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Colorectal Cancer Screening

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Colorectal Cancer Screening At Stowe Family Practice

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University of Vermont College of Medicine, Class of 2018

Family Medicine Clerkship December 2016-January 2017

Stowe Family Practice

Mentor: Katie Marvin, M.D.

Problem Identification

- Colorectal Cancer (CRC) contributes to significant morbidity and mortality in the US. ^[1]
- The majority of these cancer deaths could be prevented by applying existing knowledge about cancer prevention, increasing the use of screening tests, and ensuring that all patients receive timely, standard treatment. ^[2] 80% of CRC may be preventable through removal of colon polyps during endoscopic colorectal screening. ^[3]
- USPSTF gives a Grade A recommendation for Fecal Occult Blood Testing, Sigmoidoscopy, or Colonoscopy in adults, beginning at age 50 years and continuing until age 75 ^[4]
- The incidence and mortality due to CRC has declined over the past several decades, likely due to screening exams used to detect and remove premalignant colon polyps, as well as modification of risk factors and improvements in CRC treatment. ^[2]
- Unfortunately, screening rates indicate fewer than half of men and women over age 50 nationwide are screened at the recommended intervals. ^[3]
- Increasing CRC screening rates to 80% by 2018 would reduce CRC incidence rates by 17% and mortality rates by 19% during short-term follow-up and by 22% and 33% respectively during extended follow-up. These reductions would amount to a total of 277,000 averted new cancers and 203,000 deaths from 2013 through 2030. ^[5]
- Up to 60% of deaths from colorectal cancer could be prevented if everyone age 50 or older were screened regularly and treated appropriately. ^[2]

Public Health Cost

- Colorectal Cancer is the **third** most commonly diagnosed cancer and **second** leading cause of cancer death in both men and women in the US ^[4]
 - In 2014, 136,830 people were diagnosed with CRC and 50,310 people died from disease ^[2]
 - In 2016, 134,490 people were diagnosed with CRC and 49,190 people died from disease ^[1]
- CRC accounts for approximately 9% of all cancer deaths nationwide ^[6]
- 1 in 18 American men & 1 in 20 American women are at risk of being diagnosed with CRC in their lifetime ^[7]
- Although the cost of CRC care makes up less than 1% of total health care spending, it accounts for close to 12% of cancer costs, with some estimating the national cost of a single year of CRC care from \$4.5 – 9.6 billion. If current trends continue, the cost could increase to \$14 billion by 2020 ^[7]

	Lamoille County	State of Vermont	USA
Incidence Rate 2009-2013 Individuals >50 years (cases per 100,000)	118.2	119.9	128.6
Mortality Rate 2009-2013 Individuals >50 years (deaths per 100,000)	Data Not Available	47.6	50.2

Source:

- <https://statecancerprofiles.cancer.gov/incidencerates/index.php?stateFIPS=50&cancer=020&race=00&sex=0&age=136&type=incd&sortVariableName=rate&sortOrder=default#results>
- <https://statecancerprofiles.cancer.gov/cgi-bin/deathrates/deathrates.pl?50&020&00&0&136&0&1&1&1#results>

Community Perspective:

Joel Silverstein, M.D.

Gastroenterologist at Copley Hospital, Former Chief Medical Officer of Copley Hospital
Performed over 19,000 endoscopy and colonoscopy procedures in career

- “The colonoscopy was a game changer. It is much more cost effective to prevent than find cancer later and treat it. There is about as good of proof as you could ever have that colonoscopies prevent CRC.”
- With regards to other screening methods, such as flexible sigmoidoscopy, fecal occult blood testing (FOBT), fecal DNA testing, and CT or virtual colonoscopies, “any screening is better than none, but colonoscopies do more than just early detection, they prevent disease. This is the only screening test that also prevents the disease it is screening for.”
 - Dr. Silverstein believes FOBT is better than no testing, but a positive FOBT results in a colonoscopy for further evaluation and treatment - “It does not produce as dramatic results as a well done colonoscopy. Plus not all cancers bleed so they can be missed. ”
 - “DNA testing is interesting. It will only detect larger polyps. It is also expensive, costing about \$600. And a positive test leads to a colonoscopy. It is more cost effective to perform a colonoscopy first, then DNA testing followed by colonoscopy.”
 - With virtual or CT colonoscopies, “It plays a role if patients do not want a colonoscopy. But it is more uncomfortable for a patient.” He also states that small polyps can be missed with this testing.
 - “Going straight to a colonoscopy makes the most sense as it is definitive and curative. It’s a relatively safe procedure and a negative test means the patient is confidently safe for 10 years.”
- When asked about barriers for patients getting colonoscopies, he replies “people have heard horror stories of colonoscopies and the procedure is perceived as uncomfortable. I work hard to make sure it’s comfortable for patients. We use good anesthesia. CO₂ insufflation makes people less gassy, bloated, and uncomfortable in recovery.”

Community Perspective:
Katie Marvin, M.D.
Primary Care Provider at Stowe Family Practice

- “The most cost-effective, highest yield test is the colonoscopy. I will always offer a colonoscopy off the bat and if people do not want one, then I would recommend Fecal Occult Blood Testing as an alternative. It is better than nothing.”
- With regards to barriers for patients, “People are intimidated maybe because of things they have heard or imagined with the procedure. Either patients do not know they are supposed to or they do not want to.”
- Addressing the role of a PCP in increasing colon cancer screening rates, she states “There could be a lot of different answers to that. On an individual basis, the PCP’s responsibility is to make age-appropriate cancer screening recommendations and explain the reasons behind them and the basics of the procedure itself. On a larger scale, it’s our responsibility to encourage wellness exams and establish a good working relationship with the patients.”
- Dr. Marvin believes the primary healthcare system needs restructuring to increase screening rates:
 - “I think a lot of adults just do not get regular healthcare and have sort of been lost in the system. There is no great way to reach out to patients; we do not do a lot of outreach to the patients who don’t come in, and we wait for patients to schedule a physical. We put the power into the patient’s hands.”
 - “The more public media there was supporting and reassuring people for public screening tests, the more likely people will do it. There is a lot of mistrust of doctors in the community. This needs to be branched out into the mainstream media or social media. We are not using this as effectively as we can.”

Research Methodology

- **Goal of Project:**

- Determine rates of CRC screening rates per USPSTF guidelines in the 50-75 year-old population at Stowe Family Practice.
- Observe if provider-shared decision making process has an effect on patient screening rates.
- Increase patient awareness of CRC and the amount of men and women ages 50-75 that are routinely screened (goal of 80% screening rates).

- **Methodology:**

- CHART REVIEW DATA ANALYSIS:

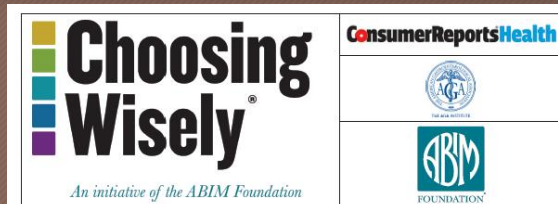
- Using UDS CY data from CHSLV QIB HRSA QI Indications for the year 2015, perform a chart review to determine the prevalence of patients meeting CRC screening recommendations in the CHSLV system. Data search inclusion criteria includes patients between the ages of 51-74 years with at least one medical visit in the current year. 10 years of data were searched for documentation of appropriate CRC screening (colonoscopy during reporting year or previous 9 years; **OR** flexible sigmoidoscopy conducted during reported year or previous 4 years; **OR** fecal occult blood test including fecal immunochemical test during the reporting year).
- Perform chart review of patients 50-75 years old at Stowe Family Practice to assess percentage of patients who have had a screening colonoscopy documented under the Diagnostic Imaging tab in a 10 years interval.
- Two separate chart reviews were performed as data was obtained by different databases and with different search criteria. One analyzes all CRC screening tests while the other analyzes just screening colonoscopies.

- PATIENT INTERVIEWS:

- Attend a day at Copley Hospital observing screening colonoscopies. Conduct informal interviews to these patients discussing their shared decision making process with providers to determine how patient-provider discussions play a role in scheduling screening colonoscopies.
- Conduct informal patient interviews with patients at Stowe Family Practice to determine if patients meet screening guidelines. If patient meets criteria, discuss the patient-provider discussions that occurred in their decision making. If not, discuss reasons why patients have not received screening and determine if a provider has performed a shared decision making conversation with the patient regarding need for screening.

Interventions

- Dr. Katie Marvin’s patient exam rooms once had patient binders with educational materials regarding health maintenance and screening guidelines. I revived this project, creating educational binders for all patient rooms to discuss general healthcare measures, including vaccinations or screening tests recommended per age group from birth to elderly, smoking cessation resources, and materials on cholesterol, diet, exercise, and contraception methods.
 - General healthcare screening recommendation brochures were provided by Blue Cross Blue Shield of Massachusetts [8] and Blue Cross Blue Shield of Michigan. [9]
 - Educational materials on CRC screening recommendations, provided by the U.S. Department of Health and Human Services Center for Disease Control and Prevention [10] were included as well in this binder.
 - Pending effectiveness and opinion of this binder, other providers will adopt a similar idea.
- Provide a shared decision making tool created by the Choosing Wisely project [11] to providers in the office to encourage routine educational discussions with patients who are over 50 and due for CRC screening.



Colonoscopy

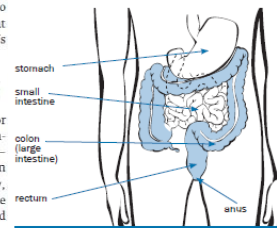
When you need it—and when you don’t

Colonoscopy is the most accurate test for cancer of the colon and rectum, proven to detect the disease early and save lives. But even a very good test can be done too often. Here’s when you need it, and when you might not.

Having a colonoscopy more than once every five or ten years usually isn’t necessary

A grape-like growth, or polyp, in the colon or rectum is common in adults and usually harmless. But some polyps—known as adenomas—may eventually turn into cancer. Doctors can spot and remove polyps during a colonoscopy, which uses a flexible, lighted tube to examine the colon and rectum. If the test doesn’t find adenomas or cancer and you don’t have risk factors for the disease, your chance of developing it is low for the next ten years. That’s because the test misses very few adenomas, and colorectal cancer grows slowly. Even if one or two small, low-risk adenomas are removed, you’re unlikely to develop cancer for at least five years, and repeating the test sooner provides little benefit. So most people need the exam just once a decade, and only a few with larger, more serious polyps may need it more often than every five years.

Colorectal Cancer Screening Basic Fact Sheet



Colon and Rectum

What Is Colorectal Cancer?

Colorectal cancer is cancer that occurs in the colon or rectum. Sometimes it is called colon cancer. The colon is the large intestine or large bowel. The rectum is the passageway that connects the colon to the anus.

It’s the Second Leading Cancer Killer

Colorectal cancer is the second leading cancer killer in the United States, but it doesn’t have to be. If everyone aged 50 years or older had regular screening tests, at least 60% of deaths from this cancer could be avoided. So if you are 50 or older, start getting screened now.

Who Gets Colorectal Cancer?

- Both men and women can get it.
- It is most often found in people 50 or older.
- The risk increases with age.

Are You at High Risk?

Your risk for colorectal cancer may be higher than average if:

- You or a close relative have had colorectal polyps or colorectal cancer.
- You have inflammatory bowel disease.
- You have a genetic syndrome such as familial adenomatous polyposis (FAP) or hereditary nonpolyposis colorectal cancer.

People at high risk for colorectal cancer may need earlier or more frequent tests than other people. Talk to your doctor about when to begin screening and how often you should be tested.

Screening Saves Lives

If you’re 50 or older, getting a colorectal cancer screening test could save your life. Here’s how:

- Colorectal cancer usually starts from polyps in the colon or rectum. A polyp is a growth that shouldn’t be there.
- Over time, some polyps can turn into cancer.
- Screening tests can find polyps, so they can be removed before they turn into cancer.
- Screening tests also can find colorectal cancer early. When it is found early, the chance of being cured is good.



Colon Polyp

Colorectal Cancer Can Start With No Symptoms

Pre-cancerous polyps and early-stage colorectal cancer don’t always cause symptoms, especially at first. This means that someone could have polyps or colorectal cancer and not know it. That is why having a screening test is so important.

RECOMMENDED PREVENTIVE CARE GUIDELINES*

CHILDREN BIRTH TO 12 YEARS OLD

	AGE	HOW OFTEN
Well child exam: Including parental education; physical activity counseling; development; injury and poison prevention; safe to sleep; coping skills; child abuse; dental health; substance abuse screening; secondhand smoke; height, weight and body mass index; car seat safety (rear facing until two years old); burn prevention; skin cancer prevention; bicycle safety and helmet use	0 to 24 months 2 to 12 years	11 visits 10 visits (one visit yearly)
Autism screening	18 months	Once
Breast feeding counseling	Interventions during pregnancy and after birth to support breast feeding	At birth
Cholesterol screening (if increased risk)	Between 2 and 8 years; again between 12 and 16 years	Twice if high risk
Dental screening: Adequate fluoridation	Beginning at 6 months	Ask your dentist
Developmental screening	At 9, 18 and 30 months	Three times
Lead screening (if high risk)	At 9 and 18 months	Twice, if high risk
Newborn hearing and metabolic screening (congenital hypothyroidism, sickle cell, phenylketonuria)	Birth (after 24 hours)	Once before 1 month old
Vision screening	At least once between ages of 3 and 5 years	Before starting school
IMMUNIZATIONS		
DTaP (diphtheria, tetanus and pertussis)	2, 4 and 6 months 15 to 18 months 4 to 6 years	First, second and third dose Fourth dose Fifth dose
Flu	6 months and up	Two doses first year; one dose annually thereafter
Hepatitis A	12 months 18 months	First dose Second dose
Hepatitis B	Birth 1 to 2 months 6 to 18 months	First dose Second dose Third dose
HiB- haemophilus	2 to 15 months	Complete series (three to four doses depending on vaccine)
HPV (human papillomavirus)	Males and females, 10 to 12 years (minimum age 9 years)	Three doses
Meningococcal	11 to 12 years 16 years	First dose Second dose
MMR (measles, mumps and rubella)	12 to 15 months 4 to 6 years	First dose Second dose
Pneumococcal conjugate (pneumonia)	2 months 4 months 6 months 12 to 15 months	First dose Second dose Third dose Fourth dose
Polio	2 months 4 months 6 to 18 months 4 to 6 years	First dose Second dose Third dose Fourth dose
Rotavirus	2 to 6 months	Complete series (two or three depending on vaccine)
Tdap (tetanus, diphtheria and pertussis)	11 to 12 years	One dose
Varicella (chicken pox)	12 to 15 months 4 to 6 years	First dose Second dose

*Sources for these guidelines are the Michigan Quality Improvement Consortium and the U.S. Preventive Services Task Force as of July 2016. Guidelines are subject to change.

Results: Database Research

- **UDS CY Data From CHSLV QIB HRSA QI Indications Report:**

# Patients Meeting Recommendations	Total # of Patients Meeting Inclusion Criteria	Percentage Meeting Recommendations
2505	4313	58%

- **Stowe Family Practice Colonoscopy Chart Review Report:**

- Age 50-75, All Stowe Family Practice Physicians
- Result Date Range 10/01/03 – 10/01/13

Total Patients 50-75	1705
No Colonoscopy Performed	1029
Percent Not Adherence to Guidelines	60.35%
Percent Adherent to Guidelines	39.65%

Results: Patient Interviews

- **Copley Hospital Colonoscopy Patients:**

- Of the five patients receiving screening colonoscopies for the day, all patients have received at least one prior colonoscopy.
- Two patients reported having a somewhat thorough shared decision making discussions with their providers, while three underwent colonoscopies simply because it was recommended for their age.
- Four of the five patients were not aware of FOBT and simply just opted for a colonoscopy.
- Two patients have a positive family history of CRC, stating that was all it took to seek colonoscopy.
- One patient reports: “I like to keep track of these sorts of things, so I sought out the information and carried out with the procedure after talking to my doctor about it.”

- **Stowe Family Practice Patients:**

- Of my 12 patient interviews, only two did not ever receive CRC screening. These two both reported they were informed of the recommendations by providers without a detailed conversation and chose not to participate due to lack of interest.
 - One stated they would find a shared decision making tool possibly helpful for future visits.
- The ten patients interviewed who meet CRC screening guidelines all reported having some sort of a shared decision making conversation with their providers. However, five only needed to hear recommendations before agreeing for a colonoscopy. One chose to get screening because she was having blood in her stool.
 - Per one patient, “My doc kept getting at me to do it so I did,” demonstrating the importance of provider intervention.

Evaluation of Effectiveness and Limitations

- **Effectiveness:**

- Binders were placed in the patient exam rooms with various educational materials regarding screening recommendations per age group.
- The Shared Decision Making Tool was well-received by the providers and provided an educational method to discuss importance of screening colonoscopies.
- My database review revealed a significantly lower number of patients up to date on CRC screening than previously perceived by providers at Stowe Family Practice.
- In order to evaluate the effectiveness of my educational interventions, I would recommend performing a repeat chart review at six months, and then at one year, sending out informational materials to non-adherent patients after each interval.

- **Limitations:**

- My UDS CY chart review included patients with at least one visit in the past year, possibly overestimating the number of patients up to date by creating a bias towards patients more actively involved in their health care. This data analysis does not include those healthy patients who do not come in for routine visits, possibly sliding under the screening radar.
- My SFP chart review was limited by the restraints of the search engine. The number is not accurate as some patients' results were not reported or properly documented under diagnostic imaging in the chart. Also, I did not include other acceptable CRC screening methods, such as FOBT or flexible sigmoidoscopy in this review.
- My patient interviews have a low n, thus do not provide a significant representative sample of the practice.
- Given time constraints, I was unable to evaluate the effectiveness of my interventions on increased screening rates or the increased education or perception of the patient population.

Recommendations for the Future

- Encourage providers to assess for adherence at each encounter for patients 50-75, and use the shared decision making tool during appointments with these patients to increase CRC screening.
- Educate providers, medical records, and office administrators on proper documentation for completed screening colonoscopies to create a more accurate search database / chart review.
- Assess effectiveness of the patient educational materials and shared decision making tools in regards to increasing CRC screening rates.
- Future Projects Ideas:
 - Expand on patient educational reading material in binders to include more shared decision making tools for other cancer screening guidelines, increasing patient awareness and provider use of these tools.
 - Perform a chart review at six months and one year to evaluate effectiveness and impose further interventions.
 - Conduct a study to determine if patients non-adherent to CRC screening guidelines are more likely to not show up for annual physical exams. If so, a proposed intervention to increase screening in this population is to perform outreach to the non-adherent patients by sending letters including general screening information and encourage them to schedule an annual physical exam. This project could deal with all health-maintenance items and not just colorectal cancer screening.

References

1. Cancer Statistics Center. American Cancer Society. *CA: A Cancer Journal for Clinicians*. 2017. https://cancerstatisticscenter.cancer.org/?_ga=1.187113448.1738198715.1482869864#/
2. American Cancer Society. Colorectal Cancer Facts & Figures 2014-2016. Atlanta: American Cancer Society, 2014. <http://www.cancer.org/acs/groups/content/documents/document/acspc-042280.pdf>
3. US Department of Health and Human Services Health Resources and Services Administration. <https://www.hrsa.gov/quality/toolbox/measures/colorectalcancer/>
4. *Final Recommendation Statement: Colorectal Cancer: Screening*. U.S. Preventive Services Task Force. October 2014. <https://www.uspreventiveservicestaskforce.org/Page/Document/RecommendationStatementFinal/colorectal-cancer-screening>
5. Meester, R. G. S., Doubeni, C. A., Zauber, A. G., Goede, S. L., Levin, T. R., Corley, D. A., Jemal, A. and Lansdorp-Vogelaar, I. (2015), Public health impact of achieving 80% colorectal cancer screening rates in the United States by 2018. *Cancer*, 121: 2281-2285. doi:10.1002/cncr.29336 <http://onlinelibrary.wiley.com/doi/10.1002/cncr.29336/full>
6. Inra, Jennifer A. Colorectal Cancer Screening. *American Journal of Hematology/Oncology*. <http://www.gotoper.com/publications/ajho/2016/2016jan/colorectal-cancer-screening>
7. Gellad Ziad F., Provenzale Dawn. Colorectal Cancer: National and International Perspective on the Burden of Disease and Public Health Impact. *Gastrojournal. Gastroenterology* 2010;138:2177-2190. [http://www.gastrojournal.org/article/S0016-5085\(10\)00173-3/pdf](http://www.gastrojournal.org/article/S0016-5085(10)00173-3/pdf)
8. Preventative Screening Guidelines for Healthy Adults brochure. Blue Cross Blue Shield Massachusetts. 2016. https://www.bluecrossma.com/wps/wcm/connect/2590b4804ea81fc0be23fe884f66a871/166248M_Adult_Screenings_Guidelines_10-13-16_FINAL.pdf?MOD=AJPERES
9. Preventative Care Saves Lives brochure. Blue Cross Blue Shield of Michigan. 2016. <https://www.bcbsm.com/content/dam/public/Consumer/Documents/help/faqs/preventive-care-brochure.pdf>
10. Colorectal Cancer Screening Basic Fact Sheet. Screen for Life National Colorectal Cancer Action Campaign. U.S. Department of Health and Human Services Center for Disease Control and Prevention. 2014. https://www.cdc.gov/cancer/colorectal/pdf/basic_fs_eng_color.pdf
11. Choosing Wisely Project Consumer Reports Health <http://consumerhealthchoices.org/wp-content/uploads/2012/10/ChoosingWiselyColonoscopyAGA.pdf>