

SOCIETY GUIDELINES FOR CONSTIPATION: WHAT IS NEW?



Samuel Nurko MD MPH
Center for Motility and Functional
Gastrointestinal Disorders

FUNCTIONAL CONSTIPATION

- One of the most common functional GI disorders in children.
- Epidemiological studies conducted throughout the world cite a prevalence as high as 29.6% (*Am J Gastroenterol*, 2006; 101:2401).
- Associated with poor school functioning (*J Pediatr*, 2013;163:1069), poor quality of life (*J Pediatr* 2009;154:749) and a significant economic burden (*J Pediatr*, 2009; 154: 258).
- The results of treatment in children are suboptimal, and up to 30% continue to require treatment after eight years (*Gastroenterology*, 2003; 125:357).

Guideline development



- To achieve effective care, reduce variability in daily practice, and costs in the treatment of childhood constipation
- To serve as general guideline, not as a substitute for clinical judgment, or as a protocol applicable to all patients



Journal of Pediatric Gastroenterology and Nutrition:
November 1999 - Volume 29 - Issue 5 - pp 612-626
A Medical Position Statement of The North American Society For Pediatric Gastroenterology And Nutrition

Constipation in Infants and Children: Evaluation and Treatment

Baker, Susan S.; Liptak, Gregory S.; Colletti, Richard B.; Croffie, Joseph M.; Di Lorenzo, Carlo; Ector, Walton; Nurko, Samuel¹

Journal of Pediatric Gastroenterology and Nutrition
What's New September 2010 Lippincott Williams & Wilkins Philadelphia

Clinical Practice Guideline

Evaluation and Treatment of Constipation in Infants and
Children: Recommendations of the North American
Society for Pediatric Gastroenterology,
Hepatology and Nutrition

TREATMENT



- Until recently there has been a lack of evidence for the treatment of constipation in children, and much of our current management is based on expert opinion and nonrandomized retrospective studies

Elvis Presley died of constipation

ELVIS Presley died of chronic constipation and not from a dodgy heart, his doctor has sensationally revealed.

By Hayley Coyle / Published 0th May 2010

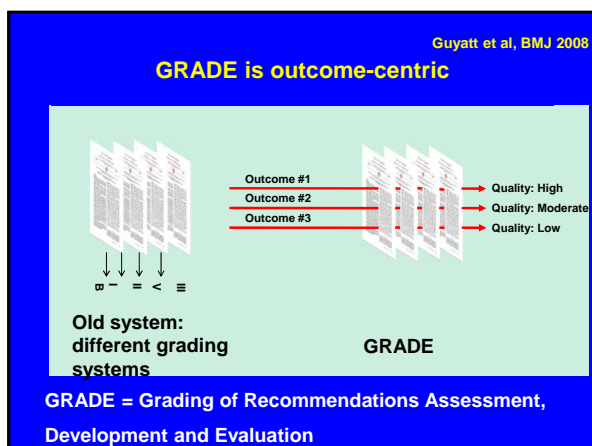


The King's personal physician, Dr Nick George Nichopoulos, claims the singer suffered from the debilitating problem for years.

He says Elvis, found dead in 1977 at Graceland aged 42, might have lived if he had not been too embarrassed to have a colostomy operation to remove part of his bowel.

GENERAL ELECTION 2010: NEWS, POLLS, MARKS, GAMERS AND ANALYSIS



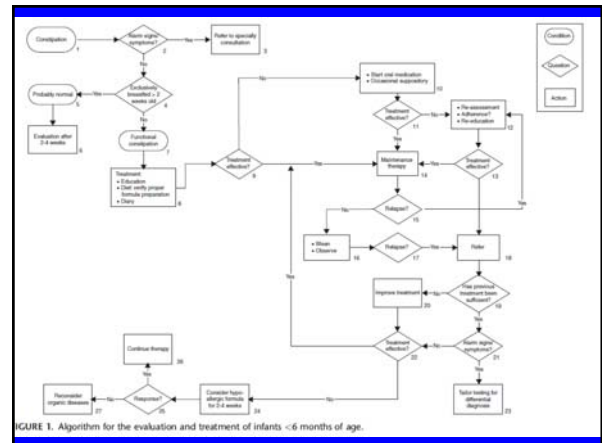
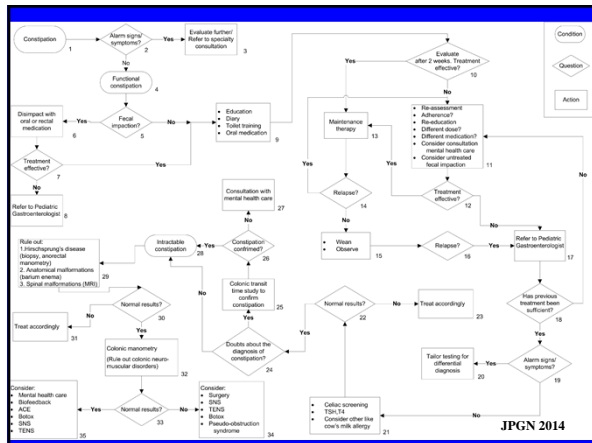


- ## QUESTIONS
- 1.- What is the definition?
 - 2.- What are the alarm signs?
 - 3.- What is the diagnostic value of
 - Digital rectal exam, Abdominal X-ray, CTT
 - 4.- What other diagnostic tests need to be performed?
 - Celiac, allergy etc
 - 5.- What is the value of other tests in intractable constipation?
 - (Colonic manometry, MRI)

QUESTIONS 2

- 6.- What is the effect of non-pharmacologic therapy?
 - Fiber, water, physical activity, behavior.
- 7.- Which is the most effective and safe treatment?
 - Which drugs? How long?
- 8.- Are there novel therapies?
- 9.-What are the prognostic factors?

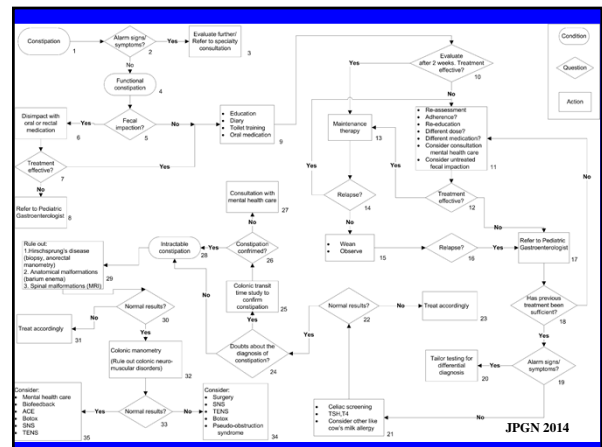
- (1) Based on expert opinion, we recommend the Rome III criteria for the definition of functional constipation for all age groups.
Voting: 9, 9, 9, 9, 9, 9, 9
- (2) Based on expert opinion, the diagnosis of functional constipation is based on history and physical examination.
Voting: 9, 9, 9, 9, 9, 9, 9

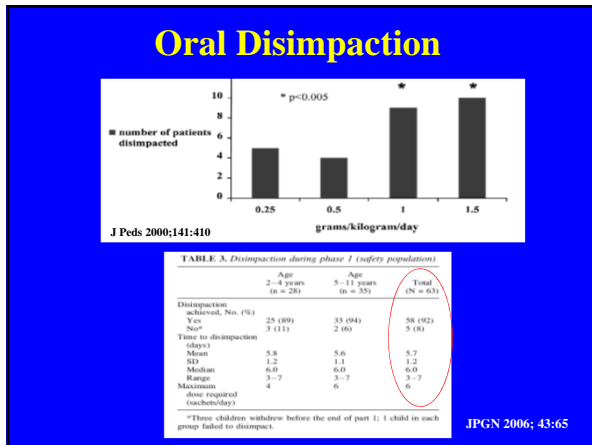
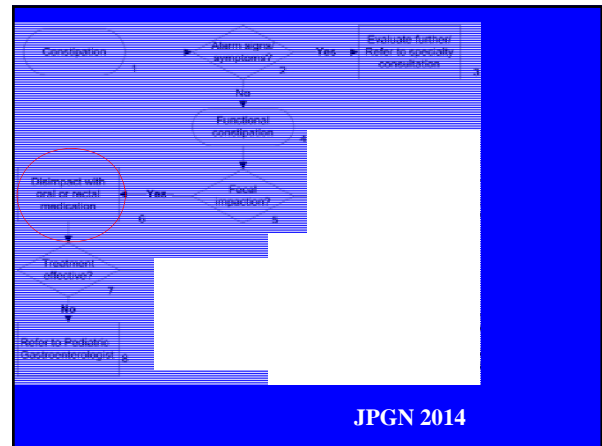
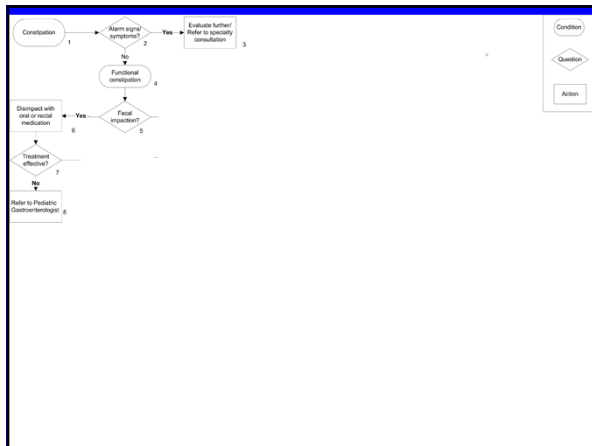


- Divided in 2 groups: Less than 6 months of age and > 6 months of age

In contrast to the earlier guidelines, one pertains to the infant from birth to 6 months (instead of 1 year) and the other to the older child

(7,8). This decision was based on the fact that defecation problems in infants <6 months old have different diagnostic considerations compared with older children, given the possibility of congenital problems and the influence of the different feeding and developmental issues.





DISIMPACTION Enemas vs PEG

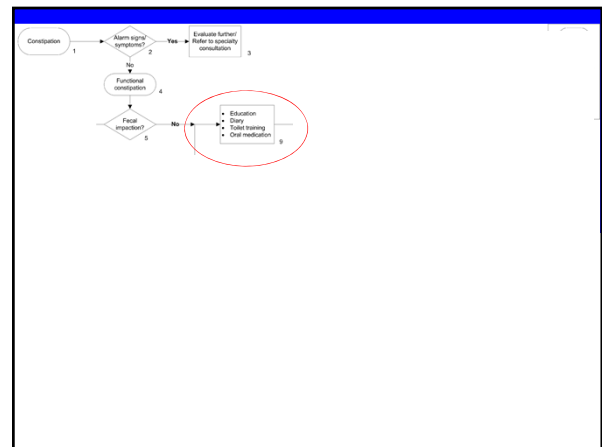
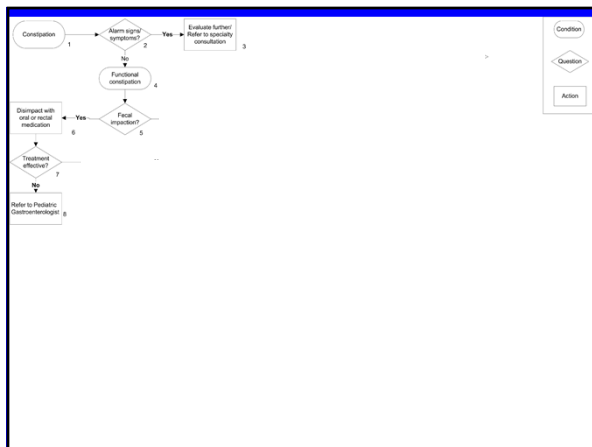
Quality of evidence: very low.

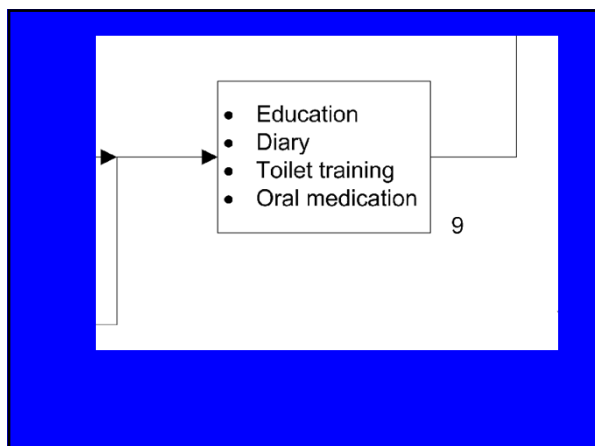
(31) The use of PEG with or without electrolytes orally 1 to 1.5 g · kg⁻¹ · day⁻¹ for 3 to 6 days is recommended as the first-line treatment for children presenting with fecal impaction.
Voting: 6, 7, 7, 8, 8, 9, 9, 9

(32) An enema once per day for 3 to 6 days is recommended for children with fecal impaction, if PEG is not available.

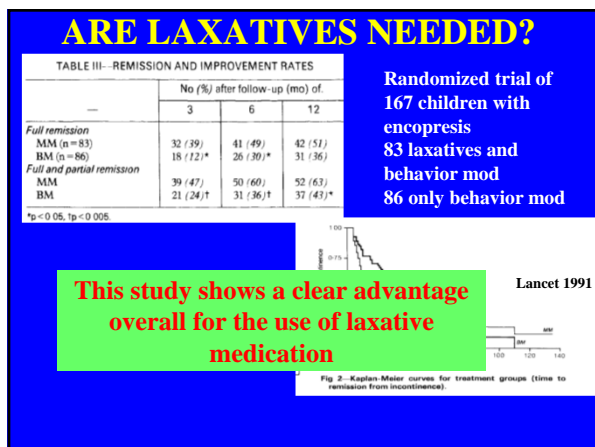
	30, times per wk	3.4 ± 4.3	13.6 ± 12.6	< .001	4.9 ± 5.4	5.7 ± 5.9	58
Fecal incontinence frequency, mean ± SD, times per wk							
Abdominal pain, n	21	17	33	25	17	24	
Watery stools, n	10	28	< .001	4	13	55	

Pediatrics 2009



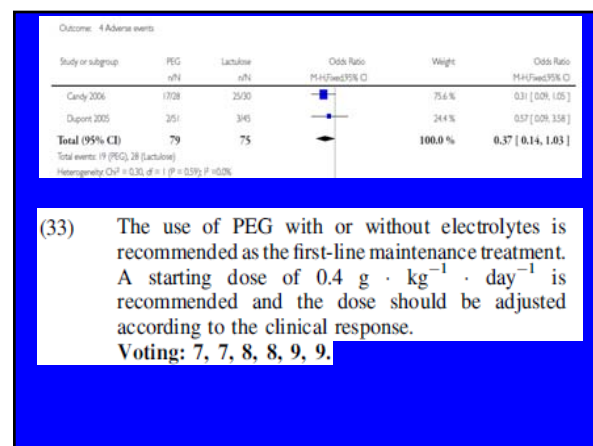
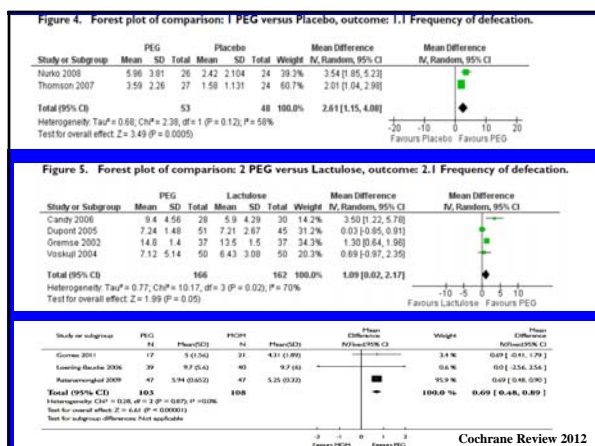


ARE LAXATIVES NEEDED?



ARE LAXATIVES NEEDED?

Question 7: What Is the Most Effective and Safest Pharmacologic Treatment in Children With Functional Constipation?

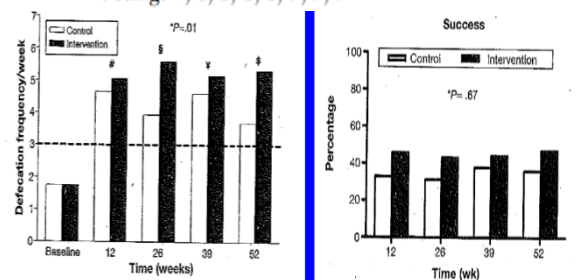


OTHER LAXATIVES?

- (35) The use of lactulose as the first-line maintenance treatment is recommended, if PEG is not available.
Voting: 7, 7, 8, 8, 8, 9, 9, 9
- (36) Based on expert opinion, the use of milk of magnesia, mineral oil, and stimulant laxatives may be considered as an additional or second-line treatment.
Voting: 7, 7, 7, 9, 9, 9, 9

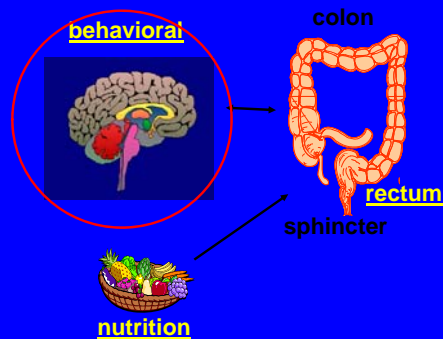
IS THERE AN ADVANTAGE IF ENEMAS ARE ADDED TO ORAL LAXATIVE TREATMENT?

- (34) The addition of enemas to the chronic use of PEG is not recommended in children with constipation.
Voting: 7, 8, 8, 8, 8, 9, 9, 9



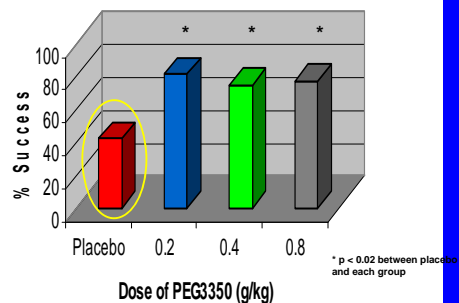
Gastro 2009

Players involved in functional pediatric constipation



WHAT ABOUT BEHAVIOR MODIFICATION?

Response to Treatment



BEHAVIOR ADDED TO

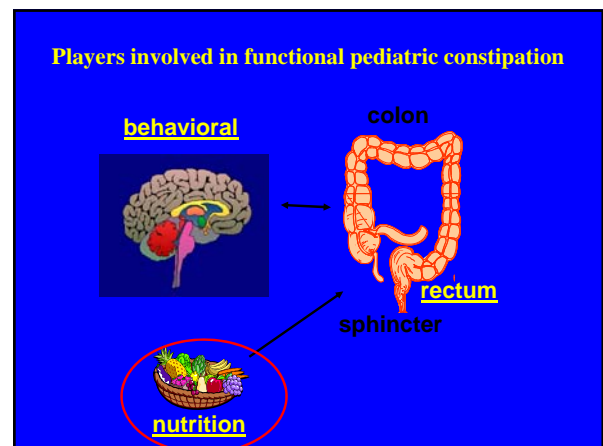
Behavioral therapy with laxatives has no advantage over conventional treatment. However, when behavior problems are present, behavioral therapy or referral to mental health services should be considered.

Age at onset (years)	Mean (SD), mo	Period of treatment, mean (SD), mo	Positive family history, n (%)	Outcome measures
17 (10.4)	18.7 (21.7)	5.0 (2.1-12.0)	86 (45-18.3)	Defecation frequency per week
		11.5 (9.7-14.0)	42.3 (31.8-56.6)	Fecal incontinence per week
				Stool withholding behavior

(26) The routine use of an intensive behavioral protocolized therapy program in addition to conventional treatment is not recommended in childhood constipation.
Voting: 9, 9, 9, 9, 9, 9, 9

(27) Based on expert opinion, we recommend demystification, explanation, and guidance for toilet training (in children with a developmental age of at least 4 years) in the treatment of childhood constipation.
Voting: 7, 8, 8, 8, 8, 9, 9, 9

Pediatrics 2008



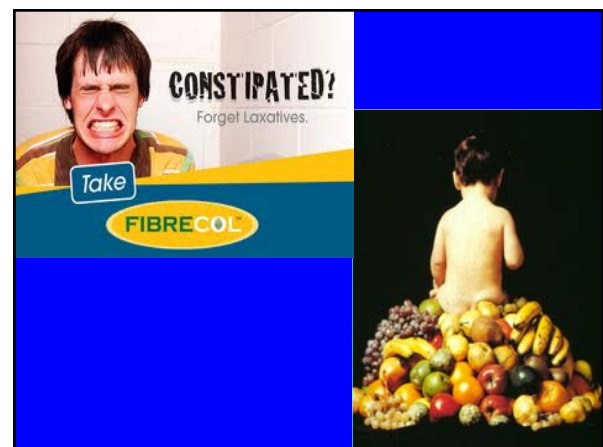
Increasing Oral Fluids in Chronic Constipation in Children

	Baseline	Week 2	Week 3
Stool frequency			
Control	3.45	4.05	3.40
H ₂ O	3.52	3.57	3.70
HiOsm	3.75	4.31	3.44

(22) Based on expert opinion, we recommend a normal fluid intake in children with constipation.
Voting: 9, 9, 9, 9, 9, 9, 9

H ₂ O	0.78	0.84	0.87
HiOsm	0.77	0.74	0.62

108 children R.J. Young, et al Gastroenterol Nurs 1998



- No significant benefit was demonstrated in terms of a reduction in laxative use or increased stool frequency associated with additional fiber intake!!!!**

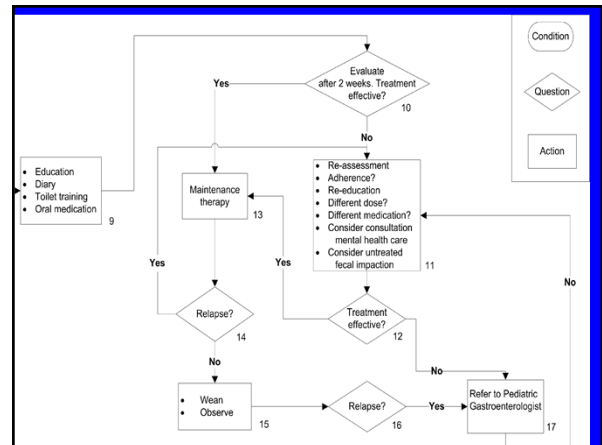
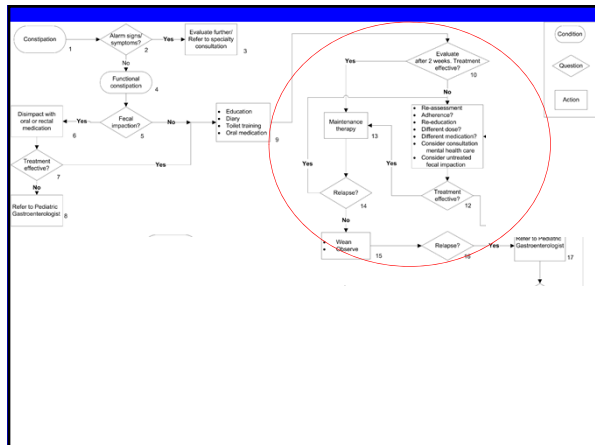
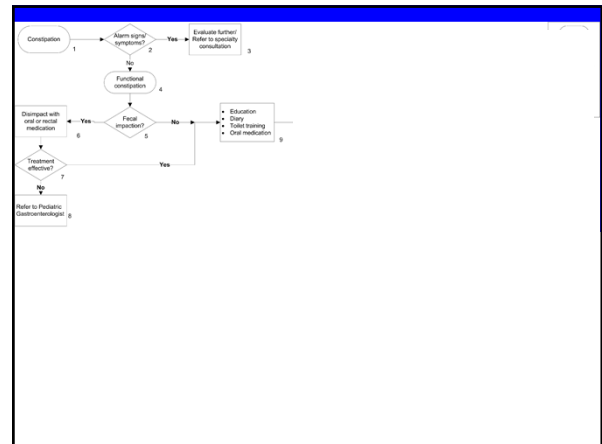
(21) A normal fiber intake is recommended in children with constipation.
Voting: 6, 8, 9, 9, 9, 9, 9

Sullivan PB, et al. J Hum Nutr Diet, 2011

PROBIOTICS

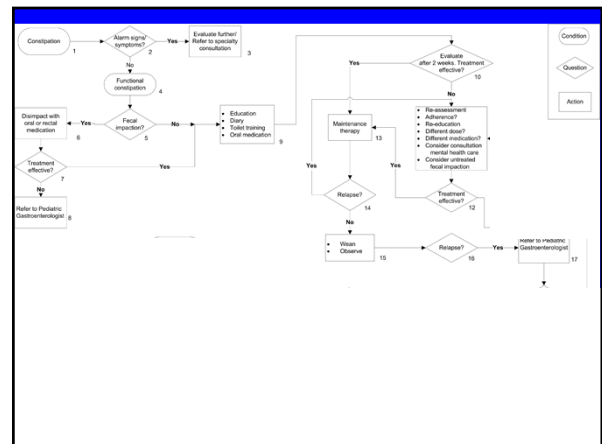
Probiotics for functional constipation RCTs in children - summary

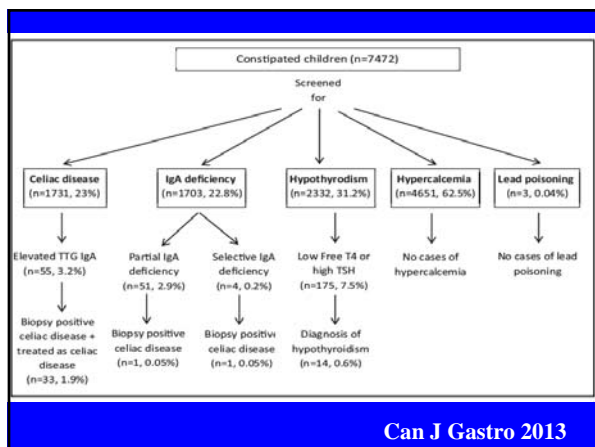
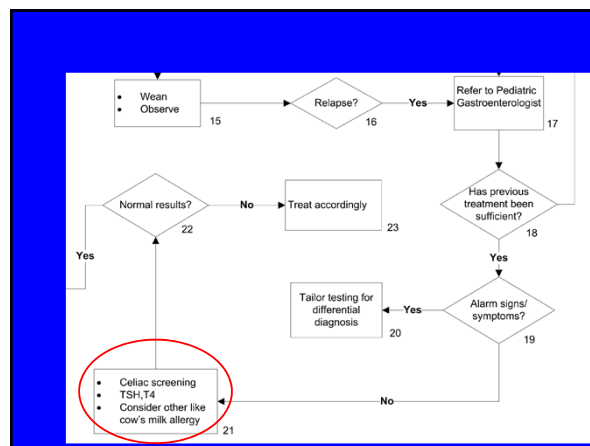
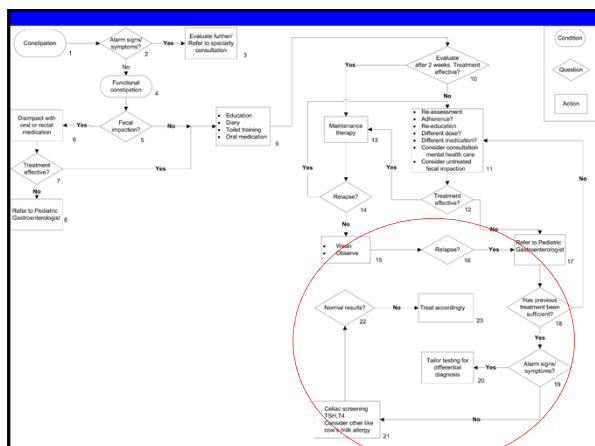
R	(25)	The routine use of probiotics is not recommended in the treatment of childhood constipation. Voting: 7, 8, 8, 9, 9, 9, 9	ect ns
Be Sa			
Bl			(?)
2007	Lcr35	mo	
Coccorullo et al.	L reuteri DSM 17938	Rome III criteria	44 ✓
	(24)	The routine use of prebiotics is not recommended in the treatment of childhood constipation. Voting: 9, 9, 9, 9, 9, 9, 9	
Total			330



7.3 How Long Should Children Receive Medical Therapy?

- (37) Based on expert opinion, maintenance treatment should continue for at least 2 months. All symptoms of constipation symptoms should be resolved for at least 1 month before discontinuation of treatment. Treatment should be decreased gradually.
Voting: 7, 7, 8, 8, 8, 9, 9



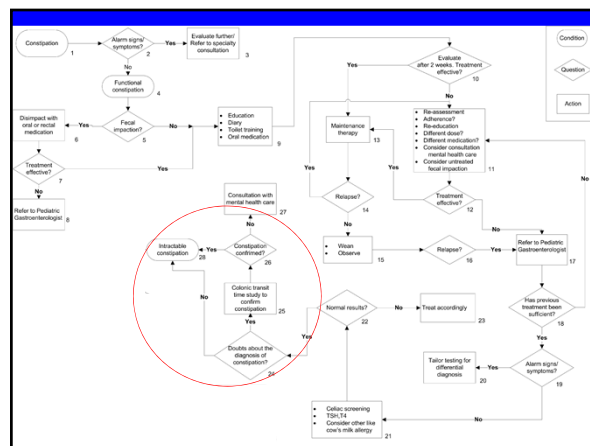
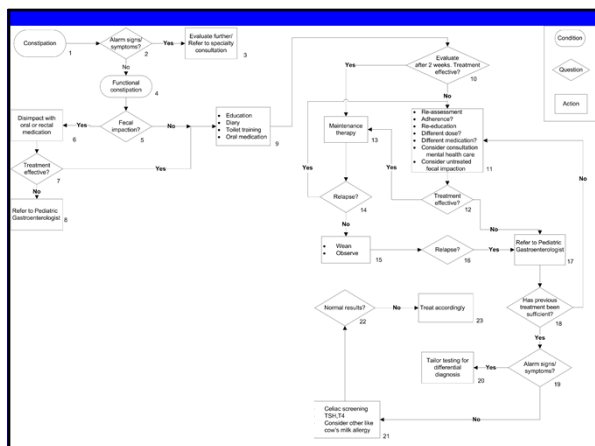


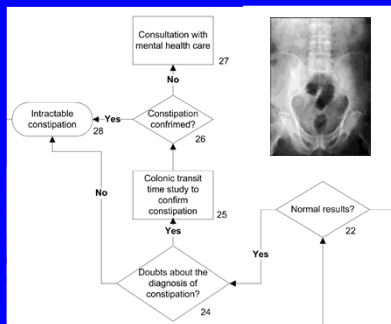
Can J Gastro 2013

Results

- Cost per constipated patient for screening tests: \$ 597
- Cost of finding 1 Celiac disease patient: \$ 68,000
- Cost of finding 1 Hypothyroid patient: \$ 80,000
- Cost of finding 1 patient with selective IgA deficiency and Celiac disease: \$ 255,000
- This analysis does not include child care, work days lost for additional appointments and transportation costs.

Can J Gastro 2013





Because x-ray findings are usually nonspecific, they should not be employed to “rule-in” constipation. J Peds 2013

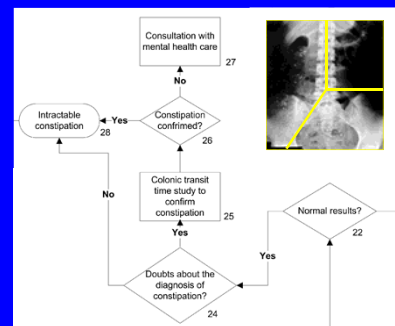
stool by rectal exam and constipation by x-rays

In conclusion, evidence supports not using an abdominal radiography to diagnose functional constipation.(JPGN 2014)

Reuschlin-Vroklage: Arch Pediatr Adolesc Med 2005; 159:671

Abdominal x-ray Quality of evidence: very low

- (6) The routine use of an abdominal radiograph to diagnose functional constipation is not indicated.
Voting: 8, 8, 9, 9, 9, 9, 9
- (7) Based on expert opinion, a plain abdominal radiography may be used in a child in whom fecal impaction is suspected but in whom physical examination is unreliable/not possible.
Voting: 6, 7, 7, 8, 8, 9, 9



The clinical and prognostic value of colonic transit studies

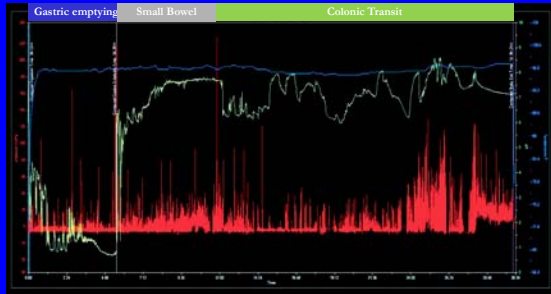
- Good correlation between symptoms and CTT
- The diagnostic and prognostic role of CTT is limited

De Lorijn F, et al. Arch Dis Child 2004

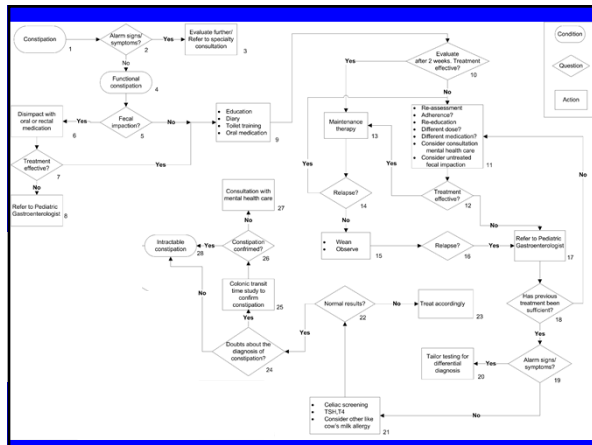
The clinical and prognostic value of colonic transit studies

- (8) Colonic transit studies are not recommended to diagnose functional constipation.
Voting: 7, 8, 9, 9, 9, 9, 9
- (9) Based on expert opinion, a colonic transit study may be useful to discriminate between functional constipation and functional nonretentive fecal incontinence and in situations in which the diagnosis is not clear.
Voting: 8, 8, 8, 8, 8, 9, 9

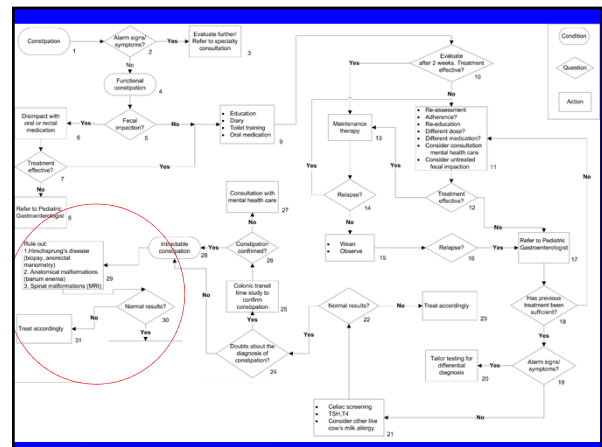
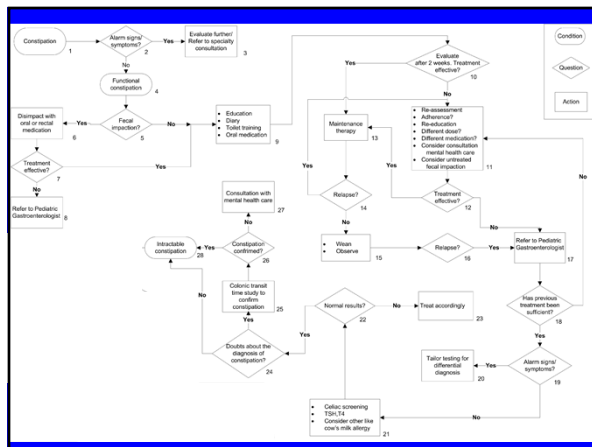
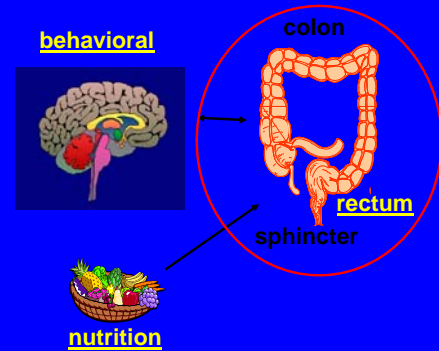
NEW TESTS SMART PILL

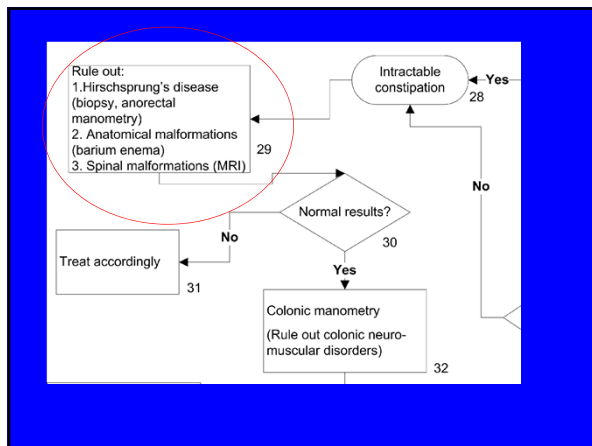


Defined as a lack of response after 3 months of treatment



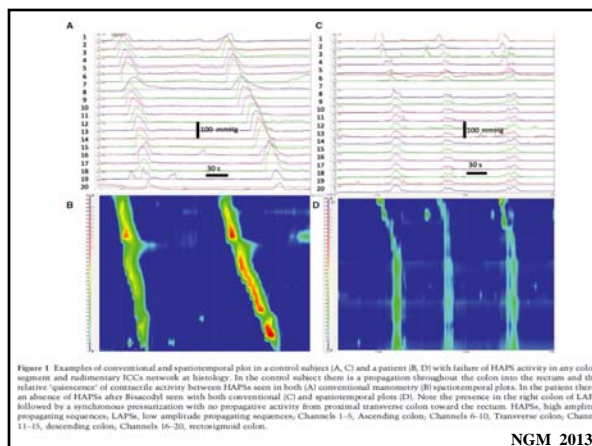
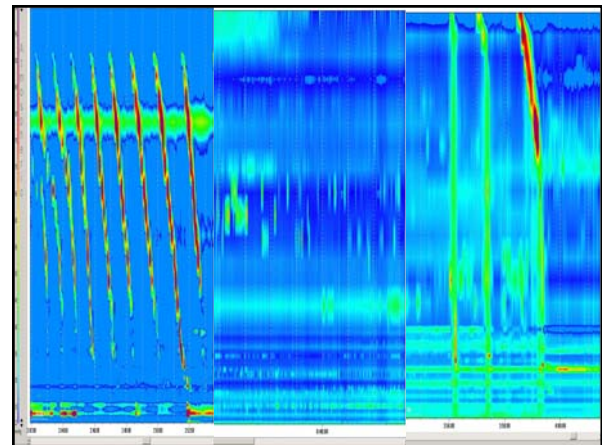
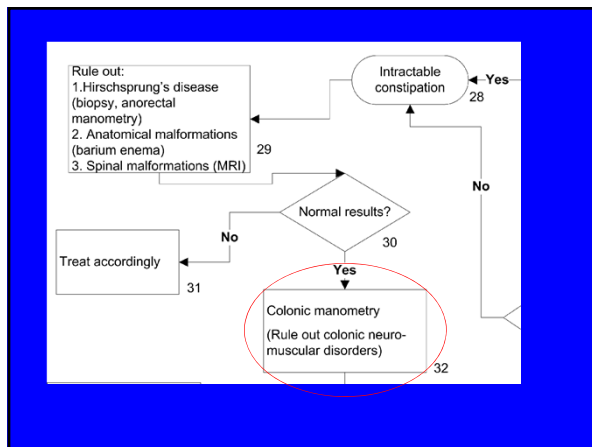
Players involved in functional pediatric constipation



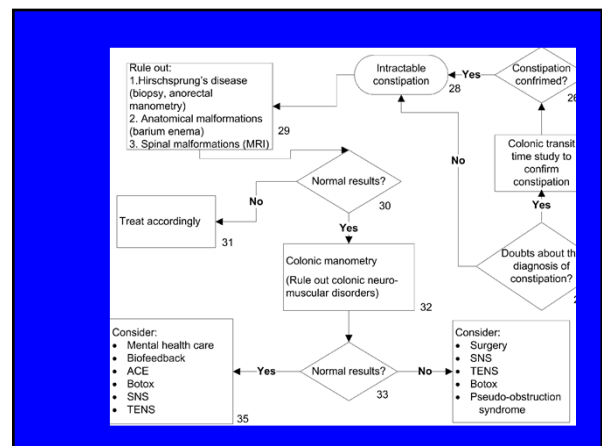


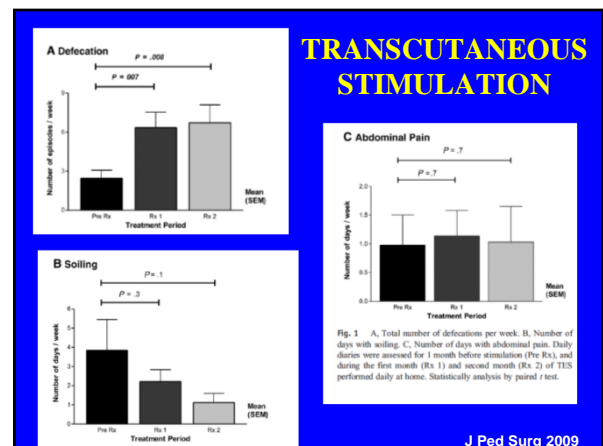
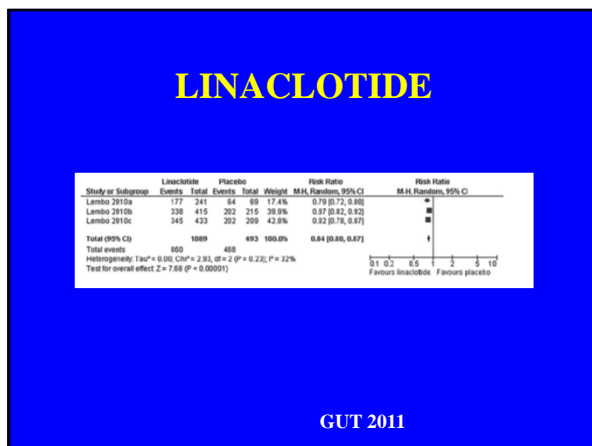
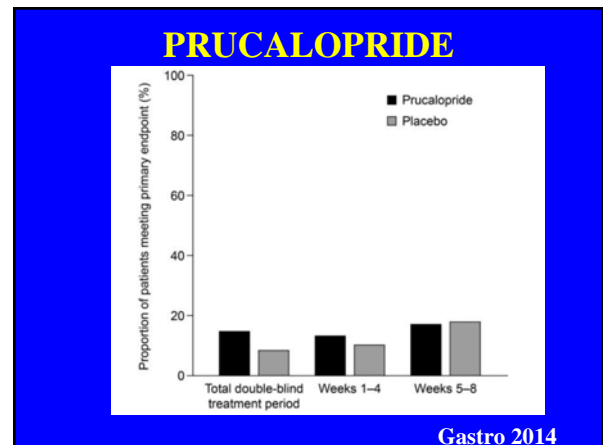
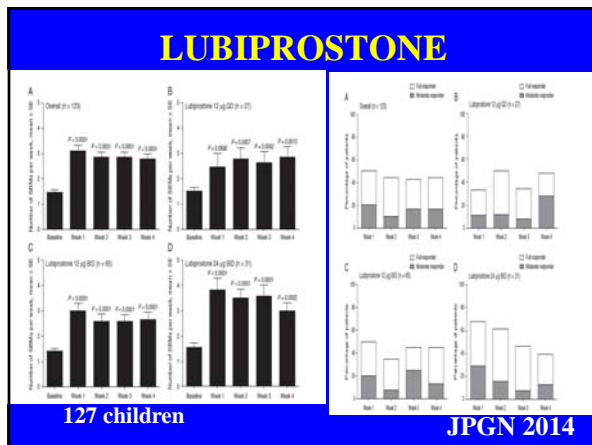
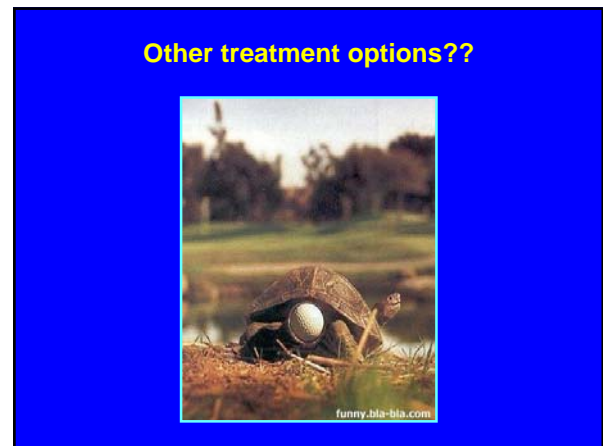
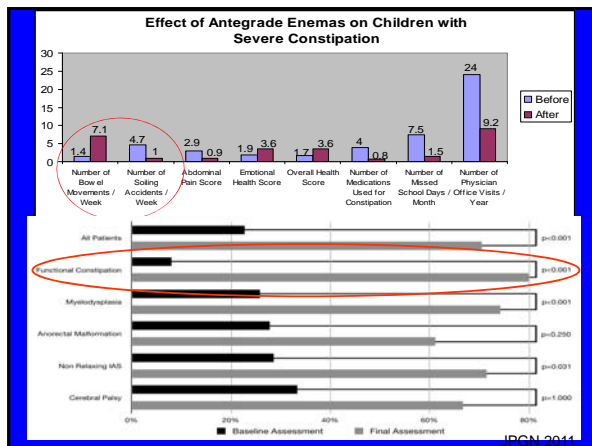
Question 5: Which of the Following Examinations Should Be Performed in Children With Intractable Constipation to Evaluate Pathophysiology and Diagnose an Underlying Abnormality?

- (17) Based on expert opinion, colonic manometry may be indicated in patients with intractable constipation before considering surgical intervention.
Voting: 7, 7, 8, 9, 9, 9, 9
- (18) The routine use of MRI of the spine is not recommended in patients with intractable constipation without other neurologic abnormalities.
Voting: 7, 7, 9, 9, 9, 9, 9
- (19) Based on expert opinion, we do not recommend obtaining full-thickness colonic biopsies to diagnose colonic neuromuscular disorders in children with intractable constipation.
Voting: 7, 8, 8, 8, 8, 9, 9
- (20) Based on expert opinion we do not recommend routine use of colonic scintigraphy studies in children with intractable constipation.
Voting: 9, 9, 9, 9, 9, 9, 9



NGM 2013





CONCLUSIONS

- New advances will allow a better definition of constipation subtypes
- Treatment of constipation in children is evolving from expert recommendations to evidence based treatments
- PEG based solutions have become the mainstay of therapy
- Oral disimpaction is equivalent to rectal disimpaction
- New treatments are effective

