BOTTOM LINE RECOMMENDATIONS

Constipation

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The diagnosis of functional constipation (FC) requires a history of straining or pain with defecation, hard or large stools that may obstruct the toilet, infrequent bowel movements (BMs), retentive behaviors, and/or encopresis. Often, the chief complaint is colicky abdominal pain, which can mimic more sinister diagnoses that are missed such as appendicitis, intussusception and bowel obstruction.

» A closely related disorder with similar symptoms is irritable bowel syndrome subtype with constipation (IBS-C).
» The prevalence of FC in infants and toddlers is ~20%. IBS is also common, found in up to 15% of children.

Diagnosis

The Rome IV Criteria are validated clinical criteria used to diagnose functional gastrointestinal disorders such as FC and IBS-C. The Bristol Stool Chart may help young patients in determining consistency of stool.[1]

ROME IV CRITERIA FOR FUNCTIONAL CONSTIPATION

Infants and Toddlers[2]

» Must include one month of at least 2 of the following in infants/toddlers up to 4 years of age:
1. Two or fewer defecations per week.
2. History of excessive stool retention.
3. History of painful or hard BMs.
4. History of large-diameter stools.
5. Presence of a large fecal mass in the rectum.

» In toilet-trained children, the following additional criteria may be used:
6. At least one episode per week of fecal incontinence.
7. History of large-diameter stools that may obstruct the toilet.

Children and Adolescents[2]

» Must include 2 or more of the following, occurring at least once per week for a minimum of one month with insufficient criteria for a diagnosis of irritable bowel syndrome:
1. Two or fewer defecations in the toilet per week in a child of developmental age of at least 4 years.
2. At least one episode of fecal incontinence per week.
3. History of retentive posturing or excessive, purposeful stool retention.
4. History of painful or hard BMs.
5. Presence of a large fecal mass in the rectum.
6. History of large diameter stools that can obstruct the toilet.

Red flags

ON HISTORY

» Passage of meconium after 48 hours of age, early and severe constipation (less than 1 month of age), stunted growth, developmental delay, anorexia, ribbon stools, hematochezia, melena, bilious vomiting, and/or motor weakness.

ON PHYSICAL EXAM

» Sacral anomalies, gluteal cleft deviation or abnormal position of anus, perianal fistula, absent anal or cremasteric reflex, anal scars, extreme fear during anal inspection, severe abdominal distention, decreased lower extremity strength/tone/reflexes, fever, and/or abnormal thyroid gland.

Investigations

» Routine investigations are not recommended unless indicated by abnormalities on physical examination.[3]
» Routine testing for celiac and/or hypothyroidism is not indicated.[3]
» Abdominal radiographs should not be performed. Their use is associated with misdiagnosis and carries a risk radiation exposure.[4]

Functional constipation and urinary tract infections

» There is an association of urinary tract infections (UTIs) and voiding dysfunction in children with constipation. [5]
» Consider testing for UTI in children with constipation and fever without a source, even if symptoms of UTI are absent.[5]

Management

ACUTE CONSTIPATION WITH FECAL IMPACTION

Fecal disimpaction: Polyethylene glycol (PEG 3350) and enemas are equally effective.[6] PEG 3350 is better tolerated and used by most providers as first line. Lactulose is used in infants less than 12 months.

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Constipation

Adding a stimulant: Pico-Salax® or bisacodyl can be used as an adjunct to PEG 3350 if no BM after 1-2 days of PEG 3350 therapy (in children ≥ 1 year old). Glycerine suppositories can be used in infants less than 12 months.
Adding an enema: Consider if failed disimpaction after trial of PO/PR laxatives.
Goal: Completely empty the colon over 3-5 days with 1-3 soft BMs (Bristol type 4) per day.

Drug	Disimpaction Dose	Duration	Notes
PEG 3350	1-1.5 g/kg/day, MAX 100 g/day, PO	3-6 days	For children ≥ 1 year old Dilute in juice/water as directed
Lactulose	5-10 mL/day PO, double the dose daily to effect MAX 2 mL/kg/dose BID or 40 mL/day	Up to 7 days	For infants < 12 months old
Pico-Salax® (sodium picosulfate, magnesium oxide, citric acid)	Mix sachet as per package directions, then give: 1-5 years: ¼ sachet/dose; 6-12 years: ½ sachet/dose; >12 years: 1 sachet/dose, PO given AM and PM X 2 doses	1-2 doses	May cause significant cramping and vomiting
Bisacodyl	3-10 years: 5mg; >10 years: 5-10 mg, PO/PR QHS	1-2 days	Tablet must be swallowed whole, add to applesauce/jam (no dairy)
Saline Enema	6 mL/kg/dose, MAX 500 mL/dose, PR	Repeat x 1 prn in 12 hours	
Fleet® Enema (sodium phosphate)	2-4 years: 33 mL; 5-11 years: 65 mL ; >11 years: 130 mL, PR Pediatric Fleet®: 65 mL; Adult Fleet®: 130 mL Pediatric and Adult Fleet are interchangeable	Repeat x 1 prn in 24 hours	Avoid in less than 2 years of age & in calcium homeostasis disorders, chronic kidney disease, history of bowel obstruction

CHRONIC CONSTIPATION WITHOUT FECAL IMPACTION (OR AFTER DISIMPACTION)

Maintenance: Osmotic laxatives are preferred because they have fewer side effects. PEG 3350 is the most effective option.
Goal: Maximize all treatment doses to achieve 1-3 soft BMs (Bristol type 4) per day.

Drug	Maintenance Dose	Duration	Notes
PEG 3350	0.2-1 g/kg/day PO, usual MAX dose: 17g/day Higher doses (e.g. 17 g BID-TID) may be required for short periods if goals not met	No evidence for specific treatment duration Some experts suggest minimum of 2 months; Many children require 6-12 months	
Lactulose*	5-10 mL/day PO, double the dose daily to effect, MAX 30 mL/day		Infants < 12 months old
*CAUTION: Infants commonly experience dyschezia rather than chronic constipation, limit treatment to 7 days.			

IRRITABLE BOWEL SYNDROME - SUBTYPE WITH CONSTIPATION (IBS-C)

» Suspect if symptoms are primarily abdominal pain associated with a change in BM frequency or consistency.
» BMs often improve with laxatives, though abdominal pain may not (i.e. 1-3 soft stools daily but abdominal pain persists).
» Diagnosis of IBS-C is made after a failed trial of therapy targeting constipation symptoms.

Other treatment considerations: There is not enough evidence to support increased fluid/fiber intake, physical activity, pre- or probiotics, behavioural therapy, or biofeedback.
For more information: NASPGHAN/ESPGHAN Algorithms for evaluation and treatment of FC in infants and children.

When to refer to a pediatrician or pediatric gastroenterologist

» Infant less than 6 months of age requiring rectal stimulation.
» Any concerning red flags for non-functional causes on history or physical examination.

The purpose of this document is to provide healthcare professionals with key facts and recommendations for the diagnosis and treatment of functional constipation in children. This summary was produced by the constipation content advisors for the TREKK network, Drs. Mohamed Eltorki and Paige Landy of McMaster University, at the request of the TREKK Network; it uses the best available knowledge at the time of publication. However, health care professionals should continue to use their own judgment and take into consideration context, resources and other relevant factors. The TREKK Network is not liable for any damages, claims, liabilities, costs or obligations arising from the use of this document including loss or damages arising from any claims made by a third party. The TREKK Network also assumes no responsibility or liability for changes made to this document without its consent. This summary is based on:

1. Lewis SJ, Heaton KW. Stool form scale as a useful guide to intestinal transit time. *Scand J Gastroenterol.* 1997;32(9):920-924.
2. Hyams et al. Childhood functional gastrointestinal disorder: Child/adolescent. *Gastroenterology.* 2016;150:1456-1468.
3. Tabbers MM, Di Lorenzo 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):258-74.
4. Freedman SB, Thull-Freedman J, Manson D, et al. Pediatric abdominal radiograph use, constipation, and significant misdiagnoses. *J Pediatr.* 2014;164(1):83-8.
5. Shaikh N, Hoberman A, Keren R, et al. Recurrent Urinary Tract Infections in Children With Bladder and Bowel Dysfunction. *Pediatrics.* 2016;137(1).
6. Bekkali NL, van den Berg MM, Dijkgraaf MG, et al. Rectal fecal impaction treatment in childhood constipation: enemas versus high doses oral PEG. *Pediatrics.* 2009;124(6):e1108-15.

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