

ADVANCES IN ENDOSCOPY

Current Developments in Diagnostic and Therapeutic Endoscopy

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Colonoscopy Withdrawal Times and Adenoma Detection Rates

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G&H What are the main quality indicators for colonoscopy?

DR Traditionally, the main quality indicator has been cecal intubation rates. Only recently have endoscopists begun realizing the value of measuring adenoma detection rates of individual examiners, due to the extreme variability among endoscopists in terms of the number of adenomas detected. We would like to reduce interobserver variation and have all endoscopists reach high adenoma detection rates, as adenoma detection and removal are vital in the prevention of colorectal cancer.

Currently, in terms of prioritizing different quality indicators for colonoscopy, the indicator that endoscopists use first, due to its relative ease, remains the cecal intubation rate. Adenoma detection rates are also extremely easy to utilize because there are, typically, vast amounts of data available for every endoscopist, and these rates should be the second indicator that endoscopists utilize.

G&H What are the recommendations for adenoma detection rates?

DR The first recommendation on detection rates emerged in 2002 from the United States Multi-Society Task Force on Colorectal Cancer. At that time, the Task Force recommended that adenomas should be detected in at least 25% of men who are 50 years of age and older and 15% of women who are 50 years of age and older. In addition, it was recommended that the time an endoscopist takes to withdraw their endoscope at the end of a colonoscopy

should average at least 6–10 minutes in normal colons in which no biopsies or polypectomies were performed.

The most recent revision of this recommendation came from the American College of Gastroenterology and the American Society for Gastrointestinal Endoscopy Task Force on Quality, which retained the original recommendation of adenoma detection rates in men and women over the age of 50 but recommended that the withdrawal phase of colonoscopy should last at least 6 minutes, as opposed to the original guideline of 6–10 minutes.

G&H According to recent studies, what is the relationship between withdrawal times and adenoma detection rates?

DR The evidence to support a relationship between withdrawal times and detection rates comes from several studies, one of which is the December 2006 study by Barclay and colleagues, published in the *New England Journal of Medicine*, which showed a very wide range of adenoma detection among 12 experienced colonoscopists in a private practice group in Rockford, Illinois. Barclay and colleagues grouped together endoscopists who had an average withdrawal time of more than 6 minutes and endoscopists who had an average withdrawal time of less than 6 minutes. Adenoma detection was strongly associated with longer withdrawal times: endoscopists whose withdrawal times were more than 6 minutes detected more than twice as many patients with adenomas that were 1 cm or larger in size. This was an important observation, as it extended previous findings about differences in the detection of small adenomas among endoscopists and also showed that this finding could be extended to large adenomas, which, as all endoscopists would agree, are even more important.

Other studies have also helped to validate the 6-minute withdrawal, including one from the Mayo Clinic, Rochester, which showed that withdrawal times of 6 minutes and longer were associated with detection rates above the targets of 25% of men and 15% of women 50 years of age and older.

G&H What aspects of the association between withdrawal times and detection rates require further investigation?

DR We need more studies to examine the optimal withdrawal time, as well as other aspects of withdrawal technique. It may turn out that 8 minutes, for example, is a better target than 6 minutes. We also need more information about effective steps that can aid in correcting examiners with low detection rates. Presumably, lengthening their withdrawal times will help, but we do not fully understand the impact of other aspects of withdrawal technique on adenoma detection, from a quantitative standpoint, such as how well endoscopists are looking behind folds, how well they clean up, and the general quality of their bowel preparations. These are all important factors because withdrawal time does not explain the whole story. As there is very little information available on these factors, we need a number of studies examining how to lengthen withdrawal time, the efficacy of changing an endoscopist's withdrawal time, the most effective steps or measures for lengthening withdrawal time, and whether an endoscopist who lengthens his or her withdrawal time actually detects more adenomas.

G&H Can you elaborate on the role of other factors such as bowel preparation or the presence of advanced neoplasia in this context?

DR We have a fair amount of information that poor bowel preparation interferes with the detection of both small and large adenomas. That information comes from the Clinical Outcomes Research Initiative database and the European Panel on the Appropriateness of Gastro-

intestinal Endoscopy study. There was also a prospective study presented at the 2007 Digestive Disease Week showing that bowel preparation quality affects adenoma detection. It is very clear that bowel preparation is important.

In terms of advanced neoplasia, there are not many data beyond the Barclay study, but Chen and I did recently publish a study in the *American Journal of Gastroenterology*. Both of these studies showed that endoscopists who detected more small adenomas also detected more large adenomas, revealing a correlation between large and small adenoma detection. The recommendations on detection rates actually focus on all adenomas as opposed to large adenomas because it makes measurement substantially easier.

In terms of other technical factors, we do have some data on other aspects of withdrawal technique, but not very much. In a study I published in *Gastrointestinal Endoscopy* in 2000, two examiners with widely different detection rates were videotaped performing 10 colonoscopies, which were studied in a blinded fashion by four gastroenterology experts. The endoscopist with the lower miss rate scored significantly better not just for withdrawal time but also for how carefully they looked at the proximal sides of the folds, how well the colon was distended, how well areas with residual mucous or stool were suctioned out or washed off, and other factors.

Suggested Reading

Barclay RL, Vicari JJ, Doughty AS, et al. Colonoscopic withdrawal times and adenoma detection during screening colonoscopy. *N Engl J Med*. 2006;355:2533-2541.

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Rex DK, Bond JH, Winawer S, et al. Quality in the technical performance of colonoscopy and the continuous quality improvement process for colonoscopy: recommendations of the U.S. Multi-Society Task Force on Colorectal Cancer. *Am J Gastroenterol*. 2002;97:1296-1308.

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