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| Host department: Southampton |
| Project Title: |
| Developing and evaluating tools to reduce antibiotic use for acute exacerbations of asthma in primary care |
| Prof Nick Francis (Soton) – Academic GP with interest in infections research  Dr Ingrid Muller (Soton) – Health Psychologist with interest in behaviour change interventions  Prof Chris Griffiths (QMUL) – Professor of Primary Care and Co-Director of Asthma UK Centre for Applied Research  Dr Kay Wang (Oxford) – Senior Clinical Research Fellow |
| Potential for cross consortium networking and educational opportunities: |
| This will be a collaboration between two SPCR members – Southampton and QMUL. The student will benefit from the strong links between SPCR members in infections research and with the link to the Asthma UK Centre for Applied Research. In addition, this project fits well with expertise in Southampton, including the Southampton NIHR Biomedical Research Centre (Francis is a member of both the Infections and Respiratory themes put forward in the recently submitted bid for the next BRC round). |
| Project description: |
| Background  Asthma is the most common long-term respiratory condition and is a major cause of morbidity, primary care consultations and emergency hospital admissions.  People with asthma commonly develop chesty coughs and other respiratory symptoms which cause them to consult in primary care. Evidence and guidelines suggest that most people with asthma who experience new or worsening respiratory symptoms have an asthma exacerbation triggered by a viral infections, allergens, exercise, changes in the weather, pollution or other factors, and that antibiotics should not routinely be given. However, antibiotics are commonly prescribed for asthma exacerbations and people with asthma are prescribed many more courses of antibiotics than people who do not have asthma.  Use of antibiotics promotes the development of antimicrobial resistance causing infections that are more difficult to treat. Unnecessary use of antibiotics also wastes resources, can cause unpleasant side effects, can be a distraction leading to underuse of evidence-based interventions, and may cause other adverse effects due to changes in an individual’s microbiome.  The aims of this PhD are to: 1) systematically review the evidence for features of asthma exacerbation predictive of bacterial infection, 2) explore the clinician, patient and environmental factors associated with use antibiotics in asthma, 3) develop an intervention (combining behaviour change approaches and improved diagnostic tools) for clinicians and patients to support the more targeted use of antibiotics in asthma, 4) conduct a feasibility trial to explore barriers and facilitators, and obtain estimates of key feasibility parameters, to inform an adequately powered effectiveness trial of the intervention in primary care.  Methods  1) systematic review, 2) qualitative interview studies of patient, clinician and environmental factors associated with antibiotic use; 3) intervention development using the person-based approach with key stakeholders; 4) feasibility trial in 8-10 primary care practices.  Potential impact  This programme of research will lead to an evidence-based intervention designed to provide more targeted use of antibiotics for people with asthma. This should lead to an overall reduction in use of antibiotics while ensuring that those most likely to benefit are provided with antibiotics in a timely fashion. Following this PhD, we would seek funding to evaluate the effects of this intervention in a fully powered RCT. |

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| Training and development provision by host: |
| *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 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. |
| *Informal training:*  The student will also be offered mentorship from a senior primary care academic. 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. |
| *PPIE:*  Patients with Asthma have reviewed this outline and commented on the need for better information to support decisions about use of antibiotics for people with asthma. If funded, the project will recruit two public contributors with lived experience of asthma to help design the study and interpret and disseminate findings. 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. |