increased 161.8%, and any oxycodone-containing compound increased 267.3%. Mentions of each of these three classes of opioids remained less than 2% of all total drug mentions per year for each year studied. Medical use of the selected opioid classes, as reported in the ARCOS database and measured by grams distributed, all increased substantially (fentanyl 151.2%, morphine 48.8%, oxycodone 347.9%). CONCLUSIONS: Using this method of analysis, the rates of drug abuse, and resultant morbidity secondary to the use of opioid analogs, remains low in spite of the increase in medical use of these substances.

**METHODS—Cost Related Studies**

**PPN9**

**PRESCRIPTION OF NON-STEROIDAL ANTI-INFLAMMATORY DRUGS AND MUSCLE RELAXANTS FOR BACK PAIN IN THE UNITED STATES**  
Luo X, Pietrobon R, Curtis L, Hey L  
*Duke University Medical Center, Durham, NC, USA; *Duke University Medical Center, Durham, NC, USA

Secondary analysis of the 2000 Medical Expenditure Panel Survey (MEPS). OBJECTIVE: To examine national prescription patterns of NSAIDs and muscle relaxants among individuals with back pain in the United States. Summary of Background Data. There is a lack of information on national prescription patterns of NSAIDs and muscle relaxants among individuals with back pain. METHODS: Traditional NSAIDs, cyclooxygenase-2-specific (COX-2) inhibitors and muscle relaxants respectively accounted for 16.3%, 10% and 18.5% of all total prescriptions for back pain in 2000. Among individual drugs, ibuprofen and naproxen accounted for most of the prescriptions for traditional NSAIDs (60%), whereas two-thirds of the prescriptions for muscle relaxants were attributable to cyclobenzaprine, carisoprodol and methocarbamol. Prescription of COX-2 inhibitors or muscle relaxants demonstrated wide variations across different regions. Several individual characteristics including age, race and educational level were associated with the prescription of some of the medications. CONCLUSIONS: Neither traditional NSAIDs, nor COX-2 inhibitors, nor muscle relaxants dominated prescriptions for back pain. However, a small number of individual drugs were attributable to most of the prescriptions for traditional NSAIDs or muscle relaxants. The prescription of some of the medications demonstrated wide variations across different regions or different racial and educational groups. More studies are needed to understand why the variations occurred and how to standardize the prescriptions.

**METHODS**

CONTRIBUTIONS: Pharmacoeconomics Inc, Watertown, MA, USA

**COMPARISON OF GENERALIZED LINEAR MODELS AND ORDINARY LEAST-SQUARES REGRESSION FOR COST ESTIMATION**

Ollendorf DA, Pedan A  
PharMetrics Inc, Watertown, MA, USA

OBJECTIVES: To illustrate how use of generalized linear models to analyze health care cost data may provide a better distributional fit than commonly employed approaches (e.g., linear or log-linear ordinary least squares [OLS] regression), and could yield quantitatively and inferentially different conclusions. METHODS: Data were obtained from the PharMetrics Patient-Centric Database, which includes integrated medical pharmacy claims from 73 health plans nationwide. Patients with a diagnosis of intermittent claudication (ICD-9-CM 443.9x) who newly started cilostazol or pentoxifylline therapy between June 1999–March 2002 were selected for analysis. Six-month pretreatment and follow-up periods were created in relation to the first observed prescription. Total costs of care during follow-up were estimated based on health plan payments for medications and services rendered, and were expressed in 2002 U.S. dollars. Alternative multivariate approaches to analyzing total costs were employed—an OLS model (log-linear) versus a generalized linear model (GLM) with a log-link function and a gamma distribution. Covariates included demographic and other baseline/patient characteristics. Histograms of untransformed and log-transformed costs were compared to gamma and normal distributions; goodness-of-fit assessments also were conducted. The results of OLS (on a log-transformed outcome) and gamma GLM models were compared. RESULTS: Analyses were conducted for 763 and 506 patients newly starting cilostazol and pentoxifylline therapy respectively. The results of goodness-of-fit testing (deviance: 1489.5 vs. 1366.4 for degrees of freedom = 1,255) indicated that the gamma GLM model approximated the cost distribution most closely. Observed annual mean total costs were $6238 and $5568 for cilostazol and pentoxifylline respectively; application of the two models yielded different results—a non-significant (p = 0.0620) treatment effect using log-linear OLS, and