Abstracts

**DB5**

**BODY MASS INDEX (BMI) AND TRENDS IN GP CONSULTATIONS AND PRESCRIBING: A UK NHS PERSPECTIVE**

Boyer A1, Lister SP2

1Heron Evidence Development, Letchworth, UK; 2CompuFile Ltd, Woking, Surrey, UK

OBJECTIVE: To assess trends in UK GP consultations and prescribing according to BMI classification. METHODS: The DIN-LINK longitudinal patient database comprises 1.5 million anonymised medical records from GP practices across Great Britain. This analysis was based on a cohort of 75,738 DIN-LINK patients, with BMI status recorded, who had seen their GP in the year ending August 2004. Patients were grouped according to three BMI classifications: normal (BMI < 25), overweight (25–30) and obese (>30). We examined the mean number of consultations per patient and the lengths of these consultations in the three groups. The number and type of prescriptions issued were also measured.

RESULTS: The mean number of consultations per patient increased as patients’ BMI increased from normal to obese. Patients with a BMI below 25 saw their GP a mean 6.4 times [SD 36.5] during the year; this was significantly lower than patients who were overweight (7.5 [35.5]). Patients classified as obese had the highest mean number of consultations at 8.7 [35.3]. This trend was repeated when the number of prescriptions issued per consultation was investigated. In the normal BMI group, a mean 0.87 prescriptions were issued per consultation, increasing to 0.99 for the overweight individuals; this rose again to 1.17 in the obese group. Over the course of the year, obese patients were issued with a mean 10.3 prescriptions, almost twice as many as normal BMI patients (mean 5.6). There appeared to be only slight increases in the lengths of consultations as BMI classification increased from normal to obese.

CONCLUSION: Our preliminary analysis shows that patients with a higher BMI are likely to visit their GP more frequently, and be issued with more prescriptions, than those of normal weight. The length of a consultation, however, does not appear to be influenced greatly by BMI status.

**DB6**

**COMPARISON OF THE COST-EFFECTIVENESS FOR BASAL-BOLUS THERAPY OF TYPE-1 DIABETES USING INSULIN DETEMIR + INSULIN ASPART OR HUMAN INSULIN-BASED REGIMENS IN THE NETHERLANDS**

Valentine WJ1, Wittrup-Jensen K2, Palmer AJ1, Roze S1

1CORE—Center for Outcomes Research, Binningen, Basel, Switzerland; 2Novo Nordisk A/S, Bagsvaerd, Denmark

OBJECTIVES: In patients with type-1 diabetes, poor glycemic control is associated with increased risk of complications. A recent clinical study provided evidence that basal/bolus treatment with insulin detemir+insulin aspart (IDet/IAsp) improved HbA1c (0.22%-points lower after 18 weeks), reduced risk of hypoglycemic events (by 21%), and decreased body mass index (BMI) (~0.3 kg.m⁻²) in comparison to neutral protamine Hagedorn insulin-human soluble insulin (NPH/HSI). The aim of this study was to evaluate the long-term impact of these short-term clinical benefits in patients with type-1 diabetes in the Dutch setting. METHODS: We used a validated computer simulation model (CORE Diabetes Model) to project long-term clinical and cost outcomes in patients receiving IDet/IAsp or NPH/HSI based on the clinical study findings. Standard Markov sub-models were combined to simulate the incidence and progression of complications (cardiovascular disease, neuropathy, renal and eye disease). Transition probabilities and HbA1c-dependent adjustments were derived from published sources. Baseline cohort characteristics and treatment effect data were based on the clinical study. Direct costs were retrieved from published sources and projected over patient lifetimes from a Dutch National Health Care perspective. Costs and clinical benefits were discounted at 4% per annum. RESULTS: IDet/IAsp treatment was associated with fewer diabetes-related complications, improved life expectancy (0.15 life years gained) and quality-adjusted life expectancy (0.10 QALYs gained) compared to NPH/HSI. Mean total lifetime costs were €872 per patient higher with IDet/IAsp, leading to incremental cost-effectiveness ratios (ICERs) of €5813 per life year and €7206 per QALY gained. CONCLUSION: Short-term clinical benefits in glycemic control, hypoglycemic event rates and BMI associated with IDet/IAsp basal/bolus therapy were projected to lead to fewer complications, and improved life expectancy and quality-adjusted life expectancy over patient lifetimes compared to NPH/HSI. This resulted in ICERs for IDet/IAsp versus NPH/HSI in the range considered to represent excellent value for money.

**DB7**

**THE EFFECT OF OBESITY ADJUSTMENTS ON COST-EFFECTIVENESS MODELS OF DIABETES PREVENTION**

Nevak S, Lawson K, Wilson J

University of Texas at Austin, Austin, TX, USA

OBJECTIVES: Obesity adjustments may have a substantial effect on models of long-term cost-effectiveness of intensive lifestyle intervention to prevent type -2 diabetes (T2DM). The objectives of this study were to: 1) design a long-term cost-effectiveness model to evaluate the use of lifestyle intervention to prevent progression from impaired glucose tolerance (IGT) to T2DM; and 2) to analyze the effect of obesity adjustments for mortality and costs on the model. METHODS: Markov models were developed based on the DPP results incorporating the states of normal glucose tolerance (NGT), IGT, T2DM and death. Transition probabilities were derived from DPP and current lite-
erature. A three-year intervention was assumed with outcomes of: 1) a three-year duration of effect; and 2) a lifetime duration of effect. A second set of models included an additional increased cost of illness for obese NGT subjects, and an increased mortality rate for obese T2DM subjects over the base-case. RESULTS: Lifestyle dominated placebo in all models tested. In the obesity-adjusted model, subjects had higher lifetime costs and shorter duration of life. The following incremental cost-effectiveness ratios were derived: 1) base-case model – three-year duration = $16,064/LY; 2) base-case model – lifetime duration = $19,496; 3) obesity-adjusted model – three-year duration = $2278/LY; and 4) obesity-adjusted model – lifetime duration = $4281/LY. A maximal acceptable cost of intervention per year for the three-year duration of effect that could be used to maintain lifestyle dominance was also established. The value for the obesity-adjusted model was approximately 45% of that found for the base-case model. CONCLUSION: Researchers examining the cost-effectiveness of intensive lifestyle intervention to prevent T2DM should be aware of the potential effect of obesity adjustments when developing models, in particular, the effects of obesity on mortality and costs for NGT subjects.

**THE IMPACT OF GLYCEMIC CONTROL ON THE INCIDENCE OF DIABETIC COMPLICATIONS**

**Taylor MD**, Winterstein A, Hartzema A, Segal R, Frank RG, Maclean R

1 University of Florida, Gainesville, FL, USA; 2Bristol-Myers Squibb, Princeton, NJ, USA

**OBJECTIVE:** Cost models are often criticized for limited or obscure selection of transition probabilities, especially when several estimates are available. We conducted a systematic review of population-based studies estimating the impact of improved glycemic control on the incidence of microvascular (retinopathy, nephropathy, and neuropathy/diabetic sores and ulcers/lower extremity amputations LEA)) and macrovascular (myocardial infarction and stroke) complications of type-2 diabetes mellitus.

**METHODS:** Literature searches using keyword and MESH algorithms in the PubMed bibliographic database, and hand search. Studies had to be published between 1985–2004, conducted in Australia, North America, or Europe, and compare the risk for macrovascular or microvascular complications per % difference in HbA1c over three to ten years. Two reviewers independently extracted study and population characteristics and the relative risk (RR) associated with a 1% crude difference in HbA1c. Odds-ratios were treated as RRs. Meta-analytic pooled estimates were calculated for complications with more than one RR estimate using random effects models. To account for variation in study design validity cohort and experimental studies were weighted twice as much as cross-sectional studies.

**RESULTS:** RR estimates were obtained for retinopathy (eight estimates), nephropathy (four), all-cause mortality (two), myocardial infarction (one), diabetic sores and ulcers (one), and LEA (one). No RR estimate was identified for stroke. A crude 1% difference in HbA1c was found to reduce the likelihood of retinopathy by 25% (95% CI: 19%–30%), nephropathy by 22% (13%–32%), all-cause mortality by 17% (10%–27%), myocardial infarction by 16% (9%–27%), diabetic sores and ulcers by 30% (20%–50%), and LEA by 30% (10%–50%).

**CONCLUSIONS:** A crude 1% decrease in HbA1c leads to a significant reduction in the incidence of serious diabetic complications. Epidemiologic studies were surprisingly scarce, especially for macrovascular complications and population subgroups. Laboratory-enriched claims databases would be ideal for future studies relating HbA1c to diabetic complications.

**Mental Health**

**MH1**

**TREATMENT COSTS OF ALZHEIMER’S DISEASE IN THE CALIFORNIA MEDICAID (MEDI-CAL) PROGRAM FROM 1995 TO 2002**

**Lee LI, Yu AP, Yu YF, Nichol MB**

1 University of Southern California, School of Pharmacy, Los Angeles, CA, USA; 2HealthCore, Inc., Wilmington, DE, USA

**OBJECTIVES:** To estimate the treatment costs incurred by Alzheimer’s disease (AD) patients in Medi-Cal over an eight-year span (1995–2002). METHODS: AD patients were identified (ICD-9 = 331.0) using 20% sample of Medi-Cal administrative claims data from January 1, 1995 to December 31, 2002, and were 1:10 matched to the a control group without AD diagnosis based on age and gender. Annual total treatment costs were calculated for both groups. For patients with AD, yearly expenditures after the initial diagnosis were also measured. All costs were eligibility-adjusted by the number of eligible months.

**RESULTS:** In total, 6494 cases and 64,940 controls were identified. The average age was 83.6 (+/-12.2) and 69.5% were female. The average annual treatment costs were more than two-fold higher for AD patients than controls ($13,978 vs. $6188, p < 0.0001). Without adjusting for inflation, the treatment costs for a typical AD patient increased from $10,032 in 1995 to $19,446 in 2002. During the first year after the initial diagnosis, the average treatment costs for AD was $17,725. The costs increased slightly over time for those patients who survived and remained in Medi-Cal and by the fourth year, the treatment costs increased to $18,064. For the first year, nursing home costs accounted 81% of the total costs, followed by pharmacy (8%) then outpatient (6%). For AD alone, it is estimated that Medi-Cal paid an incremental $84 million in 1995 and $200 million in 2002.

**CONCLUSIONS:** This study demonstrated that AD is an increasingly costly disease, and treatment costs were doubled from 1995–2002. Consistent with previous studies, nursing home care was the major component of health care costs.

**MH2**

**TREATMENT COSTS OF ALZHEIMER’S DISEASE IN THE CALIFORNIA MEDICAID (MEDI-CAL) PROGRAM FROM 1995 TO 2002**

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1 University of Southern California, School of Pharmacy, Los Angeles, CA, USA; 2HealthCore, Inc., Wilmington, DE, USA

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**CONCLUSIONS:** This study demonstrated that AD is an increasingly costly disease, and treatment costs were doubled from 1995–2002. Consistent with previous studies, nursing home care was the major component of health care costs.

**PMH2**

**COSTS OF TREATING CRISIS-PRONE SCHIZOPHRENIA PATIENTS**

**Zhu B, Ascher-Svanum H, Faries DE, Jiang Q, Salkever D, Slade E**

1 Eli Lilly and Company, Indianapolis, IN, USA; 2Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA; 3University of Maryland, Baltimore, MD, USA

**OBJECTIVES:** To assess the one-year direct mental health costs of treating crisis-prone schizophrenia patients. METHODS: Data were drawn from a large multi-site prospective naturalistic study of schizophrenia patients in the United States, conducted between July, 1997 and September, 2003. Participants were treated at large mental health systems, including the Veterans Health Administration, community health centers, community and state hospitals, and university health care delivery systems. Total mental health cost and component costs (psychiatric hospitalizations, antipsychotic medications, other psychotropic medications, day treatment, emergency psychiatric services, psychosocial/rehabilitation group therapy, individual therapy, medication management, and case management), were calculated for 1557 participants with complete medical information. Propensity score adjusted bootstrap re-sampling methods were used to compare one-year direct costs of five crisis-prone subgroups, defined as having: prior suicide attempt (in past four weeks, yes/no), psychiatric hospitalization (in past six months, yes/no), prior arrest (in past six months, yes/no), prior violent behaviors