

Health Economics Research Centre

HERCnews



www.herc.ox.ac.uk

Issue 31 May 2020



UNIVERSITY OF
OXFORD

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HERC and COVID-19: An update

The world has changed a great deal since we published the 30th issue of the HERC newsletter in February. We hope all of our colleagues, collaborators and newsletter subscribers – and their families – are healthy and coping as well as possible during the COVID-19 pandemic. Our thoughts are with those who have been affected by the virus, and our thanks go to everyone involved in the fight against COVID-19, in particular everybody working in the UK NHS (including four of our colleagues at HERC: Sarah Briggs, Ana Luíza Gibertoni Cruz, Callum Harris and Behrouz Nezafat Maldonado).

As you might expect, everyone at HERC is now working from home and learning to love – or at least tolerate – video conferencing software. The COVID-19 pandemic has had a number of other practical consequences at HERC. Unfortunately we had to cancel two of our popular short courses due to take place in March. We are currently making preparations to offer our one-day **'Introduction to Health Economic Evaluation' course** online – details will be announced in due course. The next **'Applied Methods of Cost-Effectiveness Analysis' course** is currently scheduled for July; this will be reviewed nearer the time.

We were also disappointed to have to cancel the forthcoming HESG meeting in Oxford, we were looking forward to hosting everybody in July. As part of that meeting we had planned a plenary session to mark the 50th anniversary of QALYs. Fortunately we were able to still run that session remotely on 19th May. We hope those who were able to 'virtually' attend enjoyed this thought-provoking session. There is more on this event on page 3.

Despite the practical challenges we are all facing, several members of the HERC team have been able to use their skills and experience to contribute to the scientific evidence base on COVID-19. Koen Pouwels is part of the team that is delivering a **study** tracking COVID-19 infection and immunity levels in up to 300,000 people in the UK, which started in April. Koen has also co-authored a recent paper on **improving COVID-19 surveillance in long-term care**. A second paper, on **understanding the heterogeneity of adverse COVID-19 outcomes**, has recently been published by Francesco Salustri and colleagues. A third paper, **on group testing for COVID-19**, has been published by Koen, Laurence Roope and Philip Clarke in *PharmacoEconomics-Open*.

Apostolos Tsiachristas has been active on several fronts. He is part of a team that has been awarded funding from Hampshire Sustainability and Transformation Partnership to investigate the impact of COVID-19 on patients with type 2 diabetes, and as part of the Better Outcomes For Everyone trial, he will be looking at COVID-19-related complications in patients with asthma and COPD in Italy. In addition, he is investigating the impact of COVID-19 on self-harm and suicide as part of the Multicentre Study for Self-Harm In England, and is working on a study funded by the University of Oxford COVID-19 Research Response Fund on supporting hospital and paramedic employees during COVID-19.

Away from formal scientific studies and outputs, Rositsa Koleva-Kolarova has blogged for *Health Economics, Policy and Law* on **Bulgaria's response to the COVID-19 pandemic**, and a lockdown exit strategy suggested by Philip Clarke and Laurence Roope was recently featured in a **Financial Times article** and a **BMJ blog post**.

For more information on all HERC activities related to and affected by COVID-19, please follow the link below. We hope you all remain healthy in the coming months, and we look forward to sharing more non-coronavirus updates later in the year.

For more information: <https://www.herc.ox.ac.uk/news/herc-covid19-update>



New study identifies extent and costs of self-harm in England

Project lead: Apostolos Tsiachristas

Self-harm cost hospitals in England an estimated £129m in 2013, according to a new study led by HERC in collaboration with the Centre for Suicide Research at the University of Oxford. Our study, published in *Epidemiology and Psychiatric Sciences*, found that the number of people going to hospital as a result of self-harm injuries is 60% higher than previously estimated by Public Health England. Self-harm is often linked to suicide, and preventing both suicide and self-harm is a priority for public health policy in England. However, little is known about the national distribution of self-harm.

We used data collected as part of the Multicentre Study of Self-harm in England. This study included individual data for patients presenting with self-harm at five emergency departments: one in Oxford, three in Manchester and one in Derby. We used these data to build models and undertake statistical analyses to estimate the incidence and cost of self-harm presentations to hospitals across Clinical Commissioning Groups (CCGs, local health service commissioning areas) in England by age and gender.

We estimated that 228,075 hospital visits by 159,857 patients (61% female) occurred as a result of self-harm in 2013 in England. Our definition of self-harm included intentional self-poisoning and self-injury. Almost a third of self-harm hospital visits in men (30%) were in the 40-49 year age group. In women, the highest number of visits occurred in the 19-29 year age group (28%). However, the distribution of self-harm visits was uneven; incidence was lower in coastal areas, higher in inland areas, and highest in London.

The results of this study may assist national and local health decision makers when planning the distribution of funds for self-harm, and prioritising interventions to tackle self-harm in areas with the greatest need. Estimating the incidence of self-harm presentations in each CCG by gender and age highlights sub-populations where additional resources could be targeted to help prevent self-harm and assist those who have self-harmed.

For more information:

<https://doi.org/10.1017/S2045796020000189>



Socioeconomic differences in the use of cardiovascular hospital care in China

Project team: Muriel Levy, Bobby Mihaylova

China's recent rapid economic development and accompanying demographic transition have resulted in a rapidly growing chronic disease burden and increasing healthcare costs. Indeed, cardiovascular diseases are now the leading causes of premature death and morbidity in this country. In 2009, the Chinese government launched major healthcare reforms aiming to provide affordable and equal access to basic health services for all by 2020. However, little is known about their impact on healthcare use and outcomes in urban and rural areas, and in different socioeconomic groups.

We used data from the China Kadoorie Biobank, a nationwide prospective cohort study of 0.5 million adults, to estimate trends in annual hospital admission rates, 28-day case fatality rates, and mean length of stay for stroke, ischaemic heart disease (IHD) and any cause between 2009 and 2016, overall and across different socioeconomic groups.

We found that, after controlling for demographic, socioeconomic, lifestyle, and morbidity factors, hospital admissions for stroke, IHD and any cause increased by approximately 4–5% per year. Furthermore, individuals living in rural areas, with lower education or income levels and enrolled in the urban or rural resident health insurance scheme, had the greatest annual increases in rates of hospitalisation for stroke and IHD, and the greatest reductions in 28-day case fatality rates. During the same period the mean length of stay for stroke, IHD and any cause decreased by about 2% each year with larger reductions among higher socioeconomic groups.

Our study showed that, although socioeconomic inequalities in use of cardiovascular care and health outcomes have persisted during 2009-2016, improvements have been greatest in rural areas and among lower socioeconomic groups. We hope that these findings will inform future policies on increasing healthcare coverage to reduce health inequalities in China and other developing countries.

For more information:

[https://doi.org/10.1016/S2214-109X\(20\)30078-4](https://doi.org/10.1016/S2214-109X(20)30078-4)

Spotlight on Rositsa Koleva-Kolarova



I joined HERC in May 2019 as a Senior Researcher to work on a Horizon2020 funded project titled Health Economics for Personalised Medicine (HECoPerMed). The aim of this project is to provide guidance on state-of-the-art health economic modelling, and on financing and payment strategies, for personalised medicine. I am a member of Work Package

3 together with Apostolos Tsiachristas, James Buchanan, and Sarah Wordsworth, and we are looking into financing and reimbursement of personalised medicine.

So far, we have identified existing financing and reimbursement models that have been implemented in personalised medicine. We are also developing a model for economic evaluation of personalised medicine. The next step is to explore the views of

different stakeholders regarding which models for financing and reimbursement will be appropriate for personalised medicine, and then provide recommendations on how to adopt them across the European Union.

My academic path started in 2005 when I joined the Medical University of Pleven in my home country, Bulgaria, as an Assistant Professor. In 2011 I left for the University of Groningen in the Netherlands to pursue a PhD that focused on the health technology assessment of imaging technologies for breast cancer screening and follow-up. In 2015, I joined King's College London as a Research Fellow. Here, I worked on projects evaluating new models of care (Vanguard), and evaluating the costs and benefits of pharmacogenetics and pharmacogenomics for cardiovascular diseases. Joining HERC has given me the opportunity to meet and work with wonderful colleagues, and I am looking forward to our continuous collaboration.

Spotlight on Ana Luíza Gibertoni Cruz



I am an infectious diseases physician from Brazil with a Master of Public Health and some experience in global health. My work to date has spanned genomes, individuals and populations as I have tried to forge a career that reflects my interest in how infectious diseases affect patients and impact their communities and countries.

I joined HERC in 2018 as a DPhil student under the supervision of Sarah Wordsworth, aiming to develop a health economics project with significant translational potential in the developing world. A key area of interest for me is the routine use of whole genome sequencing (WGS) for diagnostics, treatment design and transmission control. This is a reality for many infectious diseases in the developed world – since 2017, Public Health England has conducted pathogen WGS for every tuberculosis case – but this technology is not available in the low- and middle-income countries most affected by tuberculosis and other infectious diseases.

In my project “Challenges and strategies in implementing genomic diagnostics for infectious diseases in low and middle-income countries: a health economic evaluation” I am reviewing organisational structures for funding and public expenditure, laboratory networks, diagnostic frameworks and biotechnology capacity in the public and private sectors in selected countries. I will then conduct micro-costing analyses and design an economic model to assess the costs and effects of undertaking WGS testing.

I am proud to be part of HERC. The academic excellence of its members, allied to the huge variety of projects undertaken, make for a very intellectually stimulating environment. Having recently become a mother, I have found nothing but support to plan my (maternity) leave, and then to extend this leave when I returned to clinical practice to care for patients with COVID-19 in Oxford. This clinical work keeps me grounded; each patient I see, each risk factor they report, each piece of personal protective equipment I (am lucky to) put on, makes me think of the many individual and societal vulnerabilities we are up against. The research we do at HERC has never been more relevant.

HERC hosts virtual HESG Plenary Session

We were disappointed to have to cancel the Summer 2020 HESG meeting in Oxford, not least because we had planned a plenary session to mark the 50th anniversary of QALYs. However, thanks to the efforts of the HERC and HESG administrative teams, the Oxford organising committee, and the goodwill of the presenters, we were delighted to host a ‘virtual’ version of this session on 19th May.

The session was chaired by Professor Philip Clarke, Director of HERC, and featured three dynamic speakers. Professor Sally Sheard (University of Liverpool) kicked off the session by discussing the complex history of QALY development in UK health policy, from the 1960s to the present day. Professor Anne Spencer (University of Exeter) then considered how the QALY has overcome various methodological challenges over the years, before Professor Aki Tsuchiya (University of Sheffield) took a closer look at the welfarist QALY and the non-welfarist QALY.

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Health Economics
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UK HESG Virtual Plenary Webinar:
In Celebration of the
50th Anniversary of the QALY

Tuesday 19 May 2020 1.30 – 2.45 pm
hosted by the Health Economics Research Centre (HERC),
University of Oxford

The debate concluded with some great questions from the international audience. A recording of the plenary will be made available in the coming weeks on the HESG and HERC websites.

Staff News

Welcome to:



Juliana Lui, who joined HERC in February 2020. Juliana is working with Borislava Mihaylova on developing economic evaluation frameworks to assess the long term effects of interventions on reducing cardiovascular disease risk.



Jack Pollard, who joined HERC in April from RAND Europe. Jack will primarily be working with Mara Violato and Alastair Gray on a programme of research aimed at modelling the mental health outcomes and economic impact of elevated child anxiety, as part of a wider multidisciplinary NIHR-funded five-year research programme.

Farewell to:



Francesco Salustri. We said a fond farewell in May to Francesco who left HERC to take up a new position as Lecturer in Economics at the Institute for Global Health at UCL. Francesco joined HERC in September 2018 and worked with Joel Smith on a number of projects on ambiguity in clinical decision-making. His work at HERC ranged from experimental research – including laboratory and online experiments – to cost analyses of early-phase clinical trials of cardiac surgery, a clinical context in which decisions are often made based on preliminary evidence. We wish him all the best in his new role.

Congratulations to:



James Buchanan, who has been awarded bridging funding from the University of Oxford Medical Sciences Internal Fund to work on a project titled "Extending the health economic analysis of the UK 100,000 Genomes Project Rare Disease Pilot Dataset to the Main Programme Dataset".



Helen Dakin, who has been awarded an NIHR Oxford BRC Senior Research Fellowship. This will facilitate Helen's translational research programme and career development for a period of two years.



Apostolos Tsiachristas, who was promoted to Grade 9 in February 2020.

HERC Seminars

Convenor: Matthew Little

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 February, **Dean Regier** (BC Cancer, University of British Columbia) and **Deirdre Weymann** (BC Cancer) visited HERC to present their work on: *Learning healthcare systems for cost-effective precision oncology*.

Details of forthcoming talks can be found on the HERC website: <http://www.herc.ox.ac.uk>. To be added to our mailing list for future seminars, email us at herc@ndph.ox.ac.uk

Presentations by members of HERC

Cumberland Lodge Study Retreat
Windsor, February 2020
Inna Thalmann
The Future of Democracy

The London School of Hygiene and Tropical Medicine & The International Livestock Research Institute
A virtual workshop on Antibiotic Resistance-Related Intervention Impact Evaluation, March 2020
Koen Pouwels
Improving estimation of trials evaluating optimal antibiotic duration: theory and an application in dogs

Recent Publications

1. Anand P, **Roope LSJ**, et al. *Disability and multidimensional quality of life: A capability approach to health status assessment*. Health Econ. 2020. 1-18. doi:10.1002/hec.4017
2. Balami JS, Coughlan D, et al. [includes **Gray AM**]. *The cost of providing Mechanical Thrombectomy on the UK National Health Service: a micro-costing study*. Clin Med. 2020. doi:10.7861/clinmed.2019-0413
3. Coleman RL, **Gray AM**, et al. *Can the Cardiovascular Risk Reductions Observed with Empagliflozin in the EMPA-REG OUTCOME Trial be Explained by Concomitant Changes Seen in Conventional Cardiovascular Risk Factor Levels? Diabetes Obes Metab*. 2020. doi:10.1111/DOM.14017
4. **Dakin H**, **Gray AM**. *Which interactions matter in economic evaluations? A systematic review and simulation study*. BMC Med Res Methodol. 2020. doi:10.1186/s12874-020-00978-0
5. **Dakin HA**, **Leal J**, et al. [includes **Clarke PM**, **Gray A**]. *Accurately reflecting uncertainty when using patient-level simulation models to extrapolate clinical trial data*. Med Decis Making. 2020. doi:10.1177/0272989X20916442
6. Ehlers A, Wild J, et al. [includes **Tsiachristas A**]. *A randomised controlled trial of therapist-assisted online psychological therapies for posttraumatic stress disorder (STOP-PTSD): trial protocol*. Trials. 2020. 21:355. doi:10.1186/s13063-020-4176-8
7. Esan OB, Perera R, et al. [includes **Violato M**]. *Incidence, risk factors, and health service burden of sequelae of Campylobacter and Non-typhoidal Salmonella infections in England, 2000-2015: a retrospective cohort study using linked electronic health records*. J Infect. 2020. doi:10.1093/infdis/jiaa052
8. Ferrari L, **Salustri F**. *The relationship between corruption and chronic diseases: evidence from Europeans aged 50 years and older*. Int J Public Health. 2020. doi:10.1007/s00038-020-01347-w
9. Hauck K, Miraldo M, **Singh S**. *Integrating motherhood and employment: A 22-year analysis investigating impacts of US workplace breastfeeding policy*. SSM Popul Health. 2020. doi:10.1016/j.ssmph.2020.100580
10. Jit M, Ng DHL, et al. [includes **Pouwels KB**]. *Quantifying the economic cost of antibiotic resistance and the impact of related interventions: rapid methodological review, conceptual framework and recommendations for future studies*. BMC Med. 2020. 18:38. doi:10.1186/s12916-020-1507-2
11. Lau D, Kalaitzaki E, et al. [includes **Wordsworth S**]. *Rationale and design of the POLEM trial: avelumab plus fluoropyrimidine-based chemotherapy as adjuvant treatment for stage III mismatch repair deficient or POLE exonuclease domain mutant colon cancer: a phase III randomised study*. ESMO Open. 2020. 5:e000638. doi:10.1136/esmoopen-2019-000638
12. **Levy M**, Chen Y, et al. [includes **Mihaylova B**]. *Socioeconomic differences in health-care use and outcomes for stroke and ischaemic heart disease in China during 2009-16: a prospective cohort study of 0.5 million adults*. Lancet Glob Health. 2020. doi:10.1016/S2214-109X(20)30078-4
13. Marshall DA, Graziotin LR, et al. [includes **Buchanan J**, **Wordsworth S**]. *Addressing Challenges of Economic Evaluation in Precision Medicine Using Dynamic Simulation Modelling*. Value Health. 2020. 23(5):566-573. doi:10.1016/j.jval.2020.01.016
14. O'Halloran R, **Mihaylova B**, et al. *BMI and cause-specific hospital admissions and costs: The UK Biobank Cohort Study*. Obesity. 2020. doi:10.1002/oby.22812
15. Pitman A, **Tsiachristas A**, et al. *Comparing short-term risk of repeat self-harm after psychosocial assessment of patients who self-harm by psychiatrists or psychiatric nurses in a general hospital: cohort study*. J Affect Disord. 2020. doi:10.1016/j.jad.2020.03.180
16. **Pouwels KB**, **Roope LSJ**, et al. [includes **Clarke PM**]. *Group Testing for SARS-CoV-2: Forward to the Past?* Pharmacoeconomics Open. 2020. doi:10.1007/s41669-020-00217-8
17. **Roope LSJ**, Tonkin-Crine S, et al. [includes **Pouwels KB**, **Wordsworth S**]. *Reducing expectations for antibiotics in primary care: a randomised experiment to test the response to fear-based messages about antimicrobial resistance*. BMC Med. 2020. 18:110. doi:10.1186/s12916-020-01553-6
18. Strombotne K, **Buckell J**, Sindelar JL. *Do JUUL and e-cigarette flavours change risk perceptions of adolescents? Evidence from a national survey*. Tob Control. 2020. doi:10.1136/tobaccocontrol-2019-055394
19. Taggart DP, Gaudino MF, et al. [includes **Gray A**]. *Effect of total arterial grafting in the Arterial Revascularization Trial*. J Thorac Cardiovasc Surg. 2020. doi:10.1016/j.jtcvs.2020.03.013

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To receive this newsletter quarterly email herc@ndph.ox.ac.uk

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