

# On Demand Sedation in Community Practice

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## Abstract

Sedation-free colonoscopy in the US is feasibility. We conducted a prospective IRB-approved trial in patients willing to begin without sedation. Two thousand ninety-one consecutive patients were eligible. Our data reveal that sedation on demand colonoscopy was successful in 99.2% of all patients; 99.3%, 99.4% and 99.1% of those medicated at start of colonoscopy; unседated throughout; and medicated during colonoscopy, respectively. There was a reduction in complications, 0.43% vs. 6.67%, unседated versus sedated. Ninety-seven point five percent of unседated patients were willing to repeat without sedation. The adenoma detection rate was 32% in men and 22% in women. Thus, unседated colonoscopy is possible in a large percentage of patients, particularly if the patient had previous colostomy or left hemicolectomy. Patients who present for their procedure without a driver and patients in whom the completeness of the bowel preparation was uncertain are good candidates to start unседated as are patients who have had previous unседated examination.

## Narrative

The purpose of this presentation is to review experience of one community practice in providing colonoscopy with seda-

tion on demand. We will recognize the factor related to successful or difficult unседated colonoscopy and review tips for performing successful unседated colonoscopy. Sedation-free colonoscopy in the US (Table 1) is feasible but has no universal acceptance.<sup>1-4</sup> The benefits for the patients include reduced complications, less need for companion, ability to resume activities immediately, less loss of productivity, and greater participation in the procedure.

At the Sansum Clinic we have offered unседated colonoscopy for years with 20-25% of the patients able to tolerate a full, unmedicated procedure. Pressure from propofol proponents prompted us to perform a prospective trial. All gastroenterologists participated in the study (including those not previously using unседated colonoscopy). This was a non-randomized trial of unседated colonoscopy in an outpatient ambulatory surgery center. The results of this study have previously been reported.<sup>5</sup> We conducted a prospective IRB-approved trial in patients willing to begin without sedation from June 7, 2006, to Dec. 7, 2006. 2091 consecutive patients were eligible; one refused and was excluded. Inpatients, those <18 years of age or those who had combined procedures, were also excluded. Four gastroenterologists with between 14 and 36 years experience participated. No attempt was made to coerce patients into unседated examination. Post-procedure assessment of pain and satisfaction was performed by nurses not involved in the procedure.

**Table 1:** Previous studies on unседated colonoscopy in US

References	No. of patients	Randomized	Cecal intubation	Willingness to repeat
1	173	No	95%	
2	70	Yes	94%	91%
3	258	No	97%	84%
4	63 water, 62 air	No	97%, 76%	90%, 69%

**Table 2:** Patient characteristics

	No. of patients	First exam	Prior abdominal surgery	Weight (lbs) (Mean±SD)	>High School
Sedated at start of procedure					
Men	599	300 (50.1)	272 (45.4)	192.3±33.6	429 (71.6)
Women	913	521 (57.1)	658 (72.1)	155.0±36.2	533 (58.4)
Unsedated throughout procedure					
Men	353	203 (57.5)	142 (40.2)*	193.4±35.5	244 (69.1)
Women	117	68 (58.1)	62 (53.0)	162.1±40.9***	84 (71.8)**
Sedated during procedure					
Men	50	28 (56.0)	26 (52.0)	183.3±34.3	35 (70.0)
Women	58	34 (58.6)	39 (67.2)	148.7±27.1	34 (58.6)

Percentages in parenthesis, SD=standard deviation. \*p<0.001 vs. sedated at start of procedure; \*\*p<0.002 vs. sedated at start of procedure and sedated during; \*\*\*p<0.05 vs. sedated at start of procedure and p<0.01 vs. sedated during

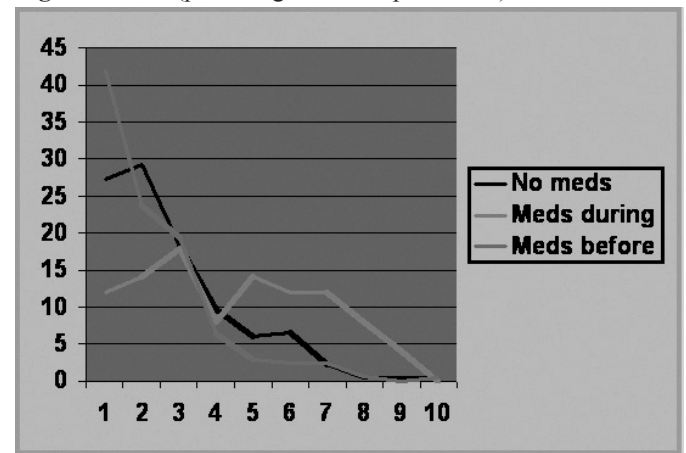
Medications were offered at any time during the procedure for patients who experienced discomfort, with further medication on demand. The average dose of meperidine was 48 mg; and the average dose of midazolam was 0.97 mg. To minimize discomfort, attempts were made to straighten the colon continuously and reduced air insufflation was adhered to during insertion. Variables assessed included age, sex, weight, previous abdominal surgery, level of education, and previous colonoscopy experience. Variables measured included time to cecum, quality of preparation, total time of procedure, biopsies and polyps removed, depth of insertion at end of procedure, length of instrument used, instrument type, ease of procedure, and complications. End of procedure variables measured included post-procedure assessment of level of pain (maximum pain level at any point during procedure), satisfaction with level of sedation, and willingness to have procedure performed with less, more, or the same amount of medication in the future. Ninety-seven percent of cases were examined using the pediatric instrument [PCF-140L (55%), PCF-160AL, PCF-Q180AL]. Cecal or terminal ileal intubation was verified by the nurse in the examination room. Time to cecum and total time were recorded by the nurse. Withdrawal time was not independently measured.

Table 2 shows the patient outcome. Figure 1 shows the percentages of men at each pain score. Figure 2 shows the percentage of women at each pain score. Our data reveal that sedation on demand colonoscopy was successful in 99.2% of all patients; 99.3% of those medicated at start of colonoscopy; 99.4% of those who were unsedated throughout; and 99.1% of those medicated during colonoscopy. There was a marked reduction in complications (0.43% vs. 6.67%). There were 97.5% of unsedated patients willing to repeat without sedation. The adenoma detection rate was 32% in men and 22% in women. Men who started unsedated were more likely to complete the exam unsedated, 88% vs. 67%. Women who completed without medication had higher body weight and education level.

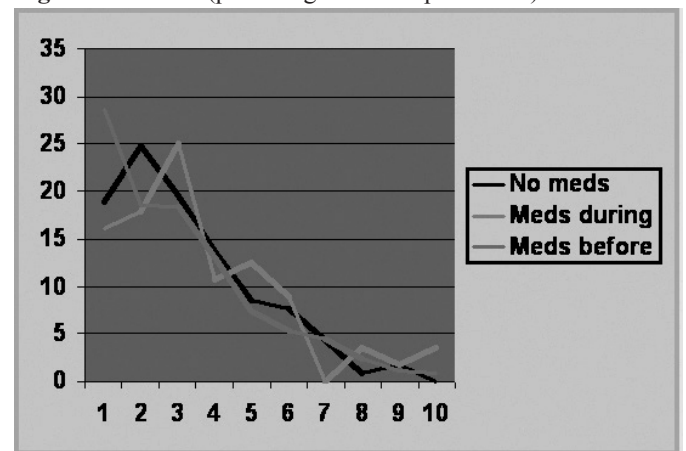
Our experience indicates that unsedated colonoscopy is possible in a large percentage of patients, particularly if the patient had previous colostomy or left hemicolectomy. Patients

who present for their procedure without a driver and patients in whom the completeness of the prep was uncertain are good candidates to start unsedated, as are patients who have had previous unsedated examination. Whether the water infusion method makes unsedated colonoscopy easier is uncertain. In the unsedated patients, complete exam depends on the level of anxiety/expectation, previous surgery/anatomy, education level,

**Figure 1:** Men (percentages at each pain score)



**Figure 2:** Women (percentages at each pain score)



BMI, skill of colonoscopist, use of adjuvant materials (e.g., water infusion, caps), type of colonoscope, and desire of patient to have unsedated examination. Several useful tips include the use of minimal air through the sigmoid colon, if any, and use of water through sigmoid colon, reposition patient early on the back at first turn of the sigmoid colon and use of the right lateral decubitus position to negotiate the splenic flexure. Several pressure points include the left lower quadrant when the colonoscope is making the transition from the sigmoid to descending colon, mid-transverse pressure to assist with passage through the splenic flexure, and the hepatic flexure when the colonoscope passes from the hepatic flexure into ascending colon.

For future consideration, it is necessary to recognize that most US trainees have not been given adequate training in the proper techniques of colonoscopy. Many centers use propofol routinely to eliminate patient discomfort and reduce total time patient spent in ambulatory surgical centers. The pressure to increase throughput and less emphasis on technique needs to be addressed.

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## References

1. Herman FN. Avoidance of sedation during total colonoscopy. *Dis Col Rect.* 1990;33(1):70-72.
2. Rex DK, Imperiale TF, Portish V. Patients willing to try colonoscopy without sedation: associated clinical factors and results of a randomized controlled trial. *Gastrointest Endosc.* 1999;49(5):554-559.
3. Cataldo PA. Colonoscopy without sedation: a viable alternative. *Dis Col Rect.* 1996;39:257-261.
4. Leung FW, Aharonian HS, Leung JW, et al. Impact of a novel water method on scheduled unsedated colonoscopy in U.S. veterans. *Gastrointest Endosc.* 2009;69:546-550.
5. Petrini J, Egan J, Hahn W. Unsedated colonoscopy: patient characteristics and satisfaction in a community-based endoscopy unit. *Gastrointest Endosc.* 2009;69:567-572.