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Background: In many healthcare claims databases, a unique physician identifier (PI) that spans all parts of the database (e.g., pharmacy claims (PC) and medical services claims (MSC)) is not available. Therefore, identifying the physician responsible for prescribing a patient's drug may be challenging.

Objectives: To identify the most likely match between the DEA and PROV and to assess the association between the match and characteristics of the providers/medical encounters in the United Healthcare (UH) database, which has PIs coded by a drug enforcement administration (DEA) variable in PC and a provider (PROV) variable in MSC.

Methods: All unique DEAs in a cohort of new users of osteoporosis (OP) medications were identified from women >=55 years old (2008-11). For each DEA, all new prescription (Rx) fills for any drug during the study period were obtained and the PROVs on MSC within 7 days prior to each new Rx were identified. The proportion of times each unique PROV appeared at least once in this time window out of the total # of new Rxs for each DEA was calculated and the PROV with the highest proportion was classified as the most likely match to the DEA. Subsetting to PROV and DEA #s that occurred together >=80%, a logistic regression model was built with characteristics of providers/medical encounters as explanatory variables and the match as the dependent variable.

Results: We identified 66,125 new users of OP medications with 38,810 unique DEAs on the PC of their index Rxs. There were 1,014,354 unique PROVs which appeared in the 7 days prior to the new Rxs of these DEAs during the study period. The strongest predictor of matching (c-statistic: 0.78) was physician specialty (OR=7.70, 95% CI:5.87, 10.10), followed by outpatient office visit (OR=2.61, 95% CI:1.71, 3.99), OP diagnosis (OR=2.39, 95%CI:1.45, 3.94), and DXA scan (OR=0.97, 95% CI:0.59, 1.60).

Conclusions: In the UH database, the association between physician/medical encounter characteristics and a DEA-PROV match was evaluated. The predicted model could be used in other databases to facilitate the linkage of prescriber information from different parts of the database, allowing for the investigation of physician prescribing patterns over time.

258. Evaluation Of Different Missing Data Strategies In Propensity Score Analyses

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Background: Propensity scores are used to adjust for confounding. However, data on confounders is often not fully available. Different techniques are available to handle missing data, but there is little data available about the relative performance of missing data methods within the context of propensity score analyses.

Observational studies have shown decreased risks of fracture with use of statins while large randomized clinical trials (RCTs) found a relative risk of 1.0. BMI is an important confounder with often incomplete data and this might explain the differences between the results of the RCTs and the observational studies.

Objectives: To explore the sensitivity of estimated treatments effects to the missing data approach used.

Methods: A retrospective cohort study using data from the UK Clinical Practice Research Datalink (CPRD) (1992-2014) was conducted. Statin users, aged 50 years or older, having at least one statin prescription since 1992 were selected and matched 1:1 by year of birth, sex and practice to non-users. Cox regression models were used to estimate the hazard ratios (HR's) of hip fracture in statin users versus non-statin users. Missing data were handled by complete case (CC) analysis, adding an indicator (IND) and multiple imputation (MI). Adjustments by propensity scores (inverse probability weighting) were compared to adjustments including confounders in the regression model.

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Results: The confounder adjusted methods showed all a decreased risk of hip fracture for statin users as compared to non-users (CC: HR 0.92 95% CI (0.85 – 0.99); IND: HR 0.92 (0.86 – 0.99); MI: HR 0.92 (0.86 – 0.99)). Propensity score adjusted models showed no association in the CC analysis (HR 0.98 95% CI: 0.93 – 1.02), whereas the IND and MI analysis showed a decreased risk of hip fracture with statin use (IND: HR 0.94 (0.91 – 0.98); MI: HR 0.95 (0.91 – 0.99)).

Conclusions: The point estimates of the three different missing data techniques did not differ much, suggesting that the different techniques used in the present study did not greatly influence the estimated treatment effect.

259. Agreement Between ICD-9 Codes and Laboratory Results Indicative of Myelosuppression (MS) in Patients with Longer-Term Exposure to Linezolid in a Claims Database

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Background: Linezolid is indicated for treating antibiotic resistant skin and soft tissue infections often occurring in immunocompromised patients, particularly infections caused by Gram-positive bacteria. There have been reports of MS events associated with long exposure >14 days) to linezolid.

Objectives: This study assessed the agreement between ICD9 codes and lab data for MS events in a claims database.

Methods: Adults exposed to linezolid were selected from a claims database and followed 42 days past the end date of linezolid prescriptions. Patients were required to be in the health plan at least 180 days prior to the initial prescription of linezolid. MS was defined using either ICD-9 codes or lab values by the occurrence of at least one of the following: anemia (AN), thrombocytopenia(TH), or neutropenia (NU). MS lab-based definitions were: hemoglobin <9.5 g/dL), neutropenia <1000/mm3) and platelet count <75,000 platelets/ mm3). Cohen's kappa was computed to assess chance-corrected agreement between ICD-9 and lab based outcomes.

Results: A total of 15,908 patients were identified with linezolid exposure (82% <14 days) from 2000-2014. 1,889 events of MS (11.9%) were observed using ICD-9 definition. Lab values were available in 5,058 patients (32%). For overall MS, AN, TH and NU events there were 4917, 4877, 4939 and 4636 patients who had both an ICD-9 diagnosis and lab values for the respective outcomes. Kappas (95% CI) were .05 (0-.12), .13 (.03-.23), .22 (.17-.26) and .23 (.18-.28) for NU, TH, MS, and AN, respectively.

Conclusions: Agreement between ICD-9 and lab values was poor. Lack of agreement may be negatively affected by missing data. Missing lab values may be due to patients receiving labs from out of network labs. Lab results may not make their way into the patient records after the medical decision is made to continue therapy. Similarly, healthcare providers may not record an ICD-9 code of a MS event once the lab result has been reviewed and course of action taken. Further research is needed to investigate the impact of this missing information on algorithms assessing MS events.

260. Use of Electronic Healthcare Records to Identify Complex Patients with Atrial Fibrillation for Targeted Intervention

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Background: Practice guidelines recommend anticoagulation for patients with atrial fibrillation (AF) and risk factors putting them at higher risk of stroke. However, many high-risk patients remain undertreated, in part due to concerns regarding major bleeding as an adverse effect of anticoagulation.

Objectives: To develop and validate algorithms using electronic healthcare record (EHR) data to identify patients with atrial fibrillation (AF) and determine the presence or absence of known risk factors for stroke and major bleeding.