

Annual Cancer Data Report

2009

The Cancer Committee of St. Luke's Regional Medical Center presents an overview of data collection for the 2009. The committee also did an overview of Brain Cancer with committee members, Ronald V. Dorn, III, MD, FACP and Eugenia Chang, MD taking the lead roles overseeing the report. The adult focus was Glioblastoma, with Medulloblastoma the pediatric focus.

**ST LUKE'S REGIONAL MEDICAL CENTER/MOUNTAIN STATES TUMOR INSTITUTE
ANNUAL CANCER PROGRAM REPORT
2009 PRIMARY SITE DISTRIBUTION**

2009 - PRIMARY SITE	2009 Totals		Analytic	Non-Analytic		2008 Totals	2007 Totals
Oral Cavity and Pharynx	72		67	5		81	60
Lip	2		2	0		9	2
Tongue	25		23	2		27	19
Salivary Glands	9		8	1		8	9
Floor of Mouth	3		3	0		4	2
Gum & Other Mouth	8		8	0		7	6
Nasopharynx	3		3	0		3	2
Tonsil	15		13	2		14	13
Oropharynx	2		2	0		3	2
Hypopharynx	3		3	0		2	3
Other Oral Cavity & Pharynx	2		2	0		4	2
Digestive System	328		309	19		291	307
Esophagus	18		17	1		18	28
Stomach	19		18	1		25	23
Sm Intestine	6		6	0		10	8
Colon (excluding Rectum)	110		103	7		102	117
Rectum and Rectosigmoid	64		58	6		53	49
Anus and Anal Canal	17		16	1		14	10
Liver and Intrahepatic Bile Duct	25		25	0		19	15
Gallbladder	4		4	0		6*	6*
Other Biliary	6		5	1		*included w/ gallbladder	*included w/ gallbladder
Pancreas	46		45	1		40	46
Retroperitoneum/Peritoneum	9		8	1		4	5
Other Digestive, Ill Defined	4		4	0		0	0
Respiratory System	290		280	10		298	276
Nasal Cavity/Sinuses	4		4	0		4	1
Larynx	26		24	2		15	21
Lung and Bronchus	261		252	9		279	254

2009 - PRIMARY SITE	2009 Totals		Analytic	Non-Analytic		2008 Totals	2007 Totals
Bones and Joints	12		11	1		9	12
Connective Tissue	18		13	5		17	7
Skin	96		88	8		55	60
Melanoma - Skin	86		78	8		49	48
Other Skin	10		10	0		6	12
Breast	572		535	37		552	519
Female Genital System	195		189	6		166	178
Cervix Uteri	24		24	0		25	28
Corpus Uteri	99		97	2		78	67
Ovary	40		36	4		33	58

Vulva	21		21	0		19	15
Vagina,Other female genitalia	11		11	0		11	10
Male Genital System	302		239	63		268	321
Prostate	286		224	62		249	299
Testis	11		11	0		18	20
Penis, Other male genitalia	5		4	1		1	2
Urinary System	123		102	21		125	133
Urinary Bladder	54		41	13		77*	69*
Kidney and Renal Pelvis	63		55	8		48	64
Ureter and Other Urinary	6		6	0		*combined w/Bladder	*combined w/Bladder
Eye and Orbit	4		1	3		4	2
Brain/Other Nervous System	60		56	4		85	68
Endocrine System	117		110	7		102	92
Thyroid	105		99	6		96	81
Other Endocrine	12		11	1		6	11
Lymphomas	148		140	8		140	130
Hodgkin Lymphoma	14		14	0		29	18
Non Hodgkin Lymphoma	134		126	8		111	112
<i>NHL - Nodal</i>	96		89	7		72	69
<i>NHL - Extranodal</i>	38		37	1		39	43

2009 - PRIMARY SITE	2009 Totals		Analytic	Non- Analytic		2008 Totals	2007 Totals
Multiple Myeloma	49		45	4		47	32
Leukemias	97		83	14		94	88
Lymphocytic Leukemia	63		50	13		*not further classified	*not further classified
<i>Acute Lymphocytic Leukemia</i>	18		17	1		*	*
<i>Chronic Lymphocytic Leuk.</i>	44		32	12		*	*
<i>Other Lymphocytic Leukemia</i>	1		1	0		*	*
Myeloid & Monocytic Leukemia	32		31	1		*	*
<i>Acute Myeloid Leukemia</i>	18		18	0		*	*
<i>Chronic Myeloid Leukemia</i>	14		13	1		*	*
Other Leukemia	2		2	0		*	*
<i>Other Acute Leukemia</i>	1		1	0		*	*
<i>Aleukemic/Subleukemic</i>	1		1	0		*	*
Myelodysplastic Syndrome	23		23	0		38	38
Chronic Myeloproliferative Disorders	24		23	1		26	23
Mast Cell Tumors/Mastocytosis	1		1	0		0	0
Mesothelioma	6		6	0		7	6
Unknown Primary	36		35	0		39	44
TOTALS	2,574		2,356	218		2,444	2,396

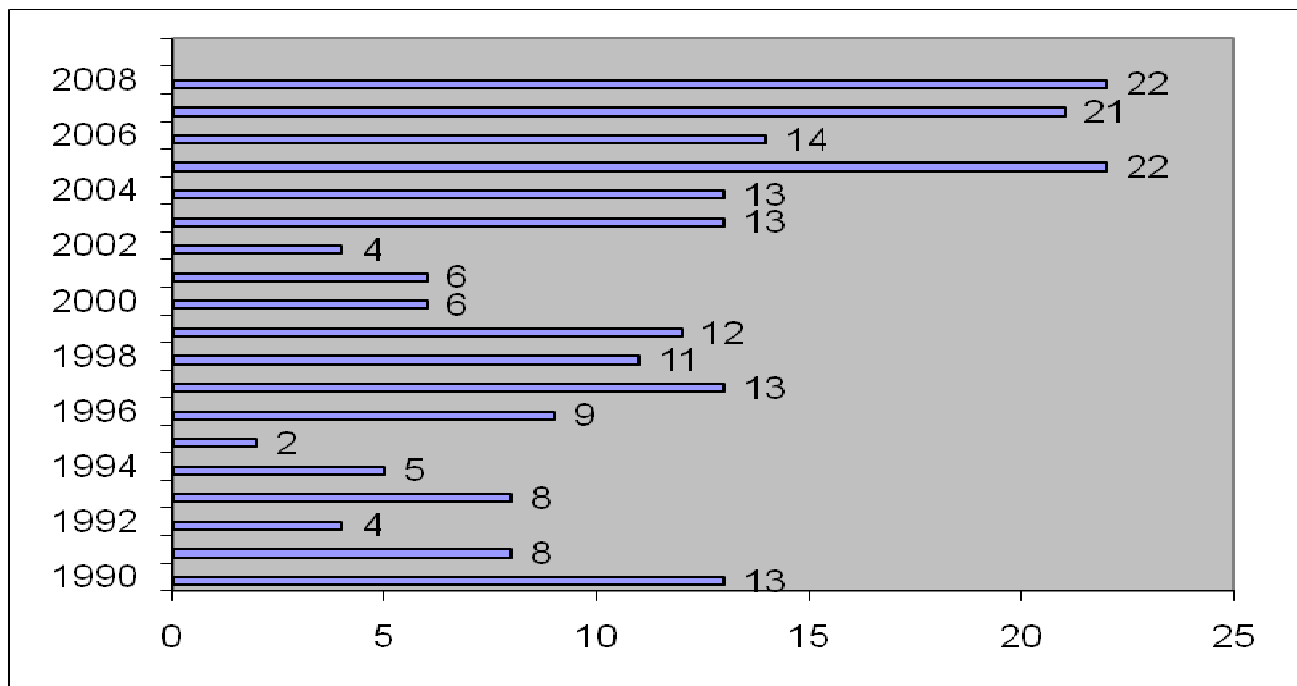
Adult Glioblastoma

- Age and gender. Higher percentage of male patients; 57% vs 43% female. Ages 50 to 70's show highest incidence.

<u>Age at Diagnosis</u>	<u>Male</u>	<u>Female</u>
20 - 29 yrs	2	1
30 - 39 yrs	7	5
40 - 49 yrs	16	8
50 - 59 yrs	33	20
60 - 69 yrs	31	20
70 - 79 yrs	22	26
80 - 89 yrs	7	8
Totals	118 (57%)	88 (43%)

- Increase in incidence of glioblastoma; 38 patients diagnosed 1990 – 1994. 92 patients 2004 – 2008.

INCIDENCE BY YEAR



- Shift in treatment to combination modalities – surgery/radiation/chemo was utilized in 34% of patients during 1990-94; increasing to 62% with 2005-08 patients.

Summary of First Course Treatment - Historical Overview

<u>Treatment Summary - 206 patients</u>	<u>Diagnosis Years</u>			
	<u>1990-1994</u>	<u>1995-1999</u>	<u>2000-2004</u>	<u>2005-2008</u>
	(38 pts)	(47 pts)	(42 pts)	(79 pts)
Surgery Only (gross resection)	2	1	1	8
Radiation Only	6	6	4	3
Chemo Only			1	
Surgery and Radiation	13	19	12	11
Surgery/Radiation/Chemo	13 (34%)	14 (30%)	19 (45%)	49 (62%)
Radiation and Chemo	2	3	3	6
No Treatment	2	4	2	2

- Short term survival (months surviving) has increased over the years; long term survival is still extremely rare.

<u>Months survived</u>	Percentage Surviving			
	<u>Dx 1990-94 (38 pts)</u>	<u>Dx 1995-99 (47 pts)</u>	<u>Dx 2000-04 (42 pts)</u>	<u>Dx 2005-08 (79 pts)</u>
6 months	63%	62%	69%	63%
12 months	29%	38%	38%	43%
18 months	13%	17%	21%	32%
2 yrs		9%	10%	24%
3 yrs	8%		5%	18% (15 alive)
4 yrs	5%	6%	2%	
5 yrs				
6 yrs	3%		0%	
7 yrs	0%	4%		
12 yrs		4% (2 pts alive)		

**European and Canadian trial, lead author, Dr Rene Mirimanoff, University Hospital Center and University of Lausanne, in Switzerland. Randomized 573 newly diagnosed patients to receive either standard radiotherapy or the same radiotherapy with concomitant temozolomide. "Temozolomide added to radiotherapy is most effective and should remain the standard against which any new treatment modality or new combination is compared".*

Survival (y)	Radiotherapy Alone (n=286), %	Temodar + Radiation (n=287), %
2	10.9	27.2
3	4.4	16.4
4	3	12.1

*American Society for Therapeutic Radiology and Oncology (ASTRO) 49th annual Meeting, 10-29-07.

Medulloblastoma is the most common malignant brain tumor in childhood, 20% of such tumors in children. Childhood brain tumors increased in incidence from 1960 - the mid 1980's, concurrent with improved imaging techniques. The incidence of medulloblastomas during that time has not changed, stable at about 7 cases per million. At MSTI, the incidence of medulloblastoma was similar to expected at 25% of pediatric brain tumors.

1990 - 2008 Pediatric Brain Tumor Incidence

<u>Histology</u>	<u>Number of pts</u>	<u>Percentage</u>
Medulloblastoma	28	25%
Pilocytic Astrocytoma	22	19%
Glioma, NOS	20	18%
Astrocytoma, NOS	11	10%
Ependymoma	9	8%
Other Astrocytoma	7	6%
Oligodendroglioma	4	3.5%
Glioblastoma	4	3.5%
Neuroepitheliomatous	4	3.5%
Other	4	3.5%
Total Cases	113 pts	

Medulloblastoma - Pediatric Incidence

<u>Diagnosis Year</u>	<u>Male</u>	<u>Female</u>
1990 - 1994	6	0
1995 - 1999	5	2
2000 - 2004	5	3
2005 - 2008	2	5
Totals	18	10

Historically, medulloblastomas were treated with surgery and radiation until the mid 1980's. Adjuvant chemotherapy was first used in poor risk patients with metastatic or incompletely resected disease, but eventually was used in patients with localized disease to decrease radiation doses while maintaining long term disease free survival, because of the significant long term neurocognitive side effects associated with high doses of radiation in children.

Only one patient was treated with surgery and radiation alone. One patient presented with unresectable disease and received chemotherapy alone. There were 3 patients that were treated with surgery and chemotherapy alone. This is reflective of COG studies that were open at the time

for infants, whom have the most profound neurocognitive side effects. In that population of patients, data from COG, as well as the European groups has demonstrated that 40-50% of infants can be successfully treated with surgery and intensive chemotherapy, including HD chemotherapy/stem cell rescue. The remaining 81% of patients received treatment with optimal surgical resection, chemotherapy, and radiotherapy, many on clinical trials from COG. We reviewed the MSTI data on the treatment outcomes of medulloblastoma. Our outcomes are equivalent or slightly better than national outcomes.

Our MSTI 1 year survivals are excellent, attesting to the surgical care, as most of the mortality in the first year is due to surgical complications. Our surgeries were performed primarily in SLC until 2003 when Dr Cherny began practicing here.

5 year survivals exceed the Seer data. 75% vs 57%. I believe that participation in COG studies have assisted in improving long term outcomes both in terms of morbidity and mortality. Current COG 5 yr DFS exceeds 80% in children with localized, completely resected disease, treated with radiation, chemotherapy, and surgical resection. Even more encouraging is the 10 yr survival, 68% vs 48%, as the overwhelming majority of these patients are cured of their disease.

Pediatric Medulloblastoma-

<u>Survival Summary</u>			
<u>St. Luke's Registry Data (1990 - 2008 28 pts)*</u>		<u>Seer Data (1973 - 2006 1,587 cases)* **</u>	
1 yr	96%	1 yr	80%
2 yr	92%	2 yr	71%
3 yr	80%	3 yr	65%
4 yr	75%	4 yr	60%
5 yr	75%	5 yr	57%
10 yr	68%	10 yr	48%

* Relative Survival Rates
 ** Adult and Pediatric pts

Clearly our brief review of the data demonstrate that quality care and outcomes that our patients experience. By ongoing participation in clinical research studies through COG, we hope that we can not only further improve long term survival for our children, but also improve their quality of life by reducing treatment associated long term side effects.

- Dr Eugenia Chang