requests, PharmGKB (www.pharmgkb.org) and the disease association database (http://geneticassociationdb.nih.gov/). To be considered, a polymorphism had to be associated with disease in two independent populations and it had to have a reported minor allele frequency in a Caucasian population of at least 0.20. The final assay was developed on the Sequenom platform and all individuals within the PMRP cohort were analyzed. Probability of identity for the panel was calculated and each polymorphism was tested for Hardy Weinberg equilibrium. The allele frequencies found in our population of 20,000 were compared to reported allele frequencies. The allele frequencies in the PMRP population were compared between males and females and between different age categories. **Results:** From a list of 116 potential polymorphisms we developed a single assay of 36 medically relevant somatic polymorphisms with at least one polymorphism on each chromosome and a single sex marker. The probability of identity for the assay was 6.132×10^{-15} and the sibling probability of identity was 3.077×10^{-8}. Three polymorphisms differed from previously reported allele frequencies by more than 10%. In our population, four polymorphisms were different in males and females and four polymorphisms varied in allele frequencies between age groups. Furthermore, the chosen polymorphisms have been used in two studies and as preliminary data in several other studies. **Conclusions:** We were able to create a DNA panel of 36 medically relevant polymorphisms that successfully tested DNA quality, increased the knowledge of population wide allele frequencies, and is useful to investigators for candidate gene studies.

PS2-13:

Genetic and Environmental Risk Factors for Prescription Opioid Dependence in the Healthcare Setting

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Background: Research on the genetics of opioid addiction among illicit drug users is difficult given challenges to case ascertainment and selection of an appropriate control group. To address this limitation, we tested a model by studying prescription opioid users. **Methods:** We undertook a case-control, candidate-gene study of opioid-dependent users and nondependent users among Geisinger Clinic outpatients. Electronic health record (EHR) data were reviewed for patients who were prescribed opioids. Patients were selected for a phone interview if they had five or more prescription orders for opioids in the prior 12 months for non-cancer pain. Cases were identified based on the Diagnostic and Statistical Manual of Mental Disorder, Version IV (DSM-IV) criteria for opioid dependence. A modified Composite International Diagnostic Interview (CIDI) was used to obtain data on dependence status and history. Data were also gathered on detailed drug, psychological, and environmental exposures. Altogether, 703 patients completed the CIDI; 512 of these patients (73%) provided DNA for genotyping and completed the NEO Five-factor Personality Inventory. **Findings:** Altogether 37.4% (95% CI = 33.8–41.1) of patients met DSM-IV criteria for lifetime opioid dependence and 30.7% (95% CI = 27.3–34.3) met criteria for current dependence. Significant predictors of opioid dependence included younger age, unemployment, psychotropic medication use, as well as history of PTSD, anxiety, depression, alcohol abuse, anti-social personality, illicit drug use, trauma exposure, and substance abuse treatment (all P-values < 0.001). Preliminary Genetic analyses suggested that opioid dependence was associated with dopamine receptors D2 and D3 and the COMT genes. Gene by environment (G x E) interactions were also detected related to opioid dependence and exposure to mental trauma. **Conclusion:** The prevalence of drug dependence is high among pain patients on long-term opioid therapy in the outpatient setting. This disorder is associated with a history of other mental health conditions, employment status, psychotropic medication use, illicit drug use, and exposure to mental trauma. Genetic analyses suggested associations with genes related to neurocognitive processes associated with impulse control and reward regulation. Several G x E interactions were also detected.

Health Economics

C-C2-01:

Financial Assessment of a Comprehensive Cardiac Care Program for Patients With Occlusive Coronary Artery Disease

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Background: While early and aggressive comprehensive cardiac care (CCC) programs in patients with coronary artery disease (CAD) have been associated with improvements in clinical outcomes, information on the financial outcomes of such programs are limited. The purpose of this investigation was to assess the financial impact of a CCC program on total healthcare expenditures after an initial coronary event. **Methods:** This was a matched, retrospective cohort analysis of the Kaiser Permanente Colorado (KPCO), a group model HMO, nurseand pharmacist-managed CCC program that was designed to provide evidence-based lifestyle and medication support at the earliest opportunity after a coronary event. Patients with an incident occlusive CAD event between January 1999 and June 2004 were categorized into intervention and comparator groups, respectively, by enrollment or never enrollment (No CCC) into the CCC. Patients were matched 1:1 on chronic disease score (CDS) and 180-day pre-coronary event (baseline) total healthcare expenditures. Pharmacy and medical utilization events were extracted from electronic administrative and claims databases. Utilization events were collected after the initial coronary event until death, health plan termination, three years, or December 31, 2005, whichever came first (follow up). Expenditure estimates from the KPCO Decision Support System (in 2007 dollars) were applied to utilization events. An intervention cost of $1/follow-up-day was applied to all CCC patients. Expenditures/day were modeled with adjustment for matching variables, patient characteristics, baseline expenditures, and intra-correlations of matched patients. **Results:** 628 CCC patients were matched to 628 No CCC patients. Patients in the No CCC group were slightly older, more likely to be female, and to have had a myocardial infarction. Mean/median baseline expenditures and CDS were equivalent. During follow-up, 12 and 98 cardiac-related deaths occurred in and mean/median total healthcare expenditures/day were $57/$30 and $159/$45 for the CCC and No CCC groups, respectively (both $P<0.001$). After adjustment, CCC patients were associated with -$103/day lower total healthcare expenditures ($P<0.001$; adjusted R-square=0.71 with log-transformed expenditures). **Conclusions:** Comprehensive and aggressive implementation of secondary cardiac prevention strategies with close monitoring and follow-up of CAD patients is associated with reduced healthcare expenditures.

C-C2-02:

Validation and Uses of the ACG-DX Predictive Modeling and Risk Adjustment Tool in an Israeli HMO

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Background: With an ever increasing population of HMO members with chronic disease and continuing economic pressures to provide good medical care as efficiently as possible, there is a need for methods to stratify populations by health status and their future risk for using limited healthcare resources. **Methods:** We used the ACG-DX program developed at Johns Hopkins University for validation testing on an Israeli PPO population. This program uses same year data to provide a risk adjustment analysis for that year and predict high-users (top 5%) for the following year. The Maccabi Healthcare Services has an extensive demographic and medical database keyed by a unique identifier for each member. We provided age and gender data as well as all diagnoses for year 2006 and total cost for years 2006 and 2007 for each member as input to the ACG-DX program. We truncated total costs over the 99.9% for both pharmacy and total costs. The explanatory value for costs in 2006 (R^2) and positive predictive value for total costs in 2007 were calculated for the entire population of 1.7 million subscribers. The R^2 results were compared to results based on American data and reference values (ref.) generated by the