



Canolfan Economeg Iechyd a Gwerthuso Meddyginiaethau

CHEME

Centre for Health Economics and Medicines Evaluation



PRIFYSGOL
BANGOR
UNIVERSITY

SUMMER 2017

Welcome to the Summer 2017 newsletter of the Centre for Health Economics and Medicines Evaluation (CHEME)

In this issue, we focus on recent achievements which include CHEME's research contribution being published in the highest impact journals—a trial of the efficacy of adalimumab in uveitis associated with juvenile idiopathic arthritis published in the NEJM; and of the efficacy of intravitreal aflibercept in patients with proliferative diabetic retinopathy, published in the Lancet.

Our research is also generating impact, having been presented recently at the Medicines and Healthcare products Regulatory Authority, Pricewaterhouse Coopers and EFTEC (Economics for the Environment Consultancy).

Further information on research, teaching (including short courses) and NHS support activities is available from our website: cheme.bangor.ac.uk or contact our administrator Ann Lawton: cheme@bangor.ac.uk

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Professor Dyfrig Hughes & Professor Rhiannon Tudor Edwards

CHEME co-directors

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The CATCH trial (Catheter Infections in Children; Lancet 2016; 387:1732-42) which was led by Prof Ruth Gilbert of UCL, and with Colin Ridyard and Dyfrig Hughes conducting the health economic evaluation, was runner-up in the BMJ award for **UK research paper of the year**. This award category recognises original UK research that has the potential to contribute significantly to improving health and healthcare.

SPOTLIGHT ON RESEARCH...

Cutting-edge research

Juvenile idiopathic arthritis (JIA) is the most common rheumatic disease in children, associated with inflammation of the uvea (uveitis) in about 25% of patients. An NIHR/AR-UK funded RCT showed that, added to methotrexate, adalimumab controlled inflammation and was associated with a lower rate of treatment failure than methotrexate alone at 2 years among children and adolescents with active JIA-associated uveitis. *N Engl J Med.* 2017;376:1637-646.

Proliferative diabetic retinopathy is the most common cause of severe sight impairment in people with diabetes. It has been managed by panretinal laser photocoagulation for the past 40 years but an RCT of 232 participants has now demonstrated that intravitreal aflibercept improved outcome at 1 year. *Lancet.* 2017;389:2193-203.

Economic evaluations of both interventions are ongoing.

Public Health Economics—Skills Swap Programme

For our first CHEME 'skills swap', Rhiannon Tudor Edwards and Eira Winrow visited PwC and EFTEC in London in May to speak with researchers undertaking Cost-Benefit Analysis for many public and private organisations.

At PwC, they met with Environmental Economists Mark Ewins, Will Evison and Alice Sireyjol; and at EFTEC, they met with EFTEC founder and Environmental Economist Ece Ozdemiroglu and her team. Rhiannon took questions from the teams at both venues about her work and experience as a Health Economist and the use of QALYs and alternative outcome measures in Public Health research, and we very much hope to welcome PwC and EFTEC to CHEME in the very near future.



Personalised medicine—Economics of Pharmacogenetics

Researchers within the pharmacoeconomics section of CHEME are involved in a number of projects relating to personalised medicine, including, cost-effectiveness analyses of pharmacogenetics tests to avoid / reduce the likelihood of adverse drug reactions, and development of methods for determining the value of pharmacogenetics tests when used in different context — such as to inform diagnosis, monitoring, or exclusion of drug. Recent findings are reported in the Academy of Medical Sciences and the UK Pharmacogenetics & Stratified Medicine Network publication on the health economics of stratified medicine, available from: <https://acmedsci.ac.uk/file-download/61141574>

Orphan drugs revisited

Back in 2013, we published the results of a person trade-off survey of UK societal preferences for HTA policies, including the Cancer Drugs Fund, the end-of-life criteria and funding for orphan drugs (*Health Econ.* 2013;22(8):948-64). More recently, Dyfrig Hughes collaborated with researchers at the University of Sydney (Lesley Chim, Glenn Salkeld, Martin Stockler and others) to conduct a similar survey in Australia. We found that, all else being equal, cancer and rarity per se were not factors that strongly drive public funding priorities.

Pharmaceutical companies which are orphan drug market authorisation holders are highly profitable. Elin Haf Davies and Dyfrig Hughes described the processes and mechanisms for orphan drug ownership by socially motivated, not-for-profit organizations which may facilitate access to more affordable treatments. They are now collaborating with Duchenne UK with the aim of realising this possibility.

UPCOMING EVENTS...

Welsh Medicines Research Symposium

Dyfrig Hughes will host the inaugural Welsh Medicines Research Symposium on July 18th. The event is sponsored by the Royal Pharmaceutical Society, the Betsi Cadwaladr University Health Board, Health and Care Research Wales and Bangor University. This year's keynote speaker is Professor Marjorie Weiss from the University of Cardiff.

CHEME lunchtime seminars

Forthcoming speakers include:

4 July - Dr Gianluca Baio, University College London

1 August - Dr Chris Gibbons, University of Cambridge

5 September - TBC

3 October - Dr Harry Rutter, School of Hygiene & Tropical Medicine



STAFF NEWS...

Dementia and Imagination

The end of study event for the ESRC and AHRC funded Dementia and Imagination study of an arts intervention for people with dementia was attended by policymakers, academics, practitioners and third sector organisations.

CHEME led the economic evaluation work package for the study, and Carys Jones presented the findings of the Social Return on Investment analysis. Engaging with stakeholders is at the heart of SROI analysis, and one of the highlights of the event was a panel session involving study participants, i.e. people with dementia and their carers, discussing their experiences and involvement with the project.

ACTIFcare Meeting, Brescia

Rhiannon Tudor Edwards and Carys Jones attended the final ACTIFcare meeting in Brescia, Italy. ACTIFcare was a multi-country longitudinal study of people with dementia and their carers who were identified as being on the verge of needing formal care services. Rhiannon Tudor Edwards was on the international scientific advisory board for the study, providing health economics expertise.



ICTM Conference

At the North West Hub for Trial Methodological Research, health economists from CHEME presented at the joint meeting of the International Clinical Trials Methodology and the Society for Clinical Trials on: methods for benefit-risk analysis using discrete choice experiment, IPD meta-analysis for assessing the efficacy of treatments for rare diseases, Bayesian methods for trial-based cost-effectiveness analysis, pharmacometric-based simulation of non-adherence in clinical trials, and the use of routine patient-level costing data for trial-based economic evaluations.



Left-to-right are Colin Ridyard, Dan Hill-McManus, Siobhan Bourke, Emily Holmes, Giovanna Culeddu and Dyfrig Hughes.

Bangor Research Excellence

Emily Holmes was a finalist in the Bangor University Doctoral Project Research Excellence Award. Judges described Emily's PhD on understanding medication-taking behaviour as a ground-breaking project which identified and tested models of behaviour of reasons for nonadherence to medications.

Codi'r Tô



Rhiannon Tudor Edwards and Eira Winrow attended a concert given by local children involved in the Codi'r Tô (Raising the Roof) programme, an El Systema music in schools project. Posters were developed to raise awareness of CHEME's SROI research with the organisation and to start conversations with parents, family members and teachers who we hope will attend focus groups over the next 12 months.

Yoga-based 'healthy back' programme

Ned Hartfiel has been selected to represent Bangor University in the regional finals of the Santander Universities Entrepreneurship Awards competition, which will be held at Northumbria University in June 2017.

The idea for Ned's new company, Healthy Back Programme Ltd, emerged from his PhD research at CHEME. Since completing his PhD in 2016, Ned has won several corporate clients for his workplace yoga-based programme including Gwynedd and Conwy County Councils, the Merseyside Police and Great Ormond Street Hospital in London.

COURSES...

The short course on Health Economics for Public Health Practice and Research, now in its 5th year, covers the following topics: Challenges of applying methods of economic evaluation to public health settings; Economic modelling of public health interventions; Social Return on Investment (SROI) with a housing example; Behavioural Economics and Priority setting in Public Health Spending using Programme Budgeting and Marginal Analysis (PBMA).

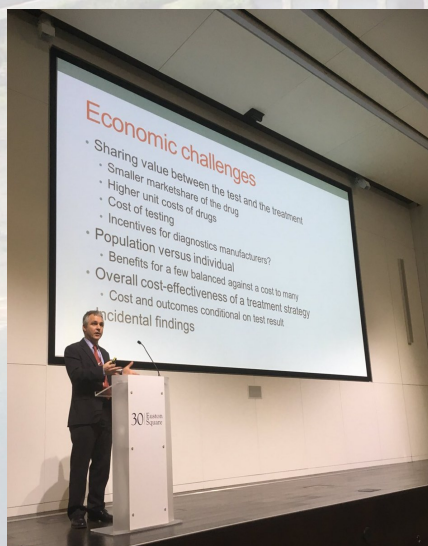
From 2018, a new short course in pharmacoeconomics will be launched. It will cover the essentials of health technology assessment, methods for pharmacoeconomic evaluation, including evidence synthesis, modelling and trial-based evaluations, case studies of expensive drugs for rare diseases and cancers, and practical application for formulary development, and medicines management.

Presentations

Rhiannon Tudor Edwards gave a keynote address at the Naturally Healthily Birmingham event. This event was organised to improve the availability of methods to demonstrate the cost-effectiveness of addressing local health priorities through increased access to the natural outdoors in the UK.



The event brought together experts from across the UK in public health, clinical commissioning, health economics, environmental economics, spatial planning and leaders in the provision of natural outdoor spaces.



Dyfrig Hughes presenting at the annual meeting of the UK pharmacogenetics and stratified medicine in London.

Catrin Plumpton was invited to the CRN South West Peninsula Annual Cancer Research Symposium to contribute a session on the Health Economics of Stratified Medicine.

A number of CHEME staff and students attended the School of Healthcare Sciences PGR event with CHEME supervised students Bethany Anthony and Jess Harland claiming first and second prizes in the poster presentations.

Emily Holmes visited the Medicines and Healthcare products Regulation Agency (MHRA) to present recent work on patient preferences for harms and benefits of medications, at their Vigilance and Risk Management of Medicines Seminar Series. The title of Emily's seminar is "Weighting clinical trial outcomes by patients' preferences: a case study in epilepsy".

Emily Holmes presented at the Association of British Neurologists Annual Scientific Meeting in Liverpool. Emily's presentation, "Patients' preferences for antiepileptic drugs" contained evidence on the discrepancies in ranking of antiepileptic drugs as indicated by clinical trials, and ranking weighted by patient preferences for outcomes.

Recent Publications

Morpeth L, Blower S, Tobin K, Taylor RS, Bywater TJ, Edwards RT, Axford N, Lehtonen M, Jones C, Berry V. The effectiveness of the Incredible Years pre-school parenting programme in the UK: a randomised controlled trial. *Child Care Practice*. 2017. doi: 10.1080/13575279.2016.1264366

Hulbert-Williams N, Plumpton C, Flowers P, McHugh R, Neal R, Semlyen J, Storey L. The cancer care experiences of gay, lesbian and bisexual patients: A secondary analysis of data from the UK Cancer Patient Experience Survey. *Eur J Cancer Care*. 2017 doi: 10.1111/ecc.12670

Davies EH, Fulton E, Brook D, Hughes DA. Affordable orphan drugs: a role for not-for-profit organizations. *Br J Clin Pharmacol*. 2017;83(7):1595-1601

Prayle AP, Cox T, Smith SJ, Rycroft-Malone J, Thomas KS, Hughes DA, Smyth AR. Do guidelines for treating chest disease in children use Cochrane Reviews effectively? A systematic review. *Thorax*. 2017. doi: 10.1136/thoraxjnl-2016-208790

Ramanan AV, Dick AD, Jones AP, McKay A, Williamson PR, Compeyrot-Lacassagne S, Hardwick B, Hickey H, Hughes D, Woo P, Benton D, Edelsten C, Beresford MW; SYCAMORE Study Group. Adalimumab plus Methotrexate for Uveitis in Juvenile Idiopathic Arthritis. *N Engl J Med*. 2017;376(17):1637-1646

Chim L, Salkeld G, Kelly P, Lipworth W, Hughes DA, Stockler MR. Societal perspective on access to publicly subsidised medicines: A cross sectional survey of 3080 adults in Australia. *PLoS One*. 2017;12(3):e0172971

Sivaprasad S, Prevost AT, Vasconcelos JC, Riddell A, Murphy C, Kelly J, Bainbridge J, Edwards RT, Hopkins D, Hykin P and CLARITY Study Group, 2017. Clinical efficacy of intravitreal aflibercept versus panretinal photocoagulation for best corrected visual acuity in patients with proliferative diabetic retinopathy at 52 weeks (CLARITY): a multicentre, single-blinded, randomised, controlled, phase 2b, non-inferiority trial. *Lancet*. 2017;389:2193-2203

Taylor J, Bambrick T, Brand A, Bray N, Dutton M, Harper R, Hoare Z, Ryan B, Edwards RT, Waterman H, Dickinson C. Effectiveness of portable electronic and optical magnifiers for near vision activities in low vision: a randomised crossover trial. *Ophthalmic Physiol Opt* 2017. doi: 10.1111/opo.12379

Johnson S, Richey R, Holmes E, Hughes D, Goebel A. A randomised, patient-assessor blinded, sham-controlled trial of external non-invasive peripheral nerve stimulation for chronic neuropathic pain following peripheral nerve injury (EN-PENS trial): study protocol for a randomised controlled trial. *Trials*. 2016;17(1):574