

## Selected Abstracts from the 19th Annual HMO Research Network Conference, April 16-18, 2013, San Francisco, California

### Cancer

A2-1:

#### Patterns of Colorectal Cancer Testing in Men and Women Newly Eligible for Screening

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**Background/Aims:** Since 1993, the US Preventive Services Task Force has recommended screening to prevent colorectal cancer among average risk adults, beginning at age 50. Many studies over the past 20 years evaluated factors associated with screening uptake; however, few have focused on individuals who are newly eligible (i.e., those turning 50 years). We evaluated patient characteristics associated with uptake and time to initiation of colorectal cancer tests in a population newly-eligible for screening. **Methods:** The study included 128,358 individuals who were members of an integrated care delivery system (Group Health) and enrolled on their 50th birthday from 1996-2011. We assessed receipt of colorectal cancer tests within 5 years of eligibility, and calculated the median time to first test. We examined patient characteristics associated with use of colorectal cancer tests overall using Cox proportional hazards models. **Results:** Stool-based tests were most commonly used, with uptake ranging from 35-40% of the cohort across the study period. The proportion of individuals initiating colorectal cancer testing via colonoscopy increased from 3% in members becoming eligible in 1996-1998 to 21% in 2005-2007. Time to first test varied across test types. Median time to the first test was 3 months shorter in members who chose stool-based tests (25.2 months) compared to those who chose colonoscopy (28.2 months) among members newly eligible in 2005-2007. However, we observed no temporal changes in median time to first test, conditional on test type. Characteristics associated with increased uptake included more recent enrollment at age 50 (e.g., 2008-2010:HR = 2.16, 95% CI 2.09-2.23) and Asian background (HR = 1.08, 95% CI 1.05-1.11). Factors associated with reduced uptake included being a woman (HR = 0.93, 95% CI 0.91-0.94), African-American (HR = 0.95, 95% CI 0.91-0.99) or Pacific Islander (HR = 0.86, 95% CI 0.76-0.96), diagnosed with diabetes (HR = 0.88, 95% CI 0.85-0.91) and being moderately or severely obese (HR = 0.83, 95% CI 0.81-0.85 and HR = 0.75, 95% CI 0.73-0.77, respectively). **Conclusions:** Patient characteristics associated with initiation of colorectal cancer testing in a newly eligible population are similar to previous findings among all-age eligible adults. Further, while the time to the first test remained stable, there was an increase in colorectal cancer testing during the study period.

**Keywords:** Screening; Colorectal Cancer; Prevention

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A2-2:

#### Systems of Support to Increase Colorectal Cancer Screening (SOS): A 2-Year Randomized Trial of an Automated Intervention with Stepped Increases of Support to Increase Uptake of Colorectal Cancer Screening

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**Background/Aims:** Screening decreases colorectal cancer (CRC) incidence and mortality, yet almost half of age-eligible patients are not screened at recommended intervals. Our objective was to determine whether interventions using electronic health records, automated mailings, and stepped increases in support increased being current for CRC testing over 2 years. **Methods:** Setting and participants: SOS was a four-arm parallel design randomized controlled comparative effectiveness trial with concealed allocation and blinded outcome assessments (ClinicalTrials.gov registration number: NCT00697047). Patients aged 50-73 at baseline (n = 4674) not current for CRC screening and with no life-threatening illnesses from 21 primary care medical centers were randomized. Interventions: Usual care (UC), Automated mailed (Automated), Automated plus medical assistant telephone assistance (Assisted), or both Automated and Assisted interventions plus nurse navigation until testing was completed or declined (Navigated). Interventions were repeated in year 2. Measurements: Primary outcomes were the proportion current for screening in both years, defined as completion of a colonoscopy or sigmoidoscopy in year 1, or fecal occult blood test (FOBT) in year 1 and either FOBT, colonoscopy, or sigmoidoscopy in year 2. **Results:** Compared to UC, intervention patients were more likely to be current for CRC screening for both years of the study, with incremental increases by intervention intensity (UC 26.5% vs. Automated 50.7%, Assisted 57.7%, or Navigated 64.4%  $P < .001$ ). Automated interventions increased CRC screening in all patient subgroups compared to UC. The higher-intensity Assisted and Navigated interventions were less effective in patients age  $\geq 65$ , and African American/Blacks and those reporting mixed race. Two-year intervention cost estimates were \$57,000 for Automated, \$67,000 for Assisted, and \$79,000 for Navigated. Inclusion of CRC test costs produced total intervention costs of \$314,000, \$342,000, and \$390,000 for three arms respectively, compared to \$339,000 for UC costs for CRC tests alone. **Conclusions:** A low-cost stepped intervention that leveraged automated data and centralized processes led to twice as many people being current for CRC screening over 2 years. The rapid growth of electronic health records provides opportunities for spreading this model broadly.

**Keywords:** Colorectal Cancer; Screening; Electronic Health Records

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A2-3:

#### Pass this Message Along: Self-Edited Email Messages Promoting Colon Cancer Screening Among Friends and Family

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**Background/Aims:** Encouraging communication within a social network may promote uptake of desired medical services or health behaviors. Little is known about the use of this approach to promote colorectal cancer (CRC) screening. We conducted in-person interviews with 438 insured adults ages 42-73 in Massachusetts, Hawaii, and Georgia. **Methods:** Participants were shown a sample message in which the sender shares that he has completed a colonoscopy and urges the recipient to discuss CRC screening with a doctor. We asked participants to edit the message to create one they would be willing to send to friends and family via email or postcard. Changes to the message were recorded. Edited text was analyzed for content and concordance with original message. **Results:** The majority of participants (61.6% [270/434])

modified the message; 14.2% added to or reframed the existing personalizing words (e.g., adding “because I love you”), 10.3% (45/434) added urgency to the message (e.g., “please don’t delay”) and 8% (35/434) added reassurance (e.g., “It’s really not that bad”). Almost one in five (18.3%; 80/434) deleted a negatively framed sentence on colon cancer risks. In 46.5% (195/434) of cases, the meaning of at least one sentence was changed but only 2.7% (12/434) created messages with factual inaccuracies. **Conclusions:** Modifiable messages transmitted within a social network offer a way for screened individuals to promote CRC screening. Further study is needed to identify the optimal combination of user-generated content and pre-written text, allowing for creation of messages that are acceptable to senders, persuasive, and factually accurate.

**Keywords:** Communication; Cancer Screening; Social Network  
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A2-4:

#### **Preventive Health Service Use Among Colorectal Cancer Survivors Compared to Age- and Gender-Matched Controls**

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**Background/Aims:** Because of advances in early detection and treatment, many colorectal cancer (CRC) survivors now live for decades. Among survivors, the mortality risk from co-morbid conditions—particularly cardiovascular disease—exceeds the risk from cancer, making the receipt of routine preventive health services important in the survivor population. To date, our knowledge of preventive service use among cancer survivors, especially survivors aged <65 years, remains in its infancy. Using a case/control design, we evaluate receipt of preventive health screenings among HMO-insured CRC survivors. **Methods:** Tumor registry data available within four geographically diverse HMOs were used to identify CRC cases aged ≥50 years diagnosed with non-metastatic disease and treated with curative intent between 1/1/2000 and 12/31/2008. Age and gender distribution-matched controls without a cancer diagnosis were also identified and assigned a pseudo-diagnosis date. HMO administrative and encounter data were used to identify insurance coverage and treatment dates, and socio-demographic and health care use information. Cases and controls, stratified by age (<65 vs. ≥65), were followed annually for up to five years post-treatment. Differences in annual service use between cases and controls were evaluated using chi-square tests. **Results:** We identified N = 561 cases and N = 5,114 controls aged <65, and N = 1,268 cases and N = 13,720 controls aged ≥65. Forty six percent of both cases and controls aged <65 and 52%/53% of cases/controls aged ≥65 were female. In the first year following treatment, cases aged <65 were significantly ( $P < 0.01$ ) more likely to use colorectal and cervical cancer screening compared to controls (59 vs. 18%, and 87 vs. 76%, respectively), but significantly less likely to undergo cholesterol testing (30 vs. 48%). An identical pattern was observed among cases aged ≥65 (47 vs. 18%, 93 vs. 79%, and 39 vs. 50%, respectively). Regardless of age, no differences were detected in use of mammography or bone densitometry among female cases and controls. These same differences and similarities persisted through the third year of follow up. **Conclusions:** CRC survivors, regardless of age, receive recommended preventive health screenings, particularly cancer screening, at rates equal to or exceeding non-cancer controls. However, CRC survivors are less likely to receive cholesterol screening, potentially increasing their risk of cardiovascular-related morbidity.

**Keywords:** Cancer Survivors; Preventive Health Services  
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A2-5:

#### **Factors Independently Associated with Receiving First-Line Bevacizumab for Advanced Non-Small Cell Lung Cancer**

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**Background/Aims:** Bevacizumab has FDA approval for advanced stage (IIIB/IV) non-small cell lung cancer (NSCLC) treatment; however, little is known about its uptake and use in HMOs. The aim of this study was to examine bevacizumab use over time in 4 Cancer Research Network (CRN) HMOs and identify factors associated with its use. **Methods:** Patients aged ≥21 years with stage IIIB and IV NSCLC diagnosed between 2005-2010 at 4 CRN sites who received first-line carboplatin-paclitaxel with (CPB) and without bevacizumab (CP) were included in this retrospective cohort study. Information on patients’ comorbidity burden, sociodemographic, tumor, and chemotherapy treatment characteristics over time were obtained from the site’s Virtual Data Warehouse. Patient information was contrasted between CPB and CP patient groups using chi-square tests of association and t-tests/rank sum tests for nominal/ordinal and interval-level factors, respectively. Factors with a  $P < 0.2$  in the bivariate analyses and patient sex were included in a multivariate logistic regression model to identify factors independently associated with receiving first-line CPB with adjustment for the clustering of study site. Interactions of age and stage with other factors were assessed. **Results:** A total of 1109 patients were included with 198 (18%) and 911 (82%) in the CPB and CP groups, respectively. Patients who received CPB were more likely than patients who received CP to be younger with lower comorbidity burdens, well/moderate differentiated tumors, non-small cell carcinoma morphology, and diagnosed in the later years of the study (all  $P < 0.05$ ). Receiving CPB was associated with a non-small cell carcinoma morphology (OR = 1.84, 95% CI 1.21-2.80), well/moderate differentiated tumor (OR = 1.76, 95% CI 1.14-2.74), and diagnosis year (OR = 1.17, 95% CI 1.06-1.30) while inversely associated with age at diagnosis (OR = 0.96, 95% CI 0.95-0.98) (c-statistic = 0.738). No interactions were associated. **Conclusions:** Bevacizumab use in CRN patients with NSCLC was limited but uptake was associated with younger age and tumor factors, and increased over time. The patterns of CPB use in the CRN are consistent with published data that suggest little clinical advantage of bevacizumab in NSCLC patients ≥65 years and where approximately 2/3 of NSCLC patients are diagnosed at ≥65 years.

**Keywords:** Lung Cancer; Chemotherapy; CRN  
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PS1-3:

#### **Perceptions of Cancer Screening Messages in the Media: How Do Patients Make Sense of Conflicting Messages in the Popular Media Around Cancer Screening?**

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**Background/Aims:** Americans are continually exposed to a message in the popular media that more healthcare services leads to better health. With respect to cancer screening, evidence-based guidelines on breast and prostate cancer screening run counter to a similar prevailing message in the popular media, which often encourages patients to “do their part” and screen for the disease. While considerable resources have been invested in the development of evidence-based decision aids (DAs) – patient education tools providing unbiased information about potential options and outcomes of a medical decision – patients may find these tools counter-intuitive because the evidence presented is often in direct contradiction to popular media depictions. Through focus groups and stimulus materials, this study investigated the influence and impact popular media has on medical decision-making for breast, colorectal and prostate cancer screening. **Methods:** Eighteen focus groups were conducted in the San Francisco Bay Area. Participants attended a group focused on screening for one of 3 cancers and completed a brief socio-demographic questionnaire. Using popular media stimulus materials and DAs, the researcher-facilitated discussions explored participants’ perceptions of and motivations to participate in cancer screening. Audiotapes of discussions were transcribed and analyzed to identify salient themes. **Results:** Ninety-two diverse participants recruited from the community participated in one of 18 focus groups (6 per condition). The average age of participants was 53, with slightly more women (55%) than men (45%). Most participants reported Caucasian ethnicity (62%) and had graduated from college (51%). Participants overwhelmingly trusted the DA over popular media stimulus materials. In deliberating the decision of whether to screen, participants drew upon their (a) personal experiences with