



■ *RESEARCH STUDIES* ■

6

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EXPRESS SCRIPTS DRUG TREND REPORT

Research Studies

PHARMACY BENEFIT DESIGN

Delate T, Henderson RR, Motheral BR. Financial impact of benefit design choice for non-sedating antihistamines. January 2004.

All forms and strengths of Claritin — a prescription non-sedating antihistamine (NSA) — became available for sale over-the-counter (OTC) in December 2002. With these products going OTC, other prescription NSAs remaining on the market and no generic prescription Claritin products offered, health plans had a number of trend-management options available for OTC Claritin and the prescription NSA products. This study presents an evaluation of the financial impact on health plan decisions regarding NSA coverage.

This study is available at www.express-scripts.com.

Fairman KA, Motheral BR, Henderson RR. Retrospective, long-term follow-up study of the effect of a three-tier prescription drug copayment system on pharmaceutical and other medical utilization and costs. *Clinical Therapeutics* 2003;25(12):3147-3161.

The purpose of this study was to examine the effect of a three-tier copayment system on pharmaceutical and medical utilization and cost for 30 months after implementation in a population of commercially insured, preferred-provider organization members. Results showed reduced growth in net cost and lower utilization of third-tier medications. The intervention and comparison groups did not differ significantly with respect to numbers of office visits, emergency department visits or inpatient hospitalizations.

Roe CM, Heinle SM, Cox ER. Design of a three-tier benefit and cost trend. *Drug Benefit Trends* 2002;14(8):21-26.

This study explores how the design of a three-tier prescription benefit is correlated to drug trend. Pre- to post-period change in payer cost was examined for 20 plans that switched from a two-tier to a three-tier copayment design. Pre- to post-period trends in per member per month net costs decreased as the aggressiveness of the three-tier structure — measured by the average pre- to post-dollar copayment per prescription — increased. This study suggests that more aggressive three-tier structures are associated with lower net cost trend.

COST-EFFECTIVENESS OF PHARMACEUTICALS

Cox ER, Motheral BR, Mager D. Verification of a decision analytic model assumption using real-world practice data: implications for the cost effectiveness of cyclo-oxygenase 2 inhibitors (COX-2s).

The American Journal of Managed Care. 2003;9(12):785-794.

This study evaluated the gastroprotective agent (GPA) rate assumption used to model cost-effectiveness for COX-2s and to re-estimate model outcomes using GPA rates from actual practice. This study found the rate of GPA use is positive and marginally higher among COX-2 users than among nonselective NSAID users. Findings suggest a re-evaluation of COX-2 cost-effectiveness models is warranted.

Cox ER, Motheral BR, Frisse M, Behm A, Mager D. Prescribing COX-2s for patients new to cyclo-oxygenase inhibition therapy.

The American Journal of Managed Care. 2003;9(11):735-742.

The purpose of this study was to profile the pattern of COX-2 use, including length of therapy, medical conditions treated and gastrointestinal risk. Findings suggest that opportunities exist to encourage the cost-effective prescribing of COX-2 therapy.

Fairman KA, Motheral BR. Do decision-analytic models identify cost-effective treatments? A retrospective look at *Helicobacter pylori* eradication. *Journal of Managed Care Pharmacy.* 2003;9(5):430-440.

The purpose of this study was to examine retrospectively whether *H. pylori* pharmacoeconomic models direct decision makers to cost-effective therapeutic choices. Model assumptions were replaced with empirical data from a multi-payer claim database, and it was determined that model results overstated the cost-effectiveness of PPI-clarithromycin and understated the cost-effectiveness of bismuth-metronidazole-tetracycline (BMT).

POPULATION HEALTH AND PHARMACEUTICALS

Delate T, Gelenberg AJ, Simmons VA, Motheral BR. Trends in the use of antidepressant medications in a nationwide sample of commercially insured pediatric patients, 1998-2002. *Psychiatric Services.* 2004; 55(4):387-391.

The purpose of this study was to determine contemporary estimates of the prevalence of ambulatory antidepressant medication (ADM) use in commercially-insured children and adolescents. Results indicated that the growth in the prevalence of ADM use in these populations appears to be continuing, similar to growth seen earlier in the era of the second-generation ADMs.

Delate T, Simmons VA, Motheral BR. Patterns of use of sildenafil among commercially-insured adults in the United States: 1998-2002. *International Journal of Impotence Research.* (In Press)

The purpose of this study was to profile sildenafil (Viagra®) use in the United States. The percentage of Express Scripts members who used sildenafil increased substantially from 1998 to 2002. The fastest growing segment of users was males aged 18 to 45 years, the current target of direct-to-consumer advertising. The proportion of users with an underlying medical reason declined in all age groups over the five years. The finding that the number of sildenafil tablets dispensed per prescription over the study period remained stable suggests that plan sponsor use of benefit strategies can help manage the trend for this therapy class.

Cox ER, Motheral BR, Henderson RR, Mager D. Geographic variation in the prevalence of stimulant medication use among children 5 to 14 years old: Results from a commercially insured US sample. *Pediatrics.* 2003;111(2):237-243.

This study evaluated geographic variation in the use of stimulant medications in a sample of commercially-insured children aged 5 to 14 years. The study also evaluated other factors thought to influence the use of stimulants in children including age, gender, income and urban/rural residence. The study found significant variation in use of stimulants across geographic regions, with higher use in the South and Midwest, compared to the Western region of the country.

Roe CM, Odell KW, Henderson RR. Concomitant use of antipsychotics and drugs that may prolong the QT interval. *Journal of Clinical Psychopharmacology*. 2003;23(2):197-200.

The purpose of this study was to compare the concomitant use of drugs that may prolong the QT interval. One group of patients used antipsychotics that may cause QT prolongation and one group of patients used antipsychotics that do not prolong the QT interval. This study indicated there was no significant difference between the two groups with concomitant use of other QT drugs when potential confounders were controlled.

Teitelbaum F, Parker AR, Frear RS, Vargas SL. The change in the use of hormone replacement therapies (HRT) combination products, estrogens and other agents used to treat osteoporosis since the release of HERS II and WHI findings. January 2003.

In July 2002, the *Journal of the American Medical Association* published two studies questioning the relative safety of combination estrogen/progestin HRT products. To assess physician and member reaction to these studies, Express Scripts researchers analyzed the use of combination HRT products before and after the issuance of the HERS II and WHI information. More specifically, Express Scripts addressed the extent to which the use of the HRT combination products Prempro® and Premphase®, estrogens, and other agents (such as Evista®, Fosamax® and Actonel®) used to treat osteoporosis changed after these highly publicized studies were released.

This study is available at www.express-scripts.com.

Cox ER, Henderson RR. Prescription use behavior among Medicare beneficiaries with capped prescription benefits. *Journal of Managed Care Pharmacy*. 2002;5(8):360-364.

The purpose of this study was to evaluate the strategies Medicare beneficiaries adopt to manage their out-of-pocket prescription drug costs in a plan with capped annual prescription drug benefits of \$500 or \$1,000. A total of 786 surveys were mailed to Medicare+Choice members. Of the 28% response rate, 70% of respondents participated in at least one strategy — obtaining samples from their physicians, for instance — to manage prescription drug costs. This strategy raises the question of whether prescription drug samples may discourage the prescribing of lower-cost therapeutic alternatives.

Roe CM, Anderson MJ, Spivack B. Use of anticholinergic medications among older adults with dementia. *Journal of the American Geriatrics Society*. 2002;50:836-842.

The purpose of this study was to compare the prevalence of anticholinergic use among older adults with probable dementia and to examine the extent to which patients taking donepezil concomitantly use anticholinergic medications. This study found that community-based, commercially-insured, older adults with probable dementia are more likely to be exposed to anticholinergics than matched controls. Patients taking donepezil frequently use an anticholinergic medication concomitantly.

Roe CM, McNamara AM, Motheral BR. Use of chronic medications among a large, commercially-insured US population. *Pharmacoepidemiology and Drug Safety*. 2002;11(4):301-309.

This study examined how medications for chronic conditions are used in everyday life. Results showed that females were more likely than males to use chronic medications during the study year and that commonly-used chronic medications accounted for 53% of total drug costs for both sexes. Generally, the likelihood of using a chronic medication increased with age for both sexes. Additionally, of those who took chronic drugs, 14% used combination chronic therapy.

Roe CM, McNamara AM, Motheral BR. Gender- and age-related prescription drug use patterns. *The Annals of Pharmacotherapy*. 2002;36(1):30-39.

The purpose of the study was to summarize gender- and age-related prescription drug utilization patterns among a large, diverse, commercially-insured population within the United States. Results indicated that most gender differences in medication use appear after or around the puberty years. Women were more likely to use several classes of medications, including antidepressants, and anti-anxiety and pain medications.

Roe CM, Anderson MJ, Spivack B. How many patients complete an adequate trial of donepezil? *Alzheimer Disease and Associated Disorders*. 2002;16(1):49-51.

Pharmacy claims data were used to examine medication adherence among 59 new users of donepezil, aged 65 to 94 years. The study found that the probability of a new user continuing donepezil at 90 days was 0.797 + 0.103 and at 180 days was 0.627 + 0.124. Gaps in treatment of six weeks or more were seen for 13.9% of those who continued therapy for at least 180 days.

Motheral BR, Cox ER, Mager DE, Henderson RR. 2000 *Prescription Drug Atlas*, January 2002.

This study is the first comprehensive state-by-state study of prescription drug use. Age and gender have always been among the best indicators of prescription drug use, but results from this study show that where one lives is also a good indicator of which and how many medications one uses. Prescription drug use was tracked for a random sample of commercially-insured members who were continuously enrolled throughout 2000. Results showed that general prescription drug use was lower in the Northeast and West, and higher in the South and Midwest. Even greater variation was found upon examination of prevalence of prescription drug use for 23 of the most commonly-prescribed therapy categories. The study also observed prescription use for children and found that overall, children exhibited greater variation than adults for most therapy classes.

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