Abstracts From Professional Poster Presentations at AMCP's 16th Annual Meeting & Showcase

The following poster presentations have been prepared for the Academy of Managed Care Pharmacy's 16th Annual Meeting & Showcase, March 31–April 3, 2004, in San Francisco. Poster presentations are selected by the Program Planning Committee from proposals that are submitted to AMCP. Authors of posters are responsible for the accuracy and completeness of the data presented in the posters and in the abstracts published here.

For more information about the studies described below, please contact the corresponding authors, indicated by an asterisk (*), whose addresses are listed in full. The names of individuals who are scheduled to present at the meeting are underlined. Abstracts were edited by Marissa Schlaifer and Mark Brueckl.

A PHYSICIAN SURVEY OF KNOWLEDGE OF AND ADHERENCE TO THE 2002 ACC/AHA CLINICAL PRACTICE GUIDELINES FOR THE MANAGEMENT OF PATIENTS WITH UNSTABLE ANGINA AND NON–ST-SEGMENT ELEVATION MYOCARDIAL INFARCTION

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OBJECTIVES: To determine whether physicians who treat patients post-myocardial infarction (MI) or with unstable angina/non–ST-segment elevation myocardial infarction (UA/NSTEMI) were familiar with and followed the revised 2002 American College of Cardiology/American Heart Association (ACC/AHA) clinical practice guidelines for treating UA/NSTEMI.

METHODS: Physicians in a large U.S. managed care organization, who prescribed cardiac medication (e.g., antianginals, beta-blockers, ACE inhibitors) to patients with an inpatient hospitalization for acute MI or angina pectoris during the period July 1, 2001, through June 30, 2002, were identified. Physicians were then mailed a survey that examined familiarity with and adherence to the ACC/AHA guidelines and evaluated the extent to which they had implemented the guideline recommendations in their clinical practices.

RESULTS: Of the 3,317 physicians surveyed, 861 (26%) completed and returned the assessment. Respondents included internists (41%), family practitioners (29%), and cardiologists (23%). Among those who responded, 590 (69%) indicated they were aware of the revised 2002 ACC/AHA guidelines. Of these, 501 (85%) rated themselves as at least moderately familiar with its recommendations, and 545 (92%) indicated they followed these recommendations. When asked if they treated patients differently as a result of the revised guideline, 450 (76%) indicated at least a moderate change, and 97 (16%) indicated significant changes in treatment.

CONCLUSIONS: Of the physicians who responded to the survey, most were aware of and familiar with the recommendations of the revised 2002 ACC/AHA guidelines. More importantly, this awareness may lead to significant changes in clinical practice, a question that will need to be validated in future studies.

LEARNING OBJECTIVES:

1. Understand the changes made to the 2002 ACC/AHA Clinical Practice Guidelines for the Management of Patients with Unstable Angina and Non–ST-Segment Elevation Myocardial Infarction.
2. Understand the extent to which physicians who treat patients post-MI or with UA/NSTEMI report they are knowledgeable of and adherent to these recommendations.
3. Understand the specific changes in clinical practice made by physicians who are knowledgeable of and adherent to these revised 2002 ACC/AHA recommendations.

ADULT ATTENTION-DEFICIT/HYPERACTIVITY DISORDER WITHIN A MANAGED CARE POPULATION: PATTERNS AND PREDICTORS OF HEALTH CARE UTILIZATION AND COST

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INTRODUCTION: Attention-deficit/hyperactivity disorder (ADHD) in adults is associated with functional impairments and greater health care utilization and costs relative to those without the disorder.

OBJECTIVE: To understand utilization and costs in adults with ADHD and to identify predictors of these outcomes.

METHODS: United Healthcare claims data were used to identify adults with ADHD who were continuously enrolled in the year 2000. Comorbid mental health conditions, health service utilization, and health care costs were examined descriptively for the ADHD population. Univariate (Wilcoxon rank sum tests) and multivariate (linear regression models) techniques were employed to examine how disease and treatment variables related to utilization and costs.

RESULTS: A total of 28,957 adults were identified as having ADHD (prevalence of 0.67%). In adults with ADHD, depression occurred in 30%, anxiety occurred in 14.5%, and substance abuse occurred in 5.6%. ADHD-related medications (stimulants) accounted for 21% of filled prescriptions and 18% of prescription costs. The most common polypharmacy pattern was the use of stimulant medications in combination with antidepressants (36.1% of patients with ADHD). Greater health care costs were associated with presence of comorbid psychiatric conditions, mental health medication use, specialty care use, and psychotherapy use.

CONCLUSIONS: Although ADHD-related utilization and cost occurred less frequently than overall utilization and cost, polypharmacy was not uncommon and was a driver of costs. Other factors associated with increased costs, including comorbid mental health conditions, specialty care, and mental health treatments, suggest that ADHD treatment is challenging and more costly in complex cases.

LEARNING OBJECTIVES:

1. Understand utilization and cost patterns associated with adult ADHD.

2. Understand how comorbid conditions in adults with ADHD relate to health service utilization and costs.
3. Learn how patient characteristics and treatment patterns in adults with ADHD predict costs.

ANTIDEPRESSANT MEDICATION USE EVALUATION SOFTWARE: A DEPRESSION/ANXIETY QUALITY IMPROVEMENT TOOL FOR MANAGED CARE

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OBJECTIVES: To demonstrate the utility of an antidepressant medication use evaluation (MUE) software tool in assessing health plan-specific antidepressant utilization and treatment patterns and provide national benchmarks for the utilization measures that will aid in identifying HP-specific opportunities for quality improvement.
METHODS: An antidepressant MUE software tool was developed that uses a health plan's administrative pharmacy claims to assess treatment patterns in depression/anxiety management. The MUE tool provides pharmacy utilization information to aid in making data-driven decisions regarding antidepressant (AD) use. Measures include both Health Plan Employer Data and Information Set-based and other drug and patient-level utilization (average length of therapy, daily average consumption, rate of therapy change, etc.) measures. To provide valuable benchmarks for health plans regarding these measures, a large national managed care database (NMCD) was used.
RESULTS: A total of 21.3M patients were in the NMCD for the time period from June 1, 2001, to May 31, 2002, of which 953,325 (10%) were receiving an AD medication. Of those patients 68%, 28%, 16%, <0.1%, and 8% received a selective serotonin reuptake inhibitor (SSRI), mixed-action, tricyclic antidepressant (TCA), monoamine oxidase inhibitor (MAOI), and "other," respectively. The mean age of patients receiving an AD was 42 years, with 69.4% being female. Per-member-per-month (PMPM) costs were $1.75, $0.76, $0.05, $0.00, and $0.02 for SSRI, mixed-action, TCA, MAOI, and "other," respectively. The percentages of patients remaining on AD therapy for <90, 91 to 179, and ≥180 days were 60.5%, 19.5%, and 20%, respectively.
CONCLUSION: The antidepressant MUE software tool provides managed care decision makers with utilization, economic, and quality improvement data needed to make data-driven decisions when managing their depression/anxiety population appropriately.
LEARNING OBJECTIVES:
1. Describe the functionality and utility of an antidepressant MUE software tool in the managed care setting.
2. Recognize the type of information provided by an antidepressant MUE tool and how to use this information to improve the management of depression/anxiety.
3. Provide national benchmarks regarding the use of antidepressant medication in the United States.

ASSOCIATION BETWEEN DECREASING PRESCRIPTION DRUG COVERAGE AND MEDICATION USE FOR SENIORS: AN ANALYSIS OF COPING STRATEGIES

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INTRODUCTION: This cross-sectional study examines the impact of decreasing prescription drug coverage on the utilization of medications and coping strategies in seniors.
METHOD: Seniors were recruited at flu vaccine clinics in November 2002, before or after receiving a flu vaccine shot, to complete a 17-item survey.
RESULTS: Four hundred twenty-eight surveys were collected. Two hundred thirty-eight seniors were female (59.2%), with mean age 76 (range: 65-96). The primary health plans were Secure Horizon (40%), Health Net Seniority Plus (33.6%) and Retiree Benefits without Health Plan Specification (10%). Seniors with brand-name prescription coverage had higher incomes and lower out-of-pocket medication costs than seniors without brand-name prescription coverage, P = 0.012 and P<.000, respectively. When asked if any medication(s) were stopped due to cost, 72 (17.9%) seniors reported "yes," 310 (77.1%) seniors reported "no," and 20 (5%) seniors did not respond. Seniors without brand-name prescription coverage were more likely to stop a medication due to cost (P<0.000) and utilized more coping strategies, on average, than seniors with brand-name coverage (P<0.000). Coping strategies in order of decreasing frequencies included generic substitution, mail order, switching health insurance, using OTC/herbals, using own savings, switching to lower-cost medications, borrowing money, utilizing patient-assistance programs, pill-splitting, and taking less of their medications than prescribed.
CONCLUSIONS: Seniors who lacked brand-name prescription coverage were poorer, had higher medication expenditures, used more medications, were more vulnerable to stopping medications as a result of cost, and employed more coping strategies than seniors who maintained brand-name prescription coverage.
LEARNING OBJECTIVES:
1. Recognize the association between medication use and prescription drug coverage and reflect on the potential impact of decreasing prescription drug coverage on health outcomes.
2. Investigate the coping strategies seniors employed in response to decreasing pharmacy benefit.

ATTAINMENT OF THERAPEUTIC GOALS IN PATIENTS WITH HYPERTENSION AND DYSLIPIDEMIA IN THE DEPARTMENT OF VETERANS AFFAIRS: A MULTICENTER STUDY

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OBJECTIVE: To determine the proportion of patients with isolated or concomitant hypertension (HTN) and dyslipidemia (DYS) who attained their therapeutic goals.
METHODS: Computerized diagnostic, pharmacy, laboratory, and vital-sign records for all patients seen for any reason from October 1, 1998, to September 30, 2001, at 6 medical centers of the Department of Veterans Affairs (southcentral United States, VISN 16) were assessed. Inception cohorts of more than 42,000 newly diagnosed patients with

no prior drug treatment were evaluated. Treatment patterns and goal attainment for low-density lipoprotein (LDL) cholesterol (NCEP ATP III: <160 mg/dL, <130 mg/dL, or <100 mg/dL, depending on risk factors) and blood pressure (JNC 6: <140/90 mmHg or <130/85 mmHg, depending on risk factors) were measured at 1 year. Separate analyses were conducted in patients with diabetes mellitus.

RESULTS: The mean (SD) age of patients was 60.7 (12.2) years, and 94.6% of participants were male. Of the patients with HTN, 41.2% reached their blood pressure goal, and 24.9% of patients with DYS reached their LDL-cholesterol goal. In patients with concomitant HTN/DYS, 13.3% of these VA patients attained their goals for both blood pressure and LDL cholesterol. More than one quarter of patients with concomitant HTN/DYS (25.9%) did not receive medical therapy for either condition during the first year following diagnosis.

CONCLUSIONS: More than half of all patients failed to attain their therapeutic goals. In patients with concomitant HTN/DYS, dual goal attainment was very low. Treatment varied widely across all groups. Further research is needed to examine patient and provider factors and improve the management of these conditions.

LEARNING OBJECTIVES:

1. Learn that the attainment of both LDL cholesterol and blood pressure goals is low.
2. Appreciate that many patients with hypertension and dyslipidemia are not treated for these conditions.
3. Recognize that the management of hypertension and dyslipidemia needs to be improved.

CHALLENGES OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE MANAGEMENT: COMORBID CONDITIONS IN COPD PATIENTS

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INTRODUCTION: The retrospective analysis was performed to ascertain whether chronic obstructive pulmonary disease (COPD) patients have more comorbidities than patients without COPD.

METHODS: Managed care claims were analyzed to identify the prevalence of conditions in 23,596 patients with COPD (491.xx, 492.xx, or 496) and 414,231 age- and gender-matched patients without COPD ("controls"). ICD-9-CM diagnoses were categorized into conditions. The significance of prevalence differences was evaluated using tests of proportions.

RESULTS: Excluding the diagnosis of COPD, COPD patients averaged 12.2 different comorbid conditions for which they entered the health care system, compared with 6.6 for controls ($P<0.001$). All comorbid conditions were equal or more prevalent in the COPD group. Prevalence differences between COPD and control patients for the following conditions were significant ($P<0.0001$). The most common conditions were hypertension (COPD, 61.3%; controls, 48.7%) and lipid disorder (35.9% and 34.0%). Ischemic heart disease, lower respiratory infection, and arrhythmias were prevalent in COPD (35.3%, 33.9%, 26.3%), and were 2.2 to 4.6 times more common than for controls. The prevalence differential for diabetes was 3.6% (COPD, 23.3%; controls, 19.7%); asthma and CHF were 8.9 and 4.4 times more prevalent in COPD. Osteoporosis was found in 6.5% of COPD and 4.1% of controls, and demonstrated a significant gender differential at 11.4% and 7.7% of COPD and control females compared with 1.9% and 0.7% of males.

CONCLUSIONS: Patients with COPD have more comorbidities complicating the presentation and treatment of their disease. Clinicians should consider COPD patients' comorbid conditions when making decisions regarding safe and effective treatment regimens.

LEARNING OBJECTIVES:

1. Identify comorbid conditions for which COPD patients enter the health care system.
2. Recognize the clinical complexity of the COPD patient population.
3. Understand the importance of comorbid conditions with COPD patients on treatment decisions.

CHARACTERIZATION OF CONCOMITANT CHRONIC NSAID (NONSELECTIVE AND COX-2 SELECTIVE) AND ASPIRIN USE IN AN ADULT MEDICAID POPULATION

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OBJECTIVE: To characterize concomitant use of chronic aspirin (ASA) and nonsteroidal anti-inflammatory drugs ([NSAIDs] nonselective and COX-2 selective inhibitors) in the adult Medicaid population.

METHODS: This retrospective prescription database analysis pooled prescription and nonprescription data from 3 Medicaid health plans in California between January and December 2002. Patients included in the analysis were aged >18 years and were enrolled in Medicaid for the entire study period. Chronic administration was defined as prescriptions for 3 or more months of the year.

RESULTS: A total of 162,853 patients met inclusion criteria, with 16,326 (10 %) taking ASA chronically. The mean age of ASA users was 70 years (SD ± 11.8) and 42% were male. The most common ASA dose was 325mg (78% of ASA users). Of the chronic ASA patients, 33% were also prescribed a nonselective NSAID and 29% were also prescribed a COX-2 inhibitor chronically. The proportion of patients >70 years was 45% in the ASA + nonselective NSAID group versus 78% in the ASA + COX-2 group. The proportion of patients prescribed a proton-pump inhibitor (PPI) in the ASA + nonselective NSAID and ASA + COX-2 groups were 18% compared with 27%, respectively.

CONCLUSIONS: The majority of patients taking ASA chronically were elderly, and approximately two thirds of patients were taking either a nonselective NSAID or a COX-2 inhibitor along with their ASA. Risk for gastrointestinal events and the need for gastroprotection is important to assess in patients that are older and receiving multiple NSAIDs. The rationale for combination prescribing in this patient population requires further research to determine the most clinically appropriate and cost-effective therapy.

LEARNING OBJECTIVES:

1. Learn that 1 in 10 patients may be taking chronic ASA.
2. Recognize that concomitant ASA and NSAID (nonselective and COX-2 selective) use is common.
3. Recognize the assessment of GI risk and need for gastroprotection is important in a significant proportion of ASA users because many can be elderly and receiving multiple NSAIDs.

COMPARING TREATMENT COSTS ASSOCIATED WITH THE USE OF BRIMONIDINE-PURITE 0.15% AND BRIMONIDINE-BENZALKONIUM CHLORIDE 0.2% IN GLAUCOMA

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OBJECTIVE: To compare annual expected costs associated with brimonidine-purite 0.15% (B-P) and brimonidine-benzalkonium chloride 0.2% (B-BAK) from a payer perspective.
METHODS: A 12-month cost-minimization economic model was developed to evaluate costs associated with B-P and B-BAK treatment in glaucoma. In determining total costs, drug acquisition costs, office visits, and costs associated with ocular allergy (OA) were considered. Drug costs were based on August 2003 average wholesale price, and office visit costs were based on the Estimate of Medicare National Average Allowance. In the model, patients experiencing OA were switched to monotherapy with one of the lipid class of antiglaucoma medications. Expected annual total costs per patient included costs associated with OA based on published OA rates for B-P and B-BAK from randomized clinical trials.
RESULTS: Total annual expected costs for BP were $808 compared with $743 for B-BAK. B-P and B-BAK annual drug costs were $500 and $428, respectively. B-P and B-BAK's annual costs associated with office visits were $308 and $315, respectively. The difference in total annual expected costs between the 2 treatments was 8% compared with a 19% difference, based on drug acquisition cost alone.
CONCLUSION: Total annual expected cost savings with the use of B-BAK was only 8% compared with B-P, due to higher cost associated with OA. Cost considerations must be balanced with patient concerns such as satisfaction and quality of life when comparing treatments.
LEARNING OBJECTIVES:
1. Describe the ocular clinical measures affecting patient outcomes.
2. Discuss financial budget impact of modifications of formuations to reduce adverse events.
3. Understand how to evaluate efficacy and cost considerations for antiglaucoma medications.

COMPARISON OF MENTAL HEALTH RESOURCES USED BY PATIENTS WITH BIPOLAR DISORDER TREATED WITH RISPERIDONE, OLANZAPINE, OR QUETIAPINE

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OBJECTIVE: To compare mental health (MH) resource use associated with the atypical antipsychotics risperidone, olanzapine, and quetiapine when used in the treatment of bipolar disorder.
RESULTS: 6,625 bipolar patients were identified, with 2,925 risperidone, 3,333 olanzapine, and 1,260 quetiapine treatment episodes. Nonantipsychotic MH care charges per patient per month (PPPM) with quetiapine were U.S.$14 PPPM lower than risperidone ($P = 0.069$) and $9 PPPM lower than olanzapine ($P = 0.231$), a saving of 2% to 3% based on a $526 PPPM mean charge. Differences in nonantipsychotic MH care charges were mainly independent of the atypical antipsychotic used. However, with standardized doses, olanzapine was associated with significantly higher drug acquisition costs than risperidone and quetiapine (57% and 49%, respectively; $P<0.01$). Although drug acquisition costs for risperidone and quetiapine were not statistically significantly different, quetiapine was associated with lower PPPM resource utilization.
CONCLUSION: Quetiapine was associated with lower nonantipsychotic mental health resource use than risperidone and olanzapine.
LEARNING OBJECTIVES:
1. Compare the differences in mental health resource costs associated with the atypical antipsychotics risperidone, olanzapine, and quetiapine.
2. Understand that quetiapine is associated with modestly lower charges PPPM.
3. Recognize that the small advantage for quetiapine may be significant when compared with PPPM charges for olanzapine and risperidone.

COST AVOIDANCE OF HYPOGLYCEMIC EVENTS BY AN INSULIN THERAPY ENHANCEMENT PROGRAM IN A MEDICARE POPULATION

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INTRODUCTION: Based on the MedMarx 2001 Data Report, insulin remains the leading product involved in harmful medication errors. It has been associated most often with improper dosing/quantity and omission errors. Safety issues with insulin delivery can be attributed to a system error with prescription writing or administration error with patient technique or product selection.
OBJECTIVE: To determine the incidence rate of hypoglycemic events in patients in the elderly population using insulin and the conversion rate of these patients to an insulin-doser device for ease of administration.
METHODS: A retrospective analysis was made using ICD-9 CM codes for hypoglycemic admissions based on a 250.xx code and therapeutic misadventures ICD-9 CM code 962.3 from January 2002 to March 2003. Patients were matched to insulin usage through pharmacy claims data. Prescribing physicians were contacted and educated on the benefits of using a doser device to avoid incidence of a second admission. Reevaluation of pharmacy claims data confirmed whether a switch was made in identified patients whose physician had switched to a doser device.
RESULTS: Approximately 1,000 patients were identified as having an admission due to a hypoglycemic event during the period of time evaluated. Conversions were made only if the prescribing physician consented to the change. A significant number of patients were switched to the doser device. Reevaluation of admissions based on the same ICD codes confirmed minimal readmissions for hypoglycemic events in patients in which these interventions were made.
CONCLUSIONS: Results of this program provide further evidence that removing patient variability in administering insulin can result in reduced medication errors and hypoglycemic events for a health plan. A physician intervention program can achieve a significant cost avoidance.
LEARNING OBJECTIVES:
1. Increase awareness that insulin is one of the leading products in harmful medication errors.
2. Determine the incidence of hypoglycemic events in patients receiving insulin in an elderly population.
3. Understand the impact of switching patients to an insulin doser device and cost avoidance of hypoglycemic events in patients converted.

COST CONTAINMENT OF NEWER ANTIDEPRESSANTS IN MEDICAID PATIENTS USING PRESCRIPTION CHANGE FORMS

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INTRODUCTION: One third of the Oregon Medicaid drug budget is spent on 3 categories of medications: antipsychotics, mood stabilizers, and antidepressants. Many different cost-containment measures have been employed to help reduce the rising cost of pharmaceutical products, but little has been published regarding the use of a prescription change form.

OBJECTIVE: To determine if a paper-based prescription change form could facilitate prescribing changes that would reduce the cost of antidepressant therapy in a Medicaid population.

METHODS: One urban and 5 rural counties in central and eastern Oregon were selected as pilot sites. Cost-effective alternatives including half tablets, generic substitutions, and dose consolidation were identified for specific regimens of selective serotonin reuptake inhibitors (SSRI), venlafaxine, and bupropion. Prescription change forms were sent to prescribers and contained information on the patients' current antidepressant regimen, pharmacy contact information, and recommended alternatives. The form served as a valid prescription order change. Prescribers voluntarily chose one of the cost-effective options, contacted the patient's pharmacy, and returned the change form to the project coordinator. Results from both the prescription change forms and subsequent drug claims data were reviewed.

RESULTS: A total of 1,084 change forms were sent to 185 different prescribers involving 1,054 patients. Six hundred and twenty-nine (58%) forms were returned with a change selected in 528 (49%). The majority of prescriptions changes were for half tablets, followed by generic substitution and dose consolidation. An annual cost savings of $210,000 was projected. A review of prescription claims found that the intended change was implemented in 276 of the 1,084 (25%) identified prescriptions. Patients who had at least 4 months of follow-up appeared to maintain prescription change with an average of 3 refills.

CONCLUSIONS: Voluntary prescription change forms appear to be an effective and well-accepted tool for facilitating prescriber changes that can reduce the cost of newer antidepressant therapy. Methods to improve the communication of prescriber intent to the dispensing pharmacies would improve the implementation of successful prescription changes.

LEARNING OBJECTIVES:

1. List strategies for controlling the high cost of antidepressant medications.
2. Discuss applicability of the prescription change form process for Medicaid prescribers.
3. Describe potential cost savings associated with various voluntary switches in SSRI pharmacotherapy.

COST-EFFECTIVENESS ANALYSIS FAVORS EPOETIN ALFA TO FRONT-LOADED DOSES OF DARBEPOETIN ALFA FOR TREATMENT OF CHEMOTHERAPY-RELATED ANEMIA

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OBJECTIVE: To determine if weight-based, front-loaded dosing regimens of darbepoetin alfa (DARB) will demonstrate comparable cost-effectiveness (CE) to weekly epoetin alfa (EPO) in chemotherapy-related anemia (CRA) from a payer perspective.

METHODS: This 12-week economic model compares a fixed dose of EPO (40,000U once weekly [QW], escalation permitted at week 6 to 60,000U QW) to 3 weight-based, front-loaded regimens of (DARB1: 4.5 mcg/kg/week until hemoglobin (Hb) 12.0 g/dL then 1.5mcg/kg/week; DARB2: 4.5 mcg/kg/week for 4 weeks then 2.25mcg/kg/week; DARB3: 4.5 mcg/kg/week for 4 weeks then 3.0 mcg/kg/Q2W). Data are drawn from a published, randomized, dose-finding trial. Costs are based on actual drug use and average wholesale price from Red Book 2003. CE is defined as cost per g/dL rise in Hb.

RESULTS: Initial regimen costs of DARB are 200% higher than EPO (EPO: $534.24; DARB1: $1,610.02; DARB2: $1,562.87; DARB3: $1,625.74). Mean weekly and total treatment costs for DARB are 92% to 130% higher than EPO (EPO: $585.66, $7,027.93; DARB1: $1,345.26, $16,143.17; DARB2: $1,125.26, $13,503.18; DARB3: $1,134.41, $13,612.88). Changes in week 12 Hb are similar for all regimens (DARB1: 1.35 g/dL, 95%CI, 0.67 to 2.02; DARB2: 1.35, 0.57-2.12; DARB 3: 1.28, 0.84-1.73; EPO: 1.03, 0.53-1.53). CE ratios are superior for EPO (EPO: $6,823.23 per g/dL rise; DARB1: $11,957.90; DARB2: $10,002.36; DARB 3: $10,635.06;). A marginal gain in Hb of 0.20 g/dL to 0.30 g/dL observed with DARB, although nonsignificant, would incur an additional $6,475.25 to $9,115.24. A minimum 48% reduction in DARB cost is required to equalize the cost per effect gained with EPO.

CONCLUSION: In this model, EPO is the most cost-effective alternative compared with front-loaded DARB dosing regimens.

LEARNING OBJECTIVES:

1 Apply pharmacoeconomic methods to evaluate treatment options for CRA.
2. Recognize modeling techniques to assess CE of various dosing regimens of erythropoietic agents in CRA.
3. Understand the impact of varying dosing regimens when determining CE of erythropoietic agents in CRA.

COST-EFFECTIVENESS OF ROSUVASTATIN FROM A MANAGED CARE PERSPECTIVE

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OBJECTIVE: To determine the relative cost-effectiveness of a new HMG Co-A reductase inhibitor, rosuvastatin, from the perspective of a managed care payer.

METHODS: A decision-analytic model compared the cost-effectiveness of titration to goal with atorvastatin 10 mg to 80mg, fluvastatin 40 mg to 80mg, generic lovastatin 20 mg to 80mg, pravastatin 20 mg to 40mg, rosuvastatin 10 mg to 40mg, and simvastatin 20 mg to 80mg, in patients with elevated low-density lipoprotein cholesterol (LDL-C).

Effectiveness measures included percentage change from baseline LDL-C, high-density lipoprotein cholesterol (HDL-C), non-HDL-C, and percentage of patients achieving National Cholesterol Education Program Adult Treatment Panel II LDL-C goal. Direct medical costs were calculated based on drug, physician, and laboratory resource use multiplied by 2003 Medicare reimbursement rates for services and wholesale acquisition costs for drugs. A Monte Carlo simulation tested the sensitivity of results to model inputs.

RESULTS: In the base-case analysis, rosuvastatin dominated (was less costly and more effective than) atorvastatin, lovastatin, pravastatin, and simvastatin. Fluvastatin was least effective and least costly. Rosuvastatin had the second lowest cost and the greatest effectiveness. Compared with fluvastatin, the incremental LDL-C reduction, non-HDL-C reduction, HDL-C increase, and percentage of patients to goal with rosuvastatin were -16%, -14%, +3%, and +27%, respectively. Incremental costs per additional 1% reduction in LDL-C, 1% reduction in non-HDL-C, 1% increase in HDL-C, and patient to goal were $6, $7, $33, and $353, respectively. Findings were robust to a wide variety of assumptions and Monte Carlo simulation.

CONCLUSIONS: Rosuvastatin is less costly and more effective than atorvastatin, lovastatin, pravastatin and simvastatin, and rosuvastatin is highly cost effective compared with fluvastatin.

LEARNING OBJECTIVES:

1. Understand the role of incremental cost-effectiveness analysis in formulary decision making.
2. Identify "dominated" alternatives in incremental cost-effectiveness analyses.
3. Understand the value of probabilistic sensitivity analyses in formulary decisions.
4. Specify the statins on the "efficient frontier."

COST SAVINGS OF SWITCHING FROM IV TO ORAL 5-HT3 ANTAGONISTS FOR PREVENTION OF ACUTE CHEMOTHERAPY-INDUCED NAUSEA AND VOMITING

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INTRODUCTION: Oral 5-HT3 agents provide equivalent efficacy to IV formulations for the prevention of acute chemotherapy-induced nausea and vomiting (CINV) and may offer cost savings for formulary management.

METHODS: We performed a cost-minimization/cost-effectiveness analysis using data from 2 randomized controlled trials showing equivalent efficacy of granisetron 2 mg oral to ondansetron 32 mg IV in moderately and highly emetogenic chemotherapy. To measure cost-effectiveness we modeled a placebo group as a universal comparator. Societal costs were estimated in 2003 U.S. dollars. Outcomes were incremental costs between oral and IV therapy per 1,000 patients and incremental cost per case of complete control gained (no emesis and no rescue medication) of both formulations over placebo.

RESULTS: The model demonstrated that oral 5-HT3 antagonists saved $113,656 compared with IV therapy per 1,000 patients receiving highly emetogenic chemotherapy. Compared with placebo, IV therapy saved $522 per case of complete control gained and oral therapy saved $739. In moderately emetogenic chemotherapy, oral therapy saved $119,626 compared with IV therapy per 1,000 patients treated. Compared with placebo, IV therapy saved $153 per case of complete control gained and oral therapy saved $517. In sensitivity analyses, acquisition costs of IV and oral therapy were the most influential variables in the model. Reducing the cost of IV therapy by 50% (cost equivalent of ondansetron 16 mg IV), while keeping cost of oral therapy constant, still resulted in cost savings by switching to oral therapy in both highly and moderately emetogenic chemotherapy.

CONCLUSION: Switching to oral granisetron from IV ondansetron for prevention of CINV reduces costs and potentially optimizes cost-effective formulary management.

DETECTION AND TREATMENT OF PROTEINURIA IN A POPULATION OF DIABETIC PATIENTS

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INTRODUCTION: Identify and describe a population of diabetic members to develop targeted interventions for primary care physicians and members.

METHODS: This study was a retrospective claims analysis of a managed care organization's medical, pharmacy, and laboratory data. Members who were continuously eligible for pharmacy benefits during the study period and who were diagnosed with diabetes were included in the data set. A subset of members was mailed proteinuria test kits. Members who exhibited evidence of nephropathy were excluded.

RESULTS: Members were categorized into study groups based on diagnosis of coexisting hypertension, use of antihypertensive drugs, and response to proteinuria testing outreach. Of the 6,289 identified members, 1,707 (27.1%) were actively taking an antihypertensive drug. Within this group, 559 (32.7%) members had results for a proteinuria screen, with 192 (34.3%) reporting a positive test. Pharmacy utilization showed that 1,154 (67.6%) members in this group were taking either an angiotensin-converting enzyme (ACE) inhibitor or angiotensin receptor blocker (ARB). Of the 4,582 patients who were not receiving antihypertensive therapy, 1,284 (28.0%) had results for a proteinuria screen, with 421 (32.8%) reporting a positive result. The proportion of members with positive screening results was significantly higher ($P< 0.05$) among males (38.5%) than females (27.0%).

CONCLUSIONS: Within a population of diabetic patients, the rate of proteinuria testing and utilization of antihypertensive agents, specifically ACE inhibitors and ARBs, must be improved. In addition, the proportion of individuals at elevated risk for renal disease using multiple antihypertensive agents in combination should be increased.

LEARNING OBJECTIVES:

1. Evaluate prescribing patterns of antihypertensive agents among members with diabetes and members with diabetes and coexisting hypertension.
2. Identify opportunities for member and physician education for members who are at high risk for diabetic renal disease.
3. Identify gender-specific differences in at-risk groups and describe antihypertensive utilization and laboratory testing among these groups.

DIABETES AND CARDIOVASCULAR QUALITY IMPROVEMENT PROGRAM IN AN EMPLOYER-SPONSORED HEALTH PLAN

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INTRODUCTION: The management of diabetes often includes management of comorbid disease states such as hypertension and hyperlipidemia. The treatment of these comorbid disease states is extremely important in the overall management of the diabetic patient. Effective diabetic control in the primary care setting should include medical treatment based on current clinical guidelines to ensure positive health outcomes for the diabetic patient.

METHODS: Total Therapeutic Management's Diabetes and Cardiovascular Health Improvement Program involved a 3-phase approach to measuring and improving the outcomes of the Diabetes and Quality Improvement Project's diabetes-specific performance measures. During the initial Phase I (Identification Phase) assessment and the follow-up Phase III (Remeasurement) assessment, trained data abstractors reviewed the medical records of the same 383 diabetic patients at 2 employer-sponsored primary care clinics identified by the health plan. Phase I baseline data was used to provide information regarding the management of diabetes within the health plan. Phase II (Educational Phase) included a physician summary report along with an individual clinical consult for each patient. Based on the level of individual patient control for diabetes, dyslipidemia, and hypertension, suggestions based on clinical guidelines were made on each consult and placed in the patient chart. Clinical pharmacists also presented study findings and current clinical practice guidelines relevant to the care of the diabetic population to the physicians. The physicians were given 6 months to utilize the educational tools and information provided in Phase II before the Phase III remeasurement on the same group of diabetic patients was conducted. A comparison of the results from Phase I and Phase III was used to measure the success of the overall quality improvement program in Phase II. To quantify differences across these stratified parameters of interest, *t* tests and chi-square tests were employed.

RESULTS: No significant changes were seen in low-density lipoprotein (LDL) screening and control between the 2 phases. Despite the lack of improvement in LDL cholesterol screening and control, a significantly higher percentage of patients were prescribed a cholesterol-lowering medication in Phase III (55.9%) than in Phase I (46.5%) ($P<0.01$). Significantly more foot and eye exams were completed in Phase III versus Phase I ($P<0.1$, $P = 0.04$). Diabetic education, medical nutrition education, and self-monitoring of blood glucose also increased significantly between phases ($P<0.01$). Only about 16% of patients in both phases met the American with Disablities Act (ADA) diabetic blood pressure goal of less than 130/80 mmHg. However, the utilization of angiotensin-converting enzyme inhibitors, which have demonstrated benefits in diabetic hypertensive patients, was slightly increased in the remeasurement phase (Phase III). At the same time, use of angiotensin receptor blockers, which can also provide benefits to diabetic hypertensive patients, significantly increased from 17.2% in Phase I to 20.4% in Phase III ($P = 0.04$). Microalbuminuria testing in the past 12 months increased from 10.4% to 14.6% of patients between phases.

CONCLUSIONS: Recommendations and increased physician awareness of national guidelines (ADA, National Cholesterol Education Program [NCEP], *Journal of Nuclear Cardiology-VI [JNC-VI])* are essential in improving diabetic patient care. These educational initiatives were physician-focused and strived to make physicians more aware of national guidelines and patient goals. Many aspects of diabetes monitoring improved through this 3-phase quality improvement program.

LEARNING OBJECTIVES:

1. Review ADA, NCEP, and *JNC-VI* guidelines as they apply to diabetic patients.
2. Identify potential areas of improvement in the management of diabetic populations.
3. Realize the importance of managing comorbidities in conjunction with diabetic care.

DIABETES DISEASE MANAGEMENT: A HEALTH PLAN'S COLLABORATIVE APPROACH

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INTRODUCTION: The ODS Diabetes Disease Management Program is the product of internal collaboration among the Health Promotion/Disease Management, Healthcare Coordination, Quality Improvement, and Pharmaceutical Services departments and external collaboration with state-sponsored initiatives. ODS nurses, physicians, and pharmaceutical professionals work together to improve care, mitigate disability, and control medical costs for approximately 6,000 diabetic health plan members.

METHODS: The Diabetes Disease Management Program consists of multifaceted interventions at relatively low cost designed to engage health plan members in more proactive self-management and, therefore, reduce medical costs.

RESULTS: From 2000 to 2001, Medical per-member-per-month (PMPM) costs increased 17% while PMPM costs for diabetic members rose just 1%. Total PMPM costs (including pharmacy) increased 17% during the same time period compared with 5% for members with diabetes. ODS saw significant improvements in several Health Plan Employer Data and Information Set scores related to comprehensive diabetes care from 2001 to 2002: HbA1c Tested–15% increase, LDL-C Screening–14% increase, Kidney Disease (Nephropathy) Monitored–17% increase.

DIRECT COSTS OF TREATING AN INITIAL EPISODE OF DEPRESSION: A COMPARISON OF THE SEROTONIN REUPTAKE INHIBITORS AND ASSOCIATED ADVERSE DRUG REACTIONS

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INTRODUCTION: Serotonin re-uptake inhibitors (SRIs) have demonstrated superior tolerability, safety, and cost-effectiveness relative to traditional agents. However, the incidence of adverse drug reactions (ADRs) within SRIs remains significant and may vary by agent.

OBJECTIVE: This study seeks to estimate the direct cost of the initial treatment of depression, including the impact of SRI-related ADRs, among 8 currently marketed SRIs.

METHODS: A decision-analytic model with a 6-month time horizon was used to estimate the direct cost of treatment from the managed care/payer perspective. Univariate sensitivity analysis was conducted to examine the impact of uncertainty in the parameter estimates. Estimates of SRI-related ADRs, associated treatments, and costs were derived from the U.S. Food and Drug Administration labeling and published literature. Treatment response (defined as >50% reduction in the Montgomery-Asberg Depression Rating Scale (MADRS) score at week 8 was assumed to be equal across all SRIs.
RESULTS: The expected cost of treatment from the least to the most expensive were as follows: escitalopram ($3,614), citalopram ($3,662), generic fluoxetine ($3,721), venlafaxine XR ($3,938), sertraline ($3,950), generic paroxetine ($4,079), paroxetine CR ($4,137), and venlafaxine ($4,276). Sensitivity analysis indicated that the results were robust to the assumptions underpinning the model. Threshold analysis suggested that the expected cost of escitalopram equals that of generic fluoxetine if there is a 24% relative reduction in the probability of experiencing an ADR.
CONCLUSIONS: The results of our study demonstrate that SRI-related ADRs have a significant impact on the expected cost of treatment and provides preliminary evidence that treatment with escitalopram may result in the lowest expected cost among SRIs.
LEARNING OBJECTIVES:
1. Evaluate the impact of ADRs on the expected cost of treatment in depression.
2. Recognize the cost drivers in the treatment of depression.
3. Outline the incidence and cost of ADRs associated with the treatment of depression among all currently marketed SRIs indicated for the treatment of major depression.

DRUG-PRESCRIBING TRENDS FOR HEART FAILURE IN A MULTISPECIALTY MEDICAL GROUP PRACTICE

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OBJECTIVE: To evaluate drug prescribing trends for heart failure (HF) patients enrolled in a multispecialty medical group practice.
METHODS: Using medical and pharmacy claims data from a multispecialty medical group practice with more than 300,000 covered lives, patients with a diagnosis for HF who were aged 18 years or older were identified and stratified according to diagnosis of diabetes or hypertension. Pharmacy claims data for the 1-year study period were analyzed to evaluate trends in prescribing. Descriptive statistics were performed using SAS, version 8.
RESULTS: A total of 1,846 HF patients were identified (mean age 71.8 years, 48% female). Approximately 42% of the patients had diabetes and 73% had hypertension. Diuretics were the most frequently utilized drug class being prescribed to 75% of all HF patients, followed by angiotensin-converting enzyme (ACE) inhibitors (55%), beta-blockers (32%), digoxin (28%), and angiotensin II receptor blockers (ARBs) (11%). Similar prescribing trends were observed in patients with diabetes or hypertension. Females were less likely than males to have been prescribed an ACE inhibitor during the study period (51.9% versus 57.8%, $P<0.05$). Intensity of treatment, defined as the number of unique drug classes prescribed per patient, did not vary significantly by gender.
CONCLUSION: The use of beta-blockers, ACE inhibitors, and diuretics in this study population was consistent with current practice guidelines. However, the increased use of ARBs may suggest the greater awareness of the effectiveness of this drug class in the treatment of HF and changes in treatment guidelines occurring during the study period.

ECONOMIC BENEFITS OF A HEADACHE MANAGEMENT PLAN IN A HEALTH MAINTENANCE ORGANIZATION

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INTRODUCTION: This analysis evaluated the economic benefits of a headache management program in patients diagnosed with primary headache disorder.
METHODS: Patients were referred by their primary care providers (PCP) to participate in a 2-hour educational session taught by a neurologist and nurse practitioner (NP), followed by a one-on-one consultation session with an NP to develop an individualized treatment plan and an 8-week follow-up visit. The number of health care visits and medication use 6 months before and after the program were compared using medical records and pharmacy database. Costs were estimated using published sources and adjusted to 2003 dollars.
RESULTS: PCP and emergency department (ED) visits decreased significantly (35% each, $P<0.01$), resulting in savings of $44 and $12 per patient over 6 months, respectively (N = 184 patients). There was a significant increase in the number of neurologist visits ($P<0.01$); however, these accounted for only 3% of all postintervention visits ($7 per patient). Oral triptan use increased (8%) but was offset by a significant decrease ($P<0.01$) in oral narcotic use (15%, about $15 per patient). Prescription drug costs increased 10% primarily due to increased Botox use ($30 per patient). Otherwise, the cost of prescription drugs remained stable. Considering medical and pharmaceutical utilization together, overall costs declined by $41 per patient over 6 months after the program.
CONCLUSIONS: The headache management program decreased overall physician and ED visits, leading to cost savings. The program improved patient care by encouraging the use of more appropriate medication for headache treatment.
LEARNING OBJECTIVES:
1. Learn about the economic benefits of a headache management plan.
2. Evaluate changes in utilization and costs as a result of the headache management plan.
3. Reflect on ways in which the intervention program resulted in improving individualized patient care.

ECONOMIC IMPACT OF DIVALPROEX SODIUM VERSUS ATYPICAL ANTIPSYCHOTICS IN COMMERCIALLY INSURED AND MANAGED MEDICAID POPULATIONS

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OBJECTIVE: To quantify differences in the annual costs of psychiatric-related care for patients with psychoses who were newly treated with

divalproex sodium or an atypical antipsychotic.

METHODS: Data were obtained between January 1997 to March 2002 based on integrated pharmacy and medical claims from 58 managed care organizations. Patients with a diagnosis of bipolar disorder or schizophrenia were classified into 4 groups based on the first prescription observed after a 6-month washout period: divalproex sodium, risperidone, olanzapine, or other. Claims were then examined for the 12-month period following initiation of the index medication. Analyses were conducted on all patients as well as a subgroup enrolled in managed Medicaid products. Average annual per-patient costs were compared between treatment cohorts; the significance of any differences was examined using generalized linear models.

RESULTS: A total of 19,751 patients were identified (n = 1,557 for managed Medicaid). The average age of patients in the sample was 37 years; 60% of patients were female. Patients in the Medicaid subset were substantially younger (a mean of 30 years). Average annual costs of psychiatric-related care were 28% to 41% lower among those receiving divalproex sodium ($3,263) relative to atypical antipsychotics ($4,527 to $5,519); differences were manifested primarily in lower medication and hospitalization costs. Differences were similar but more marked in the managed Medicaid subgroup ($4,406 versus $6,872 to $7,759). All differences were statistically significant ($P<0.01$) after controlling for differences in demographic and clinical characteristics between groups.

CONCLUSIONS: Use of divalproex sodium may result in cost savings relative to atypical antipsychotics among commercially insured persons with psychotic disorders.

LEARNING OBJECTIVES:

1. Understand the value of using retrospective data techniques to evaluate the impact of pharmacotherapy on economic and clinical outcomes.
2. Understand the major drivers of utilization and cost in persons receiving treatment for psychotic disorders.
3. Evaluate the impact of divalproex sodium versus atypical antipsychotic therapy on the utilization and costs of psychiatric-related care in commercially insured persons as well as those in managed Medicaid plans.

ECONOMIC IMPACT OF INITIATION OF INSULIN THERAPY AMONG TYPE 2 DIABETIC PATIENTS FAILING ORAL ANTIDIABETIC THERAPY

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OBJECTIVE: To measure the economic impact of insulin therapy among type 2 diabetic patients following failure of 2 to 3 oral antidiabetic (OAD) medications.

METHODS: Pharmacy and medical claims were used to identify patients who failed OAD therapy between July 1, 1998, and June 30, 2001. Four cohorts were identified and characterized as patients who: (1) received 2 OADs and started insulin, (2) changed from 2 OADs to at least 3 OADs, (3) received 3 OADs and started insulin, or (4) changed from 3 OADs to a different combination of at least 3 OADs. The primary outcomes were pharmacy (ingredient costs), medical, and total charges for each cohort during a 1-year follow-up period. Charges were adjusted for age, gender, Charlson Comorbidity Index, and preperiod charges.

RESULTS: Patients in cohort 1 were older, less likely to be male, and had higher baseline medical charges. Adjusted diabetes-related pharmacy and total pharmacy charges were lowest for cohort 1. Patients who continued only OAD therapy (cohorts 2 and 4) incurred significantly higher adjusted diabetes-related total health care charges ($2,552 and $3,065) compared with cohort 1 ($2,298). Adjusted total health care charges were significantly higher for cohort 1 ($19,349) compared with cohort 2 ($14,833) and cohort 4 ($12,500) but not significantly higher than cohort 3 ($19,022).

CONCLUSIONS: While insulin users did not incur lower medical and total health care charges during the 1-year follow-up compared with OAD users, they did incur the lowest pharmacy charges. Patients who remained on only OAD medications incurred significantly higher diabetes-related health care charges compared with those who were receiving 2 OADs and then started insulin.

LEARNING OBJECTIVES:

1. Reflect on various antidiabetic medications (injectable and oral) available for the treatment of type 2 diabetes and, based on their advantages and disadvantages, identify their place in therapy.
2. Understand the progressive nature of type 2 diabetes, the need for more effective treatment strategies, and reassess the role of insulin therapy in the treatment of type 2 diabetes.
3. Understand the significance of early initiation of insulin therapy among type 2 diabetic patients and its potential impact on diabetes-related health care charges.

ECONOMIC IMPACT OF UNTREATED ANEMIA IN NONDIALYSIS CHRONIC KIDNEY DISEASE PATIENTS: AN EMPLOYER'S PERSPECTIVE

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INTRODUCTION: Nondialysis chronic kidney disease (NDCKD)-related anemia may contribute to the worsening of patient health, resulting in higher cost to employers. This analysis quantifies the economic impact of untreated NDCKD anemia from the employer's perspective.

METHODS: For approximately 600,000 adults, anonymous health and disability claims between January 1998 and June 2001 from 7 Fortune 500 companies were analyzed, and 922 NDCKD patients not receiving anemia therapy were identified. Of these, 176 patients with at least 2 anemia ICD-9 diagnosis claims were classified as anemic. The anemia period was defined from the first anemia claim until the earlier of either disenrollment or study end date. The remaining 746 NDCKD patients without anemia provided the nonanemia reference period. To further isolate costs specific to anemia, multivariate regression analyses were conducted. Employers' cost comprised direct medical and indirect productivity cost.

RESULTS: Both univariate and multivariate analyses indicate that untreated anemia was associated with statistically significant increases in both direct and indirect cost. The unadjusted incremental monthly direct and indirect cost of anemia was $1,704 ($2,809 versus $1,105, $P<0.001$), a 2.5:1 cost ratio, and $183 ($620 versus $437, $P<0.001$), a 1.4:1 cost ratio, respectively. Multivariate regressions confirm that incremental direct and indirect cost for untreated anemia remained significant at $695 ($P = 0.0001$) and $282 per month ($P = 0.0001$), respectively, a 1.6:1 cost ratio for both.

CONCLUSION: Untreated NDCKD anemia is associated with significant direct and indirect cost to employers, accounting for an additional

unadjusted and adjusted total cost of $22,644 and $11,724 per patient per year, respectively.

LEARNING OBJECTIVES:

1. Understand the impact of untreated anemia in NDCKD from an employer's perspective.
2. Recognize the increased costs secondary to untreated anemia in this population.
3. Realize the value of retrospective analysis of large claims databases to explore unmet research needs.

EFFECTS OF ONCE-DAILY OROS MPH ON REAL-LIFE DRIVING IN ADOLESCENTS WITH ADHD

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INTRODUCTION: To determine if a long-acting, once-daily methylphenidate formulation (OROS MPH) improves the driving performance of adolescents with attention-deficit/hyperactivity disorder (ADHD) while driving their own car on an actual road segment. Attention-deficit/hyperactivity disorder is associated with a 3- to 4-fold increase in both driving-related accidents and associated injuries. Methylphenidate, the most commonly prescribed psychostimulant medication for ADHD, has been demonstrated to improve performance of ADHD adolescents in a driving simulator, given either as an immediate-release, multiple-dosed preparation, or a once-daily formulation.

METHODS: Twelve male ADHD adolescents (age range 16 to 18 years), who routinely drove, participated in this on-road, repeated-measure, randomized, crossover-designed study. At the same time of day on 2 separate occasions (on medication [OROS MPH] and off medication in a randomized order), participants drove a standard 16-mile road course. Driving competency was assessed by a rater blinded to the medication condition.

RESULTS: Impulsive driving errors occurred rarely, under both medication and no-medication conditions. The mean number of inattentive driving errors was significantly higher off medication compared with on medication (7.8 versus 4.3, $P<0.01$). The improvement in driving performance (change in the number of errors recorded) was positively correlated with medication dosage ($r = 0.60$, $P<0.01$).

CONCLUSIONS: Once-daily OROS MPH improves actual driving performance of adolescent males diagnosed with ADHD. In particular, driving errors arising from inattention are significantly reduced.

LEARNING OBJECTIVES:

1. Appreciate that once-daily stimulant medication (OROS MPH) improves driving performance in ADHD adolescent males compared with nonmedicated conditions.
2. Understand that improvements in a driving simulator can be equated to improvements in driving performance in the real world.
3. Realize the importance of driving and ADHD.

ENHANCING DIAGNOSIS AND TREATMENT OF DEPRESSION AND ANXIETY WITHOUT ADVERSELY IMPACTING MEDICATION TREATMENT COSTS

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INTRODUCTION: Behavioral health services are often fragmented at the primary care practitioner (PCP) level. This setting is not ideally structured for the management of conditions such as depression and anxiety. At the same time, studies have demonstrated that treating these disorders is cost effective and benefits patients by improving quality of life and productivity.

OBJECTIVE: To expand appropriate cost-effective treatment of depression and anxiety for health plan members by targeting PCPs with an ongoing multi-tier program.

METHODS: The health plan initiative was developed and implemented over a 2-year period (November 2001 to December 2003). Components included development and dissemination of educational tools for patients and practitioners, a pharmacy messaging edit to prompt a consideration for half-tablet use, delivery of practitioner-level educational programs by a psychiatrist and clinical pharmacist, and follow-up practitioner reports mailed quarterly. Retrospective pharmacy claims data were used to generate practitioner reports and evaluate success measures of the initiative.

RESULTS: Approximately 95 practitioner workshops were conducted during the 2002 to 2003 period and average attendance was >80%. Pharmacy data showed an increased trend in antidepressant utilization and increased uptake of cost-effective antidepressant use, without increasing medication treatment costs.

CONCLUSION: This program evaluated a practitioner-level initiative that integrated multiple components to expand the treatment of depression and anxiety without increasing overall medication costs. The initiative has been expanded for 2004.

LEARNING OBJECTIVES:

1. Recognize that depression and anxiety are underdiagnosed and undertreated medical conditions.
2. Understand different approaches to enhance the treatment of depression and anxiety using a multi-tier practitioner level program.
3. Review data trends that indicate improvement in cost-effective utilization of antidepressant medications over the 2-year intervention period.

ESTIMATES OF FAILURE RATES AND DIRECT MEDICAL COSTS ASSOCIATED WITH THE USE OF SYSTEMIC TREATMENTS AND PHOTOTHERAPY IN PATIENTS WITH PSORIASIS

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OBJECTIVE: To estimate treatment failure rates and direct medical costs associated with the use of systemic agents and phototherapy in patients with psoriasis at a Northeastern U.S. managed care plan.

METHODS: Patient-level data were obtained using claims records from a large New England-based health insurer. Eligible patients had >1 claim listing an ICD-9-CM code for psoriasis (696.0; 696.1). Patients were excluded from this analysis if they were not receiving treatment with one of the following: methotrexate, cyclosporine, acitretin, or phototherapy. Treatment groups were categorized according to initial therapy received. Definitions of treatment failure included a switch in therapy, augmentation with nontopical therapies, discontinuation following up-titration of dose, or discontinuation following hospitalization. Medical costs comprised those related to pharmacy (over-the-counter medication excluded), institutional services (inpatient and outpatient), and professional services.

RESULTS: A total of 2,068 patients were included in the analysis. Over

a 1-year period, approximately 20% of patients experienced treatment failure. Among patients who switched therapy, the mean time to failure ranged from 3 to 6 months. In the various treatment groups, mean annual pharmacy costs ranged from $257 to $1,992 per patient, and mean annual costs for institutional and professional services ranged from $156 to $799 and $183 to $481 per patient, respectively. The 99th percentile annual pharmacy and institutional costs exceeded $10,000 and $16,000, respectively.

CONCLUSIONS: There was a high likelihood of treatment failure as well as considerable medical costs associated with the treatment of psoriasis using traditional systemic agents and phototherapy.

LEARNING OBJECTIVES:

1. Learn about the various factors that can influence treatment costs in patients with psoriasis.
2. Recognize the utility of claim records in identifying treatment failures.
3. Understand how patient-level data from claims records can indicate that there is an unmet need for effective agents for the treatment of moderate-to-severe psoriasis.

ESTIMATED PREVALENCE OF COMORBID HYPERTENSION AND DYSLIPIDEMIA AND THERAPEUTIC GOAL ATTAINMENT AMONG U.S. ADULTS IN 2000, UTILIZING DATA FROM THE NATIONAL HEALTH AND NUTRITION EXAMINATION SURVEY

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OBJECTIVE: To estimate the prevalence of comorbid hypertension (HTN) and dyslipidemia (DYS) and attainment of lipid and blood pressure (BP) goals across the U.S. adult population.

METHODS: Data from 7,697 men and women, aged ≥20 years, from the National Health And Nutrition Examination Survey (NHANES III) Phase II (1991 to 1994) were used to produce nationally representative estimates for the year 2000 (weighted n = 200,948,641). HTN and DYS were defined according to *Journal of Nuclear Cardiology (JNC)* 7 or National Cholesterol Education Program Adult Treatment Panel (NCEP ATP) III guidelines, or as patients currently taking medication for these conditions. Therapeutic goals from *JNC* 7 (BP <140/90 mmHg or <130/80 mmHg, depending on risk factors) and NCEP ATP (low-density lipoprotein cholesterol <160, <130, or <100 mg/dL, depending on risk factors) were utilized.

RESULTS: More than 40% of participants had HTN or DYS. Furthermore, 14.6% (95% CI, 13.1-16.1) had concomitant HTN/DYS—representing more than 29 million U.S. adults. Among the 47 million patients with HTN, 62.2% (59.0-65.5) also had DYS; among the 63 million with DYS, 46.3% (43.2-49.3) also had HTN. Patients diagnosed with concomitant HTN/DYS demonstrated poor attainment of lipid and BP goals: only 3.6% (0.4-6.8) were at goal for both conditions. Similar results were seen among high-risk/vulnerable populations.

CONCLUSIONS: The prevalence of comorbid HTN/DYS was calculated to be very high in U.S. adults; suggesting that when HTN is diagnosed, a patient should be assessed for DYS and vice versa. Goal attainment was extremely poor. These data suggest that there is a considerable need to improve the management of comorbid HTN/DYS.

LEARNING OBJECTIVES:

1. Learn that concomitant hypertension and dyslipidemia is prevalent in U.S. adults.
2. Appreciate that, in this population, few patients are at recommended target levels for either hypertension or dyslipidemia.
3. Recognize that cardiovascular risk factors cluster and that comorbid hypertension and dyslipidemia tend to co-occur.

EVALUATION OF A SURVEY IN THE MANAGEMENT OF FATIGUE IN ONCOLOGY PATIENTS AT A SPECIALTY PHARMACY

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OBJECTIVE: To determine if the fatigue survey is a valid measurement tool to identify patients at risk of anemia when used in a specialty pharmacy intervention program.

METHODS: Nurse specialists at a specialty pharmacy utilized an 8-question survey tool with 500 oncology patients as part of their intervention program. Patients with a diagnosis of cancer of the breast, lung, colon, or prostate who were receiving chemotherapy were selected for the program. Patients were screened and evaluated based on the survey results. Patients with fatigue scores of 20 or greater were considered at a higher risk of anemia. The nurse specialist contacted patients at higher risk of anemia for further evaluation and education. Based on the clinical evaluation, appropriate patient recommendations were communicated to their oncologists for further evaluation and potential treatment with growth factors such as epoetin alfa and darbepoetin.

RESULTS: A majority of patients (55%) had scores of 20 and above, of which a number of patients were on adjunctive therapy, epoetin alfa or darbepoetin. An additional number of patients initiated adjunctive therapy to treat anemia as results of the nurse's recommendation letter sent to the treating oncologists.

CONCLUSIONS: Utilization of a fatigue survey is valuable in screening oncology patients at higher risk of anemia. The fatigue survey scoring based on a result of 20 and above is specific enough to identify anemic patients. The survey correlating fatigue scores and hemoglobin levels is necessary to communicate appropriate interventions to identify patients who are in need of growth factors.

LEARNING OBJECTIVES:

1. Recognize a proactive approach to manage fatigue in oncology patients.
2. Learn if a fatigue survey is a valid tool to perform anemia risk stratification.
3. Evaluate patients for fatigue.

EVALUATION OF A SUSTAINED CAMPAIGN TO IMPROVE ANTIBIOTIC PRESCRIBING FOR ACUTE BRONCHITIS, PHARYNGITIS, AND UPPER RESPIRATORY INFECTION

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INTRODUCTION: For a medium-size Michigan health plan, the success of an ongoing educational campaign to encourage appropriate antibiotic use among physicians and patients was evaluated through a series of annual retrospective reviews of plan medical and pharmacy claims.

METHODS: Under the direction of the P&T committee, an educational campaign was launched in 1999 to target antibiotic use for acute bronchitis, pharyngitis, and upper respiratory infection (URI). This ongoing annual fall campaign includes: (1) distribution of individualized

reports showing each physician's prior year(s) prescribing performance and a 2-page summary of Centers for Disease Control and Prevention (CDC) prescribing guidelines, (2) shipment of cases of patient "cold kits" to physician offices, and (3) educational articles in quarterly patient and physician newsletters. Using an explicit set of assumptions to link pharmacy claims to medical visit claims, antibiotic prescribing rates were calculated for the health plan for the baseline preintervention period (July 1998 to June 1999; 52,185 episodes), and for the first 3 annual postintervention periods (July 1999 to June 2000, July 2000 to June 2001, July 2001 to June 2002). Annual changes in prescribing rates were estimated with logistic regression.

RESULTS: Antibiotic prescribing rates steadily declined for each condition following the launch of the annual fall campaign: relative decline of 4.1% of rate per year for acute bronchitis (from 68% baseline rate, $P<.001$), 5.4% for pharyngitis (from 67% baseline, $P<.001$), and 11.4% for URI (from 52% baseline, $P<.001$). Family practice physicians had the highest and pediatricians had the lowest prescribing rates of the primary care specialties examined.

CONCLUSIONS: Annual declines were modest but steady. The patient "cold kits" may have contributed to the larger decline for URI.

LEARNING OBJECTIVES:

1. Describe steps for implementing a plan-wide educational program for antibiotic prescribing in common respiratory infections.
2. Identify factors that are associated with inappropriate selection of antibiotics for common respiratory infections.
3. Describe steps to convert utilization data obtained from medical and pharmacy claims to useful performance reports for common respiratory infections.
4. Assess the value of "cold kits" and CDC educational materials for both physicians and patients.

EVALUATION OF A SYNAGIS PRIOR-AUTHORIZATION PROGRAM IN A MEDICAID MANAGED CARE PLAN

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INTRODUCTION: According to the American Academy of Pediatrics (AAP), immunoprophylaxis should be reserved for use in infants and children at greatest risk of respiratory syncytial virus (RSV) infection because of the high cost of this intervention. This analysis evaluates the clinical and economic impact of prior authorization of Synagis in a Medicaid managed care plan.

METHODS: Patients who had a medical request for Synagis between October 2002 and April 2003 were included in this analysis. Prospective data were collected on all patients including age, gestational age, relevant ICD-9 codes, type and number of risk factors, and whether or not the request was approved and denied.

RESULTS: Out of 373 requests for Synagis, 285 (76%) were approved (average gestational age = 31 weeks) and 88 (24%) were denied (average gestational age = 34 weeks). Four of the patients who were approved for Synagis had RSV-related hospitalizations at a total cost of $39,027.72 compared with 2 patients who were denied Synagis whose total RSV-related hospitalization costs were $7,849.49. The overall cost for Synagis for the health plan was about $1,465,831.96. The Synagis cost for those patients who were denied therapy would have been approximately $452,607.76.

CONCLUSION: This analysis revealed that the prior-authorization criteria for Synagis did not result in adverse outcomes for the patients who did not receive Synagis compared with the patients who received Synagis. In addition, prior authorization resulted in more cost-effective utilization of Synagis in this patient population.

LEARNING OBJECTIVES:

1. Understand the impact of Synagis prior authorization on RSV-related hospitalizations and costs.
2. Discuss the overall economic impact of Synagis on the pharmacy budget.
3. Discuss the various options for Synagis prior-authorization criteria.

EXAMINATION OF TOTAL HEALTH CARE EXPENDITURES FOR PATIENTS ON LONG-ACTING OPIOID MEDICATIONS FOR THE TREATMENT OF CHRONIC PAIN IN A MEDICAID POPULATION

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OBJECTIVE: To identify factors associated with total annual health care expenditures (TAHE) for Medicaid patients prescribed transdermal fentanyl (TF), controlled release morphine sulfate (CRMS) or controlled release oxycodone (CRO).

METHODS: A multistate MarketScan Medicaid population (1999 to 2000) was used for analyses. Patients were followed for at least 1 year, starting with their first long-acting opioid (LAO) prescription (index date) in 1999. Patients who did not have an LAO in the 6 months prior to the index date were labeled "incident," and "prevalent" otherwise. Patients were then grouped by opioid received on the index date. Disease-type, demographics, health status, health care utilization, and expenditures were measured and compared among the 3 LAO cohorts. LAO costs and TAHE by LAO cohort were compared using descriptive and multivariate analyses for both the incident and prevalent populations.

RESULTS: Descriptive results indicate incident (I) and prevalent (P) LOA annual cost for CRO ($1,361 I; $4,146 P) was significantly higher then either TF ($1,202 I; $3,061 P) or CRMS ($919 I; $3,572 P) ($P<0.01$). After controlling for confounding characteristics, TAHEs in the CRO incidence population were similar to the CRMS population. However TAHEs were significantly lower than the TF population, with an annual cost savings of $960 ($P<0.01$). No economic differences were noted among the prevalent LAO populations.

CONCLUSIONS: Total health care expenditures, not just pharmaceutical costs, should be considered when making LAO policy decisions. In the incident population, patients on TF cost, on average, $916 more per year ($P<0.01$) compared with both CRMS and CRO patients.

LEARNING OBJECTIVES:

1. Understand that confounding factors such as age, gender, and disease type vary by LOA cohort, and multivariate modeling is necessary to adjust for these factors.
2. Understand the use of LOA for chronic pain in a Medicaid population.
3. Understand that all health care costs should be considered when evaluating different LOA options for pain relief.

EXPENDITURES FOR HEART FAILURE IN A MULTIDISCIPLINARY MEDICAL GROUP PRACTICE

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OBJECTIVE: To measure expenditures incurred by heart failure (HF) patients receiving care in a multidisciplinary medical group practice.
METHODS: Using medical and pharmacy claims data from a multidisciplinary medical group practice with more than 200,000 members, patients were stratified into 4 groups. Group A consisted of patients with 2 or more acute HF-related hospital admissions within any 12-month period during the 2-year study period. Group B included patients with either 1 acute HF-related hospital or skilled nursing facility admission or emergency room visit. Group C was composed of patients with HF-related ambulatory visits only. Group D were patients who did not meet the inclusion criteria for any of the other groups. Average annual inpatient, ambulatory, and prescription costs were calculated for each patient within the groups.
RESULTS: The study population consisted of 1,915 HF patients with approximately 17% of patients in Group A, 46% in Group B, 29% in Group C, and 9% in Group D. The average annual cost per patient was $18,283 ($11,344 inpatient, $4,595 ambulatory, and $2,344 prescription). Group A patients had the highest average annual cost, totaling $30,226 per patient, followed by Group D patients at $25,345, both a result of high inpatient expenses. Expenditures for Group B patients were 55% lower than Group A, at $16,716. Group C patients had the lowest average annual cost of care, at $11,851.
CONCLUSION: Annual health care costs related to HF are substantial secondary to high inpatient expenses. Management policies designed to reduce disease severity and the need for hospitalization are likely to be most effective in reducing the economic burden of HF on health care systems.

FRACTURE-RELATED MEDICAL COSTS IN THE FIRST YEAR FOLLOWING A NONVERTEBRAL FRACTURE IN A MANAGED CARE SETTING

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OBJECTIVE: To estimate fracture-related direct medical costs in the first year following a nonvertebral fracture utilizing an integrated administrative, medical, and pharmacy claims database.
METHODS: A retrospective cohort study was conducted among 4,309 women and men (aged 45+ years) with a primary diagnosis for a nonvertebral fracture between July 1, 2000, and December 31, 2000. Sites at which a patient had a clinical fracture in the 6 months prior to the index diagnosis were excluded from the study. To rule out costs related to previous fractures, patients with a single outpatient visit were excluded from the study. In addition, fractures at sites that require acute care (hip, femur, tibia, and humerus) were included in the study only if treatment was initiated in the emergency room (ER) or during an inpatient hospital stay. Fracture-related direct medical costs were assessed for a 12-month period following fracture diagnosis using 2003 Medicare fee schedule payments.
RESULTS: Most (75%) of the total annual fracture-related medical costs occur in the first month of a nonvertebral fracture. While 32% of patients required hospitalization and 59% of patients required an ER visit or urgent care, 9% of patients were treated exclusively in a physician's office. The 3 most prevalent nonvertebral fracture sites were wrist, hip, and humerus (38%, 25%, 15%, respectively). The 3 most expensive nonvertebral fracture sites were hip, femur, and tibia: the total annual costs per patient were $9,343, $6,405, and $3,660, respectively.
CONCLUSIONS: In a patient population aged 45+ years, the first month of a nonvertebral fracture has a major impact on managed care costs. The most expensive nonvertebral fracture sites were hip, femur, and tibia.
LEARNING OBJECTIVES:
1. Understand the distribution of nonvertebral fractures by fracture site and type of care.
2. Evaluate the fracture-related cost in the first year following a nonvertebral fracture.
3. Recognize the differences in fracture-related costs by fracture site.
4. Understand the distribution of fracture-related costs on a monthly basis.

FREQUENCY OF DIABETES IN PATIENTS TAKING ATYPICAL ANTIPSYCHOTICS

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OBJECTIVE: To evaluate the association of antipsychotic treatment with diabetes in a health plan database.
METHODS: Claims data for patients with bipolar disorder or schizophrenia in commercial health plans totaling 25 million members were analyzed for the incidence of diabetes and treatment with quetiapine, risperidone, or olanzapine. Diabetes was identified through medical and prescription claims, with or without screening for preexisting diabetes (based on claims for diabetes within 90 days of beginning antipsychotic treatment). Diabetes was identified by 3 groupings of these criteria: (1) medical or prescription claims with no prescreening, (2) prescriptions only without prescreening, and (3) prescriptions only with prescreening.
RESULTS: There were 3,484 episodes of treatment with quetiapine, 7,075 with risperidone, and 8,296 with olanzapine, representing about 15% of total patients reporting bipolar or schizophrenic disorders. The respective frequencies of diabetes for each of the 3 antipsychotics by the 3 groupings were (1) 0.089, 0.093, and 0.094; (2) 0.060, 0.067, and 0.074; and (3) 0.018, 0.025, and 0.035. Frequencies increased with treatment duration; the relationship was strongest for olanzapine and weakest for quetiapine. Differences among the antipsychotics were supported by logistic regression, controlling for differing patient characteristics. Estimated odds ratios based on the third (and most reliable) grouping were: quetiapine versus olanzapine, OR = 0.610 (P = 0.0035); risperidone versus olanzapine, OR = 0.812 (P= 0.0679); and quetiapine versus risperidone, OR = 0.751 (P= 0.1048).
CONCLUSION: This analysis suggests that the occurrence of diabetes was highest with olanzapine and lowest with quetiapine.
LEARNING OBJECTIVES:
1. Learn the incidence of diabetes, identified through medical or pre-

scription claims, among patients treated with quetiapine, risperidone, or olanzapine for schizophrenia.
2. Recognize the differences that exist among the atypical antipsychotics with regard to the frequency of diabetes and the association between treatment duration and risk of diabetes.
3. Appreciate the sensitivity of results to variations in study design.

GLYCEMIC CONTROL ECONOMIC MODEL: IMPACT AND CONSEQUENCES (GLYCEMIC): EVALUATING THE ECONOMIC IMPACT OF GLYCEMIC CONTROL ON COMPLICATIONS IN TYPE 2 DIABETES MELLITUS

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OBJECTIVE: To evaluate the cost of type 2 diabetes mellitus (DM) complications in the United States (payer perspective) and assess the impact of uncontrolled type 2 DM.
METHODS: A 3-year economic model was constructed using data from published studies of complications (microvascular/macrovascular) of type 2 DM (myocardial infarction, stroke, amputations, and retinopathy). The target population was the total U.S. population with type 2 DM (~15.6 million). Baseline clinical and cost (adjusted from 1997 to 2003 dollars) measures were obtained from published literature. The percentage of U.S. type 2 DM patients with goal glycemic control (A1C <7%) was 53.5%. Three-year cost estimates were determined using 3% per year inflation rate. The economic impact of DM complications was determined by redistributing the U.S. type 2 DM population so all had goal glycemic control.
RESULTS: Direct medical cost of complications for U.S. type 2 DM patients is approximately $28 billion at 1 year and $85 billion at 3 years. If 100% of type 2 DM patients had goal glycemic control, direct medical cost of complications decreases $5 and $16 billion for 1 and 3 years, respectively, resulting in a complication cost of $345 per type 2 DM patient per year. Further analyses revealed a complication cost of $744 per uncontrolled type 2 DM patient per year, an incremental cost of $399 per uncontrolled type 2 DM patient per year.
CONCLUSIONS: Direct medical cost of type 2 DM complications is substantial, especially in uncontrolled patients. Significant reductions in complication cost are possible through aggressive interventions to reduce A1C <7%.
LEARNING OBJECTIVES:
1. Understand the direct medical cost of complications in patients with type 2 DM.
2. Understand the impact of reducing A1C on complication costs in patients with type 2 DM.
3. Recognize the economic impact of uncontrolled diabetes on complications.

HEALTH CARE COSTS AND UTILIZATION AFTER A FORMULARY TRANSITION FROM CERIVASTATIN TO FLUVASTATIN WITHIN A LARGE MANAGED CARE ORGANIZATION

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OBJECTIVE: To evaluate changes in health care utilization and costs for patients converted from cerivastatin to fluvastatin.
METHODS: Administrative claims from members in California, Oklahoma, Oregon, Texas, and Washington were used. Patients switching from cerivastatin to fluvastatin between August 1 and December 31, 2001 (switch cohort), and patients on ongoing fluvastatin (control) were identified. The index date was the first fluvastatin prescription for the switch cohort and a randomly selected fluvastatin prescription for controls. Ambulatory care utilization and costs were evaluated during a 3-month titration and 6-month follow-up period. Patients' demographic and clinical characteristics were also measured. Utilization and costs were compared using analysis of covariance, adjusting for age, gender, Chronic Disease Score, and baseline values.
RESULTS: A total of 3,473 patients switching and 5,429 controls were identified. Mean age was 71.0 ± 10.6 years, and 53.4% of patients were female. During the titration period, the switch cohort had a greater mean number of ambulatory encounters (2.5 versus 2.2, $P<0.0001$). However, adjusted mean number of ambulatory encounters during follow-up was similar (4.6 versus 4.8, $P = 0.13$). Mean medical costs were similar for the switch and control cohorts during both the titration ($2,146 versus $2,418, $P = 0.22$) and follow-up periods ($5,330 versus $5,416, $P = 0.84$).
CONCLUSIONS: Increases in medical costs were not different between cohorts after adjusting for relevant confounders. The increased utilization of ambulatory care services during the initial 3 months after switching appeared to be transient, suggesting that conversion of patients from cerivastatin to fluvastatin is associated with no additional utilization following the initial titration period.
LEARNING OBJECTIVES:
1. Evaluate the impact of a formulary change from cerivastatin to fluvastatin on health care utilization and costs during the initial 3 months following patients' conversion.
2. Recognize the transient nature of the increased utilization of ambulatory care services by patients switching from cerivastatin to fluvastatin.
3. Discuss the value of formulary management as a way to provide cost-effective care.

HEALTH CARE RESOURCE USE AND COSTS AMONG PATIENTS INITIATED ON LONG-ACTING INSULIN AND INTERMEDIATE-ACTING INSULINS

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OBJECTIVE: To analyze health care resource use and costs for diabetes mellitus patients taking long-acting insulin (glargine) versus intermediate-acting insulins NPH.
METHOD: This was a retrospective analysis using a geographically diverse managed care database. All patients newly initiated on glargine or NPH between March 1, 2000, and December 31, 2002, were identified (no use of glargine/NPH in the 4 months prior to index date). Costs were analyzed as the amount paid by the managed care organization. Analyses were performed using multivariable techniques.
RESULTS: The sample size was 1,236 patients (glargine = 449, NPH = 787). Mean (± SD) age of the cohort was 46 ± 16 years; 47% were male. Mean treatment duration was 9 ± 5 months. Adjusted health care resource use was significantly higher for the NPH cohort for all med-

ications (IRR 1.08, 95% CI: 1.02 to 1.14, $P = 0.010$) and office visits (IRR 1.19, 95% CI 1.10 to 1.29, $P<0.001$). The glargine group was associated with significantly higher adjusted antidiabetic (nonindex) medication costs compared with the NPH cohort ($437 versus $321 per member per year [PMPY]; $P<0.001$). Both total adjusted costs attributable to diabetes and total all-cause costs for glargine were not statistically different compared with the NPH group ($3,241 versus $2,888 PMPY, $P = 0.252$ and $9,399 versus $10,144 PMPY, $P = 0.351$, respectively).

CONCLUSION: The higher pharmacy costs observed in the glargine group were offset by favorable medical resource use resulting in no significant differences in total diabetes-specific and total all-cause health care costs when compared with NPH.

LEARNING OBJECTIVES:

1. Recognize that, in this retrospective study, the long-acting insulin (glargine) group was associated with a lower incidence of several types of health care resource utilization compared with the NPH cohort.
2. Recognize that, although mean antidiabetic medication cost PMPY for the glargine cohort was significantly higher, costs attributable to diabetes mellitus and total costs from all causes were not significantly different than for the NPH cohort.
3. Evaluate the higher medication cost of glargine group versus the evidence in this study that health care resource use may be favorably affected by long-acting glucose control treatment regimen.

HEALTH PLAN CASE STUDY OF INTRAVENOUS IMMUNOGLOBULIN MANAGEMENT THROUGH SPECIALTY PHARMACY MODEL

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OBJECTIVE: To provide an overview of the implementation, execution, and analysis of a 400,000-life health plan experience in the management of intravenous immunoglobulin (IVIG) through a specialty pharmacy distribution model.

METHODS: The strategies for implementation included fee schedule reduction, incorporation of a partial delegation utilization management program, targeted provider communications, provider panel discussions, medical and pharmacy claims management strategies, and alternate site of service coordination.

RESULTS: Implementation of the program resulted in identification of several issues including inappropriate use of IVIG in 25% of the multiple sclerosis (MS) population, redirection of infusion services from the physician office to home infusion setting in 50% of patients, and reduction in MS patient utilization by 58% after 1 year in the program.

CONCLUSIONS: Implementation of a specialty pharmacy distribution model for IVIG management can be an effective method for identification of inappropriate prescribing and utilization of IVIG. Physician practice patterns were significantly altered by removing direct reimbursement for IVIG in the physician office setting and redirecting drug delivery channels. This resulted in reduced IVIG utilization and significant savings to the health plan.

LEARNING OBJECTIVES:

1. Learn implementation strategies for executing an IVIG management program through a specialty pharmacy model.
2. Understand proactive approaches to managing provider behaviors, patterns of care, and other utilization issues of IVIG treatment.
3. Evaluate the impact of a specialty pharmacy distribution model on IVIG utilization, cost, prescribing patterns, alternate site of infusion services, and physician provider behaviors.

IDENTIFICATION OF UNDIAGNOSED CHRONIC OBSTRUCTIVE PULMONARY DISEASE USING HEALTH CARE UTILIZATION DATA

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PURPOSE: Chronic obstructive pulmonary disease (COPD) patients may have increased health care utilization several years before the initial diagnosis of COPD is made. To investigate whether utilization patterns could be used to identify undiagnosed COPD patients, a managed care administrative database was used to develop predictive models to examine COPD patient's health care utilization in the 2 years prior to initial diagnosis of disease.

METHODS: We identified 2,129 patients from the Lovelace Health Plan who had a new diagnosis of COPD during the study period (1995 to 2000), matched each to 3 control subjects by age and gender, and compared demographic characteristics, clinic and hospital visits, and outpatient pharmacy utilization using logistic regression. Discriminant function analysis was then used to create a predictive model.

RESULTS: Factors significantly associated with undiagnosed COPD ($P<0.001$) included visits for congestive heart failure, coronary artery disease, edema, hypertension, respiratory symptoms, chest x-rays, and prescriptions for pulmonary medications. The associations between COPD and male gender, treatment for pneumonia, and antibiotic prescriptions were also significant but were not used in the final discriminant function models. The final predictive model was able to identify COPD cases from a test population of 36,615 patients with a sensitivity of 47% and positive predictive value of 12%, without the benefit of knowing any patient's smoking history.

CONCLUSIONS: When combined with individual tobacco smoking histories, use of an algorithm based on health care utilization data is a potentially valid method for identifying individuals with undiagnosed COPD and determining the costs associated with undiagnosed COPD in a managed care setting.

LEARNING OBJECTIVES:

1. Recognize the importance of identifying patients at risk for COPD.
2. Understand that increased health care utilization in certain areas may be predictive of undiagnosed COPD.
3. Recognize that when smoking histories are known, a health care utilization algorithm may help identify patients with undiagnosed COPD.

IMPACT OF A DIABETES MICROALBUMINURIA-TARGETED DISEASE INTERVENTION PROGRAM

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OBJECTIVE: The purpose of the diabetes targeted disease intervention (TDI) program was to promote the appropriate use of angiotensin-converting enzyme inhibitors (ACEIs) and angiotensin receptor blockers (ARBs) in patients with diabetes and to measure the impact of the program on ACEI/ARB utilization and return on investment (ROI).

METHODS: Patients were identified based on pharmacy claims data. All patients with a claim for an antidiabetic agent who were not on an ACEI/ARB were targeted. Educational materials on diabetic nephropathy and a report listing patients targeted for the program were sent to primary care physicians. Preintervention and postintervention analysis included the percentage increase in number of patients newly started on ACEI/ARB and the number of prevented cases of nephropathy, stroke, and coronary heart disease (CHD).
RESULTS: Of the patients targeted for the program, 15.9% were started on ACEI/ARB therapy in the 6-month postintervention period. The incidence rate of CHD was 11.1%, 3.8% for stroke, and 7.1% for nephropathy in the patients newly started on ACEI/ARB compared with the group that was not on ACEI/ARB therapy during the postintervention period. Applying published relative risk assessments to the group that was started on ACEI/ARB, the treatment is projected to delay or prevent 292 cases of CHD, 182 strokes, and 181 new cases of nephropathy over 5 years. The net present value of savings of this TDI program is estimated at $3,406,322.
CONCLUSIONS: The Diabetes TDI program promoted the appropriate use of ACEI/ARB in patients with diabetes and resulted in a positive ROI.
LEARNING OBJECTIVES:
1. Describe the steps involved in implementing a diabetes TDI program to promote appropriate use of ACEI/ARB in patients with diabetes.
2. Enhance awareness of beneficial role of ACEI/ARB therapy in reducing adverse cardiovascular events in patients with diabetes.
3. Evaluate the potential benefits of a diabetes TDI program to patients, providers, and managed care organizations.

IMPACT OF A MIGRAINE PROPHYLAXIS-TARGETED DISEASE INTERVENTION ON THE USE OF MIGRAINE PROPHYLACTIC AGENTS IN A MANAGED CARE POPULATION

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INTRODUCTION: In October 2001, Prescription Solutions implemented the Migraine Prophylaxis Targeted Disease Intervention (TDI) program to optimize the use of migraine prophylactic agents in patients who frequently utilized 5HT1 receptor agonists (triptans).
METHODS: This program used pharmacy claims data to identify patients who chronically used triptans while forgoing prophylactic treatment. A report listing patients who might benefit from migraine prophylaxis and educational materials discussing migraine treatment and prevention were sent to physicians. To measure the impact of the program, a preintervention and postintervention analysis was conducted that focused on migraine-related pharmacy and medical costs and utilization. Primary outcomes included cost and utilization of abortive and prophylactic migraine medications and physician and inpatient hospital services.
RESULTS: Thirty-one percent of patients whose physicians received intervention materials were prescribed a prophylactic drug in the post-intervention period. The program demonstrated an overall decrease of 33% in the average number of triptan prescriptions per member per month and a PMPM savings of $27 for the average migraine medication ingredient cost in the postintervention period. Of the patients targeted for the intervention, a $16.57 PMPM savings in migraine related medical costs was achieved, and migraine related emergency room/hospital visits and physician visits decreased by 63% and 29% respectively.
CONCLUSIONS: We were able to measure both a substantial increase in migraine prophylactic therapy and a decrease in chronic triptan monotherapy during the postintervention period. These results suggest that the Migraine Prophylaxis TDI program was an effective means of modifying the utilization of migraine agents within our patient population.
LEARNING OBJECTIVES:
1. Evaluate the value and practicality of implementing a migraine prophylaxis intervention program.
2. Recognize the need for pharmacy intervention programs that seek to increase the appropriate use of migraine prophylactic agents in patients on chronic triptan monotherapy.
3. Outline the steps for implementing a migraine prophylaxis intervention program.

IMPACT OF A REAL-TIME DRUG-DRUG INTERACTION PREVENTION PROGRAM IN A MANAGED CARE ORGANIZATION

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INTRODUCTION: Despite the advances that have been made in identifying potential drug-drug interactions (DDIs), many still go unchecked or unreported to prescribers. Furthermore, many DDI prevention programs sponsored by managed care organizations are retrospective in nature and may be too late to prevent adverse events from occurring. Pharmacy benefit management companies are well positioned to provide an effective program to prevent DDIs due to accessibility of pharmacy claims data and expertise in conducting disease management programs. A DDI prevention program was developed to identify potential DDIs in real-time and to prevent unintended adverse clinical events associated with DDIs.
METHODS: The Drug Interaction Alert Program is a physician-targeted intervention with the goal of identifying and informing physicians about patients under their care who may have potentially serious DDIs. Pharmacy claims data are used to identify clinically significant DDIs on a daily basis. A DDI is identified if a patient has received a drug within 24 hours that interacts with a previously received drug where (1) the days of the previously received drug overlaps with the recent drug and (2) 2 prescribers were involved. Reports of clinically significant DDIs are generated daily and faxed to both physicians for assessment and triage. After DDIs are evaluated, physicians are asked to fax back the report indicating the type of action taken.
CONCLUSIONS: The Drug Interaction Alert Program was successfully implemented in June 2003. Programs like this can capture DDIs that were previously unaddressed, thereby possibly decreasing DDIs and unintended clinical adverse events associated with DDIs.
LEARNING OBJECTIVES:
1. Understand the process of developing a DDI prevention program.
2. Understand challenges associated with implementing a DDI prevention program.
3. Understand the impact of a DDI prevention program within a managed care organization.

IMPACT OF AN EDUCATIONAL INTERVENTION ON HEDIS DIABETES COMPREHENSIVE CARE STANDARDS

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INTRODUCTION: Education is an important component of the overall treatment plan for diabetics. Studies have demonstrated the effect of inadequate knowledge on diabetes outcomes. An educational intervention is an economical way to improve disease knowledge, self-care recommendations and outcomes.

OBJECTIVE: To determine if an educational intervention could improve scores on the 6 National Committee for Quality Assurance/Health Plan Employer Data and Information Set (HEDIS) Comprehensive Diabetes Care standards.

METHODS: A total of 2,243 diabetics were identified from claims. Members were invited to participate in a newsletter-based educational program, Diabetes Control Network (DCN). They also received baseline and follow-up diabetes knowledge surveys. Twenty-seven percent of members enrolled in the DCN and 44% of members returned the baseline knowledge survey. Upon return of the baseline survey, members received an individualized health risk appraisal, which contained general diabetes education and targeted education on questions answered incorrectly. Members enrolled in the DCN or those who received a health risk appraisal were considered to be the educational intervention group.

CONCLUSION: Three hundred and thirty members with data in both HEDIS 2001 and HEDIS 2003 were evaluated. Improvement was seen in 100% of diabetes standards for the educational intervention group and only 67% for those receiving no educational intervention. Patients enrolled in the newsletter program had an 8% improvement in their knowledge scores, yet patients who did not enroll had a 0.4% decline. The data showed that those who improved their knowledge had better HEDIS scores than those who did not improve their knowledge. The educational program was successful in improving HEDIS Comprehensive Diabetes Care scores.

LEARNING OBJECTIVES:

1. Understand the 6 HEDIS Diabetes Comprehensive Care Standards.
2. Outline the steps to successful implementation of a diabetes educational intervention.
3. Evaluate the impact of an educational intervention on diabetes outcomes.

IMPACT OF ELECTRONIC MESSAGING ON PHYSICIAN COMPLIANCE WITH ASTHMA GUIDELINES

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INTRODUCTION: The study evaluated the impact of electronic messaging regarding asthma treatment guidelines on e-Prescribers' behavior. Recent research indicated that many patients are not treated in compliance with guidelines for asthma and other chronic diseases. Physician compliance with asthma treatment guidelines was predicted to increase due to the provision of information at the point of care (POC).

METHODS: All physicians using the e-Prescribing platform received POC messages during a 6-month study period. One of 5 electronic messages appeared on the screen of the e-Prescribing device when a diagnosis code for asthma was entered during the prescribing process. The message offered physicians "Rules of Two" as a heuristic assessment tool for evaluation of asthma control. Additional information provided National Heart, Lung, and Blood Institute guidelines and promoted use of long-term controller medications. Physician-prescribing behavior was assessed before messaging implementation as a baseline and during the study period, to assess the impact of messaging. Specifically, prescribing for patients with asthma was assessed for the presence of controller medications as recommended by the guidelines. Surveys were distributed to e-Prescribers and traditional prescribers to collect qualitative data regarding sources and preferences for receiving guideline information.

RESULTS: Physicians using e-Prescribing increased prescriptions for controller medications for patients with asthma following the implementation of messaging, compared with baseline. e-Prescribers reported satisfaction with the electronic format of the messages.

CONCLUSIONS: Study results indicate that POC electronic messaging of treatment guidelines may impact prescribing behavior. The electronic format was preferred by e-Prescribers as a timely information source.

LEARNING OBJECTIVES:

1. Learn rates of physician compliance with treatment guidelines for asthma and other chronic diseases.
2. Understand the impact of electronic messaging on physician compliance with guidelines.
3. Evaluate a novel method for promoting compliance with treatment guidelines.

IMPACT OF PHYSICIAN PRESCRIBING REPORTS ON PRESCRIBING BEHAVIOR, UTILIZATION, AND COST OF AN ANGIOTENSIN II RECEPTOR BLOCKER CONVERSION PROGRAM IN A STAFF-MODEL MANAGED CARE ORGANIZATION

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INTRODUCTION: Availability of less-expensive angiotensin II receptor blockers (ARBs), notably olmesartan, provides a potential opportunity for cost-effective formulary management with implementation of prescriber programs designed to increase utilization of less-expensive agents in the class.

OBJECTIVES: To evaluate the impact of a unique therapeutic interchange program designed to increase olmesartan market share and reduce costs within the ARB class in a staff-model managed care organization.

METHODS: Following the addition of olmesartan to the formulary, a pharmacy-driven program to encourage conversion was initiated. Physician prescribing reports, customized for individual internal medicine and family medicine physicians, were generated from first quarter 2003 pharmacy claims data. The reports identified all patients receiving a prescription for an ARB, including those with congestive heart failure (CHF) and/or diabetes mellitus (DM), dosage regimen, and presence or absence of an ICD-9 code for CHF and DM (as a marker for diabetic nephropathy), since olmesartan does not carry U.S. Food and Drug Administration approval for these indications. After discussion with clinical pharmacists, providing information about the therapeutic and financial aspects of the proposed conversion program, physicians were requested to mark only those patients appropriate for

conversion to olmesartan.

RESULTS: Physicians approved conversion to olmesartan for approximately 93% of patients who were previously taking other ARB regimens. Net health plan savings for a 93% conversion rate in 1,700 patients would correspond to approximately $130,000 in savings per year.

CONCLUSION: Use of physician-specific prescribing lists was associated with a substantial increase in utilization of a significantly less expensive agent.

LEARNING OBJECTIVES:

1. Evaluate the clinical and economic relevance of olmesartan.
2. Understand dose-equivalent conversions between the ARB agents based on their blood pressure-lowering effect.
3. Recognize the impact of physician prescribing reports on medication prescribing behavior.
4. Observe the value physicians place on the additional disease-specific indications unique to losartan and valsartan.

IMPACT OF PIMECROLIMUS ON MEDICAL AND PHARMACY COSTS ONE YEAR AFTER INTRODUCTION TO THE MARKETPLACE

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OBJECTIVE: To estimate the incremental change in per-member-per-month (PMPM) medical and pharmacy costs for atopic dermatitis or eczema (AD/E) after introduction of pimecrolimus (Elidel), a topical treatment, in January 2002.

METHODS: Estimates of the prevalence of AD/E, treatment rates, quantities of medications dispensed, and health care utilization were measured using 2001and 2002 Marketscan data (MedStat, Ann Arbor, Michigan). Migration from previous therapies to pimecrolimus was measured using 2002 data. Reduction in health care utilization was based on reduction in flares estimated from clinical trials. Numerous sensitivity analyses were performed to evaluate the impact of varying the proportion of patients with AD/E, patient copayments, practice patterns, medication quantities, and uptake of pimecrolimus.

RESULTS: The estimated prevalence of AD/E was 2.75%. The estimated PMPM total cost for AD/E treatment prior to introduction of pimecrolimus was $0.156 for all covered lives and $5.67 for patients with AD/E, assuming no patient cost sharing. In the year after its introduction, 5.7% of the AD/E population filled a prescription for pimecrolimus. The change in PMPM was $0.009 for all covered lives and $0.332 for patients with AD/E, representing a 5.8% increase in costs for AD/E. PMPM costs increased monotonically as uptake of pimecrolimus increased.

CONCLUSION: Using recent data on practice patterns for AD/E and the uptake of pimecrolimus in the insured marketplace, the addition of pimecrolimus as a treatment option for AD/E had a modest impact on overall PMPM costs. Individual decision makers should adapt these analyses to local prevalence rates and practice patterns to project expected costs for their population.

LEARNING OBJECTIVES:

1. Gain information about the uptake of pimecrolimus that could be useful in making budget projections.
2. Learn about the options for treating AD/E.
3. Learn about the relative importance of individual variables that contribute to the overall cost of care for patients with AD/E

IMPLEMENTATION OF A DECISION TOOL TO ASSIST EMPLOYERS IN ASSESSING COST AND MEMBER IMPACT OF CHANGING PHARMACY BENEFIT PLAN DESIGNS

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INTRODUCTION: As innovative pharmacy benefit plan designs enter the marketplace, employers are faced with the challenge of choosing a plan that is cost effective and causes minimal member disruption. A computer-based modeling tool was developed to assist employers with the decision to retain their current plan or replace it with a novel benefit plan design.

METHODS: The employer benefit design tool utilizes employee prescription claims history to produce a report that is composed of 3 distinct elements. The first section models an employer's current versus proposed plan costs and claims distribution while highlighting savings potential and member impact based on tier movement. The second section graphically displays member versus employer cost share and current versus proposed claims distribution. The third section gives a detailed analysis of the employer's highly utilized drugs, number of unique members on those drugs, current tier placement, and new tier placement under the proposed benefit plan.

CONCLUSION: Since the implementation of this tool in May of 2002, 258 employers have been empowered to make an informed decision whether to retain their current plan or convert to a new plan design. Managed care organizations can develop a tool for employers to assess cost and member impact when choosing a pharmacy benefit plan that utilizes their unique employee claims history.

LEARNING OBJECTIVES:

1. Understand the rationale behind developing a computer-based decision tool to model cost and member impact of changing pharmacy benefit plans.
2. Describe the components involved in implementing a tool for employers to make an informed decision about changing pharmacy benefit plan designs.
3. Assess the value of the tool for comparing pharmacy benefit plan designs based on unique employee claims history.

IMPROVING PHARMACEUTICAL CARE WITH APPROPRIATE, RESPONSIBLE, COST-EFFECTIVE PRESCRIBING IN AN ACADEMIC MEDICAL CENTER

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OBJECTIVE: To improve prescribing of preferred drugs for outpatient pharmaceuticals in an academic medical center.

METHODS: Based on institutional prescribing data from January 1 to December 31, 2002, 3 high-cost drug classes were identified. Educational efforts focused on prescriptions within these classes. The following tools were implemented to inform prescribers of cost-effective recommendations:

- Physician meetings were conducted on a semiannual basis with 114 primary care providers.
- Monthly electronic messages were sent to all medical staff.
- Formulary reference cards were distributed to all medical staff.

In addition, academic medical center databases were used to obtain prescriber-level information on a quarterly basis to identify individual percentage of recommended prescribing. Data was also aggregated at health center, divisional, and departmental levels.

RESULTS: A total of 19 electronic messages have been sent since February 2002. Based on our review, 76% (23,290 of 30,621) of faculty opened their messages. In comparison to 2001 data, prescriptions for preferred products increased in each category. The most significant increase was seen in the selective serotonin reuptake inhibitor (SSRI) class. Fluoxetine prescriptions increased by 16.4% and Celexa by 4%. Statin prescribing reflected increases in lovastatin and Lipitor; 4.5% and 1.4%, respectively. Protonix (4.8%) and omeprazole (1.2%) prescriptions also increased, while Prilosec prescriptions decreased (12.2%). Overall, the percentage preferred within each drug category in 2002 was 71.4% (proton-pump inhibitor), 70.7% (statin) and 49.5% (SSRI).

CONCLUSIONS: Our methods of intervention resulted in improved prescribing for the 3 targeted high-cost drug classes. Our goal is to achieve 80% recommended prescribing within each drug class.

LEARNING OBJECTIVES:

1. Learn which tools are most effective to educate medical staff on recommended drug prescribing.
2. Identify the best method of communicating messages to physicians at academic medical centers.
3. Review high-cost drug classes to determine areas for potential cost savings.

INAPPROPRIATE PRESCRIBING OF ROFECOXIB (VIOXX) 50MG

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INTRODUCTION AND OBJECTIVE: To determine the frequency of rofecoxib (Vioxx) 50mg long-term use and prevalence of rofecoxib 50mg use among patients with cardiovascular disease. Vioxx 50mg prescribing information states "Vioxx 50 mg QD was associated with a higher incidence of gastrointestinal symptoms (…), lower extremity edema, hypertension, serious adverse experiences, and discontinuation due to clinical adverse experiences compared to the recommended chronic doses of 12.5 and 25 mg." "Chronic use of Vioxx 50 mg daily is not recommended" and Vioxx 50mg is indicated for acute pain only and for only 5 days of therapy.

METHODS: Patients with rofecoxib 50mg claims during April 1, 2003, to June 30, 2003, were identified from a 2 million-member Midwestern plan. Medical claims from a subset of members were queried for cardiovascular conditions (congestive heart failure, hypertension, edema, and ischemic heart disease) for which rofecoxib 50 mg should generally not be used. Cumulative rofecoxib 50 mg days supply was calculated for each member. Chronic use of rofecoxib was defined as a cumulative days supply of ≥30.

RESULTS: 4,772 patients received rofecoxib 50 mg during the 3-month period. Mean quantity dispensed per claim was 26.75 tablets and mean days supply was 27.33. There were 477 (10.1%) patients who had ≤5 days supply, 907 (19.2%) had a 6 to 29 days supply, and 3,338 (70.7%) had a ≥30 days supply. A cardiovascular condition, which at a minimum is a relative contraindication to rofecoxib 50 mg use, was present in 35.6% of patients.

CONCLUSIONS: Analysis of rofecoxib 50 mg use pattern from a large pharmacy and medical claims data set revealed a substantial amount of inappropriate chronic use prescribing and high-risk prescribing due to medical relative contraindications.

LEARNING OBJECTIVES:

1. Understand the risks associated with long-term Vioxx 50 mg use.
2. Recognize the extent to which Vioxx 50 mg is used beyond the time recommended by the product labeling.
3. Describe a method used to notify physicians of their patients who are at risk due to long-term use of Vioxx 50 mg.

INCREASED INCIDENCE OF HEART FAILURE AMONG TYPE 2 DIABETIC PATIENTS TREATED WITH ROSIGLITAZONE OR PIOGLITAZONE AS COMPARED WITH OTHER ORAL ANTI-DIABETIC AGENTS

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INTRODUCTION: As recent case reports have linked thiazolidinedione (TZD) exposure to increased risk of heart failure (HF) in type 2 diabetic patients, this study examined whether TZD therapy was associated with an increased risk of HF compared with other oral antidiabetic agents (OAD) in a usual-care setting.

METHODS: An integrated pharmacy and medical claims database (N = 2.1 million memberrs) was used for this retrospective cohort study. Continuously enrolled type 2 diabetic patients prescribed either TZD or other OAD (metformin, sulfonlyureas, metformin/glyburide tablets, repaglinide, or alpha-glucosidase inhibitors) between July 1, 1999, and December 31, 2000, were identified. Diagnosis information was obtained via ICD-9 or CPT-4 codes at baseline (1-year prior period) and during study follow-up. Cox proportional hazards modeling was used to compare time to onset of HF between TZD and other OAD, adjusting for age, gender, plan type, and geography.

RESULTS: The study cohort consisted of 1,876 TZD and 6,272 other OAD patients. 40% were females, and the mean age was 57.7 years. Mean patient follow-up was 400 days. Prevalence of HF in the cohort at baseline was 4.3%; 5.8% of TZD patients and 3.9% of other OAD patients had a preexisting HF diagnosis. Among patients without HF at baseline, rosiglitazone (HR = 2.19, 95% CI 1.47-3.26) and pioglitazone (HR = 1.89, 95% CI 1.24-2.86) were associated with an approximately 2-fold increase in the incidence of HF compared with other OADs. Pioglitazone and rosiglitazone were not significantly different from each other.

CONCLUSIONS: TZD exposure was associated with an approximately 2-fold increase in HF incidence compared with other OADs in a usual-care setting.

LEARNING OBJECTIVES:

1. Describe the characteristics of the study population.
2. Learn the prevalence of HF in a type 2 diabetic population treated with OAD therapy.
3. Compare the incidence of HF in a type 2 diabetes population treated with TZD versus other OAD.

INFLIXIMAB DOSE AND CHARGE ESCALATION PATTERNS IN MANAGED CARE

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OBJECTIVE: To examine the dosing patterns and costs for managed care enrollees newly initiated on infliximab therapy for the treatment of rheumatoid arthritis (RA).
METHODS: Patients with RA and initiated on infliximab in 2001 were selected from an integrated managed care claims database. Selected patients had no infliximab claims in the 6 months prior to their index claim and were followed for up to 12 months after the index claim. Doses were calculated for each infusion and averaged by infusion number. Costs included infliximab and infusion charges. Paired *t* tests, analysis of variance, and analysis of covariance were used to assess the significance of dosing and cost differences.
RESULTS: The study included 201 patients (77.6% female, average age 56.7 years). The average initial dose was 307 mg. The average dose increased with each subsequent infusion. The sixth (387 mg), seventh (407 mg), and eighth (434 mg) doses were significantly higher than the first dose ($P < 0.05$). The dose escalation trend became significant at the fourth dose ($P<0.001$). Charges became significantly higher starting after the third dose. The average charge for the initial infusion was $3,388, increasing by 45% to $4,916 for the eighth infusion. Younger patients (<65 years) received higher doses and had higher charges than older patients.
CONCLUSIONS: The dose of infliximab significantly increased with subsequent infusions in managed care RA patients newly treated with infliximab. Dosing escalation resulted in significantly higher charges shortly after initiation of therapy. This treatment pattern should be factored into budget impact and cost-effectiveness assessments.
LEARNING OBJECTIVES:
1. Learn one method for assessing prescribing patterns from medical claims.
2. Understand the patterns of practice related to the use of infliximab in RA patients.
3. Recognize the cost implications of these practice patterns.

INTEGRATED MEDICAL AND PHARMACY RETROSPECTIVE DRUG UTILIZATION REVIEW LETTER REDUCES HIGH-RISK PRESCRIBING

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OBJECTIVE: To determine if an integrated medical and pharmacy retrospective drug utilization review (RetroDUR) physician letter can reduce high-risk metformin prescribing and costs.
METHODS: Patients with metformin claims during the period January to May 2002 were identified from a 1.08 million-member Midwestern plan. Medical claims were queried for a metformin contraindication (congestive heart failure, renal insufficiency, or metabolic acidosis). In June 2002, letters were mailed to physicians whose patients were identified by the process above (intervention group). Metformin patients who had no contraindication were identified as the control group. A 9-month comparison of discontinuation rates using the Kaplan-Meier method (SAS version 8.2) was completed. Cost prevention estimates were generated using literature probabilities and plan-aid costs from a metformin lactic acidosis event. Program costs included pharmacist and analyst time and mailing costs.
RESULTS: There were 17,141 patients with a supply of metformin on the mailing date, of which 566 (3.3%) were identified with a contraindication and 16,575 control group patients (no metformin contraindication). At 9 months, the metformin discontinuation rate was 84% higher in the intervention group than the control (hazard ratio 1.84 [95% confidence interval, 1.62 to 2.09]), $P<0.0001$; 37.4% of the intervention group and 20.0% of the control group no longer had metformin claims, $P<0.0001$. The higher metformin discontinuation rate in the intervention group resulted in 98 patient-years less metformin exposure among high-risk patients and a projected avoidance of lactic acidosis events and associated costs. Estimated cost avoidance was $6,122.77 (range of $3,061.39 to $12,245.54) per year for 566 patients in the intervention group. The program costs were $1,436.40; resulting in a 4:26:1 return on investment.
CONCLUSION: This RetroDUR letter incorporating patient-specific medical and pharmacy claims resulted in a significant associated reduction in high-risk metformin use, thereby potentially preventing serious adverse events and reducing overall expenditures.
LEARNING OBJECTIVES:
1. Recognize the cardiovascular-related contraindications to metformin use.
2. Determine the effect of a physician letter on medication use when it provides actionable information in the form of combined medical and pharmacy claims for specifically identified patients.
3. Identify the cost savings that may be associated with the discontinuation of metformin in patients with contraindications.

INTRAMUSCULAR ALEFACEPT PROVIDES SIGNIFICANT OFF-THERAPY RESPONSES IN CHRONIC PLAQUE PSORIASIS

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OBJECTIVE: To evaluate the duration of off-treatment response to a single 12-week course of intramuscular (IM) alefacept in patients with chronic plaque psoriasis.
METHODS: This was an extension study of the phase 3 study of IM alefacept. The duration of a ≥50% reduction in Psoriasis Area Severity Index (PASI 50) was determined for patients who responded to treatment during the phase 3 study. Patients electing to enroll in the extension study received a second course of the drug if the severity of psoriasis was "mild" or worse, based on Physician's Global Assessment (PGA). Additional assessments included overall response rate and safety.
RESULTS: Patients who achieved PASI 75 during the first course of alefacept in the phase 3 study (n = 54) maintained PASI 50 for a median duration of 7 months. Of the 166 patients who were randomized to the alefacept 15-mg IM group in the phase 3 study, 131 received at least 1 retreatment dose of alefacept in the extension study. The overall response rate for PASI 50 during the second course was 69% versus 57% in the first course. Of those patients who did not achieve a PASI 50 during the first course, 35% achieved this level of response in the second course. Treatment with the second course of IM alefacept was

well tolerated, and, in general, the incidence of adverse events decreased in the second course.

CONCLUSION: Alefacept is a remittive therapy for psoriasis that provides durable off-treatment clinical response.

LEARNING OBJECTIVES:

1. Learn about alefacept, the first biologic therapy approved by the U.S. Food and Drug Administration for use in patients with moderate to severe chronic plaque psoriasis.
2. Understand the various treatment outcomes used in clinical trials involving patients with psoriasis.
3. Learn that duration of off-treatment clinical response is an important treatment outcome in these patients and a unique characteristic of alefacept.

MANAGED CARE BURDEN OF RECURRENT EMERGENCY DEPARTMENT VISITS OR HOSPITALIZATIONS IN PEDIATRIC ASTHMA: PATIENTS RECEIVING BUDESONIDE INHALATION SUSPENSION VERSUS OTHER INHALED CORTICOSTEROIDS

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INTRODUCTION: The cost burden of recurrent asthma exacerbations to payers is significant. Among children with asthma-related emergency department (ED) visits, approximately 10% to 15% experience a relapse within 2 weeks of discharge. The rate of hospital readmission for asthma among children has been reported as 33% within 6 months. In a managed care population, we examined whether budesonide inhalation suspension (BIS; Pulmicort Respules) reduces hospitalization/ED recurrence risk in asthmatic children compared with inhaled corticosteroids (ICSs) delivered via metered-dose inhalers.

METHODS: Children aged ≤8 years with an asthma diagnosis and asthma-related hospitalization/ED visits (July 2000 to June 2001) and with a prescription claim for any ICS (including BIS) within 30 days of discharge were identified in a managed care organization database (PHARMetrics Integrated Outcomes Database). We compared relative risk of hospitalization/ED recurrence from day 31 to 180 (Cox proportional hazards regression, covariates = sex, age, current and prior asthma medications, type of index event) for patients receiving BIS versus other ICSs.

RESULTS: Of 749 patients, 270 received BIS. Postindex hospitalization/ED rates were approximately 10%. After model risk adjustment, BIS patients had a 56% risk reduction for hospitalization/ED recurrence versus those not treated with BIS (HR: 0.438, 95% CI: 0.263,0.724).

CONCLUSION: In managed care patients under real-world conditions, treatment with BIS after an asthma exacerbation is associated with a significant risk reduction of repeat hospitalization/ED visits in children compared with treatment with ICS delivered via metered-dose inhalers. With ED visits costing approximately $235/visit and hospitalizations $3,100/visit, the potential cost savings from reduced recurrent events is significant to managed care.

LEARNING OBJECTIVES:

1. Review the variations in treatment patterns of asthmatic pediatric patients following a hospitalization or emergency department visit.
2. Describe the relative risk reduction achieved following different treatments in managed care patients.
3. Track the time to first event of certain therapies.

MANAGEMENT OF CHEMOTHERAPY-RELATED ANEMIA: A STUDY OF EPOETIN ALFA AND DARBEPOETIN ALFA USE IN A SELF-INSURED MANAGED CARE ORGANIZATION

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OBJECTIVE: To compare dosing, cost, and hematologic response to epoetin alfa (EPO) and darbepoetin alfa (DARB) in patients with chemotherapy-related anemia (CRA).

METHODS: Records across clinical and administrative data systems (Western Growers Insurance) of patients receiving care in outpatient practice settings were reviewed. Eligible patients were required to have a cancer diagnosis, be >18 years, and have a record of treatment with EPO or DARB for CRA (hemoglobin (Hb) ≤11g/dL).

RESULTS: 1,152 patients (812 EPO, 340 DARB) were identified from November 2002 to August 2003. Baseline characteristics such as age, gender, weight, tumor type, percentage receiving chemotherapy, baseline Hb, ECOG status, transfusion use, and iron supplementation across groups were all similar. Mean treatment duration was approximately 8 weeks (EPO: 56 days, DARB: 59 days). Mean weekly doses were: EPO 35,361 units, DARB 138 mcg. Mean cumulative doses were: EPO 282,234 units, DARB 1,178 mcg. Based on average wholesale price (AWP, Red Book 2003), weekly and cumulative treatment costs were lower for EPO (EPO: $472/week, $3,769/episode; DARB: $689/week, $5,878/episode; respectively). Hb change from baseline independent of observed transfusion was significantly greater for EPO compared with DARB at all assessments (Week 4: 0.84 versus 0.41 g/dL, $P<0.0001$; Week 8: 0.96 versus 0.52 g/dL, $P<0.0001$; Week 12: 1.1 versus 0.64 g/dL, $P< 0.0001$). Cumulative hematologic effect, assessed by area under the Hb change curve, was also greater for EPO (9.4 versus 5.0 g/dL).

CONCLUSION: An earlier and greater hematologic response and lower treatment costs were observed for EPO compared with DARB in clinical practice.

LEARNING OBJECTIVES:

1. Recognize the differences in doses and regimens of EPO and DARB being used for the treatment of CRA.
2. Understand the variability in drug costs for both treatments and its relationship to dosing.
3. Compare the effectiveness and drug costs, in actual practice, of EPO- and DARB-treated patients with CRA.

MEMBER-DIRECTED INITIATIVES TO INCREASE SPECIALTY PHARMACY UTILIZATION IN A HEALTH BENEFITS ORGANIZATION

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OBJECTIVE: To reduce injectable medication expenditures and enhance member compliance and convenience through specialty pharmacy utilization for injectable medications within a health benefits organization.

METHODS: Due to the significant cost savings available for both members and payers through the use of a specialty pharmacy, a consumer program was developed to inform members of potential out-of-pocket

savings and enhanced convenience available with specialty pharmacy utilization. Members received informative letters after maintenance therapy was initiated with any of 30 targeted medications. Letters educated members on either the ability to reduce out-of-pocket expenses while enhancing convenience or simply the ability to access convenient delivery options and disease education services. Members not converting target medications to a specialty pharmacy within 6 months were recontacted with educational letters.

RESULTS: Ten percent of members have switched targeted medications from nonspecialty pharmacies to a specialty pharmacy thus far. Payer savings range between $200 and $2,420 per prescription per year, depending on medication class, with the use of a specialty pharmacy. Member out-of-pocket savings were less than payer savings; however, there was still a noticeable difference.

CONCLUSION: This program clearly demonstrates the ability to realize significant payer and member savings while enhancing member satisfaction through a consumer-directed program detailing the benefits of specialty pharmacy utilization for injectable medication refill services.

LEARNING OBJECTIVES:

1. Understand the benefits of increased specialty pharmacy utilization within a health benefits organization.
2. Recognize the process involved with implementing a consumer-directed program aimed at encouraging specialty pharmacy utilization.
3. Learn specific metrics related to this consumer directed program.

NONSEDATING ANTHISTAMINE COVERAGE STRATEGIES OF MID-SIZE EMPLOYER GROUPS—AN OBSERVATIONAL STUDY USING PHARMACY CLAIMS

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OBJECTIVE: To compare utilization and costs associated with various coverage strategies of nonsedating antihistamines (NSAs) following the introduction of over-the-counter (OTC) loratidine.

METHODS: We conducted a retrospective analysis using pharmacy data from midsize employers, each with varying approaches to coverage of the NSAs, including no change to coverage, all NSAs excluded, only loratidine excluded, all NSAs moved to higher copay tier, or coverage added for OTC loratidine. Utilization rates and ingredient cost paid per-member-per-month (PMPM) for the NSAs is calculated for each strategy over a 12-month period (September 2002 through September 2003). Similar analysis is also completed for nasal corticosteroid and montelukast utilization to determine if a corollary change in utilization exists.

RESULTS: Similar decreases in NSA utilization (19% to 23%) and ingredient cost (27% to 30%) were observed for each strategy, with the exception of excluding the NSAs entirely. That strategy resulted in a greater decrease in NSA utilization (63%) and ingredient cost (69%). Similar correlations were not observed with nasal corticosteroids or montelukast, but it was noted that the strategy of excluding the NSAs entirely resulted in the highest increase of montelukast utilization (101%).

CONCLUSIONS: Our findings suggest that, for the employers studied, the availability of OTC loratidine drove NSA utilization changes more than the coverage strategy employed, with the exception of when NSA coverage was excluded completely. Although the impact on amount paid by the plan was not studied, coverage strategies involving higher copayments for NSAs may result in lower plan costs, despite the fact that the utilization decrease was no greater than that observed with other strategies.

LEARNING OBJECTIVES:

1. Evaluate claims data results before and after the release of OTC loratadine.
2. Investigate various NSA coverage strategies to determine the impact on the ingredient cost PMPM and utilization rates.
3. Evaluate whether there is a correlation between the coverage strategies of NSAs and the utilization rates of nasal steroids and Singulair.

ONE LARGE HEALTH INSURER'S PERSPECTIVE ON MANAGING PRESCRIPTION TO OVER-THE-COUNTER SWITCHES

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INTRODUCTION: This program was intended to support a corporate strategy around the nonsedating antihistamine class of medications (NSAs) by implementing formulary changes, coverage management controls and educational programs regarding over-the-counter (OTC) alternatives.

OBJECTIVES: The 3 objectives of this program were to provide our customers and members with a pharmacy benefit that balances choice, quality, and affordability; to achieve marketplace differentiation and industry leadership through innovation; and to achieve a best-in-class medical cost and quality management capability.

METHODS: In order to meet these objectives, we moved all prescription NSAs to nonformulary status and implemented precertification and a member- and physician-education program, which focused on allergic rhinitis and the availability of a new OTC product. In conjunction with a manufacturer of one of the loratadine OTC products, we distributed coupons to both members and physicians. A robust evaluation process was created to measure the impact of the formulary changes and precertification. Additionally, coupon redemption rates were tracked to monitor the success of this component of the program.

RESULTS: Using 15 months of prescription data, a year-over-year comparison was completed. Overall utilization of prescription NSAs was reduced by approximately 80% as a result of the implementation of formulary and coverage management changes. There was no appreciable cost shift to either nasal steroids or leukotriene inhibitors. Current coupon redemption rates are approximately 5%.

CONCLUSION: The results of this study demonstrate a successful approach to the management of one class of prescription drugs when prescription-strength OTC products are marketed.

LEARNING OBJECTIVES:

1. Learn about the evaluation process used by a large insurer to switch from prescription to OTC drugs.
2. Understand the impact of formulary and coverage management changes.
3. Recognize the value of educating members about OTC alternatives.
4. Appreciate the lessons learned by this large health insurer's approach.

ONE STATE'S APPROACH TOWARD CENTRALIZED PURCHASING FOR PHARMACEUTICALS

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INTRODUCTION: Faced with budget cuts and financial constraints, the state of Rhode Island is assessing the feasibility of centralizing the purchase of pharmaceuticals. The purpose is to enhance purchasing power without affecting short- and long-term outcomes for state residents and recipients of pharmacy services.
PROCESS/METHODS: This study is being conducted through several steps. The first step was to summarize and examine the total costs and management method of the different pharmacy programs throughout the state. Second, a cost-benefit analysis of merging multiple pharmaceutical purchasing programs together will be assessed. The potential to benefit from any federal waiver program may be considered in this analysis. Finally, a strategy to insure that the state's payment for medications will result in better long-term outcomes and lower long-term costs (i.e., cost-effective medications) will be developed. This may lead to the development of in-house pharmacy benefit management expertise or the subcontracting of that function to established private entities.
CONCLUSIONS: Pharmaceutical purchasing at the state level can be fragmented and inefficient. Implementation of strategies to consolidate purchasing and management of pharmaceuticals may result in overall cost savings for government agencies confronted with fiscal challenges.
LEARNING OBJECTIVES:
1. Recognize the financial challenges facing many governmental agencies regarding the purchase of pharmaceuticals.
2. Understand the costs and benefits of merging multiple pharmaceutical purchasing programs.
3. Outline the steps required to merge such programs.

OPINIONS AND ATTITUDES OF NEBRASKA PHYSICIANS CONCERNING GENERIC DRUGS

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OBJECTIVE: To assess opinions and attitudes of Nebraska physicians concerning generic drugs. Information gained will be used by a health plan to develop the content of educational interventions within the physician community.
METHODS: The health plan partnered with a prominent medical society to survey physicians in Nebraska. A survey patterned after a previous survey by Banahan and Kolassa, was mailed to 3,194 physicians. Demographic data was obtained and characteristic groups were identified according to their support of generic substitution, perceived influence to substitute by managed care, and concerns over substitution for critical-dose drugs. Comfort in substituting generic alternatives for 7 branded products was assessed.
RESULTS: The survey generated 719 responses, of which, 551 were complete and useable. Of the respondents, 80% were male (439), 71% (391) were over the age of 40 years, 36% (197) listed a specialty of family practice, 42% (234) wrote more than 20 prescriptions per day, and 64% (356) practiced within metropolitan areas. Analysis of the survey indicated that 53% (292) of physicians could be considered as prosubstitution of generic drugs, 42% (233) were grouped as those who had strong concerns substituting critical-dose drugs, and 34% (186) were antisubstitution, with feelings of high influence from managed care. Physicians in all groups identified varying degrees of reluctance in generic substitution of specified branded products.
CONCLUSIONS: Although the U.S. Food and Drug Administration endorses and guarantees the safety and effectiveness of generic drugs, there are still a significant number of physicians who have concerns with generic substitution. Additional education for physicians concerning the safety, effectiveness, and cost benefit of generic drugs is warranted.
LEARNING OBJECTIVES:
1. Realize perceptions and opinions of active prescribing physicians toward generic drugs.
2. Understand the degree of pressure physicians feel from managed care to prescribe generic drugs.
3. Identify the magnitude of concern for substituting critical-dose medications with a bioequivalent generic product.

OPTIMIZING THE USE OF ANTIRETROVIRAL AGENTS IN A MANAGED CARE POPULATION

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INTRODUCTION: Management of human immunodeficiency virus (HIV) infection is evolving rapidly and becoming increasingly complicated as new antiretroviral (ARV) agents come to market and treatment guidelines are updated. Appropriate use of highly active antiretroviral therapies (HAART) reduces the incidence of opportunistic infections and extends the lives of HIV patients. Conversely, use of nonoptimal ARV regimens may lead to disease progression and resistance to available therapies. In February 2003, Prescription Solutions implemented the Appropriate Use of Antiretrovirals Program to optimize the use of ARV agents in HIV patients through improved physician awareness of current treatment guidelines.
METHODS: Physicians who prescribed ARV agents for the treatment of HIV were identified, and a mailing including HIV treatment guidelines from the Department of Health and Human Services (DHHS), educational materials on HAART prescribing principles, and DHHS-recommended HAART regimens was sent to these physicians. The proportion of the targeted physicians' patients on nonrecommended ARV regimens prior to and following the educational mailing was evaluated.
RESULTS: Of 1,305 patients receiving ARV treatment for HIV from targeted physicians during the preintervention period, 861 (66.0%) received a nonrecommended ARV regimen. During a similar period following the educational mailing, 1,058 patients received ARV treatment from targeted physicians, with 665 (62.9%) receiving nonrecommended ARV regimens.
CONCLUSIONS: The Appropriate Use of Antiretrovirals Program was able to provide relevant information on appropriate use of HIV therapies to those physicians most likely to benefit. Following implementation of the program, a slight decrease in the proportion of patients receiving nonrecommended ARV regimens was observed.
LEARNING OBJECTIVES:
1. Evaluate the value and practicality of implementing an ARV appropriate use program.
2. Identify antiretroviral agents that carry U.S. Food and Drug Administration indications for once-daily administration

3. Recognize the need for intervention programs that seek to promote adherence to national HIV treatment guidelines.

PHARMACOECONOMIC ANALYSIS OF ANTIMYCOTIC AGENTS IN THE TREATMENT OF ONYCHOMYCOSIS

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OBJECTIVE: To examine the cost-effectiveness of using ciclopirox, itraconazole pulse, terbinafine, or itraconazole continuous in the treatment of toenail onychomycosis.
METHODS: A cost-effectiveness model was constructed over a 1-year time horizon from a health plan perspective. The base-case analysis incorporated clinical response rates, resource utilization, cost data, and data from clinical trials and the published literature. Alternative agents (ciclopirox, itraconazole pulse, terbinafine, and itraconazole continuous) were compared based on cost per clinical response.
RESULTS: Ciclopirox was the least expensive regimen ($363.18; $717.29; $797.88; $1,299.77 for ciclopirox, itraconazole pulse, terbinafine, and itraconazole continuous, respectively). Based on these costs, from a cost-minimization perspective, the use of ciclopirox has the potential to decrease pharmacy and medical expenditures by $2.8 to $7.6 million for a population of 1 million lives (assuming that 8,000 patients seek care for onychomycosis). Additionally, when clinical outcomes were considered, ciclopirox was the least expensive alternative per clinical response ($604.29; $920.78; $1,148.03; $1,843.65 per clinical response for ciclopirox, itraconazole pulse, terbinafine, and itraconazole continuous, respectively). The robustness of these results was confirmed by a sensitivity analysis using Monte Carlo simulations.
CONCLUSION: This pharmacoeconomic analysis has shown that ciclopirox is more cost effective than itraconazole pulse, terbinafine, or itraconazole continuous, resulting in the highest percentage of cures associated with the lowest costs. This analysis validates the findings of a previously published pharmacoeconomic analysis using a different efficacy metric and time horizon.
LEARNING OBJECTIVES:
1. Understand the rationale for using clinical response as an efficacy metric for onychomycosis.
2. Reflect on the unique properties of the 3 comparators evaluated in the treatment of onychomycosis.
3. Recognize the most cost-effective agent identified in this analysis.

POLYPHARMACY WITH ATYPICAL ANTIPSYCHOTICS: A COMPARISON OF PATIENTS TREATED WITH OLANZAPINE OR QUETIAPINE FOR SCHIZOPHRENIA

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INTRODUCTION: Polypharmacy appears to be the rule rather than the exception in the treatment or schizophrenia. One type of polypharmacy, the concurrent use of 2 atypical antipsychotics, is known to be particularly costly and to lack empirical support for its effectiveness.
OBJECTIVE: To compare schizophrenia patients who are treated with olanzapine or quetiapine on the utilization rates and duration on polypharmacy with other atypical antipsychotics.
METHODS: Participants were new initiators on olanzapine (N = 390) or quetiapine (N = 133) in the Schizophrenia Care and Assessment Program (SCAP), a longitudinal, observational study of schizophrenia in the United States. Participants did not receive the target drug in the 2 months prior to initiation and had at least 1 year of follow-up post-initiation. Outcome measures were (a) the percentage of patients with polypharmacy, defined as concurrent use of the target drug and at least 1 other atypical antipsychotic; (b) the total number of polypharmacy days; and (c) the ratio of polypharmacy days to the total number of days on the target drug. Statistical analyses included logistic regression with adjustments for days on the target drug, demographics, and clinical variables.
RESULTS: Compared with olanzapine-treated patients, those on quetiapine (a) were twice as likely to receive polypharmacy (75.2% versus 36.7%, respectively, $P<0.001$), (b) were prescribed polypharmacy for twice the total number of days (84.5 days versus 38.3 days, respectively, $P<0.001$), and (c) received polypharmacy for 39.5% of the time while on quetiapine, as compared with 16.1% of the time when treated with olanzapine ($P< 0.001$). Findings were replicated skipping the first 30 days postinitiation in order to accommodate the possibility of a drug switching process.
CONCLUSIONS: Compared with olanzapine-treated patients, those on quetiapine were twice as likely to be prescribed 1 or more atypical antipsychotics. Quetiapine-treated patients were prescribed polypharmacy for a longer duration and for a substantial proportion of the total time on the target drug. This costly medication practice will require further study to empirically demonstrate its cost-effectiveness.

POSITIVE IMPACT OF COMMUNITY-BASED PHARMACIST-DRIVEN DIABETES CARE PROGRAM ON HEALTH OUTCOMES IN SOUTH TEXAS

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INTRODUCTION: In 2002, per capita medical expenditures for people with diabetes were $13,243 compared with $2,560 for people without diabetes. More importantly, a staggering 11% of south Texans suffer from diabetes. To combat this disease, a community-based pharmacist-driven diabetes care program was implemented in southern Texas. We sought to evaluate the impact of this care program on health outcomes.
METHODS: Type 2 diabetic patients were referred to a community-based care management program. Patients scheduled 1 to 3 visits, based on clinical parameters, with specially trained pharmacists and received targeted education, glucose-meter training, and onsite laboratory testing. Data including demographics, laboratory results, medical and social history, and diabetes-related knowledge were entered into a relational database (Microsoft Access). Program effectiveness was evaluated using random coefficient model for continuous and GEE for binary outcomes.
RESULTS: 1,795 patients were seen at first visit; 827(46%) completed a second visit, and 389 (22%) completed a third visit. From the first to the third visit, more patients were taking aspirin (43% compared with 79% [$P<0.0001$]) and ACE inhibitors (76% compared with 85% [$P = 0.1355$]). Patient behavior improved through increased foot self-inspection (77% compared with 97%, [$P<0.0001$]), exercising (29% compared with 58%, [$P<0.0001$]), and following meal plans (29% compared with 48%, [$P<0.0001$]). Patients who knew their A1C increased 44% ($P<0.0001$) and average A1C decreased from 7.68% to 7.26% ($P<0.0001$).

CONCLUSIONS: A pharmacist-driven diabetes care program significantly improved appropriate medication use, behavioral changes, and laboratory values from first to third visit. A large-scale community-based diabetes care program could have a significant impact on public health.
LEARNING OBJECTIVES:

1. Describe the potential health impact of a large-scale pharmacist driven community-based diabetes care program.
2. Describe how a pharmacist-driven community-based program will influence medication usage patterns and have a positive impact on patient behavioral changes.
3. Identify the necessary components of a successful pharmacist-managed diabetes program.

PREDICTING ONE- AND TWO-YEAR RISK OF HOSPITALIZATION USING PATIENT HEALTH DIMENSIONS, A PHARMACY-BASED RISK INDEX

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OBJECTIVE: To examine use of Patient Health Dimensions (PHD), a pharmacy-based risk index derived loosely from the chronic disease score, as a predictor of both 1-year and 2-year hospitalization risk.
METHODS: Integrated medical/pharmacy claims were examined from a large commercial health plan between August 1, 1998, and July 31, 2001. Included subjects were aged 19 to 60 years with continuous coverage during the study. Multivariate logistic regression measured the association of PHD score, age, and gender with 1-year and 2-year risk of hospitalization by constructing main effects and 2-way interaction models.
RESULTS: A total of 93,497 subjects were included; 42% had baseline PHD scores >0 and 11% had PHD scores ≥6. Compared with PHD scores of 0, scores of 1 to 3 [odds ratio (OR): 1.13; 95% confidence interval (CI): (1.04, 1.23)], 4 to 5 [OR: 1.82; 95% CI: (1.65, 2.01)], or ≥6 [OR: 3.03; 95% CI: (2.78, 3.29)] significantly increased the 1-year risk of hospitalization. Compared with subjects with PHD scores of 0, 2-year risk of hospitalization was also significantly increased for subjects with scores of 1 to 3 [OR: 1.14; 95% CI: (1.08, 1.22)], 4 to 5 [OR: 1.74; 95% CI: (1.62, 1.88)], or ≥6 [OR: 2.86; 95% CI: (2.68, 3.05)]. Adding prior hospitalizations to the models did not dramatically affect the performance of PHD scores in predicting 1-year or 2-year risk of hospitalization. Several significant interactions were found between variables in predicting the 1-year and 2-year risk of hospitalization.
CONCLUSIONS: PHD scores derived from pharmacy claims data may be used to predict cumulative risk of hospitalization for up to 2 years even in the absence of medical data.
LEARNING OBJECTIVES:

1. Recognize the potential of using pharmacy claims data to predict future health service utilization.
2. Observe the practical use of a specific pharmacy-based risk indexing system.
3. Investigate the variation in pharmacy utilization and its influence on the risk of hospitalization.

PREDICTIVE CHARACTERISTICS FOR INCIDENT USE OF THIAZOLIDINEDIONES OVER METFORMIN IN A MEDICAID MANAGED CARE POPULATION

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OBJECTIVE: To determine differences in the propensity of different patients starting thiazolidinediones (TZDs) or metformin therapy within a Medicaid managed care organization (MCO) population.
METHODS: Prescription claims of Maryland Medicaid MCO members who were new users of metformin or TZDs were analyzed using univariate, bivariate, and multivariate analytical models. Variables included age, gender, race, county of residence, and coverage group. Drug count and total claims count were also used to represent intensity of resource utilization as proxies for severity of condition. Multivariate logistic regression models were built to assess the combined effect of all variables on the likelihood of incident use of TZD or metformin.
RESULTS: Analysis considered 4,440 patients. Hispanic and white patients were more likely to be initiated on TZDs than African American patients (OR: 1.534, $P = 0.0305$; OR: 1.398, $P<0.0001$, respectively). Patients who were older or had higher counts of drugs also had higher rates of incident TZD use (OR 2.309, $P = 0.0271$; OR: 1.233, $P = 0.0394$, respectively). When added to the model, county was found to be another significant predictor of TZD initiation, but race no longer was. Due to a strong correlation between race and county, counties with patients initiated on metformin had a robust presence of African Americans.
CONCLUSION: There are significant differences in characteristics of patients started on TZDs versus metformin. Age, drug count, and county are statistically significant predictors of incident TZD use. This information can be used to build propensity scores to project costs in MCOs and tailor interventions for specific population characteristics.
LEARNING OBJECTIVES:

1. Demonstrate differences in the propensity of different patients being started on TZD or metformin therapy within a Medicaid MCO population.
2. Outline the characteristics that allow prediction of incident use of TZD over metformin.
3. Learn a modeling technique used to assess the joint effect of patient variables on prescription use.

PROPENSITY TO PRESCRIBE COX-2 INHIBITORS VERSUS ALL OTHER NSAIDS IN MEDICAID MANAGED CARE PLANS

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OBJECTIVE: To identify factors influencing a patient's likelihood of being prescribed COX-2 inhibitors (COX-2s) or traditional nonsteroidal anti-inflammatory drugs (NSAIDs) in a Medicaid managed care plan (MCO). To provide a propensity score model that would adjust for channeling

bias in future studies of COX-2 and NSAID effectiveness.

METHODS: Retrospective analysis of all COX-2 and NSAID claims between January 1, 2000, and July 1, 2002, of Maryland Medicaid MCO patients, aged 18 years and older. Patients were grouped by first claim of a COX-2 (n = 1,143) or an NSAID (n = 62,732). Those with claims for either drug from January 1, 2000, to June 15, 2000, were excluded. The probability of an initial COX-2 prescription was estimated as a logistic function of patient age, gender, race, and history of rheumatoid arthritis, osteoarthritis, chronic back pain, acute pains, GI ulcers or bleeding, and cardiac events.

RESULTS: Patients are more likely to be initiated on COX-2s if they are older (OR = 1.07, $P< 0.0001$, 95% CI 1.07-1.08), have rheumatoid arthritis (OR = 4.3, $P<0.0001$, 95% CI 3.0-6.1), osteoarthritis (OR = 1.7, $P<0.0001$, 95% CI 1.4-2.0), back pain (OR = 1.5, $P<0.0001$, 95% CI 1.2-1.7), acute pain (OR = 1.5, $P<0.0001$, 95% CI 1.3-1.7), or GI problems (OR = 1.2, $P<0.05$, 95% CI 1.0-1.5). After adjusting for clinical variables, African Americans were less likely than whites to be initiated on COX-2s (OR = 0.7, $P = 0.002$, 95% CI 0.6-0.8). Cardiac events and gender were not significant predictors.

CONCLUSION: Medicaid patients who are older; non-African American; and have arthritis, muscle pain, or GI problems are more likely to be initially prescribed COX-2s. Except for race, results indicate MCO practice is consistent with clinical guidelines and literature.

LEARNING OBJECTIVES:

1. Learn of a model for the propensity of patients being prescribed COX-2 inhibitors over traditional NSAIDs.
2. Understand the prescribing trends of physicians for COX-2 inhibitors in a Medicaid managed care organization.
3. Become aware of racial differences in initiating treatment with the newer COX-2 inhibitors.

RANDOMIZED CONTROLLED TRIAL OF A DOSE CONSOLIDATION PROGRAM

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INTRODUCTION: Pharmacy administrators continue to search for pharmacy management strategies that will be cost effective. One such strategy that has received increasing attention in recent years is dose consolidation.

OBJECTIVE: To evaluate the effectiveness and financial impact of a letter-based dose consolidation program.

METHODS: This pilot program in a large, Mid-Atlantic health plan utilized a randomized controlled trial research design. A review of adjudicated pharmacy claims records was performed monthly for 6 consecutive months to identify inefficient (i.e., BID [twice a day]) regimens for any one of 70 dosage strengths of 39 single-source, once-daily dosing indication, maintenance drugs. Prescribers who had prescribed 1 or more inefficient regimens were identified and randomized to 1 of 2 intervention arms or a control arm. Prescribers in the intervention arms were sent a personalized letter with information on their patients' inefficient regimen(s) and suggested dose consolidation option(s). Patients of prescribers in 1 intervention arm received a complementary, patient-oriented letter. Pharmacy claims for patients in all arms were examined at 90 days after the date of the letter mailing for conversion to an efficient regimen (i.e., QD [once a day]). Financial modeling was performed to analyze net changes in pharmacy expenditures for each study arm.

RESULTS: A total of 3,294 inefficient regimens were examined. The consolidation rates for the Physician Letter Arm (10.4%) and Physician/Member Letter Arm (12.7%) were higher ($P<.05$ and $P<.001$, respectively) than the Control Arm (7.6%) after 90 days of follow-up. There was no difference in conversion rates between the intervention arms ($P>.05$). Approximately 30% of the regimens in each study arm were never refilled after being targeted. Financial modeling indicated that a dose consolidation intervention could save $0.01 to $0.02 per member per month. Subanalyses at the therapy class level revealed few opportunities to justify implementing a dose consolidation program.

CONCLUSIONS: When taking into consideration program administration costs, high rates of discontinuation of maintenance drugs, and background rates of dose consolidation, the results indicated that a letter-based dose consolidation program did not appreciably decrease pharmacy expenditures over that seen during the natural course of drug therapy.

LEARNING OBJECTIVES:

1. Learn of a dose consolidation pharmacy management strategy.
2. Evaluate the effectiveness of a dose consolidation program.
3. Examine the financial impact of a dose consolidation program.

SHORT-ACTING BETA$_2$-AGONIST UTILIZATION: COMPARISON OF SELF-REPORT SURVEY DATA WITH ADMINISTRATIVE CLAIMS DATA

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INTRODUCTION: This analysis compares patient reported utilization of short-acting beta$_2$-agonist (SABA) to SABA use observed in administrative pharmacy claims data.

METHODS: Patients were at least 15 years old, currently diagnosed with asthma, and without other respiratory abnormalities. A total of 1,414 patients completed the modified Asthma Control Questionnaire (ACQ), which asks about the number of puffs of SABA used during the past 7 days. Six months of pharmacy claims data were available for 338 (24%) of these patients. Patient responses regarding SABA use on the ACQ were compared with the number of SABA pharmacy claims in a 6-month period prior to the patient report. A kappa statistic was calculated to assess the level of agreement between patient-reported SABA use and use from pharmacy claims data.

RESULTS: Of the 338 patients included in the analysis, 278 (82%) had self-reported use of SABA during the previous week; however, only 41% (114/278) with self-reported SABA use had a SABA pharmacy claim in the previous 6 months. In addition, only 38% of patients (128/338) had at least 1 pharmacy claim for SABA in the previous 6 months, with 90% (115/128) of these patients having self-reported use of SABA (kappa statistic = 0.0995).

CONCLUSIONS: The majority of patients who had self-reported use of SABA in the previous 7 days did not have a corresponding SABA prescription pharmacy claim within 6 months of that use. Using SABA pharmacy claims to categorize asthma severity may underestimate

SABA use and the underlying asthma severity.

LEARNING OBJECTIVES:

1. Evaluate the level of agreement between patient-reported SABA use and claims-reported SABA use.
2. Recognize that SABA prescriptions are underreported in pharmacy claims databases.
3. Understand that administrative prescribing algorithms should not be based on pharmacy claims data alone.

SMARTPA: AN AUTOMATED PRIOR-AUTHORIZATION INNOVATION

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INTRODUCTION: SmartPA is an innovative tool that fully automates prescription benefit authorization programs by integrating drug and nondrug claim information into point of service (POS) for determining medical appropriateness of targeted drug therapies.

METHODS: In December 2002, Missouri Medicaid's Prescription Drug Benefit implemented SmartPA to support and expand its current prior-authorization (PA) program. The application was overlaid onto the state's existing POS system and enabled expanded editing for the state's traditional PA programs as well as new program capabilities involving clinical edits, dose optimization, step therapy, and fiscal editing. SmartPA's sophisticated rules engine evaluates clinical elements of drug claims against clinical elements from medical and institutional claims to intelligently determine whether or not patients meet criteria for drug or drug class rules. Claim evaluations are subsecond processes between the application and POS system that transparently authorize claims for adjudication when criteria are met and deny claims when criteria are not met. An intelligent Web-enabled call center application is then used to document processing of override requests at the call center. Program savings were determined using utilization trends before and after new clinical rules were implemented.

RESULTS: SmartPA enabled Missouri Medicaid to expand the prior-authorization program from 19 drug products/classes to more than 40 drug products/classes in 9 months while increasing annual program savings to more than $35 million, without increasing call center support staff.

CONCLUSIONS: SmartPA is an innovative PA tool that allowed Missouri Medicaid to support and aggressively expand its PA program, minimize administration costs, and maximize savings in prescription benefits.

LEARNING OBJECTIVES:

1. Learn about Missouri Medicaid's innovative approach to its prescription drug benefit.
2. Recognize how Missouri Medicaid's innovative approach differs from traditional prior-authorization programs.
3. Appreciate the benefits of incorporating nondrug claim information into rules that support appropriate utilization of prescription drug benefits and the pharmacy POS system.
4. Identify how Missouri Medicaid's innovative approach controls its program administration costs while it decreases prescription benefit costs.

TOTAL COST OF ACUTE CORONARY SYNDROMES PATIENTS IN A MANAGED CARE POPULATION DURING THE ONE-YEAR FOLLOWING INITIAL PRESENTATION

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OBJECTIVE: Due to the limited amount of literature examining the burden of illness of acute coronary syndromes (ACS) in a managed care population, the goal of this study was to determine the total cost of health care utilization in the 1 year following new onset ACS.

METHODS: A retrospective claims data analysis was conducted. Patients with new onset ACS (emergency room visit or hospitalization with an ICD-9 code of 410.xx or 411.1x, and no ACS claim in the previous 6 months) were identified during the time period July 1, 1999, to June 30, 2001. Subjects without 6 months of prior continuous enrollment or who were younger than 18 years were excluded. Subjects were followed for up to 12 months to identify total medical and pharmacy costs, revascularization procedures, and medication use.

RESULTS: A total of 13,731 subjects met the inclusion/exclusion criteria, totaling 133,814 months of follow-up. Mean age was 54 years and 68% were male. Total cost incurred by the health plan and subjects was $309 million ($2,312 per subject-month of follow-up). The majority was medical cost versus pharmacy cost ($286 million and $23 million), with 72% due to hospitalizations. Fifty-one percent of subjects had a revascularization procedure, with stenting being the most common (68%). Following the ACS event, 36% of all subjects received clopidogrel therapy, 58% received a beta-blocker, and 34% a cholesterol-lowering medication.

CONCLUSIONS: Subjects newly presenting with ACS incur substantial costs in the 12 months following initial presentation. There are opportunities to improve medication therapy in this group of patients.

LEARNING OBJECTIVES:

1. Learn the total direct cost of patients with ACS in the first year following presentation.
2. Understand the major components of cost of ACS patients (medical versus pharmacy, etc.)
3. Understand opportunities to improve medication therapy post-initial ACS event.
4. Understand revascularization treatment patterns post-ACS presentation.

TREATMENT PATTERNS AND HEALTH CARE COST ASSOCIATED WITH HEPATITIS C

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OBJECTIVE: To characterize hepatitis C (HCV) treatment patterns, associated comorbid conditions, and costs among members of a national health care plan.

METHODS: A retrospective database analysis of medical, pharmacy, and laboratory claims for 5.3 million enrollees, from January 1, 2000, to December 31, 2002, was performed. Two groups were identified:

newly treated and nontreated.

RESULTS: Of 10,689 (0.2%) plan members diagnosed with HCV, 9,912 met study eligibility criteria (median age of 47 years, 61% male). There were 2,180 (22%) individuals newly treated for HCV: 822 with interferon+ribavirin, 820 with pegylated interferon+ribavirin, and the remainder with other regiments. During the study period, 7,732 (78%) individuals were not treated. Mean treatment length was similar for combination and mono therapies (24 versus 22 weeks, respectively). One in 5 patients treated with combination therapy switched from interferon to pegylated interferon. Cirrhosis and depression, along with hepatitis-B and HIV coinfections, were the most prevalent comorbid conditions that may affect outcomes of HCV therapy (14.4%, 12.6%, 4.5%, 1.7% in treatment group and 3.8%, 10.1%, 2.6%, 1.5% in untreated group). In addition, 23.4% of treated subjects had a new diagnosis of depression. Mean annual cost of HCV therapy was $11,858. The average cost of treatment of hematologic adverse events with epoietin was $6,224; with filgrastim, it was $4,691. Additionally, mean cost of treating depression was $445.

CONCLUSIONS: Despite low prevalence of HCV and a relatively low treatment rate, the health plan has incurred substantial expense. Cost consequences of clinical management of adverse events need to be considered when developing a policy for HCV prescription drug coverage.

TRENDS IN PHARMACY BENEFIT MANAGEMENT FOR MEDICAID MANAGED CARE PLANS

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INTRODUCTION: The fiscal challenges of managed Medicaid plans facing increasing utilization with reduced or flattened resources require a thorough understanding for prescription benefit cost and utilization trends through claims data analyses.

METHODS: Pharmacy claims data for managed Medicaid plans with 1 PBM, totaling more than 1 million managed Medicaid members, were analyzed for trends in utilization, drug cost, and product selection. Trends for each plan were determined for the total managed Medicaid population and for 2 subsets with similar demographic features within groups: Temporary Assistance to Needy Families (TANF) and Supplemental Security Income (SSI) for the aged, blind, and disabled. Pharmacy benefits management techniques employed by plans were assessed for cost and utilization impact.

RESULTS: Significant differences in utilization and cost patterns between the SSI and TANF populations are shown. Cost trends for the SSI population dropped by 2%, resulting in a drop in cost trends of almost 5% for the total population. Results showed that targeting efforts at managing trends for the SSI population reduced cost increases for the total population. Additionally, even with the use of a maximum allowable reimbursement cost, cost of generic drugs is growing at a faster pace than for brand drugs, reducing savings potential for plans.

CONCLUSIONS: Pharmacy benefit management techniques by managed Medicaid plans, particularly directed to high utilizers of the benefit, are highly effective methods to controlling cost increases. Cost trends, even for low-utilizing populations, can be improved by maintaining a high-cost differential between brand and generic drugs and maintaining generic market share.

LEARNING OBJECTIVES:

1. Learn which pharmacy benefit management strategies produce cost savings versus cost control.
2. Understand the need for addressing generic market share and costs quickly.
3. Understand future implications of managed Medicaid enrollment of SSI dual eligibles.

TRIPTANS IN THE ACUTE TREATMENT OF MIGRAINE: COST-EFFECTIVENESS ANALYSIS

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OBJECTIVE: To supply providers and payers with information on the comparative cost-effectiveness of triptans in the acute treatment of migraine.

METHODS: A cost-effectiveness analysis was performed using treatment success (sustained efficacy) and failure (headache recurrence) data from a published meta-analysis of outpatients taking triptans for migraine by Ferrari et al. (*Cephalalgia.* 2002;22:633-58) and triptan wholesale acquisition costs (WACs; AnalySource, September 2003). The primary efficacy outcome measure used in this model was sustained pain-free therapeutic gain (SPFTG), defined as the proportion of patients who were pain-free 2 hours postdose (placebo-subtracted), with no recurrence and no use of rescue medication within 24 hours postdose. Implicit in the analysis was that treatment success requires only a single dose of triptan, while treatment failure (with recurrence) requires 2 doses. The cost-effectiveness measure was cost per successfully treated patient (CPSTP), the ratio of the total triptan WAC to the number of successfully treated patients.

RESULTS: Of the 6 triptans studied, rizatriptan 10 mg and eletriptan 40 mg had the highest SPFTGs (19% and 18%, respectively), while eletriptan 40 mg and naratriptan 2.5 mg had the lowest recurrence rates (21%, both triptans). Eletriptan 40 mg was the most cost effective, with a CPSTP of $43, followed by almotriptan 12.5 mg ($65). The CPSTP for the remaining triptans ranged from $70 to $99.

CONCLUSION: In this analysis, which utilized both treatment success and failure rates along with WACs to assess cost-effectiveness, eletriptan 40 mg was the most cost effective of the triptans studied.

LEARNING OBJECTIVES:

1. Understand success and failure outcomes important in the acute treatment of migraine.
2. Recognize the impact of these outcomes as well as WAC on the cost-effectiveness assessment of triptans.
3. Utilize the combined information as the basis for making treatment decisions for their patients.

WEIGHT GAIN AND IMPROVEMENT IN PSYCHOPATHOLOGY DURING TREATMENT OF SCHIZOPHRENIA WITH ANTIPSYCHOTICS AND WITH PLACEBO

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OBJECTIVES: To investigate if (a) the previously observed link between weight gain and better clinical response during treatment of schizophrenia patients has a nonpharmacological component, and (b) if the magnitude of treatment-emergent weight gain parallels therapeutic effect size across different treatments.

METHODS: We used data that compared olanzapine (N = 187) and placebo (N = 61) during the acute phase (first 6 weeks) of a randomized, double-blind trial in the treatment of patients with schizophrenia. Pearson product-moment correlations were used to assess the association between weight change (kg) and therapeutic response as measured by the Brief Psychiatric Rating Scale (BPRS) total score. Weight change within the treatment group was contrasted between patients who improved and those who deteriorated. Improvement was defined as decreased BPRS total score by at least 20%. Deterioration was defined as any increase in BPRS total score. Analyses were repeated with adjustments for treatment duration and baseline body weight.
RESULTS: Weight gain was significantly correlated with better therapeutic response for the placebo (r = .36, P = .004) and olanzapine-treated patients (r = .43, P = .001). After adjustments for treatment duration and baseline body weight, these correlations remained statistically significant (partial r = .48, P<.0001 and partial r = .18, P = .010 for the placebo and olanzapine treatment groups, respectively). Patients with improved therapeutic response gained significantly more weight than patients who deteriorated (.40 kg versus -1.83 kg, P = .001 for the placebo treatment group; 4.71 kg versus 1.73 kg, P = .0001 for the olanzapine treatment group). After adjustments for treatment duration and baseline body weight, the difference between the improved and deteriorated patients was still significant for the placebo treatment group (.91 kg versus -2.46 kg, P = .0001) but was not statistically significant for the olanzapine treatment group (3.92 kg versus 2.54 kg, P = .09). Regression analyses indicated that every 1-point improvement on the BPRS total score was associated with .106 kg weight gain for olanzapine-treated patients and .052 kg weight gain for placebo-treated patients. After adjustment for treatment duration and baseline body weight, every 1-point improvement was associated with .056 kg weight gain for olanzapine and .089 kg weight gain for placebo. To assess if the magnitude of treatment-emergent weight gain parallels therapeutic effect size across different treatments, we correlated the therapeutic effect size (as reported in Cochrane's meta analytical reviews) with the magnitude of the corresponding antipsychotic's weight gain (as reported in Allison et al., *Am. J. Psychiatry*. 1999;156:1686-96). Effect size for placebo was obtained from Davis et al. (*Arch Gen Psychiatry*. 2003;60:553-64). The correlation was found to be high and significant (r = .91, P = .03).
CONCLUSIONS: An association between improvement in psychopathology and greater weight gain was observed in schizophrenia patients treated with olanzapine and placebo. Findings suggest that treatment-emergent weight gain has, in part, a nonpharmacological basis. Further studies are needed to evaluate the hypothesis that weight gain, regardless of treatment, is associated with improving psychopathology in schizophrenia patients.
LEARNING OBJECTIVE:

1. Recognize the presence of nonpharmacological pathways in treatment-emergent weight gain during the treatment of patients with schizophrenia.

WHICH HMG-COA REDUCTASE INHIBITOR TO USE FOR HYPERLIPIDEMIA: A COST-EFFICACY ANALYSIS BASED ON THE STELLAR TRIAL

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OBJECTIVE: To conduct an incremental cost-efficacy (ICE) analysis of selected agents based on the STELLAR trial.
METHODS: All the statins can achieve a low-density lipoprotein (LDL) reduction of up to 37%; for patients who require <37% reduction, the choice of a statin may be based solely on cost. For patients who require >37% reduction, cost-effectiveness/efficacy (CE) should be considered. For this population, a post hoc pharmacoeconomic analysis was conducted based on a multicenter, randomized, 6-week efficacy comparison of 4 statins (atorvastatin, pravastatin, rosuvastatin, and simvastatin). The percent reduction in LDL was used as the primary efficacy outcome; percent reduction in triglycerides (TG) and percent improvement in high-density lipoprotein (HDL) were also considered. Cost data were derived from FirstData Bank, based on 2003 average wholesale price (AWP). CE and ICE ratios were computed. Because cost and effectiveness often vary in practice, a sensitivity analysis was conducted.
RESULTS: AWP per day for the statins ranged from $2.37 for both atorvastatin 10 mg and simvastatin 10 mg to $4.98 for pravastatin 40 mg. Using atorvastatin 10 mg as the standard treatment, we excluded from analysis all agents with a lower efficacy and an equal or higher cost. The ICE ratios ranged from $0.61 for rosuvastatin 40 mg to $41.58 for simvastatin 40 mg versus atorvastatin 10 mg.
CONCLUSIONS: A simple CE-analysis showed that rosuvastatin 40 mg had the lowest ICE ratio in reducing LDL versus atorvastatin 10 mg. Similar findings were achieved in TG reduction and HDL improvement.
LEARNING OBJECTIVES:

1. Recognize the pharmacoeconomic impact of statin therapy in the management of hyperlipidemia.
2. Discuss the importance of considering the cost efficacy in reducing TG and improving HDL in addition to LDL reduction efficacy when making a choice of statin therapy.
3. Understand how incremental CE ratios can help determine which statin to reserve for greater than a 37% reduction in LDL.