



# Patients Treated with Leksell Gamma Knife®



1968 - 2018

TREATMENTS REPORTED 2018 BY REGION AND INDICATION

	Asia	Europe	Latin America	Middle East & Africa	North America	Grand Total
<b>Benign Tumors</b>	<b>15729</b>	<b>10514</b>	<b>651</b>	<b>2062</b>	<b>4762</b>	<b>33718</b>
Craniopharyngioma	271	78	10	88	24	471
Diffuse Astrocytoma, Grade II	113	31	6	32	13	195
Dysembryoplastic Neuroepithelial Tumor (DNET)	10	3		7	1	21
Ependymoma	89	40	6	11	15	161
Ganglioglioma	34	5		2	2	43
Glomus Tumor	90	141	19	36	103	389
Hemangioblastoma	161	69	1	9	72	312
Hemangioma	91	30	3		11	135
Hemangiopericytoma, Grade II	72	27	2	7	16	124
Jugular Foramen Schwannoma	152	28	5	4	18	207
Juvenile Pilocytic Astrocytoma	31	33	8	2	2	76
Meningioma Grade I (typical)	6,224	4,839	253	904	2,062	14282
Meningioma Grade II (atypical)	669	545	9	112	185	1520
Neurocytoma	55	18	1	7	9	90
Oligodendroglioma, Grade II+A81	49	27		4	18	98
Other Benign Tumor	686	223	24	152	134	1219
Other Schwannoma	276	108	15	11	107	517
Pineal Region Tumor	158	32	5	36	17	248
Pituitary Adenoma	3,048	753	114	306	514	4735
Plexomorphic Xanthoastrocytoma (PXA)	6	2			3	11
Trigeminal Schwannoma	272	119	4	14	166	575
Vestibular Schwannoma	3,172	3,363	166	318	1,270	8289
<b>Functional Disorders</b>	<b>1481</b>	<b>1546</b>	<b>115</b>	<b>200</b>	<b>2078</b>	<b>5420</b>
Cluster Headache	1	5			1	7
Essential Tremor	14	114	5	1	167	301
Hypothalamic Hamartoma	16	15	1	1	1	34
Intractable Pain	1	13	2		7	23
Mesial Temporal Lobe Epilepsy	13	2		7		22
OCD	10	6	3		3	22
Other Behavioral Disorders		4		1	0	5
Other Epilepsy	18	6		1	1	26
Other Movement Disorders	1	9	3		4	17
Other Pain Disorders	8	6	3		4	21
Parkinson's Disease	12	47	3	2	7	71
Trigeminal Neuralgia	1387	1319	95	187	1883	4871
<b>Malignant Tumors</b>	<b>20096</b>	<b>8637</b>	<b>149</b>	<b>380</b>	<b>12905</b>	<b>42167</b>
Anaplastic Astrocytoma, Grade III	327	84	5	3	36	455
Chondrosarcoma	51	6	3	9	9	78
Chordoma	138	24	7	22	8	199
Ependymoma (anaplastic), Grade II or III	58	37	3	123	10	231
Esthesioneuroblastoma	6				6	12
Glioblastoma	370	281	12	34	251	948
Hemangiopericytoma, Grade III (anaplastic)	75	8	2		18	103
Medulloblastoma/PNET	152	18	1	1	6	178
Meningioma (anaplastic), Grade III	92	43	10		127	272
Metastatic Tumor	17859	7,976	89	161	11849	37934
Nasopharyngeal Carcinoma	56	11	1		21	89
Oligodendroglioma (anaplastic), Grade II or III	300	20		8	16	344
Other Malignant Tumor	578	114	13	18	518	1241
Solitary Fibrous Tumor	34	15	3	1	30	83

<b>Ocular Disorders</b>	<b>154</b>	<b>148</b>	<b>5</b>	<b>2</b>	<b>15</b>	<b>324</b>
Glaucoma						0
Other Ocular Disorder	141	15			4	160
Uveal Melanoma	13	133	5	2	11	164
<b>Vascular Disorders</b>	<b>3943</b>	<b>2071</b>	<b>203</b>	<b>403</b>	<b>729</b>	<b>7349</b>
Aneurysm	2	3				5
AVM	2642	1567	179	274	677	5339
Cavernous Malformation	971	411	23	128	28	1561
Dural Arteriovenous Fistula	189	19	1	1	22	232
Other Vascular Disorder	139	71			2	212
<b>Grand Total</b>	<b>41403</b>	<b>22916</b>	<b>1123</b>	<b>3047</b>	<b>20489</b>	<b>88978</b>

*87% of all Leksell Gamma Knife centers submitted their 2018 treatment data*

ACCUMULATED TREATMENTS REPORTED BY REGION AND INDICATION

	Asia	Europe	Latin America	Middle East & Africa	North America	Grand Total
<b>Benign Tumors</b>	<b>220471</b>	<b>123739</b>	<b>4109</b>	<b>19304</b>	<b>80669</b>	<b>448292</b>
Benign Glial Tumors (Grade I and II)	5389	1342	63	470	1013	8277
Craniopharyngioma	5545	1225	84	530	707	8091
Diffuse Astrocytoma, Grade II	393	83	23	246	42	787
Dysembryoplastic Neuroepithelial Tumor (DNET)	69	13		19	2	103
Ependymoma	560	247	20	72	108	1007
Fibrillary Astrocytoma, Grade II	67	36	5	8	15	131
Ganglioglioma	199	55		14	27	295
Glomus Tumor	1183	1564	120	447	1319	4633
Hemangioblastoma	2391	925	34	134	919	4403
Hemangioma	587	75	19	3	52	736
Hemangiopericytoma	1002	436	11	45	492	1986
Hemangiopericytoma, Grade II	308	118	5	23	90	544
Jugular Foramen Schwannoma	646	144	16	23	64	893
Juvenile Pilocytic Astrocytoma	119	116	11	72	32	350
Meningioma	56345	35678	894	5153	27690	125760
Meningioma Grade I (typical)	23802	17903	576	2967	7506	52754
Meningioma Grade II (atypical)	2211	1153	41	283	697	4385
Neurocytoma	346	108	1	39	59	553
Oligodendroglioma, Grade II+A81	192	80	3	31	45	351
Other Benign Tumor	8127	2273	128	683	2266	13477
Other Schwannoma	3386	981	44	137	1211	5759
Pineal Region Tumor	4536	656	51	442	476	6161
Pituitary Adenoma	53687	14242	834	3188	10398	82349
Plexomorphic Xanthoastrocytoma (PXA)	34	10	1		5	50
Trigeminal Schwannoma	4386	1341	42	220	1589	7578
Vestibular Schwannoma	44961	42935	1083	4055	23845	116879
<b>Functional Disorders</b>	<b>23486</b>	<b>16773</b>	<b>707</b>	<b>1475</b>	<b>44645</b>	<b>87086</b>
Cluster Headache	7	11	1		18	37
Depression	3					3
Epilepsy	2333	337	4	34	116	2824
Essential Tremor	82	233	23	5	1078	1421
Hypothalamic Hamartoma	46	106	14	7	9	182
Intractable Pain	241	264	7	5	358	875
Mesial Temporal Lobe Epilepsy	149	27	2	18	1	197
OCD	144	90	28	1	101	364
Other Behavioral Disorders	40	28	19	6	16	109
Other Epilepsy	163	27	3	14	4	211
Other Functional Disorder	491	137	9	4	890	1531
Other Movement Disorders	31	37	6	4	19	97
Other Pain Disorders	34	17	4	1	82	138
Parkinson's Disease	1087	933	59	34	557	2670
Trigeminal Neuralgia	18635	14526	528	1342	41396	76427
<b>Malignant Tumors</b>	<b>289192</b>	<b>89586</b>	<b>1871</b>	<b>3766</b>	<b>156649</b>	<b>541064</b>
Anaplastic Astrocytoma, Grade III	742	186	10	71	131	1140
Chondrosarcoma	763	203	18	63	327	1374
Chordoma	2365	549	42	163	528	3647
Ependymoma (anaplastic), Grade II or III	240	152	4	135	45	576
Esthesioneuroblastoma	20	3			28	51
Glioblastoma	1483	1069	32	154	1104	3842
Hemangiopericytoma, Grade III (anaplastic)	222	34	3	1	50	310

Malignant Glial Tumor (grade III and IV)	18608	3965	120	862	11586	35141
Medulloblastoma	195	24	3	4	24	250
Medulloblastoma/PNET	250	66	2	6	25	349
Meningioma (anaplastic), Grade III	614	126	64	10	237	1051
Metastatic Tumor	251601	80538	1468	1687	136650	471944
Nasopharyngeal Carcinoma	1512	248	14	17	570	2361
Oligodendroglioma (anaplastic), Grade II or III	426	78	1	20	68	593
Other Malignant Tumor	10048	2312	87	572	5072	18091
Solitary Fibrous Tumor	103	33	3	1	204	344
<b>Ocular Disorders</b>	<b>771</b>	<b>3388</b>	<b>86</b>	<b>34</b>	<b>185</b>	<b>4464</b>
Glaucoma	49	269	2		3	323
Other Ocular Disorder	425	197	27	14	52	715
Uveal Melanoma	297	2922	57	20	130	3426
<b>Vascular Disorders</b>	<b>69720</b>	<b>36852</b>	<b>2329</b>	<b>4091</b>	<b>19719</b>	<b>132711</b>
Aneurysm	332	39	1	1	104	477
AVM	52868	31780	2130	3098	18155	108031
Cavernous Malformation	10523	3885	180	686	628	15902
Dural Arteriovenous Fistula	1327	151	8	10	185	1681
Other Vascular Disorder	4670	997	10	296	647	6620
<b>Grand Total</b>	<b>603640</b>	<b>270338</b>	<b>9102</b>	<b>28670</b>	<b>301867</b>	<b>1213617</b>

*The percentage of centers submitting their numbers each year has varied between 68-100% from 1968 to 2018*

*\*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*