A MODELLED COST-EFFECTIVENESS ANALYSIS OF SWITCHING PATIENTS WITH POORLY CONTROLLED TYPE 2 DIABETES TO INSULIN DETEMIR FROM ORAL ANTIDIABETICS OR NPH IN THE AUSTRIAN SETTING; DATA FROM THE PREDICTIVE STUDY

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OBJECTIVE: This is a health economic evaluation of the long acting insulin analogue, insulin detemir (IDet) when type 2 diabetes patients are switched from either oral antidiabetics (OAD) or from neutral protamine Hagedorn (NPH) insulin. The data used as clinical input for the analysis was the Austrian subpopulation of the large observational trial, PREDICTIVE.

METHODS: A published validated diabetes model was used to estimate the long-term cumulative incidence of complications, life expectancy (LE), quality-adjusted life expectancy (QALE) and lifetime costs when switching to IDet from OADs or NPH. The outcomes were modeled based on the clinical findings and validated Austrian costs and treatment patterns. The analysis used the third party health care payer perspective. Future costs and clinical benefits were discounted at 5% per annum.

RESULTS: Conversion to insulin detemir was projected to improve life expectancy by 0.624 years when switching from OADs and 0.201 years from NPH. Quality-adjusted life years (QALYs) increased by 0.52 versus OADs and 0.368 versus NPH. Direct medical costs over patient lifetimes were projected to be increased by €5855 compared to OAD-treatment and €2206 versus NPH treatment. Thus, incremental cost-effectiveness ratios of IDet versus OAD and NPH treatment were €10,739 and €5,996, respectively. Estimates were controlled by multiple sensitivity analyses and were found to be robust. Probabilistic sensitivity analyses showed that the cost-effectiveness acceptability percentages with a threshold of €30,000 were 100% for OAD switch and 99.9% for NPH switches. CONCLUSION: Short-term improvements seen when switching to IDet from OADs or NPH were projected to show improvements in quality-adjusted life expectancy with a cost-effectiveness ratio which fell well within the range usually considered acceptable value for money.

COST-EFFECTIVENESS OF DETEMIR VERSUS NPH FOR TYPE 1 DIABETES PATIENTS TREATED WITH BASAL-BOLUS THERAPY IN PORTUGAL

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OBJECTIVE: A pooled analysis of three clinical trials showed the therapy benefits of treating type 1 diabetic patients (mean age 40.3 years, duration of diabetes 16.3 years, HbA1c 8.3%, BMI 25.2 kg.m−2) with insulin detemir (IDet) versus neutral protamine Hagedorn (NPH) insulin as the basal component of basal-bolus therapy when used in combination with either insulin aspart (IAsp) or human soluble insulin (HSI). The analysis demonstrated a short-term improvement for detemir over NPH in HbA1c (0.13% points lower), a decrease in hypoglycemic events (by 4%) and lower body mass index (BMI) (0.21 kg.m−2).

METHODS: A published validated diabetes model was used to estimate the long-term cumulative incidence of complications, life expectancy (LE), quality-adjusted life expectancy (QALE) and lifetime costs for IDet versus NPH regimens. Treatment pattern and costs in the Portuguese setting were taken from published sources and validated with clinical experts. All outcomes were discounted at 5% annually. RESULTS: The IDet arm was associated with an increase in life expectancy, compared to NPH, of 0.062 years with a resulting gain in QALE of 0.184 quality-adjusted life years, QALYs (±SD) (6.3 ± 0.06 versus 6.12 ± 0.06 QALYs) due to a reduction in diabetes-related complications. Increased treatment costs for IDet resulted in greater total lifetime costs per patient than with NPH (€37,760 ± 743 versus €33,403 ± 738), leading to an incremental cost-effectiveness ratio of €23,691 per QALY gained. The results were robust when tested for parameter sensitivity. Cost-effectiveness acceptability with a threshold of €50,000 is 90%. CONCLUSION: Short-term improvements seen with IDet versus NPH in basal-bolus therapy were projected to show improvements in quality-adjusted life expectancy with a cost-effectiveness ratio which fell well within the range usually considered acceptable value for money.

ECONOMIC EVALUATION OF LONG TERM SOMATOSTATIN ANALOGS IN THE TREATMENT OF ACROMEGALY IN MEXICO

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OBJECTIVE: To compare medical costs between long term somatostatin analogs, lanreotide Autogel and octreotide LAR in the treatment of patients with Acromegaly, from an institutional perspective.

METHODS: Cost-effectiveness analysis using a decision tree model that simulates the cost and efficacy of the treatment of acromegaly with long term somatostatin analogs, for a temporary horizon of 15 months was conducted. The effectiveness measure was the percentage of patients achieving a reduction in IGF-1 and growth hormone levels, obtained from clinical trials published in international literature. The average dose used in the analysis was 96.9 for lanreotide Autogel and 26.4 for octreotide LAR. Only direct medical costs were considered in the analysis. Costs were estimated using 2007 prices and are expressed in United States dollars (exchange rate of 10.93 pesos per US dollar).

RESULTS: The treatment with lanreotide Autogel showed the best average cost per acromegalic patient treated with $21,645.60, followed by the treatment with octreotide LAR with a cost of $24,614.40. Thirty percent of patients achieved a reduction of IGF-1 and growth hormone to safe levels with both treatments. Thus, the treatment with lanreotide Autogel had the lowest cost per successfully treated patient: $72,151.90; followed by the treatment with octreotide LAR and 99.9% for NPH. Reduction of IGF-1 and growth hormone to safe levels with both treatments. Thus, the treatment with lanreotide Autogel had the lowest cost per successfully treated patient: $72,151.90; followed by the treatment with octreotide LAR and 99.9% for NPH. The univariate and probabilistic sensitivity analysis both showed that results of the base analysis do not change, provided that the price ratio of comparators is less than 1.18. CONCLUSION: The percentage of patients achieving normal IGF-1 and growth hormone levels is similar for both treatments. Lanreotide Autogel is the treatment associated with a lower drug cost in the Mexican context.

COST MINIMIZATION ANALYSIS OF DIFFERENT GROWTH HORMONE DEVICES BASED ON TIME-AND-MOTION SIMULATIONS

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OBJECTIVES: Premixed and prefilled disposable devices are now available to administer liquid Human Growth Hormone (hGH). The study objective was to conduct a Cost Minimization Analysis
RESULTS: Two pen devices (Norditropin NordiFlex NNF, Norditropin NordiPen NNP) take less Total Time (<) to use than the comparators (Genotropin GTP < Humatrope Pen HTP, p < 0.05). Most time savings were directly related to differences in Learning (p < 0.05) and Preparation times (p < 0.05). Between the four hGH devices, the NNF/NNP pens appeared easier to learn to use than the HTP/GTP pen devices (NNF = NNP < HTP < GTP, p < 0.05) and were also easier to prepare for use (GTP < HTP, p < 0.05). User “learning curve” slopes decreased with practice (p < 0.05) over the five trials. Once any product was prepared for use, Administration and Storage times were nearly identical (p > 0.05). Parental time cost (opportunity cost) savings were greater in devices that were easier to Learn and Prepare for use (NNF 16% < NNP 24% < GTP 7% < HTP). Supplies costs were <1% of drug costs for all devices. CONCLUSIONS: Simulation-generated data demonstrated the value of multi-dimensional product-device analysis and revealed that NNF and NNP took less Total Time vs. comparators.

Abstracts

PDB35

CLINICAL AND ECONOMIC CHARACTERISTICS OF PATIENTS WITH DIABETIC NEUROPATHY
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OBJECTIVE: To examine medical conditions associated with diabetic neuropathy (DN) and to identify drivers of health care charges and utilization using administrative claims database.

METHODS: We studied commercially-insured individuals aged 18–64 with 24 months continuous enrollment in a national health plan. DN patients were identified by having ≥1 claim with a DN diagnosis between July 2004 and June 2005. Using propensity scoring, we selected a demographically-matched control cohort of patients with diabetes (10:1 ratio to DN). We compared disease prevalence, Year 2 distribution of charges, and reasons for ER visits and inpatient admissions between DN patients and controls. Logistic regression was used to assess the marginal contribution of DN to the most common reasons for ER and inpatient admissions controlling for differences in overall illness burden.

RESULTS: Compared with controls (n = 86,550), DN patients (n = 8,653) had more unique number of co-morbid medical conditions (9.7 vs. 6.8) and higher ($41,394 vs. $16,983) total medical charges. Both groups had the highest medical charges for inpatient services, followed by outpatient hospital and pharmacy use. Compared with controls, more DN patients had ER visits (13% vs. 9%), inpatient hospital encounters (28% vs. 13%), and longer hospitalizations (2.4 vs. 0.6 days). The top five reasons for ER visits were the same for both groups, with nonspecific backache being the most common. Three of the top five reasons for inpatient admissions were also the same: coronary atherosclerosis and other chronic ischemic heart disease, chest pain, and cellulitis. Controlling for excess illness burden, DN patients were still at a higher risk for hospitalizations due to chest pain, heart failure, and cellulitis.

CONCLUSION: DN patients had significantly more co-morbid medical conditions, ER visits, inpatient admissions, and longer hospitalizations than age-and-sex matched controls.

PDB34

ASSESSING DIFFERENCES IN UTILIZATION AND COSTS BETWEEN INSULIN DETEMIR (LEVEMIR®) AND INSULIN GLARGINE (LANTUS®) USERS

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OBJECTIVE: To assess differences in overall and diabetes-related cost and utilization between diabetes patients treated with insulin detemir and insulin glargine. METHODS: Retrospective data analysis included commercial enrollees in a large US health plan with medical and pharmacy benefits. Patients were identified if their first prescription claim (index) for insulin detemir or insulin glargine occurred between May 1, 2006 and December 31, 2006. Eligible patients were required to have 6 months of continuous enrollment pre- and post-index date, no evidence of insulin detemir or insulin glargine use during pre-index and an A1C reading during the pre-index period. Primary outcomes include daily average consumption (DACON) of insulin detemir or insulin glargine and overall and diabetes-related cost. Differences in outcomes between insulin detemir and insulin glargine users were adjusted for baseline characteristics through generalized linear modeling (GLM). Propensity score matching was used to reduce selection bias between the two groups. RESULTS: There were 153 insulin detemir and 640 insulin glargine patients in the study, with no significant difference in age, gender and diabetes types between the two groups. Adjusted DACON for insulin detemir users was 34.3 units/day compared to 32.9 units/day for insulin glargine users was 34.3 units/day compared to 32.9 units/day for types between the two groups. Adjusted DACON for insulin detemir or insulin glargine.

PDB36

HEALTH SERVICE COSTS AND RESOURCE UTILIZATION AMONG MANAGED CARE ENROLLEES WITH GOUT AND RENAL DISEASE

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OBJECTIVE: To examine health care expenditures and utilization among gout patients by severity of renal disease. METHODS: A retrospective claims analysis using commercial enrollees in a U.S. health plan age ≥18, treated with pharmaceuticals for incident gout between January 1, 2002 and December 31, 2005, without cancer. Annual health service costs and utilization were compared by severity of renal disease (using a claims-based algorithm) with descriptive analysis and generalized linear modeling (GLM).

RESULTS: Renal disease was evident in 745 (9%) of 8039 sub-