

# Developing Mathematical Models in Healthcare: Special Workshop on System Dynamics

16:15-18:00, Wednesday, 27<sup>th</sup> January 2016  
School of Mathematics, Cardiff University, CF24 4AG  
Room E/0.15

## Programme

- 15:45-16:15 Welcome & Refreshments  
16:15-16:30 John Hayward - What is System Dynamics?  
16:30-17:15 Siôn Cave - Health and social care workforce modelling at a national level  
17:15-18:00 Douglas McKelvie - Health & Social Care Integration with the Cumberland Initiative

## Invited Speakers' Short Bios

Siôn Cave is a technical consultant with Decision Analysis Services Ltd. He has over fifteen years experience of applying operational research methods such as modelling, simulation and data analysis within the public and private sectors. Siôn has supported Government departments such the Department of Health, Home Office and Ministry of Justice, and multinational corporations such as Microsoft and global pharmaceutical companies. One of the key techniques that Siôn applies in his consultancy work is System Dynamics, for which he has published reports providing best practice guidance and delivered training to the Government Operational Research Service. Siôn is a fellow of the Operational Research Society and was awarded the Steer Davis Gleave award for System Dynamics in 2013 for his work on medical workforce modelling.

Douglas McKelvie is a partner at The Symmetric Partnership, a small consultancy focusing on supporting organisations (mostly health and care sector) to improve strategic decision making, often through use of modelling

and simulation. After working in front-line social work, and social service workforce development at national level, he has thirteen years of consultancy experience applying system dynamics modelling and simulation to health and social care joint service design, public health and public policy, workforce planning and a range of service integration issues in health and social care. For further details, including a winter pressures model, refer to NIHR Methods Review 14 <http://www.sscr.nihr.ac.uk/PDF/MR14.pdf>.

## Health and social care workforce modelling at a national level

This talk will describe how System Dynamics has been integrated with methodologies such as scenario generation, horizon scanning and formal elicitation protocols to inform national workforce strategy. This approach will be described using examples from projects carried out by the Centre for Workforce Intelligence (CfWI). The CfWI is a key contributor to the planning of future workforce requirements for health, public health and social care in England. One project that will be described is Horizon 2035. Horizon 2035 is a project commissioned by the Department of Health which takes a whole system view of how challenges across the health and care system may unfold over the next 20 years in terms of workforce skills. Workforce in this programme has a broad definition that includes paid professionals such as doctors and nurses, as well as rarely considered informal workforces such as unpaid carers and volunteers.

## Health & Social Care Integration with the Cumberland Initiative

The Cumberland Initiative aims to build a healthier, wealthier UK by exploring new models of care which efficiently deliver better health outcomes. The Initiative is a collaboration involving three principal groups: academics, health practitioners & managers, and organisations working in modelling & simulation. The Initiative seeks to stimulate a new UK industry delivering smarter process management in healthcare. This talk will discuss the role of System Dynamics in health and social care integration, illustrated through some examples, including the use of risk stratification tools in case-management as a means of reducing hospital admissions.

## Registration

To reserve your place, please send an email with your full contact information to [davaris@cardiff.ac.uk](mailto:davaris@cardiff.ac.uk).