adherence, some factors associated with better diabetes control were identified.

PDB10

ECONOMIC BURDEN OF DIABETIC RETINOPATHY IN FLORIDA: A PILOT STUDY EXPLORING THE AMOUNT SPENT USING PRINCIPLE DIAGNOSES

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OBJECTIVE: The objective of this study is to determine the direct medical costs associated with patients who have diabetic retinopathy and their co-morbidities in the state of Florida.

METHODS: The study was a non-randomized, secondary data analysis using the Florida Ambulatory Patient Data from 2001. It was a cross-sectional analysis using the individual patient as the unit of analysis. The ICD-9 Code 362.02 was used to extract patients with a principle diagnosis of proliferative diabetic retinopathy (PDR). The ICD-9 Codes 362.01 and 362.10 were used to extract patients with a principle diagnosis of nonproliferative diabetic retinopathy (NDR). ICD-9 Code 362.83 was used to extract patients with macular edema (ME). Patient characteristics along with total charges were extracted for each of these patients.

RESULTS: The total charges for Asian, African American, and White Hispanics are significantly lower than the total charges for Caucasians. However, Black Hispanics have a statistically significant higher total charge than Caucasians. Patients with Medicare, Medicare HMO, Medicaid, commercial HMO, and commercial PPO, have statistically significant higher total charges than patients with commercial insurance. Both PDR and BDR are associated with statistically significant greater total charges than patients with NDR. Yet, the total charges for ME are significantly lower than those for NDR. This model is statistically significant.

CONCLUSIONS: Total charges are affected by patient characteristics and severity of diabetic retinopathy. In the state of Florida for 2001, $3,885,952 were spent on treating patients with diabetic retinopathy and their co-morbidities in the ambulatory setting.

PDB11

EVALUATION OF THE CLINICAL OUTCOME AND FINANCIAL COSTS OF DELAYING THE ONSET OF FRANK TYPE-2 DIABETES

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OBJECTIVE: Type-2 diabetes (T2DM) is associated with increased morbidity and mortality; however, the onset can be delayed. This study quantified the impact of delaying the onset of frank diabetes on the rate of progression to vascular complications and all associated costs.

METHODS: The Cardiff Diabetes Simulation Model was run over a 20-year time horizon following a cohort of 1000 newly diagnosed T2DM patients compared to a cohort whose T2DM was delayed by two or ten years. The model utilised the Framingham equations to predict cardiovascular events before diabetes and the UKPDS equations following diagnosis. The transition of predicted risk from Framingham to the UKPDS risk level was modelled assuming an instantaneous switch (Scenario 1) or a linear-progression between risk equations (Scenario 2). Direct health care costs [2004, GBP] and outcomes were each discounted at 3.5%.

RESULTS: Assuming no delay in diabetes, the model predicted 501 myocardial infarctions (MI’s), 252 strokes and 2305 microvascular events. Mean costs and quality adjusted life years (QALY’s) per subject were £11,972 and 7.3 years, respectively. Mean costs savings ranged from £2376 to £4791 (Scenario 1) and £123 to £573 (Scenario 2) through delaying diabetes by two and ten years, respectively. Mean change in QALY’s ranged from 0.6 to 1.7 years (Scenario 1) and 0.1 to 1.2 (Scenario 2), respectively. The number of MI’s avoided ranged from 40 to 224; while the predicted number of strokes avoided ranged from 37 to 147 for a two-year and ten-year delay, respectively.

CONCLUSIONS: This study demonstrated that even modest delays in the onset of diabetes can have a substantial impact on predicted vascular events and financial costs. However, the magnitude of this impact was highly dependent upon the modelling assumption employed relating to the change in cardiovascular risk as people progress to frank T2DM.

PDB12

EFFECT OF GLYCEMIC CONTROL ON HEALTH CARE COSTS

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OBJECTIVE: Glycosylated hemoglobin (HbA1c) is a well-established measure of glycemic control. Understanding the impact of staying at target HbA1c levels (≤7.0%) on treatment costs would be of great significance to managed care organizations. The goal of this study was to determine whether being at target HbA1c results in reductions in diabetes-related costs.

METHODS: This study was a retrospective database analysis using eligibility, medical and pharmacy claims data, and laboratory data from a large US health care organization. Subjects were included in the study if they had two or more claims for type-2 diabetes and at least one HbA1c value during the period January 1, 2002 through December 31, 2002 (first such date identified as index date). Subjects with two or more claims for type-1 diabetes were excluded from the study. Study subjects were divided into those at target HbA1c (≤7.0%) and above target HbA1c (>7.0%) and were followed for a period of one year following their index date. Demographic, clinical and cost variables were extracted for each subject. Multiple linear regression analysis was used to compare treatment costs between subjects at target level and subjects above target level. RESULTS: A total of 3121 subjects were identified as being continuously at target level and 3659 subjects were identified as being continuously above target level. The target group was associated with 30% lower total diabetes costs (p < 0.01) after controlling for the confounding factors (age, gender, health plan region and presence of co-morbid conditions). The predicted total diabetes costs in the target group was $1171 and the predicted costs in the above target group was $1540. CONCLUSION: Results of this analysis suggests that staying at target HbA1c level was associated with cost savings over a one-year follow-up period in a managed care setting.

PDB13

COST OF DIABETES COMPLICATIONS IN FRANCE, GERMANY, ITALY AND SPAIN

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OBJECTIVES: To collect cost data on the complications of diabetes from published sources in France, Germany, Spain and Italy for use in a peer-reviewed, validated diabetes model.

METHODS: A search for published cost of diabetes complications data was performed in peer-reviewed journals listed in PubMed and ISPOR conference proceedings from the last ten years. Where country-specific data were not available, we referred to government websites and local cost experts. Identified costs were inflated to 2004 Euros (€). Major complication
costs are presented. RESULTS: First year costs of non-fatal myocardial infarction varied between 15,592 € in France and 4,089 € in Spain. In subsequent years of treatment, this range was 12,262 € (France) to 7,383 € (Spain). Angina costs were similar across all four countries: 2,613 € in France; 3,342 € in Germany; 2,297 € in Italy; and 2,207 € in Spain. Event costs of non-fatal stroke were higher in Germany (19,399 €) than in other countries (France 11,754 €; Italy 6,583 €; Spain 4,638 €). Event costs of end-stage renal disease varied depending on the type of dialysis in France (24,608–56,487 €), Germany (46,296–68,175 €), Italy (43,075–56,717 €) and Spain (28,370–32,706 €). Lower extremity amputation costs were 31,998 € (France); 22,096 € (Germany); 10,177 € (Italy); and 14,787 € (Spain). CONCLUSIONS: Overall, our search showed costs are well documented in France and Germany, but revealed a paucity of data for Spain and Italy. Spanish costs, collected by contacting local experts and from government reports, generally appeared to be lower for treating cardiovascular complications than in other countries. Italian costs reported in the literature were primarily hospitalization costs derived from diagnosis-related groups, and therefore likely to overestimate the cost of specific complications. Additional research is required to document complication costs in Spain and Italy. These data are essential for creating models of diabetes able to accurately simulate the cumulative costs associated with the progression of this disease and its complications.

ECONOMIC EVALUATION OF DETEMIR-BASED BASAL/BOLUS THERAPY VERSUS NEUTRAL PROTEAMINE HAGEDORN-BASED BASAL/BOLUS THERAPY FOR TYPE-1 DIABETES IN A DUTCH SETTING

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OBJECTIVES: In a recent randomized, controlled clinical study in patients with type-1 diabetes, use of insulin detemir (IDet) versus neutral protamine hagedorn (NPH) insulin in a basal (twice daily)/bolus regimen with insulin aspart (IAsp) as bolus, demonstrated that IDet/IAsp was associated with a relative risk reduction of 21% for hypoglycaemic events (p < 0.05), a reduction of 1.01 kg in body weight (p < 0.05) and decreased systolic blood pressure (SBP) (3 mmHg, p < 0.05) versus NPH/IAsp over six months of treatment. No significant difference in HbA1c was noted. The aim of this analysis was to assess the impact of these changes over long-term treatment with IDet/IAsp versus NPH/IAsp. METHODS: The CORE Diabetes Model, a peer-reviewed, validated computer simulation model, was used to project these short-term findings to evaluate long-term clinical and cost outcomes. Transition probabilities and risk adjustments were derived from published studies. Baseline cohort characteristics were taken from the clinical trial. Total direct costs (complications + treatment costs) were derived from published sources and projected over patients’ lifetimes from a Dutch National health care perspective. Costs and clinical benefits were discounted at 3.5% per annum. RESULTS: Decreased incidence of hypoglycaemic events, improved BMI and SBP associated with IDet/IAsp treatment led to fewer diabetes-related complications, increased life expectancy (0.17 years) and improved quality-adjusted life expectancy (0.11 QALYs) compared to NPH/IAsp. Mean total lifetime costs were 626 €/patient higher in the IDet/IAsp treatment arm than in the NPH/IAsp group, leading to incremental cost-effectiveness ratios of 3,682 € per LYG and 5,691 € per QALY gained. CONCLUSIONS: Short-term clinical improvements associated with IDet/IAsp were projected to lead to a lower incidence of complications, improved life expectancy and quality-adjusted life expectancy over patient lifetimes. Reductions in the cost of complication partially offset the costs of IDet/IAsp treatment, leading to incremental cost-effectiveness ratios within the range considered to represent excellent value for money.

DIABETIC RETINOPATHY MODELING: A COST-EFFECTIVENESS OF VARYING SCREENING INTERVALS IN TYPE-2 DIABETES MELLITUS IN THAILAND

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OBJECTIVES: To assess the cost-effectiveness of various screening intervals using indirect ophthalmoscopy performed by ophthalmologists for detecting diabetic retinopathy among type-2 diabetic patients from hospital and societal perspectives in Thailand. METHODS: A Markov model of diabetes retinopathy was constructed based on Eastman model. A cohort of 10,000 newly diagnosed, type-2 diabetic patients age 40 years was simulated until the age of 75 years or death. Transition probabilities were obtained from literature review, while unit costs and utilization patterns in Thai population were derived from a hospital and expert opinions. Costs of screening and treatment were calculated using a microcosting technique. Incremental cost-effectiveness analyses were performed based on a cohort simulation and presented as incremental Baht per blindness prevented. A series of sensitivity analyses were performed. RESULTS: In base-case analysis using a hospital perspective, an incremental cost-effectiveness ratio (ICER) of screening every four-years compared to no screening was 85,976 Baht per blindness prevented. Comparing to the next preceding screening frequency, the ICER of screening frequency every four-years, every three-years, and two-years was 62,806, 70,554, 95,865 Baht per blindness prevented, respectively. When varying the cost of screening and laser treatment, probability of seeking medical treatment among unscreened, probability of being treated with vitrectomy, and annual mortality rate, the results remained similar to the base-case analysis. However, when we performed analysis using a societal perspective, all screening patterns resulted in cost-saving. CONCLUSIONS: Our findings indicated that an incremental cost incurred from increasing frequency in all screening intervals was less than 100,000 Baht or US$2,500 per one blindness prevented. Annual diabetic retinopathy screening seems to be a cost-effectiveness intervention, especially from a societal perspective. Our findings can be a very useful information to aid health care policy decision makers during their decision making process.

THE ASSOCIATION BETWEEN DIABETES RELATED MEDICAL COSTS AND GLYCEMIC CONTROL: A LONGITUDINAL ANALYSIS

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OBJECTIVE: To examine how the type-2 diabetes-related direct medical costs are associated with an individual’s level of glycemic control. METHODS: The analysis was performed on data from a large health plan administrative database. Individuals were defined an index date between October 1, 1999 and April 30, 2001, based upon first diagnosis of diabetes or use of antidiabetic agent and were retrospectively examined in the 12 months pre- and 24–43 months post-index date (N = 10,780). Differ-