

similar medication adherence and total medical costs however; exenatide patients had significantly lower total pharmacy costs.

#### PDB52

##### COST-EFFECTIVENESS OF RENAL SCREENING STRATEGIES AND TREATMENT OPTIONS FOR PATIENTS WITH TYPE 1 DIABETES IN THE UNITED KINGDOM

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**OBJECTIVES:** To evaluate the cost-effectiveness of alternative renal screening strategies and implications for blood pressure treatment in patients with type 1 diabetes. This required development of a discrete time simulation model for type 1 diabetes patients to estimate quality-adjusted life years (QALYs). **METHODS:** We synthesized evidence on type 1 diabetes patients using several published sources. The simulation model was based on eleven equations to estimate transitions between health states. Screening identified patients with impaired renal function whom were then assigned angiotensin-converting enzyme inhibitors (ACE-I) to lower blood pressure and improve renal function. Screening intervals were varied from 1 year to 10 yearly intervals and compared to current UK guidelines of annual screening. Outcomes were expressed in QALYs based on utilities of different diabetes complications obtained from a meta-analysis. Costs of the monitoring program, treatment and hospitalisation from diabetes-related complications were included. 1000 patients (mean age 15 years) were simulated for 85 years and cost-effectiveness analyses performed. Costs and effects were discounted at standard rates. Uncertainty surrounding these results was also calculated. **RESULTS:** When comparing annual screening to biennial screening, the reduction in the number of patients on ACE-I reduces both costs and QALYs, showing an incremental cost-effectiveness (ICER) ratio of £9,718 per QALY. Increasing the screening interval to 5 years resulted in further reductions in both costs and QALYs, and an ICER well within the National Institute of Health and Clinical Excellence's (NICE) recommended threshold. Sensitivity analyses showed universal treatment increased survival rates when compared to annual screening and no treatment by an additional 4.4 and 5.5 years, respectively. **CONCLUSIONS:** Renal screening for people with type 1 diabetes is cost-effective in the UK context compared to other funded health interventions. Further research is required to determine whether universal treatment is a policy that is worth pursuing in the long term.

#### PDB53

##### COST-EFFECTIVENESS OF SAXAGLIPTIN (ONGLYZA®) IN TYPE 2 DIABETES IN SOUTH AFRICA

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**OBJECTIVES:** It is currently estimated that 2 million South Africans suffer from Type 2 Diabetes. Experts agree that the burden of diabetes is unacceptably high. Thus access to appropriate treatment is a priority for the country. The objective of this study was to investigate the cost effectiveness of saxagliptin (Onglyza®), a DPP-4 inhibitor, plus metformin compared with a sulphonylurea (SU) plus metformin (MET) in South African patients not well controlled on metformin alone. **METHODS:** Data from a 52 week clinical trial comparing saxagliptin and sulphonylurea in combination with metformin was used in a simulation model to estimate long term complications in a cohort of type 2 diabetes patients. The model estimates the incidence of microvascular and macrovascular complications, diabetes-specific mortality, all-cause mortality, and ultimately, costs and quality-adjusted life years (QALYs) associated with the investigated treatment strategies. Costs and QALYs were estimated for a lifetime time horizon and discounted at 5%. The perspective of private health care funders was used. **RESULTS:** Compared with SU+MET, the cost per QALY gained with saxagliptin+MET is approximately ZAR 35,566. Patients on saxagliptin+MET gain 0.1 QALYs on average when compared to SU+MET, at an incremental cost of around ZAR 3775. The cost-effectiveness results were robust to various sensitivity analyses. The improvement in quality of life was associated mainly with lower incidence of hypoglycaemic events and modest reductions in both macro and micro vascular complications in the cohort receiving saxagliptin plus metformin compared with SU+MET. **CONCLUSIONS:** This study demonstrates that, over a patient's lifetime, the addition of saxagliptin to metformin is associated with improvements in quality-adjusted life years compared with SU in patients with type 2 diabetes. Saxagliptin treatment is a cost-effective treatment alternative for type 2 diabetes in patients not well-controlled on metformin alone.

#### PDB54

##### SAXAGLIPTIN OR SULFONYLUREA AFTER METFORMIN SECONDARY FAILURE: A COST-EFFECTIVENESS ANALYSIS IN COLOMBIA

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**OBJECTIVES:** To evaluate the cost-effectiveness of saxagliptin plus metformin versus sulphonylurea plus metformin in T2DM patients, who cannot achieve glycemic goals with metformin monotherapy, in Colombia. **METHODS:** Cost effectiveness analysis was performed using a discrete event simulation model with fixed time steps (Cardiff Diabetes Model). The characteristics of the patients included in this study and the efficacy profile for each treatment were obtained from the published literature. The cost of medication was obtained from SISMED and Farmaprecios, and the macro and microvascular events were based on POS tariffs, SOAT Manual

and consultation with a local expert. The time horizon was 20 years and the applied discount rate on costs and benefits was 3.5%. One-way and probabilistic sensitivity analyses were performed for parameters and model assumptions. **RESULTS:** The group treated with saxagliptin combination had fewer fatal and nonfatal events and fewer episodes of hypoglycemia than the sulphonylurea combination population. In both treatment groups the costs are driven by drug costs and treatment costs associated with myocardial infarction. The incremental cost of saxagliptin combination therapy over 20 years was US\$555.552. Treatment with saxagliptin plus metformin resulted in a greater number of quality-adjusted life years (QALYs) and life-years gained (LYG) than the sulphonylurea combination (9.758 vs. 9.504 and 11.786 vs. 11.758 respectively). The cost per QALY gained was US\$2190. Cost-effectiveness results were robust to sensitivity analysis. **CONCLUSIONS:** Considering the GDP per capita in Colombia (US\$6,348), our results suggest that the addition of saxagliptin to metformin in patients who do not achieve adequate glycemic control with metformin monotherapy, is highly cost-effective compared with the addition of sulphonylurea.

#### PDB55

##### ESTIMATING THE COST-EFFECTIVENESS OF PREMIXED ANALOG INSULIN VERSUS LONG ACTING ANALOG BASAL INSULIN AND PREMIXED HUMAN INSULIN IN THE MANAGEMENT OF TYPE 2 DIABETES: A LONG TERM ANALYSIS IN THE UNITED KINGDOM (UK)

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**OBJECTIVES:** Analog insulin has become increasingly popular despite higher per unit price compared to human insulin. This study evaluated the cost-effectiveness of two premixed analog insulin preparations, compared with long-acting analog insulin (LAAI) and pre-mixed human insulin (PHI) from the perspective of a UK health care payer. **METHODS:** The CORE Diabetes Model (IMS Health) was used to evaluate the cost-effectiveness of biphasic insulin [insulin lispro 75/25 (LM75/25) and 50/50 (LM50/50)] versus LAAI and PHI. Treatment effects were taken directly from a recent Agency for Healthcare Research and Quality (AHRQ) meta-analysis, while pharmacy, complication and patient management costs were taken from published sources, expressed in 2008 pounds sterling. Future costs and clinical benefits were discounted at 3.5% per annum. Sensitivity analyses included: A1C effect, relative risk (RR) of hypoglycemia, time horizon, discount rate, diabetes treatment and complication costs, and method of quality adjusted life expectancy estimation. **RESULTS:** LM75/25 and LM50/50 increased discounted quality-adjusted life expectancy (QALE) by 0.10 and 0.12 quality-adjusted life years (QALYs), respectively, and reduced total lifetime direct medical costs (LM75/25:£20,809 LAAI:£22,234; LM50/50:£20,680 LAAI:£21,292), dominating LAAI. Compared to PHI, both LM75/25 and LM50/50 increased QALE (by 0.03 QALYs) and total lifetime direct medical costs (LM75/25/LM50/50:£18,499 PHI:£18,494), resulting in an incremental cost effectiveness ratio of £146/QALY on a weighted mean A1C benefit of 0.06% in both cases. The only sensitivity analyses in which LM75/25 and LM50/50 were not cost-effective compared to LAAI or PHI were those in which the least favorable bound of the 95% confidence intervals for RR of hypoglycemia or A1C difference were used. **CONCLUSIONS:** Based on the findings of the AHRQ meta-analysis, and assuming a cost/QALY threshold of £30,000/QALY, LM75/25 and LM50/50 would be considered cost-effective when compared with PHI and dominant when compared with LAAI from the perspective of the UK health care payer.

#### PDB56

##### EVALUATING THE SHORT-TERM COST-EFFECTIVENESS OF LIRAGLUTIDE VERSUS SITAGLIPTIN IN PATIENTS WITH TYPE 2 DIABETES FAILING METFORMIN MONOTHERAPY

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**OBJECTIVES:** Effective glycemic control can reduce the risk of serious micro- and macrovascular complications in type 2 diabetes. However, many patients fail to reach glycemic targets due partly to low efficacy and adverse effects of treatment (such as hypoglycemia or weight gain). The aim of this analysis was to evaluate the short-term cost-effectiveness of liraglutide versus sitagliptin, in terms of cost per patient reaching a glycated hemoglobin (HbA1c) target with no hypoglycemia and no weight gain after 52-weeks, based on a recently published trial. **METHODS:** Data were taken from a randomized, controlled trial (NCT00700817) in which adults with type 2 diabetes (mean age 55 years, HbA1c 8.4%, BMI 33kg/m<sup>2</sup>) failing metformin monotherapy were randomly allocated to receive either 1.2mg liraglutide, 1.8mg liraglutide or 100mg sitagliptin daily in addition to metformin. For the cost-effectiveness analysis, the proportion of patients achieving a clinically relevant composite endpoint, defined as HbA1c<7.0%, with no reported hypoglycemia and no gain in body weight, were estimated using logistic regression. Costs of antidiabetes medications were accounted based on published wholesale acquisition costs in 2011 US dollars (\$). **RESULTS:** Trial data showed that 38.9% of patients on liraglutide 1.2mg and 49.9% on liraglutide 1.8mg achieved the composite endpoint, compared with 18.6% on sitagliptin. Overall pharmacy costs (needle costs included) were higher on liraglutide than sitagliptin. When expressed as the mean cost per patient reaching target HbA1c with no hypoglycemia or weight gain (cost of control), costs were notably lower on liraglutide than on sitagliptin. Annual mean costs of control were \$9,632 on liraglutide 1.2mg and \$10,933 on liraglutide 1.8mg, versus \$14,711 on sitagliptin. **CONCLUSIONS:** The mean cost per patient achieving control, defined as reaching HbA1c target with no hypoglycemia or weight gain, was lower with lira-