PODIUM SESSION I: RESEARCH ON DATABASE METHODS

DB1

DEVELOPMENT AND VALIDATION OF A MODEL TO PREDICT VIROLOGIC FAILURE USING ADMINISTRATIVE CLAIMS

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OBJECTIVE: When studying HIV infection, administrative claims databases can provide information on treatment and cost for large numbers of patients but most do not contain laboratory test results, making it impossible to know when a change in antiretroviral treatment (ART) was due to virologic failure. Our objective was to develop and validate a model for identifying patients in a claims database who switched ART due to virologic failure. METHODS: We identified three databases of adult HIV-positive patients who switched ART regimens between January 1, 2003 and March 31, 2008. The HIV Insight clinical registry was used to develop a regression model incorporating demographics, regimen characteristics, and other independent variables to estimate the odds of virologic failure. Next, the subset of the Ingenix i3 LabRx health insurance claims database with HIV viral load test results (claims/lab database) was used to validate the model. The model was then used to estimate the proportion of patients with virologic failure in the full Ingenix i3 LabRx claims database (claims database). RESULTS: There were 1,691 patients with ART switches in HIV Insight; 1,073 in the claims/lab database, and 3,954 in the claims database. The base model (main effects only) had good discriminatory ability ($c = 0.875$), but poor overall model fit ( Hosmer-Lemeshow test, $p = 0.001$). Adding three significant two-way interaction terms improved fit ($p = 0.8692$) and discriminatory ability ($c = 0.885$). When the final model was applied to the claims/lab database, it predicted 18.9% of patients would have virologic failure; the actual proportion was 18.6%. CONCLUSIONS: We developed and validated a model that could be used in administrative claims to predict the proportion of ART switches due to virologic failure. Health plans may use this model to identify treatments with rising rates of virologic failure and to examine costs related to such failure.

DB2

EVALUATION OF AGREEMENT BETWEEN INTERNET-BASED SELF- AND PROXY-REPORTED HEALTH CARE UTILIZATION AND ADMINISTRATIVE HEALTH CARE CLAIMS

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OBJECTIVES: Mode of survey administration is an important determinant of the validity/accuracy of self-reported, health care utilization (HCRU). While Internet-based surveys are becoming more common, little is known about agreement between administrative claims data and Internet-based survey self- and proxy-reported HCRU. This analysis evaluated the level of agreement of self- and proxy-reported HCRU as recorded by two Internet-based surveys as compared to administrative claims-based HCRU data from three large self-insured U.S. employers. METHODS: Monthly Internet-based surveys of employees ($n = 2,298$) in the Child and Household Influenza- Illness and Employee Function Study were captured 11/07–5/08. The survey captured data on the presence and number of visits to hospitals, emergency departments, urgent care centers and office visits for employees’ care and for household member (HRM) care ($n = 6,884$). Administrative claims from the Marksecan® Databases were assessed during the same time period and evaluated relative to the survey-based HCRU metrics. Only data for individuals with employer-sponsored health care coverage and who could be linked to the claims data using via direct matching was included ($n = 5,718$, 62%). The Kappa ($\kappa$) statistic was used to evaluate visit concordance and correlation statistics were used to describe frequency consistency. RESULTS: There was moderate to substantial visit presence and frequency agreement between survey-based and claims-based HCRU for all service categories. Poor agreement for emergency department visits, with Kappa of 0.31 (95% CI 0.27-0.34) and 0.39 (95% CI 0.36-0.42) for the first and second visits respectively. Similar results were observed for emergency department, urgent care center and outpatient visits with a Kappa of 0.50 (95% CI 0.46-0.54) and 0.56 (95% CI 0.53-0.61) respectively. Visit presence frequency agreement was similar for self- and proxy-reported HCRU. CONCLUSIONS: Relative to previously published HCRU metrics elicited from paper and telephony survey methods, this study’s agreement values suggest that Internet-based surveys are an effective method to collect self- and proxy-reported HCRU.

DB3

MUCH ADO ABOUT THE LACK OF SOCIO-ECONOMIC COVARIATES IN ADMINISTRATIVE CLAIMS DATA

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OBJECTIVES: Administrative claims data from managed care plans are often used to assess health care utilization and cost. However, a major criticism against the use of claims data is that they often lack socio-economic-status (SES) information including race, years of education, marital status and household income. Therefore, claims-based estimates of utilization and cost measures may be biased. Using Medical Expenditures Panel Survey (MEPS), this paper shows that the SES factors may not have significant bearing on the predicted utilization and cost measures. The MEPS data were used for this study. In order to make the study sample resemble a typical sample from claims data from a managed care plan, MEPS patients aged between 18 and 63 years enrolled in a managed care plan throughout 2007 were included in the final sample. Overall and pharmacy costs were analyzed using a generalized linear model (GLM) with gamma distribution and log link while the number of office and outpatient visits were modeled using GLM with Poisson distribution and log link. Each regression was run with and without the four SES variables, and the resulting predicted values were compared. RESULTS: The predicted number of office and outpatient visits with SES covariates in the GLM regression equation were 2.81(SD = 1.92) and 0.43(SD = 0.65), and without SES covariates were 2.83(SD = 1.91) and 0.41(SD = 0.61). Similarly, the predicted pharmacy and total health care cost with SES covariates were $897(SD = $1,162) and $3,990(SD = $4,697), and without SES covariates were $853(SD = $1,334) and $8,103(SD = $6,631). Thus, predicted utilization and cost measures with or without the SES variables in the corresponding GLM regression were not statistically different. CONCLUSIONS: Our results reject the hypothesis that the lack of SES covariates in claims data might result in biased estimates of utilization and cost. Further investigation is warranted to check the robustness of the model specifications for utilization and cost.

PODIUM SESSION I: HEALTH CARE EXPENDITURES STUDIES

HE1

COST-EFFECTIVENESS OF 1ST LINE CHEMOTHERAPY REGIMENS IN THE TREATMENT OF NON-SMALL CELL LUNG CANCER AMONG PATIENTS RECEIVING CARE IN THE OUTPATIENT COMMUNITY SETTING

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OBJECTIVES: To evaluate the incremental cost-effectiveness of combination pemetrexed/platinum chemotherapy relative to other common chemotherapy regimens for 1st line treatment of non-small cell lung cancer (NSCLC). METHODS: NSCLC patients initiating 1st line chemotherapy (pemetrexed/platinum (PP); carboplatin/paclitaxel (CP)) from July 1, 2006–June 2009 were identified from claims data from a managed care plan, and included in the final sample. Overall and pharmacy costs were analyzed using a generalized linear model (GLM) with gamma distribution and log link while the number of office and outpatient visits were modeled using GLM with Poisson distribution and log link. Each regression was run with and without the four SES variables, and the resulting predicted values were compared. RESULTS: The predicted number of office and outpatient visits with SES covariates in the GLM regression equation were 2.81(SD = 1.92) and 0.43(SD = 0.65), and without SES covariates were 2.83(SD = 1.91) and 0.41(SD = 0.61). Similarly, the predicted pharmacy and total health care cost with SES covariates were $897(SD = $1,162) and $3,990(SD = $4,697), and without SES covariates were $853(SD = $1,334) and $8,103(SD = $6,631). Thus, predicted utilization and cost measures with or without the SES variables in the corresponding GLM regression were not statistically different. CONCLUSIONS: Our results reject the hypothesis that the lack of SES covariates in claims data might result in biased estimates of utilization and cost. Further investigation is warranted to check the robustness of the model specifications for utilization and cost.

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