PRESCRIPTION DRUG COPAYMENTS, MAIL ORDER SUBSTITUTION AND STOCKPILING OF MAINTENANCE MEDICATIONS

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OBJECTIVES: Many employers provide financial incentives for enrollees to switch to mail order pharmacies from retail pharmacies and to lower-cost generic drugs. We assess the effects of the introduction of an incentive-based formulary on maintenance prescription drug utilization for early retirees with chronic conditions. METHODS: We take advantage of a natural experiment where one employer introduced an incentive-based formulary and a comparison employer that did not change copayments. A monthly panel data set was created from the 1996–1997 MarketScan database representing the maintenance prescription drug experience for continuously-enrolled early retirees and spouses with at least one chronic condition (n = 6165). Negative binomial difference-in-difference models were estimated to measure the effects of the benefit change. Distributed lag models were estimated to assess the extent of pre-implementation stockpiling of prescription drugs. RESULTS: Utilization of maintenance prescription drugs declined 5.5% (p < 0.01) after the introduction of an incentive-based prescription drug benefit, a decline that was limited to retail pharmacy prescriptions. In contrast, mail order utilization rose 23% (p < 0.001), dominated by an increase in mail order brand name prescriptions (31%, p < 0.001). There was little evidence of generic substitution as the utilization of generic drugs filled in a retail pharmacy dropped 8.9% (p = 0.001) and mail order generic prescriptions were largely unchanged. No evidence of pre-implementation stockpiling of brand name retail drugs was discovered, although enrollees may have anticipated the change and increased utilization of mail order brand name and retail generic drugs in the two months prior to the new benefit. CONCLUSIONS: The introduction of an incentive-based formulary had significant effects on maintenance drug utilization patterns for early retirees with chronic conditions, a subgroup that typically depends upon prescription drugs to maintain and improve health. Contrary to expectations, generic drug use did not increase. However, many enrollees switched to mail order pharmacy for brand name drugs.

COX-2 INHIBITOR STEP CARE PROGRAM ON MEDICATION COSTS AND UTILIZATION: RESULTS FROM A PHARMACY BENEFIT MANAGEMENT SETTING

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OBJECTIVES: COX-2 Inhibitor Step Care program is designed to promote the use of traditional NSAIDs as a first line agent before a COX-2 inhibitor is used. This study evaluated the impact of this program on COX-2 inhibitor utilization and expenditures in a pharmacy benefit management organization. METHODS: Using pre-post with control group study design, prescription records from January 1, 2003 to October 31, 2004 were obtained from Walgreens Health Initiatives’ pharmacy claims database. The study group comprised of three employer groups enrolled in COX-2 Step Care in September 2003, while the control group comprised of all other clients not enrolled in the program. Number of prescriptions dispensed and total costs per member per month (PMPM) were analyzed. PMPM cost savings were calculated using formula: \( Y^* = Y_{p0} - R_{ct}Y_{p1} \), where \( Y_{p0} \) and \( Y_{p1} \) represent actual pre and post PMPM total costs in study group and \( R_{ct} \) is the ratio of PMPM pre and post total costs in control group. RESULTS: The study group included 166,719 lives, and the control group included 768,836 lives from 227 clients. From the pre to post period, in the study group, the average number of prescriptions per month and the average PMPM costs decreased by 4.7% (from 1842 to 1755) and 8.7% (from $1.38 to $1.26) respectively. In the control group, however, the average number of prescriptions and the average PMPM costs increased by 42.5% (from 9034 to 12,875) and 16.5% (from $1.62 to $1.89). After comparing the trend of COX-2 inhibitors in these two groups, COX-2 Step Care was estimated to result in $0.35 PMPM and $700,220 annualized cost savings for the three employer groups. CONCLUSIONS: COX-2 Step Care led to a decrease of prescription utilization and savings in PMPM total costs and may be an effective option in controlling prescription drug expenditures.

Cardiovascular II

ESTIMATING FLEXIBLE SURVIVAL FUNCTIONS FOR USE IN ECONOMIC MODELING: A CASE-STUDY USING THE CURE TRIAL

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OBJECTIVE: Cost-effectiveness analyses based on clinical trials, using life-years gained (LYG) or QALY as endpoints require survival estimates, which must account for event patterns and survival during the trial and patient characteristics. METHODS: Using data from Saskatchewan Health, two statistical approaches were developed to estimate the full survival curves applicable to patients in the CURE trial, categorized into: “survived with no further events”, “survived after myocardial infarction (MI)”, “survived after stroke”, “died”. One approach involved fitting four piecewise parametric functions per category to hazards observed in 15,590 patients with index MI (64% male, mean age 69 years, half died during ten-years follow-up). The other was to fit a single equation using fractional polynomials. Time-dependent Cox proportional hazards analyses were used to derive individual risk-adjustment scores. Resulting survival curves were integrated to obtain life expectancy (LE); LYG by avoiding non-fatal events were derived by subtracting event-specific LE from that of no events for each patient type. RESULTS: Patients (24% diabetic; 30% previous MI/stroke; 61% hypertensive) in first nine-months (corresponding to trial), suffered non-fatal MI (5%); non-fatal stroke (1%); 72% event-free during the trial and patient characteristics. Using data from Saskatchewan Health, two statistical approaches were developed to estimate the full survival curves applicable to patients in the CURE trial, categorized into: “survived with no further events”, “survived after myocardial infarction (MI)”, “survived after stroke”, “died”. One approach involved fitting four piecewise parametric functions per category to hazards observed in 15,590 patients with index MI (64% male, mean age 69 years, half died during ten-years follow-up). The other was to fit a single equation using fractional polynomials. Time-dependent Cox proportional hazards analyses were used to derive individual risk-adjustment scores. Resulting survival curves were integrated to obtain life expectancy (LE); LYG by avoiding non-fatal events were derived by subtracting event-specific LE from that of no events for each patient type. RESULTS: Patients (24% diabetic; 30% previous MI/stroke; 61% hypertensive) in first nine-months (corresponding to trial), suffered non-fatal MI (5%); non-fatal stroke (1%); 72% event-free. Both types of hazard functions indicate high risk immediately following index MI, dropping sharply with event-free time. Subsequent events renew the risk. Integrating survival curves yields estimates of impact of preventing events: e.g., 65 year-old, diabetic, hypertensive man with no previous events has LE = 7.98 years immediately after MI. This increases to 9.4 years if he survives through nine-months with no further events; 3.62 years are lost with second MI, 5.08 years with a stroke. CONCLUSION: These techniques yield detailed survival functions enabling extensive customization to obtain life-years lost for any pattern of events in any given patient. A second event, even if not immediately fatal, further reduces life-expectancy and must be considered in economic analyses.