OBJECTIVES: We conducted a cost-effectiveness analysis of two dipeptidyl-peptidase inhibitors, saxagliptin and linagliptin, used in combination with metformin for the treatment of Type II diabetes. **METHODS:** A decision tree model was developed using cost and effectiveness data for saxagliptin + metformin and linagliptin + metformin using published literature. Costs were evaluated using third party payer's perspective and included costs of drugs, physician visits, lab tests, hospital costs, and costs associated with adverse events. All costs were adjusted to 2013 dollars using consumer price index and were calculated for a period of one year. A comprehensive literature review of Pubmed, Cochrane library and Google Scholar was conducted to obtain data for clinical efficacy and costs. Clinical efficacy values were obtained from randomized clinical trials. The primary efficacy measure was the proportion of participants achieving HbA1c levels <7.0%. Base case analysis was analyzed as incremental cost per effective treatment. One way sensitivity analysis was performed by varying costs by 10% associated with drug treatment to evaluate the robustness of the model. **RESULTS:** In the base-case analysis, saxagliptin was found to have better clinical outcomes and lower costs than linagliptin as a combination therapy with metformin with an incremental cost effectiveness ratio of 30.51. Considering only direct costs for the treatment, expected cost per effective treatment for a year was found to be $179.25 for saxagliptin while that for linagliptin was $298.99. Sensitivity analysis also indicated saxagliptin to be the dominant treatment option. **CONCLUSIONS:** Saxagliptin in our study was found to be favored over linagliptin in combination with metformin for the treatment of Type II Diabetes. These results may help decision makers develop appropriate treatment options. Type II diabetes being a lifestyle disorder, further research by inclusion of indirect costs associated with the treatment options may help strengthening the results.

PDB76

WEIGHT GAIN, HYPOGLYCAEMIA AND COST-EFFECTIVENESS: WHAT DRIVES VALUE AMONG TYPE 2 DIABETES TREATMENTS IN THE SHORT TERM

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OBJECTIVES: Current treatment options for managing type 2 diabetes (T2D) have significant and varied effects upon patient weight and the incidence of hypoglycaemia. In the short term, and from the patient's perspective, the absolute clinical effects of therapies are usually observed in the year succeeding therapy initiation. Consequently there has been a growing interest among payers and providers to understand the influence of weight and hypoglycaemia on the cost-effectiveness of T2D treatments. **METHODS:** With this in mind we developed an economic model that quantified the quality of life and cost consequences associated with different oral treatment strategies over a 1-year time horizon, focusing on the effect of weight change and incidence of hypoglycaemia. We illustrate these issues in patients adding dapagliflozin (DAPA) or DPP-4 inhibitors (DPP-4i) to metformin mono-therapy (MET). Data describing costs, utilities and absenteeism were sourced from the published literature. The model adopts a US societal perspective by including direct and indirect costs and benefits and US specific data where possible. **RESULTS:** The mean (95% CI) quality adjusted life year (QALY) difference in the DAPA vs. DPP-4i comparison (0.02: 0.75 vs. 0.73) was driven by the weight advantage of DAPA with no appreciable difference in expected costs ($34: $8,426 vs. $8,392): DAPA was cost-effective with a cost per-QALY gained estimate of $2,090. **CONCLUSIONS:** In the context of this evaluation the driver of economic value over the 1-year period following therapy initiation was weight reduction mediated through quality of life gains; whilst a lower incidence of hypoglycaemia was associated with cost offsets in medical expenditure and quality of life gains, there was no appreciable difference in rates of hypoglycaemia, and hence hypoglycaemia did not drive cost-effectiveness, between the two groups.

PDB77

SHORT-TERM ECONOMIC AND CLINICAL OUTCOMES OF CANAGLIFLOZIN COMPARED TO SITAGLIPTIN IN THE MANAGEMENT OF TYPE 2 DIABETES MELLITUS (T2DM)

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OBJECTIVES: Short-term cost per outcome analyses focusing on efficient attainment of desired health care outcomes, including quality measures can be useful decision-making tools for managed-care payers. Therefore, a simple cost-efficiency model was developed to compare the short-term (i.e., 1-year) clinical and economic outcomes of treating hyperglycemia with canagliflozin versus sitagliptin in people with T2DM. **METHODS:** Data on clinical efficacy and key adverse events (AEs) were obtained from a pooled analysis of 2 comparative trials of canagliflozin 300 mg/day versus sitagliptin100 mg/day. Wholesale drug acquisition costs were used. The total and diabetes-related cost savings associated with achieving (vs. not achieving) A1C<7% was specified as $3,055/year and $1,651/year, respectively, based on previously reported claims database analysis. Savings of $288/year associated with 1% decrease in weight, sourced from the literature was applied. AE-related costs (i.e., $105-$154/genital mycotic infections and $532/hypoglycemia requiring third-party assistance) were derived from treatment algorithms, literature, and reimbursement rates. Total costs, average and incremental costs/key outcomes were calculated. **RESULTS:** In the simplest analysis evaluating drug cost/outcome only, where annual drug-related costs were similar (canagliflozin 300 mg $3,660 vs sitagliptin $3,594), the average cost/patient achieving A1C<7% were lower for canagliflozin 300 mg compared to sitagliptin ($7,162 vs $8,398/patient per year, respectively). Likewise, the average cost per 1% reduction in A1C were lower for canagliflozin 300 mg versus sitagliptin ($3,893 vs $5,364). In a comprehensive analysis including medical, drug, and adverse event costs, canagliflozin 300 mg dominates sitagliptin in incremental cost efficiency in A1C goals. Canagliflozin 300 mg resulted in net savings of $639 per patient / year compared to sitagliptin. **CONCLUSIONS:** Based on inputs and assumptions used in this model, this 52-week economic analysis suggests that canagliflozin 300mg is likely to be a cost-saving treatment option compared with sitagliptin 100 mg when used in combination with other antihyperglycemic agents to treat T2DM.

PDB78

THE COST-EFFECTVENESE OF LIRAGLUTIDE VS EXENATIDE FOR THE TREATMENT OF TYPE 2 DIABETES IN THE UNITED STATES

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INTRODUCTION: The global clinical and economic burden of type 2 diabetes is substantial. New GLP-1 receptor agonists have shown a multifactorial clinical profile with the potential to address many of clinical needs. **OBJECTIVES:** The objective of this study is to evaluate the cost-effectiveness of once-daily liraglutide vs. once-weekly exenatide in patients who had failed in metformin, sulfonylurea, or both treatments. **METHODS:** A Markov model is made to predict life expectance and QALYs of liraglutide and exenatide. Baseline characteristics are consistent with DURATION-6 clinical trial. Simulations were run over 35 years (one year as a cycle) from a third-party payer perspective. Future costs and benefits are discounted at 3%. 5 health states were included in the model: "No complications", "Microvasular complications", "Macrovasular complications", "both complications" and "Death". Data was extracted from previous studies, head-to-head clinical trial, U.S. consumer Price Index, U.K. Perspective Diabetes Survey, Action in Diabetes and Vascular Disease trials, Action to Control Cardiovasular Risk in Diabetes trials and National Health Interview Survey data. The transition probabilities in the model vary by the age and gender of the patients to simulate the natural progression of type 2 diabetes. **RESULTS:** Liraglutide is associated with improvement of 0.15 QALY. Even though it costs more than exenatide, it is still more cost-effective than exenatide. The incremental cost-effectiveness ratios per QALY gained with liraglutide is $138,282 (2013 US$), which is less than 3 times GDP per capita in 2013. Sensitivity analysis was done. Figures in the model were adjusted reasonably, and the results remain robust. In other word, liraglutide is more cost-effective than exenatide. **CONCLUSIONS:** Long-term projections indicated that liraglutide (injected daily) is more cost-effective than exenatide (applied weekly).

PDB79

CONTRASTING COST EFFECTIVENESS RESULTS DERIVED FROM THE UKPDS 68 AND 82 RISK EQUATIONS IN TYPE 2 DIABETES

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OBJECTIVES: The IMS CORE Diabetes Model (CDM) is a widely published and previously validated decision support tool. The model uses the UKPDS 68 risk equations (REs) to predict events and has been updated to include the UKPDS 82 REs. The objective of this study was to compare cost-effectiveness (CE) results obtained via the UKPDS 82 and 68 REs. **METHODS:** Lifetime analyses were conducted using the CDM to evaluate the CE of metformin+ sulphonylurea (M+S) compared to metformin + DPP-4 (M+D). Basal insulin rescue therapy (BI) was applied to both arms at HbA1c threshold levels of 7.5%. Efficacy data for dual therapy was sourced from a published mixed treatment comparison; HbA1c and BMI change of -0.8% and 0.199kg/m2 (M+D);-0.79% and 0.707kg/m2 (M+S) and -0.82 and 0.545 kg/m2 (BI), respectively, were applied. Hypoglycemia rates were estimated based on odds ratios from the same systematic review. Results were obtained using for the UKPDS 82 and UKPDS 68 REs. US 2012 costs were used and discounting was applied at 3.5%. **RESULTS:** Quality adjusted life expectancy was 8.157 and 8.038 in patients treated with M+D and M+S using UKPDS 68 REs and 7.851 and 7.733 using UKPDS 82 REs. Total direct costs were estimated at $77,656 and $66,276 respectively for patients treated with M+D and M+S using UKPDS 68 REs and $59,130 and $47,664 respectively using UKPDS 82 REs. Incremental differences between REs were less pronounced; incremental costs per quality adjusted life year (QALY) gained were $96,088 and $97,545 using UKPDS 68 compared to UKPDS 82 REs. **CONCLUSIONS:** The UKPDS risk equations are widely used in type 2 diabetes cost-effectiveness models. While the new equations predict appreciable differences in absolute costs and quality adjusted life expectancy the incremental differences were marginal. Consequently health economic evaluations using the new UKPDS82 equations appear unlikely to result in significantly different results compared with the UKPDS68 REs.

PDB80

ILLUSTRATING THE RELATIONSHIP BETWEEN THE NUMBER OF HYPOGLYCAEMIA EVENTS, EVENT RATE REDUCTION AND THE IMPACT ON ESTIMATES OF QUALITY OF LIFE IMPROVEMENT IN HEALTH ECONOMIC STUDIES

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OBJECTIVES: Independent studies have demonstrated that the health utility gain associated with the per-event avoidance of non-severe hypoglycaemia episodes (NSHE) varies according the baseline rate. Despite this many health technology assessments persist in using a mean per-event health disutility. The objective of this study was to quantify the bias introduced into an economic evaluation when using an average (static) disutility compared to a baseline event rate adjusted (diminishing) disutility. **METHODS:** We compared the one year disutility of daytime NSHE for an increasing annual event rate of 1, 5, 10 and 20 events per year. Disutility was assessed using a published non-linear approach assuming diminishing marginal disutility (D1) and compared to a static approach (S1) assuming a constant utility decline of 0.0052 per NSHE. Incremental utility was assessed assuming a comparator intervention associated with (A) 1 NSHE less per year and (B) a 50% reduction in NSHE rate. **RESULTS:** The disutilities associated with NSHE event rates of 1, 5, 10 and 20 events per year were 0.014, 0.024, 0.031 and 0.039 respectively using the marginal disutility assumption (D1) and 0.005, 0.026, 0.052 and 0.104 respectively using the static approach (S1). Utility gain for 1 NSHE avoided per year was 0.014, 0.002, 0.001 and 0.001 (D1) and 0.005, 0.005, 0.005 and 0.005 (S1), respectively. Assuming a 50% reduction in the rate of NSHE was associated with utility gains of 0.007, 0.005, 0.006