record data on all women aged 20-65 during the period 1998-2007 across four HMORN sites. We created standardized files for Pap smear dates and results; cervical histology dates, types, and results; and HPV test dates and results. We also collected Virtual Data Warehouse data on HPV vaccinations, and selected diagnosis and procedure codes. We calculated rates of Pap testing, HPV testing, colposcopy, and cervical histology (biopsy and treatment). We also calculated rates for Pap testing we classified as "screening." Among women who had Pap tests in 2002 and 2007 and no abnormal test directly preceding the index test, we examined patterns of screening frequency. We also examined frequencies and trends in the results of "screening" Pap testing and cervical histology. **Results:** Overall, annual Pap testing rates decreased and HPV testing rates dramatically increased over the 10 years, while rates of colposcopy, cervical histology, and cervical treatment did not display obvious patterns. Trends varied by age group and health plan. Pap screening frequency differed by health plan; overall, in 2007 a higher proportion of subjects had longer screening intervals (2 years or greater) than in 2002. Information on patterns of Pap and histology results will be presented. **Discussion:** Evaluating trends in cervical cancer testing and follow-up may highlight opportunities to optimize cervical cancer screening delivery in community-based settings.

Keywords: Cervical Cancer; Cancer Screening; Cancer

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CA2-02:

Identification of Prognostic Tumor Markers in HIV+ Diffuse Large B-cell Lymphoma

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Background/Aims: About half of HIV+ diffuse large B-cell lymphoma (DLBCL) patients die within 2 years of diagnosis. Identification of prognostic tumor markers may assist clinical risk stratification and inform therapeutic developments. We examined if certain tumor markers in HIV+ DLBCL are associated with mortality. **Methods:** H&E slides from HIV+ DLBCL cases diagnosed between 1996-2007 in the Kaiser Permanente California Health Plan were reviewed to identify representative tumor blocks for tissue microarray (TMA) construction. Immunohistochemistry staining of TMA cores was used to analyze the expression of selected markers in the following categories: (1) viral factor: EBV (2) cell cycle regulators: Cyclin E, SKP2 and cMYC; (3) B-cell activators: FOXP1, PKC- β 2, p27, and Ki-67; and (4) apoptosis regulators: GAL3, p53, BCL2, surviving, and BLIMP1. Percent of DLBCL cells with visible marker staining was scored on a scale from 0-4 (0-9%, 10-24%, 25-49%, 50-74% and $\geq$ 75%). Epstein Barr Virus (EBV) infection was determined by in situ hybridization of EBV RNA. Positivity for each marker was determined based on previously established cut-off values. Information on patient demographics and clinical history, DLBCL characteristics and death was collected from Kaiser Permanente's credited cancer and HIV registries as well as electronic medical records. Each marker's prognostic significance on 2-yr mortality was first evaluated in a univariate Cox model. Markers showing a mortality association at $p < 0.10$ level were examined in a multivariable Cox model, adjusting for stage, presence of B symptom, Germinal Center phenotype, prior AIDS and CD4 cell count. **Results:** Of 194 HIV+ DLBCL cases identified; 80 had sufficient tissue for study inclusion. In the crude analyses, cMYC [hazard ratio (HR)=2.08, 95% confidence interval: 0.93-4.63, $p=0.07$], EBV [HR=2.86 (1.45-5.63), $p < 0.01$] and BLIMP1 [HR=2.57 (0.99-6.67), $p=0.05$] positivity were associated with 2-yr mortality. In the adjusted analysis, cMYC positivity remained significantly associated with a 3-fold increase in 2-yr mortality [hazard ratio=3.18 (1.15-8.80), $p=0.03$]. Other markers were not significantly associated with mortality. **Discussion:** cMYC expression may be associated with increased mortality in HIV+ DLBCL patients. Our initial findings should be confirmed in larger studies.

Keywords: Lymphoma; Prognosis; Cancer

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CA2-03:

"What Would You Say to this Patient?" Cancer Care Providers' Attitudes and Experiences

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Background/Aims: Effective patient-provider communication is critical in cancer care but often does not occur. Understanding providers' perspectives on challenges in cancer care communication could support interventions. **Methods:** We surveyed providers in primary care, oncology, and oncology nursing at three CRN sites (Group Health Cooperative, WA; Kaiser Permanente, GA; Fallon Clinic, MA). Questionnaires assessed providers' attitudes and experiences about communicating with cancer patients, situations providers find challenging, and how providers would communicate in two scenarios (error involving multiple providers leading to delayed diagnosis; miscommunication regarding patient symptoms). **Results:** Questionnaires were received from 406 of the 682 eligible providers (59%). Nearly all (98% (393 of 399)) reported their organizations value good patient-provider communication, and 95% (374 of 393) agreed that they communicate effectively with cancer patients. However, only 62% (239 of 385) agreed that they knew when their cancer patients had unanswered concerns or questions, and 67% (262 of 391) agreed that they were aware of most of the serious communication breakdowns that occurred in their patients' care. Almost all, 99% (394 of 400) 99% agreed that their organization should encourage patients to alert the system when there has been a serious care breakdown, and 88% (340 of 386) agreed these reports would provide actionable information. Providers found some communication situations especially difficult. A majority (61% (242 of 397)) found it extremely/very difficult to respond to patients' unrealistic beliefs about prognosis, 55% (217 of 395) found it extremely/very difficult to respond to patients' concerns about delayed diagnosis, but only 5% (21 of 397) found it extremely/very difficult to respond to patients who are unhappy about care from another clinician. In response to a hypothetical patient who experienced a delayed breast cancer diagnosis, 55% (221 of 399) would provide very limited information to the patient, not explicitly mentioning the error causing the delay. **Discussion:** Cancer care providers value patient-provider communication but find discussions of prognosis, as well as disclosure regarding care breakdowns and delayed diagnosis, especially challenging. Providers support mechanisms to solicit cancer patients' concerns about their care. Health systems should explore how to create care delivery environments that improve patient-provider communication.

Keywords: Cancer Care; Provider-Patient Communication; Cancer

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CA2-04:

Variation in Mastectomy Rate for Invasive Breast Cancer: Results from the Breast Cancer Surgical Outcomes Study

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Background/Aims: In 1999, the National Institutes of Health Consensus Conference recommended breast conserving therapy (BCT) as a viable alternative to mastectomy based on several long-term studies and meta-analyses. Since then BCT has been the procedure of choice for most women with early stage breast cancer. However, several recent studies have reported a shift toward increasing use of total mastectomy (TM). We evaluated patterns of mastectomy use and factors associated with mastectomy rates in the Breast Cancer Surgical Outcomes (BRCASO) study. **Methods:** BRCASO is a collaborative study between University of Vermont, Kaiser Permanente, Colorado; Group Health, Seattle; and Marshfield Clinic, Wisconsin and includes detailed data on 4580 women diagnosed with incident invasive or in situ breast cancer between 2003-2008 obtained from administrative data and