

## IN THIS ISSUE

- Message from Bethany Shinkins (p.1)
- Winter HESG 2022 (p.1)
- Welcome to: Amwaj Abugamza (p. 2)
- Welcome to: Ali Alattas (p.2)
- Welcome to: Kara-Louise Royle (p.2)
- Welcome to: Benjamin Wells (p.2)
- COVID-19 Projects (p.3)
- New Projects (p.3)
- AUHE Talks & Conferences (p.3)
- AUHE's Growing Portfolio (p.4)
- AUHE Teaching (p.4)
- UK-China Workshop (p.4)
- Valuation Project Portfolio (p.4)
- PhD Success: Jessica Drinkwater (p.4)
- Cancer Research Fundraising (p.5)
- AUHE BBQ catch-up (p.5)
- Recent Publications (p.5)

## ABOUT THE UNIT

AUHE was established in 2007 to create a health economics research and education centre with a portfolio of applied and methodological research.

The research includes:

- *economic evaluations alongside clinical trials*
- *value of information studies*
- *valuation of health, health care and wellbeing*
- *priority setting in health care*
- *health care policy*
- *early stage efficiency in research and development*

## Welcome... from Bethany Shinkins



Despite still being largely working from home, spirits have been lifted this term by a number of activities that have allowed us to socialise, teach and collaborate with those beyond our immediate project teams. The UK-China workshop on the economic evaluation of diagnostic and screening tests, for example, allowed us to share our expertise in this area, interact with staff and students at the University of Zhejiang, and brainstorm ideas for future collaborative working. Dan and Adam have done a fantastic job, as ever, in leading our undergraduate teaching and ensuring students have the opportunity to engage with others and discuss their ideas. We've had a few small -group AUHE socials in gardens and it's been great to catch-up with friends face-to-face and share what we've all been up to beyond the world of Teams and Zoom.

We hope you enjoy reading our summer AUHE newsletter. We have a number of new postgraduate students, who we introduce in this edition and we very much welcome to the team. Jessica Drinkwater has also successfully defended her PhD—congratulations Jessica! We present two new projects that look at the impact of COVID-19 on radiotherapy services and treatment pathways for Glioblastoma. We've also had a number of funding successes in the last 6 months, some of which we're able to tell you a bit about in this edition.

We're all ready for a well-deserved break here at AUHE to recover from a very busy term and, fortunately, the sun has decided to make an appearance just in time. We hope that you all have a good summer and we're really looking forward to seeing you all at HESG in January.

**Bethany Shinkins**  
Associate Professor, AUHE

## WINTER HESG 2022

Now that we are officially into the British Summer it means that all members of the Unit in Leeds are keeping both fingers and toes crossed whilst we busy ourselves with the preparations to celebrate what will be the beginning of the 50th year of HESG!

The Winter meeting has been booked for the 5th-7th January 2022 and we very much look forward to seeing you all in person in Leeds (or at least that is what we are currently hoping and still planning for!).

Thank you to all HESG members that took part in the survey we recently ran for ideas - we are now investigating what we can do to celebrate based on responses. We will have the meeting website up and running soon and will of course keep everyone updated with our plans on Twitter so give @AUHE\_Leeds a follow. And remember, Winter is Coming...

The Winter 2022 HESG Team  
The University of Leeds

## WELCOME TO: AMWAJ ABUGAMZA



**Amwaj** joined the AUHE in February 2021 as a postgraduate researcher in Health Economics. Her PhD project focuses on exploring the impact of the COVID-19 pandemic on labour market outcomes. This project is supervised by **Adam Martin**, **Silviya Nikolova**, and Andy Charlwood.

Amwaj completed her MSc in Health Data Analytics at the School of Medicine, Universi-

ty of Leeds in 2020. Her MSc project investigated the relationship between obesity and job satisfaction in the UK.

Amwaj previously worked as a lecturer at Princess Nourah bint Abdulrahman University - Epidemiology department.

## WELCOME TO: ALI ALATTAS

**Ali** joined the AUHE in March 2021 as a postgraduate researcher. Ali will be studying the association between quality of life and frailty in an ageing population. His PhD is being supervised by **Silviya Nikolova**, Robert West, and Farag Shuweihdi.

Ali was a teaching assistant in Biostatistics at King Saud bin Abdul-Aziz University for Health Sciences in Jeddah, Saudi Arabia.

He holds a Bachelor of Science in Computer Science and a Master of Science in Statistics from King Abdul-Aziz University. After that, he acquired a second MSc in Applied Statistics from the University of Guelph, Canada.



## WELCOME TO: KARA-LOUISE ROYLE



**Kara-Louise** has been at the University of Leeds since 2016 and is a Senior Medical Statistician in the Leeds Institute of Clinical Trials Research (LICTR). She will be co-supervised by **David Meads** along with Dr. David Cairns (LICTR), Prof Jennifer Rogers (PHASTAR) and Prof Ian White (UCL) on an NIHR Doctoral Fellowship which starts in September 2021.

The project is looking into how best to analyse overall survival in relapsing cancers, given that trial participants can receive, potentially multiple, anti-cancer therapies post-trial, which cur-

rent statistical methodology do not take into account. This makes it hard for commissioning bodies to robustly evaluate whether the trial treatment should be recommended for use in standard of care.

The aim of the fellowship is to therefore develop new or extend existing methodology to address this and to ensure that the methods are used in future projects. The perspectives of multiple stakeholder views, including patients and the public, will be incorporated.

## WELCOME TO: BENJAMIN WELLS

**Benjamin** graduated from UCL having studied BSc Economics and Statistics. His enjoyment of statistics and its practical applications led him to taking a MSc in Data Science at The University of Leeds.

The process of ageing and growing frail is something that he has become very interested in the last few years: "It is something that many of us have deep family and social connections to, we will undoubtedly be personally affected by at some

point ourselves. Not only that but ageing populations are a growing economic issue worldwide."

His dissertation is investigating the development of frailty with age, and how different circumstances may also impact this. He hopes to understand the effects of wealth, gender, and other factors on the development of frailty. **Silviya Nikolova**, Robert West and Farag Shuweihdi are supervising his dissertation.



## COVID-19 PROJECTS

### “The impact of the COVID-19 pandemic on radiotherapy services in England, UK: a population-based study”, Katie Spencer *et al.* 2021

This project used the national radiotherapy dataset to assess the extent to which new guidelines, developed to ameliorate the effect of the pandemic on radiotherapy services, were implemented. It provided valuable feedback to NHS providers and will inform future assessments of the long-term consequences of the pandemic on cancer outcomes.

New radiotherapy courses fell by 20% in April 2020 compared to the previous year. Courses are divided into multiple daily fractions, and strikingly the fall in fractions was higher at approximately 30%. These changes were highly significant on interrupted time-series analysis and the differential effect reflects the way that radiotherapy teams swiftly moved to delivering the recommended shorter courses. The fall in courses was shown to occur predominantly in cases where it was safe to delay treatment (prostate and skin cancers) and in older patients where the risk of adverse COVID outcomes is higher. Conversely, there were some diagnostic groups (oesophageal, bladder and rectal cancer) where increased use of radiotherapy maybe compensating for reduced surgical capacity. Worryingly, persistent suppression in activity aligned with reduced cancer diagnoses. This is likely to reflect delays in diagnosis, which may have serious detrimental consequences for cancer outcomes.

### Communication in the context of glioblastoma treatment: what matters most in times of Covid-19

Patients diagnosed with glioblastoma face a poor prognosis and disease recurrence is inevitable. Treatment is aggressive and includes surgery, radiotherapy and/ or chemotherapy, with a view to balancing benefits for quantity and quality of life. Yet, little is known about how treatment options are communicated to glioblastoma patients and their families, or how this is impacted by the Covid-19 outbreak. This study aims at investigating communication preferences in the context of glioblastoma by interviewing patients, family members, and healthcare professionals. Outcomes will be used to develop communication guidelines for clinicians so that glioblastoma patients and their families can have more helpful, informed, and patient-centred discussions regarding treatment options. AUHE’s **Florien Boele** will lead this study, working together with Dr. Louise Murray and Prof Susan Short, and the research assistant on the project is Ms Lucy Pinton. All approvals are in place and recruitment has started!

**Bethany Shinkins** attended a virtual workshop on early economic modelling run by the University of Oxford on January 28<sup>th</sup>.

**Florien Boele** co-chaired with Dr. Emilie Le Rhun the European Association of Neuro-Oncology (EANO) webinar on “Disparity in Neuro-oncology, does it matter in daily clinical practice?”. The webinar took place on February 24<sup>th</sup>.

**Alison Smith** gave an AUHE seminar in March on the PinPoint capacity assessment. The title was “A discrete event simulation (DES) capacity model to assess the impact of a novel point-of-care test for breast cancer on patients’ time to diagnosis in the NHS”.

**Bethany Shinkins** attended the CanTest International School from April 12<sup>th</sup>- 15<sup>th</sup>.

**David Meads** gave a talk titled “Introduction to Health Economics and Decision Modelling” to the UltraSurge consortium in May. The consortium are a group of multidisciplinary scientists including engineers and clinicians who are developing surgical tools which use ultrasound.

**Adam Martin** gave a presentation to Highways England on the health and wellbeing impacts of new transport infrastructure in built up areas for a new project in collaboration with the Leeds Institute for Transport Studies on May 26<sup>th</sup>.

**Nasir Rajah** presented work for the Nuffield foundation project “How arthritis affects earnings over time” (PI **Adam Martin**) at a meeting of over 30 statisticians, economists and social and operational researchers who mainly focus on health, disability and employment at the Department for Work and Pensions on May 20<sup>th</sup>. He also presented the same work at a meeting of the National MSK Health Data Group on June 11<sup>th</sup>.

**Nasir Rajah** and **Adam Martin** led a Patient and Public Involvement meeting for their Nuffield foundation project in collaboration with colleagues in the Leeds Institute of Rheumatic and Musculoskeletal Medicine on June 10<sup>th</sup>.

**Paola Cocco** had a paper discussed at HESG in July. The title was “What properties should a hypothetical point-of-care test for *Clostridioides difficile* infection possess? Early economic modelling capturing capacity constraints to inform a Target Product Profile”. **Bethany Shinkins** and **Alison Smith** were co-authors to this paper.

**Bethany Shinkins** was on the scientific committee for the Society for Primary Care (SAPC) annual conference, which was hosted by the University of Leeds on the first week of July.

**Paola Cocco** and **Bethany Shinkins** hosted a workshop on identifying unmet clinical needs for new diagnostic tests for Giant Cell Arteritis on July 2<sup>nd</sup>.

**Bryony Dawkins** gave a presentation at iHEA in July. She presented a poster titled “Evaluating an access increasing intervention: Cost-effectiveness of gas-insufflation-less laparoscopic surgery to increase access to minimally invasive surgery for abdominal conditions in rural North-East India”.

**Adam Martin** and **Nasir Rajah** also presented their work “How arthritis affects earnings over time” at iHEA in July.

**Florien Boele** will co-chair with Dr. Karin Piil and Dr. Helen Bulbeck an EANO webinar on “Shared decision-making (SDM) within neuro-oncology”. This will take place on August 25<sup>th</sup>.

## NEW PROJECTS

### NHSX Artificial Intelligence in Health and Care Award—DOLCE project with Optellum Ltd. (£1.5MM)

Optellum are developing an AI decision support system to help doctors make optimal decisions for patients with potentially cancerous lung lesions found in CT scans. The aim is to reduce the time to cancer treatment, increase survival rates, and reduce unnecessary invasive procedures. **Gurdeep Sagoo** will be leading the health economic evaluation for this phase 3 project.

### ARIEL: A biomarker enrichment trial of anti-EGFR agents in patients with advanced colorectal cancer with wild-type RAS and right primary tumour location (NIHR129268, EME, £1,929,107)

This is a multi-centre, open label, randomised controlled trial in untreated patients with RAS-wt advanced colorectal cancer (aCRC) with right primary tumour location (rPTL). It is aimed at assessing whether in RAS-wt aCRC patients with rPTL, stratification by EREG/AREG identifies patients who benefit from adding anti-EGFR agent to chemotherapy, and test feasibility of delivering EREG/AREG for routine practice. **David Meads** is a co-applicant and will be leading the economic evaluation for the project. Further details can be found here: <https://fundingawards.nihr.ac.uk/award/NIHR129268>.

### Transforming management of advanced prostate cancer: Increasing clinical productivity and capacity and empowering men through digital health (NIHR201281, i4i Connect, £149,168)

This project is a collaboration between Itecho and Weston Park Hospital, Sheffield and the Universities of Sheffield and Leeds. It aims at assessing the Ascelus™ digital platform in men with prostate cancer commencing abiraterone or enzalutamide treatment through seven work packages, including patent focus groups, a clinical feasibility and safety study and an economic analysis. The project is unique in the way that it is a co-design between industry, clinicians, academia and the end-users. At the end of the project, there will be enough information to move seamlessly to a larger multi-site evaluation study to pave the way for wider uptake in the NHS, potentially improving patient experience, freeing up clinician time for more complex cases and with economic benefits for the NHS. **David Meads** is a co-applicant and will be leading the economic evaluation for this project. For more information, see here: <https://fundingawards.nihr.ac.uk/award/NIHR201281>.

## AUHE'S GROWING PORTFOLIO

### SAFE-PIT

AUHE is pleased to add the Self-harm, Assessment, Formulation, Engagement Trial of Psychodynamic Interpersonal Therapy (SAFE-PIT) trial to its growing list of economic evaluations in mental health. The £2m, 4 year project, led by Prof Else Guthrie (LIHS) complements the recent Function REplacement in repeated Self-Harm: Standardising Therapeutic Assessment and the Related Therapy (FRESH START) trial which also considers PIT therapy but for a population with multiple self-harm. SAFE-PIT will utilise the new Recovering Quality of Life (ReQoL) measure - an outcome measure for people experiencing mental health difficulties alongside standard measures of health related quality of life. An additional output will include comparison of these instruments. Both economic evaluations will be led by Prof **Chris Bojke**.

### Development and evaluation of the Digital-My Arm Pain Programme (D-MAPP) for improving painful distal upper limb musculoskeletal disorders

The Digital-My Arm Pain Programme (D-MAPP) is a 6 year, £2.5 million NIHR PGfAR-funded project that aims to develop and evaluate a digital rehabilitation programme to be prescribed by health professionals for improving distal upper limb (DUL) musculoskeletal disorders such as tennis elbow, tendon inflammation and hand arthritis. It is a collaboration of researchers from the Universities of Leeds, Southampton, Keele, and Aberdeen in a mixed methods study that will culminate in a randomised controlled trial, and includes the use of discrete choice experiments to iteratively co-design and refine D-MAPP with patients and clinical stakeholders. The study will ultimately seek to determine if D-MAPP provides clinical and cost-effective improvements in DUL regional pain, physical function and labour supply compared to usual care. **Ruben Mujica-Mota** is a co-applicant and lead health economist in the project. For further details see: <https://fundingawards.nihr.ac.uk/award/NIHR201612>.

## AUHE TEACHING

Teaching in the current working from home environment continues to raise challenges for academic staff across the country. We at AUHE are no different but I am extremely proud of how our team have engaged and supported one another in the delivery of all our teaching (undergraduate, postgraduate, and CPD) to maintain our usual excellent high standards (based on student feedback!). It was also great to see large increases in student numbers for our undergraduate taught modules led by **Daniel Howdon** and **Adam Martin**. It will be interesting to see if the global pandemic continues to push health economics to the fore in everyday thinking and we remain as popular going forwards.

**David Meads** and **Armando Vargas-Palacios** successfully ran two half-day (virtual) sessions entitled "Translate MedTech - The role of health economics" which were delivered 'live' and used break-out rooms for group work, whilst the Information Specialists **Judy Wright** and **Natalie King** successfully delivered teaching both face-to-face and online at different points in the year. Last month they were invited to teach information skills on the Nottingham Systematic Review Course. In February they piloted a new highly interactive online Leeds Mixed Methods Systematic Review course. Following success of the pilot a further course is planned for September 2021.

**David Meads**, **Bethany Shinkins**, **Daniel Howdon**, **Samuel Frempong**, and Giovanni Tramonti (University of Edinburgh) have recently delivered their week-long European doctoral course on "Cost effectiveness Modelling for HTA" course 'in Switzerland'. Fingers crossed they will be able to go back to delivering this in person next year.

Surdeep Sagoo, Teaching & Learning lead for AUHE.

## UK-CHINA DIAGNOSTICS MASTERCLASS

On the 23<sup>rd</sup>– 24<sup>th</sup> March the second UK-China Health Economic Partnership (UKCHEP) masterclass was held by health economists from AUHE in partnership with Zhejiang University (ZJU). The masterclass was part of a project promoting long-term collaboration between Leeds, Sheffield, Bournemouth and York in the UK and Fudan University, Shandong University and Zhejiang University in China. The partnership aims to create long-term, sustainable collaboration in health economics, providing academics the means to work together on world-class educational and research outcomes that would not be possible working in isolation.

The masterclass, focussing on the health economics of screening and diagnostic tests, was held in person in Hangzhou and online, including presentations from **Chris Bojke**, **Alison Smith** and **Bethany Shinkins** from AUHE and Prof Hengjin Dong, Xueshan Sun and Zixuan Zhao of ZJU. The objective of the workshop was to identify the idiosyncratic nature of assessing the cost-effectiveness of tests and understand the landscape in China especially with regards cancer screening. Two days of presentations were concluded by a lively discussion on the need for evaluations to move beyond concepts of sensitivity and specificity and to recognise and effectively model the environment in which tests are applied and the mechanisms by which they influence treatment decisions.

As part of the longer-term partnership, AUHE is looking forward to hosting scholars Sun and Zhao at Leeds later in 2021/22.

## VALUATION PROJECT PORTFOLIO

The AUHE, in partnership with the University of Edinburgh, is pleased to be one of the centres involved in the EuroQol group's new valuation study for the UK, with **David Meads**, **Ed Webb**, **John O'Dwyer** and **Paul Kind** taking part, together with Peter Hall from Edinburgh. This follows several recent successes in valuation work, including a study on using the visual analogue scale to anchor discrete choice experiment valuations of EQ-5D (Webb et al. 2020, European Journal of Health Economics).

AUHE researchers also published a value set for SIDECAR-D, a new scale measuring the quality of life impact of caring for someone with dementia (Webb et al. 2021, Value in Health).

**Zhuxin Mao's** recently completed PhD project studied cultural differences in measuring health using EQ-5D in China, and **John O'Dwyer** is currently working on his PhD project exploring adapting EQ-5D for adults with learning disabilities.

## PHD SUCCESS: JESSICA DRINKWATER



Congratulations to **Jessica** who recently successfully defended her PhD thesis, "Participatory research to strengthen the role of patient and public involvement in general practice service improvement". The aim of the PhD was to develop an intervention to address the policy-practice gap of meaningful patient participation in service improvement. Using a participatory research approach she designed and evaluated a successful intervention with patients and staff. This included a bespoke adaptable prioritisation survey based on a discrete choice experiment (DCE) and delivered by patients in their own general practice.

Jessica is currently writing up publications and hoping to develop this work further. She is particularly interested in exploring other prioritisation methods (such as best worst scaling) as the patients did not like the DCE (although the staff really did).

## CANCER RESEARCH FUNDRAISING

During the May bank holiday week, **Bethany Shinkins**, together with a group of other LIHS staff (Erica di Martino, Richard Neal and Stephen Bradley, Lesley Smith, Daniel Jones, and Stephanie Honey), have led a fundraising event in support of Cancer Research UK, raising £1,150.

The group, who are part of the CRUK Cantest Collaborative, a Cancer Research UK-funded international project looking at ways to improve cancer diagnosis in primary care (CanTest, <https://www.cantest.org/>), teamed up with 15 CanTest researchers from other centres. They covered a whopping 1,177 miles in total, doing a variety of activities including cycling, walking, climbing, running, canoeing, paddle boarding, swimming and even .... DIY! Cancer Research UK has suffered a large financial setback as result of the Covid-19 pandemic. If you'd like to contribute to the fundraising you can donate at: <https://www.justgiving.com/fundraising/cantest>

## AUHE BBQ CATCH-UP

In June, after over a year of working remotely, members of AUHE met up and chatted late into the night by the fire pit. A delicious selection of marinated halloumi, salmon, chicken, burgers, salads, and desserts were prepared and shared by colleagues. It was great to catch-up with friends face-to-face and we're looking forward to when the whole unit can meet up.



## RECENT SELECTED PUBLICATIONS

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