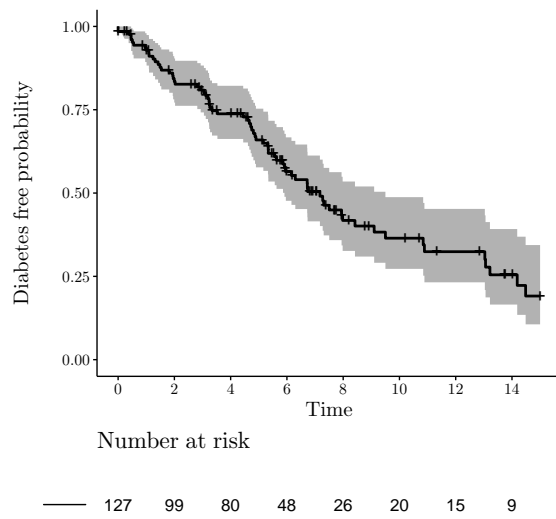
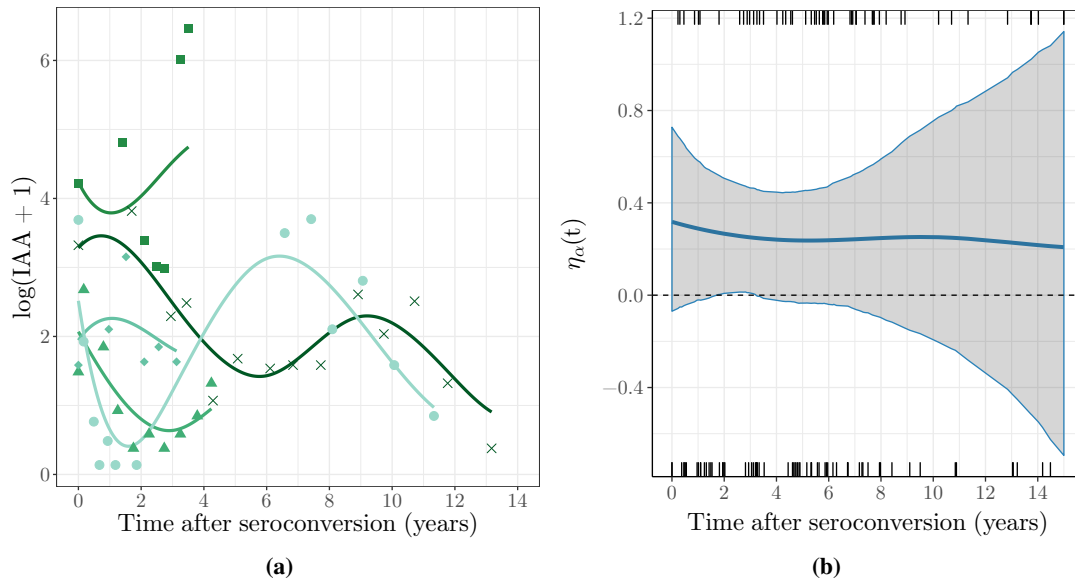


Supplementary Material for Flexible Bayesian additive joint models with an application to type 1 diabetes research

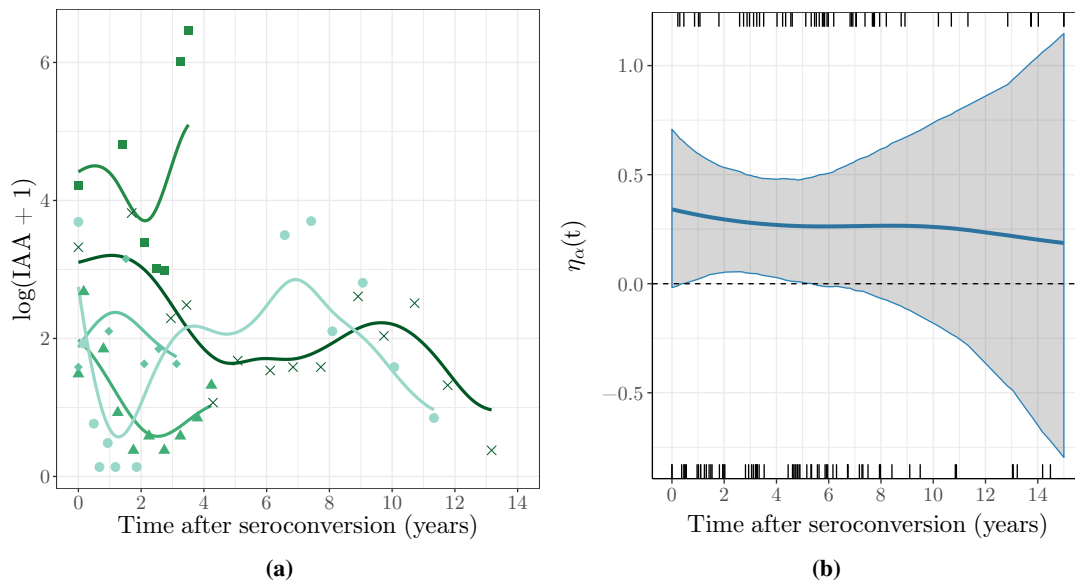
Meike Köhler, Nikolaus Umlauf, Andreas Beyerlein, Christiane Winkler, Anette-Gabriele
Ziegler, Sonja Greven



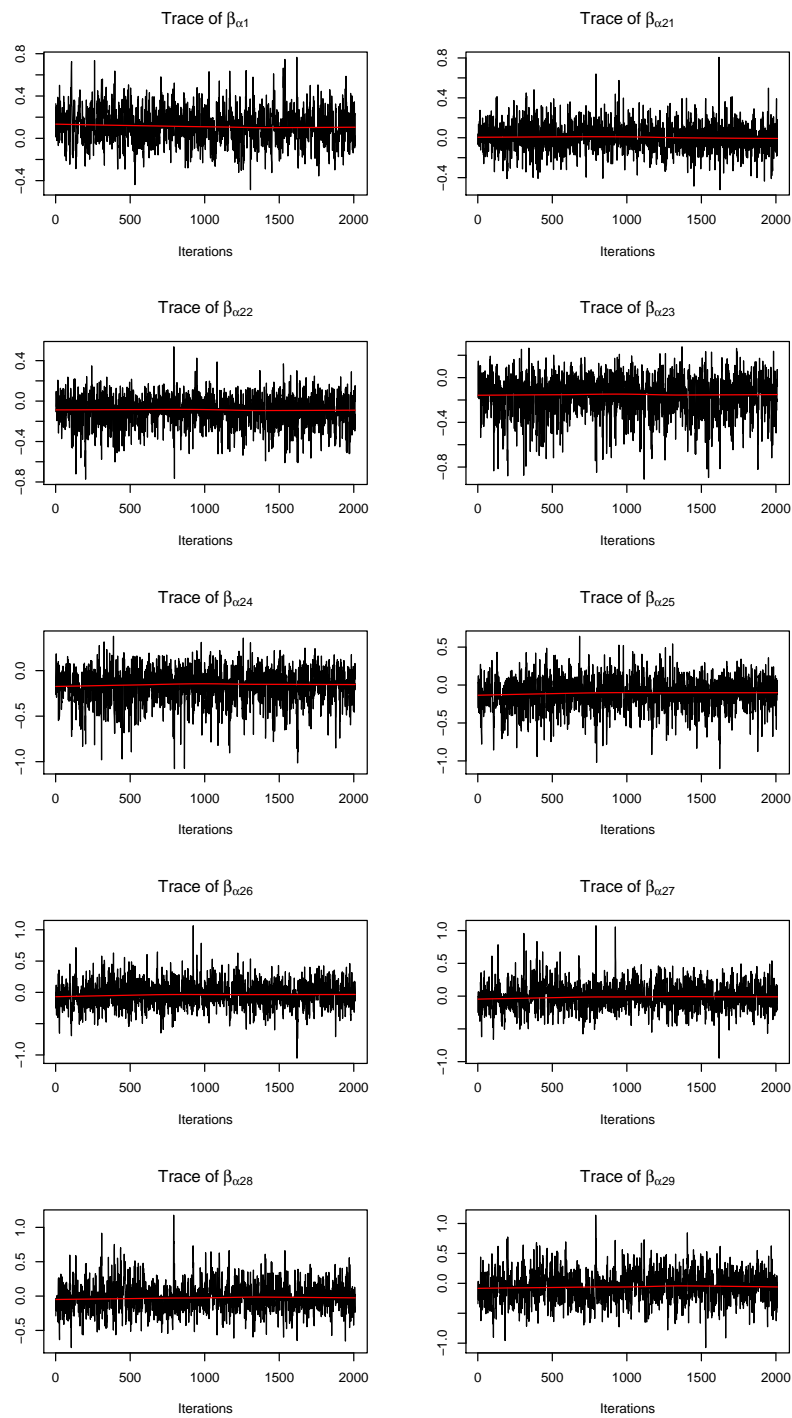
WebFigure S1 Kaplan-Meier diabetes free probability estimates for the BABYDIAB/BABYDIET data and number of subjects at risk per timepoint.



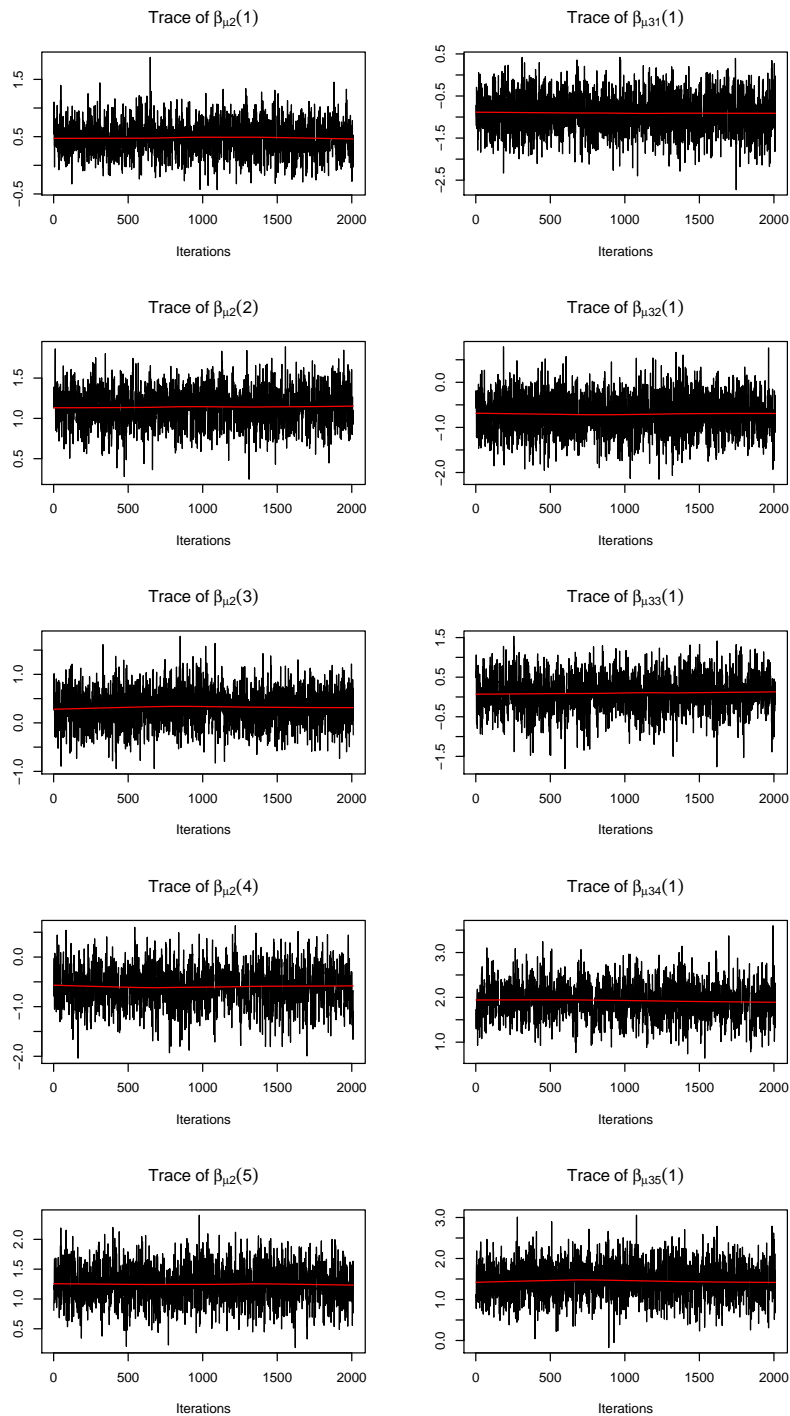
WebFigure S2 Results from the sensitivity analysis for the T1D data using 12 (i.e. 4 internal) knots for both the overall mean and the functional random intercepts in the longitudinal submodel; (a) Observed values (points) and estimated trajectories (lines) of the longitudinal marker values of $\log(\text{IAA} + 1)$ for five randomly selected subjects; (b) Estimated posterior mean of $\eta_\alpha(t)$ with 95% pointwise credibility bands (shaded area), observed event times (rugs bottom) and censoring times (rugs top).



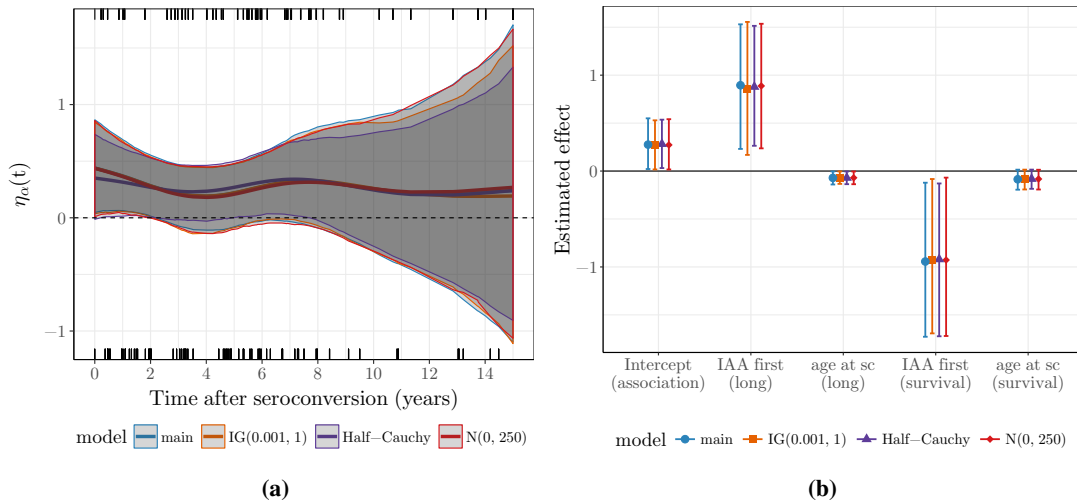
WebFigure S3 Results from the sensitivity analysis for the T1D data using 20 (i.e. 8 internal) knots for both the overall mean and the functional random intercepts in the longitudinal submodel and 10 (i.e. 2 internal knots) in the survival submodel; (a) Observed values (points) and estimated trajectories (lines) of the longitudinal marker values of $\log(IAA + 1)$ for five randomly selected subjects; (b) Estimated posterior mean of $\eta_\alpha(t)$ with 95% pointwise credibility bands (shaded area), observed event times (rugs bottom) and censoring times (rugs top), and number of subjects at risk per time point (bottom).



WebFigure S4 Traceplots of the posterior samples for the intercept $\beta_{\alpha 1}$ and the coefficient vector $\beta_{\alpha 1}$ in $\eta_{\alpha}(t)$



WebFigure S5 Traceplots of the posterior samples for (left) the random intercepts $\beta_{\mu 2}(i)$ of subjects $i = 1, \dots, 5$, and (right) the coefficient vector $\beta_{\mu 3}(t, i)$ for subject $i = 1$ in $\eta_{\mu}(t)$



WebFigure S6 Results from the sensitivity analysis for the T1D data. Estimated effects from model fits based on (i) the main model as presented in the Application section, (ii) $IG(0.001, 1)$ as prior distribution for the variance parameters, (iii) a Half-Cauchy distribution for the variance parameters and (iv) $N(0, 50^2)$ as prior for the parametric terms; (a) Estimated posterior mean of $\eta_\alpha(t)$ with 95% pointwise credibility bands (shaded area), observed event times (rugs bottom) and censoring times (rugs top); (b) linear effect estimates from the survival and longitudinal submodel; *association* stands for effects in η_α , *long* for the longitudinal submodel and *sc* indicates seroconversion.