HSMA 2018 Programme Frequently Asked Question (FAQ)

What is the HSMA programme?

The Health Service Modelling Associates (HSMA) Programme is a joint initiative between the NIHR CLAHRC for the South West Peninsula (PenCLAHRC) and the South West Academic Health Science Network (AHSN). It seeks to appoint selected individuals working in NHS organisations in Devon, Cornwall and Somerset as associates, who are released for a portion of their time to undertake advanced modelling, simulation and analysis work ("Operational Research") for their own organisation. HSMAs will receive ongoing mentoring, support and training from PenCLAHRC's Operational Research team (PenCHORD) and the AHSN, and will be supported in their own organisation by a nominated individual ("NHS Workplace Supervisor") who will facilitate the implementation of the HSMA's projects, and help to champion their work within the organisation.

Why are we doing this?

We want to :

1. Work towards a culture in which Operational Research methods are routinely used to support decisions in the NHS
2. Build capacity within the NHS to generate and use evidence from models
3. Increase the potential impact of modelling and simulation projects within the NHS
4. Build towards a collaborative culture within and between NHS organisations, and between NHS and research organisations
5. Evaluate how best to integrate Operational Research methods within the NHS

Who is eligible to apply for the programme?

To apply for the programme, applicants must work for an NHS organisation based in the PenCLAHRC / South West AHSN patch. This covers all of Cornwall, all of Devon and most of Somerset.

No prior experience of modelling is required, but applicants are strongly encouraged to read the person specification to ensure that they have the necessary skills to embark on the programme. Specifically we are looking for people who :

- have strong IT skills, likely with experience using advanced Excel functionality
- are able to learn new software packages quickly
- are naturally adept at mathematical / statistical techniques
- have excellent and creative problem solving skills
- can communicate complex information to various audiences
- have excellent project management skills
- can work alone effectively

All applicants will also be asked to put forward an idea for a project to which they could apply their new modelling skills. Project ideas should be :

- important to the organisation
- impactful if implemented

- suitable for modelling and possible to complete within the time frame of the programme

Can applicants apply only for Phase 1 of the programme (January – March 2018)?

Yes, applicants can apply only to undertake Phase 1 of the programme : Foundations of Health Service Modelling. However, we do need to ensure that there are sufficient applicants in Phase 1 that are looking to progress to Phase 2. Therefore, we may need to prioritise applicants looking to embark on Phase 2 if competition is high.

In addition, those looking to only apply for Phase 1 must still book onto the Open Day and complete the associated questions on the online booking form here. This includes proposing a project idea, as it is important that we understand how applicants' new modelling skills might be applied even if they are not progressing to Phase 2 of the programme.

What is the closing date for booking for the Open Day?

The closing date is 29th November 2017. No applications will be accepted after this date.

I cannot attend the Open Day on 6th December – am I still eligible to apply?

The Open Day will be an important event, at which applicants to the programme will have an opportunity to discuss their candidacy and details of the project idea in more detail with the PenCHORD team. This will be important in helping us to assess which applicants can be enrolled onto Phase 1 (see below). However, we do understand that there may be some people who have prior commitments on that day that they are unable to change. If that is the case, we would encourage applicants to contact the Programme Lead Dr Daniel Chalk at d.chalk@exeter.ac.uk in the first instance to formally register their interest. Applicants will then be sent a list of questions to complete, which must be returned by 29th November.

Will all applicants who attend the Open Day automatically progress to Phase 1 of the programme?

Not necessarily. Following the Open Day, the panel (comprised of representatives from both PenCLAHRC and the South West AHSN) will meet to discuss each applicant and their project idea, using information from the questions answered during the booking process for the Open Day (or sent out separately for those who cannot attend), and information gathered from discussions with applicants at the Open Day. The panel will then select a number of applicants to embark on Phase 1 of the programme. Successful applicants will be notified by 20th December 2017 at the latest.

How will Phase 1 applications be judged?

All applications will be judged against a number of criteria. Specifically, these are :

- The technical skills of the applicant (IT, mathematical / statistical)
- Experience of managing projects and problem solving
- Any prior experience developing models
- Experience presenting and communicating
- Suitability of project idea for modelling
- Practicability of project idea within time frame
- Potential impact of project idea

What is the time commitment for the programme?

Phase 1 HSMAs will be required to attend six full day sessions between 22nd January 2018 and 12th March 2018. The precise dates and locations for these events are currently being finalised, and will

be announced by the Open Day on 6th December 2017, but there will be two sessions in each month, between the dates given above, and the sessions will take place in both Exeter and Plymouth. During the course of Phase 1, applicants will build up a project proposal, and this will include identifying a Workplace Supervisor from their own organisation – a senior member of staff who will facilitate the implementation of the project. This supervisor will be required to attend the last of the six sessions (in March 2018) in order to plan how the project will be implemented. They will also be encouraged to attend the prior session (also in March) if available, which focuses on structuring the problems.

Applicants who are successful in progressing to Phase 2 will also be required to attend an additional half day "Meet Your Mentor" towards the end of March 2018.

Phase 2 HSMAs will be required to be released from their usual role to work on their projects for one full day per week for the entire 9 month period (April – December 2018), and will additionally need to attend :

- one three hour Learning Set Meeting per month (the location for which will alternate between Exeter and Plymouth)
- four days of advanced simulation training spread over two blocks, including a two day residential training course
- one final seminar event in Exeter in December 2018, at which they will present their projects to an audience of local and national NHS staff, academics and policy makers.

It is a condition of the programme that the HSMA is released for the times specified above to work exclusively on their projects. It may not be possible for HSMAs to continue on the programme if these conditions are not met.

What will I learn during Phase 1?

Phase 1 of the programme is designed to be a self-contained introduction to Operational Research (OR), with the added benefit that those looking to progress to Phase 2 will have the opportunity to work up their project proposals during this time. The six Phase 1 training sessions will cover the following areas :

Session	**Key Topics Covered**
Introduction to Operational Research	What is Operational Research (OR)?
	The modelling cycle
	Conditional Logic
	Deterministic vs Stochastic Modelling
	Using distributions
	Conceptual Modelling
	Assumptions and Simplifications
	Identifying Data Requirements
	Validation and Verification of Models
	Model complexity
	Dealing with parameter uncertainty
Introduction to Discrete Event Simulation using Simul8	What is Discrete Event Simulation (DES)?
	Introduction to Simul8 Software
	Building a simple DES model
	Routing

	Resources
	Applying Distributions
	Managing results
	Understanding Warm up and Running trials
	Brief Introduction to Visual Logic
Geographic Modelling and Visualisation	What is Geographic Modelling?
	Calculating route distances and travel times
	The Travelling Salesman Problem
	Postcode Sectors and Lower Super Output Areas
	Activity vs Demand
	Optimal vs Near Optimal Solutions
	Evolutionary Algorithms
	Geographic Information Systems (GIS) and using QGIS
Project Management and Facilitation	Managing a Project
	Engaging with Stakeholders
	Facilitating Meetings
	Presenting to Audiences
	Effective Report Writing
Problem Structuring	What is Problem Structuring?
	Root Cause Analysis
	Qualitative System Dynamics
	Stakeholder Analysis
	Process Mapping
	Formulating a Project Proposal
Making an Impact - Planning for Implementation	Defining the role of the Workplace Supervisor
	Understanding the context for the implementation
	Assessing potential impact
	Measuring impact
	Barriers and Facilitators for Implementation
	Sustainability of the Implementation
	Defining timelines

How do Phase 1 HSMAs apply to progress to Phase 2 of the programme?

Progression to Phase 2 of the HSMA programme is not automatic, not least because only a smaller number (5 – 7) of Phase 1 HSMAs will be able to progress to Phase 2. This is to ensure that we have sufficient capacity to provide the closer mentoring and training that Phase 2 necessitates.

During the course of Phase 1, HSMAs will work with members of the PenCHORD team and the South West AHSN to develop a project proposal, which outlines the project they would undertake if they progressed to Phase 2. These proposals will be judged in early March 2018 (using the same criteria specified in "How will Phase 1 applications be judged?" above), and successful applicants notified by the middle of March 2018.

What will happen during Phase 2 of the programme?

HSMAs will work on the modelling project they outlined during Phase 1. The HSMA will use advanced modelling techniques to build a computer model of their system, and use "what if?" analysis to explore the potential impact of different future scenarios. These predictions will then be reported back to the relevant decision-makers within the HSMA's organisation to help them make a decision.

Each HSMA will be allocated a PenCHORD Mentor at the start of the programme, who is a member of the PenCHORD team with experience developing advanced computer models. The PenCHORD Mentor will provide ongoing support to answer queries, concerns or technical questions arising from the HSMAs projects. In addition, the South West AHSN will provide advice and guidance on the implementation of the HSMA projects, and will provide support to overcome any organisational difficulties encountered during the projects. PenCHORD will provide all HSMAs with training to develop advanced simulation models, and in partnership with the South West AHSN, will identify and deliver other relevant bespoke training needs identified throughout the course of the programme.

All HSMAs will attend a monthly three-hour learning set meeting, in which all HSMAs have an opportunity to meet, discuss their projects and any challenges they've faced, and provide support to each other through the sharing of their experiences building models. This will also provide an opportunity for HSMAs to meet with their PenCHORD Mentor face-to-face. Learning Set meetings will take place in various venues across Exeter and Plymouth.

Each HSMA will be supported in their role by a nominated NHS Workplace Supervisor, a senior member of their organisation that will support and provide oversight for the project. Specifically, the Workplace Supervisor will help to ensure that project work undertaken by the HSMA is integrated into the service improvement function of the organisation and communication is maintained with appropriate staff. They will help ensure the HSMA has access to the data and stakeholders needed to undertake the project, and will help with the implementation of the outputs from the project in their organisation. Their specific duties may include :

- helping to arrange meetings with stakeholders to map out the system being modelled
- helping to arrange ongoing meetings to discuss progress with key stakeholders
- putting in place plans to implement the results of the project
- identifying and overcoming barriers to implementation of the project
- championing the work of the HSMA (and Operational Research generally) within the organisation.

The Workplace Supervisor will also act as a conduit for feedback on the HSMA's progress, both in terms of feedback *to* the organisation from their PenCHORD Mentor and the AHSN, and *from* the organisation to PenCHORD and the AHSN.

Are there any costs involved?

The HSMA programme is being offered free-of-charge to all NHS organisations within the PenCLAHRC / AHSN geographic patch, thanks to funding from the AHSN. The only cost to the organisation is the time for which the HSMA is released.

Will the work of the HSMAs be published?

PenCHORD and the AHSN may choose to write up the project work of the HSMAs for submission to peer-reviewed journals. Ideally, this will be co-authored by the HSMA, HSMA Workplace Supervisor and any other relevant project stakeholders. We will also actively seek to publicise the work of the HSMA programme generally, and specific projects where the impact has been significant.