developed with a time horizon of 40 years. Transition probabilities for macrovascular and microvascular complications were drawn from the UKPDS 68 Outcomes equations. Direct costs and quality of life (EQSD) were derived from published sources and the HODaR database respectively; costs and benefits were discounted annually at 3.5%. This model was adapted for Type 2 patients switched from NPH to glargine identified from the THIN database, a UK primary care database including 2,333,667 active patients recorded over 15 years from 211 practices. Analysis was conducted on a total of 181 patients with data for the 12 month period prior to and post switch to glargine; the primary outcome measure was Hba1c change.

RESULTS: The median age at switch from NPH was 71 with mean duration of T2DM of 9.2 years. Baseline HbA1c was 8.79% and patients switching to glargine showed a significant mean reduction in HbA1c of 0.67% (p = 0.00384) between switch to glargine and 12 months post glargine initiation. Incorporating this into a simulated cohort of 10,000 patients followed over a 40 year time horizon translated into 150 fewer cardiovascular events. Average cost per patient was £4338 and £3370 for glargine and NPH respectively, providing discounted quality adjusted life years (QALYs) of 4.96 and 4.86 respectively; resulting in a discounted incremental cost effectiveness ratio (ICER) of £9200 per QALY. CONCLUSION: Based on UK real life observational data, switching to basal insulin in type 2 DM patients from NPH to glargine is cost-effective; with a corresponding ICER within accepted thresholds for cost-effective treatments.

THE RELATIVE COST EFFECTIVENESS OF INSULIN GLARGINE VERSUS NPH INSULIN USING UK REAL LIFE DATA IN TYPE 1 DIABETES MELLITUS

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OBJECTIVES: The purpose of this study was to evaluate the cost effectiveness (cost utility) of insulin glargine in the UK for people with Type 1 diabetes mellitus (T1DM) using observational data in patients continuing on NPH versus those switching from NPH to insulin glargine. METHODS: A discrete event simulation model was developed with a time horizon of 40 years. Transition probabilities for progression to microvascular complications were derived from the DCCT (Diabetes Control and Complications Trial) with cardiovascular events modelled via the Framingham equations. Direct costs and quality of life (EQSD) were derived from published sources and the HODaR database respectively; costs and benefits were discounted annually at 3.5%. The model was adapted to the profile of T1DM patients switched from NPH to glargine identified via the THIN database (The Health Improvement Network), a UK primary care database including 2,333,667 active patients recorded over 15 years. Analysis was conducted on a total of 466 patients with data for the 12 month period prior to, and post switch; the primary outcome measure of Hba1c change. RESULTS: The median age of patients switched from NPH to glargine was 33 years with mean duration of T1DM of 8.1 years. Baseline HbA1c was 8.71% and patients switching to glargine showed a reduction in HbA1c of 0.27% between switch and 12-months post initiation. Over 40 years, in a simulated cohort of 10,000 there were 523 fewer fatal microvascular complications and, on average, 1 less microvascular complication per patient in those receiving glargine compared to NPH. The discounted incremental cost effectiveness ratio (ICER) was £6527 per quality adjusted life year (QALY) gained. CONCLUSION: Based on UK real life observational data, switching to basal insulin in type 1 DM patients from NPH to glargine is cost-effective; with a corresponding ICER well within accepted thresholds for cost-effective treatments.

COMPARISON OF ROSIGLITAZONE VERSUS PIOGLITAZONE INTRODUCTION AND ASSOCIATED HEALTH CARE UTILIZATION IN TYPE 2 DIABETES MEDICAID ENROLLEES

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OBJECTIVES: Outcomes in type 2 diabetes patients can differ based on the antidiabetic medication that is used. Thiazolidinediones (TZD) are a newer class of agents used for type 2 diabetes treatment. Previously, no study has compared health care utilization associated with the two TZDs on the market. The objective of this study was to compare health care utilization between two TZDs used by Medicaid-enrolled patients with type 2 diabetes. METHODS: This was a retrospective data analysis comparing cohorts of patients with type 2 diabetes starting a new antidiabetic medication for hospitalizations, emergency room visits, outpatient visits, and health care costs. A total of 660 patients starting rosiglitazone between July 1, 2001 to June, 30, 2002 were compared to 1045 patients staring pioglitazone during the same period. The patients were followed up for 30 months to examine the difference in health care utilization over time. Multivariate regression techniques were employed for comparisons between different antidiabetic therapies. RESULTS: Multivariate analysis showed that rosiglitazone group was associated with almost 12% decrease in the mean number of hospitalizations, and 10 % decrease in the mean number of emergency room visits, and a 7.3% decrease in total health care costs as compared to the pioglitazone group (all p < 0.05). CONCLUSION: Introduction of rosiglitazone was associated with decreased number of hospitalizations, emergency room visits, and total health care costs compared to pioglitazone. The utilization of oral antidiabetic agents, with documented clinical and economic benefits, should continue to be advocated to reduce avoidable medical care utilization, and improve patient outcomes in this population.

PRICE AND UTILIZATION OF ORAL ANTI-DIABETIC MEDICATIONS FROM 1991 TO 2005 IN U.S. MEDICAID PROGRAMS

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OBJECTIVES: Diabetes is the sixth leading cause of death in the United States, and its prevalence has been increasing. The annual cost of this illness to society reached close to $100 billion in 1999. The objective of this study is to analyze the trends of price and utilization of oral anti-diabetic medications in U.S. state Medicaid programs. METHODS: Oral anti-diabetic drugs include first- and second-generation sulfonylureas, α-glucosidase inhibitors, biguanides, thiazolidinediones, meglitinites, and combination drugs. Data were taken from the national Medicaid pharmacy claims databases for 1991 to 2005, provided by the Centers for Medicare & Medicaid Services. Descriptive time-series analysis was used to assess quarterly prescription numbers, amount of reimbursement, and cost per prescription. RESULTS:
The total reimbursement for anti-diabetic drugs in U.S. Medicaid programs increased from $90.7 million in 1991 to $1.1 billion in 2005. The number of prescriptions increased dramatically from 4.1 million in 1991 to 18.2 million in 2005, while the number of prescriptions for other classes increased over the years. For example, the number of prescriptions for biguanides increased from 39,849 in 1995 to 5.7 million in 2005, the number of thiazolidinedione prescriptions increased from 323,581 in 1997 to 4.5 million in 2005, and the number of meglitinide prescriptions increased from 30,790 in 1998 to 425,516 in 2005. CONCLUSION: Increased expenditure for oral anti-diabetic drugs was caused by both increased price and utilization. When the generic drugs metformin, glipizide, and glyburide were introduced to the market, the use of their brand-name counterparts decreased dramatically due to Medicaid’s policies encouraging generic substitution.

PDB22

INFLUENCE OF HEMOGLOBIN A1C TEST RESULT ON DECISION TO INITIATE INSULIN SUPPLEMENTATION IN TYPE 2 DIABETES

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OBJECTIVES: The American Diabetes Association recommends treating diabetes patients to a target hemoglobin A1c level of 7% or less. Our objective was to examine the influence of A1c test results on decisions to initiate exogenous insulin supplementation in Type 2 diabetes. METHODS: A database of clinical laboratory results linked to health plan claims (MarketScan Lab) was used to identify patients with a diagnosis of Type 2 diabetes. Their first A1c test result between July 2003 and June 2005 was identified and patients were classified as at target (less than 7%), above target (7–9%), or poorly controlled (>9%). The study sample was restricted to patients who had 6 months of claims history prior to and 6 months after the index test, and who received only oral anti-diabetic therapy during the pre-test period. Addition of insulin to the regimen within 6 months after the test was assessed. RESULTS: A total of 4836 patients were identified, including 2450 (51%) who were at target, 1567 (32%) above target, and 819 (17%) poorly controlled. Insulin was added to the regimen of 12.9% of patients with poor control, 4.3% of those above target, and 1.5% of those at target (p < 0.00001). Among poorly controlled patients insulin was added in 22.0% of patients already on 3 oral medications, 12.6% of those with 2 oral medications, and 8.6% of those with 1 oral medication (p < 0.001). A1c test result and prior oral medication use remained significant predictors of insulin supplementation after controlling for demographic variation. CONCLUSION: High levels of A1c indicating poor glycemic control led some patients with Type 2 diabetes to initiate insulin supplementation, particularly those already receiving multiple oral medications. However, poorly controlled patients were still most likely to remain on oral therapy only, even if they were already using 3 or more medications.

PDB23

IMPACT OF PATIENT EDUCATION ON HBA1C REDUCTION IN DIABETIC PATIENTS WITH CONCOMITANT HYPERTENSION

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OBJECTIVES: The purpose of this study was to assess the impact of patient and physician education on Hemoglobin A1c (HbA1c) control in diabetes patients with concomitant hypertension. METHODS: The analysis was based on a subset of those enrolled in the Baltimore Partnership Programs to Reduce CVD Disparities project, with one year of follow-up. Patients and their physicians were randomly assigned to either intervention or control group, in a 2X2 nested case control factorial design. Patients and physicians participated in educational sessions. We calculated the change in HbA1c value, from baseline, to one year follow-up. Multiple regression was used to assess the effects of interventions on HbA1c change adjusting for age, race, gender and hypertension. RESULTS: Out of the study cohort of 114 patients, most were African American (96%) and female (62%). Mean baseline HbA1c values were higher among males vs. females (8.7% vs. 8.6%), African Americans vs. Caucasians (8.7% vs. 8.15%), Intervention patients vs. control patients (9.15% vs. 8.28%), and patients of Intervention vs. control physicians (8.94% vs. 8.33%). The drop in the HbA1c values was greater among intervention patients (−0.6 vs. 0.2) and patients of intervention physicians (−0.32 vs. 0.01). After controlling for age, race, gender and hypertension, the drop in HbA1c in the patient intervention group was greater than the control and the drop in HbA1c in the patients of intervention physicians was greater than the control though statistically non-significant. CONCLUSION: In this patient sample, greater drop in HbA1c is seen among the intervention patients and patients of Intervention physicians. These results highlight the influence of patient and physician interventions supporting Diabetes disease management programs.

DIABETES—Methods & Concepts

PDB24

PRELIMINARY VALIDATION OF THE COGNITIVE DISTRESS, FATIGUE, HYPERGLYCEMIA AND HYPOGLYCEMIA SUBSCALES OF THE DIABETES SYMPTOM CHECKLIST REVISED (DSCR) FOR USE IN CLINICAL TRIALS INVOLVING PATIENTS WITH TYPE 1 OR TYPE 2 DIABETES

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OBJECTIVES: The Diabetes Symptom Checklist-Revised (DSCR) is a 34-item, 7-subscale instrument designed to provide a comprehensive measure of diabetes-associated symptoms. When evaluating antihyperglycemic medications in a clinical trial however, only those symptoms affected by fluctuations in glycemic control (e.g., hyperglycemia) would be expected to change. Therefore, the objective of this study was to validate the DSC-R Cognitive Distress, Fatigue, Hyperglycemia, and Hypoglycemia subscales as individual measures of symptom groups to be targeted in clinical trials of antihyperglycemic medications. METHODS: In two clinical trials evaluating antihyperglycemic medications (Study 1: insulin therapy in 137 patients with type 1 diabetes; Study 2: oral therapy in 150 patients with type 2 diabetes), participants were administered the DSC-R at several time periods including screening, baseline and endpoint. To confirm the factorial validity of the subscales, a promax factor analysis