with type 1 diabetes was performed. **METHODS:** The search was performed between January 1, 2000 and December 1, 2009 via Embase, Medline, the Cochrane Library, the databases of German Medical Science and of DAHTA (Deutsche Agentur für Health Technology Assessment), and abstract books of relevant scientific congresses. The inclusion of retrieved studies was based on predefined criteria. The included studies were assessed according to established methodological and quality aspects. **RESULTS:** A total of four health-economic evaluations from four different countries were included: two modeling studies, comprising one cost-utility analysis (CUA) and one cost-minimization analysis (CMA), as well as two claims data analyses, both CMAs. Two of the CMAs show an economic advantage in favour of GLA vs. DET and the third CMA showed cost neutrality between the basal insulin analogues. The CUA showed an economic advantage for DET. **CONCLUSIONS:** Despite some differences concerning evaluation methods (CUA or CMA), data sources (randomized controlled trial, claims data) and country specific conditions (pricing and reimbursement situation) the identified health economic analyses showed high conformity concerning the target parameters. Two of the studies showed an advantage in favour of GLA compared to DET, the extent of which depended on the respective design of the health economic analysis chosen. a systematic review to compare the health economic outcomes of GLA and NPH-insulin was done separately. **ACKNOWLEDGMENT:** This study was supported by Sanofi-Aventis Deutschland GmbH, Berlin, Germany.

PDB61

ECONOMIC EVALUATION OF LIRAGLUTIDE VS. ROSIGLITAZONE OR EXENATIDE FOR TYPE 2 DIABETES MELLITUS IN BULGARIA

Ivanova A[1], Petrova G[1], Wrona W[2], Valov V[3], Czech M[4]

[1]Medical University, Faculty of Pharmacy, Sofia, Bulgaria; [2]HealthQuest sp z o.o., Warsaw, Poland; [3]Novo Nordisk Pharma EAD, Sofia, Bulgaria; [4]Novo Nordisk Pharma Sp z.o.o., Warsaw, Poland

OBJECTIVES: In these cost-utility analyses CORE Diabetes Model and LEAD-1 and LEAD-6 trials data were used to compare liraglutide (a glucagon-like peptide-1 receptor agonist) to rosiglitazone, both in combination with glimepiride, and to exenatide, both with metformin and/or sulfonylurea. **METHODS:** The analyses were performed from the health care services payer's perspective. In the base-case analysis a time horizon of 20 years has been chosen. The analysis compared patients treated with liraglutide 1.2 mg or rosiglitazone 4 mg (LEAD-1) or liraglutide 1.8 mg or exenatide 10 µg b.i.d. (LEAD-6). The analysis used health state utility values derived from literature. The cost of treatment and complications were based on officially published sources for medicines prices (www.mh.government.bg), for hospital charges (www.nhif.bg) and verified by expert opinion survey (1 BGN = 0.51 EUR). **RESULTS:** QALYs increased with liraglutide 1.2 mg by 0.252 (SD 0.129) years (LEAD-1). Total costs increased by BGN7722 (€3948) resulting in an incremental cost per QALY gained of BGN30,674 (€15,684). Based on LEAD-6 trial data liraglutide 1.8 mg resulted in increase of 0.151 (SD 0.124) QALYs. Total costs increased by BGN4151 (€2122) with incremental cost BGN27,404 (€14,012) per QALY. **CONCLUSIONS:** In Bulgarian health care system settings liraglutide added to standard treatment have been shown to be cost-effective in comparison with rosiglitazone and exenatide for type 2 diabetes.

PDB62

COST-UTILITY ANALYSIS OF SAXAGLIPTIN AS AN ADD-ON THERAPY TO METFORMIN IN TYPE 2 DIABETES PATIENTS FROM THE BRAZILIAN PRIVATE HEALTH SYSTEM

Eliaschewitz FG[1], Asano E[2], Nita ME[2], Rached R[2], Donato BM[3]

[1]CPCLIN—Centro de Pesquisas Clínicas, São Paulo, SP, Brazil; [2]Bristol-Myers Squibb S/A, São Paulo, SP, Brazil; [3]Bristol-Myers Squibb, Wallingford, CT, USA

OBJECTIVES: This is a cost-utility analysis of saxagliptin (treatment group) vs. thiazolidinediones (control group) as add-on therapy in type 2 diabetes (T2D) patients not achieving appropriate glycaemic control with metformin, from the Brazilian private health system (PHS) perspective. **METHODS:** A discrete event simulation model based on UKPDS68 study was developed in order to simulate 40 years for a cohort of 1000 patients. Safety and efficacy data were obtained from a systematic review and meta-analysis of published literature. Epidemiological and costing data were obtained from DIAPS79, an outcome study of the treatment patterns and costs of T2D patients in the Brazilian PHS. Pharmaceutical costs were based on Brazilian official factory price. Insulin plus metformin was defined as rescue therapy. An annual discount rate of 5% was applied to both costs and benefits. Deterministic and probabilistic sensitivity analyses were conducted to assess the robustness of the results. **RESULTS:** According to the model, the lipid profile benefits from thiazolidinediones did not translate into long-term vascular benefits when compared to saxagliptin (vascular fatal events risk reduction of –0.0034 vs. pioglitazone and –0.0053 vs. rosiglitazone). Saxagliptin was dominant when compared to both pioglitazone and rosiglitazone as the add-on therapy of choice to metformin (costs savings per patient of R$3.874 vs. rosiglitazone and R$3.996 vs. pioglitazone; incremental 0.13 QALY per patient vs. pioglitazone and 0.14 QALY per patient vs. rosiglitazone). In the deterministic sensitivity analysis, HbA1c level was the most impactful parameter in the model, but saxagliptin remained the dominant option in all cases. In the probabilisitc sensitivity analysis, saxagliptin had a greater than 90% probability of being cost-effective for a willingness-to-pay of zero. **CONCLUSIONS:** Saxagliptin is associated with lower costs and increased quality-adjusted life expectancy compared to thiazolidinediones as add-on therapy in T2D patients failing to achieve adequate glycaemic control on metformin monotherapy.

DIABETES/ENDOCRINE DISORDERS – Patient-Reported Outcomes Studies

PDB63

LIRAGLUTIDE IN THE TREATMENT OF TYPE 2 DIABETES MIELLITUS—ECONOMIC EVALUATION IN ROMANIAN SETTING

Ionescu D[1], Niewada M[2], Czech M[3]

[1]Carol Davila University of Medicine and Pharmacy, Bucharest, Romania, [2]HealthQuest sp z.o.o., Warsaw, Poland, [3]Novo Nordisk Pharma Sp z.o.o., Warsaw, Poland

OBJECTIVES: Our aim was to assess cost-utility ratios of liraglutide, a GLP-1 receptor agonist, in comparison with rosiglitazone, glimepiride and exenatide for type 2 diabetes in Romanian health care system settings. **METHODS:** The CORE Diabetes Model and clinical data from LEAD-1 (liraglutide vs. rosiglitazone, both with glimepiride, 1st case), LEAD-2 (liraglutide vs. glimepiride, both with metformin, 2nd case) and LEAD-6 trial (liraglutide vs. exenatide, both with metformin and/or sulfonylurea, 3rd case) trials were used. The health care services payer's perspective and 20-year time horizon have been chosen. Health state utility values and cost date were based DRG Data from "Center for Research and Evaluation of Healthcare Services," Romania, CaNaMed National Catalog of Medicines Prices (official tariff lists) and expert opinion. **RESULTS:** In the 1st case QALYs increased by 0.201 (SD 0.105) years with liraglutide 1.2 mg and by 0.231 (SD 0.107) years with liraglutide 1.8 mg. Total costs increased by €3266 and €5378 resulting in an incremental cost per QALY gained of €16,209 and €23,282, respectively. In the 2nd case, liraglutide 1.2 mg resulted in increase of 0.155 (SD 0.099) QALYs and liraglutide 1.8 mg 0.170 (SD 0.146) QALYs with incremental cost per QALY gained of EUR 29,909 and EUR 38,830, respectively. In the 3rd case QALYs increased by 0.125 (SD 0.102) years with liraglutide 1.8 mg, total costs increased by €1898, an incremental cost was €15,123 per QALY. **CONCLUSIONS:** Based on efficacy data from clinical trials and validated model liraglutide has been shown to be cost-effective when compared with rosiglitazone, glimepiride and exenatide for the treatment of type 2 diabetes.

PDB64

TREATMENT PERSISTENCE AMONG PATIENTS INITIATING INSULIN THERAPY WITH INSULIN DETEMIR IN A FLEXPEN® VERSUS NPH INSULIN IN A VIAL. RETROSPECTIVE DATABASE ANALYSIS BASED ON A LARGE US MANAGED CARE ORGANIZATION

Conner C[1], Buysman E[2], Liu F[2], Aagren M[3], Bouchard J[4]

[1]Novo Nordisk, Seattle, WA, USA; [2]i3 Innovus, Eden Prairie, MN, USA; [3]Novo Nordisk Inc, Princeton, NJ, USA; [4]Novo Nordisk, Plaistow, NH, USA

OBJECTIVES: Persistence with respect to injectable therapy in type 2 diabetes is known to impose a challenge to patients. One potential explanation is aversion to injection and risk of hypoglycemic events. Insulin analogues have shown in clinical trials to reduce the risk of hypoglycemic events versus human insulins, and insulin injection using a pen device is generally perceived as less burdensome than administration via vial and syringe. **METHODS:** This retrospective data analysis compared persistence between two types of basal insulin and administration: Neutral protamine hagedorn, NPH, administered by vial and syringe and insulin detemir, IDet, administered by FlexPen®. Data were derived from health care claims between 2004 and 2009 from a large national US payer and included type 2 diabetes patients that initiated either IDet FlexPen® or NPH in vials without any prescription fills for any insulin in the previous 12 months. Patients were defined as being persistent to therapy as long as they filled their prescription within the 80th percentile of days between fills adjusted to reflect differences in pack sizes. **RESULTS:** The IDet FlexPen® cohort (n = 1082) and the NPH vial cohort (n = 794) were of similar age (54.06 vs. 53.13, $P = 0.134$), but IDet FlexPen® had a lower proportion of female patients than NPH vials (44% vs. 55%, $P < 0.001$) and fewer treatment naïve patients (no pre-index OADs) (9% vs. 45%, $P < 0.001$). Persistency to therapy at 12 months after initiation was 23% and 13% ($P < 0.001$) for IDet FlexPen® and NPH vials, respectively. Average days of persistence was 167 days for the IDet FlexPen® cohort and 123 days for NPH vials ($P < 0.001$). **CONCLUSIONS:** Persistence to insulin therapy among type 2 diabetes patients could be improved. This study suggests that insulin persistency may be improved by initiating insulin using therapies associated with lower risk of hypoglycemic events and administering it in a pen.

PDB65

THE METHODOLOGICAL QUALITY AND EFFECTIVENESS OF ADHERENCE INTERVENTIONS: A REVIEW OF DIABETES TYPE II INTERVENTIONS

Wilke T[1], Mueller S[2], Groth A[1]

[1]Institute for Pharmacoeconomics and Drug Logistics, University of Wismar, Wismar, Germany; [2]University of Wismar, Wismar, Germany

OBJECTIVES: Adherence interventions (AI) are an important part of the health care provision situation on the ground. For ethical, clinical and health economic reasons, it is vital to identify methodological characteristics of successful AI. The aim of this review is to do this for AI focused on oral anti-diabetics (Diabetes type II). **METHODS:** A comprehensive review of Diabetes type II AI effectiveness studies was conducted [Strings: (oral hypoglycemic agents; oral anti-diabetic medications; diabetes; hyperglycemia; Biguanide; Metformin; Potassium channel inhibitors; Dipeptidyl peptidase-4 inhibitors) and (improvement; enhancement; pharmacy, pharmacist; doctors; interventions; programs; reminder; prevention; patient education)]. Only interventions aiming to improve medication adherence/persistence were included. **RESULTS:** A total of 6977 contributions were identified; after detailed examination by two reviewers 15 publications evaluating 19 different AI were included. 10 AI were able to improve the

adherence/persistence and eight were able to improve the blood glucose levels of patients (double counting in three cases); five had no effect at all. Four dimensions of the methodological quality of AI programs were identified: 1) measurement of adherence/persistence/clinical outcomes, 2) measurement of NA/NP causes, 3) use of effective/validated intervention measures; and 4) effective program evaluation. The authors defined 5 detailed methodological requirements per dimension and, based on this, developed a corresponding scoring model (MIN Score 0, MAX score 20). All 19 AI programs were evaluated in the scoring model (average score 8.05): • Score <5: 3 AI—no adherence/blood glucose level improvement; • Score 5–9: 8 AI—6 with improvement in both adherence and/or blood glucose levels; • Score >9: 8 AI—all improved adherence and/or blood glucose levels. **CONCLUSIONS:** The scoring model provides a starting point for the methodical evaluation of AI. However, further development and testing of both the elements and construction is needed for medical indications other than diabetes type II.

PDB66

THE 8-ITEM MORISKY MEDICATION ADHERENCE SCALE MMAS: TRANSLATION AND VALIDATION STUDY OF THE MALAYSIAN VERSION

Al-Qazaz HK[1], Hassali MA[1], Shafie AA[2], Sulaiman SAS[1], Sundram S[3], Morisky DE[4]
[1]Universiti Sains Malaysia, Minden, Penang, Malaysia; [2]Universiti Sains Malaysia, Penang, Penang, Malaysia; [3]Hospital Balik Pulau, Balik Pulau, P.Penang, Malaysia; [4]UCLA School of Public Health, Los Angeles, CA, USA

OBJECTIVES: To translate the MMAS into the Malaysian language, and to examine the psychometric properties of the Malaysian version of the MMAS among patients with type 2 diabetes, including its validity and reliability. **METHODS:** After obtaining permission, a standard "forward-backward" translation procedure was used to create the Malaysian version of the MMAS from the original English version. a convenience sample of 223 outpatients with type 2 diabetes was identified between May and September, 2009. All data were collected from the Penang General Hospital, Penang, Malaysia. Instruments consisted of the Malaysian version of MMAS, the Malaysian version of the old four-item Morisky scale and a sociodemographic questionnaire. Medical records were reviewed for hemoglobin A1C (HbA1C) levels and other clinical data. Reliability was tested for internal consistency using Cronbach's α coefficient. Validity was confirmed using convergent and known group validity. **RESULTS:** Employing the recommended scoring method, the mean ± SD of MMAS scores was 6.13 ± 1.72. Moderate internal consistency was found, (Cronbach's $\alpha = 0.675$), the test-retest reliability value by using Spearman's rank correlation was 0.816 ($P < 0.001$). a positive correlation between the eight- and four-item MMAS was found ($r = 0.792$; $P < 0.01$). For known group validity, a significant relationship between MMAS categories and HbA1c categories ($\chi 2 = 20.261$; $P \geq 0.001$) was found. The MMAS sensitivity and specificity, with positive and negative predictive values were 77.61%, 45.37%, 46.84% and 76.56%, respectively. **CONCLUSIONS:** The MMAS can be used for medication adherence measurement in diabetes. The findings of this validation study indicate that the Malaysian version of the MMAS is a reliable and valid measure of medication adherence which can now be used in clinical practice.

PDB67

FACTORS INFLUENCING VALUATION OF- AND WILLINGNESS TO PARTICIPATE IN- A LIFESTYLE INTERVENTION: AN EXPLORATORY CONJOINT ANALYSIS WITH DIABETES TYPE 2 PATIENTS

Van Gils PF[1], Lambooij MS[1], Struijs JN[1], Flanderijn MH[2], van den Berg M[3], van den Berg B[4]
[1]National Institute of Public Health and the Environment, Bilthoven, The Netherlands; [2]Leids UniversityMedical Centre, Leiden, The Netherlands; [3]National Institute for Public Health and the Environment (RIVM), Bilthoven, The Netherlands; [4]University of York, York, UK

OBJECTIVES: The last decade several studies have proven that lifestyle interventions can be effective for people with or at risk for diabetes. Because effectiveness of preventive interventions is affected by non-participation (adherence), it is important to understand factors influencing people's willingness to participate in a lifestyle intervention. Therefore, the aim of this exploratory analysis is to examine which factors of a lifestyle program influence its valuation and willingness to participate. **METHODS:** We used conjoint analysis to empirically examine associations between the factors that influence participation and participants' valuation of an intervention and participants' willingness to participate in a lifestyle intervention. For this purpose participants received a questionnaire with four hypothetical lifestyle interventions. They were asked to value the hypothetical scenarios with a grade from "1" to "10" and furthermore they were asked if they would be willing to participate in these hypothetical programs. Linear and logistic regression techniques were used for the analyses. **RESULTS:** The factors "group activity," "counselling," and "receiving money" were positively associated with the scores of the valuation of the programmes. Logistic regression analysis showed that money was the only factor that was independently associated with respondents' willingness to participate in a lifestyle intervention. Subgroup analysis showed that receiving an amount of money was not associated with willingness to participate, but having to pay is negatively associated with participation in the lifestyle intervention. **CONCLUSIONS:** It appeared that only financial disincentives were independently associated with willingness to participate in a lifestyle intervention. Our conjoint analysis results suggest that financial incentives, in the form of bonuses, cannot be used to encourage people to participate in lifestyle interventions. Financial incentives, in the form of payments might however discourage participation, regardless of the content of the program.

PDB68

HEALTH RELATED QUALITY OF LIFE (HRQL) AND EQ-5D UTILITIES IN A TYPE 2 DIABETES (T2D) POPULATION: RESULTS FROM A SWEDISH SURVEY

Sörngård H[1], Lagging E[2], Lindh A[3], Jörgensen L[1]
[1]AstraZeneca Nordic MC, Södertälje, Sweden; [2]Stockholm Diabetic Patient Association, Stockholm, Sweden, [3]Husläkarna i Österåker, Åkersberga, Sweden

OBJECTIVES: To present HRQL data from a previously presented survey on T2D patients' perceived quality of care in Stockholm, Sweden. **METHODS:** A postal survey including EQ-5D was distributed to 1000 members of the Stockholm Diabetic Patient Association and 1000 patients from five primary health care centers. Patients were randomly selected, >18 years, having a diabetes diagnosis. Analysis of variance was used to test the statistical hypothesis that patients within each subgroup had equal mean utility. **RESULTS:** Response rate was 65% (1319/2000 questionnaires). T2D diagnose was reported for 961 respondents of which 858 completed the EQ-5D questionnaire. Mean age 69 years, 48.5 % female, BMI 28.4 kg/m^2, mean duration of T2D 11.3 years. Overall, the mean (SD) utility was 0.765 (0.260) and the current health status reported on the VAS scale was 0.727 (0.189). Patients without any hypoglycemic episode the previous month had a utility of 0.799 while those with 1, 2–5 or >5 episodes reported 0.774, 0.687 and 0.633, respectively. More than one hypoglycemic episode resulted in significantly lower utility compared to none or only one episode ($P < 0.0001$). The utility of obese patients, 0.704, was significantly lower than for patients of normal weight, 0.806, or overweight, 0.790 ($P < 0.0001$). The utility of patients not considering themselves responsible for the management of their T2D was significantly lower, 0.608, compared to patients taking a limited, 0.774, or full, 0.759, responsibility ($P = 0.0005$). Patients considering themselves having insufficient knowledge to cope with their T2D reported a lower utility, 0.689, compared to patients with sufficient knowledge, 0.789 ($P < 0.0001$). Male respondents had a higher utility, 0.796, compared to females, 0.731 ($P = 0.0002$). **CONCLUSIONS:** Experience of hypoglycemic episodes, obesity, gender, patients' perception of personal responsibility and perceived knowledge about type 2 diabetes has significant impact on health related quality of life in patients with type 2 diabetes.

PDB69

UTILITY VALUES FOR DIABETES COMPLICATIONS

Donatti C, Lloyd A, Henry N, Grant D
IMS Health, London, UK

OBJECTIVES: Cost-utility analysis in diabetes requires utility estimates for diabetic complications. Models frequently rely on UKPDS data. UK requirements for preference elicitation have changed since UKPDS publication. We conducted a systematic review of the literature to identify utility values for diabetes complications suitable for use in Health Technology Assessment (HTA). **METHODS:** A systematic search of online databases was conducted using key words relating to diabetes, major complications, utility assessment and quality of life. Reference lists of identified citations were reviewed. Studies reporting utility single-index measures in patients with any of 33 pre-specified diabetes related states were included: states considered were diabetic complications and adverse events associated with anti-diabetic therapies (AEs). Papers were qualitatively assessed: criteria included relevance of studied population to Type 1 or Type 2 diabetes, sample size, methodological quality and consistency with current UK HTA guidelines. Comorbidity is common in diabetes: methodology papers addressing combination of utility values were identified in a structured search and reviewed. **RESULTS:** The search returned 3024 hits, 169 articles were reviewed and 32 publications were identified as suitable for review. Utility or disutility values suitable for UK HTA were obtained for 23 diabetes states. For 10 complications, including late stage renal disease and some AEs, no utility value were identified that met UK HTA criteria. There is no consensus in the literature on how utility measures should be combined in patients with more than one complication. **CONCLUSIONS:** We identified a set of utility values suitable for economic analysis for HTA in diabetes. To further inform UK HTA, additional research should create robust utility values for diabetic renal disease, and evaluate the empirical accuracy of alternative methods of combining utility values in patients with multiple complications.

PDB70

MEASUREMENT OF HRQOL USING EQ-5D IN TYPE 2 DIABETES MELLITUS PATIENTS TREATED WITH ORAL ANTI-DIABETIC DRUGS IN CHINA

Li HC[1], Chang JH[2], Liu GG[3]
[1]China Pharmaceutical University, Nanjing, China; [2]Novo Nordisk (China) Pharmaceuticals Co., Ltd., Beijing, China, [3]Peking University, Beijing, China

OBJECTIVES: The study is to measure the health-related quality of life (HRQOL) in type 2 diabetes mellitus (T2DM) patients with oral anti-diabetic drugs (OADs) therapy using the Chinese version of EQ-5D, and examine their health status. **METHODS:** The study was a cross-sectional survey conducted at 75 hospitals in nine cities in China. There were 9577 T2DM patients administered with OADs therapy completed the questionnaires. The survey period was from December 3rd, 2008 to July 31st, 2009. Patients evaluated their health status using five dimensions (5D) and a visual analog scale (VAS). Descriptive statistics was used to describe patients' demographic characteristics, duration of the disease, the frequency of 5D responses and VAS score. STATA 9.2 was used for the analyses. **RESULTS:** The mean age of patients (±SD) was 59.5 ± 12.7 years. 51.1% were male. The mean body mass index (±SD) was 24.3 ± 3.4 kg/m^2. The mean duration of disease (±SD) was 7.9 ± 6.3 years. For the five dimensions