NIHR School for Primary Care Research (SPCR) funded PhD studentship 2024

This award is offered at the Primary Care Research Centre, University of Southampton, one of nine Universities with SPCR

Within the Primary Care Research Centre at the University of Southampton, we have several PhD projects on offer. These are listed below. If you have ideas for different projects, we suggest you get in touch with the most suitable supervisor (see our website here: Our people | Primary Care Research Centre | University of Southampton to discuss the project idea.

Projects available

Project title

Developing robust cancer risk scores for lung and colon cancer in primary care

Proposed supervisory team:

- Professor Paul Little (clinical and quantitative expertise)
- Professor Geraldine Leydon (sociology and qualitative expertise)
- Dr Taeko Becque (Southampton) and Dr Richard Stevens (Oxford) (statistical expertise)

Project contact: Professor Paul Little, P.Little@soton.ac.uk

Project description

The proposed project is aligned closely with the £2.5 million CANDID cohort, a flagship prospective diagnostic cohort for two of the commonest cancers in clinical practice (lung and colon), funded by the NIHR through the School for Primary Care Research (SPCR), and is a collaboration across 8 departments.

For lung cancer, NICE guidelines suggest that any haemoptysis, or cough lasting longer than three weeks should be investigated with a CXR but we know that for the commonest acute infection presenting in primary care (chest infection) the median duration of symptoms is 3 weeks so this guidance arguably is setting much too low a threshold for investigation. There is also evidence from secondary care settings that a normal X ray may not be helpful in excluding cancer. If clinicians in primary care acted on the NICE guidance for X rays this could dramatically increase the number of CXRs performed for the primary care population, which is likely to increase the dangers of iatrogenesis, and may not be cost-effective. A clinical prediction rule based on prospective clinical data collection and assessing the place of simple investigations in primary care (full blood count, CXR) is the most robust way to better inform thresholds for such investigations and for referrals. Similar considerations about efficient referral and limiting iatrogenesis apply to colon cancer.

There is suggestive evidence that clinical prediction rules (CPRs) for diagnosing both lung and colon cancer can be developed in primary care. However, current prediction rules 'weight' each variable based on routinely collected observational data i.e. what a GP happens to record, and not based on structured and consistent data collection. Such scores have the great advantage of efficiently identifying possible 'signals' for cancer but given the major limitations due to differential recording of clinical data by GPs, they make it difficult to adequately quantify the importance of individual variables and their possible weighting – and so make it extremely difficult to develop valid CPR risk scores.
There have been no sufficiently powered prospective primary care cohort studies to develop CPRs, nor to test and validate such rules in primary care cohorts. We also have limited information about the key issues for doctors and patients in engaging with using risk scores, and unless we do understand the issues CPRs will not be used effectively in practice.
The objectives of CANDID are:

1) To use prospective diagnostic cohorts to develop and validate Clinical Prediction Rules for lung and colon cancer

2) To assess the incremental utility of incorporating additional measures (e.g. genetic, inflammatory and lifestyle information including smoking and alcohol status) in the prediction models.

CANDID has now finished recruiting more than 20,000 patients who are currently being followed up in the cancer registries and also in GP records to see if cancer develops. The whole of the CANDID data set will be available to the fellow. A range of PhDs are possible for the doctoral fellow, using either quantitative or qualitative methologies or both (mixed methods) depending on the preference and interests of the fellow, and to be agreed with the supervising team.

Qualitative methods: the fellow would explore the key issues among both patients and doctors in using clinical scoring systems (both existing clinical scores and the scores developed from CANDID) with a view to developing an effective training package, working with both clinicians and patients. The theoretical framework for the PhD would include theories of behaviour change, including Protection Motivation Theory (for patients) and May's Normalisation Process Theory (NPT) (for clinicians). The work with clinicians will address key questions such as do practitioners agree about the usefulness of CPRs?; are they viewed as a legitimate part of their work?; how are they implemented and which methods do clinicians favour/use?; and how is the 'work' of using CPRs understood? The work with patients will address questions such as what are the benefits and problems associated with communicating personal risk based on CPRs?; and how best should this risk information be communicated?;

Quantitative methods: the fellow would use the CPR based on prospective data collected in CANDID, and also scores based on the existing CPRs, and compare how well each score compares with the observed risk of cancer. An extensive range of other baseline measures have also been collected in CANDID (such as satisfaction with life; life orientation, cancer fatalism, illness behaviours, attitudes to doctors, attitudes to medical threats, diet, physical activity, continuity of care, multi-morbidity) which will allow the fellow to explore the way bio-psychosocial variables determine both the presentation of cancer related symptoms and also the risk of developing cancer.

Training and development

Formal training:

The training plan will be informed by an analysis of the academic needs of the candidate carried out in the first month. Training will be directed towards helping the candidate develop as an independent researcher, as well as towards the needs of the programme.
The formal taught postgraduate research training programme at the University of Southampton includes epidemiology, statistics, research governance and study design. In addition, transferable

skills courses are offered including Good Clinical Practice, time management, leadership, grant writing, and presentation skills. The candidate will also be able to access free on-line masterclasses on systematic reviews and meta-analysis, research governance, ethics, patient and public involvement and engagement, developed by leaders in the SPCR.

Informal training:

The Fellow will also be offered mentorship from a senior primary care academic working in an external institution, meeting twice a year. Mentors receive formal training, developed by the Society for Academic Primary Care, to ensure independence and appropriate support. The Fellow will also have access to informal mentoring from senior members of the collaboration at an annual training meeting, and to participate in national and international (Brisbane) exchange programmes.

PPIE:

Named PPI individuals joined the research team from the start and were involved in the development of the original application, and in the development of patient facing materials. Our collaborators supported the proposed elements of the investigation - but particularly the development of simple tools for doctors to use in the consultation in discussion with patients. We had additional external PPI review to refine proposals from the SPCR review panel which supported the proposals aims and methods. We will work with PPI collaborators to ensure that this research continues to address the needs of patients and the public and that the clinical prediction rules are feasible and acceptable to patients. PPIE collaborators will lead the development of proposals for dissemination.

Project title

Meetings between experts: understanding patient and clinician (de)-prescribing discussions and decisions in primary care

Proposed supervisory team:

- Professor Geraldine Leydon (Southampton)
- Professor Fiona Stevenson (University College London)

Project contact: Professor Geraldine Leydon, G.M.Leydon@soton.ac.uk

Project description

Data sets collected in recent years from UK primary care hold more than 600 face to face and telephone primary care consultations between GPs/nurses/patients. The PhD offers a wonderful opportunity for a candidate interested in understanding how clinicians communicate with patients around prescribing and de-prescribing

Many of the video/audio recordings were transcribed and coded drawing on relevant communication research to discriminate key features and outcomes. The coding framework was largely numerical, and it drew on the International Classification for Primary Care (ICPC), combined with some textual coding to enable further understanding of the consultation data collected. This included coding details of the problem presented including the nature of the problem presented, diagnosis, and outcome/prescriptions.

There is scope for further analyses of this unique corpus to deepen our understanding, both qualitatively and quantitatively, of key conversational patterns when different types of prescribing decisions are made. This is a great opportunity to analyse a novel data set to advance our knowledge of communication ‘at the coal face’ and in so doing will be well placed to identify further research ideas. There will also be opportunity for further data collection.

A range of PhDs are possible for the doctoral fellow, using qualitative methodologies (primarily) depending on the preference and interests of the fellow, and to be agreed with the supervising team.

Training and development

Formal training:

The training plan will be informed by an analysis of the academic needs of the PhD candidate carried out in the first month. Training will be directed towards helping the candidate develop as an independent researcher, as well as towards the needs of the PhD project.

The formal taught postgraduate research training programme at the University of Southampton includes epidemiology, statistics, research governance and study design. In addition, transferable skills courses are offered including Good Clinical Practice, time management, leadership, grant writing, and presentation skills. The Conversation Analytic Data Sessions (CADSS) will also provide opportunity for training (this includes developmental sessions ran over a 10-week period). The Fellow will also be able to access free on-line masterclasses on systematic reviews and meta-analysis, research governance, ethics, patient and public involvement and engagement, developed by leaders in the SPCR. UCL offers opportunities to strengthen training through their various short course offerings.

Informal training:

The student will also be offered mentorship from a senior primary care academic (chosen depending on the candidate's interest/needs). Mentors receive formal training, developed by the Society for Academic Primary Care, to ensure independence and appropriate support. The Fellow will also have access to informal mentoring from senior members of the collaboration at an annual training meeting, and to participate in doctoral exchange programmes. In addition, a mentoring scheme which is available to doctoral candidates. Our REACH (Research Education Advice and Communication in Health ECR) group will also provide a programme of meetings which deal with key topics both practical and academic geared towards supporting researchers and students in their scholarly endeavours. UCL also offers opportunities to strengthen training through their various informal meetings for students / researchers interested in the study of interaction.

PPIE:

If funded, the PhD candidate would work with the supervisory team to recruit two public contributors to aid the design, execution and dissemination arising, outside of the primary output of a doctoral thesis. The student will also benefit from working with our strongly embedded PPIE team at the University of Southampton Primary Care Research Centre, and the Wessex Public Involvement Network.

Project title

Understanding wider health and social determinants in Multiple Long-Term Conditions (MLTC-M) using big data and artificial intelligence (AI)

Proposed supervisory team:

- Dr Hajira Dambha-Miller (big data and epidemiology) Southampton
- Professor Andrew Farmer (clinical and mixed methods expertise) Oxford

Project contact: Dr Hajira Dambha-Miller, H.Dambha-Miller@soton.ac.uk

Project description

This PhD will be embedded within research funded by the NIHR Artificial Intelligence (AI) programme which utilises AI and Big Data to manage multiple long-term conditions (MLTC-M).

MLTC-M are increasingly prevalent and associated with high rates of morbidity, mortality and healthcare expenditure. Strategies to tackle this have primarily focused on addressing biological aspects of disease but MLTC-M are the result of and associated with additional psycho-social, economic and environmental barriers. A shift towards understanding these wider determinants of health could offer more holistic care solutions.

Aim:

- To use traditional epidemiological methods alongside AI pipelines to understand wider health determines in MLTC-M.

Methods:
We anticipate a mixed-methods PhD but this will be tailored to the candidate's interest with a particular focus on developing the AI and epidemiology skills within primary care big data. The team are using a number of datasets (CPRD, SAIL, ELSA and local social care data). The candidate can access these for cohort analysis with generated MLT-C clusters and trajectories characterised, and associations quantified in relation to clinical outcomes (e.g. incidence mortality, additional long-term conditions, disease severity and ten-year health care costs), using appropriate regression modelling.

Potential impact:

The work from this research will examine the utility of AI methods in health and social care research, and explore the methodology used to provide signals on intervention development and recommendations on targeted individual-level service delivery for managing MLT-C.

Training and development

Formal training:

Bespoke training will be provided depending upon the learning needs and experience of the successful candidate. We anticipate specific training in statistics, big data processing/cleaning and epidemiology (using STATA to conduct descriptive analysis alongside Cox, Multivariable, Logistic modelling and Jupiter/R for more advanced AI skills). Training will be directed towards helping the candidate develop as an independent researcher, as well as towards the needs of the PhD project.

The formal taught postgraduate research training programme at the University of Southampton includes epidemiology, statistics, research governance and study design. In addition, transferable skills courses are offered including Good Clinical Practice, time management, leadership, grant writing, and presentation skills. The candidate on-line masterclasses on systematic reviews and meta-analysis, research governance, ethics, patient and public involvement and engagement, developed by leaders in the SPCR. The PhD will be awarded by the University of Southampton but as a key supervisor is based at the University of Oxford, we anticipate that the candidate will benefit from relevant training and expertise across both departments including the extensive SPCR and Wellcome PhD training programme.

Informal training:

The candidate will join our fortnight study meetings and be offered regular tutorials from supervisors and the wider study team who provide leading national expertise in AI, big data, epidemiology, statistics and subject expertise in big data. The candidate will also have access to

informal mentoring from senior members of the collaboration at an annual training meeting, and to participate in doctoral exchange programmes.

PPIE:

We have PPI collaborators on the study team who the candidate will work with; this has helped us to ensure that our research is addressing public need, and is feasible and acceptable to patients.

Project title

NatRIDOShA: Natural Remedies: Support to Improve Diabetes Outcomes for South Asian communities

Proposed supervisory team

- Dr Merlin Willcox (Clinical lecturer and GP, expertise in herbal medicine research)
- Dr Ingrid Muller (Health psychologist, expert on person-based approach and qualitative methods)
- Emeritus Professor Michael Moore (expertise in all aspects of primary care research)
- Dr Shabana Cassambai (Research Associate, Centre for Ethnic Health Research, University of Leicester – expert on PPI with ethnically diverse groups)

Project contact: Dr Merlin Willcox, m.l.willcox@soton.ac.uk

Project description

Aims

1. To develop a culturally sensitive intervention for people in UK South Asian communities providing evidence-based information on effective natural remedies for type 2 diabetes.

2. To pilot and optimise this intervention based on feedback from patients with type 2 diabetes from South Asian communities.

Project Plan

This project will build on our previous research, by developing and optimising an intervention for advising south Asian communities about effective use of natural remedies for T2DM.

We will include two work packages:

(1) Intervention development following theory-, evidence- and person-based approaches

(2) Optimising the intervention through qualitative think-aloud interviews with our target group

This proposal follows the expressed wish of people with T2DM for access to the evidence-base for natural remedies to support self-management.

Research plan/Methods

Work package 1: Intervention development following theory-, evidence- and person-based approaches

Intervention planning will be informed by findings from a systematic review of qualitative studies to build an understanding of the views and experiences of natural remedies amongst people with T2DM and identify key needs and behavioural drivers to be addressed in the intervention. We will

also develop guiding principles to inform the intervention development by highlighting the distinctive ways that the intervention design will address behavioural issues. A logic model will be developed and refined throughout intervention development to specify causal mechanisms through which the intervention is likely to result in behaviour change and trial outcomes. Intervention content and design will be developed alongside a PPI panel, clinicians, and researchers.

Work package 2: Optimisation of the intervention

Design: Qualitative study with think-aloud interviews

Sample: 25-30 people with T2DM from South Asian communities to enable feedback from a wide range of participants

Analysis/Outputs: We will conduct qualitative thematic analysis of the think-aloud interviews and will improve the booklet / website iteratively. The final output will be an intervention optimised for usability, feasibility and persuasiveness, ensuring it is meaningful, relevant, and engaging to the target population.

Formal training:
The training plan will be informed by an analysis of the academic needs of the PhD candidate carried out in the first month. Training will be directed towards helping the candidate develop as an independent researcher, as well as towards the needs of the PhD project. The formal taught postgraduate research training programme at the University of Southampton includes epidemiology, statistics, research governance and study design. Transferable skills courses are also offered including Good Clinical Practice, time management, leadership, grant writing, and presentation skills. The Fellow will also be able to access free on-line masterclasses developed by leaders in the SPCR on systematic reviews and meta-analysis, research governance, ethics, patient and public involvement and engagement.

Informal training:
The PhD candidate will receive mentorship and training from the supervisors and from other collaborators in the project at the Centre for Ethnic Health Research and from Dr Emma Redman, Senior Clinical Research Dietitian and Honorary Senior Lecturer, University of Leicester and NIHR Diet and Activity Research Translation Collaboration.

PPIE:

MW was asked to work on this topic by people in the community where he works as a GP. Specifically, patients with diabetes asked for some support to know which natural remedies were effective. In preparation for the project, MW held three public engagement meetings with seven T2DM patients from ethnically diverse groups. The Centre for Ethnic Health Research (CEHR) at the University of Leicester also carried out a public engagement discussion group. We are working with the CEHR, to further engage members of the south Asian community. This engagement will be used to inform all project activities. The CEHR aims to reduce health inequalities locally and nationally by working with patients, the public, community and voluntary sectors, researchers, and health and social organisations They have community-based research staff who engage with seldom heard communities and inspire community-led research.

We will form a PPI panel to inform all stages of the project, including materials for recruiting participants. We will hold regular meetings throughout the project, and the PhD student will be able to attend these and gather the views of PPI members on all aspects of the PhD project.

Project title

The Feasibility and Acceptability of Identifying and Managing Older people at risk of Sarcopenia in primary care (FAIMOS)

Proposed supervisory team:

- Dr Kinda Ibrahim (SOTON), Associate Professor and Academic Pharmacist with interest in medicine optimisation and ageing research focusing on identifying and managing frailty and sarcopenia.
- Dr Steve Lim (SOTON)- Academic Geriatric consultant and principal research fellow with interest in frailty and sarcopenia research with a focus on nutrition and physical activity
- Professor Rupert Payne (EXETER)- Professor of Primary Care & Clinical Pharmacology, Academic GP with a specific interest in polypharmacy and medicine optimisation.

Project contact: Dr Kinda Ibrahim, K.Ibrahim@soton.ac.uk

Project description

Background

Sarcopenia -progressive loss of skeletal muscle mass, strength, and function- affects 2.7 million people in the UK. It is associated with poor health outcomes such as functional decline, disability, falls, and mortality, with estimated annual excess cost of £2.5 billion in the UK. However, it is an underdiagnosed condition due to lack of knowledge, leaving many untreated cases amenable of interventions. The recommended management includes increased protein intake and progressive resistance exercises. However, our work has shown a link between polypharmacy and sarcopenia and recently recommendations suggest including medication review and deprescribing in managing people with sarcopenia.

The aims of this PhD are to: 1) systematically review the evidence for reducing polypharmacy through deprescribing and medicine optimisation among people with sarcopenia, 2) determine the prevalence of sarcopenia among community dwelling older people using the SARC-F questionnaire in primary care, 3) conduct a feasibility trial to manage people with sarcopenia with a multimodal intervention including nutrition, exercise, and medication review, 4) explore the views of healthcare professional and older patients about implementing the screening and the intervention in primary care including the facilitators and barriers.

Methods

1)systematic review, 2) observational study to determine prevalence, 3) feasibility trial in 8-10 primary care practices, and 4) process evaluation using qualitative research with patients and clinician. Patient and public involvement will be embedded throughout the PhD project.

Potential impact

Despite the calls to screen for sarcopenia in primary care, this has not been the case. To our knowledge this is the first study that assess the feasibility of screening and managing people with or at risk of sarcopenia in a primary care setting. The research will provide evidence on how best to screen for sarcopenia and whether a multimodal intervention combing nutrition and exercise with medication review is beneficial to patients. Increasing awareness and identification of older people who have or at high-risk of sarcopenia means improve care of these underserved group and reduce undesirable consequences for the patient themselves but also to health and social care services. Our research has identified the strong association between polypharmacy and sarcopenia and we argue that medication review with the aim of reducing polypharmacy should be part of routine management of the condition. Following this PhD, we would seek funding to evaluate the effects of this intervention in a fully powered RCT. The evidence from the PhD and the RCT would inform the global guidelines for management of sarcopenia.

Training and development

Formal training:

The training plan will be individualised to the PhD candidate and a training and development analysis will be carried out in the first month and reviewed regularly. The candidate will have access to a wide range of training and development opportunities offered by the University of Southampton and the NIHR infrastructure (ARC Wessex, SPCR schools in Southampton and Exeter). Training will be directed towards helping the candidate to develop the necessary research skills to deliver the PhD project but also to progress as an independent researcher.

The formal taught postgraduate research training programme at the University of Southampton includes epidemiology, qualitative research, statistics, research governance and study design. In addition, transferable skills courses are offered including Good Clinical Practice, time management, leadership, grant writing, and presentation skills. The Fellow will also be able to access free on-line masterclasses on systematic reviews and meta-analysis, research governance, ethics, patient and public involvement and engagement, developed by leaders in the SPCR. The applicant will also have access to Grant writing and fellowship workshops delivered by the Research Support Services delivered by the University of Southampton to support their research careers and postdoctoral plans.

Informal training:

The student will also be offered formal and informal mentorship from senior academics at the University of Southampton. Opportunities to develop skills in presentation and scientific writing will be available to the candidate through attending and disseminating research at events and conferences as well as leading and collaborating on writing publications as part of a bigger research group..

PPIE:

The research study has been developed with two core PPI members who are part of the research team and the project was presented at the Southampton School of Primary Care Research SPCR PPI Forum which was led by a PPI contributor and the department PPI officers. Six PPI members attended the Forum (five were older people aged above 65 years, three male and two female). They all thought the research is needed and can benefit not only patients who have sarcopenia but also older people who have multiple long term conditions in general. The PPI members made some suggestions that have been included in the design, for example they suggested to complete the screening for risk of sarcopenia with patients over the phone by a healthcare professional, include well-being and engagement in physical activities measures. The two PPI members will continue to work with the supervisory team and the PhD candidate to advise on research design and delivery. The student will also benefit from working with our well established PPI team, including our PPI core contributors at the University of Southampton Primary Care Research Centre, and the Wessex Public Involvement Network.

Project title

Understanding complexity in self-management of acute and chronic stressors: Optimising a digital distress intervention for primary care

Proposed supervisory team:

- Dr Adam Geraghty (Psychologist)
- Dr Hannah Bowers (Psychologist)

Project contact: Dr Adam Geraghty**,** A.W.Geraghty@soton.ac.uk

Project description

In this PhD project, the student will take an element of a longstanding programme of work on distress in primary care and produce a series of studies. These studies will substantially contribute to our understanding of optimal digital support.

Distress is common in primary care, with prevalence estimated at between 37% and 44% of people who present. Russ et al. have demonstrated that distress even at lower levels can significantly impact morbidity and mortality. With prevalence up to 44%, a critical role for the primary care practitioner is to determine appropriate care for those experiencing distress, avoiding overmedicalisation and overtreatment whilst rapidly identifying psychological disorder and treating accordingly. In the UK, numerous societal factors continue to impact public mental health. With concerns over limited care options and increasing antidepressant prescriptions, there is a critical need to develop novel approaches to ensure effective care for people experiencing the full range of mental health issues brought to primary care practitioners.

Whilst a range of treatments exist for common mental health problems such as depressive and anxiety disorders, support for severe distress (as distinct from psychopathology) is limited. Those experiencing severe affective symptoms in the context of challenging life circumstances may benefit from different interventions and approaches to those with symptoms driven by psychopathology. Our team has developed a digital resource (Healthy Paths through Stress, 'Healthy Paths') to support the management of distress/stress. Whilst this resource has been through extensive person-based evaluation, further evidence-based optimisation may increase its effectiveness with a broader range of those who use primary care. Beyond the optimisation of a digital distress intervention, the proposed research will contribute to the understanding of how best to support the self-management of severe emotional distress and how diverse groups manage distress.

There is some flexibility in the studies proposed, the following are suggested at this point.

- Study one: Systematic review of models and intervention to manage acute stress (cancer, illness, disasters, hospice interventions)

- Study two: Qualitative study of a socioeconomically diverse samples' experiences of managing acute and chronic stressors

- Study three: Developing programme theory/logical models and optimisation strategies for an existing digital distress management programme (Healthy Paths)
- Study four: Longitudinal qualitative study, with people using optimised distress intervention. Complexity informed analysis.

Training and development

Formal training:

Bespoke training will be provided depending upon the learning needs and experience of the successful candidate. We anticipate specific training in qualitative methods, the Person-Based Approach to intervention development and optimisation.

The formal taught postgraduate research training programme at the University of Southampton includes epidemiology, statistics, research governance and study design. In addition, transferable skills courses are offered including Good Clinical Practice, time management, leadership, grant writing, and presentation skills. The candidate on-line masterclasses on systematic reviews and meta-analysis, research governance, ethics, patient and public involvement and engagement, developed by leaders in the SPCR.

Informal training:

The candidate will have regular meetings with the supervisory team and will also become part of the larger Primary Care Behavioural Science group, within the Primary Care Research Centre at the University of Southampton. The Behavioural Science group is a large group of researchers with a specific interest in applications of behavioural science within primary care. It meets regularly to support members with delivery of world-leading behavioural science.

PPIE:

We have an existing diverse PPI panel that the applicant will be to work closely with as the ideas for the studies that form this PhD are finalised. PPI input will be key throughout each of the studies, and the existing team will be ready and available to input.