



Colorectal Cancer Screening in North Carolina

Community Clinicians' Perspectives

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Politics often makes strange bedfellows, but is there an odder couple in the US Senate than Jesse Helms (R-NC), champion of the conservative Republican right, and Ted Kennedy (D-MA), darling of the Democratic liberal left? One issue facing the 107th Congress united these polar political opposites: colorectal cancer screening. Senators Helms and Kennedy introduced and co-sponsored legislation to increase access to colorectal cancer screening (S710, "Eliminate Colorectal Cancer Act").

Colon cancer and colorectal cancer screening deserve attention from the public, the medical community, and government, as well as from politicians. Long in the shadow of breast cancer and more recently eclipsed by debate over prostate cancer screening, colorectal cancer is the forgotten major cancer, receiving less media attention and less research funding than either of these two other prominent cancers.^{1,2} Yet in 2001 more than 56,000 men and women in the United States will die from the disease—more deaths than from either breast (40,200) or prostate cancer (31,500).³ This year, 4000 North Carolinians will be diagnosed with, and 1700 will die from, colorectal cancer.³

Expert groups from the American Cancer Society, the American Gastroenterological Association, and the US Preventive Services Task Force support periodic screening of asymptomatic, average-risk persons beginning at age 50.⁴⁻⁶ Routine screening for colorectal cancer is covered by Medicare.⁷ All groups support periodic screening with a fecal occult blood test (FOBT) or flexible sigmoidoscopy or both.

In rigorous studies, both tests have reduced colorectal cancer mortality.^{8,9}

Despite the prevalence of disease, strong evidence that screening is effective, and consensus support from experts, screening performance is low. Nationally, in 1999, 44% of persons 50 years and older reported having had an FOBT in the past year or colon endoscopy in the past five years.¹⁰ We do even less well in North Carolina. In 1999, 30% of persons 50 years and older had used a take-home FOBT kit in the past year, and only 53% had ever used one. In addition, 31% had had a colon endoscopy in the past five years, and only 39% had ever had one.^{10,11}

Barriers to screening include a variety of procedural, patient, provider, and health care system factors.¹² As with other cancer screening procedures, a doctor's recommendation is the most powerful single factor promoting colorectal cancer screening. Improving clinicians' adoption of the idea of colorectal cancer screening is a critical first step in improving screening performance.¹²

In 1997 and 1998, we surveyed primary care doctors in North Carolina to determine their training for, attitudes about, and current practices of screening for colorectal cancer with FOBT and flexible sigmoidoscopy. Data from this survey have been used by the North Carolina Advisory Committee on Cancer Coordination and Control and its Early Detection Subcommittee to develop strategies to help primary care doctors in North Carolina increase colorectal cancer screening.

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Methods

Between November 1997 and May 1998, we used self-administered questionnaires to survey family practitioners, general practitioners, and general internists who were actively practicing in non-federal, non-academic, and non-training primary care settings in North Carolina. Potential respondents were identified using 1997 licensure data from the NC Medical Board. The UNC School of Medicine's Institutional Review Board reviewed and approved the study.

Before the survey, we mailed post cards to verify addresses and current practice status. Doctors who did not respond received up to three questionnaires, each followed by postcard reminders one week later. After the last regular mailed questionnaire, we contacted a random 10% of non-respondents by telephone or fax. A pocket pharmacy guide was offered as an incentive for survey completion.

In addition to personal and practice characteristics, the survey asked doctors about their practices of colon cancer screening with FOBT and flexible sigmoidoscopy. The survey focused primarily on flexible sigmoidoscopy, addressing attitudes towards and barriers to use of the procedure, as well as current performance and past training in the technique of sigmoidoscopy.

The initial sample consisted of 1,582 randomly selected doctors, representing approximately one half of the licensed, active, non-resident, non-federal, primary care doctors in North Carolina. After excluding 249 who no longer actively practiced, were still in training, had relocated out of state, or practiced in academic or federal settings, we received responses from 736 (55%) of the 1333 contacted, a rate comparable to other mailed surveys of clinicians.¹³ Response did not differ significantly by specialty.

Results

Personal and Practice Characteristics. Most (77%) respondents were men. Their average age was 46 years. The vast majority listed their primary specialty as Family Practice (58%) or Internal Medicine (37%). Most (72%) were in group practice; 46% were in single specialty practices. Only 15% worked in multispecialty group practice with a gastroenterologist. Median group size was six practitioners. For all doctors, the median number of patients seen per day was 24.

FOBT Performance. Virtually all (97%) respondents recommended periodic screening with FOBT. Among those recommending FOBT, 35% said that annual screening should start at age 50, the starting point recommended by most expert groups (see box, p. 287). Almost all the others thought that screening should begin before age 50 (20% said before age 40). A majority (79%) thought that the proper screening interval was once a year, and 11% believed the interval should

Table 1. Perceived barriers to screening with flexible sigmoidoscopy, as reported by 107 North Carolina doctors who have tried to implement screening in their practices

Time commitment is too great	61%
Equipment cost is too great	36%
Reimbursement is inadequate	32%
OSHA regulations are too cumbersome	28%
Patients do not want the test	23%
3 responses were missing; n = 104	

be every one or two years. Roughly half of all physicians (54%) reported using rehydrated slides for FOBT.

Flexible Sigmoidoscopy Performance. The vast majority (92%) of respondents recommended screening with flexible sigmoidoscopy, and 43% said they performed the procedure themselves. Most (85%) agreed with expert group recommendations that colon cancer screening with flexible sigmoidoscopy begin at age 50 and be repeated every three to five years. A small minority (10%) felt that screening should begin before age 50, or should be obtained more often than every three to five years.

Among the 309 respondents who performed as well as recommended sigmoidoscopy, 61% performed 1-5 procedures per month; only 11% averaged more than 10 procedures per month. Most (84%) doctors performed the procedure in their offices using a 60 cm fiberoptic flexible scope that was cleaned manually (in 93% of cases) by a general nurse (64%) or endoscopy technician (12%). Few doctors (11%) used a 60 cm video flexible scope, and only 3% used a rigid scope. Almost all (97%) said that an average procedure took 30 minutes or less, and 48% said it took 15 minutes or less. Average depth of insertion was 50 centimeters.

Of the 360 respondents who recommended but did not perform flexible sigmoidoscopy, 85% said that a gastroenterologist did the procedure. Most (66%) procedures took place outside the doctor's practice.

Perceived Barriers to and Promoters of Flexible Sigmoidoscopy. Perceived barriers to screening with flexible sigmoidoscopy differed according to respondents' experience with the procedure. Among the 360 doctors who recommended but did not perform screening flexible sigmoidoscopy, 319 responded to questions about implementing the procedure in their practices. Of these, 107 (34%) said they had tried to implement the procedure, but had found the time commitment excessive (Table 1). Equipment costs, inadequate reimbursement, and regulatory restrictions were other significant barriers. Fewer than ten respondents named lack of training or proficiency as barriers, and only two said that malpractice or litigation costs were.

Table 2. Factors that could interest 189* North Carolina doctors in implementing screening flexible sigmoidoscopy in their practices

Training	33%
Increased reimbursement	20%
Additional time	11%
Additional equipment/logistical support	10%
More patient education/demand	4%
Fewer regulations	1%

*36 (19%) said that nothing could interest them in flexible sigmoidoscopy.

Table 3. Patient barriers to colon cancer screening as perceived by 669 North Carolina primary care doctors

Patient barriers	FOBT*	Flexible sigmoidoscopy
Inconvenience	82%	68%
Embarrassment	56%	59%
Fear of findings	54%	41%
Cost	19%	61%
Fear of pain/discomfort	NA	92%
Procedure not efficacious	9%	5%
Other	11%	6%

*Two responses were missing; n=667.

Among the 212 respondents who had not tried to implement screening sigmoidoscopy, 189 responded to a question about what might promote their interest in such screening, including 36 who said that they were not interested in performing the procedure (Table 2). The remaining 153 doctors said that additional training and increased reimbursement would promote use, but few considered that additional time and even fewer that relaxed regulation and increased patient demand would.

The 58 doctors who neither recommended nor performed flexible sigmoidoscopy identified a number of barriers against recommending the procedure. They believed that the procedure was ineffective (45%), expensive (43%), and inconvenient for patients (34%). Also, 24% said that they referred patients for colonoscopy or felt that flexible sigmoidoscopy had shortcomings.

Training in Flexible Sigmoidoscopy. Half (51%) of the respondents had received training in sigmoidoscopy as residents. Training came primarily from gastroenterologists (50%) or primary care doctors (31%). Among doctors who

recommended but did not perform flexible sigmoidoscopy, 60% said that they would be interested in free training in the procedure.

Perceived Patient Barriers to Colon Cancer Screening. Respondents estimated that only 43% of the patients to whom they recommended flexible sigmoidoscopy had had the procedure performed (the survey did not ask about FOBT). Perceived patient barriers to compliance with screening recommendations differed somewhat by procedure (Table 3). The most commonly identified patient barriers were inconvenience (FOBT) and fear of pain and discomfort (flexible sigmoidoscopy). Cost was a major perceived patient barrier to flexible sigmoidoscopy, but not FOBT. More than half of respondents identified inconvenience, fear of what might be found, and embarrassment as patient barriers to each procedure. Few believed that patients' perceived lack of efficacy was a barrier to either FOBT or flexible sigmoidoscopy.

Role of non-MD Clinicians in Colon Cancer Screening. Doctors generally believed that nurse practitioners and physician assistants have a role in cancer and colon cancer screening (Table 4). The one exception was flexible sigmoidoscopy; only 22% of respondents thought it appropriate for non-MD clinicians to perform flexible sigmoidoscopy.

Discussion

Periodic screening and the removal of polyps can prevent colorectal cancer and reduce mortality. The question is how to increase screening. In 1999, half or fewer of North Carolinians aged 50 years and older reported having ever had an FOBT or flexible sigmoidoscopy, and only 30% had had one within the recommended time frame. In contrast, 84% of women aged 40 and older reported ever having had a mammogram and a breast exam; 77% of women aged 50 years and older had had the procedures within the recommended time frame (prior two years).^{10,11}

Since recommendation by a doctor is a major motivator for screening, we need to find ways to promote such recommendations. Increasing physician awareness is not the answer—primary care doctors in North Carolina are well aware of the need for and importance of colorectal cancer screening. More than 90% of those who responded to our survey reported recommending FOBT and flexible sigmoidoscopy. Doctors were aware of the recommended starting age and appropriate screening intervals, although two-thirds said they started screening with FOBT before age 50, the starting point suggested by most expert groups.

Getting more community primary care doctors to perform screening sigmoidoscopy in their practices is an option. According to our survey, only a minority of primary care

practitioners actually performed flexible sigmoidoscopy in their offices. And even those who did, did not do it often: 89% reported 10 or fewer procedures per month and 61% reported 5 or fewer procedures monthly. Using non-MD clinicians to carry out screening sigmoidoscopy might be helpful. These personnel can perform high-quality screening sigmoidoscopy¹⁴ and, if supervised, can legally perform the procedure in North Carolina. But only a minority of doctors said that it was appropriate for non-MD clinicians to perform screening sigmoidoscopy.

Increasing community practitioners' performance of screening sigmoidoscopy faces a number of challenges. Those who had not tried to implement screening sigmoidoscopy said they needed training in how to perform the procedure, but training, which usually includes supervised performance of 20-30 procedures, could be both costly and inconvenient. Once trained, primary care doctors face a different set of barriers, most often lack of time to perform the procedure, but also lack of equipment and logistical support, low reimbursement, OSHA regulations, and lack of patient demand and compliance.

Furthermore, doctors perceive a number of patient barriers to screening. Our respondents believed that fewer than half of the patients to whom they recommend screening sigmoidoscopy actually obtain the procedure. Fear of pain or discomfort (92%) was the most frequently cited barrier, as well as inconvenience, cost, and embarrassment (59%-68%). Inconvenience was cited by 82% as a barrier to patient compliance with FOBT.

Several limitations apply to our results. First, 45% of the doctors contacted never responded to the survey. Respondents and non-respondents did not differ in demographic characteristics, but they could have differed in other important, unmeasured ways, such as non-respondents being less likely to recommend or perform colorectal cancer screening. Second, doctors' self-reported behavior generally overstates actual behavior.¹⁵ Third, the surveys took place in 1997 and 1998, prior to Medicare approval of reimbursement for colon cancer screening. Perceived barriers to screening and screening behavior itself may have changed since then, although changes in colorectal screening have generally not been rapid. Despite these limitations, our survey is the best available representation of what community primary care doctors in North Carolina do and think about colorectal cancer screening.

In June 2001, the North Carolina Advisory Committee on Cancer Coordination and Control issued its second five-year Cancer Control Plan.¹⁶ The goals for colorectal cancer screening include increasing to 60% the percentage of persons aged 50 years and older who have had an FOBT in the past year and increasing to 50% the percentage who have had a colon endoscopy within the past five years. The Plan also emphasizes addressing racial, economic, and other disparities in colorectal cancer and colorectal cancer screening.

Table 4. Perceptions of the role of non-MD clinicians (NMDCs) in colorectal and other cancer screening by 666 North Carolina primary care doctors

Procedure	Appropriate for NMDCs?
Order mammogram	92%
Order fecal occult blood test	90%
Perform Pap smear	87%
Perform digital rectal examination	83%
Order prostate specific antigen test	78%
Perform flexible sigmoidoscopy	22%

Based in part on the results of this survey and other data, the Cancer Control Plan proposes strategies to help doctors overcome barriers to colorectal cancer screening. Specific doctor and practice-targeted strategies include:

- ◆ Promoting training opportunities, particularly in use of flexible sigmoidoscopy, so that those interested but not yet trained can begin to offer services;
- ◆ Offering workshops led by community practitioners who can provide practical, hands-on advice about how to overcome logistical and other barriers to colorectal cancer screening in community practices;
- ◆ Making available tracking systems to help providers organize and deliver screening services in their practices;
- ◆ Developing regional referral resources for those who cannot or do not wish to perform colorectal cancer screening services in their offices.

Strategies directed only toward providers are not sufficient. Increasing recommendations to obtain screening and increasing practice capacity to provide screening helps little if patients do not comply. There are significant barriers to patient compliance.¹² For example, a Veterans Administration study conducted in North Carolina found that previously unscreened patients were willing to give up three months of life to avoid sigmoidoscopy and six months of life to avoid colonoscopy.¹⁷

As has been the case for breast cancer screening with mammography, strategies to increase colon cancer screening should target both providers and the community. Recommendation and simple practice-based interventions can increase compliance. In one study, use of an 11-minute videotape, a targeted patient brochure, and chart reminders increased performance of FOBT and flexible sigmoidoscopy.¹⁸

The 2001-2006 Cancer Control Plan also proposes public education strategies to increase awareness about the need for and availability of colorectal cancer screening. The Plan proposes to increase patient access to screening (through expanded insurance coverage and screening in public health departments) and follow-up care. The public education

strategies, which target the public directly and through provider settings, include

- ◆ Making learner-appropriate and culturally-appropriate educational materials on colorectal cancer risk and screening available through public health departments, the Internet, and provider offices;
- ◆ Promoting colorectal cancer awareness through local media, organizations, and worksites, especially during colorectal cancer awareness month (March).

Colorectal cancer screening is a moving target. Expert groups have achieved consensus about FOBT and flexible sigmoidoscopy, but several groups support additional procedures, such as digital rectal exam, colonoscopy, or double contrast barium enema, in addition to or as alternatives for FOBT and flexible sigmoidoscopy.⁴ However, we do not yet have strong evidence that these other procedures reduce mortality.^{5,6}

Screening colonoscopy may soon become a consensus alternative to FOBT and flexible sigmoidoscopy. Although colonoscopy is more expensive, and requires sedation and extensive preparation, it provides access to the proximal as well as the distal colon and can find cancers and polyps not detected following flexible sigmoidoscopy.¹⁹ Some have suggested that screening colonoscopy once every ten years may be a cost-effective way to carry out colorectal cancer screening. As of July 2001, Medicare coverage includes screening colonoscopy for normal risk individuals.⁷ Researchers are also developing new screening procedures, such as "virtual colonoscopy," a non-invasive technique using thin-section, helical computed tomography.²⁰

Until such virtual tests become reality, doctors and patients in North Carolina need to use the available, effective procedures to screen for our second most deadly cancer. The North Carolina Advisory Committee on Cancer Coordination and Control has identified target goals and strategies to promote colorectal cancer screening in North Carolina so that it may begin to approach the levels of success achieved by breast cancer screening. Senators Helms and Kennedy have set aside their differences to help promote colorectal cancer screening. Doctors and patients in North Carolina would benefit by following their lead.

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Current Recommendations from Three Expert Groups for Colorectal Cancer Screening of Asymptomatic Persons at Average Risk

<i>Test/Procedure</i>	<i>Beginning at Age</i>	<i>Interval</i>	<i>Recommended by*</i>
Fecal Occult Blood Test (FOBT)	50 years	Yearly	ACS, AGA, USPSTF,
Flexible Sigmoidoscopy	50 years	5 years Unspecified	ACS, AGA USPSTF
FOBT/Flexible Sigmoidoscopy	50 years	Yearly/5 years Yearly/Unspecified	ACS, AGA USPSTF
Colonoscopy	50 years	10 years	ACS, AGA
Double Contrast Barium Enema	50 years	5 years	ACS, AGA

*ACS: American Cancer Society¹; AGA: American Gastroenterological Society²; USPSTF: US Preventive Services Task Force³

Notes: The above recommendations are drawn from three expert groups. Other expert groups (National Cancer Institute, National Comprehensive Cancer Network, American College of Physicians, and others) either have statements of evidence and/or recommendations regarding colorectal cancer screening or individual screening tests. The above recommendations refer to asymptomatic, average risk persons. Screening recommendations for individuals at increased or high risk (history of adenomas, family history, history of colorectal cancer, etc) differ. For more information on screening for higher risk individuals, please refer to each expert group's complete recommendation. The above five strategies represent options and should not be combined with one another. Expert groups differ on the equality of the alternatives.

- 1 Regarding choice of test/procedure, ACS advocates informed patient decision-making that considers: test accuracy, prevention potential, costs, and risks. See Reference 4 for the complete ACS recommendation. See also: http://www3.cancer.org/cancerinfo/load_cont.asp?ct=10&doc=28&Language=English.
- 2 Other organizations endorsing the AGA's recommendations include: American College of Gastroenterology, American Society of Colon and Rectal Surgeons, American Society for Gastrointestinal Endoscopy, Crohn's and Colitis Foundation of America, Oncology Nursing Society, and Society of Gastrointestinal Endoscopic Surgeons. Regarding choice of test/procedure, the Association advocates consideration of: strength of evidence, size of benefit, clinical performance, effectiveness in preventing colon cancer, simplicity, safety, patient acceptance, cost, and cost effectiveness. See Reference 6 for the complete AGA recommendation. See also: <http://www.gastro.org/phys-sci/colcancer/index.html>.
- 3 The USPSTF recommends screening with either FOBT, flexible sigmoidoscopy, or both but does not find sufficient evidence to say which strategy is superior. The Task Force does not find evidence to recommend for or against screening with colonoscopy or double contrast barium enema. The Task Force does not discuss screening for persons at increased or high risk. The above recommendations are included in the 2nd Edition of *The Guide to Clinical Preventive Services*. A 3rd edition, which will update colorectal cancer screening, is underway. For more details on the update, visit: <http://www.ahrq.gov/clinic/uspstfix.htm>. See Reference 5 for the complete current Task Force recommendation. See also: <http://www.ahrq.gov/clinic/cpsix.htm>.