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5 **Supplementary material: Full epilepsy example results**  
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| Outcome                    | Covariate              | Model | Parameter Estimate (s.e.) |                      |                      |        | Model | Parameter Estimate (s.e.) |                      |                   |                      |        |
|----------------------------|------------------------|-------|---------------------------|----------------------|----------------------|--------|-------|---------------------------|----------------------|-------------------|----------------------|--------|
|                            |                        |       | $B_{drug}$                | $\beta_{cov}$        | $\beta_T$            | $\tau$ |       | $B_{drug}$                | $\beta_{cov}$        | $\beta_W$         | $\beta_A$            | $\tau$ |
| Time to 12 month remission | Age at randomisation   | (1)   | 0.199<br>(0.129)          | 0.008<br>(0.003)     | -0.011***<br>(0.004) | 0.004  | (3)   | 0.269*<br>(0.158)         | 0.006<br>(0.004)     | -0.007<br>(0.006) | -0.013***<br>(0.005) | 0.004  |
|                            |                        | (2)   | 0.199<br>(0.129)          | 0.008**<br>(0.003)   | -0.011***<br>(0.004) |        | (4)   | 0.269*<br>(0.158)         | 0.006<br>(0.004)     | -0.007<br>(0.006) | -0.013***<br>(0.005) |        |
|                            |                        | (1)   | -0.035<br>(0.113)         | -0.238**<br>(0.110)  | -0.128<br>(0.147)    |        | (3)   | 0.168<br>(0.197)          | -0.287**<br>(0.118)  | -0.026<br>(0.168) | -0.467<br>(0.307)    |        |
|                            | Epilepsy type          | (2)   | -0.039<br>(0.132)         | -0.256**<br>(0.113)  | -0.090<br>(0.156)    | 0.136  | (4)   | 0.186<br>(0.239)          | -0.287**<br>(0.118)  | -0.025<br>(0.168) | -0.479<br>(0.376)    | 0.106  |
|                            |                        | (1)   | -0.037<br>(0.121)         | -0.166***<br>(0.040) | -0.025<br>(0.056)    |        | (3)   | 0.112<br>(0.245)          | -0.171***<br>(0.041) | -0.014<br>(0.058) | -0.100<br>(0.122)    |        |
|                            | Log number of seizures | (2)   | -0.030<br>(0.131)         | -0.168***<br>(0.040) | -0.020<br>(0.057)    | 0.104  | (4)   | 0.134<br>(0.285)          | -0.171***<br>(0.041) | -0.013<br>(0.058) | -0.105<br>(0.142)    | 0.096  |

N.B. \* for P-value< 0.1, \*\* for P-value< 0.05 and \*\*\* for P-value<0.01