Supplementary material for Wennberg B. & Lax I. The impact of fractionation in SBRT: Analysis with the linear quadratic model and the universal survival curve model, *Acta Oncologica*, 2013;52:902–909.

Appendix

In the sensitivity analysis of the resulting isoeffect curves, the parameter values of D_0, $\bar{n}$, a and d_T used in the USC model, are given in Table IIa for normal tissue ($\alpha/\beta = 3$ Gy) and Table IIb for tumour ($\alpha/\beta = 10$ Gy).

In Figure 6a the cell survival curves calculated with the USC model (LQ for doses up to d_T and SHMT for higher doses) are shown for normal tissue with a constant value of D_0 equal to 1.0 Gy and with values of $\bar{n}$ chosen so as d_T equals 4.0 Gy, 5.8 Gy (same as used in Figure 3) and 10 Gy. The α values were calculated from D_0, $\bar{n}$ and α/β according to Wennberg et al. [8]. Figure 6b shows the corresponding cell survival curves for normal tissue with a constant value of $\bar{n}$ equal to 10 and with values of D_0 chosen so as d_T equals 4.0 Gy, 5.8 Gy and 10 Gy. Figure 6c shows the resulting isoeffect curves calculated with the USC model. For comparison, also the isoeffect curve for the LQ model is shown. Corresponding cell survival curves for the USC model in Figure 6a and b with the same value of d_T results in identical isoeffect curves, entirely dependent on the value of d_T. However, the survival fraction for the corresponding

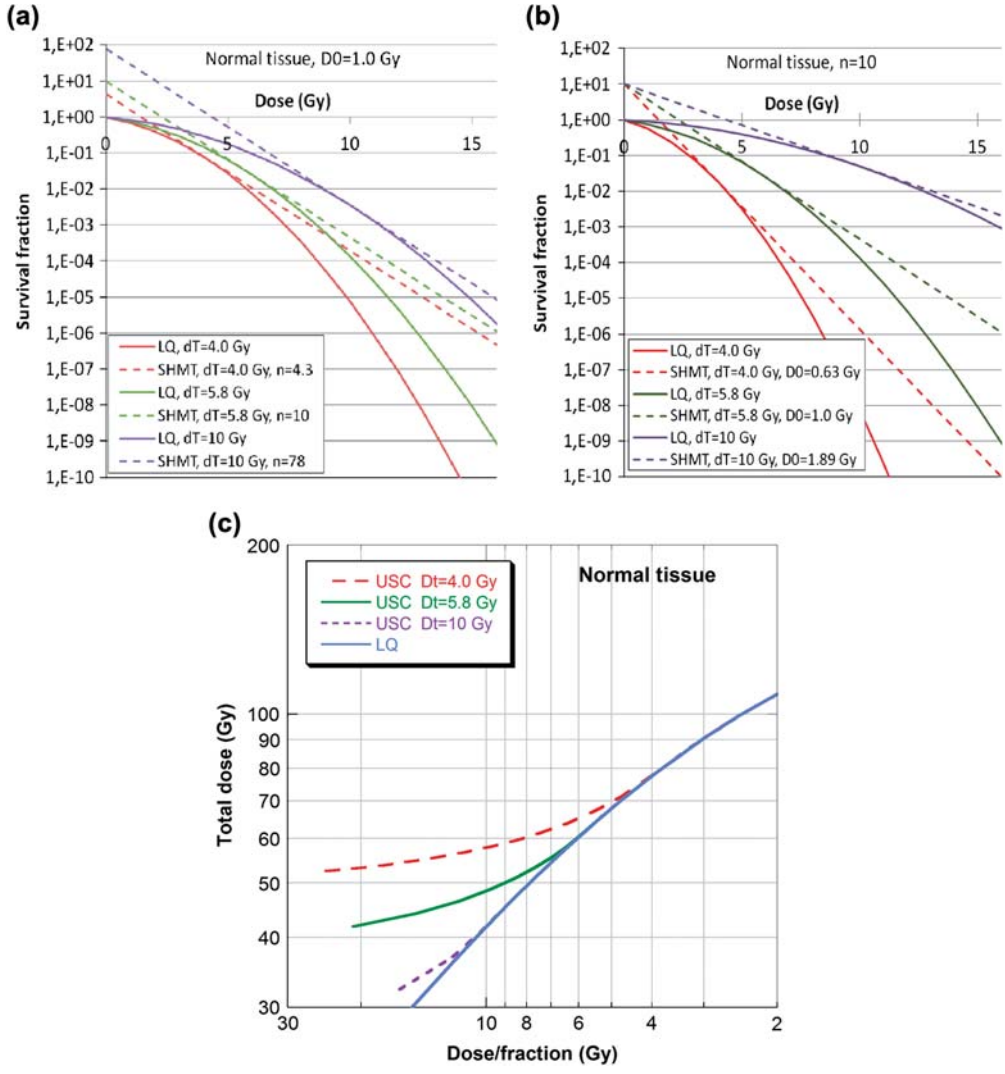

Figure 6. a and b. Cell survival curves for normal tissue given by the USC model (LQ below d_T and SHMT above d_T). The parameter values for the curves are given in Table IIa. For typographical reasons n is denoted by n in the figure. c. Isoeffect curves calculated for normal tissue with parameter values given in Table IIa.

Table IIa. Parameter values used in the USC model for normal tissue ($\alpha/\beta = 3$ Gy*).

$\bar{n}$	D_0 (Gy)	d_T (Gy)	α (Gy^{-1})
4.3	1.0	4.0	0.272
10	1.0	5.8	0.206*
78	1.0	10	0.130
10	0.63	4.0	0.433
10	1.0	5.8	0.206*
10	1.89	10	0.069

*Parameter values used in the LQ-model.

Table IIb. Parameter values used in the USC model for tumour ($\alpha/\beta = 10$ Gy*).

$\bar{n}$	D_0 (Gy)	d_T (Gy)	α (Gy^{-1})
2.4	1.25	4.0	0.410
4.5	1.25	6.6	0.345*
14.4	1.25	10	0.260
4.5	0.59	4.0	0.940
4.5	1.25	6.6	0.345*
4.5	2.22	10	0.150

*Parameter values used in the LQ-model.

curves with the same value of d_T in Figure 6a and b is quite different. This can be understood from the very steep cell survival curve for d_T equal to 4 Gy in Figure 6b, compared to the corresponding curve in Figure 6a.

The results of the sensitivity analysis for tumour are shown in Figure 7a, b and c. In Figure 7a, the cell survival curves for a constant $D_0 = 1.25$ Gy and in Figure 7b for a constant $\bar{n}$. The resulting isoeffect curves are shown in Figure 7c.

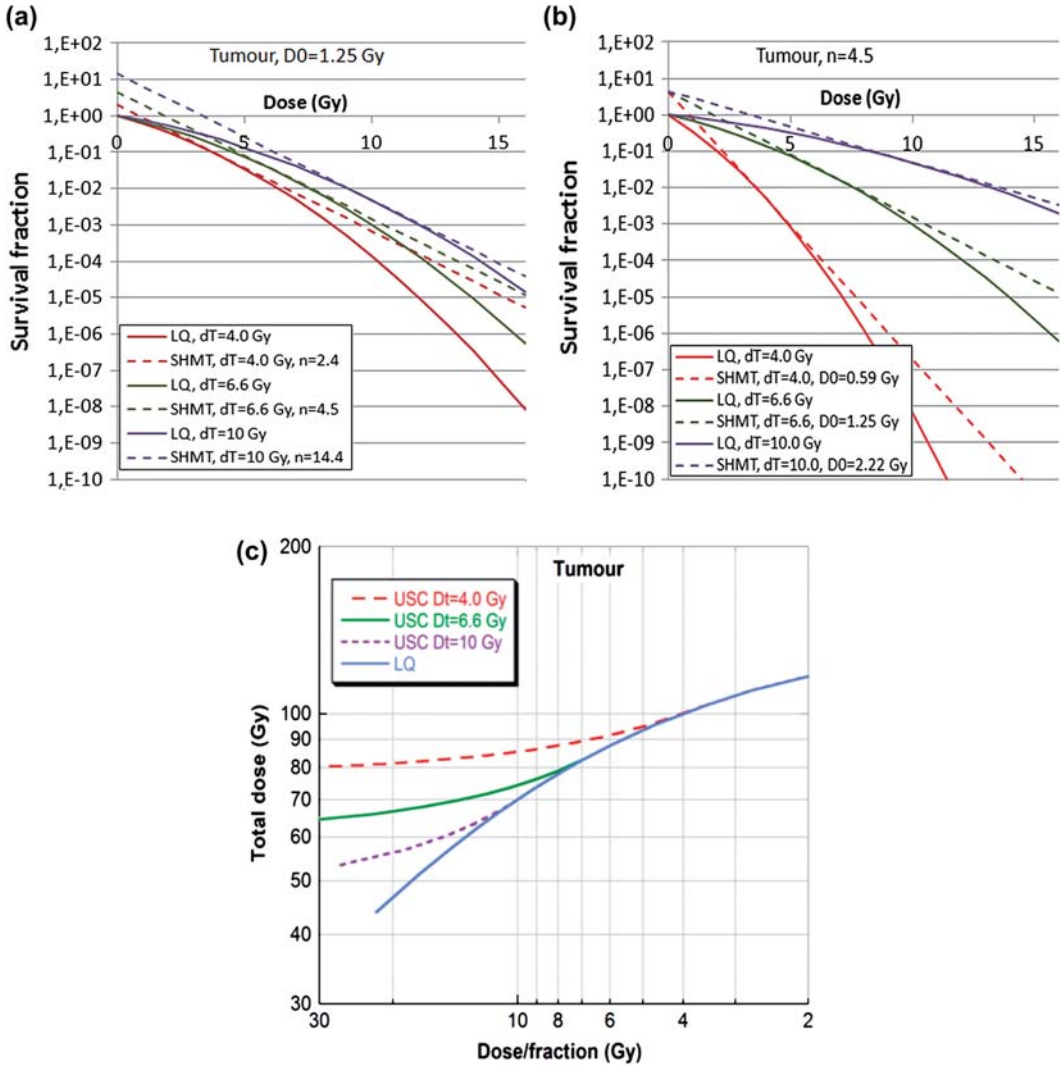

Figure 7. a and b. Cell survival curves for tumour given by the USC model (LQ below d_T and SHMT above d_T). The parameter values for the curves are given in Table IIb. For typographical reasons *n* is denoted by n in the figure. c. Isoeffect curves calculated for normal tissue with parameter values given in Table IIb.