level dynamic Bayesian inhomogeneous Markov model with quarterly time-step was then developed to jointly describe outcomes and costs over time in relation with adherence proxy using medication possession ratio, adjusting for patients demographics and seasonality. Internal and external validation was performed. RESULTS: Such Bayesian model could be fitted to the available data with satisfying calibration and accuracy. Risk of exacerbations were associated with season at the present quarter and on the risk of exacerbation at the previous quarter. Control was significantly improved by a better adherence and to a lesser extent by a treatment escalation and improved severity at the previous quarter. CONCLUSIONS: This Bayesian dynamic model allowed quantifying the most important interactions between drug uses and effects on control and exacerbations over time, hence providing a powerful tool for real-world outcomes predictions in asthma patients.

PMR113 Uncertainty Quantification of Large-Scale Health Economic Simulation Models Zheng P, Dinh T
Archimedes Inc, San Francisco, CA, USA
OBJECTIVES: Large scale simulation models (e.g. Archimedes Model, MISCAN) are increasingly used to predict cost-effectiveness of medical interventions and to drive reimbursement decisions. These models are complex and involve hundreds of parameters and inputs. Quantification of parameter uncertainties using traditional experimental design and sampling approaches (e.g., Monte Carlo sampling and its variants) can be prohibitively expensive for these models. METHODS: We overcome the limitations of traditional probabilistic sensitivity analysis through a 4-step process. First, we constructed a comprehensive survey of all parameters and their configurations. Second, we used local sensitivity analysis to evaluate the effects of each parameter on the outcome of interest. Third, based on results from single-parameter sensitivity analysis, we identified a group of parameters that have a large effect on the outcome. We then employ response surface (RS) approximation methods to create a mathematical model of the model predictions for these parameters. We use Latin Hypercube sampling (LHS) to generate data points and multivariate adaptive regression splines (MARS) to build the response surface approximations. Fourth, we sample parameters from their joint distributions, and then use the constructed response surface to calculate the probability distribution of the predicted outcomes. RESULTS: We apply the above methodology to quantify uncertainties in predictions of the Archimedes Model for effectiveness of colorectal cancer (CRC) screening by colonoscopy (COLO) and fecal immunological test (FIT). We started out with 200 parameters and identified 20 parameters that have significant influences on predicted effectiveness of CRC screening. We conclude that there is a 95% chance that COLO will save more life years FIT, after accounting for parameter uncertainties. Similarly we estimate that there is a 61% probability that FIT is more cost effective than colonoscopy. CONCLUSIONS: We have developed a robust and efficient methodology for quantifying parameter uncertainties of large-scale simulation models used for cost-effectiveness analysis.

RESEARCH ON METHODS – Patient-Reported Outcomes Studies

PMR114 Catalogue of EQ-5D-SCORES for Chronic Conditions in Denmark Hvidberg MF, Ehlers L, Petersen KD Aalborg University, Aalborg, Denmark
OBJECTIVES: EQ-5D-SCORES have been developed and tested in US and UK. The current study aims to develop a Danish preference-based EQ-5D-3L scores catalogue for around a hundred of the most common monitored chronic conditions. The catalogue is developed from experiences on the US and UK, adding new factors of importance such as health habits, BMI, social networks and stress. METHODS: The marginal disutility estimates will be calculated using CLAD and OLS regression on a basis for this selection varies across national valuation studies. The aim of this study was to choose health states based on the most commonly found health states experienced by patients. METHODS: EQ-5D-SCORES: EQ-5D catalogues have been developed and tested in US and UK. The HUI reference statistics available from clinical and general population health studies. METHODS: Reviews of published literature, unpublished reports and corporate databases were used to identify summary statistics or data inputs for calculation of summary statistics. Published examples illustrate the use of HUI reference statistics for health-related quality of life (HRQoL) scores to assess the health of patients relative to general populations and of general populations between countries. RESULTS: Summary statistics of HRQoL scores were compiled from published clinical studies (n=5), population health surveys (n=6), or provided by investigators of individual studies (n=3). Statistics from four sets of published results were used to identify health problems among patients treated for acute lymphoblastic leukemia in childhood in a recently published study Results from the joint Canada/US Survey of Health (CISUS), conducted at the same time in both countries using the same survey methodology are presented here in brief. The mean HUI3 score in Canada (0.88) was slightly higher than in the US (0.87) (p<0.05). However, the mean HUI3 score for those with less than a high school education in Canada (0.81) was much higher than the mean for the same group in the US (0.74) (p<0.05). HUI Mark2 (HUI2) and HUI Mark3 (HUI3) summary statistics by country, gender, race and age groups are presented in 43 tables on the HUI web-site (www.healthutilities.com). CONCLUSIONS: The results highlight the usefulness of continuous preference-based measures of population health such as the HUI3. Population reference data enable international comparisons of population health and provide informative data with which to interpret results from clinical studies. The publicly available summary statistics of interval-scale preference-based measures for the HUI of reference populations provide valid, reliable and cost-effective results for clinical and general population studies.

PMR116 Choosing Health States for Elicitation of Population Preferences for the EQ-SD Adams R1, Reddy B1, Kind P2, Barry M3, Walsh C1
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OBJECTIVES: The EQ-5D-3L descriptive classification defines a total of 243 health states which presents a problem when seeking to establish social preferences. As it was found that health states vary within and between states, we aim to reduce the number of health states by reducing the number of attributes. METHODS: Seven attributes were selected through a literature review and a consultation with 25 patients treated for acute lymphoblastic leukemia in childhood in a recently published study. Results from the Joint Canada/US Survey of Health (CISUS), conducted at the same time in both countries using the same survey methodology are presented here in brief. The mean HUI3 score in Canada (0.88) was slightly higher than in the US (0.87) (p<0.05). However, the mean HUI3 score for those with less than a high school education in Canada (0.81) was much higher than the mean for the same group in the US (0.74) (p<0.05). HUI Mark2 (HUI2) and HUI Mark3 (HUI3) summary statistics by country, gender, race and age groups are presented in 43 tables on the HUI web-site (www.healthutilities.com). CONCLUSIONS: The results highlight the usefulness of continuous preference-based measures of population health such as the HUI3. Population reference data enable international comparisons of population health and provide informative data with which to interpret results from clinical studies. The publicly available summary statistics of interval-scale preference-based measures for the HUI of reference populations provide valid, reliable and cost-effective results for clinical and general population studies.

PMR117 Health Utilities Index (HUI®): Population Reference Statistics Homan R1, Furlong WJ1, Feeny DH2, Torrance G3
1Health Utilities Inc., Dundas, ON, Canada, 2University of Alberta, Portland, OR, USA, 3McMaster University, Toronto, ON, Canada
OBJECTIVES: To describe HUI reference statistics available from clinical and general population health studies. METHODS: Reviews of published literature, unpublished reports and corporate databases were used to identify summary statistics or data inputs for calculation of summary statistics. Published examples illustrate the use of HUI reference statistics for health-related quality of life (HRQoL) scores to assess the health of patients relative to general populations and of general populations between countries. RESULTS: Summary statistics of HRQoL scores were compiled from published clinical studies (n=5), population health surveys (n=6), or provided by investigators of individual studies (n=3). Statistics from four sets of published results were used to identify health problems among patients treated for acute lymphoblastic leukemia in childhood in a recently published study. Results from the joint Canada/US Survey of Health (CISUS), conducted at the same time in both countries using the same survey methodology are presented here in brief. The mean HUI3 score in Canada (0.88) was slightly higher than in the US (0.87) (p<0.05). However, the mean HUI3 score for those with less than a high school education in Canada (0.81) was much higher than the mean for the same group in the US (0.74) (p<0.05). HUI Mark2 (HUI2) and HUI Mark3 (HUI3) summary statistics by country, gender, race and age groups are presented in 43 tables on the HUI web-site (www.healthutilities.com). CONCLUSIONS: The results highlight the usefulness of continuous preference-based measures of population health such as the HUI3. Population reference data enable international comparisons of population health and provide informative data with which to interpret results from clinical studies. The publicly available summary statistics of interval-scale preference-based measures for the HUI of reference populations provide valid, reliable and cost-effective results for clinical and general population studies.