
ANNUAL
REPORT
2018

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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Welcome from the Director



Welcome to the 2018 Annual Report of the Health Economics Research Unit (HERU)

2018 got off to a great start with HERU, and our sister Unit the Health Services Research Unit (HSRU), recognised for our many contributions to health economics policy and practice over the last 40 years. A delegation from the University of Aberdeen headed south to receive the Queen's Anniversary Prize for Higher and Further Education for world leading research into health economics and health services. Both myself and current and past HERU colleagues were part of this delegation, enjoying a meal at Guildhall as part of the celebrations before being presented the award by the Prince of Wales and Duchess of Cornwall at Buckingham Palace. The Queen's Anniversary Prize is the highest national award to a university; it was a very special couple of days which were enjoyed by all.

Forty years on our research continues to address important policy questions. Examples of this include: understanding general practitioners decisions over business location; changes in spatial wage differences and the implications for healthcare funding; the effectiveness of a personalised weight management programme for obese women attending routine breast cancer screening; understanding food choices and patterns of alcohol consumption; the costs and benefits of introducing Whole Genome Sequencing in Scotland; and treatment preferences following a prostate cancer or breast cancer diagnosis. Our Assessment of Technologies work continues to provide health economics expertise to support clinical trials, and the work of the National Institute for Health and Care Excellence (NICE), and other policy groups, in the delivery of health and social care. All our applied work is underpinned by rigorous methodological work. Information on all these projects, and more, can be found in this Annual Report.

Capacity building continues to be important. It has been fantastic to see the development of our Postgraduate Certificate in Health Economics into an online MSc in Health Economics for Health Professionals. The first year has been a great success, attracting 41 students in 2017/18. Numbers are also impressive for the second year, making our MSc one of the most successful online programmes at the University of Aberdeen. Our popular Discrete Choice Experiment course and workshop on using Health Economics Evidence in Health Care Decision Making ran again in 2018. These courses provide a great opportunity for HERU to improve health economics literacy.

I feel very proud of our 2018 PhD successes. Alastair Irvine, Luis Loría, Gin Nie Chua, Liam Mc Morrow and Laura Dysart all graduated, and Dwayne Boyers passed his PhD viva with minor changes. Congratulations to all. We warmly welcomed Divya Mohan and Xuemin Zhu to our cohort of PhD students; I look forward to seeing their PhDs develop. 2018 also saw us celebrate ten years of our summer internship programme. The energy of our students and interns continues to inspire me.

We continued to disseminate our research at policy conferences and engage with policy makers to ensure maximum impact of our research. We will launch a Blog in 2019 as a way to summarise our research, with a focus on policy implications. We will use a variety of formats – including video, images and text. I am both excited by this new way of communicating our research and also a little nervous as I have been asked to do an introductory video. Watch out for this in January 2019.

It is always rewarding to see staff receive recognition for their hard work. I was delighted that Graham Scotland was promoted to Reader and Zoé Ejebu awarded a place on the Global Food Security programme. I was also proud that the University of Aberdeen was named Scottish University of the Year in the Times and Sunday Times Good University Guide 2019.

We said goodbye to Aileen Neilson who took up a post with the health economics group at the University of Edinburgh and Gin Nie Chua who took up a post with Evidera. I wish them all the best.

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

Professor Mandy Ryan
Director

2018 Highlights

A delegation from the University, including staff and PhD students from HERU, attended Buckingham Palace in February 2018 where the Queen's Anniversary Prize for Higher and Further Education was awarded in recognition of our world-leading research into health economics and health services over the last forty years. The Queen's Anniversary Prize is awarded every two years and is the most prestigious form of national recognition for a UK academic institution. The focus of the award is on innovation and practical benefit to people and society. HERU, together with our sister unit, the Health Services Research Unit (HSRU) were recognised for 'health service research leading to improvements in academic and clinical practice and delivery of health care'.

Over the years, we have worked tirelessly, collaborating with HSRU, to ensure improved health and healthcare for the people of Scotland and beyond. HERU would like to thank staff, past and present, for their contribution to this award, and acknowledge the visionary thinking of Professors Roy Weir and Elizabeth Russell who forty years ago recognised the potential of health economics and health services research to improve the health and well-being of the population.



*Professor Mandy Ryan with
Professor Craig Ramsay (HSRU)*

*At the Palace (from left to right)
PhD Student Ben Sakowsky,
Professor Mandy Ryan,
Research Assistant Maria Dimitrova
and PhD Student Alistair Irvine*



*Prize-winners dinner at the Guildhall,
London with (clockwise) Bob Elliott,
Elizabeth Russell, Anne Ludbrook
and Mandy Ryan*



The University of Aberdeen in a Post-Brexit World

A delegation from the University of Aberdeen attended the House of Commons to highlight the importance of our world-leading research in a post-Brexit world. The event was hosted by Kirsty Blackman, MP for Aberdeen North.

Professors Mandy Ryan and Craig Ramsay (HSRU)



Plenary at the first Swiss Society of Health Economics Conference

Mandy Ryan delivered the closing plenary presentation at the first conference of the Swiss Society of Health Economics in Lucerne, Switzerland. Mandy spoke about valuation in health economics, highlighting the importance of taking a patient-centred approach to valuation, and reflecting on her experiences as a patient as well as her extensive research in this area.

NHS Research Scotland Conference

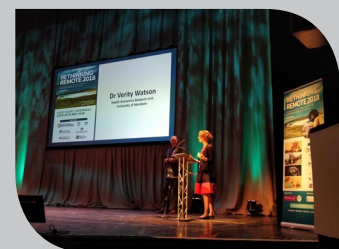
Shona Christie, Dwayne Boyers, Shelley Farrar, Zoé Ejebu and Nicolas Krucien attended the NHS Research Scotland Conference. This year's conference focused on the 'NHS at 70: the impact of research then, now and in the future'. The HERU stand gave delegates the opportunity to talk with HERU staff and to learn more about HERU's research activities and wide range of research projects.

HIS, HERU, HSRU and NMAHP-RU co-sponsored 6th Annual Research Symposium

Our joint annual symposium, focused on 'Evidence for integration: what can research tell us about health and social care integration and its role in improving outcomes?'

NHS Scotland Event

Patrícia Norwood and Rodolfo Hernández attended the annual NHS Scotland Event. This event provided the opportunity for those working in and with the NHS in Scotland to share best practice and the most innovative approaches to delivering the highest quality of care, and to take away tools and techniques that will support them in their various roles.



Addressing Remote and Rural Issues

Verity Watson presented a plenary session at the Scottish Rural Health Partnership's second 'Rethinking Remote' International Conference. Verity's talk on 'Using public preferences to inform remote and rural healthcare choices', used examples drawn from research at HERU.

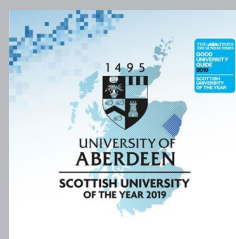
Café MED



Mandy Ryan was involved in two Café Med events; a series of informal discussions to promote public engagement with research. The first, 'See Cancer', considered how the University of Aberdeen plans for a world-class centre for cancer research are taking shape and 'Informing health policy: is it time to celebrate or innovate?' focused on how the research conducted at HERU and HSRU has changed healthcare over the last 40 years, and outlined the challenges for the next 40.

Keynote presentation Royal College of Surgeons in Ireland

Mandy Ryan delivered a keynote presentation at the Royal College of Surgeons in Ireland 'National Healthcare Outcomes Conference'. Mandy's talk was on moving 'Towards better patient focused outcomes'.



Scottish University of the Year

And finally, to end 2018 we were proud to hear that the University of Aberdeen had been named as Scottish University of the Year in the Times and Sunday Times Good University Guide 2019.

Meet the Team

Academic Staff

Dr Ramses Abul Naga
Reader

Dr Yu Aoki
Lecturer

Dwayne Boyers
Research Fellow

Professor Stirling Bryan
Professor of Health Economics

Dr Huey Chong
Research Fellow

Maria Dimitrova
Research Assistant

Dr Ourega-Zoé Ejebu
Research Fellow

Professor Bob Elliott
Emeritus Professor

Dr Shelley Farrar
*Research Fellow & PgCert in Health
Economics Programme Coordinator*

Dr Rodolfo Hernández
Research Fellow

Dr Alastair Irvine
Research Fellow

Elisabet Jacobsen
Research Assistant

Mary Kilonzo
Research Fellow

Dr Daniel Kopasker
Research Fellow

Dr Nicolas Krucien
Research Fellow

Dr Attakrit Leckcivilize
Research Fellow

Dr Luis Loria
Research Fellow

Professor Anne Ludbrook
Professor of Health Economics

Lynda McKenzie
Research Fellow

Professor Paul McNamee
*Professor of Health Economics &
Health Behaviour Theme Leader*

Dr Blanca Moran
Research Fellow

Dr Patricia Norwood
Research Fellow

Professor Marjon van der Pol
*Depute Director and Director of
Teaching*

Dr Terry Porteous
Research Fellow

Professor Mandy Ryan
Unit Director

Dr Graham Scotland
*Reader & Assessment of Technologies
Theme Leader*

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

Chris Spoor
Lecturer (Scholarship)

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

Support Staff

David Burns
Information Officer

Shona Christie
Business Manager

Alison Findlay
Unit Administrator

Lesley Innes
Unit Secretary

NEW Staff to the Unit in 2018

Research Fellows



Huey Chong joined HERU as a Research Fellow. She is currently working on NICE Technology Assessment Reviews and a randomised controlled trial of sodium bicarbonate in chronic kidney disease and low-grade acidosis.



Luis Loría joined HERU as a Research Fellow following submission of his PhD. His current research focuses on the valuation of air quality, specifically for reductions in pollutants with adverse health outcomes, using stated and revealed preference methods.



Alastair Irvine joined HERU following submission of his PhD. He is currently developing economic experiments to understand doctor behaviour and in particular understanding how doctors use decision aids.



Blanca Moran joined HERU in January 2018. She is working on a project evaluating the costs and benefits of Whole Genome Sequencing (WGS) within NHS Scotland genetics services.

Current PhD Students

Ni Gao

Thesis Title: *'Thriving not surviving following a breast cancer diagnosis: what can time allocation tell us?'*

Supervisors: **Mandy Ryan** and **Nicolas Krucien** (HERU), Suzanne Robinson and Richard Norman (University of Curtin, Australia).

Divya Mohan[#]

Thesis Title: *'Informing 'realistic medicine': can economic evaluations account for heterogeneity in care preferences?'*

Supervisors: **Graham Scotland** (HERU), Sebastian Heidenreich (Evidera and HERU) and Craig Ramsay (HSRU).

Kevin Momanyi

Thesis Title: *'Enhancing quality in social care through economic analysis'*

Supervisor: **Paul McNamee** (HERU).

Ruben Sakowsky

Thesis Title: *'Evaluating normative aspects of decision-making schemes for resource allocation in healthcare'*

Supervisors: **Mandy Ryan** (HERU) and Vikki Entwistle (National University of Singapore).

Emma Tassie

Thesis Title: *'Incorporating broader measures of value into economic evaluation through the use of existing data'*

Supervisors: **Verity Watson**, **Graham Scotland** and **Stirling Bryan** (HERU).

Uma Thomas

Thesis Title: *'Using insights into time preference and present bias to develop an intervention to improve adherence to exercise'*

Supervisors: **Marjon van der Pol** (HERU) and Julia Allan (Health Psychology, University of Aberdeen).

Xuemin Zhu[#]

Thesis Title: *'The role of the physician's risk and time preferences and personality in clinical decision making'*

Supervisors: **Marjon van der Pol** (HERU), Anthony Scott (University of Melbourne) and Julia Allan (Health Psychology, University of Aberdeen).

[#]denotes PhD commenced in 2018





Workforce and
Organisation of Care



Health Behaviour



Assessment of
Technologies



Methods of
Benefit Valuation



Our Research: Workforce and Organisation of Care

Theme Leader: Dr Diane Skåtun



Diane Skåtun
Theme Leader

The Workforce and Organisation of Care theme aims to further our understanding of individual and organisational behaviour within the healthcare sector. With increasing demands on health services, it is becoming ever more important to consider the role of the healthcare workforce as a vital resource within the healthcare system. The theme

examines the role of financial and non-financial incentives on both individuals and the organisational structure in which they operate. The theme's objective is to improve the evidence-base for policy making through analysis of these factors.



2018 saw the continuation of research to understand the drivers of behaviour of the healthcare workforce. With workforce shortages being an increasing concern there is interest in identifying and understanding better the push-pull factors related to the intention to retire of key healthcare occupational

groups. Research is ongoing in a project that considers 'What keeps doctors practising? A Discrete Choice Experiment to determine which factors influence doctors' retirement decisions and the relative importance of each influencing factor'. This project is funded by the University of Aberdeen Development Trust and the distribution of the survey will be facilitated by the British Medical Association and NHS Education for Scotland. The project continues HERU's collaboration with Professor Jen Cleland of the Centre for Healthcare Education Research and Innovation (CHERI) at the University of Aberdeen and Terry Porteous (CHERI) along with **Diane Skåtun** and **Mandy Ryan**. **Zoé Ejebu** has recently joined the project having completed her Post-doctoral Fellowship in 2018 that considered the 'Impact of working conditions on absenteeism in the public healthcare sector'.

Further collaboration with CHERI saw Gillian Scanlon, a PhD student jointly supervised by Professor Jen Cleland and **Diane Skåtun**, submit her PhD thesis, 'A mixed-methods study of career decision making in Foundation Programme doctors'. As part of her thesis Gillian undertook two large-scale Discrete Choice Experiments of 2nd year Foundation doctors relating to their ongoing training decisions with the support of NHS Education Scotland and their counterparts in England.

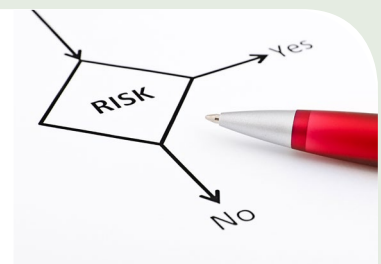
Marjon van der Pol continued her research on time preference, applying this to the healthcare workforce (see below). This includes a new PhD project that sees a welcome return to HERU by **Xuemin Zhu** who, as part of her MSc in Health Economics at the University of York, undertook her MSc dissertation in the summer of 2017 in HERU.

The role of time and risk preferences in doctor behaviour

Time preferences (how future or present oriented an individual is) and risk preferences (how sensitive an individual is to risk) are key parameters in economic models determining decisions that have uncertain outcomes over time. These preferences are highly relevant in the context of the decisions that doctors make including both clinical and career decisions. For example, the use of diagnostic tests represents a trade-off between the costs of these tests and a reduced risk of misdiagnosis. Doctors who are risk averse are more likely to order diagnostic tests for their patients as they would value the reduced risk more highly compared to doctors who are risk seeking.

2018 saw the completion of a project by **Marjon van der Pol** and **Alastair Irvine**, in collaboration with Professor Anthony Scott at the University of Melbourne that examined 'Risk preferences and GP migration'. Migration is fundamentally a risky decision that balances the risks of staying with the risks associated with leaving and, therefore, risk preferences may play a role. To better understand migration decisions we compared risk preferences (for financial, career and clinical risks) of GPs who qualified in the UK and migrated to Australia with those who are currently practising in Scotland.

Research in this area will continue with a new PhD student who started in March 2018. **Xuemin Zhu** will explore 'The role of risk preferences and time preferences and personality in clinical decision making' and will examine how stable risk preferences are in doctors. The supervisory team also includes expertise in health psychology (Dr Julia Allan) recognising that this research is at the intersection between economics and psychology.



2018 also saw the start of new research led by **Verity Watson** which relates to the organisation of general practice. This new body of research is considering the issue of business risk within general practice and also investigates the location of GP practices and continues our collaboration with the University of Aberdeen Business School (see box left).

Organisation of General Practice

General practices are traditionally small businesses that are run independently from the NHS. The practice is owned by a single General Practitioner (GP) or a partnership of GPs. Practice partners are responsible for all business elements and are therefore exposed to business risk. This (small) business model of general practice is under substantial pressure. **Verity Watson** together with Rainer Schulz (University of Aberdeen Business School), Heather Dickey (Queen's Management School), Joan MacLeod (Aberdeen City Health and Social Care Partnership) and Peter Murchie (Academic Primary Care) are using qualitative research methods to explore how business risk affects general practitioners.

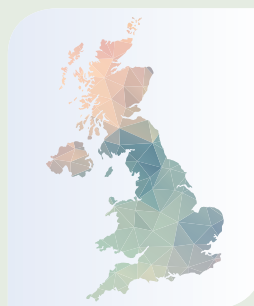
As independent small businesses, GPs have some control about where they locate. Government and local health boards can intervene and provide practices in underserved areas. Nevertheless, there is a perception of geographic disparity in access to general practice care and it is important to understand what influences the location choices of GPs who are independent contractors. **Verity Watson** along with Rainer Schulz (University of Aberdeen Business School), Mélanie Antunes and Yann Videau (Université Paris-Est Créteil) are analysing *'The location choices of General Practice in Scotland'*. The project maps the location of all GP practices with General Medical Services (GMS) contracts in Scotland and tests if practices locate in a way that is consistent with economic location theory. Specifically, the study investigates the role of population size and composition on GP location. Furthermore, the study considers the role of characteristics that affect a location's attractiveness on GPs' decisions to own and run a practice in that location.



Another new project, started in 2018, focuses on doctor behaviour in relation to their use of Decision Aids, a tool to help doctors and patients make shared decisions. However, the design of such aids necessarily leaves out some aspects of treatment that will be relevant to particular proportions of the population. Excluded attributes, or other question biases such as complex probabilities, could bias the prediction of a Decision Aid and this is considered in the project *'Developing economic experiments to understand doctor behaviour'*, with **Alastair Irvine, Verity Watson and Marjon van der Pol**, along with former HERU PhD student Dean Regier now of the University of British Columbia.

HERU has undertaken research over the past decade that has considered how local labour markets impact on the NHS. This research has impacted on the funding formulas of the NHS in England with respect to both the commissioning and providing of healthcare across different geographical locations.

Diane Skåtun was invited to present this work and its use of the UK Data Service Secure Lab for its data requirements at a workshop organised by the UK Data Service, in conjunction



with the Economic and Social Research Council (ESRC). 2018 saw the continuation of a project that has built on this work and is investigating *'Changes in spatial wage differences in the UK and the implications for healthcare funding in the period since the global financial crisis'* with **Bob Elliott, Daniel Kopasker and Diane Skåtun**.

Research continued on issues relating to the integration of health and social care. Two important dimensions within the integration of health and social care relate to preventative and anticipatory care along with more care and support at home. In 2018, data analysis was undertaken by **Attakrit Leckcivilize and Paul McNamee**, with collaborators at NHS Lothian, to evaluate the NHS Lothian high demand service. **Kevin Momanyi** submitted his PhD thesis relating to his research on *'Enhancing the quality of social care through economic analyses'*. This Scottish Government/ESRC funded PhD seeks to strengthen the evidence-base regarding two quality improvement initiatives in home care, specifically, the provision of re-ablement and telecare.

Further detail on the theme's research can be found at www.abdn.ac.uk/heru/research/worgc/.



Our Research: Health Behaviour

Theme Leader: Professor Paul McNamee



Paul McNamee
Theme Leader

The Health Behaviour theme aims to enhance understanding of health behaviour (principally alcohol consumption, physical activity and dietary choice) 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 in terms of evaluation of their effect on costs

and outcomes. We also consider wider determinants of health besides health behaviour, such as education and working conditions.



This year was mainly focused on continuation and delivery of existing research projects. An exception is the 'ActWELL' project, which formally commenced in 2018. This is a Scottish Government funded study aiming to assess the effectiveness of a personalised weight management programme in women aged between 50-74 years of age attending routine breast cancer clinics and who are overweight or obese. The programme is a national collaboration between charities, the NHS, local authorities and academic partners, and builds on existing behaviour change models that focus on motivation, capability and opportunity. Data collection is ongoing and the project will deliver findings in 2020.

At the end of the year we began a new collaboration with the University of Iceland, focused on examining the influence of health behaviour on subjective well-being and life satisfaction, and assessing the feasibility of deriving implied monetary values for selected behaviours (e.g. excess alcohol consumption). This complements existing work with the University of Wollongong, Australia, on studying the links between the health conditions and life satisfaction of different individuals within households.

Research into time and risk preferences is an enduring interest within the theme, with **Marjon van der Pol** now undertaking research using new data from the 'Healthy Ageing in Scotland' (HAGIS) study, a pilot longitudinal survey of people aged 50 and over in Scotland. Along with collaborators from the University of Edinburgh, Marjon is researching the role of cognitive ability and 'noise' in the measurement of time and risk preferences. She is also involved in research exploring the role of time and risk preferences, cognitive ability, personality and health literacy in the uptake of bowel cancer screening using the HAGIS data. In addition, an overview of the literature on time preferences for health along with the outstanding research questions was written for the *Oxford Research Encyclopaedia of Economics and Finance* with **Alastair Irvine**.

Continuing progress was made in our collaborative research programme with the Rowett Institute at the University of Aberdeen. Cross sectional analysis, to examine the association between the characteristics of parents, households and children's diet quality, using Scottish Health Survey data, has now been completed. Panel data analysis, using the Growing Up in Scotland dataset, is about to commence and will look at the extent to which influences already identified in the cross-sectional analysis can be causally linked to children's diet, particularly snacking behaviour. **Patricia Norwood** is also looking at how people think about food choices and nutritional information, using Q-methodology. Data collection was completed in 2018 and data analysis will take place in the coming year.



The NIHR funded 'Games of Stones' study led by the University of Stirling was completed in 2018. This 'Feasibility study of how to best engage obese men in narrative SMS and incentive interventions for weight loss, to inform a future effectiveness and cost-effectiveness trial' examined two intervention components to help men lose weight and maintain weight loss, namely narrative text messaging and financial incentives. The financial incentives were designed using behavioural economics and a survey of participants' preferences.



Marjon van der Pol was invited to present this work at the ESRC Workshop on the Economics of Health Behaviours and Health Information. As well as intervention development, the study also tested the feasibility of a three arm randomised controlled trial (waiting list; narrative text messaging; narrative text messaging and financial incentives). The NIHR report will be published in 2019.

2018 saw new research commence by **Yu Aoki** on 'Childhood obesity and academic performance'. Child obesity is currently a serious public health concern in the UK. This project aims to explore effective policies to tackle child obesity and to improve academic performance of children by empirically analysing the impact of child obesity on academic performance using a large British administrative dataset. **Attakrit Leckcivilize** and **Paul McNamee** continued their research on 'Retirement, health behaviour, health and well-being' and **Daniel Kopasker** progressed with his Elizabeth Russell Career Development Fellowship on 'The effects of economic insecurity on physical and mental health' (see box below for further information on Daniel's current research).

Insecure lock-in: the mental health effects of prolonged insecure employment

Daniel Kopasker

It is known that perceived insecurity is a key aspect of job quality influencing employees' mental health. Insecure employment has been consistently shown to have a significant adverse effect on mental health, particularly for males. One feature of the evolving nature of contractual arrangements is that a considerable number of employees become locked-in to a series of insecure employment contracts. Using data from the British Household Panel Survey (BHPS), this project examines the mental health effects of this prolonged exposure to insecure employment and attempts to value the economic cost of population mental health issues resulting from modern employment relationships.

We were delighted that **Zoé Ejebu** was a member of the team that won first prize at the UK Research and Innovation (UKRI) Biotechnology and Biological Sciences Research Council (BBSRC) Policy Lab. This has led to research being taken forward in the form of an umbrella review on 'Low-agency population interventions to reduce meat consumption in the UK'.

Paul McNamee was invited to a Digital Health Workshop in London by NICE, who are developing an evidence standard framework for digital health technologies. He was also appointed to a short life working group convened by NHS Health Scotland, set up to advise the Scottish Government on future marketing and restriction of promotions for discretionary high-fat high-sugar foods. Further policy engagement took place through membership of the international Health Economics Association (iHEA) Special Interest Group (SIG) on obesity, where we responded to the Scottish Government consultation on 'actions and ambitions on diet, activity and healthy weight', and to the UK All Party Parliamentary Group inquiry into UK obesity services.

Following the introduction of minimum unit pricing for alcohol in May, it was timely to see research on the project 'Modelling purchasing behaviour for alcohol' published by **Zoé Ejebu, Lynda McKenzie** and **Anne Ludbrook** with a paper entitled 'Household purchasing of cheap alcohol: who would be most affected by Minimum Unit Pricing?'. HERU will continue working in this area by contributing to a programme of research being coordinated by NHS Health Scotland.



Finally, turning to our PhD students, Laura Dysart, **Alastair Irvine** and Liam Mc Morrow successfully submitted their theses and have now been awarded their doctoral degrees. We warmly congratulate them on this great achievement.

Uma Thomas is mid-way through her studies and continues to make good progress. Her research is focused on developing a physical activity intervention and has now entered the pilot testing phase. The intervention attempts to motivate forward thinking by encouraging individuals to consider their future selves following the consequences of physical inactivity.

Further detail on the theme's research can be found at www.abdn.ac.uk/heru/research/hbi/.



Our Research: Assessment of Technologies

Theme Leader: Dr Graham Scotland



Graham Scotland
Theme Leader

The Assessment of Technologies (AoT) theme aims to apply and develop economic evaluation methods to support decision making across the life course of health technologies, 'Technology Management'. 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 focuses on 'Broader measurement of value' in economic evaluation.

Technology Management

It has been a busy year with respect to our trial portfolio, with several evaluations based on large randomised controlled trials (RCT) reporting. The five-year follow-up of the 'CLASS' trial, comparing different treatment modalities for patients with varicose veins, was submitted for publication in 2018. In the area of women's health, four National Institute for Health Research (NIHR) funded trials also completed in 2018 with reports submitted to the funder and publication anticipated in 2019 and a further two NIHR trials completed follow-up in 2018 with reports in preparation for submission in 2019 (see below).

NIHR Funded Trials

- GOT-IT:** A pragmatic, adaptive, sequential, placebo controlled randomised trial to determine the effectiveness of glycerine triturate for retained placenta.
- HEALTH:** Hysterectomy or Endometrial Ablation Trial for heavy menstrual bleeding
- VUE:** Vault or Uterine prolapse surgery Evaluation.
- OPAL:** Optimal PFMT (pelvic floor muscle training) for Adherence Long-term.
- INTERVAL:** Investigation of NICE Technologies for Enabling Risk-Variable-Adjusted-Length dental recalls trial (in preparation)
- TISU:** Therapeutic Interventions for Stones of the Ureter (in preparation)

In addition to the NIHR Health Technology Assessment (HTA) trials, the theme was involved in a pilot RCT testing 'Vitamin K supplementation to reduce falls in older people'. The K-SWAY trial, funded by the CSO, reported in December 2018 and will be useful for informing the potential value of a future definitive trial. And as several large RCTs come to close, we are pleased to announce that the theme will be leading the health economics on a new *CATHETER II* (CompAring THE clinical and cost-Effectiveness of vaRious washout policies versus no washout policy in preventing catheter associated complications in adults living with long-term catheters) trial that was awarded NIHR funding in 2018.

The AoT theme continues to play an important role in the University of Aberdeen's Technology Assessment Reviews (TAR) contract. In the past year the National Institute for Health and Care Excellence (NICE) has published Technology Appraisal [TA] guidance on the use of two new technologies in the NHS in England, for which researchers in the theme critiqued the economic evidence and model. AoT researchers also contributed to four further technology appraisals, on which NICE are expected to publish guidance in 2019 (see box below).

Technology Assessment Reviews

- Padeliporfin for untreated localised prostate cancer [TA546]
- Dupilumab for treating moderate to severe atopic dermatitis [TA534]
- Teduglutide for treating short bowel syndrome [GID-TA10048]
- Inotersen for treating hereditary transthyretin-related amyloidosis [GID-HST10013]
- Lanadelumab for preventing recurrent attacks of hereditary angioedema [GID-TA10333]
- Risankizumab for treating moderate to severe plaque psoriasis [GID-TA10349]

The final report for a NIHR funded evidence synthesis project in the area of dental care was also submitted in late 2018 and is currently under review. The 'Oral splints for orofacial symptoms: an evidence synthesis' study, assessed the clinical and cost-effectiveness of oral splints for patients with A) temporomandibular disease (TMD) and B) Bruxism.

Finally, with respect to new evidence synthesis projects, researchers in the AoT theme are part of a new research consortium that was successful in securing NIHR funding for a review and economic model to assess the clinical effectiveness,

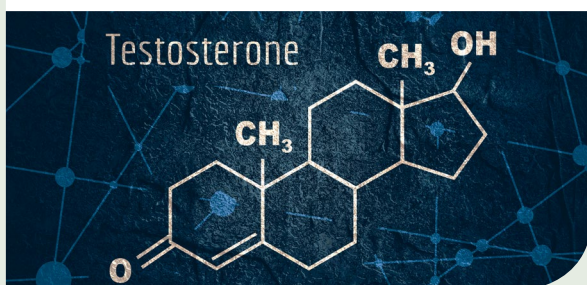
safety and cost effectiveness of testosterone replacement therapy in men with low testosterone levels. The 'TestES' (Testosterone Effects and Safety) study will include a meta-analysis of individual patient data from several RCTs to inform an economic model (see box below).

Testosterone Effects and Safety in Men with Low Testosterone levels (TestES Consortium)

Approximately 30% of men aged 40-79 years have low levels of circulating testosterone, the major male sex hormone produced in the testes. Several good quality trials have investigated the clinical benefits and risks of androgen replacement therapy (ART) in men with symptomatic low testosterone. Accordingly, prescriptions for ART have doubled, and prescription costs have increased eight-fold since 2001, without any increase in the prevalence of testosterone deficiency syndrome. Potential benefits of ART include improved physical energy levels, sex drive and mood. However, questions have been raised about the safety of ART, particularly in middle aged and elderly men, with possible side effects including increased risks of cardiovascular disease and prostate cancer. Consequently, significant uncertainty remains about the appropriateness of ART prescribing in different patient groups.

In 2018, the National Institute for Health Research (NIHR) commissioned and funded this consortium to systematically review the literature on the use of ART in symptomatic men with testosterone deficiency. The overarching aim of the project is to integrate the current quantitative, qualitative and economic evidence for the use of ART in symptomatic men with testosterone deficiency syndrome.

Results of this evidence synthesis and economic evaluation will provide clinicians and men with updated, personally relevant information on which to form their evidence-based decisions and, therefore, are likely to impact on current clinical practice, both at national and international level.



Broader Measures of Value

The themes' interest in methods for incorporating broader measures of value in economic evaluation continued in 2018 with **Divya Mohan** joining HERU to undertake a PhD exploring the potential value of incorporating preference heterogeneity in economic evaluation. This project is being undertaken to better inform a more personalised approach to care, which is being advocated in Scotland and by governments and health systems around the world. Standard economic evaluation methods tend to focus on the costs and benefits of alternative treatments using a measure of benefit that reflects population-averaged preferences for health outcomes. This thesis will investigate the effect of incorporating preference heterogeneity into the economic evaluation of healthcare interventions, and to see how policy recommendations might differ from those based on traditional evaluation methods.

The theme is also continuing to engage in a range of projects which utilise DCEs to incorporate broader measures of value in economic evaluations of technologies where QALYs have limitations. In the INTERVAL trial, which is due to report early in 2019, a DCE is being used to elicit willingness to pay for experience factors and dental health outcomes associated with different dental recall strategies.



Further examples of where we are exploring the use of DCEs to value outcomes in economic evaluation include: the eFREEZE trial, 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; and the SIMS trial which is comparing adjustable anchored single-incision mini-slings versus standard tension-free mid-urethral slings in the surgical management of female stress urinary incontinence.

Further detail on the theme's research can be found at www.abdn.ac.uk/heru/research/assessment-of-technologies/.



Our Research: Methods of Benefit Valuation

Theme Leader: Dr Verity Watson



Verity Watson
Theme Leader

The Methods of Benefit Valuation theme develops, refines and applies *economic* methods to value health and care. Our work aims to understand what people want, and in doing so helps to inform the delivery of person-centred care. We also undertake methodological research to improve valuation methods.

In 2018, we completed an NIHR funded project with the University of Warwick, which used discrete choice experiments to understand consultant's referrals to ICUs <https://warwick.ac.uk/fac/med/research/hscience/sssh/research/intensive/>. NHS intensive care bed capacity is limited. Little is known about how clinicians decide to admit a patient to an Intensive Care Unit (ICU). We developed a decision-making simulator that consultants can use to observe how their probability of admitting a given patient is influenced by changes in the patient's profile. Consultants can find out the preference pattern group they are most likely to belong to. Our research increases the transparency of ICU referral decisions by highlighting the patient factors which have been considered. In doing so our research could reduce variability and potential inequity for patients. The NIHR report will be available in 2019.



Pharmacists in the UK now spend more time in patient-facing roles. Pharmacists prescribe medications, provide formal self-care support, and undertake medication reviews. In this setting, shared decision making between pharmacists and patients become more important. Funded by Pharmacy Research UK (PRUK), we began a research project for *'Improving the patient-pharmacist interaction: a new approach to help patients make informed decisions'* (see box below).

Prostate cancer affects 1 in 10 men. Men with localised prostate cancer can choose between several treatment options each with different risks and side effects. There is no best treatment. In 2018 we completed research on men's preferences for localised prostate cancer treatment. We surveyed over 600 patients who had been recently diagnosed with localised prostate cancer. We found that whilst patients prioritised survival they were willing to trade survival for improved urinary and erectile function. The results were presented at the National Cancer Research Institute conference in Glasgow.

We began a new project, funded by the Breast Cancer Institute Fund, and conducted in collaboration with the University of Edinburgh, researching women's preferences for treatment following an advanced breast cancer diagnosis. Such a diagnosis is accompanied by a potentially overwhelming amount of information about different treatment options. It is important that clinical teams help patients to understand what matters most to them. Our project *'Supporting shared decision making in advanced breast*



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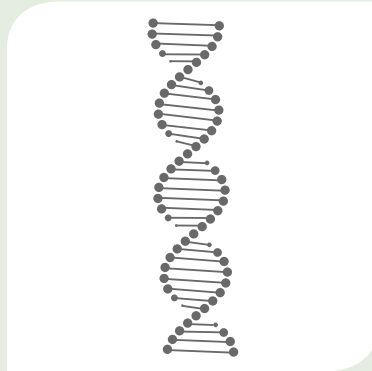
Helping patients decide: using discrete choice experiments to develop a decision-aid tool

Mandy Ryan and Nicolas Krucien

This two year project in collaboration with Dr Gin Nie Chua (formerly HERU), Dr Rosalind Adam, Professor Christine Bond, Professor Peter Murchie (Primary Care) and Dr Terry Porteous (CHERI) will use discrete choice experiments to develop the Decision Aid Tool (DAT). The study will be conducted in the context of managing chronic pain in pharmacy. Responses gathered from the DCE will be analysed in real time so that personalised information about patients' preferences can be used by patients and pharmacist during a consultation. If successful, the application of the DAT will be explored in a number of other clinical areas to help patients make more informed decisions.

cancer: what matters to patients in an era of personalised care, explores women's preferences for treatment options following a diagnosis of advanced breast cancer and will be informed by Public and Clinical Engagement (PACE) statements made to the Scottish Medicines Consortium. The study will help to improve shared decision-making, patient information sheets and decision aids for advanced breast cancer.

Rare diseases are complex and affect patients' quantity and quality of life. The typical journey to diagnosis, often referred to as a 'diagnostic odyssey', can take many years, often involving numerous



hospital visits, costly and invasive tests, several misdiagnoses, and shattered hopes and expectations. Whole exome/ genome sequencing (WES/WGS) may make diagnosis quicker and more accurate. However, there is limited evidence on the value of WES/WGS compared to other diagnostic tools. Health economists have questioned the usefulness of the Quality Adjusted Life Year (QALY) as a measure of value for genetic testing because it does not take patients' diagnostic odyssey into account. As part of our Scottish Genomics Partnership funded project '*Valuing whole genome sequencing to improve diagnosis of rare disorders: a health economic perspective*', we interviewed patients who are part of the Scottish Genomics Partnership and found they value: the chance of obtaining a diagnosis; length of time to get results; additional health-

related information from genome sequencing (incidental findings); health-related information for other family members; and contribution to future research from having the test. 2018 saw **Blanca Moran** join **Mandy Ryan** and **Lynda McKenzie** as part of the HERU team on this project.

The theme also applies economic valuation methods in new ways or to new research areas. A new project for 2018 welcomed **Luis Loría** who took up a position of Research Fellow researching '*Estimating preferences for air quality improvements*' which considers the use of house prices to value reductions in air pollution.

We have a vibrant research culture and PhD students play an important part through their innovative research. In January we welcomed **Divya Mohan**. Divya's PhD is titled '*Informing realistic medicine: can economic evaluations account for heterogeneity in care preferences?*' This is joint research with the Assessment of Technologies theme, and is funded by the Roy Weir PhD Studentship. **Gin Nie Chua** and **Luis Loría** were awarded their PhDs, and **Dwayne Boyers** defended his PhD (with minor corrections) see box below.

In November we ran our annual three-day DCE course in Aberdeen. We continued to update the course to present new case studies and integrate computer-based group work sessions. Our 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: www.abdn.ac.uk/heru/heruevents/statedpref/.

Further detail on the theme's research can be found at www.abdn.ac.uk/heru/research/methods.

External validity of Discrete Choice Experiments: an application to the valuation of dental care

Dwayne Boyers

Discrete Choice Experiments (DCEs) assume that respondents to surveys reveal their true preferences. Despite the widespread use of DCEs in health economics, little is known about the reliability of DCE responses and if reliability can be improved.

This PhD thesis, supervised by **Marjon van der Pol** and **Verity Watson**, investigated the reliability of DCEs in two studies of general population preferences for preventative dental care services (scale and polish and check-up frequency). The thesis then tested if ex-ante interventions before the DCE is completed, or ex-post corrections after the DCE, can increase reliability.

The DCE results were fairly reliable – there were small differences between DCE responses and real behaviour. Ex-ante interventions may improve reliability. Ex-post corrections reduced the validity of the DCE results and reduced reliability. Preventing hypothetical bias *a priori* with ex-ante interventions is preferable to trying to remedy it after the fact with ex-post corrections.



Policy Engagement

In 2018 HERU staff attended and contributed to a number of policy engagement events. Below are some highlights:

The University of Aberdeen in a Post-Brexit World

Hosted by Kirsty Blackman, Aberdeen North MP, a delegation from the University of Aberdeen attended the House of Commons to highlight the importance of our world leading research in a post-Brexit world. Hot off the heels of celebrating the Queen's Anniversary Prize at Buckingham Palace, Professors **Mandy Ryan** and Craig Ramsay (Director, HSRU) attended this Westminster event in February, highlighting the ways that the work of the units has changed millions of lives all over the world.



HIS, HERU, HSRU and NMAHP-RU co-sponsored 6th Annual Research Symposium

Our annual symposium in April, organised in collaboration with Health Improvement Scotland (HIS), the Health Services Research Unit (HSRU) and the Nursing, Midwifery and Allied Health Professions Research Unit (NMAHP-RU), focused on 'Evidence for integration: what can research tell us about health and social care integration and its role in improving outcomes?'. Research undertaken by **Paul McNamee** and **Attakrit Leckcivilize** and collaborators at NHS Lothian was presented, and **Mandy Ryan** chaired the afternoon session.



NHS Scotland Event

Patrícia Norwood and **Rodolfo Hernández** attended the annual NHS Scotland Event. This event provides the opportunity for those working in and with the NHS in Scotland to share best practice and the most innovative approaches to delivering the highest quality of care, and to take away tools and techniques that will support them in their various roles. When not attending sessions Patrícia and Rodolfo staffed the HERU stand, providing information on HERU's research and teaching activities.

Rodolfo Hernández at the HERU stand for the 'NHS Scotland Event, 2018' in Glasgow





NHS Research Scotland Conference

Shelley Farrar, Dwayne Boyers, Nicolas Krucien, Zoé Ejebu and Shona Christie attended the NHS Research Scotland Conference in October. This year's conference focused on the 'NHS at 70: the impact of research then, now and in the future'. The conference was well attended and the HERU contingent enjoyed attending sessions and welcoming delegates to discuss health economics at our HERU stand.

Public Engagement

Engaging with the public is of increasing strategic importance for higher education, to strengthen relevance, responsiveness and accountability and to build trust. We have always placed people at the heart of our research and public engagement offers an opportunity to share our research with the public and allow the public to help shape research agendas.

Zoé Ejebu contributed to the British Science Week in March, giving a talk to primary school pupils about a career as a Health Economist. In November she took part in a 'People like me' session in Hazlehead Academy.



For the May Festival, **Alastair Irvine** entered the 'Aberdeen University's got talent' competition where he gave a 3 minute presentation on his PhD thesis 'The role of time preference in the medical decision making context'.



In September a Café Med event took place in the Town House, Aberdeen on the subject of 'See Cancer'. The event looked at how the University of Aberdeen plans for a world-class centre for cancer research are taking shape. It was led by Professor Steve Heys (Head of School of Medicine, Medical Sciences and Nutrition), Professor Valerie Spiers (Chair in Molecular Oncology) and **Mandy Ryan**. Many members of the public, researchers and clinicians attended and heard about the developments in cancer research, the fundraising campaign and the potential for future trials and cutting-edge treatments.

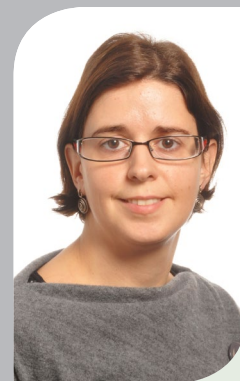


In November, **Mandy Ryan** and Craig Ramsay (Director of HSRU) took part in a Café MED to celebrate the award of the Queen's Anniversary Prize and led a discussion on how the research conducted at HERU and HSRU has changed healthcare over the last 40 years, and outlined the challenges for the next 40.

Patrícia Norwood (below) and **Alastair Irvine** took part in the Engage 2018 conference in Edinburgh where they were selected to organise an 'Encounter' around the role of health economics in healthcare decision making.



We congratulated **Patrícia Norwood**, HERU lead for public engagement, who was successful in her application to take part in the Engage Researchers Academy. This is a new initiative from the National Coordinating Centre for Public Engagement. It consists of a year-long professional development programme for researchers with a passion for public engagement. The programme creates a challenging but supportive environment to reflect upon what it means to be an engaged researcher, and to explore the quality and value of engagement. It also supports participants to develop the skills and experience to work with others and improve the impact and relevance of their research.



You will find more information on our public engagement activities on our website www.abdn.ac.uk/heru/engagement.

One of HERU's priorities is building capacity in health economics. We have a comprehensive strategy in place for both specialist training in health economics and improving economics literacy in health professionals. A detailed overview of our capacity building activities can be found here www.abdn.ac.uk/heru/courses/.

Capacity building highlights in 2018 include:

Successful first year of our new online MSc/ Postgraduate Diploma/Postgraduate Certificate in Health Economics for Health Professionals

We launched our new online MSc in *Health Economics for Health Professionals* in September 2017 and ran a very successful first year of the programme. The programme builds on almost 40 years of experience providing our *Postgraduate Certificate in Health Economics* and offers students a new opportunity to extend their studies to Diploma and MSc level. Students can now also take a course in the economics of health behaviours and can conduct a dissertation supervised by HERU staff. In total, 41 students were enrolled onto the course in the first year. We welcomed 32 new students in September 2018.

The new programme is aimed at health professionals, and other interested students, who would like to improve their understanding of health economics and who are unable to study full-time and/or want to avoid relocating. No experience of economics is necessary to undertake the course. Further details are available at: www.abdn.ac.uk/heru/courses/pgcert/.



Successful completion of Action Learning Sets

During 2018, as part of work commissioned by the Health Economics Network for Scotland (HENS), HERU completed a health economics 'Action Learning Set' (ALS) with members of the Prescribing Quality & Efficiency (PQE) Programme in NHS Lanarkshire. Action Learning allows individuals to

focus on priority issues and openly reflect on their experiences with a view to taking subsequent action. The specific aims of the ALS were to conduct analytical work to understand the sources of variation in chronic pain prescribing (specifically analgesia and opioid prescribing) volume and costs between localities within NHS Lanarkshire, and from there, to identify policies that could be implemented to reduce the level of variation observed. A final report with recommendations was produced for the PQE Programme, and more widely, the ALS approach is being independently evaluated, to assess the potential usefulness of the approach for other Boards.



PhD Highlights

2018 was a busy year in terms of our HERU PhD students. Three students submitted and graduated in 2018:



Luis Loria. Luis' thesis investigated preferences for emission reductions in buses (elicited using Discrete Choice Experiments) using the Aberdeen Hydrogen Bus Project as a case study (Supervisors: Takahiko Kiso (Business School), Euan Phimister (Business School), **Verity Watson**)

Alastair Irvine. Alastair's thesis investigated the role of time preference in non-adherence within the patient-doctor interaction (Supervisors: **Marjon van der Pol** and Euan Phimister (Business School))



Laura Dysart. Laura's thesis investigated the role of the future in health behaviours in individuals with chronic health conditions (Supervisors: **Paul McNamee** and **Marjon van der Pol**)

Dwayne Boyers, Kevin Momanyi and Gillian Scanlon also submitted their PhD theses in 2018 and two further students, Liam Mc Morrow and Gin Nie Chua (right), graduated.



PhDs are very much a first step within an academic career and we support our students through the next stages of their career. Luis and Alastair are both working as Research Fellows in HERU and **Dwayne Boyers** continues in his position as a Research Fellow in HERU. Liam is working as a researcher in the Health Economics Research Centre (HERC) at the University of Oxford and Gin Nie has taken up a post at Evidera.



We welcomed two new PhD students to HERU in 2018: **Divya Mohan** (left) and **Xuemin Zhu** (right). Divya's PhD explores if preference heterogeneity can be incorporated into the economic evaluation of healthcare interventions, and how resulting policy recommendations may differ from those based on traditional evaluation methods. She has been awarded the Roy Weir PhD Studentship funded through donations from the late Roy Weir who was instrumental in the creation of HERU. Divya's PhD is supervised by **Graham Scotland**, Sebastian Heidenreich (Evidera and HERU) and Craig Ramsay (HSRU). Xuemin's



PhD focuses on the role of risk preferences and personality in clinical decision making and is funded through an Elphinstone Scholarship. Xuemin's PhD is supervised by **Marjon van der Pol** (HERU), Anthony Scott (University of Melbourne/HERU) and Julia Allan (Health Psychology).

We were also successful in obtaining two PhD scholarships in health economics as part of the Aberdeen-Curtin Alliance. The Aberdeen-Curtin Alliance combines 500 years of academic strength, history and tradition at Scotland's University of Aberdeen with the ambition and innovation of the rapidly growing Curtin University, based in Perth, Western Australia. The two studentships will be jointly supervised by HERU and Curtin and students will spend time at both institutions.

A large cohort of interns

During the summer of 2018 we welcomed a large cohort of student interns. This is our 10th year of our internship scheme. Internships are key to stimulating interest in health economics and health economics research amongst economics students. Internships give a taste of health economics research with interns working for six weeks alongside staff and students in HERU.



In addition to the three interns who were part of our usual scheme Iva Parvanova, Amalia Pape and Gerry McQuade (above) we also welcomed three interns (left) from the University of Paris-Est Creteil (UPEC) in France. Sara Rahmon and Darina Proshenska spent two and a half months in HERU as part of their first year of their MSc and Mélanie Antunes spent six months in HERU as part of her second year of her MSc.



Development of a new online course in health economics

In 2018 we developed a new 15 credit online course in health economics. This course introduces students to the key concepts in health economics. No experience of economics is necessary to undertake the course which is also offered as a stand-alone Continued Professional Development (CPD) course. Contact **Rodolfo Hernández** (r.hernandez@abdn.ac.uk) for further information.

Workshops and Training

HERU also run workshops and training events:



HERU Discrete Choice Experiment Course: 'Using Discrete Choice Experiments (DCE) in health economics: theoretical and practical issues'

HERU's three-day *Using Discrete Choice Experiments in Health Economics Course* provides background information about the theoretical basis for, development and application of, DCEs in health economics; gives hands on experience of the design, data input, analysis and interpretation of DCEs; and provides an update on the methodological issues raised in the application of DCEs. Twenty four delegates attended the Aberdeen course in November 2018.

Using Health Economics Evidence in Health Care Decision Making

This workshop provides an introduction to the identification, appraisal and application of economic evaluation for policy-making in healthcare. The workshop is suitable for planners, finance directors and other health and social care staff who manage budgets or resources but who have no prior experience in economic evaluation. The workshop was previously ran on behalf of the Health Economics Network for Scotland (HENS) and is now offered by HERU. Fourteen delegates attended the workshop in November 2018.



More details of these training events can be found at www.abdn.ac.uk/heru/courses/.

Projects In-Progress and Completed in 2018

* Denotes projects started in 2018

Workforce and Organisation of Care

Changes in spatial wage differences in the UK and the implications for healthcare funding in the period since the global financial crisis

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

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

***Developing economic experiments to understand doctor behaviour**

Investigators: Irvine, A., Watson, V., Pol, M. van der (HERU); Regier, D. (The University of British Columbia).

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

Enhancing quality in social care through economic analysis (PhD)

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.

Health economic evaluation of the Lothian high demand service

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

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

Impact of job satisfaction, mental health and absenteeism in the public sector (HERU Post-Doctoral Fellowship)

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

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

***The location choices of general practice in Scotland**

Investigators: Watson, V. (HERU); Schulz, R. (University of Aberdeen Business School); Antunes, M. (Université Paris-Est Créteil); Videau, Y. (Université Paris-Est Créteil).

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

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

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.



Risk preferences and GP migration

Investigators: Pol, M. van der, Irvine, A. (HERU); Scott, A. (University of Melbourne); Bezannier, O. (Université Paris-Est Créteil).

Source of Funding: University of Aberdeen.

The role of pay competitiveness and nurse agency staffing

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

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

***The role of risk and time preferences and personality in clinical decision making (PhD)**

Investigators: Zhu, X. (PhD Student), Pol, M. van der (HERU); Scott, T. (Melbourne University); Allan, J. (Health Psychology, University of Aberdeen).

Source of Funding: University of Aberdeen Elphinstone scholarship and University of Aberdeen.

Using discrete choice experiments to investigate optimal skill mix

Investigators: Porteous, T. (CHERI); 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.

What keeps doctors practising? A discrete choice experiment to determine which factors influence doctors' retirement decisions and the relative importance of each influencing factor

Investigators: Cleland, J., (CHERI, University of Aberdeen), Skåtun, D., Porteous, T., (CHERI), Ejebu, O., Ryan M. (HERU).

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

Projects In-Progress and Completed in 2018

* Denotes projects started in 2018

Health Behaviour

*Childhood obesity and academic performance

Investigators: Aoki, Y. (HERU).

Source of Funding: University of Aberdeen.

Evaluating possible intended and unintended consequences of the implementation of Minimum Unit Pricing of alcohol in Scotland: a natural experiment

Investigators: Leyland, A., Katikireddi, V. (University of Glasgow); **Ludbrook, A.** (HERU); Beeston, C., Drummond, C., Graham, L. (NHS); Eadie, D., Stead, M. (University of Stirling); Bond, L. (Victoria University).

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

A feasibility study for 'walk with ease UK' – a community-based walking programme for adults with arthritis and musculoskeletal conditions

Investigators: Martin, K. (Institute of Applied Health Sciences, University of Aberdeen); Macfarlane, G. (Epidemiology, University of Aberdeen); **McNamee, P.** (HERU); Morrison, Z., Rae, R. (AURIS Business Centre, University of Aberdeen); Smith, T. (University of East Anglia).

Source of Funding: Arthritis Research UK (ARUK).

Fibromyalgia Optimal Management in patients with Axial Spondyloarthritis (FOMAxS)

Investigators: Macfarlane, G., Martin, K. (Institute of Applied Health Sciences, University of Aberdeen); **McNamee, P.** (HERU); Lee, A. (Medical Statistics Team, University of Aberdeen); Mease, P. (Swedish Medical Centre and University of Washington Medical School); Siebert, S. (University of Glasgow); Lovell, K. (University of Manchester); Haywood, K. (University of Warwick); Packham, J. (Keele University); Roussou, E. (King George Hospital); Sengupta, R. (Royal National Hospitals for Rheumatic Diseases); Gaffney, K. (Norfolk & Norwich University Hospital); Pathan, E. (Aberdeen Royal Infirmary).

Source of Funding: Arthritis Research UK (ARUK).

Food culture and dietary choice

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

Source of Funding: Scottish Government (Rural and Environment Science and Analytical Services Division RESAS) via The Rowett Institute, University of Aberdeen (Year 1 of a 5-year programme) and Chief Scientist Office (CSO) CORE.



Insecure Lock-In: the mental health effects of prolonged insecure employment (Elizabeth Russell Career Development Post-Doctoral Fellowship)

Investigators: Kopasker, D., Pol, M. van der, Skåtun, D., **McNamee, P.** (HERU).

Source of Funding: Elizabeth Russell Career Development Fellowship.

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

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.

*Low-agency population interventions to reduce meat consumption in the UK: an umbrella review

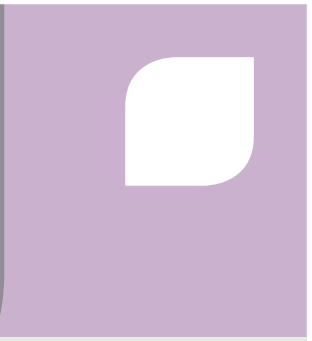
Investigators: Reynolds J, **Ejebu, O-Z.**, Clark, B., Scalco, A., Lu, F., Penney, T., Smith, A., Toumpakari, Z.

Source of Funding: Global Food Security & Chief Scientist Office (CSO) CORE.

MAintaining MusculOskeleTAl Health Study (MAMMOTH)

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.



Mental health and the PATH to 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.

A randomised control trial to assess the impact of a lifestyle intervention in women attending NHS breast screening clinics (ACTWELL)

Investigators: Anderson, A. (University of Dundee); Treweek, S. (HSRU, University of Aberdeen); Mutrie, N., McAdam, C. (University of Edinburgh); Craigie, A. (Centre for Public Health Nutrition Research); O'Carroll, R., Stead, M. (University of Stirling); Macaskill, J. (Ninewells Hospital); **Neilson, A.** (HERU); Sataar, N. (University of Glasgow).

Source of Funding: National Institute for Health Research (NIHR), Public Health Research (PHR) Programme.

Retirement, health behaviour, health and wellbeing

Investigators: **McNamee, P., Leckcivilize, A.** (HERU).

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

Time preferences and health behaviours

Investigator: **Pol, M. van der** (HERU).

Source of Funding: University of Aberdeen.

Transforming lives, empowering communities: an evaluation of Big Noise Scotland

Investigators: **Norwood, P., Ryan, M.** (HERU); Harkins, C. (Glasgow Centre for Population Health); Snodin, C., Killean, N. (Sistema Scotland).

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

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

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.

*** Willingness to pay for relief from diseases and symptoms**

Investigators: Laufey, T. (University of Iceland); **McNamee, P.** (HERU).

Source of Funding: The Icelandic Research Fund 2018.

Projects In-Progress and Completed in 2018

* Denotes projects started in 2018

Assessment of Technologies

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 (SIMS 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. (Health Services Research Unit (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.

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

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 clinical and cost-effectiveness of surgical interventions for stones in the lower pole calyces of the kidney (PUrE RCT)

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); **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.



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); 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.

***Dupilumab for treating moderate to severe atopic dermatitis after topical treatments (Single Technology Assessment)**

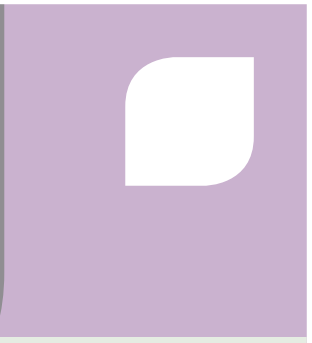
Investigators: **Scotland, G.** (HERU/HSRU); Ramsay, C., Brazzelli, M; Cummins, E; Campbell, M. (Health Services Research Unit (HSRU), University of Aberdeen).

Source of Funding: National Institute for Health Research (NIHR) (Part of the TAR contract 2016-2021) and Chief Scientist Office (CSO) CORE.

Early Detection of Neovascular Age-related macular degeneration (EDNA)

Investigators: Chakravarthy, U., Hogg, R. (Queen's University Belfast); Ramsay, C., Banister, K., Cook, J., Azuara-Blanco, A. (HSRU); **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 and Chief Scientist Office (CSO) CORE.



***Effects and Safety of Testosterone in Men with Low Testosterone levels: an evidence synthesis and economic evaluation (Testosterone Effects and Safety) Consortium (TestES)**

Investigators: Jayasena, C. (Imperial College of Science, Technology and Medicine); **Hernández, R.** (HERU); Dhilo, W. (Imperial College London); Wu, F. (University of Manchester); Bhattacharya, S., Gillies, K., Brazzelli, M., Aucott, L. (University of Aberdeen); Quinton, R. (Freeman Hospital); Oliver, N. (Imperial College London).

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

***Enzalutamide for treating non-metastatic hormone-relapsed prostate cancer (Single Technology Assessment)**

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

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

External validity of DCEs: a case study of dental care (PhD)

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

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

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 (HEALTH)

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).

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

***Incorporating Preference Heterogeneity in Economic Evaluation: Informing "Realistic Medicine" (PhD)**

Investigators: **Mohan, D.** (PhD Student, HERU); **Scotland, G.** (HERU/HSRU), Ramsay, C. (HSRU); Heidenreich, S. (Evidera).

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

***Inotersen for treating hereditary transthyretin-related amyloidosis. (Highly Specialised Technology)**

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

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

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

Investigators: Pitts, N., Clarkson, J., Bonetti, D., Freeman, R., Ricketts, D. (University of Dundee); Ramsay, C. (HSRU), 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.

***Lanadelumab for preventing recurrent attacks of hereditary angioedema (Single Technology Assessment)**

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

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

Lowering Events in Non-proliferative retinopathy in Scotland (LENS)

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.

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

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); 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.

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 (OPAL)

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); 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).

***Oral iron, Intravenous iron or discontinuation of therapy for older adults with treatment-unresponsive iron deficiency anaemia – a pilot randomised controlled trial**

Investigators: Myint, P. (Other Applied Health Sciences, University of Aberdeen); **McNamee, P.** (HERU); Witham, M., Hands, K. (Ninewells Hospital Dundee); Lee, A. (Medical Statistics, University of Aberdeen).
Source of Funding: The Scottish Government – Chief Scientist Office (CSO).

Oral splints for orofacial symptoms: an evidence synthesis

Investigators: Worthington, H., Glenny, A-M. Riley, P. (University of Manchester); **Boyers, D.** (HERU); Robertson, C. (HSRU).

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



***Padeliporfin for untreated localised prostate cancer (Single Technology Assessment)**

Investigators: Scotland, G. (HERU/HSRU); Ramsay, C., Brazzelli, M., Campbell, M. (HSRU).
Source of Funding: National Institute for Health Research (NIHR) (Part of the TAR contract 2016–2021).

A pragmatic, adaptive, sequential, placebo controlled randomised trial to determine the effectiveness of glycerine tritrate for retained placenta (Got-it-trial)

Investigators: Denison, F., Lawton, J. (University of Edinburgh); **Scotland, G.** (HERU/HSRU); Norrie, J., McPherson, G. (HSRU); 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.

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 (C-Gall)

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



A Randomised controlled trial: Evaluate the clinical and cost-effectiveness of prescribing high concentration Fluoride toothpaste in preventing and treating dental Caries in high-risk older adults (REFLeCt trial)

Investigators: Tickle, M. (University of Manchester); **Boyers, D.** (HERU); Walsh, T., Worthington, H., Glenny, A-M., Pretty, I., Birch, S. (University of Manchester); Clarkson, J. (University of Dundee).

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

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 (E-FREEZE)

Investigators: Mahashwari, A. (NHS Grampian); Macklon, N. (University of Southampton); Khalaf, Y. (Guy's and St Thomas's 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.

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

Investigators: Norrie, J., Morgan, H. (HSRU); Fielding, S., Price, D. (Other Applied Health Sciences, University of Aberdeen); **Scotland, G.** (HERU/HSRU); 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.

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

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

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

Teduglutide for treating short bowel syndrome (Single Technology Assessment)

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

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

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 (TISU)

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); **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.

The UK Resuscitative Endovascular Balloon Occlusion of the Aorta (UK-REBOA)

Investigator: Jansen, J., Campbell, M., MacLennan, G. (HSRU); **Boyers, D.** (HERU), Brohi, K. (Queen Mary University); Morrison, J. (NHS Greater Glasgow & Clyde, Lendrum, R. (NHS Lothian); Harris, T. (Barts Health NHS Trust); Tai, N. (Royal London Hospital); Moran, C. (Nottingham University NHS Trust); Midwinter, M. (Royal Centre for Defence Medicine); Lecky, F. (University of Sheffield).

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

Using existing data to incorporate broader measures of benefit in economic evaluation (PhD)

Investigators: **Tassie, E.** (PhD Student), **Watson, V.** (HERU); **Scotland, G.** (HERU/HSRU); **Bryan, S.** (HERU/University of British Columbia).

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

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

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

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); Cvorovic, V. (Department of Geriatric Medicine, Victoria Hospital).

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



Projects In-Progress and Completed in 2018

* Denotes projects started in 2018

Methods of Benefit Valuation

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.

Attributes aggregation in multi-attribute choice: need we worry?

Investigators: Krucien, N., Ryan M. (HERU); Genie, M. (University of Venice).

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

Choice certainty and deliberative thinking in discrete choice experiments. A theoretical and empirical investigation

Investigators: Watson, V. (HERU); Regier, D. (British Columbia Cancer Agency and University of British Columbia); Sicsic, J. (INSERM).

Source of Funding: Chief Scientist Office (CSO) CORE, Peter Wall Institute of Advanced Studies, University of British Columbia, People Programme (Marie Curie Actions) of the European Union's Seventh Framework Programme (FP7/2007-2013).

***Do participants understand health economics surveys?**

Investigators: Pearce, A. (National Cancer Register, Ireland); Watson, V. (HERU); Mulhearn, B., Viney, R. (CHERE).

Source of Funding: University of Technology Sydney (UTS) and Chief Scientist Office (CSO) CORE.

***Eliciting patient preference for prioritization of healthcare processes in the management of inflammatory bowel disease**

Investigators: Nguyen, G. (Mount Sinai Hospital IBD Centre/ University of Toronto); Marshall, D. (University of Calgary); Krucien, N. (HERU); Sewitch, M. (McGill University); Moayyedi, P. (McCaster University).

Source of Funding: Crohn's and Colitis Canada (via Deborah Marshall).

Eliciting preferences for healthy and sustainable food in the lab

Investigators: Cerroni, S. (Queen's University Belfast); Watson, V. (HERU); MacDiarmid, J. (Rowett Institute of Nutrition and Health, University of Aberdeen).

Source of Funding: Chief Scientist Office (CSO) CORE and Rowett Institute of Nutrition and Health, University of Aberdeen.

Estimating preferences for air quality improvements

Investigators: Loría, L., Watson, V. (HERU); Schulz, R. (Business School, University of Aberdeen).

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

For better or worse? Investigating the validity of best-worst scaling experiments in health

Investigators: Krucien, N., Ryan, M. (HERU); Sicsic, J. (INSERM).

Source of Funding: University of Aberdeen and Chief Scientist Office (CSO) CORE People Programme (Marie Curie Actions) of the European Union's Seventh Framework Programme (FP7/2007-2013).

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.

Healthcare preferences and deliberation: the citizen's perspective (PhD)

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.

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.

***Improving the patient-pharmacist interaction: a new approach to help patients make informed decisions**

Investigators: Ryan, M., Chua, G.N., Krucien, N., Porteous, T. (HERU); Bond, C. (Centre for Academic Primary Care); Adam, R., Murchie, P. (Other Applied Health Sciences).

Source of Funding: Pharmacy Research UK.

Investigating willingness to pay for low emission public transportation (PhD)

Investigators: Loria, L. (PhD Student), Watson, V. (HERU); Kiso, T., Phimister, E. (Economics, University of Aberdeen Business School).

Source of Funding: CASS Elphinstone Scholarship, CONACYT and Henderson Economics Research Fund and Chief Scientist Office (CSO) CORE.

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.

***Supporting shared decision making in advanced breast cancer: What matters to patients in an era of personalised care**

Investigators: Hall, P. (University of Edinburgh), Ryan, M. (HERU).

Source of Funding: Breast Cancer Institute and Chief Scientist Office (CSO) CORE.

Thriving not surviving following a breast cancer diagnosis: what can time allocation tell us? (PhD)

Investigators: Gao, N. (PhD Student), Ryan, M., Krucien, N. (HERU); Norman, R., Robinson, S. (Curtin University).

Source of Funding: NHS Grampian (NHSG) via University of Aberdeen Development Trust.

***Thriving not surviving following a breast cancer diagnosis: what can time allocation tell us? (Travel Award)**

Investigators: Gao, N. (PhD Student), Ryan, M. (HERU).

Source of Funding: Curtin University.

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.



***Valuing whole genome sequencing to improve diagnosis of rare disorders: a health economic perspective**

Investigators: Ryan, M., McKenzie, L., Moran, B., Heidenreich, S. (HERU); Miedzybrdzka, Z., Mennie, L. (Applied Medicine, University of Aberdeen); Aitman, T. (University of Edinburgh).

Source of Funding: Scottish Genomics Partnership and Chief Scientist Office (CSO) CORE.

2018 Publications

Refereed Journals

- Abul Naga, R.H.** (2018) 'Measurement of inequality with a finite number of pay states: the majorization set and its applications', *Economic Theory*, 65(1), 99-123.
- Anderson, A.S., Craigie, A.M., Gallant, S., McAdam, C., Macaskill, E.J., Mutrie, N., **Neilson, A.R.**, O'Carroll, R.E., Rauchhaus, P., Sattar, N., Stead, M. and Treweek, S. (2018) 'Randomised controlled trial to assess the impact of a lifestyle intervention (ActWELL) in women invited to NHS breast screening' [protocol], *BMJ Open*, 8(11), e024136.
- Aoki, Y.** and Santiago, L. (2018) 'Speak better, do better? Education and health of migrants in the UK', *Labour Economics*, 52(June), 1-17.
- Avenell, A., Robertson, C., Skea, Z., **Jacobsen, E.**, **Boyers, D.**, Cooper, D., Aceves-Martins, M., Retat, L., Fraser, C., Aveyard, P., Stewart, F., MacLennan, G., Webber, L., Corbould, E., Xu, B., Jaccard, A., Boyle, B., Duncan, E., Shimonovich, M. and Bruin, M. (2018) 'Bariatric surgery, lifestyle interventions and orlistat for severe obesity: the REBALANCE mixed-methods systematic review and economic evaluation', *Health Technology Assessment*, 22(68).
- Brazzelli, M., **Hernández, R.**, Sharma, P., Robertson, C., Shimonovich, M., MacLennan, G., Fraser, C., Jamieson, R. and Vallabhaneni, S.R. (2018) 'Contrast-enhanced ultrasound and/or colour duplex ultrasound for surveillance after endovascular abdominal aortic aneurysm repair: a systematic review and economic evaluation', *Health Technology Assessment*, 22(72).
- Clarkson, J.E., Pitts, N.B., Bonetti, D., **Boyers, D.**, Braid, H., Elford, R., Fee, P.A., Floate, R., Goulao, B., Humphris, G., Needleman, I., Norrie, J.D.T., Ord, F., **Pol, M. van der**, Ramsay, C.R., Ricketts, D.N.J., Worthington, H.V. and Young, L. (2018) 'INTERVAL (investigation of NICE technologies for enabling risk-variable-adjusted-length) dental recalls trial: a multi-centre randomised controlled trial investigating the best dental recall interval for optimum, cost-effective maintenance of oral health in dentate adults attending dental primary care', *BMC Oral Health*, 18(1), 135.
- Cleland, J., **Porteous, T.** and **Skåtun, D.** (2018) 'What can discrete choice experiments do for you?', *Medical Education*, 52(11), 1113-1124.
- Combes, J.-B., **Elliott, R.F.** and **Skåtun, D.** (2018) 'Hospital staff shortage: the role of the competitiveness of pay of different groups of nursing staff on staff shortage', *Applied Economics*, 50(60), 6547-6552.
- Cooper, K., McCormack, K., Breeman, S., Wood, J., Scott, N.W., Clark, J., Hawe, J., Hawthorn, R., Phillips, K., Hyde, A., McDonald, A., Forrest, M., Wileman, S., **Scotland, G.**, Norrie, J. and Bhattacharya, S. (2018) 'HEALTH: laparoscopic supracervical hysterectomy versus second-generation endometrial ablation for the treatment of heavy menstrual bleeding: study protocol for a randomised controlled trial', *Trials*, 19(1), 63.
- Degeling, C., Barratt, A., Aranda, S., Bell, R., Doust, J., Houssami, N., Hersch, J., **Sakowsky, R.**, Entwistle, V. and Carter, S.M. (2018) 'Should women aged 70-74 be invited to participate in screening mammography? A report on two Australian community juries', *BMJ Open*, 8(6).
- Douglas, F., MacKenzie, F., **Ejebu, O.**, Whybrow, S., Garcia, A.L., **McKenzie, L.**, **Ludbrook, A.** and Dowler, E. (2018) 'A lot of people are struggling privately. They don't know where to go or they're not sure of what to do: frontline service provider perspectives of the nature of household food insecurity in Scotland', *International Journal of Environmental Research and Public Health*, 15(12), 2738.
- Ejebu, O.** and **Skåtun, D.** (2018) 'Vocation, mental illness and the absenteeism decision', *Journal of Occupational and Environmental Medicine*, 60(12), 1136-1142.
- Heidenreich, S.**, **Watson, V.**, **Ryan, M.** and Phimister, E. (2018) 'Decision heuristic or preference? Attribute non-attendance in discrete choice problems', *Health Economics*, 27(1), 157-171.
- Hiligsmann, M., Dellaert, B.G., **Watson, V.** and Boonen, A. (2017) 'Comment on: Patients' preferences for anti-osteoporosis drug treatment: a cross-European discrete choice experiment: reply', *Rheumatology*, 57(3), 584-585.
- Ikenwilo, D.**, **Heidenreich, S.**, **Ryan, M.**, Mankowski, C., Nazir, J. and **Watson, V.** (2018) 'The best of both worlds: an example mixed methods approach to understand men's preferences for the treatment of lower urinary tract symptoms', *Patient*, 11(1), 55-67.
- Kopasker, D.**, Montagna, C. and Bender, K.A. (2018) 'Economic insecurity: a socioeconomic determinant of mental health', *SSM - Population Health*, 6, 184-194.



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Reports

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Hernández, R., Cruickshank, M., **Dimitrova, M.**, Cooper, D., Aucott, L., Fraser, C., Shimonovich, M., Ormerod, A., **Scotland, G.** and Brazzelli, M. (2018) *Dupilumab for treating adults with moderate to severe atopic dermatitis*, (NICE Technology Appraisal Guidance – TA534), Aberdeen HTA Group.

McNamee, P. (2018) *Action Learning Set – mapping current expenditure and activity in prescribing in NHS Lanarkshire. Report for Health Economics Network for Scotland and NHS Lanarkshire.*

Pol, M. van der (2018) 'Time and risk preferences in older persons in Scotland', in Douglas, E., Wilson, T. and Bell, D. (2018) *Healthy ageing in Scotland: the pilot survey (HAGIS)*, Stirling: Stirling Management School, University of Stirling.

Riley, P., Glenny, A.M., Worthington, H., **Jacobsen, E.**, Robertson, C., Durham, J., Davies, S., Petersen, H. and **Boyers, D.** (2018) *Oral splints for patients with temporomandibular disorders or bruxism: a systematic review and economic evaluation. Final report submitted to NIHR Health Technology Assessment Programme (Project number: 16/146).*

Robertson, C., **Chong, H.**, **Scotland, G.**, Cooper, D., Ramsay, C., Urquhart, G. and Aucott, L. (2018) *Enzalutamide for treating non-metastatic hormone-relapsed prostate cancer*, (NICE Technology Appraisal Guidance – TA471), Aberdeen Health Technology Assessment Group.

Scotland, G., **Dimitrova, M.**, Ayansina, D., Cruickshank, M., Imamura, M., Fraser, C., Lam, T. and Brazzelli, M. (2018) *Padeliporfin for treating localised prostate cancer*, (NICE Technology Appraisal Guidance – TA546), Aberdeen Health Technology Assessment Group.

Books and Book Chapters

Pol, M. van der and **Irvine, A.** (2018) 'Time preferences for health', *Oxford Research Encyclopedia of Economics and Finance*, Oxford University Press, [Online textbook].

Other Publications

Aoki, Y. and Santiago, L. (2018) Deprivation, segregation, and socioeconomic class of UK immigrants: does English proficiency matter? *IZA Discussion Paper No. 11368*, Bonn, Germany: Institute for the Study of Labor (IZA).

Dickey, H., **Norwood, P.**, **Watson, V.** and Zangelidis, A. (2018) More than meets the eye: has the eye care policy in Scotland had wider health benefits?, *Discussion Papers in Economics*, 18-1, Aberdeen: University of Aberdeen Business School.

2018 Presentations

Invited Presentations

Boyers, D. (2018) 'Improving the predictive validity of dental care DCEs, an application to the Improving Quality of Dentistry (IQuaD) study', *Keynote Lecture to the Centre for Oral Health Research (COHR)*, Newcastle University, Newcastle, England, 18 January 2018.



Kopasker, D. (2018) 'Insecure employment and mental health: one pathway in the UK's productivity puzzle', *Aarhus-Kiel Workshop*, Sønderborg, Denmark, 13-14 December 2018.

Pol, M. van der (2018) 'Designing financial incentives for weight loss: the role of behavioural economics and preference elicitation', *Workshop on the Economics of Health Behaviours and Health Information*, University of Bath in London, London, 15-16 March 2018.

Ryan, M. (2018) 'Towards better patient focused outcomes', *National Healthcare Outcomes Conference*, Royal College of Surgeons in Ireland, Dublin, Ireland, 20 February 2018.

Ryan, M. (2018) 'Valuation in health economics: reflections of a UK health economist... and patient', *1st Conference of the Swiss Society of Health Economics*, University of Lucerne, Lucerne, Switzerland, 14 September 2018.

Watson, V. (2018) 'Using public preferences to inform remote and rural healthcare choices', *Rethinking Remote: Innovative Solutions in Remote Healthcare*, Eden Court, Inverness, 24-25 May 2018.

Conference Presentations

Ahmed, H.U., **Watson, V.**, McCarten, N., **Krucien, N.**, Abu, V., **Ikenwilo, D.** and Emberton, M. (2018) 'Evaluating the trade-offs men with localised prostate cancer make between the risks and benefits of treatments: the COMPARE study', *National Cancer Research Institute Cancer Conference*, Scottish Event Campus, Glasgow, 3-5 November 2018.

Aoki, Y. and Santiago, L. (2018) 'Deprivation, enclaves, and socioeconomic classes of UK immigrants. Does English proficiency matter?', *Scottish Economic Society Annual Conference*, Perth, 15-17 April 2018.

Aoki, Y. and Santiago, L. (2018) 'Deprivation, enclaves, and socioeconomic classes of UK immigrants. Does English proficiency matter?', *International Association for Applied Econometrics Annual Conference*, Université du Québec à Montréal (UQAM) and Université de Montréal (UdeM), Montréal, Canada, 26-29 June 2018.

Aoki, Y. and Santiago, L. (2018) 'Deprivation, segregation and socioeconomic class of UK immigrants. Does English proficiency matter?', *EEA-ESEM 2018. 33rd Annual Congress of the European Economic Association – 71st European Meeting of the Econometric Society*, University of Cologne, Cologne, Germany, 27-31 August 2018.

Boyers, D., Clarkson, J., Duncan, A., Goulao, B., Lamont, T., Ramsay, C. and **Pol, M. van der** (2018) 'Should we skip the dentist? Economic evaluation of scale and polish', *12th European Conference on Health Economics (EuHEA)*, Maastricht, The Netherlands, 11-14 July 2018.

Dysart, L., **McNamee, P.** and **Pol, M. van der** (2018) 'Economic insecurity and health behaviours in older adults', *39th Nordic Health Economists' Study Group (NHESG) Meeting*, University of Tromsø, Norway 22-24 August 2018.

Genie, M., **Ryan, M.** and **Krucien, N.** (2018) 'Lancasterian theory of demand or the value-price heuristic in multi-attribute choices?', *12th European Conference on Health Economics (EuHEA)*, Maastricht, The Netherlands, 11-14 July 2018.

Hernández, R., Robertson, C., Shimonovich, M., Sharma, P., Fraser, C., MacLennan, G., Jamieson, R., Rao Vallabhaneni, S. and Brazelli, M. (2018) 'New diagnostic technologies? Markov model favours ultrasound post EVAR', *HTAi Annual Meeting*, Vancouver, Canada, 1-5 June 2018.

Irvine, A., Phimister, E. and **Pol, M. van der** (2018) 'Adaptation to time inconsistent patients – an experiment', *12th European Conference on Health Economics (EuHEA)*, Maastricht, The Netherlands, 11-14 July 2018.

Kopasker, D., Bender, K. and Montagna, C. (2018) 'Economic insecurity: a socioeconomic determinant of mental health', *12th European Conference on Health Economics (EuHEA)*, Maastricht, The Netherlands, 11-14 July 2018.

Krucien, N., Hermens, F. and **Ryan, M.** (2018) 'Accepting or rejecting: two sides of the same coin? Evidence from an eye-tracking binary choice experiment', *12th European Conference on Health Economics (EuHEA)*, Maastricht, The Netherlands, 11-14 July 2018.

Leckcivilize, A. and **McNamee, P.** (2018) 'The effects of retirement on health and health behaviour: Evidence from the English Longitudinal Study of Ageing', *Health Studies User Conference* University College London, London, England, 17 July 2018.

Loría, L.E., **Watson, V.**, Kiso, T. and Phimister, E. (2018) 'Can bus users' preferences bolster low emission bus schemes? Lessons from Europe's largest hydrogen bus fleet', *Transport Research Arena 2018*, Messe Wien, Vienna, Austria, 16-19 April 2018.



McNamee, P., Avenell, A., Ludbrook, A., Neilson, A.R. and Norwood, P. (2018) 'Evidence review for Food Standards Scotland on population-wide interventions to prevent obesity', *12th European Conference on Health Economics (EuHEA)*, Maastricht, The Netherlands, 11-14 July 2018.

McNamee, P., Leckcivilize, A., Cooper, C. and Steel, R. (2018) 'Can Anticipatory Care Plans (ACPs) reduce unplanned hospital admissions?', *6th Annual Research Symposium: Evidence for Integration*, COSLA Conference Centre, Edinburgh, 24 April 2018.

Mohan, D., Scotland, G. and Heidenreich, S. (2018) 'From theory to practice: selecting the right case study', *School of Medicine, Medical Sciences and Nutrition Postgraduate Researcher Winter Conference*, University of Aberdeen, Aberdeen, 29-30 November 2018.

Pol, M. van der, Scott, A., Irvine, A. and Bezannier, O. (2018) 'Risk preferences and GP migration', *Health Economists' Study Group (HESG) Winter 2018 Meeting*, City Health Economics Centre, City, University of London, London, England, 10-12 January 2018.

Pol, M. van der, Scott, A., Irvine, A. and Bezannier, O. (2018) 'Risk preferences and GP migration', *12th European Conference on Health Economics (EuHEA)*, Maastricht, The Netherlands, 11-14 July 2018.

Pol, M. van der (2018) 'Time and risk preferences and health', *Mini-Conference in Behavioural Health Economics*, University of Stirling, Stirling, 10 October 2018.

Robertson, C., Shimonovich, M., Sharma, P., Fraser, C., **Hernández, R.**, MacLennan, G., Jamieson, R., Vallabhaneni, S. and Brazelli, M. (2018) 'Including patient perspectives in health technology assessments supplements clinical findings and provides valuable information for health services design and delivery', *Cochrane Colloquium*, Edinburgh International Conference Centre, Edinburgh, 16-18 September 2018.

Ryan, M., Chua, G.N., Bond, C. and Porteous, T. (2018) 'External validity of choice experiments: a field experiment in pharmacy', *12th European Conference on Health Economics (EuHEA)*, Maastricht, The Netherlands, 11-14 July 2018.

Scotland, G. and Bryan, S. (2018) 'Delivering health technology management through decision modelling', *HTAi Annual Meeting*, Vancouver, Canada, 1-5 June 2018.

Scotland, G. on behalf of the CLASS study team (2018) 'New evidence from the CLASS trial', *Vascular Society Annual Scientific Meeting*, Glasgow, 27-29 November 2018.

Watson, V., Boyers, D. and Pol, M. van der (2018) 'Using qualitative methods to design person-centred Discrete Choice Experiment surveys', *12th European Conference on Health Economics (EuHEA)*, Maastricht, The Netherlands, 11-14 July 2018.

Watson, V., Regier, D. and Sicsic, J. (2018) 'Choice certainty and deliberative thinking in discrete choice experiments. A theoretical and empirical investigation', *12th European Conference on Health Economics (EuHEA)*, Maastricht, The Netherlands, 11-14 July 2018.

Zhu, X., Scott, A., Allan, J. and Pol, M. van der (2018) 'The impact of life events on physicians' risk attitude', *PhD Student Conference in Behavioural Science*, University College Dublin, Dublin, Ireland, 29 November 2018.

Other Presentations

Ejebu, O. (2018) 'Pupil talk', *British Science Week*, Portlethen Primary School, Aberdeen, 15 March 2018.

Ejebu, O. (2018) 'Pupil talk', *People Like Me Event*, Hazlehead Academy, Aberdeen, 30 November 2018.

Heys, S., **Ryan, M.** and Spiers, V. (2018) *Café Med Special: See Cancer*, Aberdeen City Council Townhouse, Aberdeen.

Irvine, A. (2018) 'The role of time preference in the medical decision making context', *Aberdeen (Uni's) Got Talent, May Festival*, University of Aberdeen, 25 May 2018.

Leckcivilize, A. (2018) 'The effects of retirement on health and health behaviour', *Cromar Future Group*, Tarland, Aberdeenshire, 29 October 2018.

Ramsay, C. and **Ryan, M.** (2018) 'Informing health policy: is it time to celebrate or innovate?', *Café Med Special*, Suttie Centre, University of Aberdeen, 19 November 2018.



Poster Presentations

Boyers, D., Retat, L., Corbould, E., **Jacobsen, E.**, Avenell, A., Xu, B., Jaccard, A., Cooper, D., Robertson, C., Webber, L. and the Rebalance Study Team (2018) 'Economic evaluation of Roux-en-Y bariatric surgery for adults with severe obesity: results from the REBALANCE Project', *5th UK Congress on Obesity*, Newcastle University, Newcastle, England, 6-7 September 2018.

Boyers, D., Retat, L., Corbould, E., **Jacobsen, E.**, Avenell, A., Xu, B., Jaccard, A., Cooper, D., Robertson, C., Webber, L. and the Rebalance Study Team (2018) 'Economic evaluation of weight management for adults with severe obesity: results from the NIHR HTA funded REBALANCE Project', *5th UK Congress on Obesity*, Newcastle University, Newcastle, England, 6-7 September 2018.

Dimitrova, M. (2018) 'Association of obesity and mental health in Scotland: multi-variable regression and instrumental variable (IV) approach', *Young Researchers Using Statistics Symposium*, University of Aberdeen, Aberdeen, 23 May 2018.

Hemming, C., Constable, L., **Boyers, D.**, Breeman, S., Goulao, B., Cooper, K., Freeman, R., Smith, A., Elders, A., Hagen, S. and Glazener, C. (2018) 'VUE: two UK based multi-centre parallel randomised controlled surgical trials for uterine and vault prolapse', *International Continence Society (ICS)*, Philadelphia, USA, August 2018.

Jacobsen, E. and **Boyers, D.** (2018) 'Challenges of cost-effectiveness systematic reviews: REBALANCE study', *HTAi Annual Meeting*, Vancouver, Canada, 1-5 June 2018.

Jacobsen, E., **Boyers, D.**, Avenell, A., Fraser, C. and the Rebalance Study Team (2018) 'Cost-effective interventions for adults with severe obesity: findings from the REBALANCE systematic review', *5th UK Congress on Obesity*, Newcastle University, Newcastle, England, 6-7 September 2018.

Jones, G., Macfarlane, G., Pathan, E., **McNamee, P.** and **Neilson, A.R.** (2018) 'Quality of life estimation in economic evaluations and healthcare decision making: different approaches, different results. Results from the British Society for Rheumatology Biologics Register in Ankylosing Spondylitis (BSRBR-AS)', *British Society for Rheumatology Annual Conference*, Liverpool, 1-3 May 2018.

Jones, G., Macfarlane, G., Pathan, E., **McNamee, P.** and **Neilson, A.R.** (2018) 'Health utility estimates in economic evaluations in axial spondyloarthritis: different methods, different results', *11th Congress on Spondyloarthritides* Gent, Belgium, 4-6 October 2018.

Norwood, P. and **Irvine, A.** (2018) 'Personalised health choices', *Engage 2018*, Assembly Rooms, Edinburgh, 29-30 November 2018.

Ord, F. and **Boyers, D.** (2018) 'Presentation of dental concerns at non-dental health providers', *British Society for Dental Hygiene and Therapy – Oral Health Conference and Exhibition 2018*, International Centre, Telford, England, 23-24 November 2018.

Retat, L., Corbould, E., **Boyers, D.**, **Jacobsen, E.**, Xu, B., Webber, L., Jaccard, A., Avenell, A., Cooper, D., Robertson, C. and the Rebalance Study Team (2018) 'Modelling the epidemiological impact and cost-effectiveness of Look AHEAD in the UK healthcare system: results from the NIHR HTA funded REBALANCE Project', *5th UK Congress on Obesity*, Newcastle University, Newcastle, England, 6-7 September 2018.

Robertson, C., Shimonovich, M., Sharma, P., Fraser, C., **Hernández, R.**, MacLennan, G., Jamieson, R., Rao Vallabhaneni, S. and Brazelli, M. (2018) 'Including patient perspectives in health technology assessment reports', *HTAi Annual Meeting*, Vancouver, Canada, 1-5 June 2018.

Robertson, C., Shimonovich, M., Sharma, P., Fraser, C., **Hernández, R.**, MacLennan, G., Jamieson, R., Rao Vallabhaneni, S. and Brazelli, M. (2018) 'Systematic review of abdominal aortic aneurysm surveillance imaging', *HTAi Annual Meeting*, Vancouver, Canada, 1-5 June 2018.

Scanlan, G.M., Cleland, J., Johnston, P., Walker, K., **Krucien, N.** and **Skåtun, D.** (2018) 'What factors are critical to attracting NHS foundation doctors into specialty or core training? A discrete choice experiment', *Scottish Medical Education Conference*, Edinburgh International Conference Centre, Edinburgh, 26-27 April 2018.

Seminar Presentations

Leckcivilize, A. and **McNamee, P.** (2018) 'The effects of retirement on health and health behaviour: Evidence from the English Longitudinal Study of Ageing', *School of Accounting, Economics and Finance Seminar*, University of Wollongong, Australia.



Watson, V. (2018) 'The role of business risk in the sustainability of General Practice partnerships', *Centre for Health Services and Policy Research Seminar*, Vancouver Campus, University of British Columbia, 22 March 2018.

Watson, V. (2018) 'Survey mode effects on the general public's elicited health care preferences', *Network of Alberta Health Economists Health Economics and Technology Assessment Rounds*, University of Alberta, Edmonton, Canada, 4 April 2018.

Workshop Presentations

Aoki, Y. and Santiago, L. (2018) 'Speak better, do better? Education and health of migrants in the UK', *Workshop on Health Challenges*, University of Glasgow, Glasgow, 4-5 June 2018.

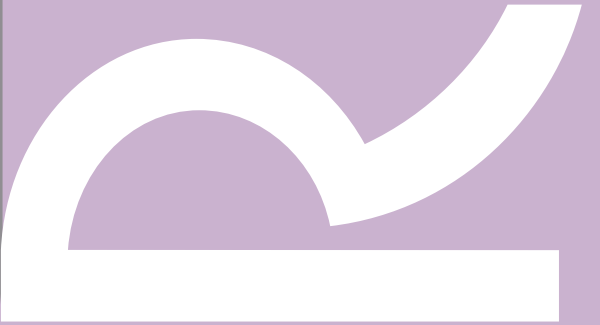
Kopasker, D., Bender, K. and Montagna, C. (2018) 'Economic insecurity: a socioeconomic determinant of mental health', *Essen Economics of Mental Health Workshop*, Essen, Germany, 25-26 June 2018.

McNamee, P., Bryan, S. and Neilson, A.R. (2018) 'Identifying, appraising and applying health economics evidence for public health', *Health Economics Network for Scotland Workshop*, Edinburgh, 1 November 2018.

Ryan, M., Watson, V., Krucien, N. and **Loría, L.E.** (2018) 'Using discrete choice experiments in health economics', *HERU Discrete Choice Experiment Course*, Aberdeen, 21-23 November 2018.

Skåtun, D. (2018) 'NHS funding allocations: generating the Staff Market Forces Factor', *UK Data Service Secure Lab User Workshop*, London, England, 2 October 2018.

Skåtun, D. (2018) 'Rapporteur: Wages, Income and Incentives', *World Health Organisation Workshop on Health Labour Market Analysis*, International Labour Organisation International Training Centre, Turin Italy, 19-23 November 2018.



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.