Publication summary	
Title	***Effect of blenderized tube feeds on gastric emptying: a retrospective cohort study***
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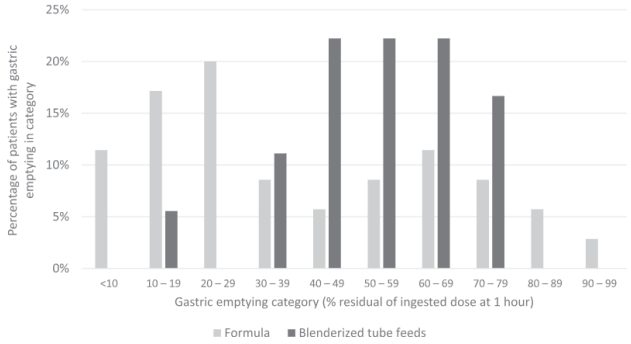
Type of study	Retrospective cohort
Objective / hypothesis	Objective: compare differences in gastric emptying in children receiving blenderized (BD) tube feeds as compared to children receiving formula. *Hypothesis: neither gastric emptying residual volume nor rates of delayed gastric emptying would differ between those two diet.*
Results	**N = 53 gastric emptying examination,** of which 18 examinations were performed in 15 individuals in the blenderized (BD) tube feed group and 35 performed in 32 individuals from the formula group (including polymeric, hydrolyzed and amino acid formulas). **Main results:** - Primary outcome: percentage of residual gastric residual counts within the stomach at the end of the 60min study as compared to the total administered dose (% $Residual_{total}$) ➢ **The $Residual_{total}$ was significantly higher with BD tube feeds**  FIGURE 1 Histogram of percentage of gastric residual at 1 h by gastric emptying scintigraphy, stratified by diet type (blenderized tube feeds in dark gray, formula in light gray). - Secondary outcomes: 1) rate of delayed gastric emptying (≥60% of gastric $residual_{total}$), 2) presence of gastroesophageal reflux, 3) percentage of gastric residual at the end of 60min of dynamic imaging (% $Residual_{dynamic}$) ➢ **No significant differences in the percentage of $Residual_{dynamic}$** ➢ **Number of patients with delayed gastric emptying was similar between the two groups** ➢ **Gastroesophageal reflux in 44% of BD tube feed examinations and 53% of the formula examinations (no significant differences)** **Children receiving BD tube feed were able to tolerate significantly larger volumes** of enteral feeding bolus by 68% compared with those receiving standard commercial formula at the time of gastric emptying examination.

Conclusion	**The proportion of patients with delayed gastric emptying was similar in children receiving blends and formula.** The frequency with which delayed gastric emptying was observed did not differ in children receiving BD tube feeds compared with children receiving formula, although children on BD tube feeds has slightly higher gastric residual values at 1h. ➢ BD tube feeds are unlikely to prolong gastric emptying in a clinically significant manner ➢ BD tube feeds are associated with improved clinical outcomes such as reduced gastrointestinal symptom burden ➢ The combination of increased viscosity together with fiber content has been postulated to prolong gastric emptying in BD tube feeds
Short description of the methods used	**Population:** - Age 6 months to 20 years - Gastrostomy tube - Inclusion: children that underwent a liquid phase, dynamic 1-h gastric emptying scan for clinical purpose in the Boston Children's Hospital (BCH) between 1998 and 2020, and had a documented prescription to Compleat Pediatric or a commercially prepared blenderized tube feed from Jan. 2015 to May 2020. - Exclusion: 1) the gastric emptying study was aborted early, 2) the gastric emptying study was performed orally, 3) a transpyloric tube was in place at time of imaging, 4) the gastric emptying study was performed with water or Pedialyte, 5) the habitual diet or gastric emptying could not be determined **Study characteristics:** - 1 hour liquid phase gastric emptying scinitigraphy: the standard test in the BCH for children fed by liquids, often ordered for symptoms such as vomiting, gastroesophageal reflux or feeding intolerance. - Primary exposure of interest: blenderized tube feeds defined by use of commercial food-based products. - Primary comparator: 1) low-vicosity formula tube feed e.g. standard polymeric formula, hydrolysed formula or amino acid based formulas vs. 2) mixed-protein sources (real food formulas).
Limitations	1. Retrospective study design 2. Small population (limited in power) 3. Lack of generalizability of these associations to the larger population 4. Lack of standardized feeding practice for the 1-h liquid phase examinations (bolus size determination, bolus composition etc.) 5. Lack of clear standardized normative values for liquid phase gastric emptying (current standards are available for children <5 years fed orally or with nasogastric supplementation) 6. Esophagal reflux was not reported in a standardized fashion to quantify the frequency or magnitude 7. Detailed dietary intake information not available