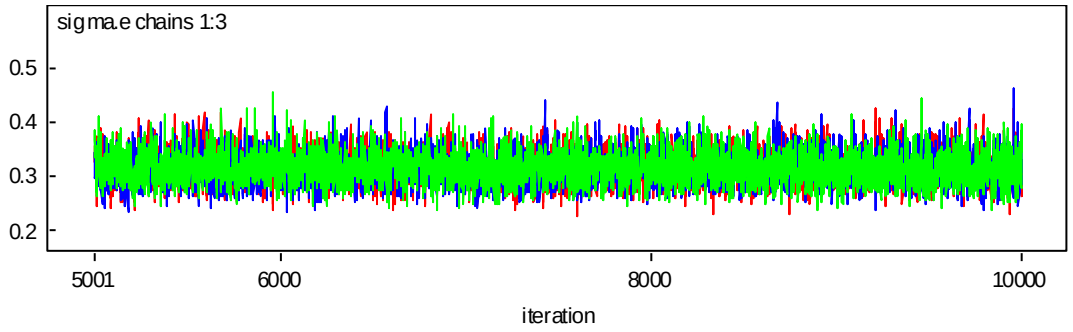
Supplemental Digital Content 2

Convergence diagnostics for the adjusted model for anesthesiologists

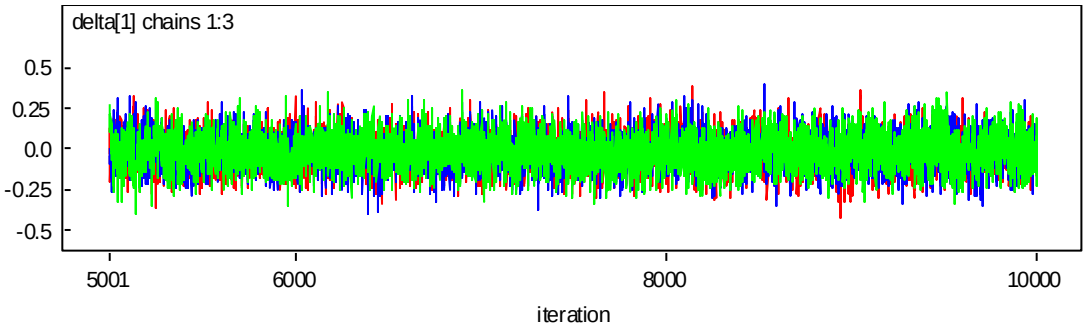
History Plots (Time Series)

To represent the extreme regions of the parameter space, three parallel chains of equal lengths (5,000 iterations) with disperse initial values were used in WinBUGS (Medical Research Council, Biostatistics Unit, UK) analyses. These three chains can be seen in red, blue and green colors in the following history plots. The more overlap among the three chain results represents the better convergence.

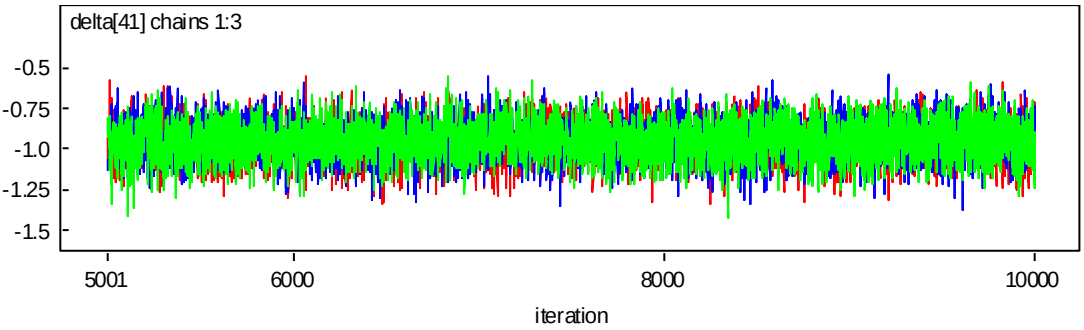
Sigma.e (σ^2) represents the between-anesthesiologist variance of the probability of prolonged time to extubation.



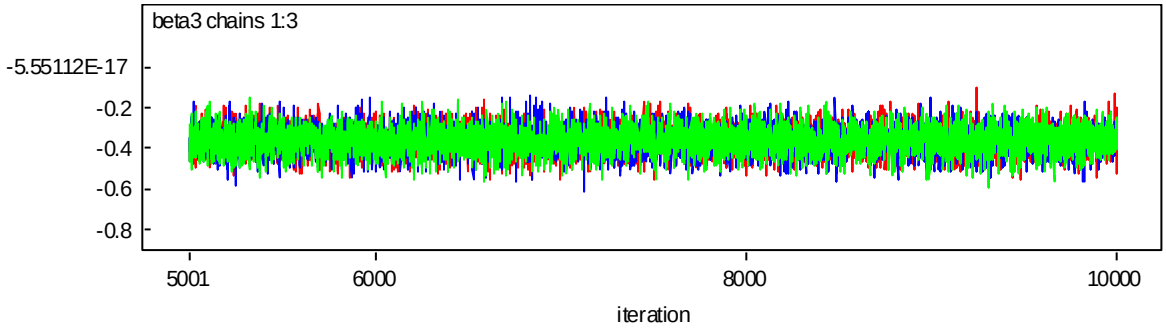
$Delta_1$ represents the random anesthesiologist effect for an anesthesiologist who was not outlier based on any analyses.



$Delta_{41}$ represents the random anesthesiologist effect for anesthesiologist #35 who was an outlier with decisive evidence for adjusted and unadjusted models (see Table 2).

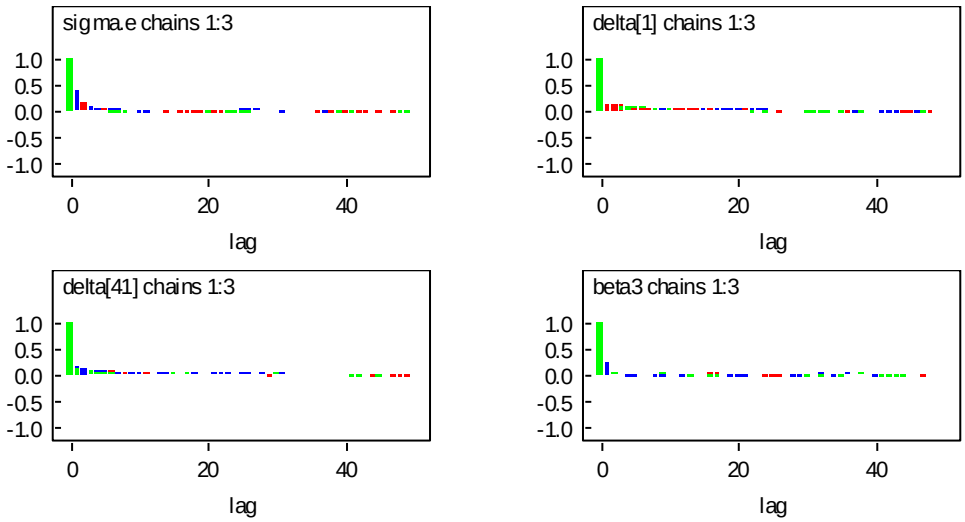


Beta$_3$ (β_{Prone}), the coefficient for the independent covariate whether the patient's positioning is prone.



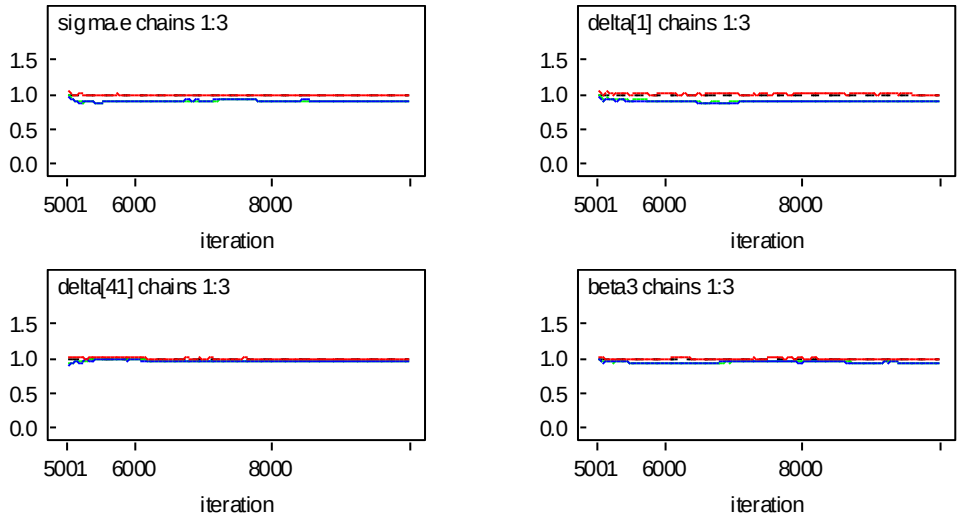
Autocorrelation Function

The autocorrelation function measures the autocorrelations between the draws of the Markov chain. When the model converge, we expect to observe small autocorrelations.



Brooks, Gelman, Rubin diagnostics plots

The between and within sample variabilities for three initial chains are represented in these plots. The green line represents the pooled posterior variance, the blue line represents the average within-sample variance, the red line is their ratio. When three disperse chains converge, the red line is expected to be around 1 and green and blue lines to stabilize.



Kernel Density

On the kernel density plots, combining values from all three chains, a single estimate of the posterior distribution is calculated and plotted.