

Welcome to this special 21st anniversary edition of HEU news!

On 4th October 2019, the Health Economics Unit (HEU) were thrilled to hold an all-day academic celebration at the University of Birmingham, celebrating 21 cohorts of Alumni from HEU's MSc and PhD Programmes. HEU (initially known as the Health Economics Facility) was established in 1996 with the central goal being to undertake, promote and facilitate high quality health economics research and to develop health economics capacity. This capacity building component of the remit began when the MSc Health Economics and Health Policy was launched in October 1998. By 2014, we had created an additional programme, MSc Health Economics and Econometrics and for the last two decades, HEU has also delivered a thriving PhD programme.

Whilst the celebration recognised the coming of age of HEU's MSc programmes, the focus of the day was deliberately on HEU's Alumni. Over the last 2 decades, HEU has prioritised the delivery of research-led teaching - presenting new methods, theories and policies as they were being developed and tested by the discipline. Our students have engaged, questioned and challenged us and the techniques. Their engagement and feedback significantly helped us to shape and develop our own understanding, and has influenced our own research questions.

We were thrilled to welcome 130 of our Alumni and guests to the event. Through the day, a selection of short videos from some alumni who couldn't attend in person (for example, those who are overseas) and some who could, provided some personal accounts of the impact of the MSc/PhD on their careers. After the formal presentations and talks were over, everyone came together to sing 'Happy Birthday to HEU Alumni' and champagne corks were popped to celebrate the last 21-years and to toast the future. Everyone at HEU would like to thank all alumni and guests for helping us celebrate and for a fantastic, informative and enjoyable day. This special 21st Anniversary Edition Newsletter presents some of the key highlights (academic and social).

Tracy Roberts (Head of Unit)

Question Time Panel

Each year, a highlight of our MSc module 'Policy and Economics of Healthcare Delivery' is the Question Time (QT) session: an opportunity for students to put their questions to a panel of experts. So, when it came to planning the 21st Anniversary event, the inclusion of a Question Time panel was the natural choice!

We were thrilled to be able to assemble such a distinguished panel of experts who all have a meaningful connection with the University of Birmingham and HEU. Kirsten Major and Kara Hanson are regular contributors to our QT sessions, as well as both delivering guest lectures on the 'Policy' module: Kirsten is Chief Executive of Sheffield Teaching Hospitals NHS Foundation Trust, and Kara is Professor of Health System Economics and Dean of the Faculty of Public Health and Policy at the London School of Hygiene & Tropical Medicine. Andrew Stevens is Professor of Public Health at the University of Birmingham and has had close involvement with NICE since its establishment in 2000, chairing a NICE appraisal Committee for 14 years. Judith Smith is Director of the Health Services Management Centre at the University of Birmingham (originally HEU's host institution), and is Non-Executive Director of the Birmingham Women and Children's Hospital NHS Foundation Trust. Richard Lilford CBE is Professor of Public Health at the University of Warwick and Director of NIHR CLAHRC West Midlands. The panel, as always, was chaired by HEU's Tracy Roberts.

Questions spanned a wide range of topics, relating to, amongst other things, the 'death of commissioning', the reception and impact of health economics, the scope for health systems in high income countries to learn from experiences in low and middle income contexts, and the importance of NICE as an international organisation.



Broadening what we value in health economics

Hareth Al-Janabi, himself an alumnus of the Health Economics and Health Policy Master's course, spoke about "Broadening what we value in health economics". His talk outlined two major developments in the methodology of economic evaluation, in which HEU have had a leading role. The first development concerns whose outcomes are considered in economic evaluation. Although guidelines recommend carer outcomes are considered as well as patient outcomes, this is rarely done. He outlined methods developed in HEU to enable carer/family outcomes to be measured and valued within economic evaluation. This work has fed into various applied studies, including an evaluation of meningococcal vaccination that influenced the government funding the new vaccine.



The second development concerns what outcomes are considered in economic evaluation. In particular, in social care, end-of-life care, mental health, and public health, narrow measures of health gain (QALYs) might not capture the intended impact of services. Capability wellbeing (ICECAP) measures developed in HEU enable broad wellbeing outcomes to be considered. Hareth outlined the wide application of the ICECAP measures and the role that other colleagues (Jo Coast and Phil Kinghorn) and students had played in developing the technique. Presently, the intended use of ICECAP measures has been registered for over 250 studies, across many countries. The talk finished with the message that it is important to take a broad perspective when thinking about value-for-money in the health sector and that methods are available to do this.

21 Years and the Significant Changes



In **Tracy's** presentation "21 years and the significant changes" she explained that in 1998 when the MSc programme started, Cost Minimisation Analysis (CMA) was an accepted approach to economic evaluation where the accompanying randomised controlled trial suggested no significant difference in the outcomes being compared. Yet soon after, in 2001, the 'death of cost minimisation' was asserted by health economics colleagues from elsewhere, and over the following decade the health economics community in the UK had almost unanimously accepted that CMA should be 'dead and buried'. By the end of the noughties health economists were assertively embracing confidence intervals and the estimation of uncertainty, presenting cost effectiveness planes and acceptability curves with the support of agreed guidelines.

In contrast, clinical colleagues adhering to different guidelines, remained focussed on statistical significant differences in outcomes and were perplexed when the health economist presented estimated benefits where none had been inferred. Tracy presented the results of two trials that she and HEU colleagues (and MSc alumni) Chidubem Ogwulu and Warda Tahir respectively had been involved. She explained that both these trials were published in the New England Journal of Medicine this year and in both cases the inferred clinical results of no significant difference were in stark contrast to the economic analysis. For one example there was an estimation of positive benefit (compared to placebo) that was highly likely to be cost-effective. In the second example - the health economic analysis showed the intervention to be cheaper but likely to cause harm – a serious concern given the particular patient group. These sources of contention within the respective research teams were appeased eventually with a timely Comment in the journal Nature (20th March 2019) entitled "Retire statistical significance". Their recommendation is that authors embrace uncertainty and describe the practical implications of all values in the confidence interval. Hurrah! Something health economists have been asserting for the best part of 20 years!



Celebrating 21 Years of Our MSc Programmes and the successes of our alumni

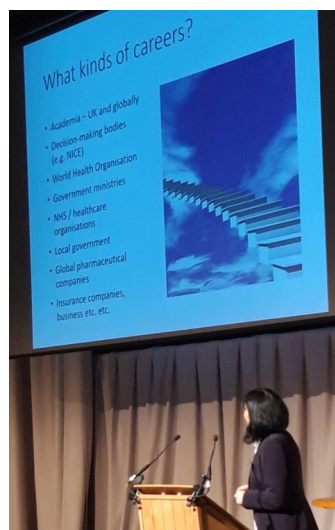
Launched in 1998, the MSc in Health Economics & Health Policy at the University of Birmingham was amongst the first health economics masters to be offered in the UK.

Louise Jackson, Director of Teaching at HEU, explained that initially there were three core modules specifically focussed on health economics, with students then also attending general modules on statistics and health policy. Moving forwards 21 years, HEU now have two MSc programmes and there are six core modules: two statistics modules, a specialist modelling module and a dedicated policy module (see page 1).

Student intake for the MSc has increased from six in the first intake to 30 new students in the 2019 intake. The global impact of HEU has been an important feature of the course, with our students coming from over 50 countries.

Some elements have remained unchanged over the years. From the very beginning, there has been a focus on providing both advanced technical skills and theoretical knowledge. The high quality of teaching, assessment and feedback has remained constant and has received commendation from our external examiners (two of which are photographed below). The highlight of the programme for many students over the years has been the dissertation module, which allows students to carry out an original piece of research and demonstrate the key skills they have learned. These dissertations have also contributed to the research success of HEU, with over 30 being published in peer-reviewed journals.

The skills that students develop are in high demand and HEU alumni have achieved tremendous successes.



Back (L-R) Tracy Roberts (Head of Unit & Former Director of Teaching), Professor Stirling Bryan (University of British Columbia - Former Director of Teaching), Professor David Whynes (University of Nottingham - First External Examiner). Front (L-R): Patrick Moore (Deputy Director of Teaching), Pelham Barton (Former Director of Teaching), Louise Jackson (Director of Teaching), Professor Claire Hulme (University of Exeter - External Examiner). Not photographed: Professor Darrin Baines (Bournemouth University- Inaugural Director of Teaching, HEU)

Alumni are working in a range of sectors, both in the UK and globally; this includes academia, decision-making bodies (e.g. NICE), policy organisations (e.g. World Health Organisation), national and local government, healthcare organisations, global pharmaceutical companies and other areas such as insurance, business etc. We are very proud of all our alumni and the fantastic work they have undertaken. Importantly, some of our alumni are now hosting dissertation placements and thus helping to train the next generation of health economists. To all our alumni: please keep in touch! We love hearing your news and following your careers.



Networking



Stirling Bryan



HEU Staff, past & present

Question Time Panel



HEU Support Staff (Past: Helen Evans, current: Pauline Mutimer)



David & Emma



MSc Alumni 2015—2018



Tracy, Emma & 'Old Joe'



HEU Professors, past & present: James Raftery, Tracy Roberts, Emma Frew, Joanna Coast, Stirling Bryan



2019 MSc intake



Former (& current) HEU Directors / Heads of Unit

Celebrating 21 Years of Our PhD Programmes...

HEU's PhD programme is flourishing, with 17 current students and 26 alumni. Initially developing with a small number of part-time studies undertaken by staff, the PhD programme now has a growing cohort of full-time students. HEU's research themes have both informed and been shaped by postgraduate research. Six completed and ongoing PhD projects relate to HEU's research themes on **wellbeing and capability** and **carers, families, and spillover effects**:

Paul Mitchell (2013), Tom Keeley (2014), Alastair Canaway (2015), Arjun Bhadhuri (2017), Henry Nwankwo, and Carol McLoughlin. Four PhD projects align to the **musculoskeletal disease** and **public health** research themes: David Whitehurst (2010), Jesse Kigozi (2014), James Hall, Dawit Zemedikun, Magda Aguiar (2018), Katie Breheny, Mandana Zanganeh, and Andy Smith.



HEU PhD students, past and present

Another important theme relates to **women's health**, for which methodological advances have been made through PhD studies by Tracy Roberts (2008), Sabina Sanghera (2014), Chidubem Ogwulu (2018), Hannah Bromley, Sonja Bloch, Muslim Syed and Lena Schnitzler. Hannah's video shared experiences of her Universitas 21 joint PhD studentship with the University of Melbourne, and the positive impact that studying health economics has had on her medical career. **Global health** represents a theme of increasing importance to HEU, and

Mark Monahan's video, filmed in Ghana, highlighted his current study of surgical site infections, with reference also to Samuel Frempong's recently completed typhoid modelling research. Iestyn William's video referenced his own PhD research (completed in 2009) into NICE's use of economic evaluation. Tuba Avsar's video gave a brief insight into the many opportunities available for participating in University life, from being a Westmere Scholar and Institute of Applied Health Research PGR student representative, to winning a College travel grant and undertaking a WHO internship.



Studentships from the University of Birmingham, NIHR and a range of other funders have been key to our success; they have enabled many of our alumni to build successful careers, mainly in universities in the UK and abroad. This has been achieved through expert supervisory collaboration between staff in HEU, the wider universities and other universities across the world.

The session was introduced by **Hugh McLeod** as HEU's PGR Lead and Hugh also shared his own experience of graduating as a PhD student from the University of Birmingham.

The Rise of Economic Evaluation

The growth in importance of economic evaluation was discussed by **Sue Jowett**, with particular reference to the Economic Evaluation in Healthcare module of the MSc. This “rise” in economic evaluation has been influenced by the introduction of NICE in 1999. Sue explained how this had brought evidence based medicine and model-based economic evaluation to the forefront of decision making. Other developments were discussed, such as: the publication of a paper encouraging the shift from trial-based to model-based analyses; consensus work to produce guidance for decision modelling; and the increasing expectations of healthcare research funders such as the NIHR for cost-effectiveness analyses (and in particular model-based analysis).

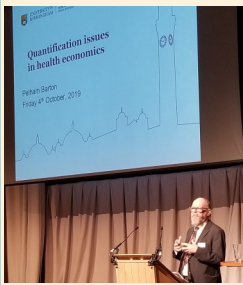
The importance of the long-standing collaboration between HEU and the School of Primary, Community and Social Care at Keele University was showcased with a timeline of milestones, successful projects and impactful publications. Sue gave examples of methodological questions that had arisen from this work which had been converted into PhD topics. One such example was the application of decision modelling to estimate long-term cost-effectiveness of stratified care for back pain and sciatica. This work has ensured methods are in place for model-based analyses on Keele studies in the future. Sue finished her talk by considering the future of economic evaluation, with reference to new areas to explore in teaching, such as broader costs and benefits, public health and economic evaluation from a global health context, and concluded that there is still a place for trial and model-based analysis.



Quantification Issues in Health Economics

Pelham Barton's presentation started with a brief survey of the way things have changed over the last 21 years. An important change has been the expansion of computing power to handle large data sets, increasing the role for health econometrics. With regard to decision modelling, the influence of NICE has supported a trend towards the view that the important question is not whether to model beyond trial data, but rather how to do so, with special justification being required for modelling over anything less than a lifetime horizon.

Handling of uncertainty has developed in a Bayesian framework, where the idea is to represent all imperfections in knowledge through probability distributions. This allows modelling to cover not only the question of what decision should be made under current knowledge but also questions of what future research is justified. Technical advances mean that value of information (VoI) analysis can now address these questions. However, these advances need to be matched by clarification of how VoI is to be used. It is important to have a fair representation of current knowledge, and also to take into account the size of the population to benefit, making realistic assumptions about implementation of the preferred policy option. We must avoid the trap of using an effectiveness measure to demonstrate that the methods work and then assuming that it is a fully accepted measure for applied work. NIHR are now commissioning VoI studies; it will be interesting to see how these influence future decisions on commissioning primary research.



Health Economics & Public Health

This was a question discussed by **Emma Frew** in relation to methods for public health economic evaluation. Emma acknowledged that although well-established methods exist for health technology assessment, these methods do not lend themselves well to public health contexts. This is further complicated by the public health function in England being organised through local government with the additional political and economic circumstances inherent within. This means that teaching public health economics means covering an array of evaluation methodology – making the health economics module within the Masters in Public Health programme saturated with material! Emma acknowledged the excellent PhD research undertaken within HEU over the years and gave thanks to all academic collaborators for their supervision support and all policy partners for their contribution. In theory, health economists should consider the evidence requirements of decision makers when designing economic evaluation and a summary of recent Delphi findings of what local government decision-makers want from public health economic evaluation was presented. This raised many methodological questions about the future of public health economic evaluation and highlighted the need for: local costs and consequences to be communicated clearly; for findings to be published in accessible, clearly-written documents; for equity effects to be explicitly considered; and for implementation (budget impact) to be accounted for. Emma finished her talk by stating the increasing need for economists to work closely with decision-makers at the health and non-health interface, understanding the contribution of wider non-health sectors towards the production of population health.



A note from our friends and colleagues, with whom we were so delighted to share such a special day...

"I wanted to write and say how excellent, enjoyable and impressive I found the event last Friday.

... Overall, I was struck by how you have built and sustained a strong research base, grown your Masters programme, and used both as the basis for supervising excellent PhD students and then enabling them to move into post-doc work at Birmingham and elsewhere across the UK and internationally. "

Professor Judith Smith

(Director of Health Services Management Centre)

"Congratulations on an excellent day and thank you for including me among such distinguished company"

Richard Lilford CBE

Professor of Public Health, University of Warwick

"I write to applaud you and the HEU gang for a truly splendid celebration on Friday. You should all feel proud of yourselves (and suitably smug)"

Professor David Whynes

Emeritus Professor of Health Economics, University of Nottingham

"The day really was a triumph, ... nice to see familiar faces and to meet some new ones. Thank you for including me."

Professor Kara Hanson

Dean, Faculty of Public Health and Policy, London School of Hygiene and Tropical Medicine.

Professor Joanna Coast

(University of Bristol) proposed an "ICECAP for Health Economics", with attributes derived through participant observation throughout her career so far. Those attributes included 'comprehension': the ability to show deep theoretical and methodological, technical and contextual understanding. 'Collegiality' was another attribute that Jo has observed in her peers: the ability to collaborate with others, and to aid their capacity and development. Other attributes identified by Jo as characterising health economists were 'Challenge' & 'Creativity'.



Professor James Raftery (University of Southampton) noted the unique model of funding for health research in England, and the remarkable stability of this funding model as other initiatives in and elements of the NHS have been refashioned and reinvented. James went on to present some of the history of HEU, celebrating HEU's highly successful MSc and PhD programmes. He predicted that assessment of the cost-effectiveness of new technologies will continue to be a central task for health economists, but also highlighted areas—such as digital technologies - that, whilst likely to be of importance within the health service, are also likely to present unique challenges to health economists.

Professor Stirling Bryan (University of British Columbia) identified 'three Cs' (coincidentally, given Jo's ICECAP attributes) as characterising the history of HEU: Collegiality, Commitment and Creativity. Collegiality in particular with our colleagues in the Health Services Management Unit, who were our initial hosts within the university. Stirling spoke of a culture of 'all chipping in' and in particular acknowledged the support of Penny Mullen during the early years of the MSc. Commitment, as characterised by the success of staff members completing PhDs alongside their work (and in Tracy's case alongside maternity leave!). Creativity in terms of establishing the masters course with such speed.