Assessing Barriers in Surveillance Colonoscopy in Patients with Pathological Findings

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Abstract

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Significance: Among men and women, colorectal cancer is the third leading cause of cancer related deaths in the United States. [1] Tragically, most colorectal cancer is preventable, and due to barriers that exist, only 4 out of 10 colorectal cancers that should be diagnosed, are diagnosed in early stages.[1]

Purpose: The purpose of this study was to assess potential barriers that exist in colorectal cancer surveillance. The population chosen reflects those individuals that require average risk surveillance colonoscopy per the United States Preventative Services Task Force (USPSTF) guidelines.[2] Very little research on surveillance colonoscopy barriers was present upon literature review. The researchers hypothesized that additional barriers may exist based on the paucity of current data.

Methods: This study was a retrospective chart review of medical records from 2005-2009 with a survey arm that interviewed 331 patients via phone with a pre-validated questionnaire based on reviewed medical records. Information was gathered and analyzed using univariate analysis with Chi Square testing and multivariate logistical

regression with SPSS V 22 to assess for possible barriers to obtaining a surveillance colonoscopy.

Results: Results showed that similar barriers to screening colonoscopy exist with surveillance colonoscopy. In addition, potential significant barriers such as perceived pain of initial colonoscopy, ease of scheduling an appointment, and proper notification were identified as factors to adequate patient follow up.

Conclusions: Although certain specific barriers (such as difficulty scheduling an appointment, not knowing a patient needed to receive a colonoscopy by the medical provider and patient themselves, level of comfort during the procedure, or level of comfort during the prep the night before the colonoscopy) were identified, more research needs to be done into potential additional barriers that may exist. Additionally, automation of medical records to allow patient notification of the need of colonoscopy by providers to patients must be developed.

Introduction:

Colon Cancer is a tremendously important, and preventable disease that is the second and third most diagnosed cancer in women and men respectively in the United States. Among men and women, colorectal cancer is the third leading cause of cancer related deaths in the United States, accounts for over 50,000 deaths per year, and 9% of all cancer deaths.[1] Colon cancer can affect anyone, and of those affected, one in three will die from this disease.[1] Although screening has increased over the years, the US still lags behind targeted screening goals, as only 2 million Americans out of the 4.5 million that meet recommended colorectal cancer screening requirements actually receive a colonoscopy.[2]

After obtaining an average screening colonoscopy that is normal and free of cancer, surveillance (rescreening) should take place every 10 years for average risk individuals and more frequently if actual pathology was found during the colonoscopy.[2] Unfortunately, some patients do not return for surveillance colonoscopy. Many studies have looked at barriers that exist in screening colonoscopy, however, there are relatively few studies in the medical literature as to what barriers may exist in obtaining a surveillance colonoscopy.

Background-Current Screening Guidelines:

Screening for colorectal cancer is key to prevent unnecessary death from a preventable cancer. The USPSTF and other organizations including the American College of Gastroenterologists (ACG), and the American Cancer Society (ACS), recommends colorectal cancer screening at age 50 for all persons with average risk for colorectal cancer (no first degree relative with colon cancer at age 50 or less).[4] Although controversial, screening has been recommended earlier in certain populations with increased incidence of colorectal cancer to include African Americans (screening at age 45 years old is recommended by the ACG). [4] Screening is also not recommended for average risk individuals after the age of 75 years old as the risks of screening may be greater than the potential benefits. [4] Specific screening recommendations can be seen in Table 1 and 2 below. [4]

Table 1. Colorectal Cancer Screening Recommendations in Asymptomatic Adults at Average Risk

Organization	*Screening test and interval*	*Patient age*
U.S. Preventive Services Task Force*[7]	The following options are equally acceptable High-sensitivity FOBT annually Flexible sigmoidoscopy every 5 years with high-sensitivity FOBT every 3 years Colonoscopy every 10 years	Start at 50 years; individualize after 75 years
American College of Gastroenterology†[8]	Preferred Colonoscopy every 10 years Fecal immunochemical test annually (if colonoscopy is declined) Alternative, prevention Flexible sigmoidoscopy every 5 to 10 years Computed tomography colonography every 5 years Alternative, cancer detection High-sensitivity FOBT annually Stool DNA test every 3 years	Start at 50 years, or 45 years in blacks
American Cancer Society, U.S. Multi-Society Task Force, American College of Radiology‡[9]	Tests that detect adenomas and cancer Flexible sigmoidoscopy every 5 years Colonoscopy every 10 years Double-contrast barium enema every 5 years Computed tomography colonography every 5 years Tests that primarily detect cancer High-sensitivity FOBT annually Fecal immunochemical test annually Stool DNA test, interval uncertain	Start at 50 years

source: http://www.aafp.org/afp/2015/0115/p93.pdf[4]

Table 2. Colonoscopy Screening Recommendations Based on Risk Factors

Risk factor	*Age to initiate screening*	*Interval if normal (years)*
Single first-degree relative with colorectal cancer or an advanced adenoma diagnosed at ≥ 60 years of age	50 years (may start at 45 years in blacks)	10
Single first-degree relative with colorectal cancer or an advanced adenoma diagnosed at < 60 years of age	40 years or 10 years younger than affected relative's age when diagnosed, whichever is earlier	5
Two first-degree relatives with colorectal cancer or an advanced adenoma diagnosed at any age	40 years or 10 years younger than the youngest affected relative's age when diagnosed, whichever is earlier	5

NOTE: *An advanced adenoma is defined as an adenoma that is 10 mm or larger, has villous elements, or has high-grade dysplasia.*

Information from reference 8.

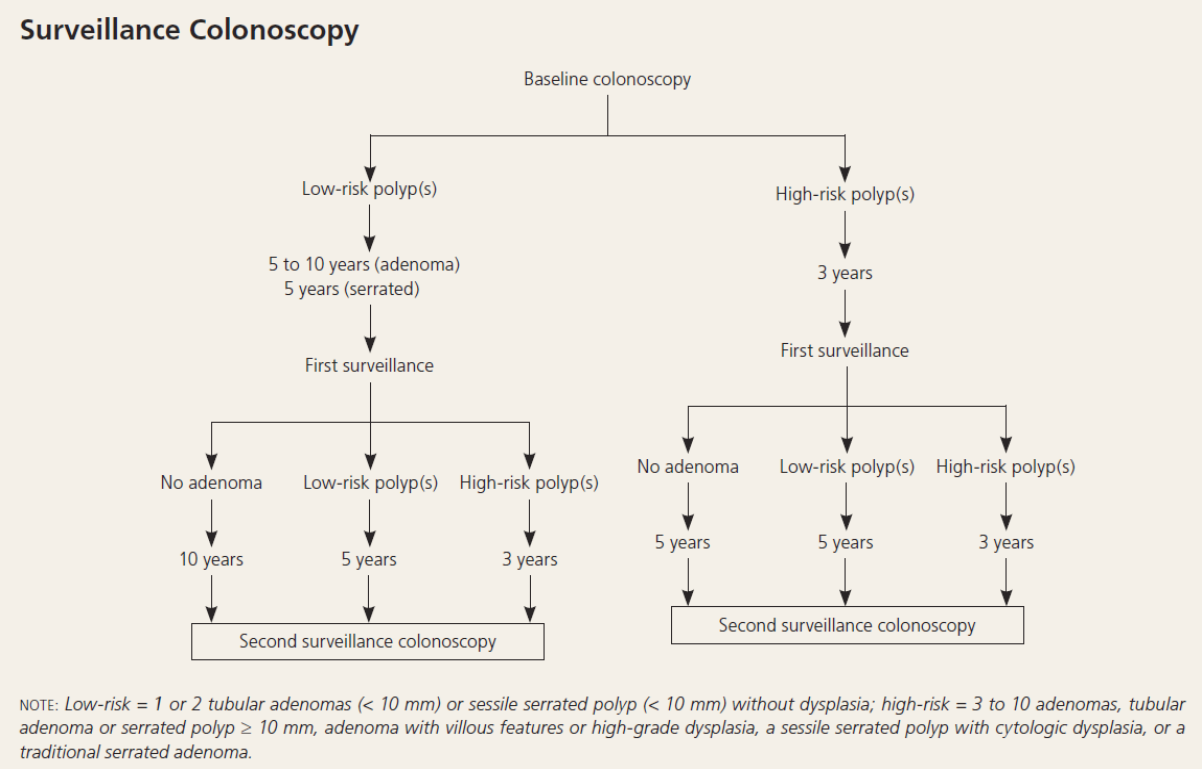
source: http://www.aafp.org/afp/2015/0115/p93.pdf[4]

It is important to distinguish the differences between "screening colonoscopy" and "surveillance colonoscopy." Screening colonoscopy is the initial colonoscopy a patient receives per the guidelines listed above. Surveillance Colonoscopy on the other hand,

can be thought of as the colonoscopy that is received after the initial screening colonoscopy either 10 years after the initial colonoscopy, or sooner depending on certain risk factors of patients to include the patient's self-identified race, the presence of prior abnormalities, or family history of colon cancer. Abnormalities found during the procedure are usually in the form of growths of tissue that can either be benign or cancerous. These abnormal growths are known as polyps. Surveillance intervals are recommended by compiling certain risk factors of patients to include race, the presence of prior polyps, the actual number of polyps, the type and size of polyps, and the family history of a colon cancer in a patient's family (family history is defined as colon cancer diagnosed in a first degree relative before the age of 50).[4] It is important to note that there are degrees of abnormalities when discussing polyps to include: **Benign** (normal-not cancerous), [5] **Hyperplastic** polyps- (low risk polyp) ,[5] **Tubular Adenoma**-the most common type that can turn cancerous,[5] and **Villous Adenoma**-(high cancer risk polyp).[5]

Depending on the above abnormality, a screening regimen specific to each patient is recommended. For example, if a low risk polyp is found, surveillance should occur in 5-10 years if the tissue was a regular adenoma, and in 5 years if the tissue was a serrated (jagged) adenoma. If a high risk polyp is found on initial colonoscopy, then surveillance should occur every 3 years. Table 2 illustrates surveillance colonoscopy frequencies.

Table 2 (continued):

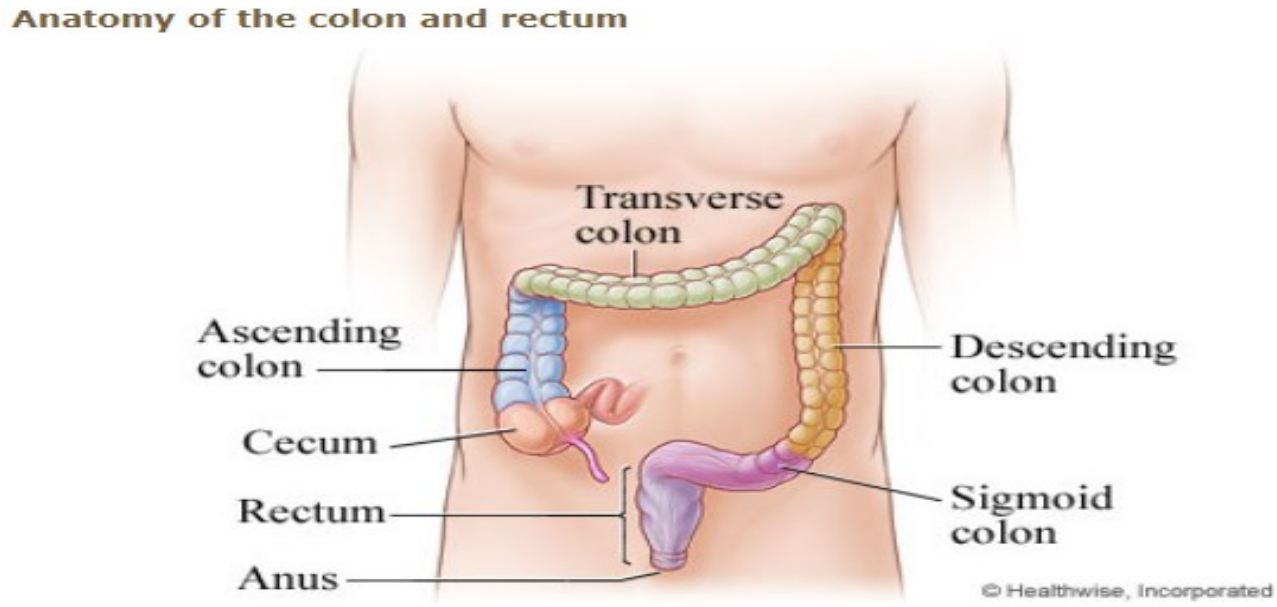


NOTE: *Low-risk = 1 or 2 tubular adenomas (< 10 mm) or sessile serrated polyp (< 10 mm) without dysplasia; high-risk = 3 to 10 adenomas, tubular adenoma or serrated polyp ≥ 10 mm, adenoma with villous features or high-grade dysplasia, a sessile serrated polyp with cytologic dysplasia, or a traditional serrated adenoma.*

source: http://www.aafp.org/afp/2015/0115/p93.pdf[4]

Background-Anatomy/Colonoscopy procedure:

Figure 1: Anatomy



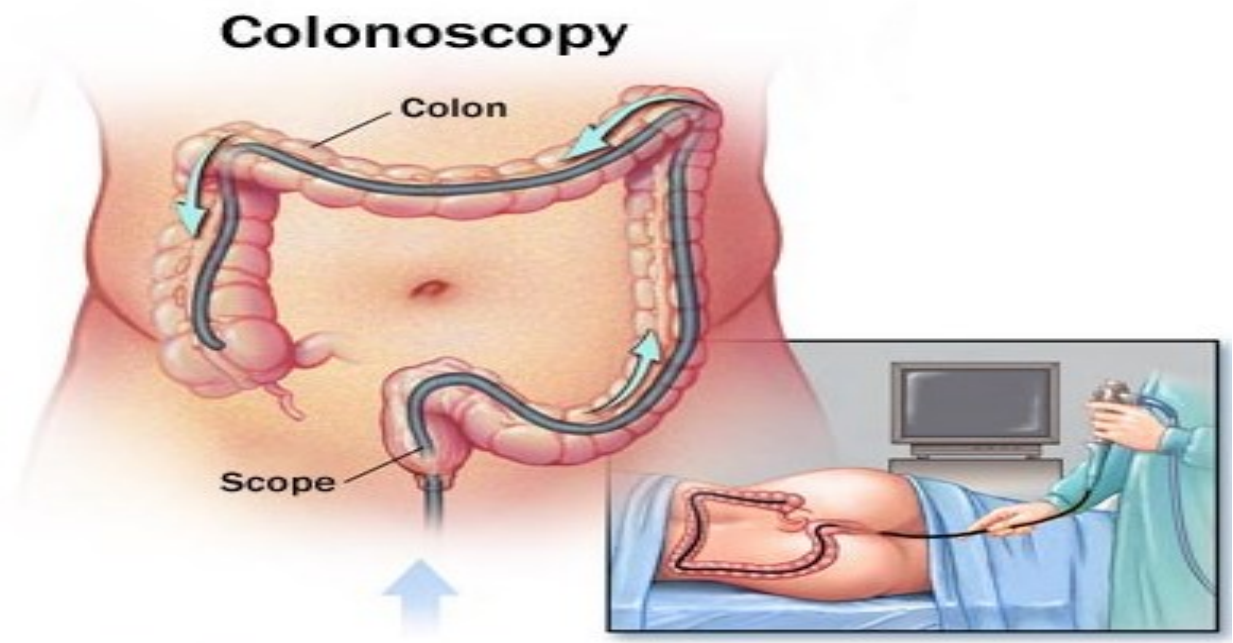
source: *http://www.uofmhealth.org/health-library/zm6206

What is a colonoscopy?

A colonoscopy is an approximately 30 minute or less same day procedure that is done at a hospital or outpatient clinic that is used to search for a preventable cancer in the form of colonic polyps (abnormal growths of tissue). A physician will apply anesthesia to a patient to minimize pain, insert a colonoscope through the rectum and advance the scope up the sigmoid, descending, transverse, and ascending colon, and cecum. This is done to look at all portions of the large intestine to search for polyps or any other possible abnormalities. If an abnormality is found, a piece of the tissue is taken via a biopsy through the colonoscope. It is important to note that not all abnormalities are cancerous.

Once the abnormality is visualized and a tissue biopsy is taken, the tissue is given to a pathologist (specialist physician that analyzes tissue samples from the body), whereupon the pathologist determines if the piece of tissue is truly a normal variant of tissue, abnormal, or cancerous. If the tissue is cancerous, options include removing the specific abnormal tissue, or surgery if needed.

Figure 2: A Colonoscopy



source: http://greatlakesgastroenterology.com/features/colonoscopy/

Significance:

Upon literature review, a significant amount of research in the area of barriers to obtaining an initial screening colonoscopy was found. Broad themes present through multiple observational studies show that similar obstacles exist across cultures in addition to culturally specific barriers. [9] Common themes that contributed to not having an initial screening colonoscopy include unawareness of the risks of not being screened

for colorectal cancer (CRC), general discomfort, physician unfamiliarity with screening options or the importance of screening, fear/anxiety of the procedure, thought of pain during the procedure or embarrassment (what other people may think or say), medical mistrust, poor bowel preparation, logistical challenges (transportation, cost, insurance), and having a fatalistic outlook on life, were discovered.[9,10,11,12]

Interestingly, certain cultural barriers were identified within the cultures of Arab Americans,[8] African Americans,[15,16] and Hispanic/Latino Americans.[10] Most of the broad themes focused on lack of awareness, fear of cancer, belief that faith in God would help, fatalism, and a "Machismo" attitude that stigmatized getting a colonoscopy as something men should "never" do.[8,14]

One particular study found during the literature search addressed sending mailings to patients for screening colonoscopy. [21] The study found that, in general, older patients were more adherent than younger patients to make and keep their appointment, and patients with low-income insurance plans, such as Medicaid, were less adherent, despite being sent a brochure.[21]

The main issue, regardless of what the barrier may be, is that there was something that hinders appropriate follow up with certain patients. It has been known for some time that barriers to screening colonoscopy exist. Although screening barriers have been identified in past studies, very little is known about what barriers exist after the screening process (during surveillance colonoscopy). However, whether it was cultural or personal beliefs, or medical-system-wide logistical issues, identifying and addressing

potential barriers in the surveillance process can lead to the appropriate follow up of a patient with a high risk of developing colon cancer.[20] Simply put, appropriate follow up can help save lives, and it is the medical community's duty to seek out and destroy barriers before colon cancer unnecessarily claims lives. Understanding this assessment of the literature review, the research hypothesis was that there are potential barriers that exist that play a significant role in the follow up of a patient's surveillance colonoscopy, thus the aim of this study was to assess potential barriers in surveillance colonoscopy.

Methods:

This study consisted of a dual institution (Madigan Army Medical Center and University of Washington) IRB approved retrospective chart review with a survey of patients with abnormal findings aimed at better understanding potential barriers that may exist with obtaining a surveillance colonoscopy. The first part of this study was a retrospective case review. This was completed by manually analyzing medical records from one facility (Madigan Army Medical Center) from January 1, 2005- December 31, 2009. All patients of any ethnicity, any age, having had a colonoscopy for colon cancer screening at Madigan Army Medical Center between January 1, 2005-Decrember 31, 2009 were eligible for this study.

Patients that received a colonoscopy for the primary indication of severe bleeding, chronic diarrhea, or abdominal pain were excluded from the study as these conditions may predispose a patient to automatically follow up more frequently due to the perceived severity of their condition. Also, those patients who were deceased at the time of the chart review were excluded from the study. Age, gender, phone number, severity of colon pathology, and potential follow up date of the patient was recorded from the medical records.

All patients were assigned a unique identifier number used to populate a list of patients that were to be called and interviewed by the researchers. After 1262 records were analyzed, 531 patients who were high risk and had significant pathology requiring more frequent screening were identified (per USPSTF guidelines).[2,6] After medical chart review was complete and logged, all patients having received colonoscopies were de-identified, given a unique 3 digit identifier number (starting with 001 to 331) and organized in an excel spreadsheet with an age and gender designation only along with a master key spreadsheet encrypted and stored on a CAC-encrypted government computer (only accessible by one of two researchers via individual secure ID card). Two groups were identified from this analysis to include those with an abnormal result that returned for their surveillance colonoscopy, and those that did not return for their surveillance colonoscopy (regardless of whether pathology was present during the initial colonoscopy). A binary variable indicating whether a patient did or did not return for surveillance colonoscopy was assigned to each patient.

Five hundred and thirty one eligible patients were contacted and invited via phone interview and messaging to take part in the study. One hundred and fifty four patients did not answer their phones or return messages left on their answering machine. Forty six patients declined to take part in the study. Three hundred and thirty one patients were consented to the study and interviewed using a standard over-the-phone IRB approved consent form. All patient consents were logged with the patient's unique identifier number. We assessed whether these patients returned for surveillance as directed in their medical records. We assessed through phone interview, what potential barriers may have existed in the surveillance process.

We defined a failure to return for their scheduled surveillance colonoscopy as not returning 1 year after the recommended date for follow up that was listed in their medical record (following the USPSTF guidelines). Due to the deemed "minimal risk" of this study, this study was approved for an expedited IRB review and received expedited dual IRB approval from Madigan Army Medical Center and the University of Washington.

Patients who were at elevated risk (low or high risk per USPSTF, ACG guidelines)[4] and had significant pathology requiring more frequent screening than the normal 10 year interval were specifically identified. We assessed whether or not these patients returned for surveillance as directed via manual medical database record review. The date of each patient's original colonoscopy, their clinic encounter note, and the subsequent pathology, was read, analyzed, and verified. If pathology was found during the exam, those patients were logged into the database and included in the study.

Once the patient consented to the study, we gave a brief 5-10 minute survey over the phone designed to assess what potential barriers may have existed in the screening and surveillance process. The two groups of patients (those that did return and those that did not return) were asked about their overall experience obtaining a colonoscopy (ease of scheduling, comfort with provider, understanding the diagnosis, comfort with procedure, would they return to the facility, etc.) to identify potential barriers in surveillance colonoscopy. A previously validated questionnaire (Group Health Association of America 9 survey-GHAA9 seen below on the next page figure 3)[4] was used as the basis of the actual interview questions with two added questions not included in the original GHAA9 survey (see figure 4).

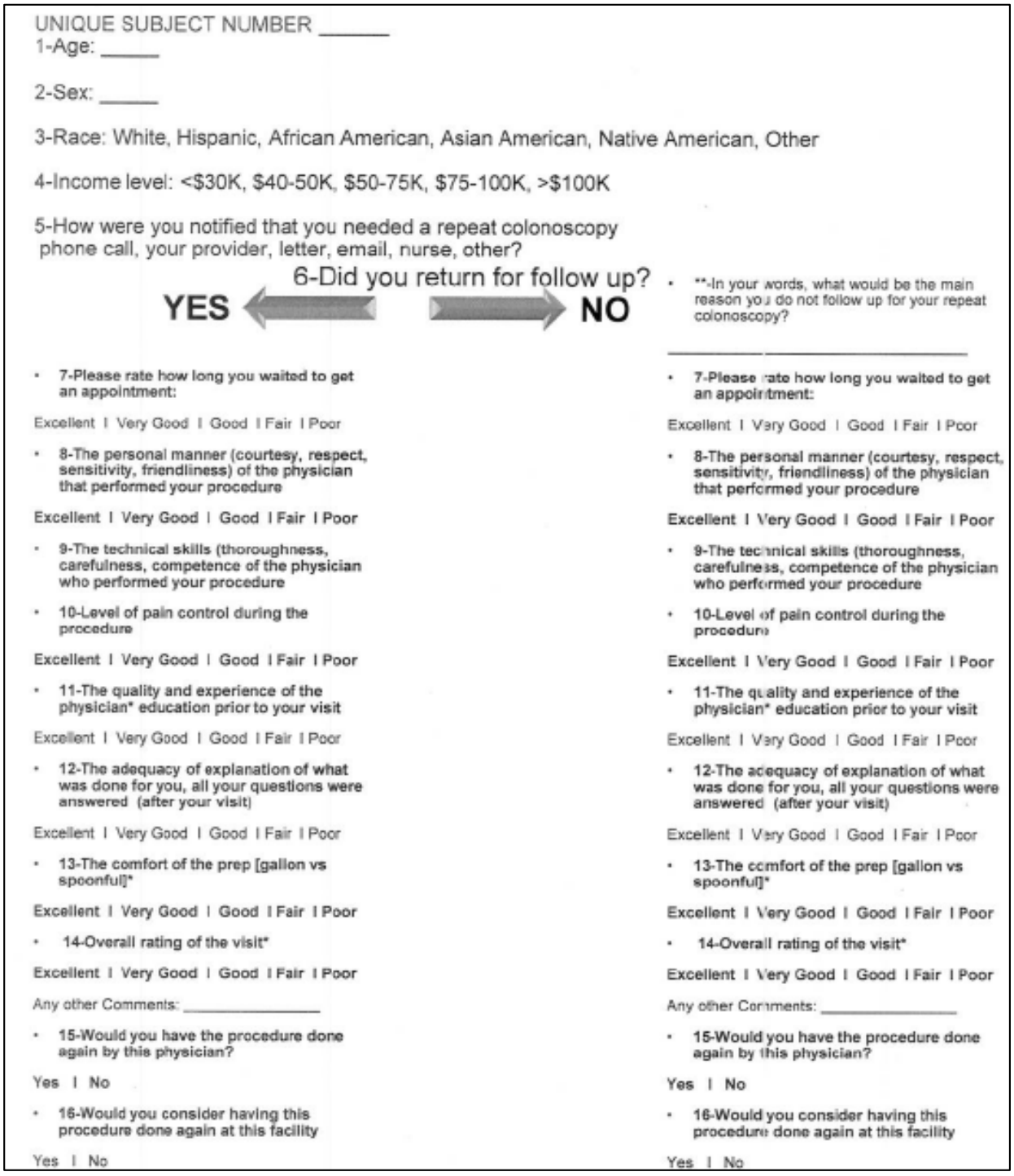
Figure 3: Group Health Association of America 9 Survey [3]

1. How long you waited to get an appointment
   | Excellent | Very Good | Good | Fair | Poor |
2. The quality and experience of the physician group education visit before your procedure*
   | Excellent | Very Good | Good | Fair | Poor |
3. Length of time spent waiting at the office for the procedure
   | Excellent | Very Good | Good | Fair | Poor |
4. The personal manner (courtesy, respect, sensitivity, friendliness) of the physical who performed your procedure
   | Excellent | Very Good | Good | Fair | Poor |
5. The technical kills (thoroughness, carefulness, competence of the physician who performed your procedure)
   | Excellent | Very Good | Good | Fair | Poor |
6. The personal manner (courtesy, respect, sensitivity, friendliness) of the nurses and other support staff
   | Excellent | Very Good | Good | Fair | Poor |
7. Adequacy of explanation of what was done for you--all your questions were answered
   | Excellent | Very Good | Good | Fair | Poor |
8. Level of pain control during the procedure*
   | Excellent | Very Good | Good | Fair | Poor |
9. Overall Rating of the visit
   | Excellent | Very Good | Good | Fair | Poor |
10. Would you have the procedure done again by this physician?
    | Yes | No |
11. Would you consider having this procedure done again at this facility?
    | Yes | No |
12. Was this your first colonoscopy?*
    | Yes | No |

Please list any additional comments:

* Questions not included in GHAA 9 survey

Figure 4: Actual modified questionnaire used:



UNIQUE SUBJECT NUMBER _____

1-Age: _____

2-Sex: _____

3-Race: White, Hispanic, African American, Asian American, Native American, Other

4-Income level: <$30K, $40-50K, $50-75K, $75-100K, >$100K

5-How were you notified that you needed a repeat colonoscopy
phone call, your provider, letter, email, nurse, other?

6-Did you return for follow up?

YES ⟵ ⟶ NO

**-In your words, what would be the main reason you do not follow up for your repeat colonoscopy?

_____

- 7-Please rate how long you waited to get an appointment:

Excellent I Very Good I Good I Fair I Poor

- 8-The personal manner (courtesy, respect, sensitivity, friendliness) of the physician that performed your procedure

Excellent I Very Good I Good I Fair I Poor

- 9-The technical skills (thoroughness, carefulness, competence of the physician who performed your procedure

- 10-Level of pain control during the procedure

Excellent I Very Good I Good I Fair I Poor

- 11-The quality and experience of the physician* education prior to your visit

Excellent I Very Good I Good I Fair I Poor

- 12-The adequacy of explanation of what was done for you, all your questions were answered (after your visit)

Excellent I Very Good I Good I Fair I Poor

- 13-The comfort of the prep [gallon vs spoonful]*

Excellent I Very Good I Good I Fair I Poor

- 14-Overall rating of the visit*

Excellent I Very Good I Good I Fair I Poor

Any other Comments: _____

- 15-Would you have the procedure done again by this physician?

Yes I No

- 16-Would you consider having this procedure done again at this facility

Yes I No

- 7-Please rate how long you waited to get an appointment:

Excellent I Very Good I Good I Fair I Poor

- 8-The personal manner (courtesy, respect, sensitivity, friendliness) of the physician that performed your procedure

Excellent I Very Good I Good I Fair I Poor

- 9-The technical skills (thoroughness, carefulness, competence of the physician who performed your procedure

- 10-Level of pain control during the procedure

Excellent I Very Good I Good I Fair I Poor

- 11-The quality and experience of the physician* education prior to your visit

Excellent I Very Good I Good I Fair I Poor

- 12-The adequacy of explanation of what was done for you, all your questions were answered (after your visit)

Excellent I Very Good I Good I Fair I Poor

- 13-The comfort of the prep [gallon vs spoonful]*

Excellent I Very Good I Good I Fair I Poor

- 14-Overall rating of the visit*

Excellent I Very Good I Good I Fair I Poor

Any other Comments: _____

- 15-Would you have the procedure done again by this physician?

Yes I No

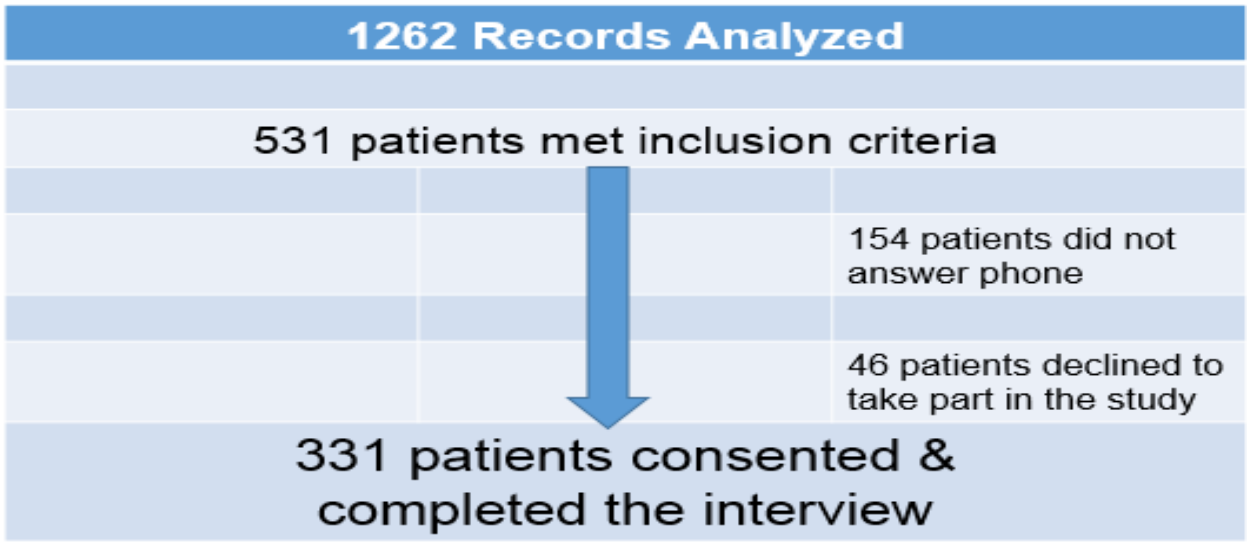
- 16-Would you consider having this procedure done again at this facility

Yes I No

Study population:

One thousand two hundred and sixty two charts were reviewed during this study. Five hundred and thirty one charts (42%) met the inclusion criteria of this study. We were able to contact 377 (71%) of these patients. Of those 377 patients, 46 patients (12%) declined to take part in the study, leaving 331 patients (88% of the contacted patients, 62% of the eligible patients) who answered their phones and agreed to be interviewed for the purposes of this study.

Figure 5: Study Population



Demographics:

Just over half of the study population were male, and Caucasian was the most commonly reported race. The mean age of the study population was 56. Most patient's income levels were reported as less than 30,000 dollars per year while almost half of the study population declined to report income levels. Complete demographics can be seen in table three.

Table 3 Demographics:

Variable	Mean	SD
Age (years)	56.0 Range: 24-81	8.4
Gender	**%**	**N**
M	55%	181
F	45%	150
Race/Ethnicity		
Caucasian	63%	207
African American	11%	36
Asian/Pacific Islander	9%	30
Hispanic	5%	16
Other	12%	40
Income		
<30K	29%	96
40-50K	16%	53
50-75K	11%	36
>75 K	<1%	7
declined	42%	139

Data Collection & Analysis

All data on primary variables was collected using the pre validated questionnaire (see actual questionnaire on page 13)[3] with responses translated from the verbal "poor, fair, good, very good, and excellent" to a 5 point Likert scale for data analysis. Race, gender, socioeconomic status, reason for colonoscopy, ease of scheduling, level of comfort with provider, level of comfort during the procedure, comfort of the prep, and overall colonoscopy experiences were the specific variables that were measured. All responses received from patients were translated from text to numbers (1-2 = yes/no, M/F) or (1-5 poor, fair, good, very good, excellent) for data analysis. For analytical purposes, a failure to return for their scheduled surveillance colonoscopy was defined as not returning 1 year after the recommended date for follow up that was listed in their own medical record.

Statistical analyses consisted of chi-square tests and bivariate logistic regressions, conducted using SPSS v22. Table 4 illustrates the primary reason for the patient's initial colonoscopy. As expected, a majority of the initial colonoscopies were done as part of average risk screening, presumably due to the USPSTF guidelines that screening for colon cancer in the average risk population should be done at age 50. Approximately 24% of the study population had a personal history of polyps at some point before the study, and 29% had a family history of colon cancer. Approximately 9% of the patients are designated in the "other" category, meaning that their colonoscopy was done for acute (not chronic) diarrhea, suspected irritable bowel syndrome, Crohn's Disease or suspected ulcerative colitis.

RESULTS:

Table 4 (below) shows the primary reason for patients obtaining their original colonoscopy (most patients having obtained their colonoscopy for screening purposes).

Table 4: Reason for patient's colonoscopy

Average Risk Screening	Personal history of polyps	Family history of colon cancer	Other indication
38% (126)	24% (81)	29% (95)	9% (29)

As reported below in Table 5, 64% of the patient population did not follow up as recommended by their physician as documented in their medical record. Mostly all notifications for follow up came via provider phone call or clinical visit (92%). Some patients reported receiving a letter in the mail but could not recall specifically (8%). The main reasons for not following up as recommended are listed below. A majority of the patients (32%), could not recall why they did not follow up, many forgot that they needed to or that having a colonoscopy was an important part of maintaining their health.

Table 5: Patient follow up

Followed up as recommended		Reason given for not following up
Yes: 36% (120)		Could not recall: 32% (105)
No: 64% (211)		Forgot: 14% (47)
		Did not know they needed to: 15% (50)
		No reason given: 3% (9)

A key component of this study was trying to understand what factors may have played a role into why a patient would have followed up when they were supposed to or why they did not. Multiple variables were analyzed with separate bivariate logistical regressions, one for each variable. Being male or being in a lower income group were associated with a nearly 50% reduction in the odds of follow-up, though these associations were not statistically significant. No statistical significant association for follow up was observed with race.

Those patients with a personal history of colon cancer or polyps were 71% more likely to return for their surveillance colonoscopy. Similarly, those with a family history of colon cancer were 63% more likely to return for their surveillance colonoscopy. Both variables showed statistical significance for follow up examination. Patients were six times more likely to return for their surveillance colonoscopy if they had an easy time scheduling their procedure, and 10 times more likely to return if patients had an adequate level of comfort during the actual colonoscopy prep the night before the procedure.

Also, level of comfort with, and competence of provider, level of comfort during the actual procedure were variables that had a statistically significant role in a patient's follow up plan. In addition, those patients that obtained their initial colonoscopy for average screening of colon cancer, were two times more likely to return for their surveillance colonoscopy. Although this was observed, this was not a statistically significant finding.

Table 6: Reasons patients returned or not

Variables factoring in patient's return as directed –using logistical regression			
Variable	**OR**	Confidence Interval	p-value
Income	.489	(.161-1.48)	p=.347
Gender	.518	(.235-1.14)	p=.104
Average risk screen	2.46	(.968-6.242)	p=.059
Personal history	.029	(.018-.041)	p=.018
Family history of colon cancer	.372	(.170-.813)	p=.013
Ease of scheduling	6.86	(2.36-10.02)	p<.001
Level of comfort and competence of provider	.158	(.087-.481)	p<.001
Level of comfort during procedure	.224	(.090-.313)	p<.001
Level of comfort during the prep	10.64	(3.02-27.66)	p<.001

Of note, all variables analyzed during the logistical regressions were converted to binary variables and coded accordingly as 1,2,3,4,5, etc.

Discussion:

Commonalities of barriers between screening and surveillance colonoscopy were found during this study. Broad themes such as perceived pain of the procedure, competence of the provider, fear of the procedure, education/knowledge or importance of the procedure, poor bowel preparation and logistical challenges (such as scheduling an appointment) were common barriers identified in both surveillance and screening colonoscopy. Variables not measured during this study included the idea of a fatalistic attitude from the patient, medical insurance issues (due to the patient population whereupon everyone is covered for this procedure), and "machismo" cultural attitudes.

It was interesting to note that factors that may have played a role in surveillance colonoscopy such as income, race, or gender, had no statistical significance. This may have been due to the small study population, data from only one location in the country, at one facility, or the fact that there is truly no difference between certain populations or income levels. Alternatively, there may indeed be an association, as seen with effect size during this study, however, more studies focusing on these specific issues are needed to clarify this question.

As expected, the more serious the perceived threat of cancer was (with the patients with a personal history of colon cancer, or polyps, or family history of colon cancer), the more likely it was for those particular patients to follow up when they were supposed to follow up for their surveillance colonoscopy as prescribed by their physician. Also, specific factors such as the ease of scheduling, level of comfort and competence of provider, level of comfort during the procedure and level of comfort during the prep for

the colonoscopy, played a significant role in why a patient would or would not have followed up.

Another barrier that was clearly identified was that the more difficult it was to schedule an appointment, navigate the medical system, and find the right phone numbers to call, the more likely the patient would either follow up late, or not follow up at all. Also, a small number of patients (<5), thought that follow up was unnecessary and that the entire colonoscopy was unnecessary, pointing to an area of potential education in the future from providers to patients during wellness visits.

Additionally, other limitations include a large percentage of patients that did not want to take part in the study (affected the response rate). Also, those patients that returned for colonoscopies after their initial screening colonoscopy, returned more recently than those that did not return at all. Thus, those that returned recently may have recalled interview questions more accurately than those patients that had their colonoscopies done years ago. A final limitation noted during this study included the possibility of poor patient recall of how or if they were notified of needing a surveillance colonoscopy. Patients may have forgot being told by their provider the need for surveillance colonoscopy, or, the need for surveillance may have not been discussed by their provider.

Recommendations:

The most striking finding of the study was the lack of consistency or automation of a patient notification process. Most patients recall that a provider mentioned that they needed a colonoscopy, “may have received something in the mail,” “may have read something about needing a colonoscopy somewhere in the newspaper or online,” or could not recall how they knew they needed a colonoscopy. These factors combined with retiring from active service, moving away from the medical center, and changing medical records into a completely different medical system in another state/region of the country, may have contributed to the lack of this notification.

Although certain barriers such as issues with scheduling an appointment, a patient not knowing they needed to receive a colonoscopy, level of comfort during the procedure, or level of comfort during the prep the night before the colonoscopy were identified in obtaining a surveillance colonoscopy, more research needs to be done into additional potential barriers that may exist. In addition, patient education is paramount, and patients must understand the need and importance of a colonoscopy to detect and treat this preventable cause of death. Providers must work colon cancer screening education into every yearly wellness exam and clearly explain the importance of the procedure, the steps of the procedure, and potential deadly outcomes of non-compliance to the applicable patient population.

Finally, the most difficult potential change to implement would be to improve electronic medical records and notification process for certain screening and surveillance issues that need to be done in regards to the patient population served. One cannot expect a patient to remember that they need a particular screening, have the same provider, or be part of the same medical system year after year. A system that reminds the provider and links the reminder to the patient via phone call, text or email with verification of a read receipt is needed to ensure that potentially preventable cancers are not missed in the future.

Making such changes requires time, funding, and buy-in from all parties involved in the development, implementation, and execution of electronic medical records. Encouragingly, as medical records become more sophisticated and patients are increasingly communicating with their primary care provider via email and text, medical records are beginning to build in notification and screening processes into their systems to enhance patient care. Early adoption of these electronic systems are key, and investment must be made into these systems in order to prevent one of the most deadly ***preventable*** cancers that exist today.

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Figures 1 & 2:
http://www.uofmhealth.org/health-library/zm6206, http://greatlakesgastroenterology.com/features/colonoscopy/