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Welcome to the 2019 Health Economics and Health Technology Assessment (HEHTA) Research Group Annual Report. This has been another busy, productive and successful year for HEHTA. I hope you will enjoy reading about all our activities this year.

We celebrated the graduations of our MSc students. These students are the third cohort of our online MSc programme. We also celebrated the graduations of our PhD students – Dr Ciaran Kohli-Lynch and Dr Yiqiao Xin. Many of our students have been undertaking their studies alongside their jobs part-time. Their hard work and resilience are to be commended.

Among the many highlights this year, we saw our work on the 'Independent Review of the Replacement/Refurbishment of the Monklands Hospital' and the 'Report on the Value of Occupational Health Research’ being discussed at the Scottish Parliament and the House of Lords, respectively. The Monklands Hospital review assessed complex trade-offs relating to health and safety outcomes, accessibility, costs, and preference of the local community. The report on occupational health research highlighted the value of maintaining and improving the health and wellbeing of the working age population. Both pieces of work have made important and direct impact to national policies.

This also has been a busy year with visitors at HEHTA. We welcomed several international visiting students: Saowalak Turongkaravee and Ong The Due from Mahidol University (Thailand), Nurzhibek Beisembinova from Khazak National Medical University, and Wendy Zhang from the University of Hong Kong. These visitors all spent time with members of HEHTA, to further develop their research and establish new collaborations.

At the end of the year, we bid farewell to Professor Andrew Briggs, the founding Head of the Group. Andy joined the University of Glasgow in June 2005. Over a decade, he led the development of the HEHTA team with creativity and vision while empowering others. Upon handing over the Directorship to myself in 2015, Andy continued to contribute to HEHTA’s success in becoming the thriving Research Group it is today. We are delighted that Andy will remain Visiting Professor at HEHTA, and wish him well with his new ventures.

Olivia Wu, Director
Health Economics and Health Technology Assessment (HEHTA)
Analysis of Linked Health Data (ALDA)
This programme encompasses all research at HEHTA that is associated with statistical, epidemiological and economic analysis of linked health data sets. Our team has a wealth of expertise and experience in this field – for example data manipulation and identifying cohorts within linked data sets; regression modelling of panel data sets; outcome measurement, costing and developing decision analytic models using linked data sets.

Decision Analytic Modelling and Simulation for Evaluation in Health (DAMSEL)
This programme encompasses research associated with conducting an evaluation using modelling or simulation methods. Modelling can be used as the whole framework for an evaluation, or as part of a clinical trial-based evaluation to extrapolate intermediate trial endpoints to final health economic outcomes. DAMSEL cuts across and interacts with many of the other themes of HEHTA.

Economics of Population Health (EPH)
This programme is concerned with the development of methods and related empirical work associated with the economic evaluation of population health interventions, including those that may be delivered outside conventional health services. The theme is particularly interested in the evaluation of ‘up-stream’ influences, such as early life experiences, the social and economic conditions in which people live and environmental exposures affect wellbeing.
Incorporating Perspectives and Experiences (IPE)
This programme aims to promote the use of qualitative approaches in HTA. Qualitative research can provide valuable insights into stakeholder perspectives, needs and experiences, as well as contextual aspects of evaluations and HTA. Research in this programme focuses on the development and application of qualitative methodologies to conceptual modelling, trial recruitment and design, developing measures, evidence synthesis, identifying attributes and levels for stated preference discrete choice experiments and process evaluation.

Evidence Synthesis (ES)
This programme comprises all research associated with combining multiple sources of evidence for clinical and economic evaluations in the context of HTA. Alongside the NIHR Complex Reviews Support Unit (CRSU), this programme explores challenges in combining complex data types and structure, through methodological and applied research.

Global HTA (GHTA)
This programme draws upon HEHTA’s research from a global perspective, working with multi-disciplinary collaborators to evaluate a range of interventions including public health and novel low-cost diagnostic tools in countries across Africa and Asia. In addition, alongside the One Health agenda, our research applies methodology that quantifies the cross-sectorial costs and benefits to promote its development in practice.

Economics of Precision Medicine (EPM)
This programme directly aligns with the College of Medical, Veterinary and Life Sciences (MVLS) role as one of the six regional centres of excellence created by the Precision Medicine Catapult. The EPM programme focuses on understanding of the ‘strata’ of responses and the genetics of the diseases, and effective and cost-effective forms of treatment for different patient groups, methodologically underpinned by subgroup analyses. In addition, we are investigating the implications of precision medicine for study design and technology pricing.

Economic Evaluation alongside Clinical Trials (EEACT)
This programme includes all research associated with conducting an economic appraisal as part of a clinical trial. Although modelling methods may still be required to provide a comprehensive appraisal, the characterising feature is the inclusion of an economic component to the trial and the availability of experimental data on both costs and effects of treatment.
Since the launch of our Economics of Precision Medicine theme in January 2017 under the leadership of Neil Hawkins, HEHTA has undertaken a number of exciting projects.

One of the challenges of precision medicine is to distinguish between chance variation and ‘real’ reproducible subgroup effects. Unreliable subgroup analysis may harm patients and waste scarce resources – not least through futile confirmatory trials. Neil Hawkins is leading an MRC-funded research project that will address this challenge. Together with Claudia Geue, they are investigating the use of Bayesian methods to increase the reliability of subgroup selection. The specific aim of the project is to develop a fully Bayesian framework for the identification and estimation of subgroup effects and to provide guidance on its use. The project comprises three primary interlinked objectives: 1) to develop, and test through simulation studies, a fully Bayesian statistical model for the identification and estimation of subgroup effects, 2) to develop and pilot web-based methods for the formal elicitation of a prior judgement from “experts” regarding potential subgroup effects, and 3) to provide guidance regarding the application of the Bayesian approaches to subgroup analysis.

Within this research theme, we are also investigating the use of early stage health technology assessment to identify promising precision medicine candidates in order to increase the productivity of clinical development. Since 2016, Neil Hawkins and Janet Bouttell have been working with the Glasgow Molecular Pathology Node, one of six centres funded by the MRC/ESPRC to increase the UK’s capacity for molecular pathology and accelerate translation of molecular tests into clinical practice. The node structure brought together companies from the biotech industry, clinicians from NHS Greater Glasgow and Clyde and the University of Glasgow. The node focused on three disease areas: cardio-vascular disease, cancer and inflammation. Projects included the quantification of the
impact of an extension to KRAS/NRAS/BRAF testing in colorectal cancer. These projects required close team working with colleagues from clinical oncology and pathology and contributed to an ongoing decision-making process at the Molecular Pathology Evaluation Panel, NHS Scotland’s decision-making body in molecular pathology.

More recently, HEHTA has been working to quantify the potential impact of precision medicine in Scotland. Using a mixed-methods approach, we are developing a toolkit to support the estimation of the potential value of precision medicine technology efforts within a Scottish context. To this extent we interviewed our prominent clinicians in key disease areas about how they felt precision medicine would impact clinical practice in the future. Using national data, we are translating their predictions into supportable estimates of the economic impact of precision medicine. The toolkit will further include the following elements: a Scottish burden of disease model, populated by using a representative sample of the Scottish population (Scottish Longitudinal Study) and extensive linkages to administrative health records over several decades to allow us to estimate costs associated with common diseases and also health-related quality of life. The precision medicine toolkit will support precision medicine research within the University of Glasgow by identifying those areas where precision medicine technologies will have the greatest impact and supporting calls for strategic funding.

Finally, we have begun investigating the implications of precision medicine for study design and technology pricing.
The cost of prevalent and incident cardiovascular disease in people with type 2 diabetes in Scotland

Funder: Novo Nordisk

Background
Cardiovascular disease (CVD) is the leading cause of comorbidity and death among people with type 2 diabetes mellitus. Existing studies do not reflect the rapidly evolving treatment landscape in type 2 diabetes. In addition, comparisons that have been made to date were between people with and without CVD. Prevention is also important and hence, inclusion of a third group i.e., people at high risk of developing CVD will add significantly to the existing evidence on costs associated with prevalent CVD in people with type 2 diabetes.

Methods
Data were obtained from the Scottish Care Information Diabetes Collaboration (SCI-Diabetes). We used data linkage to retrieve information on healthcare utilisation, care home use and deaths. Productivity effects were estimated for those of non-pensionable age. For the analysis of prevalent CVD people were classified into three groups: i) having established CVD, ii) being at high risk of future CVD and iii) being CVD free and not at high risk of future CVD. Costs were estimated over 12 months. For our analysis of incident CVD people alive with type 2 diabetes during a defined period were included and followed up for a maximum of three years during which occurrence of the first CVD event was recorded.
Results
Mean annual cost per person with established CVD was £6,900, £3,300 for a person at high risk of future CVD and £2,500 for a person without CVD and not at high risk. In year one, the cost of an incident CVD event was £16,700 compared to £2,100 for people without an incident event. Over two years, the cumulative costs were £21,500 and £4,200, and by year three, £25,000 and £5,900 respectively.

Conclusions
Prevalent and incident CVD in people with type 2 diabetes place a significant financial burden on health and social care services and the wider economy. Using a contemporary and representative cohort we were able to quantify this financial burden, emphasising the importance of effective prevention strategies and providing guidance to inform risk stratification to guide treatment decisions.

Publication
Economic Evaluation of the Direct Remission Clinical Trial (DiRECT)

Funder: Diabetes UK

Background
Approximately 10% of total healthcare budgets worldwide are spent on treating diabetes and its complications, and budgets are increasing globally because of ageing populations and more expensive second-line medications. In the Diabetes Remission Clinical Trial, funded by Diabetes UK, the Counterweight-Plus weight management programme demonstrated an unprecedented clinical effectiveness and durability compared to standard care, where 46% of the participants in the intervention group achieved remissions of type 2 diabetes at year 1 and 36% at year 2 [1]. In December 2018, we published its first year within-trial cost-effectiveness result which estimated the net first year intervention costs to be at approximately £1000 per participant, with other savings including significant reductions in the use of oral glucose-lowering drugs [2,3]. Now the second health economic paper of this trial is hot in press where we estimated the two-year within-trial and lifetime cost-effectiveness of the Counterweight-Plus weight management programme 4.

Methods
Our within-trial analysis assessed costs of the Counterweight-Plus intervention in DiRECT (including training, programme materials, practitioner appointments and low-energy diet), along with glucose-lowering and antihypertensive medications, and all routine healthcare contacts. Lifetime cost per quality-adjusted life-year (QALY) was estimated according to projected durations of remissions and consequent life expectancy, quality of life and healthcare costs, assuming continued relapse rates as seen in year 2 of DiRECT and all individuals with remissions relapse by year 10.

Results
We found that net per person cost in the intervention group falls as further short-term cost savings offset the initial intervention; the two-year intervention costs (£1411; 95% CI £1310, £1508) were partially offset by lower other healthcare costs (£796; 95% CI £150, £1465), including reduced oral glucose-lowering medications by £231 (95% CI £148, £314). Over a lifetime horizon, the DiRECT intervention is predicted to be more effective (0.06 QALY gain; 95% CI 0.04, 0.09) and not only cost-effective but also cost-saving (cost saved £1337 per person; 95% CI £674, £2081), due to postponement of permanent diabetes and its complications; the intervention becoming cost-saving within 6 years. The cost-saving conclusion appears robust to various less favourable model scenarios, providing strong evidence that resources could be shifted cost-effectively to support achieving remissions with the DiRECT intervention.
**Publication**

## Completed Projects

<table>
<thead>
<tr>
<th>Project title</th>
<th>HEHTA PI</th>
<th>Duration</th>
<th>Total project value</th>
<th>Funder</th>
<th>Research Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantitative Fibronectin to help Decision-making in women with Symptoms of Preterm Labour (QUIDS)</td>
<td>Kathleen Boyd</td>
<td>2015-2019</td>
<td>819,817</td>
<td>NIHR</td>
<td>DAMSEL</td>
</tr>
<tr>
<td>Evaluation of multiple HCV diagnosis pathways for efficacy, cost effectiveness and cure, in a regionally defined general population. The EVERYONES HCV study</td>
<td>Kathleen Boyd</td>
<td>2017-2019</td>
<td>146,640</td>
<td>Gilead Sciences Ltd</td>
<td>DAMSEL</td>
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<tr>
<td>Improved metrics to assess impacts of coastal aquaculture farming on community well-being and nutritional status across farmed sea-food value chains in saline floodplains of Bangladesh</td>
<td>Eleanor Grieve</td>
<td>2016-2019</td>
<td>247,368</td>
<td>DFID</td>
<td>GHTA</td>
</tr>
<tr>
<td>Project title</td>
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<td>Duration</td>
<td>Total project value</td>
<td>Funder</td>
<td>Research Theme</td>
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<tr>
<td>Incidence and the Economic burden of cardiovascular events in type 2 diabetes mellitus</td>
<td>Olivia Wu</td>
<td>2018-2019</td>
<td>63,543</td>
<td>Novo Nordisk</td>
<td>ALDA</td>
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<tr>
<td>Health Economics Analysis to Scottish Medicines Consortium</td>
<td>Olivia Wu</td>
<td>2018-2019</td>
<td>36,932</td>
<td>Healthcare Improvement Scotland</td>
<td>ES DAMSEL</td>
</tr>
<tr>
<td>Cost of IVF treatment in Scotland</td>
<td>Kathleen Boyd</td>
<td>2018-2019</td>
<td>52,025</td>
<td>Scottish Government</td>
<td>ALDA</td>
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<tr>
<td>Addressing uncertainty around the reach and quality of optometrist independent prescribing in Scotland</td>
<td>Claudia Geue</td>
<td>2018-2019</td>
<td>31,000</td>
<td>CSO</td>
<td>ALDA</td>
</tr>
<tr>
<td>Segmenting the short, medium- and longer-term stroke journey in Scotland</td>
<td>Claudia Geue</td>
<td>2018-2019</td>
<td>15,000</td>
<td>Stroke Association</td>
<td>ALDA</td>
</tr>
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</table>

**Research themes key:**
- **ALDA**: Analysis of Linked Health Data
- **DAMSEL**: Decision Analytic Modelling and Simulation for Evaluation in Health
- **EEACT**: Economic Evaluation alongside Clinical Trials
- **EPH**: Economics of Population Health
- **EPM**: Economics of Precision Medicine
- **ES**: Evidence Synthesis
- **GHTA**: Global HTA
- **IPE**: Incorporating Perspectives and Experience

**Funders key:**
- **CHSS**: Chest Heart & Stroke Scotland
- **CRUK**: Cancer Research UK
- **EPSRC**: Engineering and Physical Sciences Research Council
- **EC**: European Commission
- **DFID**: UK Department for International Development
- **MRC**: Medical Research Council
- **NIHR**: National Institute for Health Research
- **SEHD**: Scottish Executive Health Department
- **CSO**: Chief Scientists Office
## New Projects

<table>
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<tr>
<th>Project title</th>
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<th>Duration</th>
<th>Total Project Value (£)</th>
<th>Funder</th>
<th>Research Theme</th>
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<tbody>
<tr>
<td>Cancer Medicines Outcomes Programme (CMOP)</td>
<td>Olivia Wu</td>
<td>2019-2023</td>
<td>431,358</td>
<td>Scottish Government</td>
<td>ALDA</td>
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<tr>
<td>Using national data to answer new questions around anticoagulation in Scotland</td>
<td>Claudia Geue</td>
<td>2019-2021</td>
<td>71,835</td>
<td>Bristol-Myers Squib (BMS) UK</td>
<td>ALDA</td>
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<tr>
<td>Developing specialist training modules for the Scottish Medicines Consortium</td>
<td>Camilla Somers</td>
<td>2019-2019</td>
<td>9,046</td>
<td>Scottish Medicines Consortium</td>
<td></td>
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<tr>
<td>Multimorbidity in the context of Socioeconomic deprivation: a mixed methods exploration of how Community and Individual factors interact to influence patient capacity to manage Multimorbidity (SCIM)</td>
<td>Jim Lewsey</td>
<td>2019-2022</td>
<td>188,041</td>
<td>CSO</td>
<td>ALDA</td>
</tr>
<tr>
<td>Saeboglove therapy for severe Upper limb disability and Severe Hand Impairment after stroke</td>
<td>Olivia Wu</td>
<td>2019-2022</td>
<td>277,075</td>
<td>CSO</td>
<td>EEACT</td>
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<tr>
<td>The Impact of Minimum Pricing of Alcohol on Ambulance Call-outs in Scotland (IMPAACT)</td>
<td>Jim Lewsey</td>
<td>2019-2021</td>
<td>240,321</td>
<td>CSO</td>
<td>ALDA</td>
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### Ongoing Projects

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<tr>
<th>Project title</th>
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<th>Duration</th>
<th>Total project value</th>
<th>Funder</th>
<th>Research Theme</th>
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<tbody>
<tr>
<td>Randomised control trial of surveillance and no surveillance for patients with Barrett’s oesophagus - BOSS (Barrett’s Oesophagus Surveillance Study)</td>
<td>Andrew Briggs</td>
<td>2009-2022</td>
<td>1,710,981</td>
<td>NIHR</td>
<td>EACT</td>
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<tr>
<td>Randomised trial of treating Fibroids with either Embolisation or MyoMectomy to measure the Effect on quality of life (FEMME)</td>
<td>Olivia Wu</td>
<td>2011-2019</td>
<td>1,547,842</td>
<td>NIHR</td>
<td>EACT</td>
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<tr>
<td>SurgiCal Obesity Treatment Study (SCOTS)</td>
<td>Andrew Briggs</td>
<td>2012-2026</td>
<td>1,443,837</td>
<td>NIHR</td>
<td>EACT</td>
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<tr>
<td>Cancer And Venous Access: a randomised controlled trial with associated qualitative research of long-term venous access devices for the delivery of chemotherapy: Implantable venous access ports versus tunnelled central lines versus peripheral inserted central catheters (CAVA)</td>
<td>Olivia Wu</td>
<td>2013-2019</td>
<td>1,031,483</td>
<td>NIHR</td>
<td>EACT, IPE</td>
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<tr>
<td>SYSTEMS 2: a randomised phase II trial of standard versus dose escalated radiotherapy in the treatment of pain in malignant pleural mesothelioma</td>
<td>Kathleen Boyd</td>
<td>2014-2020</td>
<td>130,312</td>
<td>CRUK, Beatson Cancer Charity</td>
<td>EACT</td>
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<tr>
<td>Reducing sedentary behaviour among older adults – The SITLESS Project</td>
<td>Emma McIntosh</td>
<td>2015-2020</td>
<td>4,547,560 (€)</td>
<td>EC</td>
<td>EACT, EPH</td>
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<tr>
<td>Project title</td>
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<td>NIHR Complex Reviews Support Unit (CRSU)</td>
<td>Olivia Wu</td>
<td>2015-2021</td>
<td>2,000,000</td>
<td>NIHR</td>
<td>ES</td>
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<tr>
<td>A Randomised Phase II study of Accelerated, Dose escalated, Sequential Chemoradiotherapy in Non-Small Cell Lung Cancer ADScAN</td>
<td>Kathleen Boyd</td>
<td>2015-2021</td>
<td>526,000</td>
<td>CRUK</td>
<td>DAMSEL</td>
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<tr>
<td>Evaluating graduated progress towards and impacts of the implementation of indoor smoke free prison facilities in Scotland</td>
<td>Kathleen Boyd</td>
<td>2016-2020</td>
<td>853,045</td>
<td>NIHR</td>
<td>EEACT</td>
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<td>Associations of blood biomarkers with cardiovascular disease and related cardio metabolic outcomes and risk prediction in the clinical setting: UK biobank</td>
<td>James Lewsey</td>
<td>2016-2019</td>
<td>75,000</td>
<td>CHSS</td>
<td>ALDA</td>
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<td>The Best Services Trial: Effectiveness and cost-effectiveness of the New Orleans Intervention Model for Infant Mental Health (BeST)</td>
<td>Emma McIntosh, Kathleen Boyd</td>
<td>2016-2020</td>
<td>3,437,346</td>
<td>NIHR</td>
<td>EPH, EEA CT</td>
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<td>Tackling cardiovascular risk in the adolescent life-course through a schools’ salt-reduction intervention in sub-Saharan Africa (No to Na)</td>
<td>Emma McIntosh</td>
<td>2018-2021</td>
<td>1,031,458</td>
<td>MRC</td>
<td>GHTA, EPH</td>
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<td>Novel low-cost diagnostic tools and their impact in Africa</td>
<td>Emma McIntosh</td>
<td>2018-2021</td>
<td>1,686,271</td>
<td>ESPRC</td>
<td>GHTA, EPH</td>
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<td>How can we increase the number of people cycling regularly?</td>
<td>Emma McIntosh</td>
<td>2018-2020</td>
<td>164,952</td>
<td>British Cycling Federation</td>
<td>EPH, IPE</td>
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<td>Project title</td>
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<td>Funder</td>
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<td>Supporting the National Action Plan for Antimicrobial Resistance (SNAP-AMR)</td>
<td>Emma McIntosh</td>
<td>2018-2021</td>
<td>140,789</td>
<td>MRC</td>
<td>GHTA</td>
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<td>in Tanzania</td>
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<td>NIHR Global Health Research Group on estimating the prevalence, quality and</td>
<td>Emma McIntosh</td>
<td>2018-2021</td>
<td>2,018,520</td>
<td>NIHR</td>
<td>GHTA</td>
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<td>life, economic and societal impact of arthritis in Tanzania: a mixed methods</td>
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<td>study at University of Glasgow</td>
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<td>Estimating the value of Precision Medicine Technologies: Developing A</td>
<td>Neil Hawkins</td>
<td>2018-2020</td>
<td>119,396</td>
<td>University of</td>
<td>PM, ALDA</td>
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<td>Scottish Toolkit</td>
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<td>Glasgow</td>
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<td>The BHF FAMOUS-NSTEMI long-term follow-up study</td>
<td>Andrew Briggs</td>
<td>2018-2021</td>
<td>144,306</td>
<td>British Heart</td>
<td>DAMSEL</td>
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<td>TRends and Inequalities in Prescribing for Alcohol Dependence in Scotland</td>
<td>James Lewsey</td>
<td>2018-2020</td>
<td>107,842</td>
<td>Alcohol Research UK</td>
<td>ALDA</td>
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<td>(TRIPADS)</td>
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<td>Smoking Cessation in Pregnancy Incentives Trial (CPIT): A phase III</td>
<td>Kathleen Boyd</td>
<td>2017-2021</td>
<td>294,974</td>
<td>CSO</td>
<td>DAMSEL</td>
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<td>Randomised Controlled Trial</td>
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<td>A Trial to Evaluate the Potential Benefit of Adjuvant Chemotherapy for Small</td>
<td>Kathleen Boyd</td>
<td>2013-2023</td>
<td>£686,749</td>
<td>CRUK</td>
<td>DAMSEL</td>
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<tr>
<td>Bowel Adenocarcinoma (BALLAD)</td>
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**WINTER**

**New Alcohol Policy Evaluation Project**

Jim Lewsey, jointly with researchers from the Universities of Stirling and Sheffield, have been awarded a grant for a study on an alcohol policy evaluation in Scotland. Specifically, the study named ‘The Impact of Minimum Pricing of Alcohol on Ambulance call-outs in Scotland, aimed to determine whether the introduction of the minimum unit pricing (MUP) for alcohol in Scotland, increasing the price for cheap alcohol, had an impact on alcohol-related ambulance call-outs. The study will try to detect not only the overall ambulance calls difference due to the MUP, but also the related economic effect (direct costs or cost saving), and the main characteristics of the population calling the ambulances (e.g. sex, age and socioeconomic status).

**HEHTA at HESG Winter 2019**

This year’s Winter HESG meeting was hosted in York by the Centre for Health Economics, University of York from 7th-9th January. Four members of HEHTA attended the meeting and participated as chairs, discussant, poster presentations and having draft papers discussed.

Manuela Deidda’s manuscript ‘Methodological challenges of conducting economic evaluations alongside natural experiments: The Healthy Start Voucher case study’ was discussed. This manuscript was written with co-authors Ruth Dundas, Noemi Kreif, Claudia Geue, Giorgio Ciminata and Emma McIntosh (the latter three from HEHTA). Jose Antonio Robles-Zurita’s manuscript, written with HEHTA co-authors Neil Hawkins and Janet Bouttell, ‘The value of diagnostic information with endogenous uptake behaviour’ was also discussed. Ciaran Kohli-Lynch and Nicola McMeekin presented two posters on ‘Effectiveness and Cost-Effectiveness of Implanon in South Africa’ and ‘A methodological framework for developing conceptual models in economic evaluation’, respectively.

**SPRING**

**Fifth in the Series, Health Economics Handbook in Print**

Applied Health Economics for Public Health Practice and Research, edited by Emma McIntosh and Rhiannon Tudor-Edwards, was published by Oxford University Press on 19 March 2019 after five years of collaboration between the authors. It is the fifth in the series ‘Handbooks in Health Economic Evaluation’ and Emma’s 2nd book in the series (the first was entitled ‘Applied methods of Cost Benefit Analysis in Health Care’). Other HEHTA team members (Camilla Baba, Kathleen Boyd and Olivia Wu) also contributed to the book.

**iLFT Wins BMJ Award**

HEHTA project ‘Intelligent Liver Testing’ (iLFT) was recognised as ‘highly recommended’ at The BMJ Awards 2019 in the Digital Innovation category on 24th April 2019 in London.
The iLFT project was led by Professor John Dillon from the University of Dundee with HEHTA’s Kathleen Boyd leading the health economic analysis. The project developed an intelligent Liver Function Test system (iLFT) for detecting and diagnosing abnormal LFTs, conducted a step wedge trial to evaluate it and assessed the cost-effectiveness of the new iLFT pathway compared to conventional management of abnormal LFTs. The study found that the iLFT pathway could increase the probability of correct diagnosis of liver disease by 51%, saving the NHS £3216 per patient. iLFT has since been rolled out across NHS Tayside with other health boards in Scotland planning to follow suit.

Evidence Synthesis for HTA in its 8th Year

HTA practitioners converged in Glasgow on 1st May to take part in the 8th edition of HEHTA’S Evidence Synthesis for HTA short course. The three-day workshop, led by HEHTA’S Neil Hawkins and Olivia Wu, explores the principles and practice of conducting a systematic review and meta-analysis through a mixture of presentations from HEHTA and external faculty, together with hands-on computer-based exercises and discussions of case studies. Our external faculty included Joanna Kelly, Lorna Thompson and Paul Herbert from NHS Healthcare Improvement Scotland.

HEHTA Deepens Links with Taiwan

Olivia Wu was invited by Tri-Service General Hospital (TSGH) to give talks in Taipei. In talks at the National Defence Medical Centre and Taipei Medical University, Olivia presented ‘Evidence synthesis- a powerful tool that needs to be handled with care’ to highlight how meta-analysis can give spurious results and illustrate heterogeneity, sequential analysis, and living systematic review. For another talk in TSGH, Olivia presented ‘Adding ‘value’ to evidence-based medicine: the role of health economics’ to introduce health economics to healthcare professionals.

Besides the talks, Olivia and our PhD student Ping-Hsuan (Shawn) Hsieh had round table discussions with the Centre of Drug Evaluation, members of the Pharmaceutical Benefit and Reimbursement Scheme meeting (PBRS, the decision-making of NHI reimbursement), and colleagues from industry. This visit also coincided with the introduction of patient representatives’ participation at the PBRS meetings. Patient group leaders were eager to understand the extent of patient engagement at NICE and at SMC. Organised by Dr. Raoh-Fang (Jasmine) Pwu, Olivia was happy to share her experience as a long-standing member of the NICE Technology Appraisal Committee.
SUMMER

Report on ‘The Value of Occupational Health Research’ launched at the House of Lords

Evi Germeni and Emma McIntosh contributed to the report ‘The Value of Occupational Health Research: History, Evolution and Way Forward’, which was launched on 26th June 2019 at the House of Lords. This work was led by Ewan MacDonald (Public Health, University of Glasgow) and sponsored by the Society of Occupational Medicine and the Health and Safety Executive, completed a trilogy of reports related to the value of maintaining and improving the health and wellbeing of the working age population.

The launch of the report was hosted by Lord David Blunkett, a patron of the Society of Occupational Medicine. The report contains in total 11 recommendations, including calling for the development of a new coordinating Centre for Health and Work, the implementation of a national co-ordinated occupational health research strategy, as well as the conduct of high-quality economic evaluation studies.

Monklands Independent Review

An independent review panel was formed in response to Scotland’s Cabinet Secretary for Health and Sports decision to review the processes undertaken by NHS Lanarkshire to plan for replacement/ refurbishment of the Monklands Hospital. The panel consisted of health economists, a clinician, a health planner and a member of the Scottish Government. HEHTA’s Emma McIntosh and Olivia Wu co-chaired this panel, while Moira Sim, Yiqiao Xin and Dikshyanta Rana were a part of the team.

The independent panel concluded that NHS Lanarkshire had indeed followed the guidance and the process was well conducted. The panel also highlighted some limitations that existed due to differences in interpreting the guidance and further gave some recommendations. Following the publication of the findings, the Scottish Government instructed NHS Lanarkshire to discount rebuilding on the existing Monklands site due to concerns over cost, timescales and patient safety. The people of Monklands catchment areas were promised a smoother delivery of the new hospital, which will retain A&E department as well as specialist services. The final report was published in June 2019.

HESG 219

Four HEHTA researchers attended the summer edition of the Health Economists’ Study Group (HESG) hosted by the University of East Anglia, 3rd - 5th July.

Robert Heggie discussed part of his PhD work on the importance of implementation for health economists; Kathleen Boyd presented the result of a HEHTA joint collaboration on the value and usefulness of Health Economics Protocols. Jose Robles-Zurita and Francesco Manca discussed methodological issues on randomisation and cost-effectiveness of screening strategies on HCV, respectively.
Yulia Anopa wins EADPH GlaxoSmithKline Research Award

Yulia Anopa, part-time PhD student and research assistant at the Dental School, won first place at the European Association of Dental Public Health (EADPH) in Ghent, Belgium, on 13th September for her presentation on the economic evaluation of the Protecting Teeth @ 3 (PT@3) randomised controlled trial.

Yulia competed with three other oral presenters for the EADPH GlaxoSmithKline Research Award and was awarded the first prize of €2,000. This is the second year in a row that the Community Oral Health section team of the University of Glasgow Dental School came first.

Yulia’s PhD research project is a collaboration between HEHTA (supervisor: Emma McIntosh) and the Community Oral Health section at the Dental School (supervisor: Lorna Macpherson).

Professor Jim Lewsey: To Lilybank (and back again)

On 20th September, Jim Lewsey delivered his inaugural lecture titled ‘Using Routine Data to Complement and Enhance the Results of Randomised Controlled Trials – Reflections over 20 years on - a.k.a to Lilybank (and back again)’.

Over 100 friends, family and colleagues turned up at the university’s senate room to listen to Jim’s lecture, the title of which was taken from the heading of a chapter written by Jim and colleagues towards the end of his first research assistant post in the Public Health Research Unit at Lilybank Gardens. Jim joined HEHTA in 2010 and he has previously held posts at London School of Hygiene and Tropical Medicine, University of Otago and Eastman Dental Institute, UCL.

DAMMEE 2019

This year we hosted 59 students for our longest-running course, Decision Analytic Modelling Methods for Economic Evaluation (DAMMEE), from 23rd to 27th September. Always well attended, participants came from Poland, Spain, Germany, the Netherlands, Hungary and other destinations to take part in the foundation and advanced modules, held over five days at the Hilton Grosvenor Hotel in Glasgow.

Some of the feedback included:
‘One of the best modelling courses I have ever attended. Every hour counts. Teaching materials are perfect, especially note section under every slide handout and practical hands-on exercises. Lecturers are wonderful.’
‘Great to have such expert speakers to discuss the information.’
Chinese University of Hong Kong and HEHTA publish joint article
A collaboration between Dr Jeremy Teoh from the Chinese University of Hong Kong’s department of surgery and Janet Bouttell, Robert Heggie and Neil Hawkins of HEHTA led to the publication of ‘Economic evaluation of the introduction of the Prostate Health Index as a rule-out test to avoid unnecessary biopsies in men with prostate specific antigen levels of 4-10 in Hong Kong’. The study was based on fieldwork carried out in Hong Kong by Jeremy and fellow clinicians. The collaboration came about when Jeremy visited HEHTA in September 2017 to discuss how discrete choice experiments may be applied in urology and presented some of his research to the department.

Evi Germeni Delivers Research Seminar in Switzerland
Evi Germeni gave a research seminar at the University of Lugano in Switzerland entitled ‘Updating a meta-ethnography of primary care professionals’ experience of antibiotic prescribing: Key considerations and lessons learnt’. It outlined main benefits and challenges involved in updating a systematic review and synthesis of qualitative evidence, as those emerged from her own endeavour to update a 2011 meta-ethnography, conducted by a different team of reviewers. The research seminar, which was primarily intended for PhD candidates and early career academics, was organised by the Institute of Communication and Health.

Director Appointed as Lindsay Chair
On 1st October, Olivia Wu was honoured with the highly prestigious William R Lindsay Chair of Health Economics, making her the third holder of the post after Andrew Briggs.

Founded in 1999, the professorship is named after William Roberts Lindsay (1931-2010), an American benefactor of the University.

Guns, tobacco and alcohol controls (and other natural experiments)
Guns, tobacco and alcohol policies were just some of those discussed by participants at a two-day expert workshop which took place in Glasgow 25th-26th November, entitled ‘What’s Next for Natural Experimental Studies?’.

Manuela Deidda presented a framework for conducting economic evaluations alongside natural experiments and Noemi Kreif examining effect heterogeneity using Machine Learning. The lively discussion between the attendees raised some key issues which organisers, HEHTA’s Jim Lewsey, Peter Craig, Ruth Dundas and S Vittal Katikireddi, hope to develop into an impactful paper.

ISPOR 2019: Digital Transformation of Healthcare
Six members of HEHTA attended ISPOR 2019 in Copenhagen, 2nd – 7th November, and participated as course instructors, poster presenters and chairs. Andrew Briggs and Andrew Davies taught Understanding Survival Modelling with Application to HTA. The short course on Meta-Analysis & Systematic Literature Review was taught by Olivia Wu and Neil Hawkins. Another popular course, Understanding Survival Modelling with Application to HTA, was taught by Jim Lewsey and Andrew Davies.
Giorgio Ciminata presented the poster “Comparison of propensity score methods: a case of direct anticoagulation”. Professor Olivia Wu chaired the “Women in Health Economics and Outcomes Research (HEOR)” initiative aimed at supporting growth, development, and contribution of women in HEOR.

NIHR Global Health Research Group
The team took part in Explorathon 2019 at the Glasgow Science Centre on 27th September and travelled to Tanzania on 14th October, both for the NIHR Global Health Research Group project on arthritis.

Along with project members from the School of Geographical and Earth Sciences and CoSS, we hosted a public engagement trade-off activity called the Tanzanian Health Minister’s Dilemma, focusing on NCDs in Sub-Saharan Africa. Moira Sim, Jose Robles-Zurita, Manuela Deidda, Robert Heggie and Francesco Manca all attended the Science Centre event.

On 14th October, Emma McIntosh, Manuela Deidda, Ping Hsuan Hsieh and Chris Bunn, as well as other arthritis group members including Shadrach Dare and Stefan Siebert (pictured), also from the University of Glasgow, met in Tanzania for the NIHR Global Health Research Group (Arthritis) meeting, hosted by the Kilimanjaro Christian Medical Centre (KCMC).

WINTER

HEHTA leads economic evaluation of NIHR-funded study
The National Institute for Health Research (NIHR) has funded a programme of research to examine the clinical and cost-effectiveness of Dyadic Developmental Psychotherapy (DDP) compared to services-as-usual. The start date of the study is March 2020, and will be led by Helen Minnis, Professor of Child and Adolescent Psychiatry at the University of Glasgow and HEHTA’s Kathleen Boyd will lead the economic evaluation. Kathleen will explore the cost-consequences and cost-effectiveness of DDP from both the NHS and societal perspectives to ensure that the longer-term impacts on the children, families, education and employment are accounted for. The research will be conducted across the range of contexts in which DDP is delivered in the UK, including the NHS and social care. This work can help inform the UK NHS on the most cost-effective strategy for children who have experienced abuse and neglect.

The total amount of the award is £2,121,388.56.

Successful NIHR CRSU Workshop & Webinar
NIHR Complex Reviews Support Unit (CRSU), led by Director Olivia Wu, ran a second successful Joint CRSU & Cochrane workshop on complex evidence synthesis, at the GCU Campus in Spitalfields, London on 22nd November 2019, for UK-based Cochrane Editors, Cochrane Networks and Cochrane Programme Grant holders.

On 3rd December 2019. NIHR CRSU also delivered a webinar on the web-based app MetaInsight for conducting network meta-analysis. CRSU members, Alex Sutton from University of Leicester, and Yiqiao Xin, research associate from HEHTA, presented the background of the MetaInsight development, a live demonstration, and discussed related issues and future plans for the app.
Teaching & Supervision

Student numbers on our online Master course continue to grow, with 25 students enrolled at start of academic year 2018/19. We were proud to have eight students graduate with their MSc this year (including 2 ‘merits’ and 2 ‘distinctions’). We continue to be thrilled with the global audience that our MSc attracts with students participating from: Europe (UK, Greece, Switzerland, Austria, Netherlands), Australasia (Australia), Middle East (UAE, Jordan), Far East (Thailand, Malaysia, Taiwan, Japan), North America (Canada), South America (Colombia, Chile) and Africa (Nigeria).

Next academic year (2019/20) will be the 5th year that our MSc HTA has been delivered as online distance learning (ODL). We are proud of our MSc’s continued success.
Graduate focus - MSc

**Bashar Darawsheh**

In each course taken throughout my study, critical thinking was a fundamental concept to be instilled and applied to reasoning activities. Academic leads did not spare any effort to change our mindset to be critical toward any work we encounter or create. This changed me a lot; from being only a receiver of information to an active assessor of what should be valuable to be regarded. What is impressive about Glasgow university in general, and in HTA MSc program in specific, would be the huge experience one can find there. All instructors had practical experience in the field they studied - this made the learning realistic and away from theoretical lecturing. Many of them even had international experience or were involved in initiatives held in different countries. For example, it was brilliant when some courses brought real cases from WHO, iDSI, NICE international, BMGF, etc., to be studied and analysed in the weekly exercises. All of this enriched my learnings and widened my expectations.

As my MSc was through Online Distance Learning (ODL), I was concerned about missing the opportunity to interact and learn from my colleagues. In contrary, I was pleased with the level of interaction between students; Moodle was efficient in providing a platform to allow interactions and constructive discussions between students, as well as instructors.

Finally, I want to thank all instructors whom I learned a lot from, I owe them much. Special thanks to Jim who supported and believed in me when I had a health issue. It was a hard time for me, and I appreciate all the cooperation and understanding I got.

**Callum Stone**

I had a passion within healthcare and was uncertain what course might benefit my career professionally. I was motivated to progress in business, but naively considered that I had less of a passion for the word ‘economics’. Nevertheless, after three years of hard work, I can say that I am so pleased I took up the challenge of this masters alongside work.

The course’s diversity is a huge strength, and it was fascinating to see students from around the globe informing each of us about their own healthcare market as we developed throughout the course.

I’ve learnt an incredible amount in the last three years, which has been great for my own personal development. Distance learning has enormous benefits for committed and self-motivated individuals, and I would certainly recommend the course to other motivated individuals.
**Nelson Gonzalez**

Being part of the MSc HTA program is a changing life experience. Among the many positive things, I’d like to highlight:

The HTA program was aimed to foster very versatile contemporary key players. Integrating evidence synthesis and evidence-based decisions in a broader perspective including economic, ethical, political and cultural aspects. As a result, it empowers the students with the right tools for significant impact and decision making at different levels (society, hospital, etc.). Human resources and Professors are remarkably knowledgeable and receptive. They understand the challenges of modern healthcare dynamics and are eager to deliver meaningful information to all the students.

The online format of the program is very friendly regardless of how distant in the world you are. In addition, the platform provides valuable resources and software you can use during the program. It allows you to find the balance to accomplish the commitments every week. The online- forum also thrives the knowledge and experience sharing with people from different contexts all over the world.

**Nicholas Letchford**

I really enjoyed my time on the MSc HTA. It covers a broad range of topics with a wide range of electives relevant to both the HTA context, and more broadly economics as well. I would encourage everyone to complete the full programme, and particularly the thesis component, which I found to be the most empowering. An extra benefit of the program allows you to start studying at any semester, which I found invaluable!

**Tracy Duff**

Lead pharmacist for Lothian Medicines Information Service, and Yellow Card Centre Scotland

Honestly, the course was a lot more challenging than I anticipated, but I appreciated the flexibility that online learning offered, and managed to work around my full-time job. I particularly enjoyed the diversity of the course (with a good range of elective modules offered), and the overlap with other courses, bringing together students of differing backgrounds.

Currently, I am still in my current role as a pharmacist, however since completing the course I have joined the NDC (for SMC) as a Lead Assessor. Ideally in future I would like to further investigate opportunities to use both skills sets.

I learned so many new things that it is difficult to pinpoint one. I think conducting a piece of original research was most valuable to me, and I know I will be able to apply these skills to anything I do in future. Developing a de novo decision model was completely unexpected and out of my comfort zone, and probably what I am most proud of. The learning from that has helped me in my critical appraisal of health economic studies.
**Awarded in 2019**

Ciaran Kohli-Lynch
‘Primary prevention of cardiovascular disease in disadvantaged populations: a comparison of modelling methods in the UK and the US’

Yiqiao Xin
‘Impact of variation of economic evaluation methods on the cost-effectiveness result: a case study of deep brain stimulation (DBS) in Parkinson’s’
*Supervisors: Emma McIntosh, James Lewsey*

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**Current Students**

Yulia Anopa
‘Economics of paediatric caries prevention’
*Supervisors: Emma McIntosh, Lorna Macpherson (external)*

Janet Bouttell
‘Methods of early health technology assessment in precision medicine’
*Supervisors: Andrew Briggs, Neil Hawkins*

Giorgio Ciminata
‘Cost-effectiveness of new anticoagulant drugs using real world data within the Scottish population’
*Supervisors: Olivia Wu, Claudia Geue, Peter Langhorne*

Karl Ferguson
‘Diagram based analysis of causal systems for understanding the causes of alcohol problems’
*Supervisors: James Lewsey, Mark McCann (external), Daniel Smith (external)*

Ryan Field
Public Health (Research)
*Supervisors: James Lewsey, Pardeep Jhund*

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Ben Fulton
‘Quantitative research of patient preferences and perceptions of precision medicine in Oncology’
*Supervisors: Robert Jones (external), Emma McIntosh, James Paul (external)*

Eleanor Grieve
‘A Methodological Approach for Evaluating the Impact of Health Technology Assessment’
*Supervisors: Andrew Briggs, Olivia Wu, Hannah Hesselgreaves*

Catherine Hanna
‘Clinical trial outcomes in oncology: Measuring impact and investigating the translation of trial results into clinical practice’
*Supervisors: Robert Jones (external), Kathleen Boyd, Caroline Kelly, José Antonio Robles-Zurita*

Ping Hsuan Hsieh
‘Evidence synthesis and Decision analytic modelling’
*Supervisors: Olivia Wu, Claudia Geue, Emma McIntosh*

Suthasinee Kumluang
Health Economics and Health Technology Assessment
*Supervisors: Olivia Wu, Peter Langhorne, Claudia Geue*

Nicola McMeekin
‘Can conceptual modelling methodology from other disciplines inform conceptual modelling methodology in economic evaluations of healthcare’
*Supervisors: Andrew Briggs, Olivia Wu*

Lisong Zhang
Health Economics and Health Technology Assessment
*Supervisors: Jim Lewsey, David McAllister, David Anthony*
Tell us a little about your PhD
My PhD involved adapting and developing decision-analytic models of cardiovascular disease. These models were then used to run cost-effectiveness analyses of primary prevention strategies. We showed that current practice fails to reflect heterogeneity in patient outcomes, leading to an inefficient distribution of resources.

What attracted you to undertake your PhD at HEHTA?
A few things attracted me to HEHTA. I had just finished an MSc in Health Economics and particularly enjoyed my economic evaluation modules. The project was supervised by Andy Briggs and Kathleen Boyd, who both have a lot of experience in this area. I was also able to split my PhD time between Glasgow and New York, thanks to a strategic partnership between Glasgow University and Columbia University. I'm from Glasgow, so the chance to come home (and use my parent’s season ticket at Celtic Park) was appealing, as was the idea of spending time in New York.

What skills have you learned that you think will help your future career?
I learned how to be an independent researcher and how to present this research to different stakeholders. Andy and Kathleen encouraged me to pursue research that interested me personally. I was able to present the results of this research at academic conferences and to healthcare decision-makers. My supervisor at Columbia, Andrew Moran, highlighted the importance of working collaboratively with other researchers and presenting results succinctly.

Can you see how you will transfer the skills learned here to your own setting?
I'm planning to continue working in academic research, so a lot of the skills learned at HEHTA will come in handy. The experience of working on different projects with various co-investigators throughout the PhD will make it easier to adapt to a new setting.
Tell us a little about your PhD
My PhD title is ‘Making what counts be counted: evaluating the use of preference-based outcome measures in Parkinson’s disease’. It looks at the appropriateness of health economics outcomes in Parkinson’s disease, but more broadly, it relates to any diseases areas where patients experience much wider impact of disease on their health than what has been included in economic evaluations. Through assessment of the construct validity and responsiveness of the current preference-based measures and a broadly scoped measure, ICECAP-O, this thesis shows that the ICECAP-O capability wellbeing instrument could be used as a complement to the current gold standard EQ-5D to improve capturing of the mental and social wellbeing aspects into economic evaluations.

What attracted you to undertake your PhD at HEHTA?
I visited HEHTA for a short time when I was doing my master degree in Canada in Health Technology Assessment (HTA) and Management. During my visit here, the broad expertise in health economics and HTA really impressed me and drew me back a year later for undertaking my PhD at HEHTA. What adds to this is the patience and kindness of the staff here – everyone are super nice and helpful and makes me feel I was part of team.

What skills have you learned that you think will help your future career?
Broad knowledge in health economics (within-trial economic evaluations, decision analytic modelling, outcome measurement, discrete choice experiment), statistical analysis of data with STATA, R and Excel, app development with R shiny, and the critical appraisal ability to appraise Pharmacoeconomics section of the new drug submissions. I’ve also gained plenty teaching experiences by supervising master students and teaching on the master modules and CPD courses.

Can you see how you will transfer the skills learned here to your own setting?
Absolutely. In fact, I just won my first grant as a co-investigator because of the expertise I gained from my PhD. I do really benefit from the breadth of my PhD and other projects that I was working on at work while doing my PhD which have broadened my skillset and visions of the overall health economics and health technology assessment world. Of course each project is different but I use the these knowledge and skills every day in my current role.
Project Supervision

**HTA projects**

Project title: **Evaluation of peritoneal dialysis for urgent start patients**
Supervisors: Nicola McMeekin and Francesco Manca

Project title: **Evaluation based on tumour agnostic trials**
Supervisors: Neil Hawkins

Project title: **Challenges of HTA of medical devices**
Supervisors Kathleen Boyd, Janet Bouttell and Jose Antonio Robles-Zurita

Project title: **Early Economic Evaluation of a digital technology in development**
Supervisors: Janet Bouttell and Jim Lewsey

Project title: **Evaluating the long-term cost-effectiveness of drug-coated balloons versus drug-eluting stents for the treatment of coronary heart disease in Germany, based on the BASKET-SMALL 2 trial**
Supervisors Yiqiao Xin and Andrew Davies

Project title: **Comparison of healthcare costs of children with and without Type 1 diabetes**
Supervisors: Dikshyanta Rana and Claudia Geue

Project title: **The WAKE-UP trial: lifetime cost-effectiveness and value of information**
Supervisors: Robert Heggie and Janet Bouttell

Project title: **Key considerations in the reimbursement of Advanced Therapy Medicinal Products in Europe**
Supervisors: Olivia Wu
Project title:
Cost-effectiveness study of the different available intravenous agents for the control of status epilepticus (a seizure that does not stop).
Supervisors: Giorgio Ciminata and Robert Heggie

Project title:
Supervisor: Nicola McMeekin

MPH projects

Project title:
The association between socioeconomic status and diabetes among residents aged 45 years and older in China: a nationwide cross-sectional study.
Supervisors: Claudia Geue and Yiqiao Xin

Project title:
Impact on rates of sexually transmitted infections of the extension of prescribing of prep in men who have sex with men
Supervisors: Janet Bouttell and Rafael Venson

Project title:
Trends in consumption of alcohol and alcohol-related morbidity and mortality in Southern Asia
Supervisor: Janet Bouttell

Project title:
Using outdoor learning to promote mental health in secondary schools: Barriers and
Supervisor: Evi Germeni

Project title:
Factors affecting seasonal flu vaccine uptake among healthcare workers in NHS Ayrshire & Arran
Supervisors: Evi Germeni

Project title:
How well does APACHE 2 predict illness severity in patients admitted in the peripartum period in Intensive Care Unit
Supervisor: Evi Germeni

Project title:
Prevalence and Risk Factors Associated with Diabetes Mellitus in South Asia
Supervisor: Dikshyanta Rana and Robert Heggie
Face-to-face

Evidence Synthesis for Health Technology Assessment


Here are some comments from the sixteen participants who attended:

“I really enjoyed the course and found it very useful. The materials and practical will be very good if I need to do meta-analysis in future.”

“Good mix of different speakers throughout the course.”

Details of future courses can be found on our website or contact ihw-hehta@glasgow.ac.uk for more information.

Decision Analytic Modelling Methods for Economic Evaluation

Once again, our annual modelling course proved to be hugely popular. We welcomed over 60 participants from:

Denmark, Poland, France, Germany, Switzerland, Spain and Belgium

Here are some comments from the course participants:

“Well organised and structured. Excellent course material.”

“The overall quality is very high.”

“Very good.”

Details of future courses can be found on our website or contact: ihw-hehta@glasgow.ac.uk for more information.
Online Continuing Professional Development (CPD)

Following on from the success of our online CPD courses in 2018, in 2019 we offered the following eight online CPD courses:

- Statistical methods for HTA and evidence-based medicine
- HTA in a global context
- Foundations of Decision Analytic Modelling
- Survival Analysis for HTA
- Health Economics for HTA CPD
- HTA: Policy and Principles 2018
- Outcome Measurement and Valuation for HTA
- Qualitative research methods for HTA 2018


Bouttell J, Teoh J, P K Chiu, K S Chan, C-F Ng, Heggie R, et al. (includes Hawkins N). Economic evaluation of the introduction of the Prostate Health Index as a rule-out test to avoid unnecessary biopsies in men with prostate specific antigen levels of 4-10 in Hong Kong. PLoS ONE 2019; 14(4), e0215279.
Broadis E, Chokotho T, Mackay D and Germeni E. First aid management of paediatric burn and scald injuries in Southern Malawi: a mixed methods study. Burns 2020;


Grieve E and Briggs A. IDSI Reference Case work stream. [version 1; not peer reviewed]. F1000Research 2019. 8; 803.


Henderson M, Wittkowski A, McIntosh E, McConnachie A, Buston K, et al (Boyd KA). Trial of healthy relationship initiatives for the very early years (THRIVE), evaluating Enhanced Triple P for Baby and Mellow Bumps for those with additional social and care needs during pregnancy and their infants who are at higher risk of maltreatment: study protocol for a randomised controlled trial. BMC Trials 2019; 20:499.


Somers C, Chimonas S, McIntosh E, Kaltenboeck A, Briggs A and Bach P. Using nominal group technique to identify key attributes of oncology treatments for a discrete choice experiment. MDM Policy and Practice 2019; 4(1).


Anopa Y. Economic evaluation of the Protecting Teeth @ 3 randomised controlled trial. European Association of Dental Public Health Congress. Ghent University, Ghent, Belgium. September 2019.

Anopa Y. Economic evaluation of the Protecting Teeth @ 3 randomised controlled trial. Scottish Oral Health Research Collaboration Conference. Dundee Dental Education Centre, Dundee, UK. October 2019.


Bouttell J. Test and treat threshold plot: developing a simple tool to estimate required test performance for developers of tests for treatment response. Glasgow Molecular Pathology Node Annual Symposium. Teaching and Learning Centre, Queen Elizabeth University Hospital, Glasgow, UK. October 2019.


Boyd K. Health Economic Considerations for Evaluating Secure Care in Scotland. Stirling University, Court Hotel, Stirling, UK. February 2019.

Boyd K. Health Economic Analysis & Modelling Plans: To HEAP or not to HEAP? Why should we bother? HESG, Norwich, UK. July 2019.

Boyd K. Including Economic Evaluation in Clinical Psychology Research. Clinical Psychology Research Conference. Queen Elizabeth Teaching & Learning Centre, Queen Elizabeth University Hospital, Glasgow, UK. September 2019.


Gemeni E. Updating a meta-ethnography of primary care professionals’ experience of antibiotic prescribing: Key considerations and lessons learnt. University of Lugano, Switzerland. October 2019.


Grieve E. Presentation on behalf of the NIHR Global Health Group on Arthritis. British Society for Rheumatology Special Interest Group. Birmingham, UK. May 2019

Grieve E., Briggs A. The Value of Health Technology Assessment: A Realist Synthesis. HTAi. Cologne, Germany. June 2019


Heggie R. ‘Should health economists care about implementation?’ HESG. Norwich, UK. July 2019.


Lewsey J. Making sense of messy data. Rare Endocrine Registries Workshop, University of Glasgow, Glasgow, UK. December 2019.

Manca F. Should we still be screening for HCV in Scotland and the UK? HESG. Norwich, UK. July 2019.


Venson R., Boyd K. Presentation of results to the National Infertility Group Meeting. Edinburgh, UK. November 2019


Wu O. Where are we going with treatment costs in myeloma? UK Myeloma Autumn Forum. London, UK. November 2019

In 2019 we increased our presence on social media platforms and released our first team video. We want to continue to share the impact of our work and make global connections in a world where technology is constantly evolving.

By the end of 2019 we had doubled our Twitter followers, connecting with alumni, health economists, academics and many others from all over the world. On LinkedIn, we grew our followers beyond our immediate alumni network and plan to increase our presence on this platform in 2020.

Mid-year, we released our HEHTA Meet the Team video, giving the world a more intimate glimpse of the life of our health economists beyond the research that we do. The video was well received and we plan to do many more to complement our website, annual reports, newsletters and social media.
Meet the Team

**Director**
Olivia Wu
Professor of Health Technology Assessment (until September 2019)
William R Lindsay Chair of Health Economics

**Deputy Director**
Emma McIntosh
Professor of Health Economics

**Professors**
Andrew Briggs
William R. Lindsay Chair in Health Economics (until 2019)
Honorary Professor of Health Economics

Neil Hawkins
Professor of Health Technology Assessment

James Lewsey
Professor of Medical Statistics

**Senior Lecturer/Health Economist**
Kathleen Boyd
Andrew Davies

**Lecturers**
Evi Germeni
Claudia Geue
Leo Zhaoyang
Researchers
Janet Bouttell
Giorgio Ciminata
Manuela Deidda
Eleanor Grieve
Houra Haghpanahan
Robert Heggie
Francesco Manca
Nicola McMeekin
Dikshyanta Rana
Jose Antonio Robles-Zurita
Camilla Somers
Rafael Venson
Yiqiao Xin

PhD Students
Yulia Anopa
Ping-Hsuan Hsieh
Ciaran Kohli-Lynch
Ryan Field
Lisong Zhang
Suthasinee Kumluang

Administration
Alieda McKinney
Moira Sim
Laura Wood
Miriam Yentumi

Affiliates
Peter McMeekin
Associate Professor, Northumbria University

Honorary Staff
Henry Glick
Professor, Perelman School of Medicine, University of Pennsylvania
Julie Ratcliffe
Professor of Health Economics, Institute for Choice, University of South Australia
Karen Ritchie
Senior Health Services Researcher, Healthcare Improvement Scotland
James Robinson
Chair in Health Economics and Policy, Berkeley Public Health, University of California
Mark Robinson
Public Health Intelligence Principal, NHS Health Scotland

Visiting Researchers and Affiliates
Amy Drysdale-Dykes
Ong the Due
Nurzhibek Beisembinova
Wendy Zhang
Saowalak Turongkaravee
My Visit to HEHTA

Saowalak Turongkaravee
PhD
Mahidol University, Thailand
Visited HEHTA June-November 2019

Why did you choose HEHTA?
There are many reasons why I chose to study at HEHTA. Firstly, HEHTA is a multi-disciplinary academic research group which has a variety of expertise in Health Technology Assessment (e.g., decision-analytic modelling, evidence synthesis, precision medicine). HEHTA contributed the knowledge and experiences which I can work on and gave me strong capability for accomplishing my dissertation. Another point is that the faculty of pharmacy, Mahidol University (MUPY), has a collaboration with HEHTA. In 2019, Olivia Wu gave a special lecture as a visiting professor to MUPY faculty members and graduate students.

What did you learn during your visit?
First of all, I would like to thank HEHTA for the training opportunity. As a PhD student at Mahidol University, I was fortunate to spend six months training at HEHTA during June-November 2019 under the supervision of Olivia Wu and Kathleen Boyd. I learnt a lot about the systematic review and to critically appraise relevant literature and research findings as well as design and conduct the research using a variety of research methods (e.g., decision analytical models). Personally, my favourite section was the meeting and discussion with supervisors Olivia Wu and Kathleen Boyd. They provided valuable input to students which is very useful not only for our dissertation but also to strengthen our capacity.

Ong The Due
PhD
Mahidol University, Thailand
Visited HEHTA September-October 2019

Why did you choose HEHTA?
I have known HEHTA as a renowned and multi-disciplinary research group for such a long time. Fortunately, I have had chances to meet Olivia Wu and attended her lectures several times, and I was impressed by her teaching style and her knowledge. Therefore, when I had the opportunity to decide where I should go to enrich my academic experience and to improve my PhD thesis, I absolutely did not hesitate to choose HEHTA.

What did you learn during your visit?
I had an unforgettable time at HEHTA. My direct supervisors were Olivia and Kathleen, who were among the best mentors I had ever had. I learned a lot from them, not only about knowledge and experience in modelling technique, but also about their way of thinking, working, and mentoring others, which inspired and motivated me to follow my HTA career. Besides improving the model in my PhD thesis, I was also lucky to participate in the foundation and advanced courses on Decision Analytic Modelling Methods for Economic Evaluation, and also joined an online course about Survival Analysis for Health Technology Assessment. Last, but not least, the colleagues at HEHTA, who were super nice and open, taught me many other things, about not only professional knowledge but also life in Glasgow. I hope I can see HEHTA people again soon!
In 2019 we welcomed to the team...

**Miriam Yentumi**
Miriam Yentumi joined our admin team in March. Miriam has returned to her hometown of Glasgow after 18 years living in London and Accra working in the fields of journalism and education.

In 2019 we welcomed visitors...

**Saowalak Turongkaravee**
Saowalak Turongkaravee (Nui) arrived from Mahidol University, Thailand in June 2019. She has received the scholarship under the International Research Network project funded by the Thailand Research Fund to pursue her PhD study at the Faculty of Pharmacy, Mahidol University. Her research interest is the cost-effectiveness analysis of pharmacogenetics testing for preventing severe adverse drug reactions and enhancing drug use by personalised medicine.

In order to gain international experiences in both academics and research, she worked on her dissertation under the supervision of Prof. Olivia Wu for six months during June and November 2019. Saowalak previously worked as a pharmacist in a tertiary care hospital for 14 years and is currently a lecturer at the Faculty of Pharmacy, Mahidol University, Thailand.

**Nurzhibek Beisembinova**
Nurzhibek Beisembinova, a PhD student from Khazak National Medical University, visited as a guest of Olivia Wu in September, during which she learned to develop an economic model to evaluate cost-effectiveness and participated in the Decision Analytic Modelling for Economic Evaluation course. Nurzhibek is currently pursuing a PhD in the area of cost-effectiveness of treatments for patients with diabetic retinopathy.

**Ong The Due**
In Autumn we welcomed Ong The Due, a PhD student from Mahidol University in Thailand who came to Glasgow to work on his thesis as a guest of Olivia Wu. He also took part in the Decision Analytic Modelling for Economic Evaluation course. Due is a researcher at the Health Strategy and Policy Institute at Vietnam’s Ministry of Health.

**Amy Drysedale-Dykes**
University of St Andrews student Amy Drysedale-Dykes joined HEHTA for six weeks between July and August to help with a systematic review for BEST.

**Wendy Zhang**
Wendy, a second year PhD student from the University of Hong Kong, visited as a student researcher for six months. As part of her PhD project she was conducting a model-based economic evaluation for the program, which is an interactive computer-based intervention to adopt safer sex practice for female university students and supported by the Health and Medical Research Fund in Hong Kong.
And we said goodbye to...

**Professor Andrew Briggs**

In August Professor Briggs took up a new position at the London School of Hygiene and Tropical Medicine after 12 years at HEHTA. A former director of the research group and the University of Glasgow’s Lindsay Chair of health economics, he now holds the title of Visiting Professor and retains close links with colleagues and friends at HEHTA.

We were delighted to be able to give him a fitting send off with bubbles, poetry, an ‘Ask Andy’ Q&A session with the team, and the gift of a wall hanging that will never let him forget his time at HEHTA!

We are glad that Andy remains an affiliate of HEHTA and we will continue to collaborate with him in the future.
### Membership of Expert Bodies 2019

#### Andrew Briggs
- Editor, Health Economics
- Member of NIHR Advanced Fellowship committee

#### Evi Germeni
- Member of the Health Technology Assessment international (HTAi) Association

#### Claudia Geue
- Member of Evidence Review Committee for Scottish Health Technologies Group, Healthcare Improvement Scotland

#### Eleanor Grieve
- Member of Economic and Social Research Council (ESRC) Global Challenges Research Fund Peer Review Group
- Recognising Excellence in Teaching Fellow

#### Emma McIntosh
- Board Member, National Institute for Health Research (NIHR) Public Health Research (PHR) funding panel
- Board Member, Glasgow Centre for Population Health
- Member, National Health Economists Interest Group
- Chair, NIHR PHR funded PLAN A Trial Steering Committee
- TSC member, NIHR HTA, Prepare for Kidney Care: a randomised controlled trial of preparing for responsive management versus preparing for renal dialysis in advanced kidney disease
- TSC member, NIHR PHR SHIFT Trial
- Associate Editor, Health Economics

#### James Lewsey
- Chartered Statistician, Royal Statistical Society
- Chartered Scientist, The Science Council
- Member of CSO Health Improvement, Protection and Services Research Committee
- Member of NHS Health Scotland Minimum Unit Pricing for alcohol consumption and health harm evaluation advisory group

### Kathleen Boyd
- Advisory Board Member, Beatson West of Scotland Cancer Care Clinical Trials Unit
- NIHR HTA Research Programme Steering Committee & Advisory Group Board member: CUE-Based versus Scheduled feeding for preterm infants in neonatal units project (CUBS) 16/144/05
- NIHR HTA Research Programme Steering Committee Board member: IVY project NIHR 12740
- Board Member, Applied Partnership Awards Review Panel, Health Research Board (HRB) Ireland 2019
- Review Editor for Frontiers in Medical technology - Regulatory Affairs journal

#### Neil Hawkins
- Member of Medical Section Committee of the Royal Statistical Society
- Member of ISPOR Board of Directors

#### Olivia Wu
- Associate Editor, Value in Health
- Member of NIHR Systematic Reviews Programme Advisory Group
- Member of NIHR Health Technology Assessment General Board
- Member of the National Institute of Health and Care Excellence Technology Appraisal Committee
- Member of Editorial board, Global & Regional Health Technology Assessment
- NIHR Trial/Research Programme Steering Committee: Quantitative fibronectin to help decision making in women with symptoms of preterm labour (QUIDS), Randomised controlled trial of contrast enhanced colonoscopy in the reduction of right sided bowel cancer. (The CONSCOP 2 study)