

PDB20

**COST-EFFECTIVENESS OF INSULIN DETEMIR VERSUS NPH FOR TYPE 1 DIABETES PATIENTS IN AN ITALIAN SETTING. A META-ANALYSIS**

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**OBJECTIVES:** A meta-analysis of the results from three clinical trials in type 1 diabetes patients showed that insulin detemir (IDet) based basal-bolus treatment compared to neutral protamine Hagedorn (NPH) insulin based basal-bolus therapy led to improved HbA1c (0.13% points lower), a decrease in hypoglycaemic events (by 4%) and lower body mass index (BMI) (0.21 kg.m<sup>-2</sup>). **METHODS:** A published, validated, peer-reviewed computer simulation model of diabetes (the CORE Diabetes Model) was used to project short-term results obtained from the fixed-effects (weighted average) meta-analysis to long-term clinical and cost outcomes (including life expectancy, quality adjusted life expectancy, incidence of complications, and direct medical costs) for IDet versus NPH in type 1 diabetes patients, when used in combination with either insulin aspart (IAsp) or human soluble insulin (HSI) as the bolus component of therapy. Probabilities of complications were derived from landmark clinical and epidemiological studies and the costs of treating complications in Italy were retrieved from published sources. Total direct costs (complications + treatment costs) for each arm were projected over patient lifetimes from an Italian Health Service perspective. Both costs and clinical outcomes were discounted at 3% annually. **RESULTS:** Improved glycaemic control, decreased hypoglycaemic events and lower BMI with IDet-based basal-bolus therapy led to fewer diabetes-related complications, an increase in quality-adjusted life expectancy of 0.185 quality-adjusted life years (QALYs) (7.71 ± 0.09 versus 7.53 ± 0.09 QALYs), increased total lifetime costs/patient of €5,680 (€104,234 ± 2354 versus €98,554 ± 2124), and an incremental cost-effectiveness ratio of €30,704 per QALY gained. Results were stable under variation in a range of reasonable assumptions. **CONCLUSION:** The increased cost of therapy for IDet versus NPH is partly offset by reductions in the treatment costs of complications and, given the associated clinical benefits, leads to a cost-effectiveness ratio which falls within a range generally considered to represent excellent value for money (<€50,000/QALY gained).

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**COST-EFFECTIVENESS OF STRICT "GET TO GOAL" TREATMENT DIRECTIVES IN THE TREATMENT OF YOUNGER PATIENTS WITH NEWLY DIAGNOSED TYPE 2 DIABETES MELLITUS (T2DM)**

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**OBJECTIVES:** Long-term T2DM outcomes trials have demonstrated that intensive pharmaceutical therapy improves outcomes by delaying complications, thus supporting HbA1c targets (the ADA and EASD currently suggest 7.0%). Achieving such targets in actual practice is difficult. Whether intensifying treatment to achieve this goal is socially optimal, however, depends on whether the benefits compare favorably to incremental therapy costs. This study estimates the cost-effectiveness in younger, newly diagnosed T2DM in the US of "treat to goal" therapy intensification at HbA1c 7.0% compared to less strict therapy intensification at 8.5% often seen in actual practice **METHODS:**

A Markov simulation model of T2DM was used to estimate health benefits and direct medical care costs for 1000 newly diagnosed patients, aged 40–50, each simulated 100 times. The treatment sub-model builds on previous efforts, including explicit HbA1c goals, treatment failure, dose escalation (half then maximal doses), and drug switches. The following simplified algorithm was used: begin with metformin (MET), add sulfonylurea (SULF) at 1st treatment failure, discontinue SULF and add thiazolidinedione (TZD) at 2nd treatment failure, and finally discontinue TZD and begin insulin therapy. **RESULTS:** Maintaining HbA1c less than 7.0% led to 0.42 additional quality-adjusted life-years (QALYs) relative to maintaining HbA1c under 8.5%. Reductions in costs related to micro- and macrovascular complications offset all but \$874 of the medicine cost increases. The corresponding incremental cost per QALY gained is \$2185. **CONCLUSION:** The joint ADA/EASD guideline was cost-effective relative to maintaining HbA1c below 8.5%. Further refinement of the simulated treatment algorithm will improve the usefulness for public policy decision-making.

PDB22

**EVALUATING THE LONG-TERM COST-EFFECTIVENESS OF INSULIN ASPART (NOVORAPID®) VERSUS HUMAN SOLUBLE INSULIN IN PATIENTS WITH TYPE 2 DIABETES IN SPAIN AND ITALY**

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**OBJECTIVES:** Although it has been shown that rapid acting modern insulins such as insulin aspart (IAsp, NovoRapid) provide a more convenient and predictable onset of action compared to human soluble insulin (HSI), widespread acceptance of modern insulins will also depend on economic considerations. The aim of this study was to assess the cost-effectiveness of switching type 2 diabetes patients receiving HSI to IAsp, with or without oral hypoglycemic agents, in the Spanish and Italian settings. **METHODS:** Short-term data from the PREDICTIVE (Predictable Results and Experience in Diabetes through Intensification and Control to Target: an International Variability Evaluation) study were used to make long-term (35-years) projections of clinical and cost outcomes using the CORE Diabetes Model, a published and validated computer simulation model. Costs expressed in 2006 Euro (€) values and clinical outcomes were discounted at 3.5% per annum. The analysis was conducted from a third party health care payer perspective. **RESULTS:** In the Spanish and Italian settings, treatment with IAsp was projected to increase patient life expectancy by 0.101 and 0.164 years and to improve quality-adjusted life expectancy by 0.08 and 0.12 quality-adjusted life years (QALYs), respectively, compared to HSI. Treatment with IAsp was associated with a decrease in direct costs in the Spanish setting (reduced by €1382) and an increase in costs in Italy (€1874) compared to HSI over patient lifetimes. IAsp was dominant to HSI in Spain and associated with an incremental cost-effectiveness ratio of €15,593 per QALY gained in the Italian setting. **CONCLUSION:** IAsp treatment was projected to result in reduced diabetes-related complications and improved life expectancy compared to HSI in both settings investigated. The analysis indicated that IAsp would be dominant compared to HSI in Spain and in Italy would represent good value for money based on commonly quoted willingness-to-pay thresholds.