CLUSTERS OF HEALTH-STATES VALUATIONS

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OBJECTIVES: To identify groups of countries with similar health preferences. METHODS: Cluster analyses were performed for the 242 states of the general population EQ-5D valuations for 13 published studies based on Time Trade Off, and for 10 states based on the Visual Analogue Scale (VAS). The preferred health state was not included. Cluster and their optimal number were identified by means of the Ward algorithm with the Euclidean measure and the hierarchical clustering technique. The identified clusters in each case are compared in order to find whether the clusters are stable. RESULTS: 3 clusters were identified for TTO: 1) Germany, Argentina, Poland, The Netherlands, Denmark; 2) Japan, South Korea, USA, Hispanic USA, Zimbabwe; 3) Spain, Chile, UK. 4 clusters were identified for VAS: 1) Belgium, New Zealand, Germany, Switzerland, UK, Spain; 2) France, Italy, Ireland; 3) Denmark, Argentina. Countries are not in the same clusters for the two methodologies. Only the UK and Spain belong in the same groups in both cases. CONCLUSIONS: Health-state valuations tend to be clustered in a few groups of countries but the groups differ depending on the methodology. The Visual Analogue Scale results may not be a good approximation to Time Trade Off.

IMTA PRODUCTIVITY COST QUESTIONNAIRE (IPCQ)

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OBJECTIVES: Productivity costs often reflect a large part of the total cost in economic evaluations adopting a societal perspective. Currently, no consensus exists on how to define and measure productivity losses and how to collect data on productivity losses for use in economic evaluations assessed the instruments’ main quality criteria including: building on pre-knowledge and evidence on items’ reliability and validity, inclusion of all relevant domains of productivity losses, allowing for quantifying productivity losses suitable for self-report. A feasibility study was performed to check on consistency and intelligibility of the questionnaire and applicability for different valuation methods. RESULTS: The focus group identified three separate aspects of productivity costs leading to three modules in the IPCQ. Questions for measuring absenteeism and presenteeism are evidence-based originating from the Short-Form Health & Labour Questionnaire and PRODISH. As evidence regarding measurement of losses of unpaid work is lacking, the questions of this module were developed during brainstorming sessions on similar questions in paid work. To enhance the instrument’s feasibility and responsiveness the draft version was translated into language level 1 by an agency specialized in language and clear writing. The feasibility study included 195 respondents aged 18 years. Five percent identified problems while filling in the IPCQ, including the questionnaire’s instructions and routing (n=8) and wording (n=2). CONCLUSIONS: The IPCQ is based on previously available instruments and satisfies the current scientific state of play in productivity cost measurement and valuation. The instrument is understandable for the vast majority of the gender public including low-educated people. To enhance the applicability of the IPCQ for national and international studies a translation in English is performed.

FEASIBILITY OF THE HEADROOM ANALYSIS IN EARLY ECONOMIC EVALUATION OF INNOVATIVE DIAGNOSTIC TECHNOLOGIES WITH NO IMMEDIATE TREATMENT IMPACTS

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OBJECTIVES: There is a growing need for early evaluation of innovative technologies to prevent ineffective and expensive technologies to be widely diffused in healthcare. The headroom method was introduced for early determination of the potential value of new technologies. In this study we explore the feasibility and usefulness of the headroom method in the early assessment of diagnostic technologies with no immediate treatment implications. METHODS: We applied the headroom method to the implementation of whole exome sequencing (WES) into the current diagnostic trajectory of complex pediatric neurology. We determined the room for improvement regarding health-related quality of life (HRQoL), diagnostic yield and the duration of the current diagnostic trajectory. RESULTS: The headroom in a certain diagnostic trajectory can be calculated after the so-called effectiveness gap is established and monetised. The preferred measure for the effectiveness gap is HRQoL expressed in quality-adjusted life years (QALYs). Since the direct product of diagnostics is information, and not improved health, no impact on HRQoL is expected. Other measures, such as diagnostic yield, can also be used to calculate the effectiveness gap. Unlike QALYs, these appeared difficult to monetise, however. Despite this difficulty, effectiveness gap calculation using these effect measures is very informative on the room for improvement in the current diagnostic trajectory. CONCLUSIONS: Despite some methodological challenges, the headroom method proved to be potentially useful in early health economic evaluation of diagnostic technologies with no immediate treatment implications.

BCEA - A R PACKAGE TO PERFORM BAYESIAN COST-EFFECTIVENESS ANALYSIS

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OBJECTIVES: BCEA is a R library specifically designed to post-process the result of a health economic model. Typically, this consists in the estimation of a set of relevant parameters that can be combined to produce suitable measures of cost (\(C\)) and clinical benefit (\(E\)) associated with an intervention. Within the Bayesian framework (which is the natural environment for BCEA), this amounts to estimating a posterior distribution for the pair (\(C, E\)). Health economic evaluations then proceed by computing some relevant summaries of the resulting decision process: is the innovative intervention \(t_1\) more "cost-effective" than the standard intervention \(t_2\)? METHODS: BCEA provides a set of functions that can be used to produce a standardised analysis, by synthesising the decision process given the current evidence and uncertainty, as well as producing summaries of the marginal cost-effectiveness functions that can be used to produce Probabilistic Sensitivity Analysis (PSA) to parameter and model structure uncertainty. These include the Cost-Effectiveness Acceptability Curve and the analysis of the Expected Value of Information, which can be used to prioritize research. RESULTS: BCEA uses as inputs vectors of simulations from economic evaluations of the same cost and benefit assessments. This naturally fits the Bayesian framework, but a frequentist analysis can also be carried out by using tools such as the bootstrap. There is scope for linking R and programs such as Excel to facilitate a comprehensive analysis of health economic evaluations, including including PSA. CONCLUSIONS: In this talk, I will present the main feature of BCEA and its applicability to the wider context of health economic evaluation and cost-effectiveness analysis.

METHODOLOGY FOR ESTIMATING THE POPULATION OF ADVANCED OR METASTATIC EGF M+ NON-SMALL CELL LUNG CANCER PATIENTS IN THE UK AND IRELAND

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OBJECTIVES: Impact budget models (IBMs) which demonstrate the economic impact of introducing or increasing the use of specific treatments are routinely used to assist the NHS with financial planning. A core component of any IBM is the estimation of the eligible population. The objective of this study was to identify an appropriate approach to the size of the advanced or metastatic NSCLC (NSCLC) patient population eligible for first-line treatment with a tyrosine kinase inhibitor such as afatinib (GIOTRIF®). METHODS: A review of the published costing statements was conducted. The costing statements identified included 26 for patients with advanced (stage IIIb) or metastatic (stage IV) EGFR M+ NSCLC that was conducted. The costing statements of tyrosine kinase inhibitors afatinib, erlotinib and gefitinib were reviewed, as was the costing statement for the chemotherapy agent pemetrexed. RESULTS: Based on the reviewed approaches, the calculation can be broken down into six discrete steps from the estimation of the general population to the target population: (1) Incidence of lung cancer; (2) Proportion of NSCLC; (3) Proportion with stage IIIb/IV NSCLC; (4) Proportion who receive first-line chemotherapy; (5) Proportion with EGFR mutation status; and (6) Proportion who are EGFR M+. A detailed breakdown of the methods used to calculate the patient population eligible for treatment with afatinib was not available in the respective NICE costing statement, and so other evidence was also examined to estimate that this approach is reasonable. CONCLUSIONS: The methodology employed by NICE to estimate the proportion of stage IIb/IV EGFR M+ NSCLC patients was broadly consistent across all costing statements considered. It is reasonable to assume that this approach, used to estimate the population of stage IIb/IV EGFR M+ NSCLC patients in England and Wales is also applicable in Scotland and Ireland.

ARE CARE-SEEKERS GOOD CANDIDATES FOR SUBGROUPS COST-EFFECTIVENESS ANALYSES?

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OBJECTIVES: There is a growing need to consider heterogeneity in cost-effectiveness analyses (CEA). To capture heterogeneity, subgroup analyses are being performed using socio-demographic and clinical variables. However, the results of these subgroup CEA can be considered inequitable. Consequently, there is not need to find new subgroups that can be used for decision-making. METHODS: We explore whether subgroup defined by care-seeking behaviors are good candidates for CEA subgroup analysis. Care-seekers are defined as patients who received both an early diagnosis and an early treatment. We use data from the PLASA study, a French randomized controlled trial designed to reduce the rate of functional decline in Alzheimer’s disease: 1,131 patients were randomized in an intervention group and in a control group and were followed during a 2-year period. We use a sample selection model to explore whether the unobserved heterogeneity associated with the early diagnosis decision is related to the unobserved heterogeneity associated with the early treatment decision. We use a fixed-effect model to explore whether the rate of functional decline was lower within the care-seekers subgroup. RESULTS: Our theoretically grounded selection model shows that the care-seeking behavior is associated with unobserved preferences, motivating the need to run subgroup analyses within a subgroup of care-seekers. Our fixed-effect model results show that on average, the clinical intervention was not effective. However, the intervention was effective within the subgroup of care-seekers. Care-seekers who received the intervention did not face a significant decline in their functional status over the 2-year study period. On the contrary, care-seekers in the control group lost on average 9 points of ADS- COK and 4 points of NACC. CONCLUSIONS: Our results suggest that care-seekers are a relevant group for CEA subgroup analysis.

A REVIEW OF THE UTILITY VALUES USED IN PUBLISHED COST-EFFECTIVENESS ANALYSES OF ANGIOTENSIN-CONVERTING ENZYME INHIBITOR OR ANGIOTENSIN RECEPTOR BLOCKER THERAPY IN PATIENTS WITH DIABETIC NEPHROPATHY

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OBJECTIVES: There is a growing need to consider heterogeneity in cost-effectiveness analyses (CEA). To capture heterogeneity, subgroup analyses are being performed using socio-demographic and clinical variables. However, the results of these subgroup CEA can be considered inequitable. Consequently, there is not need to find new subgroups that can be used for decision-making. METHODS: We explore whether subgroup defined by care-seeking behaviors are good candidates for CEA subgroup analysis. Care-seekers are defined as patients who received both an early diagnosis and an early treatment. We use data from the PLASA study, a French randomized controlled trial designed to reduce the rate of functional decline in Alzheimer’s disease: 1,131 patients were randomized in an intervention group and in a control group and were followed during a 2-year period. We use a sample selection model to explore whether the unobserved heterogeneity associated with the early diagnosis decision is related to the unobserved heterogeneity associated with the early treatment decision. We use a fixed-effect model to explore whether the rate of functional decline was lower within the care-seekers subgroup. RESULTS: Our theoretically grounded selection model shows that the care-seeking behavior is associated with unobserved preferences, motivating the need to run subgroup analyses within a subgroup of care-seekers. Our fixed-effect model results show that on average, the clinical intervention was not effective. However, the intervention was effective within the subgroup of care-seekers. Care-seekers who received the intervention did not face a significant decline in their functional status over the 2-year study period. On the contrary, care-seekers in the control group lost on average 9 points of ADS-COK and 4 points of NACC. CONCLUSIONS: Our results suggest that care-seekers are a relevant group for CEA subgroup analysis.