



RESEARCH



2019 ANNUAL REPORT

Informing Policy and Practice
Economic Analysis of Worldwide Repute

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Welcome 2019 Annual Report

There is an increasing awareness in the higher education sector of the vital role played by research culture. Rather than focus only on what we do, in terms of delivering high quality research, we also need to pay close attention to how we do it. The calls for a “kinder” research environment reminded us this year that

“Research is a collective endeavour, the culture is shaped and owned by all of us.”



CHE has a long track record of team working, based on collaboration rather than competition, aimed at creating a supportive culture that fosters a sense of shared purpose and genuine engagement. I am very proud of the contributions that all CHE colleagues have continued to make to the development of this positive culture over many, many years and I was thrilled that CHE received an Athena SWAN Silver award in 2019. The award recognises our ongoing commitment to one key aspect of our research culture, the promotion of gender equality within a supportive and inclusive department, which ultimately benefits *all* our staff members and students. It is a testament to the CHE community that there has been a great deal of enthusiasm to “*shape and own*” our research culture. Details of some of our plans for progressing the equality agenda are provided elsewhere in this report because we recognise that nurturing a positive research culture is not a one-off task, but is something which we all continually strive to improve.

Returning to the issue of what we do, it has been another productive year at CHE, progressing research within the NIHR Policy Research Units, and also beginning work for the new NIHR Applied Research Collaboration for Yorkshire and Humber in which we co-lead the health economics strand. Colleagues also won new funding for research on a wide range of topics, including methods for reducing inequalities, economics of early years health promotion, personalised medicine, economics alongside clinical trials for a large number of conditions, measuring quality in the NHS, health system efficiency in Latin America, health system funding in

India and many more. Some of our national and international collaborations are reflected in this report, including participation in the ESRC Festival of Social Science which showcased findings from a project on the health and health system consequences of conflict in Colombia. CHE staff members and PhD students also actively disseminated our research by producing more than 130 outputs and giving over a 100 presentations, as well as via the suite of short courses that we run each year at York.

We were pleased to have a “bumper” summer of hosting students from the University of York’s MSc in Health Economics, offering 13 research placements on a wide range of topics, as well as having a great year for PhD success. We also welcomed 5 new PhD students and appointed a number of new early career researchers. They are the future generation and we are indeed delighted that some of the students who were based with us have stayed on in CHE in order to continue their research careers with us.

It would be remiss not to acknowledge the extraordinary situation in which we find ourselves at the time of writing this introduction to the 2019 annual report. The world is facing a global pandemic which is presenting enormous challenges to health, healthcare and the global economy, exacerbating inequalities worldwide. The research community and the higher education sector more broadly is performing a vital role in helping to address some of these challenges and as 2020 progresses, we at the University of York will play our part in this endeavour. A supportive, collaborative and kind culture is now even more important than ever before.

Maria Feddard

News and events 2019

Leading and hosting collaborative events

York HESG Winter Meeting 2019



CHE hosted the *Health Economists' Study Group (HESG)* with record number of 193 participants from the UK and as far afield as the US and New Zealand. They discussed excellent draft papers on economic evaluation, global health, health behaviours, health outcome measurement and valuation, health policy, and the organisation of health and care services. A policy panel session and a commemorative event for Alan Maynard were also part of the conference.

Health System Financing Policy meeting in India

CHE organised a high level consultative event in New Delhi in collaboration with leading health economics researchers



from India, and key policy-makers across Indian provinces. **Sumit Mazumdar**, **Rodrigo Moreno-Serra** and **Marc Suhrcke** took part to discuss the Health System Financing Policy Agenda.

Visitors from Beijing



Mark Sculpher, **Andrea Manca**, **James Lomas** and **Helen Weatherly** hosted **Sebastian Qun Li**, **Songxin Zhang** and **Zhengchen Liu** from the HTA Center, New Sunshine Charity Foundation.

Global health research collaboration

Andrew Mirelman and **Noemi Kreif** hosted



GHE2 team colleagues, **Ijeoma Edoka** and **Maninie Molatseli**, from PRICELESS SA, University of the Witwatersrand, South Africa.

Workshop in China



James Lomas and **Jessica Ochalek** hosted an afternoon workshop for the fifth annual China National Health Development Research Centre (CNHDC) Health Policy Research and Evaluation Training Programme.



Malaysian delegates hosted at CHE

Adriana Castelli, **Martin Chalkley**, **James Gaughan**, **Idaira Rodriguez Santana** and **Rodrigo Moreno-Serra** hosted two government officials from the Malaysian Productivity and Competitiveness Corporation (MPC). They also hosted eight delegates from Malaysia Productivity Corporation, Civil Service Department of Malaysia, Department of Statistics Malaysia and Ministry of Economic Affairs Malaysia.



Public health workshop

Susan Griffin, **Fan Yang**, **Simon Walker** and **Mark Sculpher** put on a workshop on 'Wider societal impacts of public health interventions', for a Public Health Policy Research Unit funded project on the topic.

PUBLIC ENGAGEMENT

The ESRC Festival of Social Science public engagement evening was held as part of the War & Peace project on 6 November, including interactive displays of research findings.



ARTICLES IN THE CONVERSATION

- *Will drug prices rise following a UK-US trade deal?* **Karl Claxton**
- *Labour manifesto and the NHS: a health economist gives her verdict.* **Maria Goddard**

News and events 2019

ENGAGEMENT IN KEY CONFERENCES

CHE staff and students participated in many conference events in 2019 including:

- iHEA, Basel, Switzerland. For details of the meeting round up, see *The Academic Health Economists Blog* written by **Rita Faria**.
- ISPOR Europe, Copenhagen, Denmark
- Health Economists' Study Group (Summer), University of East Anglia, UK

VC VISITS CHE

CHE welcomed the new VC, Professor Charlie Jeffery, on 9 October to hear about his vision for York and participate in the consultation process for the 10-year strategy plan.

MSc HEALTH ECONOMICS STUDENTS

Over the summer, CHE welcomed 13 Health Economics students from the University of York MSc course. Students worked on a wide range of topics with CHE supervisors addressing interesting issues of national and international relevance, including: evaluation of digital interventions in depression, analysis of emergency readmissions, impact of conflict on health in Colombia, role of GPs, and impact of the smoking ban on birth weight, amongst others.

Staff Achievements

AWARDS FOR STAFF

Rowena Jacobs received the *Willard Manning Award* in Mental Health Policy and Economics Research for 2019 on behalf of Valerie Moran and herself for their paper 'Costs and Performance of English Mental Health Providers' published in the *Journal of Mental Health Policy and Economics*.



Francesco Ramponi won the University of York's Graduate Students' Association *Network of the year*.



Wiktor Tassef together with colleague Kenneth Katumba from MRC/UVRI & LSHTM Uganda Research Unit, won the two available prizes for best conference presentations at the SPEED Universal Health Care conference in Kampala, Uganda.

Claire de Oliveira was elected to the International Health Economics Association (iHEA) *Board of Directors*.



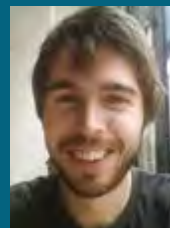
PhD SUCCESS FOR



James Gaughan



Vijay Gc



David Glynn



Richard Mattock



Francesco Ramponi



Anika Reichert



Wiktor Tassef

PROMOTION SUCCESS FOR



Ana Duarte



Vanessa King



James Lomas



Steve Palmer



Nigel Rice

25 YEARS WORKING AT THE UNIVERSITY OF YORK

How to gather expert opinion to use in health care decision making

Laura Bojke, Marta Soares, Dina Jankovic, Aimee Fox, Karl Claxton (CHE), Alec Morton, Abigail Colson (University of Strathclyde), Chris Jackson (University of Cambridge), Linda Sharples (LSHTM), Andrea Taylor (University of Leeds).

The evidence used to establish cost-effectiveness is typically uncertain.

Where evidence is uncertain, decisions may rely on the experience of experts. To make better and more accountable decisions, these expert judgements should be made explicit and incorporated transparently into decision-making processes, and it is important that the uncertainty in this evidence is represented.

Structured expert elicitation (SEE) is the formal quantitative collection of beliefs from experts. No standard guidelines exist specific to health care decision making and it is not clear if the existing guidelines are appropriate for use in decision making. Along with collaborators at the Universities of Cambridge, Strathclyde, Leeds, and the London School of Hygiene and Tropical Medicine, we sought to develop a reference protocol for the elicitation of experts' judgements to inform health care decision-making.

We used a range of methods, including formal systematic reviews, targeted searches, experimental work, critique and narrative synthesis. To determine the range of approaches used in SEE (the "choices"), we reviewed existing guidance and critiqued these choices according to a set of requirements of health care decision-making. To explore multiple uncertainties in SEE, we conducted randomised experiments. We used innovative methodology, where simulated observations, fed through a computer 'game', determined an individual's knowledge. The 'dataset' observed then determined participants' belief about the variable, from which accuracy can be measured and compared across choices. We generated an exemplar in health technology assessment, along with considerations for protocols outside of this setting. An applied evaluation of the developed protocol was undertaken, and we held a dissemination workshop to explore the usefulness, and challenges, in using SEE in decision-making.

The lack of empirical evidence for many methods choices makes it difficult to say definitively which methods are

most suitable. However, the results of the research mean it is possible to define key considerations in developing a reference protocol in a more narrowly defined area of health care decision making ie. health technology assessment.

- Focus on gathering substantive expertise or experience, e.g. clinical knowledge.
- Simple observable quantities should be elicited where possible.
- Minimise and record conflicts of interest among the experts.
- Dependence between variables should be captured.
- Uncertainties can be elicited using variable or fixed internal methods.
- Beliefs should be elicited from experts individually, even if a group interaction follows.
- Individual distributions should be summarised using linear pooling.
- Between-expert variation should be explored explicitly.
- Interaction should be face-to-face, where possible.
- Training is crucial and should focus on avoiding bias and expressing uncertainty.
- All methodological choices for the SEE must be documented and justified.

Additional considerations are required for decision makers outside of HTA. For example, when technologies are in the early stages of development, access to experts may be limited and group discussion may be needed to generate a distribution. Further research is required to determine appropriateness of the reference protocol in these settings.

This work was supported by the Medical Research Council (grant number MR/N028511/1).

Further details of the work can be found in the following publications:

Soares MO, Sharples L, Morton A, Claxton K, Bojke L. *Experiences of structured elicitation for model based cost-effectiveness analyses*, Value in Health 2018;21(6):715-723.

Bojke L, Marta S, Claxton K, Colson A, Fox A, Jackson C, Jankovic D, Morton A, Sharples L, Taylor A. *Developing a reference case for expert elicitation in healthcare decision making*, Health Technology Assessment, 2020, forthcoming.



Research projects 2019

CHE funders

Research projects are arranged in themes to reflect the cross-cutting nature of CHE research. CHE has a broad funding base and a list of funders follows:

- **Bill and Melinda Gates Foundation**
- **British Heart Foundation**
- **Cancer Research UK (CRUK)**
- **Centre for Future Health Wellcome Trust (CFH)**
- **Department for Communities and Local Government**
- **Department for International Development (DFID)**
- **Department of Health and Social Care (DHSC)**
- **Economic & Social Research Council (ESRC)**
- **Engineering and Physical Sciences Research Council (EPSRC)**
- **European & Developing Countries Clinical Trials Partnership (EDCTP)**
- **European Commission**
Innovative Medicines Initiative (IMI) H2020 programme
- **European Union Horizon 2020 research and innovation programme : Marie Skłodowska-Curie grant**
- **EuroQol Research Foundation**
- **Global Challenges Research Fund (GCRF)**
- **Health Foundation**
- **Inter-American Development Bank**
- **Medical Research Council (MRC)**
GCRF Foundation
Newton Fund
Research Councils UK (RCUK)
- **National Institute for Health Research (NIHR)**
Applied Research Collaboration (ARC)
Central Commissioning Facility (CCF)
Collaboration for Leadership in Applied Health Research and Care Yorkshire and Humber (CLAHRC YH)
Department of Health and Social Care (DHSC)
Global Health Research
Health Services & Delivery Research (HS&DR)
Health Technology Assessment (HTA)
NIHR Evaluation Trials and Studies Coordinating Centre (NETSCC)
Policy Research Programme (PRP)
Public Health Research (PHR)
Public Health Research Consortium (PHRC)
Research and Development (R&D) Programme
Research Capability Funding (RCF)
Research for Patient Benefit (RfPB)
School for Social Care Research (SSCR)
Technology Assessment Reviews (TARS)
- **NHS London Clinical Networks**
- **National Institute for Health and Care Excellence (NICE)**
- **NordForsk**
- **Public Health England (PHE)**
- **Research Council of Norway**
- **Research Councils UK**
- **The World Bank**
- **Trond Mohn Foundation and Norwegian Agency for Development Cooperation**
- **UK Research and Innovation (UKRI)**
- **University of York**
GCRF Internal Pump-Priming
- **Wellcome Trust**
- **York Trust**
- **Yorkshire Cancer Research (YCR)**

Research projects in progress 2019 or completed in 2019

Economic evaluation

A pragmatic, multicentre, randomised controlled trial to assess the clinical and cost effectiveness of negative pressure wound therapy versus usual care for surgical wounds healing by secondary intention (SWHSI 2)

Pedro Saramago Goncalves
Funder: NIHR

Assessing the value of new technologies

Karl Claxton, James Lomas, Jessica Ochalek, Paul Revill, Claire Rothery, Mark Sculpher
Funder: Bill and Melinda Gates Foundation

CEMARC2 - Cost-effectiveness of care guided by cardiovascular magnetic resonance, myocardial perfusion scintigraphy or NICE Guidelines

Edward Cox, Simon Walker, Mark Sculpher
Funder: British Heart Foundation

De-linking reimbursement of antimicrobials from volumes sold: assessing alternative arrangements and implications for NICE appraisal

Claire Rothery, Beth Woods, Mark Sculpher, Laetitia Schmitt, Stephen Palmer, Karl Claxton
Funder: DHSC PRP EEPRU

Developing peer Mentorship to improve self-management of Osteoarthritis: A feasibility study (aMIGo study)

Gerry Richardson
Funder: NIHR RfPB

Economic evaluation of the Accelerate, Coordinate and Evaluate (ACE) programme for the early diagnosis of cancer

Sebastian Hinde, Susan Griffin, Mark Sculpher
Funder: DHSC PRP EEPRU

Estimating health opportunity costs for the NHS

Karl Claxton, James Lomas, Marta Soares, Mark Sculpher (CHE), Steve Martin (Department of Economics and Related Studies, York)
Funder: DHSC PRP EEPRU

Estimating the shares of the value of branded pharmaceuticals accruing to manufacturers and to the NHS

Beth Woods, Aimee Fox, Mark Sculpher, Karl Claxton
Funder: DHSC PRP EEPRU

Evidence for the impact of interventions for, and medicines reconciliation in, problematic polypharmacy: a rapid review of systematic reviews and scoping searches

Rita Faria, Mark Sculpher (CHE), Marrissa Martyn-St James, Ruth Wong, Alison Scope (University of Sheffield)
Funder: DHSC PRP EEPRU

Facilitating patient choice in haemato-oncology

Andrea Manca, Hyacinthe Kankeu, Alastair Bennett
Funder: NIHR Programme Grant

FAST Forward – a randomised clinical trial testing a 1-week course of curative whole breast radiotherapy against a standard 3-week schedule in terms of local cancer control and late adverse effects in women with early breast cancer

Susan Griffin, Mark Sculpher, Rita Faria, David Glynn
Funder: NIHR HTA

Healthcare Alliance for Resourceful Medicines Offensive against Neoplasms in Haematology (HARMONY)

Andrea Manca
Funder: European Commission IMI H2020

Health economics and outcomes measurement

Laura Bojke, Gerry Richardson, Sebastian Hinde, James Lomas (CHE), Tracey Young, John Brazier (University of Sheffield)
Funder: NIHR CLAHRC YH

HEE: Developing a reference protocol for expert elicitation in health care decision making

Laura Bojke, Marta Soares, Karl Claxton, Aimée Fox, Dina Jankovic
Funder: MRC

IMPORT LOW: Randomised trial testing intensity modulated and partial organ radiotherapy following breast conservation surgery for early breast cancer

Susan Griffin, Mark Sculpher, Rita Faria, David Glynn
Funder: CRUK (CRUK/06/003) and the Department of Health

Improving the Wellbeing of people with Opioid Treated Chronic pain (I-WOTCH)

Andrea Manca (CHE), Cynthia Iglesias (Department of Health Sciences, York)
Funder: NIHR HTA R&D Programme

MDS-RIGHT: providing the right care to the right patient with MyeloDysplastic Syndrome at the right time

Andrea Manca, Thomas Patton (CHE), Cynthia Iglesias, Alexandra Smith, Simon Crouch, Tom Johnston, Ge Yu, (Department of Health Sciences, York)
Funder: European Commission

NETSCC: TARs – Production of Technology Assessment Reviews for the NIHR

Laura Bojke, Susan Griffin, Stephen Palmer, Claire Rothery, Mark Sculpher, Marta Soares, Simon Walker, Beth Woods, Ana Duarte, Rita Faria, Sebastian Hinde, James Lomas, Pedro Saramago Goncalves
Funder: NIHR TARs

NICE Economic and Methodological Unit (EMU)

Helen Weatherly, Susan Griffin, Simon Walker, Rita Faria, Mark Sculpher (With York Health Economics Consortium)
Funder: NICE

NIHR Applied Research Collaboration – Yorkshire and Humber ARC (Health Economics, Evaluation, Equality theme)

Laura Bojke, Gerry Richardson, Sebastian Hinde, Rowena Jacobs (CHE), with colleagues from across the University of York
Funder: NIHR ARC

NIHR Research Design Service (RDS)

Gerry Richardson, Susan Griffin, Sebastian Hinde
Funder: NIHR

Partnerships between deaf people and hearing dogs: a mixed methods realist evaluation

Bryony Beresford (Social Policy Research Unit, York), Catherine Hewitt (Department of Health Sciences, York), Helen Weatherly, Simon Walker (CHE)
Funder: NIHR SSCR

PRECISE: A health economic approach to evaluate uncertain evidence in personalised medicine

Karl Claxton
Funder: NordForsk

PREVAIL – PREVenting infection using Antibiotic Impregnated Long lines

Laura Bojke, Rita Faria, Alessandro Grosso (CHE), Ruth Gilbert (UCL)
Funder: NIHR HTA NETSCC

Primary care quality for people with serious mental illness

Rowena Jacobs, Maria Goddard, Hugh Gravelle, Nils Gutacker, Panagiotis Kasteridis, Anne Mason, Nigel Rice, Jemimah Ride (CHE), Lauren Aylott, Ceri Dare (Experts by Experience), Tim Doran, Simon Gilbody, Najma Siddiqi (University of York), Tony Kendrick (University of Southampton), Rachael Williams (Clinical Practice Research Datalink).

We recently completed a large NIHR funded study in which we examined whether better quality of primary care for people with serious mental illness (SMI) improved a range of outcomes. Serious mental illness – such as schizophrenia, bipolar disorder and other psychoses – is linked with high disease burden, poor outcomes, high treatment costs, and lower life expectancy, and can have a devastating impact on individuals and their families.

In the UK, most people with SMI are treated in primary care by general practitioners (GPs), who are financially incentivised to meet quality targets for patients with chronic conditions, including SMI, under the Quality and Outcomes Framework (QOF). The QOF pays GP practices if they review the physical health needs of their patients with SMI at least once per year. GP practices also receive money if they put in place a care plan for patients with SMI. However, the QOF only covers some aspects of care. Our study identified other measures, not included in the QOF, which may benefit patients: i) ensuring patients are not prescribed two or more antipsychotic drugs unless appropriate (polypharmacy); and ii) seeing the same GP every time they attend the practice (continuity of care).

We used administrative data from English primary care practices that contribute to the Clinical Practice Research Datalink GOLD database, linked to Hospital Episode Statistics, Accident & Emergency (A&E) attendances, Office for National Statistics mortality data, and community mental health records in the Mental Health Minimum Dataset. We used a method called survival analysis to estimate whether selected quality indicators affect the time until patients experience an outcome. Several outcomes were examined: emergency admissions for i) SMI and ii) ambulatory care sensitive conditions (ACSCs); iii) all unplanned admissions; iv) A&E attendances; v) mortality; vi) re-entry into specialist mental health services; vii) costs attributed to primary, secondary and community mental healthcare.

We found that care plans were associated with lower risk of A&E attendance, SMI admission, ACSC admission, and lower overall healthcare primary care, hospital and mental healthcare costs.

Annual reviews were associated with reduced risk of A&E attendance, SMI admission, ACSC admission, and lower overall healthcare, primary care, and mental healthcare costs.

Higher GP continuity of care was associated with lower risk of A&E presentation, ACSC admission, but not SMI admission. High continuity was associated with lower primary care costs.

Antipsychotic polypharmacy was not statistically significantly associated with the risk of unplanned admission, death, or A&E presentation. None of the quality measures were statistically significantly associated with risk of re-entry into specialist mental healthcare.

We conclude that care plans, annual physical reviews and continuity of care are good measures of quality of primary care. They can help keep patients out of hospital and reduce overall healthcare costs.

This work was supported by the National Institute for Health Research (NIHR) [HS&DR Programme (project number 13/54/40)].

Further details of the work can be found in the following publications:

Jacobs R, Aylott L, Dare C, Doran T, Gilbody S, Goddard M, et al. *The association between primary care quality and health-care use, costs and outcomes for people with serious mental illness: a retrospective observational study*. Health Serv Deliv Res 2020;8(25). <https://www.journalslibrary.nihr.ac.uk/hsdr/hsdr08250#/full-report>

Research projects in progress 2019 or completed in 2019

Prevalence and economic burden of medication errors in the NHS in England

Rita Faria, Mark Sculpher, Dina Jankovic (CHE), Rachel Elliott, Elizabeth Camacho (University of Manchester), Fiona Campbell, Marissa Martyn St James, Ruth Wong, Eva Kaltenthaler (University of Sheffield)
Funder: DHSC PRP EEPURU

Revived – REVascularisation of Ischaemic VENTricular Dysfunction: a randomised comparison of percutaneous coronary intervention (with optimal medical therapy) versus optimal medical therapy alone for heart failure secondary to coronary

Mark Sculpher
Funder: NIHR HTA

SHIFT – A cluster randomised controlled trial to investigate the effectiveness and cost-effectiveness of a Structured Health Intervention For Truckers

Gerry Richardson
Funder: NIHR PHR

Strategies for reducing sitting time in office workers: a three arm cluster randomised controlled trial

Gerry Richardson
Funder: NIHR PHR

Systematic review of the cost-effectiveness of alternative follow-up arrangements in cancer and interviews with clinicians

Gerry Richardson, Mark Sculpher (CHE), Marco Barbieri (Honorary Visiting Fellow CHE)
Funder: DHSC PRP EEPURU

SWIFFT – Scaphoid Waist Internal Fixation for Fractures Trial: cast treatment versus surgical fixation of fractures of the scaphoid waist in adults: a multi-centre randomised controlled trial

Stephen Brealey (Department of Health Sciences, York), Gerry Richardson (CHE)
Funder: NIHR HTA

The cost-effectiveness of cascade testing for familial hypercholesterolaemia

Mark Sculpher, Beth Woods, Pedro Saramago Goncalves, Rita Faria, Susan Griffin, Edward Cox
Funder: NIHR HTA

The impacts of bladder cancer on healthcare costs and patients' health-related quality of life: Evidence from the BOXIT trial

Edward Cox, Pedro Saramago Goncalves, Marta Soares, Mark Sculpher
Funder: CRUK

The wearable clinic for digital care services

Andrea Manca, Vijay Gc
Funder: EPSRC

UK FROST – Multi-centre randomised controlled trial with economic evaluation and nested qualitative study comparing early structured physiotherapy versus manipulation under anaesthesia versus arthroscopic capsular release for patients referred to secondary care with a frozen shoulder (adhesive capsulitis)

Gerry Richardson (CHE), Amar Rangan (The James Cook University Hospital)
Funder: NIHR HTA

Health Policy

Analysis of purchaser-provider contracts: modelling risk sharing and incentive implications.

Martin Chalkley, Hugh Gravelle, Maria Goddard, Nils Gutacker, Nikita Jacob, Rowena Jacobs, Dan Liu (CHE), Luigi Siciliani (Department of Economics and Related Studies, York)
Funder: NIHR PRP ESHCRU II

Does commuting affect health and well-being?

Nigel Rice, Nikita Jacobs
Funder: ESRC

Drivers of demand for health care and associated activity and spending

Nigel Rice, Martin Chalkley, Nils Gutacker, Panos Kasteridis, Anne Mason, Rita Santos, Idaira Rodríguez Santana (CHE), Raphael Wittenberg (LSE)
Funder: NIHR PRP ESHCRU II

European Training Network: Improving Quality of Care in Europe (IQCE)

Martin Chalkley, Nils Gutacker, Luis Fernandes, Laurie Rachet Jacquet (CHE), Luigi Siciliani (Department of Economics and Related Studies, York) in collaboration with Universität Hamburg (Lead), Universidade de Lisboa, University of Southern Denmark, Bocconi University, Erasmus University Rotterdam.
Funder: European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 721402

Exploring the variance of EQ-5D-5L index in patients with chronic conditions in England

Hugh Gravelle
Funder: Euroqol Group

Fast response analytical facility

Karen Bloor, Tim Doran (Department of Health Sciences, York), Yvonne Birks (Social Policy Research Unit, York), Anne Mason (CHE)
Funder: NIHR PRP CCF

General Practitioners and Emergency Department (GPED)

Nils Gutacker, Dan Liu (CHE), led by Karen Bloor (Department of Health Sciences, York)
Funder: NIHR HS&DR

Measuring NHS productivity: 2017/18

Adriana Castelli, Martin Chalkley, James Gaughan, Idaira Rodríguez Santana
Funder: NIHR

Paying for health benefits using PROMs data

Luigi Siciliani (Department of Economics and Related Studies, York), Martin Chalkley, James Gaughan, Nils Gutacker, Hugh Gravelle (CHE)
Funder: NIHR PRP ESHCRU II

Providers' response on the pay for performance incentives

Katja Grašič
Funder: NIHR CCF (Doctoral Research Fellowship)

The causal impact of health on Labour Market Outcomes: consequences for individuals and households

Nigel Rice in collaboration with University of Sheffield (lead) and Vrije Universiteit Amsterdam
Funder: Health Foundation

Equality and diversity in CHE

Laura Bojke and Rowena Jacobs on behalf of
CHE's Equality and Diversity Action Team

At CHE we strive to provide a supportive culture and family friendly work environment and to offer equal opportunities to all staff members and the PhD students we host. We seek to ensure the policies and procedures in the department are fair and support good work practices for everyone. The equality culture is embedded in CHE's strategic plans and engagement is strong.

Advance HE's Athena SWAN Charter was established in 2005 and is a national charter which recognises the advancement of gender equality in higher education employment. The awards require departments to scrutinise carefully their data on all staff and students, in relation to representation, progression, career milestones and the overall working environment, and to generate a targeted action plan to address barriers.

CHE applied for its first bronze Athena SWAN award in 2015 and was successful. A bronze award was again given in 2018. In 2019, CHE was awarded a Silver Athena SWAN award. CHE is the first department in the Social Science faculty in the University of York to obtain a Silver award.

Maria Goddard, Director of CHE and Rowena Jacobs, Chair of CHE's Equality and Diversity Action Team (EDAT), said: *"Everyone in CHE is absolutely thrilled with getting a Silver Athena SWAN award. This is a recognition for the whole department of how we've worked together collaboratively to take forward actions that deliver the benefits of a truly inclusive and positive workplace culture that is making a real difference to staff and students."*

The Equality and Diversity Action Team (EDAT) within CHE is responsible for preparing the Athena SWAN submission and overseeing the implementation of the action plan. There are currently 13 members of EDAT, comprising senior and junior staff, a PhD student representative, and research and support staff. The EDAT activities have been positively received by staff and students. This is borne out by our strong staff survey results: 95% of staff agree that the EDAT's activities have had a positive impact on raising awareness of equality and diversity issues.

Some of the activities that have led to this prestigious award include:



- Creating a "bank" of successful CVs which enabled CHE to strengthen its promotion pipeline, resulting in two new senior female research fellows, two new female Readers and one female Professor (between 2014 to 2018).
- Embedding improvements in the recruitment processes e.g. ensuring panel diversity and providing guidance to chairs of panels, which has been accompanied by an increase in the proportion of female staff recruited (from 35% in 2014 up to 47% in 2017).
- Offering our early career staff an open contract at an earlier stage than currently required by University policy, which has resulted in 89% of respondents in the staff survey reporting that "I feel safe and secure in my job".
- A proactive process to manage role review for support staff, resulting in a 100% success rate with role review.

The EDAT has exciting plans for equality related activities. These include running focus groups to better understand the barriers to progression for female and male staff, offering mentors to staff taking maternity or any extended leave, and setting fixed terms of office for internal committees to ensure better rotation of roles and opportunities for all staff and students. The EDAT look forward to helping to deliver the plans arising from the Athena SWAN Silver Award. We will continue to strive to ensure that CHE remains a truly welcoming and supportive environment for all.

Link to Equality website <https://www.york.ac.uk/cbe/equality-and-diversity/>



Research projects in progress 2019 or completed in 2019

Mental Health

Closing the GAP Mental Health Network
Rowena Jacobs, María José Aragón, with colleagues across University of York
Funder: UK Research and Innovation

CODI – Costs and Outcomes of Digital Interventions to promote and improve mental health
Laura Bojke, Pedro Saramago Goncalves, Dina Jankovic
Funder: NIHR NETSCC

Contracting for secure mental health services
Martin Chalkley, María José Aragón, Rowena Jacobs
Funder: DHSC PRP EEPUR

DIAMONDS: Improving diabetes self-management for people with severe mental illness
Rowena Jacobs, Stephen Palmer, Simon Walker, Panos Kasteridis, Rita Santos, Francesco Fusco, Dina Jankovic (CHE), with colleagues from Department of Health Sciences, York
Funder: NIHR Programme Grant

Does better quality of primary care improve outcomes for patients with serious mental illness (SMI)? An analysis of the relationship between SMI management and outcomes using the first linked data on the full patient care pathway
Rowena Jacobs, Maria Goddard, Hugh Gravelle, Nils Gutacker, Panos Kasteridis, Anne Mason, Nigel Rice, Jemimah Ride (CHE), Tim Doran, Najma Siddiqi, Simon Gilbody (Department of Health Sciences, York), Tony Kendrick (University of Southampton), Ceri Owen, Lauren Aylott (Service Users) Christoph Kronenberg (University of Duisburg-Essen)
Funder: NIHR HS&DR

Efficiency, cost and quality of mental healthcare provision
Rowena Jacobs, Adriana Castelli, Maria Goddard, Hugh Gravelle, Nils Gutacker, María José Aragón, Anne Mason (CHE) with colleagues from University of Sheffield and University of Birmingham
Funder: Health Foundation

EMERALD: Improving diabetes outcomes for people with severe mental illness: a longitudinal observational and qualitative study of patients in England
Rowena Jacobs (CHE), with colleagues across University of York
Funder: NIHR HS&DR

IMPACT: Improving Outcomes in Mental and Physical Multimorbidity in South Asia
Rowena Jacobs (CHE) with colleagues from across University of York and partner institutions
Funder: NIHR – Global Health Research

Mental Health outcomes in London: Clinical engagement with HoNOS
Rowena Jacobs, Jemimah Ride
Funder: NHS London Clinical Networks

MIND-ECON: The longer-term, average & distributional effects of mental health interventions & the causal impact of mental illness on economic outcomes
Rowena Jacobs, Nikita Jacob, Marc Suhrcke, Andrew Mirelman, Samuel Lordemus, Noemi Kreif (CHE) with colleagues from University of Cape Town, South Africa, and the South African Medical Research Council
Funder: MRC Newton Fund

NIHR Applied Research Collaboration – Yorkshire and Humber ARC (Mental and Physical Multimorbidity theme)
Rowena Jacobs, Laura Bojke, Gerry Richardson, Sebastian Hinde (CHE), with colleagues from across the University of York
Funder: NIHR ARC

NHS Vale of York CCG: Evaluating psychiatric liaison service
Laura Bojke, Gerry Richardson, Sebastian Hinde
Funder: York Trust

The HOME study: A randomised controlled trial comparing the addition of Proactive Psychological Medicine to usual care on the time spent in hospital by older acute hospital inpatients
Simon Walker, Fan Yang, Mark Sculpher (CHE) with colleagues from University of Oxford and London School of Hygiene and Tropical Medicine
Funder: NIHR HS&DR

Equity in Health and Health Care

Bergen Centre for Ethics and Priority-Setting, University of Bergen (subcontract via grants from Trond Mohn Foundation and Norwegian Agency for Development Cooperation)
Richard Cookson
Funder: Trond Mohn Foundation and Norwegian Agency for Development Cooperation

Case studies of local NHS equity indicator trends: have some NHS areas tackled health inequality more effectively than others, and if so how?
Richard Cookson
Funder: ESRC, CFH Wellcome Trust

Evidence to support efficient and effective reduction of health inequality
Susan Griffin, Simon Walker, Nils Gutacker
Funder: NIHR PRP

Re-engineering health policy for fairer decisions and better health
Tim Doran (Department of Health Sciences, York), Richard Cookson (CHE)
Funder: Wellcome Trust Senior Investigator Award

Review and Update of the Indices of Deprivation 2015
Karen Bloor, Veronica Dale (Department of Health Sciences, York), Nils Gutacker (CHE), Oxford Consultants for Social Inclusion (OCSI)
Funder: Department for Communities and Local Government

Tracing causes of inequalities in health and well-being: analysis of rich longitudinal data
Nils Gutacker
Funder: Research Council of Norway via University of Tromsø

Lifecycle microsimulation for economic evaluation of childhood programmes

Ieva Skarda, Richard Cookson (CHE),
Miqdad Asaria (LSE Health)

Trials and quasi-experiments provide information about short-run policy outcomes; however, microsimulation can quantify the long-run benefits and public costs of ultimate interest to policy-makers.

We have shown how lifecycle microsimulation can improve economic evaluation by proposing a general lifecycle economic evaluation framework, developing a lifecycle microsimulation model ("LifeSim") embedded within this framework, and applying the model to evaluate a training programme for parents of children at risk of conduct disorder.

Standard economic evaluation studies model different long-term outcomes separately, as a result of which, they do not accurately model how different outcomes interact with each other and compound over time, leading to clustering of outcomes for the same individual. Our framework models the individual-level interaction, clustering and compounding of different social and health outcomes over the lifecycle. This, for example, allows us to show that children with poorer skills have worse educational outcomes, which make them more likely to be unemployed and in poverty, resulting in them having poorer health, living standards and lower life expectancy.

Lifecycle economic evaluation also provides insights into individual-level variation in outcomes. For example, it can reveal that a policy intervention with relatively little effect, on average, could be life changing for particular kinds of

individual, which then facilitates intelligent programme redesign that targets resources towards those likely to benefit the most. Our framework also enables thorough analysis of equity impacts, by quantifying long-term consequences for different population subgroups in terms of consumption, health and wellbeing.

LifeSim simulates the lives of 100,000 English children born in 2000-2001, generating time series of a rich set of individual outcomes, as well as policy costs, benefits, and impact on the public budget. This makes LifeSim convenient to use together with composite summary measures recently proposed in literature that call for such datasets, for example, equivalent income and various good-life years metrics.

Policy-makers are often accused of "short-termism" and lifecycle economic evaluation can help keep the long-term perspective in view, by routinely providing policy makers with detailed and credible information about lifecycle policy consequences.

This work was supported by the National Institute for Health Research (NIHR) [Senior Research Fellowship (SRF-2013-06-015)] and the Wellcome Trust [grant number 205427/Z/16/Z].

Further details of the work can be found on the Equipol Research Group website:
<https://equipol.org/projects/lifesim/>



Research projects in progress 2019 or completed in 2019

Global Health

ARISE

Sumit Mazumdar
Funder: GCRF

Children with HIV in Africa – pharmacokinetics and acceptability of simple antiretroviral regimens (CHAPAS 4)

Paul Revill, Jessica Ochalek, Beth Woods, Alex Rollinger
Funder: EDCTP

Contracting for health service provision at Christian health facilities

Martin Chalkley, Wiktorja Tafesse (CHE), Gerald Manthalu (Ministry of Health, Malawi)
Funder: MRC GCRF RCUK Thanzi la Onse project 2019

Cross-sectoral analysis of the social cash transfer programme

Karel Haal, Finn McGuire, Wiktorja Tafesse, Paul Revill, Susan Griffin
Funder: MRC GCRF RCUK Thanzi la Onse project 2019

Developing a district resource allocation formula for Malawi

Finn McGuire, Paul Revill, Peter C Smith (CHE), Sakshi Mohan, Pakwanja Twea (Ministry of Health, Malawi)
Funder: MRC GCRF RCUK Thanzi la Onse project 2019

Developing a roadmap for health system financing policy in India

Sumit Mazumdar, Rodrigo Moreno-Serra, Peter C Smith, Marc Suhrcke
Funder: GCRF QR Funding Schemes

Development of a new paradigm in differentiated care for HIV Patients

Paul Revill, Simon Walker
Funder: MRC

Distributional impact of the Malawian Essential Health Package

Susan Griffin, Matthias Arnold (CHE), Dominic Nkhoma (College of Medicine, Malawi)
Funder: MRC GCRF RCUK Thanzi la Onse project 2019

Economic Analysis for Health Benefits Package Design

James Love-Koh, Matthias Arnold, Jessica Ochalek, Paul Revill, Susan Griffin, Simon Walker, Mark Sculpher, (CHE), Edward Kataika, Sibusiso Sibandze (East Central and Southern Africa Health Community)
Funder: MRC GCRF RCUK Thanzi la Onse project 2019

Economic evaluation of health impacts of transport sector interventions and policies

Oliver Kaonga, Susan Griffin
Funder: MRC GCRF RCUK Thanzi la Onse project 2019

Economic evaluation of interventions to address undernutrition: a systematic review

Susan Griffin, Francesco Ramponi, Wiktorja Tafesse
Funder: MRC GCRF RCUK Thanzi la Onse project 2019

Estimating cost-effectiveness thresholds: a case study on Indonesia

Marc Suhrcke, Karl Claxton, Paul Revill, Andrew Mirelman, Noemi Kreif, Rodrigo Moreno-Serra, Alex Rollinger
Funder: Bill and Melinda Gates Foundation via NICE International

Extension to the economic analysis of the REALITY trial of prophylactic strategies in advanced HIV patients in Africa

Simon Walker, Edward Cox, Paul Revill, Marta Soares
Funder: MRC

Evaluating the role of fiscal policy in improving diets and preventing chronic disease in Chile

Marc Suhrcke, Andrew Mirelman
Funder: MRC Newton Fund

HIV Modelling Consortium: 4 year programme grant

Mark Sculpher, Paul Revill, Claire Rothery, Karl Claxton, Beth Woods
Funder: Bill and Melinda Gates Foundation

Implementation of COPD case finding and self-management action plans in low and middle income countries

Andrew Mirelman, Marta Soares
Funder: MRC

Incorporating concerns for equity into health resource allocation: A guide for practitioners

James Love-Koh, Susan Griffin, Paul Revill, Simon Walker (CHE), Edward Kataika, Sibusiso Sibandze (East Central and Southern Africa Health Community)
Funder: MRC GCRF RCUK Thanzi la Onse project 2019

Macroeconomic and welfare consequences of road traffic injuries in low- and middle-income countries

Marc Suhrcke, Andrew Mirelman
Funder: The World Bank

MRC Global Health: (TRACT) Transfusion and Treatment of severe Anaemia in African Children: a randomised controlled Trial

Pedro Saramago Goncalves, Aimeé Fox, Martin Harker, Paul Revill, Simon Walker, Edward Cox
Funder: MRC Global Health

NIHR global health research group on Global Health Econometrics and Economics (GHE2)

Marc Suhrcke, Rodrigo Moreno-Serra, Noemi Kreif, Sumit Mazumdar, Andrew Mirelman, Mark Sculpher, Paul Revill, Stephen Palmer, Martin Chalkley, Nigel Rice, Richard Cookson (CHE). With PRICELESS SA, Wits University School of Public Health (South Africa). Foundation Economic Research Institute (FIPE), University of São Paulo (Brazil). Center for Health Economics and Policy Studies (CHEPS), Universitas Indonesia (Indonesia)
Funder: NIHR – Global Health Research

Setting research priorities in global health: appraising the value of evidence generation activities to support decision-making in health care

Beth Woods, Claire Rothery, Paul Revill, Karl Claxton (CHE), Timothy Hallett (Imperial College London), Andrew Phillips (UCL)
Funder: Bill and Melinda Gates Foundation

Does social health insurance benefit the most vulnerable? A machine learning approach

Noemi Kreif

Policy makers around the world are implementing health system policies, such as social health insurance, to promote access to essential health care.

To maximise the impact of these policies on population health and health equity, policymakers require answers to questions such as “Does the policy work for the intended recipients?” and “Who benefits most?” To answer these questions, policy evaluations need to go beyond the average population impact and consider impacts across different types of individuals, for example, those with different levels of education or household

wealth. Traditional methods of assessing such heterogeneous policy impacts can be restrictive, as they do not allow the analyst to consider all the possible relevant background characteristics and are reliant upon making strong assumptions on how these characteristics will interact. Recently, machine learning approaches exploiting patterns in data have been proposed to estimate heterogeneous policy impacts in a more

flexible fashion. In this work, we have applied a so-called “causal machine learning” approach to evaluate how enrolment by Indonesian mothers in two distinct health insurance schemes – contributory insurance for those in employment, and subsidised health insurance for the poor – affects the utilisation of maternal health services. In particular, we looked at whether a trained health professional – midwife or doctor – was present at childbirth.

We used the Indonesian Family Life Survey and constructed a database consisting of

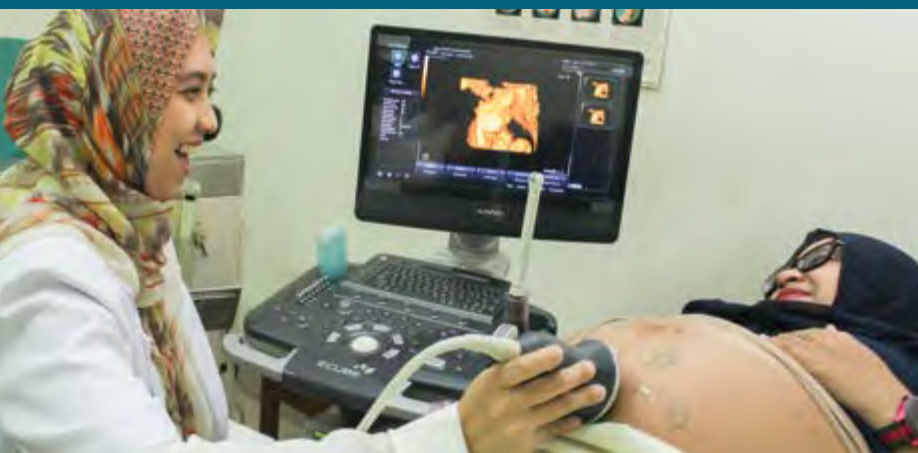
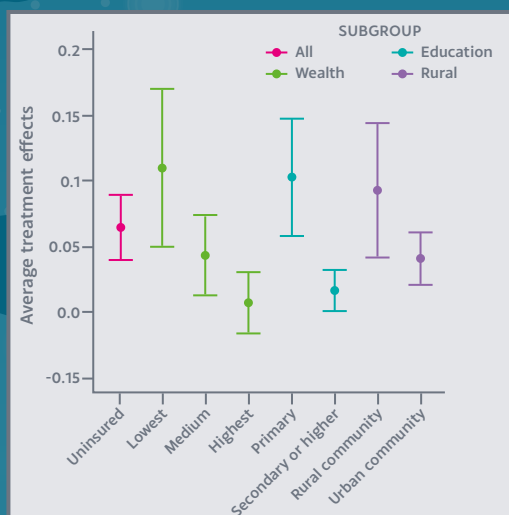
11,202 births (between 2002 and 2014), linked to information on the mother’s characteristics (e.g. age, education, birth order), household characteristics (e.g. wealth, participation in social assistance programmes) and community level characteristics (e.g. availability of hospitals, clinics and midwives, rurality of the community). We investigated not only the average effects of these two schemes, but also how these effects vary across particular demographic groups identified as being of particular interest for Indonesian health policy makers: household wealth, mother’s education, and rurality of household. Using machine learning also enabled us to investigate further, and explore what other characteristics may predict how much a mother is expected to benefit from the schemes.

We found that contributory health insurance has increased access to assistance by health professionals (by 7 percentage points on average), while we did not find a statistically significant benefit from the subsidised health insurance programme. For the contributory health insurance scheme, we found that the more disadvantaged population subgroups benefited more than those better off (see Figure). For subsidised health insurance, we did not find significant effects for any of the pre-defined demographic subgroups. However, in the exploratory analysis, we found that for women who were relatively older at childbirth (>31 years), subsidised health insurance significantly increased health care utilisation. These findings provide some confirmation to concerns that the early expansions of subsidised health insurance in Indonesia might have lacked the necessary accompanying investments in health services and facilities.

This work was supported by the International Decision Support Initiative, from the Bill and Melinda Gates Foundation, and by the National Institute for Health Research (NIHR) [NIHR Global Health Research Group] using UK aid from the UK Government.

Further details of the work can be found in the following paper (forthcoming):

Kreif N, Mirelman A, Moreno Serra R, Hidayat B, Hidayat T, Diaz-Ordaz K, Suhrcke M. *The heterogeneous impacts of public health insurance in Indonesia: a machine learning approach*. 2020. Forthcoming.



Research projects in progress 2019 or completed in 2019

Thanzi la Onse (Health of All):

Frameworks and analysis to ensure value for money health care – developing theory, changing practice

Mark Sculpher, Paul Revill, Martin Chalkley, Alex Rollinger, Steph Richardson, Sakshi Mohan, Beth Woods, Simon Walker, Peter C Smith, Susan Griffin, Wiktorja Tafesse, Marc Suhrcke, (CHE). With Department of Politics, University of York. Department of Health Sciences, University of York. Overseas Development Institute (ODI). Center for Global Development (CGD). Imperial College London. University College London. College of Medicine, University of Malawi. MRC/UVRI & LSHTM Uganda Research Unit on AIDS
Funder: MRC GCRF, RCUK

The institutional determinants of health system efficiency in Latin America and the Caribbean

Adriana Castelli, Rodrigo Moreno-Serra, Misael Anaya Montes
Funder: Inter-American Development Bank

War and Peace: the health and health system consequences of conflict in Colombia

Rodrigo Moreno-Serra, Noemi Kreif, Andrew Mirelman, Marc Suhrcke, Samuel Lordemus, Fan Yang (CHE). With Department of Politics, University of York. Universidad de los Andes, Colombia. London School of Hygiene and Tropical Medicine.
Funder: MRC/ESRC/DFID/Wellcome Trust

Why does development finance fail? An investigation of systemic failure in finance for ODA

Adriana Castelli, Andrew Mirelman and Jessica Ochalek (CHE), with colleagues from other University of York departments and other institutions
Funder: University of York GCRF Internal Pump-Priming

Health and Social Care

Evaluation of the Integrated Personal Commissioning programme

Helen Weatherly, Rita Faria, Francesco Longo
Funder: DHSC PRP

Intensive behavioural interventions for young children with autism

Claire Rothery
Funder: NIHR HTA

PACT – Partnerships at Care Transition: Improving patient experience and safety

Gerry Richardson
Funder: NIHR Programme Grants for Applied Research

Public Health England framework 2018: Social Care

Helen Weatherly
Funder: Public Health England

Yorkshire lung cancer screening

Sebastian Hinde, Mark Sculpher
Funder: Yorkshire Cancer Research

Public Health

BREEZE – A feasibility randomised controlled trial of a complex breathlessness intervention in Idiopathic Pulmonary Fibrosis

Gerry Richardson
Funder: NIHR RfPB

CLAHRC II – health economics and outcomes measurement

Laura Bojke, Gerry Richardson, Susan Griffin (CHE), Karen Bloor (Department of Health Sciences, York)
Funder: NIHR CCF

Comparing smoking cessation to screening and brief intervention for alcohol in distributional cost effectiveness analysis to explore the sensitivity of results to socioeconomic inequalities characterised in model inputs

Susan Griffin, Ana Duarte, Simon Walker, Fan Yang
Funder: DHSC PRP: PHRC

Enhancing social-emotional health and wellbeing in the early years: a community-based randomised controlled trial (and economic) evaluation of the incredible years infant & toddler (0- 2) parenting programmes

Tracey Bywater, Amanda Mason-Jones, Kate Pickett (Department of Health Sciences, York), Gerry Richardson, Simon Walker (CHE), Kathleen Kiernan (Social Policy and Social Work, York)
Funder: NIHR PHR

Evaluation of Coenzyme Q10 in chronic heart failure

Claire Rothery
Funder: NIHR HTA

Tees, Esk and Wear Valleys NHS Foundation Trust. Identifying and linking individual patient data to assess alternative service designs for pharmacy services

Gerry Richardson, Laura Bojke, Sebastian Hinde
Funder: NIHR RCF

Wider societal benefits of public health interventions and their impact on distributional cost effectiveness analysis

Susan Griffin, Mark Sculpher, Simon Walker, Fan Yang
Funder: DHSC PH PRU

Informing the allocation of Malawi's national health budget

Sakshi Mohan, Finn McGuire, Paul Revill, Peter C Smith

Since 2015, governments across the world have been working towards the Sustainable Development Goals. These include the commitment to attaining Universal Health Care (UHC) provision, defined by coverage of essential services and limiting the proportion of the population that incur impoverishing effects from health care expenditures.

A fundamental requirement of UHC is that local health sector institutions – such as local governments and health authorities – are given the funding necessary to fulfil their service delivery commitments.

Mathematical formulae offer a systematic approach to fund local health institutions and are widely used in many countries. Well-resourced health systems, such as the UK, typically use proxy indicators of need, like population size, age and gender composition, as well as expected service utilisation rates. Equity in the distribution of resources is typically a central aim. Among some less well-resourced health systems, such as in Uganda and Kenya, a similar approach has been adopted. However, many low- and middle-income countries have yet to adopt objective methods to allocate national health budgets across services and geographically.

As part of the *GCRF Thanzi La Onse (TLO) programme*, we have worked with the Ministry of Health (MOH), Malawi to inform revisions to the formula used to allocate the national health sector budget to 28 districts. TLO researchers proposed four approaches to guide the revision of the formula. These ranged from an easy to implement and highly parsimonious framework, based simply on the size of the population, to more comprehensive assessments, based on calculation of expected service delivery requirements using data on population

size, disease burden, unit cost of treatment, and current coverage rates, to reflect the capacity of the health system to deliver interventions. Data availability often limits the scope of formulaic approaches. The work in Malawi, however, benefitted from the existence of an explicit health benefits package, developed using evidence from previous CHE research.

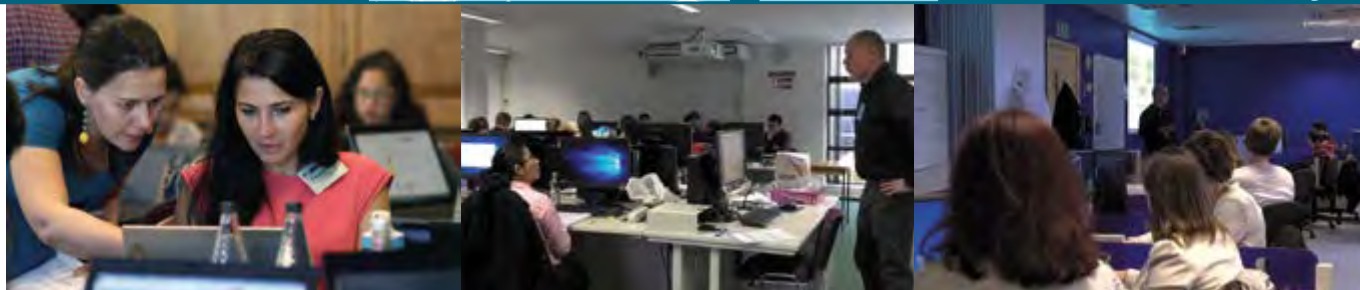
Our research has the potential to be widely adopted by other countries in designing resource allocation formulae. With this in mind, we disseminated this work at the East, Central and Southern Africa (ECSA) and TLO health economics training on the design of health benefits packages, which took place in Lilongwe, Malawi in February 2019, attended by representatives from the ministries of health and universities from nine countries in the region.

The formulae implies significant changes in local health budgets from the current distribution. The MOH is now undertaking national consultations to determine the next steps in revising the formula.

This work was supported by UK Research and Innovation as part of the Global Challenges Research Fund [grant number MR/P028004/1].

Further details of the work can be found in the following publication:

McGuire F, Revill P, Twea P, Mohan S, Manthulu G, Smith P. *Recommendations for the Development of a Health Sector Resource Allocation Formula in Malawi*, CHE Research Paper 159, 2018.



Courses and Workshops 2019

In 2019, we welcomed 306 delegates to York for our short courses. Delegates attended from 45 countries worldwide, spanning six continents and all organisational sectors, including pharmaceutical and medical technology companies, universities, hospitals, government bodies and charities.

York Summer Workshops in Health Economic Evaluation

Foundations of Economic Evaluation in Health Care

This five-day workshop, held in June, covered all the key issues in the methodology and practice of economic evaluation, and was attended by 56 delegates.

📺 <https://vimeo.com/147309364>

Advanced Methods for Cost-Effectiveness Analysis: Meeting Decision Makers' Requirements

This five-day workshop, also held in June, dealt with advanced methods in economic evaluation in health care, and was attended by 57 delegates.

📺 <https://vimeo.com/147310423>

Outcomes Measurement and Valuation for Health Technology Assessment

This three-day workshop included new material linked directly to the needs of organisations, such as NICE, which make decisions about health care delivery and funding. 21 delegates attended this workshop held in July.

📺 <https://vimeo.com/157732001>

Decision Analytic Modelling for Economic Evaluation

The two-day Foundations course and three-day Advanced course are run jointly between the Centre for Health Economics and the University of Glasgow. 33 delegates attended the two-day Foundations course and 60 delegates attended the three-day Advanced course, designed to inform and promote understanding in key areas of quality of life assessment and health economic evaluation.

📺 <https://vimeo.com/196699566>

Statistical Methods in Economic Evaluation for Health Technology Assessment

36 delegates attended the two-day Foundations course and 43 delegates attended the three-day Statistical Methods course, intended for people currently undertaking, reviewing or commissioning analyses of health economics and outcomes research (HEOR) data within the pharmaceutical and medical device industries, consultancy, academia or the health services.

📺 <https://vimeo.com/196700119>

Analysing Patient-Level Data Using Hospital Episode Statistics (HES)

This three-day course included instruction on how to: understand, manage, manipulate, evaluate, aggregate, and cost HES data; construct and analyse key variables, such as waiting times or length of stay; and link inpatient and outpatient HES records together and to other datasets. The course was held in July and again in December, with a total of 56 delegates attending.

Health Economics by Distance Learning

The York Distance Learning Programmes in Health Economics for Health Care Professionals offer students the opportunity to study for university-accredited qualifications at the postgraduate level. The programmes are designed to allow students to study whilst continuing in their careers, and offer the flexibility to spread study over a period of years to match professional and personal circumstances. For more information, visit the Distance Learning Programmes in Health Economics website: https://www.york.ac.uk/economics/postgrad/distance_learning/



Details of our current short courses can be found on our website: york.ac.uk/che/courses

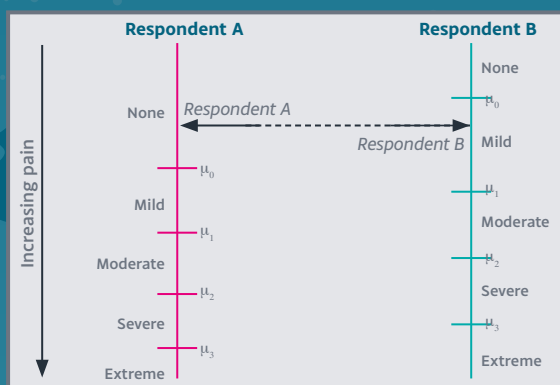
Self-assessed health and the use of anchoring vignettes

Nigel Rice (CHE), William Greene (New York University),
Mark Harris (Curtin University), Rachel Knott (Monash University)

It is common in social surveys to use subjective categorical scales to elicit information in the form of self-reports; for example, levels of health, work disability, or subjective well-being.

Responses to such questions are often used to study differences in outcomes across countries or social or demographic groups. A problem with relying on subjective responses, however, is that individuals are likely to place different interpretations on the response scale. This type of reporting behaviour is commonly referred to as differential item functioning (DIF).

The figure illustrates DIF using an example of a self-reported question about pain. Assume we have two respondents who are asked the question "Overall in the last 30 days, how much bodily aches or pains did you have?",



and are instructed to respond by selecting one of the following: None, Mild, Moderate, Severe, or Extreme. In the diagram, the vertical line represents the underlying (unknown) continuous scale for pain. DIF is depicted by the different subjective locations that the two respondents apply to the response categories along the scale, μ_0 to μ_3 . These are often referred to as cutpoints and are specific to individuals. Although respondents have identical levels of pain (indicated by the bold arrows), respondent B reports mild pain, while respondent A reports no pain. Without information on the locations of the cutpoints, researchers would typically incorrectly conclude that B has worse pain than A.

The use of anchoring vignettes has become a popular method to overcome DIF to make comparisons more meaningful. In the above example, together with their own situation, respondents are asked to evaluate one or more

vignettes describing situations of hypothetical individuals with a given level of pain. Responses to the vignettes are then used to anchor, or adjust for bias in self-assessments introduced by DIF. This is often achieved using what is referred to as the Compound Hierarchical Ordered Probit model, or HOPIT model.

It is important to be aware that the vignette approach is only valid under the two restrictive identifying assumptions – response consistency (RC) and vignette equivalence (VE). RC assumes that individuals use the same mapping from the underlying scale to the available response categories when assessing the self-assessment as they use when assessing the corresponding vignettes (that is, the individual-specific cutpoints applied to the vignettes ratings are the same as those applied to the self-assessment). VE assumes that respondents agree on the underlying level depicted by the hypothetical situation described by the vignette, except for random error.

There is a lack of formal statistical tests of these two underlying assumptions of the HOPIT model. Accordingly, researchers usually take them for granted, effectively assuming that the model has appropriately controlled for DIF. This may not be the case. Recent work by Nigel Rice and colleagues has developed a score test (or Lagrange Multiplier test) that is easy to implement in applications of the HOPIT model. We first suggest an amendment to the usual HOPIT model specification, and then set out a score test for RC and VE, both individually and jointly. The properties of the test are explored using Monte-Carlo simulations and we provide an application to data from the Survey of Health and Retirement in Europe (SHARE).

The proposed score tests are informative to the applied researcher when modelling self-assessed ordered categorical outcomes using the vignette approach. When faced with a joint failure of both VE and RC, the individual tests of each assumption may guide re-specification of the model, or the use of alternative vignettes, or combinations thereof.

This work was supported by the Australian Government through the Australian Research Council.

Further details of the work can be found in the following publication:

Greene WH, Harris MN, Knott R, Rice N. *Specification and testing of hierarchical ordered response models with anchoring vignettes*, HEDG Working Paper 19/18, 2019.



Publications 2019

Peer Reviewed 2019

Afzali HHA, **Bojke L**, Karnon J. Improving decision-making processes in health: Is it time for (disease-specific) reference models? *Applied Health Economics and Health Policy* 2019;doi:10.1007/s40258-019-00510-6.

Alexander H, Jabbar-Lopez Z, **Patton T**, **Manca A**, Flohr C. Novel systemic therapies in atopic dermatitis: what do we need to fulfil the promise of a treatment revolution? *F1000Research* 2019;8(F1000 Faculty Rev):132.

Al-Hanawi M, **Chirwa G**, Pulok M. Socio-economic inequalities in diabetes prevalence in the Kingdom of Saudi Arabia. *The International Journal of Health Planning and Management* 2019;doi:10.1002/hpm.2899.

Alvarado M, Unwin N, Sharp SJ, Hambleton I, Murphy MM, Samuels TA, **Suhrcke M**, Adams J. Assessing the impact of the Barbados sugar-sweetened beverage tax on beverage sales: an observational study. *International Journal of Behavioral Nutrition and Physical Activity* 2019;16(1):13.

Aragón MJ, **Castelli A**, **Chalkley M**, **Gaughan J**. Can productivity growth measures identify best performing hospitals? Evidence from the English NHS. *Health Economics* 2019;28(3):364-372.

Arnold M, **Griffin S**, **Ochalek J**, **Revill P**, **Walker S**. A one stop shop for cost-effectiveness evidence? Recommendations for improving Disease Control Priorities. *Cost Effectiveness and Resource Allocation* 2019;17:7.

Arnold M, Pfeifer K, Quante AS. Is risk-stratified breast cancer screening economically efficient in Germany? *PLoS ONE* 2019;14(5):e0217213.

Asaria M, **Mazumdar S**, Mazumdar P, Gupta I, Chowdhary S, Mukhopadhyay A. Socioeconomic inequality in life expectancy in India. *BMJ Global health* 2019;4:e001445.

Barbosa E, **Cookson R**. Multiple inequity in health care: An example from Brazil. *Social Science & Medicine* 2019 May;228:1-8.

Barrenho E, Miraldo M, **Smith P C**. Does global drug innovation correspond to burden of disease? The neglected diseases in developed and developing countries. *Health Economics* 2019;28(1):123-143.

Bawa S, McNab C, Nkwogu L, Braka F, Obinya E, Galway M, **Mirelman A**, et al. Using the polio programme to deliver primary health care in Nigeria: implementation research. *Bulletin of the World Health Organization* 2019;97:24-32.

Bell K, Corbacho B, Ronaldson S, **Richardson G**, Hood K, Sanders J et al. Costs and consequences of the Family Nurse Partnership (FNP) programme in England: Evidence from the Building Blocks trial. *F1000Research* 2019;8:1640.

Bellass S, Taylor J, Han L, Prady SL, Shiers D, **Jacobs R** et al. Exploring severe mental illness and diabetes: protocol for a longitudinal observational and qualitative mixed methods study. *JMIR Research Protocols* 2019;8(9):e13407.

Beresford B, Mann R, Parker G, Kanaan M, **Faria R**, Rabiee P, **Weatherly H**, Clarke S, Mayhew E, **Duarte A**, Laver-Fawcett A, Aspinal F. Reablement services for people at risk of needing social care: the MoRe mixed-methods evaluation. *Health Services and Delivery Research* 2019;7(16).

Beresford B, Mayhew E, **Duarte A**, **Faria R**, **Weatherly H** et al. Outcomes of reablement and their measurement: Findings from an evaluation of English reablement services. *Health and Social Care in the Community* 2019;27(6):1438-1450.

Bórquez A, Guanira J, **Revill P**, Caballero P, Silva-Santisteban A, et al. The impact and cost-effectiveness of combined HIV prevention scenarios among transgender women sex-workers in Lima, Peru: a mathematical modelling study. *The Lancet Public Health* 2019;4(3):e127-e136.

Bosma A, Spuls P, Garcia-Doval I, Naldi L, Prieto-Merino D, et al (includes **Manca A**). TREATment of ATopic eczema (TREAT) Registry Taskforce: protocol for a European safety study of dupilumab and other systemic therapies in patients with atopic eczema. *British Journal of Dermatology* 2019;doi:10.1111/bjd.18452.

Cambiano V, Johnson C, Hatzold K, Terris-Prestholt F, Haheswaran H, Thirumurthy H, Figueroa C, Cowan F, Sibanda E, Ncube G, **Revill P** et al. The impact and cost-effectiveness of community-based HIV self-testing in sub-Saharan Africa: a health economic and modelling analysis. *Journal of the International Aids Society* 2019;22(S1):e25243.

Chirwa G. 'Who knows more, and why?' Explaining socioeconomic-related inequality in knowledge about HIV in Malawi. *Scientific African* 2019;doi:org/10.1016/j.sciaf.2019.e00213

Chirwa G, Mazalale J, Likupe G, Nkhoma D, Chiwaula L, Chintsanya J. An evolution of socioeconomic related inequality in teenage pregnancy and childbearing in Malawi. *PLoS ONE* 2019;14(11):e0225374.

Chirwa G, Sithole L, Jamu E. Socio-economic inequality in comprehensive knowledge about HIV in Malawi. *Malawi Medical Journal* 2019;31(2):104-111.

Chirwa G, **Suhrcke M**, **Moreno Serra R**. The impact of Ghana's national health insurance on psychological distress. *Applied Health Economics and Health Policy* 2019;doi:10.1007/s40258-019-00515-1.

Claxton K, Asaria M, Chansa C, Jamison J, **Lomas J**, **Ochalek J**, Paulden M. Accounting for timing when assessing health-related policies. *Journal of Benefit-Cost Analysis* 2019;10(S1):73-105.

Clemes S, Varela-Mato V, Munir F, Edwardson C, et al (includes **Richardson G**). Cluster randomised controlled trial to investigate the effectiveness and cost-effectiveness of a Structured Health Intervention For Truckers (The SHIFT Study): a study protocol. *BMJ Open* 2019;9(11):e030175.

Publications 2019

Conner M, Grogan S, West R, Simms-Ellis R, Scholtens K et al (includes **Schmitt L**). Effectiveness and cost-effectiveness of repeated implementation intention formation on adolescent smoking initiation: A cluster randomized controlled trial. *Journal of Consulting and Clinical Psychology* 2019;87(5):422-432.

Conner M, Grogan S, Simms-Ellis R, Scholtens K, Sykes-Muskett B, et al (includes **Schmitt L**). Patterns and predictors of e-cigarette, cigarette and dual use uptake in UK adolescents: Evidence from a 24-month Prospective Study. *Addiction* 2019;114(11):2048-2055.

Conner M, Grogan S, Simms-Ellis R, Flett K, Sykes-Muskett B, Cowap L, et al (includes **Schmitt L**). Evidence that an intervention weakens the relationship between adolescent electronic cigarette use and tobacco smoking: a 24-month prospective study. *Tobacco Control* 2019;doi:10.1136/tobaccocontrol-2018-054905.

Cox E, Wade R, Peron M, Dietz KC, Eastwood A, **Palmer S**, **Griffin S**. The clinical and cost-effectiveness of Inotuzumab Ozogamicin for the treatment of adult relapsed or refractory B-cell acute lymphoblastic Leukaemia: An Evidence Review Group evaluation of a NICE Single Technology Appraisal. *PharmacoEconomics* 2019;37(9):1081-1091.

Cox E, **Saramago Goncalves P**, Kelly J, Porta N, Hall E, Tan WS, **Sculpher M**, **Soares M**. The impacts of bladder cancer on UK healthcare costs and patients' health-related quality of life: Evidence from the BOXIT trial: Bladder cancer cost and health-related impacts. *Clinical Genitourinary Cancer* 2019;doi:10.1016/j.clgc.2019.12.004.

Cuadrado C, Dunstan J, Silva-Illanes N, Mirelman A, Nakamura R, **Suhrcke M**. Effects of a sugar-sweetened beverage tax on prices and affordability of soft drinks in Chile: A time series analysis. *Social Science & Medicine* 2019;doi:10.1016/j.socscimed.2019.112708.

Curtis S, Norman P, **Cookson R**, Cherrie M, Pearce J. Recession, local employment trends and change in self-reported health of individuals: A longitudinal study in England and Wales during the 'great recession'. *Health & Place* 2019;59:102174.

Drummond MF. Modeling in early stages of technology development: Is an iterative approach needed? Comment on "Problems and Promises of Health Technologies: The Role of Early Health Economic Modeling". *International Journal of Health Policy and Management* 2019;doi:10.15171/ijhpm.2019.118.

Drummond MF, Neumann P, Sullivan S, Fricke FU, Tunis S et al. Analytic considerations in applying a general economic evaluation reference case to gene therapy. *Value in Health* 2019;22(6):661-668.

Drummond MF, Towse A. Is rate of return pricing a useful approach when value-based pricing is not appropriate? *European Journal of Health Economics* 2019;20(7):945-948.

Emerson J, Panzer A, Cohen JT, Chalkidou K, Teerawattananon Y, **Sculpher M** et al. Adherence to the iDSI reference case among published cost-per-DALY averted studies. *PLoS ONE* 2019;14(5):e0205633.

Erlangga D, **Suhrcke M**, Ali S, Bloor K. The impact of public health insurance on health care utilisation, financial protection and health status in low- and middle-income countries: a systematic review. *PLoS ONE* 2019;14(8): e0219731.

Feng Y, **Gravelle H**. Details matter: Physician responses to multiple payments for the same activity. *Social Science and Medicine* 2019;235:112343.

Franklin M, **Lomas J**, **Walker S**, Young T. An educational review about using cost data for the purpose of cost-effectiveness analysis. *PharmacoEconomics* 2019;37(5): 631-643.

Gabani J, Guinness L. Households forgoing healthcare as a measure of financial risk protection: an application to Liberia. *International Journal for Equity in Health* 2019;18:193.

Gammon C, Morton K, Atkin A, Corder K, Daly-Smith A, Quarmby T, **Suhrcke M** et al. Introducing physically active lessons in UK secondary schools: feasibility study and pilot cluster-randomised controlled trial. *BMJ Open* 2019;9(5):e025080.

Garrison LP, Jansen J, Devlin N, **Griffin S**. Novel approaches to value assessment within the cost-effectiveness framework. *Value in Health* 2019;22(6):S12-S17.

Gaudin S, **Smith PC**, Soucat A, Yazbeck A. Common goods for health: Economic rationale and tools for prioritization. *Health Systems and Reform* 2019;5(4):280-292.

Gaughan J, **Gutacker N**, **Grašič K**, **Kreif N**, Siciliani L, Street A. Paying for efficiency: Incentivising same-day discharge in the English NHS. *Journal of Health Economics* 2019; 68:102226.

Gaughan J, **Kasteridis P**, **Mason A**, Street A. Why are there long waits at English emergency departments? *European Journal of Health Economics* 2019;doi:10.1007/s10198-019-01121-7.

Gc VS, Alshurafa M, Sturgess DJ, Ting J, Gregory K, Oliveira Gonçalves AS et al. Cost-minimisation analysis alongside a pilot study of early Tissue Doppler Evaluation of Diastolic Dysfunction in Emergency Department Non-ST Elevation Acute Coronary Syndromes (TEDDY-NSTEACS). *BMJ Open* 2019;9(5):e023920.

Gc VS, **Suhrcke M**, Atkin AJ, van Sluijs E, Turner D. The cost-effectiveness of physical activity interventions in adolescents: Model development and illustration using two exemplary interventions. *BMJ Open* 2019;9(8):e027566.

Gravelle H, **Liu D**, Propper C, **Santos R**. Spatial competition and quality: Evidence from the English family doctor market. *Journal of Health Economics* 2019;68:102249.

Gridley K, Aspinall F, Parker G, **Weatherly H**, **Faria R**, **Longo F**, van den Berg B. Specialist nursing support for unpaid carers of people with dementia: a mixed-methods feasibility study. *Health Services and Delivery Research* 2019;7(12).

Publications 2019

Griffin S, Love-Koh J, Pennington B, Owen L. Evaluation of intervention impact on health inequality for resource allocation. *Medical Decision Making* 2019;39(3):171-182.

Grosso A, Faria R, Bojke L, Donohue C, et al. Cost-effectiveness of strategies preventing late-onset infection in preterm infants. *Archives of Disease in Childhood* 2019;doi:10.1136/archdischild-2019-317640.

Gutacker N, Bloor KE, Bojke C, Archer J, Walshe K. Does regulation increase the rate at which doctors leave practice? Analysis of routine hospital data in the English NHS following the introduction of medical revalidation. *BMC Medicine* 2019;17:33.

Hauck K, Morton A, Chalkidou K, Chi Y-Ling, **Culyer A**, Levin C, Meacock R, Over M, Thomas R, Vassall A, Verguet S, **Smith PC**. How can we evaluate the cost-effectiveness of health system strengthening? A typology and illustrations. *Social Science and Medicine* 2019;220:141-149.

Hawley-Hague H, Tacconi C, Mellone S, Martinez E, Easdon A, **Yang F** et al. Can smartphone technology be used to support an effective home exercise intervention to prevent falls amongst community dwelling older adults?: the TOGETHER feasibility RCT study protocol. *BMJ Open* 2019;9(9):e028100.

Hinde S, Bojke L, Harrison AS, Doherty PJ. Improving Cardiac Rehabilitation Uptake: Potential health gains by socioeconomic status. *European Journal of Preventive Cardiology* 2019;26(17):1816-1823.

Hinde S, Bojke L, Horsfield L, **Richardson G**. The relevant perspective of economic evaluations informing local decision makers: an exploration in weight loss services. *Applied Health Economics and Health Policy* 2019;doi: 10.1007/s40258-019-00538-8.

Hinde S, Bojke L, Richardson G. Understanding and addressing the challenges of conducting quantitative evaluation at a local level: a worked example of the available approaches. *BMJ Open* 2019;9(11):e029830.

Hinde S, Setters J, **Bojke L**, Hex N, **Richardson G**. Does the integration of response services lead to meaningful change in healthcare activity? A Case Study Evaluation. *Journal of Integrated Care* 2019;27(3):193-203.

Howdon D, **Lomas J**, Paulden M. Implications of non-marginal budgetary impacts in health technology assessment: a conceptual model. *Value in Health* 2019;22(8):891-897.

Hunter P, Colón-González F, Brainard J, Majuru B, Pedrazzoli D, Abubakar I, Dinsa G, **Suhrcke M** et al. Can economic indicators predict infectious disease spread? A cross-country panel analysis of 13 European countries. *Scandinavian Journal of Public Health* 2019;doi:10.1177/1403494819852830.

Iragorri N, Hazlewood G, Manns B, **Bojke L**, Spackman E, The PROMPT study group. A model to determine the cost-effectiveness of screening psoriasis patients for psoriatic arthritis. *Arthritis Care & Research* 2019;doi:10.1002/acr.24110.

Jacob N, Munford L, **Rice N**, Roberts J. The disutility of commuting? The effect of gender and local labor markets. *Regional Science and Urban Economics* 2019;77:264-275.

Jacobs R, Chalkley M, Böhnke JR, Clark M, Moran V, **Aragón MJ**. Measuring the activity of mental health services in England: variation in categorising activity for payment purposes. *Administration and Policy in Mental Health and Mental Health Services Research* 2019;46(6):847-857.

Jones A, **Rice N**, Zantomio F. Acute health shocks and labour market outcomes: evidence from the post crash era. *Economics and Human Biology* 2019;36:100811.

Justo N, Espinoza M, Ratto B, Nicholson M, Rosselli D, Ovcinnikova O, Martí SG, Ferraz MB, Langsam M, **Drummond MF**. Real-World Evidence in healthcare decision-making: Global trends and case studies from Latin America. *Value in Health* 2019;22(6):739-749.

Kanavos P, Angelis A, **Drummond M**. An EU-wide approach to HTA: An irrelevant development or an opportunity not to be missed? *European Journal of Health Economics* 2019;20(3):329-332.

Kasteridis P, Ride J, **Gutacker N**, Aylott L, Dare C, Doran T, Gilbody S, **Goddard M**, **Gravelle H**, Kendrick T, **Mason A**, **Rice N**, Siddiqi N, Williams R, **Jacobs R**. Association between antipsychotic polypharmacy and outcomes for people with serious mental illness in England. *Psychiatric Services* 2019;70(8):650-656.

Kearns B, Stevenson M, Triantafyllopoulos K, **Manca A**. Generalised linear models for flexible parametric modelling of the hazard function. *Medical Decision Making* 2019; 39(7):867-878.

Kristensen FB, Husereau D, Huic M, **Drummond MF**, Berger M, Bond K et al. Identifying the need for good practices in Health Technology Assessment: Summary of the ISPOR HTA Council Working Group Report on Good Practices in HTA. *Value in Health* 2019;22(1):13-20.

L'Esperance V, **Gravelle H**, Schofield P, **Santos R**, Ashworth M. Relationship between general practice capitation funding and the quality of primary care in England: a cross-sectional, 3-year study. *BMJ Open* 2019;9(11):e030624.

Lim M, Beyer T, Babayan A, Bergmann M, Brehme M, et al (includes **Soares M**). Advancing biomarker development through convergent engagement: Summary Report of the 2nd International Danube Symposium on Biomarker Development, Molecular Imaging and Applied Diagnostics; March 14-16, 2018; Vienna, Austria. *Molecular Imaging and Biology* 2019;doi:10.1007/s11307-019-01361-2.

Liu D, Green E, **Kasteridis P**, **Goddard M**, **Jacobs R**, Wittenberg R, **Mason A**. Incentive schemes to increase dementia diagnoses in primary care in England: a retrospective cohort study of unintended consequences. *British Journal of General Practice* 2019;69 (680):e154-e163.

Publications 2019

Lomas J. Incorporating affordability concerns within cost-effectiveness analysis for health technology assessment. *Value in Health* 2019;22(8):898-905.

Lomas J, Martin S, **Claxton K.** Estimating the marginal productivity of the English National Health Service from 2003 to 2012. *Value in Health* 2019;22(9):995-1002.

Longo F, Faria R, Parker G, Gridley K, Aspinall F, Van Den Berg B, **Weatherly H.** Investigating the economic case of a service to support carers of people with dementia: A cross-sectional survey-based feasibility study in England. *Health and Social Care in the Community* 2019;27(5):e734-e743.

Longo F, Siciliani L, Moscelli G, **Gravelle H.** Does hospital competition improve efficiency? The effect of the patient choice reform in England. *Health Economics* 2019;28(5):618-640.

Love-Koh J. How useful are early economic models?; Comment on "Problems and Promises of Health Technologies: The Role of Early Health Economic Modelling". *International Journal of Health Policy and Management* 2019;doi:10.15171/ijhpm.2019.119.

Love-Koh J, Cookson R, Gutacker N, Patton T, Griffin S. Aggregate distributional cost-effectiveness analysis of health technologies. *Value in Health* 2019;22(5):518-526.

Maitland K, Olupot-Olupot P, Kiguli S, Chagaluka G, Aloroker F, Opoka R, et al (includes **Saramago Goncalves P**). Transfusion volume for children with severe anemia in Africa. *New England Journal of Medicine* 2019;381(5):420-431.

Maitland K, Kiguli S, Olupot-Olupot P, Engoru C, Mallewa M, **Saramago Goncalves P** et al. Immediate transfusion in African children with uncomplicated severe anemia. *The New England Journal of Medicine* 2019;381(5):407-419.

Makhani L, Moran V, Sadique Z, Singh N, **Revill P,** Roberts B. Examining the use of economic evaluations in health-related humanitarian programs in low- and middle-income countries: a systematic review. *Health Policy and Planning* 2019;doi:org/10.1093/heapol/czz144.

Mazumdar S, Satyanarayana S, Pai M. Self-reported tuberculosis in India: evidence from NFHS-4. *BMJ Global Health* 2019;4:e001371.

McGuire F, Vijayasingham L, Vassall A, Small R, Webb D, Guthrie T, Remme M. Financing intersectoral action for health: a systematic review of co-financing models. *Globalization and Health* 2019;15:86.

Mengqi Qin V, Hone T, Millett C, **Moreno Serra RA,** McPake B, Atun R, Tayu Lee J. The impact of user charges on health outcomes in low-income and middle-income countries: a systematic review. *BMJ Global Health* 2019;3:e001087.

Moreno Serra R, Anaya Montes M, Smith PC. Potential determinants of health system efficiency: Evidence from Latin America and the Caribbean. *PLoS ONE* 2019;14(5):e0216620.

Murphy A, McGowan C, McKee M, **Suhrcke M,** Hanson K. Coping with healthcare costs for chronic illness in low-income and middle-income countries: a systematic literature review. *BMJ Global Health* 2019;4(4):e001475.

Nair M, Tripathi, S, **Mazumdar S,** Mahajan R, Pereira A, Jimenez C, Burza S. 'Without antibiotics, I cannot treat': A qualitative study of antibiotic use in Paschim Bardhaman district of West Bengal, India. *PLoS ONE* 2019;14(6):e0219002.

Nair M, Tripathi S, **Mazumdar S,** Mahajan R, Pereira A, Jimenez C, Burza S. Knowledge, attitudes, and practices related to antibiotic use in Paschim Bardhaman District: A survey of healthcare providers in West Bengal, India. *PLoS ONE* 2019;14(5):e0217818.

Ngaage D, Mitchell N, Dean A, Hirst C, Akowuah E, Doherty PJ et al (includes **Hinde S**). Feasibility study of early outpatient review and early cardiac rehabilitation after cardiac surgery: mixed methods research design – a study protocol. *BMJ Open* 2019;9(12):e035787.

Peden C, Stephens T, Martin G, Kahan B, Thomson A, Rivette K, Wells D, **Richardson G** et al, on behalf of the Enhanced Peri-Operative Care for High-risk patients (EPOCH) trial group. Effectiveness of a national quality improvement programme to improve survival after emergency abdominal surgery (EPOCH): a stepped-wedge cluster-randomised trial. *The Lancet* 2019; 393(10187):2213-2221.

Peden C, Stephens T, Martin G, Kahan B, Thomson A, Everingham K, Kocman D, Lourtie J, Drake S, Girling A, Lilford R, Rivett K, Wells D, Mahajan R, Holt P, **Yang F, Walker S, Richardson G** et al. A national quality improvement programme to improve survival after emergency abdominal surgery: The EPOCH stepped-wedge cluster RCT. *Health Services and Delivery Research* 2019;7(32).

Perry A, Waterman M, House A, Wright-Hughes A, Greenhalgh J, Farrin A, **Richardson G** et al. Problem-solving training: assessing the feasibility and acceptability of delivering and evaluating a problem-solving training model for front-line prison staff and prisoners who self-harm. *BMJ Open* 2019;9(10):e026095.

Phillips A, Cambiano V, Johnson L, Nakagawa F et al (includes **Revill P**). Potential impact and cost-effectiveness of condomless-sex-concentrated PrEP in KwaZulu-Natal accounting for drug resistance. *The Journal of Infectious Diseases* 2019;doi:10.1093/infdis/jiz667.

Phillips A, Cambiano V, Nakagawa F, Bansi-Matharu L, Wilson D, Jani I, Apollo T, **Sculpher M,** et al (includes **Revill P**). Cost-per-diagnosis as a metric for monitoring cost-effectiveness of HIV testing programmes in low-income settings in Southern Africa: health economic and modelling analysis. *Journal of the International Aids Society* 2019;22(7):e25325.

Regan J, Frison E, Collin F, Dawes P, Hann M, Himmelsbach I, Hooper E, Reeves D, Simkin Z, Thodi C, **Yang F,** Leroi I for the SENSE-Cog Trial Development Team. Individualised sensory intervention to improve quality of life in people with dementia and their companions (SENSE-Cog trial): study protocol for a randomised controlled trial. *Trials* 2019;20(80):1-15.

Publications 2019

Ride J, **Kasteridis P**, **Gutacker N**, **Aragón MJ**, **Jacobs R**. Healthcare costs for people with serious mental illness in England: an analysis of costs across primary care, hospital care, and specialist mental healthcare. *Applied Health Economics and Health Policy* 2019;doi:10.1007/s40258-019-00530-2.

Ride J, **Kasteridis P**, **Gutacker N**, Doran T, **Rice N**, **Gravelle H**, Kendrick T, **Mason A**, **Goddard M**, Siddiqi N, Gilbody S, Williams R, Aylott L, Dare C, **Jacobs R**. et al. Impact of family practice continuity of care on unplanned hospital use for people with serious mental illness. *Health Services Research* 2019;54(6):1316-1325.

Sandhu H, Abraham C, Alleyne S, Balasubramanian S, Betteley L, Booth K, Carnes D, Furlan A, Haywood K, Iglesias Urrutia C, Lall R, **Manca A**, et al. Testing a support programme for opioid reduction for people with chronic non-malignant pain: the I-WOTCH randomised controlled trial protocol. *BMJ Open* 2019;9(8):e028937.

Saramago Goncalves P, Espinoza MA, Sutton AJ, **Manca A**, **Claxton K**. The value of further research: The added value of individual-participant level data. *Applied Health Economics and Health Policy* 2019;17(3):273-284.

Selinger C, Bershteyn A, Dimitrov DT, Adamson BJS, **Revill P**, Hallett T et al. Targeting and vaccine durability are key for population-level impact and cost-effectiveness of a pox-protein HIV vaccine regimen in South Africa. *Vaccine* 2019;37(16):2258-2267.

Seuring T, Serneels P, **Suhrcke M**. The impact of diabetes on labour market outcomes in Mexico: a panel data and biomarker analysis. *Social Science & Medicine* 2019;233:252-261.

Stamboglis N, **Jacobs R**. Factors associated with patient satisfaction of community mental health services: A multilevel approach. *Community Mental Health Journal* 2019;doi:10.1007/s10597-019-00449-x.

Taraldsen K, Mikolaizak A, Maier A, Boulton E, Aminian K, et al (includes **Yang F**). Protocol for the PreventIT feasibility randomised controlled trial of a lifestyle-integrated exercise intervention in young older adults. *BMJ Open* 2019;9(3):e023526.

Taylor J, O'Neill M, Maddison J, **Richardson G**, Hewitt C, Horridge K et al. 'YourTube' The role of different diets in children who are gastrostomy fed; protocol for a mixed methods exploratory sequential study. *BMJ Open* 2019;9:e033831.

Thomas R, Friebe R, Barker K, Mwenge L, Kanema S, Vanqa N et al (includes **Smith PC**). Work and home productivity of people living with HIV in Zambia and South Africa. *Aids* 2019;33(6):1063-1071.

Toffolutti V, **Suhrcke M**. Does austerity really kill? *Economics & Human Biology* 2019;33:211-223.

Verguet S, Feldhaus I, Jiang Kwete X, Aqil A, Atun R, Bishai D et al (includes **Smith PC**). Health system modelling research: towards a whole-health-system perspective for identifying good value for money investments in health system strengthening. *BMJ Global Health* 2019;4:e001311.

Vermeulen F, Gerbens L, Bosma A, Apfelbacher C, Irvine A, Arents B, Barbarot S, Deleuran M, Eichenfield L, **Manca A** et al on behalf of the international TREAT Registry Taskforce. TREATment of ATopic eczema (TREAT) Registry Taskforce: consensus on how and when to measure the core data set for atopic eczema research registries. *British Journal of Dermatology* 2019;181(3):492-504.

Walker J, Burke K, Toynbee M, van Niekerk M, Frost C, Magill N, **Walker S**, **Sculpher M** et al. The HOME Study: study protocol for a randomised controlled trial comparing the addition of Proactive Psychological Medicine to usual care, with usual care alone, on the time spent in hospital by older acute hospital inpatients. *Trials* 2019;20:483.

Walker S, **Griffin S**, Asaria M, Tsuchiya A, **Sculpher M**. Striving for a societal perspective: A framework for economic evaluations when costs and effects fall on multiple sectors and decision makers. *Applied Health Economics and Health Policy* 2019;17(5):577-590.

Weir S, Tzu-Chun K, Samnaliev M, Tierney T, **Manca A** et al. Reoperation following lumbar spinal surgery: Costs and outcomes in a UK population cohort study using the Clinical Practice Research Datalink (CPRD) and Hospital Episode Statistics (HES). *European Spine Journal* 2019;28(4):863-871.

Whitty J, de Bekker-Grob E, Cook N, Terris-Prestholt F, Cleemput I, **Drummond M** et al. Patient preferences in the medical product lifecycle. *The Patient - Patient-Centered Outcomes Research* 2019;doi:10.1007/s40271-019-00400-y.

Wright C, Hart S, Allgar V, English A, Swan F, Dyson J, **Richardson G** et al. A feasibility, randomised controlled trial of a complex breathlessness intervention in idiopathic pulmonary fibrosis (BREEZE-IPF): study protocol. *European Respiratory Journal* 2019;5(4):00186.

Wright J, Hayward A, West J et al (includes **Cookson R**). ActEarly: A City Collaboratory approach to early promotion of good health and wellbeing [version 1; peer review: 1 approved]. *Wellcome Open Res* 2019; 4:156.

Yang F, **Walker S**, **Richardson G**, Stephens T, Phull M et al. Cost-effectiveness of a national quality improvement intervention to improve survival after emergency abdominal surgery. *International Journal of Surgery* 2019;72:25-31.

Yang F, Wong C, Luo N, Piercy J, Moon R, Jackson J. Mapping the kidney disease quality of life 36-item short form survey (KDQOL-36) to the EQ-5D-3L and the EQ-5D-5L in patients undergoing dialysis. *European Journal of Health Economics* 2019;20(8):1195-1206.

Yang H, Llewellyn A, Walker R, Harden M, **Saramago Goncalves P**, **Griffin S** et al. High-throughput, non-invasive prenatal testing for fetal rhesus D status in RhD-negative women: a systematic review and meta-analysis. *BMC Medicine* 2019;17:37.

Youn J-H, Stevenson M, Thokala P, Payne K, **Goddard M**. Modelling the economic impact of interventions for older populations with multimorbidity: A method of linking multiple single-disease models. *Medical Decision Making* 2019; 39(7):842-856.

PhD students

James Gaughan

2019 has been a year of culmination.

After a journey of nearly seven years, I submitted my final thesis on Acute Care and Long-Term Care in September of 2019, successfully defending the work in December without correction. The support of CHE colleagues, from my supervisor, TAP, line manager, and others has been invaluable in achieving this goal. A supremely collegiate atmosphere has made it possible to discuss ideas and raise questions at all stages, and flexible working permitted transition from full to part time employment at the beginning of the PhD process, to accommodate additional training requirements of the programme.

The inclusion of two distinct parts to my thesis reflects, in part, the breadth of project I was given the opportunity to participate in during this time. The first part considers the impact of long-term care supply on the

treatment and outcomes of hospital patients. I find that patients living in areas with more care home beds are less likely to experience delays in being discharged. I also observe *spill-over effects across geographic areas*. The second part evaluates the impact of a financial incentive to increase the rate of same day discharge from hospital where clinically appropriate. A generally positive but varying effect was found across *32 incentivised conditions*.

At the same time, I have been able to participate in a range of other projects as a member of staff, two of which were published in 2019. One on *hospital productivity* and another on *patient waiting times in A&E*.



Vishalie Shah

Machine learning (ML) is at the forefront of empirical research.

It is one of the most powerful technologies in today's world, turning information into knowledge by "learning from data".

As data grows larger and more complex, ML can effectively review this volume of information and identify trends and patterns that may not otherwise be apparent. In recent years, economists have studied the potential to combine ML and econometrics for understanding causal relationships. In addition to inspiring a new field of economics, this partnership can provide new insights to important research questions.

The objective of my PhD is to exploit ML for understanding whether causal effects differ across individuals or population subgroups. Response to a change in policy (or treatment) is likely to vary according to individuals' background characteristics. Identifying this variation can be extremely informative for understanding causal mechanisms and for guiding policy. I will use ML to evaluate how Indonesia's universal

health coverage policy has impacted financial risk protection in different subpopulations, grouped on variables including age, gender and socioeconomic status. I will use the results to inform the design of eligibility criteria for subsidised health insurance policies, to maximise population health and reduce health inequity.

I am excited to undertake this research at CHE and contribute to the emerging literature integrating ML, econometrics, and causal inference, with an application to health. I am sure the next three years will be the most challenging yet rewarding experience of my academic career so far, and I am looking forward to it!



Publications 2019

Books and Chapters

Eckhardt H, **Smith PC**, Quentin W. Pay for quality: Using financial incentives to improve quality of care. In: Busse R, Klazinga N, Panteli D, Quentin W (eds). *Improving Healthcare Quality in Europe*. World Health Organization 2019;Ch14:pp357-400.

Gabrio A, Baio G, **Manca A**. Bayesian statistical economic evaluation methods for Health Technology Assessment. In: Jones AM, (ed). *Oxford Research Encyclopedia of Economics and Finance*. Oxford: Oxford University Press. 2019.

Jakab M, **Smith PC**. Cross-sectoral policies to address non-communicable diseases. In: Isaranuwatthai W, Archer R, Teerawattananon Y, **Culyer A**. (eds). *Non-Communicable Disease Prevention: Best Buys, Wasted Buys and Contestable Buys*. London: Open Book Publishers 2019.

Kreif N, DiazOrdaz K. Machine learning in policy evaluation: New tools for causal inference. In: Jones AM, (ed). *Oxford Research Encyclopedia of Economics and Finance*. Oxford: Oxford University Press. 2019;doi: 10.1093/acrefore/9780190625979.013.256.

Mason A. Effectiveness of respite care for caregivers of older adults. In: Gu D, Dupre ME (eds). *Encyclopedia of Gerontology and Population Aging*. Springer, Cham, Switzerland 2019.

CHE Research Papers

160 Incorporating concerns for equity into health resource allocation. A guide for practitioners.

James Love-Koh, Susan Griffin, Edward Kataika, **Paul Revill**, Sibusiso Sibandze, **Simon Walker**.

161 Assessing health opportunity costs for the Indian health care systems.

Jessica Ochalek, Miqdad Asaria, Pei Fen Chuar, **James Lomas**, **Sumit Mazumdar**, **Karl Claxton**.

162 Effects of market structure and patient choice on hospital quality for planned patients.

Giuseppe Moscelli, **Hugh Gravelle**, Luigi Siciliani.

163 Productivity of the English National Health Service: 2016/17 update.

Adriana Castelli, Martin Chalkley, James Gaughan, Maria Lucia Pace, Idaira Rodriguez Santana.

164 The impact of primary care incentive schemes on care home placements for people with dementia.

Panos Kasteridis, Dan Liu, Anne Mason, Maria Goddard, Rowena Jacobs, Raphael Wittenberg, Daniel Howdon.

165 Economic analysis for health benefits package design.

James Love-Koh, Simon Walker, Edward Kataika, Sibusiso Sibandze, Matthias Arnold, **Jessica Ochalek, Susan Griffin, Paul Revill, Mark Sculpher**.

166 Is an ounce of prevention worth a pound of cure? Estimates of the impact of English public health grant on mortality and morbidity.

Stephen Martin, **James Lomas**, **Karl Claxton**.

167 The effect of government contracting with faith-based health care providers in Malawi.

Wiktora Tafesse, Gerald Manthulu, **Martin Chalkley**.

168 The causal effect of hospital volume on health gains from hip replacement surgery.

Laurie Rachet-Jacquet, Nils Gutacker, Luigi Siciliani.

169 Drivers of health care expenditure.

Anne Mason, Idaira Rodriguez Santana, Maria José Aragón, Nigel Rice, Martin Chalkley, Raphael Wittenberg, Jose-Luis Fernandez.

170 Applying the three core concepts of economic evaluation in health to education in the UK.

Sebastian Hinde, Simon Walker, Hugues Lortie-Forgues.

Presentations 2019

Luis Fernandes. Peer pressure in surgery: How colleagues determine a physician's treatment style. *Health Economists' Study Group, York, UK.* January 2019.

David Glynn. Informing early access and research decisions without full economic modelling. *Health Economists' Study Group, York, UK.* January 2019.

Susan Griffin. Distributional impact of the Malawian EHP. *Health Economists' Study Group, York, UK.* January 2019.

Nils Gutacker. Program evaluation and decision-analytical modelling: The English hip fracture P4P scheme. *University of Nottingham, UK.* January 2019.

Nikita Jacob. The effect of changes in mode of commuting on health. *Health Economists' Study Group, York, UK.* January 2019.

Rodrigo Moreno-Serra. Evaluating the impact of civil conflict on child health: Evidence from Colombia. *Health Economists' Study Group, York, UK.* January 2019.

Laurie Rachet Jacquet. The causal effect of volume on health gains from hip replacement surgery: Evidence from England. *Health Economists' Study Group, York, UK.* January 2019.

Mark Sculpher. We now have estimates of the marginal productivity of the NHS: So what? *Health Economists' Study Group, York, UK.* January 2019.

Ieva Skarda. Microsimulation for lifecourse economic evaluation: A framework and application to early years policy. *Health Economists' Study Group, York, UK.* January 2019.

Peter C Smith. Cross-sectoral interventions for non-communicable disease prevention. *Prince Mahidol Award Conference, Bangkok, Thailand.* January 2019.

Susan Griffin. Kinked thresholds. *NICE Health Economists in Guidelines meeting, Manchester, UK.* February 2019.

Nils Gutacker. Financial incentives and prescribing behaviour in primary care. *University of Manchester, UK.* February 2019.



Nils Gutacker. Financial incentives and prescribing behaviour in primary care. *Monash University, Victoria, Australia.* February 2019.

James Love-Koh, Susan Griffin. Providing information about the health inequality impact of public health recommendations. *NICE Technical Forum, Manchester, UK.* February 2019.

Rodrigo Moreno-Serra. Recent advancements in measuring financial risk protection in LMICs. *GIZ/PGIMER, New Delhi, India.* February 2019.

Mark Sculpher. A framework for value assessment of new antimicrobials. *Wellcome Forum on Value Assessment and Contracting for Antibiotics, London, UK.* February 2019.

Peter C Smith. Methodological issues in setting the health benefits package. *Workshop on the Health Benefits Package, Indian Institute of Public Health, Guwahati, India.* February 2019.

Helen Weatherly. Economic evaluation methods applied to social (long term) care interventions: Where are we now? *University of Warwick, UK.* February 2019.

Susan Griffin. Determining how policies change health inequality to inform funding decisions. *Opportunities for Securing our Future Health. Centre for Future Health and University of York Research Impact Conference UK.* March 2019.

Nils Gutacker. Hospital pay-for-performance schemes. *University of Melbourne, Victoria, Australia.* March 2019

Nils Gutacker. Hospital pay-for-performance schemes. *Macquarie University, NSW, Australia.* March 2019.

Nils Gutacker. Evaluation of best practice tariffs in the English NHS. *NHS England, UK.* March 2019.

Nils Gutacker. The effect of dispensing rights in primary care. *City University of London, UK.* March 2019.

Rowena Jacobs. The cost and quality of mental healthcare provision and the value of service quality in the English NHS. *The Fourteenth Workshop on Costs and Assessment in Psychiatry, Venice, Italy.* March 2019.

Francesco Longo. Integrated personal commissioning: Final reporting. *Integrated Care Policy Evaluation Reference Group (ICPERG). London, UK.* March 2019.

Wiktoria Tafesse. Government contracting with faith-based health care providers in Malawi. *Centre for the Study of African Economies Conference 2019: Economic Development in Africa. Oxford, UK.* March 2019.

Presentations 2019

Helen Weatherly. Investigating the economic case of a service to support carers of people with dementia. *Fourteenth Workshop on Costs and Assessment in Psychiatry, Venice, Italy.* March 2019.

Paul Revill. Charting pathways to a sustainable AIDS response in the SDG era: adding value at country and global levels. *The UNAIDS Global Consultation on the Sustainability of the AIDS Response Results, Geneva, Switzerland.* April 2019.

Nelson Teich. For a sustainable, accessible and fair oncology: Proposals and priorities. *IX Oncoguia National Forum, Brasília, Brazil.* April 2019.

Noemi Kreif. Using machine learning in policy evaluation. *HEHTA, Glasgow, UK.* May 2019.

Francesco Ramponi. Costs, consequences and choices: Economic evaluation of alcohol interventions. *University of York, Research Staff Conference, York, UK.* May 2019.

Mark Sculpher. Beyond cost-effectiveness analysis: how can we make global value assessments more flexible and comprehensive? *Issues Panel, ISPOR New Orleans, USA.* May 2019.

Peter C Smith. Health systems performance assessment – what is it all about? *National Institute for Health and Welfare, Helsinki, Finland.* May 2019.

Ana Duarte. Challenges in the economic evaluation of ATMPs. *The Challenges in the Adoption of Regenerative Medicine Therapies Workshop, University of Toronto, Canada.* June 2019.

Noemi Kreif. Machine learning in policy evaluation: new tools for causal inference. *HOPE Seminar, University of Manchester, UK.* June 2019.

Dan Liu. Relationship between size and quality in general practice. *Westlake Youth Forum, Haining, China.* June 2019.

Sumit Mazumdar. Understanding health system financing reforms for universal coverage in low-and-middle-income countries: The crossroads of politics, history and economics. *WHO Eastern Mediterranean Regional Office (WHO-EMRO), Cairo, Egypt.* June 2019.

Laurie Rachet Jacquet. The causal effect of hospital volumes on health gains from hip replacement surgery. *5th IRDES-Dauphine Workshop on Applied Health Economics and Policy Evaluation, Paris, France.* June 2019.

Mark Sculpher. Innovative funding for innovative therapies. *International Health Technology Assessment Workshop, Taiwan.* June 2019.

Mark Sculpher. Life experiences of managed care agreements for high cost drugs. *International Health Technology Assessment Workshop, Taiwan.* June 2019.

Peter C Smith. Accounting for social risk in medical and social service payments: The English experience. *American Board of Family Medicine, UK Embassy, Washington DC, USA.* June 2019.

Marc Suhrcke. The impact of civil conflict on child health: Evidence from Colombia. *SEMILux Seminar, University of Luxembourg, Luxembourg.* June 2019.

Richard Cookson. Health equity: economic evaluation shouldn't just be about efficiency. Invited talk at *iHEA Congress, Basel, Switzerland.* July 2019.

Mike Drummond. Does the use of economic evaluation have an impact on the utilization of health care resources? Evidence from two European countries. *iHEA Congress, Basel, Switzerland.* July 2019.

Rita Faria. Value and uncertainties in identifying the cost-effective sequence of tests. *iHEA Congress, Basel, Switzerland.* July 2019.

Rita Faria. Clarifying health gains and losses when communicating cost-effectiveness analysis. *iHEA Congress, Basel, Switzerland.* July 2019.

Luis Fernandes. Peer pressure in surgery: How colleagues determine a physician's treatment style. *iHEA Congress, Basel, Switzerland.* July 2019.

James Gaughan. Pay and heterogeneity of response: The case of Best Practice Tariffs. *University of Manchester, UK.* July 2019.

Susan Griffin. A case study in social cash transfers and subsidies for agriculture in Malawi. *iHEA Congress, Basel, Switzerland.* July 2019.

Nils Gutacker. Programme evaluation and decision-analytical modelling: Estimating the cost-effectiveness of the English hip fracture pay-for-performance programme. *iHEA Congress, Basel, Switzerland.* July 2019.

Noemi Kreif. From impact evaluation to decision-analysis: Assessing the extent and quality of evidence on 'Value for Money' in health impact evaluations in low- and middle-income countries. *iHEA Congress, Basel, Switzerland.* July 2019.



Presentations 2019

Francesco Longo. Does perspective matter in the economic evaluation of social care services? An application to vision rehabilitation services in England. *Health Economists' Study Group, University of East Anglia, UK.* July 2019.

James Love-Koh. Economic evaluation and equity impacts of population- and system-level interventions in low- and middle-income countries: concepts challenges and an application to primary health care in Brazil. *iHEA Congress, Basel, Switzerland.* July 2019.

Sumit Mazumdar. Does higher public expenditure on health lead to faster achievement of health-related sustainable development goals? Evidence from state-level panel data in India for the past two decades. *iHEA Congress, Basel, Switzerland.* July 2019.

Georgios Nikolaidis. Borrowing-strength from indirect evidence in health technology assessment: methods and policy implications. *Meta-analysis In Medicine meeting (MiM), The University of Birmingham, UK.* July 2019.

Laurie Rachet Jacquet. The causal effect of volume on health gains from hip replacement surgery: Evidence from England. *iHEA Congress, Basel, Switzerland.* July 2019.

Rita Santos. The impact of mergers on general practices quality. *Health Economists' Study Group, University of East Anglia, UK.* July 2019.

Mark Sculpher. Striving for a societal perspective for economic evaluation. *iHEA Congress, Basel, Switzerland.* July 2019.

Mark Sculpher. Discussion: moving from estimation to decisions in complex interventions. *iHEA Congress, Basel, Switzerland.* July 2019.

Ieva Skarda. Microsimulation for lifecourse economic evaluation: A framework and application to early years policy. *iHEA Congress, Basel, Switzerland.* July 2019.

Peter Smith. When markets fail: Common goods for health. *iHEA Congress, Basel, Switzerland.* July 2019.



Vijay Gc. How value of information methods are used in decision making to inform further research within an iterative process of analysis? A systematic review. *Health Economists' Study Group, University of East Anglia, UK.* July 2019.

Simon Walker. A framework for economic evaluation when costs and effects cross sectors. *iHEA Congress, Basel, Switzerland.* July 2019.

Helen Weatherly. Economic evaluation methods applied to social care interventions: Current methods and next steps. *King's Health Economics, Kings College London, UK.* July 2019.

Nils Gutacker. Financial incentives and prescribing behaviour in primary care. *Nordic Health Economists' Study Group, Reykjavik, Iceland.* August 2019.

Sumit Mazumdar. The challenge of financing primary health care in India. Invited presentation at the *Development Policy Seminar. Organised by Brookings India, New Delhi, India.* August 2019.

Paul Revill. A novel partnership for evidence generation and informing policy formulation on resource allocation and health: the Thanzila Onse programme. *SPEED Conference, Kampala, Uganda.* August 2019.

Rowena Jacobs. The cost and quality of mental healthcare provision and the value of service quality in the English NHS. Invited presentation at *The Workshop on the Economics of Mental Wellbeing, Monash University, Melbourne, Australia.* September 2019.

Rowena Jacobs. The cost and quality of mental healthcare provision and the value of service quality in the English NHS. Invited seminar presentation at *Centre for Health Policy, University of Melbourne, Australia.* September 2019.

Rowena Jacobs. The cost and quality of mental healthcare provision and the value of service quality in the English NHS. Invited seminar presentation at *Macquarie University, Sydney, Australia.* September 2019.

Rowena Jacobs. Funding for mental health services in England. Invited presentation at *Executive Roundtable on Mental Health with Macquarie University Centre for Health Economy (MUCHE), Sydney, Australia.* September 2019.

Noemi Kreif. Contrasting targeted learning and causal forests for inference about conditional average treatment effects of social health insurance programmes. *London School of Hygiene and Tropical Medicine, Centre for Statistical Methodology, UK.* September 2019.

Presentations 2019

Francesco Longo. Does perspective matter in the economic evaluation of social care services? An application to vision rehabilitation services in England. *The EuHEA PhD-Supervisor and ECR conference, Porto, Portugal.* September 2019.

Finn McGuire. The effect of distance to health facility on utilisation of delivery, pre- and post-natal health care services in rural Malawi. *The EuHEA PhD-Supervisor and ECR Conference, Porto, Portugal.* September 2019.

Rodrigo Moreno-Serra. Giving peace a chance: The causal effect of the Colombian peace process on pregnancy outcomes. *University of Sao Paulo, Brazil.* September 2019.

Peter C Smith. Re-thinking health and wellbeing: How health systems contribute to economic and societal progress. *European Observatory seminar on Health and Wellbeing, 74th UN General Assembly, New York, USA.* September 2019.

Peter C Smith. Market failure and common goods for health. *World Health Organization seminar on Financing Common Goods for Health, New York, USA.* September 2019.

Marc Suhrcke. Economic rationales for the use of taxes to improve diets. *University of Chile, Santiago, Chile.* September 2019.

Fan Yang. How much evidence do we have, and how much more do we need for assessing the impact of public health interventions on health inequalities? *The Society for Social Medicine Annual Scientific Meeting, Cork, Ireland.* September 2019.

Luis Fernandes. The impact of the clinical environment on physicians' treatment choices. *CNES 2019, Lisbon, Portugal.* October 2019.

David Glynn. Practical methods to support research prioritisation decisions: rapid assessment of the need for evidence. *NIHR Evaluation, Trials and Studies Coordinating Centre (NETSCC), London, UK.* October 2019.

Noemi Kreif. An application of causal machine learning approaches to explore heterogeneous treatment effects of social health insurance. *Institute of Health and Society, Newcastle University, UK.* October 2019.

Noemi Kreif. An application of causal machine learning to explore the heterogeneous effects of social health insurance. *Hungarian Institute for Economic Research, Budapest, Hungary.* October 2019.

Samuel Lordemus. Colonial origins and health facilities performance in the D.R.Congo. *The 14th Annual Meeting of the African Economic History Network, Barcelona, Spain.* October 2019.

Jessica Ochalek. Health opportunity costs and cost effectiveness thresholds. *The 2nd China Health Technology Assessment Conference, Beijing, China.* October 2019.

Jessica Ochalek, James Lomas. The estimation of health opportunity costs. *Shanghai Health Development Research Center, Shanghai, China.* October 2019.

Pedro Saramago Goncalves. Synthesising individual-level data for decision making in healthcare: challenges from a set of case studies. *Faculty of Medicine of the University of Porto, Portugal.* October 2019.

Helen Weatherly. Trials methodology meets social care research: issues and opportunities. *International Clinical Trials Methodology Conference, Brighton, UK.* October 2019.

Adriana Castelli. Measuring healthcare system productivity. *The Malaysian Ministry of Health, Malaysia.* November 2019.

Rowena Jacobs. Mental health funding, policy and research in England: The economist's perspective. Invited presentation at *Workshop on Mental Health Economics, National Institute of Mental Health, Prague, Czech Republic.* November 2019.

Noemi Kreif. An application of causal forests to explore the heterogeneous effects of social health insurance. *17th Armitage Workshop, Cambridge, MRC Biostatistics Unit, UK.* November 2019.

Noemi Kreif. Examining effect heterogeneity using machine learning: the example of Health Insurance in Indonesia. *What Next for Natural Experimental Studies Expert Workshop, Glasgow, UK.* November 2019.

Noemi Kreif. Short course: Advanced methods for addressing selection bias in real-world effectiveness and cost-effectiveness studies. *ISPOR Europe, Copenhagen, Denmark.* November 2019.



Presentations 2019

Rodrigo Moreno-Serra. Giving peace a chance: The causal effect of the Colombian peace process on pregnancy outcomes. *Workshop on Economics of Health, Inequality and Behaviour, Sydney, Australia.* November 2019.

Paul Revill. Advantages and disadvantages of cost effectiveness analysis (CEA) vs cost benefit analysis (CBA). *UNAID Programme Impact Modelling Advisory Group (PIMAG), Geneva, Switzerland.* November 2019.

Mark Sculpher. Health technology appraisal methods and processes for antibiotics: developments in the UK and implications for Europe. *ISPOR, Copenhagen.* November 2019.

Mark Sculpher. How countries differ in their decision-making about new medical technologies. *Monash Health Economics Forum, Monash University, Kuala Lumpur, Malaysia.* November 2019.

Mark Sculpher. The principles of good decision making for funding of healthcare. *Monash Health Economics Forum, Monash University, Kuala Lumpur, Malaysia.* November 2019.

Peter C Smith. Models of weighted capitation for primary health care. *Seminar on Financing Primary Health Care, Brazilian Ministry of Health, Brasilia, Brazil.* November 2019.

Marc Suhrcke. Randomized controlled trials and the experimental ideal. *University of the Witwatersrand, Johannesburg, South Africa.* November 2019.

Marc Suhrcke. Evaluating the 2014 sugar-sweetened beverage tax in Chile: An observational study in urban areas. *University of Glasgow, UK.* November 2019.

Marc Suhrcke, Noemi Kreif. Introduction to econometric methods for policy and program evaluation global health econometrics and economics training. A workshop at *Wits School of Public Health, Johannesburg, South Africa.* November 2019.



Beth Woods. Estimating the shares of the value of branded pharmaceuticals accruing to manufacturers and to the NHS. *Pharmaceutical Policies in the Long-run: Reflections on 60th Anniversary of the Hinchliffe Report, organised by the Nuffield Department of Population Health, University of Oxford, UK.* November 2019.

Beth Woods, Mark Sculpher. Health technology appraisal methods and process for antibiotics: Developments in the UK and implications for Europe. A workshop at *ISPOR Europe, Copenhagen, Denmark.* November 2019.

Richard Cookson. Fairer decisions, better health – equity-informative methods of health services research. A keynote talk at *Australia and New Zealand Health Services Research and Policy Conference, Auckland, New Zealand.* December 2019.

Noemi Kreif. Examining effect heterogeneity using machine learning: the example of Health Insurance in Indonesia. *HEAL Seminar, University of Lancaster, UK.* December 2019.

Noemi Kreif. The heterogeneous impacts of public health insurance in Indonesia: a machine learning approach. *Hungarian Economic Association Conference, Budapest, Hungary,* December 2019.

James Love-Koh. Decision modelling and economic evaluation in health. *University of Malaya, Kuala Lumpur, Malaysia.* December 2019.

Mark Sculpher. Determining the value of healthcare interventions. *Anaesthesia Research, York, UK.* December 2019.

Staff

New Research Staff

■ **Misael Anaya Montes** *Research Fellow*



Misael joined CHE as a Research Fellow after previously being a PhD student in CHE. His research focused on economic analysis for health policy in the Peruvian health system. Misael holds a Professional Title of Economist by the National University of Callao, Peru, and a degree of Master in Economics by the Pontifical Catholic University of Peru. Misael left

CHE in October 2019.

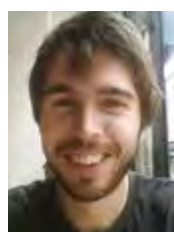
■ **Claire de Oliveira** *Reader*



Claire's main areas of research are in health economics and health services research applied to mental health and child health. Prior to joining CHE, Claire was Head of the Mental Health Economics Unit at the Centre for Addiction and Mental Health (CAMH) in Toronto, Ontario, where she still holds an appointment as a Health Economist. In

addition, she is an Associate Professor (status only) at the Institute of Health Policy, Management and Evaluation at the University of Toronto, an Adjunct Scientist at ICES, and Expert Lead in cancer economics at the Canadian Partnership Against Cancer.

■ **David Glynn** *Research Fellow*



David's research interests include using value of information methods to inform research and reimbursement decisions. David has held positions at the National Institute for Health and Care Excellence (NICE) and the National Collaborating Center for Mental Health. He holds a Master of Pharmacy from the Robert Gordon University and Master of Health Economics from the University of Aberdeen.

■ **Samuel Lordemus** *Research Fellow*



Samuel is working with the Global Health team. He studied at the Paris School of Economics and completed his PhD at the University of Sheffield. His research focuses on development economics, health and conflict, with an emphasis on economic history. He is currently involved in projects with Colombia and the Democratic Republic of Congo.

■ **Sakshi Mohan** *Research Fellow*



Sakshi Mohan joined the Thanzi La Onse research programme. Sakshi holds an MA in International Economic Policy (with a focus on Africa and Global Health) from Sciences Po, Paris. Her master's thesis looked at the demographic and spatial determinants of treatment success among tuberculosis cases in India. Her interests include economic evaluation of health policies in low- and

middle-income countries and data-based solutions for the optimisation of healthcare delivery.

■ **Georgios Nikolaidis** *Research Fellow*



George works in the Technology Appraisal Review (TAR) program of the National Institute for Health and Care Excellence (NICE). Prior to that, he was a PhD researcher undertaking a thesis entitled 'Borrowing-strength from indirect evidence in Health Technology Assessment: Methods and policy implications'. George graduated with distinction from the MSc in Health Economics in York in September

2016 and has a background in Pharmacy from the Aristotle University of Thessaloniki, Greece. His main research interests involve the development and application of methods for HTA.

■ **Francesco Ramponi** *Research Fellow*



Francesco joined the Thanzi la Onse research programme. His current research focuses on the economic evaluation of interventions delivered in low- and middle-income countries. Francesco's research interests also include methods for economic evaluation in the field of public health. He recently completed his PhD studies at CHE and his doctoral thesis focused on cross-sectoral

analysis of public health programmes. Francesco holds a BSc in Economics (University of Trieste, Italy) and an MSc in Economics and Public Finance (University of Padua, Italy).

■ **Chris Sutcliffe** *NIHR Research Methods, Summer Intern*



Chris assisted research on two projects over the summer. The first project, the PEDRO study, evaluated partnerships between deaf people and hearing dogs. His assistance was given under the guidance of Francesco Longo and Helen Weatherly. The second project, the Share of Value project, aimed to estimate the shares of the value of branded pharmaceuticals accruing to manufacturers and to the NHS.

Chris was supervised by Beth Woods and Aimée Fox.

PhD Students

PhD Students 2019

■ **Gowokani Chirwa**

■ **Finn McGuire**

■ **Nelson Teich**

New PhD Students 2019

■ **Jacopo Gabani**



Jacopo is affiliated with the Global Health Team and supervised by Dr Sumit Mazumdar and Professor Marc Suhrcke. His focus is on global health financing and the

evaluation of health system financing reforms in low and middle income countries.

■ **Oliver Kaonga**



Oliver is a PhD student affiliated with the TEEHTA team. His Doctoral research focuses on cross sector economic evaluation of policies and interventions in

low and middle income countries.

■ **Vishalie Shah**



Vishalie is a PhD student affiliated with the Global Health Team. Her research focuses on developing and using innovative statistical methods for impact

evaluations of health policies in low- and middle-income countries. She has a particular interest in machine learning and causal mediation analysis.

■ **Alessandro Grosso**



Alessandro is a PhD student affiliated with the TEEHTA Team and supervised by Susan Griffin and Laura Bojke. Alessandro joined CHE in 2016 as a NIHR

Research Methods Fellow, undergoing an extensive programme of training and work on applied projects and technology appraisals for NICE.

■ **Christopher Lubker**



Christopher's PhD concerns the ethics and economics of equity in health policy; he is supervised by Prof. Richard Cookson and affiliated with

the Equity in Health Policy (Equipol) research group.

CHE Research Fellows also registered for a PhD in 2019

■ **Misael Anaya Montes**

■ **Luis Fernandes**

■ **James Gaughan**

■ **Vijay Gc**

■ **David Glynn**

■ **Katja Grašič**

■ **Dina Jankovic**

■ **Georgios Nikolaidis**

■ **Laurie Rachet Jacquet**

■ **Francesco Ramponi**

■ **Anika Reichert**

■ **Rita Santos**

Staff

Research Staff

- **Maria Goddard**
Professor & Director of CHE
- **James Altunkaya**
NIHR Research Methods Fellow
- **Misael Anaya Montes**
Research Fellow
- **María José Aragón**
Research Fellow
- **Matthias Arnold**
Research Fellow
- **Alastair Bennett**
Research Fellow
- **Laura Bojke**
Reader
- **Adriana Castelli**
Senior Research Fellow
- **Martin Chalkley**
Professor
- **Karl Claxton**
Professor
- **Richard Cookson**
Professor
- **Edward Cox**
Research Fellow
- **Claire de Oliveira**
Reader
- **Michael Drummond**
Professor
- **Ana Duarte**
Research Fellow
- **Rita Faria**
Research Fellow
- **Luis Fernandes**
Marie Curie Early Stage Researcher
- **Aimée Fox**
Research Fellow
- **Francesco Fusco**
Research Fellow
- **James Gaughan**
Research Fellow
- **Vijay Gc**
Research Fellow
- **David Glynn**
Research Fellow

- **Katja Grašič**
Research Fellow
- **Hugh Gravelle**
Professor
- **Susan Griffin**
Senior Research Fellow
- **Nils Gutacker**
Senior Research Fellow
- **Karel Haal**
Research Fellow
- **Martin Harker**
Research Fellow
- **Sebastian Hinde**
Research Fellow
- **Nikita Jacob**
Research Fellow
- **Rowena Jacobs**
Professor
- **Dina Jankovic**
Research Fellow
- **Panos Kasteridis**
Research Fellow
- **Noemi Kreif**
Research Fellow
- **Dan Liu**
Research Fellow
- **James Lomas**
Research Fellow
- **Francesco Longo**
Research Fellow
- **Samuel Lordemus**
Research Fellow
- **James Love-Koh**
Research Fellow
- **Andrea Manca**
Professor
- **Anne Mason**
Senior Research Fellow
- **Sumit Mazumdar**
Research Fellow
- **Andrew Mirelman**
Research Fellow
- **Sakshi Mohan**
Research Fellow
- **Rodrigo Moreno-Serra**
Reader
- **Georgios Nikolaidis**
Research Fellow
- **Jessica Ochalek**
Research Fellow
- **Maria Lucia Pace**
Research Fellow

- **Stephen Palmer**
Professor
- **Thomas Patton**
Research Fellow
- **Laurie Rachet Jacquet**
Marie Curie Early Stage Researcher
- **Francesco Ramponi**
Research Fellow
- **Paul Revill**
Senior Research Fellow
- **Nigel Rice**
Professor
- **Jemimah Ride**
Research Fellow
- **Gerry Richardson**
Professor
- **Idaira Rodríguez Santana**
Research Fellow
- **Claire Rothery**
Senior Research Fellow
- **Rita Santos**
Research Fellow
- **Pedro Saramago Goncalves**
Research Fellow
- **Laetitia Schmitt**
Research Fellow
- **Mark Sculpher**
Professor
- **Ieva Skarda**
Research Fellow
- **Peter C Smith**
Professor
- **Marta Soares**
Senior Research Fellow
- **Marc Suhrcke**
Professor
- **Chris Sutcliffe**
NIHR Research Methods Summer Intern
- **Wiktorja Tafesse**
Research Fellow
- **Simon Walker**
Senior Research Fellow
- **Helen Weatherly**
Reader
- **Beth Woods**
Senior Research Fellow
- **Fan Yang**
Research Fellow

Emeritus Professor

- **Tony Culyer**

Honorary Professors

- **Keith Derbyshire**

Honorary Visiting Fellows

- **David Epstein**
- **Manuel Espinoza**

Visitors to CHE during 2019

- **Daniel Avdic, Ieva Sriubaite**
Monash University, Australia
- **Anirban Basu**
University of Washington, USA
- **Olivia Bodnar**
Dusseldorf Institute for Competition Economics, Heinrich-Heine University of Düsseldorf, Germany
- **Anna-Katharina Böhm**
University of Hamburg, Germany
- **Michael Crowther**
University of Leicester, UK
- **Tracy Comans**
Centre for Health Services Research, The University of Queensland, Australia
- **Cristobal Cuadrado, Francisca Crispi, Matias Libuy**
The University of Chile

Staff

- **Andrea Driscoll**
Deakin University
Australia
- **Giancarlo Buitrago Gutierrez**
Universidad Nacional de Colombia, Bogota, Colombia
- **Taufik Hidayat, Roya Viki Ramadani, Afra Inayah Dhiaiputri**
Centre for Health Economics & Policy (CHEPS). Universitas Indonesia
- **Federica Margini**
Ministry of Health Overseas Development Institute (ODI), Uganda
- **Rachel Meacock**
University of Manchester, UK
- **Dr. Izhar Che Mee and Zaffrulla Bin Hussein**
Malaysia Productivity Corporation, Malaysia
- **Joseph Mfutso-Bengo**
The University of Malawi
- **Maninie Molatseli, Ijeoma Edoaka**
PRICELESS Group, University of Witwatersrand, Johannesburg, South Africa
- **Toni Mora**
Universitat Internacional de Catalunya, Spain
- **Sebastian Neumann**
Erasmus University, Rotterdam
- **Dominic Nkhoma**
The University of Malawi
- **Jamie O'Halloran**
University of Southern Denmark
- **Bill Padula**
University of Southern California, USA
- **Ankur Pandya**
Harvard School of Public Health, USA

- **Ajay Rangaraj**
WHO Geneva, Switzerland
- **Michael Shields**
Centre for Health Economics, Monash University, Australia
- **Aloysius Ssenyonjo, Freddie Ssengooba**
Makerere University, Uganda
- **Andrew Street**
London School of Economics and Political Science, UK
- **Adriano Dutra Teixeira**
University of Sao Paulo, Brazil
- **Daniel Wagner**
University of Calgary, Canada
- **Haiyin Wang**
Shanghai Health Technology Assessment Research Center, China
- **Yuxi Wang**
Department of Social and Political Sciences, Universita Bocconi, Italy
- **Wen Zhang**
University of Hong Kong
- **Eugenio Zucchelli**
Lancaster University, UK

CHE Visiting Fellows

In 2019, Rachel Meacock was awarded a CHE Fellowship. Rachel is from The University of Manchester and her research project is entitled 'Developing a method for estimating the impact of health policy interventions in terms of QALYs'.

Professional and Support Staff

- **Kerry Atkinson**
Administrator
- **Linda Baillie**
Administrator
- **Sally Bowler**
Finance and Research Support Administrator
- **Louise Campbell**
Project Coordinator
- **Sarah Crust**
Administrator
- **Katherine Devlin**
Project Coordinator
- **Gill Forder**
Publications Administrator
- **Kay Fountain**
Administrator
- **John Galloway**
Computing Support Officer
- **Liz Grant**
Finance and Research Support Officer
- **Ruth Helstrip**
Project Coordinator
- **Vanessa King**
Administrative Manager and Assistant to the Director
- **Joanne Milner**
Finance and Research Support Administrator
- **Stephanie Richards**
Project Coordinator
- **Gillian Robinson**
Administrator
- **Alexandra Rollinger**
Project Manager
- **Trish Smith**
Centre Manager
- **Vanessa Wood**
Finance and Research Support Coordinator

New Professional and Support Staff



- **Sally Bowler**
Finance and Research Support Administrator



- **Sarah Crust**
Administrator



- **Katherine Devlin**
Project Coordinator

During 2019 **Louise Campbell** and **Stephanie Richards** were appointed to promoted posts as Project Coordinators.



UNIVERSITY
of York



Centre For Health Economics

Centre for Health Economics
University of York
York YO10 5DD UK
Tel +44 (0)1904 321401
che-web@york.ac.uk
www.york.ac.uk/che
@CHEyork
CentreForHealthEconomics



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