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| Host department: Cambridge |
| Project Title: Why do some people develop cardiovascular disease (CVD) within 15 years of being diagnosed with type 2 diabetes but others do not? Is it possible to predict which patients will develop CVD in order to better target scarce resources? What characteristics should patients and doctors focus on in order to reduce CVD risk most effectively? |
| Proposed supervisory team: |
| Simon Griffin – Professor of General Practice, clinical epidemiology, trials  Dr Amy Ahern – Investigator Scientist MRC Epidemiology Unit Cambridge, behavioural science, weight management  Dr Clare Boothby – Data Scientist, MRC Epidemiology Unit, Cambridge  Stephen Sharp – Senior Statistician, MRC Epidemiology Unit, Cambridge  Dr Hajira Dambha-Miller – NIHR Clinical Lecturer in General Practice, University of Southampton |
| Potential for cross consortium networking and educational opportunities: |
| There is potential for cross-consortium networking. There are existing collaborations on this topic and dataset with Southampton, Leicester and university departments in Denmark and the Netherlands. |
| Project description: |
| Cardiovascular disease (CVD) represents the most significant burden to patients, their carers, the health service and society associated with type 2 diabetes. People with diabetes who are overweight are often encouraged to lose weight as this can reduce blood glucose levels and even lead to remission. However, the long-term effects of weight loss on CVD risk among people with diabetes are unclear. There have been surprisingly few behavioural intervention studies with long-term follow up to measure CVD risk – and from the existing studies, there are no clear answers.  In order to reduce the CVD burden it would help to (1) be able to identify those at greatest risk to better target scarce resources (2) better understand the changes in behaviour associated with lower CVD risk to improve the specificity of overall recommendations (3) clarify which patients benefit from different interventions to increase personalisation of recommendations.  The proposed PhD will be developed with the appointed student and will include analyses addressing the prediction and prevention of CVD in people with type 2 diabetes. The data will be derived from the ADDITION-UK and ADDITION-Plus trial cohorts, which include precise measurements of phenotypic characteristics including diet and physical activity, the ADDITION-Europe trial cohort of over 3000 patients with screen-detected diabetes followed up for over 15 years, and UK medical records databases such as the Clinical Practice Research Datalink which includes over 200,000 people with a diagnosis of type 2 diabetes since 2004.  Examples of projects include (1) updating our earlier systematic review of existing CVD risk scores for people with diabetes before developing and externally validating a new CVD risk score. (2) using regression models to quantify the association between changes in diet and physical activity in the year after diagnosis with 15 year CVD risk (3) modelling the association between changes in weight and risk of heart disease and other diabetes complications during the 15 years after diabetes diagnosis and investigating whether these associations differ among patients with respect to age, blood glucose levels, body mass index and history of heart disease. |
| Training and development provision by host: |
| *Formal training:*  Supported by the supervisory team, the successful candidate would develop a bespoke training plan informed by the learning needs and experience of the successful candidate. This will include attendance at training courses on qualitative and quantitative methods, study design, ethics and governance, involving patients/research participants/the public, dissemination, preparing for life after the PhD etc, both within and outside the University of Cambridge. There are opportunities to participate in modules on the MPhil in Primary Care Research course. The PhD student will also be encouraged to consider training courses that will benefit their wider development as an academic GP. The student will be a member of a Cambridge college. |
| *Informal training:*  The PhD will be carried out within a supportive multi-disciplinary environment that includes social  scientists, behavioural scientists, statisticians, health economists, and clinical expertise in nursing,  general practice, and public health. The wider research programme involves expertise both within the  UK and internationally. There are many opportunities to attend seminars and lectures within the  Primary Care Unit, the MRC Epidemiology Unit, the wider Department, the Clinical School and  indeed the wider University. There are also opportunities for presentation of projects and receipt of feedback at ‘work in progress’ meetings.  The successful candidate would be embedded within a supportive and collaborative research team that holds regular meetings addressing personal and professional development, in which colleagues share strategies and offer mutual support with potential challenges such as time management and career development. There is a peer group for PhD students who also form writing groups with peers and post-docs. As well as supervisors there are post-doc members of the group available to provide advice on scientific and logistical matters. They also have access to methodological support from the Primary Care Unit Methods Hub. Students will also be members of a college which provides a supportive academic environment with particular attention to pastoral care. |
| *PPIE:* The proposal and related studies have been developed with input from experts-by-experience as patients, providers, commissioners and other key stakeholders. They will be available to support the successful candidate with developing the research study, refining research questions, selecting variables and dissemination. |