Poster Presentations

POSTER SESSION I
HEALTH CARE USE & POLICY STUDIES—
Adherence/Compliance

EFFECT OF PRESCRIPTION COPAY ON MEDICATION UTILIZATION
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OBJECTIVE: To assess impact of change in prescription copay on changes in medication utilization among patients taking three common brand name medications: atorvastatin for dyslipidemia, pioglitazone for diabetes, or valsartan for hypertension.

METHODS: The Medstat MarketScan database was used to identify patients taking a study drug (atorvastatin, pioglitazone, or valsartan) in both 2003 and 2004. Patients had to have continuous pharmacy coverage, at least one fill in each year, and be <65 years of age. The total copay for study drug was divided by the total number of prescription fills to calculate average copay for each patient in each year. Regression and partial correlation analysis was used to estimate the association between changes in copay and days supply, adjusting for age and gender.

RESULTS: Among 9342 valsartan patients, 4622 (49%) patients had an increase in average copay and for these patients there was on average 32 fewer days on drug in 2004 compared to valsartan patients without an increase in copay (Spearman Rho = -0.14, p-value < 0.01). There was also a negative association between copay and days supply in patients receiving atorvastatin or pioglitazone: 15 days less on pioglitazone and 18 days less on atorvastatin for patients having an increase in average copay for 2004. Among patients using mail order prescriptions with fills for >30 day supply the impact of copay on days supply was less but still statistically significant.

CONCLUSION: Policy and benefit decision makers need to consider the impact of patient copay on persistence for chronic diseases such as diabetes, hyperlipidemia, and hypertension.

ADHERENCE TO EVIDENCE-BASED GUIDELINES AND MEDICATION COMPLIANCE FOR MULTIPLE CHRONIC DISEASES IN A MANAGED CARE DATABASE
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OBJECTIVE: To examine both adherence to treatment guidelines and medication compliance for commercially insured patients with common chronic conditions including asthma, chronic obstructive pulmonary disease (COPD), congestive heart failure (CHF), coronary artery disease (CAD), depression, diabetes, hyperlipidemia, and hypertension.

METHODS: A retrospective cohort analysis of claims data was conducted using the IHCIS Impact National Benchmark database representing >4.5 million lives. Patients were selected with evidence of disease condition(s) between 2002 and 2006 who had ≥6 months of data available post identification with coverage through December 31, 2006. All analyses were conducted in 2006 and all costs were annualized. Proportion of Days Covered was measured to calculate compliance (between first and last fill) and persistence (first fill through end of year) using an 80% cutoff.

RESULTS: For diabetes patients, 54% received no HbA1c test in 2006 and only 33% received the ADA recommended 2 tests (measure required patients to be continuously eligible during 2006 and have prior evidence of diabetes). The percentage of patients filling any acceptable disease specific prescription in 2006 was 80% for CHF, 68% for CAD, 60% for diabetes, 57% for depression, 44% for asthma and 36% for COPD. Of patients filling medication, compliance ranged from 75% for diabetes and CHF down to 49% and 36% for COPD and asthma respectively. Persistence rates ranged from 77% for CAD to 23% for asthma.

CONCLUSION: Persistence and medication compliance and persistence rates were sub-optimal. With the prevalence of chronic diseases increasing and the cost associated rising dramatically, improvements in care per guidelines and medication compliance could potentially benefit patients, reduce costs and improve outcomes.

IS THERE AN ACCEPTABLE LEVEL OF MEDICATION ADHERENCE? A REVIEW OF RETROSPECTIVE ADHERENCE EVALUATION STUDIES
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OBJECTIVE: The rationale for selection of a cut-point between acceptable and unacceptable medication adherence has not been previously evaluated. The objectives of this study were to describe the dichotomized measures for medication adherence and assess the rationale for selection of the cut-point.

METHODS: A systematic Medline review and examination of studies assessing adherence using pharmacy claims from January 1997–June 2007 was performed. Studies containing partial or incomplete methods for measuring adherence were excluded. A sub-analysis of articles was conducted to determine the rationale for selection of the cut-point.

RESULTS: The review identified 98 studies with 103 measures of adherence. These studies investigated adherence to cardiovascular drugs (39.8%), hormones and synthetic substitutes (33.0%) and others (28.2%). The following types of measures were used: medication possession ratio (MPR) (45.6%), fixed gap between refills (38.8%), proportion of days covered (7.8%) and others (7.8%). Dichotomous measures were used by 32.0% of the studies. A cut point was specified for 35.9% measures of adherence. The mean cutoff value was 76.0% ± 12.9%; with a median of 80.0%, and a range of 20.0%–90.0%. The sub-analysis contained 28 articles of which 35.7% refer to cut-points derived from previous clinical studies, 21.4% selected the cutpoint arbitrarily and 14.3% offered no explanation, 7.1% provided clinical evidence, and 7.1%...
mentioned a reference that actually indicated that dichotomization of the continuous adherence variable was inappropriate.

CONCLUSION: MPR and gap between refills were the most commonly used measures of medication adherence. Almost one third of the studies used dichotomous measures. A medication adherence of 80% of the therapy was typically indicated as the cut-point between adherence and non-adherence. There is no accepted clinical or pharmacological rationale for medication adherence threshold selection. The use of continuous variables to measure medication adherence is recommended.

THE IMPACT OF COPAYMENTS OR BRAND NAMED DRUG ON MEDICATION PERSISTENCE
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OBJECTIVE: To examine the impact of copayments or brand named drug as well as other factors on medication persistence from a large U.S. employer. METHODS: We analyzed medical and pharmacist claims data from 2002 through 2006 for new users prescribed a single agent for either an antihypertensive (angiotensin converting enzyme inhibitors, beta blockers, and calcium blockers) or two anti-diabetic (biguanides and sulfonylureas) therapeutic classes. Nonpersistence with medication was measured using three methods: medication possession ratio (MPR) (<8.0; number of days to the first drug coverage gap of ≥15 days; and number of days to drug discontinuation ≥90 days gap). Logistic regression and Cox proportional hazard models were performed to evaluate the association between the potential risk factors and the likelihood of medication nonpersistence.

RESULTS: A total of 1422 members with 12 months claim data following the first drug filled were identified. Fifty-four percent were male with a mean age 52.8 ± 8.0 years, and 44% initially used a brand named drug. The logistic regression results revealed that increasing age per year (OR = 0.966; 95% CI = 0.952–0.979), PPO (OR = 0.424; CI = 0.261–0.689) or HMO insurance (OR = 0.440; CI = 0.262–0.739) as compared to conventional fee for service coverage were less likely to have MPR < 0.8. Management workers (OR = 1.475; CI = 1.113–1.954) were more likely to have MPR < 0.8. MPR < 0.8 was not associated with use of an initial brand named drug, comorbidities, or health care utilization in the six months prior to initiating medication therapy. The Cox models showed that the risk for a gap increased 1.1% (HR = 1.011, CI = 1.004–1.019), and medication discontinuation increased 0.9% (HR = 1.009, CI = 1.003–1.014) with each $1 increase in initial drug copayments.

CONCLUSION: Younger employees, management workers, conventional fee for service insurance coverage, and an increase in initial copayments are factors predictive of greater risk for noncompliance with medications. These data may be helpful for employers when making drug benefit design decisions.

PREDICTORS OF NONCOMPLIANT COST-CUTTING BEHAVIORS AMONG ADULTS IN THE UNITED STATES
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OBJECTIVE: To determine the demographic, insurance, and health status predictors of noncompliant cost-cutting behavior among U.S. adults. METHODS: Data were from quarters one and two of the 2007 National Health and Wellness Survey (NHWS), an internet-based study of the health care attitudes, behaviors, disease states, and outcomes of a demographically representative sample of adults age 18+. Noncompliant cost-cutting behaviors were defined as taking less medication than prescribed, cutting tablets in half, or buying fewer tablets. Logistic regression analysis was used to determine the demographic, insurance, and health status predictors of noncompliant cost-cutting behavior.

RESULTS: Of the 42,010 NHWS respondents, 12% reported some noncompliant cost-cutting behavior, more specifically 7% reported taking less medication than prescribed, 6% reported cutting tablets in half, and 2% reported buying fewer tablets. Significant predictors of greater likelihood of noncompliant cost-cutting behavior include being non-white (OR = 1.182, p < 0.001), having a college degree (OR = 1.094, p = 0.009), having individual or family insurance purchased directly (OR = 1.300, p < 0.001), purchasing medications outside the U.S. (OR = 3.862, p < 0.001), number of physical comorbid conditions (OR = 1.176, p < 0.001), having a psychiatric condition (OR = 1.620, p < 0.001), currently smoke (OR = 1.137, p < 0.001), and body mass index (OR = 1.006, p = 0.007). Significant predictors of lesser likelihood of noncompliant cost-cutting behavior include being non-white (OR = 0.996, p = 0.001), having insurance through the Veteran’s Administration (OR = 0.514, p < 0.001), and having Rx coverage (OR = 0.808, p < 0.001). Gender, marital status, annual income greater than $50,000, number of adults in household, and insurance through employer, Medicaid, or Medicare were not significant predictors of non-compliant cost cutting behavior.

CONCLUSION: There are several significant predictors of noncompliant cost-cutting behavior. Knowing these predictors may help in targeting cost year follow up period was employed as the measure of adherence. Kaplan Meier estimates of survival (persistence) curves were used to assess the time to discontinuation and to calculate the one-year rate of discontinuation. Baseline patient characteristics, including age, gender, geographic region, median income, index quantity dispensed, population density, co-pay, and index refill and days supply prescribed were analyzed.

RESULTS: Adherence data across these drugs showed that sirolimus, cyclosporine, and tacrolimus patients on average obtained 5.5 (±4.5), 5.2 (±5.4), and 6.5 (±5.3) fills, and 170.8 (±132.9), 159.2 (±163.96), and 194.8 (±159.6) days supply of medication over 12 months, respectively. At day 60, 41% of sirolimus, 44% of tacrolimus, and 52% of cyclosporine patients discontinued therapy. After 6 months, 68% of tacrolimus and sirolimus and 77% of cyclosporine patients discontinued therapy. The rate of switching to another agent was 6.5% for sirolimus, 1.4% for tacrolimus, and 1.1% for cyclosporine at month 6, and 10.9%, 2.3%, and 1.8% at month 12, respectively.

CONCLUSION: Even though organ transplant drugs are vital for transplant patients, 68% to 77% of patients discontinue therapy after 6 months. Research has showed that nonadherence to immunosuppressive therapy is the leading cause of organ rejection, organ loss, and death. Efforts to maintain patients on these drugs are needed in the beginning of and throughout treatment to avoid organ rejection.