

Allowing for missing outcome data in pairwise and network meta-analysis. Workshop presented in the 25th *Cochrane Colloquium*, September 2018, Edinburgh, UK.

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Background

Missing outcome data are common even in carefully designed randomised controlled trials. At the meta-analysis level, it is typical to assume that the missing data problem has been solved at the trial level and conduct an available case analysis. Missing data may compromise the validity of the results from a meta-analysis by introducing bias when data are not missing at random. While the 'Risk of bias' tool can be used to evaluate the risk of incomplete outcome reporting, meta-analysts often use statistical methods to account for missing outcome data that do not propagate imputation uncertainty and treat the imputed data as if they were observed rather than imputed.

Objectives

To understand the theory and practical application of methods used to account for missing outcome data in a meta-analysis.

Description

We present valid methods to estimate meta-analytic treatment effects for dichotomous and continuous outcomes when these are missing for some of the randomised individuals. The approaches make explicit assumptions about how outcomes in the unobserved data and observed data are related. This relationship is not known or informed by the data, but we can use expert opinion or conduct a sensitivity analysis to evaluate how robust the results are as we depart from the missing at random assumption.

The second part of the workshop focuses on the technical application of the presented methodology. We will present several examples of the incorporation of information about missing outcome data in the analysis and explore how the different assumptions impact on the summary estimates. We will run sensitivity analyses for the relationship between the outcome in the unobserved data and that in the observed data to evaluate how robust the results are as we depart from the missing at random assumption. We will use examples involving both dichotomous and continuous outcome data. Throughout the practical application we will be using a new Stata command, called `metamiss2`, which is an extension of `metamiss`. Participants are requested to bring their laptops with Stata 13,14 or 15 installed.