Program Coordinator)

### Evidence

1. Anwar UI Haq MM, Lyons H, Halim M. Pediatric Abdominal X-rays in the Acute Care Setting - Are We Overdiagnosing Constipation? *Cureus*. 2020 Mar 15;12(3):e7283. doi: 10.7759/cureus.7283. PMID: 32300503; PMCID: PMC7159144.
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