3 Year PhD Studentship available for September 2019

Department: Respiratory Sciences/BRC

Supervisors: Professor Michael Steiner
Dr Neil Greening
Dr Emily Petherick

Eligibility: UK/EU applicants only

Project Title: Using patient electronic health records to understand the interplay between disease severity, symptoms, co-morbidity and long term health outcomes

Project Description:

We have an exciting opportunity for a PhD student to work with a dynamic interdisciplinary team of researchers using data from real-life patients suffering from Chronic Obstructive Pulmonary Disease (COPD). The project would be ideally suited to somebody with an interest and/or has expertise in epidemiology, statistics or ‘Big Data’.

This studentship aims to better understand the how the management of the earliest stages of severe COPD, specifically the time before full diagnosis and the effects the long term health outcomes for patients. This work will result in the better understanding of the impact of the disease when it is first diagnosed and as it progresses, particularly when it is combined with other diseases e.g. diabetes and metabolic syndromes. This will provide insight into the long term clinical outcomes including mortality and health care utilisation.

The student will be supervised by a team of experts in the field and include a Professor of Respiratory Medicine, a NIHR post-doctoral fellow, and a senior lecturer with expertise in epidemiology. The working environment is supportive and includes a wider team of other doctorate and post-doctoral fellows and scientists.

Background

Chronic Obstructive Pulmonary Disease (COPD) is a heterogeneous condition encompassing a wide range of lung pathologies and is known also to be associated with an increased risk of non-respiratory co-morbidities. The work for this studentship aims to increase knowledge of the impact of early disease management in primary care (by GPs) on longer term health outcomes in patients and will identify the prevalence of treatable sub-phenotypes of COPD in the population.

Clinical context

Risk stratification of large, diverse patient populations is crucial for the targeting of novel therapies to eligible sub-populations (for example anti-inflammatory therapies for COPD patients with eosinophilic exacerbations). Strong links with local commissioners and commissioning support units and
established PPI representatives will ensure the information from this research will translate into usable knowledge that changes clinical care and service organisation/commissioning.

Hypothesis

This study will examine whether existing data on patients presenting with COPD can be used to create stratification criteria that will improve patient outcomes and healthcare utilisation in these highly complex patients.

Experimental Methods and Research Plan

There is an existing research collaboration with the University Real World Evidence unit which is comparing risk stratification methodologies based on COPD disease severity with those based on multi-morbidity, in predicting outcomes in COPD patients using data from the Clinical Practice Research Datalink (CPRD).

The studentship will encompass the following 4 aims:

- To determine whether future health risk is more accurately predicted from COPD specific severity or by patterns of associated multimorbidity.
- To determine the prevalence, management and impact of metabolic comorbidities in COPD (metabolic syndrome and diabetes).
- To determine the prevalence of a blood eosinophilia in patients with COPD, to determine the impact of this biomarker on outcomes and to estimate the treatment opportunity in this subgroup of patients based on patterns of drug prescription.
- To determine the prevalence and accuracy of Read coding of breathlessness in primary care and to determine disease associations with this symptom, co-morbidity patterns and impact on health outcomes.

The existing on-going research provides the ideal environment to support this epidemiology based PhD studentship which will also extend and enhance the collaboration to include the analysis of patients presenting to primary care with undifferentiated breathlessness. The student will be working with collaborators Professor Sally Singh and Dr Rachael Evans, experts in lung health and patient rehabilitation and management. The student will also add value to the on-going research by incorporating a validated risk stratification methodology (Johns Hopkins Adjusted Clinical Groups®(ACG) system). ACG is in use by commissioners in Leicestershire and elsewhere enabling identification of patients at risk of adverse health outcomes and provides a critical link between the research findings and their application to patient management.

Funding details:

This project is in competition for a College of Life Sciences (CLS) PhD Studentship. The Studentships are for three years, starting September 2019, and offer tuition fees at UK/EU rates and a Stipend at UK Research Council rates.
Entry requirements:
Applicants are required to hold/or expect to obtain a UK Bachelor Degree 2:1 or better in a relevant subject. The University of Leicester English language requirements apply where applicable.

How to apply:
You should submit your application using our online application system. Apply for a PhD in Infection, Immunity and Inflammation Research/September 2019
In the funding section of the application please indicate you wish to be considered for a LPMI/BRC/RS studentship
In the proposal section please provide the name of the supervisor and project title.
You do not need to submit a proposal but please include a personal statement detailing your interest in this project

Project / Funding Enquiries:  Professor Michael Steiner  ms732@leicester.ac.uk  
Dr Neil Greening  neil.greening@leicester.ac.uk  
Dr Emily Petherick  e.petherick@lboro.ac.uk

Application enquiries to pgradmissions@le.ac.uk