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PODIUM SESSION I: ECONOMIC EVALUATIONS I

EE1

DISCRETE CHOICE EXPERIMENTS OF COMPLEX HEALTH CARE DECISIONS: DOES HIERARCHICAL INFORMATION INTEGRATION OFFER A SOLUTION?

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OBJECTIVES: Discrete choice experiments (DCE) are increasingly used to investigate preferences for health care products and programs. A limitation of DCE is the inability to handle large numbers of attributes. In hierarchical information integration (HII) attributes are categorized into meaningful subsets, and separate experiments are designed for each of the subsets. A HII-DCE was applied regarding potential barriers and facilitators to implementation of the guideline for breast cancer surgery in day-care. **METHODS:** A total of 1713 questionnaires were sent to three groups of health care professionals (anesthesiologists, surgical oncologists, breast care nurses). Random parameters logit modelling was used to estimate a choice model. Theoretical validity, construct validity, and internal consistency were assessed to investigate whether HII can be used to deal with the typical complexity of multi-faceted health care management decisions. Also, response rate and predictive ability of the model were assessed to study the feasibility of HII. **RESULTS:** Sixteen out of 17 attributes were significant at the 1% level and had the expected sign. Also all three decision constructs were significant at the 1% level, and were well defined by their attributes. The test-retest resulted in a Kappa statistic of 0.58 ($p < 0.001$). The overall response rate was 10%. The predicted frequency distribution and observed frequency distribution based on the full profile hold-out task did not differ significantly (Chi-square test; $p = 0.088$). **CONCLUSIONS:** Our study showed good theoretical validity, good construct validity and satisfactory internal consistency. Response rate was poor and predictive ability of the model was satisfactory. In conclusion, HII can be successfully used to study complex health care decisions. The feasibility of HII in this particular context of an implementation decision seemed less favourable.

EE2

STANDARDIZED TYPE 2 DIABETES COMPLICATION COSTS FROM US COMMERCIAL PAYERS TO BE USED IN MODELING THE LONG-TERM ECONOMIC OUTCOMES OF DIABETES COMPLICATIONS

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OBJECTIVES: The American Diabetes Association (ADA) has estimated the annual cost of diabetes in the USA at $174 billion (ADA, *Diabetes Care*, 2008), using multiple and varied sources to derive cost estimates. This study used a single, multi-payer US database to derive private payer-specific estimates of average type 2 diabetes mellitus (T2DM) complication costs, which may be suitable for long-term economic modeling. **METHODS:** Private health insurance claims were taken from the PharMetrics Patient-Centric Database, which is comprised of adjudicated medical and pharmaceutical claims covering 55 million unique patients from over 90 health plans from across the USA. T2DM patients experiencing at least 1 of 24 major complications from July 1, 2003 through June 30, 2005, along with a T2DM diagnosis prior to or on the date of the index complication, were identified. T2DM complication costs were extracted from 64,556 patients who had a minimum of 12 months follow-up. Cost data for months 13–24 following the complication were taken from a subset of the full patient population who were continuously eligible for at least 24 months ($n = 47,541$). Direct medical costs were subdivided into charges and allowed amounts expressed in $US 2007. **RESULTS:** The average age of the population was 57 years and 51.8% were male. The most frequently reported complication was peripheral neuropathy (26.3%). First year charges for complications ranged between $272 for ketoacidosis to $38,588 for myocardial infarction, with corresponding allowed amounts of $174 and $14,394, respectively. Second year charges for complications ranged between $0 for ketoacidosis to $21,965 for peritoneal dialysis, with corresponding allowed amounts of $0 and $10,133, respectively. Among all complications, allowed amounts were significantly lower than charged amounts. **CONCLUSIONS:** Our study provides an important and representative source of T2DM complication costs for estimating the long-term economic impact of this prevalent and costly disease.

EE3

VARIATION IN DIRECT MEDICAL COSTS BY DISEASE SEVERITY AMONG PERSONS WITH CHRONIC HEPATITIS C VIRUS

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OBJECTIVES: To document disease-related resource utilization and costs by disease severity among persons with chronic hepatitis C virus (HCV) in a United States (US) managed care population. **METHODS:** A US insurance claims database spanning January 1, 2002 to December 31, 2006 was retrospectively analyzed. Patients with ≥1 diagnosis of chronic HCV and no evidence of hepatitis B were selected. Patients had continuous plan enrollment for ≥6 months before and ≥12 months following first observed HCV diagnosis. Disease severity, measured using the aspartate aminotransferase to platelet ratio index (APRI), was assessed for patients with valid lab results (N = 2877). Patients were classified into three mutually exclusive severity categories: mild (APRI ≤

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0.5, N = 2384), moderate (0.5 < APRI&LE;1.5, =″/″ and=″″ (apri=″″ severe=″″ n=″377),″>1.5, N = 116). Per patient use and costs of HCV-related medical services and prescriptions were assessed over 12 months post-diagnosis. **RESULTS:** More than 23% of patients with severe HCV had a disease-related hospitalization compared to 12% and 16% of mild and moderate patients, respectively (both P < 0.05). Hospitalization costs were nearly 2.5 times higher in moderate patients ($3480) and approximately 4.7 times higher in severe patients ($6872) compared to those with mild disease ($1448; both P < 0.01). Severe patients also had a significantly (P < 0.01) higher mean number of hospital days (7.9) compared to moderate (6.7 days) and mild patients (4.1 days). There were no significant differences in encounters and costs for physician office and emergency department visits. Severe patients had slightly lower (but insignificant) HCV-related pharmacy costs compared to mild and moderate patients. After controlling for demographics and comorbidities in a multivariate analysis, mild patients incurred $4708 less (P < 0.01) in total HCV-related costs compared to severe patients. **CONCLUSIONS:** Patients with moderate and severe HCV incur nearly twice the medical costs of patients with mild disease, due primarily to increased hospitalizations. There was no significant difference in ambulatory resource use and costs between moderate and severe patients.

EE4

CAREER INTERRUPTIONS AND SICK LEAVES AMONG FIBROMYALGIA PATIENTS

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OBJECTIVES: Early diagnosis of fibromyalgia and its management represent a public health issue for the health authorities who allocate resources. Career interruptions and absences from work consume a significant share of these resources.The aim was to describe the characteristics of subjects who reported career interruptions or sick leaves in UK, **METHODS:** Four questionnaires, the LFESSQ (London Fibromyalgia Epidemiology Study Screening Questionnaire), the CES-D (Center for Epidemiologic Studies Depression Scale), the SQA (Sleep Quality Assessment), and the FMQ (Fibromyalgia Moldofsky Questionnaire), were administered to a representative community sample in UK. A descriptive analysis of career interruptions and sick leaves was carried out using social and demographic data and symptoms supplied by the subjects surveyed, **RESULTS:** 25.1% stated that they were not working at the time of the survey, with significantly more women (34.3% vs 15.5%), subjects over 50 (50.5% vs 4.9%) and with a low income (58.2% vs 45.9%). Subjects with pain (LFESSQ positive), a strong presumption of fibromyalgia syndrome (FMQ > 8), with an unrestorative sleep (SQA >= 14), a possible depressive symptoms (CES-D > 17) were significantly more frequently inactive. 24.8% had been absent during the last year (average of 8.6 absence days). Subjects with pain, a strong presumption of fibromyalgia, an unrestorative sleep, a possible depressive symptoms were not more frequently absent from work. The number of absence days increased significantly with the number of concomitant symptoms: 1 day for subjects experiencing pain, 1.8 for subjects with a sleep disorder, 3.3 for pain and fatigue, 3.8 for pain and probable depressive symptoms, reaching 5.1 days for a combination of pain, fatigue and probable depressive symptoms, **CONCLUSIONS:** Career interruptions were significantly more common in subjects who screened positive on the LFES-SQ and who had a strong presumption of fibromyalgia syndrome, whereas absence from work mostly affected subjects with a sleep disorder.

PODIUM SESSION I: MEDICAL DEVICE ECONOMIC EVALUATIONS

MD1

HEALTH ECONOMIC ANALYSIS OF CONTINUOUS SUBCUTANEOUS INSULIN INFUSION COMPARED TO MULTIPLE DAILY INJECTIONS FOR THE TREATMENT OF TYPE 1 DIABETES IN POLAND

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OBJECTIVES: To evaluate the long-term clinical and economic outcomes of treating adults and adolescents with type 1 diabetes with continuous subcutaneous insulin infusion (CSII) versus multiple daily injections (MDI) in Poland. **METHODS:** A validated model was used to estimate the lifetime impact of CSII-related improvements in diabetes control on quality-adjusted life-expectancy (QALE), occurrence of complications, and direct medical costs in two Polish type 1 diabetes cohorts (Adult—mean age 37.8 years, duration of diabetes 10.4 years, mean HbA1c 9.40%; adolescent—mean age 14.0 years, duration of diabetes 1.0 year, mean HbA1c 9.40%, no baseline complications). Treatment effects of CSII were defined from a meta-analysis as a reduction of 0.95% in HbA1c and a decrease in severe hypoglycemia (14.8 versus 62 events per 100 patient-years) compared with MDI. Future costs and benefits were discounted at 5% annually and projected over the patient's lifetime. All costs were evaluated in 2006 Polish Zloty and converted to Euro (€). **RESULTS:** CSII was associated with improvements in QALE (0.35 and 0.46 quality-adjusted life-years [QALYs] for adults and adolescents, respectively) and fewer diabetes-related complications versus MDI. Over patient's lifetime CSII versus MDI for adults and adolescents was projected to reduce the cost of renal disease by €865 and €413 and cost of hypoglycaemia by €576 and €3,463, respectively. For adults and adolescents CSII was projected to cost €9,309 and €19,294 more than MDI over a patient's lifetime, respectively. CSII was associated with an incremental cost-effectiveness ratio (ICER) of €20,778 for adults and €14,968 for adolescents per QALY gained versus MDI. **CONCLUSIONS:** Based on the threshold proposed by the World Health Organization (4 times the Gross Domestic Product per capita, approximately €26,000), CSII treatment improves clinical outcomes and represents a cost-effective treatment option compared with MDI for patients with type 1 diabetes in Poland.

MD2

(For MD2 see page A419)