IMPACT OF AGE, GENDER, AND OUT-OF-POCKET COSTS ON THE TIME TO DISCONTINUATION OF ORAL ANTI-DIABETIC AGENTS AMONG PATIENTS WITH TYPE 2 DIABETES

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OBJECTIVE: This study investigated the effect of age, gender, and out-of-pocket expenditures on medication use and the time to discontinuation among patients with Type 2 diabetes (T2D).

METHODS: Patients’ pharmacy and medical data were obtained from a proprietary claims database. T2D patients, 18 years and above, on oral anti-diabetic drugs, who received benefits from managed care organizations in the year 2000 were identified. The effects of age, gender, and co-payment on the time to medication discontinuation were estimated. A medication was considered discontinued when the prescription was not refilled at the end of its day’s supply for an additional 50% of day’s supply. Co-payments within 1-week intervals were analyzed in a time-dependent Cox regression model to measure their impact on discontinuation.

RESULTS: Approximately 11,350 patients were identified with T2D. The median co-payment per prescription was $8.30. The time-dependent Cox regression model showed that the risk of medication discontinuation was 8% higher for every $5 increase in co-payment [Hazard’s ratio = 1.015]. Females had a 6% higher risk to discontinuation than males (p = .04). Patients age 62 and over have a 67% higher risk of discontinuing their medication than patients under 61 years (p < .01). CONCLUSIONS: Out-of-pocket prescription medication costs maybe a potential barrier to medication persistency. Co-payment, in addition to age and gender, significantly impacted the prescription discontinuation. Lack of routine and timely care has been documented to result in a consequent transfer of these costs for severe health episodes to payers. Policies intended to reduce patient non-compliance should be supported by managed care organizations.

A METHODOLOGY TO IDENTIFY HIGH-RISK PATIENTS WITH DIABETES IN THE CALIFORNIA MEDICAID POPULATION (MEDI-CAL)

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OBJECTIVES: The purpose of this research is to develop three econometric models [i.e., cost model (model #1); the occurrence of hospitalization or ER event model (model #2); time to hospitalization or ER event model (model #3)] that can be used to identify high-risk patients and to evaluate whether risk models are valid based on claims data from the California Medicaid (MediCal) diabetic patients.

METHODS: A retrospective study was conducted by using claims data from January 1995 to December 2000. Dependent variables were total healthcare cost, the occurrence of event, and time to event. Event included hospitalization or ER visits. Historical data including demographic factors, healthcare cost and utilization, type of drugs, increasing dose, adding drugs, and changing drugs, follow-up services based on diabetic guidelines (e.g., office visit, lab tests, and self glucose monitoring), medication compliance, complications, and comorbidity were used as independent variables. The generalized estimating equation and the fixed effect partial likelihood methods were used in a longitudinal data set and a cross-sectional data set with repeatable events, respectively. The split sample validation method was applied to validate the models.

RESULTS: The results show that if high-risk patients were identified by high healthcare costs, model #1 was the most appropriate to use since it yielded the highest percentage of correct predictions. Likewise, if high-risk patients were defined as patient who had the occurrence of hospitalization or ER event, model #2 was the most suitable to apply. Similarly, if high-risk patients were indicated by shorter time to hospitalization or ER event, model #3 was the most proper to utilize. Moreover, three models were valid.

CONCLUSIONS: The choice of method depends on how high-risk is defined by researchers or policy makers. Identification of high-risk patients with diabetes could mean healthcare providers and health plans could intervene to improve patient management.

DETERMINATION OF ASSOCIATION BETWEEN DRUG COSTS AND MEDICAL COSTS IN PATIENTS WITH TYPE 1 DIABETES

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OBJECTIVES: Proper management of type 1 diabetes with drugs may reduce medical spending affecting the overall healthcare expenditures. The objectives of this