Improving Health Worldwide

Design & Analysis of Cluster Randomised and Stepped Wedge Trials

Overview

This course will provide a clear understanding of the design and analysis of cluster randomised trials and stepped wedge trials. These trials are increasingly used to evaluate health and social interventions. They require specific methods of statistical analysis. This course will include the rationale for using these designs, specific design issues, the randomisation process, sample size calculations, analytical methods, ethical considerations, and trial reporting and interpretation. We will include case studies from low-, middle- and high-income settings. Participants will gain practical experience of data analysis using the computer package Stata.

Course objectives

By the end of this course, attendees will be able to critique and apply a range of appropriate design approaches and analytical methods for cluster randomised and stepped wedge trials. The course will cover:

- Key concepts of cluster randomised trials, including measures of between-cluster variation and the rationale for cluster randomisation
- Design of cluster-randomised trials, including stratification and randomisation procedures
- Calculation of sample size
- Analysis of cluster randomised trials using both cluster-level summaries and individual-level data (random effects models and generalised estimating equations)
- Design and analysis of stepped wedge trials
- Ethical considerations, data monitoring and reporting of CRTs

Teaching Methods

Teaching will be through lectures, discussions and practical sessions. There will be a strong emphasis on practical exercises involving participants in the use of Stata to analyse illustrative datasets from a variety of trials. The emphasis is on developing an understanding of the underlying assumptions and principles behind the design and analysis of cluster randomised and stepped wedge trials, on the practical application of the techniques to analyse such trials, and on the correct interpretation of the results. Methods will be illustrated using trials of interventions against infectious and non-infectious diseases, conducted in low, middle and high-income settings.

Entry Requirements

We require students to have experience of the use of Stata for standard epidemiological analyses (e.g. linear, Poisson and logistic regression) and a working knowledge of clinical trials and statistics.

Attendance

This short course is studied on a full-time basis. Lectures and seminars will start at approximately 9.00 and end at approximately 17:00 every day, with an hour for lunch and tea/coffee breaks during the day.

Key information

Course organisers:
Jennifer Thompson and John Bradley

Fees for 2020:
£1260

Contact email:
shortcourses@lshtm.ac.uk

Find out more and apply:
www.lshtm.ac.uk/study/courses/short-courses/cluster-randomised-trials