EP16: Missing Values in Clinical Research: Multiple Imputation

Summary Part II (Sections 6 – 9)

Nicole S. Erler

Department of Biostatistics, Erasmus Medical Center

✉ n.erler@erasmusmc.nl

Erasmus MC
University Medical Center Rotterdam

Summary of Part II

6. Know your data
Check the

- ▶ missing data pattern
- ▶ distribution of observed values
- ▶ associations & patterns in the observed values

- ▶ Think about why values are missing. Is MAR reasonable?
- ▶ Is additional information available (auxiliary variables)?

7. Imputation with mice

Specification of

- ▶ imputation method
- ▶ predictor matrix
- ▶ visit sequence

Further tailoring of the imputation using

- ▶ passive imputation
- ▶ post processing

8. Convergence & diagnostics

- ▶ Logged events
- ▶ convergence: traceplots
- ▶ distribution of observed and imputed values (conditional on other variables)

9. Analysis & pooling

- ▶ **mice** functions `with()` and `pool()`
- ▶ alternative pooling using **mitools**
- ▶ additional functions in **mice**: `pool.r.squared()`, `pool.compare()`
- ▶ additional functions in other packages: `miceadds::micombine.chisquare()`, `miceadds::micombine.F()`

10. Additional functions in mice

- ► `complete()`, `mids2spss()`
- ► `ibind()`, `cbind.mids()`