

# Errata: Estimating the error in equivalent dose values obtained from SAR

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## Errata

In the paper by Berger (2010) there are some typographical/transcription errors in some of the equations, all but one error relating to the saturating-exponential (E) model. Only one of these errors (that in the matrix component  $I_{aa}$  concerning the E model) occurred also in the author's software and led to some incorrect error estimates for some of the  $D_E$  values derived from the E-model data sets, but had no effect on the computed  $D_E$  values and on the best-fit dose-response curves (DRC) for the E model.

In equation 12 of Berger (2010),

$$\Delta A = ([WU]^t[WU])^{-1}([WU]^t[WY^*])$$

for the iterative calculation of the best-fit parameters, the matrix  $W$  should be replaced by  $\sqrt{W}$ . In the immediately subsequent equation for  $wy^*$ , brackets were inadvertently omitted during transcription. The correct equation is

$$wy^* = [y_i - a(1 - e^{-bx_i})]\sqrt{w_i}$$

In the subsequent subsection "5.2 Error in  $D_E$ ", the equations for the matrix components  $I_{aa}$ ,  $I_{bb}$  and  $I_{ab}$  are incorrect. Certain parameters were inadvertently omitted during transcription. The correct expressions are as follows:

$$\begin{aligned} I_{aa} &= \sum_i w_i (1 - e^{-bx_i})^2 \\ I_{bb} &= \sum_i w_i (ax_i e^{-bx_i})^2 \\ I_{ab} = I_{ba} &= \sum_i w_i f_i x_i e^{-bx_i} \end{aligned}$$

Finally, at the end of the first paragraph in the subsection "6.1 Regression to obtain a, b, c" for the E+L model, the stated matrices  $WU$  and  $WY^*$  should be replaced by  $\sqrt{W}U$  and  $\sqrt{W}Y^*$ .

The consequence of the coding error in the equation for  $I_{aa}$  (used in the calculation of errors in the  $D_E$  values shown in the paper) is as follows. In Table 1,

the last two  $D_E$  values in the last column should read  $0.698 \pm 0.062$  (not  $\pm 0.058$ ), and  $28.48 \pm 0.69$  (not  $\pm 0.68$ ). In Table 3, the only changes (all in the last column) are:  $2104 \pm 255$  (not  $\pm 128$ ), and  $1417 \pm 668$  (not  $\pm 148$ ). These changes put the author's error estimates (for the E model) in Table 3 closer to those from Duller's (2007) 'curve-fitting' error estimates, and strengthen one of Berger's (2010) conclusions: that the two error-estimation schemes (Berger's and Duller's) generally produce no significantly different error estimates.

## References

- Berger, G.W. (2010) Estimating the error in equivalent dose values obtained from SAR. *Ancient TL* **28**, 55-66.
- Duller, G.A.T. (2007) Assessing the error on equivalent dose estimates derived from single aliquot regenerative dose measurements. *Ancient TL* **25**, 15-24.

