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Evaluation of Provider Recommendation of Colorectal Cancer Screening in a Primary Care Setting

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Evaluation of Provider Recommendation of Colorectal Cancer in a Primary Care Setting

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Abstract

Objectives: The overall objective of this practice inquiry project was to evaluate whether providers in a primary care clinic in Louisville, KY were following the United States Preventive Services Task Force (USPSTF) screening guidelines regarding colorectal cancer for patients aged 50 -75. The study examined the types of screening recommended, and whether completion of screening was documented in the medical record. Finally in this study, provider recommendation for Colorectal Cancer Screening (CRC) was evaluated to determine if types of screening recommended, and documentation varied based on the ethnicity of the patients.

Methods: This was a descriptive study using a retrospective chart review of patient medical records (n= 200) in a primary care office located in Louisville, Kentucky. Charts were reviewed and data collected for male and female patients ages 50-75, who were seen in the primary care office between January 1, 2015 and December 31, 2015. Data was also collected and charts examined on whether CRC screening was recommended, the type of screening that was recommended, whether recommendation was based on ethnicity, and whether completion of screening was documented.

Results: There was no statistically significant difference in gender by CRC screening recommendation. According to the data, females were as likely to be recommended for CRC screening as their male counterparts. There was no statistically significant relationship between ethnicity and the recommendation of CRC screening. The data did reveal however, that the providers overwhelmingly chose to recommend one type of screening (colonoscopy) over the other types of screening, (e.g., Fecal Occult Blood, Fecal immunochemical test, Cologuard, Flexible sigmoidoscopy). This might be due to the high predictive value of colonoscopy compared to the other types of CRC screening processes. Also the data revealed that, while there

was no statistically significant difference by age (p=.52), those recommended for CRC screening were slightly older. (Mean=59.1) as compared to those not recommended 56.6 for screening. This is older than what USPSTF recommends.

Conclusion: In this clinic, providers were as likely to recommend CRC screening for women as for men. In addition, the CRC screening did not differ based on race or ethnicity. Notwithstanding, it was apparent that younger patients were not screening for CRC at the same rate compared to the older patients. There is need for provider improvement in recommendation of CRC screening for the patients starting at age 50, in line with the USPSTF guidelines. This is critical as new research has found colon cancer rates rising among individuals under 50.

Introduction

According to the Centers for Disease Control and Prevention (CDC), cancer is one of the leading causes of death in our society today. Mortality from colorectal cancer (CRC) is declining, yet it remains the second-leading cause of cancer death and the third most common cancer in men and women in the United States (CDC, 2015). The best news about colorectal cancer is the knowledge that it can be prevented or cured if detected in the early stages. An estimated 150,000 people are diagnosed annually, and 50,000 of them die from the disease within 5-10 years of diagnosis (Freedman, Slattery, & Ballard-Barbash, 2009). The American Cancer Society also estimates that 134,490 new cases of colorectal cancer will be diagnosed in women and men, and that 49,190 women and men will die from this disease in 2016 (MacBride, Pruthis, & Bevers, 2012). Screening of average-risk men and women aged 50 to 75 years is recommended by the U.S Preventive Services Task Force (USPSTF), because early detection of high-risk neoplasm, adenomas and cancers is associated with decreased CRC incidence and mortality (Djenaba, King, Miller, & Richardson, 2012: National Cancer Institute, 2015). Colorectal cancer can be prevented by screening, and early detection is crucial in its prevention and management. The cost of treating this disease is enormous and is expected to increase by 78% by the year 2020 (American Cancer Society, 2011). Screening for colorectal cancer has been shown to be a high impact cost-effective service (Maciosek, Coffield, & Flottemesch, 2010). To meet the mandates of Healthy People 2020 (2016), there is need to advocate for screening of this preventable disease.

The purpose of this project was to determine if there were any differences in the rate of provider adherence to recommendations for colorectal cancer screening based on ethnicity.

1. Determine if providers are adhering to USPSTF guidelines for recommending colorectal cancer screening.
2. Determine which types of colorectal cancer screening are recommended.
3. Determine if there is documentation that colorectal cancer screening was done.
4. Compare provider recommendation to obtain colorectal cancer screening, the type of screening recommended, and documentation that the screening was done by ethnicity.

Background/Literature Review

Kentucky ranks third highest in the nation for mortality from colorectal cancer (19.4 per 100,000) compared to the national average (16.3 per 100,000). The 2012 screening rate for Kentucky was 65.9% which is slightly below the national rate of 67.3% (Kentucky Department of Public Health 2012-2013). However, there has been an increase in the screening rates for colorectal cancer in Kentucky from 35% in 1999 to 66% in 2012 (Knight et al., 2015). This is an encouraging trend, however the same is not true among the African American population in Kentucky. The incidence rate of colorectal cancer in the African American population is 74.4 per 100,000 men, 54.0 per 100,000 women, and the mortality rate is 30.1per 100,000 men and 22.7 per 100,000 women. The screening rate for the African American population in general is 63%. (American Cancer Society, 2014-2016).

There is need to increase the screening rate amongst the African American community in the state (Knight et al., 2015) because colorectal cancer rates in Kentucky are highest in black men and women. In addition, the highest age-adjusted state mortality rates for black men are more than 50% higher than those for white men. (American Cancer Society, 2014-2016).

The U.S Preventive Services Task Force (USPSTF) developed a screening guideline for colorectal cancer. The guideline was published in 2002, and was revised in 2008 and just recently updated in 2016. The 2002 guideline recommended screening for colorectal cancer, for average-risk adults aged 50 years and older. The revision by USPSTF in 2008 recommends screening for colorectal cancer beginning at the age of 50 and continuing until the age of 75. The testing or screening methodologies recommended are:

i) flexible sigmoidoscopy every 5 years

ii) Fecal occult blood testing (FOBT) every year with high sensitivity guaiac or FIT test.

iii) Colonoscopy every 10 years.

iv) Fecal immunochemical test (Fit) every year.

The new revision in 2016, recommends routine screening for CRC starting at age 50 and continuing until age 75 years. It did not specify any testing modalities, rather it stressed the importance of CRC screening, noting that screening for colorectal cancer is a substantially underused preventative health strategy in the United States (Bobbins-Domingo, 2016). In addition, the USPSTF recommended screening for individuals age 76 to 85 who had not been screened previously, and without any comorbid conditions as long as the provider's clinical judgement is that it is in the patients' best interest. (USPSTF, 2016). Other CRC screening modalities that are routinely done are fecal immunochemical tests (FIT), and cologuard, double contrast barium enema**,** multi-target stool DNA test, and CT colonography (Smith, Andrews, Brooks, DeSantis, Fedewa, et. al., 2016)

Routine screening is a major factor in colorectal cancer prevention (American Cancer Society, 2011-2013). Research has shown that African Americans aged 50 and above are less likely to be screened than Caucasians of the same age. This has created disproportionate health

disparities burden on this minority group (CDC, 2010; Holden, D.J et al. 2010). Lack of physician recommendation is one of the frequently cited reasons patients do not screen for CRC (Ahmed, Pelletier, Winter, & Albatineh, 2013; Knight, et. al., 2015).

The State of Kentucky has focused on increasing the prevention and early diagnosis of colorectal cancer, by enacting legislation and supporting initiatives that will increase the number of persons screened for colorectal cancer in the state. These measures are intended to increase colorectal cancer screening in the state, thereby reducing the morbidity, mortality and the cost of treating the disease in the commonwealth (KRS. 214.540, KRS. 214.542, and KRS.214.544)

Increasing the number of African Americans who are routinely screened for colorectal cancer will reduce the mortality rate from colorectal cancer in this population. There are many possible barriers for the low screening rates in the African American demographic. Barriers include economic constraints, lack of proper/adequate insurance, education, sheer indifference, and lack of provider recommendation (Knight, et. al., 2015). Other barriers to colorectal cancer screening noted in the literature are lack of symptoms by the patient, potential embarrassment or discomfort, and fear of finding cancer (American Cancer Society, 2011: Holden, Jonas, & Porterfield, 2010). This project will focus and evaluate provider recommendations for CRC screening in a primary care setting.

One of the ways a provider develops a health promotion plan for his/her patients is to become knowledgeable about the common or current practice guidelines for preventative health screenings. These guidelines when followed by the provider, encourage the patient to adopt a health maintenance approach to their overall health outcome. CRC screening guidelines are the preventative screening measures developed by the USPSTF and other organizations, which the provider should offer to average at risk patients. The primary care provider is in a unique

position to contribute to overall health of the patient by recommending the relevant screenings when due. Considering the influence and impact a provider has on whether a patient screens for colorectal cancer, there is need to examine if they are following the guidelines and recommending the relevant screenings.

There is documented evidence that patients are likely to screen for colorectal cancer as long as there is a recommendation from the provider. Provider recommendation for CRC screening has been considered a strong predictor of screening amongst patients (Feldstein et al., 2012, p. 198). However, data also exists that shows provider recommendation for CRC may be influenced by the patients' age and comorbidities, (Haggstrom, Klabunde, Smith, & Yuan, 2012), lack of agreement on the type of screening preferred by the patient and the one prescribed by the provider, (Hawley et al., 2012).

Methods

Study Design

This study used a retrospective chart review of patient medical records to determine provider adherence to the USPSTF screening guidelines for CRC, and whether there were differences based on ethnicity. Charts were reviewed to determine if the providers were recommending CRC screening for the appropriate age groups of all patients that received services in the clinic based on the USPSTF guideline, and type of screening recommended. Records were also reviewed to determine if CRC screening had been completed and documented. Rate, type of colorectal cancer screening and documentation that CRC screening was done, was then compared by ethnicity.

Charts were reviewed by first looking at the health maintenance tab to see if the required health screenings were documented as done. If there was no record of the screening in the health maintenance tab, the referral and surgery tabs were reviewed to see if there was a referral for the

screening documented in those tabs. Most of the time it took a complete review of the patients office visit starting when they reached age 50 years, going through referrals and surgery notes to find the documentation of colorectal cancer screening recommendation. Even when there was documentation of CRC screening, it was difficult to determine if that was their second screening or not, though if they were in their 50s it may be their first.

Study Permission.

Permission for this practice inquiry project were twofold. First, an application for the study was made to the University of Kentucky Institutional Review Board (IRB), and permission was granted by certificate No. 16-0478-P1G. Secondly, another permission for the study site (clinic), and was granted by the Norton Healthcare Office of Research Administration (NHORA) approval letter No. 16-N0134. Since this study was a retrospective chart review, the data that was examined was stripped of any patient identifiable personal information. However, to preserve confidentiality, the data was recorded in a crosswalk table and spreadsheet, and stored in the Primary Investigators (PI) identity authenticated secure firewall protected folder at Norton Healthcare. Since the study involved no more than minimal risk, the informed consent was waived by the IRB. No patient identifiable information was extracted during data collection, and none was in the data that was statistically analyzed.

Inclusion and Exclusion Criteria

Inclusion criteria were males and female patients, age 50 to 75, who were seen in the clinic between January 1, 2015 and December 31, 2015. Exclusion criteria, were any patient not within the age limit of 50-75 and not seen in the clinic between January 1, 2015 and December 31, 2015. A random sample of the charts from the EPIC medical record system of existing

patients who met the inclusion criteria were selected for review using research randomizer. A total of 200 charts of patients (100 males and 100 females) were chosen and reviewed, to determine if screening for CRC was ordered, the type of screening recommended, and whether the screening was documented as being completed.

Data Analysis

Data analysis was completed using the SPSS statistics (Version 23.0) from IBM Inc. Chicago IL. Descriptive statistics were used to summarize patient demographic and clinical characteristics. The Chi-square test of association was used to evaluate for significance of association between two categorical variables as contained in the dataset, (e.g., age, sex, CRC recommendation and documentation). The T-test was used to compare the mean age at which patients were recommended for CRC screening. This study considered values of $p < 0.05$ to be statistically significant for the analysis.

Results

Sample Characteristics

A total of 200 charts were reviewed for this project; 100 female and 100 male patients. The average age of the patients was 58.7 years. Almost three-quarters of the patients (73%) were Blacks/African Americans, 23% were Caucasian/white and less than 3% were Hispanic or other. Few patients classified as Asians (1.5%)

Of the 200 charts that were reviewed, providers recommended CRC screening for 86% of the patients. Providers documented that CRC screening had been completed for 84% of the patients. There was no significant difference in CRC screening recommendation by age; the patients who were recommended for screening were slightly older (*Mean* = 59) compared to those who were not recommended for screening (*Mean* = 56; see Table 2). Although there was

no significant difference in, the USPSTF recommends CRC screening begin at 50 years old which is much younger than the average age of patients who were offered screening in this study. In addition providers overwhelmingly recommended colonoscopy (100%) over other screening modalities like FOBT, Flexible sigmoidoscopy, CT colonography and cologuard. There was no statistically significant difference in whether the patients were recommended screening by sex (p= .95), or ethnicity (p=.80; see table 2).

Discussion

This practice inquiry project evaluated provider practices in a Louisville primary care clinic. The aim was to determine if the providers were recommending colorectal cancer screening for average at risk patients in accordance with established guidelines. The project in particular sought to determine if the providers were adhering to the USPSTF guideline, which types of screening were recommended, if there was documentation that screening had been completed and if there was a difference of the recommendation and documentation based on ethnicity. As noted above, there was no statistically significant difference in CRC recommendation, documentation of the recommendation and by ethnicity.

The most glaring practice discovered in this practice inquiry project was that providers did not recommend for CRC screening until 9 years after the USPSTF recommends screening to begin. The other practice noted was that providers mostly recommended colonoscopy for CRC screening. Colonoscopy has always been considered the gold standard for screening of CRC, because it can detect and remove precancerous polyps. It is used to confirm any positive test results from the other screening modalities (American Cancer Society, 2011). This procedure screens the entire large intestine and requires cleansing in advance (Mayo Clinic, 2008).

The other testing modalities endorsed by different guidelines each have some level of empirical support for their effectiveness (Smith, Cokkinides, Brooks, Saslow, Shah, & Brawley,

2011). They are easy to administer, inexpensive and convenient, but lack sensitivity for pre-cancerous polyps. Colonoscopy on the other hand, notwithstanding the advantages, has been shown to be time consuming for the patients, expensive and has a small but well documented morbidity (USPSTF, 2008). Knowing what type of test the patient prefers will help in increasing testing. Communication between the provider and the patient should be dynamic and personalized to fit the patients' socioeconomic status, age and race. (Walsh, Karliner, Burke, Somkin, Pham & Pasick 2010). This makes it easier for the patient to grasp what the physician is communicating to him/her. The physician should always discuss the different recommended tests for CRC with all patients (Shokar, Carlson, & Weller, 2010). This will increase patient confidence in the process and make them open to screen for CRC. Patients who are offered only colonoscopy for initial CRC screening might not screen at all (Debourcy, Lichtenberger, Felton, Butterfield, Ahnen, & Denberg, 2008).

In this study providers recommended CRC screening at the average age of 59 years, which is older than the age recommended by the USPSTF. Even though this is comparable to the mean age for screening reported in other studies (Imperiale, et al., 2002), this is not a good trend, especially given the recent increase in incidence of colorectal cancer amongst patients younger than 50 years of age. New research has found the incidence of colorectal cancer to be on the rise among those under 50 years (Reinberg, 2016). There is need for the providers to make sure that they recommend CRC screening for every eligible patient. The situation is made more dire with the increase in the number of patients below 50 years old who have presented with colorectal cancer.

Limitations

There are some limitations to this study. The study was a retrospective chart review of 200 randomly selected medical records from 1800 records of eligible patients seen in the clinic between January 1, 2015 and December 31, 2015. There may be need to increase the sample size, though on the one hand the random sampling for this study decreased any potential bias, on the other hand there were additional 1600 medical records from which the sample size could have been increased. The second limitation is the time frame of the study. Review of charts within a one year span may not be enough to make a definite conclusion about the provider practices in the clinic, though it might point to a trend.

Another limitation to the study was the confusion created by data checkpoints in the charts. There was a standard health maintenance tab in the charts. Information in the tab, most of the time, did not correspond with information in the doctor's note. When any health maintenance module is completed by the patient, documentation of it in the appropriate place should be automatic to reflect that it was completed or not. The Epic electronic health record is used across the hospital system. Therefore, it should be easy to find any record of a procedure that was performed within the healthcare system. This is not the case here, results of procedures performed in the hospitals sometimes do not cross over to the outpatient clinic. This was the case in some of the charts reviewed.

Implication for clinical practice

We are moving from a health maintenance paradigm to a health prevention scheme. Being that CRC is rising amongst people younger than 50, there may be need to revise the recommendations to lower the age threshold. Screening for colorectal cancer is one of the preventative services recommended by the USPSTF. As mandated by the Patient Protection and

Affordable Care Act (Green, Coronado, Devoe, & Allison, 2014), CRC screening is covered in full at no cost to eligible patients. Providers should vigorously advocate for patients to screen for this preventable disease. This can be done by developing a unique communication rapport with the patients. There is also need to increase patient education with regard to the preventative screenings, and monitoring of the providers to ensure they are recommending the relevant screenings when due. This can be done by periodically auditing medical records of patients aged 50-75year, to determine if they are being offered any screening recommendations, as early as possible depending on when they turned 50, or when they started receiving services at the clinic.

There is also the need to educate the providers on the screening recommendations for CRC screening. The USPSTF guidelines recommend that screening for CRC start at age 50, for the average at risk patient. Providers should adhere to this recommendation. This is especially important given the recent increase in the incidence of colorectal cancer in patients younger than 50.

Recommendations for future study

Any future research on this topic in the same clinic or any other healthcare clinic should involve a longitudinal study. This will allow for frequent chart audits to make sure that CRC recommendations are made and also recorded as completed. Providers should also inform the patients of all the different testing modalities available for CRC screening. This might increase compliance. Having mentioned the limitations of the study, a process review of the documentation module and a subsequent quality improvement plan in this clinic can be used to drastically improve the above mentioned shortcomings.

Conclusion

Colorectal cancer is a disease that can be prevented by routine screening. The Affordable Care Act mandates that CRC screening be covered at no cost for average at risk patients aged 50-75 years. The incidence of this preventable disease has started appearing in patients younger than 50 years. This makes it more imperative for the provider to recommend for the relevant screenings and also teach patients about need to complete the screening and the risk of not doing so. In this study, almost two thirds of the study population were African Americans. There was no significant difference in CRC screening recommendation based on diversity. This being said, the choice of actual screening or not depends on the patient. The provider can only impress on the patient the need to screen for the disease, but cannot force them to do so. Educating the patients on the need to do so, might increase compliance.

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Table 1

Demographic and clinical characteristics of the study sample (N =200)

	n (%)
Age, *Mean* (SD)	58.72 (6.32)
Race	
African American	146 (73%)
Asian	3 (1.5%)
Caucasian	46 (23%)
Hispanic	4 (2%)
Other	1 (0.5%)
Sex	
Female	100 (50.0%)
Male	100 (50.0%)
CRC screening recommended	
Yes	172 (86%)
No	28 (14%)
CRC Documented as completed	
Yes	167 (84%)
No	33 (16%)

Table 2

Comparison of CRC screening recommendation by ethnicity and sex

	CRC screening recommended		
	Yes *n* (%)	No *n* (%)	*p*
Race			.80
African American	125 (72.7%)	21 (75.0%)	
Other	47 (27.3%)	7 (25.0%)	
Sex			.95
Male	87 (50.58)	13(50%)	
Female	85 (49.42)	15 (50%)	
Age, *Mean* (SD)	59.08 (6.23)	56.57 (6.52)	.052