GASTROINTESTINAL SYMPTOMS IN ENTERALLY FED CHILDREN WITH NEUROLOGICAL CONDITIONS

A multidisciplinary tool to aid management

This resource has been adapted from an experience-based, multidisciplinary tool and where insufficient evidence exists, recommendations are based on best practice. Each patient is an individual – this tool has been developed to support clinical practice and should be used in conjunction with clinical judgment and patient wishes.

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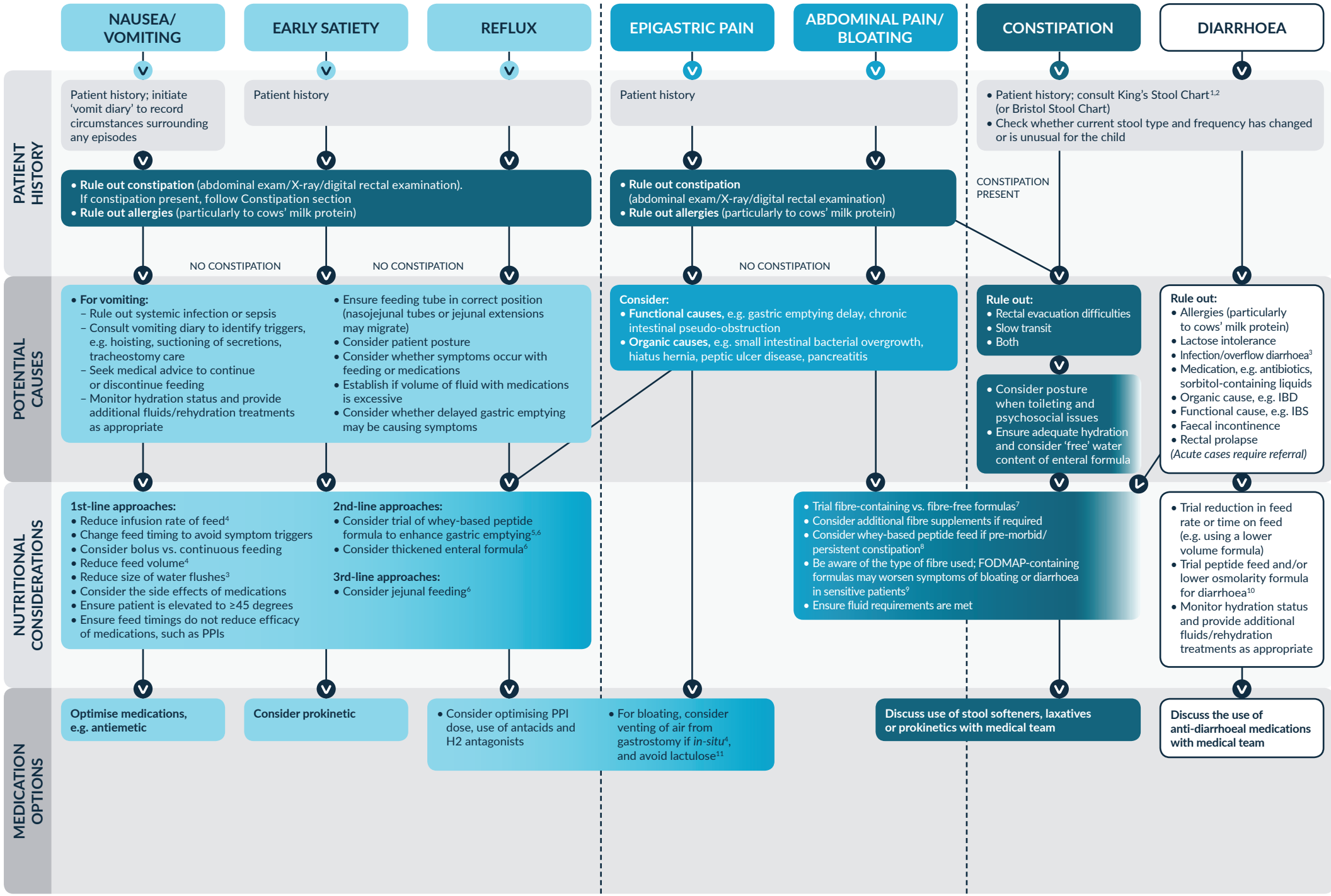
IDENTIFY GI SYMPTOMS



FODMAP = fermentable oligosaccharides, disaccharides, monosaccharides and polyols; **GI** = gastrointestinal; **IBD** = inflammatory bowel disease; **IBS** = irritable bowel syndrome; **PPI** = proton pump inhibitor

WHEY PEPTIDE FORMULAS: SUPPORTING EVIDENCE

FORMULA SWITCH LEADS TO ENTERAL FEEDING TOLERANCE IMPROVEMENTS IN CHILDREN WITH DEVELOPMENTAL DELAYS

Minor G, *et al. Glob Paediatr Health.* 2016; 3: 1–6.

BACKGROUND: Children with developmental delay commonly experience poor tolerance to enteral feeding, often due to gastrointestinal dysmotility. Intolerance to enteral feeding may prevent nutritional goals from being met and may impact negatively on a child's growth and development.

DESIGN: Retrospective chart review.

OBJECTIVES: The study aimed to evaluate changes in tolerance parameters when enterally fed children with developmental delay were switched from an intact protein formula to a 100% whey peptide formula.

PATIENTS: 13 children with developmental delay, aged 8.4 +/- 4.6 years

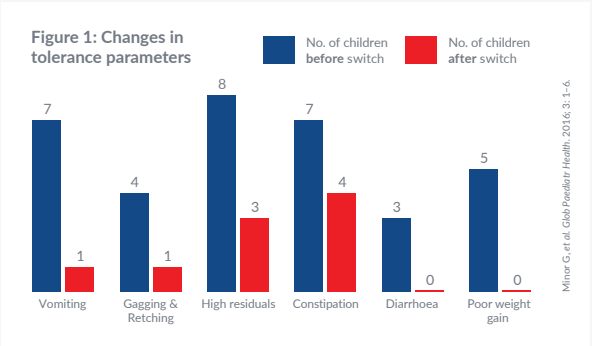
METHOD: Children were switched to one of the following 100% whey peptide formulas from an intact protein formula.

- Peptamen® Junior (n=6)
- Peptamen® Junior 1.5 (n=6)
- Peptamen® Junior Prebio (n=1)

OUTCOMES MEASURED:

- Vomiting
- Gagging and retching
- High gastric residual volumes
- Constipation
- Diarrhoea
- Poor weight gain
- Use of medications to manage feeding intolerance (e.g. prokinetics)

Figure 1: Changes in tolerance parameters



RESULTS:

- 92% of children (12/13 patients) showed improvement in feeding tolerance attributed to switching to a 100% whey peptide formula
- Of these, 75% (9/12 patients) reported that improvements occurred within 1 week of the formula change
- Improvements in vomiting (86%), gagging and retching (75%), high gastric residual volumes (63%), constipation (43%) and diarrhoea (100%) were noted in those who had specific intolerance symptoms
- Of those patients who were receiving medications to manage feeding intolerance, 81.8% either reduced their dosage or stopped medications completely following a switch to a 100% whey peptide formula
- 71% of subjects were able to tolerate an increase in feed volume
- All subjects who had experienced poor weight gain showed an increase in weight following the formula change

CONCLUSION:

In children with developmental delay, switching to a 100% whey peptide formula from an intact protein formula improved symptoms of feeding intolerance. The change in formula was associated with improved growth and a reduction in the use of medications to manage feeding intolerance.

THE 4-YEAR JOURNEY OF FEEDING INTOLERANCE OF AN ENTERALLY-FED CHILD FROM 9 MONTHS OF AGE

Case study: Emma Liesl Silbernagl, data on file: PEP047 Dec 16.

BACKGROUND: Child M: born premature at 33 weeks and 4 days with a complex secondary diagnosis that included gastro-oesophageal reflux disease, failure to thrive, intrauterine growth restriction, vitamin D resistant rickets, abnormal vocal cords and chronic lung disease.

OBJECTIVES:

- Ensure catch-up growth and subsequent healthy weight gain achieved (tracking on 25th centile, in line with length)
- Feeding tolerance and moving towards safe oral intake
- To meet nutritional requirements 120–130 kcal/kg/day and 120 ml/kg/day to achieve catch-up growth and maintain hydration status

NUTRITIONAL PROBLEMS:

- Poor tolerance to oral feeds
- Frequent watery stools (non-infected)

NUTRITIONAL INTERVENTIONS:

9 months: Gastrostomy placed. Prescribed high calorie infant formula on contract → loose stools >10 times daily, continuing for 1 year. Centile: <0.4th.

1 year: Developed distension, vomiting and reflux. Centile: 0.4th–2nd.

18 months: Changed to a standard 1 kcal/ml formula with no change in symptoms. Centile: 9th–25th.

2 years: Changed to a 1 kcal/ml semi-elemental formula. Loose stools reduced from 7 episodes to 4 episodes daily. A NISSEN procedure was carried out and reflux resolved. One month later, extreme loose stools recurred. Investigations showed no abnormal results. Feed frequently changed by parents (including 1.5 kcal/ml and fibre-containing formulas). Centile: <25th.

3.5–4 years: Recurrence of vomiting, reflux and watery stools. It was then decided to trial 2 x 150 ml of Peptamen® Junior Liquid and 2 x 100 ml of Peptamen® Junior Advance. These feeds are known to be isotonic (closer in osmolality to the bodily fluids). In addition, whey-based feeds may help with gastric emptying.

Feed tolerance improved within 1 month with a marked improvement in stool consistency. Due to the larger volumes of feed given for weight gain, Child M experienced an episode of vomiting. It was then decided to change the feed to 4 x 100 ml of Peptamen® Junior Advance to avoid any unnecessary increases in volume of feed. Centile: 25th.

CONCLUSION:

Child M is now 5 years of age, tolerating 4 feeds a day and her weight is now between the 25th–50th centile. Her mum reported that she saw the first normal 'poo' after many years of struggling. Her quality of life has improved and she is able to partake in more school activities.

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References
1. Whelan K, *et al. Eur J Clin Nutr.* 2004; 58(7): 1030–7. **2.** King's College London. King's Stool Chart. Available at: www.kcl.ac.uk/stoolchart. Accessed March 2018. **3.** Todorovic V, Micklewright A (eds.) *A Pocket Guide to Clinical Nutrition. Fourth Edition.* The Parenteral and Enteral Nutrition Group: A Specialist Group of the British Dietetic Association, 2011. **4.** Hauer, J. *Children.* 2018; 5(1): doi:10.3390/children5010001. **5.** Alexander DD, *et al. World J Gastrointest Pharmacol Ther.* 2016; 7(2): 306–19. **6.** Romano C, *et al. J Pediatr Gastroenterol Nutr.* 2017; 65(2): 242–64. **7.** Elia M, *et al. Aliment Pharmacol Ther.* 2008; 27(2): 120–45. **8.** Minor G, *et al. Glob Pediatr Health.* 2016; 21; 3:2333794X16681887. **9.** Barrett JS, *et al. JPEN J Parenter Enteral Nutr.* 2009; 33(1): 21–6. **10.** Braegger C, *et al. J Pediatr Gastroenterol Nutr.* 2010; 51 (1): 110–22. **11.** Lee-Robichaud H, *et al. Cochrane Database Syst Rev.* 2010; 7: CD007570.

With special thanks to Hayley Kuter (Paediatric dietitian, Manchester University NHS Foundation Trust) and Kent Community Health Paediatric Home Enteral Feeding Dietitians for providing feedback on this resource.

Consult with your medical team and pharmacist regarding any changes to medications.

Nestlé Health Science produces a range of foods for special medical purposes for use under medical supervision used with patients requiring either an oral nutritional supplement or a sole source of nutrition.

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