Dynamic risk prediction of cardiovascular disease using primary care data from New Zealand

Supervisors:- Jessica Barrett and Angela Wood (CEU)

Project description:
Cardiovascular disease is a leading cause of morbidity and mortality worldwide. National guidelines recommend reducing the risk of cardiovascular disease in high and medium-risk individuals through lifestyle advice and the prescription of lipid-lowering medication. But in order to target those at greatest risk of the disease we need to be able to accurately predict the probability an individual will experience a cardiovascular event. Methods for dynamic risk prediction of cardiovascular disease have recently been developed for data from UK primary care records. These methods allow risk predictions to be updated dynamically in response to new information, e.g. new measurements of cardiovascular risk factors such as blood pressure or cholesterol levels. This project would involve adapting the landmarking method used for the UK data to primary care record data from New Zealand using data from the PREDICT cohort. In landmarking we take each age an individual might be at risk and in two stages we first model past repeated measurements of cardiovascular risk factors and then model future risk of an event. The project would involve the use of longitudinal data analysis to model repeated measurements and survival analysis to model the future risk of cardiovascular disease. As well as the primary supervisor Dr Jessica Barrett from the MRC Biostatistics Unit, the successful candidate will collaborate with Dr Angela Wood from the Cardiovascular Epidemiology Unit and Dr Katrina Poppe from the University of Auckland.

References:

Start date: Easter Term (April) or Michaelmas Term (October) 2019

All application queries regarding eligibility should be directed to phdstudy@mrc-bsu.cam.ac.uk

How to Apply: Applications should be made on-line via www.graduate.study.cam.ac.uk/applicant-portal selecting course details MDBI22 PhD in Biostatistics

Deadline for applications: 3rd January 2019