



# Patients Treated with Leksell Gamma Knife®



1968 - 2016

TREATMENTS REPORTED 2016 BY REGION AND INDICATION

INDICATION	Asia excl. Japan	Europe	Japan	Latin America	Middle East & Africa	North America	Grand Total
<b>Benign Tumors</b>	<b>12283</b>	<b>9778</b>	<b>2323</b>	<b>387</b>	<b>1488</b>	<b>4273</b>	<b>30532</b>
Craniopharyngioma	242	67	48	7	45	19	428
Diffuse Astrocytoma, Grade II	72	20	5	6	94	20	217
Dysembryoplastic Neuroepithelial Tumor	12	3			2		17
Ependymoma	86	50	14	4	15	18	187
Ganglioglioma	121	5	1		7	7	141
Glomus Tumor	43	96	5	11	21	98	274
Hemangioblastoma	86	63	35	2	9	38	233
Hemangioma	106	13	8	3	1	7	138
Hemangiopericytoma, Grade II	53	34	19		7	21	134
Jugular Foramen Schwannoma	100	30	26	2	2	10	170
Juvenile Pilocytic Astrocytoma	40	35	4	1	32	10	122
Meningioma Grade I (typical)	4723	4551	954	104	570	1805	12707
Meningioma Grade II (atypical)	354	242	159	29	34	213	1031
Neurocytoma	87	21	7		9	10	134
Oligodendroglioma, Grade II+A81	56	16	6		7	4	89
Other Benign Tumor	494	187	60	34	38	134	947
Other Schwannoma	253	45	40	14	11	89	452
Pineal Region Tumor	129	37	5	3	34	14	222
Pituitary Adenoma	2746	868	201	83	234	527	4659
Plexomorphic Xanthoastrocytoma (PXA)	4	6	2			1	13
Trigeminal Schwannoma	293	85	39	7	16	68	508
Vestibular Schwannoma	2183	3304	685	77	300	1160	7709
<b>Functional Disorders</b>	<b>1211</b>	<b>1471</b>	<b>311</b>	<b>90</b>	<b>174</b>	<b>2321</b>	<b>5578</b>
Cluster Headache	1	1				4	6
Essential Tremor	3	31	20	5	2	157	218
Hypothalamic Hamartoma	6	9		2			17
Intractable Pain		18	1	2		4	25
Mesial Temporal Lobe Epilepsy	16	6			8	1	31
OCD	5	12		3		7	27
Other Behavioral Disorders	6	4		3		4	17
Other Epilepsy	35	4		3	1	1	44
Other Movement Disorders		13	1	1	2	1	18
Other Pain Disorders	9	1				14	24
Parkinson's Disease	10	123	1	13	4	7	158
Trigeminal Neuralgia	1120	1249	288	58	157	2121	4993
<b>Malignant Tumors</b>	<b>7559</b>	<b>7638</b>	<b>9558</b>	<b>104</b>	<b>224</b>	<b>11096</b>	<b>36179</b>
Anaplastic Astrocytoma, Grade III	132	38	23	1	18	32	244
Chondrosarcoma	34	7	5	1	5	7	59
Chordoma	94	36	22	4	12	23	191
Ependymoma (anaplastic), Grade II or III	76	41	10		2	13	142
Esthesioneuroblastoma	2	1				6	9
Glioblastoma	147	193	158	5	20	288	811
Hemangiopericytoma, Grade III (anaplastic)	31	10	10		1	14	66
Medulloblastoma/PNET	34	18	4			9	65
Meningioma (anaplastic), Grade III	222	20	18		10	24	294
Metastatic Tumor	6347	7059	9198	91	129	10416	33240
Nasopharyngeal Carcinoma	35	8	4			18	65

Oligodendroglioma (anaplastic), Grade II or III	16	20	6		4	18	64
Other Malignant Tumor	372	179	95	2	23	189	860
Solitary Fibrous Tumor	17	8	5			39	69
<b>Ocular Disorders</b>	<b>45</b>	<b>177</b>	<b>3</b>	<b>7</b>	<b>1</b>	<b>12</b>	<b>245</b>
Other Ocular Disorder	33	7	1	4			45
Uveal Melanoma	12	170	2	3	1	12	200
<b>Vascular Disorders</b>	<b>3181</b>	<b>2144</b>	<b>503</b>	<b>125</b>	<b>285</b>	<b>784</b>	<b>7022</b>
Aneurysm	12	3	15			6	36
AVM	2164	1565	409	108	224	709	5179
Cavernous Malformation	767	518	20	15	60	34	1414
Dural Arteriovenous Fistula	156	30	54	2	1	24	267
Other Vascular Disorder	82	28	5			11	126
<b>Grand Total</b>	<b>24279</b>	<b>21208</b>	<b>12698</b>	<b>713</b>	<b>2172</b>	<b>18486</b>	<b>79556</b>

*94% of all Leksell Gamma Knife centers submitted their 2016 treatment data*

ACCUMULATED TREATMENTS REPORTED BY REGION AND INDICATION

INDICATION	Asia excl. Japan	Europe	Japan	Latin America	Middle East & Africa	North America	Grand Total
<b>Benign Tumors</b>	<b>143297</b>	<b>103718</b>	<b>45575</b>	<b>3071</b>	<b>15359</b>	<b>71645</b>	<b>382665</b>
Benign Glial Tumors (Grade I and II)	4739	1342	650	63	470	1013	8277
Craniopharyngioma	3356	1098	1598	58	388	661	7159
Diffuse Astrocytoma, Grade II	72	20	5	6	94	20	217
Dysembryoplastic Neuroepithelial Tumor	40	7			4		51
Ependymoma	302	176	49	13	47	80	667
Fibrillary Astrocytoma, Grade II	65	36	2	5	8	15	131
Ganglioglioma	142	46	2		9	15	214
Glomus Tumor	883	1287	107	81	389	1149	3896
Hemangioblastoma	1298	793	782	28	119	808	3828
Hemangioma	317	33	23	13	3	35	424
Hemangiopericytoma	547	435	455	11	45	492	1985
Hemangiopericytoma, Grade II	89	61	48	1	11	41	251
Jugular Foramen Schwannoma	281	89	71	11	12	26	490
Juvenile Pilocytic Astrocytoma	58	65	4	3	63	24	217
Meningioma	39841	35678	16504	894	5153	27690	125760
Meningioma Grade I (typical)	9346	8591	1870	206	1366	3584	24963
Meningioma Grade II (atypical)	598	337	289	32	74	327	1657
Neurocytoma	195	76	19		29	36	355
Oligodendroglioma, Grade II+A81	84	34	10	1	13	19	161
Other Benign Tumor	5844	1926	1011	94	462	2000	11337
Other Schwannoma	2143	802	703	27	119	1049	4843
Pineal Region Tumor	3839	610	400	44	367	452	5712
Pituitary Adenoma	42150	12680	5491	613	2590	9412	72936
Plexomorphic Xanthoastrocytoma (PXA)	13	6	2	1		2	24
Trigeminal Schwannoma	2872	1138	923	32	193	1343	6501
Vestibular Schwannoma	24183	36352	14557	834	3331	21352	100609
<b>Functional Disorders</b>	<b>14965</b>	<b>13795</b>	<b>5458</b>	<b>527</b>	<b>1028</b>	<b>40281</b>	<b>76054</b>
Cluster Headache	4	5				14	23
Depression	3						3
Epilepsy	2284	337	49	4	34	116	2824
Essential Tremor	10	91	47	15	2	737	902
Hypothalamic Hamartoma	21	75	1	10	5	8	120
Intractable Pain	124	234	115	5	5	350	833
Mesial Temporal Lobe Epilepsy	128	17	1	2	10	1	159
OCD	128	81		20	1	85	315
Other Behavioral Disorders	30	12	9	18	5	13	87
Other Epilepsy	121	17		3	11	3	155
Other Functional Disorder	319	137	172	9	4	890	1531
Other Movement Disorders	12	25	4	3	4	15	63
Other Pain Disorders	24	8	1			56	89
Parkinson's Disease	710	797	351	56	29	540	2483
Trigeminal Neuralgia	11047	11959	4708	382	918	37453	66467
<b>Malignant Tumors</b>	<b>80685</b>	<b>73009</b>	<b>169768</b>	<b>1583</b>	<b>3084</b>	<b>132066</b>	<b>460195</b>
Anaplastic Astrocytoma, Grade III	215	70	55	3	22	54	419
Chondrosarcoma	529	189	115	13	47	311	1204
Chordoma	1553	497	532	28	130	505	3245
Ependymoma (anaplastic), Grade II or III	99	80	19	1	10	25	234

Esthesioneuroblastoma	4	2	2			14	22
Glioblastoma	409	442	321	9	36	553	1770
Hemangiopericytoma, Grade III (anaplastic)	54	19	19	1	1	24	118
Malignant Glial Tumor (grade III and IV)	11882	3965	6726	120	862	11586	35141
Medulloblastoma	120	24	75	3	4	24	250
Medulloblastoma/PNET	50	35	4	1	1	16	107
Meningioma (anaplastic), Grade III	290	37	54	11	10	53	455
Metastatic Tumor	59224	65374	157845	1310	1399	113897	399049
Nasopharyngeal Carcinoma	975	233	416	11	15	529	2179
Oligodendroglioma (anaplastic), Grade II or III	34	41	17	1	7	38	138
Other Malignant Tumor	5214	1988	3559	71	540	4292	15664
Solitary Fibrous Tumor	33	13	9			145	200
<b>Ocular Disorders</b>	<b>423</b>	<b>3018</b>	<b>116</b>	<b>74</b>	<b>28</b>	<b>158</b>	<b>3817</b>
Glaucoma	47	269		2		3	321
Other Ocular Disorder	221	122	8	26	12	46	435
Uveal Melanoma	155	2627	108	46	16	109	3061
<b>Vascular Disorders</b>	<b>45269</b>	<b>32755</b>	<b>16393</b>	<b>1988</b>	<b>3343</b>	<b>18244</b>	<b>117992</b>
Aneurysm	283	33	39	1	1	103	460
AVM	32540	28656	14863	1827	2560	16791	97237
Cavernous Malformation	8182	3034	469	145	480	567	12877
Dural Arteriovenous Fistula	699	114	154	5	9	147	1128
Other Vascular Disorder	3565	918	868	10	293	636	6290
<b>Grand Total</b>	<b>284639</b>	<b>226295</b>	<b>237310</b>	<b>7243</b>	<b>22842</b>	<b>262394</b>	<b>1040723</b>

*The percentage of centers submitting their numbers each year has varied between 68-100% from 1968 to 2016*

*\*Essential Tremor treatments reported as Other Functional Disorders prior to 2012*

*\*\*Meningioma Grade I & II treatments reported as Meningioma prior to 2015*

*\*\*\*Glioblastoma reported as Malignant Glial Tumor (Grade III & IV) prior to 2015*

*\*\*\*\*Malignant Glial Tumor (Grade III & IV) treatments broken down by indication from 2015*

*\*\*\*\*\*Epilepsy treatments broken down by indication from 2015*