
ANNUAL
REPORT
2016

HERU

HEALTH ECONOMICS RESEARCH UNIT

Promoting Excellence in Health Economics



HERU is supported by the Chief Scientist Office (CSO) of the
Scottish Government Health & Social Care Directorates (SGHSC)



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Professor Mandy Ryan
Director

Welcome to the 2016 Annual Report for the Health Economics Research Unit (HERU).

In 2016, our activities have continued to contribute to the evidence base for improving the health and wellbeing of the population of Scotland and beyond. We have pushed forward the discipline of health economics and increased health economics capacity and literacy. Alongside this we have engaged with policy makers, government and the public to maximise the impact of our research.

Our research over the year has addressed important policy questions including: the influence of English language literacy on health outcomes; the role of financial incentives in reducing smoking in pregnancy; treatment or monitoring for people with ocular hypertension; treatment or monitoring for people with gall stones; ensuring fairness and efficiency in addressing the harms of excessive drinking; improving the uptake of pharmacy services to reduce demands on primary care and accident and emergency services; and understanding junior doctors' preferences for job location.

We secured external funding for a number of projects. Work began on our new contract with the National Institute for Health Research (NIHR) to conduct Technology Assessment Reviews (TARs). This work provides health economics expertise to support the National Institute for Health and Care Excellence (NICE) and other policy groups in the delivery of health and social care. We also commenced a collaborative research programme with the University of Aberdeen Rowett Institute. This offers exciting opportunities for novel work in the area of the economics of food choice, with the aim of improving the diet and health of the population. Details on all our research activities are provided in this Report.

Our applied work is underpinned by rigorous methodological work. We have published on a range of issues including: the external validity of stated preference methods; the role of deliberation in eliciting preferences; factors influencing response rates to stated preference methods; the suitability of newly developed valuation methods for health state valuations; developing methods to measure health inequalities; and incorporating broader measures of value into economic evaluations.

Capacity building continues to be important. Our popular workshops on discrete choice experiments and on health economic evidence for public health ran again in 2016. As did our long established postgraduate distance learning course in health economics and our summer internship programme. We also introduced our new MSc Applied Economics (Health Pathway). At PhD level, I am delighted that both Rodolfo Hernández and Sebastian Heidenreich successfully defended their PhDs.

HERU continues to be vibrant research environment and in 2016 we welcomed six new members of staff, two PhD students and visitors from South Africa, Canada, and Ireland. This vibrancy was reflected in the range of publications and presentations that HERU staff and PhD students contributed to, and these are also detailed in this Report. Our dissemination strategy includes engaging with the public, and during the year Patricia Norwood took on the role of promoting public engagement activity for HERU.

This year saw the retirement of HERU's former director, Professor Bob Elliott. Bob directed HERU between 2002 and 2012. The strength of HERU today says a lot about Bob's directorship and for that I personally, along with all my HERU colleagues, are very grateful. We are delighted that Bob will continue to work with HERU with his new Emeritus status.

I hope you enjoy reading this report. For more information on our activities visit www.abdn.ac.uk/heru and for real time news visit our twitter account @HERU_Abdn.

Professor Mandy Ryan
Director



Rodolfo Hernández



Sebastian Heidenreich

PhDs awarded

We congratulated **Rodolfo Hernández**, Research Fellow, and **Sebastian Heidenreich** who both completed PhDs. Rodolfo's PhD investigated 'alternative ways to incorporate willingness to pay (WTP) estimates from discrete choice experiments (DCE) into decision analytic models to conduct cost-benefit analysis'. Sebastian explored why survey respondents in discrete choice experiments (DCE) do not consider all information that has been presented to them (i.e. attributes of healthcare alternatives).

Sebastian was also awarded a two-year post-doctoral fellowship within HERU.



Anne Ludbrook



Patricia Norwood



Yu Aoki

Engaging the Public

HERU staff and students continued to broaden the impact of our research through public engagement. This helps raise the profile of HERU and of the contribution that health economics can make to support healthcare and health policy. Staff took part in talks at local events in Aberdeen, including a Café Variété event organised by the university, where **Anne Ludbrook** spoke about the costs of alcohol to society and the role of pricing in discouraging heavy drinking. **Patricia Norwood** gave a talk to the Scottish Women's Rural Institute about health economics and the obesity crisis. Patricia also took on the role of developing HERU's public engagement activity. Additionally, **Yu Aoki's** research on volunteering was featured in a number of media outlets including BBC Radio Scotland and local and national newspapers.



HERU Joint Sponsor of the Healthcare Improvement Scotland (HIS) 4th Annual Research Symposium

We continued our strategic alliance with Healthcare Improvement Scotland (HIS) with the 4th Annual Research Symposium, jointly sponsored by HIS, HERU and HSRU. The topic of the Symposium was '*mobilising evidence to drive improvement: examining the role evidence can play in driving improvement in healthcare and beyond*'. The day included a number of excellent presentations incorporating a series of three-minute virtual poster presentations. The afternoon included a panel session with all the plenary presenters, chaired by **Mandy Ryan**.



Bob Elliott

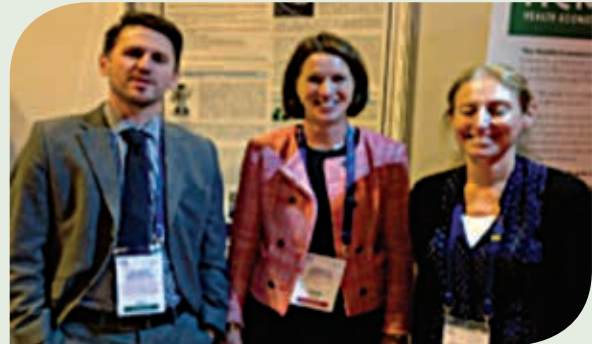
Former Director's New Position

HERU's former Director, Professor **Bob Elliott** retired on 31st October. Bob is now an Emeritus Professor and will still be in HERU, initially seeing a couple of research projects to their fruition. Beyond that Bob will still be around but, of course, on his own terms.

Bob has worked at the University of Aberdeen for over 40 years and took up the HERU Director's post in January 2002. The strength of HERU today says a lot about Bob's Directorship between 2002 and 2012.

Enhanced engagement with NHS Scotland

During 2016 we continued to be present at key NHS Scotland conferences. Our exhibit stand at the NHS Research Scotland Annual Conference and the NHS Scotland Event proved popular and gave us the opportunity to talk to delegates about health economics research and how we work with the NHS. The picture shows **Dr Catherine Calderwood**, Scotland's Chief Medical Officer, with HERU Researcher **Aileen Neilson** (and **Graeme MacLennan** of HSRU) at the NHS Scotland Event.



Graeme MacLennan, Dr Catherine Calderwood and Aileen Neilson



Mandy Ryan

Invited Speaker

Mandy Ryan was invited to speak at the Hospinnomics* Annual Workshop in Paris. The workshop topic was 'Public decisions versus individual decisions', and Mandy gave two presentations, 'Understanding individual choices in health: an application of discrete choice experiments' and 'Behavioural economics: challenges in applying discrete choice experiments'.

**Hospinnomics is a research Chair hosted by the Paris School of Economics and located at the Hôtel-Dieu hospital.*

Secured external funding

We continued our success in being awarded external funding to a total value of £17.4m. Six projects were awarded by the National Institute for Health Research (NIHR) including the renewal of the Technology Assessment Reviews contract (2016 to 2021). Other funders included:



For details on the funded research see Projects in Process and Completed further in this report.

NEW – Health pathway within the MSc Applied Economics

A new Health Pathway within the MSc Applied Economics was launched at the University of Aberdeen. The pathway offers students the opportunity to follow a course that combines a strong background in economics and economic policy with specialisation in the economics of health. The MSc Applied Economics is run by the Department of Economics, with HERU staff contributing to the health pathway. Two Gavin Mooney scholarships were awarded to students on the pathway.

Determinants of Diet and Physical Activity (DEDIPAC) – Launch of tool for the economic evaluation of diet, physical activity and sedentary lifestyle interventions.



Our Research: Workforce and Organisation of Care

Theme Leader: Dr Diane Skåtun

The Workforce and Organisation of Care theme aims to further our understanding of individual and organisational behaviour within the healthcare sector. The theme examines the role of financial and non-financial incentives and constraints on both individuals and the organisation structure in which they operate within the healthcare sector, and contributes to the improvement of the measurement and monitoring of performance within the sector. The theme's objective is to improve the evidence-base for policy making through analysis of these factors.

With increasing demands on health services, it is becoming ever more important to consider alternative ways of providing and organising healthcare. One consideration is which healthcare professional should be delivering the healthcare. Examples of previous research within the WOC theme include extending the role of pharmacists and nurses in the management of common ailments, promoting self-care of symptoms indicative of self-limiting illness, and extending the roles of specialist nurses and physician associates in some clinical areas. Our work in this area continued this year within the European Commission funded Seventh Framework programme entitled '*Healthcare reform: the iMpaCt on practice, oUtcomes and costs of New roles for health pROfeSSionals (MUNROS)*'. This four-year project is examining the nature, scope and contribution of new professional roles, evaluating their impact on clinical practice and outcomes, and identifying their scope to improve the integration of care. It includes an economic evaluation to identify the cost-effectiveness of the new professional roles, and will identify optimal models for delivery of healthcare and the consequences of these for the management of human resources and workforce planning. 2016 saw analysis and dissemination of the first results from surveys distributed to health professionals, managers and patients. Pilot work was also undertaken for the stage of the project that considers patients' preferences for the healthcare professional to deliver care.

Research was also completed that considered patient preferences for follow-up care across different types of cancer. Specialist-led cancer follow-up is becoming increasingly expensive and finding alternative models of care that align with cancer patients' preferences is needed. Our research compared the preferences of patients in follow-up care for melanoma, breast, prostate and colorectal cancer. This research found that cancer survivors may accept care provided by non-consultant healthcare professionals if compensated with changes elsewhere. In particular care continuity was deemed a significant factor in preferences for care for most cancers.



Staff Market Forces Factor

The staff Market Forces Factor (sMFF) is the mechanism in England by which both funding allocated to commissioners of healthcare and the tariff that providers of healthcare can charge are adjusted to reflect the unavoidable costs of commissioning/providing healthcare across different geographical locations. The current sMFF is based on estimates of spatial wage differentials using 2007–2009 Annual Survey of Hours and Earnings (ASHE) data. These figures were provided by a research team led by HERU along with collaborators at the Universities of Glasgow, Manchester, York and University College London following a substantial review by the same team of the way in which the index was estimated. The focus of this current project will be on providing a new updated Staff MFF index based on the latest data available from ASHE. This ensures funding and pricing reflects the current labour market conditions faced by commissioners and providers of healthcare.

Research is continuing within the theme to understand the drivers of behaviour of individuals within the healthcare workforce. Our collaboration with colleagues in Medical & Dental Education at the University of Aberdeen continued with Gillian Scanlon, who is the recipient of a PhD studentship funded by the Scottish Medical Education Research Consortium entitled '*A mixed-methods study of career decision making in Foundation Programme doctors*'. This year saw an exciting stage of the research with a survey of 2nd year Foundation doctors, the point at which important decisions are made relating to the specialisation stage of their training path. The survey was designed and subsequently distributed in collaboration with NHS Education Scotland.

Work on low and middle income country workforces also continued when we welcomed Dr Ayako Honda, a senior researcher in the Health Economics Unit at the University of Cape Town to work on a research project looking at '*job preferences of medical doctors, nurses and midwives on working in remote areas of Senegal*'. Ayako is collaborating on this project with **Mandy Ryan** and **Nicolas Krucien** from HERU and follows a visit last year from Mari Nagai from the National Centre for Global Health and Medicine in Japan. Our work over the past decade on the implications of unavoidable costs of commissioning/ providing healthcare across different geographical locations continued this year with a new project to provide an updated index that feeds into the funding mechanism and Payment by Results tariffs within England.

WOC also welcomed two new colleagues who will contribute to research within the theme. Both follow HERU's established tradition of hiring economists with a labour economics background. **Dr Attakrit Leckcivilize** whose research interests include labour economics and applied econometrics will work jointly in projects with Health Behaviour and Inequalities (HBI). **Daniel Kopasker** joined HERU to work on the MUNROS project. He is an applied econometrician whose work focusses on the intersection of health and labour economics. WOC would also like to take this opportunity to thank our former Director, **Professor Bob Elliott** for his continuing contribution to the WOC theme as he moves to his new Emeritus Professor position within the Unit.



Research continued on issues relating to the integration of health and social care with PhD student **Kevin Momanyi** and his project entitled '*Enhancing the quality of social care through economic analysis*'. He presented his research at a recent PhD Health & Social Care Symposium held at the Farr Institute, University of Edinburgh, and organised by Health & Social Care Analysis division of the Scottish Government. The event was attended by senior policy-makers, including the Deputy Chief Medical Officer of the Scottish Government. The PhD project is seeking to strengthen the evidence base regarding two quality improvement initiatives in home care, more specifically, the provision of reablement and telecare. Few robust economic studies have been undertaken on these initiatives. In particular, there is no evidence from routine data (i.e. large scale non-experimental data) regarding their impact on service use outcomes, such as prevention of emergency, non-elective hospital admissions or delaying entry to care homes. This PhD study seeks to fill this research gap using existing administrative hospital, social care and prescribing data to inform policy and practice.

Our Research: Health Behaviour and Inequality

Theme Leader: Professor Paul McNamee

The Health Behaviour and Inequality theme aims to enhance understanding of health behaviour and inequality from an economics perspective, and to strengthen the evidence-base relating to interventions that aim to influence behaviour, both in terms of their design and also in terms of evaluation of their effect on costs and outcomes.

This year saw the commencement of a large collaborative research programme with the University of Aberdeen Rowett Institute concerned with the economics of food choice. The University of Aberdeen Rowett Institute is a leading global research centre in nutrition and human health based at the University of Aberdeen. As part of this programme, HERU researchers are involved in three broad strands of research. First, we are using Q-methodology to provide new insight regarding how consumers think about food and nutritional information. Second, parental and household influences on children's food choices will be investigated using Scottish data (Scottish Health Survey, Scottish Food Standards Authority Survey of Diet among Children) and panel data sets (Growing Up in Scotland/Millennium Cohort). Third, purchasing data (from the Kantar World Panel) will be used to analyse habitual purchases for specific food categories. **Michail Bitzios** was appointed as research fellow from 1st October to work on this programme of research.

VOLUNTEER



Research by **Yu Aoki** on the effect of 'English-language proficiency on health and social segregation' progressed with findings presented at the International Association for Applied Econometrics and the Annual Congress of the European Economic Association. We were delighted to see Yu's earlier work on volunteering feature heavily across the popular media, with coverage appearing in



The Times, as well as *The Daily Express*, *Daily Mail* and *BBC Radio Scotland*. In other work with a strong health econometrics focus, research by **Ramses Abul Naga** was published in *Economics Letters* on 'Joint hypotheses tests for multidimensional inequality indices'. Further, new research on 'Measuring social welfare and inequality using anthropometrics' is in progress, and work to date was presented at the Scottish Development Economics Workshop in May.



Our earlier research on minimum unit pricing for alcohol was disseminated with a new publication on the Drinkaware website where **Anne Ludbrook** addressed the question "Should Minimum Unit Pricing (MUP) be introduced in the UK?" <http://www.drinkaware.co.uk/about-us/viewpoints/latest-viewpoints/should-minimum-unit-pricing-be-introduced-in-the-uk>.

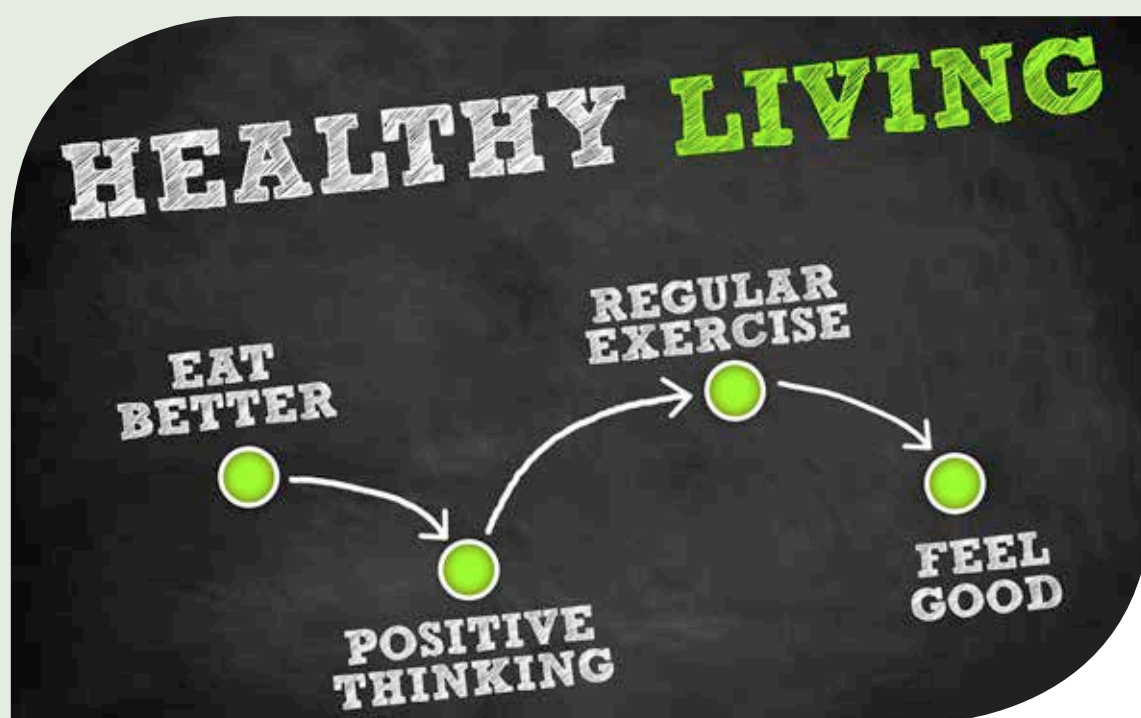
As part of a new NIHR funded study, we began research that is using behavioural economics and a survey of participants' preferences in intervention design. The study led by the University of Stirling develops and tests the feasibility of obesity interventions (narrative text messaging and financial incentives) in men living in disadvantaged neighbourhoods. The design of the financial incentives was informed by loss aversion (people attach more value to losses and gains) and by a discrete choice experiment where obese men chose between different configurations of financial incentives. A feasibility study is currently being conducted.

Our research into time and risk preferences continues to flourish, with some of the latest findings published in the Journal of Health Economics and the European Journal of Health Economics. **Marjon van der Pol** also ran an organised session on time preference and health at the European Health Economics Association (EuHEA) Conference in Hamburg in July and, in collaboration with Leonhard Lades (University of Stirling), presented a paper entitled 'Can we improve the measurement of time preference to enhance predictive validity of health behaviours?'.
Can we improve the measurement of time preference to enhance predictive validity of health behaviours?'

Staff within the theme participated in several national conferences and research workshops over the year. Presentations were given by **Anne Ludbrook** and **Liam Mc Morrow** at the Scottish Public Health Annual Conference. **Marjon van der Pol** presented at the Economic and Social Research Council (ESRC) Workshop on Behavioural Science, Measurement and Policy. **Paul McNamee** presented a paper on 'Designing and undertaking health economics studies of digital interventions' at

the Dynamic Systems Modelling Workshop, which was held in Aberdeen. Staff also participated in public engagement events, with **Anne Ludbrook** and **Patricia Norwood** giving talks for the Café Variété series and the Scottish Rural Women's Institute respectively.

Finally, current PhD students **Liam Mc Morrow**, **Laura Dysart**, **Alastair Irvine** and **Uma Thomas** continue to make great strides in their individual studies. Liam had a paper entitled 'Can time preference help explain variations in diet quality?' discussed at the UK Health Economists Study Group in January, and published a paper from his PhD on 'Barriers to healthy eating' in the Journal of Public Health. Laura presented at the EuHEA PhD Symposium, whilst Alastair gave presentations at the Nordic HESG meetings and the Scottish Graduate Programme in Economics Annual Conference. Uma is developing the first part of her thesis on developing an intervention to encourage physical activity participation.



Our Research: Assessment of Technologies

Theme Leader: Dr Graham Scotland

The Assessment of Technologies theme focuses on the application and development of economic evaluation methods for the assessment of health technologies. We conduct research into the cost-effectiveness of new and in-use technology to support decision making across the life course of technologies (*"Technology management"*) – from the early technology design phase, through decisions on adoption into routine practice, to informing withdrawal or redesign of technologies and services in widespread routine use. Our applied economic evaluations are based on a combination of evidence synthesis and decision modelling, and analysis of individual patient data collected alongside randomised controlled trials or observational studies. The research theme also recognises the policy emphasis in Scotland and internationally on person-centred care. We reflect this in our sub-theme of research which focusses on *"Broader measurement of value in economic evaluation"*.

2016 saw the renewal of the University of Aberdeen's contract to conduct Technology Assessment Review (TAR) for the National Institute for Health and Care Excellence (NICE) and other NHS customers. Projects conducted as part of the themes on-going commitment to this contract included a diagnostic assessment review of multiple frequency bio-impedance devices for guiding fluid management decisions in people with chronic kidney disease on dialysis (<https://www.nice.org.uk/guidance/indevelopment/gid-dg10008>). A further project involved a review of the company submission in support of radium-223 for treating hormone-relapsed prostate cancer with bone metastases, which was being reconsidered by NICE following a period of availability on the Cancer Drugs Fund in England (<https://www.nice.org.uk/guidance/ta412>). Finally, work is ongoing on a technology review commissioned by National Institute for Health Research (NIHR), Health Technology Assessment (HTA) programme, to assess the clinical and cost-effectiveness of alternative in-use surveillance strategies following endovascular abdominal aortic aneurysm repair (<https://www.journalslibrary.nihr.ac.uk/programmes/hta/157801>).

Complementing our evidence synthesis work, the AoT theme continues to collaborate on large prospective evaluations involving primary data collection. In 2016, the final report was submitted on a major NIHR funded



trial 'assessing the clinical and cost-effectiveness of stapled haemorrhoidopexy versus conventional haemorrhoidectomy for the treatment of haemorrhoidal disease'. The main findings of this study have been reported in *The Lancet* and support the use of conventional surgery over stapled haemorrhoidopexy based on the primary clinical and economic outcomes (see below). A further trial that completed in 2016, on which the AoT theme collaborated, assessed the clinical and cost-effectiveness of maintained physical activity and physiotherapy in the management of distal arm pain. Dissemination outputs from this trial, funded by the Arthritis Research UK (ARUK), are currently in preparation.

Our trials portfolio also saw the start of three new NIHR funded studies in 2016:

- The 'C-GALL trial: clinical and cost effectiveness of laparoscopic cholecystectomy compared with observation/conservative management for preventing recurrent symptoms and complications of symptomatic gallstones', is currently recruiting (<https://www.journalslibrary.nihr.ac.uk/projects/1419271>).



- The 'LENS trial: Lowering Events in Non-proliferative retinopathy in Scotland' will assess the clinical and cost effectiveness of allocation to fenofibrate versus placebo with respect to progression of observable diabetic retinopathy (DR) to clinically significant diabetic retinopathy, retinal laser therapy, vitrectomy or intra-vitreous injection of medication owing to DR (<https://www.journalslibrary.nihr.ac.uk/programmes/hta/144984>). This efficiently designed multi-centre trial, sponsored and co-ordinated by the University of Oxford, will take place within NHS Scotland's Retinal Screening Service and involves collaboration between the Universities of Aberdeen (health economics), Dundee and Edinburgh. It is due to start recruiting in 2017.
- The 'RAACENO trial: Reducing Asthma Attacks in Children using Exhaled Nitric Oxide as a biomarker to inform treatment strategy' will assess the clinical and cost-effectiveness (in terms of exacerbations averted) of using fractional exhaled nitric oxide plus symptoms to guide treatment compared with using symptoms alone (<https://www.journalslibrary.nihr.ac.uk/programmes/eme/151814>).



In addition to the above NIHR funded trials, the theme is also collaborating on a new CSO funded trial which commenced in 2016. This study is 'assessing the costs and benefits of Vitamin K supplementation as an intervention to reduce falls in older people'.

With respect to technology management projects informed by observational data, researchers in the AoT theme led an early phase modelling study funded by the Digital Health Institute, which built on data from a Scotland-wide pilot study 'assessing the yield of undiagnosed atrial fibrillation, identified using a handheld single-lead electrocardiogram (ECG), in patients with chronic diseases being managed in primary care practices'. The modelling used estimates of undiagnosed atrial fibrillation prevalence and bleeding/stroke risks derived from the pilot study, combined with available evidence on the uptake and effectiveness of different anticoagulant treatments, to explore the potential cost-effectiveness of implementing targeted opportunistic screening in Scotland. The final report for this project was submitted in September 2016 and outputs are currently in preparation.

The themes interest in methods for incorporating broader measures of value in economic evaluation are continuing to evolve through cross theme collaboration with the Methods of Benefit Valuation research theme. **Rodolfo Hernández** successfully defended his thesis, concerned with incorporating willingness to pay estimates into decision analysis models to conduct cost-benefit analysis. Recognising the time and resource required to undertake primary preference elicitation studies for the purpose of economic evaluation, **Emma Tassie** commenced a PhD which is 'exploring the potential for using a 'benefit transfer' (BT) approach to incorporate broader measures of value in HTA'. There are now many published studies eliciting patient and public values for broader attributes of healthcare. There is scope to synthesise this existing evidence using a BT approach as an alternative to carrying out a new study every time values for broader attributes are required for an economic evaluation. This thesis is examining methods for synthesising and transferring values for application in health economic evaluation.

Our Research: Methods of Benefit Valuation

Theme Leader: Dr Verity Watson

The Methods of Benefit Valuation theme aims to develop and apply economic methods to value health and care.

Our research explores how individuals, patients and society values the benefits of health and care. We use surveys, field experiments, laboratory experiments and qualitative research to better understand how individuals complete stated preference tasks.

In 2016, **Mandy Ryan** and **Nicolas Krucien** continued research on an NIHR funded project to improve the decision making about patient admission into the intensive care unit (ICU). ICU admission decisions are complex because consultants need to take into account the expected medical benefits of admitting the patient, family's preferences, and the scarcity of ICU beds.

This research will measure how ICU consultants and outreach nurses decide about admission based on several patient-related features. Data collection was completed at the end of 2016. Future work will investigate the role of ICU consultants' attitudes towards critical care (e.g., resuscitation) in severe health states when making ICU admission decisions. We will also compare consultants and outreach nurses preferences, and explore how work-related characteristics, such as size of ICU (number of beds) and experience as ICU consultant, affect the decision making process.



Scottish Stated Preference Network

In 2016, in collaboration with researchers across Scotland we founded the Scottish Stated Preference Network (SSPN).



Scotland has an international reputation for being a centre of excellence for the economic valuation of non-market goods (e.g. health services and environmental amenities). This research draws to a large extent on the use of stated preference methods such as discrete choice experiments (DCEs), contingent valuation (CV) or best-worst-scaling (BWS). These methods have been developed, advanced and applied in different economic disciplines in Scotland.

The SSPN brings stated preference researchers across Scotland together by organising events, promoting collaborative projects and jointly advancing stated preference methods. Network members are located across Scotland at the Universities of Stirling, St Andrews, Glasgow, Glasgow Caledonian University and Scotland's Rural College (SRUC).

For more information see: www.abdn.ac.uk/sspn

To sign up to our mailing list e-mail: sspn@abdn.ac.uk

Follow SSPN on twitter: [@TheSSPN](https://twitter.com/TheSSPN)

During 2016, research continued on several methodological projects across the theme and we presented our methodological research to our peers at a range of conferences and workshops. In April, **Sebastian Heidenreich**, on behalf of the Scottish Stated Preference Network (SSPN), organised two sessions about stated preference methods at the Scottish Economic Society Conference. Papers in Session 1 presented research that informs healthcare and environmental policy making. **Mandy Ryan** presented '*Gaining pounds by losing pounds: preferences for lifestyle interventions to reduce obesity*' in this session. Papers in Session 2 focussed on methodological research where **Sebastian Heidenreich** presented '*Conditioning on the unknown: respondents' ability to reflect on their information processing strategies in discrete choice experiments*'. In July, **Mandy Ryan**, together with Elly Stolk of Erasmus University Rotterdam, chaired the 4th Meeting of the International Academy of Health Preference Research in Hamburg.

At this meeting **Nicolas Krucien** presented *'What group do you belong to? A comparison of bottom-up and top-down clustering techniques'*; **Gin Nie Chua** presented *'Do respondents do as they say? Investigating the external validity of discrete choice experiments'* and **Dwayne Boyers** presented *'Ex-ante corrections of hypothetical bias in a dental care discrete choice experiments'*. Also in July, **Nicolas Krucien, Gin Nie Chua** and **Dwayne Boyers** presented research at the European Health Economics Association (EuHEA) Conference in Hamburg. In December 2016, **Verity Watson** presented *'Using commitment to improve choice experiment survey responses'* at the Behavioural Experiments in Health Workshop in Cologne.

During 2016, four researchers visited HERU to collaborate with members of the MBV team. In February, Dr Ayako Honda, a senior researcher in the Health Economics Unit at the University of Cape Town, arrived in HERU to work on a research project in collaboration with **Mandy Ryan** and **Nicolas Krucien** about medical doctors, nurses and midwives job preferences for working in remote areas of Senegal

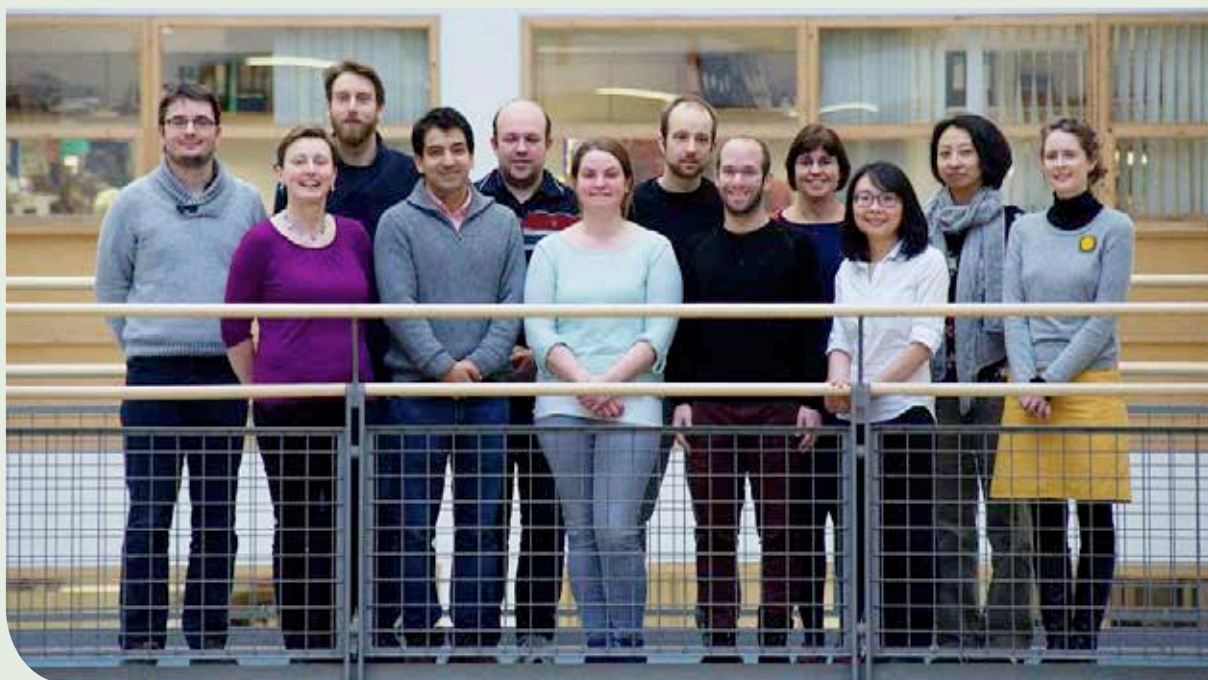
In March, Dr Alison Pearce, a post-doctoral researcher from the National Cancer Registry Ireland, visited HERU to work on a project about cancer survivors' preferences for follow-up care, in collaboration with **Verity Watson**. In June, Heleen Vellekoop, visited for a week to collaborate with **Mandy Ryan** and Professor Vikki Entwistle (HSRU) on how individuals process the cost attribute within a DCE. In July, Logan Trenaman, a PhD researcher at the Centre for Clinical Epidemiology and Evaluation, Vancouver Coastal

Health Research Institute in Canada, visited HERU to discuss his work on the valuation of patient-centred care. Logan's visit was hosted by **Mandy Ryan, Verity Watson** and Professor Vikki Entwistle (HSRU).

The MBV theme has a vibrant research culture and PhD students play an important part in this through their exciting and state of the art research. In 2016, there were seven PhD students in the theme and they continued to progress with their research. The highlights of the year: **Sebastian Heidenreich** successfully defended his viva with minor correction (see box) and **Emma Tassie** took up an Institute of Applied Health Sciences (IAHS), University of Aberdeen Studentship in October (*for more details please see HERU staffing and students as at 31.12.16*).

In November, the MBV team ran our annual three-day DCE workshop in Aberdeen. This year the workshop was taught by **Verity Watson, Nicolas Krucien** and **Sebastian Heidenreich** with support from **Gin Nie Chua** and **Luis Loría**. The workshop provides an opportunity for those interested in DCEs to learn about and discuss practical and theoretical issues. The workshop includes group work sessions with feedback. These workshops contribute to our aim of building capacity in stated preference methods.

In 2016, our fortnightly internal seminar series on stated preference methods continued. This seminar series brings together a dedicated group of researchers with interests in stated preference methods from across the University of Aberdeen. Information on the seminar series is available on our website (<http://www.abdn.ac.uk/heru/heruevents/statedpref/>).



Methods of Benefit Evaluation Theme Members (from left to right) – Nicolas Krucien, Mandy Ryan, Ruben Sakowsky, Luis Enrique Loría Rebollo, Dwayne Boyers, Emma Tassie, Sebastian Heidenreich, Jonathan Sicsic, Patricia Norwood, Gin Nie Chua, Ni Gao, and Verity Watson.

Projects in-progress and completed in 2016

* Denotes projects started in 2016

Workforce and Organisation of Care

PhD – Enhancing quality in social care through economic analysis

Investigators: Momanyi, K. (PhD Student), McNamee, P., Skåtun, D. (HERU).

Source of Funding: Scottish Government/ESRC, University of Aberdeen and Chief Scientist Office (CSO) CORE.

Healthcare reform: the iMPact on practice, oUtcomes and costs of New roles for health pROfeSsionals (MUNROS)

Investigators: Elliott, R. (HERU); Bond, C. (Academic Primary Care, University of Aberdeen); de Bont, A. (Erasmus University); Busse, R. (Technische Universität Berlin); Ruggeri, M. (Università Cattolica del Sacro Cuore); Mijal, M. (University of Warsaw); Svobodová, H. (Charles University Prague); Ökem, G. (Economic Policy Research Foundation of Turkey); Askildsen, J.E. (University Research Norway); Sutton, M. (University of Manchester).

Source of Funding: European Commission FP7 and University of Aberdeen.

*Health economic evaluation of the Lothian high demand service

Investigators: Steel, R. (NHS Lothian); McNamee, P. (HERU).

Source of Funding: NHS Lothian and University of Aberdeen.

How to attract health workers to rural areas in low- and middle-income countries: findings from discrete choice experiments

Investigators: Ryan, M., Krucien, N. (HERU); Amaeda, A. (World Bank); Alfano, M. (University College London); Honda, A. (University of Cape Town); Nagai, M., Fujita, N. (National Centre for Global Health and Medicine, Japan).

Source of Funding: Chief Scientist Office (CSO) CORE and University of Aberdeen.

HERU Postdoctoral Fellowship: Impact of job satisfaction, mental health and absenteeism in the public sector

Investigators: Ejebu, O-Z., Skåtun, D. (HERU).

Source of Funding: Health Economics Research Unit Postdoctoral Research Fellowship.

PhD – A mixed-methods study of career-decision making in Foundation Programme doctors

Investigators: Scanlan, G. (PhD Student) (Medical Education); Skåtun, D. (HERU); Cleland, J. (Medical Education, University of Aberdeen); Johnston, P., Walker, K. (NHS Education for Scotland (NES)).

Source of Funding: Scottish Medical Education Research Consortium (via NHS Education for Scotland (NES)) and Chief Scientist Office (CSO) CORE.

The role of pay competitiveness and nurse agency staffing

Investigators: Skåtun, D. (HERU) and Coombes, J-B. (Aix-Marseille Université).

Source of Funding: Chief Scientist Office (CSO) CORE.

Understanding healthcare professionals' and carers' perceptions of risk factors leading to crisis for people with dementia

Investigators: Toot, S. (North East London NHS Foundation Trust); Orrell, M. (Institute of Mental Health); Ryan, M., Watson, V. (HERU).

Source of Funding: Chief Scientist Office (CSO) CORE.

Understanding push-pull factors in medical careers-decision making

Investigators: Cleland, J. (Medical Education, University of Aberdeen); Rees, C. (University of Dundee); Skåtun, D., Watson, V. (HERU); Mattick, K. (University of Exeter); Johnston, P. (NHS Education for Scotland (NES)).

Source of Funding: NHS Education for Scotland, Chief Scientist Office (CSO) CORE and University of Aberdeen.

*MFF 2: Updating the staff Market Forces Factor

Investigators: Skåtun, D., Elliott, B. (HERU).

Source of Funding: NHS Improvement.

Using discrete choice experiments to investigate optimal skill mix

Investigators: Porteous, T., Bond, C., Elliott, A., Hannaford, P., Murchie, P. (Academic Primary Care, University of Aberdeen); Ryan, M. (HERU).

Source of Funding: Chief Scientist Office (CSO) CORE.

The iMpaCt on praCtice, oUtcomes and CoSts of New roles for health pROfeSSionals (MUNROS)

The MUNROS project (iMpaCt on praCtice, oUtcomes and CoSts of New roles for health pROfeSSionals) is reaching its final phase with the continuing dissemination of results from this large collaborative research project into the role and contribution of the new professions and the changing role and contribution of the established professions in three distinct conditions, breast cancer, type 2 diabetes and heart disease.

In early 2016 a presentation was made to the Scottish Cancer Trials Breast Group Meeting entitled, "Exploring the introduction of new professions and professional roles: examples from breast cancer". This considered and compared the perceptions of drivers of change in team composition from both the healthcare professionals' and managers' view-points.

The MUNROS research was the focus of a workshop at the OECD in Paris, given by Professor Matt Sutton (University of Manchester) entitled, "Towards a more efficient use of health human resources. Matt (a former colleague in HERU) leads the English partner of the MUNROS project.

A "Knowledge Hour" with Professor Bob Elliott, Professor Christine Bond and Professor Matthew Sutton (University of Manchester) was presented on behalf of the MUNROS consortium at the EU Commission, with the presentations web-streamed for Research and Employment members of the Directorate General. The MUNROS project is of particular interest for members working with EU health ministries on health sector reform and for Commission Communication to support member states to develop effective, accessible and resilient health systems. The project was also of interest for colleagues working on European co-operation in the area of chronic diseases and breast cancer.

For further information contact: Bob Elliott r.elliott@abdn.ac.uk



munros Health Care Reform : The impact on practice, outcomes and costs of new roles for health professionals

Projects in-progress and completed in 2016

* Denotes projects started in 2016

Health Behaviour and Inequality

PhD – Applying economic methods to optimise self-management

Investigators: Dysart, L. (PhD Student), McNamee, P., Pol, M. van der (HERU).

Source of Funding: College of Life Sciences and Medicine (CLSM), University of Aberdeen/HERU PhD Studentship and University of Aberdeen.

PhD – Economic aspects of food choice and its association with health inequalities in Scotland and the UK

Investigators: Mc Morrow, L. (PhD Student); Ludbrook, A., Olajide, D. (HERU); Macdiarmid, J. (University of Aberdeen Rowett Institute).

Source of Funding: Scottish Government (Rural and Environment Science and Analytical Services Division (RESAS)) via University of Aberdeen Rowett Institute and Chief Scientist Office (CSO) CORE.

*The effect of early-life health shocks on later-life outcomes

Investigators: Aoki, Y. (HERU).

Source of Funding: University of Aberdeen.

*Feasibility study of how to best engage obese men in narrative SMS (short message system) and incentive interventions for weight loss, to inform a future effectiveness and cost-effectiveness trial

Investigators: Hoddinott, P., Williams, B., Dombrowski, S., Grindle, M. (University of Stirling); Avenell, A. (HSRU, University of Aberdeen); Gray, C. (University of Glasgow); Kee, F., McKinley, M. (The Queen's University of Belfast), Pol, M. van der (HERU); Jones, C. (University of Dundee); Elders, A. (Glasgow Caledonian University); Carroll, P. (Waterford Institute of Technology).

Source of Funding: National Institute for Health Research (NIHR), Health Technology Assessment (HTA) Programme (via University of Stirling) and University of Aberdeen.

*Food culture and dietary choice

Investigators: Morgan, P., Macdiarmid, J.I. (University of Aberdeen Rowett Institute); Norwood, P., Ludbrook, A. (HERU).

Source of Funding: Scottish Government (Rural and Environment Science and Analytical Services Division

(RESAS)) via University of Aberdeen Rowett Institute (Year 1 of a 5-year programme) and Chief Scientist Office (CSO) CORE.

*LIFT: Lessening the Impact of Fatigue: Therapies for inflammatory rheumatic diseases

Investigators: Basu, N. (NHS Grampian); McNamee, P. (HERU); Siebert, S. (NHS Greater Glasgow & Clyde); Wearden, A. (Central Manchester University Hospitals Trust); Kumar, V. (NHS Tayside).

Source of Funding: Arthritis Research UK (ARUK) and University of Aberdeen.

MAMMOTH: MAIntaining MusculOskeleTal Health Study

Investigators: MacFarlane, G., Jones, G. (Other Applied Health Sciences, University of Aberdeen); McNamee, P. (HERU); Basu, N. (School of Medicine & Dentistry, University of Aberdeen); Artus, M., McBeth, J. (Keele University); Kean, S. (University of Glasgow); Lovell, K., Keeley, P. (University of Manchester); Hannaford, P. (Department of General Practice & Primary Care, University of Aberdeen); Prescott, G. (Medical Statistics Team, University of Aberdeen); Norrie, J. (CHART, University of Aberdeen).

Source of Funding: Arthritis Research UK (ARUK) and University of Aberdeen.



SanteMed: Measurement and determinants of inequalities in health and well-being in the Middle Eastern and North African region

Investigators: Abul Naga, R.H. (HERU); Arrighi, Y. (Lille); Abu-Zaineh, M., Ventelou, B., Woode, M.E. (Marseille); Ayadi, I. (University of Tunis); Boutayeb, A. (University Mohammed Premier, Morocco); Mataria, A. (World Health Organization, Regional Office for the Eastern Mediterranean); Abdulrahim, S. (American University of Beirut); Salti, N. (American University of Beirut).

Source of Funding: University of Aberdeen.

***Mental health and the PATH midlife**

Investigators: Butterworth, P., Antsey, K., Cherbiun, N., McKerin, R., Burns, R., Leach, L. (Australian National University); Slade, T. (University of South Wales); McNamee, P. (HERU).

Source of Funding: Chief Scientist Office (CSO) CORE (Australian Government National Health and Medical Research Council).

***Modelling purchasing behaviour for alcohol**

Investigators: Ludbrook, A., McKenzie, L., Ejebu, O-Z. (HERU).

Source of Funding: Chief Scientist Office (CSO) CORE and University of Aberdeen.



***REBALANCE: REview of Behaviour And Lifestyle interventions for severe obesity: AN evidenCE synthesis**

Investigators: Avenell, A., Skea, Z., De Bruin, M., MacLennan, G. (HSRU, University of Aberdeen); Boyers, D. (HERU); Aveyard, P. (University of Oxford); Webber, L. (UK Health Forum).

Source of Funding: National Institute for Health Research (NIHR), Health Technology Assessment (HTA) Programme and Chief Scientist Office (CSO) CORE.

PhD – The role of time preference in the medical decision making context

Investigators: Irvine, A. (PhD Student), Pol, M. van der (HERU); Phimister, E. (Economics, University of Aberdeen Business School (UABS)).

Source of Funding: Institute of Applied Health Sciences (IAHS) and University of Aberdeen.

Time preferences and health behaviours

Investigators: Pol, M. van der (HERU).

Source of Funding: University of Aberdeen.



PhD – Using insights into time preference and present bias to develop an intervention to improve adherence to exercise

Investigators: Thomas, U. (PhD Student), Pol, M. van der (HERU); Allan, J. (Health Psychology, University of Aberdeen).

Source of Funding: Institute of Applied Health Sciences (IAHS), University of Aberdeen.

Analysis of choice behaviour and potential mechanisms of change

Investigators: Morgan, P. (University of Aberdeen Rowett Institute) and Ludbrook, A. (HERU).

Source of Funding: Scottish Government (Rural and Environment Science and Analytical Services Division (RESAS)) via University of Aberdeen Rowett Institute and Chief Scientist Office (CSO) CORE.

DEDIPAC: DEterminants of Diet and Physical Activity

Investigators: Ludbrook, A. (HERU); Allan, J. (Health Psychology, University of Aberdeen); Douglas, F., McNeill, G. (University of Aberdeen Rowett Institute).

Source of Funding: Medical Research Council and Chief Scientist Office (CSO) CORE.

The socio-economic status and integration of immigrants in the UK: the role of language skills and education

Investigators: Aoki, Y. (HERU); Santiago, L. (Office for National Statistics).

Source of Funding: University of Aberdeen, Carnegie Trust, and Scottish Institute for Research in Economics, Scottish Economic Society.

Determinants of Diet and Physical Activity (DEDIPAC) – Launch of tool for the economic evaluation of policy and multi-component interventions relating to diet, physical activity and sedentary lifestyle.

This year saw the completion of the DEDIPAC project. This project was the first Joint Action of the EU Joint Programming Initiative 'a Healthy Diet for a Healthy Life'. The overall aim of the project was to develop improved methods and insights regarding the determinants, at individual and group levels, of dietary, physical activity and sedentary behaviours using a broad multidisciplinary approach, and to translate this knowledge into a more effective promotion of these health behaviours. A workshop in 2016 hosted by **Anne Ludbrook** focussed on economic evaluation of policy and multi-component interventions relating to diet, physical activity and sedentary behaviour. The workshop brought together DEDIPAC researchers (economists and non-economists) from across Europe to discuss further development and improvement of the economic evaluation component of the toolbox and to consider the application of the toolbox to specific projects. More information on the DEDIPAC project is available at the DEDIPAC website (<https://www.dedipac.eu/>).



Projects in-progress and completed in 2016

Assessment of Technologies

The SIMS Trial: adjustable anchored Single-Incision Mini-Slings versus standard tension-free mid-urethral slings in the surgical management of female stress urinary incontinence; a pragmatic multi-centre non-inferiority randomised controlled trial

Investigators: Abdel-Fattah, M., N'Dow, J. (Other Applied Health Sciences, University of Aberdeen); Assassa, R. (Mid-Yorkshire Hospitals NHS Trust); Kilonzo, M. (HERU); MacLennan, G., McCormack, K., Norrie, J. (HSRU, University of Aberdeen); Wardle, J. (Continence Foundation).

Source of Funding: National Institute for Health Research (NIHR), Health Technology Assessment (HTA) Programme, University of Aberdeen and Chief Scientist Office (CSO) CORE.

BSRBR-AS: British Society for Rheumatology Biologics Register in Ankylosing Spondylitis

Investigators: Macfarlane, G., Jones, G. (Other Applied Health Sciences, University of Aberdeen); McNamee, P. (HERU); Hyrich, K., Watson, K., Lunt, M., Symmons, D. (Arthritis Research UK Epidemiology Unit, University of Manchester); Sturrock, R. (Centre for Rheumatic Diseases, University of Glasgow); Kay, L. (Freeman Hospital, Newcastle).

Source of Funding: British Society for Rheumatology and University of Aberdeen.

The PUR E RCT: the clinical and cost-effectiveness of surgical interventions for stones in the lower pole calyces of the kidney

Investigators: McClinton, S. (NHS Grampian & University of Aberdeen); Lam, T. (University of Aberdeen); Wiseman, O. (Addenbrooke's NHS Trust); Smith, D. (University College London Hospital); Turney, B. (John Radcliffe Hospital NHS Trust); Pickard, R. (The Freeman Hospital & University of Newcastle); Thomas, R., MacLennan, G., Norrie, J., MacLennan, S., Starr, K., Clark, C.T. (HSRU, University of Aberdeen); Hernández, R. (HERU); Anson, K. (St George's Healthcare NHS Trust).

Source of Funding: National Institute for Health Research (NIHR), Health Technology Assessment (HTA) Programme and University of Aberdeen.



CLASS: Comparison of LASER, Surgery and foam Sclerotherapy: randomised controlled trial comparing foam sclerotherapy, alone or in combination with endovenous laser therapy, with conventional surgery as a treatment for varicose veins

Investigators: Brittenden, J., Cassar, K., Bachoo, P., Norrie, J. (School of Medicine and Dentistry, University of Aberdeen); Gough, M.J., Mavor, I.A.D., Scott, J. (University of Leeds); McCollum, P. (University of Hull); Chetter, I.C. (Hull NHS Trust); Burr, J., Campbell, M., Ramsay, C. (HSRU, University of Aberdeen); Vale, L., Scotland, G. (HERU/HSRU); Tassie, E. (HERU).

Source of Funding: National Institute for Health Research (NIHR), Health Technology Assessment (HTA) Programme and Chief Scientist Office (CSO) CORE.

Does oral sodium bicarbonate therapy improve function and quality of life in older patients with chronic kidney disease and low-grade acidosis? A randomised controlled trial

Investigators: Witham, M. (University of Dundee); Avenell, A. (HSRU, University of Aberdeen); Soiza, R. (School of Medicine & Dentistry, University of Aberdeen); McNamee, P. (HERU).

Source of Funding: National Institute for Health Research (NIHR) Health Technology Assessment (HTA) Programme and University of Aberdeen.

Projects in-progress and completed in 2016

* Denotes projects started in 2016



EDNA: Early Detection of Neovascular Age-related macular degeneration

Investigators: Chakravarthy, U., Hogg, R. (Queen's University Belfast); Ramsay, C., Banister, K., Cook, J., Azuara-Blanco, A. (HSRU, University of Aberdeen); Scotland, G. (HERU/HSRU); Sivaprasad, S. (Moorfields Eye Hospital NHS Foundation Trust); Heimann, H. (Royal Liverpool & Broadgreen University Hospitals NHS Trust).

Source of Funding: National Institute for Health Research (NIHR) Health Technology Assessment (HTA) Programme.

PhD – Exploring the role for patients' values in health technology assessment: a mixed methods approach

Investigators: Tockhorn-Heidenreich, A. (PhD Student); Ryan, M. (HERU); Scotland, G. (HERU/HSRU); Entwistle, V. (HSRU, University of Aberdeen).

Source of Funding: ESRC Scottish Graduate School of Social Sciences (SGSSS) – Doctoral Training Centre (Health Pathway) PhD Studentship and Chief Scientist Office (CSO) CORE.

PhD – External validity of DCEs: a case study of dental care

Investigators: Boyers, D. (PhD Student), Pol, M. van der, Watson, V. (HERU).

Source of Funding: Chief Scientist Office (CSO) CORE and University of Aberdeen.

HEALTH: Hysterectomy or Endometrial Ablation Trial for Heavy menstrual bleeding. A multi-centre randomised controlled trial comparing laparoscopic supra-cervical hysterectomy with second generation endometrial ablation for the treatment of heavy menstrual bleeding

Investigators: Cooper, K. (NHS Grampian); Bhattacharya, S. (Other Applied Health Sciences, University of Aberdeen); Scotland, G. (HERU/HSRU); Clark, J. (Birmingham Women's Hospital); Hawe, J. (Countess of Chester NHS Foundation Trust); Phillips, K. (Hull and East Yorkshire Hospitals NHS Trust); Hawthorne, R. (NHS Greater Glasgow and Clyde); Norrie, J., Cook, J. (HSRU, University of Aberdeen).

Source of Funding: National Institute for Health Research (NIHR) Health Technology Assessment (HTA) Programme and Chief Scientist Office (CSO) CORE.

IQAD: Improving the QUALity of Dentistry: a randomised controlled trial comparing oral hygiene advice and periodontal instrumentation for the prevention and management of periodontal disease in dentate adults attending dental primary care

Investigators: Clarkson, J., Bonetti, D., Pitts, N. (University of Dundee); Ramsay, C. (HSRU, University of Aberdeen), Burr, J. (University of St. Andrews); Worthington, H., Jones, C., Tickle, M. (University of Manchester Dental Hospital); Heasman, P., Steele, J. (University of Newcastle); Young, L., Madden, I., McCombes, W. (NHS Education for Scotland); Hodge, P. (University of Glasgow Dental School); Ross, M. (University of Edinburgh); Ricketts, D., Hall, A. (Dundee Dental Care Hospital & School); Averley, P. (Queensway Dental Practice); Pol, M. van der (HERU).

Source of Funding: National Institute for Health Research (NIHR) Health Technology Assessment (HTA) Programme, Chief Scientist Office (CSO) CORE and University of Aberdeen.

INTERVAL: Investigation of NICE Technologies for Enabling Risk-Variable-Adjusted-Length dental recalls trial (pilot and follow-on study)

Investigators: Pitts, N., Clarkson, J., Bonetti, D., Freeman, R., Ricketts, D. (University of Dundee); Ramsay, C. (HSRU, University of Aberdeen); Worthington, H. (University of Manchester); Pol, M. van der (HERU); Anderson, T., McCombes, W., Young, L. (NHS Education for Scotland); Burke, F., White, D. (University of Birmingham); Douglas, G. (University of Leeds); Gorter, R. (University of Amsterdam); Herbert, R. (University of Cardiff); Hodge, P. (University of Glasgow); Humphris, G. (University of St. Andrews); Mettes, T. (Radboud University, Nijmegen Medical Centre, The Netherlands); Needleman, I. (UCL Eastman Dental Institute); Ross, M. (University of Edinburgh).

Source of Funding: National Institute for Health Research (NIHR) Health Technology Assessment (HTA) Programme, Chief Scientist Office (CSO) CORE and University of Aberdeen.

***LENS: Lowering Events in Non-proliferative retinopathy in Scotland**

Investigators: Preiss, D. (University of Oxford); Logue, J. (University of Glasgow); Armitage, J. (University of Oxford); Olson, J. (NHS Grampian); Scotland, G. (HERU/HSRU); Sattar, N. (University of Glasgow); Leese, G., Colhoun, H. (University of Dundee).

Source of Funding: National Institute for Health Research (NIHR) and Chief Scientist Office (CSO) CORE.

MASTER: Male synthetic sling versus Artificial urinary Sphincter Trial for men with urodynamic stress incontinence after prostate surgery: Evaluation by Randomised trial

Investigators: Abrams, P. (North Bristol NHS Trust); Drake, M. (University of Bristol); Glazener, C., Norrie, J., Ramsay, C., Boachie, C., McCormack, K., McPherson, G., McDonald, A. (HSRU, University of Aberdeen); Pickard, R. (University of Newcastle upon Tyne); Kilonzo, M. (HERU); Cotterill, N. (University of Bristol).

Source of Funding: National Institute for Health Research, Health Technology Assessment (HTA) Programme and University of Aberdeen.

***TAR Project: Multiple frequency bio-impedance devices (BCM – Body Composition Monitor, BioScan 920-II, BioScan touch i8, InBody S10, and MultiScan 5000) for fluid management in people with chronic kidney disease having dialysis**

Investigators: Ramsay, C., Brazelli, M., Campbell, M. (HSRU, University of Aberdeen); Scotland, G. (HERU/HSRU).

Source of Funding: National Institute for Health Research (NIHR) – Part of the TAR contract 2016–2021.

OPAL – Optimal PFMT for Adherence Long-term: Multi-centre randomised trial of the effectiveness and cost-effectiveness of basic versus intensive, biofeedback-assisted pelvic floor muscle training for female stress or mixed urinary incontinence



Investigators: Hagen, S., McClurg, D., Booth, J. (Glasgow Caledonian University); Glazener, C., Francis, J., Norrie, J., Elders, A., McDonald, A., McPherson, G., Kolehmainen, N. (HSRU, University of Aberdeen); Wael, A. (NHS Ayrshire and Arran); Abdel-Fattah, M. (Other Applied Health Sciences, University of Aberdeen); Bugge, C. (University of Stirling); Buckley, B. (Independent); Dean, S. (University of Exeter); Kilonzo, M. (HERU); Smith, H. (University of Otago, NZ); Guerrero, K.L. (Clinical expert); Wilson, L.E. (User).

Source of Funding: National Institute for Health Research (NIHR), Health Technology Programme (HTA) and University of Aberdeen.

Got-it-trial: a pragmatic, adaptive, sequential, placebo controlled randomised trial to determine the effectiveness of glycerine triturate for retained placenta

Investigators: Denison, F., Lawton, J. (University of Edinburgh); Scotland, G. (HERU/HSRU); Norrie, J., McPherson, G. (HSRU, University of Aberdeen); Brook-Smith, S. (NHS Lothian).

Source of Funding: National Institute for Health Research (NIHR) Health Technology Assessment (HTA) Programme and Chief Scientist Office (CSO) CORE.

***C-Gall: a randomised controlled trial comparing the clinical effectiveness and cost-effectiveness of laparoscopic cholecystectomy compared with observation/conservative management for preventing recurrent symptoms and complications in adults with uncomplicated symptomatic gallstones**

Investigators: Ahmed, I. (NHS Grampian); Ramsay, C., Norrie, J., Gillies, K., Avenell, A., Brazzelli, M. (HSRU,

University of Aberdeen); Hernández, R. (HERU); Murchie, P. (Other Applied Health Sciences, University of Aberdeen).
Source of Funding: Department of Health – National Institute for Health Research (NIHR), Health Technology Assessment (HTA) Programme and University of Aberdeen.

E-FREEZE: a randomised controlled trial evaluating the clinical and cost-effectiveness of a policy of freezing all embryos followed by thawed frozen embryo transfer, compared with a policy of fresh embryo transfer in women undergoing in-vitro fertilization

Investigators: Mahashwari, A. (NHS Grampian); Macklon, N. (University of Southampton); Khalaf, Y. (Guy's and St Thomas' Hospital); Lavery, S. (Hammersmith Hospital); Child, T., Juszczak, E., Hardy, P., Kurinczuk, J. (University of Oxford); Rajkohwa, M. (Birmingham's Women's Hospital); Coomarasamy, A. (University of Birmingham); Cutting, R. (University of Sheffield); Brison, D. (Central Manchester University Hospital NHS Trust); Troup, S. (Liverpool Women's Hospital); Lewis-Jones, C. (Infertility Network, UK); Raine-Fenning, N. (University of Nottingham); Bhattacharya, S. (Other Applied Health Sciences, University of Aberdeen); Scotland, G. (HERU/HSRU).

Source of Funding: National Institute for Health Research (NIHR), Health Technology Assessment (HTA) Programme and Chief Scientist Office (CSO) CORE.

***RAACENO: Reducing Asthma Attacks in Children using Exhaled Nitric Oxide as a biomarker to inform treatment strategy – a randomised controlled trial**

Investigators: Norrie, J., Morgan, H. (HSRU, University of Aberdeen); Fielding, S., Price, D. (Other Applied Health Sciences, University of Aberdeen); Neilson, A. (HERU); Thomas, M. (University of Southampton); Gaillard, E. (University of Leicester).

Source of Funding: National Institute for Health Research (NIHR)/Medical Research Council (MRC), efficacy & mechanism evaluation programme and University of Aberdeen.

***TAR project – Surveillance following endovascular aortic aneurysm repair**

Investigators: Ramsay, C., Brazzelli, M., Campbell, M. (HSRU, University of Aberdeen); Scotland, G. (HERU/HSRU).

Source of Funding: National Institute for Health Research (NIHR) – Part of the TAR contract 2016–2021.

***Technology Assessment Reviews (TARs) contract (2016–2021)**

Investigators: Ramsay, C., Campbell, M., Brazzelli, M., Cummins, E. (HSRU, University of Aberdeen); Scotland, G. (HERU/HSRU).

Source of Funding: National Institute for Health Research (NIHR).

TISU: Therapeutic Interventions for Stones of the Ureter: a multi-centre randomised controlled trial of extracorporeal shockwave lithotripsy, as first treatment option, compared with direct progression to ureteroscopic retrieval, for ureteric stones

Investigators: McClinton, S., Kurban, L. (NHS Grampian); N'Dow, J., MacLennan, S., Lam, T. (Academic Urology Unit, University of Aberdeen); MacLennan, G., Norrie, J., Thomas, R., Starr, K. (HSRU, University of Aberdeen); Kilonzo, M. (HERU); Keely, F. (Southmead Hospital); Anson, K. (St George's NHS Trust); Clark, C. (Service User); Pickard, R. (Newcastle University); Burgess, N. (Norfolk and Norwich University Hospital).

Source of Funding: National Institute for Health Research (NIHR) Health Technology Assessment (HTA) Programme.

***PhD – Using existing data to incorporate broader measures of benefit in economic evaluation**

Investigators: Tassie, E. (PhD Student), Watson, V. (HERU), Scotland, G. (HERU), Bryan, S. (HERU/UBC).

Source of Funding: Institute of Applied Health Science (IAHS), University of Aberdeen Flagship PhD Studentship.

VUE: Vault or Uterine prolapse surgery Evaluation: two parallel randomised controlled trials of surgical options for upper compartment (uterine or vault) pelvic organ prolapse

Investigators: Glazener, C., Breeman, S., McPherson, G., McDonald, A., Norrie, J., Elders, A. (HSRU, University of Aberdeen); Montgomery, I.B.G. (Aberdeen); Hagen, S.

Projects in-progress and completed in 2016

* Denotes projects started in 2016

(Glasgow Caledonian University); Smith, A.R.B. (St. Mary's Hospital Manchester); Freeman, R.M. (Plymouth Hospital NHS Trust); Bain, C., Cooper, K. (NHS Grampian); Kilonzo, M. (HERU).

Source of Funding: National Institute for Health Research (NIHR) Health Technology Assessment (HTA) Programme and University of Aberdeen.

*Vitamin K supplementation to reduce falls in older people – a multi-centre trial

Investigators: Witham, M., McMurdo, M., Donnan, P. (Ninewells Hospital); McNamee, P. (HERU); Soiza, R. (Applied Medicine, University of Aberdeen); Cvoro, V. (Department of Geriatric Medicine, Victoria Hospital).

Source of Funding: Chief Scientist Office (CSO) Health Services and Population Health Research and University of Aberdeen.

eTHoS: eiTher Traditional Haemorrhoidectomy or Stapled haemorrhoidopexy for haemorrhoidal disease: a pragmatic multi-centre randomised controlled trial comparing stapled haemorrhoidopexy to conventional excisional haemorrhoidectomy

Investigators: Watson, A. (NHS Highland); Loudon, M. (Aberdeen Royal Infirmary); Kilonzo, M. (HERU); Vale, L. (University of Newcastle); Jayne, D. (Leeds Teaching Hospital NHS Trust); Maw, A. (Glan Clywd Hospital); Curran, F. (Stepping Hill Hospital, Stockport); Brown, S. (Northern General Hospital, Sheffield); Cook, J., Norrie, J. (HSRU, University of Aberdeen); Burr, J. (University of St. Andrews); Buckley, B. (National University of Ireland).

Source of Funding: National Institute for Health Research (NIHR) Health Technology Assessment (HTA) Programme.

Maintained physical activity and physiotherapy in the management of distal arm pain

Investigators: Jones, G., Macfarlane, G. (Other Applied Health Sciences, University of Aberdeen); McNamee, P. (HERU); Burton, K. (University of Huddersfield); Coggon, D., Palmer, K. (University of Southampton); Lamb, S. (University of Warwick); McCabe, C. (University of Bath); McConnachie, A. (University of Glasgow); Shenker, N. (Cambridge University Hospitals); Walker-Bone, A. (Brighton and Sussex University Hospitals).



Source of Funding: Arthritis Research UK (ARUK) and University of Aberdeen.

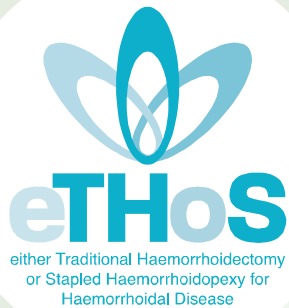
A model-based cost-effectiveness analysis of Opportunistic screening for identifying (undetected) atrial fibrillation (AF)

Investigators: Neilson, A., Scotland, G., Tassie, E. (HERU).
Source of Funding: Digital Health Institute, University of Aberdeen and Chief Scientist Office (CSO) CORE.

Scottish cervical cancer prevention programme: assessing and modelling the impact of HPV 16/18 immunisation on the performance of current cervical screening and the effectiveness of alternative cervical screening strategies to optimise cancer prevention in the HPV immunisation era

Investigators: Cruickshank, M. (Department of Obstetrics and Gynaecology, University of Aberdeen); Campbell, C., Weller, D. (University of Edinburgh); Choi, Y. (Centre for Infections, Health Protection Agency); Cubie, H. (Lothian University NHS Hospital Trust, Royal Infirmary of Edinburgh); Cuschieri, K. (Edinburgh Royal Infirmary); Donaghy, M., Robertson, C. (Health Protection Scotland); Imrie, J. (Monklands District General Hospital); Sullivan, F. (University of Dundee); McNamee, P. (HERU).

Source of Funding: Chief Scientist Office (CSO) Health Services and Population Health Research Committee.



ETHoS: Either Traditional Haemorrhoidectomy or Stapled haemorrhoidopexy for haemorrhoidal disease: a pragmatic multi-centre randomised controlled trial comparing stapled haemorrhoidopexy to conventional excisional haemorrhoidectomy.

Haemorrhoids are common in all age groups from mid-teens onwards and their surgical management places a significant burden on patients and the NHS, with more than 20,000 procedures performed annually in UK. Stapled haemorrhoidopexy (SH) offers a newer alternative to traditional haemorrhoidectomy (TH). Several small randomised controlled trials (RCTs) have compared SH with TH and their results have indicated that SH may be associated with less pain in the immediate post-operative period, but a higher rate of recurrence and need for further surgery in the longer term. However, these findings were based on data from small trials, all with methodological flaws, resulting in uncertainty regarding the most effective and cost-effective approach to treatment.

The eTHoS study aimed to assess the clinical and cost-effectiveness of SH versus TH for moderate or severe haemorrhoids in a large pragmatic multi-centre RCT, with respect to: (1) Health-related quality of-life (from baseline to two years) derived from serial responses to the EQ-5D (area under the curve); and (2) the incremental cost per quality adjusted life year (QALY) gained at two years.

Participants have now been followed up to two years and the main clinical and cost-effectiveness results published in the Lancet ([http://dx.doi.org/10.1016/S0140-6736\(16\)31803-7](http://dx.doi.org/10.1016/S0140-6736(16)31803-7)). At two years, TH was found to result in significantly higher EQ-5D (AUC) and significantly higher QALYs. TH was also significantly less costly to the health service than SH. These findings clearly support the use of traditional excisional surgery over stapled haemorrhoidopexy as the surgical treatment of choice for moderate to severe haemorrhoids.

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Projects in-progress and completed in 2016

Methods of Benefit Valuation

HERU Postdoctoral Fellowship: accounting for behavioural pluralism in discrete choice experiments'
Investigators: Heidenreich, S., Ryan M., Watson V. (HERU).
Source of Funding: Health Economics Research Unit Postdoctoral Research Fellowship.

Are responses to discrete choice experiments coherent, arbitrary or coherently arbitrary?
Investigators: Watson, V., Norwood, P., Ryan, M. (HERU).
Source of Funding: Chief Scientist Office (CSO) CORE.

PhD – Assessment of the external validity of discrete choice experiment: an application in pharmacy
Investigators: Chua, G.N. (PhD Student), Ryan, M. (HERU); Porteous, T. (HSRU, University of Aberdeen); Bond, C. (Academic Primary Care, University of Aberdeen).
Source of Funding: Commonwealth Scholarship Commission UK and Chief Scientist Office (CSO) CORE.

External validity of contingent valuation: comparing hypothetical and real payments
Investigators: Ryan, M., Heidenreich S. (HERU); Mentzakis, E. (Economics Department, University of Southampton); Jareinpituk, S. (Department of Dental Public Health, Mahidol University); Cairns, J. (Department of Health Services Research and Policy, London School of Hygiene and Tropical Medicine); Bond, C. (Academic Primary Care, University of Aberdeen); Glynn, D. (University of York).
Source of Funding: Chief Scientist Office (CSO) CORE.

Gatekeeping in intensive care: understanding and improving the decision-making process surrounding admission to the intensive care unit
Investigators: Bassford, C., Griffiths, F., Perkins, G., Quinton, S., Rees, K., Slowther, A.M. (University of Warwick); Krucien, N., Ryan, M. (HERU).
Source of Funding: National Institute for Health Research (NIHR), Health Technology Assessment (HTA) Programme, University of Aberdeen and Chief Scientist Office (CSO) CORE.

PhD: Healthcare preferences and deliberation: the citizen's perspective
Investigators: Sakowsky, R. (PhD Student), Ryan, M. (HERU); Entwistle, V. (HSRU, University of Aberdeen).
Source of Funding: Gavin Mooney PhD Studentship (via University of Aberdeen Development Trust) and the University of Sydney and Chief Scientist Office (CSO) CORE.



Projects in-progress and completed in 2016

How do individuals respond to DCEs? Alternatives to utility maximisation

Investigators: Krucien, N., Watson, V., Ryan, M. (HERU). **Source of Funding:** Chief Scientist Office (CSO) CORE and University of Aberdeen.

Person centred care

Investigators: Ryan, M., Watson, V., Krucien, N., Heidenreich, S. (HERU).

Source of Funding: Chief Scientist Office (CSO) CORE and University of Aberdeen.

Using eye tracking methods to understand decision-making heuristics in discrete choice experiments

Investigators: Ryan, M., Krucien, N. (HERU); Hermens, F. (School of Psychology, University of Lincoln).

Source of Funding: University of Aberdeen and Chief Scientist Office (CSO) CORE.

Using induced experiments to infer decision making strategies in discrete choice experiments

Investigators: Luchini, S. (University of Aix-Marseille); Watson, V. (HERU).

Source of Funding: Chief Scientist Office (CSO) CORE.

Value transfer analysis in healthcare

Investigators: Gerard, K. (University of Southampton); Watson, V. (HERU).

Source of Funding: Chief Scientist Office (CSO) CORE.

PhD – Do I care or do I not? An empirical assessment of decision heuristics in discrete choice experiments

Investigators: Heidenreich, S. (PhD Student), Ryan, M., Watson, V. (HERU); Phimister, E. (Economics, University of Aberdeen Business School).

Source of Funding: Institute of Applied Health Science (IAHS), University of Aberdeen Flagship PhD Studentship and Chief Scientist Office (CSO) CORE.

Does an oath improve demand revelation in discrete choice experiments?

Investigators: Watson, V. (HERU); Luchini, S. (GREQAM); Jacquemet, N. (University of Paris); Shogren, J. (University of Wyoming).

Source of Funding: Chief Scientist Office (CSO) CORE.

Rethinking 'the different perspectives that can be used when eliciting preferences in health'

Investigators: Tsuchiya, A. (ScHAAR, University of Sheffield); Watson, V. (HERU).

Source of Funding: Chief Scientist Office (CSO) CORE.

Do I care or do I not? 'An empirical assessment of decision heuristics in discrete choice experiments'

The analysis of discrete choice experiment (DCE) data assumes that respondents consider and trade all attributes of the hypothetical healthcare options that were presented to them in the survey. Studies suggest that DCE respondents may ignore some attributes to simplify the choices they are asked to make. If this behaviour is not accounted for in the analysis then preference estimates may be misleading and policy advice based on the estimates will be suboptimal. On the other hand, respondents may simply not value all attributes and ignore those that are not important to them. This is in line with the underlying assumptions of DCEs.

The thesis has explored in detail why respondents may not consider all attributes in DCEs and how such behaviour should be considered in the analysis. The results suggest that respondents ignore attributes both to simplify their choices and because attributes are not important to them. Analysis methods must distinguish between these two reasons. Results are found to be misleading if they make wrong assumptions about why attributes have been ignored. The thesis also finds that analysts cannot rely on self-reported information about ignored attributes, because respondents cannot reflect on which attributes they ignored in the DCE and why.



HERU Policy Briefs

In 2016 we continued our Policy Brief series. This 2-page document highlights our key policy findings from our research. In 2016 these were:

- **Ludbrook, A.** 'Fairness and efficiency: addressing the harms of excessive drinking', January 2016.
- **Kilonzo, M.** 'Gallstones: wait and see or treat?', April 2016.
- **Farrar, S., Yi, D., Morgan, H., Ludbrook, A.** and Hoddinott, P. 'Financial incentives to support smoking cessation in pregnant women – size matters', May 2016.
- **Hernández, R., Burr, J.M., Vale, L., Azuara-Blanco, A., Cook, J.A., Banister, K., Tuulonen, A., Ryan, M.** & Surveillance of Ocular Hypertension Study Group 'Treatment or monitoring for people with ocular hypertension?', May 2016.
- **Pol, M. van der, Olajide, D., Dusheiko, M., Elliott, R., Guthrie, B., Jorm, L.R.** and Leyland, A.H. 'Does quality and accessibility of primary care reduce admissions for Ambulatory Care Sensitive Conditions (ACSCs) in Scotland?' June 2016.
- **Aoki, Y.** 'Speak well, do well – English language proficiency and health and social outcomes of UK immigrants', August 2016.
- **Skåtun, D., Watson, V., Krucien, N., Johnston, P.** and Cleland, J. (2016) 'Junior doctors training: is it really location, location, location?' September 2016.
- **Porteous, T., Ryan, M., Bond, C., Watson, M.** and **Watson, V.** (2016) 'Think pharmacy: making community pharmacy the first port of call', October 2016.

Engagement with Stakeholders

Policy Presentations and Workshops:

- NICE Appraisal Committee Meeting: **Scotland, G., Javanbakht, M.** and Brazzelli, M. 'Report of the Evidence Review Group on Technology Appraisal TA393: alirocumab for treating primary hypercholesterolaemia and mixed dyslipidaemia', January 2016.
- Workshop for the Health Economics Network for Scotland (HENS) 'Identifying, appraising and applying health economics evidence for public health'
Speakers: **Paul McNamee, Graham Scotland, Aileen Neilson, Stirling Bryan** (HERU) and Cynthia Fraser (HSRU), November 2016.



- HERU co-sponsored the 4th Annual Research Symposium: 'Mobilising evidence to drive improvement', with Healthcare Improvement for Scotland (HIS) and the Health Sciences Research Unit (HSRU), where **Mandy Ryan** chaired the panel session, March 2016.
- European Union Directorate Knowledge Hour, Presentation to invited members of Directorate General Research and Employment, **Elliott R., Bond, C.** and Sutton, M. (2016) 'New roles for health professionals: findings from the MUNROS project' Brussels, September 2016.



Public engagement activities:

- **Aoki, Y.** "Donating time to charity: Working for nothing?" Oxford Economic Papers, 2017, volume 69, issue 1: pp.97-117.

All relating to the above paper, Yu Aoki received numerous press coverage:

Oxford University Press: <https://blog.oup.com/2016/10/power-of-volunteering-work-benefits/>

Daily News: <http://www.dnaindia.com/health/report-seniors-who-receive-care-from-volunteers-may-live-longer-2284789>

The Times: <http://www.thetimes.co.uk/article/helping-elderly-lets-them-live-longer-by-reducing-loneliness-mj3rqg39k>

Other outlets: BBC Radio Scotland, Daily Mail, Daily Express and Evening Express.

- **Ludbrook, A.** 'Today's student, tomorrow's heavy drinker?' Café Variété, University of Aberdeen, Aberdeen, November 2016.
A recent study has linked higher education with heavier drinking in early adulthood. Is this an inevitable pattern or just a "British disease"? How much does alcohol cost society and would higher alcohol prices discourage heavy drinking?
<http://www.abdn.ac.uk/smmsn/events/10501/>
- **Norwood, P.** (2016) 'Health economics and the obesity crisis', Scottish Women's Rural Institute, Portlethen, Aberdeen, February 2016.

One of HERU's priorities is building capacity in health economics. In 2016 we continued to sustain our efforts by providing specialist training in health economics from undergraduate level to PhD level and we provided training in health economics for non-specialists.

Specialist training in health economics: from Undergraduate to PhD level

Undergraduate

At the University of Aberdeen, as well as teaching health economics to MA Economics students, HERU provided three summer internships to encourage economics undergraduates to consider a career in health economics. Internships run for up to six weeks and give a taste of health economics research with interns working alongside staff in HERU to learn about the variety of work we do. Interns undertake tasks such as assisting in the preparation and analysis of data, conducting literature reviews and assisting in writing up the results of research conducted in HERU. This year our interns were:

Jamie O'Halloran (University of Dundee) – worked on 'How to get individual level preferences from a discrete choice experiment' – supervisors: **Sebastian Heidenreich** and **Rodolfo Hernández**; 'Theoretical model on the stability of GP partnerships' – supervisor: **Verity Watson**.

Maria Petrova Dimitrova (University of Aberdeen) – worked on 'Analysis of best-worst scaling (type 1) data from the project: Improving working conditions of health jobs in remote areas: case of Senegal' – supervisor: **Nicolas Krucien**; 'Analysis of travel cost data from a clinical trial in dentistry' – supervisor: **Dwayne Boyers**.

Callum Stewart (University of Glasgow) – worked on 'Cost effectiveness analysis of therapeutic interventions for stones of the ureter' – supervisor: **Mary Kilonzo**; 'Potential of benefit transfers in health economics' – supervisor: **Verity Watson**; 'Literature review of the psychological determinants of discounting' – supervisor: **Marjon van der Pol**.



The student interns for 2016 were from left to right – Jamie O'Halloran, Maria Petrova Dimitrova and Callum Stewart

Postgraduate

During 2016 our commitment to postgraduate training continued with our contribution to the teaching of the MSc Applied Economics (Health Pathway) students at the University of Aberdeen, and the MSc in Health Economics at the University of York.

PhD Supervision

Eight current and two new PhD students are supervised for PhDs in health economics:



Antje Tockhorn-Heidenreich – *‘Exploring the role for patients’ values in health technology assessment: a mixed methods approach’*, funded by the ESRC Scottish Graduate School of Social Science Doctoral Training Centre Health Pathway. In 2016,

Antje suspended her studies to take maternity leave.



Liam Mc Morrow – *‘Economic aspects of food choice and its association with health inequalities in Scotland and the UK’*, funded by University of Aberdeen Rowett Institute. 2016 saw Liam undertake a field experiment across coffee shops

on the university campus to investigate the signposting effects of a tax on snack food choices in a real-world setting. Results suggest signposting the tax rate does not influence snack food choices as few participants noticed the signpost. Liam spent most of 2016 writing up his thesis and work from the first chapter of Liam’s PhD thesis, ‘Perceived barriers towards healthy eating and their association with a healthy diet’, has been published in the *Journal of Public Health*.



Gin Nie Chua – *‘Assessment of the external validity of discrete choice experiments: an application in pharmacy’*, funded by the Commonwealth Scholarship Commission in the UK. A novel field experiment aimed at assessing

the external validity of a DCE was conducted within the context of a community pharmacy health check service. A post-hoc qualitative assessment was also employed to explore reasons behind the inconsistencies in stated choice and actual behaviour at the individual-level. In addition, the PhD also investigated the role of attitudinal factors and preference uncertainty in DCEs to better understand the validity issue. Following the completion of data collection and analysis, Gin Nie is currently in the writing up phase of her PhD.



Alastair Irvine – *‘The role of time preference in the medical decision making context’*, funded by the Institute of Applied Health Science (IAHS) PhD Studentship. Alastair distributed the national GP time preference survey in March 2016,

with preliminary results presented at EuHEA Hamburg in July. The final paper will be submitted for publication in early 2017. After designing a theoretical model, he has developed an online lab experiment to test whether doctors’ altruistic preferences perform a similar role to performance pay. The design was discussed at the Nordic Health Economists Study Group (NHESG) Odense in August and a poster presented at the Behavioural and Experimental Health Economics Workshop in Cologne, December 2016. The pilot phase will be held in April 2017, with the full study running in September 2017.



Laura Dysart – *‘Applying economic methods to optimise self-management’*, funded by the HERU PhD Studentship, University of Aberdeen. In 2016, Laura produced a working paper investigating the effect of health shocks on time

discounting using the DNB Household Survey, which was presented as an oral presentation at the 3rd Annual European Association of Health Economics PhD Student-Supervisor Conference in Barcelona. Results of the investigation found that for individuals below the annual net income, a lagged health shock resulted in a lower time discount rate (i.e. greater future-orientation). She also presented the findings from her first working paper at the EuHEA conference in Hamburg in July.



Ruben Sakowsky – *‘Resource allocation in healthcare: communitarian and liberal approaches’*, funded by the Gavin Mooney Studentship. His research focuses on evaluating justification and decision-making schemes for resource allocation in

healthcare from a normative and epistemological perspective. In addition, Ruben is investigating how deliberative and communitarian approaches of preference assessment can supplement the set of evaluative tools used to inform decision making in health and healthcare. Ruben is also interested in matters of democratic theory, questions concerning democratic representation and inclusion, and the relationship between community values, individual interests and utility maximisation in healthcare. He is currently involved in the organisation of a community jury on breast cancer and over diagnosis, set to take place in Sydney at the end of April 2017.



Uma Thomas – *‘Using insights into time preference and present bias to develop an intervention to improve adherence to exercise’*, funded by the Institute of Applied Health Sciences. In 2016 Uma has reviewed the relevant literature and completed a working

paper entitled ‘Demand for physical activity and commitment contracts: the role of time preference, present bias and sophistication’ which was presented at the Health Economics Study Group (HESG) held in Birmingham in January 2017. This paper will form the basis of Chapter One of the PhD thesis. The next stage is to design the content and delivery of the proposed ‘time preference’ intervention for improving adherence to exercise.



Kevin Momanyi – *‘Enhancing quality in social care through economic analysis’*, funded by an ESRC/ Scottish Government Studentship. Kevin’s PhD focusses on two quality improvement initiatives in homecare, namely: reablement and telecare. The

literature on the effects of reablement and telecare suggests that there are few economic studies, especially in Scotland. Moreover, most of these studies are randomized controlled trials with small samples and high attrition rates. In 2016, Kevin presented these findings at a PhD Health and Social care Symposium held at the Farr Institute, Edinburgh. The Symposium was attended by senior policy makers from the Scottish Government, other PhD students funded by the Scottish Government and their supervisors. Thereafter, Kevin developed a plan for addressing the empirical chapters of his PhD.

New PhD Students:

We warmly welcomed **two new PhD students** to HERU – **Luis Enrique Loría Rebolledo** and **Emma Tassie** (Please see *Staffing & PhD Students* as at 31.12.16)



Emma Tassie joined the Health Economics Research Unit as a full-time PhD student in October 2016. Her PhD aims to incorporate broader measures of value into economic evaluation through the use of existing data. She has been awarded a studentship by

the Institute of Applied Health Sciences, which is supervised by Dr Verity Watson (HERU), Dr Graham Scotland (HERU) and Professor Stirling Bryan (joint position in HERU and University of British Columbia). Emma graduated from University College Cork in 2010 with a BA (Hons) in Economics and Sociology, and in 2011 with an MSc in Health Economics. Prior to beginning her PhD, Emma worked as a research assistant in HERU where she conducted economic evaluations alongside randomised controlled trials and developed health economic models to accompany systematic reviews.



Luis Enrique Loría Rebolledo is pursuing a PhD in Economics under the joint supervision of Dr Takahiko Kiso and Professor Euan Phimister from the Economics Department in the Business School, and Dr Verity Watson from HERU. His research

aims to *investigate willingness to pay for low emission public transportation using stated preference methods*. As part of his thesis he is using a discrete choice experiment to assess if there is a value attached to reducing emissions from diesel engine powered buses in Aberdeen. He is particularly interested in emissions that cause climate change (greenhouse gases) and pollutants linked to health issues (nitrogen dioxides and particulate matter). Luis obtained a BSc in Civil Engineering from the Instituto Tecnológico y de Estudios Superiores de Monterrey (Mexico). He then worked in the environmental sector before completing an MSc in Environmental Economics from the University of York.



Staff PhDs:

Dwayne Boyers continues work on his part-time PhD research to investigate the external validity of discrete choice experiments, comparing different correction methods (ex-ante and ex-post) for hypothetical bias to improve the predictive validity of DCEs.

Supervision of PhD Students out-with HERU continues with:

- **Jovan Vojnovic** – *Time preferences and health*, (Behavioural Science Centre, University of Stirling), HERU supervisor: **Marjon van der Pol**.
- **Yuan (Serena) Zhang** – (Economics Department, University of Aberdeen), HERU supervisor: **Verity Watson**.



Delegates and presenters from the November 2016 DCE Expert Workshop (Aberdeen)

Training in health economics for non-specialists

HERU Expert Workshop: 'Using Discrete Choice Experiments in health economics: theoretical and practical issues'

- HERU's three-day *'Expert Workshop on Discrete Choice Experiments'* ran again in Aberdeen from the 2nd–4th November 2016. This popular workshop is aimed at those interested in the application of DCEs in health economics. It focuses on the practical and theoretical issues raised when applying the technique. The workshop is of interest to those with no or limited experience in the application of DCEs. The workshop was presented by **Verity Watson, Nicolas Krucien, Sebastian Heidenreich** and was supported by **Luis Loría Rebolledo** and **Gin Nie Chua**.
- The aims of the DCE expert workshops are to provide background information about the theoretical basis for, and development and application of, DCEs in health economics; give hands on experience of the design of DCEs, data input, analysis and interpretation; and provide an update on methodological issues raised in the application of DCEs.

This workshop is run annually in Aberdeen. For further information please visit: <http://www.abdn.ac.uk/heru/courses/workshops/annual-dce-workshop>

- **HERU's Postgraduate Certificate in Health Economics** by distance learning has been running for over 30 years. The course is aimed at individuals who want to familiarise themselves with the methods used by health economists to aid the allocation of scarce healthcare resources. No experience of economics is necessary to undertake the course. In 2016 we welcomed 21 new students to the course including those from Scotland (3), England (8), rest of Europe (3) and other overseas countries (7) including Australia, India, St. Lucia, New Zealand, and United States. Students come from both public and private sectors.

For further information please visit:
<http://www.abdn.ac.uk/heru/courses/pgcert/>



UK Delegates for 2016/17 Postgraduate Certificate in Health Economics Distance Learning Course

- In November **Paul McNamee, Graham Scotland, Aileen Neilson** from HERU and Cynthia Fraser from HSRU were joined by **Stirling Bryan** to deliver a workshop on 'Identifying, appraising and applying health economics evidence for public health'.

Stirling is a professor at the University of British Columbia's School of Population and Public Health, and Director of the Centre for Clinical Epidemiology and Evaluation, Vancouver Coastal Health Research Institute. He works for HERU on a part-time basis and was able to provide expert advice to participants on understanding and applying economic evidence.

The workshop took place in Edinburgh on behalf of the Health Economics Network for Scotland (HENS) and attendees included healthcare planners, finance directors and other healthcare managers. Presentations on identifying and critically appraising economic evaluations were followed by practical group work, with participants being able to discuss case studies from their own organisations.

Other workshops are planned for 2017 and information will be posted on the HERU website.

- HERU also taught health economics on a range of programmes at the University of Aberdeen, including the Master of Public Health, MSc in Global Health and Management, BSc in Health Sciences and MA in Economics.



2016 Publications

Refereed Journals

- Abul Naga, R.H.**, Shen, Y. and Yoo, H.I. (2016) 'Joint hypothesis tests for multidimensional inequality indices', *Economics Letters*, 141, 138–142.
- Andronis, L., Billingham, L.J., **Bryan, S.**, James, N.D. and Barton, P.M. (2016) 'A practical application of value of information and prospective payback of research to prioritize evaluative research', *Medical Decision Making*, 36(3), 321–334.
- Aoki, Y.** (2016) 'Donating time to charity: working for nothing?', *Oxford Economic Papers* [Epub ahead of print].
- Avenell, A., Robertson, C., Stewart, F., **Boyers, D.**, Douglas, F., Archibald, D., van Teijlingen, E., Hoddinott, P. and Boachie, C. (2016) 'Sex can affect participation, engagement, and adherence in trials' (letter), *BMJ*, 355, i6754.
- Azuara-Blanco, A., Banister, K., Boachie, C., McMeekin, P., Gray, J., Burr, J., Bourne, R., Garway-Heath, D., Batterbury, M., **Hernández, R.**, McPherson, G., Ramsay, C. and Cook, J. (2016) 'Automated imaging technologies for the diagnosis of glaucoma: a comparative diagnostic study for the evaluation of the diagnostic accuracy, performance as triage tests and cost-effectiveness (GATE study)', *Health Technology Assessment*, 20(8).
- Azuara-Blanco, A., Burr, J., Ramsay, C., Cooper, D., Foster, P.J., Friedman, D.S., **Scotland, G.**, Javanbakht, M., Cochrane, C. and Norrie, J. (2016) 'Effectiveness of early lens extraction for the treatment of primary angle-closure glaucoma (EAGLE): a randomised controlled trial', *Lancet*, 388(10052), 1389–1397.
- Banister, K., Boachie, C., Bourne, R., Cook, J., Burr, J.M., Ramsay, C., Garway-Heath, D., Gray, J., McMeekin, P., **Hernández, R.** and Azuara-Blanco, A. (2016) 'Can automated imaging for optic disc and retinal nerve fiber layer analysis aid glaucoma detection?' *Ophthalmology*, 123(5), 930–938.
- Bond, C., Bruhn, H., de Bont, A., van Exel, J., Busse, R., Sutton, M., **Elliott, R.** and the MUNROS team (2016) 'The iMPact on practice, oUtcomes and costs of New roles for health pROfeSsionals' [protocol], *BMJ Open*, 6, e010511.
- Cleland, J., Johnston, P., **Watson, V.**, **Krucien, N.** and **Skåtun, D.** (2016) 'What do UK doctors in training value in a post? A discrete choice experiment', *Medical Education*, 50(2), 189–202.
- Dickey, H., **Ikenwilo, D.**, **Norwood, P.**, **Watson, V.** and Zangelidis, A. (2016) 'Doctor my eyes: a natural experiment on the demand for eye care services', *Social Science and Medicine*, 150, 117–127.
- Eberth, B., **Elliott, R.** and **Skåtun, D.** (2016) 'Pay or conditions? The role of workplace characteristics in nurses' labor supply', *European Journal of Health Economics*, 17(6), 771–785.
- Engel, L., Bansback, N., **Bryan, S.**, Doyle-Waters, M.M. and Whitehurst, D.G. (2015) 'Exclusion criteria in national health state valuation studies: a systematic review', *Medical Decision Making*, 36(7), 798–810.
- Galizzi, M.M., Miraldo, M., Stavropoulou, C. and **Pol, M. van der** (2016) 'Doctor–patient differences in risk and time preferences: a field experiment', *Journal of Health Economics*, 50, 171–182.
- Glazener, C., Constable, L., Hemming, C., Breeman, S., Elders, A., Cooper, K., Freeman, R., Smith, A.R., Hagen, S., McDonald, A., McPherson, G., Montgomery, I., **Kilonzo, M.**, **Boyers, D.**, Goulao, B. and Norrie, J. (2016) 'Two parallel, pragmatic, UK multi-centre, randomised controlled trials comparing surgical options for upper compartment (vault or uterine) pelvic organ prolapse (the VUE Study): study protocol for a randomised controlled trial' [Protocol], *Trials*, 17(1), 441.
- Hall, W., Smith, N., Mitton, C., Gibson, J. and **Bryan, S.** (2016) 'An evaluation tool for assessing performance in priority setting and resource allocation: multi-site application to identify strengths and weaknesses', *Journal of Health Services Research and Policy*, 21(1), 15–23.

2016 Publications & Presentations

Hernández, R., Burr, J.M., Vale, L., Azuara-Blanco, A., Cook, J.A., Banister, K., Tuulonen, A. and **Ryan, M.** (2015) 'Monitoring ocular hypertension, how much and how often? A cost-effectiveness perspective', *British Journal of Ophthalmology*, 100, 1263–1268.

Hifinger, M., Hiligsmann, M., Ramiro, S., Severens, J.L., Fautrel, B., **Watson, V.** and Boonen, A. (2016) 'Patients' preferences and economic considerations play an important role in treatment decisions: a discrete choice experiment among rheumatologists', *Rheumatology*, [Epub ahead of print].

Hifinger, M., Hiligsmann, M., Ramiro, S., **Watson, V.**, Severens, J.L., Fautrel, B., Uhlig, T., van Vollenhoven, R., Jacques, P., Detert, J., Canas da Silva, J., Scire, C.A., Berghea, F., Carmona, L., Pentek, M., Keat, A. and Boonen, A. (2016) 'Economic considerations and patients' preferences affect treatment selection for patients with rheumatoid arthritis: a discrete choice experiment among European rheumatologists', *Annals of the Rheumatic Diseases* [Epub ahead of print].

Hoskins, G., Williams, B., Abhyankar, P., Donnan, P., Duncan, E., Pinnock, H., **Pol, M. van der**, Rauchhaus, P., Taylor, A. and Sheikh, A. (2016) 'Achieving Good Outcomes for Asthma Living (GOAL): mixed methods feasibility and pilot cluster randomised controlled trial of a practical intervention for eliciting, setting and achieving goals for adults with asthma', *Trials*, 17(1), 584.

Kenter, J.O., Bryce, R., Christie, M., Cooper, N., Hockley, N., Irvine, K.N., Fazey, I., O'Brien, L., Orchard-Webb, J., Ravenscroft, N., Raymond, C.M., Reed, M.S., Tett, P. and **Watson, V.** (2016) 'Shared values and deliberative valuation: future directions', *Ecosystem Services*, 21(Part B), 358–371.

Kenter, J.O., Jobstvogt, N., **Watson, V.**, Irvine, K.N., Christie, M. and Bryce, R. (2016) 'The impact of information, value-deliberation and group-based decision-making on values for ecosystem services: Integrating deliberative monetary valuation and storytelling', *Ecosystem Services*, 21(Part B), 270–290.

Krucien, N., Watson, V. and Ryan, M. (2016) 'Is best–worst scaling suitable for health state valuation? A comparison with discrete choice experiments', *Health Economics* [Epub ahead of print].

Ludbrook, A. (2016) 'Commentary: Cost of alcohol: better data will be justified if it is put to better use', *Addiction* [Epub ahead of print].

MacFarlane, G., Beasley, M., Prescott, G., **McNamee, P.**, Keeley, P., Artus, M., McBeth, J., Hannaford, P., Jones, G.T., Basu, N., Norrie, J. and Lovell, K. (2016) 'The Maintaining Musculoskeletal Health (MAMMOTH) Study' [protocol], *BMC Musculoskeletal Disorders*, 17(1), 179.

Mankowski, C., Ikenwilo, D., **Heidenreich, S., Ryan, M.**, Nazir, J., Newman, C. and Watson, V. (2016) 'Men's preferences for the treatment of lower urinary tract symptoms associated with benign prostatic hyperplasia: a discrete choice experiment', *Patient Preference and Adherence*, 10, 2407–2417.

Manthala, G., Yi, D., **Farrar, S.** and Nkhoma, D. (2016) 'The effect of user fee exemption on the utilization of maternal healthcare at mission health facilities in Malawi', *Health Policy and Planning*, 31(9), 1184–1192.

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Xie, F., Pullenayegum, E., Gaebel, K., Bansback, N., **Bryan, S.**, Ohinmaa, A., Poissant, L. and Johnson, J.A. (2016) 'How different are composite and traditional TTO valuations of severe EQ-5D-5L states?' *Quality of Life Research*, 25(8), 2101–2108.

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Reports

Cruickshank, M., Campbell, C., Choi, Y., Cubie, H., Cuschieri, K., Donaghy, M., Robertson, C., Smart, L., Sullivan, F. and Weller, D. (**Neilson, A.R.** is on the project team and contributed to Appendix 3) (2016) *The Scottish Cervical Cancer Prevention Programme: assessing and modelling the impact of HPV 16/18 immunisation on the performance of current cervical screening performance and the effectiveness of alternative cervical screening strategies to optimise cancer prevention in the HPV immunisation era. Final report submitted to the Chief Scientist Office (CZG/4/528)*.

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Other Publications

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2016 Presentations

Conference Presentations

Abu-Zaineh, M. and **Abul Naga, R.H.** (2016) 'Bread and social justice: measuring social welfare and inequality using anthropometrics', *Applied Health, Equity and Development Research Network, 3rd Scientific Symposium*, Marseille, France, 9–10 June 2016.

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Aoki, Y. and Santiago, L. (2016) 'Education health and fertility of UK immigrants: the role of language skills', *25th European Workshop on Econometrics and Health Economics*, Department of Business and Economics, Econometrics Group and COHERE, University of Southern Denmark, Nyborg, Denmark, 31 August–3 September 2016.

Boyers, D., **Pol, M. van der** and **Watson, V.** (2016) 'Using DCEs to estimate willingness to pay for dental care', *European Health Economics Association Conference, 'Know the Ropes – Balancing Costs and Quality in Healthcare'*, Universität Hamburg, Germany, 13–16 July 2016.

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Burton, C., Entwistle, V., **Krucien, N.**, Elliott, A., Porteous, T. and **Ryan, M.** (2016) 'Substance or style? Valuing aspects of personalisation of the support for self-management', *Society of Academic Primary Care Annual Scientific Meeting*, Dublin, Ireland, 6–8 July 2016.

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Elliot, R. and Bond, C. (2016) 'The MUNROS Study: changing healthcare roles in breast cancer care', *Scottish Cancer Trials Breast Group Meeting*, Hilton Hotel, Edinburgh Airport, Edinburgh, 28 January 2016.

Heidenreich, S., Watson, V., Phimister, E. and Ryan, M. (2016) 'Conditioning on the unknown: respondents' ability to reflect on their information processing strategies in

discrete choice experiments', *Scottish Economic Society Annual Conference*, Perth, 20 April 2016.

Irvine, A., Phimister, E. and Pol, M. van der (2016) 'Professional and private time preferences of Scottish general practitioners', *European Health Economics Association Conference, 'Know the Ropes – Balancing Costs and Quality in Healthcare'*, Universität Hamburg, Germany 13–16 July 2016.

Irvine, A., Pol, M. van der and Phimister, E. (2016) 'Paternalistic patient-doctor interaction and time inconsistency', *Scottish Graduate Programme in Economic's (SGPE) Residential Methodology Conference*, Crieff Hydro, Crieff, 6–7 January 2016.

Irvine, A., Pol, M. van der and Phimister, E. (2016) 'Professional and private time preferences of Scottish General Practitioners', *Stirling Behavioural Science Centre Annual PhD Student Conference in Behavioural Science*, Stirling University, Stirling, 9 June 2016.

Irvine, A., Pol, M. van der and Phimister, E. (2016) 'Time inconsistency and paternalistic patient-doctor interaction', *Nordic Health Economists' Study Group Meeting*, Centre of Health Economics Research (COHERE), University of Southern Denmark, Odense, Denmark, 17–19 August 2016.

Irvine, A., Pol, M. van der and Phimister, E. (2016) 'Paternalistic patient-doctor interaction and time inconsistency', *4th Workshop in Behavioural and Experimental Health Economics*, University of Cologne, Cologne, Germany, 8–9 December 2016.

Kavanagh, K., **Neilson, A.R.**, Cruickshank, M., Cotton, S. and Robertson, C. (2016) 'Modelling the impact of vaccination on alternative screening policies in Scotland', *European Research Organisation on Genital Infection and Neoplasia (EUROGIN) 2016*, Salzburg, Austria, 15–18 June 2016.

Krucien, N. (2016) 'Does it matter to analyse preferences at the individual level? Evidence from a choice experiment about chronic pain self-management', *European Health Economics Association Conference, 'Know the Ropes – Balancing Costs and Quality in Healthcare'*, Universität Hamburg, Germany 13–16 July 2016.



Krucien, N. (2016) 'What group do you belong to? A comparison of bottom-up and top-down clustering techniques', *International Academy of Health Preference Research (IAHPR) Meeting*, Nord Event Panoramadeck, Hamburg, Germany, 13 July 2016.

Krucien, N. (2016) 'The role of information processing in economic decisions: evidence from an eye-tracking choice experiment', *Scottish Economic Society Annual Conference*, Perth, 20 April 2016.

Krucien, N., Burton, C., Elliott, A., Entwistle, V., Porteous, T. and Ryan, M. (2016) "'I postpone decision making whenever possible". Accounting for decision making styles in individuals' choices for healthcare programmes', *Nordic Health Economists' Study Group Meeting*, Centre of Health Economics Research (COHERE), University of Southern Denmark, Odense, Denmark, 17–19 August 2016.

Mc Morrow, L., Ludbrook, A. and Macdiarmid, J.I. (2016) 'Can time preference help explain variations in diet quality?', *Health Economists' Study Group (HESG) Meeting*, University of Manchester, Manchester, England, 6–8 January 2016.

Mc Morrow, L., Ludbrook, A. and Macdiarmid, J.I. (2016) 'Food taxes: is it possible to influence snack food choices by using tax as a signal?', *Scottish Faculty of Public Health Conference*, Dunblane Hydro Hotel, Dunblane, 27–28 October 2016.

Momanyi, K., McNamee, P. and Skåtun, D. (2016) 'Enhancing quality in social care through economic analysis', *PhD Health and Social Care Symposium*, Farr Institute, NHS National Services Scotland, Edinburgh, 22 June 2016.

Momanyi, K., McNamee, P. and Skåtun, D. (2016) 'Enhancing quality in social care through economic analysis', *Institute of Applied Health Sciences (IAHS) Postgraduate Research Student Symposium*, University of Aberdeen, Aberdeen, 24 June 2016.

Pol, M. van der (2016) 'Can we improve the measurement of time preference to enhance predictive validity of health behaviours?' *European Health Economics Association Conference*, 'Know the Ropes – Balancing Costs and Quality

in Healthcare', Universität Hamburg, Germany 13–16 July 2016.

Ryan, M. (2016) 'Gaining pounds by losing pounds: preferences for lifestyle interventions to reduce obesity', *Scottish Economic Society Annual Conference*, Perth, 20 April 2016.

Sakowsky, R., Ryan, M. and Entwistle, V. (2016) 'The citizen's view: looking beyond patient preferences', *Medicine, Markets and Morals Network, Meeting Three. Bringing it All Together: Reconfiguring Public Sector Provision of Health and Social Care: Policy and Practical Implications*, London, England, 26–17 May 2016.

Sakowsky, R., Ryan, M. and Entwistle, V. (2016) 'The citizen's view: looking beyond patient preferences in healthcare valuation research', *Institute of Applied Health Sciences (IAHS) Postgraduate Research Student Symposium*, University of Aberdeen, Aberdeen, 24 June 2016.

Sakowsky, R., Ryan, M. and Entwistle, V. (2016) 'Normative frameworks of healthcare valuation: democratic deliberation as an alternative to individual preference elicitation', *Nordic Health Economists' Study Group Meeting*, Centre of Health Economics Research (COHERE), University of Southern Denmark, Odense, Denmark, 17–19 August 2016.

Tsuchiya, A. and **Watson, V.** (2016) 'Re-thinking the different perspectives that can be used when eliciting preferences in health', *Health Economists' Study Group (HESG) Meeting*, University of Manchester, Manchester, England, 6–8 January 2016.

Other Presentations

Ludbrook, A. (2016) 'Today's student, tomorrow's heavy drinker', *Café Variété* (Public engagement), University of Aberdeen, Aberdeen, 3 November 2016.

Norwood, P. (2016) 'Health economics and the obesity crisis', *Scottish Women's Rural Institute* (Public Engagement), Portlethen, Aberdeen, 17 February 2016.

2016 Publications & Presentations

Poster Presentations

Boyers, D., Hernández, R., Sharma, P., Scott, N., Fraser, C., Cruickshank, M., Ahmed, I., Ramsay, C. and Brazzelli, M. (2016) 'Cost-effectiveness of open mesh surgery for primary unilateral inguinal hernia', *NHS Research Scotland Conference*, Queen Elizabeth University Hospital Campus, Glasgow, 26 October 2016.

Boyers, D., Pol, M. van der and Watson, V. (2016) 'Ex-ante corrections of hypothetical bias in a dental care DCE', *International Academy of Health Preference Research (IAHPR) Meeting*, Nord Event Panoramadeck, Hamburg, Germany, 13 July 2016.

Kavanagh, K., **Neilson, A.R.**, Cruickshank, M., Cotton, S. and Robertson, C. (2016) 'Clinical and economic impact of alternative screening policies in the post HPV vaccination in Scotland', *British Society for Colposcopy and Cervical Pathology*, Annual Scientific Meeting, Life Science Events, Bradford, England, 13–15 April 2016.

Scotland, G., McKeigue, P., Philip, S., Leese, G.P., Olson, J.A., Looker, H.C., Colhoun, H.M. and Javanbakht, M. (2016) 'Modelling the cost-effectiveness of adopting risk-stratified approaches to extended screening intervals in the national diabetic retinopathy screening programme in Scotland', *NHS Research Scotland Conference*, Queen Elizabeth University Hospital Campus, Glasgow, 26 October 2016.

Seminar Presentations

Hernández, R. (2016) 'Broadening the valuation space in health technology assessment: the case of monitoring individuals with ocular hypertension', *Health Economics Group Seminar*, Newcastle University, Newcastle, England, 30 June 2016.

Neilson, A.R. (2016) 'Clinical and economic impact of alternative screening policies in the post-HPV vaccination era in Scotland', *Obstetrics and Gynaecology Postgraduate Seminar Series*, Aberdeen Maternity Hospital, Aberdeen, 25 May 2016.

Pol, M. van der (2016) 'Can we improve the measurement of time preference to enhance predictive validity of

health behaviours?', *Erasmus School of Economics*, Erasmus University Rotterdam, Rotterdam, Netherlands, 20 October 2016.

Schulz, R. and **Watson, V.** (2016) 'Non-response across survey modes', *Institute for Statistics and Econometrics*, Technische Universität Berlin, Berlin, Germany, 19 April 2016.

Vale, L., Yi, D., Lee, K.W. on behalf of the PROGRESS Group (**Ludbrook, A.** and **Ryan, M.** are members of group) (2016) '1b for £: an economic evaluation of obesity prevention for UK adults', *Institute of Applied Health Research*, Birmingham University, Birmingham, England, October 2016.

Workshop Presentations

Abul Naga, R.H. and Abu-Zaineh, M. (2016) 'Bread and social justice: measuring social welfare and inequality using anthropometrics', *Scottish Development Economics Workshop*, University of Edinburgh, Edinburgh, 26 May 2016.

McNamee, P., Murray, E., Kelly, M., Bojke, L., Chilcott, J., Fischer, A., West, R. and Yardley, L. (2016) 'Designing a health economics modelling study of digital health intervention', *Dynamic Systems Modelling Expert Meeting*, University of Aberdeen, Aberdeen, 17–18 August 2016.

McNamee, P., Neilson, A.R., Bryan, S. and Fraser, C. (2016) 'Identifying, appraising and applying health economics evidence for public health', *Health Economics Network for Scotland Workshop*, Edinburgh, 22 November 2016.

Pol, M. van der (2016) 'Improving the measurement of time preferences', *Workshop on Behavioural Science, Measurement and Policy*, Behavioural Science Centre, University of Stirling, 15 April 2016.

Ryan, M. (2016) 'Behavioural economics – challenges in applying discrete choice experiments', *Public decisions versus individual preferences*, *Hospinnomics Annual Workshop*, Hôtel Scipion, Paris, France, 19–20 September 2016.



Ryan, M. (2016) 'Understanding individual choices in health: an application of discrete choice experiments', *Public decisions versus individual preferences, Hospinnomics Annual Workshop*, Hôtel Scipion, Paris, France, 19–20 September 2016.

Ryan, M., Boyers, D., Hernández, R., Norwood, P., Porteous, T., Avenell, A., Aucott, L., **Chua, G.N.** and **Krucien, N.** (2016) 'Discrete choice experiments: what can they do for you?', *Institute of Applied Health Sciences cross-disciplinary workshop*, University of Aberdeen, Aberdeen, 17 May 2016.

Scotland, G., Hernández, R. and **Boyers, D.** (2016) 'Introduction to economic decision modelling', *Health Services Research Unit (HSRU) Methodology Workshop*, Foresterhill, University of Aberdeen, Aberdeen, 1 June 2016.

Sutton, M. and the MUNROS Team (led by **Elliott, R.** and Bond, C.), (2016) 'Towards a more efficient use of health human resources OECD', *Organisation for Economic Co-operation and Development (OECD) Workshop*, OECD Conference Centre, Paris, France, 27 June 2016.

Watson, V. (2016) 'Using commitment to improve choice experiment survey responses', *4th Workshop in Behavioural and Experimental Health Economics*, University of Cologne, Cologne, Germany, 8-9 December 2016.

Watson, V., Krucien, N. and **Heidenreich, S.** (2016) 'DCE workshop. Using discrete choice experiments in health economics: theoretical and practical issues', *HERU Expert Discrete Choice Experiment Workshop*, Aberdeen, 2-4 November 2016.

Policy Presentations

Elliott, R., Bond, C. and Sutton, M. (2016) 'New roles for health professionals: findings from the MUNROS project', *European Union Directorate Knowledge Hour, Presentation to invited members of Directorate General Research and Employment*, Brussels, Belgium, 6 September 2016.

Scotland, G. (2016) 'Report of the Evidence Review Group on reconsideration of radium-223 for treating hormone-relapsed prostate cancer with bone metastases (men who have not received docetaxel and for whom docetaxel is contraindicated or not suitable)', *National Institute for Health and Care Excellence (NICE) Appraisal Committee Meeting*, Manchester, 26 July 2016.

Scotland, G., Javanbakht, M. and Brazzelli, M. (2016) 'Report of the Evidence Review Group on Technology Appraisal TA393: alirocumab for treating primary hypercholesterolaemia and mixed dyslipidaemia', *NICE Appraisal Committee Meeting*, Manchester, 13 January 2016.

Scotland, G., Javanbakht, M. and Brazzelli, M. (2016) 'Report of the Evidence Review Group on Technology Appraisal TA393: alirocumab for treating primary hypercholesterolaemia and mixed dyslipidaemia', *NICE Appraisal Committee Meeting*, Manchester, 9 March 2016.

Staffing & PhD Students

Research Staff

Dr Ramses Abul Naga
Reader

Dr Yu Aoki
Lecturer

Dr Michail Bitzios
Research Fellow

Dwayne Boyers
Research Fellow

Professor Stirling Bryan
Professor of Health Economics

Hannah Collacott
Research Assistant

Dr Ourega-Zoé Ejebu
Research Fellow

Professor Bob Elliott
Emeritus Professor

Dr Shelley Farrar
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Dr Sebastian Heidenreich
Post-doctoral Research Fellow

Dr Rodolfo Hernández
Research Fellow

Elisabet Jacobsen
Research Assistant

Mary Kilonzo
Research Fellow

Daniel Kopasker
Research Fellow

Dr Nicolas Krucien
Research Fellow

Dr Attakrit Leckcivilize
Research Fellow

Professor Anne Ludbrook
Professor of Health Economics

Lynda McKenzie
Research Fellow

Professor Paul McNamee
Professor of Health Economics & Health Behaviour and Inequality Theme Leader

Aileen Neilson
Research Fellow

Dr Patricia Norwood
Research Fellow

Professor Marjon van der Pol
Depute Director and Director of Teaching

Professor Mandy Ryan
Director

Dr Graham Scotland
Senior Research Fellow & Assessment of Technologies Theme Leader

Dr Diane Skåtun
Senior Research Fellow & Workforce and Organisation of Care Theme Leader

Chris Spoor
Senior Teaching Fellow

Dr Verity Watson
Senior Research Fellow & Methods of Benefit Valuation Theme Leader



NEW Staff to the Unit in 2016



Dr Michail Bitzios joined HERU as Research Fellow in October 2016 and currently contributes to the Health Behaviour and Inequality Theme. He holds a PhD in Agri-Environmental Economics from the University of Kent and an MSc in Agricultural Economics from the University of Reading. He is involved in research projects investigating potential changes in food culture, social norms and dietary choice towards a more sustainable, balanced and healthy diet and lifestyle.



Hanna Collacott joined HERU in April 2016 as a Research Assistant working within Health Behaviours and Inequality. Hannah holds an MSc in Economics and Health Economics from the University of Sheffield and an MA in Economics from the University of Dundee. Her MSc thesis explored the relationship between maternal employment and the probability of childhood obesity, using both probit and IV analysis. Hannah is currently involved in a project looking at how best to engage obese men in incentive interventions for weight loss, using a discrete choice experiment (DCE).



Elisabet Jacobsen started working as a Research Assistant at the Health Economics Research Unit in June 2016. She joined the Assessment of Technologies theme and is currently involved in an economic evaluation comparing stapled haemorrhoidopexy to traditional haemorrhoidectomy, by developing a health economic model alongside the randomised controlled trial.



Dr Daniel Kopasker joined HERU as a Research Fellow in October 2016 after submitting his PhD thesis at the University of Aberdeen. He is an applied econometrician whose work focusses on the intersection of health and labour economics. Daniel also holds an MSc in Economics from the University of Edinburgh, and an MA (Hons) in Economics from the University of Dundee. He is currently working as part of the MUNROS research project.



Dr Attakrit Leckcivilize joined HERU as a Research Fellow in October 2016. Prior to HERU, he was a Research Fellow at the Institute of Labour Economics, Leibniz University of Hannover. His research interests are labour economics, applied econometrics and health economics, with particular application to developing countries.



Dr Cristina Sechel joined HERU in April 2016 for six months. She worked within the Health Behaviour and Inequality theme on an evaluation project for NHS Lothian concerning *the effect of Anticipatory Care Planning on the number of unplanned hospital admissions*.



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HERU

HEALTH ECONOMICS RESEARCH UNIT

The Health Economics Research Unit (HERU) was established at the University of Aberdeen in 1977. The Unit is part of the Institute of Applied Health Sciences (IAHS) in the School of Medicine, Medical Sciences and Nutrition within the College of Life Sciences and Medicine.

Core funding for the Unit comes from the **Chief Scientist Office (CSO)**, part of the **Scottish Government Health and Social Care Directorates** and the **University of Aberdeen**. HERU is one of two CSO-funded research units based within the IAHS. Our sister unit is the Health Services Research Unit (HSRU).

The CSO remit for the Health Economics Research Unit requires HERU to “develop and encourage the application of appropriate economic methods to improve health and healthcare in Scotland” and is pursued through four Research Themes. More specifically, our aim is to:

- Research economic approaches to health and healthcare at standards of international excellence.
- Develop and apply economic techniques to improve healthcare and population health in Scotland.
- Make available to the health service a body of expertise in health economics.
- Build and sustain capacity in the economics of health.