CONCLUSION: Only few studies have evaluated patient factors in colonoscopies done by fellows in training, under attending supervision. Overall ADR was above the quality standard both combined and separated by gender. As suggested by prior studies, age and male gender increase odds of detecting adenomas. Although previous studies support a direct relationship between BMI and increased ADRs, our data did not show significant difference. ADR for fellows was higher than the established quality metrics, substantiating that fellows with close attending supervision can perform at or above the national standard.

S0330
Poor Rates of Genetic Counseling Referrals Among Women at High Risk for Hereditary Colon Cancer
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INTRODUCTION: It is estimated that 5% of individuals with colorectal cancer (CRC) have a mutation that increased their risk for the malignancy. Women are frequently assessed for genetic risks associated with breast cancer, however they may not be consistently screened for hereditary CRC syndromes. This study evaluated the rates of multi-generational family history documentation and subsequent referral for genetic counselling in women presenting for CRC screening at a university medical center.

METHODS: A chart review evaluated all women referred to a university GI clinic for CRC screening during a 3 month period. Patient age, race/ethnicity and documentation of a multi-generational family history was reviewed. Logistic regression was performed to determine if patient characteristics, race/ethnicity, or family history documentation predicted referral for genetic counselling.

RESULTS: Of 500 medical records reviewed, self-reported race/ethnicity included 276 African-American (AA), 123 White, 32 Hispanic, 30 Asian, 20 other and 19 undocumented. 102 women were less than 50 years old and 400 women were 50 years old or older. 351 women were referred for genetic counselling and 149 were not. Within the 351 referred, 161 were AA, 70 White, 30 Hispanic, 29 Asian, 20 other and 21 undocumented. The ADR for fellows was higher than the national standard.

CONCLUSION: Significant gaps exist in obtaining and documenting multi-generational family history, and in offering genetic counselling to female patients during CRC screening. Further data continue to be collected.

S0331
Using Risk Factors to Estimate Risk for Early Onset Sporadic Colorectal Cancer (EOCRC): Whether to Screen and How
Thomas F. Imperiale, MD1, Joanne K. Daggy, PhD2, Timothy E. Stump, MA2, Laura E. Myers, PhD3.
1University of Miami, Jackson Memorial Hospital, Miami, FL; 2University of Colorado, Washington, DC; 3George Washington University, Washington, DC; 4George Washington University School of Medicine and Health Science, Washington, DC

INTRODUCTION: Knowing risk for EOCRC would help decide whether to screen persons for colorectal cancer (CRC). A recent article suggested that the established risk factors for EOCRC among male Veterans and SEER CRC incidence rates to estimate high risk groups (Table 2).

METHODS: We used data from 450 cases of EOCRC among 35-49 year-old male Veterans and 1800 controls matched for site and year of case diagnosis. The top 15 risk factors based on lowest p-values were selected for a multivariable logistic regression model. For each scenario, we multiplied the baseline SEER CRC incidence rate (colon age) by 1-Attributable Risk) x 2-Relative Risk) to estimate a revised CRC incidence rate (colon age). When the upper confidence limit of the revised estimate was ≥ current SEER CRC incidence for 50-54 year-olds, a recommendation for screening was made, when it was ≥ that for 70-74 year olds, screening with colonoscopy was recommended.

RESULTS: Among 2250 subjects (mean [SD] age 44.3 [4.0]; 65.6% Caucasian), the 12 risk factors most strongly associated with good CRC risk factors present, and applied these RR estimates to each of 3 SEER age groups (35-39, 40-44, & 45-49 years). For each scenario, we multiplied the baseline SEER CRC incidence rate x (1-Attributable Risk) x 2-Relative Risk) to estimate a revised CRC incidence rate (colon age). When the upper confidence limit of the revised estimate was ≥ current SEER CRC incidence for 50-54 year-olds, a recommendation for screening was made, when it was ≥ that for 70-74 year olds, screening with colonoscopy was recommended.

CONCLUSION: By using risk factors for EOCRC among male Veterans and SEER CRC incidence rates to estimate “colon age,” this analysis provides a framework for using these factors for decisions about how and when to screen for EOCRC. For persons < age 50 whose colon age > 50 years, CRC screening may be recommended. Further study of this model and framework are required.

S0332
Improved Follow-Up of Fecal Immunochemical Tests for Colorectal Cancer Screening via Iterative Systems-Based Strategies
Bret Sidwell, MD1, Allison Bush, MD, MPH1, Ross Humes, MD2, Priscilla A. Cullen, RN, MS1, Ida Hopkins, RN3, Yen-Yu Chen, RN4, John McCarthy, MD1, Adam Tretich, MD1, Manish Singla, MD2, Jeffrey Lazzek, MD1, Walter Reed National Military Medical Center, Bethesda, MD; 2Walter Reed National Military Medical Center, Kensington, MD

INTRODUCTION: Fecal immunochemical testing (FIT) is used for colorectal cancer (CRC) screening. Annual FIT—a first tier test along with colonoscopy—has the potential to achieve wider compliance with screening, including in vulnerable populations. The impact of FIT is dependent on the ability to follow up positive tests with colonoscopy. Failure to do so is associated with poor CRC outcomes. Patient, provider, and systems factors all negatively influence compliance with appropriate follow up. We sought to implement strategies to enhance our outcomes and the value of patient care.

METHODS: The study was performed at the Department of Defenses largest treatment facility in addition to several surrounding clinics. All FIT orders between January 2013 and December 2017 were previously analyzed and showed poor follow-up of positive tests. Subsequently, we adjusted our ordering system to require indication labelling so that patients with positive screening tests were identified in a highly reliable fashion and routed to a nurse navigator to link primary and subspecialty care, minimizing low value clinic visits. We tracked Time to colonoscopy and rates of colonoscopy completion.

RESULTS: The rate of inadequate follow up for adult patients prior to our intervention was 34.8% (69/198). After our intervention, there was a significant reduction in the time to colorectal screening amongst patients with positive FIT who attained a confirmatory exam (average 129.2 vs 90.4 vs 19.7 ± 10.3 days; P < 0.0001); 89% of positive FIT patients have been scheduled for colonoscopy; of those that have completed a colonoscopy, 29% demonstrated high risk lesions. Of patients with positive screens, 73% were deemed to be able proceed directly to colonoscopy without preprocedure visit. Further data continue to be collected.

[331] Table 1. Risk factors for early onset colorectal cancer (EOCRC) in male veterans

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Value associated with increased risk</th>
<th>Odds Ratio (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>1.08 (1.06-1.11)</td>
<td></td>
</tr>
<tr>
<td>Current vs. former or no alcohol use</td>
<td>Current use</td>
<td>1.74 (1.40-2.19)</td>
</tr>
<tr>
<td>Transtubinal screening with CRC</td>
<td>Present</td>
<td>2.31 (1.68-3.24)</td>
</tr>
<tr>
<td>Charlson comorbidity score</td>
<td>Higher score (per unit)</td>
<td>1.14 (1.05-1.27)</td>
</tr>
<tr>
<td>Barium study or barium enema before diagnosis</td>
<td>2.56 (1.45-4.67)</td>
<td></td>
</tr>
<tr>
<td>Reported regular exercise</td>
<td>None</td>
<td>2.06 (1.39-3.04)</td>
</tr>
<tr>
<td>Multivitamin use</td>
<td>None</td>
<td>1.80 (1.18-2.83)</td>
</tr>
<tr>
<td>Statin use</td>
<td>None</td>
<td>1.80 (1.41-2.39)</td>
</tr>
<tr>
<td>NSABP use</td>
<td>None</td>
<td>2.42 (0.92-6.09)</td>
</tr>
<tr>
<td>Net service connected / higher income</td>
<td>Present</td>
<td>1.56 (1.25-1.94)</td>
</tr>
<tr>
<td>University system</td>
<td>None</td>
<td>1.45 (0.94-2.23)</td>
</tr>
</tbody>
</table>

For each scenario, we multiplied the baseline SEER CRC incidence rate x (1-Attributable Risk) x 2-Relative Risk) to estimate a revised CRC incidence rate (colon age). When the upper confidence limit of the revised estimate was ≥ current SEER CRC incidence for 50-54 year-olds, a recommendation for screening was made, when it was ≥ that for 70-74 year olds, screening with colonoscopy was recommended.

CONCLUSION: By using risk factors for EOCRC among male Veterans and SEER CRC incidence rates to estimate “colon age,” this analysis provides a framework for using these factors for decisions about how and when to screen for EOCRC. For persons < age 50 whose colon age > 50 years, CRC screening may be recommended. Further study of this model and framework are required.
CONCLUSION: Studies across multiple hospital systems show patients undergoing FIT for CRC screening are at risk for insufficient follow up and this failure is associated with worse CRC related outcomes. We improved process reliability by removing low value steps and optimizing communication of FIT results between the primary care and GI clinics. Interventions to improve follow-up include automated GI notification and collaborative consultation that streamlines clinically appropriate direct-to-colonoscopy scheduling. These findings provide support for the use of an electronic system to address positive FIT. Systems should consider allocating resources to support patients with positive tests in health care system navigation.

S0333

Utility of Postoperative Circulating Tumor DNA (ctDNA) as a Prognostic Marker of Disease Recurrence in Stage III Colon Cancer: A Systematic Review and Meta-Analysis

Ali Alhabbani MD1, Sami Ghaeizadeh MD2, Rakam Albalawi MD, MSF, Waleed Absobdlattar MD1, Michael Cook MD, VA, Wade Lee-Smith MD, Muhammad Aziz MD, MS2, Mohammed Najeh Alhalak MD, MS2, 1Gastenterology University, Arlington, VA; 2University of Toledo Medical Center, Toledo, OH; 3University of Toledo, Toledo, OH; 4Karmanis Cancer Institute, Wayne State University, Detroit, MI.

INTRODUCTION: Approximately 20% of stage II and 40% of stage III colon cancer patients experience recurrence of the disease despite primary therapies with curative intent. Circulating tumor DNA (ctDNA) is a novel method to detect residual disease in postoperative colon cancer patients. The purpose of our meta-analysis is to investigate the utility of postoperative ctDNA as a diagnostic tool of relapse free survival in stage II/III colon cancer patients following curative intent surgery.

METHODS: We performed a comprehensive search in the literature for studies that evaluated postoperative ctDNA measurement in stage II and III colon cancer. We searched the databases of PubMed/MEDLINE, Embase, Cochrane Central Register of Controlled Trials, and Web of Science Core Collection from databases inception until May 28, 2020. The search was not limited by language, study design, or country of origin. Two researchers (AA and SG) independently selected the studies; discrepancies were resolved by a third researcher (MA). We considered randomized controlled trials, cohort studies, case-control studies, and case series. We excluded animal studies, case reports, review articles, editorials, and letters to editor. We followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. The random-effects model was used to calculate the Relapse Free Survival (RFS) Hazard Ratio (HR) and its 95% confidence interval (CI). Publication bias was assessed visually by generating a funnel plot of the studies. We also performed Egger’s regression to quantitatively assess publication bias, where P < 0.05 was considered statistically significant for publication bias.

RESULTS: We included five studies with a total of 731 patients. A significantly worse relapse free survival was noted in patients with positive ctDNA compared to negative ctDNA (HR, 9.864; 95% CI, 6.345–15.334, P < 0.001). There was a visible symmetry in the funnel plot of the studies that reported positive ctDNA postoperatively, suggesting no publication bias. Similarly, Egger’s test was not statistically significant implying no publication bias (P = 0.75).

CONCLUSION: In conclusion, our meta-analysis shows that postoperative ctDNA is a useful prognostic marker for RFS in patients with stage II/III colon cancer following surgery with curative intent. However, further prospective clinical trials are needed to validate the utility of ctDNA as a prognostic tool.

S0334

Normal Withdrawal Time Correlates With Polyp Detection Rate and Adenoma Detection Rate: A Quantitative Observational Study From a Metropolitan Australian Hospital

Lei Lin, MBBS1, Myat M. Khin2, Ruth Hodgson3, Amy Vandeleur3, Tony Rahman3. 1Georgetown University, Arlington, VA; 2University of Toledo Medical Center, Toledo, OH; 3University of Toledo, Toledo, OH; 4Karmanis Cancer Institute, Wayne State University, Detroit, MI.

INTRODUCTION: Recurrence in Stage II/III Colon Cancer: A Systematic Review and Meta-Analysis

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S0333

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S0334

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Lei Lin, MBBS1, Myat M. Khin2, Ruth Hodgson3, Amy Vandeleur3, Tony Rahman3.

[334] Table 2. Correlation between normal withdrawal time and detection rates

<table>
<thead>
<tr>
<th></th>
<th>R value</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean NWT vs ADR</td>
<td>0.64</td>
<td>0.0458</td>
</tr>
<tr>
<td>Mean NWT vs SSADR</td>
<td>0.49</td>
<td>0.1529</td>
</tr>
<tr>
<td>Mean NWT vs PDR</td>
<td>0.72</td>
<td>0.0179</td>
</tr>
</tbody>
</table>

INTRODUCTION: Colonoscopy is the gold standard bowel cancer screening test but it has reduced effectiveness for lowering colorectal cancer (CRC) rates due to widely reported missed detection rates for adenomas. In our retrospective observational study featuring 10 colonoscopists and 3,169 colonoscopies, we measured the correlation between normal withdrawal time (NWT) and adenoma detection rate (ADR), between NWT and polyp detection rate (PDR), and between NWT and sessile serrated adenoma detection rate (SSADR) to assess the validity of the NWT as a determining factor of colonoscopy performance.

METHODS: We excluded patients with age < 50 years, CRC history, inflammatory bowel disease, nyst, or fair bowel preparation, and excluded colonoscopists who performed < 50 procedures or had < 6 months data. NWT was calculated from colonoscopies where no polyps were detected, and where no procedures were performed such as polypectomy, mucosal biopsy, haemorrhoid banding or thermal therapy. Linear regressions were used to calculate the strength of association between variables.

RESULTS: The 10 colonoscopists had mean NWTs ranging from 5.8 to 9.6 minutes, ADR from 24.1 to 65.7%, and PDR from 31.3 to 77.9% (Table 1). Mean NWT correlated strongly with both ADR and PDR (r = 0.64 and r = 0.72, respectively; P < 0.05; Table 2). The correlation between NWT and SSADR did not reach statistical significance. The optimal NWT was between 9 to 10 minutes which was associated with the highest ADR and PDR in our group. SSADR correlated very strongly with both ADR and PDR with r values of 0.91 and 0.86, respectively.

CONCLUSION: Our results reaffirm findings from previous studies, strengthening the likelihood that longer NWT is an independent factor that lead to improved adenoma detection, hence lowering future colorectal cancer rates. This one key performance indicator may allow more focused education and retraining to facilitate excellence in colonoscopy quality standards.

S0335 Fellows-in-Training Award (Colorectal Cancer Prevention Category)

Presidential Poster Award

Colorectal Cancer Screening Gender and Race Disparities in Western PA – Is There Really a Difference?

Archana Kulkarni, MD1, Rita Cole, MBA, R1, Katie Farquh, MD2.


INTRODUCTION: The American College of Gastroenterology advocates that colorectal cancer screening should start earlier in African Americans because of the higher incidence and more aggressive nature in this population. We aimed to address colorectal cancer screening disparities among the different races and genders investigating valuable significant contributors.

METHODS: We reviewed GIRC data from 3 hospitals and 5 endoscopy outpatient surgical centers from October 2018 to December 2019. An analysis was created utilizing Highmark Health claims and the US Census Bureau American Community Survey data showing the strongest correlation for a lack of colorectal cancer screening by race and lower socioeconomic status (Figure 1). Through utilization of this data and GIRC data, we analyzed race and age of colorectal cancer screenings among African American and Caucasians.

RESULTS: Among all screening colonoscopies available in the GIRC data, 84.1% constituted whites and 11.5% constituted African Americans (P < 0.0001) which is consistent with the low rate of African American screenings in the census data. Of all screenings, 54.7% were females and 45.3% males (P < 0.0001). We further looked at the data by race and gender (Table 1) and screening rates by age group (Table 2). Whites had screenings at age 50 more often than age appropriate screening.