An Exponential Mixed Effect Model with Autocorrelation (EMEAR[1]) for Addressing Multiple Sclerosis Clinical Prediction

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Abstract. This article concerns the modelling of a Multiple Sclerosis (MS) pooled data set for prediction purposes. A few proposal are provided in biostatistics (Heitjan, 1991, Albert,1994) to investigate MS course, and are mainly related to MS biological outcomes such as magnetic resonance immaging (MRI) data or serial immonologic data. We focus here on modelling predictions for a clinical outcome such as the Expanded Disability Status Scale (EDSS, Kurtzke 1983). We propose an exponential mixed e.ect model with autocorrelation (EMEAR[1]) which accounts for nonlinearity, unobservable heterogeneity and time serios autocorrelation to describe the disability course of a placebo patient. Last, we generate patients from di.e rent EMEAR(1) models to evaluate the impact of randomness on how a patient enter a trial as well as the intensity of progression in the disability level.

The complete report is available upon request to the above mentioned address or via EMail hauschild@slcmsr.org