for intervention and treatment, and also production loss of patients as indirect costs. RESULTS: A total of 185 questionnaires on SF-36 and EQ-5D were returned (88 stepped, 97 ordinary). There was no statistically significant difference between the scores of two groups. The expected costs a patient in the decision model were estimated as US$4072 (US$ = JPY110) for the stepped care, and US$2695 for the ordinary care with the discount of 3% a year in three years. The incremental cost-effectiveness ratio was US$17,636 in terms of cost per patient prevented from becoming Type-2 diabetes. CONCLUSIONS: The analysis on the JDP intermediate report suggested that the stepped care resulted in increased costs for prevention compared to the ordinary care in three years, maintaining the same level of QoLs in both groups.

PDB14
COST-EFFECTIVENESS OF MONO- AND COMBINATION THERAPY WITH PIOGLITAZONE COMPARED TO GLICLAZIDE IN PATIENTS WITH TYPE-2 DIABETES MELLITUS FROM A GERMAN STATUTORY HEALTH CARE PERSPECTIVE
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OBJECTIVES: Pioglitazone (PIO), a PPARγ-Agonist has been approved in Germany for treatment of patients with Type-2-diabetes in mono-and combination therapy with either metformin (MET) or sulfonylurea. Long-term studies with a treatment period of 104 weeks involving 1197 patients comparing PIO with Glucalide (GLIC) have recently been published. These studies revealed a superior effect of PIO in sustaining the HbA1C reduction compared to GLIC. Whether this translates to benefits regarding the cost-effectiveness is currently unknown.
METHODS: This study compared the clinical effects and costs of PIO (15–45mg) combination therapy (MET) and 30–45mg monotherapy with GLIC + MET or GLIC monotherapy, respectively. The validated IMIB Markov diabetes model was adapted. The mean time transferring a patient to insulin therapy (MIT), life expectancy (LE and ALE), the related NNT to avoid 1 event/1 death and the incremental cost-effectiveness as cost per life year gained (C/LYG) discounted at 0% and 5% were calculated.
RESULTS: In monotherapy PIO was associated with a higher MIT 11.70 vs. 11.39 years and a LE of 15.90 vs. 15.45 years (ALE: 0.44 years) vs. GLIC. For PIO vs. GLIC the NNT to avoid 1 event and 1 death were 32 and 34, respectively. When leaving the C/LYG undiscounted, PIO dominated GLIC and amounted to 2397€ (5%) vs. GLIC. In combination therapy PIO + MET was associated with a higher MIT 9.73 vs. 9.23 years and a LE of 15.58 vs. 14.94 years (ALE: 0.64 years) compared to GLIC + MET. For PIO + MET vs. GLIC + MET the NNT to avoid 1 event and 1 death were 28 and 36, respectively. The C/LYG for PIO + MET was calculated with 1443€ (0%) and 5480€ (5%) vs. GLIC + MET. CONCLUSIONS: The study indicates that PIO in mono, as well as in combination therapy, is preferable in terms of health outcomes and cost-effectiveness compared to GLIC in patients with Type-2-diabetes.

PDB15
A COST-EFFECTIVENESS ANALYSIS OF SWITCHING TYPE-2 DIABETES PATIENTS FROM IMMEDIATE-RELEASE METFORMIN (GLUCOPHAGE®) TO A NEW EXTENDED-RELEASE FORMULATION OF METFORMIN (GLUCOPHAGE®XR)
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OBJECTIVES: Glucophage®XR is a new extended-release formulation of metformin which permits once-daily medication. Clinical studies show that Glucophage®XR demonstrate the same antihyperglycemic efficacy as immediate-release metformin (Glucophage®). However, in a retrospective chart review, patients with type 2 diabetes experienced fewer GI side effects and comparable or better glycemic control, based on HbA1C measurement, when switched from Glucophage® to Glucophage®XR. Mean HbA1c values were 7.8%-points before the switch and 7.5%-points afterwards. The CORE Diabetes Model, a peer-reviewed, validated model was used to project the long-term cost-effectiveness of switching patients from Glucophage® to Glucophage®XR.
METHODS: The CORE Diabetes model employs standard Markov/Monte Carlo simulation techniques to describe the long-term incidence and progression of diabetes-related complications. Transition probabilities were derived from major diabetes studies. Clinical effects of switching from Glucophage® to Glucophage®XR were derived from a retrospective database study. The analysis was performed using published UK-specific costs, health care resource utilization, clinical data and recommended discount rates of 3.5% for costs and clinical outcomes. A lifetime horizon and NHS payer perspective was taken. Only direct costs were considered. Sensitivity analyses were performed.
RESULTS: Switching patients from Glucophage® to Glucophage®XR was projected to improve life expectancy by 0.10 years, quality-adjusted life expectancy by 0.09 years, and decrease overall lifetime costs by ~201/patient. Results were most sensitive to variations in assumptions about changes in HbA1c when patients are switched from Glucophage® to Glucophage®XR, and the relative costs of treatment. CONCLUSIONS: In real life, due to improved tolerability, compliance, and glycemic control, switching patients from Glucophage® to Glucophage®XR may improve long-term patient outcomes and lead to overall cost savings.

PDB16
EFFECT OF PATIENT EDUCATION IN TYPE-2 DIABETES OVER 10 YEARS BASED ON A PROSPECTIVE DIABETES MODEL IN THE PROVINCE OF STYRIA, AUSTRIA
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OBJECTIVES: In the province of Styria, Austria, a structured patient education program for patients with type-2 diabetes was established in the year 2000. In this open label, prospective cohort study (n = 1150) follow-up data after one year have been analysed to document the potential effects over 10 years using the CORE-Diabetes Model, a validated, peer reviewed simulation model. Patients outcomes and total costs were calculated.
METHODS: A Styria-wide patient education program for type-2 diabetes was established for general practitioners to improve treatment outcomes in diabetes care. The program is funded by the public health care system and a standardised documentation at baseline and after one year was used. Intermediate results after one year were incorporated in the CORE diabetes model and linked with Austria specific cost data. Monte-Carlo-Simulation (n = 5,000) over ten years projected long term effects of single patient education. A virtual control group was assumed to be treated like general Styrian diabetic population. Discount rate was 5 % annually. RESULTS: The average life expectancy increased by 0.29 years (7.32 ± 3.48 vs. 7.03 ± 3.5) under education, the total costs over ten years decreased by 774€ per patient (20,496€ ± 30,335€ vs. 21,270€ ± 37,917€) or 3.8%. Patient education leads to improved foot care and retinal screen-
ing as well as renal therapy but to higher general treatment costs (educated: 4364€; not educated: 2795€). Total number of long-term events prevented for 5,000 patients was 1,810. Results were most sensitive to improvements in screening rates and the costs of implementing the program. CONCLUSIONS: Patient education reduced late complications and therefore is able to compensate for higher management and treatment costs. Results of model-based projections demonstrated that the program may be cost-saving over ten years in an Austrian cost setting.

**PDB17**

**ABSOLUTE AND INCREMENTAL EFFECTS OF THERAPY-SWITCHING THRESHOLDS ON THE COST-EFFECTIVENESS OF TREATMENTS FOR OBESE TYPE-2 DIABETES PATIENTS IN GERMANY**

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OBJECTIVES: The therapy-switching threshold is the blood glucose level at which a treatment is failing to maintain glycaemic control. We assess the impact of a change in therapy-switching threshold on lifetime cost-effectiveness of treatment for Type-2 Diabetes in Germany. METHODS: DiDACP is an established model of Type-2 diabetes, which includes all relevant costs in taking a sickness funds perspective. German guidelines recommend a therapy-switching threshold of HbA1c < 7.0%. We assess an increase to 7.5%, because some patients cannot achieve a lower threshold in clinical practice. We simulated treatment histories for cohorts of 1000 obese patients (mean BMI = 34). Following Metformin monotherapy failure, combination therapy adding Rosiglitazone (8mg/d) was compared to adding Glibenclamide. Costs were discounted at 5% pa. We present both absolute and incremental effects on morbidity and mortality. The absolute effect of weaker control is smaller in the Rosiglitazone cohort (104 fewer Life-Years compared to 185 with Glibenclamide). Extending oral anti-diabetic viability. Deteriorating glycaemic control simultaneously leads to inferior glycaemic control and extended treatment before requiring insulin improves quality-of-life (QOL). The absolute effect of weaker control is smaller in the Rosiglitazone cohort (115 more QALYs compared to 266 with Glibenclamide). Superior glycaemic control in the Rosiglitazone cohort yields incremental Life-Years/QALYs of 188/295 (HbA1c 7.0%). We consider these as “absolute” and “incremental” comparisons. RESULTS: A higher therapy-switching threshold simultaneously leads to inferior glycaemic control and extended oral anti-diabetic viability. Deteriorating glycaemic control increases morbidity and mortality. The absolute effect of weaker control is smaller in the Rosiglitazone cohort (115 more QALYs compared to 266 with Glibenclamide). Superior glycaemic control in the Rosiglitazone cohort yields incremental Life-Years/QALYs of 188/295 (HbA1c 7.0%) and 270/143 (HbA1c 7.5%). The higher threshold leads to cost increases in both cohorts, but reduces incremental costs. The higher threshold reduces the discounted incremental cost-effectiveness ratio (ICER) per Life-Year from 27,516€ to 18,345€ and increases the ICER per QALY from 17,523€ to 34,471€. CONCLUSIONS: When selecting the therapy-switching threshold there is a trade-off between glycaemic control and QOL. ICERS for proposed care adding Rosiglitazone to Metformin remain robust to changes in therapy-switching threshold. It is important to consider both absolute and incremental effects when changing key model parameters.

**PDB18**

**SEARCHING FOR DIABETES MELLITUS (DM) IN PRIMARY CARE—IT IS GOOD VALUE-FOR-MONEY IN POLAND? (COST OF DIAGNOSING DIABETES MELLITUS IN PRIMARY CARE CONDITION IN POLAND)**

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OBJECTIVES: The aim of the study was to assess the costs of early detection of DM in the Polish population. METHODS: An analysis of the costs of diagnosis of DM in primary care was based on an epidemiological study “Screen-Pol 2”, which was performed in 2003 and 2004, in 119 centres situated throughout Poland. The detection of DM was carried out according to ADA and WHO criteria. During the diagnostic process the following tests were performed: random blood capillary glucose (RBCG), fasting venous plasma concentration (FPG) and oral glucose tolerance (OGTT). The tests constituted sequential steps in a diagnostic pathway used in primary care in Poland. Third party payer perspective was applied. RESULTS: A total of 11,418 undiagnosed patients took part in the study. The average cost of detection of DM was 23.22€. The cost of detection of one case of DM only by RBCG was 20.62€. The cost of detection of DM with FPG was 29.43€ and 171.13€ (if repeated). When OGTT was used the cost of each case of DM detected reached 390.93€. CONCLUSIONS: The early detection of DM is a simple and cheap procedure, when introduced as a screening programme. It is 23 times less expensive than one year’s treatment of a single case of DM in terms of direct medical costs and 64 times cheaper in terms of indirect costs. (1 Euro = 4.6 PLN).

**PDB19**

**COST OF HOSPITAL ADMISSIONS FOR CARDIOVASCULAR DISEASE OVER FIVE YEARS IN PATIENTS WITH DIABETES MELLITUS**

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OBJECTIVES: This study was undertaken to quantify the cost of hospitalization for cardiovascular disease (CVD) in patients with diabetes over a 5-year period. METHODS: The cohort of patients with diabetes who was identified in the 1996 Massachusetts inpatient database using ICD-9 codes and unique patient identifiers. Index admission was defined as the first admission in 1996 where a diagnosis of diabetes was recorded. Readmissions over the subsequent 5 years (1996-2000) for ischemic heart (IHD) disease, cerebrovascular disease, congestive heart failure (CHF) and other CVD were tallied for each patient. Massachusetts hospital costs, including all accommodations and ancillary services were estimated from the all payer discharge databases adjusted to national values, for medical inflation, by cost-to-charge ratios, and are reported in 2002 US dollars. RESULTS: Of the 52,859 patients with diabetes identified in 1996, one third was admitted for CVD at index, mean age was 68 years and 47% were male. Case fatality rate during the index admission was 4%. Subsequently, 21,778 (44%) of index admission survivors had at least one readmission (mean: 2.5, range: 1–33) for a CVD problem within five years (57% readmission rate for those admitted for CVD at index). IHD accounted for 31% of CVD-related readmissions (mean cost per stay: $12,500), cerebrovascular events for 11% (mean: $8100), CHF for 33% (mean: $8000) and 25% other CVD (mean: $11,100). Total cumulative cost for all CVD-related admissions over 5 years was roughly $670 million. CONCLUSIONS: A substantial proportion of hospitalized patients with diabetes can be expected to require additional hospital-level care for CVD within a 5-year period. Although the total hospital cost for CVD-related events reported here is impressive, it is conservative, as it captures only one aspect of care for CVD in these patients. These results emphasize the profound economic consequences of cardiovascular complications in patients with diabetes.