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 1226€ (France) to 738€ (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.

**PDB14**

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

Roze S', Wittrup-Jensen K', Valentine WJ', Palmer AJ'

1CORE—Center for Outcomes Research, Binningen, Basel, Switzerland; 2Novo Nordisk; AVS, Bagsvaerd, Denmark

**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 6262€/patient higher in the IDet/IAsp treatment arm than in the NPH/IAsp group, leading to incremental cost-effectiveness ratios of 3682€ per LYG and 5691€ 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.

**PDB15**

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

Pornpinatepong S, Chaiyakunapruk N, Thavorncharoensap M

1Mahidol University, Bangkok, Bangkok, Thailand; 2Naresuan University, Phitsanulok, Phitsanulok, Thailand

**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.

**PDB16**

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

Oglesby A, Scelnik K, Barron JJ, Al-Zakwani IS, Lage MJ

1Eli Lilly and Company, Indianapolis, IN, USA; 2HealthCore, Wilmington, DE, USA; 3HealthMetrics Outcomes Research, Groton, CT, USA

**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-
ences in costs between HbA1c groups were analyzed using a generalized linear model (GLM), controlling for demographics, patient severity, as well as comorbidities and complications.

RESULTS: In total, 79% of individuals in the analysis obtained good HbA1c (HbA1c of less than or equal to seven) control at some time during the post-period although only 59% of these individuals maintained this level of glycemic control for the duration of follow-up. Individuals in the fair (HbA1c greater than seven to less than or equal to nine) or poor (HbA1c greater than nine) groups had significantly higher diabetes related total medical costs compared to individuals with good glycemic control ($1641 v. $1372 per member per year [PMPY]; p < 0.05; $1705 v. $1372 PMPY; p < 0.05, respectively). CONCLUSIONS: Although initially successful at obtaining good glycemic control, a large percentage of individuals were unable to maintain such control. This is coupled with a finding of higher diabetes-related medical costs for individuals at sub-optimal levels of control. These results suggest that novel therapies which improve the capability of individuals to achieve and maintain glycemic control may have positive financial as well as health implications.

PDB17

BURDEN OF ILLNESS ASSOCIATED WITH SYMPTOMS OF DIABETIC PERIPHERAL NEUROPATHY AND DIABETIC RETINOPATHY

Candrilli SD1, Davis KL1, Kan HJ1, Lucero MA1, Covington MT2

1RTI Health Solutions, Research Triangle Park, NC, USA; 2Eli Lilly and Company, Indianapolis, IN, USA

OBJECTIVES: To evaluate the effect of symptoms of diabetic peripheral neuropathy (SDPN), diabetic retinopathy (DR) and co-morbid SDPN & DR (COMORB) among US adults ≥40 years old with diagnosed diabetes on several burden of illness (BOI) measures, including indirect costs and health care utilization, using the combined 1999–2000 and 2001–2002 National Health and Nutrition Examination Surveys (NHANES). METHODS: Included in the analysis were 850 NHANES respondents ≥40 years old classified as having diagnosed diabetes. Logistic regression models were used to assess the effect of SDPN, DR and COMORB on BOI. Model covariates included age, gender, race, education, insurance status, current smoking status, currently asthmatic, and history of cardiovascular disease, cancer, arthritis, COPD, hypertension and stroke. The conditions of interest were assessed based upon respondent self-report.

RESULTS: Using the combined 1999–2000 and 2001–2002 NHANES, it was estimated that, among US adults ≥40 years old with diagnosed diabetes, those with SDPN (OR = 2.27; 95% CI = 1.34, 3.85), DR (1.67; 1.08, 2.59) and COMORB (2.88; 1.28, 6.48) were each more likely to have four or more health care visits in the past year than those without the corresponding condition. Those with DR (1.81; 1.31, 2.50) and COMORB (2.07; 1.13, 3.77) were both more likely to have had at least one overnight hospital stay in the past year. Finally, those of working age (40–65) with SDPN (3.39; 1.66, 6.89), DR (3.08; 1.55, 6.11) and COMORB (4.51; 2.27, 8.96) were each more likely to be unable to work due to physical limitations. CONCLUSION: Among US adults ≥40 years old with diagnosed diabetes, SDPN, DR, and COMORB all appear to significantly increased BOI. Future therapies that offer relief of both of these conditions may have significant benefits on indirect costs (such as lost work time) and direct measures of health care resource utilization.

PDB18

ECONOMIC EVALUATION OF DRUG THERAPY AMONG DIABETES MELLITUS PATIENTS IN OLABISI ONABANJO UNIVERSITY TEACHING HOSPITAL, SAGAMU, OGU STATE, NIGERIA

Suleiman IA1, Oloyede FF2

1University of Lagos, Lagos, Nigeria; 2Olabisi Onabanjo University, Sagamu, Nigeria

OBJECTIVE: To carry out economic evaluation of drug therapy among diabetic patients. METHODS: The methodology was Cost of Illness Analysis. Out-Patients were considered. Drug review was carried out retrospectively for randomly sampled 37 case notes over one-year period. Demographic data were collected and number of hospital visits, fasting blood sugar and blood pressure at each visit, drugs prescribed at each visit. Cost components were the direct costs. These include the total cost of drugs over one-year period, personnel cost, diagnostic costs, and transport cost. Hospital cost of the drugs were used, cost per defined daily dose of each drugs were calculated as well as the total drug cost, taken the duration of therapy into consideration. Stop-watch-time studies and monthly earnings were used in the calculation of personnel cost. Since the study covers one year period (July, 2003–August, 2004) neither discounting nor inflation were considered in the analysis. RESULTS: Most of the patients were Type-II Diabetes Mellitus (n = 53; 89.2%) while Type-I (insulin required) were four (10.8%). In total, 83.8% were hypertensive. Total costs of drugs = N1,219,932.70 (US $8,713.81), Anti-diabetic drugs = N689,231.50 (US $4,923.82) (56.5%), Anti-hypertensive drugs = N530,701.20 (US $3,790) (44.5%), Transport = N30,696.70, Diagnostic = N56,400, Personnel = N53,340.40. Total Cost of Illness for one year for 37 patients = N1,360,369.80 (US $9,716.93). Total cost of treating 1000 patients = N1,360,369800.00 (US $9,716,930.00) aside indirect cost among others per year. Average cost per patient = N36,766.75 (US $262.62) (84.7% of N43,400.00 (US $310.00) per capital income in Nigeria); Range; N2,618,44 (US $187.70) and N268,572.81 (US $1,918.38). N = Naira. CONCLUSION: Spending an average of 84.7% of per capital income to treat an illness annually is highly unfortunate as this further worsens the quality of life of such patients. This call for good understanding of the disease condition by the society to minimize the incidence while ensuring compliance and also for improved policy by government.

PDB19

COLLECTION OF COST DATA FOR DIABETES COMPLICATIONS IN CANADA AND AUSTRALIA

Palmer AJ1, Ray JA1, Roze S1, Valentine WJ1, Secnik K2, Oglesby A2

1CORE—Center for Outcomes Research, Binningen, Basel, Switzerland; 2Eli Lilly and Company, Indianapolis, IN, USA

OBJECTIVES: The aim of this study was to collect cost data on the complications associated with diabetes mellitus in Canada and Australia for use in a published, validated computer simulation model of the disease. METHODS: A search for costs data was performed in PubMed to identify peer-reviewed cost data in Canada and Australia published in the last ten years. Costs not identified in the literature were gathered from published government reports (sources included reports from the Provincial Ministry of Health in Ontario and Newfoundland). All costs were inflated to 2004 values. Major complication costs are presented. RESULTS: The costs of diabetes complications are well documented in Canada, but there is a paucity of published cost data for Australia. No Australian cost data were identified, and a specialist research program has been initiated to generate this information. In Canada, the event costs for non-fatal myocardial