was comparable in both groups (7.3% ± 1.3). In G2, the number of patients reaching HbA1c < 7% was higher by 11.6%. CONCLUSION: PwT2D have a “DEFICIT” in knowledge regarding insulin in general. On an individual basis, PwT2D often underestimate the severity of their diabetes. Higher level of knowledge is correlated with higher WUI and leads to better glycemic control.

PATTERNS OF BLOOD GLUCOSE MONITORING IN RELATION TO GLYCAEMIC CONTROL AMONG PATIENTS WITH TYPE-2 DIABETES IN THE UK
Secnik K1, Yurgin N1, Lage MJ2, McDonald-Everett C1
1Eli Lilly and Company, Indianapolis, IN, USA; 2HealthMetrics
Outcomes Research, LLC, Groton, CT, USA

OBJECTIVES: The study compared patterns of blood glucose monitoring among patients with type-2 diabetes initiating therapy with insulin or oral medication and examined the relationship between the quantity of prescribed monitoring strips and glycemic control. METHODS: Data were obtained from the UK General Practice Research Database. Patients were eligible if they were identified as having type-2 diabetes, initiated therapy with insulin or an oral agent, and had 12-month post-initiation data. Differences in patient characteristics and number of test strips prescribed between the insulin (n = 347) and oral cohorts (n = 2436) were examined. Multivariate regressions analyzed the relationship between quantity of monitoring and glycemic control for a subset of patients (n = 245 insulin; n = 1795 oral) with available glycosylated haemoglobin (HbA1c) data.

RESULTS: During the 12-month post-initiation period, patients in the insulin cohort were prescribed approximately twice as many test strips compared to those patients in the oral medication cohort. Multivariate regression revealed that individuals who initiated therapy with insulin and were prescribed enough test strips to test at least once per day in the six months prior to the test date had, on average, a 0.65% lower HbA1c value (p = 0.02) compared to the HbA1c values for individuals who were prescribed fewer test strips. In contrast there was no significant relationship between HbA1c levels and quantity of test strips prescribed for individuals who initiated therapy with oral anti-diabetic agents. CONCLUSIONS: Results indicate significant differences in the prescription of blood glucose monitoring strips, with patients initiated on insulin prescribed almost twice as many test strips compared to patients initiated on oral agents. The greater number of blood glucose test strips prescribed was associated with lower HbA1c values for insulin patients only. Physicians may therefore wish to encourage frequent blood glucose monitoring among patients with type-2 diabetes who are treated with insulin.

EVALUATING INTERVENTIONS ALONG THE COURSE OF DISEASE: MODELING DIABETES AND ITS MACROVASCULAR COMPLICATIONS
Feenstra TL1, Hoogvenne R, Bos G, Baan C
National Institute for Public Health and the Environment (RIVM), Bilthoven, The Netherlands

Diabetes Mellitus and its complications cause a high burden of disease. Many different options for primary prevention and the prevention of its complications exist. To support decision makers in allocating money to different interventions in health care, insight into their costs and health effects over time is important, as well as the possibility to analyze the consequences of different objectives and constraints of the decision maker. OBJECTIVES: To develop a model that enables the comparison of primary prevention with the prevention of complications in diabetes patients as to costs of care and health effects. This is the first step in the development of a budget allocation model for diabetes. METHODS: Based on the RIVM Chronic Disease Model, a multistate transition model was developed with states representing individuals’ risk factor and disease status. The model describes the relations between diabetes, its risk factors and its macrovascular complications. A health economics module computes outcomes in terms of intervention costs, costs of care and composite health effects and finally cost-effectiveness ratios. RESULTS: A set of formal equations defines the diabetes model and a health economics module. These were implemented in Mathematica and combined with estimates of input data, to result in a population model, linking risk factor prevalence in the population to incidence of diabetes, and linking risk factor prevalence in the diabetes population to incidence of complications. CONCLUSIONS: Basing the model on the Chronic Disease Model had the advantages of full inclusion of competing death risks in the model and easy generalizability to other chronic diseases. The model with the health economics module enables to compare the costs and effects of interventions on cardiometabolic risk factors including improvements in lipid and glucose parameters, in addition to reductions of weight and waist circumference. In patients with type-2 diabetes not adequately controlled with a monotherapy, a 0.7% reduction in HbA1c from a 7.3% HbA1c at baseline versus placebo was reported compared to diet and exercise alone, with a 15.4% increase in HDLc and 9% decrease in triglycerides from baseline. Approximately 50% of these effects were independent from weight loss. The objective was to predict the long-term clinical outcomes of treatment with rimonabant in the management of cardiovascular risk in abdominally obese diabetics. METHODS: A 20-year Markov model with a 6-month cycle-length and states representing diabetes, smoking, cardiovascular disease and death was developed. The weight-loss and beyond-weight-loss effects of rimonabant were modeled using the Framingham and UKPDS risk equations. A flexible time horizon of 1 to 20 years was applied. Patient characteristics and clinical data from the RIO diabetes study were used. Extensive probabilistic sensitivity analyses were carried out. RESULTS: For a cohort of 1000 patients, 1 year rimonabant treatment compared to diet and exercise alone, prevented 15 events (stroke, MI, fatal and non-fatal; angina, TIA) over a 20-year period, resulting in 50 life years gained. For a 2-year treatment duration, 27 events would be avoided, resulting in 84 life years gained. CONCLUSION: The treatment of cardiometabolic risk factors with rimonabant in abdominally obese patients with type-2 diabetes is likely to result in significant long-term clinical benefits.

MODELLING THE CLINICAL CONSEQUENCES OF RIMONABANT IN ADDITION TO DIET AND EXERCISE IN ABDOMINALLY OBESE PATIENTS WITH TYPE-2 DIABETES
Annemans L1, Lamotte M1, Caro JJ2, Lavaud V3, Nicholls C4, McEwan P5
1IMS Health, Brussels, Belgium; 2Caro Research, Concord, MA, USA; 3Sanofi-aventis, Bagneux, France; 4Sanofi-aventis, Guildford, Surrey, UK; 5Cardiff University, Cardiff, UK

OBJECTIVES: Rimonabant is the first selective CB1 blocker, currently under clinical investigation to reduce multiple cardiometabolic risk factors. Four phase III clinical studies (RIO trials) demonstrated consistent significant improvements in multiple cardiometabolic risk factors including improvements in lipid and glucose parameters, in addition to reductions of weight and waist circumference. In patients with type-2 diabetes not adequately controlled with a monotherapy, a 0.7% reduction in HbA1c from a 7.3% HbA1c at baseline versus placebo was reported compared to diet and exercise alone, with a 15.4% increase in HDLc and 9% decrease in triglycerides from baseline. Approximately 50% of these effects were independent from weight loss. The objective was to predict the long-term clinical outcomes of treatment with rimonabant in the management of cardiovascular risk in abdominally obese diabetics. METHODS: A 20-year Markov model with a 6-month cycle-length and states representing diabetes, smoking, cardiovascular disease and death was developed. The weight-loss and beyond-weight-loss effects of rimonabant were modeled using the Framingham and UKPDS risk equations. A flexible time horizon of 1 to 20 years was applied. Patient characteristics and clinical data from the RIO diabetes study were used. Extensive probabilistic sensitivity analyses were carried out. RESULTS: For a cohort of 1000 patients, 1 year rimonabant treatment compared to diet and exercise alone, prevented 15 events (stroke, MI, fatal and non-fatal; angina, TIA) over a 20-year period, resulting in 50 life years gained. For a 2-year treatment duration, 27 events would be avoided, resulting in 84 life years gained. CONCLUSION: The treatment of cardiometabolic risk factors with rimonabant in abdominally obese patients with type-2 diabetes is likely to result in significant long-term clinical benefits.
different risk factors for cardiovascular complications, both in the general population and in diabetes patients.

**PDB52**

**TYPE-2 DIABETES MODELS THAT DO NOT ACCOUNT FOR MICROVASCULAR DISEASE SCREENING RATES AND IMPORTANT CONCOMITANT MEDICATION USE MAY LEAD TO SUBSTANTIAL MISREPRESENTATION OF THE COST-EFFECTIVENESS OF NEW MEDICATIONS**

Palmer AJ1, Valentine WJ1, Minshall ME2, Roze S1

1CORE—Center for Outcomes Research, Binningen, Basel, Switzerland; 2CORE—USA, LLC, Fishers, IN, USA

**OBJECTIVES:** A number of diabetes models have recently been published. They are often used to assess the cost-effectiveness of new interventions and to generate health economic arguments for reimbursement submissions. The majority of these models do not account for rates of screening for important diabetes-related microvascular (eye, renal and foot) disease, nor do they consider the rates of use of important concomitant medications like ACE inhibitor/angiotensin-2-receptor inhibitors, statins, or aspirin. Our aim was to test the hypothesis that not accounting for these important factors may substantially influence projected long-term cost-effectiveness of new interventions.

**METHODS:** A published and validated diabetes model was used to project the long-term cost-effectiveness of a hypothetical intervention that lowered HbA1c by 0.4%-points, and which cost an additional $500/patient/year, versus no intervention. Quality-adjusted life years (QALY) and lifetime direct medical costs were calculated for each treatment arm, taking into consideration: A) no screening for- and appropriate treatment of diabetes-related complications, or B) screening rates and concomitant medication use as seen in a typical type-2 diabetes population in the US. **RESULTS:** If screening rates and concomitant medication use were not considered, the hypothetical intervention was dominant to no intervention, with 0.214 QALYs gained (discounted 3% annually), and discounted lifetime direct cost savings of $165/patient. When screening rates and concomitant medication rates were accounted for, the intervention led to smaller improvements in QALYs, and increased costs, with incremental costs/QALY gained of $34,024. **CONCLUSIONS:** Health economic models of diabetes must account for the costs and clinical effects of screening for- and appropriate treatment of important diabetic microvascular complications, and the costs and effects of important concomitant medications. Failure to account for these factors may lead to inaccurate assessment of the cost-effectiveness of new interventions in Type-2 diabetes patients.

**PDB53**

**INTERNAL VALIDATION OF THE ECONOMIC ASSESSMENT OF GLYCEMIC CONTROL AND LONG-TERM EFFECTS (EAGLE) DIABETES MODEL**

Walzer S, Maxion-Bergemann S, Bergemann R, Casciano RN, Mueller E

Analytica International, Loerrach, Germany

**OBJECTIVES:** The Economic Assessment of Glycemic control and Long-term Effects (EAGLE) model version 2.0 simulates long-term diabetes-related complications and related costs for type-1 and Type-2 diabetes using equations derived from the published results of several large interventional studies (DCCT, WESDR, and UKPDS). To assess the model’s validity, EAGLE was internally validated according to current guidelines. **METHODS:** Following in-house testing protocols, first-order validation identified inconsistencies in results and corrected programming errors. Second-order validation involved the following steps: 1) Simulation sets were created in EAGLE based on baseline data from the studies used to build the model; 2) Simulations were run. The results obtained with EAGLE were compared with the published event rates; and 3) Risk equations were refined if a deviation of >10% was observed between the model-derived and published results. Patient numbers and iterations were systematically changed until a final run was performed with 50,000 patients and 100 iterations. **RESULTS:** Fulfilling a criterion for validity, the cumulative incidence per 1000 patient-years and incidence rates for all events simulated with EAGLE fell within the range of ±10%. The difference between published data and model results ranged from 0% to 9% for all patient populations after possible refinements. For example, in Type-2 diabetes, EAGLE successfully predicted the end-stage renal disease and fatal event rates reported in UKPDS (deviation = 0%). The rates of severe hypoglycemia differed by 1%. The EAGLE event rates for proliferative and non-proliferative retinopathy corresponded well with event rates derived from the WESDR publications (deviation = 3% and 4%, respectively). **CONCLUSIONS:** EAGLE consistently predicts event rates reported by UKPDS, WESDR, and DCCT, and is thus a valid and robust tool for the analysis of the long-term diabetes-related complications and related costs in type-1 and Type-2 diabetes.

**PDB54**

WITHDRAWN