

**Table 1** Characteristics of patients pre- and post-intervention to improve inpatient colonoscopy bowel preparation

	Pre-intervention (n=120)	Post-intervention (n=129)	p-value
Individual factors			
Age, mean (sd)	58.8 (17.34)	57.8 (17.5)	0.65
Male	61 (50.8)	63 (48.8)	0.75
Race, non-white	58 (48.3)	76 (58.9)	0.10
Primary team medicine service	113 (94.2)	113 (87.6)	0.07
Indication			0.85
Diarrhea, colitis	20 (16.7)	25 (19.4)	
Fecal transplant	1 (0.8)	3 (2.3)	
Abdominal pain	2 (1.7)	4 (3.1)	
Anemia	16 (13.3)	18 (14.0)	
Colon cancer	14 (11.7)	14 (10.9)	
Constipation	2 (1.7)	0	
Gastrointestinal bleeding	55 (45.8)	54 (41.9)	
Inflammatory bowel disease	10 (8.3)	11 (8.5)	
Systems factors			
Hourly inpatient occupancy, mean (range)	86.75 (85.61, 87.97)	90.32 (88.88, 90.88)	< 0.001

Data are presented as Number (%) unless otherwise noted  
Sd: standard deviation

**Table 2** Estimates from generalized linear model for adequate bowel preparations and length of stay before and after the intervention in unadjusted and adjusted models

Study Outcome	Pre vs. Post	Unadjusted Model Relative Risk (Pre/Post) [95% Confidence Interval]	Adjusted Model Relative Risk (Pre/Post) [95% Confidence Interval]
Good <sup>#</sup> ICBP	60.8% vs. 74.4%	1.873* [1.093,3.211]	1.947* [1.025,3.697]
Ideal <sup>‡</sup> ICBP	53.3% vs. 69.0%	1.947* [1.160,3.266]	1.901* [1.024,3.531]
		Ratio of Means (Pre/Post) [95% Confidence Interval]	Ratio of Means (Pre/Post) [95% Confidence Interval]
Mean Length of Stay, Days	8 vs. 6	0.759 [0.538,1.069]	0.852 [0.617,1.179]

Adjusted model includes average weekly occupancy. ICBP: inpatient colonoscopy bowel preparations.

<sup>#</sup> Good: Colonoscopy delayed and adequate bowel preparation when performed.

<sup>‡</sup> Ideal: Colonoscopy not delayed and adequate bowel preparation when performed. \* p<0.05

**Table 3** Potential problems and solutions at patient, nurse, physician and system level for the bowel preparation process for inpatient colonoscopy

Level	Potential Problems	Potential Solutions
Patient	Poor palatability	Switch to Polyethylene glycol-electrolyte solution with flavor packets of 4 flavors attached to bottle and no sulfur taste Chill bowel preparation Mix with flavor powders or non-red juice Anti-emetics
	Unable to drink fast enough due to volume or nausea (assuming obstruction not suspected) or altered mental status (i.e. delirium or dementia)	
	Not following instructions	Nasogastric Tube Patient education handout Family involvement
	Inpatient status $\pm$ underlying risk factors for poor bowel preparation	Consider 6-L bowel preparation Consider 2-day bowel preparation
	Flushes bowel movement before nurse evaluating	Nursing places toilet hat when close to ready
Nursing	Floor nurse protocol cannot require bedside checks more frequently than every 4 h	Encourage family to help  Recruit medical assistant participation Use of technology for reminders Standardize instructions
	Unclear importance of bowel preparation and instructions highly variable	
	Original nurse communication with instructions acknowledged by day shift nurse and not viewed by night shift nurse	Nursing education sessions Endoscopy and floor nurses discuss day prior to procedure
	Variable reporting of readiness for procedure	Instructions in medication order so viewable when administering Orderset with timed instructions Nursing education and picture of readiness on patient education Toilet hat Endoscopy and floor nurses discuss morning of procedure
Physician	Preparation recommended by gastroenterology highly variable leading to confusion	Create protocol for standardization
	Instructions from gastroenterology not clear and/or written in notes	Electronic note templates for easy use in gastroenterology notes
	Due to nature of complex inpatient consult service, decision-to-scope communicated late (i.e., after 6 pm) to primary team	Set mutually agreed upon expectation for early communication by gastroenterology with a set latest time (i.e., 4 pm)
	Ordering suppositories and enemas as “rescue” in the morning leads to false sense patient is clear when right side of colon is not	Using more bowel preparation instead of suppositories and enemas Conversion to 2-day preparation
	Boston Bowel Preparation Score not properly documented. This could be knowledge gap or due to busy inpatient consult service while scoping. Procedure notes written at end of day leading to memory and bias	Scoring education Document score in Brief-Op note immediately post-procedure for reference later when writing procedure note
System	Primary team orders differently than gastroenterology recommendations	Primary team education Orderset
	Amount of bowel preparation consumed not documented	Fellow or nurse go to bedside to document amount drank
	Lag time between order and administration	Educate nursing day prior to document in medical record
	Long chain of communication: GI, primary team, day nurse, night nurse	Stock bowel preparation in pyxis on specific floors Set protocol for communication expectations, note templates, ordersets
	Dietary keeps flavor mix packs and nursing unable to get after certain hour	Stock flavor packs on floor or use Polyethylene glycol-electrolyte solution with flavor packets of 4 flavors attached to bottle