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Better Health through Better Decisions.

ABSTRACTS

16th Biennial European Conference

June 12-14, 2016
30 Euston Square
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Special Focus on Improving Diagnostic Decision Making

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16th Biennial European Conference

Sunday, June 12, 2016

AM5. GENERATING AND USING ELICITED EVIDENCE FOR COST EFFECTIVENESS MODELS

Next Session »

09:00 - 12:00: Sun. Jun 12, 2016
G.2
Program: Pre-Meeting Short Courses
Course Director(s): *Laura Bojke, PhD, MSc, BA, Marta Soares, Msc*

AM1. SMDM CORE COURSE: INTRODUCTION TO MEDICAL DECISION ANALYSIS (DECISION-ANALYTIC MODELING)

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09:00 - 12:00: Sun. Jun 12, 2016
G.6.7
Program: Pre-Meeting Short Courses
Course Director(s): *Beate Jahn, PhD, Uwe Siebert, MD, MPH, MSc, ScD*

AM4. COMPLEX INTERVENTIONS FOR COMPARATIVE EFFECTIVENESS AND HEALTH TECHNOLOGY ASSESSMENT REAL WORLD EXPERIENCE

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09:00 - 12:00: Sun. Jun 12, 2016
G.5
Program: Pre-Meeting Short Courses
Course Director(s): *Valeria E. Rac, MD, PhD*
Course Faculty: *Lusine Abrahamyan, MD, MPH, PhD*

AM6. IMPROVING MEDICAL DECISIONS WITH COGNITIVE DATA SCIENCE

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09:00 - 12:00: Sun. Jun 12, 2016
G.1
Program: Pre-Meeting Short Courses
Course Director(s): *Mirjam Annina Jenny, Dr.*

AM2. SMDM CORE COURSE: INTRODUCTION TO THE PSYCHOLOGY OF MEDICAL DECISION MAKING

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G.4
Program: Pre-Meeting Short Courses
Course Director(s): *Marieke de Vries, PhD*
Course Faculty: *Negin Hajizadeh, MD, MPH*

SMDM MORNING SHORT COURSES

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09:00 - 12:00: Sun. Jun 12, 2016

Program: Events

PM3. WHY DO PHYSICIANS NOT MAKE RATIONAL, EVIDENCE-BASED DECISIONS, AND WHAT MIGHT HELP

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14:00 - 17:00: Sun. Jun 12, 2016
G.2
Program: Pre-Meeting Short Courses
Course Director(s): *Roy M. Poses, MD*

PM1. SMDM CORE COURSE: INTRODUCTION TO COST-EFFECTIVENESS ANALYSIS

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14:00 - 17:00: Sun. Jun 12, 2016
G.6.7
Program: Pre-Meeting Short Courses
Course Director(s): *Jeffrey S. Hoch, PhD*
Course Faculty: *Elisabeth A.L. Fenwick, PhD*

PM4. DECISION MODELLING USING R

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14:00 - 17:00: Sun. Jun 12, 2016
Stephenson Room, 5th Floor
Program: Pre-Meeting Short Courses
Course Director(s): *Petros Pechlivanoglou, MSc, PhD*
Course Faculty: *Fernando Alarid-Escudero, MS, PhD Candidate*

PM2. SMDM CORE COURSE: INTRODUCTION TO SHARED DECISION MAKING AND PATIENT DECISION AIDS

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14:00 - 17:00: Sun. Jun 12, 2016
G.1
Program: Pre-Meeting Short Courses
Course Director(s): *Marieke de Vries, PhD*
Course Faculty: *Hilary Bekker, PhD, Anne Stiggelbout, PhD*

SMDM AFTERNOON SHORT COURSES

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14:00 - 17:00: Sun. Jun 12, 2016

Program: Events

PS1. POSTER SESSION 1 & WELCOME RECEPTION

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18:00 - 20:00: Sun. Jun 12, 2016
Exhibition Space

Session Summary:

18:00 - 20:00

COST-EFFECTIVENESS OF RISK-BASED STRATIFIED BREAST CANCER SCREENING

18:00 - 20:00

DECISION RULES FOR VALUE-BASED REIMBURSEMENT: MOVING ON FROM NET HEALTH BENEFIT

18:00 - 20:00

THE COST-EFFECTIVENESS OF POINT-OF-CARE TROPONIN TESTING TO DIAGNOSE ACUTE CORONARY SYNDROME IN PRIMARY CARE

18:00 - 20:00

ESTIMATING THE CLINICAL IMPACT AND COSTS OF IMPLEMENTING A POINT OF CARE TEST FOR INFLUENZA A/B AND RESPIRATORY SYNCYTIAL VIRUS ON AN ACUTE PAEDIATRIC HOSPITAL INPATIENT WARD

18:00 - 20:00

DO SURGERY JOURNALS REPORT RISK REDUCTION INFORMATION IN A WAY THAT COULD PROMOTE BIAS?

18:00 - 20:00

DO VISUAL AIDS IMPROVE DIAGNOSTIC INFERENCE?

18:00 - 20:00

THE EFFECT OF EMPATHY ON RISK PERCEPTION FOR HEALTH VIGNETTES

18:00 - 20:00

TOLERANCE FOR AMBIGUITY AND STRESS: A STUDY AMONG ITALIAN PRACTICING PHYSICIANS

18:00 - 20:00

SHARED DECISION MAKING IN ANTENATAL OBSTETRICS

18:00 - 20:00

THE BENEFIT-HARM BALANCE OF PROSTATE CANCER SCREENING IN MEN WITH AVERAGE AND ELEVATED FAMILIAL RISK PREDICTIONS OF THE ONCOTYROL PROSTATE CANCER OUTCOME AND POLICY MODEL

18:00 - 20:00

INCREASING HIGH-VALUE VENOUS THROMBOEMBOLISM PROPHYLAXIS: A WIN-WIN SITUATION

18:00 - 20:00

META-ANALYSIS AND INDIRECT TREATMENT COMPARISON OF SAFETY PROFILES OF BORTEZOMIB- AND THALIDOMIDE-BASED REGIMENS FOR THE FIRST LINE TREATMENT OF ELDERLY TRANSPLANT-INELIGIBLE PATIENTS WITH MULTIPLE MYELOMA

18:00 - 20:00

AN OVERVIEW OF DIFFERENT MAPPING TECHNIQUES TO DERIVE HEALTH STATE UTILITY VALUES IN MULTIPLE MYELOMA FOR DECISION-ANALYTIC MODELING

18:00 - 20:00

THE IMPACT OF THE ALCOHOL ACT ON ALCOHOL-RELATED HEALTH HARMS IN SCOTLAND

18:00 - 20:00

ANALYSIS OF EYE GAZE PATTERNS AND DECISION-MAKING STRATEGIES DURING A DISCRETE CHOICE EXPERIMENT

18:00 - 20:00

STRUCTURING BENEFIT-RISK MODELS IN PRESENCE OF NUMEROUS ADVERSE EVENTS: A CASE STUDY OF MULTIPLE SCLEROSIS

18:00 - 20:00

EXPLICIT DEVELOPING A PLATFORM FOR ELICITING EXPERT OPINION FOR MODEL-BASED ECONOMIC EVALUATIONS

18:00 - 20:00

ASSESSING THE EXPECTED VALUE OF RESEARCH STUDIES IN REDUCING UNCERTAINTY AND IMPROVING IMPLEMENTATION DYNAMICS

18:00 - 20:00

A MULTI CRITERIA DECISION ANALYSIS-BASED APPROACH TO HEALTH TECHNOLOGY ASSESSMENT

18:00 - 20:00

DECISION MAKING AND VALUE OF INFORMATION ANALYSIS IN A REAL-WORLD MULTI-CRITERIA CONTEXT

18:00 - 20:00

TREATMENT STRATEGIES FOR MULTIPLE MYELOMA IN ELDERLY PATIENTS: A NETWORK META-ANALYSIS

Abstracts:

COST-EFFECTIVENESS OF RISK-BASED STRATIFIED BREAST CANCER SCREENING

18:00 - 20:00: Sun. Jun 12, 2016
Exhibition Space
Part of Session: POSTER SESSION 1 & WELCOME RECEPTION

Ian Jacob, BA (Hons), MA, MSc[1]*, Gareth Evans, MD FCRP*[2] *and Katherine Payne, BPharm, MSc, PhD*[1]*, (1)The University of Manchester, Manchester, United Kingdom, (2)Genomic Medicine, The University of Manchester, Manchester, United Kingdom*

Purpose: A targeted breast cancer screening programme using individual risk-based screening intervals has the potential to effectively distribute healthcare resources to maximise patient benefits by tailoring the frequency at which women are screened. A research program comprising 'The Predicting Risk of Cancer at Screening (PROCAS)' study was designed to improve breast cancer risk prediction methods to inform this targeted screening interval using data collected from over 50,000 women in the Greater Manchester Region UK. A further aim was to identify the incremental costs and patient benefits of a proposed risk-based screening policy in comparison with the current established screening programme.

Method(s): A discrete event simulation model was structured to represent key events over the life course of a cohort of individual women participating in a screening programme. Assuming the healthcare perspective the model compared a risk-based screening intervals with the current programme in terms of total costs of screening and treatment for breast cancer and quality-adjusted life-years (QALYs). The model has three components representing: 1) the natural history of breast cancer; 2) the screening programme; and 3) treatment for breast cancer. The parameters were populated using primary PROCAS data, supplemented with expert opinion and structured reviews of the literature.

Result(s): Our analysis suggests that a risk-based screening programme is a cost-effective use of healthcare resources in terms of incremental cost per-QALY gain when compared with the current screening programme. The model predictes the impact of adapting the screening interval in accordance with the risk-based screening strategy and indicated further increases in the incidence of screen detected breast cancer accompanied with reductions in interval detected breast cancer with subsequent reductions in breast cancer mortality.

Conclusion(s): This economic evaluation suggests a risk-based breast screening programme has the potential to improve screening outcomes in terms of a reduction in mortality with an acceptable impact on healthcare resources.

DECISION RULES FOR VALUE-BASED REIMBURSEMENT: MOVING ON FROM NET HEALTH BENEFIT

18:00 - 20:00: Sun. Jun 12, 2016
Exhibition Space
Part of Session: POSTER SESSION 1 & WELCOME RECEPTION

Mike Paulden, MA., MSc.*, University of Alberta, Edmonton, AB, Canada, Christopher McCabe, PhD, Department of Emergency Medicine, University of Alberta, Edmonton, AB, Canada and James O'Mahony, Trinity College Dublin, Dublin, Ireland*

Late-breaking abstract for 2016 CADTH Symposium

Mike Paulden[1]*, James O'Mahony*[2]*, Christopher McCabe*[1]*,*

1. Department of Emergency Medicine, University of Alberta, Canada
2. Trinity College Dublin, Ireland

Purpose: Net health benefit (NHB) and net monetary benefit (NMB) are alternatives to using incremental cost-effectiveness ratios (ICERs) in the economic evaluation of health technologies. Conventionally, NHB and NMB are regarded as equivalent, and the cost-effectiveness threshold (λ) is used to assign weights to health gains and losses when specifying NMB. We demonstrate important differences between these measures, and argue that NMB is preferred when making value-based reimbursement decisions. We further show that using λ to assign weights when specifying NMB is theoretically flawed.

Method(s): We consider the circumstances in which NHB and NMB are equivalent. We then build upon the foundations of the 'social decision making' (SDM) perspective to allow for a theoretical consideration of the weights that ought to be assigned when specifying NMB.

Result(s): We demonstrate that NHB and NMB are not equivalent if λ changes over time or is uncertain. Given this non-equivalence, decision makers must decide which measure to use. For value-based reimbursement decisions, NMB is preferred because it allows for differential weights to be assigned to health outcomes where desired. Under a SDM perspective, these weights ought to be informed by society's valuation of health in each time period. Since, in future periods, these valuations may differ from those implied by λ, using λ to determine these weights is theoretically flawed.

Conclusion(s): Our findings have important implications for value-based reimbursement decisions. It is time to move on from using NHB and instead adopt a measure of NMB that appropriately reflects society's valuation of health.

THE COST-EFFECTIVENESS OF POINT-OF-CARE TROPONIN TESTING TO DIAGNOSE ACUTE CORONARY SYNDROME IN PRIMARY CARE

18:00 - 20:00: Sun. Jun 12, 2016
Exhibition Space
Part of Session: POSTER SESSION 1 & WELCOME RECEPTION

***Michelle M.A. Kip, MSc.**, Hendrik Koffijberg, PhD, Marco J. Moesker, MSc., Maarten J. IJzerman, PhD and Ron Kusters, PhD, University of Twente, Enschede, Netherlands*

Purpose:

The added value of using a point-of-care (POC) troponin test in primary care to rule out acute coronary syndrome (ACS) is currently debated, as general practitioners (GPs) expect not to use this test in patients considered at high risk, and because test sensitivity is inadequate early after symptom onset. This study investigates the potential cost-effectiveness of a strategy of excluding ACS by a GP when a POC troponin test is available versus current practice (without POC troponin). Both test performance depending on symptom duration, as well as selection of patients in whom the test would be performed are taken into account.

Method(s):

A patient-level simulation model was developed, reflecting a hypothetical cohort of the Dutch population aged >35 years consulting the GP with chest complaints. The analysis included all medical costs and productivity losses. Both symptom duration and POC troponin test performance at different time points were incorporated. A lifelong time horizon was applied. It was assumed that this test would not be not used in a) patients presenting <4 hours after onset of complaints, b) patients diagnosed with ST-elevation myocardial infarction based on an electrocardiogram, and c) patients considered at high risk of ACS by the GP. Health outcomes were expressed as Quality-Adjusted Life Years (QALYs). Resource use, quality of life estimates, and costs were based on published evidence. The sensitivity and specificity for diagnosing ACS without POC in primary care are 72.3% and 84.3%, respectively. The main outcome parameters involve the effect of POC troponin testing on 1) incorrect hospital referral decisions (expressed as false-positives and false-negatives), 2) costs, 3) health loss from POC troponin use.

Result(s):

The use of a POC troponin test decreases the rate of false-positives from 27.6% to 25.0% (relative decrease: 9.5%). In addition, the rate of false-negatives decreases from 0.6% to 0.5% (relative decrease: 11.3%). Costs per patient will decrease with €36/patient. The incremental costs savings per QALY gained are estimated to be €106,000.

Conclusion(s):

Using POC troponin tests to rule out ACS in primary care is expected to slightly reduce false-positive and false-negative referral decisions. Thus, both unnecessary referrals and potential health loss can be prevented, at decreased healthcare costs. Further research in the optimal use of this test to improve implementation and cost-effectiveness is recommended.

ESTIMATING THE CLINICAL IMPACT AND COSTS OF IMPLEMENTING A POINT OF CARE TEST FOR INFLUENZA A/B AND RESPIRATORY SYNCYTIAL VIRUS ON AN ACUTE PAEDIATRIC HOSPITAL INPATIENT WARD

18:00 - 20:00: Sun. Jun 12, 2016
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Part of Session: POSTER SESSION 1 & WELCOME RECEPTION

Elisabeth Adams[1], *Andres Vecino Ortiz*[1], *Rebecca Glover*[1], *Sam Douthwaite*[2], *Simon Goldenberg*[2] *and Catherine Mak*[1], *(1)Aquarius Population Health, London, United Kingdom, (2)Guy's and St Thomas' NHS Trust, London, United Kingdom*

Purpose:

We aimed to explore the impact of introducing a high performance point of care test (POCT) for influenza and respiratory syncytial virus (RSV) (Enigma® MiniLab™ FluAB-RSV) on an acute paediatric ward of a large London hospital during influenza season compared to standard care of using a laboratory-based test.

Method(s):

We estimated the reimbursement charges, length of stay, and utilisation and total costs of laboratory tests and drugs before and after implementing the Enigma® MiniLab™ FluAB-RSV test for paediatric patients admitted to an acute respiratory ward in the 2013/14 and 2014/15 respiratory seasons.

Result(s):

We found a significant reduction in reimbursement charges for influenza- and RSV-negative patients, for the full hospital stay and the period on the acute paediatric ward (£165 and £148 respectively, p=0.05) after implementing the POCT. However, these differences disappeared when controlling for top-up service charges. There was no change for patients who were influenza or RSV positive. More appropriate treatment of patients with influenza occurred after implementing the POCT (40% versus 13% received oseltamivir, p=0.02). There was no difference in length of stay between the two periods.

Conclusion(s):

We observed clinical improvements in prescribing treatment for influenza after implementing a POCT for influenza A/B and RSV infections in paediatric patients, accompanied by a reduction in reimbursement and laboratory costs. This could mean savings for commissioners and hospitals, even without a reduction in the length of stay.

DO SURGERY JOURNALS REPORT RISK REDUCTION INFORMATION IN A WAY THAT COULD PROMOTE BIAS?

18:00 - 20:00: Sun. Jun 12, 2016
Exhibition Space
Part of Session: POSTER SESSION 1 & WELCOME RECEPTION

***Dafina Petrova, MSc**, Mind, Brain, and Behavior Research Center; University of Granada, Granada, Spain, Rocio Garcia-Retamero, PhD, University of Granada, Granada, Spain, Edward Cokely, PhD, National Institute for Risk & Resilience, and Department of Psychology, University of Oklahoma, USA, Norman, OK and Alexander Joeris, MD, AO Clinical Investigation and Documentation, Duebendorf, Switzerland*

Purpose: Denominator neglect is the tendency to focus on the numerator in a ratio (e.g., number of affected individuals) and ignore the denominator (e.g., overall number of people at risk). This effect can result in inaccurate perceptions of effectiveness of medical interventions and treatments when health professionals compare groups of patients of unequal sizes. We investigated whether the way that data are reported in medical journals would promote denominator neglect. In particular, we investigated (1) to what extent ratio comparisons giving rise to denominator neglect are prevalent in the medical literature, focusing on orthopedic surgery, and (2) in what way the data are reported.

Method(s): We downloaded all abstracts of original research articles published every even (vs. odd) year in the past 10 years in seven leading orthopedic surgery journals (N=9,887). We randomly selected 25% of abstracts of each journal for review (N=2,472). The final sample consisted of 405 articles that reported relevant ratio data.

Result(s): The majority of articles (365, 90%) reported unequal group sizes. Of these, 233 (64%) reported both the number of affected individuals and the associated percentage of the total. However, 67 (18%) reported the number of affected individuals only, and only 24 (36%) of those reported the denominator alongside. Articles published earlier, reports of randomized controlled trials, and articles published in journals with higher impact factor were more likely to report the number of affected individuals only.

Conclusion(s): A significant proportion of articles report only the number of affected individuals in each group, without facilitating group comparison by specifying the percentage alongside. Paradoxically, this reporting was more prevalent in articles documenting high quality evidence. These results suggest that data are often reported in ways that could make readers susceptible to denominator neglect, resulting in inaccurate perceptions of treatment effectiveness or risk reduction. We are currently investigating to what extent medical professionals are susceptible to denominator neglect compared to the general population and if the effects of denominator neglect persist when the percentages are reported alongside the number of affected individuals.

DO VISUAL AIDS IMPROVE DIAGNOSTIC INFERENCE?

18:00 - 20:00: Sun. Jun 12, 2016
Exhibition Space
Part of Session: POSTER SESSION 1 & WELCOME RECEPTION

*Rocio Garcia-Retamero, PhD, University of Granada, Granada, Spain, Edward Cokely, PhD, National Institute for Risk & Resilience, and Department of Psychology, University of Oklahoma, USA, Norman, OK, **Dafina Petrova, MSc**, Mind, Brain, and Behavior Research Center; University of Granada, Granada, Spain and Ulrich Hoffrage, PhD, Faculty of Business and Economics, University of Lausanne, Lausanne, Switzerland*

Purpose: Visual aids can improve comprehension of risks associated with medical treatments, screenings, and lifestyles. Do visual aids also help decision makers accurately assess their risk comprehension? That is, do visual aids help them become well calibrated? To address these questions, we investigated the benefits of visual aids displaying numerical information and measured accuracy of self-assessment of diagnostic inferences (i.e., metacognitive judgment calibration) controlling for individual differences in numeracy.

Method(s): Participants included 108 patients who made diagnostic inferences about three medical tests on the basis of information about the sensitivity and false-positive rate of the tests and disease prevalence. Half of the patients received the information in numbers without a visual aid, while the other half received numbers along with a grid representing the numerical information.

Result(s): In the numerical condition, many patients–especially those with low numeracy–misinterpreted the predictive value of the tests and profoundly overestimated the accuracy of their inferences. Metacognitive judgment calibration mediated the relationship between numeracy and accuracy of diagnostic inferences. In contrast, in the visual aid condition, patients at all levels of numeracy showed high-levels of inferential accuracy and metacognitive judgment calibration. Results indicate that accurate metacognitive assessment may explain the beneficial effects of visual aids and numeracy–a result that accords with theory suggesting that metacognition is an essential part of risk literacy.

Conclusion(s): We conclude that well-designed risk communications can inform patients about health-relevant numerical information while helping them assess the quality of their own risk comprehension.

THE EFFECT OF EMPATHY ON RISK PERCEPTION FOR HEALTH VIGNETTES

18:00 - 20:00: Sun. Jun 12, 2016
Exhibition Space
Part of Session: POSTER SESSION 1 & WELCOME RECEPTION

***Piers Fleming**, Becky Renshaw-Fox, Becky Leggate, Jess Hall and Yasmine Haggar, University of East Anglia, Norwich, United Kingdom*

Purpose: To determine the effect of trait empathy on risk perceptions for health vignettes and the effect of individual sufferer descriptions.

Method(s): 40 vignettes were presented describing health conditions. 50 participants viewed vignettes describing an individual sufferer and 50 participants viewed vignettes describing the condition without reference to an individual. Each participant rated the perceived risk of each condition for likelihood and severity and then completed the empathy quotient (Baron-Cohen & Wheelwright, 2004).

Result(s): Perceived severity was greater when participants viewed vignettes which described an individual sufferer compared to vignettes which didn't describe an individual sufferer, but only for participants with a low empathy quotient. Participants with a high empathy quotient were unaffected by the presentation of individual vs general risk. There was no effect for perceived likelihood.

Conclusion(s): Greater perceived risk for individual sufferers was located in greater perceived severity. This severity effect is associated with empathy for the sufferer. People who are already highly empathic may consider the full severity of a health condition in terms of its consequences without the context of an individual sufferer but those who are less empathic are better able to think about the severity of a health condition within that context. Empathy informs risk severity judgments. This is important because unofficial health information (e.g. news reports) are often presented in the context of individual sufferers but official sources typically present health information in general and statistical terms.

TOLERANCE FOR AMBIGUITY AND STRESS: A STUDY AMONG ITALIAN PRACTICING PHYSICIANS

18:00 - 20:00: Sun. Jun 12, 2016
Exhibition Space
Part of Session: POSTER SESSION 1 & WELCOME RECEPTION

***Paola Iannello**, Alessandro Antonietti, Anna Mottini and Simone Tirelli, Catholic University of the Sacred Heart, Milan, Italy*

Purpose: Medical practice is inherently ambiguous and uncertain. The physicians' ability to tolerate ambiguity and

uncertainty has been proved to have a great impact on clinical practice. The primary aim of the present study was to investigate the role of physicians' (i) intolerance of ambiguity and uncertainty and (ii) need for cognitive closure in predicting their level of perceived stress. It was hypothesized that higher degree of ambiguity and uncertainty intolerance and higher need for cognitive closure will predict higher work stress.

Method(s): Two hundred and twelve physicians (mean age = 42.94 yrs; SD = 10.72) were administered a set of questionnaires measuring perceived levels of work-related stress, individual ability to tolerate ambiguity, stress deriving from uncertainty, and personal need for cognitive closure. The study included practicing physicians from different medical specialties with different levels of expertise to control for these professional characteristics.

Result(s): A linear regression analysis was performed to examine which variables predict the perceived level of stress. The regression model was statistically significant [$R^2 = 0.32$; $F(10,206) = 8.78$, $p < .001$], thus showing that, after controlling for gender and medical specialty, ambiguity and uncertainty tolerance, decisiveness (a dimension included in need for closure), and the years of practice were significant predictors of perceived work-related stress.

Conclusion(s): Findings from the present study have some implications for medical education. Given the great impact that the individual ability to tolerate ambiguity and uncertainty have on the physicians' level of perceived work-related stress, it would be worth paying particular attention to them in medical education settings. It would be crucial to introduce or to empower educational tools and strategies that could increase medical students' ability to tolerate ambiguity and uncertainty.

SHARED DECISION MAKING IN ANTENATAL OBSTETRICS

18:00 - 20:00: Sun. Jun 12, 2016
Exhibition Space
Part of Session: POSTER SESSION 1 & WELCOME RECEPTION

***Francesca Ker-Reid**, School of Acute Care Common Stem, Severn Deanery, Bristol, United Kingdom, Matthew Ridd, Centre for Academic Primary Care, School of Social and Community Medicine, University of Bristol, Bristol, United Kingdom, Harini Narayan, Great Western Hospital, Swindon, United Kingdom and Alan Montgomery, Nottingham University, Nottingham, United Kingdom*

Purpose: The UK Government has prioritised shared decision making (SDM) and choice in maternity services, but no studies had explored the breadth of decisions or the feasibility of this aspiration. Current SDM practice within obstetric consultations had also not been investigated. This study aimed to describe the decisions made, investigate the factors associated with women's choice and explore the amount of shared decision making (SDM) taking place.

Method(s): This cross-sectional study, audio-recorded 194 consultations in a UK district general hospital. Multi-level regression models were used to investigate associations between choice and doctor, patient, consultation and decision variables. A small sub-study investigated SDM in two clinical scenarios, using an adapted observer and dyadic OPTION questionnaire. These were compared using Bland-Altman plots.

Result(s): 585 decisions were documented with a mean of 3.0 (SD 1.5) per consultation. No choice was offered in 75% of decisions. Choice was associated with the decision topic, consultation length, Royal College membership status and presence on the specialist register. The substudy included 15 consultations and the mean observer OPTION score was 21.9. Participants rated SDM higher (mean patient OPTION score 65.3). The Bland-Altman plot demonstrated a small mean difference (-0.07) and one point lay outside the 95% limits of agreement (-0.7, 0.6).

Conclusion(s): The mean observer OPTION score was comparable with other studies in the field (mean score across eight studies 25.7 (range 16.9 - 53.1)). However, without a choice it will be challenging for a patient and their healthcare profession to truly share decisions. If universal SDM is the aim, then further work is required to understand the factors that impact on choice availability and hence SDM.

THE BENEFIT-HARM BALANCE OF PROSTATE CANCER SCREENING IN MEN WITH AVERAGE AND ELEVATED FAMILIAL RISK PREDICTIONS OF THE ONCOTYROL PROSTATE CANCER OUTCOME AND POLICY MODEL

18:00 - 20:00: Sun. Jun 12, 2016
Exhibition Space
Part of Session: POSTER SESSION 1 & WELCOME RECEPTION

*Nikolai Mühlberger, Assist.-Prof., DVM, MPH[1], Kristijan Boskovic, MD[2], Murray D. Krahn, MD, MSc[3], Karen E Bremner, BSc[4], Willi Oberaigner, Associate Prof., Dr.[5], Helmut Klocker, A. Univ.Prof. Dr.[6], Wolfgang Horninger, Univ.-Prof. Dr.[6], **Gaby Sroczynski, MPH, Dr.PH**[7] and Uwe Siebert, MD, MPH, MSc, ScD[8], (1)Department of Public Health, Health Services Research and Health Technology Assessment, UMIT - University for Health Sciences, Medical Informatics and Technology; Division of HTA and Bioinformatics, ONCOTYROL - Center for Personalized Cancer Medicine, Hall i.T./Innsbruck, Austria, (2)Department of Public Health, Health Services Research and Health Technology Assessment UMIT - University for Health Sciences, Medical Informatics and Technology, Hall i.T., Austria, (3)University of Toronto and University Health Network,*

Toronto General Research Institute, Toronto Health Economics and Technology Assessment (THETA) Collaborative, Toronto, ON, Canada, (4)Toronto General Research Institute, Toronto General Hospital, Toronto, ON, Canada, (5)Cancer Registry of Tyrol, Tirol Kliniken GmbH, Innsbruck, Austria, (6)Department of Urology, Medical University of Innsbruck, Innsbruck, Austria, (7)UMIT - University for Health Sciences, Medical Informatics and Technology, Institute of Public Health, Medical Decision Making and HTA, Department of Public Health, Health Services Research and HTA/ ONCOTYROL - Area 4, HTA and Bioinformatics, Hall i.T./Innsbruck, Austria, (8)UMIT, Hall in Tirol (Austria) / Boston (USA), Austria

Purpose:

The benefit of prostate cancer (PCa) screening is still controversial due to potential harms by overdiagnosis and overtreatment. We applied the ONCOTYROL Prostate Cancer Outcome and Policy (PCOP) model to evaluate the benefit-harm balance of PCa screening followed by immediate treatment or active surveillance in men with average and elevated familial PCa risk, considering individual age and quality of life (QoL) weighting.

Method(s):

The PCOP model is a decision-analytic state-transition micro-simulation model simulating the natural history of PCa and the consequences of screening and treatment on duration and quality of life. Men with average and elevated familial PCa risk were simulated as separate cohorts, differing in familial risk parameters, which in the base-case analysis were assumed to affect both PCa onset and progression. Evaluated strategies included no screening, and various one-time and interval screening algorithms. Optimal screening strategies maximizing quality-adjusted life expectancy (QALE) were identified depending on age and individual QoL weighting (i.e. disutilities). Additionally, all screening strategies were evaluated in combination with biennial active surveillance biopsies delaying treatment of localized cancer until progression to Gleason score ≥ 7.

Result(s):

In men with average PCa risk, screening reduced QALE even under favorable assumptions. In men with elevated familial risk, screening gains QALE depending on age and disutilities. For men with familial risk aged 55 and 60 years annual screening to age 69 was the optimal strategy over most disutility ranges, whereas for 65 year-old men with average and above disutilities, no screening was the preferred option. Active surveillance strongly reduced overtreatment. However, gains by averted adverse events were opposed by losses due to delayed treatment and additional biopsies, and the reduction of overtreatment decreases with increasing speed of PCa progression. Compared to screening with immediate treatment, screening with active surveillance resulted in lower QALE losses in men with average PCa risk, and lower QALE gains in men with elevated PCa risk.

Conclusion(s):

Assumptions about PCa risk and prevalence strongly affect the benefit-harm balance of screening. Based on our assumptions, PCa screening is only beneficial for men with familial predisposition, in whom QALE gains depend on individual age and disutilities. Active surveillance should not delay treatment until Gleason score progression to 7. Alternative criteria for treatment initiation should be evaluated in further modeling studies.

INCREASING HIGH-VALUE VENOUS THROMBOEMBOLISM PROPHYLAXIS: A WIN-WIN SITUATION

18:00 - 20:00: Sun. Jun 12, 2016
Exhibition Space
Part of Session: POSTER SESSION 1 & WELCOME RECEPTION

***Claire Jansson-Knodell, MD**[1], Melissa Myers, MD[1], Sara Bonnes, MD[2] and John Ratelle, MD[2], (1)Mayo School of Graduate Medical Education, Rochester, MN, (2)Mayo Clinic, Rochester, MN*

Purpose: Low molecular weight heparin (LMWH) is an effective means of preventing venous thromboembolism (VTE) among medical inpatients. When compared to unfractionated heparin, LMWH has been shown to be superior in terms of efficacy, risk of bleeding and cost. Despite its numerous advantages, LMWH is used infrequently as VTE prophylaxis for general medicine patients at Mayo Clinic Hospital. Thus, a quality improvement (QI) project was undertaken to increase the use of LMWH for VTE prophylaxis among the census of medical patients hospitalized on resident teaching services between April and August 2015.

Method(s): A QI team was formed; it consisted of resident and attending physicians with nursing and pharmacy leadership. A systems analysis was performed, where stakeholder interviews revealed prescriber knowledge as the greatest barrier to LMWH utilization. Several Plan-Do-Study-Act (PDSA) cycles were executed, featuring interventions such as peer-to-peer education, pharmacist-to-resident education, performance feedback, educational posters and emails.

Result(s): Data analysis demonstrated a statistically significant increase in LMWH use among hospitalized medical patients by 66.3% following the implementation of the interventions ($p<0.001$).

Conclusion(s): Peer-to-peer education and feedback resulted in some improvement, but pharmacist education elicited the largest practice change. In an effort to promote sustainability, a recurring pharmacist-led educational session has been

implemented into new resident orientation.

Sustained over a one-month period, this improvement conserves over 450 injections and nearly 80 total hours of nursing time. The use of LMWH for VTE prophylaxis rather than unfractionated heparin improves patient satisfaction, quality, cost and efficiency of healthcare – it is a 'win' for nursing staff, providers, and most of all patients.

META-ANALYSIS AND INDIRECT TREATMENT COMPARISON OF SAFETY PROFILES OF BORTEZOMIB- AND THALIDOMIDE-BASED REGIMENS FOR THE FIRST LINE TREATMENT OF ELDERLY TRANSPLANT-INELIGIBLE PATIENTS WITH MULTIPLE MYELOMA

18:00 - 20:00: Sun. Jun 12, 2016
Exhibition Space
Part of Session: POSTER SESSION 1 & WELCOME RECEPTION

Milica Jevdjevic, DMD[1], *Durda Vukicevic, MD*[2], *Monika Buchberger, MSc*[2], *Marjan Arvandi, MS*[1], *Werner Hackl, DI Dr.*[3], *Wolfgang Willenbacher, MD*[4], *Guenther Gastl, MD*[5], *Uwe Siebert, MD, MPH, MSc, ScD*[6] *and Ursula Rochau, MD, MSc*[7], *(1)Institute of Public Health, Medical Decision Making and Health Technology Assessment, Department of Public Health, Health Services Research and Health Technology Assessment, UMIT - University for Health Sciences, Medical Informatics and Technology, Hall i. T., Austria, (2)UMIT - University for Health Sciences, Medical Informatics and Technology, Institute of Public Health, Medical Decision Making and Health Technology Assessment, Department of Public Health, Health Services Research and Health Technology Assessment, Hall i.T., Austria, (3)Institute of Biomedical Informatics, Department of Biomedical Informatics and Mechatronics, UMIT - University for Health Sciences, Medical Informatics and Technology, Hall i.T., Austria, Hall i.T., Austria, (4)Area 4 Health Technology Assessment and Bioinformatics, ONCOTYROL - Center for Personalized Cancer Medicine; Internal Medicine V, Hematology and Oncology, Medical University, Innsbruck, Austria, (5)Internal Medicine V, Hematology and Oncology, Medical University, Innsbruck, Austria, (6)Institute of Public Health, Medical Decision Making and Health Technology Assessment, Department of Public Health, Health Services Research and Health Technology Assessment, UMIT - University for Health Sciences, Medical Informatics and Technology, Hall i.T., Austria, (7)UMIT - University for Health Sciences, Medical Informatics and Technology, Institute of Public Health, Medical Decision Making and HTA, Department of Public Health and HTA/ ONCOTYROL - Center for Personalized Cancer Medicine, Area 4 HTA and Bioinformatics, Hall in Tyrol/ Innsbruck, Austria*

Purpose: We performed a systematic review and meta-analysis comparing the safety of different first-line treatment strategies for newly diagnosed, transplant-ineligible patients with multiple myeloma (MM). Treatment alternatives for these patients include multidrug regimens combining melphalan and prednisone (MP) with bortezomib (MPV) or thalidomide (MPT) and combinations of cyclophosphamide, thalidomide and dexamethasone (CTd).

Method(s): A systematic literature review was conducted and eligible studies (randomized clinical trials (RCT) comparing first-line therapies for MM) were identified from several databases including Medline, Embase, Cochrane Library and CRD. We extracted data on grade 3-4 adverse events and calculated pooled odds ratios (OR) with 95% confidence intervals (CI). A random-effects meta-analysis and indirect treatment comparison were performed to compare treatment-related adverse events (AEs) in the included clinical trials.

Result(s): Our meta-analysis included six studies comparing MP and MPT with a total of 1399 patients. Withdrawals due to AEs were significantly lower in MP treatment when compared with MPT 0.18 (0.12-0.28) (OR (95% CI)). The MP regimen was associated with a significantly lower risk of DVT 0.37 (0.15-0.86), as well as a decreased risk of constipation 0.45 (0.27-0.77), infection 0.46 (0.30- 0.71) and peripheral neuropathy 0.25 (0.09-0.67). Other AEs including neutropenia, cardiac disorder, rash and nausea were less frequent for MP but the differences were not statistically significant. The indirect treatment comparison assessed the safety of MPV compared with MPT and CTd with MPT using MP as common comparator. Results of indirect comparisons did not show statistically significant difference except in the case of peripheral neuropathy 0.04 (0.00-0.90) and nausea 0.11 (0.03-0.48), which were less frequent in MPV regimen.

Conclusion(s): Based on the results of our comparative safety analysis, the MP regimen appears to have a favorable safety profile. The addition of novel and more potent therapeutic agents is in general followed by an increase of grade 3 and 4 adverse events. Therefore, the benefits and harms of the treatment alternatives should be carefully balanced, particularly in elderly patients, although higher and deeper responses, a better progression-free survival (PFS) as well as overall survival (OS) has been reported for triplet therapies comprising novel agents in multiple clinical trials.

AN OVERVIEW OF DIFFERENT MAPPING TECHNIQUES TO DERIVE HEALTH STATE UTILITY VALUES IN MULTIPLE MYELOMA FOR DECISION-ANALYTIC MODELING

18:00 - 20:00: Sun. Jun 12, 2016
Exhibition Space
Part of Session: POSTER SESSION 1 & WELCOME RECEPTION

*Vjollca Qerimi, MPharm[1], **Beate Jahn, PhD**[2], Durda Vukicevic, MD[2], Milica Jevdjevic, DMD[3], Andrea Manca, PhD, MSc[4], Bernhard Holzner, PhD[5], Georg Kemmler, PhD[5], Uwe Siebert, MD, MPH, MSc, ScD[6] and Ursula Rochau, MD, MSc[3], (1)Institute of Public Health, Medical Decision Making and HTA, Department of Public Health, Health Services Research and HTA, UMIT - University for Health Sciences, Medical Informatics and Technology / Faculty of Pharmacy, University of Skopje, Macedonia, Hall in Tyrol, Austria, (2)UMIT - University for Health Sciences, Medical Informatics and Technology, Institute of Public Health, Medical Decision Making and Health Technology Assessment, Department of Public Health, Health Services Research and Health Technology Assessment, Hall in Tyrol, Austria, (3)Institute of Public Health, Medical Decision Making and Health Technology Assessment, Department of Public Health, Health Services Research and Health Technology Assessment, UMIT - University for Health Sciences, Medical Informatics and Technology, Hall i. T., Austria, (4)The University of York, Centre for Health Economics, United Kingdom/ Department of Population Health, Luxembourg Institute of Health, Luxemburg, York, United Kingdom, (5)Medical University of Innsbruck, Department of Psychiatry and Psychotherapy, Innsbruck, Austria, (6)Institute of Public Health, Medical Decision Making and Health Technology Assessment, Department of Public Health, Health Services Research and Health Technology Assessment, UMIT - University for Health Sciences, Medical Informatics and Technology, Hall i.T., Austria*

Purpose:

The National Institute for Clinical Excellence (NICE) recommends quality-adjusted life years (QALYs) as main measure for health outcomes in cost-utility analyses. In the absence of utilities, NICE recommends to use “mapping” functions to link utilities to other outcomes. The goal of our study is to give an overview on published utility data and mapping techniques that can be applied to derive utility values from non-preference based (e.g. disease-specific) patient reported outcome measures in multiple myeloma (MM).

Method(s):

We performed a systematic literature search in PubMed/Medline to identify studies reporting on health-related quality of life (HRQoL) in patients with MM derived from the EQ-5D and EORTC questionnaires (QLQ-C30 or QLQ-MY20). To meet our inclusion criteria, studies were required to evaluate treatment strategies for patients with MM, to be published in English as full text, and to report utilities or results from the EQ-5D and EORTC questionnaires. In the absence of sufficient data on utilities, we conducted a search (systematic and hand search) on studies describing algorithms for mapping health utilities from non-preference based questionnaires (EORTC) to a generic preference-based questionnaire EQ-5D. We extracted and summarized the published algorithms, their predictive performance, statistical models, and validation techniques based on the ISPOR Good Research Practice Task Force for mapping.

Result(s):

We identified 39 studies reporting on HRQoL from EQ-5D and EORTC. Only seven studies reported utilities. However, these utilities did not sufficiently cover current MM treatment options and disease stages. In our search for mapping algorithms, we identified eight studies applying mapping approaches to derive utilities. Only four studies reported mapping algorithms for MM; the remaining studies included different cancer diseases. The most frequently applied statistical model for mapping was the ordinary least square model. Furthermore, ordered probit regression, Tobit models, two-part models, splining models, response mapping models, limited depended variable mixture models, and multiple linear regression analysis were applied. Only two studies reported on validation of the mapping algorithms.

Conclusion(s):

We identified several studies reporting on HRQoL data from EQ-5D and EORTC. Based on the extracted mapping algorithms, we identified several approaches on how to translate the extracted data to utility values. The quality of reporting the mapping techniques varies considerably and in some cases the applied algorithms were not sufficiently described to be replicated.

THE IMPACT OF THE ALCOHOL ACT ON ALCOHOL-RELATED HEALTH HARMS IN SCOTLAND

18:00 - 20:00: Sun. Jun 12, 2016
Exhibition Space
Part of Session: POSTER SESSION 1 & WELCOME RECEPTION

***Jim Lewsey, PhD**[1], Mark Robinson[2], Janet Bouttell[1], Daniel Mackay[1], Gerard McCartney[2] and Clare Beeston[2], (1)Institute of Health & Wellbeing, University of Glasgow, Glasgow, United Kingdom, (2)NHS Health Scotland, Glasgow, United Kingdom*

Purpose:

To investigate whether introduction of an Alcohol Act, a change in regulations concerning the sale and promotion of off-trade alcohol, had any effect on rates of alcohol-related deaths and hospital admissions in Scotland.

Method(s):

The data used in this study comprised rates of 1) death and 2) patients admitted to hospital with a wholly attributable alcohol-related diagnosis for consecutive 4-weekly periods between January 2001 and December 2014 (December 2013 for

hospitalisations). This population-level data was both for Scotland the intervention group, and England/Wales (deaths), England (hospitalisations) the control group.

Random-effects negative binomial regression models were fitted to both the intervention and control data sets with a binary time dependent Alcohol Act covariate taking the value one after the change was introduced in Scotland (1st October 2011 onwards) and a value of zero before. The covariates of age, sex, Carstairs deprivation, month (accounting for seasonal changes) and time (accounting for underlying temporal trends using spline functions) were used for adjustment. In pre-specified sensitivity analyses, we repeated the control group modelling using only the North-East and North-West England regions (combined) as it has been suggested these regions are more alike to Scotland than England/Wales as a whole. Further, we shortened the pre-intervention study period and used false legislation dates (between 12 months and 12 months post 1st October 2011).

Result(s):

The table shows the estimated effect of the Alcohol Act (expressed as incidence rate ratios, IRRs) in Scotland, and the corresponding IRRs for the pseudo-Alcohol Act in England/Wales. There is no evidence to suggest that the Alcohol Act was associated with changes in the overall rate of alcohol-related deaths and hospital admissions in Scotland. The results of the sensitivity analyses were broadly comparable to the main analysis.

Conclusion(s):

Our results suggest that the implementation of the Alcohol Act in Scotland has not had a substantial short-term impact on alcohol-related health harms. Even though a restriction on promotions is important in creating an environment in which alcohol is sold responsibly, our results suggest it is unlikely on its own to substantially reduce the harm caused by alcohol at the population level.

Table: IRRs for association between Alcohol Act legislation and alcohol-related harm

	Scotland			England/Wales[1]			NE/NW England[2]		
	IRR	95% CI	*p*	IRR	95% CI	*p*	IRR	95% CI	*p*
Main analysis									
Deaths	0.99	0.91 to 1.07	0.73	0.99	0.95 to 1.02	0.42	1.00	0.92 to 1.10	0.94
Admissions	0.98	0.95 to 1.02	0.34	1.05	1.03 to 1.07	<0.001	1.03	0.99 to 1.07	0.08
Sensitivity analysis: shorter pre-intervention trend									
Admissions	0.99	0.94 to 1.04	0.70	1.08	1.05 to 1.11	<0.001	1.07	1.03 to 1.11	0.001
Sensitivity analysis: false legislation dates									
Deaths									
12m pre	1.08	1.00 to 1.18	0.06	1.03	1.00 to 1.07	0.07	1.07	0.99 to 1.15	0.08
6m pre	1.00	0.92 to 1.08	0.99	1.00	0.97 to 1.04	0.92	1.06	0.98 to 1.15	0.16
6m post	0.99	0.92 to 1.07	0.79	0.99	0.96 to 1.02	0.65	1.07	0.97 to 1.18	0.19
12m post	1.00	0.93 to 1.08	0.96	0.98	0.95 to 1.01	0.18	0.96	0.87 to 1.05	0.38
Admissions									
12m pre	1.02	0.99 to 1.06	0.23	0.98	0.96 to 1.00	0.12	0.97	0.94 to 1.01	0.18
6m pre	1.01	0.98 to 1.05	0.46	1.03	1.00 to 1.05	0.03	1.03	0.99 to 1.07	0.12
6m post	0.95	0.92 to 0.99	0.01	0.99	0.97 to 1.00	0.13	0.99	0.96 to 1.02	0.41
12m post	0.97	0.93 to 1.01	0.13	0.97	0.95 to 0.99	0.003	0.96	0.93 to 0.99	0.01

Notes: [1]Models with hospital admissions as the outcome included data for England only. [2]Sensitivity analysis.

ANALYSIS OF EYE GAZE PATTERNS AND DECISION-MAKING STRATEGIES DURING A DISCRETE CHOICE EXPERIMENT

18:00 - 20:00: Sun. Jun 12, 2016
Exhibition Space
Part of Session: POSTER SESSION 1 & WELCOME RECEPTION

Sian Martin[1]*, Kielan Yarrow*[1]*, Kate Mandeville*[2]*, Stian Reimers*[1]*, Mylene Lagarde*[2] *and Benjamin Cooper*[1]*, (1)City University London, London, United Kingdom, (2)London School of Hygiene and Tropical Medicine, London, United Kingdom*

Purpose:

To examine eye gaze patterns and decision-making strategies of discrete choice experiment participants

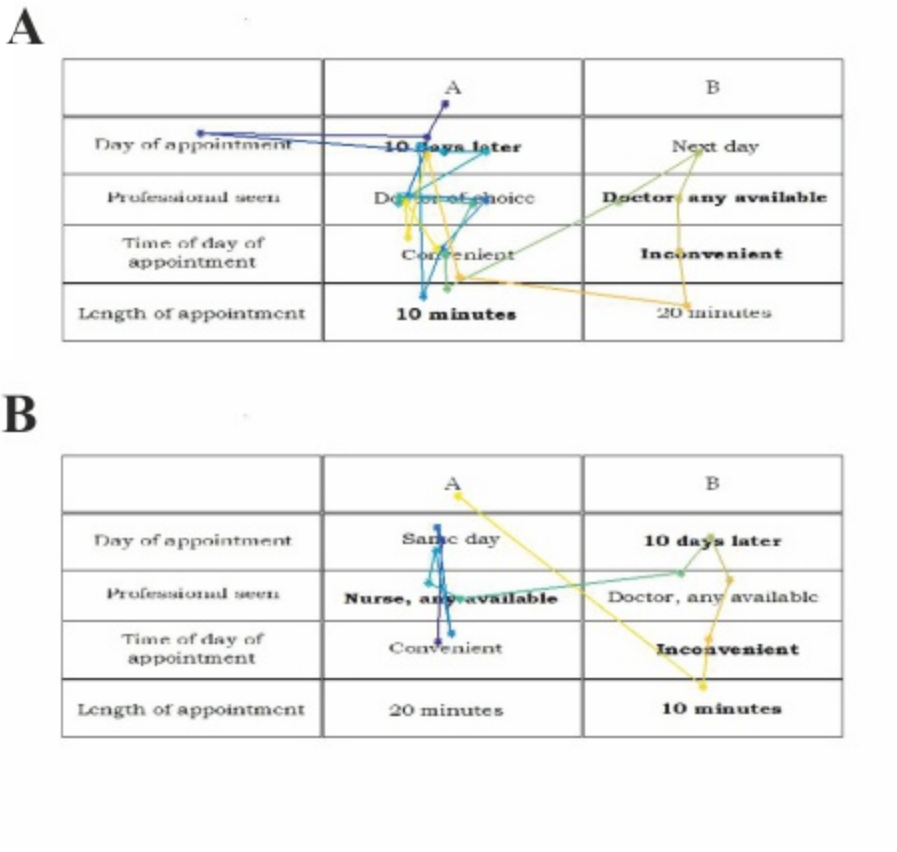
Method(s):

21 participants took part in a discrete choice experiment assessing preferences for different types of primary care appointments. An efficient design was used to construct 25 binary generic choice tasks with four attributes. The eye movements of participants were tracked during the completion of choice tasks using a specialised videocamera. We reconstructed the pattern of each participant's gaze for each choice task using Matlab. Qualitative examination of gaze patterns for each participant allowed us to infer common decision-making patterns.

Result(s):

No participant displayed a consistent eye gaze pattern over all 25 choice tasks, with all participants using a mixture of decision-making strategies. Three participants predominantly used a within-alternative assessment of levels before making their choice (Figure 1A). Five participants predominantly assessed levels on one or two attributes between alternatives and then the remaining levels in one alternative (Figure 1B). Two participants switched between these two strategies approximately halfway through the choice tasks. The majority of participants had no clear strategy, with gaze patterns changing frequently between choice tasks.

Figure 1



Notes: Coloured line indicates eye gaze pattern from a representative choice task for one participant. Dark blue indicates start of participant's eye gaze, evolving to yellow at the end of gaze. A. A typical within-alternative stategy. B. A typical strategy assessing levels on one or two attributes between alternatives and then the remaining levels in one alternative.

Conclusion(s):

Participants employ a mixture of decision-making strategies during discrete choice experiments. Further use of eye-tracking could help identify common patterns to help improve econometric modelling.

STRUCTURING BENEFIT-RISK MODELS IN PRESENCE OF NUMEROUS ADVERSE EVENTS: A CASE STUDY OF MULTIPLE SCLEROSIS

18:00 - 20:00: Sun. Jun 12, 2016
Exhibition Space
Part of Session: POSTER SESSION 1 & WELCOME RECEPTION

Sumitra Sri Bhashyam, PhD[1], *Heather Gelhorn, PhD*[2], *Katharine Gries, PhD*[2], *Kevin Marsh, PhD*[1], *Jiat Ling Poon, PhD*[2], *Anne Rentz, MSPH*[2] *and Tommi Tervonen, PhD*[3], *(1)Evidera, London, United Kingdom, (2)Evidera, Bethesda, WA, (3)Health Economics Center of Excellence, Evidera Ltd, London, United Kingdom*

Purpose:

Preference-based benefit risk assessment (BRA) is increasingly commonly used to account for the patient voice in medical decision making. While it is a valuable tool to support the formalisation of patient preferences, further guidance is required on how adverse events (AEs) should be incorporated into a BRA. Challenges are posed by the limitation on the number of criteria that can be incorporated into a BRA, the diversity of AEs experienced by patients on different treatments, and limitations in the data on AEs for comparator treatments. The purpose of this study was to review good practice guidelines and lessons from previous BRAs to generate recommendations on how to incorporate AEs into BRA, using multiple sclerosis (MS) as a case study.

Method(s):

A review of MS studies was carried out to identify risks associated with MS treatments, the different methods used to incorporate them into BRA, and the challenges and recommendations emerging from this experience. Good practice guidelines were reviewed to identify approaches that might support the incorporation of AEs into BRA, and their pros and cons.

Result(s): Six MS studies included a diversity of approaches to incorporating AEs into BRA, including: grouping the AEs into various categories based on severity levels, or shortlisting them to a manageable number. A number of challenges were identified which should inform BRA designs, including: ignoring different preferences for specific AEs when they are aggregated; splitting and availability biases when AEs are disaggregated; overlap with other criteria when discontinuation is used as a proxy for AE severity; different duration and reversibility of AEs; patients understanding of AEs if they have not experienced them before. These challenges have implications for which methods are appropriate for BRA. For instance, certain methods place less restrictions on the number of criteria; and workshop-based approaches allow for more information to be provided to patients and consistency checks to be performed.

Conclusion(s):

There currently is no consensus on the best approach to capture AEs as part of a quantitative BRA. While the choice of model will be motivated by the type of data available and the goals of the analyses, the literature provides some options and guidance on overcoming the challenges. Further testing with patients of the available methods is required.

EXPLICIT DEVELOPING A PLATFORM FOR ELICITING EXPERT OPINION FOR MODEL-BASED ECONOMIC EVALUATIONS

18:00 - 20:00: Sun. Jun 12, 2016
Exhibition Space
Part of Session: POSTER SESSION 1 & WELCOME RECEPTION

Bogdan Grigore*, Jaime Peters, Christopher Hyde and Ken Stein, Institute for Health Research, University of Exeter Medical School, Exeter, United Kingdom*

Purpose:

When evidence is scarce, experts are sometimes asked to estimate the uncertainty of model parameters as probability distributions. This process, usually referred to as expert elicitation, is complex and there is an ongoing debate on the best way to conduct elicitation. EXPLICIT (EXPert eLICItation Tool) was developed with three aims: 1) as an attempt to standardise the elicitation approach in accordance with established recommendations, 2) for the conduct of elicitation in the absence of a facilitator, and 3) as an environment for systematically exploring different approaches to elicitation.

Method(s):

Starting from a number of reviews of elicitation methods and tools, an Excel-based tool was developed to assist the progress of the elicitation session, including the preparation of the expert and recording of the outcome.

An early version included the histogram technique and a hybrid method to encode expert-elicited distributions as proportions; in later versions, a three-point estimation method (PERT) was also included for scalar quantities.

Additional information on the elicitation task can be displayed in EXPLICIT, and consent can be recorded directly. Data on expert characteristics such as statistics literacy and years of experience can also be collected. Feedback from the participating experts has also been sought on the ease of use, as well as the ability of EXPLICIT to faithfully represent their beliefs.

EXPLICIT was piloted on two different occasions, with clinical and non-clinical experts. In order to explore the feasibility of elicitation in the absence of a facilitator, some experts used EXPLICIT via email.

Result(s):

The EXPLICIT tool has been used in four different elicitation tasks, involving 36 experts in total. 14 of them, completed the task unattended, via email; none of these experts had any experience with prior elicitation. Generally, experts found using EXPLICIT easy to use. Only one expert failed to use the tool and could not complete the elicitation task. There was wide agreement among experts that EXPLICIT could faithfully represent their uncertainty.

Conclusion(s):

EXPLICIT was useful in both facilitating the elicitation task and in obtaining expert opinion from experts who could not be met face-to-face. Comparison of elicitation characteristics across studies was also possible. This work supports the opinion that, by using a standardised elicitation approach, more data could be aggregated in the methodological exploration of elicitation.

ASSESSING THE EXPECTED VALUE OF RESEARCH STUDIES IN REDUCING UNCERTAINTY AND IMPROVING IMPLEMENTATION DYNAMICS

18:00 - 20:00: Sun. Jun 12, 2016
Exhibition Space
Part of Session: POSTER SESSION 1 & WELCOME RECEPTION

***Sabine Grimm, MSc BA**, University of Sheffield, Sheffield, United Kingdom*

Purpose: With low implementation of cost-effective health technologies being a problem in many health systems, it may be worth considering the potential effects of research on implementation at the time of technology appraisal. Meaningful and realistic implementation estimates must be of dynamic nature. The objective was to extend existing methods for assessing the value of research studies in terms of both reduction of uncertainty and improvement in implementation by considering the dynamic nature of implementation.

Method(s): We use expected value of sample information and expected value of specific implementation measure concepts accounting for the effects of specific research studies on implementation dynamics and the reduction of uncertainty. Implementation dynamics are informed by diffusion theory and an elicitation of expert beliefs about the shape of diffusion curves. We illustrate the use of the resulting dynamic expected value of research analysis in a genuine pre-term birth screening technology and results are compared with those from a static analysis.

Result(s): Allowing for the dynamics of implementation had a significant impact on the expected value of research in the case study, suggesting that mistakes are made where assumptions of static implementation levels are made. Incorporating the effects of research on implementation resulted in an increase in the expected value of research compared to expected value of sample information alone.

Conclusion(s): Assessing the expected value of research in reducing uncertainty and improving implementation dynamics has the potential to complement currently used analyses in health technology assessments, especially in recommendations for further research. The combination of expected value of research, diffusion theory and elicitation described in this paper is an important addition to the existing methods of health technology assessment.

A MULTI CRITERIA DECISION ANALYSIS-BASED APPROACH TO HEALTH TECHNOLOGY ASSESSMENT

18:00 - 20:00: Sun. Jun 12, 2016
Exhibition Space
Part of Session: POSTER SESSION 1 & WELCOME RECEPTION

***Shane O Meachair, Msc**, Trinity College Dublin, Dublin, Ireland and Cathal Walsh, PhD, University of Limerick, Limerick, Ireland*

Purpose:

To develop a Multi Criteria Decision Analysis (MCDA) methodology for the purpose of evaluating new drugs for reimbursement by health system, which addresses current shortcomings in traditional health economics based approaches.

Method(s):

Two approaches are assessed. The first is based upon extending the traditional net-benefit approach to include multiple criteria in the benefit portion of the assessment. This requires setting a threshold parameter defining the opportunity cost of a unit of full health. The second approach uses MCDA within a Bayesian statistical decision making framework and ranking theory. An opportunity cost threshold is not specified but decisions are made using a loss function and probabilities of expected ranks. The methods are applied to past reimbursement recommendations made by the National Centre for Pharmacoeconomics in Ireland.

Result(s):

Both methods can account for discrepancies between recommendations and decisions and the outputs of traditional cost-effectiveness models. The statistical decision making approach does not require the specification of the cost of unit of health but requires correct specification of the loss function.

Conclusion(s):

An MCDA based approach to HTA addresses some of the theoretical and practical shortcomings of traditional cost-effectiveness analysis by accounting for multiple criteria which define the societal utility and adhering to Bayesian decision theory.

DECISION MAKING AND VALUE OF INFORMATION ANALYSIS IN A REAL-WORLD MULTI-CRITERIA CONTEXT

18:00 - 20:00: Sun. Jun 12, 2016
Exhibition Space
Part of Session: POSTER SESSION 1 & WELCOME RECEPTION

***Hendrik Koffijberg, PhD**, University of Twente, Enschede, Netherlands and Mart Janssen, PhD, University Medical Center Utrecht, Utrecht, Netherlands*

Purpose:

Decision making regarding reimbursement of new medical interventions typically involves ethical, social, legal and health economic aspects. In addition to cost-effectiveness, clinical and economic restrictions regarding for example adverse events, under-diagnosis, and budget impact, may also influence such reimbursement decisions. However, when applying standard Value of Information (VOI) analysis the value of additional research is estimated assuming all cost-effectiveness outcomes are equally relevant, and ignoring the effect of other considerations on these decisions. The purpose of this study is to determine if VOI results may be biased when the acceptability of potential intervention outcomes changes due to additional restrictions.

Method(s) **:**

In a simulation study we applied standard cost-effectiveness and VOI analysis for comparing a new hypothetical drug to a usual care drug. We determined the probability that the new drug was cost-effective, and the expected value of perfect information (EVPI). We then considered a real-world scenario in which the risk of adverse events for the new drug was restricted to a maximum of 3% and the additional cost was restricted to a maximum of €2,500 compared to the current drug. We re-estimated the cost-effectiveness and EVPI for the new drug given these restrictions.

Result(s):

For a willingness-to-pay of €20,000/QALY, the probability that the new drug was cost-effective compared to the current drug was 57%, with an EVPI of €1,866 per patient. Applying the adverse event restriction reduced the probability of exceeding this maximum event threshold from 34% to 2.3%, but also reduced the EVPI to €1,099. Similarly, restricting the additional cost reduced the probability of exceeding the cost threshold from 41% to 0%, but also reduced the EVPI to €765. Applying both criteria simultaneously resulted in a 3.3% and 0% chance of exceeding each of the respective thresholds, while reducing the EVPI further to only €290.

Conclusion(s):

When aspects other than costs and health effects influence the reimbursement decision of new medical technology this may lead to an upward bias in results from standard VOI analysis. Every additional restriction may prevent exploitation of potential benefits in cost-effectiveness outcomes found in a new study, thereby reducing the value of collecting additional evidence. When common real-world restrictions are in place, these should therefore be adequately incorporated in the VOI analysis to avoid incorrect research prioritization decisions.

TREATMENT STRATEGIES FOR MULTIPLE MYELOMA IN ELDERLY PATIENTS: A NETWORK META-ANALYSIS

18:00 - 20:00: Sun. Jun 12, 2016
Exhibition Space
Part of Session: POSTER SESSION 1 & WELCOME RECEPTION

Monika Buchberger, MSc[1], *Ursula Rochau, MD, MSc*[2], *Durda Vukicevic, MD*[1], *Wolfgang Willenbacher, MD*[3], *Anna Chaimani, PhD, MSc*[4], *Orestis Efthimiou, PhD*[4] *and Uwe Siebert, MD, MPH, MSc, ScD*[5], *(1)UMIT - University for Health Sciences, Medical Informatics and Technology, Institute of Public Health, Medical Decision Making and Health Technology Assessment, Department of Public Health, Health Services Research and Health Technology Assessment, Hall i.T., Austria, (2)UMIT - University for Health Sciences, Medical Informatics and Technology, Institute of Public Health, Medical Decision Making and HTA, Department of Public Health and HTA/ ONCOTYROL - Center for Personalized Cancer Medicine, Area 4 HTA and Bioinformatics, Hall in Tyrol/ Innsbruck, Austria, (3)Internal Medicine V, Hematology and Oncology, Medical University, Innsbruck, Austria, (4)University of Ioannina, Department of Hygiene and Epidemiology, Ioannina, Greece, (5)UMIT, Hall in Tirol (Austria) / Boston (USA), Austria*

Purpose: Elderly patients with newly diagnosed multiple myeloma (MM) are usually not considered for stem cell transplantation (SCT). Treatment alternatives for these patients include multidrug regimens combining 2-5 drugs of different classes: steroids (prednisone (P), high dose dexamethasone (D), low dose dexamethasone (d)), IMiDs (thalidomide (T), lenalidomide (R)), proteasome inhibitors (bortezomib (V)), and alkylators (cyclophosphamide (C), melphalan (M)). Head-to-head comparisons between the different regimens are mostly lacking. Our aim was to examine the comparative effectiveness of different first-line strategies currently in use for patients with MM (> 65 years) ineligible for SCT in terms of overall survival (OS) and progression-free survival (PFS).

Method(s): We performed a systematic literature search in Medline, Embase, Cochrane Library, and CRD databases. We used a random-effects network meta-analysis to estimate pooled hazard ratios with 95% confidence intervals for all treatment comparisons and for each outcome. We ranked the treatments using the surface under the cumulative ranking curve (SUCRA).

Result(s): The network meta-analysis comprised thirteen randomized controlled trials including 5573 patients comparing eleven treatment strategies. Treatment with VMPT-VT showed a statistically significant ($p<0.05$) OS benefit compared to MPR and MP regimens. VTD showed a statistically significant survival benefit compared to MP. There was no significant difference between the other treatment strategies regarding OS. In respect of PFS, the VMPT-VT strategy was superior to most of the other treatments. The network meta-analysis showed significantly better PFS for MPR-R compared to CTD, Rd, MPR, MPT and MP. Comparison of Rd-Rd against Rd, MPT and MP showed a significant benefit of Rd-Rd. The analysis showed VTD, MPV and MPT to be favorable compared to MP regarding PFS. Based on the cumulative ranking probabilities, VMPT-VT, VTD, VD, Rd-Rd, and MPV might be more effective than Rd, MPR-R, CTD, MPT, MPR and MP in terms of OS. In respect of PFS, VMPT-VT, MPR-R, Rd-Rd, MPV, and VTD might be more effective than VD, MPR, CTD, Rd, MPT, and MP.

Conclusion(s): Our evidence synthesis suggests that VMPT-VT, MPV, Rd-Rd, and VTD are more effective in terms of OS and PFS than other multidrug regimens for the treatment of elderly patients with newly diagnosed MM. However, further research should be considered to provide information on toxicity, quality of life, and cost-effectiveness for the different therapy approaches.

Monday, June 13, 2016

WELCOME

« Previous Session | Next Session »

08:30 - 08:45: Mon. Jun 13, 2016
Auditorium
Program: Events

KEYNOTE: BEYOND NUDGING: HOW TO BOOST MEDICAL DECISION MAKING

« Previous Session | Next Session »

08:45 - 09:45: Mon. Jun 13, 2016
Auditorium
Program: Panels and Symposia

TRA. TOP RATED ABSTRACTS

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09:45 - 10:45: Mon. Jun 13, 2016
Auditorium
Session Chairs:

- *Mark Helfand, MD, MPH*
- *Anne M. Stiggelbout, PhD*

Session Summary:

09:45 - 10:00

TRA-1. NUMERACY INFLUENCES PHYSICIANS' RISK COMMUNICATION ABOUT CANCER SCREENING

10:00 - 10:15

TRA-2. THE ROLE OF PREDECISIONAL INFORMATION DISTORTION IN MISDIAGNOSIS

10:15 - 10:30

TRA-3. PROBABILISTIC ONE-WAY SENSITIVITY ANALYSIS: A MODIFIED TORNADO DIAGRAM

10:30 - 10:45

TRA-4. PROBABILISTIC SENSITIVITY ANALYSIS OF COST-EFFECTIVENESS ANALYSIS OF THE BREAST CANCER SCREENING PROGRAMME IN THE BASQUE COUNTRY: A MULTI-COHORT DISCRETE-EVENT SIMULATION MODEL

Abstracts:

TRA-1. NUMERACY INFLUENCES PHYSICIANS' RISK COMMUNICATION ABOUT CANCER SCREENING

09:45 - 10:00: Mon. Jun 13, 2016
Auditorium
Part of Session: TOP RATED ABSTRACTS

Dafina Petrova, MSc[1], *Olga Kostopoulou, PhD*[2], *Brendan Delaney, MD*[2], *Edward Cokely, PhD*[3] *and Rocio Garcia-Retamero, PhD*[4], *(1)Mind, Brain, and Behavior Research Center; University of Granada, Granada, Spain, (2)Department of Surgery and Cancer, Division of Surgery, Imperial College London, London, United Kingdom, (3)National Institute for Risk & Resilience, and Department of Psychology, University of Oklahoma, USA, Norman, OK, (4)University of Granada, Granada, Spain*

Purpose: Many patients have low numeracy, which impedes their understanding of important information about health (e.g., benefits and harms of screening). We investigated whether physicians adapt their risk communication to accommodate the needs of patients with low numeracy, and how physicians' own numeracy influences their understanding and communication of screening statistics.

Method(s): UK family physicians (N=151) read a description of a patient seeking advice regarding screening for a hypothetical cancer X. In the description, we manipulated the numeracy of the patient (low vs. high vs. unspecified), the effectiveness of the screening for reducing mortality (effective vs. ineffective), and the presence of a clinical guideline recommending screening (present vs. absent). We measured physicians' risk communication, recommendation to the patient, understanding of screening statistics, and numeracy.

Result(s): Consistent with best practices, family physicians generally preferred to use visual aids rather than numbers when communicating information to a patient with low (vs. high) numeracy. However, 20% of physicians recommended a screening that was not effective and 44% offered incomplete risk information. Nevertheless, physicians with high (vs. low) numeracy offered more meaningful risk communication: they were more likely to mention mortality rates, OR=8.55 [95% CI 1.77, 41.41], and harms from overdiagnosis, OR=8.82 [1.34, 60.25]. Physicians with high numeracy were also more likely to understand that increased survival rates do not imply screening effectiveness, OR=6.05 [1.27, 28.72].

Conclusion(s): Screening patients for numeracy may help physicians tailor risk communication to patient needs and abilities. However, many well-intentioned physicians have low numeracy and are prone to communicating incomplete information to their patients. Although less numerate physicians know how to make risks easier to understand for patients, they themselves are likely to misunderstand risks and can unintentionally mislead patients. High-quality risk communication and shared decision making can depend critically on factors that can improve the risk literacy of physicians (e.g., numeracy, visual aids).

TRA-2. THE ROLE OF PREDECISIONAL INFORMATION DISTORTION IN MISDIAGNOSIS

10:00 - 10:15: Mon. Jun 13, 2016
Auditorium
Part of Session: TOP RATED ABSTRACTS

Martine Nurek, MSc[1], Olga Kostopoulou, PhD[2] and Miguel Vadillo, PhD[1], (1)King's College London, London, United Kingdom, (2)Imperial College London, London, United Kingdom

Background:

Our inherent drive to formulate coherent judgements can lead to biased information processing: incoming evidence may be distorted to favour an emerging judgement, before a final decision is reached. This “predecisional information distortion” (PID) has also been found in medical diagnosis: physicians may interpret patient information in a way that favours their leading diagnostic hypothesis. The role of PID in misdiagnosis has not, however, been investigated.

Purpose:

To assess the role of PID in misdiagnosis.

Method(s):

We constructed two patient cases, each with two competing diagnoses. One diagnosis was common and non-serious, the other rare and serious. Each case consisted of a brief patient description (demographics and health complaint) and several cues (symptoms, signs, and investigation results). Based on the available cues, the serious diagnosis could not be ruled out and warranted specialist referral. We presented 148 family physicians with one of the two patient cases, at random. After reading the patient description, physicians chose one of the two competing diagnoses. They then elicited further information: cues were arranged as labelled buttons on an information board that participants could click to reveal the answer. Each time a cue was revealed, participants evaluated it in relation to each competing diagnosis (0=“no support” to 10=”strong support”) and updated their diagnostic choice. When they felt ready, they made their final choice of diagnosis. We measured PID against the cue evaluations of a control group, and assessed its contribution to the final diagnosis via mediation analysis.

Result(s):

Initial choice of diagnosis (non-serious vs. serious) predicted final choice (OR=4.78, $P<0.001$). Magnitude and direction of PID fully mediated this relationship: an initial non-serious diagnosis was associated with PID to support it, which in turn increased the odds of a non-serious final diagnosis. Final diagnosis predicted management: most physicians who provided a non-serious final diagnosis did not refer the patient (70%), whilst only 3% of those who provided a serious final diagnosis failed to refer. We identified no differences in the number of cues elicited by physicians who selected a non-serious vs. a serious final diagnosis.

Conclusion(s):

Our findings shed light on some of the cognitive causes of diagnostic error that can impact patients. Initial diagnostic hypotheses are important, but the interpretation of subsequent information may be more so.

TRA-3. PROBABILISTIC ONE-WAY SENSITIVITY ANALYSIS: A MODIFIED TORNADO DIAGRAM

10:15 - 10:30: Mon. Jun 13, 2016
Auditorium
Part of Session: TOP RATED ABSTRACTS

Isaac Awotwe, BA[1], Mike Paulden, MA., MSc.[2], Peter Hall, PhD[3] and Christopher McCabe, PhD[1], (1)Department of Emergency Medicine, University of Alberta, Edmonton, AB, Canada, (2)University of Alberta, Edmonton, AB, Canada, (3)Edinburgh Cancer Research Centre, University of Edinburgh, UK, Edinburgh, United Kingdom

Purpose:

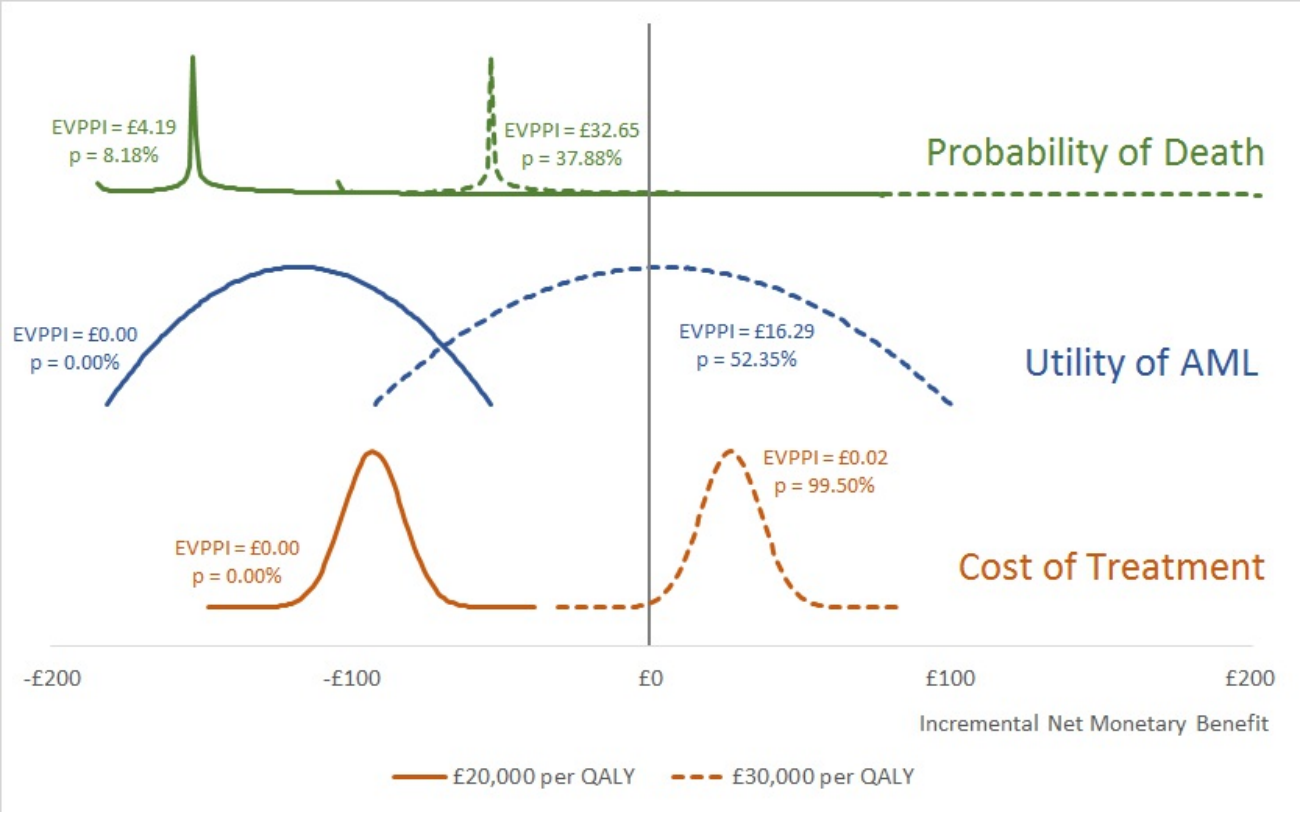
Conventional tornado diagram has several challenges: it is based on deterministic one-way sensitivity analysis (1-way SA) which produces biased results when parameters are correlated. Moreover, it uses the incremental cost effectiveness ratio (ICER) which has a number of problems such as non-uniqueness. Our purpose is to generate a modified tornado diagram that addresses the above problems to improve decision-making.

Method(s):

We develop a modified tornado diagram that allows the result of probabilistic 1-way SA to be presented clearly to decision-makers through these processes: (a) for each of three parameters (probability, utility and cost), we fixed several (outer loop) values. For each outer loop value, we allowed the other parameters to undergo simulation so that when simulation is complete we observe the costs and effects for two strategies (*21 gene assay* versus *ROR* used in genomic tests for early-stage breast cancer) under comparison. (b)We proceeded to calculate the incremental net monetary benefit (INMB) of *gene assay* against *ROR*, corresponding to each outer loop value. (c) Next, we plotted the probability density function (PDF) for each parameter with INMB on the x-axis and probability on the y-axis; a vertical line is then drawn at the point where the INMB is zero (decision-switching point). (d) Finally, we calculated the *Expected Value of Perfect Parameter Information* (EVPPI) for each parameter and arranged the PDF graphs with highest-EVPPI parameter on top and lowest-EVPPI parameter at the bottom.

Result(s):

The modified tornado diagram we have developed is shown below:



The graph shows PDF for the two willingness-to-pay (WTP) values we used in calculating INMB. The EVPPI for each curve and the proportion of each curve that lies above 0 on the x-axis (thus, the probability that *gene assay* is cost-effective) are reported on the graph. For WTP of ≤20,000, only the probability parameter contributes towards decision uncertainty. For WTP of ≤30,000 the order of importance of parameters to decision-makers is probability, utility, and cost.

Conclusion(s):

We have executed a probabilistic 1-way SA which, while examining the sensitivity of model conclusions to changes in only one parameter's value, simultaneously takes into consideration its correlation with other parameters. We have also used INMB as model output instead of the ICER. Our approach yields a more reliable decision-making tool.

TRA-4. PROBABILISTIC SENSITIVITY ANALYSIS OF COST-EFFECTIVENESS ANALYSIS OF THE BREAST CANCER SCREENING PROGRAMME IN THE BASQUE COUNTRY: A MULTI-COHORT DISCRETE-EVENT SIMULATION MODEL

10:30 - 10:45: Mon. Jun 13, 2016
Auditorium
Part of Session: TOP RATED ABSTRACTS

Arantzazu Arrospide[1], *Montserrat Rue*[2], *Nicolien T. van Ravesteyn, PhD*[3], *Merce Comas*[4], *Myriam Soto-Gordoa*[1], *Garbiñe Sarriugarte*[5], *Luis Carlos Abecia*[6] *and Javier Mar, MD, PhD*[7], *(1)Integrated Health Organization Alto Deba, Osakidetza., Arrasate, Spain, (2)Biomedical Research Institute of Lleida, University of Lleida., Lleida, Spain, (3)Erasmus MC, University Medical Center, Department of Public Health, Rotterdam, Netherlands, (4)Hospital del Mar IMIM (Hospital del Mar Medical Research Institute)., Barcelona, Spain, (5)Public Health Division of Bizkaia, Basque Government., Bilbao, Spain, (6)University of the Basque Country (UPV-EHU), Vitoria-Gasteiz, Spain, (7)Alto Deba Hospital, Mondragón, Spain*

TITLE: Probabilistic sensitivity analysis of cost-effectiveness analysis of the Breast cancer screening programme in the Basque country: A multi-cohort discrete-event simulation model.

Purpose: The aim of this study was the evaluation of the breast cancer early detection programme in the Basque Country from 1996 to 2011 in terms of probabilistic cost-effectiveness analysis and the probabilistic sensitivity analysis.

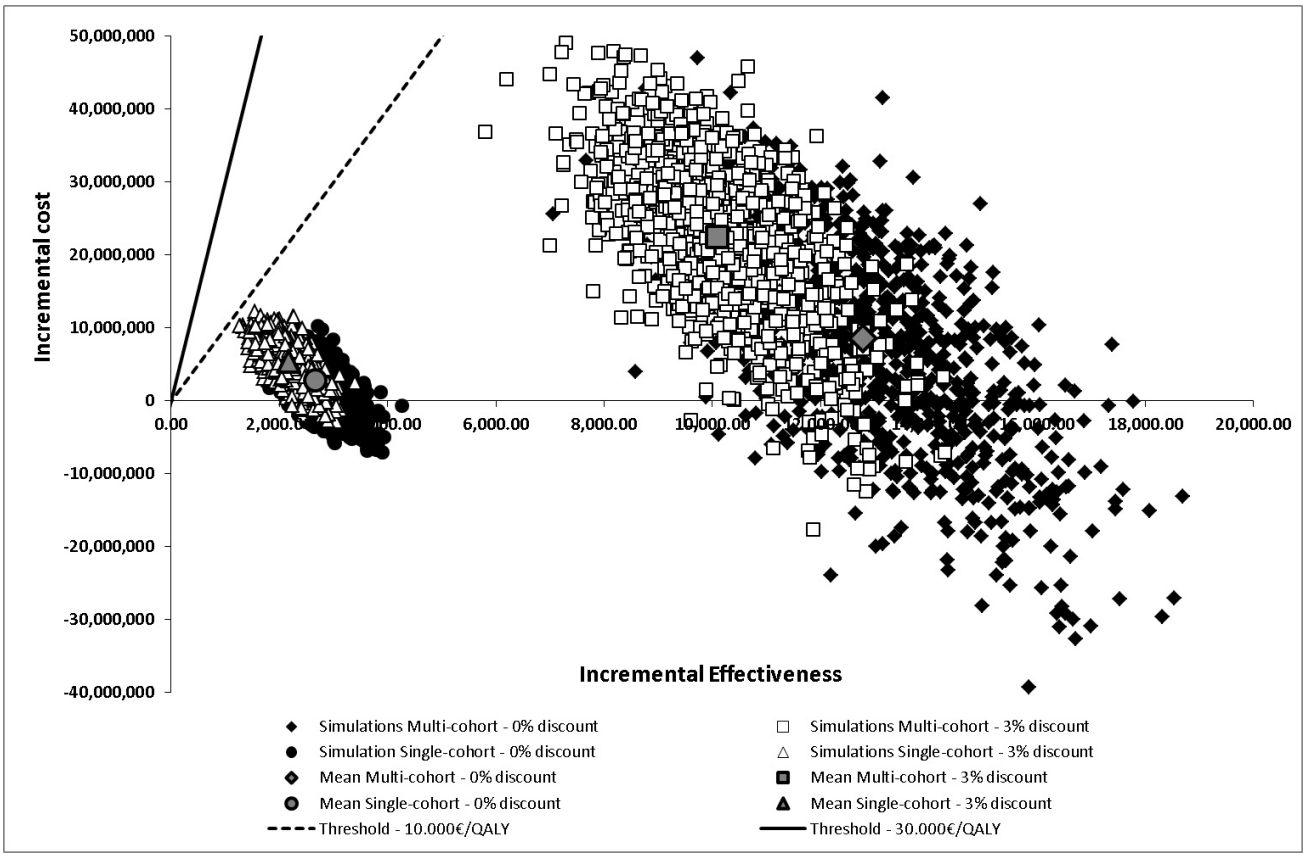
Method(s): A discrete event simulation model was built to reproduce the natural history of breast cancer (BC). We estimated for lifetime follow-up the total cost of BC (screening, diagnosis and treatment), as well as quality-adjusted life years (QALY), for women invited to participate in the evaluated programme during the 15-year period in the actual screening scenario and in a hypothetical unscreened scenario. The probabilistic feature of the model was based on varying the main variables randomly at the same time. Uniform distributions were adopted to vary time between successive invitations and the

mean duration of the pre-clinical phase, Beta distributions for sensitivity and specificity of the programme and Dirichlet was the distribution selected for the detection stages classification in screen-detected cancers were the variables we varied in the probabilistic sensitivity analysis. Therefore, we were able to examine the effect of joint uncertainty in these variables through cost-effectiveness plane and calculate the expected value of perfect information.

Result(s): The actual screening programme involved a mean cost of 1,123 million euros and provided 6.7 million QALYs over the lifetime of the target population, resulting in a gain of 10,110 QALYs for an additional cost of 22.3 million euros, compared with the unscreened scenario. Thus, the incremental cost-effectiveness ratio was 2,209/QALY. All the model runs in the probabilistic sensitivity analysis resulted in an incremental cost-effectiveness ratio lower than 10,000/QALY. The expected value of perfect information associated to a 5,000/QALY threshold was a population opportunity loss of 163,620. Cancer stage distribution in screen-detected cancers was the variable with greater impact on the final incremental cost-effectiveness ratio.

Conclusion(s): The BC screening programme in the Basque Country proved to be cost-effective during the evaluated period. No addition research on the main parameters was necessary. These results confirm the epidemiological benefits related to the centralised screening system and support the continuation of the programme.

Figure 1: Cost-effectiveness plane for the period from 1996 through 2011



1A. ORAL ABSTRACTS: RISK PERCEPTION AND COGNITIVE BIASES

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11:15 - 12:45: Mon. Jun 13, 2016
Auditorium
Session Chairs:

- *Mirjam Annina Jenny, Dr.*

Session Summary:

11:15 - 11:30

1A-1. RESPONSES TO NARRATIVES BY RECIPIENTS VARYING IN NUMERACY

11:30 - 11:45

1A-2. CONVEYING UNCERTAINTY ABOUT PRICE SAVINGS AND RISK AND EFFICACY IN COMPARATIVE ADVERTISING FOR PRESCRIPTION DRUGS

11:45 - 12:00

1A-3. 1-IN-X' RATIOS LEAD TO MEDICAL PROBABILITY OVERESTIMATION

12:00 - 12:15

1A-4. WHEN, WHY, AND FOR WHOM ARE NATURAL FREQUENCY FORMATS MOST EFFECTIVE? A META-ANALYSIS

12:15 - 12:30

1A-5. DEBIASING MEDICAL JUDGMENTS AND DECISION-MAKING A SYSTEMATIC REVIEW

12:30 - 12:45

1A-6. PRESENTING COMPARATIVE COST INFORMATION TO CONSUMERS: EASIER SAID THAN DONE

Abstracts:

1A-1. RESPONSES TO NARRATIVES BY RECIPIENTS VARYING IN NUMERACY

11:15 - 11:30: Mon. Jun 13, 2016
Auditorium
Part of Session: ORAL ABSTRACTS: RISK PERCEPTION AND COGNITIVE BIASES

***Wandi Bruine de Bruin, PhD**, Centre for Decision Reserch, Leeds University Business School, Leeds, United Kingdom, Andrew M. Parker, PhD, RAND Corporation, Pittsburgh, PA, Annika Wallin, PhD, Lund University, Lund, Sweden, Janel Hanmer, MD, PhD, The University of Pittsburgh, Pittsburgh, PA and JoNell Strough, PhD, West Virginia University, Morgantown, WV*

Purpose: Evidence-based medicine and shared decision making are central tenets of modern health care. Sharing information with patients is presumed to improve patients' understanding of their options and to increase health care providers' understanding of patient preferences. Health care providers may share different types of evidence with their patients, including statistical evidence based on scientific studies and narrative evidence based on their experiences. Studies have shown that especially low-numerate patients are swayed by anti-vaccine narratives from other patients. However, patients' responses to pro-vaccine or physician-provided narratives have rarely been evaluated. *Here, we examined how recipients' numeracy was related to their responses to pro-vaccine and anti-vaccine narratives from different sources, as well as to the process through which the presented narratives influenced their vaccination intentions.*

Method(s): We recruited 1113 participants from a US national internet panel. They received different types of narratives about flu shots, in addition to a standard pamphlet from the Centers for Disease Control and Prevention (CDC). Participants were randomly assigned to a narrative that was (a) pro-vaccine or anti-vaccine, (b) presented by either a patient discussing their own experience, a physician discussing another patient's experience, or a physician discussing the experience of 50 patients, and (c) presented before or after the CDC pamphlet. Pro-vaccine narratives described the flu experiences of patients who got the flu after not getting a flu shot, and anti-vaccine narratives described the flu experiences of patients who got the flu after getting a flu shot. Narratives were equivalent in length and wording. Participants subsequently indicated the probability that they would get vaccinated, perceptions of flu risk and severity with and without the flu shot, and their ratings of the quality of the presented narratives.

Result(s): Low-numerate individuals reported lower vaccination intentions, especially after reading anti-vaccine (vs. pro-vaccine) narratives. A multi-mediation analysis suggested that low-numerate individuals' vaccination intentions were reduced by anti-vaccine narratives and boosted by pro-vaccine narratives, due to their perceiving narratives as relatively better than did high-numerate individuals. These findings held across other conditions, including whether narratives were provided by patients or physicians.

Conclusion(s): Health-care providers may add narrative information when presenting statistical evidence to inform patients' decisions. As compared to high-numerate recipients, low-numerate recipients seem to rely more on such narrative information when making their decisions.

1A-2. CONVEYING UNCERTAINTY ABOUT PRICE SAVINGS AND RISK AND EFFICACY IN COMPARATIVE ADVERTISING FOR PRESCRIPTION DRUGS

11:30 - 11:45: Mon. Jun 13, 2016
Auditorium
Part of Session: ORAL ABSTRACTS: RISK PERCEPTION AND COGNITIVE BIASES

Vanessa Boudewyns, PhD[1], *Kathryn J. Aikin, PhD*[2], *Brian G. Southwell, PhD*[3], *Kevin R. Betts, PhD*[2], *Alex Stine, BS*[1] *and Mihaela Johnson, PhD*[3], *(1)RTI International, Washington, DC, (2)U.S. Food and Drug Administration, Silver Spring, MD, (3)RTI International, Research Triangle Park, NC*

Purpose: Price savings can be a salient factor for consumers as they consider drug options; advertisers sometimes include price-comparison information in direct-to-consumer (DTC) prescription drug ads. Such comparisons may inadvertently imply superiority or equivalence of a drug's efficacy or safety, affecting potential for informed decision-making. A context statement – a disclosure noting compared products may or may not be equally effective or safe or different in afforded savings – is intended to correct such inferences. We investigated whether a context statement is useful in this regard.

Method(s): Using an experiment with 1,490 consumers self-identified with diabetes, we compared participants who saw a context statement in a fictitious (but professionally developed) price comparison DTC drug ad with participants who did not. We also included a control group that saw a DTC ad without the price-comparison or context statements.

Result(s): A majority of participants (59% of those assigned to see it) did not accurately report seeing the context statement. This pattern emerged despite the context statement being presented prominently below the price claim in the top half of the ad, linked with an asterisk.

We also assessed perceptions of participants who did recognize the presence of the context statement. Among confirmed exposure participants, a one-way ANOVA revealed a main effect of condition on perceptions of whether Veridan (the fictitious drug advertised) and Lyrica (the actual drug to which Veridan was compared) are interchangeable, $F(2, 899) = 9.57$, $p<.001$. Planned contrasts revealed that consumers seeing the context statement were more likely to agree the ad communicated uncertainty regarding comparative risk and efficacy than consumers seeing the comparison without context statement (M =4.48 vs. 4.07, $p<.002$).

The context statement also noted price savings presented may not reflect actual savings by consumers or third-party payers. Among confirmed exposure participants, those seeing the context statement rated the price comparison as less accurate (M = 4.44, SD = 1.20) than those seeing the comparison without the context statement (M = 4.79, SD = 1.19), $F(1, 472) = 9.351$, $p<.01$.

Conclusion(s): When people read a context statement, they demonstrate intended uncertainty about risks, efficacy, and savings. Despite its prominence and placement, however, the majority did not notice the statement. Although results support the potential for developing comprehensible context statements to clarify price comparisons, consumer attention may limit their effectiveness.

1A-3. 1-IN-X' RATIOS LEAD TO MEDICAL PROBABILITY OVERESTIMATION

11:45 - 12:00: Mon. Jun 13, 2016
Auditorium
Part of Session: ORAL ABSTRACTS: RISK PERCEPTION AND COGNITIVE BIASES

Miroslav Sirota, PhD[1], *Marie Juanchich, PHD*[1] *and Jean-Francois Bonnefon, PhD*[2], *(1)University of Essex, Colchester, United Kingdom, (2)Toulouse School of Economics, Toulouse, France*

Purpose: Recent evidence showed that '1-in-X' ratios (e.g., 1 in 12) triggered higher subjective probability than 'N-in-X*N' ratios (e.g., 3 in 36) when interpreting health-related risks on a verbal probability scale (hereafter, '1-in-X' effect), however it is not clear whether the '1-in-X' formats overestimate or the 'N-in-X*N' formats underestimate the objective probabilities. Therefore, we aimed to establish which format lead to more accurate probability perception.

Method(s): In five parallel-designed experiments, 975 participants from a general adult population (54.7% women, M = 35.0, SD=11.2 years old) were randomly allocated to one of five experiments. Each experiment followed a 2(format) × 4(scenario) mixed design. In each experiment, participants read the risk of contracting a disease during their trip abroad. The risk was presented either in a '1-in-X' or 'N-in-X*N' format in four scenarios randomly presented: malaria, Ebola, flu, Lyme disease. Participants assessed the risk on either a verbal probability scale (Exp. 1), a numerical probability scale (0-100%, Exp. 2), an arbitrary frequency scale (X out of 286, Exp. 3), a numerical probability scale with a delayed presentation (Exp. 4) or an arbitrary frequency scale with a delayed presentation (Exp. 5). Participants also made decision whether to cancel the trip to respective countries.

Result(s): We replicated the '1-in-X' effect when probability perception was measured with a verbal probability scale (Exp. 1, Hedges' g = 0.63, 95% CI[0.35, 0.91]). In the remaining numerical scale experiments (Exp. 2-5), we found that both ratio formats led to probability over-estimation (on average by 5.2%, 95% CI[2.1%, 8.4%], estimated in a multilevel meta-analysis). The '1-in-X' formats triggered consistently higher subjective probability than 'N-in-X*N' formats: multi-level meta-analytical effect was g = 0.18, 95% CI[0.05, 0.32]. The '1-in-X' ratio formats affected participants' decision-making as they led to a higher willingness to cancel the trip abroad, aggregated effect across scenarios in Exp. 1-5, g= 0.17, 95% CI[0.04, 0.29].

Conclusion(s): Participants overestimated actual objective probabilities in both ratio formats. Since the '1-in-X' effect was observed in all numerical scales (Exp. 2-5), bigger overestimation occurred in the '1-in-X' format conditions. Health

professionals should use '1-in-X' formats with caution, because they make medical probabilities look bigger than they really are and, in turn, affect related decision-making.

1A-4. WHEN, WHY, AND FOR WHOM ARE NATURAL FREQUENCY FORMATS MOST EFFECTIVE? A META-ANALYSIS

12:00 - 12:15: Mon. Jun 13, 2016
Auditorium
Part of Session: ORAL ABSTRACTS: RISK PERCEPTION AND COGNITIVE BIASES

Michelle McDowell *and Perke Jacobs, Max Planck Institute for Human Development, Berlin, Germany*

Purpose: Medical professionals and the public are poor at solving Bayesian inference problems when presented in the form of conditional probabilities (e.g., determining the probability that an individual has a disease given that they tested positive). When the same information is presented as natural frequencies, performance is improved. The current meta-analysis sought to reconcile twenty years of research on natural frequencies, to clarify what is a natural frequency and to identify when, why, and for whom the format is most effective.

Method(s): To identify papers that compared conditional probability and natural frequency Bayesian reasoning tasks, we conducted a systematic review across three major scientific and medical databases: Ovid(psych), Web of Science, and Pubmed. Cited reference searches were conducted on key papers and we requested relevant or unpublished papers from the JDM mailing list that we may have otherwise missed in our systematic search. Thirty relevant papers were identified from which 90 effects were subsequently analysed.

Result(s): A broad range of potential moderators were coded. These included moderators related to individual characteristics (e.g., numeracy, education), problem representation (e.g., congruence between answer and problem format, use of visual aids, menu), and methodology (e.g., use of incentives, scoring protocol). Results revealed the expected natural frequency facilitation effect: on average, performance was enhanced for natural frequency formats when compared to conditional probabilities. A number of variables moderated the effect: e.g., the size of the effect was reduced when both formats used visualisations, short menu versions, and when the problem format matched the answer format for frequency versions.

Conclusion(s): The meta-analysis supports the consensus that performance on Bayesian inference tasks is facilitated by natural frequency formats when compared to conditional probability formats. Despite this result, a non-trivial amount of people continue to have difficulty with Bayesian inference problems even when presented as natural frequencies. We discuss gaps in the literature, suggest future research directions, and suggest methodological approaches to capture further information about how people acquire and update information. We advise how to improve the communication of medical test statistics to professionals and the public.

1A-5. DEBIASING MEDICAL JUDGMENTS AND DECISION-MAKING A SYSTEMATIC REVIEW

12:15 - 12:30: Mon. Jun 13, 2016
Auditorium
Part of Session: ORAL ABSTRACTS: RISK PERCEPTION AND COGNITIVE BIASES

Ramona Ludolph, MPH *and Peter Schulz, PhD, Institute of Communication and Health, University of Lugano (Università della Svizzera italiana), Lugano, Switzerland*

Purpose: The presence of uncertainty in the context of medical judgments and decision-making gives rise to the occurrence of cognitive biases and their detrimental effects on decision outcomes. Debiasing aims at reversing, eliminating, or reducing these negative effects. The purpose of the present study is to systematically review the existing research on debiasing in the medical context to systematize the field and identify opportunities and challenges for successful debiasing strategies.

Method(s): A systematic search of 14 electronic databases was complemented by hand search and resulted in 2143 abstracts eligible for screening. Of those, 55 articles reporting 67 relevant experiments tested the effectiveness of a debiasing strategy and thus met the predefined inclusion criteria. Two reviewers independently performed the screening procedure, data extraction, and quality appraisal using the QATSDD tool, whereby all inconsistencies were resolved through discussion.

Result(s): Of 55 reviewed articles, 58.2% (n=32) explicitly referred to "debiasing". However, 25.0% (n=8) of these studies did not clarify the term's meaning. Most experiments intended to debias optimism bias (n=24), followed by framing effects (n=10), and a biased statistical reasoning such as denominator neglect (n=13). Lay people, as opposed to health care professionals, were in 82.1% (n=55) of cases the target of debiasing efforts. Applying the categorization of Larrick (2004), the majority of studies employed a cognitive (n=30) or technological (n=21) debiasing strategy aiming at an alteration of participants' way of thinking or the design of a more decision-friendly information environment, respectively. Methodological quality ranged from 31.0 to 92.9% (mean: 70.6%). The quality appraisal identified a lack of pilot-testing of experimental materials, insufficient reporting of sample size considerations, and the use of non-representative samples such as

undergraduate students as main methodological limitations. Overall, 65.7% (n=44) of the debiasing strategies were found to be completely (n=27) or partially (n=17) successful.

Conclusion(s): In the past, debiasing was considered to be effortful and with only little prospects of success. Yet, the rise of novel technologies and the growing importance of informed decision-making and its accompanying tools such as decision aids seem to have sparked the new development of innovative debiasing strategies with a high success rate. Future debiasing studies could benefit from a stronger tie to the existing evidence-base and a consistent application of the underlying theoretical concepts including their terminology.

1A-6. PRESENTING COMPARATIVE COST INFORMATION TO CONSUMERS: EASIER SAID THAN DONE

12:30 - 12:45: Mon. Jun 13, 2016
Auditorium
Part of Session: ORAL ABSTRACTS: RISK PERCEPTION AND COGNITIVE BIASES

Jessica Greene, PhD *and Rebecca M. Sacks, MPH, George Washington University, Washington, DC*

Background: A key policy approach in United States to curbing the growth health care costs is cost transparency. To date, there has been limited research on consumers' comprehension and use of public reports of health care cost and related efficiency measures despite research demonstrating that consumers find comparative quality data challenging.

Purpose: We examine what type of cost data consumers prefer (out of pocket (OOP) or total costs, per visit or annual), what kind of symbol was effective for cost comparisons (descriptive icons, dollar amounts, or cost ratios), and how to effectively present readmission data, for which a lower score is better.

Method(s): We conducted three randomized online experiments with 448 U.S. employees of a large semiconductor company. Participants viewed displays of comparative health provider information and were asked to hypothetically select a provider. The same underlying information was presented; however, there were five different approaches to displaying the information. In one experiment, for example, participants viewed comparative quality and cost information on four hospitals (high quality/low cost, high quality/expensive, and two mixed quality and cost), and the cost information varied in whether it was presented using descriptive icons (high cost, average, affordable; or high cost, average, low cost), with median costs in dollars, a combination of descriptive icons and median costs, or spending as a ratio compared to state median).

Result(s): Respondents were as interested in knowing their OOP costs per visit as they were in learning about consumer ratings of health providers. Respondents, however, were significantly less (12%) interested in knowing about cost information when it was described as average annual total cost of care or average annual OOP costs. When presented with comparative information on hospitals, respondents ranged in selecting the high value hospital 78% of the time, when cost was presented as a ratio, to 95% when a descriptive icon was used and low cost hospitals were labeled "affordable." In the readmissions experiment, 82% of respondents selected the highest quality hospital when descriptive icons (better, average, below) detailed readmissions performance rather only 56% when percentages were displayed.

Conclusion(s): This study confirms that consumers are interested in cost information, but presenting the information is tricky. Displays should be tested with consumers prior to releasing comparative cost information to the public.

1B. ORAL ABSTRACTS: EVALUATING SCREENING

« Previous Session | Next Session »

11:15 - 12:45: Mon. Jun 13, 2016
Euston Room, 5th Floor
Session Chairs:

- *M. Elske van den Akker-van Marle, PhD*

Session Summary:

11:15 - 11:30

1B-1. EVALUATING PREDICTED RESOURCE USE, COST AND QUALITY OF LIFE OUTCOMES OF COLORECTAL CANCER SCREENING WITH THE FAECAL IMMUNOCHEMICAL TEST IN ENGLAND USING ECONOMIC MODELLING

11:30 - 11:45

1B-2. IMPROVING CERVICAL CANCER PRIMARY SCREENING AND DIAGNOSTIC FOLLOW-UP IN AUSTRIA A DECISION-ANALYTIC BENEFIT-HARM ANALYSIS

11:45 - 12:00

1B-3. RESILIENCE OF A FAECAL IMMUNOCHEMICAL TEST SCREENING PROGRAMME AGAINST SCREENING FATIGUE

12:00 - 12:15

1B-4. THE EFFECT OF FECAL IMMUNOCHEMICAL TEST THRESHOLD ON COLORECTAL SCREENING OUTCOMES

12:15 - 12:30

1B-5. HEALTH-ECONOMIC EVALUATION OF HPV-BASED CERVICAL CANCER PRIMARY SCREENING COMPARED TO CYTOLOGY OR P16/KI-67 DUAL-STAINING A DECISION-ANALYSIS FOR THE AUSTRIAN HEALTH CARE CONTEXT

12:30 - 12:45

1B-6. COST-EFFECTIVENESS OF COLORECTAL CANCER SCREENING IN ARAGON (SPAIN)

Abstracts:

1B-1. EVALUATING PREDICTED RESOURCE USE, COST AND QUALITY OF LIFE OUTCOMES OF COLORECTAL CANCER SCREENING WITH THE FAECAL IMMUNOCHEMICAL TEST IN ENGLAND USING ECONOMIC MODELLING

11:15 - 11:30: Mon. Jun 13, 2016
Euston Room, 5th Floor
Part of Session: ORAL ABSTRACTS: EVALUATING SCREENING

Jacqueline Murphy, MMath *and Alastair Gray, DPhil, University of Oxford, Oxford, United Kingdom*

Purpose: Biennial colorectal cancer screening using the guaiac faecal occult blood test (gFOBT) is in place in England for people between 60 and 74 years of age. The faecal immunochemical test (FIT) is used in other national screening programmes in Europe, but data on population-level FIT screening had not previously been available in a UK setting. The purpose of the study was to estimate the long-term resource use, cost and health-related quality of life outcomes of using FIT compared to gFOBT for colorectal cancer screening in England.

Method(s): We constructed a Markov state-transition model based on previous economic modelling carried out in the context of the UK NHS Bowel Cancer Screening Programme (NHSBCSP). We used results from a 2014-2015 pilot study of the introduction of FIT screening in two of the five screening hubs in England to update the model with test performance data for FIT vs. gFOBT at a range of cut-off values for positive FIT. Other model parameters were taken from NHSBCSP data, national cost datasets and published sources. Results were extrapolated to a lifetime time horizon and probabilistic sensitivity analyses were carried out to assess the effect of parameter uncertainty on the study conclusions.

Result(s): The results from the economic model suggest that FIT is associated with lower costs and better quality of life outcomes than gFOBT at all FIT cut-off values considered in the analysis. The findings were driven by lower rates of cancer incidence in the long term with FIT screening, as predicted by the modelled extrapolation. The model predicted an increase in the total incremental colonoscopy costs by a factor of 25 between the highest (180µg/g) and the lowest (20µg/g) FIT cut-off value in the model. However, a five-fold increase in cancer management savings over the same range resulted in greater overall cost savings at lower cut-off values. Total incremental quality-adjusted life years also increased as the FIT cut-off value decreased.

Conclusion(s): Although more favourable quality of life and cost outcomes compared to gFOBT are predicted at lower FIT cut-off values, the large number of referrals at these levels estimated by the model may present a significant challenge to colonoscopy services. Therefore, the choice of FIT cut-off value upon introduction of the test must take into account short-term capacity constraints in the healthcare system.

1B-2. IMPROVING CERVICAL CANCER PRIMARY SCREENING AND DIAGNOSTIC FOLLOW-UP IN AUSTRIA A DECISION-ANALYTIC BENEFIT-HARM ANALYSIS

11:30 - 11:45: Mon. Jun 13, 2016
Euston Room, 5th Floor
Part of Session: ORAL ABSTRACTS: EVALUATING SCREENING

Gaby Sroczynski, MPH, Dr.PH[1]*, Eva Esteban, MPH*[2]*, Andreas Widschwendter, Prof.*[3]*, Willi Oberaigner, Associate Prof., Dr.*[4]*, Wegene Borena, Dr.*[5]*, Dorothee von Laer, Prof.*[5]*, Monika Hackl, Dr.*[6]*, Gottfried Endel, Dr.*[7] *and Uwe Siebert, MD, MPH, MSc, ScD*[8]*, (1)Department of Public Health, Health Services Research, and Health Technology Assessment, UMIT - University for Health Sciences, Medical Informatics and Technology; Division of HTA and Bioinformatics, ONCOTYROL Center for Personalized Cancer Medicine, Hall i.T./Innsbruck, Austria, (2)Department of Public Health, Health Services Research, and*

Health Technology Assessment, UMIT - University for Health Sciences, Medical Informatics and Technology; Division of HTA and Bioinformatics, ONCOTYROL Center for Personalized Cancer Medicine, Hall, i. T./Innsbruck, Austria, (3)Department of Obstetrics and Gynecology, Medical University Innsbruck, Innsbruck, Austria, (4)Institute for Clinical Epidemiology, Cancer Registry Tyrol, Tirol Kliniken, Innsbruck, Innsbruck, Austria, (5)Division of Virology, Department of Hygiene, Microbiology, Social Medicine, Medical University of Innsbruck, Innsbruck, Austria, (6)Statistics Austria, Austrian National Cancer Registry, Vienna, Austria, (7)Department for Evidence Based Economic Health Care, Main Association of Austrian Social Insurance Institutions, Vienna, Austria, (8)UMIT, Hall in Tirol (Austria) / Boston (USA), Austria

Purpose:

In Austria, current opportunistic cervical cancer screening program includes annual Pap cytology for women as of age 18 years. However, new primary screening tests with increased test-sensitivity in combination with risk-based follow-up algorithms may improve the trade-off between benefits and overtreatment. Our aim was to systematically evaluate the benefit-harm balance of different cervical cancer primary screening strategies for the Austrian context.

Method(s):

We used a validated Markov-state-transition model calibrated to the Austrian epidemiological setting and clinical context of the disease to evaluate different screening strategies that differ by primary screening test (cytology, p16/Ki-67-dual stain, and HPV-testing alone or in combinations), screening interval, age, and specific follow-up algorithms for women with positive test results. Austrian clinical and epidemiological data, as well as test accuracy data from international meta-analyses and trials were used. Predicted outcomes were reduction in cervical cancer incidence, -mortality, overtreatment (defined as conization with histological diagnosis of no lesion or a lesion grade CIN1), and the incremental harm-benefit ratios (IHBR) measured in numbers of overtreatment per additional prevented cervical cancer death. Comprehensive sensitivity analyses were performed.

Result(s):

Based on our results, HPV-based primary screening strategies are more effective compared with cytology or with p16/Ki-67-testing alone. Adopting risk-based follow-up algorithms including p16/Ki-67 triage for women with ASCUS/LSIL and colposcopy referral for women with HSIL or p16/Ki-67-positivity can reduce overtreatment. In the base-case analysis (31-43% screening adherence in women below 60 years of age), biennial HPV+cytology cotesting seemed to be the optimal screening strategy (IHBR: 45 unnecessary conizations per additional prevented cancer death). Annual screening strategies resulted in much higher IHBRs (131-355 unnecessary conizations per additional prevented cancer death). Based on the IHBRs, the screening interval may be extended to 3 years in populations with screening adherence of 40%-60% and to 5 years in populations with higher adherence rate. The age for screening initiation could be extended from 18 to 24 years without significant loss in effectiveness, but with reduced overtreatment.

Conclusion(s):

Based on our benefit-harm analysis, HPV-based screening in women of the age 30 years or older and cytology in younger women at screening intervals of at least 2 years incorporating a risk-based follow-up algorithm can be recommended for the Austrian screening setting. Screening should be initiated in women of the age 20-24 years.

1B-3. RESILIENCE OF A FAECAL IMMUNOCHEMICAL TEST SCREENING PROGRAMME AGAINST SCREENING FATIGUE

11:45 - 12:00: Mon. Jun 13, 2016
Euston Room, 5th Floor
Part of Session: ORAL ABSTRACTS: EVALUATING SCREENING

Marjolein Greuter[1]*, Johannes Berkhof*[1]*, Karen Canfell*[2]*, Jie-Bin Lew*[2]*, Evelien Dekker*[3] *and Veerle Coupe*[1]*, (1)VU University Medical Center, Amsterdam, Netherlands, (2)Cancer Council NSW, Sydney, Australia, (3)Academic Medical Centre, Amsterdam, Netherlands*

Purpose:

Repeated participation is important in faecal immunochemical testing (FIT) screening for colorectal cancer (CRC). However, a large number of screening invitations over time may lead to screening fatigue and consequently, decreased participation rates. We evaluated the impact of screening fatigue on overall screening programme effectiveness.

Method(s):

Using the ASCCA model, we simulated the Dutch CRC screening programme consisting of biennial FIT screening in individuals aged 55-75. We analysed several screening scenarios differing in participation pattern, number of negative screens after which screening fatigue occurs and decrease in participation rate due to screening fatigue. Outcomes were reductions in CRC incidence and mortality compared to no screening.

Result(s):

Assuming 63% participation which was homogenous across the population, i.e. each round each individual was equally likely to attend screening, thirty years of screening reduced CRC incidence and mortality by 39% and 53%, respectively, compared to no screening. When assuming clustered participation, i.e. three subgroups of individuals with a high, intermediate and low participation rate, screening was slightly less effective; reductions were 33% for CRC incidence and 43% for CRC mortality. Screening fatigue considerably reduced screening effectiveness; if individuals would refrain from screening after three negative screens, model-predicted programme effectiveness was reduced by 37% and 46% under homogenous and clustered participation, respectively.

Conclusion(s):

Screening will substantially decrease CRC incidence and mortality. However, screening effectiveness can be seriously compromised if screening fatigue occurs. This warrants careful monitoring of individual screening behaviour and consideration of targeted invitation systems in individuals who have been repeatedly screened.

1B-4. THE EFFECT OF FECAL IMMUNOCHEMICAL TEST THRESHOLD ON COLORECTAL SCREENING OUTCOMES

12:00 - 12:15: Mon. Jun 13, 2016
Euston Room, 5th Floor
Part of Session: ORAL ABSTRACTS: EVALUATING SCREENING

Andrew Coldman, Ph.D[1], *Craig Earle, MD, MSc, FRCP(C)*[2], *Cindy Gauvreau, Ph.D.*[3], *Anthony B. Miller, MD, FRCP, (C), FFPH, FACE*[4], *Saima Memon, M.B.B.S, MPH*[3], *Claude Nadeau, Ph.D*[5], *William Flanagan, B.M.*[5] *and Michael Wolfson, Ph.D*[6], *(1)BC Cancer Research Centre, Vancouver, BC, Canada, (2)Cancer Care Ontario and the Ontario Institute for Cancer Research and Institute for Clinical Evaluative Sciences, Toronto, ON, Canada, (3)Canadian Partnership Against Cancer, Toronto, ON, Canada, (4)University of Toronto, Toronto, ON, Canada, (5)Statistics Canada, Ottawa, ON, Canada, (6)University of Ottawa, Ottawa, ON, Canada*

Purpose:

The Fecal Immunochemical Test (FIT) is a test commonly used to screen for Colorectal Cancer (CRC) and adenomas. Liquid based FIT's permit user specification of the threshold (T) for test positivity with effects on the number testing positive, the likelihood of detecting a neoplasm and the costs of screening. We used the Canadian Risk Management Model CRC sub-model (CRMM-CRC) to predict the effectiveness and cost-effectiveness of CRC screening based upon different choices for T.

Method(s):

The CRMM-CRC is a micro-simulation model for Colorectal Cancer in Canada. The model includes a natural history spine where CRC's are assumed to develop from adenomas which are initiated, grow and regress according to age and sex-specific rates. The probabilities of treatment utilization, costs of testing and disease treatment were taken from Canadian data sources. Published literature on FIT testing by threshold in asymptomatic individuals were reviewed to derive the probability of a positive test (PPT - sensitivity and specificity) for subjects by disease status: CRC, size of adenoma (0-5mm, 6-9mm, 10+mm) and no neoplasm. Models were fit to provide a range of estimates expressing uncertainty in actual PPT values for the different disease states as a function of T. Effectiveness and cost-effectiveness predictions were obtained by simulating the lifetime of cohort age 45 in 2014. Screening was assumed to occur biennially between ages 50 and 74 with evaluation of abnormal tests by colonoscopy using different threshold values. Costs and QOL adjusted life-years were both discounted at 3%.

Result(s):

Uncertainty in threshold specific PPT's were modeled for T between 50 and 225ng/ml in two dimensions: slope – rate of change in positivity rates by T and average – positivity rates at T=100 ng/ml. There were 7 resulting parameter sets evaluated representing joint sensitivity analyses by varying slope and average. All individual scenario combinations (parameter & T) resulted in predicted reductions in CRC incidence (range=22%-53%) and mortality (35%-65%). Costs per QOL varied between CAD$-530 and $5,558 across the individual scenarios. Within each parameter set the lowest threshold evaluated had the highest effectiveness but was not necessarily the most cost-effective.

Conclusion(s):

In the Canadian context screening with FIT for CRC is predicted to be a cost-effective intervention. Low thresholds for abnormality would appear preferable where colonoscopy resources allow.

1B-5. HEALTH-ECONOMIC EVALUATION OF HPV-BASED CERVICAL CANCER PRIMARY SCREENING COMPARED TO CYTOLOGY OR P16/KI-67 DUAL-STAINING A DECISION-ANALYSIS FOR THE AUSTRIAN HEALTH CARE CONTEXT

12:15 - 12:30: Mon. Jun 13, 2016
Euston Room, 5th Floor

Part of Session: ORAL ABSTRACTS: EVALUATING SCREENING

***Gaby Sroczynski, MPH, Dr.PH**, Department of Public Health, Health Services Research and Health Technology Assessment, UMIT - University for Health Sciences, Medical Informatics and Technology, Hall i.T., Austria, Eva Esteban, MPH, Department of Public Health, Health Services Research, and Health Technology Assessment, UMIT - University for Health Sciences, Medical Informatics and Technology; Division of HTA and Bioinformatics, ONCOTYROL Center for Personalized Cancer Medicine, Hall i.T./Innsbruck, Austria, Andreas Widschwendter, Prof., Department of Obstetrics and Gynecology, Medical University Innsbruck, Innsbruck, Austria, Willi Oberaigner, Associate Prof., Dr., Institute for Clinical Epidemiology, Cancer Registry Tyrol, Tirol Kliniken, Innsbruck, Innsbruck, Austria, Katharina Hintringer, MPH, TGKK-Tyrolean Sickness Fund, Innsbruck, Austria, Gottfried Endel, Dr., Department for Evidence Based Economic Health Care, Main Association of Austrian Social Insurance Institutions, Vienna, Austria and Uwe Siebert, MD, MPH, MSc, ScD, Institute of Public Health, Medical Decision Making and Health Technology Assessment, Department of Public Health, Health Services Research and Health Technology Assessment, UMIT - University for Health Sciences, Medical Informatics and Technology, Hall i.T., Austria*

Purpose:

In Austria opportunistic cervical cancer screening with annual cytology starting at age 18 years is the current standard. However, new screening tests together with risk-based screening and follow-up algorithms may have the potential to improve both, the effectiveness and the efficiency of the cervical cancer screening program. Our aim was to systematically evaluate the long-term effectiveness and cost-effectiveness of different cervical cancer primary screening strategies for the Austrian health care context.

Method(s):

A Markov-state-transition model was developed for the Austrian health care context simulating the disease including HPV-infection and different pre-invasive as well as invasive cervical cancer stages. The model was applied to evaluate different screening strategies that differ by primary screening test (including cytology, p16/Ki-67-dual stain, and HPV-testing alone or in combinations), screening interval, age, and specific follow-up algorithms for positive test results. We used Austrian clinical, epidemiological and economic data, and test accuracy data from international meta-analyses and trials. All costs and effects were discounted at 5% annually. Index year was 2014. Predicted outcomes were reduction in cervical cancer cases and deaths, remaining life expectancy (in life years [LY]), total lifetime costs (in Euro), and the incremental cost-effectiveness ratios (ICER; in Euro/LY gained). Comprehensive sensitivity analyses were performed.

Result(s):

Within the same screening interval, HPV-based primary screening strategies are more effective (relative reduction cancer death: 56%-79% for 5-2 yearly screening intervals) compared with cytology (42%-69%) or with p16/Ki-67 testing alone (50%-76%). Adopting risk-based follow-up algorithms including p16/Ki-67 triage for women with ASCUS or LSIL and colposcopy referral for women with HSIL or p16/Ki-67-positivity can improve efficiency. In the base-case analysis (31-43% screening adherence in women below 60 years of age), optimal balance between benefits and costs achieved biennial HPV-testing (with cytology triage of HPV-positive women) at the age of 30 years and biennial cytology (with p16/Ki-67-triage of women with ASCUS/LSIL) at younger age with an ICER of 43,700 Euro/LY gained. In sensitivity analyses results were sensitive with regard to HPV-test cost, cytology test accuracy, screening adherence rate and annual discount rate.

Conclusion(s):

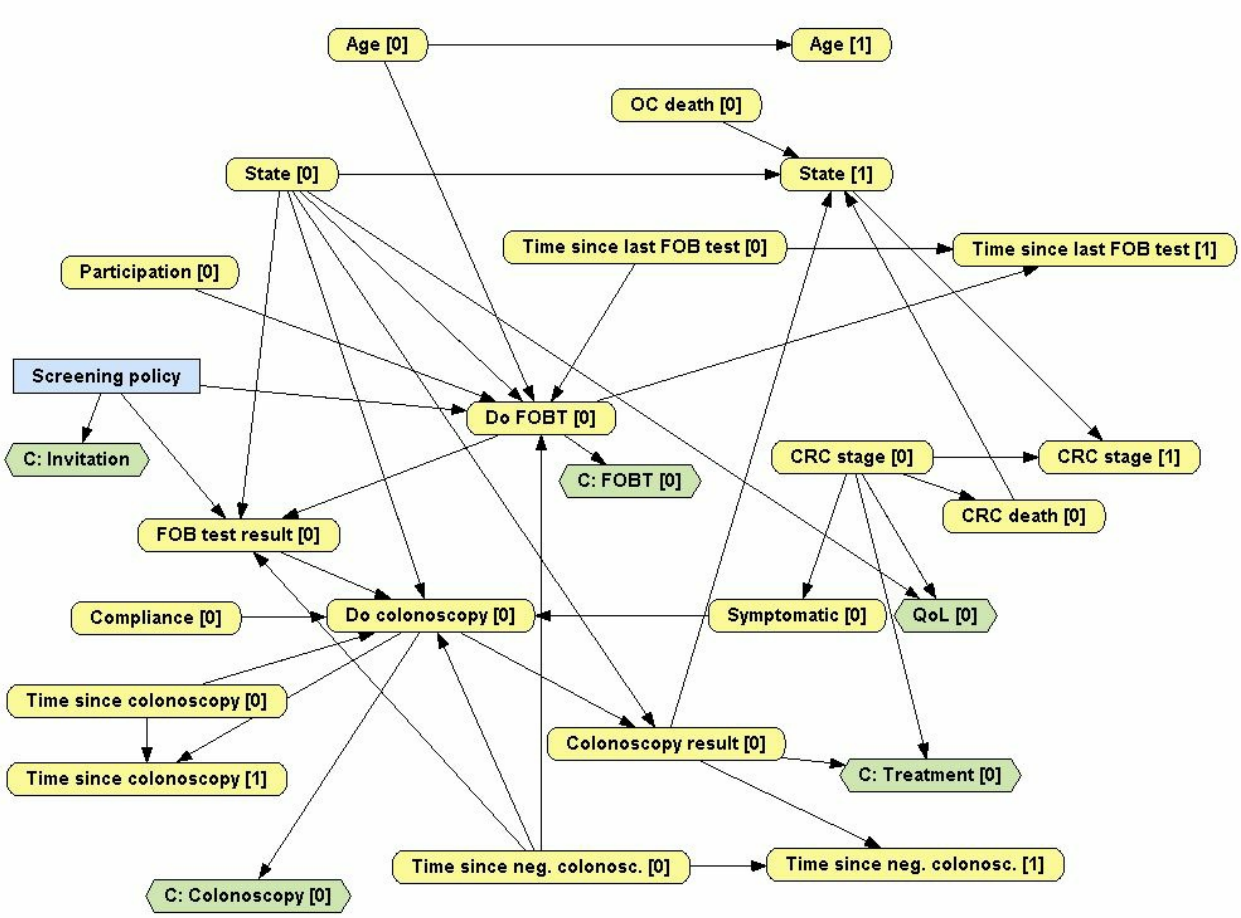
Based on our results, biennial primary HPV screening with cytology triage in women age 30 years and older and biennial cytology with p16/Ki-67-triage in younger women can be considered as a cost-effective screening option for the Austrian context.

1B-6. COST-EFFECTIVENESS OF COLORECTAL CANCER SCREENING IN ARAGON (SPAIN)

12:30 - 12:45: Mon. Jun 13, 2016
Euston Room, 5th Floor
Part of Session: ORAL ABSTRACTS: EVALUATING SCREENING

*Marta Lalana, BPharm, MSc[1], Jorge Pérez-Martín, MSc[2], Adrián Fontán, BSc[1] and **Francisco J. Díez, PhD**[2], (1)Hospital de Barbastro, Barbastro, Spain, (2)UNED, Madrid, Spain*

Purpose: To evaluate the cost-effectiveness of a screening program for colorectal cancer CRC. **Method(s):** We built a state-transition model encoded as a Markov influence diagram (MID) and implemented it with the open-source software tool OpenMarkov. The screening instrument is the immunochemical fecal occult blood test (IFOBT) with the cut-off point at 117 ng/mL, performed every two years. The variable State has nine states: normal epithelium, small adenoma, large adenoma, CRC, follow-up after low-risk adenoma, follow-up after high-risk adenoma, and dead. The variable CRC Stage has five states: stages I to IV and "none". A colonoscopy is performed when the test is positive and also when the patient has symptoms of CRC. The probabilities and the quality of life values were obtained from the literature; the uncertainty about them was modeled with Beta and Dirichlet distributions. Costs are those of the health system of Aragon, a region in the in northeastern Spain; each cost was assigned a Gamma distribution with a standard deviation of 10%.



The evaluation of the model departed from a cohort of 30-year-old individuals with normal epithelium and no adenomas or cancer, and ended at the age of 100. The screening program was assumed to start when the individuals reach the age 50 or 60 and to end when they are 69. We did not evaluate the model for earlier starting ages because of the lack of reliable incidence data for younger populations. We also performed a probabilistic sensitivity analysis with 1,000 simulations. In all the analyses we discounted costs and effects at 3% p.a. **Result(s):** The incremental cost-effectiveness ratio (ICER) was 1,055 â¬/QALY when the screening starts at the age of 50, and 947 â¬/QALY when it starts at the age of 60. These ratios are significantly lower than those obtained in previous studies. The sensitivity analysis concluded that, for a willingness to pay of 30,000 â¬/AVAC (the value usually accepted as the shadow threshold for the public health system in Spain) CRC screening is cost-effective with a probability of 100%. **Conclusion(s):** According to our model, CRC screening with the immunochemical fecal occult blood test applied biennially is highly cost-effective for individuals between 50 and 69 years old.

1C. ORAL ABSTRACTS: HEALTH SERVICES, OUTCOMES & POLICY RESEARCH

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11:15 - 12:45: Mon. Jun 13, 2016
Stephenson Room, 5th Floor

Session Summary:

11:15 - 11:30

1C-1. THE EFFECT OF SALVAGE RADIOTHERAPY AND ITS TIMING ON THE HEALTH-RELATED QUALITY OF LIFE OF PROSTATE CANCER PATIENTS

11:30 - 11:45

1C-2. DEVELOPMENT OF HEALTH-RELATED QUALITY OF LIFE FOLLOWING PROSTATE CANCER DIAGNOSIS IS ASSOCIATED WITH OPTIMISM AND SELF-EFFICACY

11:45 - 12:00

1C-3. ASSOCIATION OF DEPRESSION WITH HOSPITAL LENGTH OF STAY AND 90-DAY READMISSION FOLLOWING TOTAL KNEE ARTHROPLASTY

12:00 - 12:15

1C-4. FINANCIALLY SUBOPTIMAL HEALTH INSURANCE CHOICES BY LOW-INCOME CONSUMERS

12:15 - 12:30

1C-5. REVIEW OF THE HEALTH TECHNOLOGY ASSESSMENT PROCESS FOR ANTIBIOTICS IN SELECT EUROPEAN COUNTRIES

12:30 - 12:45

1C-6. MIXED METHOD PROGRAM EVALUATION OF THE TELEHOMECARE PROGRAM FOR PATIENTS WITH HEART FAILURE (HF) AND CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) IN ONTARIO, CANADA: QUALITATIVE STUDY

Abstracts:

1C-1. THE EFFECT OF SALVAGE RADIOTHERAPY AND ITS TIMING ON THE HEALTH-RELATED QUALITY OF LIFE OF PROSTATE CANCER PATIENTS

11:15 - 11:30: Mon. Jun 13, 2016
Stephenson Room, 5th Floor
Part of Session: ORAL ABSTRACTS: HEALTH SERVICES, OUTCOMES & POLICY RESEARCH

Marie-Anne van Stam, MSc[1]*, N.K. Aaronson, PhD*[2]*, F.J. Pos*[2]*, J.L.H.R. Bosch, MD, PhD*[1]*, J.M. Kieffer, PhD*[2]*, C. Tillier*[2] *and H.G. Van der Poel, MD, PhD*[2]*, (1)University Medical Center Utrecht, Utrecht, Netherlands, (2)The Netherlands Cancer Institute, Amsterdam, Netherlands*

Purpose:
Salvage radiotherapy (SRT) can be offered to men with prostate cancer who evidence rising PSA levels after radical prostatectomy (RP). Although SRT may achieve biochemical responses, there is no level 1 evidence that shows a survival benefit. The purpose of this study is to describe the impact of SRT on health-related quality of life (HRQoL), and to investigate whether SRT timing (time between RP and SRT) is associated with HRQoL outcomes.

Method(s):
All SRT patients (n=241) and all RP-only patients (n=1005) were selected from a prospective database (2004-2015) of the Antoni van Leeuwenhoek hospital in Amsterdam, the Netherlands. The database contains HRQoL and prostate problem assessments up to two years after last treatment (Figure 1). Mixed effects growth modelling adjusting for significant differences in patient characteristics and baseline HRQoL was used to analyse the association between: (1) treatment' (RP-only vs SRT) and (2) timing of SRT' with changes in HRQoL.

Result(s):
(1) SRT patients showed significantly ($p<0.05$) poorer recovery from urinary, bowel, and erectile function after their last treatment than RP-only patients (clinically meaningful differences for urinary and erectile function). (2) Patients with a longer interval (≥7months) between RP and SRT reported significantly better sexual satisfaction after SRT ($p=0.02$), and a better recovery of urinary function ($p=0.03$).

Conclusion(s):
Up to two years after treatment, SRT patients reported poorer HRQoL in several HRQoL domains as compared to RP-only patients, but not in overall HRQoL. Delaying the start of SRT after RP may limit the incidence and duration of urinary and sexual problems. Nevertheless, decisions regarding SRT timing should also be based on the potential benefits in terms of disease recurrence.

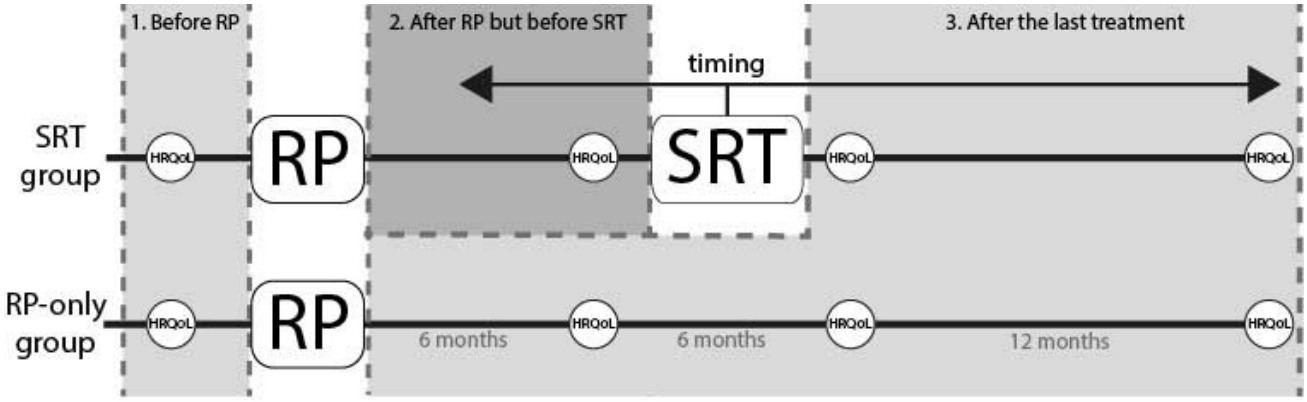

Figure 1. Time intervals per treatment group.
HRQoL = health-related quality of life; RP = radical prostatectomy; SRT = radical prostatectomy + salvage radiotherapy.

1C-2. DEVELOPMENT OF HEALTH-RELATED QUALITY OF LIFE FOLLOWING PROSTATE CANCER DIAGNOSIS IS ASSOCIATED WITH OPTIMISM AND SELF-EFFICACY

11:30 - 11:45: Mon. Jun 13, 2016
Stephenson Room, 5th Floor
Part of Session: ORAL ABSTRACTS: HEALTH SERVICES, OUTCOMES & POLICY RESEARCH

Maarten Cuypers, MSc.[1], *Romy R.E.D. Lamers, MD*[2], *Marieke de Vries, PhD*[3], *Lonneke V. van de Poll-Franse, PhD*[4] *and Paul J.M. Kil, MD, PhD*[2], *(1)Tilburg University, Tilburg, Netherlands, (2)St. Elisabeth Hospital, Tilburg, Netherlands, (3)Radboud University, Nijmegen, Netherlands, (4)Comprehensive Cancer Centre the Netherlands South, Eindhoven, Netherlands*

Purpose: Side-effects from prostate cancer (Pca) treatments are known to cause a decrease in patients' health-related quality of life (HRQoL). Post treatment HRQoL levels are often compared to a pre-treatment baseline, though measured after diagnosis. The impact of Pca diagnosis on HRQoL has received less attention. Therefore, to investigate the consequence of Pca diagnosis on patients' HRQoL and the association between HRQoL and personality traits, we surveyed patients before and after Pca diagnosis. Our hypothesis was that the decline in HRQoL, assumed to be caused by treatment side-effects, would already start after Pca diagnosis, rather than after treatment. Moreover, we hypothesized that personality traits are associated to the impact of Pca diagnosis on HRQoL.

Method(s): Prospective study in ten Dutch hospitals recruiting patients scheduled for prostate biopsy (N=388), from which 126 patients were later diagnosed with Pca and 262 patients served as control group without Pca. Questionnaires were filled out at biopsy (T0, N=377, response rate 97.2%) and after diagnosis, but before treatment was started (T1, N=80, response rate 63.5%). Measures included personality traits (big five, optimism, self-efficacy) and HRQoL (EORTC QLQ-C30 and prostate specific PR25-module). Analyses were performed using T-tests, ANOVA and Pearson correlations.

Result(s): At biopsy no difference was observed in HRQoL between patients later diagnosed with Pca and the control group without Pca. In Pca patients HRQoL then declined following diagnosis. Optimism was positively related to the Global health subscale at T0 ($r(338)=.307$, $p<.001$), but not anymore at T1. At T1 only self-efficacy was correlated with Global health ($r(67)=.256$, $p=.03$). The largest decline in HRQoL following Pca diagnosis was found on the role functioning subscale.

Conclusion(s): We found evidence that the decline of HRQoL in Pca patients already starts after diagnosis rather than after treatment. In an uncertain situation like prostate biopsy, optimism seems to affect HRQoL. However, after diagnosis we found patients' self-efficacy to be positively correlated with HRQoL. This may indicate that if a patient believes he is able to do what is needed given his situation, HRQoL is higher. Assumed no major changes have occured in patients' physical condition in the period around Pca diagnosis, the observed decline in HRQoL may have a psycho-social cause. Interventions to improve self-efficacy in Pca patients following diagnosis could be useful.

1C-3. ASSOCIATION OF DEPRESSION WITH HOSPITAL LENGTH OF STAY AND 90-DAY READMISSION FOLLOWING TOTAL KNEE ARTHROPLASTY

11:45 - 12:00: Mon. Jun 13, 2016
Stephenson Room, 5th Floor
Part of Session: ORAL ABSTRACTS: HEALTH SERVICES, OUTCOMES & POLICY RESEARCH

***Heather Taffet Gold, PhD**, James Slover, MD, MS, Lijin Joo, BA, Joseph Bosco, MD, Richard Iorio, MD and Cheongeun Oh, PhD, NYU School of Medicine, New York, NY*

Purpose: Hospital readmission and length of stay (LOS) following total knee arthroplasty (TKA) account for substantial resource consumption and may serve as measures of efficiency and care quality. Psychiatric comorbidities may impact post-surgical outcomes and potentially readmission. This study evaluated whether patients undergoing TKA were at increased risk for long LOSs or 90-day readmission if they had co-occurring depression.

Method(s): We analyzed cohort data from the population-based California Healthcare Cost and Utilization Project (HCUP) database from 2007-2010 (n=131,634) for primary TKA discharges in adults ages 50+. We evaluated predictors of hospital LOS, the difference in days between date of admission and date of discharge, using negative binomial regression to model effect(s) of covariates of interest on LOS; we also fit a logistic regression model to predict a binary outcome of "long stay" (top 5% of stays). Finally, we used logistic regression to predict odds of 90-day readmission following TKA. We included demographics (age, sex, race/ethnicity, Medicaid insurance as proxy for low income), comorbidities (including depression), and admission year.

Result(s): Median LOS was 3 days, with a mean of 3.4 days (sd=1.7 days). Overall 90-day readmission rate was almost 17%. A depression diagnosis was associated with a significantly longer LOS (1.05 times longer: 95% CI: 1.04-1.06) and odds of 90-day readmission (OR: 1.21 95%CI:1.13-1.29). LOS and odds of readmission increased with age, as high as 1.15 (95% CI: 1.14-1.17) times longer for those over age 80 than the reference category of 50-54 year olds. There was a significantly longer LOS and odds of readmission associated with being Black compared to White (OR: 1.11; 95% CI: 1.10-1.12 for LOS; OR:1.36, 95%CI: 1.10-1.66 for readmission) and being insured with Medicaid compared to other insurance types (OR: 1.22; 95% CI: 1.20-1.24 for LOS; OR:1.39; 95%CI:1.12-1.73 for readmission).

Conclusion(s): Even after controlling for other chronic conditions and non-modifiable covariates, we found significant associations of depression with longer LOS and readmission rates. Promoting care coordination across disciplines for the management of patients' non-orthopedic comorbidities prior to surgery, particularly in higher risk patients with depression, could have a positive influence on orthopedic surgery outcomes, patient overall well-being, and ultimately healthcare resource utilization.

1C-4. FINANCIALLY SUBOPTIMAL HEALTH INSURANCE CHOICES BY LOW-INCOME CONSUMERS

12:00 - 12:15: Mon. Jun 13, 2016
Stephenson Room, 5th Floor
Part of Session: ORAL ABSTRACTS: HEALTH SERVICES, OUTCOMES & POLICY RESEARCH

***John Hsu, MD** and Vicki Fung, PhD, Harvard Medical School, Boston, MA*

Purpose: We examined health insurance plan choices after the introduction of health insurance exchanges by the Patient Protection and Affordable Care Act (ACA). The ACA provides premium tax credit (PTC) and cost-sharing reduction (CSR) subsidies to lower-income enrollees; to receive these subsidies, lower-income enrollees must choose qualified plans.

Method(s): We conducted interviews among a random sample of 2,103 adult enrollees in individual market health insurance plans offered in California in 2014. We used self-reported household income and size to assess subsidy eligibility. Those eligible for CSR+PTC subsidies had incomes ≤250% of the federal poverty level (FPL), those only eligible for PTC subsidies were between 251-400% FPL. We examined whether these enrollees chose subsidy-eligible plans: to receive the PTC, enrollees had to select a plan through the exchange; to receive the CSR, enrollees had to select an on-exchange Silver-tier plan. We also examined the types of assistance enrollees received when choosing their plan and the perceived affordability of their premiums and out-of-pocket costs during the year. We used multivariate models to adjust for sociodemographic characteristics.

Result(s): In California's 2014 individual insurance market, 51% of enrollees were at or below 250% FPL, 22% were between 251-400% FPL, and 27% were >400% FPL. Among the subsidy-eligible, 17% purchased plans off-exchange (e.g., directly through insurers), thus forgoing subsidies (14% of PTC+CSR-eligible and 25% of PTC-eligible). Among CSR-eligible enrollees who chose on-exchange plans, 77% enrolled in Silver plans vs. 17% Bronze and 7% Gold/Platinum plans. Subsidy-eligible enrollees who purchased off- vs. on-exchange plans were less likely to receive help from Covered California counselors (9% vs. 32%) and more likely to use insurance agent/brokers (31% vs. 24%). Among subsidy-eligible enrollees, those who purchased off- vs. on-exchange were more likely to have a lot of difficulty paying premiums (e.g., 27% vs. 12%, OR=2.7, 95%CI: 1.5-4.9 among those 251-400% FPL); among CSR+PTC-eligible enrollees (≤250% FPL) those who purchased on-exchange Bronze vs. Silver plans more frequently had difficulty paying out-of-pocket costs (16% vs. 8%, OR=2.3, 95%CI: 1.3-4.3).

Conclusion(s): Many lower-income enrollees appeared to forfeit available premium and/or cost-sharing assistance by purchasing plans that were ineligible for subsidies. Enrollees who received subsidies perceived their insurance and medical care to be more affordable than those who did not.

1C-5. REVIEW OF THE HEALTH TECHNOLOGY ASSESSMENT PROCESS FOR ANTIBIOTICS IN SELECT EUROPEAN COUNTRIES

12:15 - 12:30: Mon. Jun 13, 2016
Stephenson Room, 5th Floor
Part of Session: ORAL ABSTRACTS: HEALTH SERVICES, OUTCOMES & POLICY RESEARCH

*Axel Leporowski[1], **Abigail Colson**[2], Alec Morton[2] and Ramanan Laxminarayan[3], (1)University of Heidelberg, Department of Economics, Heidelberg, Germany, (2)University of Strathclyde, Department of Management Science, Glasgow, United Kingdom, (3)Center for Disease Dynamics, Economics & Policy, Washington, DC*

Purpose: It has been claimed that health technology assessment agencies do not take into account the full range of values associated with antibiotics when making reimbursement and pricing recommendations. In this paper we seek to document the types of evidence and value considered by European health technology assessment agencies when making recommendations about antibiotics.

Method(s): We studied five antibiotics that have gone through a health technology assessment process in at least two European countries since 2010: fidaxomicin, aztreonam, ceftaroline fosamil, tigecycline, and colistimethate sodium. We selected the drugs to include a mix of new technologies and reformulations of older products. For each antibiotic, we identified every report from a health technology assessment body publicly available in English, Spanish, German, or Dutch. We systematically reviewed the reports to identify the evidence, sources of value, and other factors the agency considered in the health technology assessment. We supplemented this review by interviewing the pharmaceutical companies that developed the products to collect additional information about the health technology assessment process and its data and modelling requirements.

Result(s): We found health technology assessments from at least two agencies for each product. Fidaxomicin was the most widely studied product with reports. The health technology assessments are based on clinical trial data and simple economic models that focus primarily on the direct treatment benefit of the drugs to patients. The threat of antibiotic resistance was mentioned irregularly. The assessments did not consider the value of antibiotics in enabling surgeries and other procedures, the insurance value of having an approved antibiotic ready when a new resistant outbreak emerges, or the diversity value of having multiple drugs with different modes of action available for a given infection.

Conclusion(s): Current health technology assessment practices do not encapsulate the full value of antibiotics. Ignoring the types of value unique to antibiotics may result in their being undervalued, which could make it less attractive for pharmaceutical companies to invest in research and development of new antibiotic. There is a need for simple modelling frameworks that can better capture the true economic value of antibiotics.

1C-6. MIXED METHOD PROGRAM EVALUATION OF THE TELEHOMECARE PROGRAM FOR PATIENTS WITH HEART FAILURE (HF) AND CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) IN ONTARIO, CANADA: QUALITATIVE STUDY

12:30 - 12:45: Mon. Jun 13, 2016
Stephenson Room, 5th Floor
Part of Session: ORAL ABSTRACTS: HEALTH SERVICES, OUTCOMES & POLICY RESEARCH

***Valeria E. Rac, MD, PhD**[1], Gemma Hunting, MA[1], Nida Shahid, HBSc., MSc (c.)[2], Yeva Sahakyan, MD, MPH[2], Iris Fan, BA[1], Crystal Moneypenny, MSc (c)[3], Aleksandra Stanimirovic, MSc, PhD (candidate)[2], Taylor North[1], Yelena Petrosyan, MD, MPH, PhD (Candidate)[1] and Murray D. Krahn, MD, MSc[4], (1)Toronto Health Economics and Technology Assessment (THETA) Collaborative, Toronto, ON, Canada, (2)Toronto Health Economics and Technology Assessment (THETA) Collaborative, University of Toronto, Toronto, ON, Canada, (3)Leslie Dan Faculty of Pharmacy, University of Toronto, Toronto, ON, Canada, (4)University of Toronto and University Health Network, Toronto General Research Institute, Toronto Health Economics and Technology Assessment (THETA) Collaborative, Toronto, ON, Canada*

Purpose: This study discusses the qualitative component of a mixed method program evaluation of the Telehomecare Program in Ontario, Canada. The qualitative component explored barriers and facilitators to the implementation and adoption of the Program across three Local Health Integration Networks (LHINs).

Method(s): Barriers and facilitators to Telehomecare were explored with over thirty hours of ethnographic observation and 89 semi-structured interviews (39 patients, 16 nurses, 7 physicians, 12 administrators, 13 decision-makers and 2 technicians), which were conducted across three Local Health Integration Networks (LHINs) in Ontario, with each LHIN representing a case study. Combination of purposeful and snowball sampling was used to recruit study participants. Phone or in-person interviews were conducted and ranged from 20 minutes to 2 hours in duration. Interviews were audio-taped, transcribed, and coded inductively using a descriptive content analytic approach to identify common themes and patterns (constant comparison) within and across the LHINs and across five levels of a multi-level framework (technology, patients, providers, organizations, and structures).

Result(s): Key findings include common themes of high caseload and unrealistic enrollment targets found across the LHINs. High patient caseload such (60 or higher) was identified as a strong barrier in providing quality patient care. Common critical facilitators found were patient motivation, confidence and willingness. Organizational culture also emerged as a predominant theme across all LHIN. More specifically, when the organizational culture is open and respectful, all levels of staff were able to connect with each other and feel their beliefs and insights were valued. Similarly, the role of an 'Engagement Lead' was found as a critical facilitator for program implementation contributing to increased awareness and referrals to the program.

Conclusion(s): Despite the potential of Telehomecare to strengthen models of health care provision, challenges remain. Key barriers and facilitators impacting the implementation and adoption of Telehomecare across the province were identified. Some were common across all LHINs, while others were context driven and LHIN specific. By strengthening program facilitators and successfully addressing the barriers, the implementation and adoption of Telehomecare can be significantly improved. Further implementation of Telehomecare must involve continuous assessments and dialogue (both local and broad-based) of what is working and not working with multiple stakeholders. This can inform decision-making that better reflects the needs of all program stakeholders.

PS2. POSTER SESSION 2

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12:45 - 14:15: Mon. Jun 13, 2016
Exhibition Space

Session Summary:

12:45 - 14:15

THE DETERMINANTS OF CHANGE IN THE COST-EFFECTIVENESS THRESHOLD

12:45 - 14:15

THE PRICE OF A CURE? ESTABLISHING THE VALUE BASED PRICE OF CAR-T CELL THERAPY FOR ACUTE LYMPHOBLASTIC LEUKAEMIA

12:45 - 14:15

ESTIMATING THE COST-EFFECTIVENESS OF USING CIRCULATING TUMOR CELL DETECTION TO GUIDE SYSTEMIC THERAPY IN STAGE IA PRIMARY BREAST CANCER

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TEN WAYS TO ENHANCE THE ESTIMATION, REPORTING AND INTERPRETATION OF THE COST-EFFECTIVENESS OF CANCER SCREENING INTERVENTIONS

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CONTINGENCY MANAGEMENT IMPROVES COMPLETION OF HEPATITIS B VACCINATION IN THOSE ON TREATMENT FOR OPIATE DEPENDENCE: AN ECONOMIC EVALUATION

12:45 - 14:15

DIRECT ANTIVIRAL DRUGS FOR THE TREATMENT OF CHRONIC HEPATITIS C PATIENTS WITH GENOTYPE 1 OR 4 IN FRANCE - COST-EFFECTIVENESS OF OMBITASVIR/PARITAPREVIR/RITONAVIR WITH OR WITHOUT DASABUVIR BY FIBROSIS SUBGROUP

12:45 - 14:15

THE DEVELOPMENT OF EXPERTISE IN NON-MEDICAL PERSONNEL INTERPRETING DIAGNOSTIC MAMMOGRAMS

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ONCOLOGIST AND PATIENT QUESTIONS DURING CONSULTATIONS ABOUT ADJUVANT CANCER TREATMENT: A SHARED DECISION-MAKING PERSPECTIVE

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DISCLOSING THE UNCERTAINTY OF PROGNOSTIC ESTIMATES IN BREAST CANCER: CURRENT PRACTICES AND PATIENTS' AWARENESS OF UNCERTAINTY

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EFFECTIVENESS OF DIETARY INTERVENTIONS IN CHRONIC KIDNEY DISEASE (CKD): A SYSTEMATIC REVIEW

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THE IMPORTANCE OF A GOOD RELATIONSHIP WITH THE CLINICIAN: A CRITICAL FACTOR FOR COLLABORATIVE GOAL SETTING DISCUSSIONS ACCORDING TO PATIENTS

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CHALLENGES OF COMMUNICATING PROGNOSTIC ESTIMATES FOR DECISIONS ABOUT LIFE SUPPORT THE EVOLUTION OF A DECISION AID TO FACILITATE SHARED DECISION MAKING ABOUT MECHANICAL VENTILATION

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CONFIDENCE IN DECISION MAKING OF PARAMEDIC CREW LEADERS: ITS LEVEL, ROOTS AND POSSIBLE CONSEQUENCES

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SYNTHESIS OF THREE DATA SOURCES TO DETERMINE INDEPENDENT VARIABLES IN AN ONLINE FACTORIAL SURVEY OF IMPLANTABLE CARDIOVERTER DEFIBRILLATOR DEACTIVATION DECISIONS

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DIAGNOSTIC ACCURACY OF LEVEL IV PORTABLE SLEEP TESTS VERSUS POLYSOMNOGRAPHY FOR SLEEP-DISORDERED BREATHING: A SYSTEMATIC REVIEW AND META-ANALYSIS

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DOMINANT ASPIRIN THERAPY STRATEGY ELIMINATES ROLE FOR IMAGING SCREENING/WARFARIN THERAPY FOR STROKE PREVENTION IN MODEL OF ASYMPTOMATIC BLUNT NECK TRAUMA

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THE USE OF SPECIALTY TRAINING TO RETAIN DOCTORS IN MALAWI: A DISCRETE CHOICE EXPERIMENT

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COMPOSITE EVALUATIONS OF TESTS: MULTIPLE PRIMARY STUDIES INTEGRATED WITH AN ECONOMIC MODEL. EXPERIENCE WITH TWO CASES

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IMPROVING DIAGNOSTIC DECISION MAKING FOR A RARE DISEASE: IDENTIFYING BARRIERS TO EARLY DIAGNOSIS OF SCHWANNOMATOSIS

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CLINICIAN-IDENTIFIED PRIORITIES FOR MEDICATION SAFETY IN PRIMARY CARE: A PRIORITIZE STUDY

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THRESHOLD-BASED GUIDELINES THREATEN PREFERENCE-SENSITIVE DECISION MAKING IN PERSON-CENTRED CARE

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CLINICAL UTILITY OF PREDICTION MODELS FOR OVARIAN TUMOR DIAGNOSIS: A DECISION CURVE ANALYSIS

12:45 - 14:15

MISSES VS. FALSE ALARMS IN HIGH-STAKES DECISIONS: QUANTIFYING BENEFITSHARMS RATIOS FOR POLICY ANALYSIS IN MEDICAL DECISION MAKING

Abstracts:

THE DETERMINANTS OF CHANGE IN THE COST-EFFECTIVENESS THRESHOLD

12:45 - 14:15: Mon. Jun 13, 2016
Exhibition Space
Part of Session: POSTER SESSION 2

***Mike Paulden, MA., MSc.**, University of Alberta, Edmonton, AB, Canada, Christopher McCabe, PhD, Department of Emergency Medicine, University of Alberta, Edmonton, AB, Canada and James O'Mahony, PhD, Trinity College Dublin, Dublin, Ireland*

[1] Department of Emergency Medicine, University of Alberta, Edmonton, AB, Canada

[2] Centre for Health Policy & Management, School of Medicine, Trinity College Dublin, Dublin, Ireland

Purpose: In health care systems with a constrained budget, the cost-effectiveness threshold should, in principle, be determined by the cost-effectiveness of health care services displaced in order to fund new interventions.

Method(s): Using comparative statics, we review a number of potential determinants of change in the threshold, including the budget for health care, the demand for existing health care interventions, the technical efficiency of existing interventions, and the development of new health technologies. We consider the direction of impact that changes in each of these determinants would be expected to have upon the threshold.

Result(s): Where the health care system is technically efficient, an increase in the health care budget unambiguously increases the threshold, while an increase in the demand for existing non-marginal health interventions unambiguously lowers the threshold. Improvements in the technical efficiency of existing interventions may result in a higher or lower threshold, depending upon the cause of the improvement in efficiency, whether the intervention is already funded and, if so, whether it is marginal. The development of new technologies may also raise or lower the threshold, depending upon whether the new technology is a substitute for an existing technology and, if so, whether the existing technology is marginal.

Conclusion(s): Our analysis allows decision makers to consider whether the cost-effectiveness threshold is likely to be changing over time, and in what direction. This has implications for the appropriate methods to use for economic evaluation, including the derivation of discount rates. It is also an important consideration when determining which technologies are cost-effective.

THE PRICE OF A CURE? ESTABLISHING THE VALUE BASED PRICE OF CAR-T CELL THERAPY FOR ACUTE LYMPHOBLASTIC LEUKAEMIA

12:45 - 14:15: Mon. Jun 13, 2016
Exhibition Space
Part of Session: POSTER SESSION 2

***Sebastian Hinde, MSc**, Centre for Health Economics,, Heslington, United Kingdom, Stephen Palmer, PhD, University of York, York, United Kingdom and Robert Hettle, PAREXEL International, London, United Kingdom*

Purpose: Regenerative medicines and cell therapies have been widely lauded for their ‘curative’ potential in a wide range of diseases, many of which currently have poor prognoses. One of the most promising cancer therapies emerging involves equipping T cells with chimeric antigen receptors (CARs). Initial studies have shown unprecedented results in haematological malignancies, generating significant public interest and major industry investment intent on rapid commercialisation.

However, the level of personalisation and manufacturing challenges has led to concerns regarding high manufacturing costs and potential health system affordability. We sought to establish a benchmark price for CAR-T cell therapy based on their potential clinical value as opposed to manufacturing cost.

Method(s): We developed two decision models for CAR-T for treating relapsed/refractory B-cell acute lymphoblastic leukaemia in children and adolescents. The two models assessed different contexts in which the technology might be licensed: (i) as a ‘bridge to stem cell transplantation’ where the goal is to induce short-term remission to facilitate subsequent stem-cell transplant; and (ii) ‘curative intent’ where the goal is long-term remission or ‘cure’ without transplantation. We synthesised clinical evidence from existing phase II CAR-T studies, information from ongoing phase III licensing studies (sample size, endpoints and follow-up) and other epidemiological sources and estimated lifetime costs and QALYs. The value based price for CAR-T was established for a range of cost-effectiveness thresholds (£30,000-£50,000 per QALY) to take account of different reimbursement considerations (e.g. end of life/orphan designation).

Result(s): The mean QALY gains estimated across the ‘Bridging’ and ‘Curative Intent’ models ranged from between 7.5 to 10.1 QALYs respectively, supporting the significant therapeutic advance this technology appears to provide. At thresholds of £30,000-£50,000 per QALY, the value based price of CAR-T cell therapy was estimated to be £206,800 to £356,100 (Bridging) and £327,300 to £528,600 (Curative Intent).

Conclusion(s): This is the first study to provide a benchmark price of CAR-T for ALL. These results can support manufacturers and reimbursement bodies in determining potential commercial and health system value. The significant clinical gains provide support for significantly higher value based prices than current technologies (approx. £43,000 for clofarabine and £90,000 for stem-cell transplant). However, the potential high upfront costs of these technologies may present additional challenges to health system financing and more innovative payment schemes and /or performance-based reimbursement may be required.

ESTIMATING THE COST-EFFECTIVENESS OF USING CIRCULATING TUMOR CELL DETECTION TO GUIDE SYSTEMIC THERAPY IN STAGE IA PRIMARY BREAST CANCER

12:45 - 14:15: Mon. Jun 13, 2016
Exhibition Space
Part of Session: POSTER SESSION 2

*Sofie Berghuis, MSc, **Hendrik Koffijberg, PhD** and Maarten J. IJzerman, PhD, University of Twente, Enschede, Netherlands*

Purpose:

Circulating tumour cells (CTCs) in the blood can provide important information regarding prognosis and treatment effectiveness for cancer patients. However, existing tests for detecting CTCs use small blood samples (7,5 mL) and therefore have low sensitivity. Currently a new technique is being developed to separate CTCs in whole blood. This early health technology assessment aims to evaluate the potential impact of using such comprehensive CTC detection technique to guide systemic therapy in stage IA breast cancer in the Netherlands.

Method(s):

The early staging process was identified from the Dutch breast cancer guideline and the group of patients without systemic therapy was defined as the target population. In this population the existing pathway and the pathway including the novel CTC test were presented as flowcharts. Based on these flowcharts, a decision tree combined with a simple Markov model was developed, and used to simulate short and long term health economic outcomes for hypothetical cohorts of women with stage IA breast cancer. Probabilistic sensitivity analysis was performed, on those parameters with enough evidence to define a stochastic distribution, to determine the uncertainty in cost-effectiveness outcomes.

Result(s):

Patients classified with a T0-1N0 mamma carcinoma do not standard receive systemic therapy. In these patients using the novel CTC technique to guide systemic therapy could potentially result in +0,03 QALYs at €8.978 additional cost (incremental cost-effectiveness ratio (ICER) €331.476/QALY) over a time horizon of 5 years. For a life-time horizon these potential benefits are +0,46 QALYs at €8.580 additional cost (ICER €18.737/QALY). The probability that the novel CTC technique would be cost-effective for a Willingness-to-Pay(WTP) of €30,000 per QALY equals 0,0% in a 5 year time horizon and 96,1% for a life time horizon, respectively.

Conclusion(s):

The novel CTC technique may be valuable in guiding decisions regarding additional systemic therapy in patients with stage IA breast cancer. However, the current, limited evidence base suggests that this technique may only be cost-effective when long time horizons are considered. While this technique is developed further, additional evidence should be collected on the expected diagnostic performance, costs, and survival outcomes for patients who are tested positive for CTCs. Such evidence can support the development process and ensure that new tests contribute to the efficient use of healthcare resources.

TEN WAYS TO ENHANCE THE ESTIMATION, REPORTING AND INTERPRETATION OF THE COST-EFFECTIVENESS OF CANCER SCREENING INTERVENTIONS

12:45 - 14:15: Mon. Jun 13, 2016
Exhibition Space
Part of Session: POSTER SESSION 2

***James O'Mahony, PhD**, Trinity College Dublin, Dublin, Ireland*

Purpose: To explain simple steps that can enhance the usefulness of cost-effectiveness analyses of cancer screening interventions to policy makers.

Method(s): We use examples from the cancer screening literature to show how the reporting and interpretation of cost-effectiveness estimates can fail to lead to optimal policy choices and how this can be avoided. The examples chosen are primarily from a recent systematic review of the cost-effectiveness of cervical screening, but also include examples found in the breast and colorectal screening literature.

Result(s): The ten recommendations are: (i) report costs and effects, rather than just incremental cost-effectiveness ratios (ICERs) or a cost-effectiveness plane; (ii) present a cost-effectiveness plane; (iii) report cost and effects for all strategies, not just those on the efficient frontier; (iv) do not report ICERs for dominated strategies; (v) do not report multiple ICERs for each strategy based on comparisons with multiple comparators (vi) report costs and effects to sufficient significant figures to permit at least approximate replication of the reported ICERs; (vii) include all relevant comparators considered in the basecase analysis; (viii) do not report ICERs for strategies for which it is anticipated the inclusion of additional strategies would lead to significant changes in the estimated ratio; (ix) when there are multiple factors to vary in a screening programme, only vary these factors one at a time when creating alternative strategies; (x) if possible, attempt to include a sufficiently large variety of screening strategies such that the analysis yields an efficient frontier with ICERs that increase gradually from below the cost-effectiveness threshold to above it.

Conclusion(s): The cost-effectiveness estimates from simulation models are dependent on the choices taken by analysts regarding both the modelling of alternatives and the interpretation of the resulting estimates. This is particularly so in the case of cancer screening interventions, as multiple intervention intensities are possible due to variation in screening intervals, start ages, stop ages and testing technologies. Our analysis shows that there are a number of flaws in economic appraisals of cancer screening interventions, which although may seem obvious, occur with surprising frequency in the literature. The ten-item list presented here will facilitate easy-to-implement improvements that should yield more reliable and relevant evidence for policy makers.

CONTINGENCY MANAGEMENT IMPROVES COMPLETION OF HEPATITIS B VACCINATION IN THOSE ON TREATMENT FOR OPIATE DEPENDENCE: AN ECONOMIC EVALUATION

12:45 - 14:15: Mon. Jun 13, 2016
Exhibition Space
Part of Session: POSTER SESSION 2

Rachid Rafia, MSc[1], *Pete Dodd, MSc, PhD*[1], *Alan Brennan, MSc, PhD*[1], *Petra Meier, MSc, PhD*[2], *Vivian Hope, PhD MMedSc BSc (Hons)*[3], *Fortune Ncube, BMedSci, BM/S, DRCOG, MSc PHM, FFPHM,*[3], *Sarah Byford, MSc, PhD*[4], *Nicola Metrebian, MSc, PhD*[5], *Jennifer Hellier, MSc*[5], *Tim Weaver, MSc, PhD*[6] *and John Strang, MSc, PhD*[5], *(1)Health Economics and Decision Science (HEDS), School of Health and Related Research (ScHARR), University of Sheffield, Sheffield, United Kingdom, (2)Section of Public Health, School of Health and Related Research (ScHARR), University of Sheffield, Sheffield, United Kingdom, (3)Centre for Infectious Disease Surveillance and Control, Public Health England, London, United Kingdom, (4)Centre for the Economics of Mental & Physical Health (CEMPH), Institute of Psychiatry, KingÂs College London, London, United Kingdom, (5)Institute of Psychiatry, Psychology & Neuroscience (IoPPN), Kings College London, London, United Kingdom, (6)Department of Mental Health, Social Work and Integrative Medicine, London, United Kingdom*

Purpose: Contingency management has been proposed as a public health approach to improve patient adherence for hepatitis B virus (HBV) vaccination in people who inject drugs (PWID) entering community treatment by using financial incentives to encourage attendance. The purpose of this study is to determine whether the provision of financial incentives to improve HBV vaccine completion in PWID in England and Wales represents a cost-effective use of NHS resources.

Method(s): A probabilistic cost effectiveness analysis was conducted based on results from a UK cluster randomised trial and uses a decision-tree to estimate the short-term clinical and cost impact of the vaccination strategies followed by a Markov process to evaluate the long-term clinical consequences and costs associated with HBV infection. Attendance and costs associated with the vaccination strategies were taken directly from the trial. Published sources were used for parameters related to the long-term clinical, quality of life and cost consequences of HBV-related infection. The incidence of HBV was estimated from cross-sectional survey data.

Result(s): We find that contingency management using financial incentives to improve completion of hepatitis B vaccination in people injecting drugs entering community-based services is likely to be cost-effective under current willingness to pay. This study has a number of strengths and uses data from a well-conducted cluster randomised controlled trial of contingency management versus treatment as usual in twelve specialist NHS services providing opiate substitution treatment in England.

This study highlighted a number of challenges when modelling the effect of vaccination uptake in PWID including estimating the incidence of HBV in the UK, estimating the probability for PWID to be reached in the future by current targeted vaccination programs, estimating the duration PWID remain at increased risk of HBV infection and the risk of HBV after ceasing injection.

Conclusion(s): Results from this study suggest that using contingency management to increase vaccination uptake using financial incentives in injecting problem drug users should be seriously considered as a worthwhile additional investment to improve health outcomes. The generalizability of our results requires careful consideration, but results indicated that contingency management remained worthwhile even when the incidence of HBV was low in this population.

DIRECT ANTIVIRAL DRUGS FOR THE TREATMENT OF CHRONIC HEPATITIS C PATIENTS WITH GENOTYPE 1 OR 4 IN FRANCE - COST-EFFECTIVENESS OF OMBITASVIR/PARITAPREVIR/RITONAVIR WITH OR WITHOUT DASABUVIR BY FIBROSIS SUBGROUP

12:45 - 14:15: Mon. Jun 13, 2016
Exhibition Space
Part of Session: POSTER SESSION 2

Gaby Sroczynski, MPH, Dr.PH[1], *Annette Conrads-Frank, PhD*[1], *Felicitas Kuehne, MSc*[1], *Nikolai Mühlberger, Assist.-Prof., DVM, MPH*[1], *Gregoire Jeanblanc, MD*[2], *Aurore Duguet, PharmD*[2], *Derek Misurski, PhD*[3], *Jennifer Samp, PHARMD, MS*[3], *Isabelle Durand-Zaleski, Prof., MD, PhD*[4] *and Uwe Siebert, MD, MPH, MSc, ScD*[5], *(1)Department of Public Health, Health Services Research and Health Technology Assessment, UMIT - University for Health Sciences, Medical Informatics and Technology, Hall i.T., Austria, (2)AbbVie Inc., Rungis, France, (3)AbbVie Inc., North Chicago, IL, (4)URC Eco Ile de France Hopital de l'Hotel Dieu, Paris, France, (5)UMIT, Dept. of Public Health, Health Services Research and Health Technology, Hall in Tirol, Austria*

Purpose: Particularly in the era of highly-effective but costly direct acting antivirals (DAAs) the treatment of patients with mild chronic hepatitis C (CHC) is still debated. We evaluated long-term health economic outcomes of different antiviral treatments including ombitasvir/paritaprevir/ritonavir±dasabuvir (OBV/PTV/r±DSV) for CHC patients infected with genotype (GT) 1 or 4 in France based on their fibrosis stages.

Method(s): A Markov-cohort simulation model for the French health-care context was developed and applied to evaluate different antiviral treatment regimens: peginterferon+ribavirin (P+R), telaprevir+P+R (TVR+PR), boceprevir+P+R (BOC+P+R), sofosbuvir+P+R (SOF+P+R), simeprevir+P+R (SIM+P+R), SOF+R, SOF+SIM, SOF+daclatasvir±R (SOF+DAC ±R), SOF+ledipasvir±R (SOF+LDV±R), OBV/PTV/r±DSV±R. Progression rates were retrieved from published observational studies. Antiviral treatment was based on European and French treatment guidelines. We used international clinical trial data for SVR, adverse events, discontinuation and change in treatment-related quality-of-life (QoL). French data on population characteristics, disease-related QoL, and costs (index year 2014/15) were taken from published literature, databases and original studies. We adopted the collective payers' perspective with 4% annual discount rate for costs and effects. Separate analyses were performed for different fibrosis stages (mild, moderate, cirrhosis) considering specific population characteristics in these groups. Outcomes included lifetime costs, life years (LY), quality-adjusted life years (QALY), and the incremental cost-effectiveness ratio (ICER). Comprehensive sensitivity analyses were performed.

Result(s): New DAAs achieved highest effectiveness. Among the most effective therapies, OBV/PTV/r+DSV±R achieved lowest ICERs, falling below 51,000 Euro/QALY in GT1 treatment-naïve patients across all fibrosis subgroups and below 22,500 Euro/QALY in treatment-experienced mild to moderate CHC patients. ICER in treatment-experienced patients with cirrhosis was higher. In GT4 treatment-naïve and -experienced mild to moderate CHC patients, OBV/PTV/r+R again achieved lowest ICERs (< 37,000 Euro/QALY) among the most effective DAAs. Cirrhotic GT4 patients were not evaluated in the analyses. Regimens achieving very small additional effects versus OBV/PTV/r+DSV±R had high ICERs making them unlikely to be cost-effective. In sensitivity analyses, the most influential parameters were the SVRs of different regimens, discount rate, progression to advanced disease and the disutility for being viral-positive.

Conclusion(s): Based on our analyses, ICERs of different DAAs vary substantially across fibrosis subgroups. The informed selection of optimal DAA medication for each fibrosis subgroup is crucial and the optimal choice depends on the willingness-to-pay in France. Across all fibrosis subgroups there are cost-effective choices of DAA regimens including OBV/PTV/r+DSV ±R.

THE DEVELOPMENT OF EXPERTISE IN NON-MEDICAL PERSONNEL INTERPRETING DIAGNOSTIC MAMMOGRAMS

12:45 - 14:15: Mon. Jun 13, 2016
Exhibition Space
Part of Session: POSTER SESSION 2

Anne-Marie Culpan, PhD. MRes, MHSc, PGCHEP, DMU, DCRR *and Paul Marshall, PhD, BSc, University of Leeds, Leeds, United Kingdom*

Purpose: To explain how radiographers (non-medical allied health professionals) develop expertise in mammography image interpretation and reporting (MIIR) in order to task substitute for medically qualified radiologists.

Method(s): Realist evaluation and qualitative methods were used to articulate and test the hypothesis that MIIR 'expertise' is characterised by decision speed-accuracy. In a two-stage study design, firstly unstructured interviews were conducted with 31 radiographers and 8 radiologists at 8 NHS sites in the UK. Secondly, non-participant observation of 10 diagnostic clinics (91 patient cases) and 5 multidisciplinary meetings (104 patient cases) and post-observation semi-structured 'teacher-learner' interviews with 11 radiographers were conducted at 2 NHS sites. Interview and observation data were analysed thematically using three theoretically derived coding categories: expertise takes time, expertise involves intuitive and analytical reasoning, expertise is characterised by decision speed and diagnostic accuracy.

Result(s): All radiographers task-substituting for radiologists had a formal qualification in MIIR that conferred competence to practice and had several years' experience. Prior to this the radiographers had undertaken mammography image acquisition during which they had learned experientially to recognise some common and typical normal and abnormal appearances.

Irrespective of experience all radiographers appeared to use a combination of analytic and intuitive reasoning (dual processing) for all cases. They had an initial quick 'global look' at the images (thinking fast) followed by a systematic and analytical (thinking slow) two-stage process - careful, systematic and sequential interrogation of images and careful correlation of image appearances with clinical information and physical examination findings.

Intrinsic features of each case appeared to determine if it was intuitive, quick and easy to interpret or inherently more difficult, requiring longer reasoning. Over time as radiographers learned to interpret and report difficult cases, detect small, subtle abnormalities and recognise rare and unusual pathology, they became more confident decision makers. Following up cases developed their ability to recognise their own (cognitive) limitations and the (technical) limitations of their discipline and enabled them to invoke decision 'stopping rules' with greater confidence.

Conclusion(s): The path to 'expertise' for the radiographers in this study was an extended learning journey of instruction, continued practice (repetition), feedback and reflection. 'Expert' radiographers continued to use intuitive and analytical reasoning strategies, with improved diagnostic speed occurring as they became more confident decision makers.

ONCOLOGIST AND PATIENT QUESTIONS DURING CONSULTATIONS ABOUT ADJUVANT CANCER TREATMENT: A SHARED DECISION-MAKING PERSPECTIVE

12:45 - 14:15: Mon. Jun 13, 2016
Exhibition Space
Part of Session: POSTER SESSION 2

*Arwen Pieterse, PhD[1], Marleen Kunneman, PhD[2], Ellen Engelhardt, Msc[1], Niels Brouwer[1], Judith Kroep, PhD[1], Corrie Marijnen, PhD[1], **Anne M. Stiggelbout, PhD**[1] and Ellen Smets, PhD[2], (1)Leiden University Medical Center, Leiden, Netherlands, (2)Amsterdam Medical Center/University of Amsterdam, Amsterdam, Netherlands*

Purpose:

To assess the occurrence of questions that foster shared decision-making during consultation in which preference-sensitive decisions are discussed. Specifically, questions that foster cancer patients' understanding of treatment decisions, and foster oncologists' understanding of patients' priorities.

Method(s):

Audiotaped pre-treatment consultations of 100 cancer patients with 32 oncologists about (neo-) adjuvant treatment were analysed using coding schemes to document question types, topics, and initiative. Patient and companion questions were combined. Two trained coders applied the schemes.

Result(s):

We assesses questions regarding a) *understanding*: what questions do oncologists ask about patients' pre-existing knowledge, about information preferences and understanding, and what questions do cancer patients and companions ask about the disease and treatment; and b) regarding *patient priorities*: what questions do oncologists ask about patients' treatment- and decision-related preferences.

The oncologists ascertained prior knowledge in 50/100 patients, asked 24/100 about preferred (probability) information, and invited questions from 56/100 patients. The oncologists asked 32/100 patients about treatment preferences and/or for consent. Three-quarter of the patients asked about treatment harms and/or procedures, and 40/100 about treatment benefits.

Conclusion(s): It would be helpful to patients if oncologists more often assessed patients' existing knowledge to tailor their information provision. Also, patients would receive treatment recommendations that better fit their personal situation if oncologists collected information on patients' views about treatments. Moreover, patients may gain a better understanding of the choice they have if they were educated to ask questions about alternative treatment options, in addition to questions about those options on offer, and to ask questions about benefits and harms associated with options.

DISCLOSING THE UNCERTAINTY OF PROGNOSTIC ESTIMATES IN BREAST CANCER: CURRENT PRACTICES AND PATIENTS' AWARENESS OF UNCERTAINTY

12:45 - 14:15: Mon. Jun 13, 2016
Exhibition Space
Part of Session: POSTER SESSION 2

*Ellen G. Engelhardt, MSc.[1], Ellen MA Smets, PhD[2], Paul K. J. Han, MD, MA, MPH[3], Judith R. Kroep, MD PhD[1], Johanneke Portielje, MD, PhD[4], J. (Hanneke) CJM de Haes, PhD[2], Arwen H. Pieterse, PhD[1] and **Anne M. Stiggelbout, PhD**[1], (1)Leiden University Medical Center, Leiden, Netherlands, (2)Academic Medical Center, University of Amsterdam, Amsterdam, Netherlands, (3)Maine Medical Center Research Institute, Portland, ME, (4)Haga Ziekenuis, The Hague, Netherlands*

Purpose:

Treatment decision-making is often guided by evidence-based probabilities, which may be presented to patients during consultations. These probabilities are intrinsically imperfect, and embody different types of uncertainty: aleatory uncertainty arising from the unpredictability of future events, and epistemic uncertainty arising from limitations in the reliability and accuracy of probability estimates. Risk communication experts have recommended disclosing uncertainty. We examined whether uncertainty was discussed during consultations, and whether and how patients perceived uncertainty.

Method(s):

Consecutive consultations about adjuvant treatment between early-stage breast cancer patients and medical oncologists were audiotaped, transcribed, and coded. Patients were interviewed after the consultation to gain insight on their perceptions of uncertainty.

Result(s):

In total 198 patients were included by 27 oncologists. Uncertainty was disclosed in 49% (97/197) of consultations. In those 97 consultations 84 allusions to aleatory uncertainty and 23 allusions to epistemic uncertainty were made. Overall, the allusions to the precision of the probabilities were somewhat ambiguous. Interviewed patients mainly referred to aleatory uncertainty if not prompted about epistemic uncertainty. Yet, even when specifically asked about epistemic uncertainty, one in four utterances made referred to aleatory uncertainty. When talking about epistemic uncertainty many patients contradicted themselves. In addition, one in ten patients seemed not to realize that the probabilities communicated during the consultation are imperfect.

Conclusion(s):

Uncertainty is conveyed in only half of the consultations. If uncertainty is communicated, oncologists mainly refer to aleatory uncertainty, which is also the type of uncertainty that most patients perceive and seem comfortable discussing. Given that it is increasingly common for clinicians to discuss probabilities with their patients, guidance on whether, and if so, how to best communicate uncertainty is urgently needed.

EFFECTIVENESS OF DIETARY INTERVENTIONS IN CHRONIC KIDNEY DISEASE (CKD): A SYSTEMATIC REVIEW

12:45 - 14:15: Mon. Jun 13, 2016
Exhibition Space
Part of Session: POSTER SESSION 2

Helen Scott[1], *Andrew Mooney[1] and Hilary Bekker[2], (1)Leeds Teaching Hospitals NHS Trust, Leeds, United Kingdom, (2)University of Leeds, Leeds, United Kingdom*

Purpose: Patients with CKD face complex, challenging dietary modifications to manage their illness; this study evaluates the effectiveness of interventions to improve patients' dietary adherence.

Method(s): A survey using systematic review methods of randomised and non-randomised comparison studies with two or more groups in patients with eGFR<60ml/min. CENTRAL, MEDLINE, EMBASE, PsycINFO and CINAHL electronic databases were searched for studies up until September 2014 using terms [Kidney Diseases or Renal Insufficiency or Renal Dialysis] + [Behaviour or Attitude or Life Style or Self Concept or Diet or Patient Compliance] + [Consumer Health Information or Health Education or Patient Education or Motivational Interviewing or Social Support]; key authors, contents pages of key journal, and article reference lists were also searched. Studies evaluating interventions supporting diet adherence to international guidelines were included. Data were synthesised using descriptive analyses due to heterogeneity of study type.

Result(s): Searches identified 2296 records; 1794 records were screened; 117 full-text articles assessed for eligibility and 47 studies were included in the review. Most interventions aimed to increase knowledge about diet; 53% used a theory-based intervention to target beliefs, motivation, skills and self-efficacy. Forty-four studies (94%) noted improvements in at least one adherence outcome including: nutrient/fluid intake, clinical/biochemical markers or inter-dialytic weight gain (IDWG), diet-related knowledge/skill, dietary self-management behaviours, attitudes and beliefs about changing dietary behaviours, satisfaction with diet and quality of life. Seven studies ran for 2 years or more; twenty-one studies (45%) completed their observations by 12 weeks. The quality of evidence in most studies was poor; the majority had a risk of bias. Many used complex interventions with multiple outcomes but few were able to isolate the mechanism that caused the effect. Only six studies measured impact on service delivery, of which only one reported on cost-effectiveness.

Conclusion(s): Providing additional patient resources about diet therapy to usual dietary care affects change on some indicators in the short term. It is unclear what the active ingredients are in these interventions, if the changes to adherence

are sustained, and the impact these changes have on service delivery and/or patient wellbeing. Study quality was weak. Further there was little evidence that dietary interventions were embedded in a broader care pathway for patients' management of their CKD and implementation into their lifestyle.

THE IMPORTANCE OF A GOOD RELATIONSHIP WITH THE CLINICIAN: A CRITICAL FACTOR FOR COLLABORATIVE GOAL SETTING DISCUSSIONS ACCORDING TO PATIENTS

12:45 - 14:15: Mon. Jun 13, 2016
Exhibition Space
Part of Session: POSTER SESSION 2

***Heather Morris, PhD**, University of Florida, Gainesville, FL*

Purpose: Patient engagement is one method for improving health outcomes and collaborative goal setting has been one proposed strategy to engage patients in healthcare discussions. However, little research has been done to examine patient perceptions of what needs to occur for a goal to be considered collaborative. The purpose of this study was to explore patient definitions of collaborative goal setting.

Method(s): A total of four focus groups were conducted among patients with diabetes. A semi-structured focus group guide was used to explore patient perceptions of collaborative goal setting and reports of what needed to happen for goals to be considered collaboratively set. Focus group transcripts were coded using thematic analysis and recruitment continued until theoretical saturation was reached.

Result(s): Participants described collaborative goal setting as an ongoing process that contained multiple domains. One theme of note was the importance of having a good relationship with their clinician. Similar to previous findings, the time the clinician spent with the patient was a critical factor in the perceptions of caring. Participants felt that when they were rushed, this was a direct reflection of how much their clinician cared about them as a patient. Also of note was the necessity for both the patient and the clinician to be honest with one another, whether in regards to feasibility or practicality. Finally, participants wanted the clinician to show they cared by inquiring about their personal lives and maintenance of care.

Conclusion(s): While collaborative goal setting is a strategy to engage patients, other environmental factors still play a critical role in this process. The personal relationship between patients and clinicians remains a key factor in decision making and healthcare discussions alike. Future studies focused on improving the relationship between the patient and the clinician surrounding collaborative goal setting would help emphasize the benefit of this relationship.

CHALLENGES OF COMMUNICATING PROGNOSTIC ESTIMATES FOR DECISIONS ABOUT LIFE SUPPORT THE EVOLUTION OF A DECISION AID TO FACILITATE SHARED DECISION MAKING ABOUT MECHANICAL VENTILATION

12:45 - 14:15: Mon. Jun 13, 2016
Exhibition Space
Part of Session: POSTER SESSION 2

***Negin Hajizadeh, MD, MPH**[1], Melissa Basile, PhD[2] and Andrzej Kozikowski, PhD[2], (1)Hofstra Northwell LIJ School of Medicine, Manhasset, NY, (2)North Shore LIJ Health System, Manhasset, NY*

Purpose: We report the results of usability testing conducted as part of the iterative development of InformedTogether - a decision aid designed to facilitate shared decision making between clinicians and their patients with Chronic Obstructive Lung Disease (COPD) about invasive mechanical ventilation.

Method(s): We conducted 4 usability testing sessions using data triangulation, including 'think-out-loud' task completion, followed by individual interviews, followed by focus groups to elicit further feedback. Audio-recordings were transcribed for analysis and mixed methods were used to analyze the data.

Result(s): We enrolled 7 clinicians, 11 COPD patients and 5 surrogate decision makers for patients with COPD. Overall, a majority of the patient and surrogate participants were able to correctly answer questions assessing gist understanding, as opposed to verbatim understanding. As expected, in the patient and surrogate groups, both low numeracy and low education levels were associated with difficulty understanding the decision aid, particularly the icon arrays and terminology. Most participants stated that they would be very likely to extremely likely to recommend that actual patients use the decision aid with their doctors. However, we saw a great deal of variety in people's emotional reactions to the information being presented, with some stating there were elements of the decision aid which made them uncomfortable ("a slap in the face"), while others stated they liked that the information was realistic ("tell it like it is"). We also noticed that although the decision aid was designed to achieve shared mind between clinician and patient via the exchange of biomedical information and values/preferences for outcomes, an additional layer of information we had not considered seemed to influence participants' understanding/uptake of the data presented in the decision aid. We termed this additional layer 'alternative knowledge' which included personal experiences with life support shaping whether and how they were able to understand the data.

Conclusion(s): clinicians need to be aware of the influence of alternative knowledge on patients' understanding and uptake of prognostic data. Decision aids should include tools to elicit not only values and preferences for outcomes but also patients' experiences, pre-conceived notions, fears and beliefs which shape this alternative knowledge and which may be critical to understanding data and informed decision making.

CONFIDENCE IN DECISION MAKING OF PARAMEDIC CREW LEADERS: ITS LEVEL, ROOTS AND POSSIBLE CONSEQUENCES

12:45 - 14:15: Mon. Jun 13, 2016
Exhibition Space
Part of Session: POSTER SESSION 2

***Jitka Gurnakova, PhD.**, Institute of Experimental Psychology, Bratislava, Slovakia*

Purpose: The aim of this study was to probe the validity of confidence in medical decision making of paramedic crew commanders in simulated task and to identify their more or less successful decision-making strategies.

Method(s): Presented data consisted of short interviews and performance analysis of 54 leaders of emergency medical services teams (EMS, 14 medics, 21 paramedics, 19 physicians) who participated in the international competition Rallye Rejviz 2015 (Czech Republic). The level of a) the confidence in medical decision making in general together with b) the confidence in specific diagnosis and c) the confidence in the solution of one of 13 simulated competition tasks designed as regular emergency interventions were compared with d) expert-based rating of the team performance in selected task and e) the team performance in the whole competition.

Result(s): No significant correlation between leaders confidence in medical decision making and expert-based ratings of team performance was found. However, the cluster analysis of cases based on the level of subjective confidence in decision making and expert-based rating of performance divided EMS team leaders into three prototypical categories. Qualitative analysis of interviews related to solution of one selected task revealed specific decision-making strategies dominating in each cluster. Type A – "active searcher" - shows high confidence in decision making as a result of high quality performance. He has strong motivation to follow prescribed rules and to check alternative possibilities. On the other hand, type B – "believer" – shows high confidence which often results in lower quality of performance. He relies more on assumptions based on his own experience and invests less energy into checking other explanations. Type C – "careful thinker" – shows mediocre level of performance and lowest confidence in own decision making. He knows his own limitations and tries to compensate them by following prescribed rules. His point of view is frequently enriched by another kind of professional experience from the hospital or ambulance.

Conclusion(s): Specific types of participants and situation suggest that this typology may not be complete and should be verified in the next research. It represents some prototypes of preferred medical decision-making style in paramedic crew leaders. Anyway, depending on situation the same person may prefer different styles.

Supported by the scientific grant agency VEGA 2/0080/14

SYNTHESIS OF THREE DATA SOURCES TO DETERMINE INDEPENDENT VARIABLES IN AN ONLINE FACTORIAL SURVEY OF IMPLANTABLE CARDIOVERTER DEFIBRILLATOR DEACTIVATION DECISIONS

12:45 - 14:15: Mon. Jun 13, 2016
Exhibition Space
Part of Session: POSTER SESSION 2

*Loreena Hill, PhD[1], **Brian Taylor, PhD**[2], Sonja McIlfatrick, PhD[2] and Donna Fitzsimons, PhD[2], (1)Belfast Health and Social Care Trust, Belfast, United Kingdom, (2)Ulster University, Northern Ireland, United Kingdom*

Purpose: To identify the key factors that impact on clinical decision-making concerning the deactivation of an implantable cardioverter defibrillator (ICD) at end-of-life. An ICD is cornerstone in the treatment of life-threatening arrhythmias, although there is growing concern that dying patients are receiving multiple futile shocks.

Method(s): Sequential exploratory mixed methods design incorporating two phases.

- Phase One: Data from a systematic review of literature, qualitative exploration and a retrospective case note review were synthesised to conceptualise nine independent variables (IVs).
- Phase Two: These IVs were embedded within six randomised vignettes of an online factorial survey disseminated to UK and Irish professionals.

Result(s): Three themes emerged from the literature, which were validated and enriched through qualitative exploration. Data from the retrospective case note review provided clinically-specific factors, ensuring vignettes addressed real-life scenarios. The factorial survey had a full data-set with 534 randomly-assigned vignettes completed by 89 professionals (22

Cardiologists, 57 Nurses and 10 Clinical Physiologists). Patient variables associated with the likelihood of professionals' discussing ICD deactivation included heart failure severity (NYHA IV), co-morbidities and the number of shocks experienced by the patient. Professional characteristics of time in current post and previous engagement in a deactivation discussion impacted on confidence with clinical decision-making

Conclusion(s): The factorial survey, utilising vignettes with characteristics randomly assigned, is a method of increasing importance in the study of decision making. This study was innovative in that three data sources were synthesised effectively to identify and conceptualise the IVs for vignettes in the factorial survey. Data synthesis was systematic, rigorously conducted and transparent thereby extending the factorial survey methodology as well providing direction to improve end-of-life care for patients with an ICD

DIAGNOSTIC ACCURACY OF LEVEL IV PORTABLE SLEEP TESTS VERSUS POLYSOMNOGRAPHY FOR SLEEP-DISORDERED BREATHING: A SYSTEMATIC REVIEW AND META-ANALYSIS

12:45 - 14:15: Mon. Jun 13, 2016
Exhibition Space
Part of Session: POSTER SESSION 2

Lusine Abrahamyan, MD, MPH, PhD*[1], *Yeva Sahakyan, MD, MPH*[2], *Suzanne Chung*[2], *Petros Pechlivanoglou, MSc, PhD*[2], *Steven M. Carcone, MSc*[2], *Valeria E. Rac, MD, PhD*[1] *and Murray Krahn, MD, MSc, FRCPC*[1], *(1)Toronto Health Economics and Technology Assessment (THETA) Collaborative, Toronto, ON, Canada, (2)Toronto Health Economics and Technology Assessment (THETA) Collaborative, University of Toronto, Toronto, ON, Canada

Purpose:

Obstructive sleep apnea (OSA) affects 3-4% of women and 6-9% of men. In-laboratory overnight Type I polysomnography (PSG) with ≥7 channels is the current 'gold standard' for diagnosing OSA. Diagnostic sleep studies can be also conducted at home with Type IV portable monitors (PM) that use fewer channels but offer better comfort and lower costs. We aimed to systematically review the evidence on diagnostic ability of Type IV PMs compared to the PSG in diagnosing patients with suspected OSA.

Method(s):

Participants: patients ≥16 years old with symptoms suggestive of OSA. **Intervention**: type IV PM applied at home/sleep-lab for diagnosis of OSA. **Comparator**: in-laboratory PSG. **Outcomes**: sensitivity, specificity, area under the curve, and level of agreement. **Studies**: cross-sectional, prospective observational/experimental/quasi-experimental studies. **Information sources:** MEDLINE and Cochrane library from January 1, 2010 to June 1, 2015. **Study selection and data extraction:** All stages of the review were conducted independently by two investigators. Information was abstracted on study and participant characteristics, PSG and PMs (name, manufacturer, channels, scoring, etc), and diagnostic performance. The quality of included studies was assessed using the QUADAS tool.

Result(s):

In total, 5,015 abstracts and 103 full text articles were screened to select 22 full text articles for final review. These 22 studies involved a total of 1,565 patients with suspected OSA, and evaluated 10 types of PMs. The quality of studies varied widely. The number of channels of the PMs varied from one to six. Among 22 studies, 17 tested PMs simultaneously with PSG at sleep labs, 4 tested them both at home and at sleep labs, and one tested them at home. All studies used the apnea-hypopnea index (AHI) or respiratory disturbance index (RDI) with different cut-offs to evaluate the diagnostic ability of PMs, and only one study evaluated their performance in combination with clinical diagnosis of OSA. Using an AHI/RDI ≥5 cut-off, the sensitivity of Type IV PMs varied from 67.5 - 100% and specificity from 25% - 100%.

Conclusion(s):

Level IV PMs offer the potential to widen access to treatment for this underdiagnosed condition. Policy recommendations regarding the use in primary and specialty care settings should consider the health and societal implications of false positive and false negative diagnoses, as well as the cost-effectiveness of PM use by setting.

DOMINANT ASPIRIN THERAPY STRATEGY ELIMINATES ROLE FOR IMAGING SCREENING/WARFARIN THERAPY FOR STROKE PREVENTION IN MODEL OF ASYMPTOMATIC BLUNT NECK TRAUMA

12:45 - 14:15: Mon. Jun 13, 2016
Exhibition Space
Part of Session: POSTER SESSION 2

Rajeev Nowrangi, MD MPH*[1], *Steven Munson, MD*[2], *Udo E. Oyoyo, MPH*[3] *and J. Paul Jacobson, MD MPH*[1], *(1)Loma Linda University Medical Center, Loma Linda, CA, (2)John L. McClellan Memorial Veterans Hospital, Little Rock, AR, (3)Loma Linda University, Loma Linda, CA

Purpose:

Blunt neck trauma is associated with a small (1%) risk of major stroke consequent to cervical artery dissection. We model projected costs and outcomes of the most common clinical strategies to prevent stroke from dissection in asymptomatic blunt neck trauma (ABNT), in comparison with a novel treat-all-with-aspirin strategy.

Method(s):

Pretest probability of dissection from BNT, screening test characteristics, stroke rates, treatment complication rates, utilities, and direct costs were obtained from the literature and modeled over one year, using decision analysis software (TreeAge Pro 2016) for cost-effectiveness analysis. Seven treatment strategies were assessed, four with various imaging tests and three without (*treat-all-aspirin*, *treat-all-warfarin*, and *treat-none*). One-way sensitivity analyses were performed on prior probability of dissection (Figure 2). A probabilistic Monte Carlo simulation was performed. Acceptability curves of the strategies were created (Figure 1) and the strategies were compared for effectiveness and incremental cost-effectiveness (Table 1). A value of information analysis was also performed to determine the value of future research, given estimated US incidence of ABNT of 200,000.

Result(s):

The *treat-all-aspirin* strategy dominates at any given probability of dissection; over a prior probability of dissection range of 0-15%, it is both more effective (0.9968 QALY) and less costly ($95.68) than any other strategy. It also dominates the other strategies given a willingness-to-pay threshold of $75,000. The value of information analysis revealed an EVPI of $0.12 for cost and 0.0 QALYs for effectiveness, with a population EVPI of $24,000 for cost.

Conclusion(s):

Previously, we defined the cost-effective limits of imaging screening in a warfarin treatment paradigm to prevent strokes in BNT (poster, AUR 2014), with a role for CT angiography over the pretest probability range of 1.5-15%. The current analysis including the aspirin treatment strategy however would suggest treating all with aspirin to be a nearly perfect strategy for preventing stroke from dissection in asymptomatic blunt neck trauma, dominating all other strategies and eliminating any role for imaging screening.

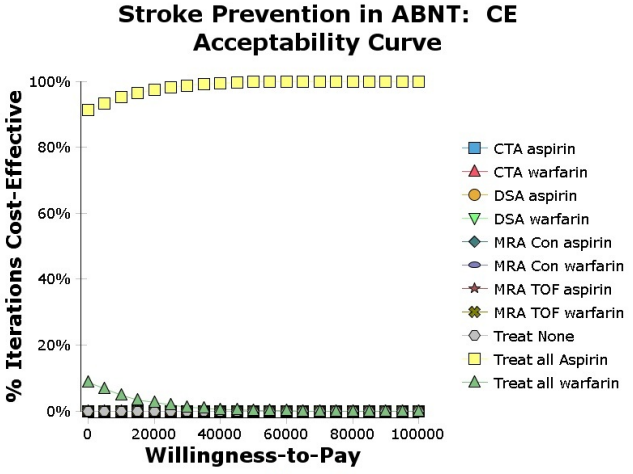


Figure 1

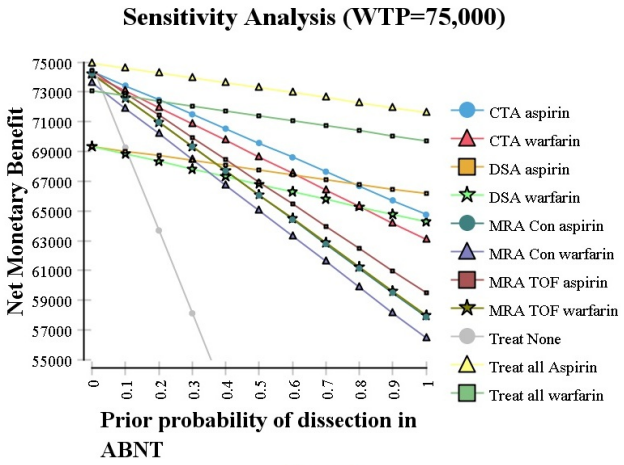


Figure 2

Strategy	Cost ($)	QALYs	ICER ($/QALY)	NMB ($)
Treat-all-aspirin	95.68	0.9968	0.00	74664.15
~~*CTA aspirin*~~	~~767.18~~	~~0.9924~~	~~-152613.64~~	~~73664.85~~
~~*Treat-all-warfarin*~~	~~800.40~~	~~0.9814~~	~~-45761.04~~	~~72802.05~~
~~*CTA warfarin*~~	~~886.65~~	~~0.9898~~	~~-112995.71~~	~~73350.10~~

Table 1

THE USE OF SPECIALTY TRAINING TO RETAIN DOCTORS IN MALAWI: A DISCRETE CHOICE EXPERIMENT

12:45 - 14:15: Mon. Jun 13, 2016
Exhibition Space
Part of Session: POSTER SESSION 2

Kate Mandeville[1]*, Godwin Ulaya*[2]*, Mylene Lagarde*[1]*, Adamson Muula*[3]*, Titha Dzowela*[4] *and Kara Hanson*[1]*, (1)London School of Hygiene and Tropical Medicine, London, United Kingdom, (2)Blantyre Health Research and Training Trust, Blantyre, Malawi, (3)College of Medicine-University of Malawi, Blantyre, Malawi, (4)Christian Health Association of Malawi, Lilongwe, Malawi*

Purpose:

Emigration has contributed to a shortage of doctors in many sub-Saharan African countries. Specialty (residency) training is highly valued by doctors and a potential tool for retention, yet not all training may be valued equally. We carried out a discrete choice experiment to ascertain the preferences of Malawian doctors for different types of specialty training.

Method(s):

A literature review and semi-structured interviews were used to identify attributes and levels, which included: salary, location before training, time before training, location of training and specialty. An efficient design was used to construct 16 generic choice tasks with an opt-out option. All Malawian doctors within five years of graduation and not yet in specialty training were targeted, with 140 participants out of 153 eligible. A latent class model was used to analyse choice data and calculate a novel measure of willingness to stay. Simulations were run to compare policy options for maximising retention and increasing uptake of priority specialties.

Result(s):

Doctors preferred timely training outside of Malawi in core specialties (general medicine, general surgery, paediatrics, obstetrics & gynaecology). A doctor would work for an additional 1.3 to 8.5 years if guaranteed training in their 1st choice core specialty, but just two to five months for an extra 10% in basic salary. Training undertaken in Malawi would require a 36% to 79% increase in basic salary and training in ophthalmology, representing a bundle of unpopular but priority specialties, would require a 200% to 350% increase. The best model fit was found with four latent classes. These represented groups of doctors with distinct preferences, including the rich rejecters (high current salary, frequently refused jobs); the money motivated (greatest preference for salary increases); the stubborn specialists (strong specialty preferences with little flexibility); and the pliant patriots (flexible specialty preferences, no preference for training outside Malawi). Policy simulations showed that time spent working in rural areas of Malawi could be increased in most groups in exchange for training in core specialties, but providing incentives to improve the uptake of priority specialties is only effective for pliant patriots.

Conclusion(s):

Despite evidence that specialty training is highly sought after, Malawian junior doctors do not value all training equally. Policymakers can exploit differences in preferences to support workforce planning and improve retention.

COMPOSITE EVALUATIONS OF TESTS: MULTIPLE PRIMARY STUDIES INTEGRATED WITH AN ECONOMIC MODEL. EXPERIENCE WITH TWO CASES

12:45 - 14:15: Mon. Jun 13, 2016
Exhibition Space
Part of Session: POSTER SESSION 2

*Christopher Hyde and **Jaime Peters**, Institute for Health Research, University of Exeter Medical School, Exeter, United Kingdom*

Purpose: To inform policy makers, a “linked evidence” approach may be used to evaluate the effectiveness and cost-effectiveness of diagnostic tests. This can involve conducting multiple primary studies on the accuracy and impacts of diagnostic testing which are then linked via an economic model. We present our experience of the challenges conducting such studies alongside development of economic models. We refer to this type of research, where multiple primary studies are integrated with an economic model, as the composite evaluation of tests.

Method(s): We have experience of composite evaluation in two completed projects: the effectiveness and cost-effectiveness of (i) strategies to maximise identification of single gene diabetes (MODY), (ii) school entry hearing screening. In a case study approach we have reflected on the strengths and weaknesses of composite evaluation, particularly challenges encountered in both projects.

Result(s):

Both studies provided evidence on effectiveness and cost-effectiveness. They did this in a time that was less than might be taken for an RCT (approximately 4-5 years). However, due to the rarity of MODY and hearing problems at school entry in the UK, it is unlikely that an RCT would have been feasible in either case. Whether the research findings were as credible as expected from RCTs awaits the verdict of readers of the final publications (MODY paper submitted, hearing paper in press). We identified many challenges and will focus on:

- Complexity of the approach
- Clearly establishing areas of greatest uncertainty when designing the primary studies
- Tendency to over-elaborate the model
- Justifying use of data from the primary studies over data/studies which might already exist
- Importance of clear communication between researchers conducting the primary studies and those developing and analysing the model

- Difficulty of publishing all clinical studies, resulting in loss of transparency in the model
- Challenge of identifying this approach as being distinct from economic modelling without new data collection

The presentation will expand on the above areas.

Conclusion(s): Composite evaluation of tests is a useful additional method complementing experimental and quasi-experimental primary studies to evaluate test impact on patient outcome. They are not however a panacea and require resources and time to do well. The challenges we have identified will hopefully aid others preparing similar approaches in the future.

IMPROVING DIAGNOSTIC DECISION MAKING FOR A RARE DISEASE: IDENTIFYING BARRIERS TO EARLY DIAGNOSIS OF SCHWANNOMATOSIS

12:45 - 14:15: Mon. Jun 13, 2016
Exhibition Space
Part of Session: POSTER SESSION 2

Vanessa Merker, BS[1], *Jaishri Blakeley, MD*[2], *A. Rani Elwy, PhD*[1], *Martin Charns, DBA*[1], *Mark Meterko, PhD*[1] *and Scott Plotkin, MD, PhD*[3], *(1)Boston University School of Public Health, Boston, MA, (2)Johns Hopkins Medical Institute, Baltimore, MD, (3)Massachusetts General Hospital, Boston, MA, MA*

Purpose: To investigate provider and system level factors contributing to delays in the diagnosis of schwannomatosis, a neurogenetic tumor predisposition syndrome

Method(s): We conducted a retrospective chart review of patients with definite or probable schwannomatosis seen in schwannomatosis specialty clinics at two U.S. academic medical centers. All information in the electronic medical record system at these institutions was reviewed, including any scanned notes from external institutions. Descriptive data including patient demographics, symptomology, and diagnostic procedures were extracted. For a subset of patients, narrative summaries detailing key processes and events in each patient's diagnostic journey were generated by the first author. We then applied qualitative thematic analysis to these summaries to understand clinicians' diagnostic decision-making and identify recurrent barriers to early diagnosis of schwannomatosis.

Result(s): Medical records of 40 patients (27 with definite and 13 with probable schwannomatosis) were analyzed. The median age at first symptom was 32 years (range, 5 to 66 years), with a median of 9 years between first symptom and diagnosis (range, <1 year to 34 years.) In our chart review, patients with probable schwannomatosis did not meet definite disease criteria because schwannomatosis specialty physicians did not think it was clinically necessary to obtain a tumor sample or an MRI required by published diagnostic criteria, or because patients were too young to confidently exclude other etiologies.

Qualitative review of 21 patient narratives (from 17 definite and 4 probable cases) identified four barriers to early diagnosis of schwannomatosis and/or referral to specialty care (Table 1). Impaired information flow between medical institutions led to duplicative exams and unnecessary work-ups for alternate conditions. Clinicians' lack of awareness about schwannomatosis led to misdiagnosis of another tumor predisposition syndrome in 6 cases and of cancer in 2 cases. A presenting symptom of pain often involved a prolonged diagnostic work-up and in 6 cases, misdiagnosis of pain etiology. Finally, some patients were not referred for evaluation for tumor predisposition syndromes, even after multiple surgeries, because the tumors were pathologically benign and thus judged not to warrant follow-up.

Conclusion(s): Diagnostic delay is a significant problem in schwannomatosis. However, there are remediable provider and system level barriers to early diagnosis. Targeted education of medical professionals and improved sharing of medical records may reduce diagnostic delay in the future.

Theme	Examples
Impaired information flow	• Clinician doesn't know a diagnostic test has already been performed • Clinician doesn't have diagnostic test results available to review at clinic visit • A clinician writes incorrect clinical information in their note, which future clinicians then rely on
Lack of awareness	• Clinician does not know the distinguishing features of schwannomatosis • Pathologist not experienced in schwannomatosis-related tumors misdiagnoses tumor sample
Nonspecific symptoms	• Standard practice for pain evaluation does not begin with testing that would reveal schwannomatosis-related tumors • Current imaging can't distinguish between certain types of tumors • Difficulty determining on imaging if a mass is actually one or multiple tumors
Perception of benign vs. malignant tumors	• Clinician dismisses the importance of follow-up for a schwannoma because it is pathologically benign

CLINICIAN-IDENTIFIED PRIORITIES FOR MEDICATION SAFETY IN PRIMARY CARE: A PRIORITIZE STUDY

12:45 - 14:15: Mon. Jun 13, 2016
Exhibition Space
Part of Session: POSTER SESSION 2

***Lorainne Tudor Car**, Nikolaos Papachristou, Mona El-Khatib, Paul Aylin and Azeem Majeed, Department of Primary Care and Public Health, School of Public Health, Imperial College London, London, United Kingdom*

Purpose:

Medication errors are one of the most commonly reported patient safety incidents in primary care. To determine priorities for prevention of medication errors in primary care according to clinicians, we developed and implemented a novel priority-setting method called PRIORITIZE.

Method(s):

We invited more than 500 NW London clinicians via an open-ended questionnaire to identify three main problems and solutions relating to medication errors in primary care. 113 clinicians submitted their suggestions which were thematically synthesized into a composite list of 48 distinct problems and 45 solutions. A random group of 57 clinicians scored these and an overall ranking was derived.

Result(s):

The top three threats to medication safety were incomplete reconciliation of medication during patient 'hand-overs', inappropriate patient education and poor discharge summaries. The top three solutions to medication safety threats were the development of a standardized discharge summary template, reduction of unnecessary prescribing and minimization of polypharmacy.

Overall, poor communication between different care providers, inadequate quality control during the prescription and monitoring stage and patient-related factors (e.g. polypharmacy or memory issues) were identified as the main safety concerns. Proposed solutions focused on electronic and procedural interventions for improving care integration, quality control during the prescribing and monitoring stage and patient empowerment with better guidelines or information material.

Conclusion(s):

The central finding is that, according to clinicians, medication errors can be prevented with relatively minor investment. The PRIORITIZE approach allows policymakers to trigger staff involvement, gather their feedback on patient safety priorities and ultimately align policies with the collated information. This approach is complementary to current patient safety exploration tools used for mapping of primary care safety priorities. We propose exploring whether it could be embedded into the annual appraisal of staff to detect any vulnerabilities at different levels of care.

THRESHOLD-BASED GUIDELINES THREATEN PREFERENCE-SENSITIVE DECISION MAKING IN PERSON-CENTRED CARE

12:45 - 14:15: Mon. Jun 13, 2016
Exhibition Space
Part of Session: POSTER SESSION 2

Mette Kjer Kaltoft, PhD, Odense University Hospital - Svendborg, Svendborg, Denmark, Jesper Bo Nielsen, PhD, University of Southern Denmark, Odense, Denmark, Glenn Salkeld, PhD, University of Wollongong, Wollongong, Australia and Jack Dowie, PhD, LSHTM, London, United Kingdom

Purpose:

To show that thresholds which divide individuals into diagnostic or therapeutic categories on the basis of a single criterion are a threat to the preference-sensitive decision making essential in person-centred care and fully informed consent.

Method(s):

Cut-off based classifications are endemic in clinical medicine. Persons are allocated to groups such as 'high, medium and low risk' that are likely to differ in the testing and/or treatment experienced, such differentiation being a fundamental purpose of the categorisation. In the extreme case the existence and severity of a disease or condition is defined by a cut-off imposed on a continuum, often a statistical parameter for a population. The classification can even determine an individual's access to the personalised decision support tools characteristic of preference-sensitive decisions in person-centred care (PCC)

Using bone health as our representative exemplar case, we investigated whether classification on the basis of FRAX assessment of fracture risk can lead to inappropriate management, irrespective of where the cut-offs are placed; testing or treatment that is inappropriate according to the principles of PCC as implemented in a necessarily multi-criterial decision support tool. The possible undesirable consequences include over-or under- diagnosis and/or over- or under- treatment, all of which should be included as criteria. The value of personalised assessment of absolute fracture risk as an important decision input is not in question.

Result(s):

In a series of interactive examples we show that NOGG guideline classifications and recommendations based on FRAX-assessed probability of fracture (with or without BMD) bear no necessary relationship to the results emerging from integrating a variety of multi-criteria importance weights with the best estimates available for the performance of the options on all criteria.

Conclusion(s):

The introduction of thresholds can prevent a patient classified in one group (e.g. 'assess') from receiving the care appropriate for them, given their preferences (e.g. 'reassure'). Traffic light triaging is a diversion from the task of explicitly eliciting and processing the person's preferences and an ethically unacceptable nudge to treat themselves as average for their group or subgroup. If the response to this is that the clinician can deal with this at the point of decision by eliciting the individual's preferences, the pertinent question to ask is 'What is the point or value of introducing the prior categorisation?'

CLINICAL UTILITY OF PREDICTION MODELS FOR OVARIAN TUMOR DIAGNOSIS: A DECISION CURVE ANALYSIS

12:45 - 14:15: Mon. Jun 13, 2016
Exhibition Space
Part of Session: POSTER SESSION 2

***Laure Wynants**[1], Jan Verbakel[2], Sabine Van Huffel[1], Dirk Timmerman[2] and Ben Van Calster[2], (1)KU Leuven, Department of Electrical Engineering (ESAT), STADIUS Center for Dynamical Systems, Signal Processing and Data Analytics, Leuven, Belgium, (2)KU Leuven Department of Development and Regeneration, Leuven, Belgium*

Purpose: To evaluate the clinical utility of prediction models to diagnose ovarian tumors as benign vs malignant using decision curves.

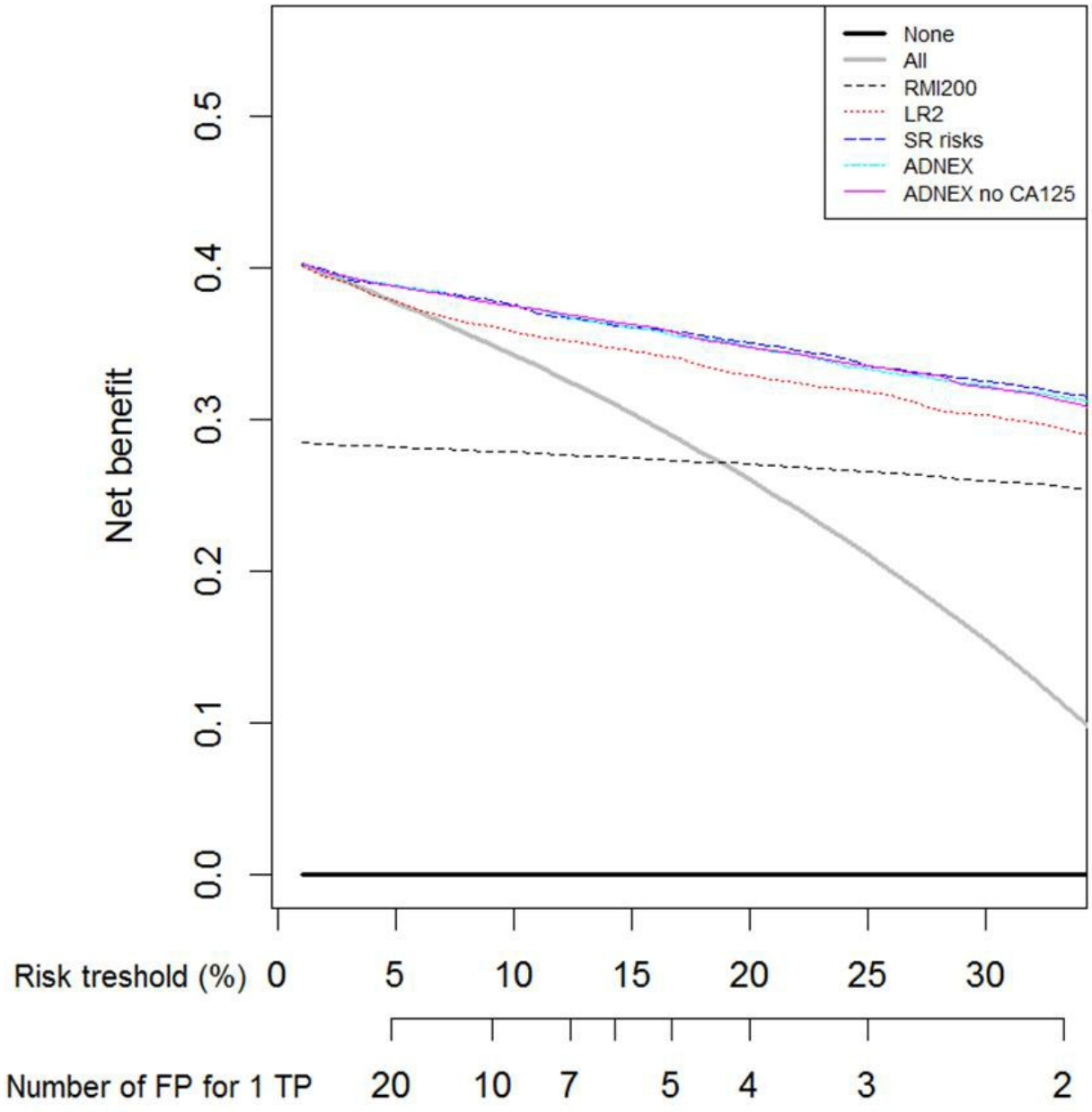
Method(s): We evaluated the widely used RMI scoring system using a cut-off of 200, and the following risk models: ROMA and three models from the International Ovarian Tumor Analysis (IOTA) consortium (LR2,SRrisks, and ADNEX). We used a multicenter dataset of 2403 patients collected by IOTA between 2009 and 2012 to compare RMI, LR2,SRrisks, and ADNEX. Additionally, we used a dataset of 360 patients collected between 2005 and 2009 at the KU Leuven to compare RMI, ROMA, and LR2. The clinical utility was examined in all patients, as well as in several relevant subgroups (pre- versus postmenopausal, oncology versus non-oncology centers).

We quantified clinical utility through the Net Benefit. NB corrects the number of true positives for the number of false positives using a harm-to-benefit ratio. This ratio is the odds of the risk of malignancy threshold at which one would suggest treatment for ovarian cancer (e.g. surgery by an experienced gynecological oncologist). A threshold of 20% (odds 1:4) implies that up to 4 false positives are accepted per true positive. Using NB, a model can be compared to competing models or to default strategies of treating all or treating none. We expressed the difference between models as gain in 'net specificity (i.e., sensitivity for a constant specificity,ΔNB/prevalence). 95% confidence intervals were obtained by bootstrapping.

Result(s): Thresholds between 5% (odds 1:19) and 30% (odds 1:2.3) were considered reasonable. ADNEX andSRrisks consistently showed best performance (see figure). RMI performed worst and was harmful, i.e., worse than treat all, at thresholds <20%. At the 10% threshold, ADNEX' net sensitivity was 24% (95% CI 21% to 27%) higher than that of RMI. The

gain is identical forSRrisks. LR2 performed in between. Subgroup results showed similar patterns. On the second dataset, results for RMI were similar. In addition, LR2's net sensitivity was 7% higher (1% to 14%) than that of ROMA.

Conclusion(s): NB supersedes discrimination and calibration to quantify the clinical utility of prediction models. Our data suggest superior utility of IOTA models compared to RMI and ROMA.



MISSES VS. FALSE ALARMS IN HIGH-STAKES DECISIONS: QUANTIFYING BENEFITSHARMS RATIOS FOR POLICY ANALYSIS IN MEDICAL DECISION MAKING

12:45 - 14:15: Mon. Jun 13, 2016
Exhibition Space
Part of Session: POSTER SESSION 2

***Stefan Herzog, Dr.**, Max Planck Institute for Human Development, Berlin, Berlin, Germany*

Purpose: Individual and institutional decision makers in the health care sector are—knowingly or unknowingly—faced with the inevitable tradeoff between setting a lax diagnostic threshold to avoid misses and setting a strict one to avoid false alarms. Often it is unclear whether the adopted tradeoff is aligned with the values of affected stakeholders. Unfortunately, decision makers are often unable or reluctant to reveal—or simply unaware of—the "benefits–harms ratio" (BHR) their decisions imply. Here I show how to use signal detection theory (SDT) to quantify a BHR and illustrate its application as policy analysis tool using several case studies.

Method(s): The BHR is calculated as the ratio of the decision maker's threshold (SDT's beta) and the cost-neutral threshold (i.e., simply minimizing the errors irrespective of whether they are misses or false alarms). A BHR represents the relative importance between the following two utility differences: (1) The harms of an incorrect "positive" decision, that is, the decrease in utility of falsely claiming the event (false alarm) instead of correctly rejecting the event (correct rejection) and (2) the benefits of a correct "positive" decision, that is, the increase in utility when correctly detecting the event (hit) instead of missing it (miss).

Result(s): Applying this approach to data from emergency medicine (ED) and HIV diagnostics reveals that BHRs vary substantially in unexpected or arguably undesirable ways. For example, based on the reported variation in decision thresholds of 28 ED physicians in a study of trauma triaging (Mohan et al., 2014 MDM), I can show that patients are subject to substantial variation in BHRs depending on which physician they happen to visit (ranging from 16 to 45 for the middle 90% of the distribution).

Conclusion(s): The BHR approach is a broadly applicable tool for policy analyses in medical decision making that allows quantifying decision makers' implied value judgments. It could be used to train decision makers and institutions by giving them feedback about their BHRs; alternatively, BHRs could be used to select among decision makers or methods. In this way, the BHR could support evaluating and possibly revising current health care practices (but also current practices in other domains, such as public safety, justice, business, environment, education, meteorology, military, and government).

2D. ORAL ABSTRACTS: PATIENT PREFERENCES

« Previous Session | Next Session »

14:15 - 15:45: Mon. Jun 13, 2016
Auditorium
Session Chairs:

- *Hilary Bekker, PhD*

Session Summary:

14:15 - 14:30

2D-2. ENVISIONING A REAL OR IMAGINARY DEPENDENT: IMPACT ON UTILITY ASSESSMENT

14:30 - 14:45

2D-3. DISCRETE CHOICE EXPERIMENT AS A TOOL TO CHANGE MEDICAL PRACTICE EFFICIENTLY: AN APPLICATION TO BASAL CELL CARCINOMA FOLLOW-UP VISITS

14:45 - 15:00

2D-4. PREDICTORS OF PATIENT PREFERENCES FOR WHOLE BODY MAGNETIC RESONANCE IMAGING COMPARED WITH STANDARD STAGING PATHWAYS FOR THE INVESTIGATION OF SYMPTOMS OF SUSPECTED COLORECTAL OR LUNG CANCER

15:00 - 15:15

2D-5. COMPARING ADOLESCENTS AND ADULT PREFERENCES TO EQ-5D-Y HEALTH STATES USING PROFILE CASE BEST-WORST SCALING

15:15 - 15:30

2D-6. A COMPARISON OF PATIENTS' AND HEALTHCARE PROFESSIONALS' PREFERENCES FOR THE CHARACTERISTICS OF DISEASE MODIFYING DRUGS IN DECISION MAKING ABOUT MULTIPLE SCLEROSIS TREATMENT

Abstracts:

2D-2. ENVISIONING A REAL OR IMAGINARY DEPENDENT: IMPACT ON UTILITY ASSESSMENT

14:15 - 14:30: Mon. Jun 13, 2016
Auditorium
Part of Session: ORAL ABSTRACTS: PATIENT PREFERENCES

David Chartash, BEngSc, MHSc[1], *Aaron Carroll, MD, MS*[2] *and Stephen M. Downs, MD, MS*[1], *(1)Children's Health Services Research Indiana University School of Medicine, Indianapolis, IN, (2)Pediatric and Adolescent Comparative Effectiveness Research Indiana University School of Medicine, Indianapolis, IN*

Purpose:

Individuals often have to make proxy decisions on behalf of an elderly or child dependent. We examined whether utilities assessed on behalf of dependents differed by whether the dependent was real or imagined.

Method(s):

Utility data were obtained from subjects in the Chicago and Indianapolis metropolitan areas for a study intended to assess public perceptions of the utility of health states for themselves and others at different ages (child and elderly). Utility estimation was performed by two methods: standard gamble and time trade-off for four health states (diabetes, severe bilateral vision loss, severe seizure disorder, and severe mental impairment). Estimation was performed for both the subject and either a child dependent, an elderly dependent, or both. For each type of dependent, if the subject had one or more real dependents, a dependent was selected at random and the subject was instructed to estimate utility as a proxy for that dependent. If the subject had no dependent, they were asked to consider an imaginary dependent. For each dependent and each health state, utility distributions were compared for a null hypothesis of either equivalent means or medians, using Welch two sample t test and Mood's median test. The main outcome of interest was whether utility values differed when considering an imaginary or real dependent.

Result(s):

Utilities were assessed for 165 imaginary children, 427 real children, 242 imaginary elderly, and 123 real elderly dependents. Comparing the utility distributions for each health state between an imaginary and real dependent yielded no statistically significant differences. This was consistent for both null hypotheses.

Conclusion(s):

Preferences for proxy decision making quantified by utilities show no difference between subjects having an imaginary or real dependent for each of the four health states of diabetes, severe bilateral vision loss, severe seizure disorder, and severe mental impairment. Because utility assessment for policy decisions are often done on the general public, it is important that utilities (on average) do not appear to differ between those with real versus imagined dependents.

2D-3. DISCRETE CHOICE EXPERIMENT AS A TOOL TO CHANGE MEDICAL PRACTICE EFFICIENTLY: AN APPLICATION TO BASAL CELL CARCINOMA FOLLOW-UP VISITS

14:30 - 14:45: Mon. Jun 13, 2016
Auditorium
Part of Session: ORAL ABSTRACTS: PATIENT PREFERENCES

Yesim Misirli, MD[1], *Esther de Vries, PhD*[2], *Loes M. Hollestein, PhD*[3], *Tamar Nijsten, MD, PhD*[3], *Ewout W. Steyerberg, PhD*[4] *and Esther W. de Bekker-Grob, PhD*[4], *(1)Erasmus MC, University Medical Center, Department of Public Health, Department of Dermatology, Rotterdam, Netherlands, (2)Erasmus MC, University Medical Center, Department of Public Health, Rotterdam, Netherlands, Pontificia Universidad Javeriana, Department of Clinical Epidemiology and Biostatistics, Rotterdam, Netherlands, (3)Erasmus MC, University Medical Center, Department of Dermatology, Rotterdam, Netherlands, (4)Erasmus MC, University Medical Center, Department of Public Health, Rotterdam, Netherlands*

Purpose: To obtain insights into patients' preferences to reach optimal basal cell carcinoma (BCC) care, and to ascertain patients will accept fewer follow-up contacts in line with guideline recommendations.

Method(s): We conducted a multicentre discrete choice experiment (DCE) in six Dutch medical centres. Recently diagnosed BCC patients had to choose between 3 different BCC follow-up scenarios, with variation in the following attributes: 'type of health care professional', 'whether the first post-treatment follow-up was conducted by the same treating health care professional', 'frequency of follow-up visits', 'duration of the follow-up visit', and 'how much of the skin was inspected'. The costs of the follow-up visits were provided based on real-life scenarios. A latent class model was used to analyse the DCE data.

Result(s): The questionnaire was completed by 265 BCC patients (71.4% response rate). In general, respondents accepted fewer BCC follow-up visits and were willing to go to their general practitioner (GP) in case questions raised or reassurance was requested ($P<0.01$) under the condition that 1) the first post-treatment follow-up was conducted by the same health care professional who has treated the patient, and 2) the patient received a customised letter with concrete and personalised information about the BCC, treatment and prognosis. There was significant preference heterogeneity: lower educated men preferred receiving no follow-up after treatment for BCC ($P<0.01$) and were more willing to follow the guidelines, whereas high educated women with a history of BCC had a preference for frequently scheduled follow-up visits ($P<0.05$) and preferred follow-up visits with a full skin inspection by the dermatologist over visits to the GP ($P<0.01$).

Conclusion(s): BCC patients will accept fewer follow-up visits than in the current situation and are willing to go to their GP for follow-up, if the first post-treatment follow-up visit would be executed by the same health care professional who treated the patient, and if the patient would receive a letter containing concrete and personalised information. The preference heterogeneity shows that particularly high educated women with a BCC history may need more awareness and trust for fewer follow-up visits to be acceptable. Our results indicate that DCEs hold the potential to investigate how to reach optimal care in an efficient way and may help to avoid trial and error implementation to change medical practice.

2D-4. PREDICTORS OF PATIENT PREFERENCES FOR WHOLE BODY MAGNETIC RESONANCE IMAGING COMPARED WITH STANDARD STAGING PATHWAYS FOR THE INVESTIGATION OF SYMPTOMS OF SUSPECTED COLORECTAL OR LUNG CANCER

14:45 - 15:00: Mon. Jun 13, 2016
Auditorium
Part of Session: ORAL ABSTRACTS: PATIENT PREFERENCES

Anne Miles[1], *Ruth Evans*[1], *Dow-Mu Koh*[2], *Vicky Goh*[3], *Anwar Padhani*[4], *Shonit Punwani*[5], *Andrea Rockall*[6], *Steve Halligan*[5], *Neal Navani*[7], *Sam Janes*[7], *John Bridgewater*[7], *Alfred Oliver*[8], *Steve Morris*[9], *Sue Mallett*[10], *Jonathan Teague*[11], *Marian Duggan*[11], *Sandy Beare*[11] *and Stuart Taylor*[5], *(1)Birkbeck, University of London, London, United Kingdom, (2)Institute of Cancer Research, London, United Kingdom, (3)Kings College London, London, United Kingdom, (4)Mount Vernon Cancer Centre, Middlesex, United Kingdom, (5)UCL Centre for Medical Imaging, London, United Kingdom, (6)Imperial College London NHS Trust, London, United Kingdom, (7)University College London Hospital, London, United Kingdom, (8)Patient representative, London, United Kingdom, (9)University College London, London, United Kingdom, (10)University of Birmingham, Birmingham, United Kingdom, (11)Cancer Research UK and UCL Cancer Trials Centre, London, United Kingdom*

Purpose: To examine predictors of patient preferences for either a whole body magnetic resonance imaging scan (WB-MRI) or standard staging scans (i.e. CT, PET-CT) among patients with highly suspected or known colorectal or lung cancer.

Method(s): Patients taking part in two parallel clinical trials comparing diagnostic accuracy and cost-effectiveness of WB-MRI with standard tests for staging colorectal and lung cancer (Streamline C, UKCRN ID: 12770 and Streamline L, UKCRN ID: 12954) were sent two questionnaires to complete. One questionnaire was sent at baseline, at the point of registration to the trial (measuring age, gender, educational level, presence of comorbidities, and positive and negative mood using the PANAS), and the second at post-staging, following completion of diagnostic and staging scans (measuring beliefs about, and satisfaction with, the WB-MRI scan, and scan preference: WB-MRI vs. CT (colorectal) or PET-CT (lung)).

Result(s): 107 patients completed the post-staging questionnaire, and of these, 97 also completed the baseline questionnaire. Fifty-two percent of patients expressed a preference for WB-MRI and preference was unrelated to cancer type. People with higher positive mood scores at baseline, no comorbidities, a greater awareness of the potential benefits of WB-MRI, and lower levels of reported discomfort during the WB-MRI scan, were more likely to express a preference for the WB-MRI scan in unadjusted analyses. People who were younger and had some educational qualifications showed a non-significant trend towards a preference for the WB-MRI. In adjusted analyses, which included predictors that were significant or approached significance, only higher positive emotion scores on the PANAS (OR: 1.097; 95% CIs: 1.029 to 1.170; p=0.005) and greater belief in the benefits of WB-MRI predicted patient preferences for WB-MRI. Examination of the individual items showed awareness that WB-MRI does not impart a radiation dose was the item that predicted patient preference for WB-MRI (OR: 3.096; 95% CIs: 1.061 to 9.034; p=0.039), yet only 42% of patients were aware of this attribute.

Conclusion(s): Over half of patients undergoing staging scans for suspected colorectal or lung cancer would prefer to have a WB-MRI than CT/ PET-CT, and this did not differ according to cancer type. Raising awareness of the potential benefits of WB-MRI, in particular the fact it does not emit radiation, could increase patient preferences for this scan.

2D-5. COMPARING ADOLESCENTS AND ADULT PREFERENCES TO EQ-5D-Y HEALTH STATES USING PROFILE CASE BEST-WORST SCALING

15:00 - 15:15: Mon. Jun 13, 2016
Auditorium
Part of Session: ORAL ABSTRACTS: PATIENT PREFERENCES

Oliver Rivero-Arias, DPhil[1], *Borja Garcia-Lorenzo, PhD*[2] *and Cristina Valcarcel-Nazco, MA*[2], *(1)University of Oxford, Oxford, United Kingdom, (2)Fundación Canaria de Investigación Sanitaria (FUNCANIS), Santa Cruz de Tenerife, Spain*

Purpose: Previous studies have reported that, when presented with the same health state, adults and adolescents provide systematically different valuations. This was recently demonstrated using best-worst scaling (BWS) methods and health states defined from the Child Health Utility-9D (CHU-9D) instrument. In this study we tested the hypothesis that preferences between adolescents and adults using a profile case BWS discrete choice experiment and states from the EuroQol Youth version EQ-5D-Y were different. A secondary objective was to test the feasibility of using BWS to obtain valuations from the

EQ-5D-Y.

Method(s): An online survey using a full factorial design of EQ-5D-Y health states divided in 20 blocks was administered to two general representative population samples of adolescents and adults in Spain. An empirical scale parameter (ESP) as a measure of choice consistency was derived for each of the EQ-5D-Y domains (mobility, self-care, usual activities, pain/discomfort, sad/worry) and across the five domains for each participant and population. A sequential (first best then worst) heteroscedastic conditional logit was estimated to obtain part-worth utility values associated to each domain level in each population.

Result(s): 1,006 adults (range 18-over 55 years) and 1,000 adolescents (range 11-17 years) completed the online survey in February 2016. Pain/discomfort and being sad/worry were the most valued domains in both populations indicated by an evenly distribution of ESP in each domain. Not having problems to undertake usual activities was also valued by adolescents. The total ESP across the five domains suggested that adolescents exhibited a slightly larger proportion (16%) of choice inconsistencies with a total ESP<2 or total ESP>5 than adults (14%). The modelling results suggested that adolescents placed more weights on experiencing problems with mobility and pain/discomfort than adults. Adults place more weights on having problems with self-care and being worry/sad than adolescents.

Conclusion(s): Our results suggest that there seem to be age-related differences in elicitation values between adolescents and adults when valuing EQ-5D-Y health states corroborating previous exercises using other instruments. The similar levels of choice consistency between populations provide information about the feasibility of using the EQ-5D-Y as a potential instrument to obtain valuations using profile case BWS. Future work should explore whether our results hold using more sophisticated models to accommodate some of the preference heterogeneity observed in each population.

2D-6. A COMPARISON OF PATIENTS' AND HEALTHCARE PROFESSIONALS' PREFERENCES FOR THE CHARACTERISTICS OF DISEASE MODIFYING DRUGS IN DECISION MAKING ABOUT MULTIPLE SCLEROSIS TREATMENT

15:15 - 15:30: Mon. Jun 13, 2016
Auditorium
Part of Session: ORAL ABSTRACTS: PATIENT PREFERENCES

Ingrid Kremer, MSc[1]*, Silvia Evers, PhD, LLM*[1]*, Peter Jongen, PhD, MD*[2]*, Jack Dowie, PhD*[3]*, Trudy Van der Weijden, PhD, MD*[1] *and Mickaël Hiligsmann, PhD*[1]*, (1)Maastricht University, Maastricht, Netherlands, (2)MS4 Research Institute, Nijmegen, Netherlands, (3)London School of Hygiene and Tropical Medicine, London, United Kingdom*

Purpose: The choice between disease modifying drugs (DMDs) for the treatment of multiple sclerosis (MS) becomes more often a shared decision between the patient and the healthcare professionals. This study assessed which characteristics of DMDs are most important for healthcare professionals in selecting a DMD for a patient. Subsequently, their perspective was compared to the patients' perspective to get insight into whether improvement in communication between patients and healthcare professionals would be needed.

Method(s): A best-worst scaling (BWS) was conducted among 28 neurologists and 33 MS-specialized nurses experienced with the DMD decision. Twenty-seven DMD characteristics were evaluated in 17 choice tasks of 5 characteristics each, by asking respondents to choose the most and least important characteristic in the decision. Hierarchical Bayes analysis was used to obtain mean relative importance scores (RIS) per DMD characteristic between 0 and 100. Therefore, a RIS of 3.7 per characteristics would indicate that all characteristics are equally important in the decision. The results were compared with results of an earlier conducted BWS among 185 MS patients using t-tests or non-parametric tests on the characteristics' RIS.

Result(s): According to the healthcare professionals, the effect of the DMD on disease progression and quality of life were most important (mean RIS: 9.5 and 9.2), in line with the patients' preferences. For many other attributes, significant differences in RIS were found between patients and professionals, but absolute differences were small. Noteworthy, absolute difference for safety (risks of serious side effects that can be life-threatening or result in severe disabilities) was relatively large (RIS difference: 2.7), which resulted in safety being considered by healthcare professionals as third most important in the DMD decision compared to eighth most important for patients.

Conclusion(s): Healthcare professionals and MS patients overall agree about which DMD characteristics most influence the decision, but safety is, on average, more important for healthcare professionals compared to patients. Whether patients are more willing to take risk or whether healthcare professionals understand the risks better, safety should receive extensive attention in the shared decision-making process.

2E. ORAL ABSTRACTS: INFECTIOUS DISEASE

« Previous Session | Next Session »

14:15 - 15:45: Mon. Jun 13, 2016
Euston Room, 5th Floor
Session Chairs:

- *R. Scott Braithwaite, MD, MSc, FACP*

Session Summary:

14:15 - 14:30

2E-1. LONG-TERM EFFECTIVENESS AND COST EFFECTIVENESS OF DIFFERENT ANTIVIRAL TREATMENTS FOR CHRONIC GENOTYPE-1 HCV INFECTION IN GERMANY INCLUDING OMBITASVIR/PARITAPREVIR/RITONAVIR AND DASABUVIR

14:30 - 14:45

2E-2. BEZLOTOXUMAB IS ASSOCIATED WITH A REDUCTION IN CUMULATIVE HOSPITALIZED DAYS: ANALYSIS OF THE HOSPITALIZATION DATA FROM THE MODIFY I AND II CLINICAL TRIALS

14:45 - 15:00

2E-3. THE MOST EFFICIENT CRITICAL VACCINATION COVERAGE AND ITS EQUIVALENCE WITH MAXIMIZING THE HERD EFFECT

15:00 - 15:15

2E-4. IS ONGOING ROTAVIRUS VACCINATION IN NORWAY COST-EFFECTIVE?

15:15 - 15:30

2E-5. COST-EFFECTIVENESS OF BEZLOTOXUMAB+STANDARD OF CARE (SOC) VERSUS PLACEBO+SOC FOR THE PREVENTION OF RECURRENT CLOSTRIDIUM DIFFICILE INFECTION IN THE UNITED STATES

15:30 - 15:45

2E-6. BUDGET IMPACT OF FIDAXOMICIN COMPARED WITH VANCOMYCIN FOR THE TREATMENT OF CLOSTRIDIUM DIFFICILE ASSOCIATED DIARRHEA IN THE UNITED STATES

Abstracts:

2E-1. LONG-TERM EFFECTIVENESS AND COST EFFECTIVENESS OF DIFFERENT ANTIVIRAL TREATMENTS FOR CHRONIC GENOTYPE-1 HCV INFECTION IN GERMANY INCLUDING OMBITASVIR/PARITAPREVIR/RITONAVIR AND DASABUVIR

14:15 - 14:30: Mon. Jun 13, 2016
Euston Room, 5th Floor
Part of Session: ORAL ABSTRACTS: INFECTIOUS DISEASE

Gaby Sroczynski, MPH, Dr.PH[1], *Annette Conrads-Frank, PhD*[1], *Nikolai Mühlberger, Assist.-Prof., DVM, MPH*[1], *Felicitas Kuehne, MSc*[1], *Heike Froehlich, Dr.*[2], *Birgitta Dietz, MD, PHD*[3], *Jennifer Samp, PHARMD, MS*[4], *Derek Misurski, PhD*[4], *Stefan Zeuzem, Prof., Dr.*[5] *and Uwe Siebert, MD, MPH, MSc, ScD*[6], *(1)Department of Public Health, Health Services Research and Health Technology Assessment, UMIT - University for Health Sciences, Medical Informatics and Technology, Hall i.T., Austria, (2)AbbVie Deutschland GmbH & Co. KG, Wiesbaden, Germany, (3)AbbVie Deutschland GmbH & Co. KG, Ludwigshafen, Germany, (4)AbbVie Inc., North Chicago, IL, (5)University Hospital Frankfurt, Frankfurt, Germany, (6)UMIT, Dept. of Public Health, Health Services Research and Health Technology, Hall in Tirol, Austria*

Purpose:

Chronic hepatitis C (CHC) imposes considerable clinical and economic burden. Direct-acting antiviral drugs show improved sustained virologic response rates (SVR) compared to standard treatments, but associated high drug costs are an ongoing debate in Germany. We systematically evaluated long-term clinical effectiveness and cost effectiveness of different antiviral treatments for treatment-naïve and -experienced patients with genotype 1 (GT1) CHC with or without compensated cirrhosis in Germany.

Method(s):

We developed and applied a Markov state-transition model for the German health care context to evaluate different antiviral treatment regimens: ombitasvir/paritaprevir/ritonavir+dasabuvir± ribavirin (OBV/PTV/r+DSV±R), peginterferon+R (PR),

telaprevir+PR (TVR+PR), boceprevir+PR (BOC+PR), sofosbuvir+PR (SOF+PR), simeprevir+PR (SIM+PR), SOF+ledipasvir (SOF/LDV). The model considers German epidemiological, health-related quality-of-life (HRQoL) and economic data from literature and databases. Antiviral treatment was modelled according to German drug labels. Treatment-related SVR, adverse events, discontinuation and HRQoL changes were based on international clinical trials. We adopted the perspective of the patient community insured by the German Statutory Sickness Funds. Cost and effects were discounted at 3% per year. Outcomes included reduction in lifetime risk for decompensated cirrhosis (DCC), hepatocellular carcinoma (HCC) and liver transplantation (LT), lifetime costs, quality-adjusted life years (QALY), and incremental cost-effectiveness ratios (ICER; in Euro/QALY). We applied the IQWiG efficiency frontier approach to assess and visualize incremental cost effectiveness. Comprehensive sensitivity analyses were performed.

Result(s): In the base-case analysis, OBV/PTV/r+DSV±R achieved the highest effectiveness based on patient-relevant outcomes including lifetime risk reductions of 91% (DCC), 82% (HCC) and 85% (LT) in treatment-naïve and 91%, 75%, 81% in treatment-experienced GT1 CHC patients when compared to no treatment. Based on the efficiency frontier, OBV/PTV/r+DSV±R was cost effective with an ICER of 26,423 Euro/QALY (vs. SIM+P+R as the next best non-dominated strategy) in treatment-naïve, and 16,893 Euro/QALY (vs. no treatment) in treatment-experienced GT1 CHC-patients. Results remain robust in most sensitivity analyses. The parameters SVR, discount rate, progression to more advanced liver disease and the relative utility for being HCV-RNA positive had the greatest influence on the ICER.

Conclusion(s):

Based on our analyses, antiviral treatment with OBV/PTV/r+DSV±R achieves the highest benefit in terms of life expectancy, QALY and reduction in DCC, HCC, and LT. Based on our modeling analyses, OBV/PTV/r+DSV±R is considered cost effective for the treatment of patients with GT1 CHC with or without compensated cirrhosis in Germany.

2E-2. BEZLOTOXUMAB IS ASSOCIATED WITH A REDUCTION IN CUMULATIVE HOSPITALIZED DAYS: ANALYSIS OF THE HOSPITALIZATION DATA FROM THE MODIFY I AND II CLINICAL TRIALS

14:30 - 14:45: Mon. Jun 13, 2016
Euston Room, 5th Floor
Part of Session: ORAL ABSTRACTS: INFECTIOUS DISEASE

*Anirban Basu, PhD[1], Vimalanand S. Prabhu, B.E, M.Mgmt, Ph.D.[2], **Stephen Marcella**[3], Alison Pedley[3], Ruifeng Xu[3], Jane Liao[3], Mary Hanson, PhD[3], Mary Beth Dorr[3] and Oliver Cornely[4], (1)Pharmaceutical Outcomes Research and Policy Program, University of Washington, Seattle, WA, (2)Merck and Co., Inc., Kenilworth, NJ, (3)Merck & Co., Inc., Kenilworth, NJ, (4)Klinikum der Universitaet, Koeln, Germany*

Purpose:

Clostridium difficile infection (CDI) is a serious recurrent diarrheal infection and is associated with increases in patient healthcare resource utilization because of both extended hospitalization and re-hospitalization. Recurrent CDI (rCDI) patients are significantly more likely to have a hospital readmission and spend increased time in inpatient settings. Clinical trials MODIFY I & II demonstrated that bezlotoxumab along with standard of care antibiotics (SoC) significantly reduced the incidence of rCDI compared to SOC alone (placebo) among patients with initial or rCDI. In a *post hoc* analysis, we used pooled data from the MODIFY trials to estimate the cumulative hospitalized days (all settings and intensive care units (ICU)) summed over the 84-day trial follow-up period.

Method(s):

We used hospital admission and discharge dates to generate daily patient record of inpatient hospitalization on any day from day of infusion through 84 days post-infusion. We used these data to estimate the probability of spending a day in the hospital using a logistic model. Lin's (2000) method was applied where the daily average probability of spending a day in hospital among those non-censored was weighed by the probability of survival to obtain estimate of cumulative hospitalized days, adjusted for survival and censoring. Treatment effects were obtained using recycled predictions for the overall sample and for subgroups identified based on trial protocol and risk of rCDI. Standard errors, p-values, and 95% confidence intervals (CI) were obtained using 1000 bootstrap replicates. We repeated the analysis using patient admission to ICU to estimate cumulative ICU-hospitalized days (a cloglog model provided a better fit for the probability model).

Result(s):

The results for cumulative hospitalized days summed over an 84-day trial period, adjusted for censoring and survival, are provided in Table 1. Mean cumulative hospitalized days in the placebo arm (14.2 days) was greater than that for the bezlotoxumab arm (12.1 days). Overall, the mean difference between treatment groups was 2 days (CI: 0.3, 3.7). The mean difference was greatest for patients with clinically severe CDI (3.4 days). The difference in mean cumulative ICU-hospitalized days in the placebo vs. bezlotoxumab arm was 0.27 days (CI: -0.32, 0.87) about 13.4% of the difference in mean cumulative hospitalized days.

Conclusion(s):

Bezlotoxumab is associated with reduction in total number of days spent in a hospital.

Table 1: Estimated cumulative hospitalized days summed over 84-days

	Cumulative hospitalized days summed over 84-days		
	Bezlotoxumab+SoC*	Placebo+SoC*	Difference: Placebo-bezlotoxumab*
Overall patient population	12.1 (11.0, 13.3) [N=781]	14.2 (12.8, 15.5) [N=773]	2.0 (0.3, 3.7)
Age ≥ 65 years	14.4 (12.7, 16.0) [N=390]	16.7 (14.9, 18.6) [N=405]	2.3 (0.4, 4.3)
Infused in inpatient setting	17.4 (15.8, 19.0) [N=530]	20.2 (18.3, 22.2) [N=520]	2.9 (0.5, 5.3)
NAP1/BI/027 Ribotype	16.2 (13.2, 19.3) [N=89]	18.8 (15.1, 22.6) [N=100]	2.6 (0.3, 4.9)
Clinically Severe CDI	22.2 (18.9, 25.5) [N=122]	25.6 (22.1, 29.1) [N=125]	3.4 (0.6, 6.2)
Compromised immunity	16.9 (14.3, 19.5) [N=169]	19.7 (16.8, 22.6) [N=145]	2.8 (0.5, 5.1)
History of CDI in past six months	11.1 (9.4, 12.9) [N=216]	13.0 (10.8, 15.1) [N=219]	1.9 (0.3, 3.4)
Age≥ 65 years & compromised immunity	18.7 (15.2, 22.2) [N=41]	21.6 (17.8, 25.4) [N=45]	2.9 (0.5, 5.4)
Age≥ 65 years & history of CDI in past six months	12.6 (10.5, 14.7) [N=129]	14.6 (12.1, 17.1) [N=136]	2.0 (0.3, 3.8)
ICU (overall patient population)	0.58 (0.23,0.92) [N=781]	0.85 (0.36,1.34) [N=773	0.27 (-0.32, 0.87)

* Mean (95% confidence interval). Figures in square parentheses represent sample size for subgroups

2E-3. THE MOST EFFICIENT CRITICAL VACCINATION COVERAGE AND ITS EQUIVALENCE WITH MAXIMIZING THE HERD EFFECT

14:45 - 15:00: Mon. Jun 13, 2016
Euston Room, 5th Floor
Part of Session: ORAL ABSTRACTS: INFECTIOUS DISEASE

Evelot Duijzer[1]*, Willem Van Jaarsveld*[2]*, Jacco Wallinga*[3] *and Rommert Dekker*[1]*, (1)Erasmus University Rotterdam, Rotterdam, Netherlands, (2)Eindhoven University of Technology, Eindhoven, Netherlands, (3)National Institute for Public Health and the Environment, Bilthoven, Netherlands*

Purpose: In infectious disease epidemiology the potential of an infectious agent to cause an epidemic is often expressed in terms of the reproduction ratio R, related to the initial growth rate of infected individuals, and the final size (i.e., the eventual number of people that have become infected). Although the two measures are related, there is no obvious connection between minimization of the two. In this paper we establish a connection between these measures.

Method(s): We study `critical vaccination coverages', which are vaccination allocations that result in R=1. We show that for this threshold the introduction of the disease in a population does not result in an outbreak. In a population with interacting subpopulations there are many different critical vaccination coverages. To find the most efficient one, we define the following optimization problem: minimize the required amount of vaccines to obtain R=1. We prove that this optimization problem is equivalent to the problem of maximizing the proportion of susceptibles that escape infection during an epidemic (i.e., maximizing the herd effect). This herd effect is directly related to the final size of an outbreak.

Result(s): We propose an efficient general algorithm based on Perron-Frobenius theory to solve these optimization problems. We study two special cases that provide further insight into these optimization problems: the case of separable mixing and the case of n=2 populations. The case of separable mixing is often studied and assumes that upon transmission from one individual to another the two individuals involved influence transmission independently. For these two special cases we are able to characterize the optimal solution completely. The algorithm for separable mixing provides especially interesting insights: we show that vaccinating according to a very simple priority ordering based on population size and

disease parameters results in the optimal allocation. We illustrate our approach to find the optimal allocation in a case study for pre-pandemic vaccination in the initial phase of an impending influenza pandemic.

Conclusion(s): The results of the case study show that using the optimal allocation determined with our solution methods can increase the herd effect by 9 to 26% compared to proposed allocations in literature. Equivalently, our optimal allocation is able to significantly reduce the required vaccine stockpile to attain a reproduction ratio of one.

2E-4. IS ONGOING ROTAVIRUS VACCINATION IN NORWAY COST-EFFECTIVE?

15:00 - 15:15: Mon. Jun 13, 2016
Euston Room, 5th Floor
Part of Session: ORAL ABSTRACTS: INFECTIOUS DISEASE

***Christina Hansen Edwards**, Elmira Flem, Birgitte Freiesleben de Blasio and Beatriz Valcarcel Salamanca, Norwegian Institute of Public Health, Oslo, Norway*

Purpose: We aimed to re-assess the cost-effectiveness of ongoing rotavirus vaccination introduced in the Norwegian childhood immunization program in October 2014.

Method(s): We used an age-structured dynamic transmission model to estimate the burden of rotavirus disease from 2015 to 2019, with and without vaccination. We assumed vaccine efficacy to be 93% against severe infection and 60% against symptomatic rotavirus infection. Using real-time immunization data, we modeled an increase in vaccination coverage after the program start from 77% in 2015 to 91% during 2016-2019. We evaluated a two-dose vaccination program with Rotarix® at a baseline cost of €24 per dose and a three-dose program with Rotateq® at a cost of €20 per dose. We developed an economic model to calculate costs and health effects of vaccination during the study period and estimated cost-effectiveness of the program in 2019 from a healthcare and societal perspective. We measured cost-effectiveness as cost per quality adjusted life year (QALY) using a threshold of €73,444 per QALY. Parameter uncertainty was accounted for using Monte Carlo methods. The estimates of vaccine price, disease burden, vaccine coverage, medical costs, production losses, QALY losses, and discount rate used in the model were varied in sensitivity analyses.

Result(s): During the first five years following vaccine introduction, rotavirus-associated deaths and hospitalizations are expected to be reduced by 67%, primary care consultations by 63%, and home care episodes by 57%. Vaccination was cost-effective from the healthcare perspective resulting in a cost of €1,379 per QALY for Rotarix® and €25,215 per QALY for Rotateq®. From the societal perspective, vaccination was found to be cost-saving resulting in €332,451 per QALY gained for Rotarix® and €308,615 per QALY gained for Rotateq®. Vaccination from a societal perspective remained cost-saving when productivity losses were reduced by 50%. Overall, vaccination resulted in an 82% reduction in rotavirus hospital costs, mainly due to avoided inpatient hospitalizations. A similar reduction (82%) was predicted for primary care costs. The cost-effectiveness of the program was most sensitive to changes in the estimated vaccine costs and QALY losses.

Conclusion(s): Ongoing rotavirus vaccination in Norway is cost-effective from both healthcare and societal perspectives, and is expected to reduce the burden of rotavirus disease considerably.

2E-5. COST-EFFECTIVENESS OF BEZLOTOXUMAB+STANDARD OF CARE (SOC) VERSUS PLACEBO+SOC FOR THE PREVENTION OF RECURRENT CLOSTRIDIUM DIFFICILE INFECTION IN THE UNITED STATES

15:15 - 15:30: Mon. Jun 13, 2016
Euston Room, 5th Floor
Part of Session: ORAL ABSTRACTS: INFECTIOUS DISEASE

*Vimalanand S. Prabhu, B.E, M.Mgmt, Ph.D.[1], Elamin H. Elbasha, PhD[2], Mary Beth Dorr[3], Nicole Cossrow, PhD[4], **Stephen Marcella**[3] and Erik Dubberke, MD[5], (1)Merck and Co., Inc., Kenilworth, NJ, (2)Merck Research Laboratories, North Wales, PA, (3)Merck & Co., Inc., Kenilworth, NJ, (4)Merck and Co., Inc, Kenilworth, NJ, (5)Washington University School of Medicine, St. Louis, MO*

Purpose:

Clostridium difficile infection (CDI), a form of infectious diarrhea that can recur repeatedly after treatment, is associated with considerable morbidity, mortality and healthcare resource utilization. There were 453,000 new CDI episodes resulting in 29,000 deaths in 2011 in the U.S. Bezlotoxumab is a novel antitoxin agent that, when used in conjunction with SoC antibiotic therapy, prevents recurrent CDI (rCDI), leading to sustained clinical response. The purpose of this research is to model and evaluate the cost-effectiveness of Bezlotoxumab+SoC compared with placebo+SoC patients with CDI in the U.S.

Method(s):

We developed a computer-based Markov health state transition model to simulate the natural history of CDI (Figure 1). In the model, we followed patients with CDI from infection until death and evaluated the costs and effectiveness of bezlotoxumab+SoC compared with Placebo+SoC using a third-party payer perspective. To evaluate cost-effectiveness in

different patient population, we conducted our analysis for the entire clinical trial population (subgroup 1), and for CDI patients at higher risk of rCDIage 65 years and above and having a history of CDI (subgroup 2). Recurrence rates after infusion for bezlotoxumab and placebo were taken directly from the pooled MODIFY I & II phase III clinical trials' efficacy data. Other transition probabilities and costs of rCDI were obtained from the literature. We projected rCDI averted, discounted age-weighted quality-adjusted life years (QALYs), and threshold prices at which Bezlotoxumab would be cost-effective at the $100,000/QALY threshold.

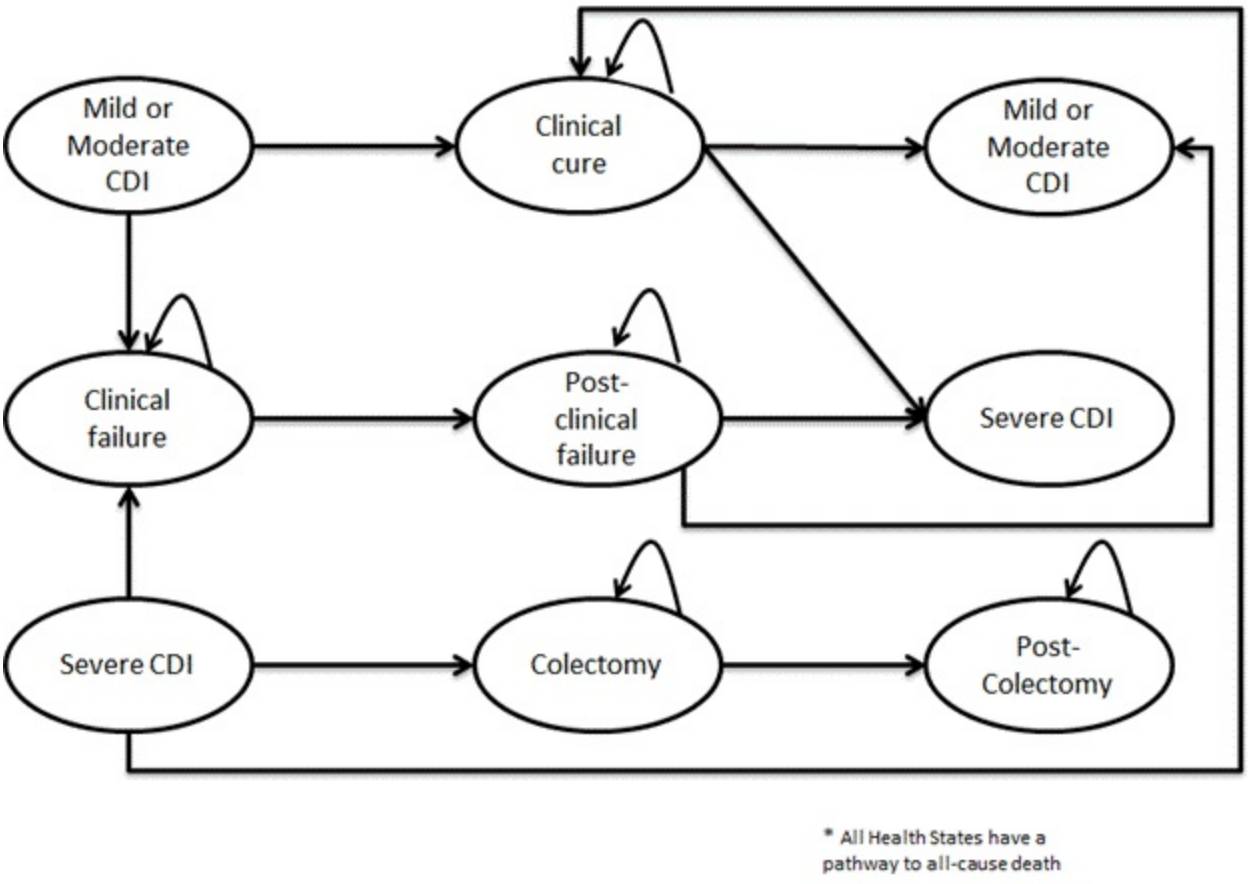
Result(s):

The model predicted that treating patients with bezlotoxumab+SoC will reduce the combined incidence of first, second, and third CDI recurrences after infusion by 16.4% and 39.4% in subgroup 1 and subgroup 2, respectively. This resulted in 0.16 and 0.28 incremental discounted age-weighted QALYs gained per-patient for subgroup 1 and subgroup 2, respectively. The threshold price at which bezlotoxumab is cost-effective at the $100,000/QALY threshold is $17,188 and $30,118 for subgroup 1 and subgroup 2, respectively. Key influential parameters include CDI-specific mortality, cost of a rCDI episode, and underlying recurrence rate.

Conclusion(s):

Based on the Markov model, bezlotoxumab has the potential to reduce the disease burden associated with CDI in a cost-effective manner, by reducing the incidence of rCDI.

Figure 1: Natural History of CDI



2E-6. BUDGET IMPACT OF FIDAXOMICIN COMPARED WITH VANCOMYCIN FOR THE TREATMENT OF CLOSTRIDIUM DIFFICILE ASSOCIATED DIARRHEA IN THE UNITED STATES

15:30 - 15:45: Mon. Jun 13, 2016
Euston Room, 5th Floor
Part of Session: ORAL ABSTRACTS: INFECTIOUS DISEASE

*Vimalanand S. Prabhu, B.E, M.Mgmt, Ph.D., Merck and Co., Inc., Kenilworth, NJ and **Stephen Marcella**, Merck & Co., Inc., Kenilworth, NJ*

Budget Impact of Fidaxomicin compared with Vancomycin for the treatment of *Clostridium difficile* associated diarrhea in the United States

Purpose:

*Clostridium difficile*associated diarrhea (CDAD) is the leading cause of nosocomial diarrhea. In 2011, there were 453,000 new CDAD episodes resulting in 29,000 deaths in the U.S. Fidaxomicin is an antibacterial drug indicated for treatment of CDAD. Compared with vancomycin, it has a comparable clinical response and superior sustained clinical response, defined as clinical response at the end of treatment, and survival without proven or suspected CDAD recurrence through 25 days beyond the end of treatment. We present a model to evaluate the budget impact of fidaxomicin compared with vancomycin patients with CDAD in the U.S.

Method(s):

We developed a decision-analytic model to simulate the natural history of CDAD among a cohort of 1000 patients. In the model, we followed patients with CDAD for a period of 25 days post-treatment and evaluated the annual budget impact of fidaxomicin compared with vancomycin using a hospital payer perspective. The probabilities of clinical response, sustained clinical response, and death were obtained from the fidaxomicin product insert. CDAD recurrence through 25 days beyond the end of treatment was calculated as persons who did not have a sustained clinical response, death, or a clinical failure. Wholesale acquisition cost of vancomycin was obtained from the analysource.com database. Cost estimates of CDAD were obtained from the literature and indexed to 2015 cost figures using CPI medical inflation data. We then projected clinical response, sustained clinical response, and the threshold price at which fidaxomicin would be cost-neutral.

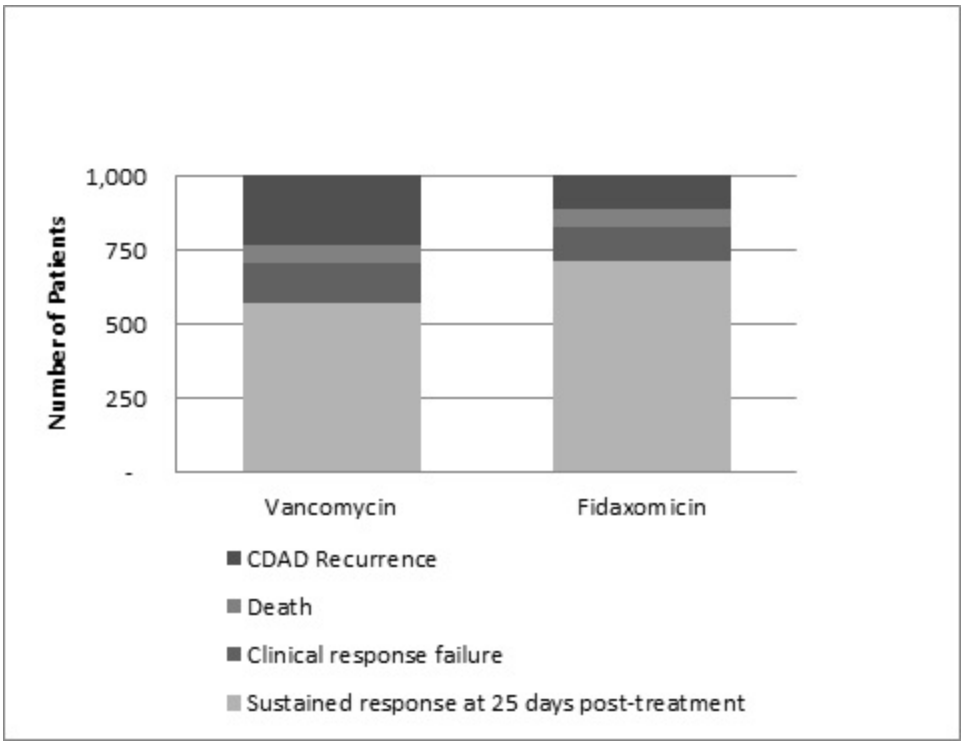
Result(s):

The model predicted that among the 1000 patients treated, 880 patients achieved clinical response in the fidaxomicin arm compared with 865 patients in the vancomycin arm (Figure 1). 709 patients obtained sustained clinical response through 25 days post-treatment in the fidaxomicin arm, compared with 570 patients in the vancomycin arm. The threshold price below which fidaxomicin was cost-saving was $202.

Conclusion(s):

Based on the decision-analytic model, fidaxomicin has the potential to be cost-saving from a hospital payer perspective.

Figure 1: Estimated number of patients in various health states at 25 days post-treatment



2F. ORAL ABSTRACTS: APPLIED HEALTH ECONOMICS

« Previous Session | Next Session »

14:15 - 15:45: Mon. Jun 13, 2016
Stephenson Room, 5th Floor
Session Chairs:

- *Heather Taffet Gold, PhD*

Session Summary:

14:15 - 14:30

2F-1. COST-EFFECTIVENESS OF PLANNED BIRTH IN A BIRTH CENTRE COMPARED WITH PLANNED BIRTH IN A HOSPITAL AND AT HOME IN WOMEN AT LOW-RISK OF COMPLICATIONS

14:30 - 14:45

2F-2. COST-EFFECTIVENESS OF AN INTERVENTION TO INCREASE VACCINATION RATES IN ADULTS <65 YEARS OLD

14:45 - 15:00

2F-3. A NOVEL FRAMEWORK FOR OPTIMISING THE VALUE OF PRECISION MEDICINE TECHNOLGIES

15:00 - 15:15

2F-4. CONSTRAINTS, CAPACITY AND CAPABILITY: AN APPLICATION OF MATHEMATICAL OPTIMISATION METHODS

15:15 - 15:30

2F-5. THE COST-EFFECTIVENESS MODEL OUTPUT TOOL

15:30 - 15:45

2F-6. MULTI-CRITERIA DECISION ANALYSIS: USEFUL, BUT NOT A SUITABLE REPLACEMENT FOR COST-EFFECTIVENESS ANALYSIS

Abstracts:

2F-1. COST-EFFECTIVENESS OF PLANNED BIRTH IN A BIRTH CENTRE COMPARED WITH PLANNED BIRTH IN A HOSPITAL AND AT HOME IN WOMEN AT LOW-RISK OF COMPLICATIONS

14:15 - 14:30: Mon. Jun 13, 2016
Stephenson Room, 5th Floor
Part of Session: ORAL ABSTRACTS: APPLIED HEALTH ECONOMICS

M. Elske van den Akker-van Marle, PhD[1]*, Marit Hitzert, BSc*[2]*, Marieke Hermus*[3]*, Inge Boesveld, BSc*[4]*, Karin van der Pal, PhD*[3] *and Eric Steegers, MD, PhD*[2]*, (1)Leiden University Medical Centre, Leiden, Netherlands, (2)Department of Obstetrics and Gynaecology, Erasmus University Medical Centre, Rotterdam, Netherlands, (3)Department of Child Health, TNO, Leiden, Netherlands, (4)Jan van Es Institite, Netherlands Expert Centre Integrated Primary Care, Almere, Netherlands*

Purpose: To assess the costs and effects of planned birth under supervision of a community midwife in a birth centre, hospital and at home in women at low-risk of complications in the Netherlands.

Method(s):

The economic evaluation, performed from a health care perspective, took the form of a cost-effectiveness analysis in which the costs and effects were estimated for a planned birth in a birth centre (n=1668), hospital (n=701) and at home (n=1086). Separate analyses were performed for different types of birth centres, based on location and integration profile. The primary clinical outcomes were the optimality index (OI) a tool to measure 'maximum outcome with minimal intervention', containing both process and outcome items and a composite adverse outcome (CAO) score, which is a combined measure of adverse outcomes (including mortality and admission to the neonatal intensive care unit).

Multiple regression was used to estimate the differences in total cost and clinical outcomes and to adjust for potential confounders. Non-parametric bootstrapping was used to calculate uncertainty around all costs and effects estimates.

Result(s):

No clinically relevant differences in clinical outcomes were found between planned births in a birth centre, hospital and at home. Within the types of birth centres only the OI score of nulliparous women with a planned birth in a freestanding birth centre was clinical relevantly better ($p<0.001$) compared to a planned birth in an alongside birth centre. The total adjusted mean costs for births planned in a birth centre, hospital and at home were respectively €3326, €3330 and €2998. Focusing on the different types of birth centres, the total adjusted mean costs for births planned in a freestanding birth centre were €3531, alongside €3342 and on-site €3399 and costs ranged from €3283 to €3385 dependent on integration profile.

Conclusion(s):

There were no differences in costs and effects for women at low-risk of complications with a planned birth under supervision of a community midwife in a birth centre and in a hospital. For nulliparous and multiparous women at low-risk of complications, planned birth at home was the most cost-effective option compared to planned birth in a birth centre and in a hospital. There were no differences in costs and effects among the types of birth centres.

2F-2. COST-EFFECTIVENESS OF AN INTERVENTION TO INCREASE VACCINATION RATES IN ADULTS <65 YEARS OLD

14:30 - 14:45: Mon. Jun 13, 2016
Stephenson Room, 5th Floor
Part of Session: ORAL ABSTRACTS: APPLIED HEALTH ECONOMICS

***Kenneth J. Smith, MD, MS**, Mary Patricia Nowalk, Chyongchiou Lin and Richard K Zimmerman, University of Pittsburgh, Pittsburgh, PA*

Purpose: Vaccination of adults <65 years old is suboptimal. The 4 Pillars Immunization Toolkit to improve adult vaccination rates was tested in a cluster randomized trial; the cost-effectiveness of this intervention is examined here.

Method(s): The 4 Pillars intervention uses primary care practice-chosen components, including immunization standing orders, vaccination access improvements, tracking tools, and a practice immunization champion to improve vaccination rates. This intervention was compared to control in 2 US cities among diverse populations and practices. In <65-year-old adults, 2 vaccines were targeted: influenza and Tdap (tetanus, diphtheria, acellular pertussis). A decision tree model was used to estimate intervention cost-effectiveness compared to control, with outcomes as costs/QALY gained. Trial data supplied changes in vaccination rates and intervention implementation/maintenance costs. US databases and literature data were used to model vaccine effectiveness, illness rates, and costs with/without vaccination over a 10 year time horizon. Future costs and effectiveness were discounted at 3% per year.

Result(s): Total vaccination and illness costs with the intervention (cost $1.78 per eligible patient per year), were $46.09 higher compared to control while gaining 0.001 QALYs, or $43,590/QALY gained. The intervention was not favored, at a $100,000/QALY threshold, when varying these influenza-related parameters: yearly attack rate <2.5% (base case 6.6%), case-fatality <0.048% (base 0.134%), influenza vaccine effectiveness <26.2% (base 59%), or program-related absolute increase in influenza vaccination <2.0% (base 8.6%). Results were insensitive to plausible individual variation of all other parameters, including absolute improvement in pertussis vaccination rate (11.8%). In a probabilistic sensitivity analysis, the 4 Pillars intervention was favored in 54.4% of model iterations at a $50,000/QALY acceptability threshold and in 90.8% at $100,000/QALY. In a separate scenario analysis, the intervention became cost saving if the total economic burden of influenza was >$1967 per case (base $265).

Conclusion(s): The 4 Pillars Immunization Toolkit was an economically reasonable intervention to improve vaccination rates in adults <65 years old.

2F-3. A NOVEL FRAMEWORK FOR OPTIMISING THE VALUE OF PRECISION MEDICINE TECHNOLGIES

14:45 - 15:00: Mon. Jun 13, 2016
Stephenson Room, 5th Floor
Part of Session: ORAL ABSTRACTS: APPLIED HEALTH ECONOMICS

*Philip Akude, MSc[1], Reza Mahjoub, PhD[2], **Mike Paulden, MA., MSc.**[1], Chase Hollman[1] and Christopher McCabe, PhD[3], (1)University of Alberta, Edmonton, AB, Canada, (2)Department of Emergency Medicine, University of Alberta, EDmonton, AB, Canada, (3)Department of Emergency Medicine, University of Alberta, Edmonton, AB, Canada*

Purpose: Develop methods for combining evidence on the test(s) and treatment components of co-dependent technologies that identify the cost effective cut-points on the test components for pre-specified values of the Willingness to Pay for Health.

Method(s): We propose a framework for describing co-dependent technologies that consists of three tests (genotypic diagnosis, phenotypic expression and therapy responder status) and a treatment. Based upon the presence of the condition of interest, the second and third tests characterize the ability to respond to therapy and the phenotypic expression – which places a limit on the ability to benefit from therapy – respectively. Three decision variables are identified – the cut-point for the probability of responding to therapy, the cut-point for the phenotypic expression that leads to treatment and the willingness to pay for health gain. The effectiveness of the therapy in responders and non-responders is determined exogenously.

Result(s): Our analysis shows that for a given probability of response, the optimal cut-point for the phenotypic expression is identified as the point at which the benefits for a responding patient means the patient is indifferent between the new treatment and standard care. We present a series of analyses exploring the relationship between the distributions of the probability of responding to therapy, phenotypic expression and the net benefit from the new technology.

Conclusion(s): Our analyses demonstrate that the benefit from the adoption of precision medicine technologies can be optimized by treating response probability and phenotypic expression as decision variables not exogenously determined

parameters.

2F-4. CONSTRAINTS, CAPACITY AND CAPABILITY: AN APPLICATION OF MATHEMATICAL OPTIMISATION METHODS

15:00 - 15:15: Mon. Jun 13, 2016
Stephenson Room, 5th Floor
Part of Session: ORAL ABSTRACTS: APPLIED HEALTH ECONOMICS

***Stuart Wright, BSc, MSc**[1], Ewan Gray, MA, PhD[2], Anna Jelonek, MSc[3] and Katherine Payne, BPharm, MSc, PhD[2], (1)Manchester Centre for Health Economics, The University of Manchester, Manchester, United Kingdom, (2)The University of Manchester, Manchester, United Kingdom, (3)Manchester Centre for Health Economics, Manchester, United Kingdom*

Purpose: The National Bloodspot Screening programme (NBSP) requires parental informed consent before testing newborns for inherited diseases. This nation-wide information provision process comes from a constrained supply of midwives. Capability-based outcome measures have gained attention as a way of evaluating healthcare programmes. This study illustrates how optimisation methods can take account of capacity constraints while using measures of capability to value information provision in the NBSP.

Method(s): Linear programming, a mathematical optimisation technique, was used to identify the optimal parental information approach to as part of the NBSP informed consent process. Responses from a discrete choice experiment (n = 702) comprising 4 attributes (3 process and capability to make an informed decision) were used to populate an objective function that aimed to maximise capability to make an informed decision. The optimal solution was constrained so that monetary and time costs of information provision can be no greater than those of current practice.

Result(s): The mathematical optimisation results suggested that the types of information given to parents should differ from current practice. Information should be provided during a woman's pregnancy in an individual discussion supported by a leaflet, rather than after the baby is born, as in the current programme. Adopting this approach could increase parents' capability to make an informed decision by 145% whilst saving the NHS £50,000 per year and 5097 hours of midwife time.

Conclusion(s): Optimisation techniques, when used alongside cost-effectiveness analysis, have the potential to enhance medical decision making, specifically, when health system capacity constraints are important.

2F-5. THE COST-EFFECTIVENESS MODEL OUTPUT TOOL

15:15 - 15:30: Mon. Jun 13, 2016
Stephenson Room, 5th Floor
Part of Session: ORAL ABSTRACTS: APPLIED HEALTH ECONOMICS

***Mike Paulden, MA., MSc.**, University of Alberta, Edmonton, AB, Canada, Mohsen Sadatsafavi, University of British Columbia, Vancouver, BC, Canada, Nick Bansback, PhD, University of British Columbia; Centre for Clinical Epidemiology and Evaluation; Centre for Health Evaluation and Outcome Sciences, Vancouver, BC, Canada and Christopher McCabe, PhD, Department of Emergency Medicine, University of Alberta, Edmonton, AB, Canada*

Purpose: Decision makers are increasingly making use of advanced outputs from cost-effectiveness analyses (CEAs), including estimates of the uncertainty around model results and the expected value of further information for parameters. Estimating and presenting these outputs can be time-consuming for analysts, and inconsistencies in the range of outputs presented by different analysts can be problematic for decision makers. With support from CADTH and Genome Canada, we have developed a tool that alleviates these issues by automatically producing a wide range of standardized outputs from CEAs.

Method(s): The Cost-Effectiveness Model Output (CEMO) tool was developed in Microsoft Excel. Analysts must enter information about their model, including the strategies, cost perspectives considered (e.g., health sector, societal), effectiveness outcomes considered (e.g., QALYs, life years), number of Markov cycles, time horizon, parameters varied in sensitivity analyses, and the number of Monte Carlo simulations used in probabilistic analysis. The tool uses this information to create a customized 'Model Results' worksheet that is unique to the analyst's model. Analysts can use their preferred software to develop their model, before exporting the raw results into the Model Results worksheet. The tool then uses these raw results to calculate present values (if necessary – the tool supports differential and/or non-constant discounting if required), estimates of net health benefit (NHB) and net monetary benefit (NMB), the expected value of perfect information (EVPI), and estimates of the expected value of partial perfect information (EVPPI) for each parameter. The tool also automatically generates a standardized set of tables and figures for the analyst to report to decision makers.

Result(s): The CEMO tool provides the following outputs: (1) for deterministic and probabilistic analyses, separate tables of costs and effects, incremental costs and effects, incremental cost-effectiveness ratios (ICERs), NHB, NMB, the ranking of strategies by cost-effectiveness, and the probability that each strategy is cost-effective (probabilistic analysis only); (2) plots on the cost-effectiveness plane for all analyses; (3) results tables and 'tornado' graphs for one-way sensitivity analyses; (4)

results tables for two-way sensitivity analyses; (5) cost-effectiveness acceptability curves (CEACs) and the cost-effectiveness acceptability frontier (CEAF) for probabilistic analyses; (6) tables and figures reporting EVPI and EVPPI.

Conclusion(s): The CEMO tool reduces the burden on analysts who conduct CEAs and improves the consistency of the data considered by decision makers.

2F-6. MULTI-CRITERIA DECISION ANALYSIS: USEFUL, BUT NOT A SUITABLE REPLACEMENT FOR COST-EFFECTIVENESS ANALYSIS

15:30 - 15:45: Mon. Jun 13, 2016
Stephenson Room, 5th Floor
Part of Session: ORAL ABSTRACTS: APPLIED HEALTH ECONOMICS

***James O'Mahony, PhD**, Trinity College Dublin, Dublin, Ireland, Mike Paulden, MA., MSc., University of Alberta, Edmonton, AB, Canada and Christopher McCabe, PhD, Department of Emergency Medicine, University of Alberta, Edmonton, AB, Canada*

Purpose: To demonstrate that multi-criteria decision-analysis (MCDA) will not lead to the optimisation of desirable attributes when allocating scarce healthcare resources and so is not a suitable replacement for cost-effectiveness analysis.

Method(s): We use a simple model to simulate a set of hypothetical interventions, each with a given level of costs, health effects (which may be quantified in quality-adjusted life-years [QALYs] or some other measure) and a second beneficial attribute. A budget constraint is assumed such that not all available interventions can be funded. We identify the set of interventions that forms a production possibilities frontier (PPF) of treatment combinations that maximises combinations of QALYs and the second attribute for the budget constraint. This frontier determines the optimal set of interventions for the constrained budget depending on the rate the decision maker chooses to trade-off QALYs against the second attribute. We then apply an MCDA approach that attaches weights to the level of the second attribute and the net health benefit of each intervention according to a range of cost-effectiveness threshold values. For each set of weights and thresholds we identify the interventions that maximise the MCDA score. These interventions are described as the MCDA-preferred interventions. We compare the MCDA-preferred interventions to the PPF. The model is complemented with a brief survey of the literature on the methodology and application of MCDA in healthcare resource allocations.

Result(s): We find that the MCDA approach generally does not select interventions that lie on the PPF. Accordingly, the MCDA approach will not always maximise desirable outcomes.

Conclusion(s): There is growing interest in using MCDA to guide healthcare resource allocation. Although the methods for MCDA as a guide to healthcare resource allocation have yet to be fully described, it has been suggested that MCDA should replace cost-effectiveness analysis. The results presented here show that MCDA can result in sub-optimal resource allocation. This does not necessarily imply that MDCA is not useful. Indeed, it can be helpful in clarifying decision makers' objectives. Nevertheless, advocates of MCDA should carefully consider its limitations before recommending its use. Further exploration of MCDA's limitations will inform how attributes other than costs and QALYs can be appropriately integrated in healthcare resource allocation.

SYMPOSIUM: VACCINE DECISION MAKING - FINDING EFFECTIVE WAYS TO INCREASE VACCINE UPTAKE

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16:15 - 17:30: Mon. Jun 13, 2016
Auditorium
Program: Panels and Symposia

METHODS DEVELOPMENT IN ECONOMIC EVALUATION INTEREST GROUP MEETING

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17:30 - 18:30: Mon. Jun 13, 2016
Auditorium
Program: Events

SOCIAL EVENT: EUROPEAN CONFERENCE DINNER

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18:30 - 22:00: Mon. Jun 13, 2016
Euston/Stephenson Rooms, 5th Floor
Program: Events

Tuesday, June 14, 2016

PS3. POSTER SESSION 3

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08:00 - 09:00: Tue. Jun 14, 2016
Exhibition Space

Session Summary:

08:00 - 09:00

RESOURCE ALLOCATION, VALUES AND EQUITY: MAINTAINING EQUITY IN THE FACE OF ANONYMITY

08:00 - 09:00

EVALUATING THE COST-EFFECTIVENESS OF MONITORING TESTS

08:00 - 09:00

ASSESSING THE CONTRIBUTION OF PATIENTS' PROXIMITY TO DEATH IN ECONOMIC EVALUATIONS IN PATIENTS WITH HER2+ METASTATIC BREAST CANCER: AN EVENT BASED ANALYSIS

08:00 - 09:00

HEALTH LOST BY CHOOSING THE WRONG INTERVENTION THE CASE OF ORAL ANTICOAGULANTS

08:00 - 09:00

POTENTIAL ECONOMIC VALUE OF BIOMARKERS IN PERSONALIZED MEDICINE: AN EXEMPLARY ASSESSMENT STUDY IN HEART FAILURE DISEASE MANAGEMENT

08:00 - 09:00

MAKING RESEARCH OUTPUTS ACCESSIBLE TO PEOPLE WITH KIDNEY DISEASE: IMPLEMENTING THE DIALYSIS DECISION AID BOOKLET

08:00 - 09:00

UNDERSTANDING DOCTORS' PERCEPTIONS OF GOOD CLINICAL DECISION MAKING: AN INTERVIEW STUDY

08:00 - 09:00

COMMUNICATING RISKS AND BENEFITS OF PREVENTIVE TUBERCULOSIS TREATMENT: AUSTRALIAN PHYSICIANS' PERSPECTIVES

08:00 - 09:00

RISK COMMUNICATION AND DECISIONS IN DEMENTIA: PROFESSIONAL PRACTICE PERSPECTIVES

08:00 - 09:00

THE FEASIBILITY OF AN INNOVATIVE INTRA-OPERATIVE DECISION MAKING TRAINING COURSE

08:00 - 09:00

ESTIMATING THE BENEFIT OF A NATIONAL PROVISION OF COCHRANE REVIEWS

08:00 - 09:00

PHYSICIAN CHARACTERISTICS THAT PROMOTE OR IMPEDE CONTEXTUALIZED CARE PLANNING

08:00 - 09:00

CLINICAL RELEVANCE OF THE NON-VISUALISED APPENDIX ON ULTRASONOGRAPHY OF THE ABDOMEN IN CHILDREN WITH ABDOMINAL PAIN

08:00 - 09:00

SELF-CONTROL AND HEALTH BEHAVIOUR CHANGE: A NEW BEHAVIOURAL ECONOMICS MODEL INCORPORATING COGNITIVE EFFORT

08:00 - 09:00

THE ROLE OF TELEHOMECARE ON BLOOD PRESSURE CONTROL IN PATIENTS WITH HEART FAILURE AND CHRONIC OBSTRUCTIVE PULMONARY DISEASE IN ONTARIO, CANADA

08:00 - 09:00

THE ASSOCIATION BETWEEN HAVING A LONG-TERM CONDITION AND UPTAKE OF POPULATION-BASED SCREENING FOR COLORECTAL CANCER

08:00 - 09:00

DECISION ANALYTIC GUIDANCE OF DIAGNOSTIC TEST EVALUATION OBVIATES THE REQUIREMENT FOR RANDOMIZED TRIALS

08:00 - 09:00

IMPROVING CANCER SCREENING INFORMATION: INSIGHTS FROM INDIVIDUAL DIFFERENCES IN INFORMATION PROCESSING

08:00 - 09:00

THE INFLUENCE OF INCREMENTAL COST-EFFECTIVENESS RATIO ON HEALTH TECHNOLOGY ASSESSMENT OF CANCER SCREENING IN HONG KONG

08:00 - 09:00

APPLICABILITY AND PSYCHOMETRIC EVALUATION OF UTILITY AND CANCER-SPECIFIC HEALTH-RELATED QUALITY OF LIFE MEASURES IN PATIENTS WITH INCIDENTAL THYROID NODULES

08:00 - 09:00

AN EMPIRICAL COMPARISON OF THREE VERSIONS OF THE TIME TRADE-OFF

08:00 - 09:00

MULTI-CRITERIA DECISION ANALYSIS OF PHARMACOLOGICAL MAINTENANCE TREATMENT OPTIONS IN BIPOLAR DISORDER: EVALUATION OF AN EXPEDITE APPROACH

08:00 - 09:00

PRODUCING QUALITY-ADJUSTED OPINIONS FOR PREFERENCE-SENSITIVE MULTI-CRITERIAL DECISION SUPPORT

Abstracts:

RESOURCE ALLOCATION, VALUES AND EQUITY: MAINTAINING EQUITY IN THE FACE OF ANONYMITY

08:00 - 09:00: Tue. Jun 14, 2016
Exhibition Space
Part of Session: POSTER SESSION 3

***Mike Paulden, MA., MSc.**, University of Alberta, Edmonton, AB, Canada and Christopher McCabe, PhD, Department of Emergency Medicine, University of Alberta, Edmonton, AB, Canada*

Purpose: Health care budgets are constrained. Funding new health technologies imposes an opportunity cost, since resources cannot then be used for other activities within the health care system. This opportunity cost may be considered in terms of health losses for other patients. A comparison of the expected health gains for the beneficiaries of a new health technology to the expected health losses for other patients is an important consideration when assessing new health technologies for potential reimbursement within public health care systems.

Method(s): We consider how cost-effectiveness analysis can be used to make comparisons between health gains and health losses when assessing new health technologies. The social value positions implied by the use of cost-effectiveness analysis are considered, including the implied horizontal and vertical equity positions. The implications of modifying these

equity positions – for example by applying additional weights to the health of individuals with a more severe disease – will then be considered.

Result(s): Cost-effectiveness analysis allows for a direct comparison of the health gains and losses associated with adopting a new technology only in cases where the cost-effectiveness threshold reflects a supply-side estimate of the shadow price of the health system budget constraint. Where a vertical equity position is adopted in which all equivalent health gains and losses are assigned equal value, cost-effectiveness analysis is consistent with the principle of horizontal equity: that is, equal value is assigned to health gains or losses for individuals with similar characteristics of ethical/legal relevance. Where an alternative vertical equity position is preferred – for example, where greater value is placed on health gains for individuals with a more severe disease – maintaining horizontal equity requires that a similarly greater value is placed on health losses for individuals with an equivalently severe disease who bear the opportunity cost of funding the new technology. This, in turn, requires estimates of the severity of disease among patients who bear the opportunity cost.

Conclusion(s): The social value positions implied by the use of cost-effectiveness analysis depend upon the specification of the cost-effectiveness threshold. The 'anonymity' of patients who bear the opportunity cost of funding new health technologies presents substantial practical difficulties for the adoption of alternative vertical equity positions within the assessment of new health technologies.

EVALUATING THE COST-EFFECTIVENESS OF MONITORING TESTS

08:00 - 09:00: Tue. Jun 14, 2016
Exhibition Space
Part of Session: POSTER SESSION 3

Mike Paulden, MA., MSc.[1], *Reza Mahjoub, PhD*[2], *Philip Akude, MSc*[1], *Chase Hollman*[1] *and Christopher McCabe, PhD*[3], *(1)University of Alberta, Edmonton, AB, Canada, (2)Department of Emergency Medicine, University of Alberta, EDmonton, AB, Canada, (3)Department of Emergency Medicine, University of Alberta, Edmonton, AB, Canada*

Purpose: A monitoring test is a test that is repeated in a patient over a period of time to identify changes in the patient's medical status. In this study, we evaluate the cost-effectiveness of monitoring tests.

Method(s): We generalize on the existing literature for modelling the cost-effectiveness of monitoring tests in three ways: 1. We allow the test to be administered repeatedly for more than two periods; 2. In addition to the "monitoring testing" strategy, we incorporate a "wait" strategy in which both test and treatment are skipped, as well as a "treat" strategy in which patients are treated without testing; and 3. We adopt a global optimization approach where optimal decisions for each period of a monitoring regime are determined depending on the proceeding periods. We illustrate with a numerical example using data from a Ca125 test for monitoring ovarian cancer.

Result(s): The results from this study show that the net health benefits from the monitoring test and the treatment will be maximized by finding globally optimal solutions in each period in comparison to the following two alternatives: Locally optimal solutions, where optimal test cut-offs in each period are determined independent of the proceeding periods and conventionally optimal solutions, where a fixed cut-off is chosen for all periods.

Conclusion(s): Optimal test cut-offs in a monitoring regime are population case-mix and health system specific and should not be assumed to be portable. To assume portability is to reduce the population health impact (value) of test technologies.

ASSESSING THE CONTRIBUTION OF PATIENTS' PROXIMITY TO DEATH IN ECONOMIC EVALUATIONS IN PATIENTS WITH HER2+ METASTATIC BREAST CANCER: AN EVENT BASED ANALYSIS

08:00 - 09:00: Tue. Jun 14, 2016
Exhibition Space
Part of Session: POSTER SESSION 3

Noman Paracha, MSc*, Per-Olof Thuresson, MSc and Joshua Ray, MSc, F. Hoffmann La-Roche Ltd., Basel, Switzerland*

Purpose:

In the economic evaluation of health technologies, health-related quality of life (HRQoL) is commonly expressed as health state utility values to derive quality adjusted life years. The objective of this study was to estimate and compare health state utility values using a standard disease progression model and those based on the time spent between the EQ-5D measurement and the patient's death.

Method(s):

We analysed data from a large (n=906), repeated measure (11,451 observations), EQ-5D dataset from the MARIANNE trial to estimate health state utility values. The EQ-5D-3L was converted into utility value using the UK tariff. Two mixed (random-coefficient) models using unstructured covariance structure were fitted to predict utility values according to baseline patient characteristics and key clinical outcomes.

The set of variables considered for the multivariable mixed regression models included: baseline age, baseline ECOG performance status (ECOG PS), baseline disease stage, treatment, gender, visceral disease, time (visit), disease progression, hospitalisation due to adverse event (AE) and time leading to death. Final set of variables were selected using likelihood ratio test ($p<0.05$).

Result(s):

The median follow up visit was 9 months (range: 0-48 months). Time was included as a random effect. Included variables demonstrated evidence of an important association with HRQoL outcomes based on magnitude and significance of effect ($p<0.05$). Disease progression was forced into the model for comparison purposes.

Lowess smoother showed no trend of utility values leading to disease progression as opposed to a decline observed in time leading to death. Model 1 showed disease progression was associated with a statistically non-significant utility gain of 0.02. In contrast, Model 2 showed a substantial statistically significant utility decrement of 0.27 in the 6 months leading to patient's death. Lastly, hospitalisation due to AEs and ECOG PS was associated with utility decrement of 0.03 and 0.1, respectively.

Conclusion(s):

An event based analysis using a mixed model better explained variation in EQ-5D data according to key clinical outcomes and patient characteristics. Our analysis suggests that for patients with HER2+ mBC, time leading to death as opposed to disease progression may be a considerable determinant for HRQoL and should be accounted for within economic evaluations. This method also isolated the temporary loss in utility associated with hospitalisations due to AEs.

HEALTH LOST BY CHOOSING THE WRONG INTERVENTION THE CASE OF ORAL ANTICOAGULANTS

08:00 - 09:00: Tue. Jun 14, 2016
Exhibition Space
Part of Session: POSTER SESSION 3

***Torbjørn Wisløff**, Norwegian Institute of Public Health & University of Oslo, Oslo, Norway*

Purpose:

When evaluating the three new oral anticoagulants (dabigatran, rivaroxaban and apixaban) for atrial fibrillation in 2012 and 2013, the Norwegian Medicines Agency (NoMA) decided to include all three of the anticoagulants in the national reimbursement system, although only two of the three drugs were deemed cost-effective. The third drug, which was not cost-effective in any scenarios or risk groups, has been the most used in Norway during the first three years after the three were granted reimbursement. We analysed the total health lost due to the inclusion of a not cost-effective alternative in the national health insurance system.

Method(s):

We used a previously developed Markov model of atrial fibrillation originally constructed to evaluate the cost-effectiveness of new oral anticoagulants compared to established treatment (warfarin). We modelled the lifetime impact of new patients starting on any of the three new oral anticoagulants for different risk groups. Expected remaining quality adjusted life years and costs were calculated for all three drugs. Health lost per patient was calculated both from a patient perspective (direct health lost per patient) and from a health care payer perspective (health lost elsewhere in the society due to higher cost).

Result(s):

Dabigatran and apixaban were the most cost-effective alternatives in all risk groups. Health lost among patients who started rivaroxaban treatment for atrial fibrillation during the first three years was 0.06 QALYs on average. With approximately 25,000 patients starting this treatment during the three year period, a total of 1600 QALYs can be assumed lost due to the reimbursement of rivaroxaban. In addition, rivaroxaban resulted in increased lifetime costs compared to the other drugs, due to more clinical events. A total of 1400 QALYs can be assumed to be lost elsewhere in the society due to the introduction of rivaroxaban (given a Norwegian threshold of €79,000 per QALY). Probabilistic sensitivity analysis gives a 95% confidence interval which varies from a gain of 1100 QALYs to a loss of 7500 QALYs with rivaroxaban (direct and indirect health loss combined) and a probability of rivaroxaban causing net harm of 92%.

Conclusion(s):

The decision to include all three new oral anticoagulants in the national reimbursement system in Norway can have led to a net health loss of approximately 3000 QALYs.

POTENTIAL ECONOMIC VALUE OF BIOMARKERS IN PERSONALIZED MEDICINE: AN EXEMPLARY ASSESSMENT STUDY IN HEART FAILURE DISEASE MANAGEMENT

08:00 - 09:00: Tue. Jun 14, 2016
Exhibition Space
Part of Session: POSTER SESSION 3

Qi Cao, PhD[1]*, Erik Buskens, MD, PhD*[2]*, Hans L. Hillege, PhD, MD*[2]*, Maarten J Postma, Prof*[1] *and Douwe Postmus, PhD*[2]*, (1)University of Groningen, Groningen, Netherlands, (2)University Medical Center Groningen, Groningen, Netherlands*

Purpose: A large amount of biomarkers have been currently identified, whereas their emerging role to improve personalized care at affordable cost has hardly been investigated. The aim of the current research was to show how potential economic value of biomarkers can be evaluated based on evidence from clinical studies regarding heart failure (HF) disease management.

Method(s): Patient-level 18-month mortality risks were predicted by both a prediction model which contains demographic and clinical predictors for HF-related outcomes and a model which contains three additional biomarkers: NT-proBNP, galectine, and troponin. A previously derived cut-off value of 0.16 was adopted to allocate an intensive form of disease management program (DMP) to low-risk patients and a moderate form of DMP to intermediate to high-risk patients. The improved ability of risk classification after the incorporation of biomarkers was evaluated using the net reclassification improvement (NRI). Subsequently, a continuous-time semi-Markov model was developed to evaluate the potential economic value of the biomarkers through presenting the commercial headroom available, a price ceiling for which the future clinical application of the new medical technology may be deemed cost-effective. Such a conceptual technology considered in this study was a biomarker-based test-kit that aims to ultimately improve personalized HF disease management.

Result(s): A significantly (P<0.001) improved risk stratification was established with 0.1814 (95% confidence interval: 0.0926~0.2703) as the NRI estimate. Extending this finding for the base-case values of the decision model parameters, we found the commercial headroom available for the biomarkers to be €256 within a 5-year time horizon. This value was rather sensitive to the alteration of the risk thresholds to 0.1 and 0.2.

Conclusion(s): The estimates of the available commercial headroom in several scenario analyses indicate considerable economic potential of the biomarkers to support personalized disease management in HF.

MAKING RESEARCH OUTPUTS ACCESSIBLE TO PEOPLE WITH KIDNEY DISEASE: IMPLEMENTING THE DIALYSIS DECISION AID BOOKLET

08:00 - 09:00: Tue. Jun 14, 2016
Exhibition Space
Part of Session: POSTER SESSION 3

Hilary Bekker, BSc, Msc, PhD[1]*, Anna Winterbottom, Bsc, MSc, PhD*[1]*, Andrew Mooney, MBChB, PHD*[2] *and Martin Wilkie, MBChB; PHD*[3]*, (1)University of Leeds, Leeds, United Kingdom, (2)St James Teaching Hospital, Leeds, United Kingdom, (3)Sheffield NHS Foundation Trust, Sheffield, United Kingdom*

Purpose: To assess the impact of implementation activities on decision aid use by people making dialysis decisions. The Dialysis Decision Aid booklet was launched by a UK kidney disease charity when the research assessing its acceptability to patients with established kidney disease and predialysis services ended.

Method(s): observational study tracking use of decision aid by stakeholders. From September 2014, the researchers and charity team carried out activities known to lower barriers and facilitate use of patient decision aids. The decision aid's use was monitored. Activities focused on a) raising awareness of the resource across stakeholder groups (e.g. distribution to clinical directors, at conferences and staff training), b) enabling accessibility (e.g. open-access on-line, post and via services; free), c) ensuring acceptability to service providers and users (e.g. research findings), d) encouraging motivation to use a decision aid (e.g. endorsement by professional organisations).

Result(s): during its first year (2015), the booklet was endorsed best practice for predialysis education by four medical professional organisations, two UK and two international; it was translated by one professional organisation for use in Spain, and one patient organisation for use in Italy; 350 booklets were requested directly by staff, carers and patients, and 450 downloaded via web-pages in the UK; nine UK renal units bulk ordered copies for their usual predialysis education resources; the paper describing its development and acceptability to staff and patients was accepted for publication in a peer-reviewed journal. Staff and patients using the decision aid comment it provides a "particularly patient friendly", well written, accurate, balanced and comprehensive resource supporting peoples' treatment decision making within, and/or independently of, predialysis programmes.

Conclusion(s): people accessing this decision aid find it enables them to think differently about dialysis treatment decisions in the context of their life, or that of their patient. It meets clinical guidelines enabling staff to support patients making informed decisions between dialysis options. However, there is practice variation in its adoption across services in the UK. This observational method is not able to capture data from those staff and patients who do not use an evidence-based, decision aid. There is a need for further research evaluating variations in use and its impact on both care quality and service outcomes.

UNDERSTANDING DOCTORS' PERCEPTIONS OF GOOD CLINICAL DECISION MAKING: AN INTERVIEW STUDY

08:00 - 09:00: Tue. Jun 14, 2016
Exhibition Space
Part of Session: POSTER SESSION 3

Leila Mehdizadeh, BSc, PhD[1], *Hilary Bekker, BSc, Msc, PhD*[2], *Vikram Jha, FRCOG, PhD*[3] *and Naomi Quinton, BSc, MSc, PhD*[2], *(1)University College London, London, United Kingdom, (2)University of Leeds, Leeds, United Kingdom, (3)University of Liverpool, Liverpool, United Kingdom*

Purpose: The aim of this qualitative study was to explore doctors' views and experiences of how to make clinical judgements and decisions effectively. In particular we wanted to understand what aspects make them label a judgement or decision as "good" or "poor".

Method(s): Semi-structured interviews were conducted with 15 doctors who worked in a variety of clinical specialties and grades. Doctors were asked about their experiences of making easy and challenging decisions in their clinical work and occasions when they felt uncomfortable with an aspect of their clinical judgement. They were asked about what they had learned from these situations and how they might have informed their future practice thereafter. We analysed the interview transcripts using a thematic framework method.

Result(s): Doctors unanimously believed that the essence of a "good decision" was one that had been reasoned well i.e. the process. The decision outcome was a less important marker of decision quality. A good reasoning process included the following four attributes; gathering relevant data efficiently, involving patients in the interaction, critical reflection on type of thought process needed, and implementing safety strategies.

Conclusion(s): There is an increasing interest in how to define a good clinical decision among scholars, but the doctor's perspective has been notably lacking. This study makes an important contribution to the clinical reasoning literature by focusing on the doctor's conceptual definition of good (and poor) clinical decisions. We found their view to be in line with that of the scholars who argue that the good decision is one that is reasoned well. This definition presents practical problems for measuring a good reasoning process as there is no common understanding of 'good' and 'bad' thinking. A clear understanding is needed of what constitutes good clinical decision making in order to design effective educational interventions. We highlight that good clinical reasoning should be explicitly and routinely taught in medical curricula and discuss how doctors may be educated to think critically about their own reasoning processes.

COMMUNICATING RISKS AND BENEFITS OF PREVENTIVE TUBERCULOSIS TREATMENT: AUSTRALIAN PHYSICIANS' PERSPECTIVES

08:00 - 09:00: Tue. Jun 14, 2016
Exhibition Space
Part of Session: POSTER SESSION 3

Claudia C. Dobler, MBBS, MD, PhD*, Sinthia Bosnic-Anticevich, BPharm Hons, PhD, MPS and Carol Armour, BPharm Hons, PhD, MPS, Woolcock Institute of Medical Research, University of Sydney, Glebe (Sydney), Australia*

Purpose: The aim of this study was to explore the views of physicians on how to communicate and make decisions about preventive tuberculosis (TB) treatment during clinical encounters.

Method(s): Twenty TB physicians from five different Australian states and territories participated in a semi-structured interviews in person or over the phone. We utilised an inductive-deductive approach working back and forth between data and themes to develop a coding framework until a comprehensive set of themes was established.

Result(s): Physicians indicated that they would try to influence patients' decisions when the estimated individual benefit of the intervention clearly outweighed the risk. Some stated that they always provide a recommendation for or against preventive TB treatment, while others emphasised that they try to provide a balanced view about the risks and benefits. Physicians stated that they were more likely to use shared decision making in discussions about preventive TB treatment than in discussions about treatment of actual diseases.

The estimated risk of developing TB was considered the most important information to inform the decision about preventive TB treatment and to communicate to patients, followed by the estimated risk of developing a significant adverse event from treatment. While some physicians would welcome an individually tailored treatment recommendation obtained from a decision analysis, others said they would prefer to only use plain estimates of risks and benefits in their discussion with patients. Most physicians thought that line graphs and pictograms are very helpful to communicate risks and benefits to patients.

Conclusion(s): Participants varied in their views on how much physicians should guide patients' decision to take preventive TB treatment. Physicians supported shared decision making in situations with unclear overall treatment benefit, but would try to convince patients to take preventive TB treatment when the perceived risk of developing TB is high. Most physicians were

open to the idea of using a decision aid for preventive TB treatment, at least in certain cases. Visual aids, especially to communicate the risk of developing active TB, were considered to be very helpful for the clinical encounter.

RISK COMMUNICATION AND DECISIONS IN DEMENTIA: PROFESSIONAL PRACTICE PERSPECTIVES

08:00 - 09:00: Tue. Jun 14, 2016
Exhibition Space
Part of Session: POSTER SESSION 3

Brian Taylor, PhD *and Mabel Stevenson, MA, Ulster University, Northern Ireland, United Kingdom*

Purpose: Communication about risks between professionals, individuals with dementia and family members is fundamental to support informed choice and care decisions in health and social care. This study explores the perspectives of professionals in community dementia services on communicating about risk with clients, families and other professionals.

Method(s): Five focus groups were held across Northern Ireland involving thirty-five health and social care professionals. Discussions explored situations in which professionals communicate about risks; how information is communicated; experience and views on different formats of communication (including verbal, numeric and visual modes); good practice examples; and challenges. A grounded theory approach was used for data analysis.

Result(s):

Professionals routinely communicated about risks to people with dementia, family members and colleagues across wide-ranging situations. Challenges for risk communication in practice included conflicting perspectives of best interests with family members and other professionals; lack of insight of risks; unrealistic expectations of services; and practice within a blame culture. There were good practice examples such as communication that enabled individuals to identify risks and solutions themselves; a culture of support for positive risk taking; and timing of communication. There was cautious communication in case of complainant challenge, and wording was framed in the context of ensuring a working relationship. The word ‘concern’ was often used to discuss risk issues. While participants reported receiving quantitative information, generally they did not typically use numeric expressions in their own communications in practice. Verbal expressions of risk were widely preferred to numeric, with a carefully nuanced range of words used to represent levels of risk. Several participants saw potential in using visual forms of communication to communicate risk issues, including in relation to side effects of medication. Participants generally preferred bar charts to icon arrays as more readily understood. Where icon arrays were favoured, this was where they involved human shapes rather than ovals.

Conclusion(s):

Communication about risks must be viewed in a wider context such as the societal ‘blame culture’ and the role of language in creating a working relationship with the client and family. Greater clarity is required about the translation from numeric to verbal probabilities due to the diverse interpretations. Further research is required on optimal visual communication tools.

THE FEASIBILITY OF AN INNOVATIVE INTRA-OPERATIVE DECISION MAKING TRAINING COURSE

08:00 - 09:00: Tue. Jun 14, 2016
Exhibition Space
Part of Session: POSTER SESSION 3

Chi-Chuan Yeh, MD, MEd[1]*, Tzu-Wei Tseng*[1]*, Roger Kneebone*[2]*, Nick Sevdalis, MSc PhD*[3]*, Tzong-Shinn Chu*[1]*, Chiung-Nien Chen*[1] *and Hong-Shiee Lai*[1]*, (1)National Taiwan University Hospital and National Taiwan University College of Medicine, Taipei, Taiwan, (2)Imperial College London, London, United Kingdom, (3)Kings College London, London, UK, London, United Kingdom*

Purpose : The aim of this study is to develop a training course for enhancing surgical trainees' intra-operative decision making (IODM) skill and evaluate its feasibility.

Method(s) : Based on our previous researches, we designed a new IODM training course which was integrated into a well-organised hands-on training for junior surgical trainees and nurses by using live pigs. In the first simulation, we used an interventional clinical scenario and then provided educational events including reflection of participants, articulation of their decisions, feedback from the tutors, learning modules of decision making and different strategies of IODM. The second educational event used several video clips presenting participants' own IODM scenarios by previous observation two weeks ago. After watching the video clips, tutors engaged participants to reflect their decisions and gave feedbacks with decision making theory to enhance the effect of IODM training course. The purpose of the two-week interval was giving time for self-reflection and behaviour change of participants. We used a new developed assessment tool of IODM and established assessment tools for non-technical skills for surgeons (NOTSS) for self-evaluations and objective assessments. The

questionnaire of this training course and interviews of the participants after the training were conducted for evaluating effect of the training course.

Result(s): The pilot study has been conducted since November, 2015. Thirteen residents, thirteen medical students and six nurses have participated in the study. We successfully set up the layout of the simulation and decided how to place the video-recorded facilities to improve the quality of scenario reflection. In addition, we prepared learning modules with scholar evidences, a 5-minute video and paper handout, and arranged the format of educational events and process of the workshop. According to the interview of the participants, they felt stress-free and thought the training course was beneficial to them. Moreover, we developed assessment tools for IODM with validated evidence.

Conclusion(s) : We successfully set up a new IODM training course with two educational sessions and a new developed assessment tool for IODM through the pilot study and the results proved that this innovative IODM training course was feasible. After minor revision, our IODM training course will be implemented formally since March, 2016

The structure of the IODM training course

ESTIMATING THE BENEFIT OF A NATIONAL PROVISION OF COCHRANE REVIEWS

08:00 - 09:00: Tue. Jun 14, 2016
Exhibition Space
Part of Session: POSTER SESSION 3

Perke Jacobs *and Gerd Gigerenzer, PhD, Max Planck Institute for Human Development, Berlin, Germany*

Purpose: Cochrane Reviews summarize the available evidence on numerous health interventions and present it in a format understandable by professionals and lay persons. Although one would therefore expect Cochrane Reviews to be readily accessible to patients and doctors, only few countries offer national access. This study quantifies the benefit of nationally providing access to high quality evidence.

Method(s): We combine web traffic data of the Cochrane Database and publicly available data on country characteristics. Using these data and OLS regression, we construct linear models that estimate downloads and summary views of Cochrane Reviews. Using these estimates, we compute the expected benefit of a national provision for each OECD country.

Result(s): The results indicate that a national provision would substantially multiply the number of review downloads for most OECD member states. In addition, we estimate that the additional cost of a national provision is likely low for most countries.

Conclusion(s): There appears to be substantial demand for medical evidence that is currently unmet. A national provision offers an effective way to meet this demand and offer decision makers access to high-quality medical evidence.

PHYSICIAN CHARACTERISTICS THAT PROMOTE OR IMPEDE CONTEXTUALIZED CARE PLANNING

08:00 - 09:00: Tue. Jun 14, 2016
Exhibition Space
Part of Session: POSTER SESSION 3

Alan Schwartz, PhD[1], *Carol Kamin, EdD*[1], *Amy Binns-Calvey*[1], *Gunjan Sharma, PhD*[2], *Kali Cyrus, MPH, MD*[3] *and Saul Weiner, MD*[4], *(1)University of Illinois at Chicago, Chicago, IL, (2)Jesse Brown Veterans Affairs Medical Center, Chicago, IL, (3)Yale School of Medicine, New Haven, CT, (4)Hines Veterans Affairs Hospital, Hines, IL*

Purpose: Adapting care plans to patients' individual needs--contextualizing care--is associated with better health outcomes and lower costs. The purpose of this study was to identify physician behaviors in the medical encounter associated with the contextaulization of care.

Method(s): Transcripts of audio files of 58 encounters with unannounced standardized patients by 15 physicians were purposively sampled to include five physicians who never probed contextual issues, five who probed consistently but never incorporated the context into their care plans, and five who probed consistently and incorporated the context into their care plans at least once. A constant comparative analysis was conducted to identify themes that led to contextual probing and planning. Three researchers worked with one transcript at a time, meeting regularly to discuss coding. After reaching saturation, the researchers independently coded to the encounters from audio and wrote memos on each physician. The association between the relative frequency of coded themes by physician (over encounters) and physician performance was also statistically confirmed within the sample using multinomial logistic regression.

Result(s): The better-performing physicians displayed a flexible approach to the interview. Their visits included a more relaxed pace and open-ended questions. In contrast, physicians who consistently controlled the agenda of the encounter set the pace without accommodating patient input, and were more prone to premature closure. Controlling behaviors were significantly associated with less probing and planning ($p<.001$); flexible behaviors were significantly associated with improved planning ($p=.007$).

Physicians using a systems- or checklist-based approach to history taking were least likely to probe contextual factors ($p=.007$). This approach was also associated with controlling the encounter. On the other hand, more flexible physicians used a hypothesis-driven approach to the history characterized by a natural flow of conversation rather than following a list of predetermined questions.

Finally, physicians struggling with the electronic medical record during the visit were less likely to probe for context ($p<.001$) and to incorporate critical context into the plan ($p<.001$).

Conclusion(s): Performance at contextualization of care is associated with physician behaviors that can be observed across multiple encounters. These behaviors are only detectable by listening in on the visit, emphasizes the need for direct observation of care as a source of performance measures.

CLINICAL RELEVANCE OF THE NON-VISUALISED APPENDIX ON ULTRASONOGRAPHY OF THE ABDOMEN IN CHILDREN WITH ABDOMINAL PAIN

08:00 - 09:00: Tue. Jun 14, 2016
Exhibition Space
Part of Session: POSTER SESSION 3

PhuaHwee Tang, MBBS, MMed, FRCR,[1], *Sanjena Kumar Amuddhu*[2], *Sophie Ong*[2], *Weixiang Lim*[2], *Candy Choo*[1], *Te Lu Yap*[1] *and Shireen Nah*[1], *(1)KK Women's and Children's Hospital, Singapore, Singapore, (2)NUS, Singapore, Singapore*

Purpose:

To evaluate the clinical relevance of the non-visualised appendix on ultrasound where acute appendicitis is a possible cause of the pain.

Method(s):

With ethical approval, we retrospectively reviewed all children admitted into the paediatric surgical unit for abdominal pain between January to December 2013 who had abdominal ultrasound for evaluation of right-sided and lower abdominal pain. Those imaged for suspected intussusception or genitourinary symptoms were excluded. Demographic data, ultrasound findings, final diagnosis and histological reports were captured. As part of institutional protocol, all patients were contacted 3 days after discharge for review.

Result(s):

Of 1359 admissions, 810 had ultrasound abdomen and/or pelvis. We excluded 131 with suspected intussusception. Another 38 did not evaluate the appendix, leaving 641 reports for analysis.

Appendix was not visualised in 160 but 14 had ultrasound findings suggesting intra-abdominal inflammation (with 13 proven appendicitis and 1 histologically normal appendix). In 3 of the 160 with normal ultrasound reports (1.9%), appendicitis was histologically proven.

Appendix was partially visualized in 51, the segment of appendix that could be seen clearly normal in 34, obviously inflamed in 13 and equivocal in 4 with the obviously inflamed and equivocal cases positive for appendicitis on histology.

Overall, 232 children underwent appendicectomy, of whom 58 had no ultrasound done and the appendix was histologically normal in 5, giving overall negative appendicectomy rate of 2.2%.

Conclusion(s):

When appendix is not visualized with no evidence of intra-abdominal inflammation on ultrasound, the likelihood of appendicitis is less than 2%. When appendix is partially visualized, those abnormal or equivocal on ultrasound are positive for appendicitis.

Clinicians may safely use these reports to supplement their clinical assessment even when the appendix is not completely visualised.

SELF-CONTROL AND HEALTH BEHAVIOUR CHANGE: A NEW BEHAVIOURAL ECONOMICS MODEL INCORPORATING COGNITIVE EFFORT

08:00 - 09:00: Tue. Jun 14, 2016
Exhibition Space
Part of Session: POSTER SESSION 3

***Lukasz Tanajewski**, Division of Social Research in Medicines and Health, School of Pharmacy, University of Nottingham, Nottingham, United Kingdom*

Purpose:

Self-control, to reject immediate pleasures in favour of longer-term benefits, is critical for health behaviour change, as evident from everyday life and several studies (e.g. on diet, physical activity or smoking cessation). Behavioural economics theories are useful for exploring decision making in health domain. However, existing models of self-control (with their abstract axioms and mechanisms, e.g. a game in human mind between a sequence of impulsive selves and a long-run self) require complex analyses and extensions to explain empirical findings on health behaviour change. Recently, the role for cognitive effort in self-control of impulses has been shown in neuroscience and psychology. In this study, a behavioural economics model of self-control that incorporates cognitive effort is proposed to explain observed factors of health behaviour change.

Method(s):

Link between self-control and registration of cognitive effort was established in neuroimaging studies: for displayed self-control, functional magnetic resonance revealed activation in dorsolateral prefrontal cortex, reduced for impulsive choices. Behavioural experiments showed that self-control failure comes from unfavourable comparison of cognitive effort cost and self-control benefits. Based on the above evidence, a model incorporating cognitive effort that shapes self-control of impulses is developed. The key model assumptions, (1) effort, improving cognition of self-control benefits, is exerted to minimize regret from self-control of impulses, (2) regret combined with effort cost (less favourable cost-benefit comparison) increases self-control failure risk, are supported by neuroscientific evidence and psychological studies. Incorporating perceived health benefits of self-control and impulsive rewards of unhealthy behaviour in the model, the role for cognitive effort in health behaviour change is explored.

Result(s):

The following empirical findings are explained by the model: negative impact of cognitive load on sticking to diet; low discount rate (patience) and positive response to behaviour-change interventions; impatience and the relapse of unhealthy behaviour; risk aversion and smoking cessation success; impulsivity and smoking relapse; U-shaped relationship between adherence to lifestyle-change recommendations and age. The model predicts that, for large impulsive rewards, self-control failure is less likely for ‘stopping’ unhealthy behaviour, compared to ‘avoiding’ the relapse of this behaviour, and that cognitive effort avoidance inhibits health behaviour change.

Conclusion(s):

A new model accounting for the role of cognitive effort in self-control provides promising behavioural economics tools to explore the factors facilitating health behaviour change and its maintenance.

THE ROLE OF TELEHOMECARE ON BLOOD PRESSURE CONTROL IN PATIENTS WITH HEART FAILURE AND CHRONIC OBSTRUCTIVE PULMONARY DISEASE IN ONTARIO, CANADA

08:00 - 09:00: Tue. Jun 14, 2016
Exhibition Space
Part of Session: POSTER SESSION 3

Valeria E. Rac, MD, PhD[1], Yeva Sahakyan, MD, MPH[2], Lusine Abrahamyan, MD, MPH, PhD[1], Nida Shahid, HBSc., MSc (c.)[2], Aleksandra Stanimirovic, MSc, PhD (candidate)[2], Petros Pechlivanoglou, MSc, PhD[2], Welson Ryan[2], Nicholas Mitsakakis, MSc PhD[1] and Murray Krahn, MD, MSc, FRCPC[1], (1)Toronto Health Economics and Technology Assessment (THETA) Collaborative, Toronto, ON, Canada, (2)Toronto Health Economics and Technology Assessment (THETA) Collaborative, University of Toronto, Toronto, ON, Canada

Purpose: The purpose of this study was to investigate the changes in blood pressure (BP) among patients with heart failure (HF) and chronic obstructive pulmonary disease (COPD) enrolled in the Telehomecare program in Ontario.

Method(s): This was a longitudinal cohort study. The outcome of interest was change in biweekly average of systolic and diastolic BP levels over six-month program duration. Data was extracted from the Ontario Telemedicine Network database from July 2012 to Jul 2015 and analyzed using general linear mixed model procedures in SAS. We conducted a subgroup analysis in patients with uncontrolled BP levels (≥140/90 mm Hg) at baseline.

Result(s): Overall, data for 3513 patients were analyzed. Average age was 74.1±11.4; 62% had HF, 55% had COPD. At baseline, the systolic and diastolic BP were 130.5±19.2 mm Hg and 72.2±12.6 mm Hg. Over 6 month program period, there were 4.0 mm Hg (95% CI: -4.5 to -3.5) and 2.7 mm Hg (95% CI: -3.1 to -2.4) reduction in systolic and diastolic BP respectively, adjusted for confounders. About 35% (n = 1220) of the cohort had uncontrolled BP levels at baseline (150.7 ±10.4 /80.2±13.5 mm Hg). In that subgroup, the reduction in systolic BP was 12.5 mm Hg (95% CI: -13.4 to -11.6) and in diastolic BP was 7.1 mm Hg (95% CI: 7.8 to 6.5) over 6 month period.

Conclusion(s): The changes seen in patients' BP over time, lead us to interpret that patients with elevated levels of BP may benefit the most from participation in the Telehomecare program.

THE ASSOCIATION BETWEEN HAVING A LONG-TERM CONDITION AND UPTAKE OF POPULATION-BASED SCREENING FOR COLORECTAL CANCER

08:00 - 09:00: Tue. Jun 14, 2016
Exhibition Space
Part of Session: POSTER SESSION 3

***Benjamin Kearns, BSc, MSc**, The University of Sheffield, Sheffield, United Kingdom*

Purpose: To examine the association between having a long-term condition (LTC) and uptake of population-based screening for colorectal cancer.

Method(s): Within England, invitations for colorectal cancer (CRC) screening are sent once every two years to men and women aged 60 to 74 by the national screening programme. This programme contains data on the uptake of CRC screening. This data was linked to the Yorkshire Health Study (YHS), a longitudinal observational regional health study. The YHS holds self-report data on 11 named LTCs (depression, anxiety, fatigue, pain, insomnia, diabetes, breathing problems, high blood pressure, heart disease, osteoarthritis, and stroke. Data for cancer were also available, but not considered for this study). Participants may also report additional LTCs as free-text. In addition, the YHS includes data on participant's demographics (age, sex and ethnicity) and broader determinants of health (deprivation, education, smoking status, alcohol consumption, amount of physical activities). The association between having an LTC and uptake of CRC screening was modelled according to a pre-specified statistical analysis plan. Separate logistic regression models were built which controlled for (i) just patient demographics, and (ii) both patient demographics and broader determinants of health. The outcome of interest was the uptake of CRC screening, which was taken to be if the participant had ever received an adequate screen following an invitation for screening.

Result(s): After adjusting for patient demographics, the occurrence of a stroke, diabetes, depression or breathing problems was associated with increased odds of non-attendance, whilst the occurrence of osteoarthritis or a free-text LTC was associated with increased odds of attendance. After adjustment for broader determinants these associations were no longer significant for depression and breathing problems, but they remained for the other LTCs. Other variables associated with non-attendance were younger age, increasing levels of deprivation, male gender, currently smoking, low levels of walking or physical exercise, and no alcohol consumption in the last week.

Conclusion(s): Evidence from this study suggests an association between the presence of stroke or diabetes and reduced uptake of CRC screening following an invitation. Future research should target these groups to identify potential barriers to and facilitators for uptake. Depression and breathing problems were also associated with reduced uptake, although some of this association may be due to the effect of broader health determinants.

DECISION ANALYTIC GUIDANCE OF DIAGNOSTIC TEST EVALUATION OBVIATES THE REQUIREMENT FOR RANDOMIZED TRIALS

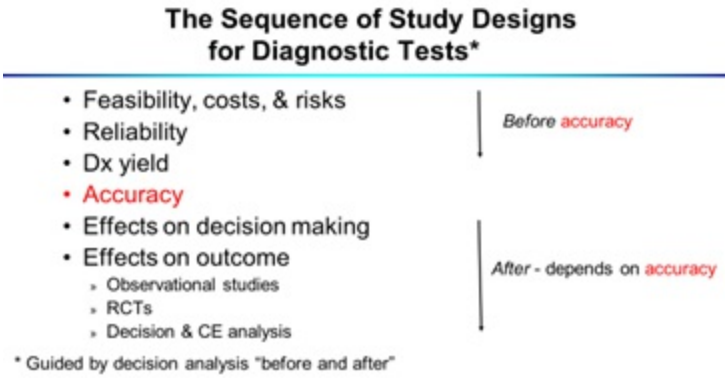
08:00 - 09:00: Tue. Jun 14, 2016
Exhibition Space
Part of Session: POSTER SESSION 3

***Alvin I Mushlin, MD, ScM**, Weill Cornell Medicine, Department of Healthcare Policy & Research, NY, NY*

Purpose: Along with the need for outcome and cost information in order to determine the value of diagnostic tests and imaging procedures has come confusion about the research required...including the conclusion by some that randomized clinical trial are essential. We sought to clarify the data needed and the optimal sequence of steps in the evaluation of diagnostic tests and procedures.

Method(s): A decision analytic model is used to analyze the clinical scenario in which a new diagnostic test is used and then solved to determine the information needed to decide if its use could be an optimal strategy compared to the existing diagnostic strategy. When the major determinate is its incremental accuracy, a challenge region is plotted in ROC space to specify how accurate the test would have to be in order for it to be a cost effective alternative to the current diagnostic strategy.

Result(s): Before accuracy, the optimal sequence is to evaluate the diagnostic modality's feasibility, reliability, and diagnostic yield. If these are encouraging, the next step is a prospective cohort study comparing the accuracy of new test A to existing test B. The impact of the test on outcomes can then be estimated using available information about the other variables needed to populate the model. Again, if this indicates that the test is potentially better and cost-effective, then the information about the diagnostic test's accuracy should be provided to clinicians in real life situations to evaluate whether, and to what extent, its results actually influence decision-making. The cost-effectiveness of the diagnostic test can subsequently be projected from the decision analytic model.



Conclusion(s): The use of decision analysis can guide the efficient evaluation of diagnostic tests. The determination of accuracy is a prerequisite for studies to evaluate the impact, outcomes and cost effectiveness of its use, potentially obviating the need for RCTs.

IMPROVING CANCER SCREENING INFORMATION: INSIGHTS FROM INDIVIDUAL DIFFERENCES IN INFORMATION PROCESSING

08:00 - 09:00: Tue. Jun 14, 2016
Exhibition Space
Part of Session: POSTER SESSION 3

***Kathryn Robb**[1], Lauren Gatting[1], Ellen Peters, PhD[2], Lesley McGregor[3], Christian von Wagner[3] and Jane Wardle[3], (1)University of Glasgow, Glasgow, United Kingdom, (2)Ohio State University, Columbus, OH, (3)University College London, London, United Kingdom*

Purpose: In the UK, cancer screening invitations are sent with fact-based, numerical information about the test. Such information requires deliberation. This approach may disenfranchise particular sections of the community who are less likely to engage with deliberative processing. Screening information that includes patient experiences or stories may help to engage individuals in this instance. This paper describes two studies that explored associations between preference for deliberative vs intuitive processing, and the perceived value of fact- vs experience-based screening information.

Method(s): In Study 1, a sample of adults (N=4,241), approaching the age that colorectal cancer screening is offered in England (45-59 years), identified from patient lists of four south-east England General Practices, were mailed a survey including measures of deliberation, intuition and demographic characteristics. In Study 2, a sample of adults (N=4,125), also aged (45-59 years), identified from lists of a further three selected English General Practices, were also mailed a survey including measures of deliberative and intuitive processing and demographic characteristics. Participants were also

provided with two formats of screening information: 'Bowel Screening: The Facts' and 'Bowel Cancer Screening: People's Stories' and asked to evaluate their usefulness.

Result(s): Response rates were 44% (Study 1) and 30.5% (Study 2). In both Studies 1 and 2, a stronger preference for deliberation was associated with being male, more educated and white, while a preference for intuitive thinking was not consistently associated with demographic factors in multivariable analyses. In Study 2, fact-based screening information was perceived as more useful by people who preferred a deliberative style of processing, while experience-based information was perceived to be equally useful across the board. Preference for intuitive thinking was not associated with perceived usefulness of either type of information.

Conclusion(s): Consideration should be given to individual differences in information processing when informing people about cancer screening.

THE INFLUENCE OF INCREMENTAL COST-EFFECTIVENESS RATIO ON HEALTH TECHNOLOGY ASSESSMENT OF CANCER SCREENING IN HONG KONG

08:00 - 09:00: Tue. Jun 14, 2016
Exhibition Space
Part of Session: POSTER SESSION 3

Carlos King Ho Wong, PhD[1], *Brian Hung Hin Lang, MD*[2], *Vivian Yawei Guo, PhD*[1] *and Cindy Lo Kuen Lam, MD*[1], *(1)Department of Family Medicine and Primary Care, The University of Hong Kong, Hong Kong Island, Hong Kong, (2)Department of Surgery, The University of Hong Kong, Hong Kong Island, Hong Kong*

Purpose: Developed countries set their own ICER threshold to reflect how much they value for the gain in health of their populations. An ICER threshold approach for policy decision making is common in developed countries but Research on the appropriate ICER threshold for positive decision in Hong Kong is lacking. This study was to critically review the literature on cost-effectiveness of cancer screening interventions, and examine incremental cost-effectiveness ratios (ICER) that may influence government recommendation on cancer screening strategies, and funding for mass implementation in Hong Kong health care system.

Method(s): We conducted a literature review of cost-effectiveness studies on Hong Kong population related to cancer screening published up to 2015, through hand search and database search of Pubmed, Web of Science, Embase, and OVID Medline. Methodological quality of selected studies was assessed using Consolidated Health Economic Evaluation Reporting Standards checklist. Binary data on government's decisions were obtained from advisory body. Mixed-effect logistic regression analysis was used to examine the impact of ICER on decision. Using Youden's index, an optimal ICER threshold value for positive decision was examined by area under receiver operating characteristic curve (AUC).

Result(s): Eight studies reporting 30 cost-effectiveness pairwise comparisons of population-based cancer screening for colorectal (n=16), cervical (n=9), breast (n=4) and gastric cancer (n=1) were identified. Most studies established a Markov modeling (88.9%), from perspective of healthcare provider (77.8%), and reported an incremental cost-effectiveness ratio (ICER) of a cancer screening strategy versus comparator as outcomes in terms of cost per life-years (55.6%), or cost per quality-adjusted life-years (55.6%). Among comparisons with a mean ICER of USD 102,931 (range: 800-715,137), the decrease in ICER value by 1,000 was associated with increase odds (odds ratios: 0.990, 0.981-0.999; P=0.033) of positive recommendation. An optimal ICER value of USD 61,600 per effectiveness unit yielded high sensitivity of 90% and specificity of 85%. No association between ICER value and funding decision was observed.

Conclusion(s): Linking published evidence to Government recommendations and practice on cancer screening, ICER influences the decision on the adoption of health technology in Hong Kong. Potential ICER threshold in Hong Kong may be higher than those of developed countries.

APPLICABILITY AND PSYCHOMETRIC EVALUATION OF UTILITY AND CANCER-SPECIFIC HEALTH-RELATED QUALITY OF LIFE MEASURES IN PATIENTS WITH INCIDENTAL THYROID NODULES

08:00 - 09:00: Tue. Jun 14, 2016
Exhibition Space
Part of Session: POSTER SESSION 3

Carlos King Ho Wong, PhD*, Department of Family Medicine and Primary Care, The University of Hong Kong, Hong Kong Island, Hong Kong and Brian Hung Hin Lang, MD, Department of Surgery, The University of Hong Kong, Hong Kong Island, Hong Kong*

Purpose: The aim of this study was to examine the acceptability, validity and reliability of utility measures and cancer-specific health-related quality of life (HRQOL) in Chinese patients diagnosed with incidental thyroid nodules.

Method(s): Data from a randomized controlled trial (ClinicalTrials.gov Identifier: NCT02398721) of 314 patients diagnosed with incidental thyroid nodules were utilized for this psychometric evaluation of HRQOL measurement. Three HRQOL

questionnaires, cancer-specific Functional Assessment of Cancer Therapy-general (FACT-G) and generic 12-item Short Form Health Survey (SF-12v2) and 6-item Short Form Health Survey (SF-6D), were administered through face-to-face interviews at both baseline and 2-week after baseline. Responses to SF-6D were transformed to SF-6D utility scores using Hong Kong standard gamble value set. Construct validity was determined by evaluating the extent to overlap SF-12v2 dimensions across HRQOL instruments by Spearman rank correlation. Internal consistency and 2-week test-retest reliability was assessed using Cronbach's α coefficient and intra-class correlation coefficient, respectively.

Result(s): No significant (>15%) floor and ceiling effects were observed for FACT-G subscale and total scores. The SF-6D utility scores and FACT-G subscale scores had a moderate Spearman rank correlation with the corresponding SF-12v2 domain score that conceptually measures the similar construct providing evidence for adequate construct validity. Internal consistency of the FACT-G subscales and total scales were acceptable (α: 0.639-0.850) for all subscales aside from the Emotional well-being subscale (α: 0.581). The HRQOL and utility scores showed excellent test-retest reliability (range: 0.758-0.858).

Conclusion(s): The SF-6D utility score and cancer-specific FACT-G questionnaire appears to be a valid and reliable measure to assess the HRQOL of Chinese patients diagnosed with incidental thyroid nodules, and thus evaluate the treatment response to those patients.

AN EMPIRICAL COMPARISON OF THREE VERSIONS OF THE TIME TRADE-OFF

08:00 - 09:00: Tue. Jun 14, 2016
Exhibition Space
Part of Session: POSTER SESSION 3

*Miguel Ángel Artaso, MSc and **Francisco Javier Díez, PhD**, UNED, Madrid, Spain*

Purpose: To determine how the framing of the questions in the time trade-off method (TTO) affects quality of life (QoL) estimates, and to analyze the effect of feedback.

Method(s): We invited 3,465 students to answer an on-line survey. Each respondent was randomly assigned to one of four methods: 1. visual analog scales (VAS); 2. TTOe, which asked how much life time with perfect health is equivalent to some time in a certain health condition; 3. TTOt, in which respondents can give up life time in order to gain QoL; 4. TTOq, in which they can give up QoL to gain life time. We offered them a description of the performance of children having one cochlear implant vs. those having two. The feedback for the TTO versions was to show two VAS's (one for each health condition); the feedback for the VAS was the TTOe. All the respondents could revise their estimates after receiving the feedback.

Result(s): 583 respondents entered the survey (response rate: 17%), but some of them abandoned without answering the QoL questions. Some subjects assigned to TTOt or TTOq refused to enter the trade-off game. TTOe collected significantly more qualitative estimates (86.8%) than TTOt (69.5%) and TTOq (64.1%). The average QoL for unilateral cochlear implantation was higher for TTOt than for TTOe (0.787 vs. 654, $p < 0.001$) and for TTOe than for TTOq (0.654 vs. 0.618, $p < 0.0001$); a similar pattern was observed for bilateral implantation. This was expected from previous psychological studies, which showed that people are reluctant to exchange what they have for goods of similar value. The feedback reduced the variability for VAS, TTOt and TTOe. The respondents considered that TTOt posed more difficult questions than the others.

Conclusion(s): Even though TTOt is the standard technique, we recommend the TTOe because it seems to be the most neutral version, while TTOt and TTOq bias the answer in opposite directions. Additionally, in our experiment TTOe collected more qualitative responses than TTOt and was deemed easier to answer.

MULTI-CRITERIA DECISION ANALYSIS OF PHARMACOLOGICAL MAINTENANCE TREATMENT OPTIONS IN BIPOLAR DISORDER: EVALUATION OF AN EXPEDITE APPROACH

08:00 - 09:00: Tue. Jun 14, 2016
Exhibition Space
Part of Session: POSTER SESSION 3

***Oystein Eiring, MD, Cand Mag, PhDc**[1], Kjetil Gundro Brurberg, Dr Philos[1], Jan Odgaard Jensen, PhD[1], Brynjar Landmark, MD, Dr. Med[2], Kari Nytroen, PhD[3] and Magne Nylenna, MD, Dr Med[4], (1)Norwegian Institute of Public Health, Oslo, Norway, (2)Innlandet Hospital Trust, Brumunddal, Norway, (3)Innlandet Hospital Trust, Furnes, Norway, (4)The Knowledge Center in the Norwegian Institute of Public Health, Oslo, Norway*

Purpose: The primary purpose was to evaluate the value for individual patients and the feasibility of performing an expedite comparative effectiveness review including an expert network meta-analysis and estimates of treatment burden associated with the treatment options, compared to producing a full systematic review and network meta-analysis. The secondary purpose was to estimate the effect on the ranking of treatment options of using the weightings of the criteria from individual patients, instead of average or equal weights, in the analysis.

Method(s): To populate a decision matrix with ratings for all criteria known to be important to patients, on all relevant options, we performed an expedite comparative effectiveness review and network meta-analysis, an expert network meta-analysis, and a survey about treatment burden among patients. Relative importance weightings for the criteria were obtained from individual patients. We used these weightings to calculate the expected values for each of the options, to produce rankings of the options, and to estimate the incremental gain of the methods used, and their effects on the ranking of options, compared to a systematic review and network meta-analysis.

Result(s): It was feasible to populate a decision matrix addressing all main criteria empirically found to be important to patients, using expedite methods. The systematic review and network meta-analysis produced modestly more comprehensive and reliable data than the expedite, comparative effectiveness review, but the rank order of the options and their expected values were relatively similar for the two approaches. Adding the expert meta-analysis ratings to the decision analysis affected the rank order considerably, but the reliability of these data was low. Including treatment burden in the analysis, and applying weightings from individual patients instead of average or equal weights all significantly affected the rank order of the treatment options and their expected values.

Conclusion(s): Expedite comparative effectiveness reviews including network meta-analysis might be an alternative to full systematic reviews and meta-analyses. To foster patient-centred care, evaluations of the value of different treatments options, and the value of gold standard systematic reviews compared to expedite methods, it should be considered to use the relative importance weightings from individual patients, rather than average or equal weights.

PRODUCING QUALITY-ADJUSTED OPINIONS FOR PREFERENCE-SENSITIVE MULTI-CRITERIAL DECISION SUPPORT

08:00 - 09:00: Tue. Jun 14, 2016
Exhibition Space
Part of Session: POSTER SESSION 3

***Jack Dowie, PhD**, LSHTM, London, United Kingdom, Mette Kjer Kaltoft, PhD, Odense University Hospital - Svendborg, Svendborg, Denmark, Jesper Bo Nielsen, PhD, University of Southern Denmark, Odense, Denmark and Glenn Salkeld, PhD, University of Wollongong, Wollongong, Australia*

Purpose:
To show how the option performance ratings required in multi-criterial decision support can be adjusted for evidential quality/grade to produce a quality-adjusted opinion that is sensitive to the person's preferences.

Method(s):
In person-centred care the preferences of the individual over the multiple considerations important to them are explicitly elicited at or near the point of decision and integrated with the Best Estimates Available Now (BEANs) of the performance rates of all the options on all those criteria. When carried out within a Multi-Criteria Decision Analytic framework the result is an opinion made up of the set of option expected values. The BEANs will vary in quality, according to their provenance, and adjustment for this produces a Quality-adjusted opinion.

We do not prescribe any particular way of arriving at the quality-adjustment rating, itself a preference-sensitive judgement. It must however be on the continuous 0 to 1 ratio scale. We find the following adaption of the GRADE levels helpful. It assesses quality in terms of confidence that the rating is close to the 'true' one and hence whether further research is expected to change it significantly. 1.0 - 0.8 Very confident; 0.7- 0.5 Moderately confident; 0.4 - 0.2 Limited Confidence; 0.1-0 Very little confidence. (There is no suggestion that GRADE would support this numerical mapping.) A simple interactive example is presented as proof and illustration of method, followed by two empirical cases, drawing on publicly-available demonstration decision aids.

Result(s):
The first takes the demonstration MagicApp aspirin decision aid, translates it into MCDA format and uses the provided GRADE assessments as the quality adjustments. (https://www.magicapp.org/app#/guideline/387). The second uses the Norwegian Bipolar Disorder example from mybetterdecisions.org. This aid is already in MCDA format and we use the ratings from the 'Reliable Evidence' criterion to adjust the ratings for the other criteria. In both cases the examples confirm that the effect of quality-adjustment is influenced by the preference weights, as it should be.

Conclusion(s):
An evidence grading classification can contribute to preference-sensitive decision support by generating a quality-adjusted opinion. If this differs from the original opinion, dissonance resolution should recognise the many sources of a low option grading. These include recent development, which means the option has not been studied as much, or as thoroughly, as older interventions.

KEYNOTE: DIAGNOSIS - THE ULTIMATE TEST OF MEDICAL DECISION MAKING

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09:00 - 09:45: Tue. Jun 14, 2016
Auditorium
Program: Panels and Symposia

3G. ORAL ABSTRACTS: PATIENT DECISION MAKING & DECISION AIDS

« Previous Session | Next Session »

09:45 - 11:15: Tue. Jun 14, 2016
Auditorium
Session Chairs:

- *Marieke de Vries, PhD*

Session Summary:

09:45 - 10:00

3G-1. A FORMALIZED SHARED DECISION MAKING PROCESS WITH INDIVIDUALIZED DECISION AIDS IMPROVES COMPREHENSION AND DECISIONAL QUALITY AMONG FRAIL, ELDERLY CARDIAC SURGERY PATIENTS

10:00 - 10:15

3G-2. IMPACT OF DECISION-MAKING ROLE PREFERENCES IN THE EFFICACY OF A MULTIMEDIA PATIENT EDUCATION TOOL FOR PATIENTS WITH COMMON RHEUMATOLOGIC CONDITIONS

10:15 - 10:30

3G-4. WHAT FACTORS INFLUENCE THE FERTILITY PRESERVATION TREATMENT DECISION-MAKING PROCESS IN WOMEN WITH CANCER? THE QUALITATIVE FINDINGS OF THE PREFER STUDY

10:30 - 10:45

3G-3. DECISION AIDS' EFFICACY TO SUPPORT WOMEN'S FERTILITY PRESERVATION CHOICES BEFORE CANCER TREATMENT: AN ENVIRONMENTAL SCAN

10:45 - 11:00

3G-5. IF YOU WERE A BRCA MUTATION CARRIER WHAT WOULD YOU DO? FACTORS PREDICTING THE CHOICE OF PROPHYLACTIC OVARIECTOMY IN A SAMPLE OF ITALIAN WOMEN

11:00 - 11:15

3G-6. EXTERNAL VALIDATION OF THE PATIENT MEASURE OF COLLABORATIVE GOAL SETTING: HOW DOES COLLABORATIVE GOAL SETTING IMPACT SELF-MANAGEMENT?

Abstracts:

3G-1. A FORMALIZED SHARED DECISION MAKING PROCESS WITH INDIVIDUALIZED DECISION AIDS IMPROVES COMPREHENSION AND DECISIONAL QUALITY AMONG FRAIL, ELDERLY CARDIAC SURGERY PATIENTS

09:45 - 10:00: Tue. Jun 14, 2016
Auditorium
Part of Session: ORAL ABSTRACTS: PATIENT DECISION MAKING & DECISION AIDS

***Ryan Gainer, BA**, Jahanara Begum, MSc, Emma Wilson-Pease, BSc and Greg Hirsch, MD, FRCSC, Nova Scotia Health Authority, Halifax, NS, Canada*

Purpose: Comprehension of risks, benefits, and alternative treatment options is poor among patients referred for cardiac interventions. We have demonstrated that an increasing proportion of frail and elderly patients are undergoing complex cardiac surgical procedures with increased risk of both mortality and prolonged institutional care. The objective of the current study is to explore the impact of a formalized shared decision making on patient comprehension and decisional quality.

Method(s): A paper-based decision aid for cardiac surgery was developed and evaluated within the context of a pre-post study design. Surgeons were trained in shared decision making through a web based programme. Research team members acted as decisional coaches, going through the decision aids with the patients and their families, and remaining available for consultation. Patients (65 and over) undergoing isolated valve, Coronary Artery Bypass Graft (CABG) or CABG+Valve

surgery were eligible. Participants in the pre-intervention phase (n=100) were followed through the standard course of care to establish a baseline. Participants in the interventional group (n=100) were presented with a decision aid following cardiac catheterization populated with individualized risk assessment, personal profile, and co-morbidity status. Surgeon training in shared decision making occurred just prior to instituting the post intervention phase. Decisional coaching only applied to the post intervention phase. Both groups were assessed pre-operatively on comprehension (Maritime Heart Center Comprehension Scale), decisional conflict (Decisional Conflict Scale), decisional quality (9-item Shared Decision Making Questionnaire), anxiety and depression (Hospital Anxiety and Depression Scale), Primary outcomes were comprehension and decisional quality scores.

Result(s): Patients who received decision aids through a formalized shared decision making approach scored higher in comprehension (median: 15.0; IQR: 12.0-18.0) compared to those who did not (median: 9.0; IQR: 7.0-12.0) ($p < 0.001$). Decisional quality was greater in the interventional group (median: 80.0; IQR: 73.0-91.0) compared to those in the pre-intervention group (median: 75.0; IQR: 62.0-82.0) ($p<0.05$). Anxiety and depression scores showed no significant difference between pre-intervention (median: 9.0; IQR: 4.0-12.0) and post-intervention groups (median: 7.0; IQR: 5.0-11.0) ($p<0.28$).

Conclusion(s): Institution of a formalized shared decision making process including individualized decision aids improve comprehension of risks, benefits and alternatives to cardiac surgery, decisional quality, and did not result in increased levels of anxiety.

3G-2. IMPACT OF DECISION-MAKING ROLE PREFERENCES IN THE EFFICACY OF A MULTIMEDIA PATIENT EDUCATION TOOL FOR PATIENTS WITH COMMON RHEUMATOLOGIC CONDITIONS

10:00 - 10:15: Tue. Jun 14, 2016
Auditorium
Part of Session: ORAL ABSTRACTS: PATIENT DECISION MAKING & DECISION AIDS

***Maria Lopez-Olivo, MD, PhD**, Andrea Barbo, MS, Heather Lin, PhD and Maria Suarez-Almazor, MD, PhD, The University of Texas, MD Anderson Cancer Center, Houston, TX*

Purpose: A preference for shared decision-making among patients with chronic conditions has been associated with better health outcomes. We evaluated the effects of a multimedia patient education tool (MM-PtET) compared to a written booklet with the same information in patients with rheumatic diseases.

Method(s): Patients were recruited from 5 centers and through advertisement. Inclusion criteria were: (i) age ≥18 years (ii) diagnosis of rheumatoid arthritis (RA), knee osteoarthritis (OA), or osteoporosis/osteopenia (OP) (iii) adequate cognitive status and, (iv) ability to communicate in English or Spanish language. Our primary outcome was disease knowledge and secondary measures included decisional conflict, self-efficacy and disease management. Assessments were conducted before and after viewing MM-PtET, at 3 and 6 months. The Control Preference Scale (CPS) was used to characterize participants according to their preferred role in decision making (passive vs shared vs active role).

Result(s): 665 participants were randomized (331=MM-PtET, 334=written booklet). Mean age was 59.8±12.1 years, 87% were female, 65% non-White, 20% had inadequate health literacy levels and 26% answered the questionnaire in Spanish. Thirty-three percent had a diagnosis of OA, 34% OP, and 33% RA; 472 (232=MM-PtET, 240=booklet) and 522 (257=MM-PtET, 265=booklet) participants returned their questionnaires at 3 and 6 months, respectively. Most patients reported an active decision-making role preference in the intervention (48% active, 36% shared, and 15% passive) and control (47% active, 36% shared, 17% passive) groups. Greater knowledge scores were observed after viewing the MM-PtET compared with reading the booklet in patients with a shared role preference ($p=0.04$). Compared to patients in the control group, patients in the intervention group with a passive role preference had less decisional conflict ($p=0.04$) and better decision management ($p=0.02$) at 3 months. However, at 6 months improvements from baseline were only significant for patients with an active (decisional conflict, $p=0.04$) and shared role preference (disease management, $p=0.03$). Univariate analysis showed that greater improvements in knowledge (regardless of assignment) were associated with passive role preference compared to active ($p=0.001$, pre&post; $p=0.03$, pre&6-month) and shared role ($p=0.01$) preference.

Conclusion(s): Our MM-PtET improved outcomes after intervention, 3 and 6 months. However, the benefits varied according to the decision-making role preference. Given the observed differences, it is important that educational interventions are tailored to the patients' preferences about their involvement in the decision-making processes.

3G-4. WHAT FACTORS INFLUENCE THE FERTILITY PRESERVATION TREATMENT DECISION-MAKING PROCESS IN WOMEN WITH CANCER? THE QUALITATIVE FINDINGS OF THE PREFER STUDY

10:15 - 10:30: Tue. Jun 14, 2016
Auditorium
Part of Session: ORAL ABSTRACTS: PATIENT DECISION MAKING & DECISION AIDS

Georgina Jones, BA (Hons), MA, D.Phil[1], *Jane Hughes, BA (Hons), MSc*[1], *Diana Greenfield*[2], *Allan Lacey*[1], *Pauline Slade*[3], *Jonathan Skull*[4], *Robert Coleman*[1] *and William Ledger*[5], *(1)University of Sheffield, Sheffield, United Kingdom, (2)Department of Oncology, University of Sheffield, Sheffield, United Kingdom, (3)University of Liverpool, Liverpool, United Kingdom, (4)Assisted Conception Unit, Jessop Hospital, Sheffield, United States Minor Outlying Islands, (5)University of New South Wales, Sydney, Australia*

Purpose: To understand the factors that influence the fertility preservation (FP) decision-making process for women of reproductive age with cancer.

Method(s): A single centre, prospective, mixed-methods study, over 30 months. Fifty-eight women aged between 16-40, attending a cancer hospital with a new diagnosis of cancer were recruited. Thirty-four women, decided not to preserve their fertility in oncology (Group 1). Twenty-four women were referred to the fertility expert (Group 2). Data was collected using patient-reported outcome measures which were administered at baseline, pre-and-post fertility consultation (T1 & T2) and post cancer treatment (T3). A subsample (n=15) also took part in a qualitative interview. The interview transcripts were coded by two members of the study team using NVivo and analysed using a thematic approach.

Result(s): In Group 1, reasons for declining a referral to the fertility expert were i) already completed their family (44%), ii) worried about future survival/delaying cancer treatment (18%), iii) too old for FP treatment/subsequent pregnancy (18%), iv) never wanted children (12%), iv) had an oestrogen positive cancer (3%), vi) not told/given the option of FP (3%).

The mean age of the women in Group 2 was 29.2 years, range (16 - 39 years). These women had breast cancer (60.9%), lymphoma (17.4%), sarcoma (4.3%) cervical (4.3%) rectal (4.3%) brain (4.3%) and tonsil cancer (4.3%). Median time of referral from oncology to the fertility expert was 7 days (range 1 – 29 days). Sixteen women preserved their fertility; six opted for oocyte freezing, seven embryo freezing and three both. The qualitative analysis revealed that the main reason hindering the FP decision was the lack of FP treatment information received at the point of diagnosis/treatment planning stage in oncology. Other reasons included age, costs, having a hormone sensitive and/or aggressive cancer, time pressure to make the decision and/or start cancer treatment, perceived risks around delaying cancer treatment, not feeling re-assured by clinical advice, fear of the FP treatment and uncertainty over IVF success rates.

Conclusion(s): Women wanted to receive some specialist FP information sooner and in the context of their cancer care, in *advance* of seeing the fertility expert. These findings are informing the development of a FP decision aid for use in oncology to better support and prepare women needing cancer treatment with fertility decisions.

3G-3. DECISION AIDS' EFFICACY TO SUPPORT WOMEN'S FERTILITY PRESERVATION CHOICES BEFORE CANCER TREATMENT: AN ENVIRONMENTAL SCAN

10:30 - 10:45: Tue. Jun 14, 2016
Auditorium
Part of Session: ORAL ABSTRACTS: PATIENT DECISION MAKING & DECISION AIDS

Neda Mahmoodi, PhD, PGCert MRes, BSc(Hons)[1], ***Hilary Bekker, BSc, Msc, PhD***[2], *Natalie King, MSc, Bsc*[2], *Jane Hughes, BA (Hons), MSc*[3] *and Georgina Jones, BA (Hons), MA, D.Phil*[3], *(1)Leeds University, Leeds, United Kingdom, (2)University of Leeds, Leeds, United Kingdom, (3)University of Sheffield, Sheffield, United Kingdom*

Purpose: To evaluate patient information and clinical guidelines developed for women making fertility preservation choices before cancer treatment. As some cancer treatments increase women's chance of infertility, oncology and fertility services provide information preparing women for fertility preservation procedures. Women report current resources are not sufficient to support their fertility preservation decisions during their cancer care.

Method(s): An environmental scan of open-access decision support resources carried out using systematic review methods (December 2015). Three data sources were searched: internet (Google): healthcare decision support repositories (Decision Aids Library Inventory; Trips; NHS Evidence; National Guidelines Clearinghouse; Clinical Trials); shared decision making experts (SHARED-L distribution list). Inclusion criteria were, information about: women receiving cancer treatment; consequences cancer treatment on fertility; fertility preservation options; statements supporting women's choices. The International Patient Decision Aid Standards (IPDAS) criteria informed the data extraction sheet developed to elicit information about resources' content. Data were evaluated critically against these components, assessing resources' validity to support actively people's decision making between options.

Result(s): Of the 116 patient decision aids and 42 clinical guidelines identified, 24 decision aids met the inclusion criteria. Resources varied in amount (2 – 90 pages) and type (pdf – App) of information. Most were rated as difficult to read (Flesch <60); few were endorsed independently (e.g. DALI, Crystal Mark). A third stated the resource's purpose was to support women's decision making; most aimed to inform and prepare women for fertility preservation and/or infertility procedures. Most resources provided questions for women to engage with health professionals rather than prompts and structures supporting deliberative thinking about which options fit best into their life now, and after cancer treatment (e.g. decision maps, parallel presentation options and attributes; risk figures, value clarification prompts). Most descriptions of cancer and

infertility missed out information from one of the five schema people need when making sense of illness. Most resources met less than 50% of the IPDAS criteria.

Conclusion(s): Resources provided information about fertility preservation and infertility treatment options; about 20% adhered to IPDAS guidance and readability standards. Most resources were designed for women with breast cancer after referral to infertility services. A decision aid supporting women's deliberation about fertility preservation, or not, when receiving treatment for any cancer is likely to meet UK and international service needs.

3G-5. IF YOU WERE A BRCA MUTATION CARRIER WHAT WOULD YOU DO? FACTORS PREDICTING THE CHOICE OF PROPHYLACTIC OVARIECTOMY IN A SAMPLE OF ITALIAN WOMEN

10:45 - 11:00: Tue. Jun 14, 2016
Auditorium
Part of Session: ORAL ABSTRACTS: PATIENT DECISION MAKING & DECISION AIDS

Teresa Gavaruzzi[1], *Alessandra Tasso*[2], *Marzena Franiuk*[3], *Liliana Varesco*[3] *and Lorella Lotto*[1], *(1)DPSS, University of Padova, Padova, Italy, (2)University of Ferrara, Ferrara, Italy, (3)IRCCS AOU San Martino, Genova, Italy*

Purpose: Prophylactic removal of ovaries in women with BRCA mutations is the only option that significantly reduces their risk of developing ovarian cancer. The aim of this study was to assess attitudes toward ovarian cancer risk management options in a sample of Italian healthy women, and to identify predictors of the preference for prophylactic surgery, in order to inform genetic counselling sessions.

Method(s): One hundred eighty-one women aged between 30 and 45 were randomly presented with material about BRCA1 or BRCA2 after stratifying for *Having children or not* and *Age group,* and completed a questionnaire, which included questions about preferences, knowledge, risk perception, and socio-demographic information. Choice was analysed using binary logistic regression models and with a model selection approach. First, all predictor variables were included in the model, and then the model was progressively reduced, until the plausibility of the model was no longer increased by removing variables.

Result(s): Results show that intensified surveillance was the preferred option (64.6%), followed by surgery (24.3%). Seven predictors of choice were included in the model: knowing that life expectancy is longer with surgery, perceived comprehension of all the consequences of testing, previous knowledge about BRCA testing, anticipated worry about developing cancer, feelings of risk (all associated with a higher likelihood to prefer surgery over intensified surveillance), having childbearing intentions, and the extent to which childbearing intentions affected choice (both associated with a lower likelihood to prefer surgery).

Conclusion(s): Our study provides useful indications for genetic counsellors in order to promote informed uptake of preventive removal of ovaries in the context of BRCA mutation. Based on our findings, we suggest that: a) during counselling, when describing the available options, the comparative effectiveness of surgery and surveillance and their effect on life expectancy should be made clear; b) counsellors should ensure that patients correctly feel they understood all the consequences of their decision; c) since previous knowledge on BRCA testing is beneficial, information provision prior to counselling may be useful; d) affective-based risk perception drives preference for prophylactic surgery more than cognitive-based risk perception, although risk communication is an essential component of genetic counselling; e) in addition to discussing childbearing intentions, also the effect of childbearing intentions on choice should be considered.

3G-6. EXTERNAL VALIDATION OF THE PATIENT MEASURE OF COLLABORATIVE GOAL SETTING: HOW DOES COLLABORATIVE GOAL SETTING IMPACT SELF-MANAGEMENT?

11:00 - 11:15: Tue. Jun 14, 2016
Auditorium
Part of Session: ORAL ABSTRACTS: PATIENT DECISION MAKING & DECISION AIDS

Heather Morris, PhD*, University of Florida, Gainesville, FL*

Purpose: Engaging patients in the goal setting process is one potential method of improving health outcomes. Our understanding of how collaborative goal setting impacts self-management behaviors is limited. The purpose of this study was to evaluate the external validity of the Patient Measure of Collaborative Goal Setting (PM-CGS) and to assess the pathways by which it impacts self-management.

Method(s): A random sample of 400 patients aged 40 years or older, receiving diabetes care from the Virginia Commonwealth University Health System between August 2012 – August 2013 were mailed a survey containing the PM-CGS, perceived competence, trust in the physician, and self-management behaviors. External validity was evaluated via a structural equation model (SEM) in order to assess a potential association with self-management behaviors.

Result(s): A total of 192 respondents reported engaging in a goal setting discussion with their clinician and were included in analyses. The overall fit of the unadjusted model was good (χ^2 = 4827.38, p<.001; RMSEA = .07). Collaborative goal setting

was significantly associated with increased self-efficacy (p<.03) as well as with self-management behaviors (p<.001). Furthermore, self-efficacy was significantly associated with an increase in a patient's self-management behaviors (p<.001). Results (p<0.05) supported that the relationship between collaborative goal setting and self-management was partially mediated by self-efficacy.

Conclusion(s): Results here provided external validity of the PM-CGS. Further testing is needed to establish the pathways by which collaborative goal setting impacts clinical outcomes.

3H. ORAL ABSTRACTS: DIAGNOSIS

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09:45 - 11:15: Tue. Jun 14, 2016
Euston Room, 5th Floor
Session Chairs:

- *Hendrik Koffijberg, PhD*

Session Summary:

09:45 - 10:00

3H-1. THE COST-EFFECTIVENESS OF POTENTIAL IMPROVEMENTS IN THE DIAGNOSIS OF AND TREATMENT OF DEPRESSION AMONGST PEOPLE WITH DIABETES

10:00 - 10:15

3H-2. ECONOMIC EVALUATON OF NON-INVASIVE INVESTIGATION OF STATIC AND DYNAMIC LIVER FUNCTION TO ASSIST CLINICAL DECISION MAKING IN HEPATUCELLULAR CARCINOMA

10:15 - 10:30

3H-3. ECONOMIC EVALUATION OF A COMMUNITY BASED DIAGNOSTIC PATHWAY TO STRATIFY ADULTS AT RISK OF ALCOHOLIC LIVER DISEASE

10:30 - 10:45

3H-4. DIAGNOSING HEART FAILURE WITH NT-PROBNP IN GENERAL PRACTICE: LOWER COSTS AND BETTER OUTCOME

10:45 - 11:00

4L-5. FROM PREDICTED RISK TO PREDICTED BURDEN OF CARDIOVASCULAR DISEASE

11:00 - 11:15

3H-6. COST-EFFECTIVE MANAGEMENT OF WOMEN WITH MINOR CERVICAL LESIONS: REVISITING THE APPLICATION OF HPV DNA TESTING

Abstracts:

3H-1. THE COST-EFFECTIVENESS OF POTENTIAL IMPROVEMENTS IN THE DIAGNOSIS OF AND TREATMENT OF DEPRESSION AMONGST PEOPLE WITH DIABETES

09:45 - 10:00: Tue. Jun 14, 2016
Euston Room, 5th Floor
Part of Session: ORAL ABSTRACTS: DIAGNOSIS

Benjamin Kearns, BSc, MSc[1], *Rachid Rafia, MSc*[2], *Jo Leaviss, BA, MPA, PhD*[1], *Louise Preston, BA, MSc, PhD*[1], *Ruth Wong, BSc, MRes, MSc, PhD*[1], *John Brazier, BA, MSc, PhD*[1], *Stephen Palmer, PhD*[3] *and Roberta Ara, BSc, MsC*[1], *(1)The University of Sheffield, Sheffield, United Kingdom, (2)Health Economics and Decision Science (HEDS), School of Health and Related Research (ScHARR), University of Sheffield, Sheffield, United Kingdom, (3)University of York, York, United Kingdom*

Purpose: To estimate the cost-effectiveness of potential changes to the care pathway for people with diabetes. The changes considered were improved opportunistic screening for depression, and implementing collaborative care treatment for people with diabetes and depression.

Method(s): A discrete-event simulation mathematical model was developed of the depression care pathway experienced by people diagnosed with type-2 diabetes in England. Model parameters were based on systematic reviews of the literature. The model was used to assess the costs and health outcomes associated with the potential service changes from an NHS perspective, wider social benefits were also explored. The lifetime outcomes considered were time spent with depression, diabetes-related complications, quality adjusted life years (QALYs), mortality, and healthcare system costs. The changes were considered both separately and in combination, resulting in three potential service changes.

Result(s): All three changes were associated with reductions in both the time spent with depression and the number of diabetes-related complications experienced. In addition, each of the three policies was associated with an improvement in quality of life and an increase in both life years and depression-free years compared with current practice, but also with an increase in health care costs. Collaborative care dominated improved opportunistic screening, being both cheaper and more effective. The incremental cost-effectiveness ratio (ICER) for collaborative care compared with current care pathways was £10,798 per QALY. Compared to collaborative care, the combined policy of both collaborative care and opportunistic screening had an ICER of £68,017 per QALY.

Conclusion(s): Service changes to improve the diagnosis of, and treatment of, depression in patients with diabetes may lead to reductions in diabetes related complications and depression, which in turn increases life expectancy and improves health-related quality of life. However, all three service changes lead to an increase in health care costs. Of the changes considered, implementing collaborative care was cost-effective based on current national guidance in England.

3H-2. ECONOMIC EVALUATON OF NON-INVASIVE INVESTIGATION OF STATIC AND DYNAMIC LIVER FUNCTION TO ASSIST CLINICAL DECISION MAKING IN HEPATUCELLULAR CARCINOMA

10:00 - 10:15: Tue. Jun 14, 2016
Euston Room, 5th Floor
Part of Session: ORAL ABSTRACTS: DIAGNOSIS

Martin Henriksson, PhD[1], *Peter Lundberg, PhD*[2], *Per Sandström, MD PhD*[3] *and Lars-Åke Levin, PhD*[1], *(1)Department of Medical and Health Sciences, Linkoping University, Linkoping, Sweden, (2)Center for Medical Imaging and Visualization (CMIV), Linkoping University, Linkoping, Sweden, (3)Department of Surgery and Department of Clinical and Experimental Medicine, Linkoping University, Linkoping, Sweden*

Purpose: Surgeons undertaking resections of the liver in patient with hepatocellular carcinoma are challenged with poor knowledge on both global and regional liver function. Recent research has focused on the use of non-invasive investigation of both static and dynamic liver function to assist clinical decision making. The value of this emerging diagnostic technology is unknown, and the aim of the study was to perform an early assessment of costs and health outcomes.

Method(s): A decision analytic model was developed to estimate healthcare costs and QALYs for a clinical practice strategy and a diagnostic strategy in patients with hepatocellular carcinoma. The clinical practice strategy reflects current clinical decision making. The diagnostic strategy uses a non-invasive diagnostic technology that determines several central aspects of liver function based on magnetic resonance imaging, and processes this information into a visualization tool to support clinical decision making. The decision analytic model incorporates how knowledge of liver function status may impact treatment decisions and the prognosis of implemented treatments due to increased surgical precision. Expert opinion was used to estimate the impact on treatment decisions, the Swedish registry of tumors in the liver and bile ducts (Sweliv), together with published literature was used to inform long-term prognosis of implemented treatments. To reflect the substantial uncertainty associated with the use of the new diagnostic strategy, extensive sensitivity scenarios were investigated. Costs and QALYs were estimated from a Swedish healthcare perspective.

Result(s): In the most plausible scenarios, QALYs gained with a diagnostic strategy varied between 0.07 and 0.26, yielding cost per QALY estimates of €7500 to €3500 compared with a clinical practice strategy. Treatment decisions (a larger proportion of patients undergoing resection) and improved long-term prognosis (due to optimal resection) contributed equally to the gain in QALYs. Incremental costs associated with the diagnostic strategy were primarily driven by resection costs and additional costs associated with improved survival, and not the actual cost of the diagnostic procedure.

Conclusion(s): This early evaluation indicates that a diagnostic visualization tool in patients with hepatocellular carcinoma will improve health outcomes at a cost below generally acceptable thresholds of cost-effectiveness. Furthermore, the evaluation provides a structured framework to prioritize further research, and also to assess the value of the diagnostic technology in other disease areas than hepatocellular carcinoma.

3H-3. ECONOMIC EVALUATION OF A COMMUNITY BASED DIAGNOSTIC PATHWAY TO STRATIFY ADULTS AT RISK OF ALCOHOLIC LIVER DISEASE

10:15 - 10:30: Tue. Jun 14, 2016
Euston Room, 5th Floor
Part of Session: ORAL ABSTRACTS: DIAGNOSIS

Lukasz Tanajewski[1], Rebecca Harris[2], David J Harman[2], Georgios Gkountouras[1], Vladislav Berdunov[1], Guruprasad Aithal[2], Timothy Card[2], Neil Guha[2] and Rachel A. Elliott[3], (1)Division of Social Research in Medicines and Health, School of Pharmacy, University of Nottingham, Nottingham, United Kingdom, (2)NIHR Nottingham Digestive Diseases Biomedical Research Unit, Nottingham University Hospitals NHS Trust and University of Nottingham, Nottingham, United Kingdom, (3)School of Pharmacy, Nottingham, United Kingdom

Purpose:

Current diagnostic algorithms for investigating alcoholic liver disease (ALD) are based in secondary care which is associated with considerable costs and late diagnosis. We investigated the cost-effectiveness from an NHS England perspective of a community-based innovative diagnostic pathway (IDP) which stratifies patients at risk of ALD.

Method(s):

An economic evaluation was conducted to compare IDP, a pathway which identifies patients at risk of ALD in primary care and utilises transient elastography and a community hepatologist review to stratify patients, with standard care (SC), a referral to secondary care based on abnormal liver function tests. Brief alcohol intervention was assumed to be implemented in both arms.

Markov modelling of the natural history of ALD was combined with results of a prospective cross-sectional feasibility study (data on IDP and SC diagnostic accuracies). The following states were included in the model: no/mild liver disease (+/-), significant liver disease (+/-), compensated cirrhosis (+/-), split dependent on whether early disease is detected and treated (+) or not (-), decompensated cirrhosis, hepatocellular carcinoma, liver transplant and death. Starting age was 43, with 1-year cycle length and lifetime horizon, costs and utilities were discounted at 3.5%. Transition probability, utility and resource use data were taken from up-to-date UK sources. Due to poor data available for early disease progression and management, an expert panel of hepatologists was consulted to generate indicative estimates of probabilities and resource use.

An incremental cost-effectiveness ratio (ICER) was estimated, with extended one-way sensitivity analysis (OSA) to assess robustness of the results. Probabilistic sensitivity analysis (PSA) was performed, plotting an ICER-scatter-plane and a cost-effectiveness acceptability curve.

Result(s):

The analysis showed an ICER of £6,537 per extra quality adjusted life year (QALY), with QALY gain (0.45) and incremental cost (£2,973). OSA demonstrated ICER was robust and most sensitive to estimates on the effect of treatment on reducing the rate of fibrosis progression. PSA showed an ICER of £7,468/QALY (2.5%- 97.5% percentiles: 988-51,257), with QALY gain, 0.41 (0.00-0.88), and incremental cost, £3,137 (1,306-5,005), and demonstrated an 87% probability of cost-effectiveness at the UK willingness-to-pay threshold of £20,000/QALY.

Conclusion(s):

IDP was cost-effective compared with SC, even in the presence of significant uncertainty around estimates. This suggests that IDP is likely to represent good value for money if implemented.

3H-4. DIAGNOSING HEART FAILURE WITH NT-PROBNP IN GENERAL PRACTICE: LOWER COSTS AND BETTER OUTCOME

10:30 - 10:45: Tue. Jun 14, 2016
Euston Room, 5th Floor
Part of Session: ORAL ABSTRACTS: DIAGNOSIS

***Christoffer Bugge, Msc**, Oslo Economics, Sande, Norway, Erik Magnus Sæther, PhD, Oslo Economics, Oslo, Norway, Andreas Pahle, MD, Bolteløkka Legesenter, Oslo, Norway, Daniel Sørli, MD, Bankgården Legekontor, Sørumsand, Norway and Ivar Sønbø Kristiansen, MD, PhD, MPH, Department of Health Management and Health Economics, University of Oslo, Oslo, Norway*

Purpose: Afflicting 1-2% of the adult population, heart failure is a serious condition with considerable morbidity and mortality. While ecchocardiography may be considered the gold standard diagnostic test, GPs have relied on symptoms and clinical findings. Increasingly, quantification of serum natriuretic peptides (BNP/NT-proBNP) is recommended as a more precise test. The aim of this study was to estimate one year health outcome and costs of three diagnostic strategies: History and clinical findings (“clinical diagnosis”); clinical diagnosis supplemented with NT-proBNP point of care test in the GP’s surgery (“POC-test”) or in hospital laboratory (“hospital-test”).

Method(s): We developed a decision tree model to simulate one year patient courses with each of the strategies. Sensitivity and specificity of clinical diagnosis (56% and 68%) and of NT-proBNP test (90% and 65%) were based on published literature. The probabilities of referral to hospital given a test outcome were based on a survey of Norwegian GPs (n=103). The costs were based on various Norwegian fee schedules. Sensitivity analyses were conducted to examine the uncertainty of the results.

Result(s): The one-year societal costs were NOK4,897, NOK 4,544 and NOK5,467 for clinical diagnosis, POC-test and hospital test, respectively (€1.00≈NOK9.00). Even though POC testing entails higher laboratory costs than the other test modalities, the total primary care costs are lower with such testing because of fewer re-consultations with the GP and less use of spirometry. POC testing also entails lower hospital costs because of fewer false positive heart failure tests. Finally, patients' travel costs are lower with POC-test because of fewer re-consultations and fewer unnecessary referrals to hospital. While 38% of patients had a delayed correct diagnosis with clinical diagnosis, the proportions were 22% with POC-test and hospital-test. The model was most sensitive to the cost of being referred to a specialist physician and to the specificity to the three tests. The results were only marginally affected by changes in input variables.

Conclusion(s): POC-testing results in earlier diagnosis and lower costs than the other diagnostic modalities.

4L-5. FROM PREDICTED RISK TO PREDICTED BURDEN OF CARDIOVASCULAR DISEASE

10:45 - 11:00: Tue. Jun 14, 2016
Euston Room, 5th Floor
Part of Session: ORAL ABSTRACTS: DIAGNOSIS

Giske Lagerweij, MSc[1], *Ardine de Wit, PhD*[1], *Carl Moons, PhD*[1], *Jolanda Boer, PhD*[2], *Monique Verschuren, PhD*[2] *and Hendrik Koffijberg, PhD*[3], *(1)Julius Center for Health Sciences and Primary Care, University Medical Center Utrecht, Utrecht, Netherlands, (2)Centre for Nutrition, Prevention and Healthcare, National Institute for Public Health and the Environment, Bilthoven, Netherlands, (3)University of Twente, Enschede, Netherlands*

Purpose: Prediction models for the risk of developing cardiovascular disease (CVD) in the general population may be useful for estimating the burden of disease. However, assessment of the health loss associated with the predicted endpoint may be difficult because prediction models are commonly developed based on composite endpoints. Moreover, the composite endpoints may also differ between different prediction models regarding the types of CVD events included. Therefore, different prediction models might lead to different estimated burden. The purpose of this study is to explore the extent of the differences in definition and constitution of composite endpoints, in four widely used CVD risk prediction models, and to assess how these differences influence estimates of CVD burden.

Method(s): Data from a large Dutch cohort study (n=19484; mean follow up 12.3 years) was used to investigate differences in composite endpoints of four widely used CVD risk prediction models: the Adult Treatment Panel III (ATP), Framingham Global (FRS), Pooled Cohort Equations (PCE) and SCORE-low (SCORE) models. Across these four prediction models, we calculated the 10-year individual CVD risks and the corresponding health loss based on the CVD event types included in the composite endpoint. Subsequently, each prediction model was used to estimate the expected CVD burden in the 25% individuals with highest predicted risks, expressed as Quality-Adjusted Life Years (QALYs) lost.

Result(s): The observed constitution of the composite endpoints varied widely across the four models. For example, the percentage non-fatal MI events was 81%, 19%, 37%, and 0% according to ATP, FRS, PCE, and SCORE respectively, and for fatal MI this was 19%, 5%, 9%, and 57%, respectively. FRS predicted the highest CVD risks and the composite endpoint used in SCORE had the highest health burden. The predicted CVD burden in the 25% individuals with highest predicted risk was 0.19, 0.72, 0.36, and 0.23 QALYs lost per individual when using ATP, FRS, PCE and SCORE, respectively.

Conclusion(s): The investigated CVD risk prediction models showed huge variation in definition and constitution of the composite endpoints. This directly resulted in large differences in estimated CVD burden. When interpreting the estimated CVD burden derived with a risk prediction model, it is therefore crucial to consider which CVD event types are included, and which are excluded, in that prediction model.

3H-6. COST-EFFECTIVE MANAGEMENT OF WOMEN WITH MINOR CERVICAL LESIONS: REVISITING THE APPLICATION OF HPV DNA TESTING

11:00 - 11:15: Tue. Jun 14, 2016
Euston Room, 5th Floor
Part of Session: ORAL ABSTRACTS: DIAGNOSIS

Kine Pedersen, MPhil[1], *Emily A. Burger, PhD*[2], *Stephen Sy, MS*[2], *Ivar S. Kristiansen*[3] *and Jane J. Kim, PhD*[2], *(1)Department of Health Management and Health Economics, University of Oslo, Oslo, Norway, (2)Harvard T.H. Chan School of Public Health, Boston, MA, (3)Oslo University, Department of Health Management and Health Economics, Oslo, Norway*

Purpose: New screening technologies, including assays to detect human papillomavirus (HPV), the causal agent of cervical cancer, coupled with a better understanding of the natural history of HPV and cervical disease, necessitate revisiting cervical cancer screening approaches. Within the context of the Norwegian Cervical Cancer Screening Program, we aimed to identify the optimal diagnostic work-up of women with minor cervical cytological lesions.

Method(s): We adapted an individual-based microsimulation model to reflect HPV and cervical cancer burden in Norway, including HPV infection status and persistence in progression to precancer and cancer. We projected the health and

economic consequences associated with ten candidate strategies to triage women with minor cervical cytological lesions who were also high-risk HPV-positive. Candidate strategies varied by: 1) the triage test(s): HPV testing with cytology (i.e., current Norwegian guidelines), HPV testing alone with or without genotyping for HPV-16 and-18 (the two most carcinogenic types), and immediate colposcopy, and 2) the length of time between index and triage testing (i.e., ranging 6-18 months). Model outcomes included lifetime risk of cervical cancer, quality-adjusted life-years (QALYs), lifetime societal costs, and resource use (e.g., number of colposcopy referrals) associated with each strategy. We estimated the incremental cost-effectiveness ratio (ICER) to identify cost-efficient strategies.

Result(s): The candidate strategies were projected to reduce the lifetime risk of cervical cancer by 84.2% to 85.9%, and were more effective and less costly than current Norwegian guidelines. Given current willingness-to-pay recommendations in Norway of $100,000 per QALY gained, the preferred strategy involved immediate colposcopy for all high-risk HPV-positive women ($80,310 per QALY gained). This strategy was associated with a 21% increase in colposcopy referrals and a 15% increase in precancer treatments compared with current levels. Strategies involving immediate colposcopy only for women with HPV-16 or -18, and repeat HPV testing for women with non-HPV-16/-18 high-risk genotypes (at 18 or 12 months), had lower, more attractive ICERs, and required moderate increases in colposcopy and treatment referrals compared with current guidelines.

Conclusion(s): New applications of HPV testing in screening triage are likely to increase health benefit at lower costs than current Norwegian guidelines. However, the minor improvements in health benefits associated with more effective strategies require a tradeoff of increased colposcopy referrals and precancer treatments.

3I. ORAL ABSTRACTS: QUANTITATIVE METHODS I

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09:45 - 11:15: Tue. Jun 14, 2016
Stephenson Room, 5th Floor
Session Chairs:

- *Torbjorn Wisloff, PhD, MSc*

Session Summary:

09:45 - 10:00

3I-1. LESS-IS-MORE: LESS INFORMATION CAN IMPROVE CLINICAL RISK ASSESSMENT JUDGEMENTS

10:00 - 10:15

3I-2. RESOURCE ALLOCATION DECISIONS AND BUDGETARY POLICIES UNDER CONDITIONS OF UNCERTAINTY

10:15 - 10:30

3I-3. COMPARISON OF CALIBRATION METHODS FOR NATURAL HISTORY SIMULATION MODELS

10:30 - 10:45

3I-4. SENSITIVITY OF TREATMENT DECISIONS TO BIAS ADJUSTMENT IN NETWORK META-ANALYSIS

10:45 - 11:00

3I-5. DOSE-OPTIMAL VACCINE ALLOCATION OVER MULTIPLE POPULATIONS

11:00 - 11:15

3I-6. STATIN BENEFIT-RISK PROFILES IN INDIVIDUALS AT INTERMEDIATE RISK FOR CARDIOVASCULAR DISEASE

Abstracts:

3I-1. LESS-IS-MORE: LESS INFORMATION CAN IMPROVE CLINICAL RISK ASSESSMENT JUDGEMENTS

09:45 - 10:00: Tue. Jun 14, 2016
Stephenson Room, 5th Floor
Part of Session: ORAL ABSTRACTS: QUANTITATIVE METHODS I

Lukasz Kopec[1], *Paula Parpart*[1], *Paul Wallang, MB. ChB*[2] *and Bradley Love, PhD*[1], *(1)University College London, London, United Kingdom, (2)St. Andrew's Healthcare, Northampton, United Kingdom*

Purpose: Research on risky decision making suggests that decision makers' performance can sometimes improve from presenting less information. In the current work we aimed to find out whether this is also true in the medical domain, where diagnostic tools often use a large number of cues and decreasing the dimensionality of these tools may help improve clinicians' decisions.

Method(s): We specifically looked at the problem of assessing the risk of violence among clinical populations in a forensic psychiatric setting. We tested different models predicting violent behaviour - a simple tallying model that just sums up the evidence across all items without performing any differential weighting of the items, and a regularised regression model which can select the items which are more important than others and weigh them accordingly. We trained both models on a dataset of the HCR–20 (Historical, Clinical, and Risk Management) violence risk assessment scores and basic demographic information about the patients such as age and gender, together with a connected patient record about violent behaviour from 366 patients at a major medium-security hospital in the UK. We trained each model on 1) all available HCR-20 items and 2) only half of the HCR-20 items (10) which were selected such as to optimise each model's out-of-sample performance.

Result(s): We found that the tallying model which only uses unit weights on the items (and has a cutoff threshold as a parameter) exhibits the same level of predictive accuracy as the more complex regression model. Moreover, we find that surprisingly, training the models on 10 predictors instead of 20 resulted in superior performance for the simple tallying model and the regularised regression model.

Conclusion(s): Our findings show that the simple tallying model performed surprisingly well in comparison to regularised regression. However, the performance of both of these models when trained on only half of the HCR-20 items, suggesting that the HCR-20 instrument can be improved by feeding it less information. This can potentially save costs and time of risk assessments, while improving diagnostic judgments, thus benefitting clinicians and patients.

3I-2. RESOURCE ALLOCATION DECISIONS AND BUDGETARY POLICIES UNDER CONDITIONS OF UNCERTAINTY

10:00 - 10:15: Tue. Jun 14, 2016
Stephenson Room, 5th Floor
Part of Session: ORAL ABSTRACTS: QUANTITATIVE METHODS I

***Beth Woods, MSc**[1], Claire Rothery, PhD[1], Sarah-Jane Anderson[2], Jeffrey Eaton[2], Timothy Hallett[2] and Karl Claxton, PhD[1], (1)University of York, York, United Kingdom, (2)Imperial College London, London, United Kingdom*

Purpose: Standard cost-effectiveness analyses implicitly assume a 'soft budget' constraint where health outcomes are maximised by meeting the budget on expectation. In reality, costs and effects are uncertain and fixed or 'hard' budgets exist at the level of specific geographies, populations and clinical areas. This work aims to assess the impact of fixed budgets on health, evaluate different budgetary policies under uncertainty, and assess the value of reducing uncertainty when fixed budgets exist.

Method(s): We use the example of a fixed HIV budget to be allocated across six regions. The model reflects a sub-Saharan African setting with a generalised HIV epidemic in which regions differ by HIV prevalence. Decision makers can choose to invest in one or more interventions (of late ART, male voluntary circumcision or early ART) in each region at a range of coverage levels. Costs and QALYs are predicted using a transmission model and the optimal resource allocation is identified using mathematical programming. Uncertainty is propagated through the model using Monte Carlo simulation. We assess the impact of three budgetary policies: (i) fixed budgets at the regional level, (ii) more modest planned programmes coupled with a contingency fund to preserve planned programmes, and (iii) a national budget policy which allows transfers between regions. We explore the implications of having perfect information, to represent an upper bound on the health that could be generated by data collection.

Result(s): Standard cost-effectiveness analyses overestimate the health generated under fixed regional budgets by up to 23%. This occurs as planned programmes cannot be implemented in all realisations of uncertainty. The contingency fund generates more health than regional budgets. This suggests that preserving more cost-effective interventions across realisations of uncertainty can be valuable, and that basing plans on expected costs and effects can be sub-optimal. The national budget policy outperforms these policies by allowing decision makers to maintain planned programmes via regional transfers. Perfect information outperforms the other fixed budget policies, and performs as well as soft budgets even though there is no possibility for national HIV budget over-runs.

Conclusion(s): This work shows that fixed budgets reduce health in a way that is not currently reflected in cost-effectiveness analysis. This can be mitigated via careful resource allocation decisions, budgetary policy design and information collection.

3I-3. COMPARISON OF CALIBRATION METHODS FOR NATURAL HISTORY SIMULATION MODELS

10:15 - 10:30: Tue. Jun 14, 2016
Stephenson Room, 5th Floor
Part of Session: ORAL ABSTRACTS: QUANTITATIVE METHODS I

Fernando Alarid-Escudero, MS, PhD Candidate, Division of Health Policy and Management, University of Minnesota, Minneapolis, MN, Eva Enns, MS, PhD, University of Minnesota, Minneapolis, MN, Chung Yin Kong, PhD, Harvard Medical School, Boston, MA and Lauren E. Cipriano, Ph.D., Ivey Business School at Western University, London, ON, Canada

Purpose: Disease natural history models often contain parameters that are unknown or unobservable for different reasons (e.g., ethical or financial). Calibration is the process of estimating these parameters by matching model outputs to observed clinical or epidemiological data. Our objective is to compare four different calibration methods on how they perform recovering the true parameters.

Method(s): Using a known set of parameters, we used a state-transition model with four health states: Healthy, two stages of illness (S1, S2), and Dead to simulate 1,000 individuals over 30 years in a microsimulation fashion. We produced three different sets of targets: survival, disease prevalence and log-ratio between the two stages of illness. We repeated this procedure 100 times to generate multiple sets of calibration targets. We calibrated a cohort version of the model assuming three input parameters were unknown using four different approaches: 1) two goodness-of-fit (GoF) approaches based on absolute differences with equal and unequal weights, 2) a Bayesian sampling-importance-resampling (SIR) approach, and 3) a Pareto frontier approach. We considered scenarios of varying calibration target data availability with observations every 1, 2, 5 and 10 years. We compared the calibration approaches using three metrics: 1) root mean square error (RMSE) between best-fitting input sets and true parameter values, 2) the proportion of simulations in which true parameter values are contained within the bounding ellipse of best-fitting parameters (coverage), and 3) minimum quantile ellipse that contains the true parameter values.

Result(s): For the scenario with targets every 5 years (i.e., 18 calibration targets), the Bayesian approach yielded the smallest RMSE, followed by the Pareto frontier. Pareto frontier had the highest coverage, with 94% of the 95% bounding ellipse including the true parameters, followed by the GoF with unequal weights with 82%. Both GoF with equal weights and Pareto frontier had the lowest minimum coverage with 76%. The rest of the results for this scenario are shown in the table. As the number of targets increased all calibration approaches improved.

Conclusion(s): Recovering the truth depends on many system and model properties. The choice of calibration targets matter and contrary to what we expected, more targets may not necessarily be better.

	Average RMSE (SD)			Coverage	Min. Coverage
Method	RR1	RR2	pSick2Sicker		
GoF 1	1.11 (0.14)	2.92 (0.88)	0.013 (0.005)	62%	76%
GoF 2	1.10 (0.15)	2.54 (0.86)	0.011 (0.002)	82%	79%
Bayesian	1.09 (0.16)	2.46 (0.83)	0.011 (0.002)	74%	77%
Pareto frontier	1.10 (0.14)	2.88 (0.71)	0.019 (0.006)	94%	76%

Table. Simulation results for the scenario with targets every 5 years (i.e., 18 targets).

3I-4. SENSITIVITY OF TREATMENT DECISIONS TO BIAS ADJUSTMENT IN NETWORK META-ANALYSIS

10:30 - 10:45: Tue. Jun 14, 2016
Stephenson Room, 5th Floor
Part of Session: ORAL ABSTRACTS: QUANTITATIVE METHODS I

David M. Phillippo[1], Sofia Dias, PhD[1], Nicky J. Welton, PhD[1], Nichole Taske, PhD[2], Bhash Naidoo, PhD[2] and A. E. Ades, PhD[1], (1)School of Social and Community Medicine, University of Bristol, Bristol, United Kingdom, (2)National Institute for Health and Care Excellence (NICE), London, United Kingdom

Purpose:

We demonstrate a new method for quantifying the effects of bias adjustment on treatment decisions based on a network meta-analysis (NMA).

Method(s):

NMA combines evidence on multiple treatments from several studies to provide internally consistent treatment effect estimates and is frequently used to inform clinical guideline recommendations. Evidence from included studies is typically assessed for risk of bias using subjective tools and checklists; however these provide no information on the effects of potential bias on decisions based on the results of the NMA.

We propose a new method that provides quantitative assessment of the effects of potential bias adjustments, by deriving bias-adjustment thresholds which describe the smallest changes to the data that would result in a change of treatment

decision. In other words, the treatment decision is invariant to biases within the threshold limits. Bias adjustments can be considered for individual study estimates or for overall treatment contrasts.

Bias-adjustment thresholds are derived by manipulating the Bayesian joint posterior resulting from the NMA. The amount that a given data point can change before affecting the treatment decision depends upon the influence of that data point on the joint posterior.

We also assess the effects of bias adjustment in a probabilistic cost-effectiveness analysis using inputs from the NMA. We then assess the sensitivity to bias of a treatment decision based on net benefit.

Result(s):

The threshold method was applied to a series of examples from published NICE guidelines. In most cases the treatment recommendation was robust to plausible levels of bias in all but a small proportion of contrasts or studies. In larger, well connected networks with large numbers of trials, recommendations were robust against almost any plausible bias adjustments. Sensitivity to bias adjustments for net benefit decisions resulting from cost-effectiveness analysis was also considered, showing similar results.

Conclusion(s):

Threshold analysis provides insight into the effects of bias adjustment on treatment decisions. Applying the method to treatment contrasts confers considerable flexibility, since practical applications are often based on complex models with multiple types of data input. We can have more confidence in treatment recommendations where bias-adjustment thresholds are large, and focus attention on the quality of decision-sensitive trials and contrasts, potentially reducing the need for laborious critical appraisal of all included trials.

3I-5. DOSE-OPTIMAL VACCINE ALLOCATION OVER MULTIPLE POPULATIONS

10:45 - 11:00: Tue. Jun 14, 2016
Stephenson Room, 5th Floor
Part of Session: ORAL ABSTRACTS: QUANTITATIVE METHODS I

Evelot Duijzer[1]*, Willem Van Jaarsveld*[2]*, Jacco Wallinga*[3] *and Rommert Dekker*[1]*, (1)Erasmus University Rotterdam, Rotterdam, Netherlands, (2)Eindhoven University of Technology, Eindhoven, Netherlands, (3)National Institute for Public Health and the Environment, Bilthoven, Netherlands*

Purpose: For a large number of infectious diseases, vaccination is the most effective way to prevent an epidemic. However, the vaccine stockpile is hardly ever sufficient to treat the entire population, which brings about the challenge of vaccine allocation. To aid decision makers facing this challenge, we provide insights into the structure of this allocation problem.

Method(s): A sensible objective for vaccine allocation is maximizing the health benefit, defined in this paper as the number of people that escape infection. In literature this objective is often achieved by evaluating the eventual outcome of alternative allocations using numerical methods or simulation. This approach does not give a high-level explanation why certain allocations yield a higher health benefit. This is especially problematic because the resulting allocations are often inequitable and behave counter-intuitively. We propose to apply analytical methods to vaccine allocation to obtain a high-level understanding of these inequitable and seemingly counter-intuitive outcomes. Thereto, we first investigate the dependence of health benefit on the fraction of people that receive vaccination. We study the seminal SIR compartmental model to model the total health benefit as a function of the vaccination fraction that is used.

Result(s): Using implicit function analysis, we prove that the health benefits as a function of the vaccination fraction have increasing returns to scale for small vaccination fractions and decreasing returns to scale for vaccination fractions larger than a certain threshold. This implies the existence of a unique vaccination fraction that maximizes the health benefit per dose of vaccine, which we refer to as the `dose-optimal vaccination fraction'. We show that the health benefit per dose of vaccine decreases monotonically when moving away from this fraction in either direction. Surprisingly, this fraction does not coincide with the so-called critical vaccination coverage that has been advocated in literature. We show that the optimal allocation is governed by the dose-optimal vaccination fraction, as vaccinating with this fraction is the most effective way of using the available resources.

Conclusion(s): These results allow us to provide new insights into vaccine allocation to multiple non-interacting and weakly interacting populations. We explain the counter-intuitive switching type behavior of optimal allocations. We also show that allocations that maximize health benefits are rarely equitable, while equitable allocations may be significantly non-optimal.

3I-6. STATIN BENEFIT-RISK PROFILES IN INDIVIDUALS AT INTERMEDIATE RISK FOR CARDIOVASCULAR DISEASE

11:00 - 11:15: Tue. Jun 14, 2016
Stephenson Room, 5th Floor
Part of Session: ORAL ABSTRACTS: QUANTITATIVE METHODS I

Tommi Tervonen, PhD[1], *Gert van Valkenhoef, PhD*[2], *Huseyin Naci, PhD*[3], *Douwe Postmus, PhD*[2] *and Hans Hillege, MD, PhD*[4], *(1)Health Economics Center of Excellence, Evidera Ltd, London, United Kingdom, (2)Department of Epidemiology, University Medical Center Groningen, University of Groningen, Groningen, Netherlands, (3)LSE Health, London School of Economics and Political Science, London, United Kingdom, (4)Department of Cardiology, University Medical Center Groningen, University of Groningen, Groningen, Netherlands*

Purpose: To assess the benefit-risk (BR) profiles of six statins currently on market (atorvastatin 10-40 mg/d, fluvastatin 40-80 mg/d, lovastatin 40-80 mg/d, pravastatin 40-80 mg/d, rosuvastatin 10-20 mg/d and simvastatin 20-40 mg/d), in individuals at intermediate risk for cardiovascular disease (CVD).

Method(s): Using a database of published clinical trials, we conducted a quantitative benefit-risk (BR) assessment of six statins in subjects with a baseline low density lipoprotein cholesterol (LDL-C) level of 125 mg/dl (3.23 mmol/L). Treatment benefit was quantified in terms of achieved LDL-C reduction at trial completion. Risks were quantified in terms of probability of experiencing common statin side effects (myalgia (MA), transaminase (TA) elevation, and creatine kinase (CK) elevation). Using a Bayesian network meta-regression analysis, we estimated the effect of each statin on LDL-C relative to control, adjusting for LDL-C level at baseline. In a separate model, we estimated the absolute change in LDL-C achieved by control alone. We derived distributions for the achieved LDL-C levels by adding together baseline level of LDL-C, control effect, and relative effect of each statin adjusted for baseline LDL-C. Separate network meta-analyses were performed to estimate relative effects for the three side effects. Baseline estimates for the side effects were obtained by pooling placebo arms, and subsequently used to obtain absolute effect estimates. Expert opinion was elicited to develop ordinal constraints for the BR model.

Result(s): The meta-regression analysis adjusting for baseline LDL-C showed a good fit to the data, and significantly decreased heterogeneity compared to an unadjusted analysis. At a baseline LDL-C of 125 mg/dl, the scale ranges for achieved LDL-C were set at 55-125 mg/dl. Side-effect scale ranges were 0.0-0.13 for MA, 0.00-0.19 for TA and 0.00-0.06 for CK. Expert opinion indicated LDL reduction to be more important than decrease in side effect risks. With 4 forms of LDL partial value functions the best treatment was rosuvastatin (first rank probability 0.91-0.99). Uncertainty coefficients showed that further preference data was unlikely to alter first rank probabilities significantly.

Conclusion(s): When treatment benefits are quantified solely in terms of LDL-C reduction, rosuvastatin seems to have the best BR balance among the six statins in an intermediate CVD risk population. Results may be sensitive to possible confounders in the meta-regression analysis and should be examined further.

SYMPOSIUM: THE DISCOVERY PROGRAMME AND ITS INFLUENCE ON EARLY CANCER DIAGNOSIS

« Previous Session | Next Session »

11:45 - 12:45: Tue. Jun 14, 2016
Auditorium
Program: Panels and Symposia

PS4. POSTER SESSION 4

« Previous Session | Next Session »

12:45 - 14:15: Tue. Jun 14, 2016
Exhibition Space

Session Summary:

12:45 - 14:15

COSTS OF FIRST-LINE TREATMENT FOR ELDERLY MULTIPLE MYELOMA PATIENTS WHO ARE NOT TRANSPLANT CANDIDATES IN THE SERBIAN HEALTH CARE SYSTEM

12:45 - 14:15

A RAPID INFLUENZA TEST IN HOSPITALS COULD AVOID UNNECESSARY PAEDIATRIC ISOLATION BED DAYS AND SAVE COSTS

12:45 - 14:15

BUDGET IMPACT ANALYSIS INCLUDING OMBITASVIR/PARITAPREVIR/RITONAVIR AND DASABUVIR FOR THE TREATMENT OF CHRONIC HEPATITIS C IN FRANCE

12:45 - 14:15

COMPARISON OF EQ-5D AND SF-6D BASED COST-EFFECTIVENESS ANALYSIS OF HAEMODIALYSIS AND PERITONEAL DIALYSIS TREATMENTS

12:45 - 14:15

TRANSFORMING THE COST-EFFECTIVENESS THRESHOLD INTO A 'VALUE THRESHOLD': INITIAL FINDINGS FROM A SIMULATION MODEL

12:45 - 14:15

COMPARING YOUNG AND OLDER ITALIAN WOMEN ON PREFERENCES FOR BRCA TESTING AND RISK REDUCTION AND MANAGEMENT STRATEGIES

12:45 - 14:15

THE USE OF BEST-WORST SCALING CASE 2 TO ESTIMATE INDIVIDUALIZED PREFERENCES FOR VALUE CLARIFICATION AND DECISION SUPPORT

12:45 - 14:15

ONTOLOGY DRIVEN DECISION SUPPORT FOR EARLY DIAGNOSTIC RECOMMENDATIONS

12:45 - 14:15

A SYSTEMATIC REVIEW OF ETHNICITY-SPECIFIC FACTORS INFLUENCING CHILDHOOD IMMUNISATION DECISIONS AMONG BLACK AND ASIAN MINORITY ETHNIC GROUPS IN THE UK

12:45 - 14:15

INTER-OBSERVER AGREEMENT IN LUNG SOUND CLASSIFICATION AIDED BY VISUAL REPRESENTATION OF THE SOUNDS

12:45 - 14:15

DECISION-MAKING SUPPORT AT THE PATIENT RELATIONS OFFICE OF AN ADVANCED TREATMENT HOSPITAL IN JAPAN

12:45 - 14:15

MODELLING ETELCALCETIDE EFFECTIVENESS ON HEALTH OUTCOMES: RELATING BIOCHEMICAL OUTCOMES TO MORTALITY, CARDIOVASCULAR EVENTS, FRACTURES AND PARATHYROIDECTOMY

12:45 - 14:15

NEW MODEL OF HEALTHCARE DELIVERY: TELEHOMECARE PROGRAM FOR HEART FAILURE (HF) AND CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) PATIENTS IN ONTARIO, CANADA

12:45 - 14:15

MONITORING PRIMARY CARE - DEVELOPMENT OF DATA BASED INDICATORS FOR THE AUSTRIAN HEALTH SYSTEM

12:45 - 14:15

NON-INVASIVE PRENATAL TESTING: FACILITATING AUTONOMY OR COMPLICATING DECISION MAKING?

12:45 - 14:15

THE EFFECT OF THINKING TIME ON ATTRIBUTE NON-ATTENDANCE IN DISCRETE CHOICE EXPERIMENTS: AN EYE-TRACKING STUDY

12:45 - 14:15

ASSOCIATION OF DISEASE PROGRESSION, HEALTH-RELATED QUALITY OF LIFE, AND UTILITY IN PATIENTS WITH ADVANCED, NONFUNCTIONAL, WELL-DIFFERENTIATED GASTROINTESTINAL OR LUNG NEUROENDOCRINE TUMORS IN THE PHASE 3 RADIANT-4 TRIAL

12:45 - 14:15

DISCRETE EVENT SIMULATION MODELLING TO ANALYSE INNOVATIONS IN CANCER PATHOLOGY SERVICES

Abstracts:

COSTS OF FIRST-LINE TREATMENT FOR ELDERLY MULTIPLE MYELOMA PATIENTS WHO ARE NOT TRANSPLANT CANDIDATES IN THE SERBIAN HEALTH CARE SYSTEM

12:45 - 14:15: Tue. Jun 14, 2016
Exhibition Space
Part of Session: POSTER SESSION 4

***Durda Vukicevic, MD**, UMIT - University for Health Sciences, Medical Informatics and Technology, Institute of Public Health, Medical Decision Making and Health Technology Assessment, Department of Public Health, Health Services Research and Health Technology Assessment, Hall in Tyrol, Austria, Ursula Rochau, MD, MSc, UMIT - University for Health Sciences, Medical Informatics and Technology, Institute of Public Health, Medical Decision Making and HTA, Department of Public Health and HTA/ ONCOTYROL - Center for Personalized Cancer Medicine, Area 4 HTA and Bioinformatics, Hall in Tyrol/ Innsbruck, Austria, Aleksandar Savic, MD, PhD, Clinic for hematology, Clinical Center of Vojvodina, Medical Faculty, University of Novi Sad, Novi Sad, Serbia, Monika Buchberger, MSc, UMIT - University for Health Sciences, Medical Informatics and Technology, Institute of Public Health, Medical Decision Making and Health Technology Assessment, Department of Public Health, Health Services Research and Health Technology Assessment, Hall i.T., Austria, Milica Jevdjevic, DMD, Institute of Public Health, Medical Decision Making and Health Technology Assessment, Department of Public Health, Health Services Research and Health Technology Assessment, UMIT - University for Health Sciences, Medical Informatics and Technology, Hall i. T., Austria, Gaby Sroczynski, MPH, Dr.PH, UMIT - University for Health Sciences, Medical Informatics and Technology, Institute of Public Health, Medical Decision Making and HTA, Department of Public Health, Health Services Research and HTA/ ONCOTYROL - Area 4, HTA and Bioinformatics, Hall i.T./Innsbruck, Austria and Uwe Siebert, MD, MPH, MSc, ScD, UMIT, Hall in Tirol (Austria) / Boston (USA), Austria*

Purpose: We analyzed the treatment patterns, health care utilization and costs of first-line treatments for elderly multiple myeloma patients who are not transplant candidates in Serbia. Multiple myeloma (MM) is an incurable plasma-cell neoplasm accounting for approximately 10% of all hematologic malignancies worldwide. The economic burden of the disease includes the costs of diagnostic procedures, treatment, management of adverse events and outpatient care. The impact of MM on resource use and costs has not been previously explored outside of the contexts of USA and Western Europe.

Method(s): We performed a micro-costing study from a Serbian national health system perspective including costs of diagnostic procedures, treatment, hospitalization, outpatient care, drug administration and adverse events. We followed recommendations of the Serbian guideline for cost-effectiveness analysis. The current MM treatment and diagnostic protocols were derived from the guideline for diagnosis and treatment of MM in Serbia, revised and adapted by Serbian clinicians. For the unit costs of diagnostic procedures, medications and hospital days, we used the tariff book of the republic health insurance. Details on treatment patterns and menagement of the disease were discussed with Serbian clinicians. All costs were priced in 2016 and converted to euro (€) according to the exchange rate on February 29, 2016 (1€=123.5 Serbian dinars).

Result(s): Total costs of the four currently used protocols were analyzed and the results were as follows: 30,730€ for melphalan, prednisone (MP) and bortezomib, 22,370€ for cyclophosphamide, dexamethasone (CD) and bortezomib, 1,730€ for MP and thalidomide and 1,850€ for CD and thalidomide. Bendamustine-prednisone protocol is also used in the Serbian setting and refunded by the republic health insurance fund for first line treatment of MM patients with polyneuropathy, but the price of bendamustine in Serbia was not available. The cost of diagnostic procedures and hospitalization were 890€ and 120€ per patient respectively. The most costly element of multiple myeloma management in Serbia is the treatment of the disease, which accounts for more than 90% of the total costs of the disease management. In comparison to the other studies evaluating costs of multiple myeloma, the impact of the drug acquisition costs is higher in the Serbian context.

Conclusion(s): The costs of MM treatment in the Serbian context are mainly driven by anti-myeloma drug costs. Costs for diagnostic procedures, hospitalization and outpatient care are relatively moderate.

A RAPID INFLUENZA TEST IN HOSPITALS COULD AVOID UNNECESSARY PAEDIATRIC ISOLATION BED DAYS AND SAVE COSTS

12:45 - 14:15: Tue. Jun 14, 2016
Exhibition Space
Part of Session: POSTER SESSION 4

***Elisabeth Adams**[1], Rebecca Glover[1], Andres Vecino Ortiz[1], Sam Douthwaite[2] and Simon Goldenberg[2], (1)Aquarius Population Health, London, United Kingdom, (2)Guy's and St Thomas' NHS Trust, London, United Kingdom*

Purpose:

Paediatric patients with suspected influenza infections are often presumptively isolated when they are admitted to hospital to reduce intrahospital transmission. However, isolation beds are a scarce resource in particular during influenza season. We aimed to estimate the unnecessary isolation days averted and associated cost by early diagnosis of false positive patients with a point of care test for influenza.

Method(s):

A decision tree model was built in Microsoft Excel to calculate the number of isolation bed days used currently with a standard laboratory based test for influenza, compared to using a point of care test (12 versus 2 hours' time to results). Input parameters were taken from a service evaluation in 2014/15 in London, and we assumed a 7% prevalence of influenza in a cohort of 1000 patients with suspected influenza, average hospital stay of 3 days, cost of an isolation bed being 10% more than a ward bed.

Result(s):

Using a point of care test could avert 371 and 448 unnecessary isolation days with an associated estimated cost savings of £24,603 and £29,610 if the test were implemented on the ward or in A&E, respectively. There was an estimated savings of £66 per isolation bed day saved.

Conclusion(s):

Point of care tests could improve bed management and reduce unnecessary isolation days and the associated costs, improve clinical management of patients, and reduce hospital transmission of infection.

BUDGET IMPACT ANALYSIS INCLUDING OMBITASVIR/PARITAPREVIR/RITONAVIR AND DASABUVIR FOR THE TREATMENT OF CHRONIC HEPATITIS C IN FRANCE

12:45 - 14:15: Tue. Jun 14, 2016
Exhibition Space
Part of Session: POSTER SESSION 4

***Beate Jahn, PhD*[1], *Gaby Sroczynski, MPH, Dr.PH*[1], *Annette Conrads-Frank, PhD*[1], *Gregoire Jeanblanc, MD*[2], *Aurore Duguet, PharmD*[2], *Derek Misurski, PhD*[3], *Jennifer Samp, PHARMD, MS*[3] *and Uwe Siebert, MD, MPH, MSc, ScD*[4], *(1)Department of Public Health, Health Services Research and Health Technology Assessment, UMIT - University for Health Sciences, Medical Informatics and Technology, Hall i.T., Austria, (2)AbbVie Inc., Rungis, France, (3)AbbVie Inc., North Chicago, IL, (4)UMIT, Dept. of Public Health, Health Services Research and Health Technology, Hall in Tirol, Austria*

Purpose:

Patients chronically infected with hepatitis C virus (HCV) often develop liver cirrhosis and liver cancer. New direct acting antivirals can cure most of these patients and reduce the risk of death from liver cancer and cirrhosis, but antiviral treatment costs are high. The objective of this budget impact analysis (BIA) is to estimate the expected changes in the expenditures of the health care system after the adoption of the new regimen ombitasvir/paritaprevir/ritonavir+dasabuvir+/-ribavirin (OBV/PTV/r+DSV±R) in patients with chronic HCV genotype 1 (GT1) infection in France.

Method(s):

The target populations comprise treatment-naive and treatment-experienced GT1 HCV patients defined by age and fibrosis distribution. This BIA includes antiviral treatments that are currently reimbursed in France. The assessment framework includes (1) target population, (2) costs associated with antiviral HCV treatment under market-share scenarios for comparator regimens ("environment without OBV/PTV/r+DSV±R"), (3) costs in the "environment with OBV/PTV/r+DSV±R", and (4) calculation of net budget impact (difference of both environments). The BIA is conducted from the payer's perspective, with a 3-year time horizon and annual budgeting periods. One-way sensitivity analyses are performed on market shares.

Result(s):

In the first year, the predicted net budget impact is -65.5 million Euro (-8%), i.e., the total estimated budget decreases adopting OBV/PTV/r+DSV±R. These net savings are mainly caused by reduced antiviral drug costs. In the second and third year, the net predicted budget impacts are -90.7 million Euro (i.e., 10.2% second year) and -96.6 million Euro (i.e., 10.9% third year) based on assumed market shares and increased uptake of OBV/PTV/r+DSV±R. The total budget savings are 252.8 million Euros over 3 years. With ±20% change in OBV/PTV/r+DSV±R market shares, the total budget savings over 3 years vary between 216.8 and 287.9 million Euro.

Conclusion(s):

Based on the estimated market shares, our BIA shows that the adoption of OBV/PTV/r+DSV±R for the treatment of patients chronically infected with HCV GT1 in France will likely generate cost savings during the budgetary time horizon of 3 years.

COMPARISON OF EQ-5D AND SF-6D BASED COST-EFFECTIVENESS ANALYSIS OF HAEMODIALYSIS AND PERITONEAL DIALYSIS TREATMENTS

12:45 - 14:15: Tue. Jun 14, 2016
Exhibition Space

Part of Session: POSTER SESSION 4

Fan Yang, PhD[1]*, Brenda Gannon, PhD*[1] *and Nan Luo, PhD*[2]*, (1)Manchester Centre for Health Economics, University of Manchester, Manchester, United Kingdom, (2)Saw Swee Hock School of Public Health, National University of Singapore, Singapore, Singapore*

Purpose:

This study aimed to investigate whether the multi-attribute EuroQol-5D (EQ-5D) and Short Form-6D (SF-6D) utility instruments would lead to consistent cost-effectiveness outcomes when they are used to evaluate dialysis treatments for patients with end-stage renal disease (ESRD).

Method(s):

A Markov model was constructed to compare haemodialysis (HD) and peritoneal dialysis (PD) for Singaporean ESRD patients with and without type 2 diabetes. Probabilistic sensitivity analysis (PSA) was used to determine cost-effectiveness by comparing the incremental cost-effectiveness ratio (ICER) based on costs incurred (in 2015 Singaporean dollars [S$]) and the quality-adjusted life years (QALYs) gained over a 10-year time horizon with a pre-determined maximum willingness-to-pay of S$60,000 per QALY. Cost and clinical inputs were estimated using local data and utility inputs were from Singaporean dialysis patients (HD: n=75; PD: n=75) interviewed using the 5-level EQ-5D (EQ-5D-5L) and Short Form-12 (SF-12) questionnaires.

EQ-5D scores were calculated using available EQ-5D-5L value sets (Canada, UK, and Japan), selected 3-level EQ-5D (EQ-5D-3L) value sets via crosswalk (Singapore, UK, Japan, and Thailand), and a crosswalk algorithm from SF-12 responses to UK EQ-5D-3L values. SF-6D scores were derived from SF-12 using a recommended algorithm.

Result(s):

For non-diabetic ESRD patients, the ICER of HD compared to PD was S$83,602 using SF-6D and ranged from 58,158 to 91,478 using EQ-5D scores. PSA showed that PD was more likely to be cost-effective using SF-6D and EQ-5D scores generated from SF-12, while HD was more likely to be preferable using EQ-5D scores generated from EQ-5D-5L.

For diabetic ESRD patients, the ICER was 82,365 using SF-6D and ranged from 67,984 to 96,110 using EQ-5D scores. PSA showed that two options were equally cost-effective using the Canada and UK EQ-5D-5L scores, while PD was more likely to be optimal using other scores.

Conclusion(s):

We demonstrated that the choice of the EQ-5D and SF-6D instruments may affect the outcome of cost-effectiveness analysis, and so may be the case with the use of EQ-5D values from different sources or generated using different methods.

TRANSFORMING THE COST-EFFECTIVENESS THRESHOLD INTO A 'VALUE THRESHOLD': INITIAL FINDINGS FROM A SIMULATION MODEL

12:45 - 14:15: Tue. Jun 14, 2016
Exhibition Space
Part of Session: POSTER SESSION 4

Mike Paulden, MA., MSc.*, University of Alberta, Edmonton, AB, Canada and Christopher McCabe, PhD, Department of Emergency Medicine, University of Alberta, Edmonton, AB, Canada*

Background: The conventional model of the cost-effectiveness (CE) threshold adopts numerous assumptions, including constant returns and divisibility of technologies. The consequences of imperfect information are not considered, nor the possibility that interventions may represent disinvestments (releasing resources rather than displacing existing services). Furthermore, no consideration is made for aspects of 'value' not captured by the quality-adjusted life year (QALY).

Purpose: Our objective is to transform the CE threshold into a 'value threshold' that is of greater use to decision makers, while addressing the limitations described above.

Method(s): As a first step we developed a simulation model of a hypothetical health system in order to understand how a 'value threshold' may differ from a conventional CE threshold. Of interest are the implications of: (a) relaxing assumptions such as constant returns and divisibility of technologies; (b) incorporating imperfect information and 'value' considerations within a complex health system with multiple decision makers; and (c) extending the threshold so it may be used to appraise disinvestments.

Result(s): Under conventional assumptions, the CE threshold has 'kinks' where displacement switches between services. Under diminishing returns these 'kinks' smooth out. When technologies are indivisible, the threshold instead follows a step function. Imperfect information and 'value' considerations beyond the QALY may justify different thresholds for investment and disinvestment decisions.

Conclusion(s): This work represents a first attempt at constructing a more sophisticated theoretical model of value-based decision making within complex health systems. Our findings provide insights for future theoretical work and a rich source of

hypotheses for empirical research.

COMPARING YOUNG AND OLDER ITALIAN WOMEN ON PREFERENCES FOR BRCA TESTING AND RISK REDUCTION AND MANAGEMENT STRATEGIES

12:45 - 14:15: Tue. Jun 14, 2016
Exhibition Space
Part of Session: POSTER SESSION 4

*Teresa Gavaruzzi[1], **Alessandra Tasso**[2], Marzena Franiuk[3], Liliana Varesco[3] and Lorella Lotto[1], (1)DPSS, University of Padova, Padova, Italy, (2)University of Ferrara, Ferrara, Italy, (3)IRCCS AOU San Martino, Genova, Italy*

Purpose: When turning 18, women are legally allowed to undergo BRCA1/2 mutation testing, long before risk management and reducing options are available and recommended (usually starting at 30). The aim of this study was to compare risk perceptions and intentions towards predictive testing in two cohorts of Italian Healthy women: a group of young women (18-24 years) and a group of older women (30-45 years).

Method(s): Three hundred and two women, aged between 18 and 24 and between 30 and 45, were randomly presented with material about BRCA1 or BRCA2 predictive testing. Then, they completed a questionnaire measuring: intentions to undergo predictive testing, decisional conflict about testing, preferences for risk management and risk reduction options, perceived comprehension and knowledge of the information material, risk knowledge and risk perception, as well as socio-demographic information. The two age groups were compared on these dependent variables using ANOVAs for continuous variables and logistic regression for categorical variables.

Result(s): Results show that the two groups did not differ in intention to undergo predictive testing, nor in their self-reported measures of decisional conflict about the choice to undergo testing. However, younger women showed lower perceived comprehension of the consequences of testing, lower knowledge scores, and lower recall of risk information, compared to older women. Additionally, younger women reported lower perceived likelihood of developing ovarian cancer than older women, and they would opt for preventive surgery of the ovaries less frequently than older women. Also, pharmacological options were more frequently preferred by younger than by older women.

Conclusion(s): Our results question whether younger women are ready for predictive testing. Indeed, while having adequate knowledge is essential to informed decision making, younger women had difficulties in properly understanding consequences of testing, as shown by both subjective and objective measures. The lower preference for preventive surgical removal of ovaries (recommended option) supports that younger women are less prepared to make an informed decision. We recommend that during individual counselling, special attention should be paid to younger women to ensure that they properly appraise all the consequences of predictive testing before deciding whether to undergo it, including their decision in terms of the risk management options available after testing positive. Costs and benefits regarding the decision to postpone testing should also be carefully considered.

THE USE OF BEST-WORST SCALING CASE 2 TO ESTIMATE INDIVIDUALIZED PREFERENCES FOR VALUE CLARIFICATION AND DECISION SUPPORT

12:45 - 14:15: Tue. Jun 14, 2016
Exhibition Space
Part of Session: POSTER SESSION 4

***Marieke G.M. Weernink, MSc**[1], Marije van der Straten, MSc[1], Paul J.M. Kil, MD, PhD[2], Jeroen P.P. van Vugt, PhD[3], Maarten J. IJzerman, PhD[1] and Janine A. van Til, PhD[1], (1)University of Twente, Enschede, Netherlands, (2)St. Elisabeth Hospital, Tilburg, Netherlands, (3)Department of Neurology, Medical Spectrum Twente, Enschede, Netherlands*

Purpose:

This study introduces a structured approach for designing value clarification exercises (VCEs) using Best-Worst Scaling case 2 (BWS). When applying BWS in a VCE, one patient is presented with a series of treatment profiles based on the variation in characteristics of the available treatment options. For each treatment profile, the patient has to indicate the most and least attractive characteristic. Based on this data, the relative importance of attributes and the value of treatment options can be estimated to provide the patient with a treatment recommendation.

Method(s):

The structured approach for designing the VCEs consists of: (1) selection of attributes and levels, (2) construction of the choice task, (3) statistical analysis, and (4) instrument design/presentation of results to patients. Two case studies are used to illustrate the design process and are applications of VCEs in Parkinson's disease and localized prostate cancer. Each VCE was pilot-tested in 10 patients and evaluated in terms of feasibility, cognitive difficulty, comprehension, and usefulness of presented results.

Result(s):

Pilot-tests showed patients were willing to spend the extra time and effort to receive additional information about their preferences. Patients also indicated that the VCE made them more aware of the trade-offs between benefits and harms that were needed to choose treatment. However, patients found it difficult to designate a best option from negative defined options and some did not comprehend the task with only the written explanation. Patients experienced also difficulties with recalling the range of possible outcomes on attributes, because each choice task only displays one outcome per attribute.

Conclusion(s):

This study showed positive results regarding usefulness and feasibility of constructed VCEs. Yet, much effort needs to be put on the written explanation of the task and the familiarization of patients with the varying attribute-levels. Besides, several assumptions have been made in the design of the constructed VCEs to balance clinical and methodological preferences. For instance, the trade-off between design efficiency and respondent efficiency led to the decision to use inefficient and partial profile designs. However, in individual preference estimation it is unknown whether methodological compromises such as these are affecting validity of preferences. Further research should test whether using inefficient designs, partial profile designs, counts analysis or Hierarchical Bayes modelling are affecting the validity of individual preference estimates.

ONTOLOGY DRIVEN DECISION SUPPORT FOR EARLY DIAGNOSTIC RECOMMENDATIONS

12:45 - 14:15: Tue. Jun 14, 2016
Exhibition Space
Part of Session: POSTER SESSION 4

***Gopikrishnan Mannamparambil Chandrasekharan, B.D.S, M.Sc**, Dympna O'Sullivan, PhD and Andrew MacFarlane, PhD, City University London, London, United Kingdom*

Purpose:

Studies have demonstrated how providing early diagnosis to clinicians can improve diagnostic accuracy. It is also necessary to present the diagnostic recommendations in an appropriate ranked list to support the clinician in decision making. However the techniques and methods that can be used to generate the diagnostic recommendations throughout the clinical information gathering process need further research and development. In addition we need tools that can provide semantically interoperable diagnostic recommendations using current web standards.

Method(s):

Electronic Medical Record (EMR) systems are the main interface through which clinicians access patient data. Diagnostic Clinical Decision Support Systems (CDSS) need to access this patient data from the EMR at various stages of the clinical encounter in order to provide diagnostic recommendations that can guide further information gathering or help formulate a differential diagnosis.

We have developed a novel ontology driven diagnostic decision support system that can remotely access patient data from a test EMR platform, and provide a ranked diagnostic recommendation list with weights reflecting the degree of confidence in the diagnosis. A dental diagnostic decision support system was developed using OWL (Web Ontology language) and SPARQL (SPARQL Protocol and RDF Query Language) rules. The diagnostic criteria were encoded using OWL and SPARQL inference rules. Apache Jena was used as the platform to develop the recommendation engine.

OpenEMR was used as the test EMR platform. Dental Information Model (DIM) V.1.0 was used as the basis for creating forms within OpenEMR. DIM separates the information collected during a dental encounter into various processes and sub-processes. This includes processes like Chief Complaint, Extra Oral Examination, Intraoral Examination, Radiographic examination followed by final Diagnosis. The patient data was recorded in a MySQL database. The data was then converted to RDF (Resource Description Format) using the D2RQ platform. D2RQ also provides a SPARQL endpoint that allows the decision support system to access the patient data.

Result(s):

The results were displayed in a web page that would provide a ranked list of the diagnosis after querying a SPARQL endpoint with the decision model and patient data.

Conclusion(s):

Our diagnostic recommender tool demonstrates the ability of the ontology driven decision support system to support information gathering and potentially reduce diagnostic error with the help of timely diagnostic recommendations.

A SYSTEMATIC REVIEW OF ETHNICITY-SPECIFIC FACTORS INFLUENCING CHILDHOOD IMMUNISATION DECISIONS AMONG BLACK AND ASIAN MINORITY ETHNIC GROUPS IN THE UK

12:45 - 14:15: Tue. Jun 14, 2016
Exhibition Space
Part of Session: POSTER SESSION 4

Alice Forster, BSc, MSc, PhD[1]*, Lauren Rockliffe, BSc, MSc*[1]*, Amanda Chorley, BSc, MSc*[1]*, Laura Marlow, BSc, MSc, PhD*[1]*, Helen Bedford, RGN, BSc, MSc, PhD*[1]*, Samuel Smith, BSc, MSc, PhD*[2] *and Jo Waller, BA, MSc, PhD*[1]*, (1)UCL, London, United Kingdom, (2)Queen Mary University of London, London, United Kingdom*

Purpose: Some childhood immunisations in the United Kingdom have lower uptake among individuals from some Black and Asian Minority Ethnic backgrounds. We conducted a systematic review of qualitative research in order to describe the ethnicity-related factors that influence the immunisation decisions of parents from Black and Asian Minority Ethnic backgrounds who are living in the United Kingdom.

Method(s): On 2nd December 2014 we searched PsycINFO, MEDLINE, CINAHL plus, Embase, Social Policy and Practice and Web of Science for studies published in English at any time using the terms “UK” and “vaccination” and “qualitative methods” (and variations of these). Articles were included if any participant was a parent from a Black or Asian Minority Ethnic background. We used thematic synthesis methods to develop descriptive and then higher order themes. We report themes that specifically related to ethnicity and factors associated with ethnicity.

Result(s): There were eight papers included in the review. The majority of participants were either from Black (n=62) or Asian (n=38) backgrounds. There were two ethnicity-related factors arising from the data that were found to affect immunisation decisions. First of all, factors that are related to ethnicity (including religion, upbringing and migration and language), were found to affect whether parents perceived that immunisations are important, whether immunisations are considered to be allowed or culturally acceptable and parents’ knowledge of vaccines and the vaccination schedule. Secondly, we found that some parents perceive that there are biological differences between themselves and the majority population (such as an increased risk of acquiring the vaccine-preventable disease or suffering vaccine side-effects) and this affected decision-making and the information that parents wanted to receive.

Conclusion(s): When seeking to understand immunisation decisions among parents from Black and Asian Minority Ethnic backgrounds, factors that are associated with ethnicity must be considered. It would be fortuitous, where feasible, to target vaccine information so that it addresses beliefs about ethnic differences held by some individuals from some Black and Asian Minority Ethnic backgrounds, as well as concerns commonly expressed by the general population.

INTER-OBSERVER AGREEMENT IN LUNG SOUND CLASSIFICATION AIDED BY VISUAL REPRESENTATION OF THE SOUNDS

12:45 - 14:15: Tue. Jun 14, 2016
Exhibition Space
Part of Session: POSTER SESSION 4

Juan Carlos Aviles Solis, MD*, General Practice Reseach Unit, Tromso¸, Norway, Peder A. Halvorsen, MD, PhD, Department of Community Medicine, UiT - The Arctic University of Norway, Tromsø, Norway and Hasse Melbye, MD, PhD, General Practice Reseach Unit, Tromso, Norway*

Purpose: To explore the level of agreement between healthcare professionals classifying lung sounds aided by visual representation of the sounds in the form of spectrograms. We plan to use this method in a large epidemiological study and therefore, we are in the need to explore the reliability of it.

Method(s): We obtained sound recordings at six different locations of the thorax from seven apparently healthy subjects, and 13 patients with heart or lung disease. We recruited 28 observers; 16 general practitioners from four different countries, four pulmonologists, four Norwegian medical students and an international group of four researchers in the field of lung sounds. Videos of sound spectrograms were presented together with the sounds. On a questionnaire, the observers evaluated each recording for the presence of crackles and wheezes. We analyzed the inter-observer agreement using Fleiss kappa between all of the observers, and in subsamples. Then, we created a reference standard from the answers of the lung sound researchers and compared the answers of each observer against the reference standard using Cohen’s kappa.

Result(s): The level of agreement between the 28 observers was K=0.38 (95% CI 0.12- 0.63) for wheezes and K=0.41 (CI 0.27 - 0.53) for crackles. The agreement varied between the subsamples. In the two groups of general practitioners from the UK and Norway the kappa values for wheezes were K=0.97 and K=0.59 respectively, and K=0.51 and K=0.58 for crackles, reaching moderate to almost perfect agreement. The mean kappa when comparing each of the observers to the reference standard was K=0.54 for crackles (CI 0.48-0.60), and K=0.67 (CI 0.56-0.78) for wheezes. The members of the subgroups with the highest multi-rater kappa had also the best agreement with the reference standard. All but four observers reached kappa values >0.4 for both crackles and wheezes, when compared to the reference standard.

Conclusion(s): We found mostly moderate to substantial levels of agreement in the classification of lung sounds. Wheezes had higher levels of agreement compared to crackles. The agreement in this method is comparable to those for other clinical observations and therefore usable for our epidemiological study.

DECISION-MAKING SUPPORT AT THE PATIENT RELATIONS OFFICE OF AN ADVANCED TREATMENT HOSPITAL IN JAPAN

12:45 - 14:15: Tue. Jun 14, 2016
Exhibition Space
Part of Session: POSTER SESSION 4

***Yukari Yamamoto, RN, MPH**, Shiho Urakawa, MD, MA and Yoshiyuki Takimoto, MD, Ph.D, The University of Tokyo, Tokyo, Japan*

Purpose:

The center for patient relations and clinical ethics (C-PRACE) was established at the University of Tokyo Hospital in 2007. Since its establishment, C-PRACE has provided approximately 3,000 consultations annually. Through these consultations, we discovered that patients, in some cases, explicitly or implicitly needed medical decision-making support. The aim of this study is to describe the decision-making support by C-PRACE's staffs and identify and clarify the factors that give rise to the need for decision-making support.

Method(s):

A total of 5872 consultations were brought to C-PRACE between April 2013 and June 2015; of these, 62 cases were classified in terms of client demands for decision-making support. A qualitative content analysis was then conducted for the secondary use of these documents.

This study was approved by the Research Ethics Committee of the University of Tokyo, Graduate School of Medicine.

Result(s):

As a result of the classification of the difference of opinion regarding medical care, the most frequent category was 26 cases (41.9%) of "medical therapy," followed by "treatment by surgery," (15 cases, 24.2%) and "discharge/changing hospital" (13 cases, 21%). Most consultations (47 cases, 75.8%) were sought by patients or their families, and about 25% were sought by the members of the hospital staff such as physicians or nurses. Of the 47 cases that were sought by patients/their families, about 40% (18 cases) were brought to C-PRACE as complaints. The major causes of clients needing decision-making support were extracted from the analyses: 1) poor communication between physicians and the patient/their families, 2) patient/their families disagreed with the doctor regarding treatment, 3) patient/their families had a poor understanding of the treatment, induced by anxiety about diseases, and 4) patients lacked their mental capacity due to the diseases.

Conclusion(s):

Our results suggest that the necessity of decision-making support was brought about by a lack of communication, in a broad sense. It is not enough to provide decision-making support for patients in Japan. Patient relations offices take a facilitating role of communication between patients and healthcare facilities. Therefore, it is important to incorporate decision-making support as a new role in patient relations offices throughout Japan. A further study would be needed to enhance patient satisfaction by intervening on decision-making support.

MODELLING ETELCALCETIDE EFFECTIVENESS ON HEALTH OUTCOMES: RELATING BIOCHEMICAL OUTCOMES TO MORTALITY, CARDIOVASCULAR EVENTS, FRACTURES AND PARATHYROIDECTOMY

12:45 - 14:15: Tue. Jun 14, 2016
Exhibition Space
Part of Session: POSTER SESSION 4

***Björn Stollenwerk, PhD**[1], Andrew Briggs, DPhil[2], Bastian Dehmel, MD[3], Ron Akehurst, BSc (Econ) (London), Hon MFPHM[4], Patrick Parfrey, MD, FRCPC, OC, FRSC[5], Sergio Iannazzo, PhD[6], Michael Adena, PhD[7] and Vasily Belozeroff, PhD[3], (1)Amgen (Europe) GmbH, Zug, Switzerland, (2)University of Glasgow, Glasgow, United Kingdom, (3)Amgen Inc., Thousand Oaks, CA, (4)BresMed, Sheffield, United Kingdom, (5)Memorial University, St. John's, NF, Canada, (6)SIHS Health Economics Consulting, Torino, Italy, (7)Datalytics Pty Ltd, Bruce ACT, Australia*

Purpose: Etelcalcetide is a novel intravenous calcimimetic for the treatment of secondary hyperparathyroidism (SHPT) in hemodialysis patients. Clinical trials show that etelcalcetide reduces parathyroid hormone (PTH), but no efficacy estimates regarding health outcomes yet exist. Epidemiologic studies suggest an association of elevated PTH, calcium, and phosphate, and the risk of events, which may be attenuated by calcimimetic therapy. In the absence of a prospective clinical outcome trial, and to inform decision-modelling, the objective of this study was to model the effect of etelcalcetide on mortality, cardiovascular events, fractures and parathyroidectomy (PTx).

Method(s): The primary endpoint of the etelcalcetide trials was 'PTH reduction >30%'. This outcome was linked to published [1] event-specific hazard ratios (HRs) based on the EVOLVE trial (baseline covariate-adjusted HRs). EVOLVE measured the health outcome of the first-in-class calcimimetic 'cinacalcet'. As an alternative approach the patient-level bi-weekly biomarker measurements (PTH, calcium, phosphorus) of the etelcalcetide trial were applied to a published [2] risk-prediction scheme

(RPS). The uncertainty of the estimated effects on hard endpoints was assessed via bootstrapping and Monte Carlo simulation.

Result(s):

HRs [95% CI]	EVOLVE		Risk-prediction scheme (RPS)	
	ITT	Lag-censored (6 months)	ITT	Per protocol
Etelcalcetide vs. placebo				
Mortality	0.84 [0.72,0.96]	0.75 [0.62,0.89]	0.78 [0.66,0.93]	0.78 [0.65,0.93]
Cardiovascular events	0.81 [0.68,0.96]	0.72 [0.59,0.88]	0.94 [0.77,1.14]	0.94 [0.77,1.15]
Fractures	0.82 [0.64,1.04]	0.67 [0.50,0.89]	0.86 [0.34,2.17]	0.86 [0.34,2.16]
PTx	0.33 [0.24,0.43]	0.17 [0.11,0.25]	0.38 [0.14,1.01]	0.37 [0.15,0.95]
Etelcalcetide vs. cinacalcet				
Mortality	0.96 [0.91,0.99]	0.94 [0.88,0.98]	0.94 [0.88,1.01]	0.94 [0.88,1.01]
Cardiovascular events	0.95 [0.90,0.99]	0.93 [0.87,0.98]	0.99 [0.95,1.03]	0.99 [0.95,1.03]
Fractures	0.96 [0.89,1.01]	0.91 [0.83,0.98]	0.97 [0.74,1.28]	0.98 [0.76,1.26]
PTx	0.77 [0.65,0.88]	0.66 [0.51,0.81]	0.80 [0.62,1.02]	0.81 [0.63,1.04]

CI, confidence interval; ITT, intention to treat; HR, hazard ratio

The uncertainty of the RPS-HRs was mainly due to the RPS rather than the biomarker measurements.

Conclusion(s): We were able to extrapolate the efficacy of etelcalcetide on biomedical surrogates to hard clinical endpoints of mortality, cardiovascular events, fractures and PTx. These estimates will support decision-modelling. The results were broadly consistent among the different modelling approaches.

References:

[1] Belozeroff, V., et al., Economic evaluation of cinacalcet in the United States: the EVOLVE trial. Value Health, 2015. 18(8):1079-87.

[2] Eandi, M., et al., Economic evaluation of cinacalcet in the treatment of secondary hyperparathyroidism in Italy. Pharmacoeconomics, 2010. 28(11):1041-54.

NEW MODEL OF HEALTHCARE DELIVERY: TELEHOMECARE PROGRAM FOR HEART FAILURE (HF) AND CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) PATIENTS IN ONTARIO, CANADA

12:45 - 14:15: Tue. Jun 14, 2016
Exhibition Space
Part of Session: POSTER SESSION 4

Valeria E. Rac, MD, PhD[1]*, Yeva Sahakyan, MD, MPH*[2]*, Nida Shahid, HBSc., MSc (c.)*[2]*, Aleksandra Stanimirovic, MSc, PhD (candidate)*[2]*, Iris Fan, BA*[1]*, Welson Ryan*[2] *and Murray D. Krahn, MD, MSc*[3]*, (1)Toronto Health Economics and Technology Assessment (THETA) Collaborative, Toronto, ON, Canada, (2)Toronto Health Economics and Technology Assessment (THETA) Collaborative, University of Toronto, Toronto, ON, Canada, (3)University of Toronto and University Health Network, Toronto General Research Institute, Toronto Health Economics and Technology Assessment (THETA) Collaborative, Toronto, ON, Canada*

Purpose: Piloted in 2007, the Telehomecare program supports patients with heart failure (HF) and chronic obstructive pulmonary disease (COPD) using coaching and remote monitoring. The purpose of this descriptive study is to evaluate the overall patterns of program use and patient and service level characteristics. Study population includes HF and COPD

patients enrolled in Telehomocare in the Central West (CW), North East (NE) and Toronto Central (TC) Local Health Integrated Network (LHINs).

Method(s): Data from July 2012-2015 was extracted from the Patient Management Monitoring System (PMMS) database. Continuous variables were described using median and interquartile range, and compared across three LHINs using a one-way analysis of variance ANOVA or Kruskal-Wallis test. Categorical variables were described using contingency tables and compared using Chi-square test.

Result(s): Since its launch in 2012, 6370 participants were referred, out of which 4036 enrolled in the program. Highest enrollment rate was reported in CW (78.3%), followed by NE (63.8%), and TC (55.7%) LHIN. As per program definition, 557 (57.7%), 535 (52.5%), and 590 (4402%) patients were 'successfully discharged' in the CW, NE, and TC LHINs respectively. Average age of patients was 74.5±11.2, 52% were women and 56% were HF patients . Overall, 40% patients had diabetes and 57% lived with hypertension. Over 85% of patients were taking five or more medications. Upon enrollment, weekly coaching sessions were planned for 80-90% of patients. However only 9% of patients received weekly coaching, 26% received 2-3 sessions/month, and rest of the patients received 0-1 session per month.

Conclusion(s): Telehomecare users are elderly with high prevalence of diabetes and hypertension, taking five or more medications. Considering half of patients successfully completed the program, our current focus is on studying factors that may impact unplanned discharge rates. Conclusions regarding low numbers of coaching sessions are speculative because of problematic documentation.,

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MONITORING PRIMARY CARE - DEVELOPMENT OF DATA BASED INDICATORS FOR THE AUSTRIAN HEALTH SYSTEM

12:45 - 14:15: Tue. Jun 14, 2016
Exhibition Space
Part of Session: POSTER SESSION 4

***Niki Popper, PhD**, dwh Simulation Services /Technical University Vienna, Institute for Analysis and Scientific Computing / DEXHELPP (Decision Support for Health Policy and Planning), Vienna, Austria, Barbara Glock, MSc, dwh Simulation Services, Wien, Austria, Matthias Schauppenlehner, Mag., Main Association of Social Insurances, Vienna, Austria and Harald Piringer, Dr., VRVis Zentrum fuer Virtual Reality und Visualisierung Forschungs-GmbH, Vienna, Austria*

Purpose: Austrias national commission of the Bundes-Zielsteuerung developed the concept for a multi-professional and interdisciplinary primary care in Austria, „Das Team rund um den Hausarzt" in 2014. Pilot projects are developed short-term and in a long-term view this concept will be implemented nationwide in Austria resulting in changes in the health care system and health service provision. Changes shall be monitored in a routine manner to respond to unwelcome events in good time. This project addresses a monitoring system for the primary care in Austria: routine, constant and systematic collection of comparable data of a phenomenon or of specific indicators with aim to capture development/changes of the phenomenon over time. The aspect of evaluation will not be considered in this project. The indicators will cover quantitative aspects of the purpose and aims of the primary care in Austria and hence uncover regional differences and changes over time. This research project will be preparatory work for a possible ongoing implementation of a systematic monitoring.

Method(s): For this purpose (I) about 80 indicators were defined that (II) are collected for a sample of 461 primary care structures (general practitioners) and their patients out of routine data (GapDRG). These indicators refer either to a whole year of each patient after the first contact or the years 2006 and 2007, can be quarterly cumulative or regard a whole year. Levels of evaluation are either primary care structures, assigned state and/or Austria. In the last step (III) these data was visualised in an appropriate manner to analyse and select useful indicators with mehtod of visual computing.

Result(s): The test data were processed so that multiple perspectives are available for all indicators. The data can therefore be considered cumulatively or not aggregated on different evaluation levels. Using both possibilities most effective indicators, based on real data, could be evaluated. However, it was shown that for the purposes of visualization often not aggregated indicators are favourable and details, structures and developments are better represented.

Conclusion(s): Based on the results, visualisations and the comprehensive and multidisciplinary study of the issue the results may provide a basis for a potential operational implementation of monitoring primary care. Due to the imminent change in Austrian health system the initiated topic is dedicated to make an appropriate baseline survey.

NON-INVASIVE PRENATAL TESTING: FACILITATING AUTONOMY OR COMPLICATING DECISION MAKING?

12:45 - 14:15: Tue. Jun 14, 2016
Exhibition Space
Part of Session: POSTER SESSION 4

***Jeffrey Wale, LLB (Hons); PGCE**, Bournemouth University, Poole, United Kingdom of Great Britain and Northern Ireland*

Purpose:

The context of this presentation is the UK RAPID evaluation study on non-invasive prenatal testing (NIPT) for Downs' syndrome and the future public funding of such a regime.

This research seeks to identify from the available literature:

(1) The aims and purposes of a publically funded NIPT regime?

(2) How those aims and purposes might be realised?

(3) How increased information about a possible future child might impact on the complexity of parental and clinical decision-making during a pregnancy?

(4) Whether further research is required before the scope of NIPT is widened?

Method(s):

Narrative Literature Review – this is critical narrative overview synthesizing the findings of relevant literature retrieved from searches of computer databases and authoritative texts.

Inclusion criteria: non-invasive prenatal testing and diagnosis.

Exclusion criteria: Invasive testing and ex-vivo embryo testing.

Result(s):

In relation to (1):

a. Parental autonomy and public health rationales prevail. The former has an explicit role to play in the context of fetal anomaly and non-health related factors but public health considerations may still be relevant.

In relation to (2):

a. Any resulting choices should be real, meaningful and lawful and align to the purposes of any testing regime.

In relation to (3):

a. Widening of NIPT may increase the availability of unclear/ uncertain information.
b. Therefore more information does not necessarily equate with better choices or decision making.
c. Parental decision making is likely to be complicated unless supported by targeted counselling before and after testing.

In relation to (4):

1. Further research is required to consider how additional genetic and non-health related information (of specific types) could be presented by clinicians to parents and how that process might be facilitated through counselling.

Conclusion(s):

This presentation provides a framework for future research around NIPT and the particular issue of decision making. Further research is required if enhancing autonomy is a key priority for the State.

Limitations: This study provides a narrative overview of the literature and does not include new data from human participants.

THE EFFECT OF THINKING TIME ON ATTRIBUTE NON-ATTENDANCE IN DISCRETE CHOICE EXPERIMENTS: AN EYE-TRACKING STUDY

12:45 - 14:15: Tue. Jun 14, 2016
Exhibition Space
Part of Session: POSTER SESSION 4

Kate Mandeville[1]*, Benjamin Cooper*[2]*, Sian Martin*[2]*, Mylene Lagarde*[1]*, Stian Reimers*[2] *and Kielan Yarrow*[2]*, (1)London School of Hygiene and Tropical Medicine, London, United Kingdom, (2)City University London, London, United Kingdom*

Purpose:

To compare visual attention to attributes in a discrete choice experiment between participants who could progress through choice tasks at their own pace and those who were subject to a minimum "thinking time".

Method(s):

An efficient design was used to construct 25 generic binary choice tasks for different types of primary care appointments. Attributes included time before appointment, type of health professional seen, length of appointment and convenience.

Participants were randomly assigned to either a self-paced group or a group subject to a computer-enforced 25 second delay on each choice task. The eye movements of all 43 participants were tracked during completion of choice tasks using a specialised video camera. Eye-tracking data were analysed for visual attribute non-attendance and then incorporated into mixed logit models of choice data.

Result(s):

Self-paced participants showed significantly higher visual attribute non-attendance compared to computer-paced participants across all attributes ($p \leq 0.01$). Most visual attribute non-attendance was of one level only, and no participant consistently ignored the same attributes over all choice tasks. Differences in visual attribute non-attendance corresponded with differences in preferences between self-paced and computer-paced groups. The length of primary care appointment was a significant influence on choice for computer-paced participants, but not in self-paced participants. When marginal rates of substitution were examined between groups, the importance of seeing a doctor of choice was nearly three times greater for computer-paced participants than for self-paced participants. Models that used eye-tracking data to define participants as visual non-attenders showed improved fit compared to a standard model assuming full attendance.

Conclusion(s):

These results indicate that the most common format for administering discrete choice experiments leads to substantive visual and cognitive non-attendance. Future studies should consider imposing a minimum thinking time to ensure attendance to all attributes. Eye-tracking offers potential to identify and account for attribute non-attendance.

ASSOCIATION OF DISEASE PROGRESSION, HEALTH-RELATED QUALITY OF LIFE, AND UTILITY IN PATIENTS WITH ADVANCED, NONFUNCTIONAL, WELL-DIFFERENTIATED GASTROINTESTINAL OR LUNG NEUROENDOCRINE TUMORS IN THE PHASE 3 RADIANT-4 TRIAL

12:45 - 14:15: Tue. Jun 14, 2016
Exhibition Space
Part of Session: POSTER SESSION 4

Simron Singh, MD[1], *Marianne E. Pavel, MD*[2], *Jonathan Strosberg, MD*[3], *Lida Bubuteishvili-Pacaud, MD*[4], *Evgeny Degtyarev, MSc*[4], *Maureen P. Neary, PhD*[5], *Matthias Hunger, PhD*[6], *Jennifer Eriksson, MSc*[7], *Nicola Fazio, MD*[8], *Matthew Kulke, MD*[9] *and James C. Yao, MD*[10], *(1)Sunnybrook Health Sciences Centre, Toronto, ON, Canada, (2)Charité Berlin Campus Virchow-Klinikum, Berlin, Germany, (3)Department of Medicine, Moffitt Cancer Center, Tampa, FL, (4)Novartis Pharma AG, Basel, Switzerland, (5)Novartis Pharmaceuticals Corporation, East Hanover, NJ, (6)Mapi, Munich, Germany, (7)Mapi, Stockholm, Sweden, (8)Istituto Europeo di Oncologia IRCCS, Milan, Italy, (9)Dana Farber Cancer Institute, Boston, MA, (10)University of Texas MD Anderson Cancer Center, Houston, TX*

Purpose:

Post hoc analyses were performed to determine if disease progression is associated with decline in health-related quality of life (HRQoL) and utility scores using data from RADIANT-4, a phase 3 trial that showed significantly prolonged progression-free survival (PFS) with everolimus + best supportive care (BSC) vs placebo + BSC in patients (pts) with advanced, progressive, nonfunctional gastrointestinal (GI) or lung neuroendocrine tumors (NET).

Method(s):

Pooling data from both arms, 284 patients were analyzed from baseline to study end. HRQoL was measured with FACT-G, a validated questionnaire with 4 domains: physical (PWB), social/family (SWB), emotional (EWB), and functional wellbeing (FWB). FACT-G was completed at baseline, every 8 weeks until month 12 after randomization, and every 12 weeks thereafter. Association between disease progression and HRQoL outcomes was assessed by fitting linear mixed models. Based on a review of existing mapping functions and relevance for the RADIANT-4 population, 2 mapping algorithms were selected to translate FACT-G scores into EQ-5D utility scores: Young, Med Decis Making 2015 (UK value set); Teckle, Health Qual Life Outcomes 2013 (US value set).

Result(s):

The difference in FACT-G total score pre- vs post-progression was significant: 79.7 vs 74.8 (difference: 4.91; 95% CI: 3.71, 6.11). This difference may also be clinically relevant based on published ranges for minimal important difference (Yost & Eton, Eval Health Prof 2005). Differences in subscale scores were: PWB 22.4 vs 20.9 (1.5; 95% CI: 1.05, 1.95); EWB 17.6 vs 16.4 (1.14; 95% CI: 0.78, 1.49); SWB 21.6 vs 20.9 (0.69; 95% CI: 0.24, 1.14); and FWB 18.2 vs 16.9 (1.34; 95% CI: 0.86, 1.82). Mean “Teckle” utility was 0.826 (95% CI: 0.815, 0.836) pre-progression and 0.795 (95% CI: 0.783, 0.807) post-progression; mean “Young” utility was 0.779 (95% CI: 0.763, 0.796) pre-progression and 0.725 (95% CI: 0.706, 0.744) post-progression.

Conclusion(s):

Disease progression in patients with advanced, nonfunctional, well-differentiated GI or lung NET is associated with a significant decline in HRQoL and utility scores. Effective therapy to prolong PFS may delay a decline in HRQoL and utility.

DISCRETE EVENT SIMULATION MODELLING TO ANALYSE INNOVATIONS IN CANCER PATHOLOGY SERVICES

12:45 - 14:15: Tue. Jun 14, 2016
Exhibition Space
Part of Session: POSTER SESSION 4

Asmaa El-Banna, MSc[1], *Jason Madan, MA, MSc, PhD*[1] *and Ian Cree*[2], *(1)University of Warwick, Coventry, United Kingdom, (2)University Hospitals Coventry and Warwickshire, Coventry, United Kingdom*

Purpose:

The study explores how modelling, in particular discrete event simulation (DES) can be used to explore impacts of new or planned innovations in pathology services on the breast cancer pathway and determine cost-effectiveness of these interventions.

Method(s):

A structured review of the existing literature was carried out to identify modelling techniques that had previously been used to guide how best to construct the breast cancer model. The literature review identified all relevant health economic material to allow a clear illustration of the extent of evidence available including the types of economic evaluations being undertaken.

A breast cancer pathway was developed by carrying out a literature search to locate all of the available UK guidelines used to inform clinician decision making. This was further refined by seeking expert opinion by interviewing the clinicians involved along the pathway. Data collected from a UK based hospital further informed the model in order to reflect as best as possible current practice. Based on the UK guidelines, interviews and the hospital data a DES model of the breast cancer pathway was built using the Simul8 software.

Result(s):

A DES model has been constructed that can be used to analyse the role of pathology services in breast cancer diagnosis and treatment selection through the simulation of individual patients' experiences, and predict the impact and cost-effectiveness of pathology service innovations.

The importance of developing such a model was highlighted by the results of the literature review, which was only able to identify 28 economic studies. Over two thirds of the papers research the effect of pathology interventions on breast cancer and nearly 60% originated in the USA. 14 out of 28 papers carried out an economic analysis on the introduction of genetic assays. It was also only this group that presented any type of modelling, incremental cost-effectiveness ratio and sensitivity analysis. The economic evidence for the other interventions was poor.

Conclusion(s):

The DES model developed can be used to explore how innovations in pathology can impact cancer outcomes. This will add to the limited pool of existing studies that use modelling techniques to investigate pathology interventions. Specifically this is the first DES model created to explore innovations in cancer pathology services.

4J. ORAL ABSTRACTS: PRACTITIONER DECISION MAKING

« Previous Session | Next Session »

14:15 - 15:45: Tue. Jun 14, 2016
Auditorium
Session Chairs:

- *Peder A. Halvorsen, MD, PhD*

Session Summary:

14:15 - 14:30

4J-1. USING Q-METHODOLGY TO EXPLORE PRESCRIBING DECISION MAKING - A PROMISING APPROACH?

14:30 - 14:45

4J-2. DOES MEDICAL EDUCATION PROVIDE A SHARED UNDERSTANDING OF THE TREATMENT THRESHOLD PROBABILITY FOR SUSPECTED STREP THROAT?

14:45 - 15:00

4J-3. LEVELS OF ENGAGEMENT WITH VACCINATION IMPACTS RISK PERCEPTION AND VACCINATION DECISIONS IN HEALTHCARE WORKERS

15:00 - 15:15

4J-4. ARE WE AS GOOD AS WE THINK IN PREDICTING OUR PATIENT SATISFACTION?

15:15 - 15:30

4J-6. PREFERENCES, EXPECTATIONS AND CAREER CHOICES: A BEST WORST SCALING STUDY OF JUNIOR DOCTORS' CHOICE OF SPECIALISM IN ENGLAND

Abstracts:

4J-1. USING Q-METHODOLGY TO EXPLORE PRESCRIBING DECISION MAKING - A PROMISING APPROACH?

14:15 - 14:30: Tue. Jun 14, 2016
Auditorium
Part of Session: ORAL ABSTRACTS: PRACTITIONER DECISION MAKING

***Andrew Rideout, RN, MPH**, NHS Dumfries & Galloway, Dumfries, United Kingdom*

Purpose: The presentation will explore the background and uses of Q-methodology as a research approach for understanding decision making in the clinical setting.

Method(s): Q-methodology is a research method that seeks to understand subjective experience and beliefs. Subjects are asked to rank statements (the Q-sample) along a quasi-normal grid, in which either extreme represents opposites on a single face-valid dimension (e.g. disagree-agree/unimportant-important) in a process known as a Q-sort. As study participants sort the Q-sample, patterns (shared views of the phenomenon being studied) start to emerge that can be analysed and interpreted using factor analysis.

Result(s): The presentation will be illustrated using examples drawn from an on-going study of nurses working in acute care settings in one Scottish Health Board, and their decision making around prescribing practice. Prescribing is a new area of practice for clinically experienced nurses with additional training within the United Kingdom healthcare environment. Little is known about patterns of prescribing by this group of practitioners in the secondary care setting, but a preliminary study by the author showed variations in practice that could not be explained by clinical caseload. A further study to investigate the cause of these variations is being undertaken; Q-methodology has been used to understand the factors (including intrinsic clinician factors, and extrinsic patient, drug, or environmental factors) that influence prescribing decisions in three clinical scenarios - general prescribing, antimicrobial prescribing for presumed infection, and prescribing for patients in pain. This study will be used to illustrate the development of the Q-sample from a literature based concourse, the ranking of influencing factors in the Q-sort, and the prelimanary analysis and interpretation of these data.

Conclusion(s): Q-methodology is a research approach that allows robust collection and analysis of subjective data from a variety of subjects, including clinicians, patients, and health service manaagers. It has advantages over other methods in the speed and acceptability of the data collection process, and the much smaller sample size required for meaningful interpretation. This study demonstrates its use in understanding the factors that drive previously unobserved and unexplained variations in prescribing decison making and practice in a group of nurses working in acute in-patient care settings.

4J-2. DOES MEDICAL EDUCATION PROVIDE A SHARED UNDERSTANDING OF THE TREATMENT THRESHOLD PROBABILITY FOR SUSPECTED STREP THROAT?

14:30 - 14:45: Tue. Jun 14, 2016
Auditorium
Part of Session: ORAL ABSTRACTS: PRACTITIONER DECISION MAKING

***Robert M. Hamm, PhD**[1], Preston H. Seaberg, MD[1], Dewey C. Scheid, MD, MPH[1], Frank J. Papa, DO, PhD[2], Bruna M. Varalli-Claypool[1], Christopher Dwyer, PhD[3] and Padraig MacNeela, PhD[3], (1)University of Oklahoma Health Sciences Center, Oklahoma City, OK, (2)Texas College of Osteopathic Medicine, Fort Worth, TX, (3)National University of Ireland, Galway, Galway, Ireland*

Purpose: Assuming physicians have a threshold probability at which they'd give antibiotics for a suspected strep throat, to

measure that threshold in four ways, comparing the means, variabilities, and correlations among the methods and as a function of medical experience.

Method(s): A web survey was promoted among convenience samples of primary care clinicians and residents, medical and physician assistant students, undergraduate students, and patients. Respondents provided judgments from which 4 measures of their treatment threshold probability for sore throat could be calculated: direct statement of threshold, judgment of 4 utilities (u(TN), u(TP),u(FN), and u(FP)), judgment of 2 utility differences (u(TP) - u(FN) and u(TN) - u(FP)), and person tradeoff judgments (number of people experiencing the less severe error that would be equal to one person experiencing the more severe error). Wording variants and question presentation orders were randomized. Survey asked demographics, parenting experience, and clinical experience of strep throat and of bad outcomes associated with misses and with unnecessary antibiotics.

Result(s): 950 started survey and 735 (77.4%) finished. Each threshold method was noisy, with responses ranging from 0 to 100%. Responses were characterized as invalid, doubtful, worrisome, and reasonable. Those who judged only some methods before quitting made more unreasonable responses. Intercorrelations among measures ranged from -0.03 to 0.39 when all responses were included, and from 0.61 to 0.75 when only reasonable responses were considered. Mean directly stated treatment threshold probabilities (0.59) were higher than the mean thresholds calculated from component judgments (each 0.43). Thresholds showed a U trend over medical education, with 3rdyear medical and PA students having the lowest thresholds (method means 0.26 - 0.41), while patients (means 0.45 - 0.61) and practicing clinicians (means 0.42 - 0.62) had the highest thresholds.

Data did not support that medical education makes individuals agree more with each other about a threshold value.

Physicians reported familiarity with the concept of a treatment threshold probability, but few reported explicitly comparing a patient's disease probability to a treatment threshold.

Conclusion(s): Treatment threshold probability judgments are very noisy. Different methods yield different thresholds. Agreement increases when obvious and suspected mistakes are discarded, suggesting people may have an implicit threshold. Perhaps more explicit instruction and communication regarding recommended treatment thresholds could build on this.

4J-3. LEVELS OF ENGAGEMENT WITH VACCINATION IMPACTS RISK PERCEPTION AND VACCINATION DECISIONS IN HEALTHCARE WORKERS

14:45 - 15:00: Tue. Jun 14, 2016
Auditorium
Part of Session: ORAL ABSTRACTS: PRACTITIONER DECISION MAKING

***Gaëlle Vallée-Tourangeau, MSc PhD**, Kingston University, Kingston upon Thames, United Kingdom, Nick Sevdalis, MSc PhD, Kings College London, London, UK, London, United Kingdom, Christine Norton, PhD, King's College London, London, United Kingdom, Ana Wheelock, MSc, Imperial College London, London, United Kingdom, Miroslav Sirota, PhD, University of Essex, Colchester, United Kingdom and Angus Thomson, PhD, Sanofi Pasteur, Lyon Cedex 7, France*

Purpose: To explore a new avenue for addressing vaccination hesitancy in healthcare workers (HCWs) by examining whether their motivation towards influenza vaccination predicts risk perception and vaccination decisions.

Method(s): HCWs from the National Health System (UK) were surveyed (*N* = 1667). Respondents were mostly female nurses, midwifes or working in an administrative position. We designed the Motivation Towards flu Vaccination (MoVac-flu) scale to assess engagement towards flu vaccination on four dimensions: value, effectiveness, knowledge, and choice. Vaccination uptake and perceived risks associated with influenza and vaccination were also measured.

Result(s): Using a Two-Step cluster analysis, we identified two clusters (Figure 1). A majority of respondents (58%) held strong positive views about the importance and effectiveness of vaccination, a strong sense of autonomy in their choice to vaccinate as well as a strong feeling of knowledge about influenza vaccination. The remainder were characterized by a moderate sense of autonomy in the decision to get vaccinated, a slightly negative belief about the value and impact of influenza vaccination as well as neutral feelings of knowledge about this vaccination. Both levels of engagement were associated with different beliefs regarding influenza severity and threat, and vaccination fear and worry. Each sentiment cluster was associated with opposite levels of vaccination uptake: 66% in HCWs with positive engagement compared to 27% among those with moderate engagement.

Conclusion(s): The MoVac scale offers an innovative approach to study vaccination hesitancy by considering vaccination as an act of engagement rather than a behavioural attitude. Measuring engagement through healthcare workers' perceived value, effectiveness, knowledge, and autonomous choice in relation to vaccination uptake allowed us to identify clusters of sentiments that were strongly predictive of risk perception and vaccination uptake. This methodology offers new avenues to design bespoke interventions. For example, HCWs who strongly believed they were free to choose whether or not to get vaccinated also felt trustful of the influenza vaccine. Future research could therefore seek to establish whether autonomy promotes trustfulness or whether autonomous feelings result from an a priori trustful attitude towards vaccination. Assuming

that the former holds, vaccination hesitancy could then be addressed by providing autonomy support in order to promote healthcare workers' self initiation of vaccination decisions.

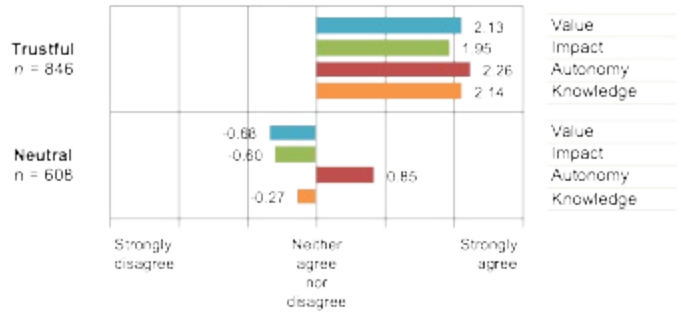

Figure 1 - Two levels of engagement levels towards flu vaccination identified

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4J-4. ARE WE AS GOOD AS WE THINK IN PREDICTING OUR PATIENT SATISFACTION?

15:00 - 15:15: Tue. Jun 14, 2016
Auditorium
Part of Session: ORAL ABSTRACTS: PRACTITIONER DECISION MAKING

***Leonid Kandel, MD**, Hadassah-Hebrew University Medical Center, Jerusalem, Israel*

Purpose:

Patient's satisfaction after hip or knee arthroplasty can be very different from surgeon's satisfaction or objective clinical and radiologic findings. Up to 20% of patients after knee replacement are not satisfied with the procedure. An experienced arthroplasty surgeon often has a feeling that he can predict the success of planned surgery, based on his assessment of patient's personality. This study was conducted to examine the ability to predict satisfaction by the treating orthopaedic surgeon and other health care providers.

Method(s):

40 arthroplasty surgeons were asked to what degree they can preoperatively predict their patient satisfaction one year after a hip or a knee arthroplasty. The prediction was done using the Visual Analogue Scale (VAS).

Then, 219 consecutive patients scheduled for arthroplasty (118 hip and 101 knee) completed the study. Each patient filled Pain Visual Analogue Scale and Oxford hip or knee score before and year after the surgery. Assessment of satisfaction (actual and predicted) was again performed using the Visual Analogue Scale. It was predicted by the referring surgeon and the patient during the clinic visit and treating physician, physiotherapist and 2-3 nurses during hospitalization. A year postoperatively the satisfaction was assessed by patient and his surgeon (who also tried to "guess" patient's satisfaction). All assessors were blinded to others.

Result(s):

Arthroplasty surgeons felt that they can predict postoperative patient satisfaction in 90% for hip and 70% for knee arhroplasty. However, no significant correlation was found between predicted patient satisfaction (by the patient himself, the treating orthopaedic surgeon or other health care provider) and the actual patient satisfaction one year after the procedure.

Conclusion(s):

Arthroplasty surgeons strongly feel that they can predict patient satisfaction when they refer the patient to surgery. This study shows that our ability to predict patient satisfaction based on superficial impression of patient's personality is very low or non-existent. Medical decisions based on these impressions are misleading and should be avoided.

4J-6. PREFERENCES, EXPECTATIONS AND CAREER CHOICES: A BEST WORST SCALING STUDY OF JUNIOR DOCTORS' CHOICE OF SPECIALISM IN ENGLAND

15:15 - 15:30: Tue. Jun 14, 2016
Auditorium
Part of Session: ORAL ABSTRACTS: PRACTITIONER DECISION MAKING

***Jonathan Gibson, BA, MSc, PhD**[1], Dan Rigby, BSc, MSc, PhD[2], Matthew Sutton, BA, MSc, PhD[3], Sharon Spooner, MBChB, MRCGP, PhD[1] and Kath Checkland, BBS BMedSci MRCGP MA(Econ) PhD[1], (1)University of Manchester, Manchester, United Kingdom, (2)Department of Economics, The University of Manchester, Manchester, United Kingdom, (3)The University of Manchester, Manchester, United Kingdom*

Purpose:

We investigate the job attributes that:

· medical trainees most value in their future specialism

· medical trainees most associate with a career in General Practice.

Combining these we investigate the crisis in General Practice in the UK which is characterised by high levels of exit accompanied by insufficient recruitment.

Method(s):

We identify 36 job attributes and use BWS to elicit (i) the relative importance of those attributes to trainees, and (ii) the extent to which they (dis)associate the attributes with a career as a GP.

The data are analysed by estimation of heteroscedastic conditional logit and scale adjusted latent class models. Logit models are estimated to identify the factors (BWS importance scores, demographics, attitudes etc) which affect trainees' choice of specialism.

Result(s):

From our sample of over 800 trainees, only 20% reported that GP was there first of specialism. Choice models estimated on the career desirability BWS indicate that a good work-life balance, working as part of a team and having control over where one works things are among the most desirable job traits. The opportunity to manage a clinical service and working in a speciality to which entry is competitive were among the least desirable.

A good work-life balance was more than twice as important as recognition or job security, more than 5 times as important as being involved in research and more than 7 times as important as having a good chance of promotion.

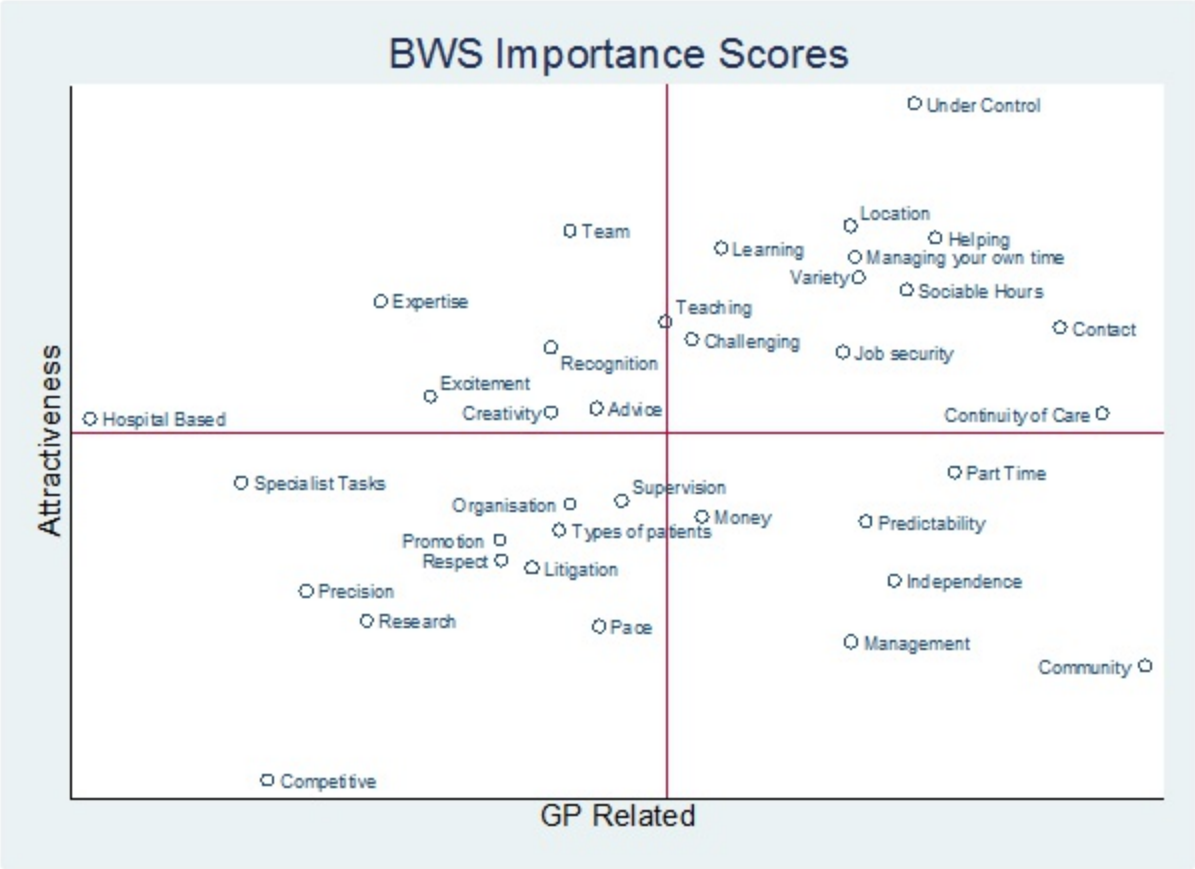
We find no significant correlation between the desirability of job traits and the degree to which they are associated with a career as a GP. Plotting BWS Importance Scores against each other (Figure 1) highlights inconsistencies between what trainees seek in their medical career and their expectation of GP.

Undesirable job attributes which were strongly associated with a career as a GP included working in a community-based role and working alone. Excitement was a strongly desired attribute but was not associated with a GP career.

Conclusion(s):

Choice models allow marginal effects to be derived showing the impact of variations in job attribute importance on the likelihood of applying for General Practice.

The results suggest that substantial changes to the (perceived) attributes of a General Practice role are required to increase the proportion of trainees choosing this specialty.



4K. ORAL ABSTRACTS: QUANTITATIVE METHODS II

« Previous Session | Next Session »

14:15 - 15:45: Tue. Jun 14, 2016
Euston Room, 5th Floor
Session Chairs:

- *Elisabeth A.L. Fenwick, PhD*

Session Summary:

14:15 - 14:30

4K-1. PARTITIONED SURVIVAL ANALYSIS: A CRITICAL REVIEW OF THE APPROACH AND APPLICATION TO DECISION MODELLING IN HEALTH CARE

14:30 - 14:45

4K-2. DIAGNOSING QUALITY OF TREATMENT FROM SURVIVAL TIMES

14:45 - 15:00

4K-3. COMPETING RISKS OR COMPOSITE ENDPOINT METHODS FOR MODELLING MULTIPLE ENDPOINTS FROM SURVIVAL DATA IN HEALTH ECONOMIC EVALUATION?

15:00 - 15:15

4K-4. AN ALTERNATIVE APPROACH TO ESTIMATING MAXIMUM LIFE EXPECTANCY BASED ON SIMULATING AN OPTIMALLY HEALTHY POPULATION

15:15 - 15:30

4K-6. WHEN AND WHERE IN THE TREATMENT PATHWAY IS IT APPROPRIATE TO USE NEW DIRECT ACTING ANTIVIRALS FOR CHRONIC HEPATITIS C?

Abstracts:

4K-1. PARTITIONED SURVIVAL ANALYSIS: A CRITICAL REVIEW OF THE APPROACH AND APPLICATION TO DECISION MODELLING IN HEALTH CARE

14:15 - 14:30: Tue. Jun 14, 2016
Euston Room, 5th Floor
Part of Session: ORAL ABSTRACTS: QUANTITATIVE METHODS II

***Beth Woods, MSc**, Marta Soares, Msc, Eleftherios Sideris and Stephen Palmer, PhD, University of York, York, United Kingdom*

Purpose: Cost-effectiveness models increasingly use a modelling approach called partitioned survival analysis. The appropriateness of this approach has been subject to little critique. The purpose of this work is to describe and critique the partitioned survival analysis approach as a decision modelling tool and to provide formal recommendations to assist different stakeholders in determining it's appropriateness as a modelling approach and basis for informing policy decisions.

Method(s): We reviewed the 30 most recent technology appraisals of cancer treatments published by NICE (covering the period May 2013-February 2016). Manufacturer submissions and reports by academic Evidence Review Groups/Assessment Groups were reviewed to establish the way and contexts in which the method is being used, its key assumptions and the prevalence and relative merits of alternative methods.

Result(s): The use of partitioned survival analysis was highly prevalent and used in 23 out of 30 appraisals. The method was generally incorrectly described and its assumptions rarely documented or justified. Critical appraisal of the method identified a central assumption of independence of clinical events. This assumption has implications for the reliability of extrapolations and in particular extrapolation of overall survival, modelling of decision uncertainty and transparency with respect to mechanisms underpinning model predictions. The most common alternative approach was the (semi-) Markov model which was typically used when overall survival data were immature and/or to reflect subsequent lines of therapy. The (semi-) Markov models frequently included an assumption that extensions to time to intermediate endpoints (e.g.

progression-free survival) translated directly to extensions to overall survival. These assumptions are not necessitated by the (semi-) Markov modelling approach and should be subject to scrutiny. Appropriately designed (semi-) Markov models may offer advantages over partitioned survival approaches by allowing information on intermediate endpoints to inform survival predictions, providing greater transparency on the mechanisms underpinning these predictions and by accurately reflecting endpoint correlations. They may, however, struggle to incorporate external data such as treatment effects from indirect comparisons or long-term observational data on mortality rates.

Conclusion(s): More consideration should be given to the selection and justification of alternative modelling approaches. Choice of modelling approach is likely to be most important for the extrapolation period. Assumptions underpinning extrapolations should be subject to greater scrutiny and where possible informed by empirical data.

4K-2. DIAGNOSING QUALITY OF TREATMENT FROM SURVIVAL TIMES

14:30 - 14:45: Tue. Jun 14, 2016
Euston Room, 5th Floor
Part of Session: ORAL ABSTRACTS: QUANTITATIVE METHODS II

***Steen Rosthoej, MD** and Rikke-Line Jacobsen, MD, Aalborg University Hospital, Aalborg, Denmark*

Purpose: CUSUM plots monitoring quality of treatment are not readily applicable to cancer case series with prolonged follow-up. We describe a Bayesian technique for timely detection of inferior results based on observed survival times.

Method(s): Kaplan-Meier 5-year survival curves for children with acute lymphoblastic leukemia treated on the ongoing Nordic 2008 protocol are available, showing “healthy” standard of treatment. The curves are divided in 3-month intervals, and the risk of event (hazard) in each interval calculated from the survival curves. A “sick” hazard function is specified by multiplying the failure:success ratio in each interval by 1.5, and a hypothetical Kaplan-Meier curve for poor treatment constructed by sequentially multiplying the probabilities of surviving each interval without event. For each patient the likelihood ratio of the observed survival time is determined: for event free cases the ratio of survival probabilities on the two curves, for cases with event the same ratio multiplied with the hazard ratio in the time interval. Using Bayes theorem, considering each case a test of good treatment quality, diagnostic odds are calculated by multiplying prior odds sequentially with the likelihood ratios. The accumulated weight of evidence in favour of or against good performance is determined by adding up log to base 2 of the likelihood ratios.

Result(s): We have included 35 children on the ongoing protocol; 9 have completed 5-year follow-up and can be considered cured, 2 have had events during follow-up, and 24 are still at risk with survival times 8-59 months. A Kaplan-Meier estimate of 5-year event free survival for all risk groups combined is 90.7%. Using the Bayesian approach, the weight of evidence in favor of good treatment quality is 1.43, corresponding – if prior odds are fifty:fifty – to odds 2 to the power of 1.43 = 2.70 to 1, i.e. probability 73%. Displaying the accumulation of evidence in a CUSUM plot for the sequential case mix reveals a very good run of the first 14 patients accounting for most of the favourable evidence.

Conclusion(s): The quality of treatment in small patient series with unfinished follow-up can be assessed from the observed survival times, permitting monitoring of results in a risk-adjusted CUSUM plot and detection of temporal changes that are not apparent in Kaplan-Meier curves or Cox proportional hazard models.

4K-3. COMPETING RISKS OR COMPOSITE ENDPOINT METHODS FOR MODELLING MULTIPLE ENDPOINTS FROM SURVIVAL DATA IN HEALTH ECONOMIC EVALUATION?

14:45 - 15:00: Tue. Jun 14, 2016
Euston Room, 5th Floor
Part of Session: ORAL ABSTRACTS: QUANTITATIVE METHODS II

***Fadi Chehadah, MSc**, Centre for Health Economics, University of York, York, United Kingdom*

Purpose:

The aim of this study is to explore the impact of different methods for modelling multiple endpoints from survival data on health economics’ modelling.

Method(s):

Two methods for modelling multiple clinical endpoints from survival data are studied. If these events are combined, assuming that they are completely dependent, then modelling them as a composite endpoint (CEP) is an approach. Alternatively, considering the events as competing risks when modelling the survival data, accounting for the possible interdependence, does not require restrictive assumptions with respect to the interrelation between these events. There are underlying assumptions in each method about the interaction between these endpoints.

The study’s central research component is a comparison of these approaches, together with how these would be applied in a decision model and how this can affect the final outcome. The cost effectiveness analysis, using a simple Markov model,

is used as a case study. Using R software, the inversion method is performed to simulate data for two competing events from Weibull distribution and then conducting survival analysis to examine these various outcomes.

Cumulative incidence function, derived from the related survivor functions, obtained from the different approaches of modelling the events, was the platform to estimate the transition probabilities. These were the inputs of the Markov cost-effectiveness model, from which the net benefits, generated from the natural disease history, were the main outcome to assess the divergences between the methods.

Result(s):

When the events have a constant rate with time, exponentially distributed (a special case of Weibull), the CEP method does not affect the outcome. In the case, where events' hazards vary with time at the same rate, the estimates obtained from the CEP method are very close to those that the competing risks method generates. However, the situation becomes more challenging if the events have different rates at which they occur. If the events' rates have two opposite directions, the implications for the decision model that has used the survival modelling outcomes become compounded.

Conclusion(s):

The method used for modelling multiple endpoints from survival data can have an impact on the outcome of health economic evaluation that used the transition probabilities derived from these survival data.

4K-4. AN ALTERNATIVE APPROACH TO ESTIMATING MAXIMUM LIFE EXPECTANCY BASED ON SIMULATING AN OPTIMALLY HEALTHY POPULATION

15:00 - 15:15: Tue. Jun 14, 2016
Euston Room, 5th Floor
Part of Session: ORAL ABSTRACTS: QUANTITATIVE METHODS II

Elizabeth R Stevens, MPH[1], *R. Scott Braithwaite, MD, MSc, FACP*[1], *Glen Taksler, PhD*[2], *Qinlian Zhou, PhD*[1] *and Kimberly Nucifora, MS*[1], *(1)New York University School of Medicine, New York, NY, (2)Cleveland Clinic, Cleveland, OH*

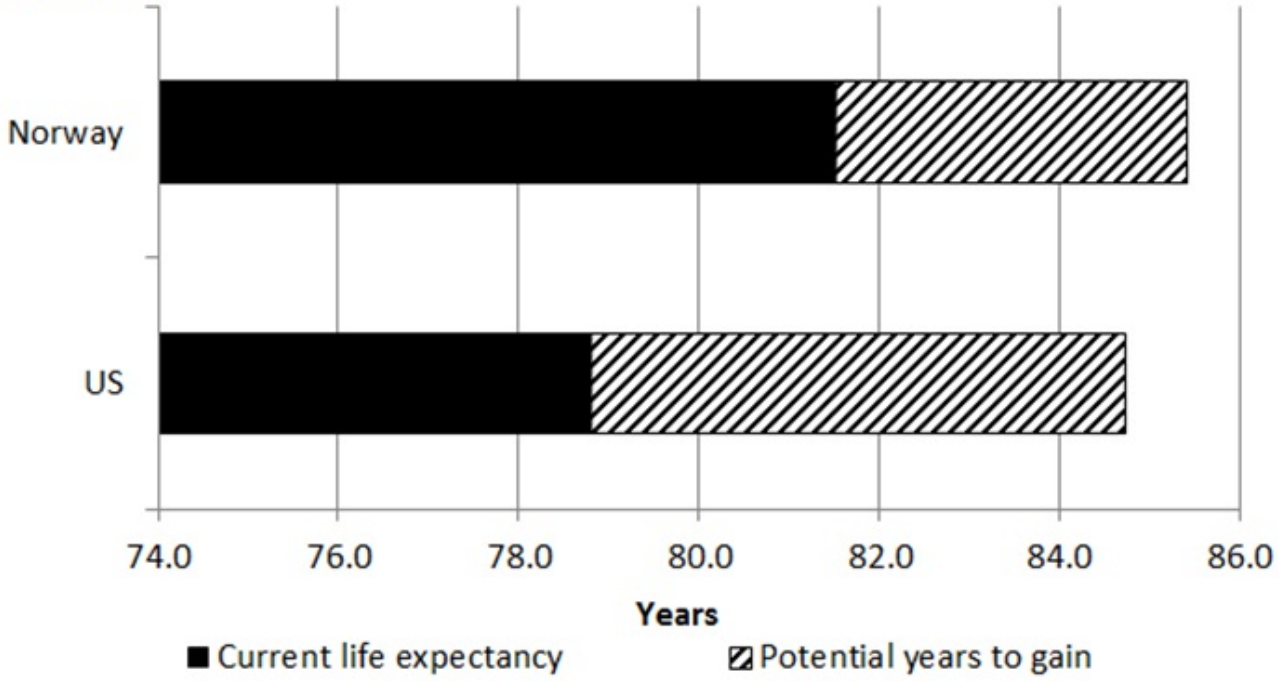
Purpose: Little is known about the maximum achievable life expectancy given a population's unique characteristics, which is important for estimating actionable population health metrics. Our objective is to address the question: Given the current state of health science and technology, what is the difference in the potential life expectancy gain that could be achieved in the United States and Norway in the idealized scenario where modifiable risk factors were eliminated and adherence to evidence-based therapies was perfect.

Method(s): We developed a Monte Carlo microsimulation model of 19 conditions representing the top causes of mortality in each age decile and the 28 risk factors associated with their onset that had consistent directions of effect as well as clinical and statistical significance. Each month individuals can develop new risk factors and/or new conditions, have existing risk factors or conditions resolve (e.g. through treatment), or die. We simulated a birth cohort of one million patients with characteristics resembling the population of the United States and Norway. We then compared current health with an idealized scenario where all modifiable risk factors were eliminated and adherence to evidence-based therapies was perfect.

Result(s): We estimated that the maximum life expectancy in the United States would be 84.7 years (a potential increase of 5.9 years) in the idealized scenario. The life expectancy for Norway would be 85.4 years (a potential increase of 3.9 years). Limitations include only capturing mortality through mortality causing conditions and therefore missing mortality acting through alternative pathways.

Conclusion(s): With a highest achievable life expectancy of 84.7 years, an increase of 5.9 years above current life expectancy (78.8 years), the United States has a greater potential for improvement than Norway, which has a highest achievable life expectancy of 85.4 years, an increase of 3.9 years above current life expectancy (81.5 years). The use of mathematical simulations can estimate the maximum achievable life expectancy in a population and compare the differences in the potential of health improvement between populations in order to better inform efforts to improve population health. Through statistically-, rather than projection-based life expectancy predictions, the use of mathematical modelling holds the potential to improve the validity of health measures frequently used in health policy decision making.

Figure. Years of potential life gain between baseline and calculated maximum achievable life expectancy



4K-6. WHEN AND WHERE IN THE TREATMENT PATHWAY IS IT APPROPRIATE TO USE NEW DIRECT ACTING ANTIVIRALS FOR CHRONIC HEPATITIS C?

15:15 - 15:30: Tue. Jun 14, 2016
Euston Room, 5th Floor
Part of Session: ORAL ABSTRACTS: QUANTITATIVE METHODS II

Rita Faria, MSc[1], *Beth Woods, MSc*[1], *Susan Griffin, PhD*[1], *Stephen D. Ryder*[2], *Stephen Palmer, PhD*[1] *and Mark Sculpher, PhD*[1], *(1)University of York, York, United Kingdom, (2)Nottingham Digestive Diseases Centre, Nottingham, United Kingdom*

Purpose:

To provide a complete assessment of the cost-effective treatment pathway for patients with hepatitis C virus (HCV) infection with advanced fibrosis.

Method(s):

We include three important features of the decision problem ignored in previous economic evaluations internationally. (1) Retreatment if patients do not achieve cure, by comparing all licensed drugs in sequences of one to three lines. (2) Inclusion of watchful waiting followed by treatment at cirrhosis as a relevant comparator. (3) Allowing patients to be treated at more severe disease stages for patients who do not achieve cure with the initial treatment sequence.

We developed a decision-analytic Markov model to estimate lifetime costs and health benefits of all comparators and compared treatment strategies in subgroups defined by viral genotype, prior treatment experience and interferon eligibility. Value of information analysis explored in which patient subgroups it would be most useful to conduct future research. Additionally, we have prepared a tool to recalculate the cost-effective strategies for a given set of prices and thresholds since some health care systems have negotiated discounts.

Result(s):

In contrast to previous analyses, and given the current list prices, eligible patients with genotypes 2-4 should be initially offered peginterferon with ribavirin rather than the newer drugs. First-line treatment with sofosbuvir-ledipasvir over 8 weeks is cost-effective in HCV genotype 1 patients. The cost-effective strategies all include multiple lines of therapy prior to cirrhosis (where available), resulting in cure rates of 89%-98% across HCV genotypes. Future research is most valuable in HCV genotypes 3 and 4, with an upper bound of £3 million. The tool can help clinicians and health care systems locally and worldwide decide on the cost-effective strategy given their local context and prices.

Conclusion(s):

Health systems should invest in sequential therapy with multiple lines to treat HCV patients with advanced fibrosis. Although current guidance permits first line treatment with the new drugs, we concluded that their use should mostly be reserved to patients who do not achieve cure from first line treatment with peginterferon. This work demonstrates that excluding sequential therapy as a relevant comparator will bias results and ultimately have a detrimental impact to population health.

The tool shows how complex economic modelling can be made accessible and adaptable to policy-makers and clinicians needs.

4L. ORAL ABSTRACTS: CHD, CVD AND CANCER

« Previous Session | Next Session »

14:15 - 15:45: Tue. Jun 14, 2016
Stephenson Room, 5th Floor

Session Summary:

14:15 - 14:30

4L-1. UTILIZING ELECTRONIC HEALTH RECORD DOCUMENTATION TO MEASURE VALUE FOR PROSTATE CANCER CLINICAL CARE

14:30 - 14:45

4L-2. EXAMINING OPTIMAL SURVEILLANCE STRATEGIES FOR PATIENTS TREATED WITH CURATIVE RESECTION FOR STAGE II OR III COLORECTAL CANCER

14:45 - 15:00

4L-3. SELECTIVE VERSUS ROUTINE SURGICAL RESECTION FOR RECTAL CANCER FOLLOWING NEOADJUVANT CHEMORADIATION AND CLINICAL COMPLETE RESPONSE

15:00 - 15:15

4L-6. RETHINKING METHODS TO IDENTIFY OPTIMAL TREATMENT AND DIAGNOSTIC THRESHOLDS: EVALUATING RISK-BASED OUTCOMES IN CORONARY HEART DISEASE

15:15 - 15:30

3H-5. ASSESSING CVD RISK AND BURDEN: DIFFERENCES IN PREDICTION MODELS AND POPULATIONS

15:30 - 15:45

4L-4. THE COST OF BEING WRONG: THE IMPACT OF PREDICTION UNCERTAINTY ON THE COST-EFFECTIVENESS OF RISK-STRATIFIED STRATEGIES

Abstracts:

4L-1. UTILIZING ELECTRONIC HEALTH RECORD DOCUMENTATION TO MEASURE VALUE FOR PROSTATE CANCER CLINICAL CARE

14:15 - 14:30: Tue. Jun 14, 2016
Stephenson Room, 5th Floor
Part of Session: ORAL ABSTRACTS: CHD, CVD AND CANCER

*Kathryn M. McDonald, MM[1], **Tina Hernandez-Boussard, PhD, MPH, MS**[2], James Brooks, MD[3], Douglas Blayney, MD[4] and Cesar escobar-Viera, MD, PhD[3], (1)Stanford University Center for Health Policy and Center for Primary Care and Outcomes Research, Stanford, CA, (2)Stanford University, Stanford, CA, (3)Stanford School of Medicine, Stanford, CA, (4)Stanford University School of Medicine, Stanford, CA*

Purpose: Electronic health records (EHRs) are a widely adopted but underutilized source of data for systematic assessment of quality of care metrics. Barriers for use of this data include its non-structured, free text nature, non-uniform recording by clinicians and non-standard vocabulary. The aim of this project is to extraction useful knowledge from EHRs, link elements to a registry and develop standardized quality process and outcome metrics.

Method(s): We use ICD-9-CM diagnosis codes to identify prostate cancer patients receiving care at an academic medical center. Patients are confirmed in the California Cancer Registry, which returns tumor characteristic and treatment data on all patients with a confirmed cancer diagnosis, including curated pathology and tumor staging information. Using all proposed prostate cancer quality metrics, we define each quality metric using target terms and concepts to extract from the EHRs. These terms may include diagnostic procedures and tests and their results (such as Digital Rectal Exam, DRE), therapeutic procedures, and drugs (both ordered and administered). Terms are mapped to a standardized medical vocabulary, enabling us to represent the elements of a metric by a concept domain and its permissible values. The structured representation of

the quality metric data elements are used to create quality *phenotypes*, which are rules involving the temporal order of components of the quality metrics.

Result(s): We have developed an EHR database that draws healthcare records from an academic center and link these records to the California Cancer Registry. This allows for clinical care data to be analyzed alongside diagnostic details, which are not usually captured in EHR. This database includes unstructured clinician notes to ensure the broad evaluation of patient-centered data. Furthermore, our system enables real-time extraction of treatment processes and outcome measures, allowing us to use EHR data to track process improvements.

The quality metric phenotypes we create are standardized code that can be used across different EHR systems. For example, the algorithm to detect DRE documentation contains prostate cancer diagnosis code (ICD-9 185), dates (ensure the DRE was performed prior to treatment), and textual concepts (e.g. DRE, digital rectal exam, and rectal exam).

Conclusion(s):

EHR-systems can be used to assess and report quality metrics systematically, efficiently, and with high accuracy. The development of such systems moves the quality assessment field into large-scale analyses.

4L-2. EXAMINING OPTIMAL SURVEILLANCE STRATEGIES FOR PATIENTS TREATED WITH CURATIVE RESECTION FOR STAGE II OR III COLORECTAL CANCER

14:30 - 14:45: Tue. Jun 14, 2016
Stephenson Room, 5th Floor
Part of Session: ORAL ABSTRACTS: CHD, CVD AND CANCER

Jonah Popp, MS, MA[1], *J. Robert Beck, M.D.*[2], *David Weinberg, MD, MSc*[2] *and Karen M. Kuntz, ScD*[1], *(1)University of Minnesota, Minneapolis, MN, (2)Fox Chase Cancer Center, Philadelphia, PA*

Purpose:

To project the long-term effectiveness of intensive imaging-surveillance after curative resection of colorectal cancer (CRC). Intensive imaging surveillance consists of annual abdominal (abdominal-pelvic for rectal cancer) and thoracic CT exam for five years post initial curative resection.

Method(s):

We developed a state-transition model that simulated newly diagnosed patients with CRC through a series of disease states characterized by (1) a disease free state, (2) the presence of occult micro-metastasis (undetectable by CT), (3) resectable preclinical macro-metastasis (asymptomatic mets potentially detectable by CT and if found is treatable), (4) unresectable pre-clinical macro-metastasis (asymptomatic mets potentially detectable by CT and if found not amenable to curative treatment), (5) symptomatic and resectable disease, (6) symptomatic and unresectable disease, and (7) death (from cancer and other causes). The microsimulation model utilized nonparametric hazard functions to flexibly model the key underlying time to event processes. These were calibrated simultaneously to Surveillance, Epidemiology, and End Results Program (SEER) stage-specific relative survival and the efficacy of imaging-based surveillance taken from a meta-analysis of multiple randomized clinical trials (RCTs). SEER provides relative survival information, which reflects the underlying cancer mortality rates over time. There have been 11 RCTs of intensive surveillance following CRC diagnosis, 8 of which included intensive imaging follow-up (CT, ultrasound, or chest x-ray). The purpose of conducting the CT is to diagnose metastatic recurrence before it becomes symptomatic when it has a greater chance of being resectable (and thereby reducing cancer mortality).

Result(s):

Calibrated parameter values showed that the median time to detectable mets was 7 months and the median time to symptomatic disease was 13 months, among those patients destined to develop mets. The model calibrated reasonably well to SEER 5-year relative survival for stage III. A strategy of performing annual CT for five years after CRC diagnosis and curative resection resulted in life expectancy gains of about 9 months for stage III rectal cancer and 12 months for stage III colon cancer. For stage II disease, the absolute improvement in LE was reduced by a factor of about 2, with a LE gain of 4 months for rectal cancer and 5 months for colon cancer.

Conclusion(s):

Intensive imaging follow-up after curative resection for stage II-III colorectal cancer can effectively reduce cancer-related mortality and thereby increase life-expectancy.

4L-3. SELECTIVE VERSUS ROUTINE SURGICAL RESECTION FOR RECTAL CANCER FOLLOWING NEOADJUVANT CHEMORADIATION AND CLINICAL COMPLETE RESPONSE

14:45 - 15:00: Tue. Jun 14, 2016
Stephenson Room, 5th Floor

Part of Session: ORAL ABSTRACTS: CHD, CVD AND CANCER

Nestor Esnaola, MD, MPH, MBA[1], *Talha Shaikh, MD*[1], *J. Robert Beck, M.D.*[1] *and E. Ramsay Camp, MD*[2], *(1)Fox Chase Cancer Center, Philadelphia, PA, (2)Medical University of South Carolina, Charleston, SC*

Purpose: Approximately 25% of rectal cancer patients with a clinical complete response (CR) after neoadjuvant chemoradiation will ultimately be found to have a true pathologic CR at both the primary tumor site *and the mesorectum* at the time of surgical resection (SR; which requires partial/total removal of the rectum). Minimally invasive, transanal local excision (LE) of the primary tumor site after chemoradiation may identify patients who achieved a true pathologic CR after neoadjuvant therapy, and thus, may not require (and/or benefit from) SR. The purpose of this study was to explore the predictive/therapeutic value of selective SR (i.e., based on results of LE) versus routine SR in this patient population.

Method(s): We developed a decision analysis/Markov model to compare outcomes following selective versus SR in patients with mid-low rectal cancers with a clinical CR after chemoradiation. All patients in the selective SR strategy underwent LE after chemoradiation: patients with a pathologic CR at the primary tumor site were observed, while those with residual disease at the primary tumor site underwent subsequent SR. All patients in the routine SR strategy underwent upfront resection after chemoradiation. Sensitivity/specificity of LE, morbidity/mortality of LE/SR, local/systemic recurrence estimates after LE/SR, rates of surgical salvage after local recurrence following LE/SR, and survival estimates were obtained from the medical literature. Model outcomes were quality-adjusted using health state preferences.

Result(s): Overall, unadjusted and quality-adjusted life expectancy was superior after selective SR compared to routine SR; patients with a true pathologic CR gained the greatest benefit (Table 1). Selective SR was the optimal strategy even after model estimates/utilities were varied widely over their reported ranges. Routine SR was preferred only if model estimates/utilities were varied well beyond their reported ranges: if mortality of LE, probability of a true pathologic CR, and utility of being disease-free after LE (without subsequent SR) were assumed to be >4.5%, <0.2%, and 0.846, respectively.

Conclusion(s): Selective SR (based on results of LE) maximizes unadjusted and quality-adjusted life expectancy compared to upfront routine SR in patients with mid-low rectal cancers with a clinical CR after neoadjuvant chemoradiation. Routine SR in this increasingly common clinical situation should be reconsidered. Randomized trials comparing selective versus routine SR (that prospectively measure resulting health-state preferences and costs) in this setting are warranted.

Table 1. Model outcomes according to treatment strategy, stratified according to pathologic response to neoadjuvant chemoradiation

Pathologic Response & Treatment Strategy	Estimated Life Expectancy (LE) (yrs)	Δ Estimated LE (yrs)	Estimated Quality-Adjusted Life Expectancy (QALE) (QALYs)	Δ Estimated QALE (QALYs)
Overall				
Selective Surgical Resection	**7.138**	+0.182	**6.025**	+0.265
Routine Surgical Resection	6.956	-	5.760	-
pCR				
Selective Surgical Resection	**9.037**	+0.760	**8.417**	+1.065
Routine Surgical Resection	8.277	-	7.352	-
pPR				
Selective Surgical Resection	6.505	-	5.227	-
Routine Surgical Resection	**6.516**	+0.011	**5.229**	+0.002

4L-6. RETHINKING METHODS TO IDENTIFY OPTIMAL TREATMENT AND DIAGNOSTIC THRESHOLDS: EVALUATING RISK-BASED OUTCOMES IN CORONARY HEART DISEASE

15:00 - 15:15: Tue. Jun 14, 2016
Stephenson Room, 5th Floor
Part of Session: ORAL ABSTRACTS: CHD, CVD AND CANCER

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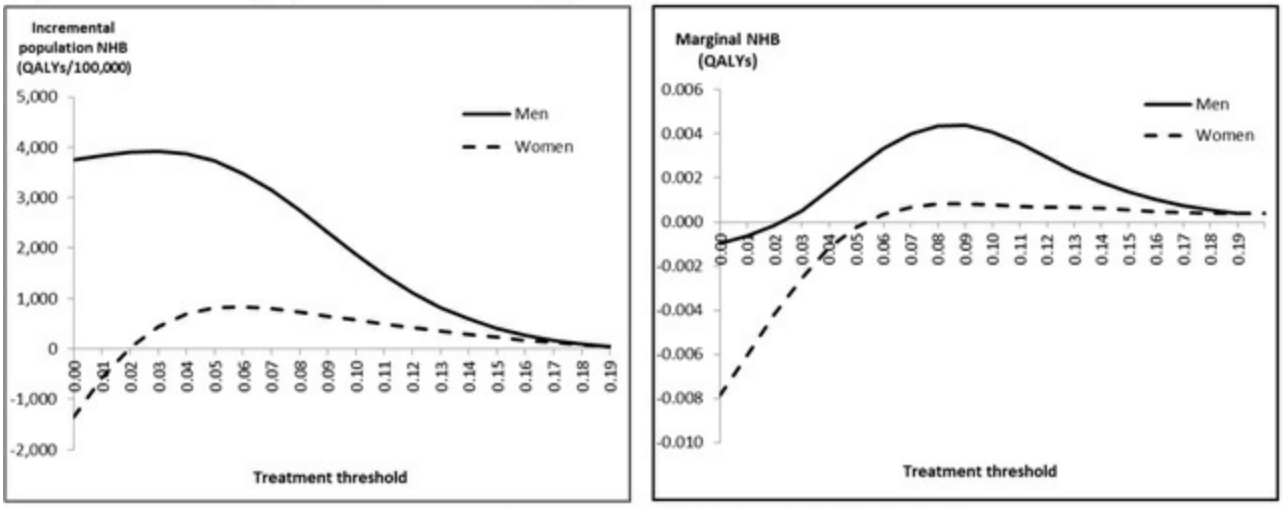
Purpose: Current approaches to defining treatment or diagnostic thresholds are commonly based on average effects, which may lead to incorrect decisions on individual level. We demonstrate a general approach to identify treatment or diagnostic thresholds optimizing individual health outcomes, illustrated for statin treatment based on 10-year coronary heart disease (CHD) risk predicted by the Framingham risk score (FRS).

Method(s): A health economic model was created to evaluate risk-based preventive statin treatment. Based on the Atherosclerosis Risk in Communities study cohorts of men and women aged 5059 years at low-intermediate or high CHD-risk were simulated and followed for 30 years. Strategies gradually including more individuals by lowering the treatment threshold T (20%-0%;1% decrements) were compared. Differences in health outcomes, quality-adjusted life-years (QALYs) and cost-effectiveness, were assessed at each step to identify optimal treatment thresholds. Cost-effectiveness was evaluated by calculating the net health benefit (NHB) for a willingness-to-pay of $50,000/QALY. At every threshold T both incremental (compared to T=20%) and marginal (compared to T=T+1%) outcomes were evaluated.

Result(s): QALYs ranged from 12.621 in men and 13.696 in women at T=20% to a maximum of 12.689 in men at T=1% and 13.734 in women at T=0%. Keeping the population-level fraction of statin-induced complications <10% resulted in thresholds of T=6% for men and T=2% for women. Lowering the threshold and comparing outcomes after each 1% decrease, QALYs were gained down to T=1% for men and T=0% for women. The incremental NHB was favorable for every threshold down to T=0% among men and down to T=2% among women (Figure 1A). The incremental NHB achieved a maximum at T=3% for men and at T=6% for women, with a NHB of 3,919 and 834 QALYs among 100,000 men and women, respectively. Correspondingly, the marginal NHB was favorable down to T=3% for men and T=6% for women (Figure 1B).

Conclusion(s): Many approaches can be taken to arrive at a treatment or diagnostic threshold. However, current intuition-based approaches leave ample room for health gain and cost savings. Using a stepwise risk-based approach to threshold optimization allows for treatment and diagnostic strategies that optimize outcomes in *all* individuals instead of on average. This approach can be applied to any outcome, such as to limit complications or missed diagnoses, to maximize health outcomes, or to optimize cost-effectiveness.

Figure 1. Net health benefit of statin prevention at varying treatment thresholds



[A] Incremental Net Health Benefit in the general population *[B] Marginal Net Health Benefit*

Figure [A] shows the incremental Net Health Benefit (NHB) in the general population (N=100,000 men or women), i.e. comparing QALYs and costs at threshold T to those at the original treatment threshold T=20%. Figure [B] shows the marginal NHB (per individual), i.e. comparing QALYs and costs at threshold T to those at the former threshold T+1.

3H-5. ASSESSING CVD RISK AND BURDEN: DIFFERENCES IN PREDICTION MODELS AND POPULATIONS

15:15 - 15:30: Tue. Jun 14, 2016
Stephenson Room, 5th Floor
Part of Session: ORAL ABSTRACTS: CHD, CVD AND CANCER

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Purpose: Prediction models for cardiovascular disease (CVD) are important to assess the burden of disease. However, it is likely that the definition of the composite endpoints (CEP) influences CVD burden estimates, and that the distribution of event types into the CEP is age and gender dependent. This complicates robust assessment of the potential (preventable) CVD burden. Therefore, the purpose of this paper is to identify how differences in the type and severity of different CVD events, and differences in commonly used CVD risk prediction models, influence CVD burden estimates across different populations.

Method(s): Data from 20.423 participants of the MORGEN cohort was used and classified into subgroups based on age and gender. CVD events were identified for four prediction models: ATP, Framingham, PCE and SCORE. The 10-year CVD risks and associated burdens, expressed as Quality-Adjusted Life Years (QALYs) lost, were determined and presented for high-risk individuals, i.e. the 25% individuals with highest predicted risks. The effect of a hypothetical (risk factor) treatment in high-risk individuals was investigated, regarding an overall and event specific risk reduction.

Result(s): The distribution of CVD event types varied between men and women but not with age. The predicted risks, as expected, differed substantially with gender and age. Consequently, the predicted burden varied between men and women, and between age-groups, mainly due to differences in predicted risks. For high-risk individuals, men each lost 0.22, 0.83, 0.18, and 0.33 QALYs according to ATP, Framingham, PCE, and SCORE, and women lost 0.07, 0.50, 0.17, 0.13 QALYs, respectively. When treating these high-risk individuals, the burden for men decreased to 0.14, 0.54, 0.12, and 0.22 QALYs lost, and for women to 0.05, 0.33, 0.11, and 0.09 QALYs lost, according to ATP, Framingham, PCE, and SCORE, respectively.

Conclusion(s): Estimates of CVD burden depend as much on the CVD event types included in risk prediction models as on the risk estimates produced by such models. Investigating the distribution of CVD events occurring in practice is therefore necessary to obtain robust estimates of CVD burden and the potential reduction from preventive strategies. Furthermore, as the risks and consequences of specific CVD events are demonstrated to differ for gender and age, evidence of the distribution of CVD events should be obtained for the considered population targeted for preventive strategies.

4L-4. THE COST OF BEING WRONG: THE IMPACT OF PREDICTION UNCERTAINTY ON THE COST-EFFECTIVENESS OF RISK-STRATIFIED STRATEGIES

15:30 - 15:45: Tue. Jun 14, 2016
Stephenson Room, 5th Floor
Part of Session: ORAL ABSTRACTS: CHD, CVD AND CANCER

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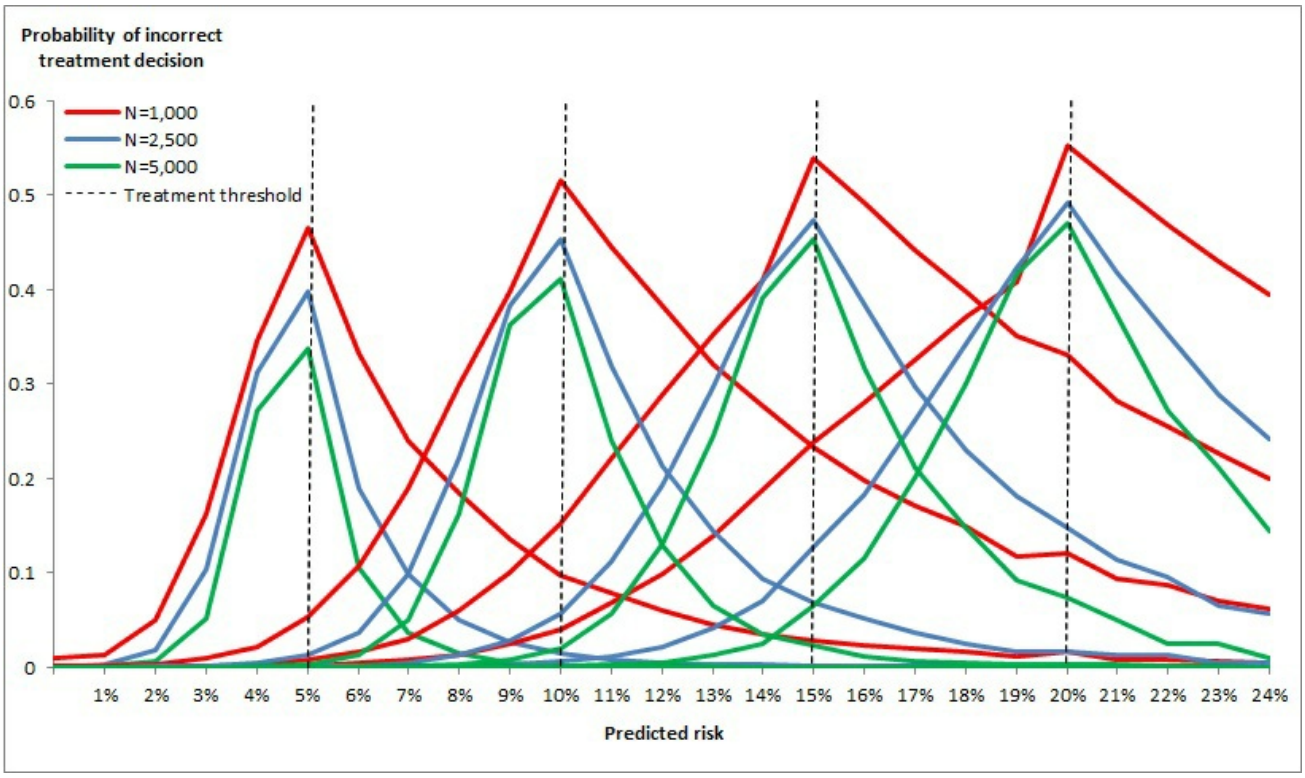
Purpose: We demonstrate an approach to assess the impact of uncertainty in risk predictions on health-economic outcomes in risk-stratified prevention strategies, illustrated for preventive statin treatment based on 10-year coronary heart disease (CHD) risk predicted by the Framingham risk score (FRS).

Method(s): A Markov decision-analytic model was used to simulate cohorts with preventive statin treatment. We fitted the FRS to men and women from the Atherosclerosis Risk in Communities (ARIC) cohort. Using the ARIC risk distributions hypothetical cohorts of men and women aged 5059 years followed for 30 years. Individuals were preventively treated if their predicted CHD risk exceeded treatment threshold T. While lowering the threshold T from 20% to 0% (1% decrements), strategies including gradually more and more treated individuals were evaluated. Assessing quality-adjusted life-years (QALYs) and costs at each step, the Net Health Benefit (NHB) (willingness-to-pay of $50,000/QALY) of treating an individual with a certain predicted risk was calculated.

Subsequently, the FRS was refitted to 1,000 bootstrap samples of men and women from the ARIC cohort of varying sizes (N=5,000;N=2,500;N=1,000), while rejecting models not achieving en acceptable level of performance (AUC>0.6). Using these refitted models, we calculated 1,000 alternative individual risk predictions. We then assessed whether a different treatment decision would have been made when applying the alternative risk predictions. Finally, we matched each alternative risk prediction to the corresponding NHB to estimate the impact of the uncertainty a predicted risk on the NHB.

Result(s): Preliminary results indicate that prediction uncertainty resulted in probabilities of incorrect treatment decisions of up to 0.34 and 0.47 (N=5,000), 0.40 and 0.49 (N=2,500), and 0.47 and 0.55 (N=1,000) for predicted risks surrounding T=5% and T=20%, respectively (Figure). The risk-based NHBs ranged from K for a predicted risk p=L% to K for p=L% in men and from K at p=L% to K for p=L% in women.

Conclusion(s): While uncertainty in risk predictions may lead to incorrect treatment decisions, associated impact on long-term health-economic outcomes is often unknown. Assessing this impact can guide studies aiming to improve prediction models by focusing on improving risk prediction in individuals for which improvement may actually improve health-economic outcomes.



CLOSING CEREMONY AND AWARD PRESENTATIONS

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16:00 - 16:30: Tue. Jun 14, 2016
Auditorium
Program: Events

http://smdm.org/meeting/16th-biennial-european-meeting