OBJECTIVES: To investigate the usefulness of National Health and Nutrition Examination Survey (NHANES) data for exposure estimates. To illustrate its utility, the exposure variables biomarker concentrations and the outcome variables were serum levels of the biomarkers listed above. Weighted survey linear regression was used to estimate the association between cotinine concentration and biomarkers levels. We also tested the models for different levels of covariates, age, sex, and BMI. RESULTS: The levels of WEIS (P<0.0001, V=26.4; P-value: =0.0001) showed higher association with cotinine levels than rest of the biomarkers. The R-square for the models ranged from 0.52 to 0.72, and the lower cut-off levels of 0.15% were observed among current smokers relative to past and non smokers. BMI showed a high association with most of the biomarkers. The odds of lower HDL were significantly higher for 21-35 years age group relative to the >65 years age group. Non-Hispanic blacks had a significantly lower HDL than non-Hispanic whites. Females had significantly higher HDL than males. These results were consistent with that reported in the literature. CONCLUSIONS: A statistically significant association was observed between the biomarker exposure (serum cotinine) and biomarker levels. There were also significant differences in the association within the different covariate levels.

PMR5

CLAIMS DATA ALGORITHMS FOR IDENTIFYING INCIDENT COLORECTAL CANCER (CRC) CASES AND CANCER DISEASE STAGE: A CRITICAL REVIEW OF THE LITERATURE

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OBJECTIVES: Administrative claims data are commonly used to study CRC treatment patterns and outcomes. We critically review existing algorithms for identifying incident BC cases and disease stage at diagnosis within claims data. METHODS: A literature search (1989-2012) using the terms: cancer [ti] AND (administrative OR claims) AND (assess [ti] or assessment [ti] or predict [ti] or prediction [ti] or identify [ti] or identification [ti] or validate [ti] or validation [ti] or agreement [ti]) provided algorithms for identifying incident BC cases and four algorithms classified BC disease stage at diagnosis. We examine the positive predictive value (PPV) of each algorithm and suggest revisions for improving the PPV. RESULTS: To identify incident BC, Warren used ICD-9 and treatment codes across inpatient and outpatient settings (PPV=80%). Freeman used a logistic model with 36 diagnostic and procedural indicators and set the PPV at 81%. Natttinger used a 4-step process using ICD-9 and treatment codes (PPV=93%). For disease stage, the Yuen and Cooper papers used diagnostic codes to distinguish regional from distant spread of cancer, with PPVs below 60%. Smith used diagnostic procedural codes, and testing higher cut-points for distinguishing stage IV from all other patients and stage III from patients with stage I/II. Trade-offs between sensitivity and PPV are made using cut-points from four models to classify patients into disease stage. Nordstrom’s algorithm identified metastatic disease using three components: a diagnosis code for secondary neoplasm OR any metastatic chemotherapy agent OR NO-G-code for non-metastatic disease AND G-code for metastatic disease (PPV=81%). CONCLUSIONS: For identifying incident BC, we recommend updating the Natttinger algorithm with newer codes and fewer criteria for older patients likely to receive less aggressive care. For disease stage, we recommend updating the Setoguchi algorithm with additional codes from Nordstrom to testing higher cut-points to maximize PPV.

PMR6

OSTEOARTHRITIS IS AN INDEPENDENT RISK FACTOR FOR HIGHER EVENT RATE OF MAJOR ADVERSE CARDIOVASCULAR OUTCOMES IN HYPERTENSIVE PATIENTS – FROM 15-YEAR TAIWAN NHIRD DATABASE

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OBJECTIVES: The association between osteoarthritis and cardiovascular disease is well known; recently published studies have suggested that patients with osteoarthritis may be at increased risk for adverse cardiovascular events (MACEs). However, the association between osteoarthritis and the rate of major adverse cardiovascular events have not been thoroughly evaluated in Taiwan (Check literature). METHODS: Using the retrospective, observational, longitudinal study design, we evaluate the association between osteoarthritis and the rate of MACEs in the Asian population with essential hypertension retrieved from Taiwan National Health Insurance Research Dataset (NHIRD). Patients with HTN and free of pre-defined MACEs (MI, stroke, CHF, ESRD and PDV) in the entire course were enrolled as control group. In contrast, those with both HTN and OA and free of previous MACEs were enrolled as study group. Total of 56,607 hypertensive patients (aged 30-60 years) without previous MACEs at the first year (in 1996) were included. There were 23,530 (41.6 %) patients with concomitant diagnosis of OA with those without OA (MI: 2.37% vs. 1.64 %, p=0.001; stroke: 3.30% vs.3.33%, p=0.0004; CHF: 1.60% vs.1.37%, p=0.025; PDV: 10.24% vs. 4.36%, p<0.001, respectively), except for ESRD (1.05% vs. 1.33%, p=0.0032). Adjusted for both birth year and sex, the adjusted ORs (95% confidence interval (CI) and p-values) for MACE in patients with both OA and HTN were all significantly higher by the relative risk of 3.09 (2.69-3.54, p=0.0001) in MI; 2.47 (2.22-2.75, p<0.0001) in stroke; 4.30 (4.42-4.79, p<0.0001) in CHF; 1.75 (1.48-2.08, p<0.0001) in ESRD and 4.77 (4.38-5.19, p<0.0001) in PDV, respectively. CONCLUSIONS: Results from this study highlight the MACE (MI, stroke, CHF, ESRD and PDV) rates were significantly higher in hypertensive patients with OA than those without it.

PMR7

COMPARISON OF COMMERCIAL INSURANCE DATABASES TO CENSUS DATA FOR AGE, GENDER, AND GEOGRAPHIC REGION IN THE UNITED STATES

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OBJECTIVES: Administrative claims data and medical census databases are consider non-representative of the United States (US) population because they reflect only working age individuals, and their dependents who are currently employed. If this employment characteristic exists, it should be visible when large commercial administrative databases are compared against US Census demographic data. METHODS: This study compared the HealthCore Integrated Research Database (HIRD) and the National Health and Nutrition Examination Surveys (NHANES) to create data for gender, age and geographic regions that were coded to be consistent with estimating dose from administrative claims only. CONCLUSIONS: Claims data were less equipped to estimate biologic treatment compliance, while the NHANES data provide evidence of many individual and group specific biologic dosing patterns. However, information from claims augmented charts, and provided details on a much larger population of biologic patients, highlighting the importance of utilizing both the get a better depiction of treatment, compliance, and costs.