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Welcome

Welcome to the latest HERU newsletter, which focuses on the challenges in technology assessments of diagnostic procedures within the Preference Elicitation and Assessment of Technologies (PEAT) programme.

The PEAT programme combines research organised within three themes, Preference Elicitation, Experimental Economics and Assessment of Technologies. The programme places a high priority on the dissemination of methods and findings, and listening to the views of decision makers. Therefore, if you would like further information on these projects, or have any other questions related to the research news that is reported, please do not hesitate to contact any member of the team. You can find more information on HERU from our website www.abdn.ac.uk/heru

Professor Bob Elliott stands down as Director of HERU

After almost 11 years Professor Bob Elliot stood down as Director of HERU at the end of September. Bob became Director at HERU on 1st Jan 2002, joining us from the Economics Department here at the University of Aberdeen. Bob brought his interest in labour economics to HERU, and contributed to the development of our Workforce Theme of work.



Throughout his Directorship Bob lead, mentored and inspired researchers, support staff and PhD students within HERU. He successfully guided HERU through two Unit Strategic/Scientific Reviews by our main funder - the Chief Scientist Office of the Scottish Government Health Directorate - thus securing continued core funding of the Unit.

Bob's recognition of capacity building problems in health economics inspired both the internship programme in HERU, now adopted by a number of other Health Economics Units across the UK, and the development of HERU's new MSc in Economics of Health, which started in October 2012.

Under Bob's leadership, staff from HERU made a major contribution to the University's submission to the RAE 2008 Unit of Assessment 7 and were returned with the highest scoring return for the UoA, and joint top of the UK in Health Service Research.

We shall miss Bob's commitment and dedication to directing HERU. We are delighted that Bob will remain a part-time member of HERU, focusing his research on his newly funded EC-FP7 Project and contributing a module on health workforce to our new MSc. We wish Bob all the best in the next chapter of his life.

Professor Mandy Ryan (m.ryan@abdn.ac.uk) will act as Interim Director with Professor Marjon van der Pol (m.vanderpol@abdn.ac.uk) acting as Deputy Director until a new Director of HERU is found. We wish them well in their new roles.

Welcome to the thirty second issue of HERU NEWS

This edition focuses on work undertaken within the Assessment of Technologies Theme, within the Preference Elicitation and Assessment of Technologies (PEAT) Programme.

HERU NEWS and events are discussed on the back page.

Contents

| | |
|---|---|
| Welcome | 1 |
| Professor Bob Elliott stands down as Director of HERU | |
| Professor Stirling Bryan joins HERU | |
| Cost-effectiveness of MRS and enhanced MRI techniques for guiding the localisation of prostate abnormalities for biopsy. | 2 |
| Cost-effectiveness of elucigene and LIPOchip for the diagnosis of familial hypercholesterolemia | |
| Optical coherence tomography (OCT) for the diagnosis, monitoring and guiding of treatment for neovascular age-related macular degeneration. | 3 |
| Other HERU News | 4 |

Professor Stirling Bryan joined HERU in September 2012

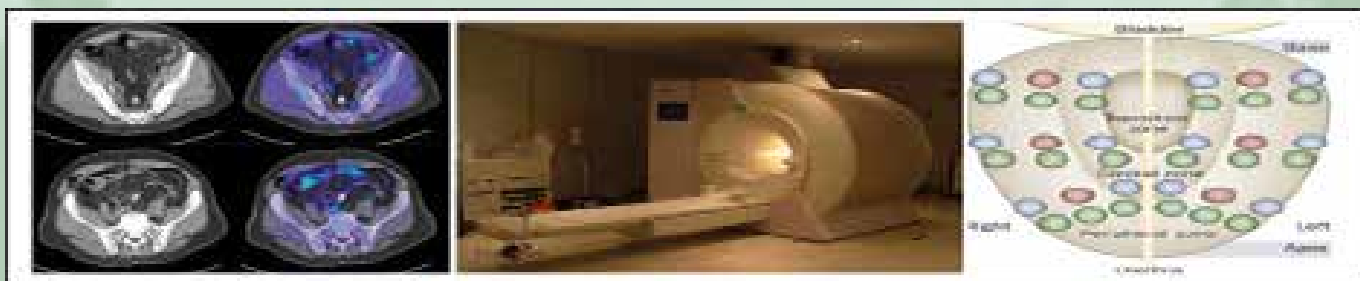
Stirling will mainly focus his research on activities on projects within the PEAT programme. For almost 25 years he has been a university-based practicing health economist with extensive engagement to the policy and decision making world. HERU is delighted to welcome Stirling to the Unit and we look forward to working closely with him to develop new collaborative projects.



Systematic review of the diagnostic accuracy and cost-effectiveness of magnetic resonance spectroscopy and enhanced magnetic resonance imaging techniques in aiding the localisation of prostate abnormalities for biopsy

HERU Investigators: Graham Scotland, Emma Tassie

Other Investigators: Graham Mowatt, Charles Boachie, Moira Cruickshank, John A. Ford, Cynthia Fraser (Health Services Research Unit, University of Aberdeen), Lutfi Kurban, Justine Royle (Aberdeen Royal Infirmary, Aberdeen), Thomas B. Lam (Academic Urology Unit, University of Aberdeen), Anwar R. Padhani (Mount Vernon Cancer Centre, Northwood, Middlesex), Tom W. Scheenen (Radboud University Nijmegen Medical Centre, The Netherlands)



Around 35,000 men are diagnosed with prostate cancer in the UK each year and more than 10,000 die from it. Many men find themselves with the dilemma of having an elevated prostate specific antigen (PSA) level and a prostate biopsy with negative findings, and the best way to manage these subjects remains uncertain. Further repeat biopsies remain controversial for these men, with a risk of over-diagnosis and uncertainties surrounding the optimal number of cores to take, which area of the prostate to target, and which imaging modality to use for guidance. This has led to the introduction of new imaging techniques to direct prostate biopsies. Conventional standard (T2-weighted) magnetic resonance imaging (T2-MRI) can be performed with add-on modalities including three-dimensional magnetic resonance spectroscopy (MRS), dynamic contrast enhanced MRI (DCE-MRI) and diffusion weighted MRI (DW-MRI) that may provide more sensitive and specific information relating to tumour location, size and aggressiveness.

These technologies were the focus of a recent systematic review and economic modelling study involving researchers from HERU. The study assessed the diagnostic accuracy and cost-effectiveness of using MRS and enhanced MRI techniques (DCE-MRI, DW-MRI), in comparison with standard practice (trans-rectal ultrasound guided biopsy (TRUS/Bx)), to aid the localisation of prostate abnormalities for biopsy in men with a prior negative biopsy but remaining clinical suspicion of malignancy.

A systematic review was carried out to determine the diagnostic accuracy of alternative MRI sequences. The results of this systematic review were utilised in a decision model simulating the progression of undiagnosed cancer and the downstream impact of diagnosis and treatment on survival and health related quality of life.

The final report for this project, funded by the NIHR HTA programme (Ref 09/146/01), has been submitted and is currently at the editorial stage. A challenge faced when evaluating the use of different diagnostic tests within on-going patient diagnostic/monitoring pathways, is that modelled survival and QALY differences can be very small and of questionable clinical significance. As such, there is scope for future studies to elicit and apply patient or public preferences for process of care and informational outcomes in the context of decision models such as this one. Such an approach may prove more informative in determining the relative value of alternative approaches to patients.

For further details please see: <http://www.hta.ac.uk/project/2355.asp> or contact Graham Scotland (g.scotland@abdn.ac.uk)

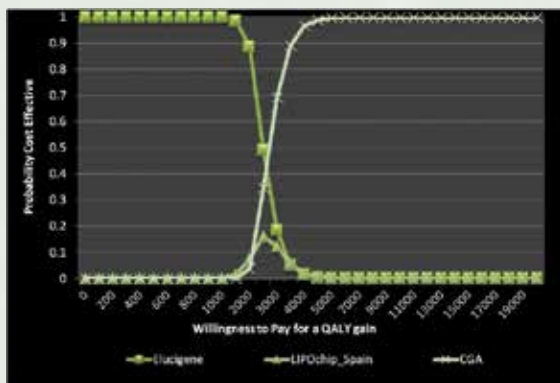
Elucigene FH20 and LIPOchip for the diagnosis of Familial Hypercholesterolemia (FH)

HERU Investigators: Dwayne Boyers, Mary Kilonzo, Paul McNamee

Other Investigators: Pawana Sharma, Charles Boachie, Fiona Stewart, Zosia Miedzybrodzka, Graham Mowatt (University of Aberdeen), William Simpson (NHS Grampian)

FH is a genetic condition, leading to high cholesterol, increased risk of coronary heart disease and mortality. UK prevalence is 1/500 and despite current guidelines recommending DNA testing (NICE CG71), 85% of cases remain undiagnosed. Elucigene FH20 (Gen-Probe), LIPOchip (Progenika Biopharma) and comprehensive genetic analysis (CGA) are among currently available tests. Cascade testing of at risk relatives is initiated based on index case results.

A Markov model linked test accuracy to lifetime costs and QALYs. Sensitivity inputs were 44% (Elucigene), 78% (LIPOchip) & 100% (CGA). Specificity was assumed 100%. Twelve strategies were evaluated. Of the non-dominated strategies, CGA generated greatest QALY gain, with an ICER of £1,030 relative to LDL cholesterol. Probabilistic sensitivity analysis showed CGA to be ~100% cost-effective at a willingness to pay of £20,000/QALY gained (Fig 1).



Our review concluded that Elucigene and LIPOchip were not cost-effective options, given their poor sensitivity relative to CGA testing.

For further information on the project please contact Dwayne Boyers (d.boyers@abdn.ac.uk)

Systematic review and economic modelling of optical coherence tomography (OCT) for the diagnosis, monitoring and guiding of treatment for neovascular age-related macular degeneration ('wet' AMD)

HERU Investigators: Rodolfo Hernández, Olatunde Aremu

Other Investigators: Augusto Azuara-Blanco, Graham Mowatt, Craig Ramsay, Mayret Castillo, Cynthia Fraser (HSRU), Noemi Lois (NHS Grampian), Jennifer Burr (University of St. Andrews), David Clark (Patient Representative)

'Wet' (AMD) is the commonest case of visual impairment in the UK with 13,000-37,000 new cases every year. Since 2008, patients with 'wet' AMD have been able to receive effective treatment with new (anti-VEGF) drugs. Anti-VEGF treatment is given as monthly injections, initially, into the eye, and then treatment is tailored to the individual. Patients need to be monitored frequently with an assessment of the disease activity, before deciding on further treatment.

Diagnosis of 'wet' AMD is done by ophthalmologists who interpret imaging tests, the most important being fluorescein angiography (FA) which is considered the reference standard. FA is relatively invasive (a dye injection into the vein), requires expertise and is time consuming. Optical coherence tomography (OCT) is a relatively new test that is currently used in addition to FA (or as a replacement for monitoring disease status). OCT is non-invasive, safe and easier to interpret than FA, and could potentially fully replace it in the diagnosis and/or monitoring of individuals with 'wet' AMD.

The high incidence and prevalence of 'wet' AMD, together with close monitoring over a period of years has increased the workload of speciality eye clinics in the UK, which already account for over 10% of outpatient activity in the NHS. This is making it difficult for eye doctors and the NHS to decide on the best treatment options for people with 'wet' AMD.

This review aims to assess how best OCT (alone or in combination with other tests) may help ophthalmologists and/or other health professionals to diagnose and monitor individuals with 'wet' AMD. The review findings will feed an economic model that will assess the cost-effectiveness of the test or combinations of tests in diagnosing or monitoring individuals with AMD. The results will help better planning and provision of the different treatment options and will identify areas where further research would be of most benefit.

For further information on this project please contact Rodolfo Hernández (r.a.hernandez@abdn.ac.uk)

Staff, PhD and Intern News...

PhD News: *Sincere congratulations* In June 2012 **Jean-Baptiste Combes** successfully defended (with corrections) his PhD entitled “An Investigation of the Impact of the Local Labour Markets on Staff Shortages and Staff Mix of Hospitals in England and France”.

Furthermore, **Zahidul Quayyum** and **Frauke Becker** successfully defended (with minor corrections) their PhDs in November 2012. Zahidul’s PhD was titled “Developing a needs based resource allocation model for health care expenditure in Bangladesh” and Frauke’s “Economic dietary analysis and physical activity behaviours in relation to obesity”. We also congratulate **Yu Aoki**, joint Lecturer with HERU and the Business School as she successfully defended her DPhil in Economics in December 2012. Yu’s PhD was entitled “Identification of Causal Effects using the 1995 Earthquake in Japan: Studies of Education and Health”.

New PhD Students In October, HERU welcomed three new PhD students - **Antje Tockhorn** who will focus on “The Assessment of pharmaceuticals in the UK - Value-based pricing, patient preferences and the potential role of Discrete-Choice Experiments”; **Sebastian Heidenreich** who is “Assessing the Validity of Discrete Choice Experiments”; and **Liam McMorro** whose PhD is titled “Economic Aspects of Food Choice and its Association with Health Inequalities in Scotland and the UK”.



Antje Tockhorn, Sebastian Heidenreich and Liam McMorro

Health Economics Postgraduate Certificate – Distance Learning

HERU are pleased to announce that Dr Shelley Farrar has taken up the post of Director of our Distance Learning Course. Shelley has been a tutor on Module 4 for many years and is looking forward to ensuring the continued success of the course. Professor Mandy Ryan stepped down as Director after 17 years.

HERU would like to thank Dr Karen Gerard for her input to the course as external examiner during the past five years, and we warmly welcome Dr Phil Shackley on board as our new external examiner.

The course is designed for health professionals who want to gain a recognised qualification in health economics.

The course is accredited by the University of Aberdeen and is modular based.

- **Module 1:** Introduction to Economics and Health Economics;
- **Module 2:** Economic Evaluation: Principles and Frameworks
- **Module 3:** Economic Evaluation: Applications and Policy;
- **Module 4:** Health Care Systems and Policy

To find out more about the course visit our web site or contact **Dr Shelley Farrar** (s.farrar@abdn.ac.uk), our **Course Secretary**, **Lesley Innes** (l.innes@abdn.ac.uk) or visit <http://www.abdn.ac.uk/heru/teaching/home.php>

Research Support

Below is a selection of the awards received over the past few months to support research in HERU:

Professor C. Glazener, HSRU, University of Aberdeen and **Mary Kilonzo** along with other colleagues have recently been awarded a NIHR HTA project entitled “Vault or Uterine prolapse surgery evaluation - two parallel randomised controlled trials of surgical options for upper compartment (uterine or vault) pelvic organ prolapse (VUE)”. The project award is £1.4m and will run over 48 months.

Professor M. Pinar, University of Aberdeen and HERU colleagues **Mandy Ryan** and **Verity Watson** have been awarded a research project from the University of Birmingham entitled “UK National Ecosystem Agreement - Shared Values Work Package. The grant to Aberdeen is for £155,506 for 14 months duration.

Selected Presentations

Over the last few months HERU staff have given the following presentations:

Becker, F. and **Eberth, B.** Decomposition of changes in BMI distributions using quantile regression: Empirical evidence from the HILDA survey, *NHESG*, Kuopio, Finland, August 2012.

van der Pol, M., Ludbrook, A. and **Ryan, M.** Incentives in health promotion: taxing people for unhealthy behaviours or paying people for healthy behaviours? *British Science Festival*, Aberdeen, September 2012.

Rao, K., Shroff, Z., Ramani, S., Khandpur, N., Murthy, S., Hazarika, I., Choski, Ryan, M., Berman, P., Vijovic, M. How to Attract Health Workers to Rural Areas? Findings from a Discrete Choice Experiment from India. *Bringing Evidence into Public Health Policy (EPHP) Conference*, Bangalore, India, October 2012.

Olajide, D., and Ludbrook, A. Patterns of multiple health behaviours and associated disease outcomes amongst Scottish adults: a latent class regression approach. *Annual Public Health Conference*, Crieff Scotland, November 2012.

Ludbrook, A., van der Pol, M., Ormston, R. and **Amanda, A.** Innovation in smoking cessation: the impact of quit4u on take up and smoking quit rates in a deprived area. *Annual Public Health Conference*, Crieff Scotland, November 2012.



HERU is supported by the Chief Scientist Office (CSO) of the Scottish Government Health Directorates. The views expressed here are those of the authors and not necessarily those of CSO.

www.abdn.ac.uk/heru

CONTACT US



UNIVERSITY OF ABERDEEN

Health Economics Research Unit

University of Aberdeen, Institute of Applied Health Services, Polwarth Building, Foresterhill, Aberdeen AB25 2ZD

t: +44 (0)1224 437196 / 437196

f: +44 (0)1224 437195 e: heru@abdn.ac.uk