Hospital Maastricht, Maastricht, The Netherlands, [18]*University of Ioannina, Ioannina, Greece,* [19]*Lund University, Malmö, Sweden*

OBJECTIVES: Crohn's disease is a chronic relapsing-remitting inflammatory bowel disease with heterogeneous disease course, requiring life-long treatment. Phenotypes explaining disease heterogeneity is of interest in optimizing allocation of health care resources, e.g. to avoid expensive maintenance treatment to prolong remission in patients who seldom relapse. To develop economic models for evaluation of treatments, our objective was to estimate parameters of a Markov chain from data on disease activity and resource consumption and to improve model fit by allowing different phenotypes. **METHODS:** We had individual data on relapse and remission, surgery, use of medicines and other resources, aggregated over three month periods, from inflammatory bowel disease patients from 1991 and ten year onwards. Data from Crohn's disease patients were extracted. An exact maximum likelihood estimator using observations aggregated over time was used to estimate monthly transition probabilities. This estimator was adjusted to allow different disease phenotypes using an Expectation-Maximization method which identifies the phenotypes that best describe patient heterogeneity. The estimated parameters were used to derive the mean durations of a relapse and a period of remission to describe the phenotypes. **RESULTS:** At least two distinct phenotypes were found in each country, seldom-relapsing (<once/3 years) and often-relapsing (>once/3 years). The best fit was with four phenotypes in Denmark, three phenotypes in the Netherlands and in Italy, and two in Norway, Israel, Ireland, Spain, and Greece. In Denmark and Italy there was a single seldom-relapsing phenotype and more than one often-relapsing phenotype. In Netherlands there was two seldom-relapsing phenotypes. Denmark, The Netherlands, Israel, Ireland and Italy have roughly as many seldom-relapsing as often-relapsing patients. Norway, Spain and Greece have a majority of seldom-relapsing patients. **CONCLUSIONS:** Allowing for different phenotypes improves model fit. Health care resource allocation can be optimized using phenotypes. Using data aggregated over time appears to remain a challenge.

PRM39

EVALUATION OF PATIENT CENTERED OUTCOMES USING INDIVIDUAL DATA FROM A QUALITY REGISTRY AND PATIENT REPORTED ABILITIES AND RATINGS OF QUALITY IN HEALTH CARE, IN DIABETES PATIENTS IN SWEDEN

Borg S[1], Palaszewski B[2], Gerdtham UG[3], Ödegaard F[4], Gudbjörnsdottir S[2]
[1]*The Swedish Institute for Health Economics, Lund, Sweden, and Faculty of Medicine, Lund University, Lund, Sweden, Lund, Sweden,* [2]*Nationella Diabetesregistret NDR, Gothenburg, Sweden,* [3]*Department of Economics, Lund University, Lund, Sweden, and Faculty of Medicine, Lund University, Lund, Sweden,* [4]*University of Western Ontario, London, ON, Canada*

OBJECTIVES: The Swedish National Diabetes Register (NDR) has since 1996 longitudinally recorded medical outcomes e.g. risk factors, comorbidities, and covers the majority (80%) of Swedish diabetes patients. In addition patient reported values were collected alongside the registry in a questionnaire. Our purpose was to evaluate a method for measuring patient reported abilities and ratings of quality in health care and evaluating them together with outcomes extracted from the NDR. **METHODS:** A questionnaire was developed to measure if diabetes care is percieved as patient focused and efficient, through questions on self management ability, worries, ability to carry out daily acitivites, and perception of service, access and involvement. The questionnaire was issued to 4,760 patients, 2,916 responded. Registry data on risk factors (HbA1c, blood pressure, cholesterol) were extracted for each patient and connected to the questionnaire. Item Response Theory (IRT) was used to estimate patient abilities and patient ratings of quality in health care (IRT scores) from the response patterns. For each patient, registry data and IRT scores were used to derive an overall Malmquist approach output quantity index, a health care related component and a patient ability component. The index is a measurement of how efficiently the patient leads his or her life with diabetes and its care, and provides a measure of the patient's state of health in relation to the patient's situation. **RESULTS:** We obtained IRT scale models with good fit, satisfactory validated in another population. The IRT scores provide basis for patient evaluation in a broader perspective than risk factors alone. The ability index component varies more than the health care component. **CONCLUSIONS:** The questionnaire provides estimates of abilities and ratings of quality. Our approach allows estimating patient benefit and health care production using combined registry and patient reported data, the procedure probably easier for patients than methods like time trade-off.

PRM40

EFFICACY OF LIRAGLUTIDE COMPARED TO EXENATIDE AND INSULIN GLARGINE IN PATIENTS WITH DIABETES TYPE 2: A META-ANALYSIS

Fadipe JJ
University of Wolverhampton, Wolverhampton, West Midlands, UK

OBJECTIVES: liraglutide and exenatide are the two known approved GLP-1 analogue drug in the management of diabetes, a network meta-analysis was performed to get a more robust evidence on the efficacy of liraglutide compared to exenatide in achieving HbA1c < 7.0% in more diabetic patient. **METHODS:** Electronic database was browsed for available material on the proposed subject until May 2012, the inclusion criteria were phase 3 randomise controlled trials in diabetes type 2 patients. The software ADDIS 1.14 (Aggregate Data Drug Information System) was used to perform the network meta-analysis of liraglutide, exenatide and insulin glargin. **RESULTS:** Node-splitting analyses showed that were no relevant inconsistency in the evidence. A consistency model was used to draw conclusion about the relative effect of the three treatments. The relative risk (RR) of liraglutide compared to exenatide is 1.28 (0.57, 2.82), RR of liraglutide compared to insulin glargine is 1.72 (0.70, 4.37) and the RR of exenatide compared to insulin glargine is 1.35 (0.66, 2.76). A vague prior for the study specific baseline (α) and the treatment effect coefficients (β) are $\alpha \sim$ N (0, 3.563E-3) and $\beta \sim$ N (0, 3.563E-3) respectively. The rank probability of the three drugs ranked liraglutide first, exenatide second and insulin glargine as the last in rank of the best treatments. **CONCLUSIONS:** Liraglutide is still effective in maintaining the HbA1c < 7.0% in more diabetes patients compared to exenatide and insulin glargine however exenatide once weekly seems to be more convenient to administer and has a cost advantage compared to liraglutide once daily dose. Liraglutide dose may need to be modified to once weekly or once monthly dose to me more effective in the management of diabetes type 2.

PRM41

DESIGNING PATIENT REGISTRIES: A CASE-STUDY USING AN ONLINE INTERACTIVE DATA ANALYSIS TOOL

Foley K[1], Patel AM[2], Long S[1], Benson C[3]
[1]*Thomson Reuters Healthcare, Cambridge, MA, USA,* [2]*Janssen Scientific Affairs, LLC, Raritan, NJ, USA,* [3]*Janssen Scientific Affairs, LLC, Titusville, NJ, USA*

OBJECTIVES: Planning and designing patient registries requires significant research to determine the type and amount of data to collect, identifying recruitment sites, understanding the impact of study criteria on sample size, and estimating patient retention. Our objective was to test the utility of a new tool for answering these questions in a timely and cost-efficient manner, and to examine how claims data can be leveraged to plan registry design. **METHODS:** We used an online interactive data analysis tool, *MarketScan®Treatment Pathways*, to explore the characteristics and health care utilization patterns in a sample of cancer patients with pain. Patients newly diagnosed with prevalent cancers that are highly associated with pain such as multiple myeloma, colorectal, lung, prostate, or breast cancer were included, if they had at least 2 ICD-9 codes for one of the cancers on different days within 60 days of each other. A 6-month pre-period without any cancer diagnosis was used to identify new cancer patients. **RESULTS:** Of the 365,980 cancer patients meeting the entry criteria, 54% had an ICD-9 code for pain-related diagnosis. The median and mean number of days from cancer to pain diagnosis was 113 and 192 days, respectively. Only 3% had a co-morbidity that would exclude participation in the registry. Nearly 64% patients had an outpatient office visit within 30-days, of them, 68% had a subsequent visit in the following 30-days. Patient diagnoses, medications and procedures were described for the 60-day period following cancer pain diagnosis. The full analysis took 6 hours including all iterations on study criteria, and outputting descriptive data on patient demographic and clinical characteristics. **CONCLUSIONS:** Using *MarketScan®Treatment Pathways*, we tested sample selection criteria and health care utilization in a fraction of time than typical database analyses. These data answered critical questions in the study design for a planned cancer pain registry in a timely and cost-efficient way.

PRM42

MANAGING A SYSTEMATIC LITERATURE REVIEW PROJECT

Kiss N, Sidhu M, Tongbram V
Oxford Outcomes, Morristown, NJ, USA

OBJECTIVES: A systematic literature review (SLR) is a well-established tool for identifying and assimilating existing evidence or identifying gaps that need to be filled by new research. Although SLRs are widely used in the drug reimbursement sphere, there are many challenges in maximizing its value and in communicating project objectives with a vendor. The objective of this study is to outline the deliverables of a SLR, and examine the optimal methodology in extracting maximum value from a SLR review by exploring important caveats and pitfalls of two hypothetical case studies. **METHODS:** Two hypothetical case studies are used to outline the process and the pitfalls of a SLR project and the relationship between industry and vendor. Feedback was elicited from consultants and industry in order to identify expectations and advice for a successful systematic literature review. **RESULTS:** The analysis found that in depth discussion during the protocol phase of the SLR is crucial to the success of the project. A successful protocol will incorporate: key questions that are focused and specific, scoping to outline the search strategy, and address the purpose of the review in terms of a product's value story (ie. a SLR for inclusion in a GVD), or evidence development. The analysis found that some challenges include too much or too little literature, which can be due to a very broad or narrow research question, challenges that arise due to expectations for certain data, and addressing gaps in the literature. Several suggestions on overcoming these challenges and caveats of the methodology are explored through the hypothetical case studies. **CONCLUSIONS:** The authors found that communication and a focused question were the most helpful in yielding successful literature reviews. Furthermore, detailed discussion at the protocol stage helped to avoid pitfalls at later points in SLR development. The authors provide a list of pitfalls and remedies that may help when considering SLRs.

RESEARCH ON METHODS - Modeling Methods

PRM43

A SYSTEMATIC REVIEW ON THE APPLICATION OF CARDIOVASCULAR RISK PREDICTION MODELS IN PHARMACOECONOMICS, WITH A FOCUS ON PRIMARY PREVENTION

Stevanovic J, Postma MJ, Pechlivanoglou P
University of Groningen, Groningen, The Netherlands

OBJECTIVES: In the absence of long-term randomized clinical trials (RCTs) on the effectiveness of pharmacological treatment for primary cardiovascular disease (CVD) prevention, risk prediction models are used to project changes in CVD incidence due to changes on risk factor levels observed in short-term RCTs. This study aims to summarize the literature on the application of these CVD risk models in pharmacoeconomic studies for primary CVD prevention interventions in high in-