



Colonoscopy: A Gold Standard to Refuse

Following the 2001 McDougall Adventure Trip down the Amazon with 58 fellow travelers, my wife Mary came down with abdominal pains and bloating. My diagnosis was tropical sprue, a rare disease that is most likely infectious in origin that she picked up in Peru or Brazil. She (as always) expected me to diagnosis and treat her. But I do not like being Mary's doctor—it's too much responsibility. After two months of continued symptoms, I insisted that she see a specialist in intestinal diseases, a gastroenterologist.

I found the most competent specialist in Santa Rosa, California, and after a 15-minute examination by the doctor I was asked to join Mary in his office. The doctor began by agreeing with my diagnosis and suggested a few extra stool and blood tests to rule out other possibilities. After some small talk I agreed, thanked him, and began to leave.

Unfortunately, the doctor had other ideas about the purpose of our visit and began by saying, "You know that colorectal cancer is the third most frequently diagnosed cancer worldwide, with more than 1 million cases and 600,000 deaths every year." After a pregnant pause, he continued. "Mrs. McDougall, you are in your fifties, and you need a colonoscopy to prevent colon cancer." Mary looked puzzled. She had come for help with her abdominal pains and was now being asked to have a procedure for detecting the remote possibility that she might have colon polyps or cancer. She looked to me for a response.

I said, "I understand your concern, but no thanks." And we began to leave again. In an authoritative tone he insisted, "It would be highly irresponsible not to do this test." I told him I knew as much about the risk of colon cancer and the supposed benefits of colonoscopy as he did, and the answer is "No." The doctor was obviously threatened and loudly declared, "You are risking her life. I am the expert here. I have been doing these procedures for more than 10 years. They are perfectly safe. If you refuse my recommendations I will have to write a note in her records, just in case she dies of colon cancer and you come back and try to sue me."

As I walked out of his office I said, "I have seen perfectly healthy people killed after having their colon perforated with your six-foot long tubes passed under sedation." What bothered me most about this exchange was that I am a doctor, yet he was talking to me in a condescending manner, as if I were a hopelessly ignorant child. I imagine that it must be pure hell for the average patients suffering through his aggressive sales pitch. As I left I said to the doctor, "You should be ashamed of your behavior and you should probably be reported to your local medical board for showing such disrespect for a patient."*

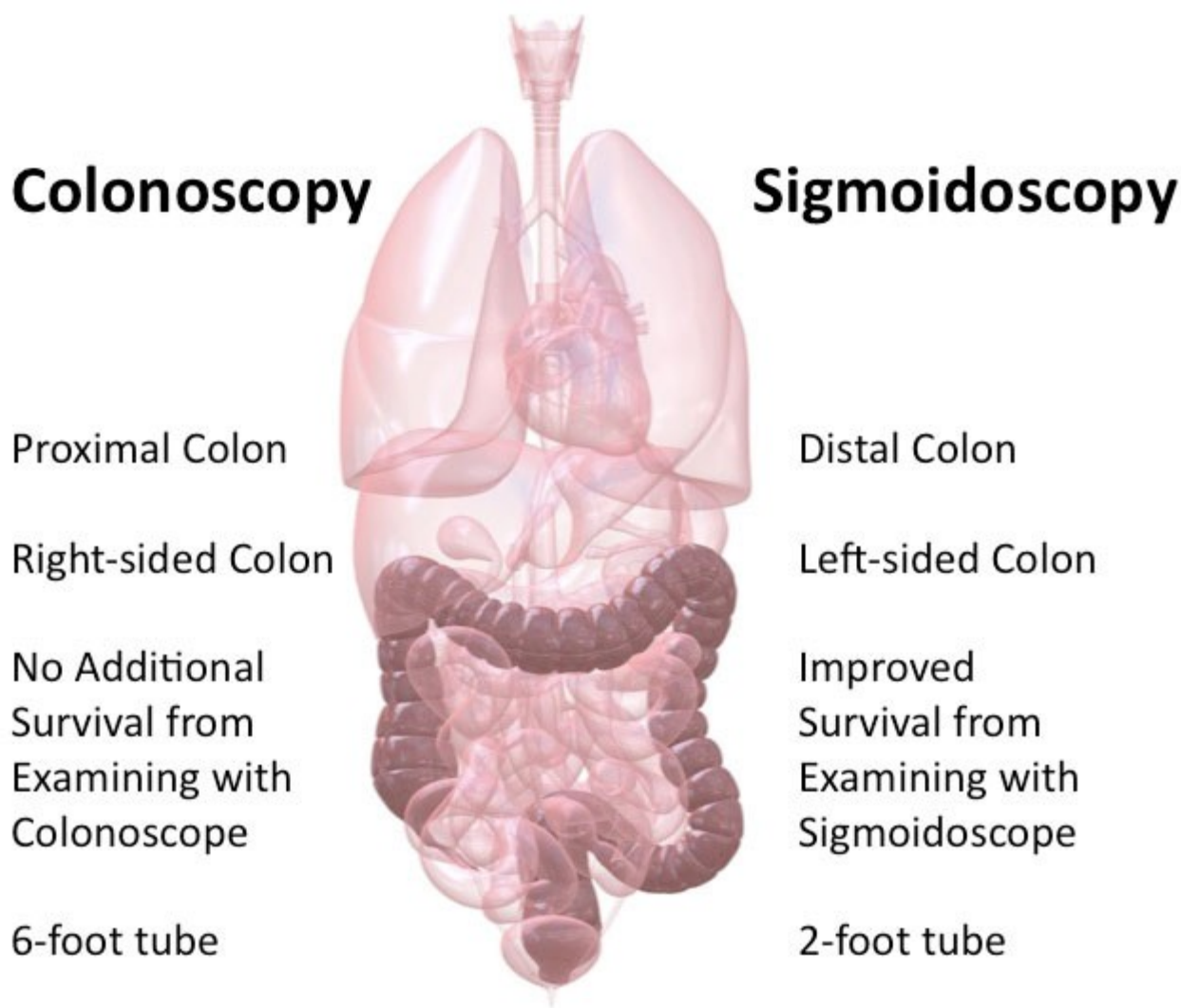
*Patients have the rights to receive considerate, safe, respectful care, and to be made comfortable; to receive care in a safe setting, free from verbal or physical abuse or harassment; to receive information about their health status, course of treatment, prospects for recovery and outcomes of care; to make decisions regarding medical care, and receive as much information about any proposed treatment or procedure; etc. (Paraphrased from the St. Helena Hospital Patients' Bill of Rights.)

Colonoscopy Screening Is Unnecessary

Since the early years following the development of colonoscopy in 1969, the procedure has been attacked as being unnecessary and unduly dangerous.¹ However, with a colonoscopy costing up to \$3,000 for each procedure, it has become the gold standard for colon cancer prevention. That prestigious position is now being lost due to recent scientific publications revealing the truth about colonoscopies. Gastroenterologists should expect their incomes to be cut by at least half as the truth becomes more widespread, especially in this climate of out-of-control healthcare spending.

As a young doctor in the 1970s I used a rigid two-foot long sigmoidoscope to check my patients for

hemorrhoids, colon polyps, and cancer. The procedure was painful, relatively safe, cost about \$100, and could be performed in about 10 minutes without any sedation in my office. Colonoscopies became popular as a screening tool in the late 1970s. Because this instrument (the colonoscope) must travel through 6 feet of torturous and turning bowel with four right angle turns (rather than only 2 feet with two bends with a sigmoidoscope) much more is involved. The colonoscopy requires a thorough bowel preparation (lasting as long as three days), sedation, and at least 30 minutes to perform. The risks from the sedation and passage of the tube are considerable. In contrast, nowadays a much more comfortable sigmoidoscope exam (using a flexible instrument) can be performed, which requires at most a day of preparation, costs about \$200, and can be completed in 10 minutes. No sedation is required and harm is rarely caused to the patient. Adequately trained nurse practitioners can perform flexible sigmoidoscopy as competently as gastroenterologists can.



Gastroenterologists who favor colonoscopy over sigmoidoscopy argue that failing to inspect the proximal three to four feet of the colon (which cannot be reached by the sigmoidoscope) is malpractice. One medical editor in 2000 metaphorically stated, "Relying on flexible sigmoidoscopy is as clinically logical as performing mammography of one breast to screen women for breast cancer."² However, the scientific evidence, even at that time, failed to show any benefit from using colonoscopy over sigmoidoscopy for colorectal cancer prevention. But because of the self-serving and financial advantages of colonoscopies, sigmoidoscope exams quickly became unfashionable as a screening tool for cancer.

The Trend Back to the Sigmoidoscope

This colonoscopy-dominated trend began to change in January of 2009 when an extensive review of the

results of colonoscopy was reported in the *Annals of Internal Medicine*.³ Even though the entire five feet of colon were examined by the colonoscope, prevention of deaths from colorectal cancer were limited to only those polyps removed from the left side of the colon—those last two feet that are easily and safely within the reach of a sigmoidoscope. The findings shook the world of gastrointestinal medicine.

The next big event was the publication of the "Once-only flexible sigmoidoscopy screening in prevention of colorectal cancer: a multicentre randomised controlled trial," published in the May 8, 2010 issue of the *Lancet*.⁴ This study has become the waterloo for the colonoscopy industry. In this massive undertaking, 170,432 individuals 55 to 64 years of age were assigned to either once-only flexible sigmoidoscopy or no screening. For those who completed the sigmoidoscopy screening the incidence of colorectal cancer was reduced by 33% and mortality by 43%. (Small polyps were removed at the time of the exam.) Follow-up colonoscopy was reserved for those patients with polyps that met high-risk criteria: 1 cm or larger; three or more adenomas; tubulovillous or villous histology; severe dysplasia or malignancy; or 20 or more hyperplastic polyps above the distal (left side) rectum. Only 5.3% of the participants went on to colonoscopy.

Why Are Benefits Limited to the Distal Colon?

The reasons that survival benefits are confined to polyps removed from the distal (left) colon are unknown, but there are some suspicions. There are technical reasons in that the proximal (right) side is harder to clean out for visualization and more difficult to pass the scope completely into. In addition, right and left colon cancers may differ biologically: right-sided cancers are occasionally flat, making them harder to identify and remove. Right-sided colon cancers are also much more aggressive and deadly, and as a result they may less often be found in a precancerous polyp stage, before they have spread (metastasized).⁵

Colonoscopy is an imprecise instrument. Colon cancer arises from polyps (also called adenomas), and these tests miss about 24% of polyps—12% being large polyps (10 mm or greater).^{6,7} In autopsy studies, approximately 35% of people consuming the typical Western diet are found to have colon polyps.^{8,9} Two-thirds of colorectal cancers and adenomas are located in the rectum and sigmoid colon, which, as mentioned, can be examined by flexible sigmoidoscopy.

Why Is One Exam Sufficient?

The size of a polyp found on examination is an indicator of how long and how aggressively the polyp has been growing.¹⁰ Large polyps, which are further along this developmental sequence, are more likely to be cancerous. Polyps less than 5 mm (half inch) are not likely to be cancerous, while 1% of polyps 10 mm (millimeters) in size show cancerous changes, increasing to 17% at 20 mm. Less than 1 in 20 small polyps will grow larger and transform into cancer.

Ninety percent of colorectal cancers occur after the age of 55. Transition time from the earliest changes in the mucous membranes of the colon to the beginning of actual cancer takes on average 10 to 15 years.¹⁰⁻¹³ Once the cancer begins, the time for metastasis (spreading to other parts of the body), and finally death, takes another 10 to 20 years. Therefore, the whole process from normal cells to cancer and death will span on average 20 to 35 years.¹⁰⁻¹³ If one flexible sigmoidoscopy examination is successfully performed between age 55 and 64, and no polyps are found (or when polyps are found, they are successfully removed) then the risk of dying from left-sided colon cancer has for all practical purposes been eliminated. In real life, if a polyp destined to become a cancer happened to start the next day after the exam, then the patient would likely die from other causes (a heart attack, stroke, old age) long before the cancer got to him or her. (As discussed above, there is still risk of dying from colon cancer from missed polyps and cancers in the proximal colon.)

Colonoscopy Screening Is Unduly Dangerous

In terms of making a decision about whether or not to have a screening performed, the benefits and

risks to you must be taken into consideration. The absolute risk of developing colon cancer for people following the Western diet is to 2.5%.¹⁵ Having one first-degree relative with colon cancer increases the risk to 4.7%, and with two relatives the risk becomes 9.6% (up to the age of 75). This increased risk is in part genetic, but also remember that mother teaches daughter and son how to cook and what to eat.

Harms from a colonoscopy may arise from the preparation, the sedation, and the procedure. In the United States, serious complications occur in an estimated 5 per 1,000 procedures.¹⁶ When biopsies or polyp removals are performed, then the risk of serious complications, including bleeding, increases. One of the most serious hazards, often leading to death, is perforation of the colon, which occurs in about 1 per 1,000 procedures. In the face of that disaster consider that to prevent one death from colorectal cancer (the benefit), 1,250 people would need to have a colonoscopy.¹⁷ This is almost an even exchange: for one life saved from cancer, one life is lost (or at least seriously threatened) from a complication, like perforation.

Are Mary and I Going to Have a Flexible Sigmoid Exam?

The recommendations for performing sigmoidoscopy over colonoscopy exams have become mainstream in [medical journals](#).^{18,19} An article in the July 28, 2010 issue of the *Journal of the American Medical Association* concluded, "If de novo decisions were being made today about whether to initiate colonoscopy as a screening tool in place of sigmoidoscopy for average-risk individuals, in light of the available evidence doing so would probably be inappropriate."¹⁹ Certainly, this closes the option for either of us getting a colonoscopy done at any age for preventing colon cancer. (Understand that even though the scientific opinions have changed recently, the actual practices among gastroenterologists have not. Plan on being offered a colonoscopy when you see the specialist—that's what they do)

At ages 63 (John) and 64 (Mary) we certainly do fit into the data that says our risk of dying of colon cancer could be cut nearly in half by having one sigmoidoscopy.³ The lifetime risk of dying from colon cancer is about one in 130 for the general population.¹⁵ This means that with the test the usual risk would still be less than 1 in 65—long odds for any gambler. However, those figures are for the general population who have been eating the Western diet (which causes colon cancer) for a lifetime. In countries where people eat rich diets—lots of meat, dairy, fats, sugars, and processed foods—there are high rates of polyps and colon cancer. Conversely, a high intake of starches, fruits, and vegetables is associated with a low risk of colon problems.^{21,22} It should not be a far reach to believe that what you put into your colon—the partially digested remnants of your food—will determine the health of your colon.

Researchers have uncovered a fifty-fold variation in the incidence of colon cancer worldwide.²⁰ Our (John and Mary) diet for the past 35 years has been one that favors a lower risk of colon cancer (albeit not a fifty-fold lower risk than seen at the extremes). Therefore, at the present time our belief is that our risk of colon cancer and polyps is extremely small, and therefore our decision is to not have the test. The small risks and significant inconveniences for us of testing outweigh any potential benefits.

As a practicing physician responsible for people at various risks of colon cancer, however, I do recommend one bowel exam with a flexible sigmoidoscope between ages 55 and 64. I have been making a similar recommendation for the past 17 years since the article "Prevention of colorectal cancer by once-only sigmoidoscopy" appeared in the 1993 issue of the *Lancet*.¹⁴ Your doctors had access to this scientific paper too. Even though trends may come and go, honest patient care remains forever.

References:

- 1) Wolff WI. Colonoscopy: history and development. *Am J Gastroenterol*. 1989 Sep;84(9):1017-25.
- 2) Podolsky DK. Going the distance - the case for true colorectal cancer screening. *N Engl J Med* 2000;343:207-8.
- 3) Baxter NN, Goldwasser MA, Paszat LF, Saskin R, Urbach DR, Rabeneck L. Association of Colonoscopy

and Death From Colorectal Cancer. *Ann Intern Med.* 2009 Jan 6;150(1):1-8.

4) Atkin WS, Edwards R, Kralj-Hans I, Wooldrage K, Hart AR, Northover JM, Parkin DM, Wardle J, Duffy SW, Cuzick J; UK Flexible Sigmoidoscopy Trial Investigators. Once-only flexible sigmoidoscopy screening in prevention of colorectal cancer: a multicentre randomised controlled trial. *Lancet.* 2010 May 8;375(9726):1624-33.

5) Benedix F, Kube R, Meyer F, Schmidt U, Gastinger I, Lippert H; Colon/Rectum Carcinomas (Primary Tumor) Study Group. Comparison of 17,641 patients with right- and left-sided colon cancer: differences in epidemiology, perioperative course, histology, and survival. *Dis Colon Rectum.* 2010 Jan;53(1):57-64.

6) Rex DK, Cutler CS, Lemmel GT, Rahmani EY, Clark DW, Helper DJ, Lehman GA, Mark DG. Colonoscopic miss rates of adenomas determined by back-to-back colonoscopies. *Gastroenterology.* 1997 Jan;112(1):24-8.

7) Pickhardt PJ, Nugent PA, Mysliwiec PA, Choi JR, Schindler WR. Location of adenomas missed by optical colonoscopy. *Ann Intern Med.* 2004 Sep 7;141(5):352-9.

8) Lieberman D, Weiss D, Bond J, Ahnen D, Garewal H, Chejfec G. Use of colonoscopy to screen asymptomatic adults for colorectal cancer. *N Engl J Med* 2000; 343: 16268.

9) Schoenfeld P, Cash B, Flood A, et al. Colonoscopic screening of average-risk women for colorectal neoplasia. *N Engl J Med* 2005; 352: 2061-68.

10) Winawer SJ. Natural history of colorectal cancer. *Am J Med.* 1999 Jan 25;106(1A):3S-6S;

11) Bhattacharya I. Screening colonoscopy: the cost of common sense. *Lancet* 347:1744, 1996.

12) Morson B. Genesis of colonrectal cancer. *Clin Gastroenterol* 5:505, 1976.

13) Stryker S. Natural history of untreated colonic polyps. *Gastroenterology* 93:1009, 1987.

14) Atkin WS, Cuzick J, Northover JM, Whynes DK. Prevention of colorectal cancer by once-only sigmoidoscopy. *Lancet.* 1993 Mar 20;341(8847):736-40.

15) Butterworth AS, Higgins JP, Pharoah P. Relative and absolute risk of colorectal cancer for individuals with a family history: a meta-analysis. *Eur J Cancer.* 2006 Jan;42(2):216-27.

16) Levin TR, Zhao W, Conell C, Seeff LC, Manninen DL, Shapiro JA, Schulman J. Complications of colonoscopy in an integrated health care delivery system. *Ann Intern Med.* 2006 Dec 19;145(12):880-6.

17) Richardson A. Screening and the number needed to treat. *J Med Screen.* 2001;8(3):125-7.

18) Hilsden R, Rostom A. Colorectal cancer screening using flexible sigmoidoscopy: United Kingdom study demonstrates significant incidence and mortality benefit. *Can J Gastroenterol.* 2010 Aug;24(8):479-80. <http://www.pulsus.com:80/journals/toc.jsp?sCurrPg=journal&jnlKy=2&isuKy=930>

19) Neugut AI, Lebowitz B. Colonoscopy vs sigmoidoscopy screening: getting it right. *JAMA.* 2010 Jul 28;304(4):461-2.

20) Dahm CC, Keogh RH, Spencer EA, Greenwood DC, Key TJ, Fentiman IS, Shipley MJ, Brunner EJ,

Cade JE, Burley VJ, Mishra G, Stephen AM, Kuh D, White IR, Luben R, Lentjes MA, Khaw KT, Rodwell Bingham SA. Dietary fiber and colorectal cancer risk: a nested case-control study using food diaries. *J Natl Cancer Inst.* 2010 May 5;102(9):614-26.

21) Koushik A, Hunter DJ, Spiegelman D, Beeson WL, van den Brandt PA, Buring JE, Calle EE, Cho E, Fraser GE, Freudenheim JL, Fuchs CS, Giovannucci EL, Goldbohm RA, Harnack L, Jacobs DR Jr, Kato I, Krogh V, Larsson SC, Leitzmann MF, Marshall JR, McCullough ML, Miller AB, Pietinen P, Rohan TE, Schatzkin A, Sieri S, Virtanen MJ, Wolk A, Zeleniuch-Jacquotte A, Zhang SM, Smith-Warner SA. Fruits, vegetables, and colon cancer risk in a pooled analysis of 14 cohort studies. *J Natl Cancer Inst.* 2007 Oct 3;99(19):1471-8.

22) Maric R. Meat intake, heterocyclic amines, and colon cancer. *Am J Gastroenterol.* 2000 Dec;95(12):3683-4.