<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>From the Director</td>
<td>5</td>
</tr>
<tr>
<td>Research</td>
<td>6</td>
</tr>
<tr>
<td>Research Themes</td>
<td>6</td>
</tr>
<tr>
<td>Global HTA</td>
<td>7</td>
</tr>
<tr>
<td>Research Spotlight</td>
<td>9</td>
</tr>
<tr>
<td>Projects 2018</td>
<td>12</td>
</tr>
<tr>
<td>Highlights of 2018</td>
<td>18</td>
</tr>
<tr>
<td>Teaching and Supervision</td>
<td>22</td>
</tr>
<tr>
<td>Continuing Professional</td>
<td>29</td>
</tr>
<tr>
<td>Publications</td>
<td>30</td>
</tr>
<tr>
<td>Presentations</td>
<td>34</td>
</tr>
<tr>
<td>Meet the Team</td>
<td>36</td>
</tr>
<tr>
<td>My Visit to HEHTA</td>
<td>39</td>
</tr>
<tr>
<td>Membership of External Bodies</td>
<td>43</td>
</tr>
</tbody>
</table>
It is with great pleasure that I introduce the 2018 Annual Report for the Health Economics and Health Technology Assessment (HEHTA) Research Group. This past year has been another exciting and rewarding period for HEHTA.

We celebrated many of our students and team members’ personal achievements. We are pleased to celebrate the graduations of MSc – Melodi Kosaner Kliess and Yankier Pijeira Perez, and PhD students – Dr Nicki Boyer and Dr Pattara Leelahavarong. We also celebrated the promotion of Dr Jim Lewsey to Professor of Medical Statistics. Dr Lewsey joined the team in 2010 and has been delivering high-quality and highly impactful research. His work in evaluating minimum unit pricing for alcohol and lowering blood alcohol concentration limits for drivers has provided important evidence base for shaping health policies. Dr Lewsey also has a strong commitment to teaching and as the Director of our MSc HTA Programme, was instrumental in the development of our online MSc programme. His promotion to full professor is a well-deserved recognition of his endeavours by the University.

In 2018, our teaching and research activities continue to grow and in particular, there has been exciting new developments within our research theme of Global Health Technology Assessment (HTA). We have established new collaborations with colleagues in clinical and experimental medicine, bioengineering, and biodiversity and animal health. These collaborations have been extremely successful, and we were able to secure funding for several new global health projects. One project I would like to highlight is the NIHR Global Health Research Group in Arthritis, led by Professor Emma McIntosh. As detailed in the report, Professor McIntosh has been awarded £2 million of funding, to estimate prevalence, quality of life, economic and social impact of arthritis in Tanzania.

Alongside these new projects, the team continues to expand. We are delighted to welcome Dr Zhao Yang (Leo) Liu to HEHTA, our Lecturer in One Health and Environmental Economics. We have also created three new ‘Trainee Health Economist’ positions this year, and are very pleased to welcome Francesco Manca, Dikshyanta Rana and Rafael Venson to the team. We look forward to reporting more on their activities in the next annual report.

Olivia Wu, Director
Health Economics and Health Technology Assessment (HEHTA)
Research Themes

HEHTA’s work is centred around eight core and interconnected research themes.

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 involves 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 affecting wellbeing.

Incorporating Perspectives and Experiences (IPE)
This programme aims to promote the use of qualitative approaches in Health Technology Assessment (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 approaches 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.

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.

Global HTA (GHTA)
This programme critiques HTA in different contexts, exploring variation between high-income countries as well as looking in-depth as to how and why decision making in healthcare may differ amongst low- and middle-income countries (LMICs). The theme draws upon HEHTA’s research from a global perspective, working with major stakeholders and as part of the International Decision Support Initiative.

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.
The use of HTA continues to grow internationally. Whilst developed countries may have led the way, LMICs are increasingly beginning to develop HTA processes to assist in their healthcare decision-making. Since LMICs face particularly limited resources and as cost-effectiveness is an integral part of healthcare decision-making, the value of HTA to help make better resource allocation decisions is being recognised. The theme draws upon HEHTA’s research from a global perspective, working with major stakeholders. The grants focus on research in LMICs and given there is much diversity in the role and application of HTA, necessarily cover a range of methodology as illustrated below. Current research includes ongoing collaboration with the iDSI, new collaborations with University of Glasgow colleagues in engineering, and further developments with partners working in the field of nutrition. The ten week teaching module ‘HTA in a Global Context’ offered as part of our MSc HTA is now in its third year. This research-led teaching critiques HTA in different contexts, exploring variation between high-income countries as well as looking in-depth as to how and why decision making in healthcare may differ amongst LMICs.

We are part of a multi-disciplinary team at the UoG, funded by the EPSRC, NIHR, and the GCRF, working on development of a new point of care diagnostic\(^1\): This technology is a multiplexed DNA-based assay using paper which can enable the rapid detection of infectious agents to guide treatment. Early or development-focused HTA aims to inform the developers of a technology about a wider range of questions including how the technology should be designed, used and/or priced. It is a developing field but could be usefully employed to prioritise the development of technologies by potentially improving the return on investment (ROI) in new technologies by improving the efficiency of the research prioritisation and development processes.

Our work in the area of child and adolescent nutrition continues to grow with colleagues at UoG, as well as part of external collaborations lead by Stirling University. The former research focuses on a costing model for moderate acute malnutrition in Kenya\(^2\), the latter to develop a metric to better identify adolescent girls at risk of malnutrition in Bangladesh\(^3\). We will also be conducting the economic evaluation and modelling for a trial of a primary school based behavioural intervention to reduce salt intake among adolescents and their families in rural and urban Malawi with the Malawi Epidemiology and Intervention Research Unit (MEIRU)\(^4\).

We continue our collaboration with the iDSI. Launched by National Institute for Health and Care Excellence (NICE) International to support LMICs in making resource allocation decisions for healthcare, the aim of iDSI is to support systematic, fair and evidence informed priority setting in healthcare. An increasing investment in HTA processes in LMICs has generated greater interest from policy makers and donors about the ROI of HTA. To address this, we have developed a mixed methods framework to measure the value of HTA\(^5\).

References
3. 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. London School of Hygiene and Tropical Medicine, 2016 – 2018.
Global Health Research Group, Arthritis

Emma McIntosh, is Director of the £2million National Institute for Health Research (NIHR) Global Health Research Group on estimating the prevalence, quality of life, economic and societal impact of arthritis in Tanzania: a mixed methods study at the University of Glasgow.

The project, which commenced in April 2018, is an exciting new collaboration between the Universities of Glasgow and Newcastle and the Kilimanjaro Clinical Research Institute (KCRI) in Tanzania. Against a background of the ever-increasing burden of arthritis in low and middle-income countries, the Global Health Research Group aims to identify and measure the prevalence, economic, health and quality of life impact of arthritis in Tanzania. With a focus on arthritis prevention and intervention development plans in the Tanzanian setting, the research will directly inform an area of significant unmet need in sub-Saharan Africa. The project will also deliver teaching and training in the social sciences, including health economics methods, and train early/mid-career Tanzanian researchers and clinicians in conducting research.

Health Economics - beyond humans

2018 has witnessed an exciting development in the research agenda, a move into One Health Economics. This exciting new field seeks to explore the connections among the health of humans, animals and the environment. This approach would give rise to pre-emptive and cost-effective measures intended to curb the outbreaks of cross-species diseases such as avian flu. The One Health approach has been enthusiastically promoted by the science and policymaking communities. Emma McIntosh and the newly appointed lecturer Zhaoyang Liu, have been contributing to the One Health component of a large-scale cross-country research project entitled Supporting the National Action Plan (SNAP) on Antimicrobial Resistance (AMR) in Tanzania. This project has recently secured an MRC research grant of over £3 million. Under the leadership of Glasgow University Prof Ruth Zadoks, the project has built a strong team of dedicated researchers from a variety of academic disciplines such as Medical, Veterinary and Life Sciences, Health Economics, and Environmental Economics. The project has attracted international collaborators from Tanzania and the US. The project will provide novel insights into socio-economic, cultural and biological drivers of AMR to identify and prioritise tractable levers of behaviour change in hospitals and communities that will alleviate the burden of AMR related illness in a low income setting.
An evaluation of the effects of lowering blood alcohol concentration limits for drivers on the rates of road traffic accidents and alcohol consumption: a natural experiment.

Funder: National Institute for Health Research

Background
Driving under the influence of alcohol is an important risk factor for road traffic accidents (RTAs). RTAs are a major public health problem and a considerable burden on health, globally. Reducing the permitted BAC for drivers is a common public health intervention across the world. In Scotland, on December 5, 2014, the BAC limit for drivers was reduced from 0.08 g/dL to 0.05 g/dL. This study aimed to evaluate the impact of lowering the BAC limit on RTAs rates and alcohol consumption.

Methods
In this natural experiment, the before-and-after design was employed for Scotland (the interventional group) and England and Wales (the control group). We applied an observational, comparative interrupted time-series analysis. Data on RTAs and alcohol consumption was provided by police accident records and market research data, respectively. Negative binomial panel regression was conducted to estimate the effect of the intervention on RTAs rates and alcohol consumption.

Results
The weekly rate of RTAs and alcohol consumption in Scotland and England and Wales were estimated over 2013-2016. We found lowering the BAC limit for drivers in Scotland, had no significant change in weekly RTA rates after adjustment for seasonality and underlying temporal trend (rate ratio 1.01, 95%CI 0.94–1.08; p=0.77) or after adjustment for seasonality, the underlying temporal trend, and the driver characteristics of age, sex, and socioeconomic deprivation (rate ratio 1.00, 95%CI 0.96–1.06; p=0.73). The change in legislation in Scotland was associated with no change in alcohol consumption, measured by per-capita off-trade sales (rate ratio −0.3%, 95%CI −1.7 to 1.1; p=0.71), but a 0.7% decrease in alcohol consumption measured by per-capita on-trade sales (rate ratio −0.7%, 95%CI −0.8 to −0.5; p<0.0001).

Discussion
Lowering the BAC limit for drivers from 0.08 g/dL to 0.05 g/dL in Scotland was not associated with a reduction in RTAs. We found no evidence of the intervention effect on off-trade alcohol sales. But, there was a small reduction in per-capita alcohol consumption from on-trade alcohol sales. One plausible explanation of our finding is that the legislative change was either insufficiently enforced or publicised or perhaps a combination of these reasons. Our findings suggest that changing the legal BAC limit for drivers in isolation does not improve RTA outcomes.

Publication
Background and Methods
The Short Course Oncology Therapy (SCOT) study was an international, phase III, non-inferiority, randomised controlled trial in 244 centres, assessing the efficacy, toxicity, and cost-effectiveness of three months versus the usually given six months of adjuvant chemotherapy in colorectal cancer. Patients, aged ≥ 18 years, with fully resected high-risk stage II or stage III colorectal cancer were randomised and followed up for three - eight years. The chemotherapy regimens, selected before randomisation, could consist of CAPOX (capecitabine and oxaliplatin) or FOLFOX (bolus and infused fluorouracil with oxaliplatin). The primary study endpoint was disease-free survival and the non-inferiority margin was a hazard ratio of 1.13. The within trial cost-effectiveness analysis used EQ5D and resource use data to estimate QALYs (Quality-adjusted partitioned survival analysis) and costs (Kaplan–Meier Sample Average Estimator) from a UK healthcare perspective.

Results and discussion
3035 and 3030 patients gave consent and were randomly assigned to the three and six month group respectively. Three year disease-free survival was 76.7% (95% CI 75.1–78.2) for the three month group and 77.1% (75.6–78.6) for the six month group, giving a hazard ratio of 1.01 0.91-1.11, test for non-inferiority p=0.01), significantly below the non-inferiority margin. The cost-effectiveness analysis found the three month group to be less costly (£4881; 95% CI: £6269; £3492) and entail (non-significant) QALY gains (0.08; 95% CI:0.09: 0.23) due to a better significant quality of life. The net monetary benefit was significantly higher in three month group under a wide range of monetary values of a QALY. The subgroup analysis found similar results for patients in the CAPOX regimen. However, for the FOLFOX regimen, the three month group had lower QALYs than six month group (not statistically significant).

The results suggest that a shorter duration leads to similar survival outcomes with better quality of life. The results provide the economic case that a three month treatment strategy should be considered a new standard of care.

Publications

Trial of the effectiveness and cost-effectiveness of a physical activity loyalty scheme for behaviour change maintenance.

Funder: National Institute for Health Research

Background
Increasing physical activity in the workplace can provide physical and mental health benefits for employees and economic benefits through reduced absenteeism and increased productivity for the employer. However, there is limited evidence on effective behaviour change interventions in workplace settings that lead to maintained physical activity. This study aimed to address this gap and contribute to the evidence base for effective, and cost-effective, workplace interventions.

Methods
A cluster-randomised controlled trial with embedded economic evaluation of 853 office-based employees from public sector organisations in Northern Ireland was conducted. The six-month intervention consisted of financial incentives (retail vouchers), feedback and other evidence-based behaviour change techniques, with the primary outcome of mean steps/day. Sensors situated in the vicinity of the workplaces allowed participants to monitor their accumulated minutes of physical activity. We conducted a standard cost utility analysis using the EQ-5D-5L data from the NHS perspective and a cost-benefit analysis using a ‘net-cost model’ from employers’ perspective incorporating the WHO work absenteeism outcomes.

Results
The intervention was £25.85 (95% CI: -29.89, 81.60) costlier per participant but had no effect on QALYs (incremental QALY = -0.00, 95% CI: -0.01, 0.01). The cost benefit analysis revealed fewer hours absent from work through sickness in the intervention group (2.97 hours over a four-week period), with great uncertainty (p=0.62); the probability that the physical activity loyalty scheme is cost saving (net cost < £0) for employers ranged from 57% to 64%.

Discussion
The results showed that the intervention was unlikely to be cost-effective for employees working in office settings due to no effect of the intervention on utility. Results from employers’ perspective were more favourable towards the intervention however uncertainty around absenteeism effects prevailed. A potential ceiling effect of EQ-5D-5L was observed with over 40% and 30% of participants responding “full health” at baseline and six months respectively. Overall, the negative primary results suggest that the incentive level may have been too low to incentivise change, despite being designed a priori by a Contingent Valuation Survey.

Publication
New projects awarded

<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>No to Na. Tackling cardiovascular risk in the adolescent life-course through a schools’ salt-reduction intervention in sub-Saharan Africa</td>
<td>Emma McIntosh</td>
<td>2018-2021</td>
<td>1,031,458</td>
<td>MRC</td>
<td>GHTA, EPH</td>
</tr>
<tr>
<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>
</tr>
<tr>
<td>How can we increase the number of people cycling regularly?</td>
<td>Emma McIntosh</td>
<td>2018-2019</td>
<td>164,952</td>
<td>British Cycling Federation</td>
<td>EPH, IPE</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, EPH</td>
</tr>
<tr>
<td>Project title</td>
<td>HEHTA PI</td>
<td>Duration</td>
<td>Total Project Value (£)</td>
<td>Funder</td>
<td>Research Theme</td>
</tr>
<tr>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>---------------------------</td>
<td>-----------</td>
<td>-------------------------</td>
<td>----------------------</td>
<td>----------------</td>
</tr>
<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>EPH</td>
</tr>
<tr>
<td>Supporting the National Action Plan for Antimicrobial Resistance (SNAP-AMR) in Tanzania</td>
<td>Emma McIntosh</td>
<td>2018-2021</td>
<td>140,789</td>
<td>MRC</td>
<td>GHTA</td>
</tr>
<tr>
<td>NIHR Global Health Research Group on estimating the prevalence, quality and life, economic and societal impact of arthritis in Tanzania: a mixed methods study at University of Glasgow</td>
<td>Emma McIntosh</td>
<td>2018-2021</td>
<td>2,018,520</td>
<td>NIHR</td>
<td>GHTA</td>
</tr>
<tr>
<td>Estimating the value of Precision Medicine Technologies: Developing A Scottish Toolkit</td>
<td>Neil Hawkins</td>
<td>2018-2020</td>
<td>119,396</td>
<td>University of Glasgow</td>
<td>EPM</td>
</tr>
<tr>
<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 Foundation</td>
<td>EEACT</td>
</tr>
<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</td>
</tr>
<tr>
<td>TRends and Inequalities in Prescribing for Alcohol Dependence in Scotland (TRIPADS)</td>
<td>James Lewsey</td>
<td>2018-2020</td>
<td>107,842</td>
<td>Alcohol Research UK</td>
<td>ALDA</td>
</tr>
<tr>
<td>Economic Evaluation of the Diabetes Remission Clinical Trial (DiRECT)</td>
<td>Andrew Briggs</td>
<td>2018-2019</td>
<td>36,600</td>
<td>Diabetes UK</td>
<td>DAMSEL</td>
</tr>
<tr>
<td>Segmenting the short, medium and longer term stroke journey in Scotland</td>
<td>Claudia Geue</td>
<td>2018</td>
<td>15,000</td>
<td>Stroke Association</td>
<td>ALDA</td>
</tr>
<tr>
<td>Scope and pattern of Optometrist Independent Prescribing</td>
<td>Claudia Geue</td>
<td>2018-2019</td>
<td>31,000</td>
<td>CSO</td>
<td>ALDA</td>
</tr>
</tbody>
</table>
## Ongoing 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>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>EEACTION</td>
</tr>
<tr>
<td>FEMME trial: Randomised trial of treating Fibroids with either Embolisation or MyoMectomy to measure the Effect on quality of life</td>
<td>Olivia Wu</td>
<td>2011-2019</td>
<td>1,547,842</td>
<td>NIHR</td>
<td>EEACTION</td>
</tr>
<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>EEACTION</td>
</tr>
<tr>
<td>E-Health Informatics Research Centres (E-HIRC)- Farr Studentship</td>
<td>Olivia Wu</td>
<td>2012-2018</td>
<td>1,073,113</td>
<td>MRC/EPSRC</td>
<td>DAMSEL, ALDA</td>
</tr>
<tr>
<td>Cancer And Venous Access (CAVA) a randomised controlled trial with associated qualitative research of long-term venous access devices for the delivery of chemotherapy: Implantable venous access ports versus tunneled central lines versus peripheral inserted central catheters</td>
<td>Olivia Wu</td>
<td>2013-2019</td>
<td>1,031,483</td>
<td>NIHR</td>
<td>DAMSEL, EEACTION, ES, IPE</td>
</tr>
<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>EEACTION</td>
</tr>
<tr>
<td>QUIDS Quantitative Fibronectin to help Decision-making in women with Symptoms of Preterm Labour</td>
<td>Kathleen Boyd</td>
<td>2015-2019</td>
<td>819,817</td>
<td>NIHR</td>
<td>DAMSEL</td>
</tr>
<tr>
<td>Reducing sedentary behaviour among older adults – The SITLESS Project</td>
<td>Emma McIntosh</td>
<td>2015-2019</td>
<td>4,547,560 (€)</td>
<td>EC</td>
<td>EEACTION, EPH</td>
</tr>
<tr>
<td>NIHR Complex Reviews Support Unit (CRSU)</td>
<td>Olivia Wu</td>
<td>2015-2020</td>
<td>2,000,000</td>
<td>NIHR</td>
<td>ES</td>
</tr>
<tr>
<td>ADScAN:A Randomised Phase II study of Accelerated, Dose escalated, Sequential Chemo-radiotherapy in Non-Small Cell Lung Cancer</td>
<td>Kathleen Boyd</td>
<td>2015-2021</td>
<td>28,431</td>
<td>CRUK</td>
<td>DAMSEL, EEACTION</td>
</tr>
<tr>
<td>Project title</td>
<td>HEHTA PI</td>
<td>Duration</td>
<td>Total Project Value (£)</td>
<td>Funder</td>
<td>Research Theme</td>
</tr>
<tr>
<td>-----------------------------------------------------------------------------</td>
<td>------------------------------------</td>
<td>-----------</td>
<td>--------------------------</td>
<td>-----------------</td>
<td>----------------</td>
</tr>
<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>2016-2019</td>
<td>853,045</td>
<td>NIHR</td>
<td>EEACT</td>
</tr>
<tr>
<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>
</tr>
<tr>
<td>The Best Services Trial (BeST?): Effectiveness and cost-effectiveness of the New Orleans Intervention Model for Infant Mental Health</td>
<td>Emma McIntosh, Kathleen Boyd</td>
<td>2016-2020</td>
<td>3,437,346</td>
<td>NIHR</td>
<td>EPH, EEACT, DAMSEL</td>
</tr>
<tr>
<td>Everyone's HCV Screening</td>
<td>Kathleen Boyd</td>
<td>2017-2019</td>
<td>146,640</td>
<td>Gilead Sciences Ltd</td>
<td>DAMSEL</td>
</tr>
<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>Smoking Cessation in Pregnancy Incentives Trial (CPIT): A phase III Randomised Controlled Trial</td>
<td>Kathleen Boyd</td>
<td>2017-2019</td>
<td>294,974</td>
<td>CSO, CRUK</td>
<td>EEACT, DAMSEL</td>
</tr>
</tbody>
</table>
# Projects completed

<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>A randomised, double-blind placebo controlled trial of the effectiveness of low dose oral theophylline as an adjunct to inhaled corticosteroids in preventing exacerbations of chronic obstructive pulmonary disease</td>
<td>Andrew Briggs</td>
<td>2012-2018</td>
<td>2,248,498</td>
<td>NIHR</td>
<td>EEACT</td>
</tr>
<tr>
<td>Social and Emotional Education and Development (SEED): a Stratified, Cluster Randomised Trial of a Multi-component Primary School Intervention that follows the Pupils’ Transition into Secondary School</td>
<td>Emma McIntosh</td>
<td>2012-2018</td>
<td>913,653</td>
<td>NIHR</td>
<td>EPH</td>
</tr>
<tr>
<td>CULPRIT SHOCK - Multivessel versus culprit lesion only percutaneous revascularization in patients with acute myocardial infarction complicated by cardiogenic shock</td>
<td>Andrew Briggs</td>
<td>2013-2018</td>
<td>5,999,146 (€)</td>
<td>EC</td>
<td>EEACT</td>
</tr>
<tr>
<td>‘Helpmedoit!’ a web and text based intervention to facilitate social support to achieve and maintain health related behaviour change</td>
<td>Emma McIntosh</td>
<td>2015-2018</td>
<td>430,883</td>
<td>NIHR</td>
<td>EEACT, EPH</td>
</tr>
<tr>
<td>Cardiac biomarkers and the prediction of CVD in Scotland</td>
<td>Andrew Briggs</td>
<td>2015-2018</td>
<td>362,413</td>
<td>SEHD</td>
<td>DAMSEL</td>
</tr>
<tr>
<td>PATHway: Technology enabled behavioural change as a pathway towards better self-management of CVD</td>
<td>Andrew Briggs</td>
<td>2015-2018</td>
<td>4,899,080 (€)</td>
<td>EC</td>
<td>DAMSEL, EEACT</td>
</tr>
<tr>
<td>Extension of Follow-Up for High Risk Stage II Patients (additional 3 years) and Stage III Patients (up to year 3 follow-up) in the SCOT study</td>
<td>Andrew Briggs</td>
<td>2016-2018</td>
<td>274,695</td>
<td>NIHR</td>
<td>DAMSEL</td>
</tr>
<tr>
<td>Project title</td>
<td>HEHTA PI</td>
<td>Duration</td>
<td>Total Project Value (£)</td>
<td>Funder</td>
<td>Research Theme</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------------</td>
<td>-----------------------------------</td>
<td>----------</td>
<td>-------------------------</td>
<td>-------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>A woman-centred, tailored SMS-delivered multi-component intervention for weight loss and maintenance of weight loss in the postpartum period: intervention adaptation and pilot RCT</td>
<td>Emma McIntosh</td>
<td>2016-2018</td>
<td>505,751</td>
<td>NIHR</td>
<td>EPH</td>
</tr>
<tr>
<td>Evaluation of legislation to reduce the drink drive limit in Scotland: a natural experiment</td>
<td>James Lewsey</td>
<td>2016-2018</td>
<td>90,765</td>
<td>NIHR</td>
<td>ALDA, EPH</td>
</tr>
</tbody>
</table>
Highlights of 2018

SPRING

January
The team said goodbye to PhD student Fernando Zanghelini who spent six months at HEHTA visiting from Therapeutic Innovation at the Federal University of Pernambuco in Brazil. Fernando worked with Kathleen Boyd on her research projects while Olivia Wu supervised his PhD project which looked at the cost-effectiveness of early palliative care in terms of improved quality of life, survival and cost-savings in patients with advanced cancer.

February
As Visiting Professor at the Faculty of Pharmacy at Mahidol University, Thailand, Olivia Wu spent two weeks teaching and advising students on the Health Technology Assessment (HTA) international postgraduate program from 29th January – 9th February. Discussions regarding future collaborations with University of Glasgow also took place during her visit.

March
Two new trainee health economists were appointed; Dikshantya Rana and Francesco Manca joined the team and were welcomed to Glasgow by the “Beast from the East”, which arrived on their first day at HEHTA.

Olivia Wu was appointed to the Research Excellence Framework 2021 sub-panel Unit of Assessment 2 (Public Health, Health Services and Primary Care)

HEHTA’s ‘Introduction to HTA’ Massive Online Open course (MOOC) ran for the second time. Course creators Camilla Somers and Jim Lewsey were delighted that the material was positively received, and students engaged enthusiastically in online discussion boards (see separate article).

April
Olivia Wu, Neil Hawkins, Yiqiao Xin and Moira Sim delivered a one-day workshop on Methodological Challenges in Evidence Synthesis for Cochrane Editors and Cochrane Review Group members. The workshop took place at the GCU campus, Spitalfields, London. Dr David Tovey Editor-in-Chief of the Cochrane Library gave an inspiring introductory talk and the workshop highlighted CRSU work with Review Groups, as well as providing hands-on training in Network Meta-Analysis.
NIHR awarded a £2 million Global Health Research Grant. The research, which is led by Emma McIntosh, will estimate the prevalence, quality of life, economics and societal impact of arthritis in Tanzania. See October entry for an update.

Janet Bouttell gave a presentation on ‘Methods of HTA for disinvestment’ at What Works Scotland conference.

**May**

The annual away day took the form of a writing workshop run by Invisible Grail. The team were introduced to the influence of academic writing styles and explored the difficulties that arise in writing for academic research. The day concluded with a cocktail/mocktail masterclass.

**SUMMER**

**June**

Camilla Somers, Claudia Geue and Jose Robles-Zurita attended the 17th Biennial European Conference for the Society for Medical Decision Making (SMDM) in Leiden, The Netherlands. The conference focused on Personalised and Value-Based Care, both areas of keen interest here at HEHTA. All three gave poster presentations of their work: ‘Informing the design of a new preference weighted value framework for oncology: a mixed methods approach’, ‘A Bayesian Approach to explore and improve methodologies for the identification and estimation of subgroup effects in clinical trials’ and ‘Economic Evaluation of Culprit Lesion Only PCI Versus Immediate Multivessel PCI in Acute Myocardial Infarction Complicated By Cardiogenic Shock: The Culprit-SHOCK Trial’ respectively.

**July**

Kathleen Boyd was invited as keynote speaker at the Thai Health Promotion Foundation Conference in Bangkok, Thailand. Her keynote speech was on ‘Economic Evaluation in Public Health and Complex Interventions: UK & European Perspectives’. Kathleen also participated in a panel discussion on ‘Challenges in Economic Evaluation of Public Health Interventions’ and gave a workshop presentation on recommendations for developing guidelines for the evaluation of health promotion intervention in Thailand. During her visit Kathleen caught up with various HEHTA alumni including Pattara Leelahavarong (HITAP’s Program Leader & the Head of Research Unit) and former MSc HTA graduate Panida Yoopetch.

Olivia Wu presented at the HTAsialink conference which took place in Chaing Mai province in Thailand.

The HTAsialink network was established in 2010 to strengthen collaboration between HTA agencies in Asia and Pacific region. The topic of Olivia’s talk was Introducing HTA for Alternative & Traditional Medicines

Neil Hawkins was elected to the ISPOR Board of Directors.
Two new members of staff joined the HEHTA team: Lecturer Zhaoyang (Leo) Liu who is spearheading the new One Health Economics research and teaching, and Rafael Venson who joins the team as a trainee health economist from a background in pharmaceutical sciences.

We celebrated the promotion of Jim Lewsey to Professor of Medical Statistics. Jim has been with University of Glasgow since 2007.

**AUTUMN**

### September

Emma Mcintosh’s well attended inaugural lecture took place in the University of Glasgow’s prestigious Senate Room. With the title “A Hitchhikers Guide to Health Economics: A methodological, anatomical and philosophical journey” Emma delivered an entertaining and inspiring account of her career so far.

HEHTA were in attendance at the 8th FIP Congress of Pharmacy and Pharmaceutical science conference in Glasgow where we had a stand promoting our teaching and Continued Professional Development (CPD) courses. The stand was visited by lots of delegates interested in finding out more about HTA.

The Evidence Synthesis course returned. The popular face to face Evidence Synthesis course was relaunched and successfully delivered following a three-year absence from the calendar.

Evi Germeni attended the 16th International Conference on Communication in Healthcare (ICCH) in Porto, Portugal. The conference brought together researchers, practitioners and policy makers from around the world working to explore and improve all aspects of communication in healthcare from a variety of perspectives. Evi gave an oral presentation on “Tackling inappropriate antibiotic prescribing for ARTIs in primary care: What can we learn from published qualitative research?”. She also participated as a Senior Colleague in the “Pairing with Colleagues” program, which sought to provide a formal way for less experienced colleagues to network and discuss their teaching and/or research issues with more experienced colleagues.

### October

HEHTA was represented at the Mount Hood Diabetes Challenge by Jim Lewsey.

A multidisciplinary team led by HEHTA’s Emma Mcintosh attended the launch meeting of their recently funded NIHR Global Health Research Group. The team from Glasgow and Newcastle met with colleagues at the Kilimanjaro Clinical Research Centre (KCRC) in Tanzania for two days of project meetings. A number of external advisors also attended the launch including representatives from the non-communicable diseases department of the Tanzanian Ministry of Health. The meeting was very successful, and the team look forward to developing research, teaching and training capacity in the social sciences, rheumatology and epidemiology at KCRC over the next three years.
The Sitless protocol was published. This paper describes the economic evaluation conducted alongside the SITless RCT; an ongoing, multi-national, three-armed randomised controlled trial investigating the short and long-term cost-effectiveness of a complex intervention to increase physical activity and reduce sedentary behaviour in older adults from four European countries.

**WINTER**

**November**

Andrew Briggs was listed on the Clarivate Analytics list of globally highly cited researchers 2018, as the top 1% for their field in the past 11 years.

Graduation celebrations were held for MSc students Yankier Pijeira Perez and Melodi Kosaner Kliess and PhD student Pattara Leelahaverong (see separate article).

**December**

HEHTA Professors Emma McIntosh and Olivia Wu were appointed as joint chairs of a review established by the Director General for Health and Social Care and Chief Executive of NHS Scotland, to provide an independent assessment of NHS Lanarkshire’s consideration of the replacement of University Hospital Monklands. The Cabinet Secretary for Health and Sport advised the Scottish Parliament that the review will provide an independent assessment of the process followed by NHS Lanarkshire to address the concerns raised by elected representatives and local people about the quality of the option appraisal process and the wider engagement and consultation undertaken by the Board, and in particular assess the quality of the information and analysis undertaken by the Board, and the robustness and accuracy of the evidence which informed the options appraisal process. The review will provide advice as to whether the Board’s process was fully in line with best practice and meaningfully informed at all relevant stages by the views of stakeholders and will submit a report and recommendations to the Cabinet Secretary for Health and Sport, setting out a clear set of actions to be implemented by NHS Lanarkshire in order to progress plans for the redevelopment of University Hospital Monklands.

The DiRECT/Counterweight-Plus weight-management programme was reported widely in the lay press. The study showed that weight management support using a low calorie diet resulted in remission for people with type 2 diabetes its one-year cost effectiveness to achieve type II diabetes remission was published in Lancet Endocrinology, written by HEHTA authors Yiqiao Xin, Andrew Davies, Eleanor Grieve and Andrew Briggs.

The HEHTA team were delighted to attend the inaugural lecture of Neil Hawkins. The lecture discussed why we increasingly see articles with attention-seeking titles such as “Why Most Published Research Findings Are False”, “Why all randomised controlled trials produce biased results” and “Why clinical trial outcomes fail to translate into benefits for patients”.

Research led by Jim Lewsey was highlighted in the media. The study found that the lowering of the legal blood alcohol limit for drivers in Scotland has had no impact on the number of road traffic accidents.
Introduction to HTA Massive Online Open Course (MOOC)

HEHTA’s three week MOOC, hosted by FutureLearn.com, returned in 2018, and was run twice - March and November - due to popular demand. The course gives an overview of HTA, with organisers James Lewsey and Camilla Baba taking participants though the key stages of the HTA process. There was over 1100 participants joining us over the two events from a wide range of countries, illustrating the global interest in HTA:

Most of the participants were in the age range of 26-45 years old, with interest from the >65 age group too. Information and a short video are available at the following link:
www.futurelearn.com/courses/health-technology-assessment

MSc Health Technology Assessment (HTA)

Student numbers on our online Master course continue to grow, with 23 students enrolled for 2017/18. We were proud to have three students graduate with their MSc this year (see separate article). We continue to be thrilled with the global audience for our MSc with students participating from numerous countries:

Details on the HTA MSc course and modules offered can be found at:
https://online.gla.ac.uk/programme/university-of-glasgow-health-technology-assessment-master-1544700483522
Graduate focus MSc

Melodi Koşaner Kließ
Health Economic & Market Access Analyst

What was it that you learned from your MSc in HTA that you think will most help with your future career?
This MSc program has given me good insight into how decisions on resource allocations are made and how these approaches can vary worldwide, particularly through the module on Health Economics. Further, the exercises and assignments on different health conditions and interventions have broadened my perspective. Before this course I only had experience in otorhinolaryngology. I now feel much less nervous and more prepared about carrying out research on various health-related topics. During the MSc programme I also took several of the analytical modules. The modules on Statistical Analysis, Survival Analysis and Analysis of Linked Health Data were taught using STATA; from the basics of data management to advanced statistical modeling. I anticipate using these analytical skills frequently in the future.

Yankier Pijeira Perez
Registered Pharmacy Technician,
Research Project Support Officer in CHEME, Bangor University.

What was it that you learned from your MSc in HTA that you think will most help with your future career?
In general, I believe every module contributed for my formation as an HTA professional. Statistical methods for HTA and evidence-based medicine and Analysis of Linked Health Data were extremely useful as they provided me with different tools that I used to complete my dissertation. The completion of this course lead to an important development in my professional career combining my passion as a Pharmacy Technician in the NHS and a Research Project Support Officer in CHEME at Bangor University, North Wales. I am really looking forward to the challenge due to start in April thanks to the MSc in HTA.
PhD students

Awarded in 2018

Nicki Boyer
‘Economic Evaluation of population health interventions’
*Supervisors: Emma McIntosh, Kathleen Boyd*

Shadrach Dare
‘A retrospective cohort study of the risk factors for neonatal sepsis and other pregnancy related adverse outcomes in Ghana’
*Supervisors: Daniel Mackay (external), Jill Pell (external), Hannah Hesselgreaves*

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 (external)*

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

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

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, James Paul (external)*

Ping Hsuan Hsieh
Burden of rheumatoid arthritis
*Supervisors: Olivia Wu, Claudia Geue, Emma McIntosh*

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

Ciaran Kohli-Lynch
‘Primary prevention of cardiovascular disease in disadvantaged populations: a comparison of modelling methods in the UK and the US’
*Supervisors: Andrew Briggs, Kathleen Boyd*

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

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

Tadesse Gebrye
‘Cost-effectiveness analysis and modelling the lifetime costs and benefits of health behaviour interventions on Diabetes (Type 2)’
*Supervisors: Emma McIntosh, Kathleen Boyd*

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*
Tell us a little about your PhD
My PhD focused on the methodological challenges of conducting economic evaluation in school settings. More broadly it looked at the challenges of conducting economic evaluation of population health interventions. It had an outcomes focus, looking at appropriate HRQoL measures for children as well condition specific paediatric outcome measures. I found a variety of economic evaluation methods were being conducted in school settings, however, the most suitable method is likely to be cost-benefit analysis as it is the most comprehensive with the ability to capture wider societal costs and benefits that can be compared on a single monetary scale.

What attracted you to undertake your PhD at HEHTA?
The methodologic expertise in health economics and HTA was the main draw for undertaking my PhD at HEHTA. I knew I would be surrounded by an excellent and diverse group of colleagues from whom I could draw upon for support while undertaking my PhD. I was also drawn to the diverse range of projects available to work on as my background is in public health and there were a range of economic evaluations taking place in public health settings that were of great personal interest.

What skills have you learned that you think will help your future career?
The main skills that will help me in my future are the quantitative data analysis competencies that I gained at HEHTA which enable me to conduct economic evaluation alongside trials. I gained many other skills such as the ability to work independently as well as within a collaborative team; experience of presenting my work at conferences; peer review; and experience with the publication process. These are all necessary skills for a future career in academia, but they are also transferable to other settings.

Can you see how you will transfer the skills learned here to your own setting?
Absolutely, my time with HEHTA set me up well, giving me a strong foundation of skills and experiences to allow me to build upon those previous experiences in my current role. Of course my current setting is different and there are contextual differences to take into account, but I use the knowledge and skills gained from HEHTA every day in my new role.
Dr Pattara Leelahavarong, Program Leader, Current Institution: Health Intervention and Technology Assessment Program (HITAP), Ministry of Public Health, Thailand

Tell us a little about your PhD
In 2013, I got a scholarship from Health System and Policy Research program under Ministry of Public Health for doing PhD in Health Economics at HEHTA, University of Glasgow. The PhD research is “Development of an alcohol intervention model for predicting healthcare costs, life years, quality-adjusted life years and using for economic evaluation” that it was awarded in July 2018. This was my first time for studying abroad that made me so excited and nervous about both PhD study and living in UK. All the way of PhD study, I went through both expected and unexpected experiences which these sometimes were difficulty and let me down at that time. After going through all of them, I realise that I gain the valuable lessons learned with a lot supports from supervisors and HEHTA team.

What attracted you to undertake your PhD at HEHTA?
When I was a young researcher in Thai HTA agency called as Health Intervention and Technology Assessment Program (HITAP), a textbook written by Prof. Andrew Briggs was like ‘must read’ item in my career as a health economist. Then, I met and talked with him in a conference in Thailand in 2012. I did not hesitate to send him the PhD application to HEHTA, because I would like to gain more experiences in this field as well as this can be benefit for HITAP where I have to get back to work after finish PhD. Moreover, the HEHTA curriculum and short-course trainings (e.g. evidence synthesis, decision modelling, epidemiology) were also attractive and relevant to HITAP. Even though the training courses are high-demand and limited seats in every year, HEHTA’s PhD students are allowed to attend in every course.

What skills have you learned that you think will help your future career?
As I mentioned earlier about my first time living in UK as a PhD student, the skills I have learned are not only academic skill but also management and communication skills for working. I have gained these skills by on-the-job training, because I was doing my PhD research along with working with people within and outside the team (i.e. Information Services Division, Scotland) under principles and standards of ‘Safe Haven’-- a secure platform for the use of NHS electronic data in research. The process of application for data accessibility and data analysis using the NHS data could help to learn how health electronic data should be managed and used in research. This would be a role model of health data management for research that currently Thailand is developing such platform, and HITAP is also involved.

Can you see how you will transfer the skills learned here to your own setting?
From my gained experiences and skills from HEHTA, I’m applying a wide range of research area and building capacity of young researcher, for example, I adapted the developed analytical tools of PhD research for another research in Thailand related to economic evaluation of alcohol control campaign. Moreover, I’m trying to transfer the academic skills learned from HEHTA through workshop and on-the-job training for the HITAP young staff as well as other HTA researchers. Importantly, HEHTA team member and I are keeping in touch for both formal and informal events (e.g. conference, research partner and sightseeing), and this connection will be continuing in long run for our bright future.
Project Supervision

HTA projects

Project title: Implementing Health Technology Assessment in Kuwait: Facilitators and barriers
Supervisor: Evi Germeni

Project title: An economic evaluation of mindfulness based cognitive therapy (MBCT) compared to routine practices for patients diagnosed with depression, employing a decision analytic model
Supervisors: Kathleen Boyd and Nicola McMeekin

Project title: Evaluating the effectiveness of vestibular rehabilitation strategies for adults with a primary vestibular loss: A systematic review, network meta-analysis, and learnings from the literature
Supervisors: Claudia Geue and Olivia Wu

Project title: Are HTA authorities making a distinction between orphan versus non-orphan drugs in cancer? Lessons from 26 cancer drugs assessed by key cost-effectiveness HTA bodies (England, Scotland and Canada) to comparing HTA decisions between orphan versus non-orphan drugs (in solid tumours and haematology tumours)
Supervisors: Andrew Briggs

Project title: Cost utility analysis of vancomycin versus fidaxomicin in Clostridium difficile infection in Betsi Cadwaladr Health Board
Supervisors: Neil Hawkins, Manuela Deidda and Professor Dyfrig Hughes, Bangor University

Project title: Cost-effectiveness of transoral robot-assisted surgery for oropharyngeal cancer in Scotland
Supervisors: Jim Lewsey and Houra Haghpanahan

Project title: Economic evaluation of the use of anticipatory care plans to avoid non-beneficial interventions and harms in patients during their last hospital admission before death
Supervisors: Janet Bouttell and Claudia Geue

Project title: An economic evaluation of FDG PET-CT for Diffuse large B-cell lymphoma (DLBCL) in Thailand
Supervisors: Kathleen Boyd

Project title: Blood alcohol concentration laws effect on road accidents and safety
Supervisors: Houra Haghpanahan and Jim Lewsey

Project title: Cost effectiveness of Interventional radiology procedures: uterine artery embolisation for fibroids, gonadal vein embolisation for varicocele, and endovascular aortic repair for abdominal aortic aneurysm
Supervisors: Jose Robles-Zurita

Project title: Cost-effectiveness of pharmacologic interventions for the treatment of diabetic peripheral neuropathic pain
Supervisors: Neil Hawkins

Project title: Assessing the addition of fluoride varnish application to the standard care in nurseries in Scotland. A comparison between CHU9D and SOHO-5 and a cost-effectiveness analysis using the CHU9D using data from the PT@3 trial
Supervisors: Manuela Deidda and Yulia Anopa

Project title: Building evidence to assess the cost-effectiveness of non-NHS based intervention strategies within group income protection health insurance in the UK. A health insurer’s perspective
Supervisors: Claudia Geue and Giorgio Ciminata

MPH projects

Project title: First aid management of paediatric burn and scald injuries in southern Malawi and the barriers and facilitators to ’gold standard’ practice: a mixed methods study
Supervisors: Evi Germeni

Project title: Association of maternal smoking and second-hand smoking during pregnancy with clefts (lip or/and palate): A systematic review with meta-analysis
Supervisors: Jim Lewsey

Project title: What is the relationship between socioeconomic status and prevalence of diabetes in China?
Supervisors: Claudia Geue and Yiqiao Xin
FACE to FACE – Evidence Synthesis for Health Technology Assessment: systematic review and meta-analysis for treatment effect evidence’

Following a three year break our Evidence Synthesis course returned with new updated material. Topics include ‘Introduction to Stata’, ‘Basic principles and process of systematic review’, ‘Pooling of data’, ‘Critical appraisal’ and ‘Indirect comparisons and network meta-analysis’.

In 2019 the ‘Evidence Synthesis for Health Technology Assessment: systematic review and meta-analysis for treatment effect evidence’ course will run from 1st to the 3rd May 2019.

Decision Analytic Modelling Methods for Economic Evaluation

Once again, our annual modelling course proved to be hugely popular. The course took place once again at the Hilton Grosvenor Hotel over a total of 5 days with the first two days comprising the foundation course and the final three days offering the advanced course. Participants could choose to attend either or both courses and we welcomed a total of 62 participants from:

Sweden, South Africa, UK, Slovakia, Belgium, France, USA, Singapore, Spain

In 2019 the Foundations of Decision Analytic Modelling Methods for Economic Evaluation course will run from 23rd to 24th September with the advanced course taking place from 25th to 27th September 2019.

Here are some comments from the course participants:

“The course has been extremely useful as I commence my PhD study”

“The quality of the teaching and the exercises were excellent, helping to make complex technical concepts much simpler”

“Essential for all serious HE modellers”

Online Distance Learning (CPD)

Throughout 2018 we also continued to offer our online distance learning modules.

- 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 2018
- Analysis of linked health data 2018
- HTA: Policy and Principles 2018
- Outcome Measurement and Valuation for HTA 2018
- Qualitative research methods for HTA 2018


McIntosh, E., the SITLESS Team. Cost-effectiveness of exercise referral schemes enhanced by self-management strategies to battle sedentary behaviour in older adults: protocol for an economic evaluation alongside the SITLESS three-armed pragmatic randomised controlled trial. BMJ Open, 8(10).


Robles-Zurita, J. A., Boyd, K. A., Briggs, A. H. Iveson, T., Kerr, R.S.,


**Presentations**


**Baba C.** Workshop. The essentials of face to face public engagement: from ideas to action. University of Glasgow, UK. February 2018.


**Baba C.** Workshop Organiser. Public engagement: Improving your research profile and digital footprint. Glasgow, UK. July 2018


**Bouttell J.** It’s always too early until suddenly it’s too late: the case for early economic evaluation for developers of precision medicine technologies. Promoting Partnerships: Glasgow Molecular Pathology Node. Imaging Centre of Excellence, Queen Elizabeth University Hospital, Glasgow, UK. March 2018.


**Bouttell J.** Review of colorectal cancer service change – introduction of universal KRAS/NRAS/BRAF testing. Glasgow Molecular Pathology Node Annual Symposium. Imaging Centre of Excellence, Queen Elizabeth University Hospital, Glasgow, UK. September 2018.

**Bouttell J.** Simple but effective: using basic models to assess the potential value of molecular diagnostic technologies in development. Glasgow Molecular Pathology Node Annual Symposium. Imaging Centre of Excellence, Queen Elizabeth University Hospital, Glasgow, UK. September 2018.

**Briggs A.** Long-term Consequences of Clinically Important Deterioration in Patients with Chronic Obstructive Pulmonary Disease Treated with Twice-Daily Inhaled Corticosteroid/Long-Acting 2-Agonist Therapy: Results from the TORCH Study. ATS International Conference, San Diego, USA. May 2018.

**Briggs A.** Economic consequences of clinically important deterioration in patients with chronic obstructive pulmonary disease: Analysis of the Torch Study. ISPOR 23rd Annual International Meeting, Baltimore, USA. May 2108.

**Briggs A.** Evaluating different indirect treatment comparison approaches: A case study in acute myeloid Leukaemia patients ineligible to receive intensive chemotherapy. ISPOR 23rd Annual International Meeting, Baltimore, USA. May 2018.

**Briggs A.** Modelling the US Population Health Benefits of Further Low-Density Lipoprotein Cholesterol Reduction with Alirocumab among Atherosclerotic Cardiovascular Disease or Heterozygous Familial Hypercholesterolemia Patients with Elevated Low-Density Lipoprotein Cholesterol. EAS. Lisbon, Portugal. May 2018.


Geue C., Wu O., McMeekin P. Costs of Prevalent and Incident Cardiovascular Disease in Patients with Type 2 Diabetes Mellitus in Scotland using Routinely Collected Data. European Association for the Study of Diabetes. Berlin, Germany. October 2018.


Venson R. Health Economics: What can we afford to pay? Basic aspects of designing and executing studies. 7º COSIMP - Mercosul’s Pharmaceutical Sciences Congress. Unioeste (University of West Parana), Cascavel, Brazil. November 2018.

Venson R. Internationalisation of Knowledge and Research in UK. 7º COSIMP - Mercosul’s Pharmaceutical Sciences Congress. Unioeste (University of West Parana), Cascavel, Brazil. November 2018.


Meet the Team

**Director**
Olivia Wu
Professor of Health Technology Assessment

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

**Professors**
Andrew Briggs
William R. Lindsay Chair in 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

**Research**
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

Administration

Rachel Allan
Alieda McKinney
Moira Sim
Laura Wood

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 PhD students

Maurilio Cazarim
Lyazzat Kosherbayeva
Mhairi McKenzie
Christine Mpundu-Kaambwa
Fernando Zanghelini
In 2018 we welcomed to the team...

**Dikshyanta Rana**

Dikshyanta joined HEHTA in March 2018 as a Trainee Health Economist. She has an MSc in Health Economics from the University of York (UoY) and a B.A (Hons) in Economics with minors in Psychology and Sociology from Christ University, India. As part of her MSc placement under the Mental Health and Addiction Research group in UoY, her thesis was entitled “Systematic Reviews of Economic Evaluation of Digital Mental Health Interventions”.

**Francesco Manca**

Francesco holds a MSc and BSc in Economic and Social Sciences from Bocconi University in Milan. After previous experience in the development and international cooperation sector, he moved into the field of health economics joining HEHTA in March 2018. Interested in health economic evaluations and methodology, Francesco is currently involved in research regarding cost-effective analysis on early diagnostics, screening strategies and health policy evaluation through observational studies.

**Rafael Venson**

Rafael joined HEHTA as a Trainee Health Economist in July 2018. He has a BPharm degree and a MRes in Pharmaceutical Sciences from the Federal University of Parana (Brazil). In 2017, he completed his PhD in Forensic Medicine and Science from the University of Glasgow. Prior to his PhD role, he was a Forensic Toxicologist in the Department of Forensic Toxicology at the Scientific Police of Goiás – Brazil for three years, where his areas of expertise included seized drugs analysis, post-mortem forensic toxicology, trace-evidence analyses, ballistics, analysis of counterfeit medicines, fuels and beverages, and gunshot residue. Rafael has a collective experience of seven years in Forensic Toxicology.

**Leo Zhaoyang**

Leo (Zhaoyang Liu) joined HEHTA in July 2018 as Lecturer in One Health and Environmental Economics. Leo obtained his PhD in Land Economy at the University of Cambridge and then went on to work on the ESAfD project (Ecosystem Services Accounting for Development) initiated by the Swedish Environmental Protection Agency. At HEHTA he works on the economic components of the SNAP-AMR project (Supporting the National Action Plan for Antimicrobial Resistance in Tanzania) financed by the Medical Research Council. Areas of his research interest include impact evaluation of economic policies and economic valuation, using quantitative approaches such as micro-econometrics and experimental methods.
Maurilio Cazarim is a PhD student from the University of Sao Paulo. His research aims to determine the cost-effectiveness of pharmaceutical care in terms of cost-savings, improved quality of life, and survival of hypertensive patients. It was proposed to develop a tool to aid health managers to plan health care for cardiovascular diseases as to the pharmaceutical care implementation process in Brazil. Furthermore, it may foster responses to the need to increase the certainty of evidence and to guide policymakers to better decision making. He spent six months with HEHTA under the supervision of Olivia Wu and Kathleen Boyd.

Mhairi is based with HEHTA for 10 months while she works to complete her PhD thesis. Mhairi’s thesis is looking at the mental health of siblings of children with a chronic illness or condition, with a particular focus on Cystic Fibrosis. She joins the team from UCL where she is completing this work with Prof. Roz Shafran at UCL Great Ormond Street of Child Health. Prior to her PhD Mhairi gained her MA (Hons) in Economics from Dundee University, and completed her MSc in International Health Policy (Health Economics) at LSE. While at HEHTA, Mhairi will be working with Emma McIntosh supporting an evaluation of a parent intervention for children with ADHD.

Lyazzat holds a PhD in Public Health, and an MD. She is head of the department of integrated systems of economics and health management at Kazakh National Medical University and an expert in the field of health technology assessment in Kazakhstan. She is also interested in studying primary health care systems. Under the supervision of Olivia Wu and Yiqiao Xin, Lyazzat studied the issues of economic evaluation of medical technologies and learned about the activities and organisation of HEHTA. It is hoped that this internship may lead to for possible future cooperation between the two organizations.

Christine is a PhD student from the Institute of Choice at the University of South Australia (supervised by HEHTA honorary Professor Julie Ratcliffe). Christine visited HEHTA for 4 weeks. The focus of Christine’s PhD is on the measurement and valuation of health-related quality of life of children living with neurological disabilities including cerebral palsy using both condition-specific and generic preference-based instruments designed for application in economic evaluation.
...and we said goodbye to

**Mohsen Rezaei Hemami**

Mohsen was a research associate with HEHTA for almost three years. He worked on several projects during his time at HEHTA including “A pilot evaluation of an intelligent liver diagnostic pathway: Making sense of LFTs for patients, GPs and the NHS in Scotland” with Kathleen Boyd. Mohsen has moved to a new post as a Research Fellow with PenTag at the University of Exeter.

**Caoimhe Ryan**

Caoimhe was a research assistant with HEHTA for two years and worked primarily on the Cancer And Venous Access (CAVA) project with Olivia Wu and Evi Germenoi. Caoimhe left HEHTA to take up a post at the School of Psychology and Neuroscience at University of St Andrews.
**My Visit to HEHTA**

**Christine Mpundu-Kaambwa**  
Doctoral candidate  
University of South Australia, Adelaide, Australia  
Visited HEHTA in November 2018

**Why did you choose HEHTA?**  
“I chose HEHTA because of its high-quality research and academic excellence. Another reason was my interest in best-worst scaling methodology and discrete choice experiments in health economics, of which Professor Emma McIntosh is a leader.” (SIC)

**What did you learn during your visit?**  
“I had an amazing time at HEHTA. During my period at HEHTA, I could attend face-to-face courses such as the foundation and advanced courses on ‘Decision Analytic Modelling Methods for Economic Evaluation’ and undertake online courses such as ‘HTA: Policy and Principles’ and ‘Statistical Methods for HTA and Evidence-Based Medicine’. In addition, I was able to develop my PhD project under the supervision of Olivia Wu, who helped me to improve my knowledge in economic analysis and decision modelling.” (SIC)

**Do you have any plans to collaborate with HEHTA in the future?**  
“Yes, it will be a great pleasure to collaborate or work together with HEHTA team again in some project or research.” (SIC)

**Maurilio de Souza Cazarim**  
PhD  
University of São Paulo  
Visited HEHTA from January 2018 to July 2018

**Why did you choose HEHTA?**  
“HEHTA is synonymous with quality and advances in health economics and pharmacoeconomics for me. It is a great and admirable institution within the health economics environment. Additionally, it was an opportunity for me to contribute to developing this area in my country (Brazil) and to be involved in Global collaboration.” (SIC)

**What did you learn during your visit?**  
“I met fantastic people at HEHTA; extremely proficient and committed to research, policies and advances to structure effective methods for the development of societal health systems. Over and above methods, concepts and analysis, I learned so much about management, research, higher education and ways to contribute to the development of a healthy society with great magnitude, quality and efficiency.” (SIC)

**Do you have any plans to collaborate with HEHTA in the future?**  
“Because of my great experience, I am always available to learn more and collaborate with HEHTA. I hope to partner with HEHTA in future research.” (SIC)

**Fernando Zanghelini**  
Federal University of Pernambuco  
Visited HEHTA from July 2017 to January 2018

**Why did you choose HEHTA?**  
“I chose HEHTA because I liked the approach that HEHTA takes on the subjects related to health technology assessment and health economics analysis. Another reason is due to HEHTA having several renowned researchers and teachers in decision modelling, economic analysis.” (SIC)

**What did you learn during your visit?**  
“During my visit at HEHTA, I had the opportunity to present work on my PhD around econometric modelling of child health measures at the HEHTA Seminar Series, where I was able to receive valuable feedback. I also took part in workshops, which were very informative including one on career development.” (SIC)

**Do you have any plans to collaborate with HEHTA in the future?**  
“Without a doubt. During my visit at HEHTA, I built networks with researchers and health economists in the team and generated discussions regarding future collaborative publications.” (SIC)
Why did you choose HEHTA?
“I visited HEHTA for a short time when I was doing my master in Canada in Health technology assessment (HTA). During my visit here, HEHTA gave me a very warm feeling in Scotland’s cool winter and ‘overwhelmed’ me with its broad expertise in health economics and HTA. So I came here.” (SIC)

How has your career developed at HEHTA?
“I started as a research assistant in September 2013, then half year later my PhD started, funded by HEHTA. While doing my PhD, I conducted economic evaluations for a series of projects, including the PDSAFE (physiotherapy for Parkinson’s), PAL (financial incentives to improve physical activity), SEED (improve children’s wellbeing) and THRIVE (improve mental wellbeing among pregnant women). After I finished my PhD, I took on DiRECT (low caloric diet to reverse type 2 diabetes), and joined NIHR Complex Reviews Support Unit (CRSU) to support network meta-analysis methodologies and develop an online tool (Metalnsight) for conducting network meta-analysis. I was also involved in reviewing the pharmacoeconomics submissions to the Scottish Medicine Consortium for new drugs. HEHTA provides a lot of opportunities to work on diverse projects and I do really benefit from the breadth of these projects which have been broadening my skillset and visions of the overall health economics and health technology assessment world.” (SIC)

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’. The rationale is that little research has explored to what extent Parkinson’s wide range of QoL impacts have been appropriately incorporated into economic evaluations. It demonstrates the limitations of the current measures in their responsiveness in mental and social wellbeing aspects of Parkinson’s and that the ICECAP-O capability instrument was able to provide a preference-based assessment of these under-represented aspects in the Parkinson’s population.” (SIC)

What skills have you learned that you think will help your future career?
“Broad knowledge in health economics and HTA, statistical analysis with STATA and modelling with Excel, app development with R shiny, the critical appraisal ability to appraise Pharmacoeconomics submissions, teaching and supervision, presentation and manuscript writing.” (SIC)

What are your future plans?
“To work on projects that enable me to learn new skills in health economics, and to broaden collaborations nationally and internationally, within and across sectors, and to gain some real-life experience of how health economics is applied in the setting of health care service providers, health technology developers (such as biomedical engineers) and pharmaceutical industry.” (SIC)
Andrew Briggs

- Editor of journal: Health Economics
- Member of trial steering committee: NOurish Start for health (NOSH)
- Member of trial steering committee: DISCHARGE
- Member of Department Health (DoH) committee to determine the allocation of funded MSc place in Health Economics
- Member of committee to review funding applications for DoH Policy Research Centres

Eleanor Grieve

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

Emma McIntosh

- Member of National Institute for Health Research (NIHR) Public Health Research (PHR) funding panel
- Member of Glasgow Centre for Population Health
- Member of National Health Economists Interest Group
- Chair of trial steering committee: PLAN-A, Bristol University
- Member of trial steering committee: ADepT-PD, University College London

James Lewsey

- Chartered Statistician, Royal Statistical Society
- Chartered Scientist, The Science Council
- Member of Evidence Review Committee for Scottish Health Technologies Group, Healthcare Improvement Scotland
- 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

- Member of advisory board for Beatson West of Scotland Cancer Care Clinical Trials Unit
- Member of NIHR HTA Research Programme Steering Committee & Advisory Group Board: CUE-Based versus Scheduled feeding for preterm infants in neonatal units project (CUBS) 16/144/05

Neil Hawkins

- Member of Medical Section Committee of the Royal Statistical Society
- Member of NICE Devices and diagnostics Panel
- Member of ISPOR Board
- Member of Warwick Evidence Advisory Group

Olivia Wu

- Member of NIHR Systematic Reviews Programme Advisory Group
- Member of NIHR Senior Investigators Appointment Panel
- 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: Promoting effective and rapid stroke care (PEARS), Paramedic acute stroke treatment assessment (PASTA), Quantitative fibronectin to help decision making in women with symptoms of preterm labour (QUIDS)