Supporting Appropriate Treatment for Those with Bronchiectasis through the Development and Validation of a User-Friendly Screening Tool.

Bronchiectasis is a long term respiratory condition that shares a similar clinical presentation to several other common respiratory diseases. Prevalence of bronchiectasis may be underestimated with a recognition of an overlap between other conditions, e.g. COPD (Hurst et al, 2015). A UK epidemiological study reported over 36% of patients diagnosed with bronchiectasis had co-existing COPD (Quint et al, 2016). Inaccurate prevalence rates may be driven by difficulties with differential diagnosis or limitations in coding categories but may also mask genuine disease co-existence. The aetiological relationship between conditions may also be unclear with one potentially a pre-disposing factor to the other.

With different disease management strategies and complications (including mortality), it is therefore important to, a) define screening criteria for patients to identify bronchiectasis and b) develop prevalence estimates using the screening tool. The development of a simple screening tool will help alert clinicians to differential or co-existent disease and therefore guide a diagnostic pathway sensitive to relevant conditions. Validation of the tool will be facilitated by access to a national database utilising a variety of machine learning and AI techniques to identify, extract and assess actionable knowledge to facilitate the screening process in this field (Foster at al, 2014).

This PhD project will enable the candidate to work with experienced clinicians and researchers to develop, test and validate a screening tool. This project is a cross-departmental collaboration between the Postgraduate Medical Institute (Dr Carol Kelly, Professor Sally Spencer, Dr Dave Lynes) and the Department of Computer Science (Dr Marcello Trovati) in conjunction with existing external collaborators including Dr Tim Gatheral, Respiratory Consultant Physician, University Hospitals of Morecambe Bay and Dr James Chalmers, Fellow and Respiratory Physician, University of Dundee & Dundee Medical School, and Chair of EMBARC (European Multicentre Bronchiectasis Audit and Research Collaboration).

Bronchiectasis is an area of growing interest in the respiratory community, and the paucity of high quality evidence has highlighted a need for new research which has been prioritised by the EMBARC. This GTA-led project will potentially make an important contribution to this body of evidence by utilising a variety of multidisciplinary approaches, including machine learning, AI, data analytics, as well as quantitative and qualitative analysis. The introduction of such a tool into daily clinical practice will ensure that patients are offered the most appropriate management for their disease and inform future research. This project may be of interest to candidates from a healthcare or computer sciences background.

Informal enquiries may be addressed to Dr Carol Kelly, Head of Department, Applied Health & Social Care at kellyc@edgehill.ac.uk

REFERENCES:


Duties and Responsibilities:

Students will be expected to:

- Successfully undertake an initial programme of accredited research training.
- Undertake a PhD programme of research under the supervision of an appointed supervisory team.
- Enhance the research culture of the Department in which they are located, the Research Institute to which they are attached, and the University by participating in events, conferences and training.
- Successfully complete a programme of teacher training.
- Undertake up to six hours teaching a week or working with the Institute to which they are attached alongside University Departments or external agencies or organizations as directed by their Head of Department/Research Institute Director.

Eligibility:

- Candidates should have, or be expected to obtain, a good undergraduate honours degree level (2:1 or above) and/or a Masters level qualifications in a relevant subject area achieved within the last three to five years. If their most recent qualifications were obtained outside this period and/or they do not possess a Masters level qualification there needs to be convincing evidence that they will be able to make the transition to doctoral study.
- Although it is possible for candidates to apply for the GTA scheme more than once candidates who have applied unsuccessfully on two or more occasions are unlikely to be shortlisted for interview.
- International candidates who require a visa to study in the UK will need to demonstrate that they meet the requirements for a Tier 4 visa and possess appropriate English Language skills (IELTS Level C1/C2 or equivalent).
- Applications are not normally accepted from candidates who already possess a PhD, unless there are compelling reasons for doing so. If a PhD has been obtained in the UK as a Tier 4 (General) Student Visa holder, further sponsorship cannot be offered under the Tier 4 (General) Student Visa category, as this will not meet the academic progression requirements set by the UKVI.

How to apply

Applicants must complete the online application form, attaching one document containing:

- A ‘Research Proposal’ which should not exceed 2,000 words in length
- A full academic curriculum vitae
Selection Criteria:

Selection will be based on the following:

- Your *curriculum vitae*
- The synergy between your qualifications, research experience and declared research interest
- Performance at interview
- Supervisory capacity in the declared area of research
- Previous tutoring/teaching experience and related subject based qualifications
- The strategic and developmental needs of the Faculty

The Recruitment Process

Shortlisted candidates will be invited to interview and asked to give a presentation related to their research proposal. Successful candidates at interview will be put forward to a final selection panel which will make the decision on the award of the studentships. Candidates will not have to attend the final panel.