

Supplementary Table 10: Comorbid diseases as risk factors for spasticity treatment among individuals with incident and prevalent MS.

<i>Incident MS (N=1822)</i>	Events	PT	M1		M2		M3	
			HR	95% CI	HR	95% CI	HR	95% CI
Concussion or TBI*			/	/	/	/	/	/
Coronary artery disease	3	25	2.04	0.83,4.98	2.17	0.86,5.43	2.83	1.12,7.18
Depression	198	2878	1.66	1.37,2.01	1.59	1.31,1.93	1.83	1.50,2.23
Diabetes								
Type I	5	17	3.06	1.32,7.11	2.73	1.17,6.34	2.68	1.12,6.39
Type II/Unknown	2	59	0.58	0.18,1.83	0.53	0.16,1.69	0.60	0.19,1.93
Parkinson's disease	2	10	3.20	1.47,6.94	3.61	1.65,7.89	3.55	1.62,7.75
Seizure	9	147	1.47	0.75,2.87	1.52	0.78,2.98	1.68	0.86,3.30
Stroke	3	83	0.80	0.35,1.81	0.88	0.38,2.01	0.91	0.40,2.10
Vascular disease	16	123	2.02	1.31,3.12	2.09	1.34,3.27	2.32	1.48,3.64
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<i>Prevalent MS (N=3514)</i>								
Concussion or TBI	5	54	1.73	0.86,3.51	1.47	0.73,2.98	1.48	0.73,2.99
Coronary artery disease	15	239	1.20	0.80,1.79	1.20	0.80,1.80	1.22	0.81,1.83
Depression	544	7885	1.76	1.56,1.97	1.72	1.53,1.94	1.74	1.55,1.95
Diabetes								
Type I	2	56	1.14	0.54,2.41	1.25	0.59,2.64	1.26	0.60,2.65
Type II / Unknown	8	164	0.87	0.53,1.44	0.83	0.50,1.36	0.83	0.51,1.37
Parkinson's disease	8	94	1.46	0.95,2.26	1.41	0.91,2.18	1.41	0.91,2.18
Seizure	37	369	2.06	1.48,2.87	1.87	1.35,2.61	1.89	1.36,2.63
Stroke	19	351	1.30	0.93,1.80	1.34	0.96,1.87	1.34	0.96,1.86
Vascular disease	42	845	1.23	0.99,1.54	1.20	0.96,1.50	1.21	0.97,1.51

Abbreviations: CI=confidence interval; HR=hazard ratio; M=model; PT=person-time; TBI=traumatic brain injury.

All risk factors for spasticity were used as time-varying covariates and models included each risk factor individually. Reference categories are individuals without the comorbid disease.

Model 1 adjusted for age, county of residence at MS diagnosis, and highest attained education. Model 2 additionally adjusted for disease course as a time-varying covariate. Model 3 additionally adjusted for years with MS as an additional timescale. Stratified Cox regression models were used in the incident MS cohort where region of residence did not meet the proportional hazards assumption and among the prevalent MS cohort where education did not meet proportional hazards assumption. Additional incident MS individuals (n=4) at MS diagnosis and prevalent MS individuals (n=5) at study entry with PPMS/SPMS ≤ 25 years of age were excluded.

*Concussion or TBI estimates could not be computed as few individuals experienced concussion or TBI.