

This is a CONTROLLED document for internal use only, valid only if accessed from the Policies and Procedures site.

1.0 Introduction

This Management of Constipation pathway was developed by an interdisciplinary clinical team from SickKids and the Greater Toronto Area using research knowledge, clinical experience and consensus agreement. This pathway is a general guideline and does not represent a professional care standard governing providers' obligations to patients. Care is revised to meet individual patient needs.

Target Population:

- Children aged 1-18 years old with no underlying disease or comorbidity who have been diagnosed with functional constipation. Patients are to be removed from this pathway if there is a change in diagnosis.

Target Users:

- Physicians, nurse practitioners and nurses hospital wide, physicians and nurse practitioners in the community

2.0 Definitions

- **Functional constipation** - constipation without objective evidence of a pathological condition
- **Encopresis** – Involuntary passage of stools often leading to fecal soiling
- **Rome IV Criteria** - criteria used as a diagnostic aid for functional constipation
- **Bowel washout** – removal of fecal mass prior to starting maintenance therapy through use of laxatives
- **Osmotic agent** - medicine that helps draw water into the stool and make it softer.
- **PEG 3350**- polyethylene glycol 3350
- **Stimulant laxative agent** - medicine that stimulates the bowel to function

3.0 Clinical Pathway for Diagnosis of Functional Constipation

[Link to Diagnosis of Functional Constipation Algorithm](#)

4.0 Definition of Constipation

- **4.1** Delay or difficulty in defecation present for two or more weeks, and sufficient to cause significant distress to the patient.
- **4.2 Rome IV diagnostic criteria for functional constipation** (criteria fulfilled at least once per week for at least one month before diagnosis):
 1. Two or fewer defecations in the toilet per week in a child with a developmental age of at least 4 years

©The Hospital for Sick Children ("SickKids"). All Rights Reserved. This document was developed solely for use at SickKids. SickKids accepts no responsibility for use of this material by any person or organization not associated with SickKids. A printed copy of this document may not reflect the current, electronic version on the SickKids Intranet. Use of this document in any setting must be subject to the professional judgment of the user. No part of the document should be used for publication without prior written consent of SickKids.

2. At least one episode of fecal incontinence per week
3. History of retentive posturing or excessive volitional stool retention
4. History of painful or hard bowel movements
5. Presence of large fecal mass in the rectum
6. History of large diameter stools that may obstruct the toilet

The symptoms **must not be explainable by any other condition.**

5.0 Differential Diagnosis of Constipation

5.1 Organic

- Anatomic malformations - imperforate anus, anal stenosis, anterior displaced anus, pelvic mass (sacral teratoma)
- Metabolic & Gastrointestinal - hypothyroidism, hypercalcemia, hypokalemia, Cystic Fibrosis, Diabetes Mellitus, Multiple Endocrine Neoplasia type 2B, Celiac disease
- Neuropathic conditions - spinal cord abnormalities, spinal cord trauma, Neurofibromatosis, static encephalopathy
- Intestinal nerve or muscle disorders - Hirschsprungs disease, Intestinal Neuronal Dysplasia, visceral myopathies, visceral neuropathies
- Abnormal abdominal musculature - Prune Belly, Gastroschisis, Down syndrome
- Connective tissue disorder - Scleroderma, Systemic Lupus Erythematosus, Ehlers-Danlos syndrome
- Drugs - opioids, phenobarbital, sucralfate, antacids, anti-hypertensives, anticholinergics, antidepressants, sympathomimetics, iron supplements, calcium channel blockers
- Other - heavy metal ingestion (lead), Vitamin D intoxication, Botulism, Cow's Milk Protein (or other food) intolerance

5.2 Non-Organic

- Developmental - cognitive handicaps, attention-deficient disorders
- Situational - coercive toilet training, toilet phobia, school bathroom avoidance, excessive parental interventions, sexual abuse
- Depression
- Constitutional - colonic inertia, genetic predisposition
- Reduced stool volume & dryness - low fibre in diet, dehydration, underfeeding/malnutrition

6.0 Red Flags Distinguishing Organic Constipation from Functional Constipation

- Age of onset <1 month
- History of passage of meconium >48 hours of age
- Failure to thrive

©The Hospital for Sick Children ("SickKids"). All Rights Reserved. This document was developed solely for use at SickKids. SickKids accepts no responsibility for use of this material by any person or organization not associated with SickKids. A printed copy of this document may not reflect the current, electronic version on the SickKids Intranet. Use of this document in any setting must be subject to the professional judgment of the user. No part of the document should be used for publication without prior written consent of SickKids.

- Abdominal distention
- Lack of lumbo-sacral curve
- Pilonidal dimple covered by tuft of hair
- Midline pigmentary abnormalities of the lower spine
- Sacral agenesis
- Flat buttocks
- Anteriorly displaced anus
- Patulous anus
- Tight empty rectum in presence of palpable abdominal fecal mass
- Gush of liquid stool and air from rectum on withdrawal of finger on digital rectal exam
- Occult blood in stool
- Absent anal wink
- Absent cremasteric reflex
- Decreased lower extremity tone and/or strength
- Absence or delay in relaxation phase of lower extremity deep tendon reflexes

7.0 Clinical Pathway for Management of Functional Constipation

[Link to Management of Functional Constipation Algorithm](#)

8.0 Medications

8.1 Bowel Washout

- Osmotic laxative (i.e. [Polyethylene Glycol 3350](#), Pico-Salax) – see e-formulary for disimpaction dosing. Ensure adequate fluid intake with osmotic laxatives.
- Stimulant (i.e. Bisacodyl, Senna) – see e-formulary for dosing. A stimulant can be added to therapy (independently or via a multi-pronged therapy approach) to improve symptoms.

Continue bowel washout routine for at least 3 days, but may continue for as many days as necessary until colon is empty as evidenced by stools that are frequent, watery, and as clear as possible with minimal stool particles.

8.2 Unsuccessful Bowel Washout

- Titrate PEG 3350 to effect (increase to maximum disimpaction dose)
- Consider weekly administration of Pico-Salax until soiling resolves (in conjunction with maintenance PEG 3350)
- Consider admission to hospital for lavage therapy
- Consider manual disimpaction under general anesthetic
- Referral to Gastroenterology

©The Hospital for Sick Children ("SickKids"). All Rights Reserved. This document was developed solely for use at SickKids. SickKids accepts no responsibility for use of this material by any person or organization not associated with SickKids. A printed copy of this document may not reflect the current, electronic version on the SickKids Intranet. Use of this document in any setting must be subject to the professional judgment of the user. No part of the document should be used for publication without prior written consent of SickKids.

- Enemas or suppositories may need to be considered to improve symptoms.
- For patients with recurrent fecal loading, or those who fail ongoing treatment, consider referral to General Surgery for consideration of MACE/Cecostomy for the administration of ante grade enemas.

8.3 Maintenance therapy

- Goal: having smooth, easy to pass, bowel movement at least daily.

8.4 Efficacy

- PEG 3350 is a safe and effective medication for the treatment of functional constipation in children and adults alike. Studies have shown that it is as effective in treating constipation and better tolerated than other osmotic agents, specifically milk of magnesia and lactulose. PEG 3350 does not cause dependency and is safe to use over an extended period of time.
- Stimulants (Senna) have been shown to be safe, and do not cause dependency when used long term.

8.5 Safety

- For functional constipation maintenance therapy avoid using Polyethylene glycol with electrolytes (i.e. GoLYTELY® or PegLyte)
- At the time of publication of this document PEG 3350 is considered a safe, long term maintenance treatment for functional constipation.

Internal Reviewers

1. Kasper Wang MD, General and Thoracic Surgery
2. Jacob Langer MD, General and Thoracic Surgery
3. Peggy Marcon, MD, Gastroenterology
4. Marina Djuka, Pharmacist
5. Michelle Gould, MD, Gastroenterology, Hepatology & Nutrition

9.0 Related Documents

- [SickKids Formulary](#)
- About Kids Health: [Functional Constipation: Your Child's Treatment Plan](#)
- About Kids Health: [Constipation](#)
- About Kids Health: [High Fibre Diet](#)
- Guideline: [Pain Management](#)

10.0 References

1. Margolis, I. (2010). Treatment of Chronic Constipation and Encopresis

©The Hospital for Sick Children ("SickKids"). All Rights Reserved. This document was developed solely for use at SickKids. SickKids accepts no responsibility for use of this material by any person or organization not associated with SickKids. A printed copy of this document may not reflect the current, electronic version on the SickKids Intranet. Use of this document in any setting must be subject to the professional judgment of the user. No part of the document should be used for publication without prior written consent of SickKids.

2. CPS (2011). Managing Functional Constipation in Children. *Paediatric Child Health*, 16(10), 1 661-665.
3. Tabbers, M.M., DiLorenzo, C., Berger, M.Y., Faure, C., Langendam, M.W., ... & Benninga, M.A. (2014). Evaluation and treatment of functional constipation in infants and children: Evidence-based recommendations from ESPGHAN and NASPGHAN. *Journal of Pediatric Gastroenterology & Nutrition*, 58(2), 258-274.
4. NASPGHN (2006). Evaluation and treatment of constipation in infants and children: recommendations of the North American Society for pediatric gastroenterology, hepatology and nutrition. *Journal of Pediatric Gastroenterology and Nutrition*, 43: e1-13.
5. Michail et al. Polyethylene glycol for constipation in children younger than eighteen months old. *Journal of Pediatric Gastroenterology and Nutrition*. 2004;39:197-199.
6. DiPalma JA, Cleveland MB, McGowan J, Herrera JL. A randomized, multicenter, placebo-controlled trial of polyethylene glycol laxative for chronic treatment of chronic constipation. *Am J Gastroenterol*. 2007; 102:1436-1441.
7. Candy D, Belsey J. Macrogol (polyethylene glycol) laxatives in children with functional constipation and faecal impaction: a systematic review. *Arch Dis Child*. 2009; 94:156-160.
8. Belsey JD, Geraint M, Dixon TA. Systematic review and meta analysis: polyethylene glycol in adults with non-organic constipation. *Int J ClinPract*. 2010; 64(7):944-955.
9. Loening-Baucke V, Pashankar DS. A randomized, prospective, comparison study of polyethylene glycol 3350 without electrolytes and milk of magnesia for children with constipation and fecal incontinence. *Pediatrics*. 2006; 118(2):528-535.
10. Lee-Robichaud H, Thomas K, Morgan J, Nelson RL. Lactulose versus polyethylene glycol for chronic constipation. *Cochrane Database of Systematic Reviews*. 2010; issue 7.
11. Nurko S, Youssef NN, Sabri M, Langseder A, McGowan J, Cleveland M, Di Lorenzo C. PEG3350 in the treatment of childhood constipation: a multicenter, double-blind, placebo-controlled trial. *Journal Pediatr*. 2008; 153:254-261.
12. 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; 141:410-414.
13. Pashankar DS, Bishop WP, Loening-Baucke V. Long-term efficacy of polyethylene glycol 3350 for the treatment of chronic constipation in children with and without encopresis. *Clin Pediatr*. 2003; 42:815-819.
14. Loening-Baucke V, Krishna R, Pashankar DS. Polyethylene glycol 3350 without electrolytes for the treatment of functional constipation in infants and toddlers. *JPGN*. 2004; 39:536-539.
15. Bekkali NH, van den Berg MM, Dijkgraaf MGW, van Wijk MP, Bongers MEJ, Liem O, Benninga MA. Rectal fecal impaction treatment in childhood constipation: enemas versus high dose oral PEG. *Pediatrics*. 2009; 124:e1108-e1115.
16. Pashankar DS, Loening-Baucke V, Bishop WP. Safety of polyethylene glycol 3350 for the treatment of chronic constipation in children. *Arch Pediatr Adolesc Med*. 2003;157:661-664.
17. Dupont C, Leluyer B, Amar F, Kalach N, Benhamou PH, Moutarde O, Vannerom PY. A dose determination study of polyethylene glycol 4000 in constipated children: factors influencing the maintenance dose. *JPGN*. 2006; 42:178-185.
18. Thomas MA, Jenkins HR, Bisset WM, Heuschkel R, Kalra DS, Green MR, Wilson DC, Geraint M. Polyethylene glycol 3350 plus electrolytes for chronic constipation in children: a double blind, placebo controlled, crossover study. *Arch Dis Child*. 2007; 92:996-1000.
19. Hardikar W, Cranswick N, Heine RG. Macrogol 3350 plus electrolytes for chronic constipation in children: a single-centre, open-label study. *Journal of Paediatrics and Child Health*. 2007; 43:527-531.
20. Rowan-Legg A. Managing functional constipation in children. *Paediatr Child Health*. 2011; 16(10):661-665.
21. Chen, S., Cai, S., Deng, L., Zhang, X., Luo, T., Peng, J., Xu, J., Li, W., Chen, C., Ma, J. and He, Y. (2014). Efficacy and complications of polyethylene glycols for treatment of constipation in children: A meta-analysis. *Medicine*, 96, 16, 1-10.
22. Rao SSC, Brenner DM. Efficacy and Safety of Over-the-Counter Therapies for Chronic Constipation: An Updated Systematic Review. *Am J Gastroenterol*. 2021 Jun 1;116(6):1156-1181. doi: 10.14309/ajg.0000000000001222. PMID: 33767108; PMCID: PMC8191753.
23. Bonilla S, Nurko S, Rodriguez L. Long-term Use of Bisacodyl in Pediatric Functional Constipation Refractory to Conventional Therapy. *J Pediatr Gastroenterol Nutr*. 2020 Sep;71(3):288-291. doi: 10.1097/MPG.0000000000002795. PMID: 32459741.
24. Boctor, D. (2020). The role of dietary fibre and prebiotics in the paediatric diet. *Canadian Paediatric Society*. <https://cps.ca/en/documents/position/the-role-of-dietary-fibre-and-prebiotics-in-the-paediatric-diet#ref4>
25. Leung, A & Hon K. (2021) Pediatrics: how to manage functional constipation. *Drugs in Context*. doi: [10.7573/dic.2020-11-2](https://doi.org/10.7573/dic.2020-11-2)
26. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8007206/>
27. Wagh, C, Baaleman D, Tabbers, M, Hauke S and Benninga M. (2022) Nonpharmacologic treatment for children with functional constipation: a systematic review and meta-analysis. *The Journal of Pediatrics* 240(2). DOI:[10.1016/j.jpeds.2021.09.010](https://doi.org/10.1016/j.jpeds.2021.09.010)