of the DMM used in this analysis takes into account results of a regression analysis (pooled glargine versus NPH clinical trials), which demonstrates a more favourable relationship between HbA1c decrease and hypoglycaemia incidence for glargine versus NPH. Different cohorts of 10,000 patients with Type 2 diabetes taking glargine or NPH were assumed. The 3 scenarios tested differed in target HbA1c attainable by glargine versus NPH (scenario 1: Δ = 0.13%; scenario 2: Δ = 0.44%; scenario 3: Δ = 0.85%), corresponding to realistic possible improvements with comparable hypoglycaemia. Assumptions were based on clinical trials for scenarios 1 and 2, and on the regression analysis for scenario 3. RESULTS: The following relative risks (RR; glargine/NPH) were obtained for scenarios 1, 2, and 3 respectively: 0.97, 0.89 and 0.81 for long-term microvascular complications (need for renal dialysis: 0.97, 0.88, and 0.79); 0.99, 0.95, and 0.91 for long-term macrovascular complications (non-fatal myocardial infarction: 0.98, 0.95, and 0.88); 0.96, 0.88, and 0.79 for diabetic foot syndrome; and 0.99, 0.94, and 0.90 for mortality. The RR for a nocturnal hypoglycaemic event (0.81, 0.92 and 1.01) was consistent with the regression analysis. The RR reductions ranged from 1% in the less optimistic scenario to >20% in the “best case” scenario. Varying mean baseline HbA1c and duration of diabetes in sensitivity analyses did not alter these outcomes. CONCLUSIONS: Assuming comparable hypoglycaemia, the better glycaemic control (HbA1c reduction) achieved with glargine than with NPH would lead to reduced long-term complications and mortality rate, based on this model.

**PDB2**

**IS THERE A GAIN WITH THE PAIN? ASSESSMENT OF THE RELATIONSHIP BETWEEN SELF-REPORTED ADHERENCE TO SELF-MONITORING OF BLOOD GLUCOSE (SMBG) AND HBA1C LEVELS AMONG TYPE 2 DIABETICS**

Vincze G, Barner JC, Lopez DA  
University of Texas at Austin, Austin, TX, USA

Conflicting information exists in the literature regarding the merit of frequent SMBG to control blood glucose levels among type 2 diabetics. The American Diabetes Association (ADA) recommends SMBG to reach and maintain normal or near-normal glucose levels among both type 1 and type 2 diabetics. **OBJECTIVE:** The objective of this study was to assess whether self-reported adherence to SMBG was related to HbA1C among type 2 diabetics. **METHODS:** Type 2 diabetics from a county family clinic served as the study population. Participants completed a self-administered survey during seminars held at the clinic. Chart reviews were conducted to retrieve baseline (at the time of the seminar) and follow-up (within one year after the seminar) HbA1C levels, as well as indication for change in pharmacotherapy. Multiple regression was used to assess the relationships between SMBG adherence and HbA1C, while controlling for demographic (i.e., age, race, and income) and biological (i.e., duration of diabetes, comorbidities, change in pharmacotherapy, and baseline HbA1C) variables. A priori significance level of .05 was chosen. **RESULTS:** Participants (n = 158) were 56.9 (SD: 12.3) years old, non-white (70.1%), with annual family income between $20,000 and $30,000, on average. Their adherence to SMBG was 49.2% (SD: 40.3), which was not associated with follow-up HbA1C level. Duration of diabetes, change in pharmacotherapy, and the number of complications were significantly and positively associated with follow-up HbA1C. **CONCLUSIONS:** SMBG adherence was not significantly related to follow-up HbA1C among type 2 diabetics. Maintaining normal or near-normal blood glucose levels may be more likely associated with adherence to diet, exercise, and medication. Health practitioners should view SMBG as a tool, rather than a therapy by itself, and recommend its use to those patients who can and are willing to act based upon the results.

**PDB3**

**CLAIMS DATA MEASUREMENTS OF MEDICATION ADHERENCE AND METABOLIC OUTCOMES IN PATIENTS WITH TYPE 2 DIABETES (DM2)**

Pladevall M, Loomis LA, Williams K, Xi H, Akkerman N, Elston-Lafata J  
Henry Ford Health System, Detroit, MI, USA

**OBJECTIVES:** To use claims data to estimate the association between adherence to medications and clinical outcomes in DM2 patients. **METHODS:** Using automated data from a large health maintenance organization, we identified a sample of 644 patients, age 18 years diagnosed with DM2, hypertension, and hypercholesterolemia who receive treatment with either cardiovascular or anti-diabetic medications between 1999–2001. Patients taking insulin were excluded. We measured adherence to three classes of drugs, biguanides, HMG-CoA reductase inhibitors (CoA-I), and ACE-inhibitors (ACE). Within each drug class, adherence was measured for those patients who filled at least one prescription per year. Body mass index and blood pressure measurements were obtained by medical record icon. Non-adherence was calculated as a continuous measure of medication gaps (CMG), which is the proportion of days without medication during the period of observation. T-tests or non-parametric tests were used, where appropriate, to compare baseline characteristics and differences in clinical outcomes. Associations between clinical outcomes and CMG were estimated using correlation coefficients. Linear regression models were used to adjust for sociodemographic and clinical characteristics. **RESULTS:** Correlation coefficients were 0.23 for non-adherence to biguanides and HbA1c (p < 0.01), 0.32 for non-adherence to CoA-I and LDL (p < 0.01), and 0.16 for non-adherence to ACE and SBP (p < 0.01). When com-
paring adherent patients (1-CMG ≥ 80%) to non-adherent patients (<80%), mean ± SD levels of HbA1c, LDL, and BP were lower in the adherent than in the non-adherent group: 8.0 ± 1.2 vs. 8.5 ± 1.4% for HbA1c (p < 0.01), 103.2 ± 28.1 vs. 123.3 ± 34.2 mg/dL for LDL (p < 0.01); and 137.8 ± 12.4 vs. 142.9 ± 12.9 mmHg for SBP (p < 0.01). Adjustment for socio-demographic characteristics did not attenuate the strength of the associations.

CONCLUSIONS: Adherence measured by claims data correlated with clinical outcomes in DM2 patients.

**PDB4**

**POPULATION-BASED DIABETES INTERVENTION IN A MANAGED CARE SETTING**

*Buchner DA, Ershoff D, Fazio C, Mackey AL*

1Scherer-Plough, Kenilworth, NJ, USA; 2Astra Zeneca, Tarzana, CA, USA; 3Medica, Minnetonka, MN, USA; 4BMS, Eden Prairie, MN, USA

**OBJECTIVE:** To evaluate the impact of a population-based, diabetes intervention program on patient self-management behaviors and health system screening practices and risk factor management. **METHODS:** A population-based diabetes intervention program was developed by a large, regional managed care plan in the northern Midwest and a health management subsidiary of a pharmaceutical company. Program interventions included periodic education mailings, brochures, newsletters and kits, as well as telephonic case management for high-risk patients. Six hundred thirty-eight diabetic members of the health plan completed surveys before and after one year of program participation, with a 48% response rate. A second cohort of 956 diabetic patients that did not participate in the interventions served as a control group. The evaluation of program impact was examined using two quasi-experimental designs: 1) one-group pretest-posttest, and 2) a posttest only design with nonequivalent groups. Information solicited in the survey included quality of life issues, frequency of monitoring activities, behavioral risk factor management, and intermediate clinical outcomes (i.e., HbA1c values, blood pressure, blood glucose levels). **RESULTS:** Mean quality of life scores (PAID) improved significantly from baseline in the intervention group (P < 0.01) and were significantly higher than controls (P < 0.01). Statistical improvements (P < 0.01) were noted from baseline for blood glucose monitoring. At follow-up, significantly more patients in Cohort 1 reported pre-meal blood glucose levels of <140 (P < 0.01) and mean decreases in low and high blood sugar episodes. Clinical screening exams were almost all significantly improved in the intervention group compared with controls. With the exception of smoking, which showed a significant decrease in the intervention group, health behaviors such as following a meal plan and exercising were not affected. There were no changes reported in body mass index (BMI).

**CONCLUSIONS:** A population-based intervention program implemented within a large health plan produced measurable improvements in diabetes-related behaviors and outcomes.

**PDB5**

**EVIDENCE-BASED ASSESSMENT OF PATIENTS’ RISK AND POTENTIAL REGARDING THE LONG-TERM COMPLICATIONS OF DIABETES USING A NEW MODEL OF PROGNOSIS IN THE DM PROJECT DIAMART**


1Institute for Medical Informatics and Biostatistics, Basel, Switzerland; 2HESTIA Health care GmbH, Mannheim, Germany; 3ArztPartner almeda AG, Munich, Germany; 4Deutsche Krankenversicherung AG, Cologne, Germany; 5Saarlandklinik Kreuznacher Diakonie, Neunkirchen, Germany

**OBJECTIVES:** Assessing risk profiles and medical optimisation potentials (MOP) for diabetics participating in a German diabetes management (DM) project. **METHODS:** Medical record data from privately insured type-2 diabetics participating in a DM project were used to calculate individual 10-year-probabilities of complications with a Markov-chain based disease model (Mellibase). MOPs are the relative risk difference when comparing present individual risk versus risk of a patient achieving national guideline values for key risk factors (HbA1c, systolic blood pressure (SBP), total cholesterol, HDL cholesterol, triglycerides, smoking status). MOPs were communicated to patients and their physicians using Mellibase reports. Assessments are repeated after 3 and 6 months. **RESULTS:** Of 178 type-2 diabetics (mean age 58 years, diabetes diagnosed since median 7 years, 8% females) 97/85% had at least one risk factor at medium/high level according to guideline. A total of 15/29/28/28% of the diabetics shows 0/1/2/3 risk factors at high level the MOPs are equivalent to 5/11/23 less expected events over 10 years, reflecting the enormous opportunity for improvement. First 3 months follow-up data (80 diabetics) indicate significant reductions for HbA1c, SBP, and total cholesterol among high risk patients. **CONCLUSIONS:** Diabetics participating in DIAMART at the start are at high risk for complications, resulting in substantial MOP. First follow-up data suggest that MOPs, when used by the physician via Mellibase reports to inform and motivate the patient, could be an effective tool to motivate for reaching recommended guideline risk levels by translating risk into opportunities. For DM planning MOPs quantify potential benefits from specific interventions (e.g. anti-smoking initiative) in diabetes care and help focusing efforts on improving outcomes.