Welcome to the twenty fourth issue of HERU NEWS

This edition focuses on the Preference Elicitation and Assessment of Technologies Programme.

HERU NEWS and events are discussed on the back page.

Welcome to the latest HERU newsletter, which focuses on the Preference Elicitation and Assessment of Technologies (PEAT) programme.

In this issue, we describe projects being conducted within the theme of Assessment of Technologies. Focus is placed on both completed and projects in progress in the clinical area of ophthalmology.

The Programme places a high priority on the dissemination of methods and findings, and listening to the views of decision makers within the NHS. We are therefore delighted to be hosting a forthcoming conference in the topic area that is the focus of this newsletter (see the adjacent column for more details).

If you would like further information on the projects detailed overleaf, or on other research, please do not hesitate to contact myself or another member of the team.

For general information on the work undertaken within the Programme and HERU please visit www.abdn.ac.uk/heru.

I hope you enjoy the Newsletter, and thank you for taking the time to read it.

Paul McNamee
Senior Research Fellow
PEAT Programme Director

HERU POLICY CONFERENCE
Informing difficult decisions: The role of health economics in eyes and vision research

Edinburgh, 24th March 2010

The NHS has to make difficult decisions on which treatments should be provided. Eye diseases are no exception to this and Health Economics can help to inform these decisions. The aim of this conference is to discuss the current role and future contribution of health economics in the area of eye diseases. Presenters include HERU staff, HERU clinical collaborators as well as other prestigious guests that will talk on the views and challenges for evaluation and implementation from the different stakeholder’s perspectives.

This one day conference will be held at Royal College of Surgeons of Edinburgh Complex, in Edinburgh on the 24th March 2010.

For more information please visit the HERU Website: www.abdn.ac.uk/heru.
Projects assessing the cost-effectiveness of automated diabetic retinopathy grading in Scotland

Principal Investigator: John Olson (NHS Grampian), HERU Investigators: Graham Scotland and Paul McNamee, on behalf of the Scottish Diabetic Retinopathy Clinical Research Network

Systematic screening for diabetic retinopathy has been identified as a cost-effective use of health service resources, with national screening programmes based on digital photography being implemented across Europe. A three-level manual grading system is currently used in Scotland.

In an initial study an automated algorithm was developed to perform the task of level-one (disease/no disease grading) grading and its sensitivity/specificity was compared with that of manual level-one graders using a reference graded set of 14,406 images from 6722 consecutive patients.

Applying the derived sensitivity/specificity estimates in a decision tree model, along with grading cost data from the Grampian screening programme, we estimated that implementation of automated grading (in Scotland) would result in the identification of 5,560 referable cases (86.9%) annually, while full manual grading would identify 5,610 referable cases (87.7%). The predicted savings associated with automation, in terms of manual grading and quality assurance costs, were in the region of £200,000 per year.

In a follow up study, a more sophisticated algorithm capable of detecting additional features of observable/referable retinopathy was developed and its efficacy and cost-effectiveness were assessed relative to the previously described algorithm, and in comparison with manual grading.

This time the efficacy of the alternative algorithms was assessed using a reference graded set of images from three screening centres in Scotland (1253 cases with observable/referable retinopathy and 6,333 individuals with mild or no retinopathy).

In comparison with the older algorithm, the new algorithm had improved sensitivity with no loss in specificity.

An independent review of the evidence from these studies, supported by additional evidence from a recent validation study, recommended that automated grading be implemented in Scotland.

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Total grading/diagnosis cost</th>
<th>Incremental cost</th>
<th>Referable cases detected</th>
<th>Additional referable cases detected</th>
<th>Incremental cost per additional referable case detected</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Original automated algorithm</td>
<td>£699,202</td>
<td></td>
<td>5,998</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(b) New automated algorithm</td>
<td>£706,961</td>
<td>£7,759</td>
<td>6,111</td>
<td>113</td>
<td>£68.66</td>
</tr>
</tbody>
</table>

For further information on this project contact Graham Scotland (g.scotland@abdn.ac.uk)

Cost-effectiveness of internal limiting membrane peeling versus no peeling for patients with idiopathic full thickness macular hole: results from a randomised controlled trial

Principal Investigator: Noemi Lois (NHS Grampian), HERU investigators: Laura Ternent and Luke Vale, on behalf of the FILMS Trial Group

A full-thickness macular hole (FTMH) is a common retinal condition associated with impaired vision. Internal limiting membrane (ILM) peeling may increase the success of macular hole surgery. However, the cost-effectiveness of the procedure with and without ILM peeling is uncertain. An economic evaluation was performed alongside a randomised controlled trial (RCT) to determine the effectiveness and cost-effectiveness of surgery with ILM peeling compared with surgery without peeling. One-hundred and forty one participants were randomly allocated to either ILM peel or no ILM peel. Health service resource use, costs and quality of life were calculated for each participant. Incremental cost per quality-adjusted life year (QALY) gained was calculated at the end of the six month follow-up.

At 6 months total costs were higher (£453 greater), although not statistically significant, in the No Peel group primarily because of the increase in reoperations. The mean health gain from Peel at six months was 0.002 additional QALYs (adjusted for baseline EQ-5D and other minimisation factors). A mean incremental cost per QALY was not computed as Peel was less costly and slightly more effective. There was a 93% probability that Peeling would be cost-effective at a willingness to pay threshold of £20,000 per QALY.

Although there is no evidence of a statistically significant difference in either costs or QALYs the balance of probabilities is that ILM Peeling is likely to be a cost-effective option for the treatment of macular holes. Further long-term follow-up data is needed to see if costs and outcomes change over time.

For further details contact Professor Luke Vale (l.vale@abdn.ac.uk)
Effectiveness of lens extraction with intraocular lens implantation for the treatment of primary Angle Closure Glaucoma (EAGLE)

PI: Augusto Azuara-Blanco (University of Aberdeen), HERU Investigators: Luke Vale and Zahidul Quayyum for the EAGLE Study Group

Glaucoma is the second most common cause of blindness worldwide. Primary angle closure glaucoma (PACG) is one of the two main types of glaucoma (the other being primary open angle glaucoma, POAG) and is more likely to result in irreversible blindness if not properly treated. In the UK, PACG affects between 50,000 and 100,000 people. It is estimated that this would cause up to 1000 people to suffer irreversible severe visual loss every year, and many more to live with associated disability. PACG is more common in East Asia than anywhere else.

The current standard care for PACG is a stepped approach of a combination of laser iridotomy surgery (opening drainage angle) and medical management. If these treatments fail glaucoma surgery is indicated.

Lens extraction for PACG is gaining interest among specialists internationally. In the EAGLE study, an MRC funded international multi-centre randomised controlled trial (RCT) undertaken by HSRU and HERU, the aim is to determine whether early eye lens extraction for newly diagnosed Primary Angle Closure Glaucoma (PACG) would result in better patient reported health, and whether this method of treatment is cost-effective compared with standard management.

Recruitment of patients for the trial started in January 2009 in 18 specialist centres in UK and nine participating centres in Singapore, Malaysia and Hong Kong. In the economic evaluation, the outcomes of the comparative treatments will be measured in terms of quality of life and costs. The costs of the treatment and subsequent management for both interventions will be estimated and incremental cost per quality adjusted life year (QALY) gained will be calculated. QALYs will be based on the responses to the EQ-5D and glaucoma specific QALY.

This major international trial aims to recruit 400 randomised patients (200 from each of UK and Asia) and is due to report in February 2014. The results will help inform decisions worldwide about the optimal treatment of PACG.

For further information contact Luke Vale (l.vale@abdn.ac.uk)

Developing the intervention and outcome components of a proposed RCT of screening for open angle glaucoma

Principal Investigator: Jennifer Burr (University of Aberdeen), HERU Investigators: Luke Vale and Rodolfo Hernández for the Glaucoma Platform Study Group

Open angle glaucoma (OAG) is a primary, progressive optic neuropathy; the onset is asymptomatic and progression occurs silently until the disease is moderately advanced when vision is affected. Blindness due to OAG is irreversible. It has been argued that OAG may be a condition that fulfils the criteria for population screening. A Randomised Controlled Trial (RCT) is the optimal design to determine whether screening is effective, but no such RCT has been undertaken. However, such a trial is likely to be costly and difficult to perform. In this study we aim to develop key aspects of a trial design so that any subsequent trial has the best chance of success.

The study uses a mixed method, multidisciplinary approach to address the following research questions:

1. What screening strategy will give the optimal combination of feasibility and acceptability to providers?
2. How feasible are the proposed identification strategies for each at-risk group and, given the results, what is the most appropriate unit of clustering?
3. What are the most likely effective interventions for maximising screening attendance by the targeted individuals?
4. What are the most appropriate methods for obtaining primary clinical and patient reported outcomes for use in the trial?

Economic evaluation will be used in an iterative manner. For instance, those strategies that are feasible and acceptable for providers and more likely to be cost-effective are going to be further investigated to assess whether any of them are acceptable to service users. The aim of the economic component is aid in the development of a screening strategy so that any strategy tested within a trial has at least the potential to be effective and cost-effective.

This is an ongoing study led from the University of Aberdeen that involves collaborators across the UK and Europe and will be completed in the second half of 2010.

For further details contact Luke Vale (l.vale@abdn.ac.uk)
Below is a selection of the awards received over the past few months to support research in HERU.

Marjon van der Pol secured funding for a 3-year PhD studentship funded by the MRC and the Division of Applied Health Sciences, University of Aberdeen. Ewan Gray’s PhD entitled “Time preferences for Future Health Events” started his PhD in October 09. Funding amounts to £54,647

Dr Ada Ma along with collaborators in Manchester, York and Dundee were recently awarded a research grant from the Chief Scientist Office (CSO) of the Scottish Government Health Directorates. This project will undertake “An Examination of Changes Introduced in the Quality and Outcomes Framework in 2006/07 and Their Effects on the Delivery of Primary Care in Scotland”. This grant secured £49,132 for a 1-year project which will start in July 2010.

Paul McNamee in collaboration with Professor Blair Smith, Centre of Academic Primary Care, University of Aberdeen and other colleagues recently secured funding from the MRC project entitled “Engaging with Older people to Develop and Deliver Interventions for the Self-management of Chronic Pain (EPIC)”. This project will run for 48 months and was awarded £1,058,605

Luke Vale and Laura Ternet along with Mr Angus James Watson, Department of Surgery, Manchester Royal Infirmary and other collaborators were recently awarded a project entitled “A Pragmatic Multicentre Randomised Controlled Trial Comparing Stapled Haemorrhoidopexy to Conventional Excisional Surgery for Haemorrhoidal Disease” from the National Institute for Health Research HTA Programme. The award amounts to over £1.9 million over 60 months.

Health Economics Postgraduate Certificate – Distance Learning

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 website or contact Professor Mandy Ryan (m.ryan@abdn.ac.uk) or our Course Secretary (alison.horne@abdn.ac.uk) or visit http://www.abdn.ac.uk/heru/teaching/home.php

Selected Presentations

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

Ryan, M. Measuring values in HTA: Going beyond QALYs. Invited presentation at Health Technology - burden or benefit in an economic crisis? Forum, 12th European Health Forum Gastein (EHFG), Bad Hofgastein, September 2009.


Olajide, D. and Smith, M.D. Implications of missing data amongst linked hospitalisation records. SHIP International Conference, University of St. Andrews, September 2009.

Smith, M.D., Eberth, B. and Olajide, D. Heart Disease and intensity of Smoking. SHIP International Conference, University of St. Andrews, September 2009.