METHODS

A TALE OF TWO STUDIES: A COMPARISON OF ECONOMIC DATA FROM A CLINICAL TRIAL TO A CROSS-SECTIONAL DATABASE
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When economic evaluations are conducted alongside clinical trials, estimates of resource utilization (RU) are likely to be inaccurate. This problem arises due to presence of protocol-mandated visits and forced compliance. It is rare to find two databases that may be compared to determine the scale of this problem. OBJECTIVE: 1) To compare the resource utilization associated with rheumatoid arthritis from a clinical trial database to a cross-sectional database, and 2) to understand advantages and disadvantages of using each database in economic analyses. METHODS: In this novel study, two databases were examined: one a pragmatic, cross-sectional database (CSD: with 6-month retrospective recall of RU) of rheumatoid arthritis patients (RA) and the other a database from a phase III clinical trial program (CTD) in RA matched on several demographic variables. Subjects were age/gender matched to control for differences in the database populations. Hospitalizations, GP and specialist visits were compared between the databases. RESULTS: When the CTD is examined for just protocol visits, a total of 8 specialist consults were recorded. When the CTD is examined for non-protocol visits, few additional visits are recorded: 0.12 GP visits, 0.11 specialist consultations, and 0.01 hospitalizations. The addition of the non-protocol visits to the protocol total visits increase RU to 8.12 GP visits and 8.11 specialist consultations. Based on data from the CSD, over a 6-month time frame, randomly matched on age and gender, an average of 2.1 GP visits, 2.21 specialist consultations, and 1.3 hospitalizations were reported by patients. CONCLUSIONS: The inclusion of protocol-mandated visits substantially overstates true RU while their omission understates thereby leaving researchers in a quandary. The use of CTDs for modeling purposes raises the issues of generalizability and accuracy and suggests that naturalistic rather than piggyback trials should be used for PE evaluations.

THE PARAMETRIC BOOTSTRAP: RECONCILING PARAMETRIC AND NON PARAMETRIC METHODS IN THE ESTIMATION OF CONFIDENCE INTERVALS FOR INCREMENTAL COST-EFFECTIVENESS RATIOS?
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OBJECTIVES: Many authors have addressed the issue of handling uncertainty in stochastic cost-effectiveness analyses. They generally oppose parametric (Fieller’s theorem, confidence box or ellipse . . .) and non parametric (bootstrap) methods. The parametric bootstrap is at the bridge of these two families of methods. Parametric bootstrap was used to assess confidence interval of the incremental cost-effectiveness ratio (ICER) of a drug used in the treatment of post-infarction patients and the estimated CI was compared to that provided by non parametric bootstrap. METHODS: Data were derived from a placebo-controlled clinical trial on 1749 patients included just after MI and followed over 4 years. Patient-level costs were computed to reflect the US Health care system. The parametric bootstrap was based on the assumption that the incremental costs and effects differentials follow a normal bivariate distribution. The non parametric bootstrap was based on 5000 re-samples from the original sample. Mean ICER estimates and percentiles CI are presented for both techniques. RESULTS: The mean ICER from the original sample was estimated to US$2574 per life-year saved. The parametric bootstrap provided an estimated ICER of US$2726/LYS and the 95% CI was [1164; 5210]. From the non parametric bootstrap, the ICER estimate was US$3419/LYS and the 95% CI was [1660; 5254]. CONCLUSIONS: The parametric bootstrap provided a CI, which seemed to be in accordance with that of the non parametric bootstrap. It still needs to be compared to other parametric and non parametric methods, particularly in terms of coverage properties. It can be a useful tool, as it allows assumptions on the ICER joint distribution, without implying specific textbook formulae.

THE IMPLICATIONS OF COMBINING HETEROGENEOUS PATIENT POPULATIONS IN META-ANALYSES
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Systematic reviews and meta-analyses attempt to minimise the biases from individual trials but can, on some occasions, miss or conceal beneficial treatment effects when trials, with varying patient populations, are analysed together. OBJECTIVE: To investigate the effect of ‘splitting’ diverse patient populations using part of a published meta-analysis of randomised controlled trials for the prevention of vascular events in high-risk patients. METHODS: Our study re-evaluated a section of results of a well-known meta-analysis of RCTs for the prevention of vascular events. The original review (ATC) estimated the combined treatment effect of dipyridamole plus aspirin (DP + ASA) compared to aspirin (ASA) alone using data from 25 clinical trials for all patients, regardless of their vascular morbidity profile. Patients who had previously experienced an MI, TIA/stroke, CAGB, coronary angioplasty, intermittent claudication, peripheral
grafs, angioplasty, haemodialysis and diabetes were “lumped” together for analysis. We re-evaluated the data by meta-analysing sub-groups of trials according to the risk factor of the patient population (where there was more than one trial for the risk factor). RESULTS: The Relative Risk Reductions with [95% CI] for DP + ASA compared to ASA alone for all types of patients was calculated to be 5% [−5 to 15%]. However the RRs were diverse when trial patient populations were split for analysis. RRs ranged from 15% [4% to 26%] for patients with previous Stroke/TIA to −19% [−62% to 12%] for patients who had had CABG previous to entering the study. CONCLUSIONS: The usefulness of the ATC’s summary statistics in decision-making for specific patient populations is limited, due to heterogeneous patient populations being combined together. In particular, our sub-group analysis revealed a statistically significant RRR in vascular events for patients treated with DP + ASA compared to ASA amongst patients with previous TIA/stroke.

**STOCHASTIC ANALYSIS OF AN RANDOMIZED CONTROLLED TRIAL IN REHABILITATION OF LOW BACK PATIENTS: REPRESENTATION OF UNCERTAINTY WHEN EFFECT DIFFERENCE IS SMALL**

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OBJECTIVE: Various representations of uncertainty in cost effectiveness analysis alongside a randomized trial have been suggested. Due to its informational richness the cost acceptability curve has been favored. Alternative representations of uncertainty are confidence intervals and bootstrap distribution in the c/e plane. If the difference in effects is small different problems arise with either of the methods. Aspects of using the different presentations of uncertainty for decision making are discussed for the study example. METHODS: Methods compared included cost-effectiveness acceptability curve bootstrap confidence intervals and bootstrap scatter plots focusing on their user-friendliness, informational richness and guidance for decision making. Data came from an economic evaluation in the rehabilitation of low back patients that has been performed in two German rehabilitation centers. Treatment in the standard arm consisted of a multimodal program including physiotherapy and educational measures. The experimental group received additional psychological treatment. RESULTS: The cost effectiveness acceptability curve intersecting at 0.61 showed a small slope. The bootstrap confidence interval ranged from €1.4 million to €20.000 covering points in all quadrants. 61% of the bootstrap replicates were in the southeast quadrant indicating dominance. CONCLUSIONS: Suggestions are made for further discussion of using uncertain results for decision making as a conservative rule for a risk-neutral decision maker, it is suggested that a 50% probability of the intervention being dominant (as found in the study) may not be used to reject it on economic grounds.

**SESSION II**

**VALUES AND VALUATION II**

### W5

**ASTHMA TREATMENT PREFERENCE STUDY—A CONJOINT ANALYSIS OF PREFERRED DRUG TREATMENTS**

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OBJECTIVE: Assessment of patient preferences for attributes of asthma treatments. METHODS: Two hundred ninety-eight patients, aged 18–60, from 15 centres in Sweden completed a questionnaire concerning their asthma and ranked 18 alternative treatments using conjoint analysis. Patients were treated with either inhaled corticosteroids (ICS) or short acting bronchodilator alone (n = 123) or ICS and long acting bronchodilator (separate inhalers n = 87, combination inhaler n = 88). Attributes analysed were: maintenance treatment, additional reliever, time to onset and duration of reliever, number of symptom-free days (SFD) per month, and out-of-pocket cost per month. RESULTS: Conjoint analysis showed that the most important aspect of treatment was SFD. Forty percent of the patients had 15 or less SFD per month. Eighty-five percent of the patients preferred another treatment than their current treatment. Treatment preferences were heterogeneous and in 78% not covered by current treatment guidelines. One of two patients preferred a combination inhaler to separate inhalers, and three of four patients a reliever that is both rapid- and long-acting. The most preferred treatment was a combination inhaler for maintenance and reliever use. On average, the patients were willing to pay SEK 328 (USD $36), additionally to their current expenditure, per month for the change to the preferred treatment. CONCLUSION: Symptom-free days were the most important attribute in asthma treatment. Patients were willing to pay for a switch to their preferred treatment. The most favoured treatments were a reliever therapy that is both rapid- and long acting and a combination inhaler for both maintenance and as needed use.

### W6

**TRANSFORMING THE UNIFIED PARKINSON’S DISEASE RATING SCALE INTO A UTILITY SCALE**

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OBJECTIVE: To transform the Unified Parkinson’s Disease Rating Scale (UPDRS) into a utility scale using value functions. METHODS: Three hundred sixty-one patients with Parkinson’s disease completed a utility scale consisting of 44 attributes, describing 5 aspects of treatment: medication, care, self-care, economic and psychological aspects. The patients rated their current treatment. A preference model for the utility score for each patient was fitted to their current treatment and then used to predict the utility score for non-preferred treatments. RESULTS: The rate of the patients in the model ranged from 0.5 to 0.9, with an average of 0.7. The average value of the patients’ current treatment was 0.8. The attributes associated with the highest utility score were: symptom-free days (SFD) per month, and out-of-pocket cost per month. CONCLUSION: The Unified Parkinson’s Disease Rating Scale can be transformed into a utility scale using value functions. This study provides an easy-to-use model for calculating the utility score of treatments.