providers believe communication breakdowns are common, reflect both deficits in provider skills and system failures, and often are unreported by patients. Providers and health systems should consider educational and structural changes to better address these concerns.

Keywords: Provider attitudes and beliefs, Cancer care

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PS2-05:

Short-Term Consequences of Screening Mammogram without Regular Physician Visits

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Background/Aims: The U.S. mammography screening rate is higher than rates of other preventive services among women, perhaps because efforts to encourage regular mammography have been relatively more effective than efforts to encourage other types of preventive care. The purposes of this study were to investigate the rate at which female members of Scott & White Health Plan received mammography without a primary care physician visit, and to identify any short-term health consequences of receiving mammography without other primary care services. **Methods:** This was a retrospective cohort study of female Scott & White Health Plan members between 2006 and 2009. We analyzed biennial mammography screening among women aged 40 through 69, following the Healthcare Effectiveness Data and Information Set (HEDIS) definition of screening mammography adherence. We considered primary care physician visits (PCP) as well as specialty provider visits during 12 month before and after the date of mammography in 2008. For the purpose of our analysis we divided the population into four groups: those who had any visit 12 months before the mammography screening date; those had any visit 12 months after that date; those had visits in both before and after the date; and finally those had visits in neither year. Our sample included 15,105 women who had mammography in 2008. **Results:** About 24% of women underwent mammography in 2008 without a PCP or specialty visit 12 months before or after the mammogram date. Members with no PCP or specialty visit 12 months before or after mammography had significantly lower rates of other periodic preventive screenings such as screenings for high cholesterol, diabetes, cervical cancer, and colon cancer. We found no significant impact on length of inpatient stays or emergency room visits for those who had no physician visit within 12 months of mammography. **Conclusions:** Mammography without PCP or specialty visits may adversely affect short-term preventive care utilization and long-term health outcomes. Because mammography screening was among the only contacts some women had with the healthcare system, it may be appropriate to introduce interventions for other types of preventive care when women present for screening mammography.

Keywords: Mammography, Primary care physician visit, Preventive screenings, Short-term health

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C-C1-02:

Validity of HMO Administrative Data for Breast Cancer Chemotherapy Exposure

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Background/Aims: Chemotherapy-related toxicity, while a major focus of randomized clinical trials, has been understudied in population-based research. Eight Cancer Research Network (CRN) sites used Virtual Data

Warehouse (VDW) data to examine the risk of cardiotoxicity following chemotherapy for invasive breast cancer. However, information on VDW chemotherapy data validity is limited. This study assessed the validity of VDW data related to the reception and dosages of cardiotoxic chemotherapeutic agents among breast cancer (BC) patients. **Methods:** This was a retrospective, cohort study of women =18 years diagnosed with incident, invasive BC between January 1999 and December 2007. Pharmacy and procedure chemotherapy data were extracted from each site's administrative databases for up to one year following cancer diagnosis date. Random samples of 50 patients stratified on trastuzumab, anthracyclines, and no chemotherapy exposure were selected from each CRN site for detailed medical chart abstraction. We calculated weighted sensitivities and specificities (and 95% confidence intervals [CI]) of using administrative data to accurately capture chemotherapy treatment compared to medical records. Median cumulative doses calculated from administrative data were compared to median doses obtained from the medical chart using the Spearman's correlation coefficient. **Results:** The total cohort included 13,497 BC patients. Patients in the random sample (n=400) had a mean age of 65 ($\pm$ 14) years and were primarily white with most tumors diagnosed at AJCC stage 1 or 2. From the sample, 20% (80/400), 38% (152/400), and 40% (158/400) of patients had VDW exposure to trastuzumab, an anthracycline, and any type chemotherapy, respectively. Trastuzumab, anthracycline, and any chemotherapy sensitivities were 97% (CI=94%-98%), 97% (CI=93%-98%), and 99% (CI=97%-99%), respectively; and specificities were 99% (CI=98%-100%), 99% (CI=96%-99%), and 86% (CI=79%-91%), respectively. Median doses for trastuzumab and anthracyclines from administrative data were 227 mgs and 420 mgs, respectively, while median doses from the medical chart were 2370 mgs and 416 mgs, respectively ($r=0.60$, $p<0.001$ and $r=0.23$, $p=0.030$, respectively). **Conclusions:** Sensitivities and specificities for CRN chemotherapy administrative data were high and dosages were correlated moderately with chart information. These findings support the use of CRN data in evaluating chemotherapy exposures and related outcomes.

Keywords: Chemotherapy, Sensitivity, Breast cancer

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PS2-43:

Prostate-Specific Antigen Tests in Clinical Practice over the Past Decade: Is the Threshold for Recommending Biopsy Dropping?

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Background/Aims: A prostate specific antigen (PSA) level =4 ng/mL has historically been used as a screening threshold to recommend biopsy; however, guidelines have been changing to recommend lower cutoffs (2.5 ng/mL) and incorporate velocity in decisions to refer men to biopsy. Little is known about how physicians and patients respond to elevated PSA tests. Our objective was to examine trends in biopsy practices over the past decade to identify whether there has been a shift towards lowering PSA thresholds for biopsy referral. **Methods:** We reviewed electronic records, including laboratory results, for 59,764 members of Group Health who received a PSA test between 1998 and 2007. We identified 3 types of follow-up within 12 months of a test: biopsy, urology visit without a biopsy, or additional PSA testing. Log binomial models were used to examine the relative risk of biopsy within 12 months adjusting for covariates and accounting for clustering of repeated tests within subjects. **Results:** There appeared to be no shift over time towards lower thresholds for biopsy referral, with 3.0% (123/4,156), 3.1% (111/3,528) and 2.6% (91/3,565) of tests with PSA levels between 2.5 and 3.9 ng/ml resulting in biopsy among within 12 months in the calendar periods 1998-2001, 2002-2004, and 2005-2007 respectively, and 2.9% (325/11,249) overall. For tests with PSA =4.0 ng/ml, 29.7% (1,564/5,271), 26.4% (1,024/3,878), and 27.1% (1,027/3,786) resulted in biopsy across the three time periods, respectively, and 28.0% (3,615/12,935) overall. For tests with PSA levels <2.5 ng/ml, the biopsy frequencies were 0.6% (160/28,188), 0.4% (120/27,690), and 0.4% (111/31,307), respectively and 0.4% (391/87,185) overall. Men with PSA levels =4.0 ng/ml who did not undergo

biopsy often attended urology visits (38.6%, 4,992/ 12,935). PSA velocity was strongly associated with biopsy, for example, when PSA was below 4.0 ng/ml, a velocity =0.75ng/mL/year was associated with an 8.4 fold increase in biopsy. **Conclusions:** Biopsy practices following PSA testing have been stable over time in Group Health. As little is known about real-world biopsy patterns, these data should be helpful to other providers and patients who are uncertain about what is considered common practice in an HMO setting.

Keywords: PSA screening, Biopsy, Prostate cancer

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C-B2-04:

Use of Health Plan Tumor Registry and EMR Data to Identify Cancer Recurrence and Progression

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Background: Reliable ascertainment of cancer recurrence is essential in order to evaluate therapeutic interventions to treat advanced disease. Specification of the timing of cancer recurrence using administrative claims from SEER-Medicare is challenging and has been limited to the use of algorithms based mainly on ICD9 diagnosis codes. **Aims:** We sought to identify scenarios or patterns of care that suggest cancer recurrence or progression using the detailed electronic medical record data contained in the HMO Cancer Research Network's (CRN) Virtual Data Warehouse (VDW). **Methods:** Using data from the Virtual Tumor Registry (VTR) from two HMO CRN health plans where the tumor registry staff conduct annual chart abstraction to ascertain recurrence, we identified incident cases of stage 1-3a breast, colorectal, lung, and prostate cancer for the years 2000-2003. The VTR data was linked to VDW pharmacy, procedure, and diagnosis data from the subject's incident cancer diagnosis date through the end of 2008. Descriptive analyses were performed. Scatter plots of events, including receipt of chemotherapy services, were created to determine "black out" periods associated with first course treatment and to identify other patterns of care consistent with recurrence or progression. **Results:** The proportion of incident cases with a noted recurrence during the observation period varied from 6.3% of prostate cancers to 19.1% of lung cancers. Fewer than 60% of cases (varied by cancer site) with a tumor registry-documented recurrence would have been identified as having a recurrence using an algorithm relying only ICD codes indicative of metastatic disease. Subjects with a noted recurrence had much higher use of advanced medical imaging (including CT, MRI and PET), laboratory procedures, and more pharmacy dispensings for narcotic analgesics. Scatter plots of chemotherapy services by month suggest that the interval of initial therapy among patients without recurrence varies by cancer type, so that algorithms for detecting recurrence based on these services need to be disease-specific. **Conclusions:** EMR data such as that available from the CRN VDW may be an optimal data source to be used to identify cancer recurrence. Next steps include the development of novel analytic strategies to estimate each patient's probability of cancer recurrence.

Keywords: Cancer, Recurrence, VDW

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C-A4-04:

The Delivery of Cancer and Other Preventive Health Services during Periodic Health Examinations

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Background/Aims: Limited time and competing demands force primary care physicians and patients to prioritize among evidence-based preventive

health services during periodic health examinations (PHE). We examined the rate of discussion of and recommendation for 19 USPSTF-endorsed preventive services during PHEs. **Methods:** Claims data, a pre-visit survey, and transcripts of audio-recorded office visits were used to identify which services patients were eligible and due for at the time of visit. Study physicians (N=60) are internal or family medicine physicians. Study patients (N=484) are insured, ages 50-80, and due for colorectal cancer screening at time of PHE. Audio-recordings of PHEs were evaluated for the frequency of preventive service discussions and physician recommendations - overall and by gender. **Results:** Patient participants are on average aged 59 years, 65% female and 66% white. Among patients eligible and due for service, smoking (100%, 54/54), breast cancer (94%, 67/71), and colorectal cancer screening (94%, 432/462) were most likely to be discussed, while aspirin use was the least likely to be discussed (28%, 31/109). Physicians were most likely to recommend colorectal cancer screening (93%, 429/462), blood pressure screening (90%, 92/102), and breast cancer screening (90%, 64/71) and least likely to counsel for aspirin use (18%, 20/109) and alcohol misuse (4%, 1/24). In our sample, males were more likely to receive recommendations for colorectal cancer (96%, 156/162 vs. 91%, 273/300), cholesterol (100%, 6/6 vs. 67%, 10/15), and hearing screening (36%, 18/50 vs. 25%, 13/52); pneumococcal vaccination (44%, 4/9 vs. 13%, 2/15); aspirin use (23%, 18/80 vs. 7%, 2/29); and alcohol misuse counseling (8%, 1/12 vs. 0%, 0/11) compared to females. Females in our sample were more likely to receive diet (38%, 65/170 vs. 23%, 29/125), weight (62%, 95/154 vs. 54%, 37/68), and tobacco cessation counseling (81%, 30/37 vs. 76%, 13/17). **Conclusions:** Although screening services are likely to be recommended to patients due for service, missed opportunities exist to counsel eligible patients for services aspirin use and alcohol misuse. These missed opportunities may vary by gender. We are currently exploring the patient, physician, visit and service characteristics associated with missed opportunities to deliver recommended preventive services during PHEs.

Keywords: Prevention, Screening, Primary care

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PS2-25:

Prostate Cancer Screening: Benefits, Barriers and Conflicting Information

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Background: Prostate cancer screening is controversial; treatment of early stage cancer has uncertain benefits, and complications are likely. Physician-patient discussions about PSA testing may be brief or absent. We investigated men's familiarity and experiences with PSA testing, and perceived benefits and barriers. **Methods:** In the context of the multi-site CRN study "Health Literacy and Cancer Prevention" men aged 40-70 were interviewed about knowledge, attitudes and experiences related to PSA testing. Results: Of 437 men queried, 69% had heard of a PSA test, and 51% knew what type of cancer it tested for. 246 men had/intended PSA screening (PSA-accepters). The most common reasons cited for screening were physician recommendation (62%), age appropriateness (49%), and prostate-related symptoms (12%). 21 men had not been/did not intend to be tested (PSA-decliners); reasons included no physician recommendation (33%), age (19%), and no prostate issues (10%). Most men (83%) would find a normal result reassuring, and most (80%) believed a PSA test would reduce their chances of dying from prostate cancer; accepters held stronger beliefs about these benefits than decliners (p<.10). Overall, 24% would be nervous about what a PSA test might find and 13% agreed having a PSA test is unpleasant. The latter belief (but not the former) was stronger in PSA-decliners than accepters (p<.05). There were no statistically significant differences between PSA-accepters and decliners on health literacy test scores, however those who did not know