Table 1A: Simulated rejection probabilities for noninferiority testing under three event-rate settings with 3 years of accrual followed by 3 years of follow-up using proportional hazards (Cox) and RMST methods with **τ=5**

Noninferiority designs										
NI Margin		Sample size per arm	Simulated powers				Simulated levels			
HR	RMST (years)		5-yr surv (Exp arm)	5-yr surv (contr arm)	RMST* **(τ=5)**	Proportional Hazards **	5-yr surv (Exp arm)	5-yr surv (contr arm)	RMST* **(τ=5)**	Proportional Hazards**
	Low event-rate setting: 90% 3-year survival on the best arm(s)									
2	.37	250	84%	84%	**.956**	**.834**	70%	84%	**.0260**	**.0258**
1.75	.28	450	84%	84%	**.964**	**.889**	74%	84%	**.0261**	**.0258**
1.5	.19	1000	84%	84%	**.967**	**.932**	77%	84%	**.0262**	**.0262**
1.25	.10	3750	84%	84%	**.961**	**.957**	80%	84%	**.0249**	**.0246**
	Moderate event-rate setting: 60% 3-year survival on the best arm(s)									
2	.96	75	43%	43%	**.913**	**.863**	18%	43%	**.0237**	**.0253**
1.75	.77	125	43%	43%	**.925**	**.892**	23%	43%	**.0242**	**.0255**
1.5	.54	250	43%	43%	**.925**	**.907**	28%	43%	**.0245**	**.0256**
1.25	.29	1000	43%	43%	**.951**	**.953**	35%	43%	**.0251**	**.0253**
	High event-rate setting: 20% 3-year survival on the best arm(s)***									
2	.81	50	7%	7%	**.787**	**.900**	0.5%	7%	**.0292**	**.0249**
1.75	.68	75	7%	7%	**.806**	**.897**	1%	7%	**.0280**	**.0246**
1.5	.52	150	7%	7%	**.854**	**.913**	2%	7%	**.0265**	**.0250**
1.25	.30	450	7%	7%	**.853**	**.888**	4%	7%	**.0256**	**.0251**

* RMST analysis with **τ=5** performed after 3 years of accrual followed by 3 years of follow-up (6 years after study activation)

** Proportional hazards analysis performed after 3 years of accrual followed by 3 years of follow-up (6 years after study activation)

*** In trial replications where the minimum of the longest observed times on each arm was less than 5 years **τ** was set to the minimum of the longest observed times on the two arms **(**Tian et al.[31]**)**

Table 2A: Simulated rejection probabilities for superiority testing under three event-rate settings with 3 years of accrual followed by 3 years of follow-up using proportional hazards (Cox) and RMST methods with **τ=5**

Superiority designs										
Target effect		Sample size per arm	Simulated powers				Simulated levels			
HR	RMST (years)		5-yr surv (Exp arm)	5-yr surv (Contr arm)	RMST* **(τ=5)**	Proportional Hazards**	5-yr surv (Exp arm)	5-yr surv (contr arm)	RMST* **(τ=5)**	Proportional Hazards**
	Low event-rate setting: 90% 3-year survival on the best arm(s)									
½	.37	250	84%	70%	**.892**	**.933**	70%	70%	**.0249**	**.0241**
1/1.75	.28	450	84%	74%	**.919**	**.954**	74%	74%	**.0252**	**.0247**
1/1.5	.19	1000	84%	77%	**.938**	**.967**	77%	77%	**.0256**	**.0251**
1/1.25	.10	3750	84%	80%	**.945**	**.973**	80%	80%	**.0247**	**.0243**
	Moderate event-rate setting: 60% 3-year survival on the best arm(s)									
½	.96	75	43%	18%	**.912**	**.925**	18%	18%	**.0265**	**.0247**
1/1.75	.77	125	43%	23%	**.922**	**.937**	23%	23%	**.0263**	**.0245**
1/1.5	.54	250	43%	28%	**.920**	**.939**	28%	28%	**.0253**	**.0251**
1/1.25	.29	1000	43%	35%	**.948**	**.965**	35%	35%	**.0256**	**.0254**
	High event-rate setting: 20% 3-year survival on the best arm(s)***									
½	.81	50	7%	0.5%	**.899**	**.913**	0.5%	0.5%	**.0236**	**.0263**
1/1.75	.68	75	7%	1%	**.900**	**.909**	1%	1%	**.0236**	**.0256**
1/1.5	.52	150	7%	2%	**.919**	**.922**	2%	2%	**.0242**	**.0250**
1/1.25	.30	450	7%	4%	**.892**	**.895**	4%	4%	**.0254**	**.0252**

* RMST analysis with **τ=5** performed after 3 years of accrual followed by 3 years of follow-up (6 years after study activation)

** Proportional hazards analysis performed after 3 years of accrual followed by 3 years of follow-up (6 years after study activation)

*** In trial replications where the minimum of the longest observed times on each arm was less than 5 years **τ** was set to the minimum of the longest observed times on the two arms **(**Tian et al.[31])

Table 3A: Simulated rejection probabilities for noninferiority testing **rare event setting**: 96% 3-year survival on the best arm(s)

Noninferiority designs										
NI Margin		Sample size per arm	Simulated powers				Simulated levels			
HR	RMST (years)		5-yr surv (Exp arm)	5-yr surv (contr arm)	RMST* **(τ=5)**	Proportional Hazards **	5-yr surv (Exp arm)	5-yr surv (contr arm)	RMST* **(τ=5)**	Proportional Hazards**
	Rare event-rate setting: 96% 3-year survival on the best arm(s)									
2	.16	500	93%	93%	**.926**	**.752**	87%	93%	**.0288**	**.0260**
1.75	.12	900	93%	93%	**.931**	**.817**	89%	93%	**.0275**	**.0258**
1.5	.08	2000	93%	93%	**.932**	**.872**	90%	93%	**.0254**	**.0251**
1.25	.04	7500	93%	93%	**.921**	**.913**	92%	93%	**.0257**	**.0255**

* RMST analysis with **τ=5** performed after 3 years of accrual followed by 3 years of follow-up (6 years after study activation)

** Proportional hazards analysis performed after 3 years of accrual followed by 3 years of follow-up (6 years after study activation)

Table 4A: Simulated rejection probabilities for superiority testing under **rare event setting:** 96% 3-year survival on the best arm(s)

Superiority designs										
Target effect		Sample size per arm	Simulated powers				Simulated levels			
HR	RMST (years)		5-yr surv (Exp arm)	5-yr surv (Contr arm)	RMST* **(τ=5)**	Proportional Hazards**	5-yr surv (Exp arm)	5-yr surv (contr arm)	RMST* **(τ=5)**	Proportional Hazards**
	Rare event-rate setting: 96% 3-year survival on the best arm(s)									
½	.16	500	93%	87%	**.824**	**.882**	87%	87%	**.0258**	**.0246**
1/1.75	.12	900	93%	89%	**.854**	**.910**	89%	89%	**.0256**	**.0246**
1/1.5	.08	2000	93%	90%	**.879**	**.929**	90%	90%	**.0243**	**.0241**
1/1.25	.04	7500	93%	92%	**.893**	**.940**	92%	92%	**.0254**	**.0249**

* RMST analysis with **τ=5** performed after 3 years of accrual followed by 3 years of follow-up (6 years after study activation)

** Proportional hazards analysis performed after 3 years of accrual followed by 3 years of follow-up (6 years after study activation)