

LETTER TO THE EDITOR

Tutorial in Biostatistics-Longitudinal data analysis (repeated measures) in clinical trials

by P.-S. Albert, *Statistics in Medicine*, 1999, **18**, 1707–1732

From: Harvey Goldstein
Mathematical Sciences
Institute of Education
University of London
20 Bedford Way
London WC1H 0AL, U.K.

In addition to repeated measures models given by Albert, there are a number of other procedures under the heading of random effects models. In the same issue the paper by Omar *et al.* [1] and to some extent that by Frost *et al.* [2] deal with some of these procedures in detail. There are also numerous journal articles, for example, Goldstein *et al.* [3], which generalize the Chi and Reinsel paper which *is* referenced by Albert, and a paper by Goldstein and Rasbash [4] which deals with the discrete response case and generalizes the Breslow and Clayton paper which *is* referenced. There is also the *MLwiN* software package (<http://www.ioe.ac.uk/mlwin/>) which is used extensively in health and other areas of application.

REFERENCES

1. Omar RZ, Wright EM, Turner RM, Thompson SG. Analysing repeated measurements data: a practical comparison of methods. *Statistics in Medicine* 1999; **18**: 1587–1603.
2. Frost C, Clarke R, Beacon H. Use of hierarchical models for meta-analysis-experience in the metabolic ward studies of diet and blood cholesterol. *Statistics in Medicine* 1999; **18**: 1657–1676.
3. Goldstein H, Healy MJR, Rasbash J. Multilevel time series models with applications to repeated measures data. *Statistics in Medicine* 1994; **13**: 1643–1655.
4. Goldstein H, Rasbash J. Improved approximations for multilevel models with binary responses. *Journal of the Royal Statistical Society, Series A* 1996; **159**: 505–513.
Goldstein H. *Multilevel Statistical Models*. Edward Arnold: London, and Wiley: New York, 1995.