

## WELCOME TO OUR WINTER 2021/22 NEWSLETTER

Through 2021, here at the [Centre for Health Economics and Medicines Evaluation \(CHEME\)](#) at Bangor University, North Wales, we have continued to work on health economics studies spanning pharmacoeconomics through to public health and prevention economics. As the NHS and social care continue to attempt to meet the demands and current backlog of care resulting from the COVID-19 pandemic, the need for cost-effective prevention and management of chronic disease, and increased attention to inequalities in health are paramount. We celebrate the publication of collaborative articles with partners across the UK and internationally. We also celebrate the achievements of our early career researchers and students gaining their PhDs during 2021. We have high hopes for 2022 being a productive and easier year for all.

To keep up-to-date with our news and activities, follow us on Twitter  [@CHEMEBangor](#)

Professors Rhiannon Tudor Edwards & Dyfrig Hughes  
*CHEME co-directors*

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## RESEARCH

### [Bangor's hidden 'green' gem: a Social Return on Investment \(SROI\) valuation of Treborth Botanic Garden](#)

The associations between gardens, gardening and wellbeing are widely acknowledged, and both the National Institute for Health and Care Excellence (NICE) and the Mental Health Foundation have highlighted gardening as potentially valuable for supporting health and wellbeing. The [Social Value Hub](#) at CHEME and [Wales Centre for Behavioural Change \(WCBC\)](#) are working with [Treborth Botanic Garden](#) to investigate the wellbeing benefits and social value the garden generates for staff, students and the wider community.

Approximately 35,000 people visit Treborth each year, where they have free access to 45 acres of woodland and landscaped garden plus seven tropical and temperate glasshouses. Treborth also hosts a range of volunteering initiatives that provide staff, students and the public the opportunity to learn about plants, gardening skills and experience the garden through the seasons.

This SROI study will help us better understand the value of Treborth to the University and local community and will also act as a pilot to inform CHEME's evaluation of the University's wider health and wellbeing programme. The study is supported by [Health and Care Economics Cymru \(HCEC\)](#), funded by [Health and Care Research Wales](#).

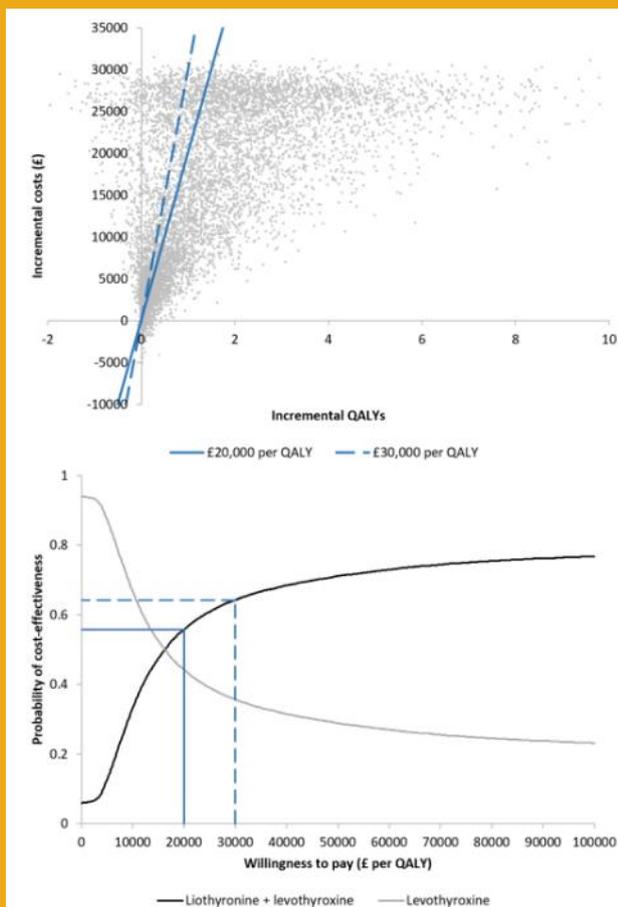
## Treatments for biochemically-euthyroid, symptomatic hypothyroidism

Primary hypothyroidism affects around 3% of people, but while most are treated satisfactorily with levothyroxine, up to 5% report impaired quality of life despite laboratory thyroid function tests within the laboratory reference range. A proportion of patients with hypothyroidism who are seemingly treatment resistant, are prescribed liothyronine, usually in addition to levothyroxine. Some patients are prescribed natural desiccated thyroid (NDT) which is unlicensed in the UK.

Clinical guidelines advise against the routine prescribing of these alternatives due to limited evidence of effectiveness and high costs. However, it is widely appreciated that the de-implementation of low value medicines is more challenging than implementing new treatments, even when there are significant uncertainties surrounding their clinical effectiveness.

We conducted a health technology re-assessment to assess the value of conducting further research to ascertain the clinical effectiveness of liothyronine. We found that while liothyronine might represent a cost-effective treatment option (see figure below), based on a population EVSI of £3.64 m per year, the value of a clinical trial to reduce uncertainty in clinical effectiveness would be expected to exceed the cost of treatment within 1 year.

A further, case series study was conducted to assess the health-related quality of life and utility of 31 patients prescribed NDT. The results indicated an increase in EQ-5D-5L utility from a mean of 0.214 at baseline, to 0.606 after 6 months. Scores on the disease-specific ThyPRO questionnaire showed consistent improvement across all domains. The findings suggest that patients experienced symptomatic benefit with NDT, supporting the need for further evaluation in this context.



## Welsh Health Economists' Group (WHEG) - Autumn Meeting 2021

WHEG brings together an all-Wales community of health economics expertise. Our long tradition of annual meetings provides a valuable opportunity for health economists working in academic units or public sector organisations across Wales to discuss current activities and plans with regard to research, teaching and policy support. We also extend our welcome to colleagues who have joined us from other Health and Care Research Wales Infrastructure Groups and Trials Units.

WHEG invited external talk: "Supporting NICE in the Technology Appraisal process: perspective from an Evidence Review Group" - Dr Rui Durate HTA Lead & Senior Research Fellow, Health Data Science Institute of Population Health, University of Liverpool

"The SROI of a lifestyle coaching programme" - Abraham Makanjuola, Bangor University

"GPs in EDs - a single site marker condition analysis" - Rhys Pockett, Swansea University

"Extrapolating survival for advanced therapy medicinal products" - Will Hardy, Bangor University

"Introducing the Welsh Institute for Physical Activity, Health and Sport" - Katherine Cullen, Swansea University

"Systematic review of NICE (OIR) & (OwR) technology appraisal recommendations" - Yankier Pijeira Perez, Bangor University

## Awards

Dyfrig Hughes delivered the prestigious 2021 John Urquhart Memorial Lecture at the 25th annual conference of the International Society for Medication Adherence. This lecture and an accompanying prize was awarded in recognition for lifetime achievement in research concerning adherence to medicines. Dyfrig's presentation, reflecting his research spanning health economics and quantitative pharmacology, was entitled "Medication adherence: an eclecticist's perspective".

## Rising Research Star Award



Dr Emily Holmes, Senior Research Fellow at Bangor University's School of Health Sciences has been awarded the Rising Research Star Award at this year's Health and Care Research Wales conference.

The Award was presented by Dr Andrew Goodall CBE, Director General of Health and Social Services/Chief Executive NHS Wales, and is awarded to researchers who are in the early stages of their health or social care research career, who are judged to be making significant contributions to their field.

The judges identified Emily as an emerging leader in health economics, and described her as "an exceptionally strong candidate". Most recently, Emily was awarded a £352,254 Health Research Fellowship to conduct a five-year research project to help reduce antibiotic use in Wales. A short video outlining Emily's work to date and aspirations is available [here](#).

Dr Lynne Williams, Head of the School of Medical and Health Sciences at Bangor University said: "This is a wonderful achievement and Emily is to be warmly congratulated on this award. Emily's track record and growing portfolio of research excellence shows her talent and perseverance in contributing to the important field of health economics, particularly in understanding behaviours and the value factor."

## DIRUM reaches 100 resource use questionnaires!

DIRUM, the Database of Instruments for Resource Use Measurement, is an open-source repository of resource use questionnaires widely used by trial health economists in the UK and worldwide. The development of DIRUM was funded by the MRC Network of Hubs for the Trial Methodology Research and for many years has been a valuable reference tool to source and share questionnaires used to collect data in clinical trials. Currently, the website contains one hundred resource use questionnaires and sources, freely available to help and support health economists and researchers to design and collect data. Visit the [DIRUM open-source database](http://www.dirum.org/instruments/submissions), and remember to share your newly created instruments (that can be referenced with a permanent URL): <http://www.dirum.org/instruments/submissions>

## World Antimicrobial Awareness Week 18-24th November 2021

“Spread Awareness, Stop Resistance”

This World Antimicrobial Awareness Week Bangor University Antimicrobial Resistance Research Special Interest Group (SIG) hosted a seminar to spread awareness of interdisciplinary research in the field of antimicrobial resistance, including contributions for health and behavioural economics.



## Wales COVID-19 Evidence Centre

COVID-19 has dramatically changed the health and social care needs of the people in Wales and the way health and care is delivered to meet these needs. The aim of the Wales COVID-19 Evidence Centre is to ensure the best available, up-to-date, and relevant evidence is readily available to our stakeholders who are involved in health and social care across Wales, to inform their decision making.

There are many review teams, and the Bangor Institute of Health and Medical Research (BIHMR) have produced two reviews so far:

First rapid review question: [Which innovations can improve timeliness of investigations and address the backlog in endoscopy for patients with potential symptoms of upper and lower Gastrointestinal \(GI\) cancers? RR 00003 \(August 2021\)](#)

Second rapid review question: [Have infection control and prevention measures resulted in any adverse outcomes for care home and domiciliary care residents and staff? RR00018 \(November 2021\)](#)

## Feasibility economic analysis of the ThinkCancer! intervention

The ThinkCancer! study is a randomised, multisite feasibility trial, with an embedded process evaluation and feasibility economic analysis, funded by Cancer Research Wales (CRW). The ThinkCancer! intervention is a complex behaviour change intervention, which aims to change the behaviours of primary care practice teams, when thinking of and acting on clinical symptoms that could be cancer. Professor Rhiannon Tudor Edwards and Bethany Fern Anthony from CHEME are in the process of undertaking a feasibility economic analysis of the ThinkCancer! intervention. The findings of the ThinkCancer! feasibility trial will be used to inform a future definitive randomised controlled trial (RCT) to determine the effectiveness and cost-effectiveness of the ThinkCancer! intervention if it were to be rolled-out across primary care practices at a UK-wide level. Since the COVID-19 pandemic, early research has demonstrated a significant drop in urgent cancer referrals in the UK. Consequently, the need for interventions, such as ThinkCancer!, which aim to improve the timely diagnosis of cancer within primary care teams have become increasingly paramount.

## The International Society for Medication Adherence (ESCOMP2021)

At the 25th Annual Meeting of The International Society for Medication Adherence (ESCOMP), Emily Holmes, Catrin Plumpton, and Dyfrig Hughes delivered a pre-conference workshop on Using Stated Preference Discrete Choice Experiments in Adherence Research.

## MRC Trial Methodology Research Partnership PhD studentships

Are you interested in medical research that matters to patients?

The MRC-NIHR Trials Methodology Research Partnership (TMRP) aims to improve health by improving trials. Our MRC Doctoral Training Partnership presents an opportunity to undertake training for a PhD in trials methodology.

3-year funded studentships available in statistics, data analytics and informatics, computer science, health economics, qualitative methods, mixed-methods, clinical medicine and psychology.

Available potential PhD projects include three hosted at CHEME:

- "Informing trial design through the application of linked pharmacometric-pharmacoeconomic analyses." Lead supervisor: Prof Dyfrig Hughes
- "Event-based economic analyses of trials: Assessing current state of play and producing recommendations for future good practise." Lead supervisor: Dr Catrin Plumpton
- "Extrapolation of economic outcomes beyond trial follow-up, are there additional challenges in paediatric trials?" Lead supervisor: Dr Catrin Plumpton

What does the MRC TMRP Doctoral Training Partnership offer?

- Access to a broad spectrum of training and networking opportunities beyond the host Research Organisation.
- Opportunities to join relevant TMRP working groups and meet other PhD students, post-doctoral researchers and senior academic staff.
- A 'core' training programme plus a range of more specific training that students may choose to attend following consultation with their supervisors.
- Research visits; internships with industry, regulatory bodies and clinical trials units; engagement with health professional and other research networks.

Further details of all projects and how to apply can be found [here](#).

Deadline for submission: 18 February 2022  
Interviews: week of 21 March 2022



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## ABOUT PEOPLE

### Holly

Dr Holly Whiteley has joined CHEME as a Research Officer in Health Economics and has an interest in community-based interventions, wellbeing and sustainability.



### Abraham



Abraham Makanjuola has re-joined CHEME as a Research Officer. Earlier this year, Abraham received a grant from the Sub-Saharan Advisory Panel and has developed

a documentary about perceptions and knowledge about Africa from a Welsh perspective. The documentary is called "[Family Affair](#)" and showcases the beauty of North Wales.

### Kalpa

Kalpa Pisavadia is joining us as a Research Project Support Officer in January 2022.



## PRESENTATIONS

Dyfrig Hughes was invited to present on pharmacogenetics at events hosted by the Royal Pharmaceutical Society and by Gene Park Wales, and on medication adherence at the Australasian Society of Clinical and Experimental Pharmacologists and Toxicologists.

## RECENT PUBLICATIONS

Edwards RT, Lawrence CL. 'What You See is All There is': The Importance of Heuristics in Cost-Benefit Analysis (CBA) and Social Return on Investment (SROI) in the Evaluation of Public Health Interventions. *Applied Health Economics and Health Policy*. 2021 May 31:1-2.

Magavern EF, Daly AK, Gilchrist A, Hughes DA. Pharmacogenomics spotlight commentary: From the United Kingdom to global populations. *Br J Clin Pharmacol*. 2021 May 25. doi: 10.1111/bcp.14917.

## RECENT PUBLICATIONS

Ezeofor V S, Spencer L H, Rogers S N, Kanatas A, Lowe D, Semple C J, ... Edwards RT. Patients concerns inventory (PCI) versus standard treatment pathway in the management of patients with head and neck cancer : a qualitative informed economic evaluation. *The Lancet*, 398, S43. 2021. doi:10.1016/S0140-6736(21)02586-1

Spencer L H, Lynch M, Thomas G. Developing a conversation about identifying community needs to embrace wellbeing through social prescribing interventions : a qualitative study. *The Lancet*, 398, S82. 2021. doi:10.1016/S0140-6736(21)02625-8

Hughes DA, Skiadas K, Fitzsimmons D, Anderson P, Heald A. Liothyronine for hypothyroidism: a candidate for disinvestment or in need of further research? A value of information analysis. *BMJ Open* 2021;0:e051702. doi:10.1136/bmjopen-2021-051702

Johnson S, Marshall A, Hughes D, Holmes E, Henrich F, Nurmikko T, Sharma M, Frank B, Bassett P, Marshall A, Magerl W. Mechanistically informed non-invasive peripheral nerve stimulation for peripheral neuropathic pain: a randomised double-blind sham-controlled trial. *Journal of Translational Medicine*. 2021 Dec;19(1):1-5.

Heald AH, Premawardhana L, Taylor P, Okosieme O, Bangi T, Devine H, Livingston M, Javed A, Moreno GYC, Watt T, Stedman M, Dayan C, Hughes DA. Is there a role for Natural Desiccated Thyroidin the treatment of levothyroxine unresponsive hypothyroidism? Results from a Consecutive Case Series. *Int J Clin Pract*. 2021 Oct 9:e14967. doi: 10.1111/ijcp.1496

Culeddu G, Su L, Cheng Y, Pereira DIA, Payne RA, Powell JJ, Hughes DA. Novel oral iron therapy for iron deficiency anaemia: How to value safety in a new drug? *Br J Clin Pharmacol*. 2021 Sep 12. doi: 10.1111/bcp.15078.

Carter B, Zenasni Z, Moat SJ, Hudson PR, Russell IT, McCaddon A; FoLATED group. Plasma Methylmalonic Acid Concentration in Folic Acid-Supplemented Depressed Patients with Low or Marginal Vitamin B-12: A Randomized Trial. *J Nutr*. 2021 Sep 11:nxab280. doi: 10.1093/jn/nxab280.

Powell GA, Bonnett LJ, Smith CT, Hughes DA, Williamson PR, Marson AG. Using routinely recorded data in a UK RCT: a comparison to standard prospective data collection methods. *Trials*. 2021 Jul 5;22(1):429. doi: 10.1186/s13063-021-05294-6.