colonoscopy “(42%) followed by “I do not think I need the test” (21%). Males were more likely than females to report that they did not think they needed the test ($p = 0.042$) and that they could not take the time off of work ($p = 0.025$), and that they had a bad experience with colonoscopy ($p = 0.027$). **Conclusions:** Survey responses point to the important roles healthcare providers and approaches tailored to the barriers to specific groups can plan in intervention strategies.

Keywords: Colorectal cancer screening, Colonoscopy barriers, Intervention strategies

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PS3-12:

Obesity and Risk of Proliferative Hyperplastic Lesions

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Background and Aims: Obesity is a risk factor for breast cancer for postmenopausal women. Aromatization of androstenedione to estradiol in the peripheral adipose tissue and low levels of sex-hormone binding globulin as well as increased serum levels of insulin-like growth factors have been proposed as the underlying biological mechanisms. Women diagnosed with hyperplastic lesions with/without atypia have increased risk for a subsequent breast cancer. We conducted a retrospective study with the primary objective of assessing the association between body weight and the diagnosis of hyperplastic lesions. Our specific aims were: 1) to compare the prevalence of biopsies prior to the diagnosis of breast cancer and 2) to estimate the risk of hyperplastic lesions after adjusting for Body Mass Index (BMI), and other potential confounders. **Methods:** This case-series study benefits from an existing cohort of women ($N = 882$), ages 40 years and older, diagnosed with and treated for their first primary invasive breast cancer at the Geisinger Health System between 2001 and 2007. Data were obtained from Geisinger's electronic health record; the diagnosis atypical ductal hyperplasia (ADH) was the outcome of interest. Women were categorized according to their BMIs as normal, overweight or obese. All statistical tests were two-sided and analyses were performed using SAS version 9.3 (SAS Institute, Inc. Cary, NC). **Results:** The prevalence of biopsy prior to the diagnosis of breast cancer was not statistically different among the three groups of women. The risk of hyperplastic lesions was elevated for overweight ($OR = 13.58$; 95% $CI = 1.03-178.84$; $P = 0.047$) and obese ($OR = 14.76$; 95% $CI = 1.09-200.09$; $P = 0.043$) women relative to women in their ideal body weight. The association between BMI and other risk factors for breast cancer did not reach the level of statistical significance. **Conclusions:** Preliminary results suggest that excess body weight increases the risk of hyperplastic lesions in postmenopausal women. Biologically, this observed risk may be the result of higher serum levels of unbound estradiol in overweight and obese women. Future larger studies should validate our findings.

Keywords: Breast cancer, Obesity, Hyperplastic lesions

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PS3-13:

Patient Barriers to Mammography Identified During a Mammogram Reminder System

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Background/Aims: Patient mammogram reminders are effective at raising screening rates, but patient screening barriers remain. We evaluated patient characteristics available in electronic medical records that might be associated with mammogram completion after a reminder program, and identified patient-reported barriers that could help to explain response differences. **Design:** Retrospective cohort study using electronic medical record data and a sub-group patient survey. Setting/Participants: Participants were female Kaiser Permanente Northwest HMO members aged 50-69 who were 20

months past their last mammogram (index date) and who were the target of a reminder intervention (Total $N = 4,708$). A mailed survey was completed by 336 of 665 (50.5%) members of the sub-group that received the survey. **Intervention:** “Mammogram due soon” post card 20 months after last mammogram, followed by a sequence of up to 2 automated phone calls and 1 live call for non-responders. Main outcome measure: Mammogram completion at 10 months following index date. **Results:** The characteristics associated with lower mammogram completion rates were age < 60 ($OR 0.69$; $p < 0.0001$); health plan membership < 5 years ($OR 0.81$; $p = 0.019$); family income $< \$40,000$ per year ($OR 0.77$; $p = 0.018$); and obesity ($OR 0.67$; $p < 0.0001$). Nearly 47% of the cohort was obese. Among survey respondents, being “too busy” ($OR 0.54$; $p = 0.048$), feeling “embarrassed” ($OR 0.09$; $p = .001$) and “too much pain” ($OR 0.41$; $p < .001$) were associated with lower likelihood of mammogram completion. Obese women were more likely to report “too much pain” from mammograms compared to non-obese women (31.3% of 160 vs. 18.8% of 176; $p < 0.01$). Younger women were more likely to endorse that they believed in preventive screening (84.4% vs. 71.6%; $p < 0.05$), but also that they were “too busy” (19.1% vs. 6.4%; $p < 0.001$) and had more worries about mammogram accuracy (2.5 vs. 2.3 on 5 point scale; $p < 0.05$) than older women. Pain mediated the relationship between obesity and mammogram completion rates (indirect effect = -0.111 , 95% $CI -0.229$ to -0.025 , $p = .008$). **Conclusions:** Important barriers to mammogram completion remain even with effective reminder systems. Obesity is an especially prominent barrier due to patients concerns about pain associated with mammography. Interventions to address/reduce pain may help lower this barrier.

Keywords: Mammogram screenings, Mammogram reminder system, Patient screening barriers

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PS3-14:

Primary Care Providers Reported Use of Pre-Screening Discussions for Prostate Cancer Screening: A Cross-Sectional Survey

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Background and Aims: There is no scientific consensus for routine prostate cancer screening for men of average risk less than 75 years of age using the prostate-specific antigen test (PSA). However, suggested practice is for physicians to discuss the known harms and potential benefits of PSA testing and digital rectal exam (DRE) with their patients. We conducted a survey of primary care providers (PCPs) to determine their practice styles including discussion regarding prostate cancer screening; we also conducted a patient survey to learn whether their PCPs discussed PSA testing and DRE during a health maintenance exam (HME). **Methods:** PCPs in the Lovelace Health System were surveyed about their prostate cancer screening practices for average risk men. Based on their responses, they were divided into two groups: 1) routine screeners (RS), those who routinely order PSA testing without discussing potential harms and benefits and 2) informed decision makers (IDM), those who routinely discuss the PSA test and its benefits and harms. After the HME, patients were surveyed as to whether or not their PCP discussed the PSA test and its harms and benefits during their visit. **Results:** Among the physicians, 35.9% (23/64) were RS and 64.1% (41/64) were IDM. Of the RS patients, 82.3% (51/62) responded that their physician did discuss the PSA test compared to 71.2% (37/52) of the IDM patients ($p = 0.10$). For RS, 58.8% (36/62) of the patients stated their provider initiated the discussion, whereas 56.8% (30/52) of the IDM initiated it. Provider recommendations to have the test were higher for the RS (80.3%) (41/51) compared to 53.1% (20/37) of the IDM $p = .0032$. **Conclusions:** By patient report, a higher percentage of RS providers discussed the PSA test with patients. As would be expected, most of the RS recommended the PSA compared to only one-third of the IDM providers. Further studies are needed to determine what other factors of physician practice styles relate to discussing or not discussing prostate cancer screening with patients, and how

patient-providers interactions influence screening communication.

Keywords: Prostate cancer screening, Physician communication, PSA testing

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PS3-16:

The Influence of Travel Time on Breast Cancer Diagnosis and Treatment

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Background and Aims: Longer travel time to health care services has been shown to be associated with more advanced stage at diagnosis and differences in surgical care for women with breast cancer. The influence of travel time on other disease characteristics at diagnosis and on use of other breast cancer treatments is not known. We examined travel time in relation to stage, nodal involvement, tumor size, primary and adjuvant treatments, and receipt of surveillance mammography to provide a more detailed examination of the role of travel time in access and utilization of breast cancer services to help further understand barriers to recommended care. **Methods:** Using an established cohort of women enrolled at Group Health, with an early stage breast cancer diagnosis from 1990-1999 (N=1306), we linked travel time estimates with tumor and treatment data. Travel time was estimated for each census block in Washington to the nearest radiology facility and was then attributed to women based on geocoded residence data. Tumor and treatment data were abstracted from chart review and from SEER data. We modeled bivariate relations between travel time and outcomes using log binomial generalized linear regression (glm). **Results:** Most women (90%) lived within 30 minutes of the nearest radiology facility. Travel time >45 min. was associated with a greater likelihood of mastectomy vs. breast conserving surgery (Referent group: travel time <10min: RR=1.48; 95%CI:1.03-2.13) and with use of adjuvant chemotherapy (RR=1.65; 95% CI:1.01-2.70). Travel time did not significantly influence stage at diagnosis, tumor size, radiation treatment, or receipt of surveillance mammography in the first two years following cancer treatment. **Conclusions:** In the Group Health population, travel time appears to differentially influence patterns of care for women with early stage breast cancer and does not appear to be related to tumor characteristics at diagnosis.

Keywords: Breast cancer diagnosis, Breast cancer treatment, Travel time and cancer

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PS3-18:

Use of Antidepressant and Anti-Anxiety Medications Among Breast Cancer Survivors in a HMO

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Background: Almost 200,000 U.S. women are diagnosed each year with breast cancer and over 40,000 women will die of the disease. In addition to the medical and functional consequences of the diagnosis and treatment, women experience worry, persistent anxiety, fear and depressive disorders. Overall, 30% of women diagnosed with breast cancer suffer significant distress at some point in their illness trajectory. National health organizations including the Institute of Medicine and National Cancer Institute call for treatment of common symptoms among breast cancer patients such as depression and anxiety. To date, there are only limited reports on the prevalence of treatment, and even fewer studies have examined potential differences by race/ethnicity, age, or tumor characteristics. **Aim:** To describe the prevalence of pharmacotherapy for depressive symptoms/anxiety among patients diagnosed with breast cancer in a large HMO. **Methods:** We identified all women diagnosed with primary breast cancer between 2000-2006 (n=10,408) who had been members of Kaiser Permanente Southern

California (KPSC) for 1+ years prior to diagnosis. KPSC is a nonprofit comprehensive prepaid health plan serving 3.2 million socioeconomically diverse members. Data was obtained from the KPSC SEER-affiliated cancer registry and automated clinical, pharmacy, and membership databases. We examined patient and tumor characteristics associated with new use of pharmacotherapy for depression/anxiety. Univariate odds ratios (OR) and 95% confidence intervals (CI) were estimated using logistic regression. **Results:** We found 35% of women (3,611 of 10,408) were newly prescribed either anti-depressant or anti-anxiety medications within a year of breast cancer diagnosis. Younger women (e.g., OR=1.44, CI=1.28-1.63 for 40-49 year olds v. 60-69) and women with higher stage (e.g., OR=3.40, CI=2.87-4.04 for Stage 3 v. Stage 0) were more likely to be prescribed these medications, while African-American (OR=0.81, CI=0.72-0.92) and Asian-Pacific Islander (0.73, CI=0.64-0.84) women were less likely compared to non-Hispanic white women. **Conclusions:** While future research needs to determine the number of breast cancer survivors screened and diagnosed with depression/anxiety, results of pharmacotherapy utilization in this insured population are consistent with national reports of the prevalence of psychosocial distress experienced after breast cancer diagnosis. Potential age and race/ethnicity disparities are of concern and need further study.

Keywords: Breast cancer survivorship, Psychosocial distress, Pharmacotherapy
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PS3-19:

The Association Between Body Mass Index and Intestinal Stoma-Related Problems

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Background: Colorectal cancer (CRC) survivors with an intestinal stoma (or ostomy) may have multiple problems related to their stoma. Some evidence suggests that weight change is linked to increased problems with an ostomy. **Aim:** To examine the association between BMI and stoma-related problems in a sample of long-term (>5 years post-diagnosis) CRC survivors that received an ostomy. **Methods:** Long-term CRC survivors from three regions of Kaiser Permanente (Northwest, Northern California, and Hawaii) completed a mailed survey. The response rate for respondents with an ostomy was 53% (283/529). The survey included questions about weight and height at time of surgery and at time of survey, stoma location, stoma-related problems, and time to complete daily stoma care. A gain or loss of BMI between time of surgery and survey was defined as change in BMI of 1.5 points or more. Differences in stoma-related problems were analyzed based on demographic and clinical characteristics. **Results:** Of the 268 patients with complete data 41.4% (111 of 268) had a stable BMI, 21.3% (57 of 268) had a decrease in BMI, and 37.3% (100 of 268) had an increase in BMI. Younger (<75 years) survivors were more likely to have problems with clothing caused by stoma location (23% vs. 13%, p=.04). The odds that the location of the stoma caused problems, except clothing issues, were two times greater among survivors whose BMI increased compared to survivors with stable BMI (OR=2.21, 95% CI 1.10-4.47). Moreover survivors with either a BMI increase or decrease were more likely to spend more than 30 minutes per day on stoma care than those with stable BMI (OR BMI increase=2.37, 95% CI 1.12-5.03; OR BMI decrease=2.67 95% CI 1.13-6.29). No significant differences in stoma-related problems were noted related to other demographic or clinical measures. **Conclusion:** Change in BMI is associated with stoma-related problems among long-term colorectal cancer survivors. CRC survivors with an intestinal stoma whose BMI changes may need to adapt equipment and care practices to changes in abdominal shape. Health-care providers should caution patients that significant changes in BMI may lead to stoma-related problems.

Keywords: Colorectal cancer, Intestinal stoma, BMI and intestinal stoma-related problems

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