





## Workforce and Organisation of Care... Dr Diane Skåtun, Theme Leader

A key objective of the Workforce and Organisation of Care theme is to better understand drivers of the behaviour of the health care workforce.

With medical school places oversubscribed it remains a concern that in recent years around 200 training posts in Scotland have been unfilled. This represents just under 20% of the total posts available each year and around 3% of the total number of training posts. Training posts are an important component of service delivery and unfilled posts may have consequences for patient care, and have financial implications as health boards can be required to find locums to fill the gaps in staffing. HERU is researching two dimensions of this problem. The first reflects the fact that there are geographical differences within Scotland in the ability of areas to recruit and retain trainees. The second explores the differences across specialties in their ability to fill their training posts and the long term consequences for specialty establishment.

### Push-Pull factors in medical career decision making

Originating in human geography, the concept of push-pull is often used to explain international migration patterns. We apply this concept to understand health workers preferences for different posts. Discrete choice experiments (DCEs) are employed to investigate trade-offs between different dimensions. Such information is crucial for the development of effective policies to enhance recruitment and retention.

#### What do trainee doctors value about their post?

We identified the most important 'push-pull' careers decision making factors for the current generation of UK medical trainees (UK Foundation doctors and trainees). While many individual and job-related factors are known to influence decision making for medical trainees this project employed a discrete choice experiment (DCE) to estimate the trade-offs and monetary value of competing characteristics of training posts.

The DCE required respondents to trade-off various aspects of potential training posts, e.g. familiarity with the hospital/unit, its geographical location, the employment/training opportunities for any spouse/partner, the trainees potential earnings within their chosen specialty after completing training, the clinical/academic reputation of the training post and the working conditions such as rotas, amount of on-call, time off and/or staffing levels. The results indicated that good working conditions were the most influential characteristic of a training position. It would require an additional 49.8% above future average earnings to compensate a trainee doctor to move from a post with good working conditions to one with poor working conditions. A move from a training post with good to only limited opportunities for one's spouse/partner would require compensation of 38.4% above the average earnings within their specialty. Trainees would require compensation of 30.8% above the average earnings to move from a desirable to a less desirable locality.

While many of the factors driving career decision making are not within the scope of workforce planners to modify, the research did identify that trainees do value the quality of the training and learning environments which suggests that addressing issues to do with the working conditions and the quality of the training experience may increase the attractiveness of a particular location.

**Collaborators:** Jennifer Cleland (Division of Medical and Dental Education, University of Aberdeen), Charlotte Rees (Medical Education, University of Dundee), Karen Mattick, (University of Exeter) and Peter Johnston (NHS Education for Scotland North Deanery, Aberdeen).

#### Attracting health workers to rural areas in low and middle income countries

One of the biggest challenges for policy makers in the health sector, in both developed and developing countries, is attracting health workers to rural areas. Globally, approximately one-half of the population live in rural areas, but these areas are served by only 38% of the total nursing workforce and by less than 25% of the total physician workforce. This lack of qualified health workers in rural areas is a significant barrier to service delivery globally. In low and middle-income countries such shortages challenge the aspirations of achieving health for all. Alongside our Scottish focused work, work carried out with a number of international collaborators uses DCEs to understand health worker preferences for jobs in low and middle-income countries. International work has conducted DCEs in Liberia and India (collaborating with the World Bank; World Health Organization and Public Health Foundation of India), and work is currently being conducted in Senegal (collaborating with the Health Economics Unit, University of Cape Town; National Centre for Global Health and Medicine, Japan and Senegalese Ministry of Health) and is being planned for Bangladesh (collaborating with the University of Glasgow; Glasgow Caledonian University; BRAC University, Bangladesh and the Government of Bangladesh).

Such work provides useful policy messages. For example, the DCE in India sampled final year medical and nursing students, and in-service doctors and nurses serving at Primary Health Centers. Location mattered; jobs in areas offering urban amenities had a high likelihood of being accepted. Higher salary had small effect on doctors, but large effect on nurses, acceptance of rural jobs. At five times current salary levels, 13% (31%) of medical students (doctors) were willing to accept rural jobs. At half this level, 61% (52%) of nursing students (nurses) accepted a rural job. The strategy of reserving seats for specialist training in exchange for rural service had a large effect on job acceptance among doctors, nurses and nursing students. For doctors and nurses, properly staffed and equipped health facilities and housing had small effects on job acceptance. Rural upbringing was not associated with rural job acceptance. Incentivising doctors for rural service is expensive. A broader strategy of substantial salary increases, with improved living and working environment and education incentives, is necessary. For both doctors and nurses, the usual strategies of moderate salary increases, good facility infrastructure and housing will not be effective. It was concluded that nurse-practitioners offer an affordable alternative for delivering rural health care.

Led by Professor Mandy Ryan, this work has produced a 'User Guide on How to Conduct a Discrete Choice Experiment for Health Workforce Recruitment and Retention in Remote and Rural Areas' (<http://who.int/hrh/resources/dceguide/en/>). For more information contact Professor Mandy Ryan.



#### Specialty Choice

An important dimension of understanding decisions made by the medical workforce relates to specialty choice. Jesufunsho Kolade-Ernest, an MSc student from the University of York, completed her dissertation placement with HERU over the summer. The project considered determinants of specialty choice, focussing on the role of specialty characteristics. A literature review identified a number of key themes which interacted to determine choice of specialty. These included personal characteristics and background, educational factors including within training experiences, work-life balance considerations and more intrinsic variations between specialties. To understand the impact of past specialty choice along with specialty retention on current service provision, vacancy rates across specialty groupings were examined. Finally, an investigation of whether specialties differ in terms of particular characteristics, and where observed variations in these characteristics may be a factor in choosing such a specialty, was undertaken. This utilised data gathered on Scottish consultants that included detailed breakdowns of their weekly activities.



Building on the collaboration with our colleagues in Medical & Dental Education (with Professor Jen Cleland as first supervisor) we secured funding for a PhD studentship funded by the Scottish Medical Education Research Consortium entitled "A mixed-methods study of career decision making in Foundation Programme doctors". Gillian Scanlon has just commenced this exciting PhD project which will include a Discrete Choice Experiment (DCE) to investigate career choice preferences of Foundation Programme doctors.



#### Geographic Dimensions within the Health Care Workforce

The geographical dimension to issues around shortages of staff, along with researching the corrections to the allocation of resources to address such shortages, has been a long-standing interest of HERU. A substantial body of knowledge has been generated by HERU in understanding better the impact of the pay structures of NHS labour markets where wages are centrally determined and there is little flexibility for NHS employers to alter pay in order to address local recruitment and retention issues. This research has provided evidence to inform pay policy and resource allocation within the NHS.

A central area of research has considered the relative pay of NHS professionals in different local labour markets and the consequent differences in the relative attractiveness of NHS employment. Research (commissioned by the Department of Health) established an association between the degree of regional pay variation in the NHS and the private sector and regional variations in recruitment and retention of NHS staff groups. The groups analysed included hospital doctors, nurses and allied health professionals. Variations in pay between local labour markets are the basis of the Staff Market Forces Factor (MFF) which is used to adjust funding for NHS organisations in England to allow for unavoidable variations in staff costs.

HERU has also undertaken work on behalf of the (then) Scottish Executive and National Resource Allocation Committee on adjustments for the excess costs of supply of health care services, including a review of the evidence for the inclusion of other unavoidable excess costs of supply, such as a MFF. The consequences of regional differences in recruitment and retention for resource allocation within primary care has also been investigated through a research project commissioned by the NHS Employers as part of the UK-wide review of payments under the new General Medical Services (GMS) contract. This work considered the need to adjust the GMS allocation formula to reflect recruitment and retention difficulties in under-served areas. The research demonstrated the extent to which working in under-served areas was unattractive to GPs and should be compensated by an earnings premium.



#### The 2nd Economics of the Health Workforce Conference

Organised jointly by HERU and the Università Cattolica del Sacro Cuore this conference took place in Milan in July. The conference series has developed in recognition that the health workforce forms the backbone of health care systems around the world. The decisions they make have major impacts on costs and health outcomes.

Following a successful first conference in Sydney in 2013 the focus of this 2-day conference was on micro-econometric studies of health workforce supply and demand. The conference brought together researchers from all around the world and papers included work from Norway, South Africa, USA, Japan, Australia, Cape Verde, Mozambique, Guinea-Bissau and the UK. Sessions included Wages and Health Workforce Expenditure, Health Workforce Supply, Health Workforce Planning, Job satisfaction, and Workforce Preferences and Performance.

The conference closed with a thought provoking talk from Professor Steve Birch (McMaster University, Canada and University of Manchester, England) on 'The future for health workforce planning: if the answer is 'utilisation based modelling' then what is the question?'



## PhD News

### Ruben Sakowsky, PhD Student

Ruben joined HERU in September 2015. His research is funded by the Gavin Mooney Studentship and focuses on evaluating justification and decision-making schemes for resource allocation in health care. Ruben will be investigating if, and how, deliberative models of preference evaluation can inform the framework of policy makers. Ruben is also interested in matters of deliberative democracy, justice theory, questions concerning democratic representation and inclusion, and the relationship between community values, individual interests and utility maximisation in health care.



### Uma Thomas, PhD Student

Uma joined HERU as a PhD student at the beginning of October 2015 having just completed our MSc in Health Economics. The title of her PhD is 'Using insights into time preference and present bias to develop an intervention to improve adherence to exercise'. It is a cross-disciplinary project with Professor Marjon van der Pol as the primary supervisor and Dr Julia Allan from Health Psychology as second supervisor. The PhD is funded by the Institute of Applied Health Sciences and aims to develop and test an interactive web-based tool that improves an individual's adherence to exercise by taking into account their time preference.



### Kevin Momanyi, PhD Student

Kevin joined HERU in October 2015 and will be working with Professor Paul McNamee and Dr Diane Skåtun on an ESRC/Scottish Government funded studentship entitled 'Enhancing quality in social care through economic analysis' over the next 36 months. He holds an MSc in Health Economics and Policy and a BSc in Economics and Statistics from the University of Nairobi. His research interests include econometric modelling, health policy analysis and economic evaluation in health care.

## Summer Internship Programme

We continued our capacity building activities, taking on three summer interns and one summer placement. Students were from the universities of Aberdeen and York and the London School of Economics.

**Ben Rothwell** contributed to the 'Traditional Haemorrhoidectomy or Stapled Haemorrhoidopexy' (eTHoS) trial with Mary Kilonzo and conducted a literature search on delayed discharges in hospitals with Patricia Norwood.

**Chiara Pastore** worked with Verity Watson researching 'Cross-country comparison of preference-based weights for the Human Development Index' and on a 'Retirement and health behaviour' project with Paul McNamee.

**Sam Altmann** investigated 'Non-parametric analysis of discrete choice experiment responses' with Verity Watson and analysed eye-tracking data with Patricia Norwood and Nicolas Krucien.

**Heleen Vellekoop**, our summer placement, worked on our Health Foundation funded project which employed a discrete choice experiment (DCE) to understand patient preference for support for self-management. Working with the research team, Heleen conducted 'think-aloud' interviews to provide insight into respondents understanding of personalised attributes within a DCE.

Our 3 interns Ben, Chiara & Sam



## Research Support Awarded.....

Along with colleagues at the University of Dundee, **Paul McNamee** is co-applicant on a project entitled 'Vitamin K supplementation to reduce falls in older people - a multi-centre trial'. This project is funded by the Chief Scientist Office at the Scottish Government Health & Social Care Directorates. It will run for 20 months and the total awarded is £213,493.

Dr A Maheshwari from NHS Grampian, **Graham Scotland**, and other colleagues from across the UK, were awarded funding to research 'E\_FREEZE. Freezing of embryos in assisted contraception: a randomised controlled trial evaluating clinical effectiveness and cost-consequences of freezing all embryos followed by thawed frozen embryo transfer compared with fresh embryo transfer in women undergoing in-vitro fertilisation'. This project is funded by the National Institute for Health Research and will run for 48 months with funding totalling over £1.4 million.

## Capacity Building

**Postgraduate Certificate in Health Economics (Distance Learning)**. This course commenced in October with 22 new students enrolled. Students are from Scotland (6), England/Wales (8), Europe (1) and other overseas countries (7) including India, Singapore, United Arab Emirates, Vietnam and Australia. For more information on this course see: <http://www.abdn.ac.uk/heru/teaching/home.php>.

Applications are invited for our new **Health Pathway within the MSc Applied Economics**. The Pathway in Health Economics combines a strong background in economic and economic policy with a specialisation in the economics of health. Gavin Mooney Studentships are available. More details are available at <http://www.abdn.ac.uk/heru/courses/msc/>.



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## CONTACT US



UNIVERSITY  
OF ABERDEEN

### Health Economics Research Unit

University of Aberdeen, Institute of Applied Health Sciences, Polwarth Building, Foresterhill, Aberdeen AB25 2ZD

t: +44 (0)1224 437196 / 437196

f: +44 (0)1224 437195 e: [heru@abdn.ac.uk](mailto:heru@abdn.ac.uk)