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| Host department: QMUL |
| Project Title: |
| Development and Implementation of a Systematic Screening Algorithm for Atrial Fibrillation in General Practice |
| Proposed supervisory team: Jianhua Wu – Professor of Biostatistics and Health Data ScienceJohn Robson – Clinical Reader in Primary Care Research & Development, Cardiovascular diseaseChris Gale – Professor of Cardiovascular Medicine |
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| Potential for cross consortium networking and educational opportunities: |
| The project will involve collaboration with multiple institutes and the opportunities for placement.  |
| Project description:Atrial fibrillation (AF) is the most common cardiac arrhythmia encountered in clinical practice, significantly increasing the risk of stroke, heart failure, and other cardiovascular complications. Despite its prevalence, AF often remains undiagnosed, particularly in primary care settings, leading to missed opportunities for early intervention and management. This PhD project aims to develop and implement a systematic screening algorithm for AF tailored for use in general practice.The project will involve the following key phases:Algorithm development: Utilising existing clinical data and machine learning techniques, an advanced algorithm will be developed to identify patients at high risk of AF. The algorithm will incorporate demographic, clinical, and lifestyle factors to provide a comprehensive risk assessment.Validation and optimisation: The algorithm will be validated using a large dataset from primary care records, ensuring its accuracy and reliability. It will be optimised to minimise false positives and negatives, making it a practical tool for general practitioners (GPs).Implementation in General Practice: The validated algorithm will be integrated into the electronic health record (EHR) systems used in selected general practices. This phase will involve close collaboration with GPs to ensure the algorithm's usability and effectiveness in real-world settings.Evaluation of impact: The final phase of the project will assess the algorithm's impact on AF detection rates, patient outcomes, and overall healthcare costs. The evaluation will involve a mixed-methods approach, including quantitative analysis of screening results and qualitative feedback from healthcare providers.By the end of this project, the systematic screening algorithm is expected to enhance early detection of AF in primary care, leading to improved patient outcomes and more efficient use of healthcare resources. This research has the potential to be scaled across broader healthcare systems, addressing a significant gap in cardiovascular disease management.  |

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| Training and development provision by host: |
| Formal training:Bespoke training will be provided to the successful candidate depending on their learning needs and experience. This will include attending training courses on programming and quantitative methods (including statistical techniques and machine learning) both within and outside QMUL. The PhD student will also be encouraged to consider training courses that will benefit their wider development. |
| Informal training: The PhD will be carried out within a supportive multi-disciplinary environment at QMUL including statisticians, and clinical expertise in cardiovascular medicine, general practice, and public health. There are many opportunities to attend seminars and lectures within the Wolfson Institute of Population Health and indeed the wider University. |
| PPIE: The candidate will have the opportunity to consult existing PPI groups at QMUL and develop the project together with PPI members. |