study were 1) to determine whether there was an association between drug costs and medical costs for type 1 diabetes patients and, 2) to develop a regression model that predicts medical costs from drug costs. METHODS: The records of 315 patients enrolled in a large mid-western health care plan were reviewed for a 1-year period. The drug costs included insulin costs and oral diabetes drug costs. The medical costs included all paid services for primary and secondary diagnosis of type 1 diabetes identified by ICD-9-CM codes. The data were analyzed using SPSS 10.0. The association between drug and medical costs was determined using Pearson correlation. The significance level was set at the 95% confidence interval. Linear regression analysis was conducted to predict medical costs from drug costs. The dependent variable was the logarithm of medical costs. The independent variables were drug costs, length of service, additional therapy, age and gender. RESULTS: There was a statistically significant inverse correlation between drug costs and medical costs ($r = -0.229$, CI: $-0.33 - 0.13$). In the regression model the following independent variables were determined to be predictors of medical costs: drug costs $(b = 0.00, CI: -0.003 - 0.002)$, additional therapy $(b = -0.362, CI: -0.51 - 0.21)$ and length of service $(b = 0.002, CI: 0.001 - 0.002)$. Age and gender were not found to be significant predictors of medical costs. CONCLUSIONS: The inverse correlation implies that if type 1 diabetes is managed appropriately with drugs, the medical costs may be reduced. This may reduce the overall health care expenditures. The regression model also showed that as drug costs increased medical costs decreased. The regression model can be used to predict the future medical costs if the drug costs are known.

**DIABETES—Economic Outcomes**

**PDB12**

A COMPARISON OF TWO METHODS FOR ESTIMATING HEALTH CARE COSTS OF DIABETES

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Cost of illness estimates for chronic diseases can be underestimated if only costs related to diagnosis and treatment of that disease are measured. This underestimation results from overlooking costs associated with secondary consequences of the disease such as complications and comorbid conditions associated with the disease. OBJECTIVE: Two methods for estimating medical care costs of diabetes were compared: a “attributable” method” and a “case-control” method. METHODS: The study population was all diabetic patients in the 1999 Medical Expenditure Panel Survey, a nationally representative series of probability surveys on the use and cost of medical care in the United States. “Attributable” costs were estimated by summing costs specifically associated with diabetes. “Case-control” costs were estimated by subtracting costs between diabetic cases and non-diabetic controls which were matched on age, gender, race, and number of comorbid conditions not related to diabetes. Costs were summarized for pharmacy, hospital inpatient, outpatient, and emergency room care and reported in 1999 dollars. RESULTS: The total cost of illness was $3046 per patient using case-control method compared to $1151 per patient using the attributable method. The case-control method found costs to be higher for all categories of care, with the largest being hospital inpatient costs. Cost differences were statistically significant for all categories except for emergency room care. CONCLUSIONS: Diabetic “attributed” costs accounted for only 39% of the total difference in health care costs between diabetics and matched controls. Patients with diabetes use more medical services than controls, but a large portion of this care is not specifically attributed to diabetes.

**PDB13**

USING LINEAR REGRESSION TO APPROXIMATE RESULTS OF DECISION ANALYSIS: AN APPLICATION TO A COST COMPARISON ACROSS THREE FIRST-LINE DRUG STRATEGIES IN TYPE 2 DIABETES

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OBJECTIVES: Few studies have compared the short-term costs to achieve recommended glycemic goals in Type-2 diabetes. We developed a decision analysis to project costs of treating patients to glycemic goals from a managed care perspective and evaluated feasibility of summarizing this model in an aggregate linear regression (LR) form. METHODS: A literature-based decision model simulated the 3-year treatment costs (medical, pharmacy, adverse events) to achieve an HbA1c < 7% for three cohorts of patients newly diagnosed with Type-2 diabetes and failing lifestyle changes. Each cohort was assigned to a different first-line therapy: glipizide GITS, generic metformin, or rosiglitazone. Add-on treatments occurred as necessary to achieve glycemic control. To summarize the model in a LR form, we first conducted Monte Carlo simulations (MCS) of the model for each therapy. The costs (dependent variables) estimated via 1000 MCS runs were then summarized through OLS regressions, using the most sensitive and/or relevant variables from the decision model as predictors. We then compared the results generated via each method. RESULTS: The projected cost differences between agents with the decision analysis and the aggregate LR form were identical: $-558 (glipizide GITS vs. metformin), $-1557 (glipizide GITS vs. rosiglitazone), and $-998 (metformin vs. rosiglitazone). The $R^2$ of the LR ranged between .49 and .53. Both methods led to identical conclusions regarding which agent was least/most expensive in >97% of cases. The accordance