# PhD in Biostatistics, University of Leicester

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http://www.biometricsociety.net/2015/12/11/phd-in-biostatistics-university-of-leicester/

PhD in Biostatistics

Biostatistics Research Group

(http://www2.le.ac.uk/departments/health-sciences/research/biostats)

Department of Health Sciences

(http://www2.le.ac.uk/uol/departments/health-sciences)

University of Leicester

Deadline: 10 January 2016

Start date: October 2016

PhD project within the MRC Integrated Midlands Partnership for Biomedical Training (IMPACT)

Title: “Bayesian evidence synthesis for surrogate endpoints in precision medicine”.

Supervisors: Dr Sylwia Bujkiewicz, Prof John Thompson and Prof Keith Abrams

Informal enquiries are welcome and should be made to Dr Sylwia Bujkiewicz

(http://www2.le.ac.uk/departments/health-sciences/research/biostats/staff-pages/sb309)

on sb309@le.ac.uk

Applications should include an up to date CV, 2 academic references and personal statement detailing applicants research experience, and clear indication which project the application is for.

For more information about the project, eligibility and how to apply follow the link (this biostatistics project within the precision medicine theme):

http://www.birmingham.ac.uk/research/activity/mrc-impact/index.aspx

Project summary:

Biomarkers and surrogate endpoints are important in development of new therapies and for government

agencies in making decisions about whether they should be licensed (e.g. European Medicines Agency) or reimbursed (e.g. National Institute for Health and Care Excellence (NICE) in the UK). In precision medicine, biomarkers, such as genetic factors in oncology, help to identify subgroups of the population in which new therapies are most likely to be effective, or at least more effective. Surrogate endpoints are used in clinical trials to measure the effect of new treatments early in the disease pathway compared to measuring effectiveness on a final clinical outcome, which can require a long follow-up time. In order to ensure that the surrogate endpoints can predict the treatment effect measured on the final endpoint they need to be validated based on a number of clinical trials using meta-analysis methods. Bayesian multivariate meta-analysis methods, developed by the supervisors, provide a flexible approach to modelling correlated outcomes, including surrogate endpoints. The aim of this project is to extend the models used in our papers (Statistics in Medicine 2013; 32:3926-3943, 2015; early view 3 Nov) to model complex association patterns between surrogate and final outcomes, and which may depend on biomarker status. The PhD student will develop and evaluate Bayesian hierarchical meta-analytic methods to model the relationship between the correlated endpoints including information on the biomarker. The project will also explore modelling different sources of evidence (from both randomised and observational studies) by the use of appropriate Bayesian techniques; hierarchical models and informative prior distributions. All methods will be implemented using freely available software for Bayesian hierarchical modelling, e.g. OpenBUGS (or STAN).

Dr Sylwia Bujkiewicz

Lecturer in Biostatistics

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