

Statistical Appendix

Let X_{szdwm} represent the CRP value of subject s at observation time z on day d within week w during month m . Our five level hierarchical model can then be described as follows.

At the first level of the hierarchical model, we assume that CRP values within each individual follow a normal density within a given day, such that

$$X_{sz} \sim N(\mu_{sz}, \sigma_{sz}^2) ,$$

where μ_{sz} represents the overall mean of subject s depending on covariates z , and σ_{sz}^2 represents subject-to-subject variability after accounting for variance explained by the covariates.

In turn, since covariates ASA, BMI and sex entered into our final model,

$$\mu_{sz} = \alpha_s + \beta_{ASA} \times ASA_s + \beta_{BMI} \times BMI_s + \beta_{sex} \times sex_s$$

where ASA_s , BMI_s and sex_s are the subject specific ASA, BMI and sex variables.

At the second level of our hierarchical model, we have

$$X_{szd} \sim N(\mu_{szd}, \sigma_{szd}^2) ,$$

where μ_{szd} represents the mean of subject s on day d , and σ_{szd}^2 represents the variance within subjects on day d .

At the third level of our hierarchical model, we have

$$X_{szdw} \sim N(\mu_{szdw}, \sigma_{szdw}^2) ,$$

where μ_{szdw} represents the mean of subject s within week w , and σ_{szdw}^2 represents the week-to-week variance within subjects.

At the fourth level of our model, we have

$$X_{szdwm} \sim N(\mu_{szdwm}, \sigma_{szdwm}^2) ,$$

where μ_{szdwm} represents the mean of subject s within month m , and σ_{szdwm}^2 represents the month-to-month within subject variance.

Finally, our model is rounded out by assuming low-information prior densities across all parameters. In particular, α_s and all regression parameters β

followed normal densities with zero means and large variances, and standard deviation parameters were uniformly distributed across a range that included all plausible values. We also ran a simpler model without regression covariates ASA, BMI and sex, and a somewhat more complex model that added a regression component to explain subject-to-subject differences in variance. This latter model also included ASA, BMI and sex as covariates.