hypoglycemic events as well as lower costs in treating major hypoglycemic events.

COST-EFFECTIVENESS OF INSULIN DETEMIR COMPARED TO NPH INSULIN FOR TYPE 2 DIABETES MELLITUS (T2DM) IN THE CANADIAN PAYER SETTING: MODELING ANALYSIS USING AN OBSERVATIONAL STUDY

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OBJECTIVE: Insulin detemir represents a class of long-acting soluble insulin analogues intended to address basal insulin requirements for patients with diabetes. Because direct acquisition costs of newer medications are higher than older insulin treatments, payers are interested in their long-term value. This study was conducted to quantify the long-term cost-effectiveness of insulin detemir compared to intermediate-acting NPH insulin for the treatment of T2DM in Canada.

METHODS: The CORE Diabetes Model was used to project lifetime clinical and economic outcomes for T2DM patients on insulin detemir versus NPH insulin. A slight advantage for insulin detemir in HbA1c (0.18%) and significant reductions in major (93%) and minor (73%) hypoglycemic events were modeled. These clinical assumptions, as well as cohort characteristics (baseline age and HbA1c of 59 and 8.3%, respectively), transition probabilities, utilities, dis-utilities, direct treatment and complication costs (from a Canadian provincial payer perspective) were derived from recent published literature and on-line sources. Both clinical and economic outcomes were discounted at 5% per annum.

RESULTS: Average total direct costs per patient were CANS$74,227 for insulin detemir and CANS$68,509 for NPH using a lifetime horizon. An 87% reduction in major hypoglycemic events costs for detemir (CANS$289) vs. NPH (CANS$2,244) were observed. Quality-adjusted life years (QALYs) increased by 0.304 years (discounted) with detemir and were largely due to decreased hypoglycemic events. The resulting incremental cost-effectiveness ratio (ICER) for detemir vs. NPH was CANS$18,840/QALY. CONCLUSION: The ICER obtained in this analysis provides evidence for the long-term cost-effectiveness of insulin detemir compared to NPH in T2DM and is consistent with current Canadian standards. The overall value of detemir was driven primarily by its favorable impact upon hypoglycemic events as well as lower costs in treating major hypoglycemic events.

COST-EFFECTIVENESS ANALYSIS OF CONTINUOUS SUBCUTANEOUS INSULIN INJECTION VS. MULTIPLE DAILY INJECTIONS IN TYPE 1 DIABETES PATIENTS: A CANADIAN PERSPECTIVE

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OBJECTIVE: To project long term costs and outcomes of continuous subcutaneous insulin infusion (CSI) compared with multiple daily injections (MDI) of insulin in adult type 1 diabetes mellitus (T1DM) patients in Canada.

METHODS: A valid health economic model was used to determine the incremental cost-effectiveness ratio (ICER) of CSI compared with MDI among adult patients with T1DM from a Canadian provincial government perspective. The primary input variable was change in HbA1c. A series of Markov constructs simulated the progression of diabetes-related complications. The annual cost for CSII and MDI were CND $6,347.18 and CND $4,650.20, respectively. The cost of pump, procedures, complications, and optimal drug therapy were derived from Canadian-specific sources and other published data. A 60-year time horizon and a discount rate of 5.0% per annum on costs and clinical outcomes were used.

RESULTS: Treatment with CSI vs. MDI was associated with an improvement in quality-adjusted life years (QALYS) gained of 1.061, 0.657, 0.467 and 0.760 for adults in the USA, CAN, AUS and the UK, respectively. ICERs were USD$16,992, CANS$23,797, AUS$74,147 and $25,648 per QALY gained for CSI vs. MDI in adults with T1DM. Improved glycemic control from CSI treatment led to a lower incidence of diabetes complications; most prominently for proliferative diabetic retinopathy, end-stage renal disease and peripheral vascular disease. CONCLUSION: Setting the willingness to pay at the accepted level for each country (USD$50,000/QALY, CANS$50,000/ QALY, AUS$76,000/QALY and $30,000/QALY), the analyses demonstrated that CSI is a cost-effective treatment option for all four countries when compared to MDI for adult T1DM patients.