

WB3

PATIENT PREFERENCE AND WILLINGNESS-TO-PAY IN FIVE EUROPEAN COUNTRIES FOR HUMALOG MIX25 COMPARED TO HUMULIN 30/70 FOR THE TREATMENT OF TYPE 2 DIABETES

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OBJECTIVES: To assess preference and willingness-to-pay (WTP) for the insulin mixture Humalog Mix25 relative to Humulin 30/70, from the perspective of patients in five European countries. The relative value of individual treatment attributes was also determined. **METHODS:** A total of 290 patients with type 2 diabetes were enrolled from 5 European countries. Of these, 235 were suitable for inclusion in the analysis. Their mean age was 51.3 years and, on average, patients had had diabetes for 11 years. A discrete-choice conjoint analysis was conducted using face-to-face interviews. Treatment attributes and levels were derived from published comparative clinical trial data available at July 2001. The attributes used were: timing of injections around meals; two-hour postprandial control; effect of prandial dosing; frequency of nocturnal hypoglycaemia; and cost. **RESULTS:** 90% (95% CI 86–93%) of patients would choose Humalog Mix25 over Humulin 30/70, at the same cost. On average, European subjects were willing to pay €111 per month more for Humalog Mix25 (95% CI €86.71–156.91). The primary driver was the reduced risk of nocturnal hypoglycaemic events, contributing 49% of WTP. The convenience of dosing immediately prior to the meal contributed 37% and improved postprandial blood glucose concentrations contributed 14% to the WTP. Preference results were similar in all five countries, although WTP and sensitivity to increasing cost varied from country to country. The WTP values for individual countries were: France €146.83; Germany €126.65; Italy €56.98; Spain €150.06; United Kingdom €194.36. French and UK patients were relatively insensitive to increasing cost, while Italian patients were highly cost-sensitive. **CONCLUSIONS:** Patients in all countries showed a clear preference for Humalog Mix 25 over Humulin 30/70. WTP figures for the individual countries can be compared with the corresponding additional acquisition costs for Humalog Mix25, relative to Humulin 30/70, to assess the extent of welfare gain to the community.

SESSION II

OUTCOMES RESEARCH METHODOLOGY ISSUES I

MD1

THE EQUITY-EFFICIENCY TRADEOFF: WHAT IS THE SOCIAL INTERPRETATION OF EQUITY?

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OBJECTIVES: There is increasing awareness that equity weights should be used to recalculate the value of QALY gains for different patients. It is unclear however how these equity weights should be determined: on the basis of health prospects (for instance “rule of rescue”), fair innings, or on a combination of both, for instance an equity concept that has been referred to as proportional shortfall. To answer this question, we compared the observed rank order of 10 conditions with the theoretical rank orders that were predicted by each equity concept. **METHODS:** 60 respondents (students, researchers, health policy makers) rank ordered 10 conditions using the paired comparison technique. This observed rank order was compared to the rank orders expected on the basis of the equity concepts fair innings, prospective health and proportional shortfall. To allow for comparison of the conditions in terms of each equity concept, we described the conditions in terms of age, disease free period, duration of disease, quality of life, and life years lost. **RESULTS:** The observed rank order of the 10 conditions was best predicted by the fair innings concept (corr. = 0.908, $p < 0.01$). Proportional shortfall was also well correlated with the observed rank order of the conditions (corr. = 0.780, $p < 0.01$), but prospective health was not statistically significantly related. This is remarkable, as it has often been suggested that the “rule of rescue” is the most important determinant of the distribution of health care. **CONCLUSIONS:** Measurable interpretations of equity make it possible to test the importance of concepts of equity in the allocation of health care. The fair innings argument and proportional shortfall may provide a basis for determining equity weights for recalculating the value of QALY gains for different patients. When put to a critical test, the prospective health argument is out weighted by arguments resembling fair innings.

MD2

MEASURING HEALTH IMPACTS ON WORK PERFORMANCE: COMPARING SUBJECTIVE AND OBJECTIVE REPORTS

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OBJECTIVES: To evaluate the feasibility and validity of daily self-reported performance in relation to objective productivity data, in order to develop measures of health effects on work function. **METHODS:** Medical bill reviewers at 3 worksites of the same firm provided daily information through interactive voice response (IVR) on speed, concentration and accuracy compared to their best on a 1–10 ordinal scale for 12 weeks. The 7-item Work Limitations Questionnaire (WLQ) was administered monthly. Objective data included types of bills processed and specific processing activities. Weights for relative difficulty of activity were applied, and outliers were removed. **RESULTS:** One hundred and twenty four of 142 recruited subjects (87%) completed > 50% of daily IVR reports. Concentration, speed and accuracy ratings were highly inter-correlated ($R = 0.75$), and right-skewed (mean speed = 7.7, SD = 1.5). The mean adjusted productivity rate (MAP) was 34 bills/hour (range 4.7 to 111, SD 12.6, 61% within-person variation). Subject-specific speed/MAP correlation ranged from $R = -.20$ to $.75$ (mean, $.28$). Health status, years on job, age, IVR completion rate, month of study, or total hours worked were not associated with variations across individuals in R . Correlations among WLQ responses, IVR speed, and monthly objective productivity were low ($R < 0.12$). **CONCLUSIONS:** Daily subjective and objective data collection are feasible; both may be equally valid, in the sense that they may be measuring different aspects of work performance. Even with a relatively well-defined job and limited range of tasks, the “objective” data was complex and challenging to analyze. Low subjective/objective correlations may be due to respondent inability to relate productivity to the IVR questions or monthly survey items; subjects incorporating difficulty adjustment in their ratings and/or failure of “objective” data to capture the full complexity of the job or difficulty variation.

MD3

VALIDATING A DISEASE MODEL ACCORDING TO CRITERIA OF EVIDENCE BASED MEDICINE

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OBJECTIVE: Disease models are of increasing interest and influence on decision support, outcomes research and health technology assessment in Europe. Validity and reliability of the incorporated medical evidence in arithmetical modeling software is crucial for the simulated outcomes. Currently the diabetes modeling software Accusim®TM, first established in 1996, is being validated for the 2002 edition. **METHODS:** Input validity: The Australian MERGE checklist system is used for the literature assessment in order to assess the level of evidence and the likelihood of bias. Process validity: The model is based on Markov processes and has been published several times in peer-review journals. Outcome validity:

The model was run against published population based diabetes data and is under constant review by independent medical experts. Currently an advisory board is being established. **RESULTS:** When calculating the expected life expectancy for representative type-2 diabetes patients aged 65 years against published American diabetes data the computed life expectancy of the model is 12.1 years versus 12.3 years published (2% deviation). The accuracy of simulated life expectancy decreases in younger patients with computed 17.4 years versus published 18.9 years in 55 year-old patients (8% deviation). From the literature screening, out of a total of 3512 literature references, 1007 were eligible for structured assessment, only 85 references (2.4% of all) were eligible for being used for the modeling software. **CONCLUSION:** Validation is a labour intensive and continuous process. Methods of evidence-based medicine are needed for supporting the development and validation of disease models. Yet only few references meet the quality criteria for disease modeling. Disease models are able to compute reliable results in realistic scenarios. Disease modeling is important for outcomes research, monitoring and evaluation of disease management programmes, as well as for risk stratification and health technology assessment.

HEALTHCARE POLICY STUDIES

HPI

EFFICIENT PRODUCTION OF HEALTH BENEFITS: COST-EFFECTIVENESS EVIDENCE AND UTILISATION OF HEALTH TECHNOLOGY IN THE UK

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OBJECTIVES: To examine the relationship between published cost-effectiveness data and the adoption of health technologies into routine practice in the UK and to assess trends in the types of study being published. **METHODS:** An electronic literature search identified incremental cost-effectiveness ratios (ICERs) of health interventions published between 1997 and 2001. Studies were classified by intervention type and disease category and compared with previous UK and US reviews. The technologies were ranked by standardised ICERs and the number falling within the £20–30,000 range considered cost-effective by the National Institute for Clinical Excellence (NICE) was estimated. For two sub-samples, the highest ICERs and those for non-pharmaceutical technologies, the degree of adoption was estimated using activity statistics, clinical guidelines and policy documents. **RESULTS:** The 84 new studies included a larger proportion of pharmaceutical interventions (57%) than an earlier published UK analysis (37%) and a US league table (31%). The distribution of the ICERs in the UK league tables was not statistically different (Mann-Whitney for independent samples $p = 0.316$), but the overall median ICER grew over time: £5,000 vs £6,500, varying in different disease categories,