

Handling missing outcome data in clinical trials

Ian White

MRC Biostatistics Unit in Cambridge, UK

Shaun Seaman

MRC Biostatistics Unit in Cambridge, UK



Abstract

This course aims to provide practising statisticians with the necessary practical skills to handle missing data in their analyses, and in particular to move beyond the use of complete-case analysis and last observation carried forward analysis.

Four sessions will each consist of a lecture followed by a short discussion exercise:

1. An introduction to missing data in randomised trials: popular ways to analyse trials with missing data, focussing on their assumptions; the intention-to-treat principle.
2. Mixed models analysis of incomplete data: how it should be implemented in randomised trials, including issues arising from missing baseline data.
3. Multiple imputation: a brief introduction, and how to use it in randomised trials.
4. Sensitivity analysis to departures from assumptions: principled sensitivity analysis, and a suggestion of how to implement it.

We focus on trials with quantitative outcomes, and also consider binary outcomes but not time-to-event outcomes.

Prerequisites for participants: This course is aimed at the practicing statistician, and should be accessible to anyone with knowledge of statistics to degree level. We do not require any prior knowledge of missing data methods.

***Ian White** is a Programme Leader at the MRC Biostatistics Unit. His research interests focus on handling missing data, noncompliance, and measurement error in the analysis of clinical trials, observational studies, and meta-analysis.*

***Shaun Seaman** is a Senior Statistician at the MRC Biostatistics Unit in Cambridge, UK. Much of his work over the past six years has been on developing methods for handling missing data, including missing data in clinical trials and observational cohort studies.*