Health Economics Research Centre

HERC news

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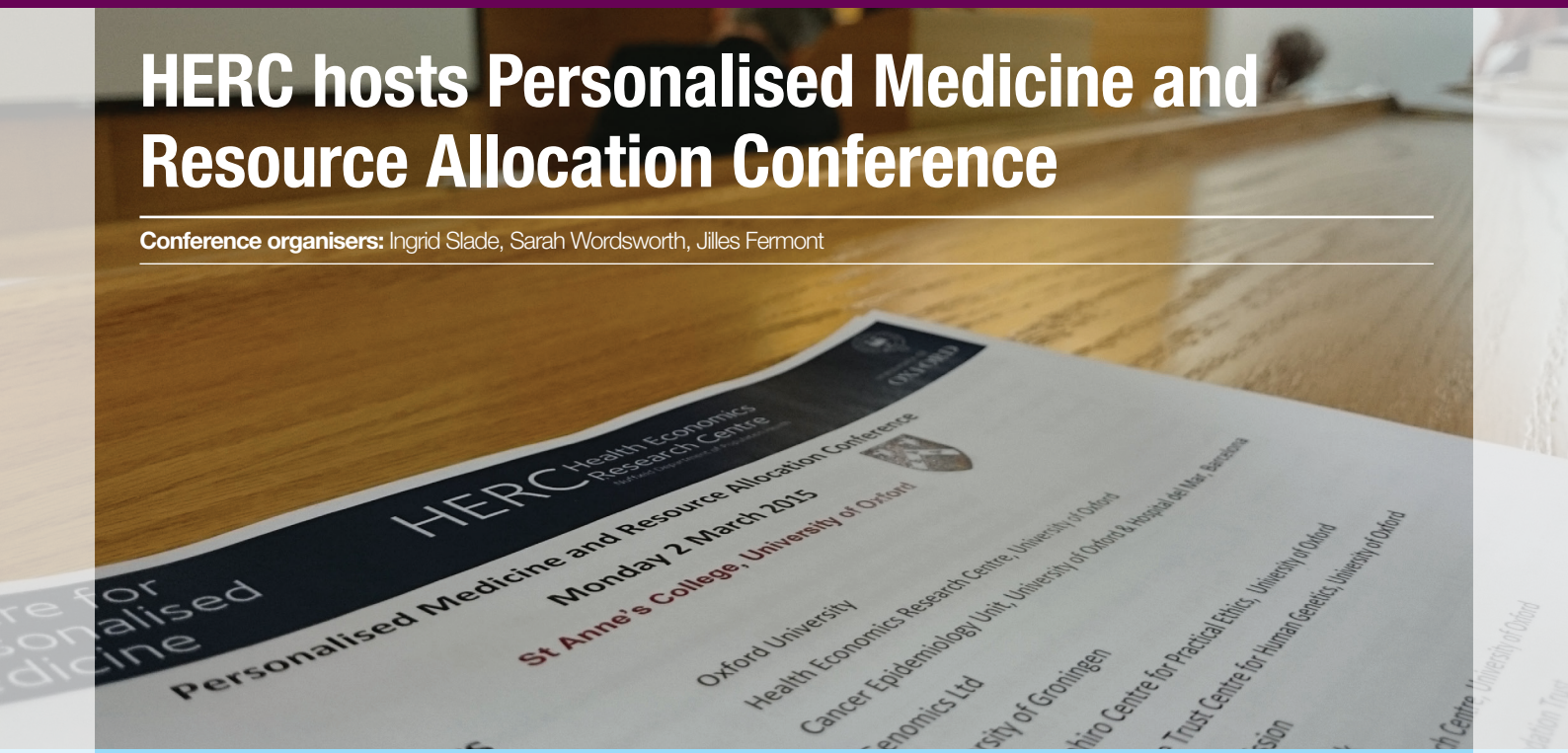
UNIVERSITY OF OXFORD



HERC hosts Personalised Medicine and Resource Allocation Conference

Conference organisers: Ingrid Slade, Sarah Wordsworth, Jilles Fermont

On 2nd March, HERC – in conjunction with the Centre for Personalised Medicine (CPM) at St Anne's College at the University of Oxford – hosted the first conference on Personalised Medicine and Resource Allocation. The main aim of the conference was to explore ways to overcome the challenges associated with implementing genomic medicine into widespread clinical practice. Approximately 70 researchers attended the conference including speakers from the UK, the USA, and Europe.

The day featured a varied programme of presentations beginning with talks from three key figures in health economics and genomics, Kathryn Philips, University of California; Katherine Payne, University of Manchester and Wolf Rogowski, German Research Centre for Environmental Health. The speakers provided both national and international perspectives on the role of health economics in personalised medicine decision-making. The morning then continued with presentations based on submitted abstracts on topics such as practical and ethical issues for individualised cost-effectiveness analysis in risk-based screening, and opportunities and challenges in diagnostic embryo selection during assisted reproduction.

In the afternoon discussions moved towards the challenges of resource allocation decisions in practice. Adrian Towse, Director of the Office of Health Economics, discussed the valuation of next-generation sequencing platforms in healthcare, HERC members James Buchanan and Jilles Fermont described methodological issues surrounding economic evaluation of genomic technologies, and Maarten IJzerman, University of Twente, considered the potential benefits of early stage modelling in this context.

The final session focused on ethical issues. Frances Flinter, Chair of the Medical Genetics Clinical Reference Group, spoke about commissioning clinical and laboratory medical genetics services in the NHS, describing the work of the UK Genetic Testing Network. Mike Parker, Chair of the Genomics England ethics committee and Director of Ethox, University of Oxford, then addressed ethical issues with particular reference to the 100,000 Genomes project. The day was rounded off by philosophers Roger Crisp and Theron Pummer, University of Oxford, who left attendants with food for thought about the use of QALYs in health care allocation, and how personalised medicine could impact on health inequalities.

Both HERC and CPM would like to thank all those that took part in such a successful day.

For more information: HERC

When should blood transfusions be given after cardiac surgery?

Project team: Sarah Wordsworth, Liz Stokes, Danielle Bargo

Blood transfusion is the preferred treatment for acute anaemia after cardiac surgery, but may also be harmful. There is little evidence about the optimal threshold for initiating transfusion after cardiac surgery: most decisions are based on a patient's haemoglobin (Hb) level, but the level causing doctors to transfuse varies widely.

To address this uncertainty HERC researchers recently completed an economic evaluation alongside the Transfusion Indication Threshold Reduction (TITRe2) trial, a multicentre RCT funded by the NIHR Health Technology Assessment (HTA) Programme designed to evaluate different approaches to giving blood transfusions after cardiac surgery. Work on the trial was led by researchers at the universities of Bristol and Leicester, and the results were recently published in the New England Journal of Medicine.

In the trial, over 2,000 patients whose Hb level after surgery was less than 9g/dL were randomised to transfusion only when their Hb was less than 7.5g/dL (the 'restrictive' group) or transfusion straightaway (the 'liberal' group). The trial results indicated that there was no significant difference between the two groups in terms of the primary outcome measure of serious infectious or ischaemic complications within 3 months of surgery (35.1% versus 33.0%). There were, however, more deaths in the 'restrictive' group (4.2% versus 2.6%). The study therefore concluded that patients having heart surgery do not benefit if doctors wait until they become substantially anaemic before giving a transfusion.

Our economic evaluation captures detailed information on patient-level resource use and health outcomes, estimating the cost-effectiveness of a 'restrictive' compared to a 'liberal' transfusion threshold, and the costs of these two approaches were also published in this paper. We found that while there was a clear difference in the costs associated with red cell transfusion (favouring the 'restrictive' group), mean healthcare costs up to 3 months after surgery were similar in the 'restrictive' and 'liberal' groups (£10,636 and £10,814 respectively). The full economic evaluation is currently being written up for publication in a peer-reviewed journal, and the results will also be published in a forthcoming HTA report.

For more information: HERC

Can choice of economic evaluation approach impact on technology adoption decisions?

Project team: James Buchanan and Sarah Wordsworth

Economic evaluations in health generally use a welfarist (e.g. cost-benefit analysis) or extra-welfarist approach (e.g. cost-utility analysis using QALYs). The most commonly applied approach has varied over time, with welfarism dominating in the 1960's and 1970's, before the consensus evolved to favour extra-welfarism in the 1980's. Most decision-makers currently require cost-utility analyses in health technology assessment submissions.

However, there is a growing belief that the extra-welfarist approach may not necessarily provide all the information that decision-makers require in certain contexts, e.g. evaluation of complex interventions such as treatment packages for problem drug users, or genetics services. As the number of these interventions being evaluated increases, it is crucial that the most appropriate approach is used to enable decision-makers to be confident in their adoption decisions. We therefore performed a literature review which aimed to evaluate how choice of approach could potentially impact on the adoption decisions suggested in economic evaluation studies.

In this review, recently published in PharmacoEconomics, we identified references which reported the results of both welfarist and extra-welfarist economic evaluations. We found that for every five studies applying both approaches, one showed limited or no concordance in economic evaluation results: the different approaches suggested conflicting adoption decisions, and there was no pattern to which approach provided the most convincing adoption evidence. In addition, only 10% of these studies indicated which results would best inform adoption decisions.

We concluded that choice of approach can significantly impact on recommended adoption decisions, with conflicting results creating confusion over whether or not interventions provide good value for money. We also noted that the evidence base in this field is limited, which could discourage decision makers from adjusting reference cases to enable the more widespread application of non-QALY based approaches. The support of both decision makers and funders will be required to improve this evidence base.

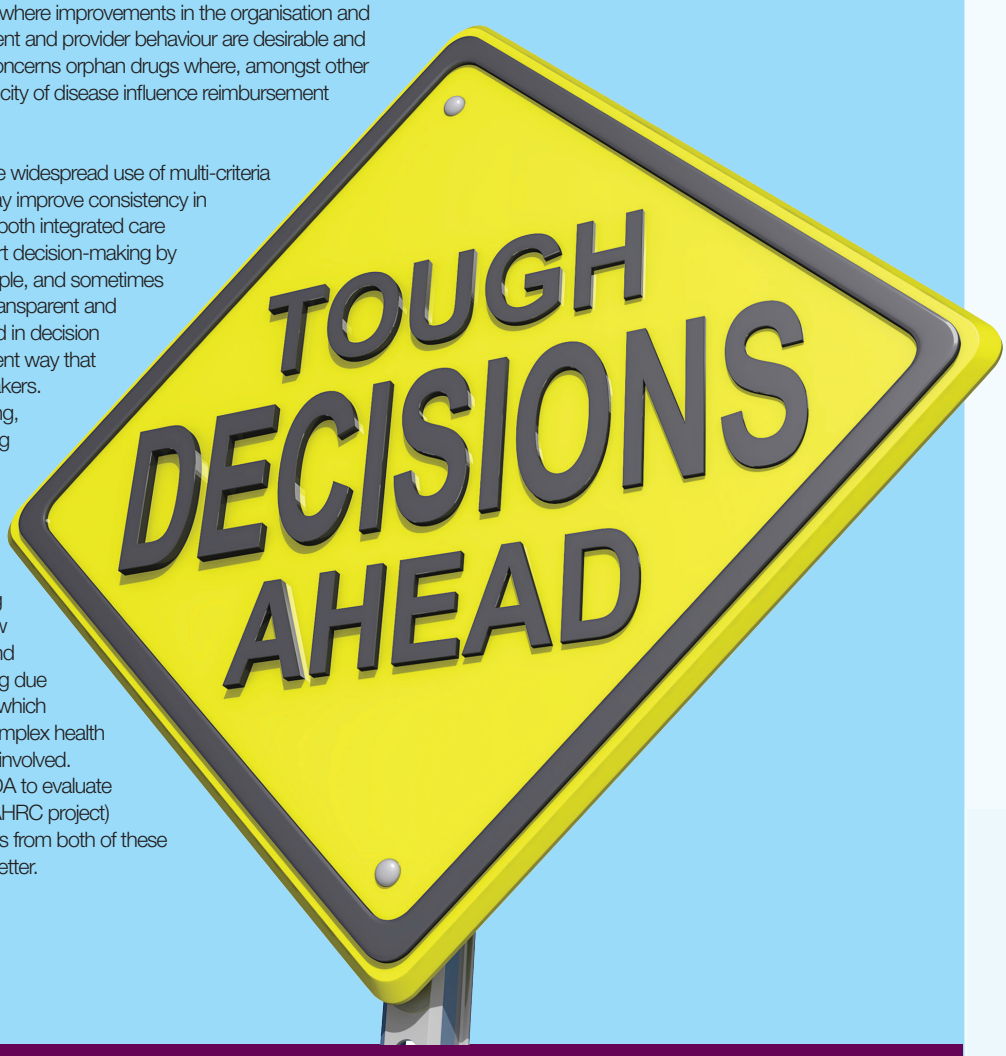
For more information: HERC

Is multi-criteria decision analysis the best way to support reimbursement decisions for complex health interventions and orphan drugs?

Project lead: Apostolos Tsiachristas

Cost-effectiveness analysis is increasingly seen as a legitimate way to support reimbursement decision making for innovative health care interventions. However, some of the outcome measures that are commonly used in cost-effectiveness analyses – such as the QALY – may not capture all of the benefits of some interventions. These interventions fall into two areas. The first includes complex multifaceted interventions such as integrated care programs, where improvements in the organisation and delivery of health care as well as changes in patient and provider behaviour are desirable and relevant to decision-making. The second area concerns orphan drugs where, amongst other factors, budget impact, severity, rarity and chronicity of disease influence reimbursement decision making.

One potential solution to this problem is the more widespread use of multi-criteria decision analysis (MCDA), a technique which may improve consistency in priority setting and reimbursement decisions for both integrated care programs and orphan drugs. MCDA can support decision-making by allowing for a systematic trade-off between multiple, and sometimes conflicting criteria simultaneously in an explicit, transparent and consistent way. Usually these criteria are included in decision making intuitively, or in a hidden or non-transparent way that may jeopardize the accountability of decision makers. Although interest in MCDA approaches is growing, the number of practical applications for evaluating complex health interventions and orphan drugs is limited.



Apostolos Tsiachristas, who joined HERC this year, has been working on the methodological and practical challenges of using MCDA in both of these areas. These include how to incorporate stochastic performance scores and criteria weights, how to deal with double counting due to overlapping criteria and better understanding which MCDA technique is most suitable to evaluate complex health interventions and which stakeholders should be involved. He is currently involved in the application of MCDA to evaluate integrated care programs in the UK (Oxford-CLAHRC project) and the Netherlands (SELFIE EU-project). Results from both of these studies will appear in future editions of our newsletter.

For more information: HERC

Spotlight on THOMAS ROUYARD

I joined HERC in October 2014 to undertake a DPhil in Health Economics sponsored by the NIHR Oxford Collaboration for Leadership in Applied Health Research and Care (CLAHRC). The main aim of my project is to develop a methodological framework to effectively communicate the risks, benefits and uncertainty associated with health interventions in the area of type 2 diabetes, in order to improve patients' self-management behaviour.

My research interests lie in the utilisation of elements from economic theory and decision science for public health purposes. As part of my DPhil thesis, I will use insights from recent theories of decision-making under risk to measure risk preferences of people with type 2 diabetes. According to the results obtained (for example specific cognitive biases identified), the objective is to investigate the most relevant ways of communicating personalised risk estimates of complications, life expectancy and quality of life to those patients using data from the UKPDS outcomes model. The challenge is to explore innovative dimensions such as presentational format in order to develop the most suitable communication tool. Eventually, the impact of this tool on patients' risk perceptions and self-management behaviour will be tested in collaboration with health professionals.

With my previous academic experiences ranging from Pharmaceutical Sciences to Economics, this DPhil project is a great opportunity to conduct research in my area of focus. I feel privileged to have a chance to work in Oxford, which is an environment as stimulating as any foreign student could imagine. I am really enjoying my time here, whether it is at HERC or at the college I am attached to: Green Templeton. Having been in Oxford for less than six months, I must say that the experience has already been very rewarding, both from an academic and a personal perspective.

staff • visitors • students • funding • publications • presentations • seminars

Staff News – Welcome to:

Amar Marthi

Amar is a junior doctor on a public health rotation for 4 months. He will be working on an ongoing literature review on biomarkers in chronic kidney disease with Boby Mihaylova, and contributing to the Fracture Free study with Filipa Landeiro.

Lucy Loong

Lucy is a junior doctor who joined HERC in May to conduct a project looking at quality of life following hip fracture. Lucy graduated from the University of Cambridge in 2013 and has an intercalated degree in developmental biology. During her internship she hopes to develop her research and critical appraisal skills to help her in her future career as a hospital physician.

Zeinab Abbas

Zeinab joined HERC in April 2015. She recently graduated with an MSc in Health Economics from the University of York, and she also has an honours bachelor's degree in pharmaceutical sciences, which has given her knowledge of pharmaceutical manufacturing, drug interactions and pricing and reimbursement. She has spent the last 10 months working at Mapi Group, a Health Economics and Outcomes Research (HEOR) consultancy, where she contributed to various projects. Her tasks included working on scientific reviews, HTA submissions, adapting health economic models and assisting in the preparation of project reports and presentations.

Congratulations to:

Boby Mihaylova and **Sarah Wordsworth,** who have been awarded the title of Associate Professor, and to **José Leal**, who has been awarded the title of University Research Lecturer by The Medical Sciences Board, University of Oxford.

HERC is very pleased to announce the launch of its new website!

The new site, which replaces our old one, and can be found at the same address, went live on 1st May 2015 and brings our online presence right up-to-date. The changes to HERC's website, currently visited over 6000 times per month, will provide us with a more modern online platform for all of our research activity and should also provide a better user experience. Pay HERC a visit online at **www.herc.ox.ac.uk** and try it out for yourself!

Recently Funded

Acceptability and cost-effectiveness of adding genetics to bowel cancer screening. This is a six-month project funded by Cancer Research UK (CRUK) in collaboration with Paul Hewitson, Health Services Research Unit. The main aims of this project are to evaluate population perceptions and preferences for introducing a genetic test (using a saliva kit) to augment the current screening programme, and to provide some initial estimates of the likely cost-effectiveness of implementing such a test. Health Economics lead: Sarah Wordsworth.

Presentations by members of HERC

Personalised Medicine and Resource Allocation (PMRA) conference
St. Anne's College, Oxford (organised by the Centre for Personalised Medicine/HERC), March 2015
James Buchanan and **Jilles Fermont**
Methodological issues surrounding the health economic evaluation of genomic technologies and a case study of these issues in the research setting

Annual Conference of the German Association for Demography
Berlin, March 2015
Peter Eibich
Effects of sports and exercise in different stages of life on appendicular lean mass and strength in the old - Data from the Berlin Aging Study II

CSAE Conference 2015: Economic Development in Africa
St. Catherine's College, Oxford, March 2015
Laurence Roope
Inequality and Growth: a simple structural relationship

International Conference on Integrated Care
Edinburgh, March 2015
Apostolos Tsiachristas
Identifying and explaining the variability in development and implementation costs of disease management programs in the Netherlands

WCO-IOF-ESCEO (World Congress on Osteoporosis, Osteoarthritis and Musculoskeletal Diseases)
Fiera Milano Congressi (MiCo), Italy, March 2015
José Leal
Impact of hip fracture on hospital care costs: a population based study

Leeds University, Academic Health Economics Unit
March 2015
Rachael Morton
The impact of educational attainment level on health outcomes for people with moderate-to-severe chronic kidney disease

Renal Bipartite Meeting
Royal Free Hospital, London, March 2015
Rachael Morton
COnsiderations of Nephrologists when Suggesting Dialysis in Elderly patients with Renal Failure

NIHR Health Protection Research Unit (HPRU) in Gastrointestinal Infections Annual Scientific Meeting
University of Liverpool in London, March 2015
Mara Violato
The Economics of Gastrointestinal Infections

NIHR Health Economics Symposium
St. Catherine's College, Oxford, April 2015
Alastair Gray
Building on existing health economics activity in the Oxford Biomedical Research Centre (BRC)

HERC Seminars Convenor: Jilles Fermont

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.

During **Hilary Term 2015**, Dr Joel Smith, Health Economist, Centre for Population Health Sciences, University of Edinburgh Medical School visited HERC to give a talk on: *Bayesian methods (model averaging and belief networks) when mapping from the Modified Rankin Scale to the EQ-5D* and Benjamin Parker from the University of Warwick presented: *Management of low-grade dysplasia in ulcerative colitis in the UK National Health Service: the cost-effectiveness of immediate surgery versus ongoing surveillance.*

On 26 May 2015, as part of the Richard Doll Lecture series, Professor Karl Claxton, University of York delivered a lecture entitled: *Which health technologies, at what price and for whom: estimating the cost-effectiveness threshold for NICE and the NHS.*

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

To be added to our mailing list for future seminars, email us at **herc@dph.ox.ac.uk**

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Recent Publications

Walker RC, **Morton RL**, Tong A, Marshall MR, Palmer S, Howard K. *Patient and Caregiver Preferences for Home Dialysis – The Home First Study: A Protocol for Qualitative Interviews and Discrete Choice Experiments.* BMJ Open 2015;5 doi:10.1136/bmjopen-2014-007405.

Castellani J, **Mihaylova B**, Evers SMAA, Paulus ATG, Mrango ZE, Kimbute O, Shishira J, Mulokozi F, Petzold M, Singlovic J, Gomes M. *Out-of-pocket costs and other determinants of access to healthcare for children with febrile illnesses: a case-control study in rural Tanzania.* PLoS ONE 10(5) doi: 10.1371/journal.pone.0128166.

Buchanan J and **Wordsworth S**, (2015) *Welfarism versus extra-welfarism: can the choice of economic evaluation approach impact on the adoption decisions recommended by economic evaluation studies?*, Pharmacoeconomics [EPub ahead of print].

Murphy GJ, Pike K, Rogers CA, **Wordsworth S**, **Stokes EA**, Angelini GD, Reeves BC; TITRe2 Investigators. *Liberal or restrictive transfusion after cardiac surgery*. N Engl J Med. 2015 Mar 12;372(11):997-1008. doi: 10.1056/NEJMoa1403612.

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