



In this issue: Link between retirement and improved health • New guidelines for reporting mapping studies • 2016 DPhil projects • Cancer drug access in UK • The real cost of hip fractures • Spotlight on Apostolos Tsiachristas • Latest staff news, presentations and publications



Retirement improves health through more exercise and longer sleep

Project lead: Peter Eibich

It is often assumed that retirement has negative consequences for health. While deteriorating health is one of the main reasons for retirement, this effect of health on retirement needs to be disentangled from the actual health effects of retirement. The relationship between retirement and health has been studied by HERC researcher, Peter Eibich, and the results of his work have recently been published in the Journal of Health Economics and reported in the UK press.

The study used data from the German Socio-Economic Panel Study covering the years 1994 to 2012. Many workers choose to retire when they become eligible for a state pension at age 60 (early retirement) or age 65 (official retirement age until 2012). This enables a causal effect of retirement on health to be estimated by comparing individuals slightly above to individuals slightly below these thresholds in a regression analysis.

The empirical results show that retirement increases the probability that an individual reports their health as satisfactory or better. Furthermore, retirement improves mental health and reduces the number of visits to a physician by about one visit every three months.

These improvements arise because retirees change their behaviour: they are less likely to smoke and more likely to undertake frequent exercise. Moreover, retirees sleep on average 40 minutes longer each night. Retirees also pursue a more active lifestyle. They spend more time on repairs and gardening work, running errands and caring for children. Finally, workers retiring from physically straining jobs (e.g. construction workers) benefit from an improvement in their physical health status.

Retirement ages throughout Europe are increasing, and both policy-makers and employers are looking to preserve the health status of older workers. This study shows that older people will use additional leisure-time to pursue an active lifestyle and improve their health. Consequentially, incentives such as part-time work or partial retirement programs might prove effective in maintaining the health of older workers.

For more information: **HERC**

MAPS statement: new guidelines for reporting mapping studies

Project team: Helen Dakin and Alastair Gray

Guidelines for reporting studies mapping onto preference-based outcome measures have been developed by a team that included four HERC staff and research associates. The MAPS guidelines give a list of 23 items that should be reported in any paper describing models or algorithms to predict a preference-based outcome measure (e.g. EQ-5D or SF-6D) from clinical measures or other patient-reported outcome measures.

The checklist is intended to help authors write clear, transparent and complete papers on their work, assist with peer review and publication decisions, and help readers identify good quality papers and avoid drawing misleading conclusions. Checklist items include guidance on describing the source and target instruments, study samples, validation methods, modelling approaches, estimation of predicted utilities, missing data, model selection and performance, uncertainty and limitations.

HERC research associates, Stavros Petrou and Oliver Rivero-Arias, and HERC staff led the development of the checklist alongside researchers from Brunel University, the University of Warwick and the EuroQoL Research Foundation.

The guideline was developed with the aid of a Delphi panel, who helped identify the most important reporting items and refine the text of the recommendations and explanations. The MAPS statement was simultaneously published in seven journals and forms part of the Equator library (www.equator-network.org). An elaboration and explanation document was published in *PharmacoEconomics*, which describes what each checklist item means and what constitutes best practice, with worked examples.

The MAPS working group will assess in five years' time whether the checklist should be updated to reflect advances in the field. The working group also plans to assess the impact of the reporting statement on the mapping literature.

Finally, the mapping literature is growing year on year, and the latest version of the HERC database of mapping studies has just been published at <http://www.herc.ox.ac.uk/downloads/herc-database-of-mapping-studies>. 15 new studies were identified that were published between July 2014 and July 2015, and the database now describes 127 mapping studies reporting 269 mapping models.

For more information: **HERC**

Recruitment

DPHil Projects 2016

HERC has a number of projects available to potential DPhil students applying for admission in October 2016. Please see the links at the end of this section for details of the application process. Below are the projects supervised by HERC's senior academics:

1. Behavioural and socio-economic aspects of alcohol consumption and its effects on health and healthcare costs

Supervisors: Bobby Mihaylova, Associate Professor and University Research Lecturer and Iryna Schlackow, Senior Researcher in Health Economics

2. Conducting economic evaluations of perinatal interventions from a family perspective: identification of challenges for analyses and exploration of potential solutions

Supervisors: Oliver Rivero-Arias, Associate Professor in Health Economics and Helen Dakin, Senior Researcher

3. Determinants of use of cholesterol- and blood pressure-lowering interventions in the UK and other European countries

Supervisors: Bobby Mihaylova, Associate Professor and University Research Lecturer and Iryna Schlackow, Senior Researcher in Health Economics

4. Mapping algorithms from non-preference to preference-based outcome measures: do they really work in practice?

Supervisors: Oliver Rivero-Arias, Associate Professor in Health Economics and Helen Dakin, Senior Researcher and Alastair Gray, Professor of Health Economics & Director of HERC

A number of competitive DPhil scholarships are available, which cover fees and maintenance, for the best prospective students. Details on the process for applying for a DPhil can be found at <http://www.ndph.ox.ac.uk/study/dphil-population-health-2016-entry/How-to-apply>

The initial deadline for applications for entry to the programme in October 2016 is **12 noon on Friday 8th January**

Access to cancer drugs in the UK

Project team: Liz Morrell (CASMI), Sarah Wordsworth and the CASMI team

HERC and the Centre for the Advancement of Sustainable Medical Innovation (CASMI) are currently collaborating on an exciting project which is exploring the health economics of cancer drugs access in the UK. This work has been funded by Cancer Research UK, with the aim of informing their future policy on this controversial, fast-moving issue.

Usage of new cancer drugs is believed to be lower in the UK than in comparator countries. The Cancer Drugs Fund (CDF) was created to increase access, based on the belief that *"it is possible that society values health gains to cancer patients more highly (...) than to patients suffering other conditions"*. One of the first tasks in this project was to carry out a literature review to determine the empirical support for a cancer preference. Although this review indicated a continuing visceral dread of cancer in society, few studies were identified which explored the relative value of cancer health gain. The only two UK studies that were identified gave conflicting results, with extreme sensitivity to the framing of the question.

There is, however, a body of evidence showing that society is prepared to depart from health maximisation to favour the most severely ill, although there is no consensus "severity weight". Our current hypothesis is that the unique combination of characteristics of cancer creates this strong social response. The next phase of this work aims to disentangle those features which may reflect aspects of value that are not captured in the current definitions of health gain (for example, the concept of "hope"), that should be reflected for all patients.

The CDF is not unique as a response to unpopular decisions; cancer-related HTA "workarounds" have been identified around the world, and these have been evaluated with respect to efficiency, equity and other access parameters. We are continuing to explore how these mechanisms lead to different decisions as pointers to ways to capture broader aspects of value.

For more information please contact Liz Morrell at liz.morrell@casmi.org.uk



Hip fractures cost UK hospitals £1.1 billion each year

Project team: José Leal and Alastair Gray

Hip fractures are a major public health problem in terms of patient morbidity, mortality and costs of health and social care. In the UK, the annual number of hip fractures is expected to increase from 79,000 to 104,000 by 2025. Robust and up-to-date evidence of the economic impact of hip fracture is essential to inform healthcare resource allocation decisions in the UK NHS (for example, regarding new hip fracture prevention interventions) but the existing estimates of the costs of hip fractures in a UK context are outdated.

HERC researchers have recently undertaken a study alongside clinical colleagues in Oxford, Southampton and Barcelona to update these estimates and the results of this study hit the headlines in August when they were published in *Osteoporosis International*. This study followed a cohort of 33,000 patients who were admitted with a hip fracture to a UK hospital between 2003 and 2013 until death or administrative censoring. Data were extracted from the Hospital Episode Statistics database on all hospital care received by these patients, both before and after admission.

The results indicated that average hospital costs after hip fracture were £14,163 in the first year and £16,302 in the first two years following hospital admission. Having a hip fracture increased one-year hospital costs by £10,964 compared to the year before the fracture. The main cost drivers in the first year following hip fracture were experiencing a second hip fracture, hip fracture-related complications and breaking other bones. The total annual hospital costs to the NHS associated with hip fractures were estimated to be £1.1 billion.

The study team concluded that the economic impact of hip fractures in the UK NHS is significant, and the cost of treating fractures will continue to rise dramatically in the future unless action is taken to prioritize fracture prevention. Cost-effective interventions which prevent avoidable fractures – such as fracture liaison services – will likely become increasingly important as the UK population ages.

For more information:

HERC

“ Having a hip fracture increased one-year hospital costs by £10,964 compared to the year before the fracture. ”

Spotlight on APOSTOLOS TSIACHRISTAS



I joined the HERC team in January 2015 as a Senior Researcher. My main research interests are related to the financing and economic evaluation of complex interventions, with a particular focus on integrated care. In collaboration with several medical departments across the UK, my current work focuses on the economic evaluation of integrated care models in various disease areas (Oxford CLAHRC), process changes in breast cancer screening (CO-OPS trial) and in cervical cancer screening (STRATEGIC trial), and hospital-at-home in geriatric care (CGA trial). My methodological work focuses on reducing confounding in observational studies and the application of Multi-Criteria Decision Analysis in evaluating complex health interventions.

Prior to my current position, I worked as a researcher at the Institute for Medical Technology Assessment (iMTA), Erasmus University Rotterdam. At iMTA, I investigated the financial incentives that facilitate integrated care

and the impact of these incentives on health spending. I was also involved in the economic evaluation of 22 Dutch disease management programs (ZonMw-Disease management project), a cluster randomised control trial of a COPD disease management program (RECODE trial), and an FP7 EU project which considered the cost-effectiveness of new professionals and new professional roles in integrated care (MUNROS project). In addition, I worked for two years as consultant at APE BV, a public economics consultancy located in The Hague.

Over the last six years, I have taught health economics in undergraduate, postgraduate, and professional courses in Oxford and Rotterdam, and have acted as a guest lecturer at other universities in Europe. I am also leading the health economics special interest group of the International Foundation for Integrated Care (IFIC). I am very much looking forward to continuing with my teaching and research activities at HERC.

Staff News – Welcome to:



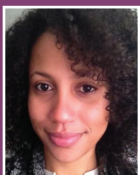
Lucy Aquilina

Lucy is a junior Doctor graduated from Bristol University, now training in the Oxford University Hospitals NHS Trust. As part of her 2nd Foundation year rotation, Lucy is on placement with HERC for four months and has been developing her research skills with José Leal and Filipa Landeiro assisting with their work on hip fractures.



Kate Nichol

Kate, a junior doctor, is on a four month public health placement with HERC until December 2015. She has been working on the Oxford Vascular Study (OXVASC) with Ramón Luengo-Fernández and has also been contributing to the Fracture Free study alongside Filipa Landeiro.



Sophie Diarra

Sophie joined the department as a DPhil student in October this year. Her background is in Health Economics and Public Health. Her research will be focused on the effect of income and other socio-economic and epidemiological factors on child respiratory health in the United Kingdom. She will be using the five waves of the Millennium Cohort Study as her data source and implementing panel

data methods in her analyses. She will be supervised by Mara Violato and Mariá Quigley.

Joel Smith

Joel joined HERC in September 2015 as a Senior Researcher to lead, promote and co-ordinate economic activity within the Oxford Biomedical Research Centre. His research interests include the microeconomic analysis of health data and heterogeneous treatment effects. Joel joins HERC from the University of Edinburgh where his research portfolio has been supported by the Economic and Social Research Council (ESRC), National Institute for Health Research: Health Technology Assessment (NIHR HTA) and the Chief Scientist Office (CSO).

Farewell to:

Helen Campbell

In August we were sad to say thank you and farewell to one of the longest-standing members of HERC, Helen Campbell, who has been with us since 2002. Helen, as everyone who has worked with her or knows her will be aware, is a very talented and conscientious researcher who invariably sets high standards in her work. In her time here she progressed through an MRC Training Fellowship, completed a DPhil, and led or contributed heavily to a series of influential analyses including studies in orthopaedic surgery, breast cancer care, screening and trauma. She has also been a constant and highly regarded presence in HERC's teaching activities, including our short courses in Oxford and elsewhere. Fortunately she is not moving too far: to the National Perinatal Epidemiology Unit, so she will still be in our Department. We hope to continue various collaborations, and meanwhile wish her every success and happiness in the future.

HERC Seminars

Convenor: Laurence Roope

HERC runs a series of seminars with invited speakers from the health economics community who talk on a wide range of applied and methodological topics.

In early September 2015, we welcomed **Chris Schilling**, based at the Centre for Health Policy, University of Melbourne who gave a presentation on *Using CART to identify thresholds and hierarchies in funding decisions*. During Michaelmas Term, **Arthur Attema**, Economist at the Institute of Health Policy & Management, Erasmus University delivered a talk on *Measuring uncertainty preferences for health*. **Clement Quintana-Domeque**, Associate Professor within the Department of Economics, University of Oxford gave a talk entitled *Terrorism and Human Capital at Birth: Bomb Casualties and Birth Outcomes in Spain*. To end the term, **Gregory Merlo**, PhD Student CRE-RHAI, Queensland University of Technology, presented *Understanding the underutilisation of evidence from economic evaluations in healthcare: a mixed methods design*.

Details of forthcoming talks can be found on the HERC website:

To be added to our mailing list for future seminars, email us at

herc@dph.ox.ac.uk

Presentations by members of HERC

30th Annual Congress of the European Economic Association

Manheim, August 2015

Peter Eibich

Understanding the effect of retirement on health: Mechanisms and heterogeneity

Queen's University Belfast

September 2015

Apostolos Tsiachristas

Cost-effectiveness of cancer screening

Payments and economic evaluation of integrated care

Nuffield Department of Population Health Poster Competition

Oxford, October 2015

Procedural and long-term effects of treatment methods for carotid stenosis: a systematic review of randomised and observational evidence. Authors: **Kusal Lokuge**, Alison Halliday, Richard Bulbulia, **Alastair Gray**, **Borislava Mihaylova**

The impact of social isolation on delayed hospital discharges of older hip fracture patients and associated costs. Authors: **Filipa Landeiro**, **José Leal**, **Alastair Gray**

The current practice of handling and reporting missing outcome data in 8 widely-used PROs in RCT publications: A review of the current literature. Authors: **Ines Rombach**, Oliver Rivero-Arias, Crispin Jenkinson, **Alastair Gray**, Orlaith Burke

Hospital costs in relation to body mass index in over 1.1 million women in England. Authors: **Seamus Kent**, Jane Green, Gillian Reeves, Valerie Beral, **Alastair Gray**, Susan A Jebb, Benjamin J Cairns, **Borislava Mihaylova**

14th Portuguese National Conference on Health Economics

Lisbon, October 2015

Filipa Landeiro

The impact of delayed hospital discharges amongst the elderly: a literature review

The impact of social isolation on delayed hospital discharges of older hip fracture patients and associated costs

MRC workshop on Health Economics Analysis Plans

Bristol, October 2015

Borislava Mihaylova

Common themes in HEAPS in CVD prevention: towards standardisation?

American Society of Nephrology Kidney Week 2015

San Diego, November 2015

Rachael Morton, Alan Cass, **Borislava Mihaylova** on behalf of SHARP Collaborators

The Impact of Chronic Kidney Disease on Household Income: Does Health Affect Wealth?

International Clinical Trials Methodology Conference

Glasgow, November 2015

Kusal Lokuge

Systematic review of randomised and observational evidence of effects of treatments for carotid stenosis to prevent stroke

Ines Rombach

The current practice of handling and reporting missing outcome data in 8 widely-used PROs in RCT publications: A review of the current literature

Recent Publications

Gray A, Wilkinson T. *Economic evaluation of healthcare interventions: Old and new directions*. Oxford Review of Economic Policy, 2015

Carr AJ, Cooper CD, Campbell MK, Rees JL, Moser J, Beard DJ, Fitzpatrick R, **Gray A**, Dawson J, **Murphy J**, Bruhn H, Cooper D, Ramsay CR. *Clinical effectiveness and cost-effectiveness of open and arthroscopic rotator cuff repair [the UK Rotator Cuff Surgery (UKUFF) randomised trial]*. Health Technol Assess. 2015 Oct; 19(80):1-218. doi: 10.3310/hta19800

Morton RL, **Schlackow I**, Staplin N, **Gray A**, Cass A, Haynes R, Emberson J, Herrington W, Landray M, Baigent C, **Mihaylova B**. *Impact of educational attainment on health outcomes in moderate-to-severe chronic kidney disease*. American Journal of Kidney Diseases 2015

Eibich P, Buchmann N, Kroh M, Wagner GG, Steinhagen-Thiessen E, Demuth I, Norman K. *Exercise at Different Ages and Appendicular Lean Mass and Strength in Later Life: Results from the Berlin Aging Study II*. J Gerontol A Biol Sci Med Sci. 2015 Oct 5. pii: giv171. Epub 2015

Landeiro F, **Leal J**, **Gray AM**. *The impact of social isolation on delayed hospital discharges of older hip fracture patients and associated costs*. Osteoporos Int. 2015 Sep Epub 2015

Chakravarthy U, Harding SP, Rogers CA, Downes S, Lotery AJ, **Dakin HA**, Culliford L, Scott LJ, Nash RL, Taylor J, Muldrew A, Sahni J, **Wordsworth S**, Raftery J, Peto T, Reeves BC. *A randomised controlled trial to assess the clinical effectiveness and cost-effectiveness of alternative treatments to inhibit VEGF in Age-related choroidal Neovascularisation (IVAN)*. Health Technol Assess. 2015 Oct; 19(78):1-298. doi: 10.3310/hta19780

Taylor J, Scott LJ, Rogers CA, Muldrew A, O'Reilly D, **Wordsworth S**, Mills N, Hogg R, **Violato M**, Harding SP, Peto T, Townsend D, Chakravarthy U, Reeves BC. *The design and implementation of a study to investigate the effectiveness of community vs hospital eye service follow-up for patients with neovascular age-related macular degeneration with quiescent disease*. Eye (Lond). 2015 Oct 9. doi: 10.1038/eye.2015.170. Epub 2015

Leal J, **Gray AM**, Prieto-Alhambra D, Arden NK, Cooper C, Javadi MK, Judge A and the REFRESH study group. *Impact of hip fracture on hospital care costs: a population-based study*. Osteoporos Int. 2015 Aug 19. Epub 2015

Freeman D, Waite F, Startup H, Myers E, Lister R, McInerney J, Harvey AG, Geddes J, Zaiwalla Z, **Luengo-Fernandez R**, Foster R, Clifton L, Yu LM. *Efficacy of cognitive behavioural therapy for sleep improvement in patients with persistent delusions and hallucinations (BEST): A prospective, assessor-blind, randomised controlled pilot trial*. Lancet Psychiatry. 2015 Sep 9. pii: S2215-0366(15)00314-4. doi: 10.1016/S2215-0366(15)00314-4. Epub 2015

Petrou S, Rivero-Arias O, **Dakin H**, Longworth L, Oppe M, Froud R and **Gray A**. *Preferred Reporting Items for Studies Mapping onto Preference-Based Outcome Measures: The MAPS Statement*. Pharmacoeconomics. 2015 Oct; 33(10):985-91

N.B. This article has appeared in various Journals which you will find listed on the MAPS research page:

HERC

Petrou S, Rivero-Arias O, **Dakin H**, Longworth L, Oppe M, Froud R and **Gray A**. *The MAPS Reporting Statement for Studies Mapping onto Generic Preference-Based Outcome Measures: Explanation and Elaboration*. Pharmacoeconomics. 2015 Oct; 33(10):993-1011

Peters JL, Cooper C and **Buchanan J**. Evidence used in model-based economic evaluations for evaluating pharmacogenetic and pharmacogenomic tests: a systematic review protocol. BMJ Open. 2015 Nov; 5(11):e008465 doi: 10.1136/bmjopen-2015-008465

Leal J, **Luengo-Fernandez R**, Sullivan R, Witjes JA. *Economic Burden of Bladder Cancer Across the European Union*. Eur Urol. 2015 Oct 24. pii: S0302-2838(15)01005-2. doi: 10.1016/j.eururo.2015.10.024. Epub 2015

Scanlon PH, Aldington SJ, **Leal J**, **Luengo-Fernandez R**, Oke J, Sivaprasad S, Gazis A and Stratton IM. *Development of a cost-effectiveness model for optimisation of the screening interval in diabetic retinopathy screening*. Health Technology Assessment, 19 (74) Sep 2015, ISSN 1366-5278; DOI 10.3310/hta19740

Dixon P, **Dakin H** and **Wordsworth S**. *Generic and disease-specific estimates of quality of life in macular degeneration: mapping the MacDQoL onto the EQ-5D-3L*. Qual Life Res DOI 10.1007/s11136-015-1145-x

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