



A Single-Center Clinical Experience with an Intraprocedural Cleansing System for Inadequate Bowel



Preparation During Colonoscopy

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BACKGROUND

- Adequate bowel preparation for colonoscopy is essential
- Optimal bowel prep → increased quality: higher adenoma detection rate, reduced technical difficulties, shorter exams, lower perforation risk
- Inadequate bowel preparation is common (>25%) despite investments in patient education and advances in low-volume preparations¹
- Factors that can contribute to inadequate bowel preparation include increased age, male gender, medical comorbidities (e.g., diabetes, dementia), patient medications, socioeconomic status, adherence to bowel preparation instruction, among others²
- Pure-Vu® EVS System (MotusGI, Israel) is an FDA-approved single-use intraprocedural cleansing device that attaches directly to the colonoscope acting as a tool to improve bowel cleanliness via use of high-intensity water/air to clear fecal matter and debris at the time of colonoscopy

AIM

- This is the first clinical experience of the 3rd generation of the Pure-Vu® EVS System to assess the feasibility and efficacy of an intraprocedural cleansing system to improve visualization at the time of colonoscopy

METHODS

- Retrospective review of prospectively collected data at the Minneapolis VA Hospital
- 45 consecutive patients analyzed from April to September 2022 and five endoscopists
- Intraprocedural cleansing system was used either **primarily** in those with high suspicion for poor bowel preparation or as a **rescue** method in those with endoscopically visualized inadequate bowel preparation
- Bowel preparation typically consisted of 1 bottle of MgCitrate followed by split-dose large-volume polyethylene glycol
- Procedural indications included: surveillance, GI symptoms (e.g., abdominal pain, diarrhea, hematochezia), positive FIT test, anemia, abnormal imaging, screening (*Table 1*)

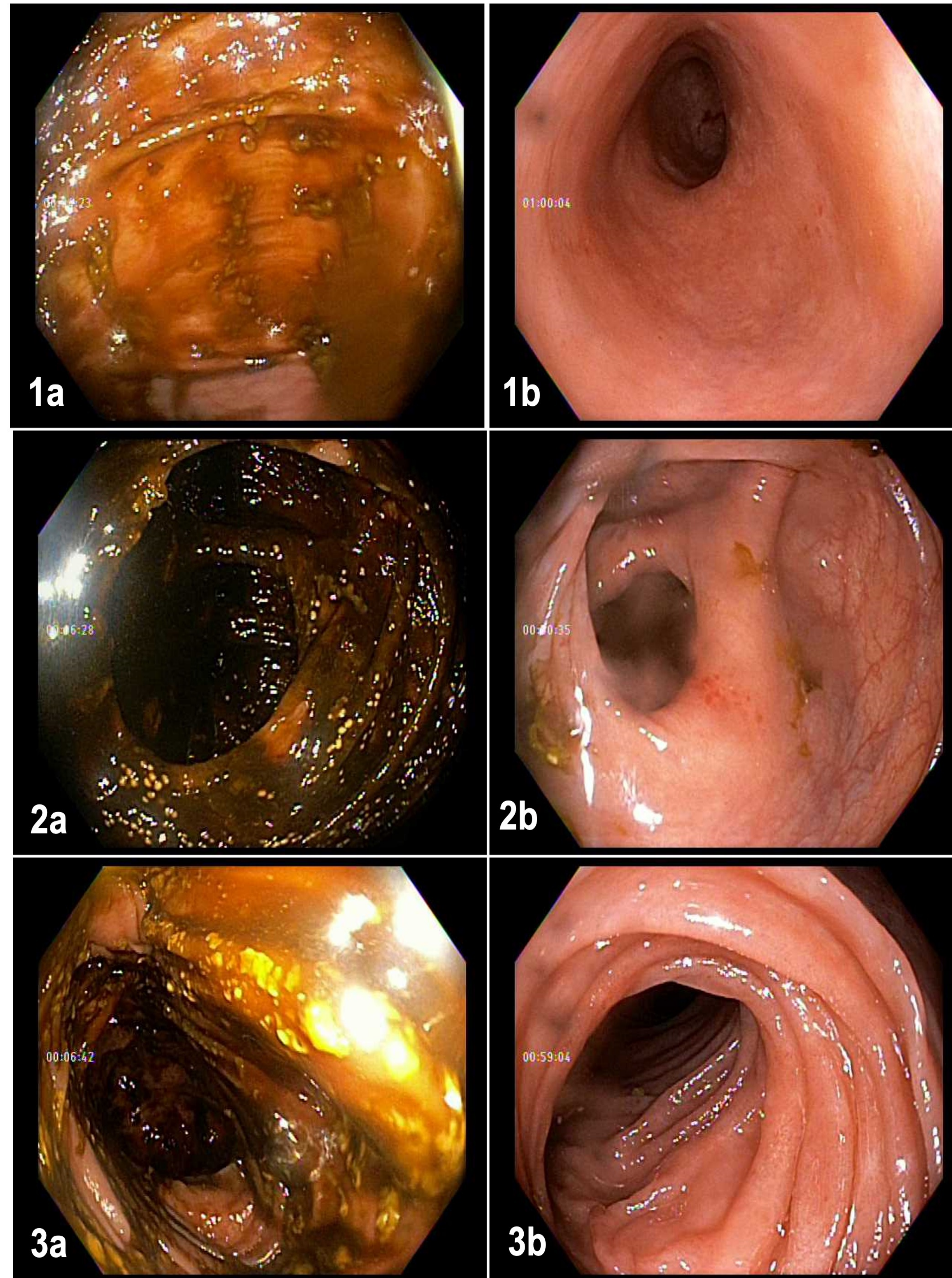
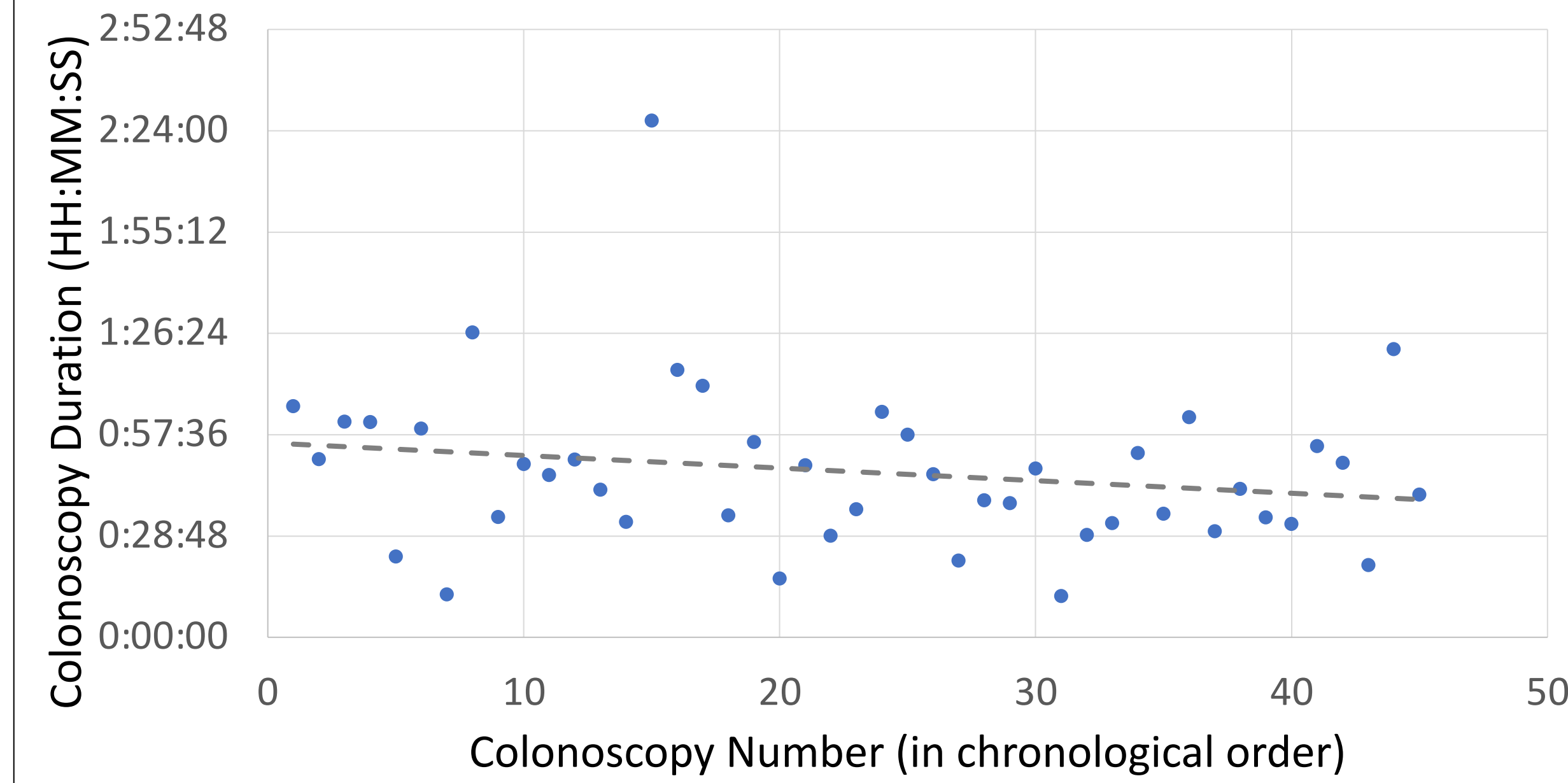


Figure 1: Endoscopic images before (a) and after (b) use of the intraprocedural cleansing system 1) sigmoid colon, 2) cecum, 3) transverse colon.

Colonoscopy Duration Using the Intraprocedural Cleansing System Over Time (All Providers, N=45)



Graph 1: Colonoscopy Duration Using the Intraprocedural Cleansing System Over Time (All providers; 45 patients). There was an overall trend of decreased procedure duration over time using the intraprocedural cleansing system

Patient and Procedure Background

Average Age	66 (range 29-86)
Gender	44/45 male (97.8%)
Colonoscopy setting	40/45 outpatient (88.9%)
Indications for colonoscopy	<ul style="list-style-type: none"> Surveillance (N=25) GI symptoms (N=10) Positive FIT test (N=2) Anemia (N=3) Abnormal imaging (N=4) Screening (N=1)
Predicted Reasons for Poor Prep	<ul style="list-style-type: none"> Poor adherence to bowel preparation regimen Neurologic/cognitive disorders Diabetes mellitus Chronic constipation Many without an identifiable reason

Table 1: Patient demographics and colonoscopy background information.

RESULTS

- Adherence rate to bowel preparation was 75.6%
- Most cases (86.7%) performed under moderate sedation
- Overall procedural success was 36/45 (80%)
 - 8/9 unsuccessful cases were due to either
 - 1) patient intolerance of sedation
 - 2) anatomical reasons (tortuous colon or tight angulation) in which even a device free colonoscope was unsuccessful
 - In a single case device was not able to clear solid stool
- Mean BBPS:
 - Pre-cleansing: 4.8 (N=36, range 2-9, median 5)
 - Post-cleansing: 8.7 (N=36, range 7-9, median 9)
- Cecal intubation rate 97.3% (36/37) after excluding non-device related failures (i.e. inadequate sedation, anatomical reasons)
 - Overall rate 80% (36/45)
- Average procedure time in successful cases:
 - Primary use: 39 minutes
 - Rescue use: 47 minutes
- Procedure duration trended shorter over time with increased use of the device (R= -0.20; *Graph 1*)
- All successful surveillance exams resulted in the maximum recommended colonoscopy interval

DISCUSSION

- Use of an intraprocedural cleansing device improved the BBPS and thus visualization of the colon at the time of colonoscopy
- The system was relatively easy to use with low procedure failure rates, nearly all failures were not specific to device
- Procedure duration fell overtime with increased experience
- Intraprocedural cleansing resulted in the longest recommended surveillance colonoscopy intervals in surveillance/FIT+ patients

CONCLUSIONS

- Use of this intraprocedural cleansing device is both feasible and efficacious for improving endoscopic visualization for patients with inadequate bowel preparation
- Use of this intraprocedural cleansing device increases examination quality, extends surveillance intervals, improves resource utilization

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Disclosures

None of the authors claim any actual or potential financial interests/conflicts.

References

- Chokshi RV, Hovis CE, Hollander T, Early DS, Wang JS. Prevalence of missed adenomas in patients with inadequate bowel preparation on screening colonoscopy. *Gastrointest Endosc*. 2012 Jun;75(6):1197-203. doi: 10.1016/j.gie.2012.01.005. Epub 2012 Feb 28. PMID: 22381531.
- Martel M, Veinard C, Restellini S, Kherad Q, Almadi M, Bouchard M, Barkun AN. Which Patient-Related Factors Determine Optimal Bowel Preparation? *Curr Treat Options Gastroenterol*. 2018 Dec;16(4):406-416. doi: 10.1007/s11938-018-0208-9. PMID: 30390208.