associated with significantly lower inpatient ($4,212 vs $7,532, p < 0.0001), outpatient ($9,501 vs $12,885, p < 0.0001), and emergency room costs ($82 vs $131, p < 0.0001) and significantly higher drug costs ($6,885 vs $5,936, p < 0.0001). Similarly, the use of exenatide compared to insulin glargine was also associated with significantly lower diabetes-related inpatient ($2,172 vs $3,538, p < 0.0001) and outpatient costs ($2,739 vs $3,249, p < 0.0001) and significantly higher diabetes-related drug costs ($3,160 vs $2,424, p < 0.0001). CONCLUSIONS: Use of exenatide, compared to insulin glargine, was found to be associated with significantly lower annual total direct medical costs and total diabetes related medical costs even though diabetes related and total drug costs were higher.

PDB18

A COMPARISON OF COSTS AMONG PATIENTS WITH TYPE 2 DIABETES WHO INITIATED THERAPY WITH EXENATIDE OR SITAGLITIN

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OBJECTIVES: Compare costs among patients with type 2 diabetes (T2D) treated with either exenatide or sitagliptin, novel incretin therapies with differing clinical effectiveness.

METHODOLOGY: Data from September 2004 to September 2007 were obtained from a large, retrospective, claims database. Data from intent-to-treat cohorts of adults with T2D who initiated therapy on either exenatide (N = 1614) or sitagliptin (N = 2482) and who did not use the other medication in the six-month follow-up period were examined. Total medical costs and total diabetes-related medical costs were estimated using stepwise multivariate regressions. Major cost components were also examined using either stepwise multivariate regressions or in a two-part model that controlled for the probability of using the service. Smearing estimates were used to transform estimated log costs into costs. The analyses control for the potential impact of patient demographics, general health, prior resource use, comorbidities, and timing of treatment initiation.

RESULTS: Initiation on therapy with exenatide, compared to sitagliptin, was associated with significantly lower total direct medical costs ($8,736 vs $9,995, p < 0.0001) and total diabetes-related medical costs ($3,841 vs $4,002, p < 0.0001). Initiation of therapy with exenatide compared to sitagliptin was also associated with significantly lower inpatient ($745 vs $3,624, p < 0.0001), outpatient ($4,269 vs $5,942, p < 0.0001), drug ($3,467 vs $3,611, p < 0.0001) and emergency room costs ($16 vs $44, p < 0.0001). Similarly, the use of exenatide compared to sitagliptin was associated with significantly lower diabetes-related inpatient ($4,485 vs $1,847, p < 0.0001) and drug costs ($1,677 vs $1,743, p < 0.0001). CONCLUSIONS: Use of exenatide compared to sitagliptin over six months is associated with significantly lower total direct medical costs and total diabetes-related medical costs. In addition, exenatide was associated with significantly lower total inpatient, outpatient, drug, and emergency room costs and significantly lower diabetes-related inpatient and drug costs.

PDB19

ESTIMATING THE COST EFFECTIVENESS IN THE UK OF VILDAGLIPTIN COMPARED TO PIOGLITAZONE AS ADD-ON THERAPY TO METFORMIN USING THE SHEFFIELD TYPE 2 DIABETES MODEL

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OBJECTIVES: Vildagliptin is an alternative option to glitazones when treatment intensification is required due to loss of glycaemic control. Our analysis compares the clinical and cost-utility effects of these alternative treatments.

METHODOLOGY: The analysis uses the Novartis 24-week 2354 study results comparing vildagliptin 50mg BID to pioglitazone 30mg qd. The Sheffield Type 2 Diabetes Model, a patient-level disease management model, simulates use of therapies, clinical events, treatment of complications and mortality. Costs, including the £1.13 vildagliptin daily price and £1.20 for pioglitazone, and quality-of-life (QoL) effects, including those related to complications and weight effect of therapies, were aggregated to obtain the incremental cost per QALY. Uncertainty around key parameters, such as weight effects and long-term HbA1c trends, was explored using probabilistic sensitivity analysis and scenarios.

RESULTS: Assuming equal long-term HbA1c trends, the point estimate suggests that vildagliptin is cost effective compared to pioglitazone with a cost saving of £88 and reduction in QALYs of 0.006. The marginal net benefit of vildagliptin compared to pioglitazone is £77 (95% C.I. –23 to 177) with a 62% likelihood that vildagliptin is cost effective at a UK notional £20,000 cost/QALY threshold. The main driver is the cheaper cost of vildagliptin. There is a small QALY loss due to fewer CHD events with pioglitazone arising from its superior lipid effects, although this is mitigated by the QALY gain due to the weight neutrality of vildagliptin. The long-term HbA1c trends are highly important but uncertain assumptions, and conclusions about the cost effectiveness could change if evidence for different trends emerged.

CONCLUSIONS: The expected differences in lifetime costs and QALYs between vildagliptin and pioglitazone are small, with considerable uncertainty around key parameters. Results suggest a 62% likelihood that vildagliptin is cost effective compared to pioglitazone at a £20,000 cost/QALY threshold assuming similar long-term HbA1c trends.
Belgium (€122,737 versus €134,679), Germany (€74,880 versus €75,734) and Spain (€44,085 versus €44,661). In France and Italy, lifetime costs were slightly higher in the detemir arm (€63,605 versus €63,321 and €92,036 versus €90,139, respectively), leading to incremental cost-effectiveness ratios of €519 and €3256 per QALY gained, respectively. CONCLUSIONS: The findings of this analysis suggest that, compared to NPH, insulin detemir is likely to be dominant in Belgium, Germany and Spain and highly cost-effective in France and Italy in patients with type 1 diabetes.

**PDB21**

**COST-EFFECTIVENESS OF INSULIN GLARGINE PLUS ORAL ANTIDIABETIC DRUGS (OADs) COMPARED TO PREMIXED INSULIN FOR TYPE 2 DIABETES MELLITUS (T2DM) PATIENTS IN THE CANADIAN PAYER SETTING**

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OBJECTIVES: Canadian payers need information comparing the cost-effectiveness of different starter insulin therapies in order to make relevant formulary decisions and improve T2DM patient care. Our analyses compared the cost-effectiveness of insulin glargine with oral antidiabetic drugs (OADs) to premixed insulin as starter insulin therapy using published clinical data (Janka et al, 2005) and modeling the study results to a lifetime horizon. METHODS: The CORE Diabetes Model was used to project lifetime clinical and economic outcomes for T2DM patients. The baseline mean HbA\(_{1c}\) (8.85%), age, body mass index, gender, and duration of diabetes were taken from Janka et al. Remaining cohort characteristics, transition probabilities, utilities, direct treatment, and complication costs (from a Canadian Provincial payer perspective) were obtained from published sources. All costs and clinical outcomes were discounted at 5% per annum. RESULTS: Average lifetime total direct and medical costs per patient were CANS50,328 (+1,769) for insulin glargine with OADs and CANS49,555 (+1,940) for premixed insulin. Discounted life expectancy and quality-adjusted life years (QALYs) increased by 0.051(+0.286) years and 0.215(+0.216) QALYs, respectively, for insulin glargine with OADs compared to premixed insulin. The resulting incremental cost-effectiveness ratios (ICERs) for insulin glargine with OADs compared to premixed insulin were CANS15,217/life-year gained and CANS3,601/QALY. CONCLUSIONS: Cost-effectiveness for insulin glargine with OADs compared to premixed insulin was primarily driven by superior HbA\(_{1c}\) reductions from the Janka et al. study (–1.64% for insulin glargine with OADs vs. –1.31% for premixed insulin, p = 0.0003). The ICERs obtained in these analyses provide evidence for the long-term cost-effectiveness of insulin glargine with OADs compared to premixed insulin as an initial insulin therapy for Canadians with T2DM.

**PDB22**

**COST-EFFECTIVENESS OF INSULIN GLARGINE COMPARED TO INSULIN DETEMIR FOR TYPE 1 (T1DM) AND TYPE 2 DIABETES MELLITUS (T2DM) PATIENTS IN THE CANADIAN PAYER SETTING**

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OBJECTIVES: Canadian payers need information comparing the cost-effectiveness of long-acting insulin analogues (LAIAs) in order to make relevant formulary decisions. Our analyses compared the cost-effectiveness of insulin glargine with insulin detemir using published clinical data for both T1DM (Pieber et al, 2007) and T2DM (Rosenstock et al, 2008). METHODS: The CORE Diabetes Model was used to project lifetime clinical and economic outcomes for T1DM and T2DM patients in separate analyses. For T1DM, baseline mean HbA\(_{1c}\) (8.8%), age, body mass index, gender, and duration of diabetes were taken from Pieber et al. For T2DM, baseline mean HbA\(_{1c}\) (8.6%), age, body mass index, gender, race/ethnicity, and duration of diabetes were taken from Rosenstock et al. Remaining cohort characteristics, transition probabilities, utilities, direct treatment, and complication costs (from a Canadian Provincial payer perspective) were obtained from published sources for both T1DM and T2DM analyses. All costs and clinical outcomes in both analyses were discounted at 5% per annum. RESULTS: For T1DM, detemir was found to have higher overall direct medical costs (CANS2667 ± 4785) than glargine with a slight increase in quality-adjusted life years (QALYs, 0.053 ± 0.507). The resulting incremental cost-effectiveness ratio (ICER) was CANS30,569/QALY for glargine compared with detemir in T1DM. For T2DM, detemir was found to have higher overall direct medical costs (CANS5748 ± 2881) than glargine with a very slight decrease in quality-adjusted life years (QALYs, 0.005 ± 0.259). Glargine demonstrated lower direct medical costs and a slight improvement in QALYs compared with detemir and is therefore a dominant strategy in T2DM. CONCLUSIONS: Insulin glargine demonstrated cost-effectiveness in T1DM, consistent with current Canadian standards for health technology assessment, and was a dominant treatment strategy in T2DM for Canada.

**PDB23**

**COST-EFFECTIVENESS OF SOMATROPIN (NORDITROPIN) FOR THE TREATMENT OF GROWTH HORMONE DEFICIENT (GHD) CHILDREN IN A SWEDISH SETTING**

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OBJECTIVES: Reduced health-related quality of life (HRQoL) is a pronounced complication in short individuals with Growth Hormone Deficiency (GHD). Current treatment options for GHD children are limited; however, somatropin has been shown to normalise height in childhood and adolescence compared with no treatment. The aim of this study was to establish whether somatropin is a cost-effective treatment for GHD children compared with no treatment. METHODS: A cost-effectiveness model estimated the costs and health benefits over the lifetime of GHD children. Treatment efficacy was based on Height standard deviation scores (HSDS). A Swedish health care perspective was used. Unit costs (SEK; 2008) were obtained from official sources. A 3.0% discount rate was used. Clinical data (height, dosing and treatment duration) were obtained from a systematic literature review (only studies with n > 300). Utility data was derived from a published study assessing the relation between HSDS and HRQOL. Sensitivity analyses were conducted to assess the degree of uncertainty. RESULTS: Start HSDS was –2.8 (SD 0.8) and final HSDS was –1.5 (SD 0.8) with somatropin treatment. Untreated children gained no HSDS. The mean somatropin dose was 0.023 mg/kg/day over a duration of 5.1 years (SD 1.8). Over a patient’s lifetime, somatropin was associated with a gain of 2.3 quality adjusted life years (QALYs). Somatropin was associated with an incremental cost per QALY of 342,592 SEK compared with no treatment. Probabilistic sensitivity analysis, in which all parameters within the model were varied, showed that there was a high probability that somatropin was cost effective compared with no treatment, based on a willingness to pay threshold of 500,000 SEK per QALY.