

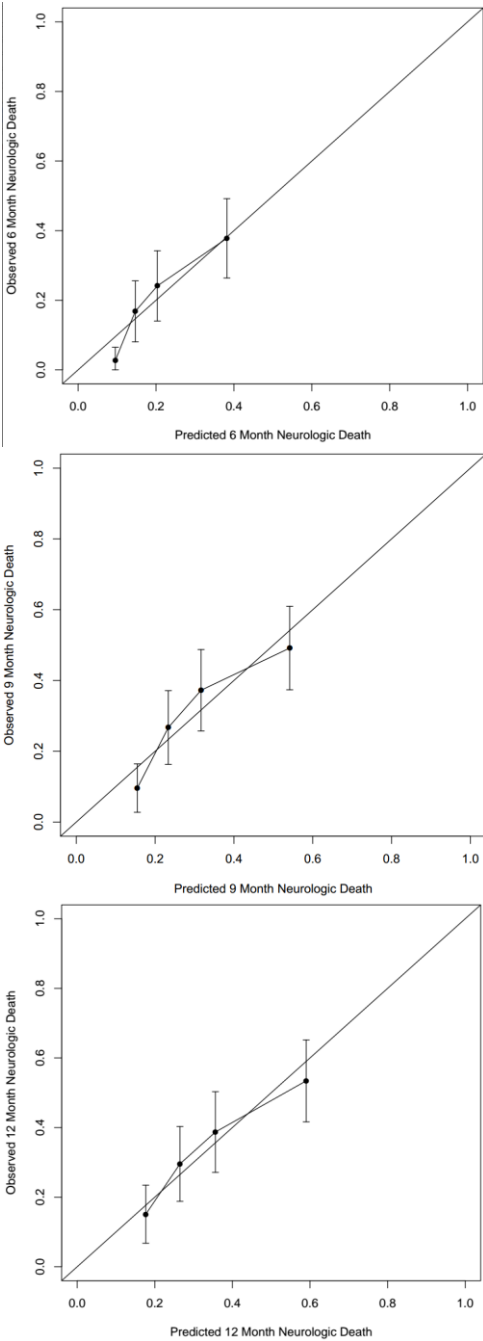
**Supplementary Table 1.**

<b>Supplementary Table 1. Prior and Current Treatment Characteristics</b>		
Characteristic	N	Median (IQ <sup>€</sup> Range) / %
WBRT <sup>‡</sup> Dose (Gray)	262	35 (30-37.5)
WBRT <sup>‡</sup> Boost		
No	256	87.4
Yes	37	12.6
Surgical Management		
Gross Total Resection	81	27.6
Biopsy Alone	5	1.7
None	207	70.6
Treatment Planning MRI		
1.5T MRI <sup>†</sup>	148	50.5
3T MRI	142	48.5
CT and/or MRI	3	1.0
Lowest Margin Dose (Gray)	292	18 (16-20)
Abbreviations: T: Tesla, %: Percent, N: Number, <sup>‡</sup> WBRT: Whole Brain Radiotherapy, <sup>€</sup> : Interquartile Range, <sup>†</sup> : Magnetic Resonance Imaging		

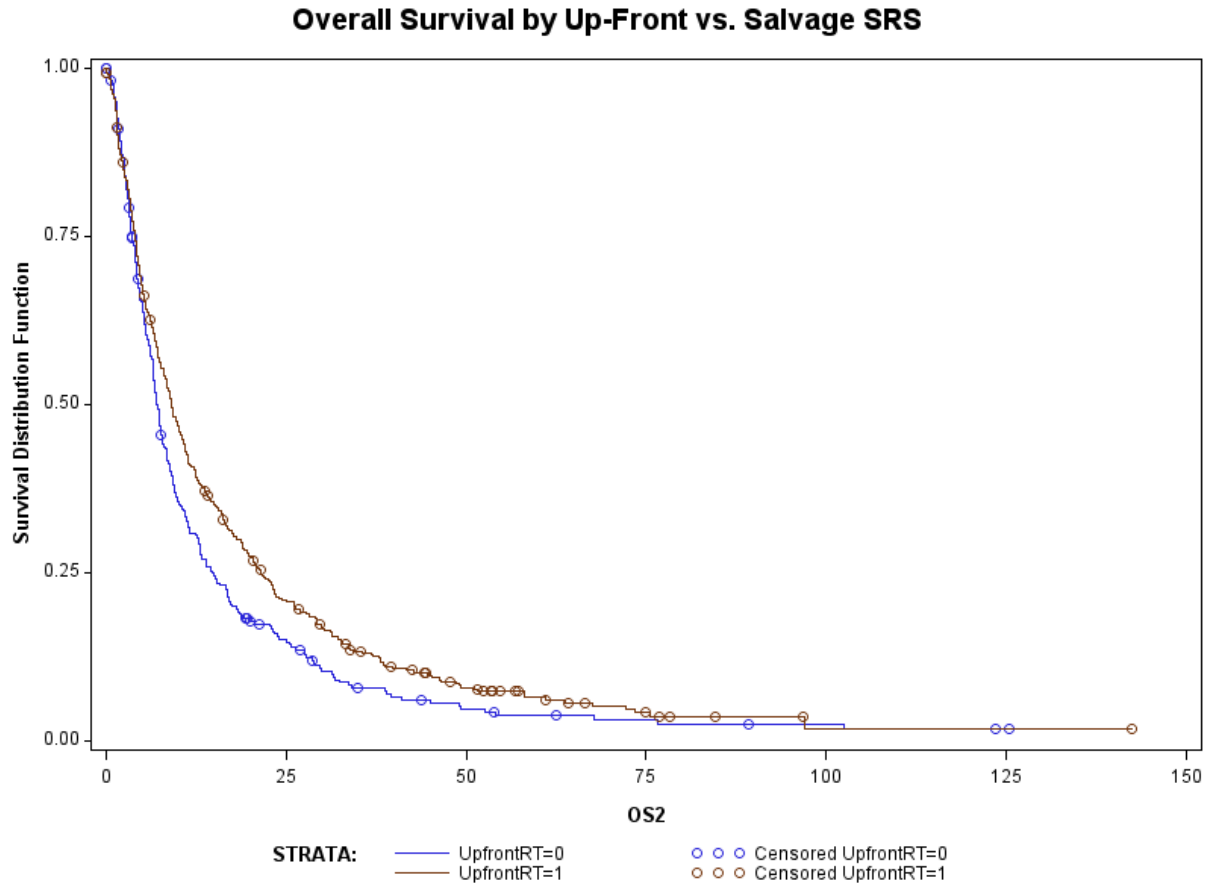
**Supplementary Table 2.**

<b>Supplementary Table 2. Outcomes in an Un-Matched Cohort</b>				
	<b>Up Front SRS</b>		<b>Salvage SRS</b>	
Characteristic	N	Median (IQ <sup>€</sup> Range) / %	N	Median (IQ <sup>€</sup> Range) / %
Overall Survival	448	8.98 (7.9-10.3)	293	7.0 (6.4-7.7)
Dead	411	91.7	271	92.5
Alive	37	8.3	22	7.5
Neurologic Death				
Yes	128	31.5	139	47.4
No	278	68.5	154	52.6
Abbreviations: T: Tesla, %: Percent, N: Number, ‡: WBRT: Whole Brain Radiotherapy, €: Interquartile Range, †: Magnetic Resonance Imaging				

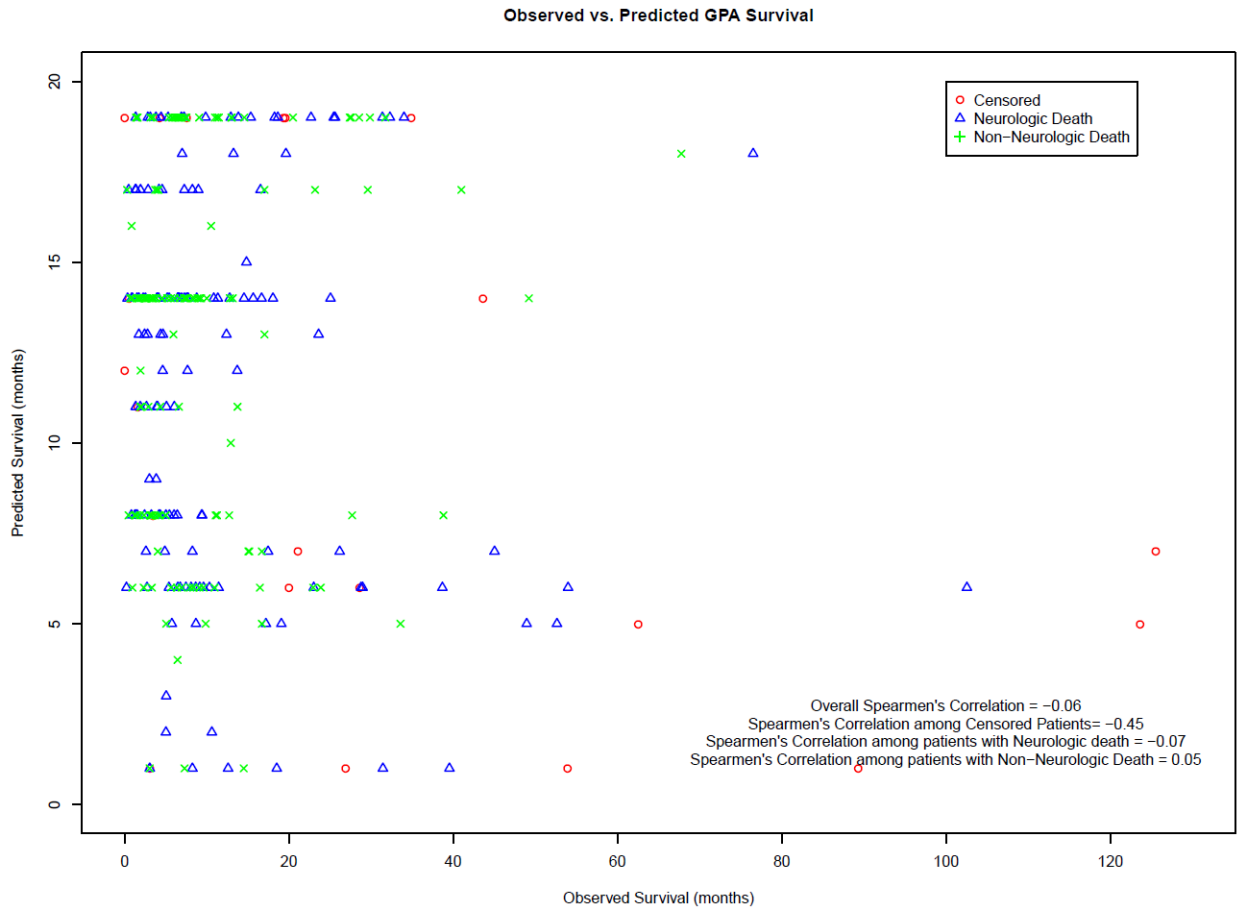
Supplementary Figure 1. Calibration Plots at 6, 9 and 12 months



**Supplementary Figure 2.** Kaplan Meir Plot for Upfront SRS and Salvage SRS Patients



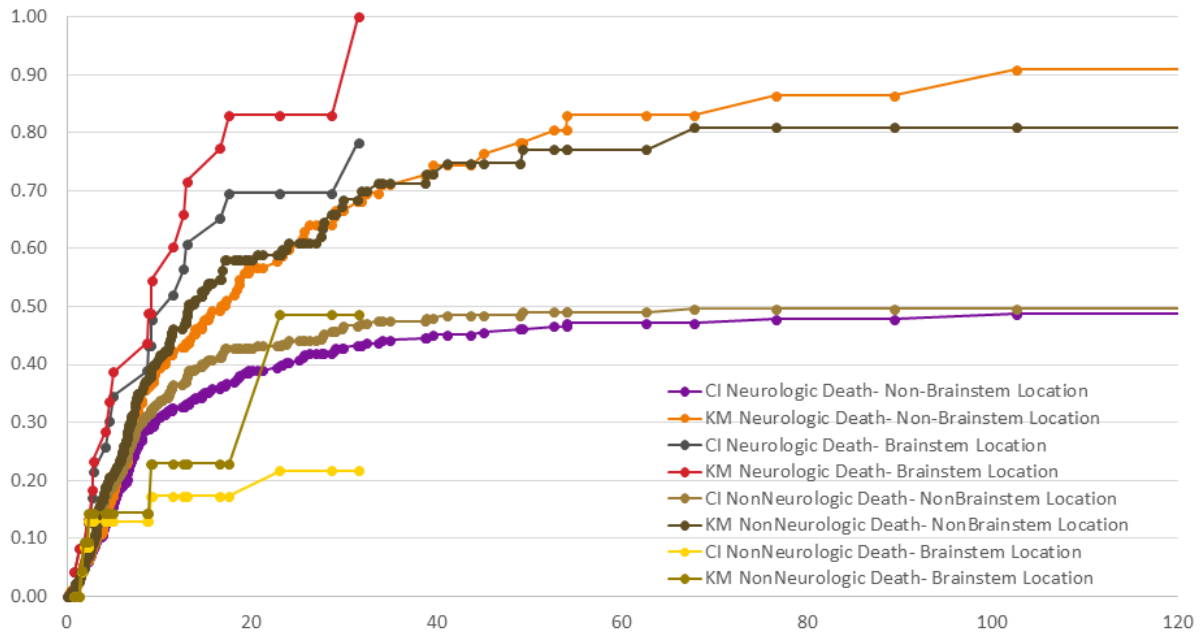
**Supplementary Figure 3.** Scatterplot Matrix and Regression Line of Observed DS-GPA Predicted Survival vs. Observed Overall Survival



**Supplementary Figure 4.** Kaplan Meier Estimate vs. Cumulative Incidence of Neurologic and Non-Neurologic Death according to presence of brainstem location metastasis

## Methods

### - Kaplan Meier Estimate vs. Cumulative Incidences



**Supplementary Table 3.** Univariate Cox Proportional Hazards Analysis for Non- and CNS Death from the Date of GKRS

Parameter	DF	Time to Non-CNS Death From Date of GKRS							Time to CNS Death From Date of GKRS						
		Parameter Estimate	Standard Error	Chi-Square	Hazard Ratio	Upper CI	Lower CI	P > ChiSq	Parameter Estimate	Standard Error	Chi-Square	Hazard Ratio	Upper CI	Lower CI	P > ChiSq
<b>Time to Non-CNS Death From Date of GKRS</b>															
Age (Cont #)	1	0.02608	0.00562	21.9503	1.026	1.015	1.038	<.0001	0.02284	0.00873	6.8509	1.023	1.006	1.041	<.0001
Gender															
Female (F vs. M)	1	-0.09791	0.12976	0.5693	0.907	0.703	1.169	0.4505	-0.00945	0.18042	0.0027	0.991	0.696	1.411	0.9582
Primary	1	0.35377	0.16109	4.8231	1.424	1.953	17.468	0.0293	0.14548	0.21683	0.4501	1.157	0.756	1.769	0.5023
Primary (Esophagus vs. Breast)	1	0.01418	0.72164	0.0004	1.014	4.173	24.486	0.9843	-0.14602	1.01781	0.0206	0.864	0.118	6.353	0.8859
Primary (Melanoma vs. Breast)	1	0.34382	0.24768	1.9269	1.41	2.292	30.726	0.1651	0.63155	0.29815	4.487	1.881	1.048	3.373	0.0342
Primary (Colorectal vs. Breast)	1	0.63995	0.43393	2.175	1.896	4.439	25.415	0.1403	1.19216	0.48822	5.9626	3.294	1.265	8.577	0.0146
Primary (GU vs. Breast)	1	-0.06375	0.4032	0.025	0.938	2.068	40.215	0.8744	0.13559	0.48333	0.0787	1.145	0.444	2.953	0.7791
Primary (GYN vs. Breast)	1	-0.17295	0.46881	0.0576	0.894	2.24	19.219	0.8103	0.19975	0.53285	0.1406	1.221	0.43	3.469	0.7077
Primary (Unk vs. Breast)	1	-1.44414	0.72259	3.9942	0.236	0.973	19.621	0.0457	-14.01402	463.80764	0.0009	0	0	0	0.9759
RPA															
RPA (2 vs. 1)	1	-0.39209	0.41787	0.8804	0.676	0.298	1.533	0.3481	0.86546	0.50903	2.8907	2.376	0.876	6.444	0.0091
RPA (3 vs. 1)	1	0.22527	0.20765	1.1769	1.253	0.834	1.882	0.278	1.60805	0.67516	5.6726	4.993	1.329	18.75	0.0172
(Continuous #)	1	0.02875	0.01972	2.1255	1.029	0.99	1.07	0.1449	0.07763	0.02442	10.107	1.081	1.03	1.134	0.0015
Postfossa (Yes vs. No)	1	0.02158	0.04246	0.2582	1.022	0.94	1.11	0.6113	0.01887	0.06992	0.036	1.019	0.904	1.148	0.7567
BrainStem (Yes vs. No)	1	0.04377	0.22851	0.0367	1.045	0.665	1.635	0.8481	0.48724	0.28789	3.3081	1.628	0.963	2.752	0.06889
Pineal (Yes v. No)	1	-0.65087	1.00305	0.4211	0.522	0.073	3.725	0.5164	-0.06764	1.0047	0.0045	0.935	0.13	6.696	0.0463
DomTemplate (Yes v. No)	1	0.03745	0.19763	0.0359	1.038	0.705	1.529	0.8497	0.03997	0.27446	0.0212	1.041	0.608	1.782	0.8842
GKRS to Cavity (Yes v. No)	1	-0.10135	0.2189	0.2144	0.904	0.588	1.388	0.6434	0.25059	0.2599	0.9296	1.285	0.772	2.138	0.335
None v. GTR	1	0.12307	0.14305	0.7402	1.131	0.854	1.487	0.3896	-0.02774	0.18979	0.0214	0.973	0.671	1.411	0.8838
Prior Surgery															
Open Biopsy vs. GTR	1	0.4096	1.00927	0.1647	1.566	0.208	10.889	0.6849	1.10349	1.01723	1.0344	2.814	0.383	20.66	0.3091
PriorSRS															
LowMarginDose															
(GY)	1	-0.58682	0.18386	10.1665	0.556	0.388	0.787	0.6304	-0.71313	0.22566	7.784	0.49	0.287	0.809	0.0055
Progression vs. Stable/NE D	1	-0.05573	0.02171	6.5877	0.946	0.906	0.987	0.0313	-0.1026	0.02965	11.965	0.902	0.882	0.957	0.0005
KPS	1	0.28364	0.1317	4.6395	1.328	1.028	1.719	0.0313	-0.06204	0.19138	0.1051	0.94	0.646	1.368	0.7458
KPS	1	-0.03413	0.00621	30.166	0.966	0.955	0.978	<.0001	-0.03436	0.00884	15.128	0.966	0.95	0.983	0.0001