treated with antibiotics were excluded. Analysis was restricted to those patient visitation cared by physician specialty with general practice, family practice, and internal medicine. Multivariate logit regression analysis was performed to assess the relationship between patient insurance status and the prescribing of broad-spectrum antibiotics controlling for specialty, gender, race and ethnicity, physician specialty, and comorbidities. RESULTS: Of 851 adults patients care for ARTI, 38% were prescribed one or more broad-spectrum antibiotics. In multivariate regression analysis, compared to those with private insurance, those with Medicaid, a public insurance program for low-income American, was associated with lower likelihood of prescribing of broad-spectrum antibiotics (adjusted odds ratio (OR) 0.496, p = 0.003), so were those without health insurance (adjusted OR 0.499, p = 0.028), and those with Medicare, a public insurance program for the elderly or disabled adults (adjusted OR 0.666, p = 0.019). CONCLUSIONS: In the case of ARTI, those with private insurance were substantially more likely to be prescribed with broad-spectrum antibiotics, where the society may be better off if such overseuse of antibiotics could be reduced.

OBJECTIVES: To determine trends in prescription of COPD drugs in ambulatory settings in the last 10 years. METHODS: Pooled data from combined National Ambulatory Care Settings (NAMCS) and National Hospital Ambulatory Care Settings (NHAMCS) data from year 1996 to 2005. For trend analysis, data were stratified in 2-year periods. All adult visits with only primary diagnosis of COPD (ICD-9-CM: 491, 492, 496) were included in analysis and drug categories were identified using National Drug Codes. Descriptive analysis was carried out to determine patterns in drug prescription across years and four separate multivariate logistic models, dependent variable being drug class and independent variable being year, were constructed to identify rate of change in drug use across years while controlling for age, sex and smoking status. RESULTS: From 1996 to 2005, total COPD visits have been increased from 0.59% to 0.77%; Prescription of anticholinergics (33.48%) and inhaled corticosteroids (35.19%) were the top prescribed medications. From year 1996 to 2005, prescription of anticholinergics (19.74% to 33.48%) and inhaled corticosteroids (12.63% to 35.19%) were increased, whereas beta-agonist had no upward trend (29.46% to 29.53%). In year 1996-1997, beta-agonist was the highly prescribed drug (24.64%), whereas anticholinergics (33.48%) and inhaled corticosteroids (35.19%) were the top prescribed medications. From year 1996 to 2005, prescription of anticholinergics (OR: 1.088; CI 1.029-1.151) and inhaled corticosteroids (OR: 1.132; CI 1.086-1.203) increased, whereas the use of long-acting beta-agonist has decreased (OR 0.846, 95% CI 0.896-0.907). CONCLUSIONS: Overall drug utilization for COPD is increasing steadily. Use of bronchodilators is increasing which is in accordance with Global initiative for Chronic Obstructive Lung Disease (GOLD) guidelines. Corticosteroid use which is increasing should be based on risk to benefit ratio.

COMPARING RISK ADJUSTMENT MODELS: PROPENSITY SCORE MATCHING, STANDARD REGRESSION ANALYSIS AND INSTRUMENTAL VARIABLE METHOD

Methods: A204 Dybing A1, Bauer E1
1STATinMED Research / University of Michigan, Ann Arbor, MI, USA, 2STATinMED Research, Ann Arbor, MI, USA

OBJECTIVES: To compare three common risk adjustment models when estimating causal effect of treatment on total health care expenditures among asthma patients was estimated. Reimbursement amounts were dollars paid by the health plan to the provider including patient co-payments and deductibles. Doctors’ prescribing patterns were used as an instrumental variable for treatment choice. Propensity score matching was employed using the nearest neighbor matching algorithm. Generalized linear model was used as an alternative risk adjustment technique. RESULTS: Patients treated with control medication were younger, more likely to live in the northeast and south of the United States and have a higher Charlson comorbidity score, Elixhauser score and chronic disease score relative to patients treated with reliever medication. The difference between one year health care costs for reliever and controller medication was $2,345 by propensity score matching, $2,195 by generalized linear model, and $2,997 by instrumental variable approach. The difference was statistically significant. CONCLUSIONS: Propensity score matching and instrumental variable approach were more appropriate methods than the propensity score matching. In the case of ARTI, those with private insurance were substantially more likely to be prescribed with broad-spectrum antibiotics, where the society may be better off if such overseuse of antibiotics could be reduced.

ASSESSING THE TIME-DEPENDENT NATURE OF COMORBIDITY INFLUENCE ON COPD

Kiri VA1, MacKenzie G2
1PAREXEL International, Uxbridge, London, UK, 2University of Limerick, Limerick, Ireland

OBJECTIVES: In most outcome studies, comorbidity influence is modelled as constant with inherent assumptions that the duration of the condition does not influence the prognosis and the effect persists. We challenge these assumptions as we demonstrate the time-dependent nature of the influence of certain comorbidities on patient survival. METHODS: A retrospective cohort of 23,881 patients aged 50+ in the UK-GPRD at time of incident COPD diagnosis between 1990 and 1998 provided an appropriate setting. Each death patient was matched to as many survivors from the same practice as possible, of same age, sex and COPD duration. Some 18 binary comorbidities measured at the time of death were analysed in relation to mortality. Using conditional logistic regression model, we estimated hazard ratio (HR) for each comorbidity, adjusted for key baseline characteristics in two different models: In model A, we treated comorbidities as constant variables, whilst in B, we stratified each into two time-dependent categorical variables. We retained interactions between comorbidities which were significant. RESULTS: Some 2938 dead patients were matched to 5792 survivors. We found evidence of time-dependent effects on risk for all but peripheral vascular disease and diabetes. Only in model B did we find evidence for peptic ulcer, moderate/severe liver disease and hemiplagia/paraplagia. The liver disease effect was significant only in those diagnosed within a year of death (HR > 1.5; p = 0.0162), where as the hemiplagia/paraplagia effect was found only in those diagnosed over a year ago (HR > 1.6; p = 0.0163). CONCLUSIONS: To adequately adjust for comorbidity influence in outcome studies, we recommend stratification of each comorbidity on the basis of its duration (at start of follow-up for a cohort, or at time of outcome for a case-control study) to test for possible time-dependent effect. Adopting such approach as part of the exploratory analysis may improve the model and lead to more accurate estimations.

ASSESSMENT OF HEALTH OUTCOMES IN THE U.S. HOSPITAL INPATIENT SETTING

Quintiles, Falls Church, VA, USA

OBJECTIVES: Demonstrate the differences in results from the use of two different methods for covariate adjustment when calculating differences in outcomes between groups. METHODS: The 2006 Nationwide Inpatient Sample hospital database was analyzed to estimate the clinical and economic impact to U.S. hospitals of air leaks during post-operative pulmonary surgery. For all stays with pulmonary surgery, length of stay (LOS), total charges, and in-hospital mortality rates were compared between stays including an air leak vs. stays without an air leak, while using two different methods to adjust for covariates: 1) multivariate regression analysis (ordinary least square regression for LOS and total charges, and logistic regression for in-hospital mortality) while controlling for age, gender, and hospital region; 2) 1:1 matched case-