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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OBJECTIVES: 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 logistic 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 only database). RESULTS: The HIV Insight clinical registry included 1,903 patients, 1,691 patients with ART data (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 only database). There were 1,691 patients with ART data. The base model (main effects only) had good discriminatory ability (c statistic was 0.71), but poor overall model fit ( Hosmer-Lemeshow test, p = 0.001). Adding three significant two-way interaction terms improved fit (p = 0.86/92) and discriminatory ability (c statistic was 0.885). When the final model was applied to the claims/lab database, it predicted 18.8% of patients would have virologic failure; the actual proportion was 16.6%. 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 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 in the Internet-based survey as compared to administrative claims-based HCRU data from three large self-insured U.S. employers. METHODS: Monthly Internet-based surveys of employees (n = 2,289) in the Child and Household Influenza- and Illness and Employee Function Study were captured between 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 (HHM) care (n = 6,884). Administrative claims from the Marketscan® 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 (κ) 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. Percent agreement for presence of a particular service ranged from 99.2% (inpatient stay, κ = 0.71) to 76.4% (outpatient visits, κ = 0.52). The correlation in the survey-based and claims-based visit frequency for inpatient, emergency department, urgent care center and outpatient visits was 0.59 (p = 0.66), 0.82 (p = 0.001). 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. 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 65 years enrolled in a managed care plan throughout 2007 were included in the final sample. Overall and pharmacy costs were analyzed using generalized linear modeling (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 = 0.61), and without SES covariates were 2.63(SD = 1.91) and 0.41(SD = 0.61). Similarly, the predicted pharmacy and total health care cost with SES covariates were $897(SD = $1,682) and $3,990(SD = $4,697), and without SES covariates were $854(SD = $1,334) and $4,101(SD = $4,633). 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 + bevacizumab (CP + B); or carboplatin/paclitaxel (CP) from July 1, 2006–June...
HE1 HEALTH CARE COSTS OF METASTATIC SQUAMOUS CELL CARCINOMA OF HEAD AND NECK—FINDINGS FROM LINKED SEER-MEDICARE DATA
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OBJECTIVES: To estimate health care utilization and costs for patients with incident metastatic squamous cell carcinoma of head and neck (mSCCHN). METHODS: Incident mSCCHN patients between 1993 and 2005 were identified in the SEER-Medicare database for primary site U. Average age at diagnosis was 74 (SD 6.7) years and 70% were males. Mean Charlson comorbidity score without malignancy was 1.4 (SD 1.6) and mean duration of follow-up was 30 months (SD 33). Forty-eight percent of patients received chemotherapy. Carboplatin (18%) was the most commonly used agent followed by paclitaxel (13%) and cisplatin (11%). The mean number of visits per patient per year was 9.7 (SD 10.7) for outpatient care and 2.9 (SD 3.7) for inpatient care. Average annual inpatient days per patient were 31.4 days (SD 31.1). About 40% of the patients received hospice care. Mean total annual health care costs per patient were $155,307, cost of outpatient care constituted 51% and inpatient care 34%. CONCLUSIONS: Inpatient and outpatient costs are the key drivers of total health care costs for patients with mSCCHN.

HE2 CAN INNOVATION BE REWARDED WITH THE APPLICATION OF RIGID COST-EFFECTIVENESS THRESHOLDS? THE HER2+ VE BCARE CANCER CASE STUDY
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OBJECTIVES: Trastuzumab (Tras) in combination with chemotherapy is the current treatment standard in patients with early and metastatic breast cancer (BC) who are HER2 positive (HER2+). Any regimen under development will have to be compared to Tras both in pivotal clinical trials and during economic assessment. This study raises important policy questions by estimating the feasibility of demonstrating cost-effectiveness (CE) against conventional UK NICE thresholds ($20,000/QALY). The study is based on two different cohorts. First, we developed a CE model for gynecologic cancers that included different clinical trials for HER2+ BC and used utilities derived from QoL studies. Second, we developed a CE model for HER2+ BC and used utilities derived from Quality Care for Breast Cancer (QCB). We included different incremental survival and HRQoL effects across the different trials. RESULTS: HER2+ BC could be considered cost-effective if the acquisition price for Tras was reduced by 10% (2017) and 25% (2018). The equivalent incremental survival and HRQoL effects were 0.15% and 0.30% (2017) and 0.37% and 0.75% (2018), respectively. HER2+ BC could be considered cost-effective if the acquisition price was reduced by 10% (2017) and 25% (2018). CONCLUSIONS: HER2+ BC could be considered cost-effective if the acquisition price for Tras was reduced by 10% (2017) and 25% (2018). The equivalent incremental survival and HRQoL effects were 0.15% and 0.30% (2017) and 0.37% and 0.75% (2018), respectively.

HE3 CHARACTERIZATION OF FRENCH HOSPITAL EMERGENCY DEPARTMENT (ED) USE BY UN- OR UNDERINSURED PERSONS
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OBJECTIVES: Use of EDs for non-emergencies contributes to crowding, increased health care costs, and, potentially, poor clinical outcomes. Efforts to decrease inappropriate ED use have focused on insured individuals. The purpose of this retrospective cohort study was to characterize frequent ED use among un- and underinsured individuals in central Texas. METHODS: Data were obtained from the ICare system, which includes information for > 800,000 individuals and > 5 million encounters within 24 Central Texas health care providers who arrange for or provide care for uninsured or underinsured individuals. Persons who received care from an ICare-participating organization during calendar year 2007 were included in these analyses. Frequent ED use was defined as at least 6 ED visits within either a calendar quarter or any contiguous three-month period. Linear regression was used to estimate the relation between patient characteristics and total ED visits among frequent users. RESULTS: There were 216,169 ED visits in 2007; 128,518 individuals had at least 1 ED visit and 0.7% (n = 892) were considered frequent ED users. Frequent users were mainly female (55.6%) and Caucasian (55.8%). Hispanics and African-Americans accounted for 14.2% and 17.3% of frequent users, respectively. The regression model accounted for 12.1% of variability in the outcome. The sensitivity and specificity were both 0.98. CONCLUSIONS: In 2007, frequent users accounted for < 1% of ED visits, and 5.4% of total ED use. A study of these frequent users may help identify opportunities for intervention to help underlying causes for these frequent visits.

HE4 VARIABILITY IN UTILIZATION OF INNOVATIVE DRUGS IN EUROPE AS A RESULT OF HEALTH TECHNOLOGY ASSESSMENT AND FUNDING PROCEDURES: EXAMPLES OF TRASTUZUMAB AND CETUXIMAB
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OBJECTIVES: Pharmacists need to provide education and information on newly launched monoclonal antibodies and their accessibility differs across Europe. Trastuzumab (TR2) was recommended by payers for early and advanced breast cancer (BC). In Europe, differences in the process and timelines of recommendations, Cetuximab (CTX) for metastatic colorectal cancer due to the high correlation between treatment benefit, treatment duration (until cancer progression), and overall treatment costs.

HE5 COMPARATIVE-EFFECTIVENESS VERSUS COST-EFFECTIVENESS: A COMPARISON OF THE FRENCH AND SCOTTISH APPROACHES TO SINGLE TECHNOLOGY ASSESSMENT (STA)
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OBJECTIVES: To compare the pharmaceutical STA guidance advice of Haute Autorité de santé (HAS) which appraises clinical efficacy/safety against the Scottish Medicines Consortium (SMC) in which appraisal includes both clinical and cost-effectiveness. METHODS: All English translated advice were downloaded from the HAS website resulting in 78 transparency committee committees for between 2005 and 2009. These were matched with SMC advice, resulting in 19 matched drugs. A comparison between drug advice, the clinical evidence through identification of trials on the CENTRAL database of the Cochrane library and a statistical analysis was performed on improvement in medical benefit (ASMR) supplied by HAS and the cost-utility estimates (CQG) of the SMC. RESULTS: The HAS and SMC had the same advice in 14/19 (74%) of the drug comparisons. The average number of trials included were 2 trials in HAS advice and 1.8 trials in SMC advice with more comprehensive detail on the efficacy in HAS advice. Each matched comparison had at least one common trial and 30% of guidance included different additional trials. The correlation between the medical improvement provided by HAS and the SMC CQG were analysed and show that for those treatments considered cost saving by the SMC the ASMR was on average 4.6. The CQG for £0-£10,000 had an average ASMR, 3.4, £10,000-£20,000, 2.8, £20,000-£30,000, 3.1, and £30,000+; 3.4, showing little correlation between ASMR and CQG. CONCLUSIONS: The differences in guidance advice reflect the countries different HTA processes, interpretation of clinical efficacy and approaches to economics. HAS advice provided more detailed information on the clinical efficacy in comparison to SMC for these drugs. The SMC presented formal analysis of cost-effectiveness in comparison to the economic committee with similar SA process. The transparency committee implicitly uses economics as the choice of ASMR influences pricing decisions and the cost-effectiveness of treatments.