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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 periods in patients with seldom-relapsing disease compared to liraglutide once daily-relapse. Liraglutide once daily-relapse may need to be modified to once weekly or once monthly dose to more effectively in the management of diabetes type 2.

**RESULTS:**

- The questionnaire was developed to measure if diabetes care is perceived as patient focused and efficient, through questions on self-management ability, worries, ability to carry out daily activities, and perception of service, access and involvement.
- The questionnaire was issued to 4,760 patients, 2,916 responded.
- The analysis found that in depth discussion during the protocol phase of 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 providers. The feedback was essential for 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 study.

**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.

**PM441**

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

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**OBJECTIVES:** Planning and design of patient registries requires significant research to determine the type and amount of data to collect, identifying registry 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.

**RESULTS:** 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 newly diagnosed patients. The results showed that 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, visual information 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.
come countries. METHODS: We systematically reviewed the literature on the application of CVD risk models in pharmaco-economic studies. We assessed the quality of the models in these studies by evaluating the agreement of the population characteristics and the time horizon applied between the risk model and the pharmaco-economic study, the appropriateness of the risk model for the population studied, and the incorporation of the uncertainty of the risk model in their methodology. RESULTS: We identified 21 studies using published CVD risk models. The studies demonstrated the usefulness of projecting intermediate effectiveness endpoints to long-term, health and cost-related benefits. However, our quality assessment highlighted the distance between the populations studied and the risk models, and the lack of consideration of all uncertainty surrounding risk predictions. CONCLUSIONS: Given that utilizing a risk model to project the effect of a pharmaceutical intervention to CVD events provides an estimate of the intervention’s clinical and economic impact, consideration should be paid on the agreement between the risk model and the study population, and the economic uncertainty that these predictions add to the decision-making model. In the absence of hard endpoint trials, the value of risk models to model pharmacological efficacy in primary prevention remains high, although their limitation should be acknowledged.

PRM64 INCREASING LIFE EXPECTANCY: IMPLICATIONS FOR COST-EFFECTIVENESS ANALYSIS

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OBJECTIVES: In developed countries mortality in the general population has been declining for several decades and is anticipated to decrease further, especially among the elderly. Life tables based on national statistics reflect mortality conditions of a particular year and therefore do not take into account that survival increases in the general population. As a consequence, life tables seem to systematically overestimate overall survival of the general population. Health economic models use life tables to predict survival of the general population and may therefore also underestimate survival. Our study compares survival prediction methods and discuss implications for health economic models. METHODS: Period life expectancy at age 50 calculated from Dutch mortality rates published for 2009 was compared with life expectancy of a cohort aged 50 in 2009 calculated from projected mortality rates forecasted by the standard Lee-Carter approach. The Lee-Carter model forecasts the level and age pattern of mortality based on the combination of decomposition of mortality rates and statistical time series methods. Mortality rates were taken from the Human Mortality Database. Projectons were based on historical data between 1970 and 2009. RESULTS: Based on projected mortality, cohort life expectancy was 34.97 years whereas period life expectancy was only 32.37 years (−2.60 years). When life years were discounted at a 1.5% rate, the corresponding values were 25.31 and 26.40 years (−1.09 years). CONCLUSIONS: The analyses shows that taking into account the decrease in survival over time results in a difference of 7% in undiscounted and 4% in discounted life expectancy in the Netherlands. This difference can have a substantial impact on cost-effectiveness results, especially of curative interventions for diseases that are life threatening or of prevention programmes over a long time horizon. In these cases, sensitivity analysis should be carried out to investigate the impact of decreasing mortality.

PRM45 UTILITY ESTIMATION FOR VISUAL ACUITY HEALTH STATES: AN ORIGINAL AND MORE FLEXIBLE APPROACH TO TRANSLATE PUBLISHED EVIDENCE INTO A MORE FLEXIBLE EDITION

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OBJECTIVES: The NICE reference case stipulates cost-utility analysis as the preferred form of economic evaluation, with health effects expressed in QALYs and health states valued using a validated choice-based method such as the time trade-off (TTO). The evidence-base describing the impact of visual impairment (VI) on quality-of-life is very limited. To date, the Cuzick-Murray et al. (2009) utility values for 4 visual health severity groups are considered the most plausible set of utility values for use in eye-disorder economic models. These utility values, originally elicited through simulating VI similar to that associated with wet age-related macular degeneration, were recently applied in other retinal disorders such as diabetic macular edema. The objective of our analysis was to refine the mapping of utilities onto visual acuity (VA). METHODS: OLS regression models were built to estimate the relationship between mid-point VA of 4 visual health severity groups and mean TTO scores as described in the literature. Linear and non-linear approaches for utility estimation as a function of the number of VA letters were explored. RESULTS: The linear regression for utility estimation was found to be statistically significant. The beta-coefficient for mid-point VA was 0.0054 (p = 0.030) and 0.2864 for the constant term (p = 0.034). Linear regression estimates were used to predict utility values for deterministic visual health severity groups may not easily transpose to alternative vision health-states. Our analysis demonstrated an original approach for utility estimation allowing a more flexible and robust method to map previously elicited VA-associated utilities onto alternate VA health-states. This method allows wider applicability of VA-associated utility estimation in other eye disorders characterized by VA impairment such as vitreomacular traction and macular hole.

PRM46 DEVELOPMENT OF A FRAMEWORK FOR COST-EFFECTIVENESS ANALYSIS: COHORT SIMULATION USING AN ORDINARY DIFFERENTIAL EQUATION SOLUTION ALGORITHM IN R

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OBJECTIVES: Dynamical processes in cost-effectiveness analysis (CEA) are typically described using Markov models that account for the full stochastic nature of the process, or alternatively using systems of ordinary differential equations (ODEs). In CEA, ODEs are useful for defining dynamical systems with complex, time-varying properties that often need to be considered, and are difficult to implement as Markov models. However, in the field of CEA, fixed step sizes (‘cycle lengths’) are used for solving systems of ODEs, which may result in bias if the step size is too large in relation to the magnitude of change. The aim of this project was to implement and demonstrate the use of a well established dynamical ODE solver algorithm (LSODA) for CAs in the statistical scripting language R, and to quantify bias in outcome caused by use of a fixed-step size cohort simulation approach. METHODS: To demonstrate the proposed approach, a previously reported CEA on adjuvant breast cancer therapies was re-analysed using the ODE solver algorithm LSODA. A model implementing the fixed-cycle length method was also developed to compare bias by using a range of different cycle lengths. RESULTS: The CEA model was successfully developed using the ODE solver LSODA. The use of fixed cycle length resulted in bias compared to the outcome of the ODE model. A cycle length of 1 year resulted in an underestimation of 0.016 absolute LYS (5.6%) and €158 (6.8%) compared to the dynamical-step size model. CONCLUSIONS: The developed dynamical approach was found to be suitable for conduct of CAs and translation of CEA results. Moreover, it was demonstrated that use of fixed cycle lengths could potentially cause unnecessary bias in CEA outcomes. Finally, we advocate use of scripting languages such as R in the field of health economics to improve transparency, reproducibility and overall integrity of conducted CAs.

PRM47 COST-EFFECTIVENESS UNCERTAINTY ANALYSIS: METHODS A COMPARISON OF ONE-WAY SENSITIVITY, ANALYSIS OF COVARIANCE, AND EXPECTED VALUE OF PARTIAL PERFECT INFORMATION

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OBJECTIVES: To compare cost-effectiveness model input influence on incremental net monetary benefit (INMB) using 3 uncertainty analysis methods of similar scope and cost: 1) one-way sensitivity analysis; 2) probabilistic analysis of covariance (ANCOVA); and 3) expected value of partial perfect information (EVPPI). METHODS: We replicated and expanded a published HIV/AIDS cost-effectiveness Markov model (mono-therapy and combination therapy using TreeAge®; Case 1 assume willingness-to-pay of £20,000/QALY (relatively low decision uncertainty in this application). Case 2 assumed a willingness-to-pay of £8,000/QALY (relatively high decision uncertainty). For Cases 1 and 2, one-way sensitivity analysis identified the ten most influential inputs. From these 10 influential inputs, we estimated uncertainty intervals (e.g., Monte Carlo draws) and EVPPI for each input (1,000 inner, 1,000 outer draws). For each case and method, we ranked inputs based on their influence on variation of INMB and compared input ranks within case using Spearman’s rank correlation. RESULTS: Mean INMB was £9,740 (Case 1) and £379 (Case 2) in favor of combination therapy. Case 1. The two most influential inputs were the same across all uncertainty methods, contributed 78% of variation in outcome (ANCOVA), and were the only inputs with non-zero EVPPI values. Case 2: All inputs had non-zero EVPPI values, with the two most influential inputs accounting for 49% of variation in outcome (ANCOVA). For Cases 1 and 2, the influential input rank order correlations across uncertainty methods ranged from 0.70 to 0.99 (all p-values < 0.05 for pairwise uncertainty method correlations for both cases). CONCLUSIONS: For both cases, the influential input ranks were positively correlated between one-way and multi-way uncertainty analysis methods. Moreover, the additional resources needed to generate and communicate advanced analyses should be weighed, especially when the outcome decision uncertainty and therefore value of information is low. (i.e. Case 1).

PRM48 THE HALF-CYCLE "CORRECTION": HOW MUCH OF A CORRECTION IS IT?

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OBJECTIVES: In economic models that use Markov-type processes, it is generally recommended that a ‘half-cycle correction’ be built into the analysis, to account for the fact that events can occur at any point during the cycle. This study explores the implications of the half-cycle correction, and highlights a number of flaws in the approach. METHODS: A brief review of health technology assessment models was undertaken to determine the use of half-cycle corrections. The study aimed to explore the theoretical, practical and mathematical implications of the half-cycle