

COLONOSCOPY FOR PREVENTION AND EARLY DETECTION OF COLORECTAL CANCER

Understanding the difference among screening, surveillance and diagnostic exams

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Public awareness of the risks of colorectal cancer and the role of colonoscopy in prevention and early detection are high, due in large part to celebrity attention and media coverage. Colorectal cancer remains the third most commonly diagnosed cancer in the United States. In 2009, 75,590 men and 71,380 women are expected to be diagnosed, and approximately 53,000 people will die of colorectal cancer. In Wisconsin during 2009, an average of 2,770 people will be diagnosed and 900 people will die from colorectal cancer.¹ An estimated one in 19 Americans born today will develop colorectal cancer in their lifetimes. In 2006, more than 1 million people in the U.S. were survivors of colorectal cancer.

In Wisconsin, 53 percent of adults ages 50 and over reported having no sigmoidoscopy or colonoscopy in the preceding five years.² Lower education level and, not surprisingly, lack of health insurance are associated with lower rates of colorectal cancer screening examinations. African Americans are less

likely to have a colonoscopic examination than Caucasian Americans. African Americans have a higher incidence of colorectal cancer and, once diagnosed, they have a greater chance of dying from the disease.

Paradoxically, familiarity with screening guidelines can give false security to patients and providers who fail to recognize when changing circumstances such as new cancer diagnoses in the family or new symptoms dictate more frequent examinations. It is vital to understand the difference between types of examinations and their recommended frequency: 1) **Screening** for average and increased risk patients; 2) **Surveillance** for patients with significant personal history, and 3) **Diagnostic** for patients with new symptoms such as altered bowel habits, rectal bleeding, or pain — even when a normal colonoscopic exam was performed in the preceding year.

The Polyp-Cancer Sequence

Although the link between adenomatous polyps, or small noncancerous growths, (image 1) and colorectal cancer (image 2) had been established, it wasn't known whether all polyps posed the same risk of progression to cancer

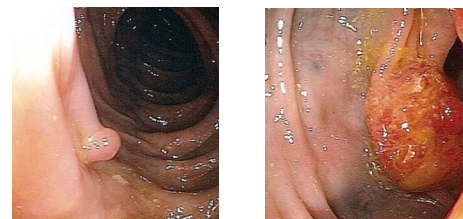


Image 1:
Adenomatous polyp

Image 2:
Colon cancer

or how long the transformation would take. Specific polyp and patient features associated with higher risk of malignant transformation were described in the early 1970s.³ Before the introduction of fiber optic technology and flexible endoscopes, polyps and tumors were detected in the rectum using a rigid proctoscope and in the colon and upper rectum with double contrast barium enema studies. Some rectal polyps and tumors could be removed transanally, but abdominal procedures were required to remove neoplasms above the reach of transanal instruments.

The National Polyp Study conducted in the United States in the late 1980s collected data from seven participating centers (including Froedtert & The Medical College of Wisconsin) on 1,418 patients undergoing colonoscopy for adenomatous polyps. All enrolled patients had follow-up colonoscopic examinations at three years (and the other half had exams at one and three years) after the initial colonoscopy. They were also contacted by telephone at six years after the initial colonoscopy. The incidence of polyp recurrence and development of colorectal cancer were tabulated. These results were compared to historical studies of cancer development in higher risk populations (patients known to have polyps already but who refused surgery) or average risk population (based on reported incidence of colorectal cancer across the United States). It was found that the incidence of cancer was dramatically reduced in patients who had screening colonoscopy and polyp removal than was predicted by trends in the historical control groups. No patient in the National Polyp Study developed an advanced cancer in the three-year follow-up interval to colonoscopy (or six-year telephone follow-up). This study helped clarify the time frame for malignant transformation of benign polyps to cancer and is the basis for current colonoscopy screening guidelines.⁴

Table 1. Colorectal Cancer Screening Strategies

Average Risk	FFC	FFS	DCBE	FOBT	FOBT + FFS
No relatives with CRC or one 2nd degree relative or one 3rd degree relative	Age 50, then every 10 years	Age 50, then every 5 years	Age 50, then every 5 years	Age 50, then every year	Age 50, then every FOBT every year, FFS every 5 years

Increased Risk	Test
1st degree relative with CRC or adenomatous polyps at age < 60 years or two 1st degree relatives at any age	FFC at age 40 or 10 years before youngest age of CRC in a family member, whichever is 1st; then every 5 years
1st degree relative with CRC or adenomatous polyp at age > 60 years or two 2nd degree relatives	FFC at age 40, then every 10 years
Familial adenomatous polyposis (FAP)	FFS at age 10-12 years; then every year; consider genetic testing
Hereditary Nonpolyposis Colorectal Cancer (HNPCC)	FFC at age 20-25 years or 10 years before youngest age of CRC in a family member; then every 1-2 years; consider genetic testing

KEY CRC: Colorectal cancer FFC: Full flexible colonoscopy FFS: Full flexible sigmoidoscopy DCBE: Double contrast barium enema FOBT: Fecal occult blood test

12 1st degree relatives: Parent, sibling, child 2nd degree relatives: grandparent, aunt, uncle 3rd degree relatives: great grandparent, cousin

Screening Strategies

Many screening strategies are available, but not one offers the advantages of colonoscopy, which include most accurate evaluation of the entire colon and the possibility of simultaneous polyp removal. If another screening test is chosen, an abnormal result should be investigated by colonoscopy. Genetic testing can also be a component of colorectal cancer screening in select patients. In 2003, the U.S. Multisociety Task Force on Colorectal Cancer published updated recommendations, which have been summarized more recently by the American Society of Colon and Rectal Surgeons and by The American Society for Gastrointestinal Endoscopy. Association of Gastrointestinal Endoscopists.^{5,6} A 2008 systematic review of colorectal cancer screening by the U.S. Preventive Services Task Force made no changes to these recommendations.⁷

The Older Patient

The assessment of colorectal cancer risk must be dynamic, including the age at which screening exams are stopped. It will always be true that an operation to resect a colorectal cancer will be riskier than colonoscopy to remove polyps. However, when a person's life expectancy is less than the three to five-year interval necessary to develop a polyp or cancer, a decision to stop screening may be best. When a patient's multiple medical problems increase the risk of colonoscopy such that it exceeds the risk of harboring a cancer, screening colonoscopy should be avoided.

Screening Colonoscopies

As part of the Clinical Cancer Center initiative to provide total care for cancer patients, colon cancer screening can usually be arranged during the same week the request is made. Medical College of Wisconsin colorectal

Table 2. Colorectal Cancer Surveillance Strategies

Risk Factors	Time of Colonoscopy	
Personal history of adenomatous polyps	Advanced or >3 adenomas	3 years; then depending on findings
	1 or 2 tubular adenomas <1 cm	5 years; then depending on findings
	Numerous adenomas, cancer fully contained in a polyp, large flat polyp, incomplete FFC	Short interval
Personal history of CRC		At time of diagnosis (or within 6 months of surgery if obstruction by tumor prevented preoperative FFC); then follow-up at 3 yrs; then, depending on findings, every 5 years
Personal history of inflammatory bowel disease	Ulcerative colitis or extensive Crohn's disease of 8 years duration or longer	Every 1 to 2 years with random biopsies

surgeons and gastroenterologists provide this service. Appointments can be scheduled by calling the Clinical Cancer Center at 414-805-0505 or 866-680-0505 or by contacting Lauren A. Kosinski, MD, MS, directly at 414-805-5783 or lkosinski@mcw.edu.

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