and Disease count (R2 = 0.0920; MCS: 0.0207). The HRQL-CI explained most of the variation in the PCS scores (R2 = 0.3197). The disease count (R2 = 0.2704) and Elixhauser explained similar amount of variation in PCS. Unlike PCS, Elixhauser (R2 = 0.1865) performed better in predicting variance in the disease count (R2 = 0.0905). D’Hoore Index did not perform well in both PCS (R2 = 0.1829) and MCS (R2 = 0.0516). CONCLUSIONS: Recently developed HRQL-CI performed better than other comorbidity measures for risk adjusting PCS, however, Elixhauser comorbidity measures performed better than HRQL-CI for MCS.

PDB110 ADAPTING AND VALIDATING DIABETES SIMULATION MODELS ACROSS SETTINGS: ACCOUNTING FOR MORTALITY DIFFERENCES USING ADMINISTRATIVE DATA FROM AUSTRALIA

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OBJECTIVES: To develop age and sex-specific risk equations for predicting mortality following major complications of diabetes, using a large linked administrative dataset from Western Australia (WA), to test these into the UKPDS Outcomes Model. To compare the original and adapted models in predictions of survival and life expectancy following myocardial infarction, stroke, heart failure, amputation and renal failure, and incremental benefits associated with tight glycaemic control in patients with diabetes. METHODS: We estimated a multivariate logistic regression model for the probability of death in the year of a complication, and a multivariate semi-parametric survival model (Cox) for years beyond the year of the complication. Covariates in the models included the type of complication, age, type 1 diabetes and sex. Using representative income and clinical risk factors for Australian patients we ran Monte Carlo simulations of the original and adapted models. Parameter uncertainty was evaluated using 1000 bootstrapped coefficients of all model risk equations. RESULTS: Simulated survival using Australian mortality equations fell inside the 95% confidence interval of observed survival, whilst survival using UK mortality equations fell outside of the interval. The two versions of the model generated differences in life expectancy following specific events; for example life expectancy of a 74 year old following myocardial infarction was 2.74 (95% CI 2.07-3.62) years for UK versus 4.33 (3.85-4.81) years for WA. However there was little impact of using alternative mortality equations on incremental QALYs gained as a result of reducing Hba1c or systolic blood pressure, or on aggregate outcomes of life expectancy for a cohort initially free of complications. CONCLUSIONS: Mortality following major complications varies across diabetic populations and this can impact on estimates of life expectancy, but it appears to have less impact on incremental benefits of interventions that are commonly used in pharmacoeconomic analyses.

PDB111 ACCOUNTING FOR PSYCHOLOGICAL DETERMINANTS OF TREATMENT RESPONSE IN HEALTH ECONOMIC SIMULATION MODELS OF BEHAVIOURAL INTERVENTIONS: A PROSPECTIVE STUDY IN TYPE 2 DIABETES

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OBJECTIVES: Health economic modelling has paid limited attention to incorporating the effects patients’ psychological characteristics can have on the effectiveness of a treatment. The objective of this study was to test the feasibility of incorporating psychological prediction models of treatment response within an economic model of a diabetes structured education programme. Dose Adjustment For Normal Eating (DAFNE). METHODS: Data from the National Institute for Health Research DAFNE Research Programme were used to support all analyses. Three regression models were used to investigate the relationships between patients baseline psychological characteristics and their 12-month HbA1c response to DAFNE. The regression models were integrated with a patient-level simulation model of type 1 diabetes to evaluate the cost-effectiveness of two new policies (providing DAFNE only to predicted responders and offering a follow-up intervention to predicted non-responders) compared with current practice. The model estimated costs and quality-adjusted life-years over a 50-year time horizon from a UK National Health Service perspective. Deterministic sensitivity analyses were conducted. RESULTS: Psychological predictors of treatment response were successfully integrated with the health economic simulation model and allowed new treatment policies to be evaluated. The results suggest that providing DAFNE only to predicted responders is dominated by current practice (incremental costs ranged from £297 to £616 and incremental QALYs from −0.112 to −0.209). This result was insensitive to the psychological prediction model used and to the majority of sensitivity analysis assumptions tested. The results suggest that providing a follow-up intervention to predicted non-responders dominates current practice. This result was sensitive to model assumptions. CONCLUSIONS: By collecting data on psychological variables for a subgroup of patients before an intervention, we can construct predictive models of treatment response to behavioural interventions and incorporate these into health economic simulation models to investigate more complex treatment policies. Further research using this methodology is indicated.

INDIVIDUAL’S HEALTH – Clinical Outcomes Studies

PH1 THE CLINICAL CONSEQUENCES OF EXPOSURE TO CLINICALLY IMPORTANT DRUG-DRUG INTERACTIONS

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OBJECTIVES: To evaluate the clinical and economic consequences of exposure to potential drug-drug interactions (PDDIs). METHODS: This was a case-control study conducted using MarketScan data from 2004 to 2008. PDDIs were ascertained using first and last dates of object drug usage overlapped with those dates of administration of the potential drug-drug interaction causing the interaction). The follow-up period was 30 days for all PDDIs and 60 days for amiodarone. For each PDDI, cases were matched one-to-one to controls using unconditional logistic regression with three variables: age, gender and Charlson score. Matches occurred where the difference in propensity scores between a case and control was between 0.0031 and 0.01. Medical outcomes were PDDI pair specific based on a priori defined health outcomes (using ICD9 codes) occurring during the follow-up period. Logistic and GLM regression models were constructed to evaluate the presence of negative medical outcomes and costs, respectively. RESULTS: The total number of case/ control pairs per PDDI of interest ranged from 570 for digoxin/azole antifungals to 128,423 for warfarin/statins. For negative health events, non-significant findings occurred for only three PDDIs. Among the 17 PDDIs with significant findings, odds ratios for negative outcomes ranged from 1.12 to 128.423 for warfarin/azoles (HR 13.9-20.2) for warfarin/libiters at 12.50 (95%CI: 9.56-15.72) for digoxin/macrolide antibiotics. With respect to total health care costs, higher expenditures occurred among persons with a PDDI than controls for all 20 PDDIs examined (p<0.001). Cost differences ranged from $554 for warfarin/libiters to $8814 for digoxin/azole antifungals. CONCLUSIONS: Persons exposed to PDDIs were more likely to experience negative health outcomes and have higher costs as compared to propensity-score matched controls. PDDIs are associated with significant morbidity and expense.

PH2 RELATIONSHIP BETWEEN MUSCLE MASS AND MUSCLE STRENGTH IN THE ELDERLY POPULATION IN THE UNITED STATES

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OBJECTIVES: To characterize the relationship between muscle mass and muscle strength in the US elderly population, and examine potential sources of population heterogeneity. METHODS: This study included individuals aged 50 and above from the National Health and Nutrition Examination Survey (NHANES) 1999-2004 databases. Distributions of muscle mass measured via the height-adjusted appendicular skeleton muscle mass (aASM), in kg/m2), and muscle strength via the isokinetic quadriceps strength (IQS, in Newtons) were examined, stratified by age and gender. The relationship between muscle mass (aASM) and muscle strength (IQS) was summarized using the partial correlation coefficient adjusting for age and gender. The effects of individual covariates, medical conditions and body mass index (BMI) on the relationship between muscle mass and muscle strength were assessed using a series of multivariable regression models, using survey strata and weighting, with aASM, age, gender, and each variable of interest (e.g., diabetes) predicting muscle strength; and with an interaction between aASM and the variable of interest added to assess for effect modification. RESULTS: The study included 5139 individuals with a mean age of 66.2 years and 50.2% female. Mean (SE) aASM was 7.2 (0.03) and declined with age, from 7.6 (0.05) for 50-54 year olds to 6.4 (0.04) for those 80 and older. Mean (SE) IQS was 362.3 (8.0), declining from 426.6 (6.7) for 50-54 year olds to 313.5 (6.5) for those 80 and older. aASM and IQS were positively correlated (partial correlation coefficient=0.365, p<0.0001). Interactions between aASM and several factors (e.g., diabetes, arthritis and BMI) were statistically significant (P<0.05). CONCLUSIONS: Among individuals aged 50 and above in the United States, muscle mass and muscle strength are positively correlated. BMI and certain comorbid medical conditions (e.g., diabetes and arthritis) appear to modify the effect of muscle mass on muscle strength.

PH3 USE OF MIXED TREATMENT COMPARISON METHODS IN ESTIMATING EFFICACY OF TREATMENTS FOR HEAVY MENSTRUAL BLEEDING

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OBJECTIVES: For use in cost-effectiveness models, synthesize available data to derive estimates of efficacy for several classes of treatments for heavy menstrual bleeding (HMB). METHODS: A systematic review identified randomized controlled trials that reported on menstrual blood loss (MBL) at baseline and one or more follow-up time points. The primary measure of efficacy was the proportion of women who achieved MBL <80ml per cycle (month), as measured by the alkaline hematin method. Complicating the analysis, some trials reported various summary statistics for MBL, and others used scores from pictorial blood-loss assessment charts (PBAC). Estimation of the primary measure from these data took advantage of the approximately lognormal distributions of MBL and PBAC scores. Also, reported follow-up times varied substantially. Estimates of efficacy by treatment class and time were obtained from a Bayesian mixed treatment comparison (MTC) model. The model also included effects for treatment class, study, and the combination of treatment class and study and an adjustment for baseline mean MBL. RESULTS: The evidence network comprised eight treatment classes and 34 ran-