Quantitative Data Analysis: Multivariable Analysis (emphasis on logistic regression)

- Course date: Thursday 19th February 2015
- Time: 1300
- Duration: 3hours
- Location: Guy’s Tower, Guy’s Hospital
- Booking: Please contact BRCtraining@gstt.nhs.uk or for further queries Claire Dossi (0207 188 7188 ext 51239)

Further information

Who is the course for?

This is an introductory / intermediate course for anyone who has exposure to logistic regression. This includes researchers who may wish to use logistic regression and clinicians who read the medical literature and want to gain a better insight into how results are reported. Use of specific statistical packages will not be covered.

Course description

Multivariable analyses are now ubiquitous within the medical literature, with logistic regression being one of the commonest techniques. Logistic regression quantifies the association between several independent variables (e.g. cholesterol, smoking, exercise, and hypertension) and a single, dichotomous outcome (e.g. heart disease). The growth of statistical packages over the last decade has meant that clinicians can now perform this type of analysis without actually understanding its appropriate usage and limitations, leading potentially to erroneous conclusions.
This course will consider elements of logistic regression at both basic and intermediate levels, and covers:

- Uses of logistic regression and types of model
- The concept of odds ratio, how this differs from relative risk
- Choice of scale for independent variables (e.g. categorical vs. continuous)
- Variable selection procedures (which variables are in the final model and why?)
- Interactions
- Model diagnostics, goodness of fit, discrimination, calibration
- Potential problems: over fitting, shrinkage, multicollinearity
- How to report and interpret the final model

**Learning objectives**

By the end of the session, students should be able to:

- Understand potential applications and limitations of logistic regression
- Interpret results within medical journals
- Identify analyses that may have significant limitations
- NB: This course will not provide a comprehensive guide to model formulation

**About the trainer**

Shane Tibby is a consultant in paediatric intensive care at the Evelina Children’s Hospital. He has a background in clinical research in PICU and an MSc in applied statistics.