PEDIATRIC CANCER IN IDAHO 2000-2009

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CDRI Cancer Data Registry of Idaho

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The statewide cancer registry database is a product of collaboration among many report sources, including hospitals, physicians, surgery centers, pathology laboratories, and other states in which Idaho residents are diagnosed and/or treated for cancer. Their cooperation in reporting timely, accurate, and complete cancer data is acknowledged and sincerely appreciated.

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Pediatric Cancer in Idaho, 2000-2009

Although relatively rare in comparison with cancer in older adults, cancer is the second leading cause of death in persons aged 1-14 years. The epidemiology of cancer among children differs markedly from that of adults, both in the patterns of anatomic sites involved and the predominant histologic types. Most notably, the tumors diagnosed in children frequently involve the hematopoietic and central nervous systems or are of mesenchymal origin. In contrast, malignancies of epithelial tissues, which are predominant in adults, are uncommon in children. Similar to adult cancers, the etiology of many childhood cancers remains unclear.

The Cancer Data Registry of Idaho (CDRI) receives several requests per year from physicians and others for data on pediatric cancer incidence for the State of Idaho. This report describes the incidence of pediatric cancers in Idaho, with comparisons to data from the National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER) Program and the US Centers for Disease Control and Prevention's National Program of Cancer Registries (NPCR).[1-2] SEER currently collects and publishes cancer incidence and survival data from population-based cancer registries covering approximately 26 percent of the US population and is considered the standard for quality among cancer registries around the world. NPCR supports central cancer registries in 45 states, the District of Columbia, Puerto Rico, and the U.S. Pacific Island Jurisdictions. These data represent 96% of the U.S. population. Together, NPCR and SEER collect data for the entire U.S. population. NPCR and SEER data are used in this report for pediatric cancer incidence rankings by state.

METHODS

The data analyzed for this report include cancers diagnosed between 2000 and 2009 among Idaho residents less than 20 years of age. Cases were grouped according to the International Classification of Childhood Cancer (ICCC) based on site and morphology coded according to ICD-O-3.[3]

A total of 862 cases were diagnosed among Idaho resident children under the age of 20 between 2000 and 2009. This number includes 788 malignant cancers and 58 benign and borderline behavior neoplasms. It was not possible to assign a group code of the ICCC system to 2 cases. Sixteen cases were in situ, which are not included in the ICCC system. Health District was assigned from county of residence at time of diagnosis. All rates presented were calculated per million population, and are averages for the period 2000 through 2009 (rates per million, rather than per 100,000, are commonly used for pediatric cancers). Age-adjustment was performed using the direct method to the 2000 U.S. standard population. Cancer incidence, mortality and survival statistics were calculated using SEER*Stat.[4] State rankings were obtained through SEER*Stat[1,4] and CDC WONDER.[2]

RESULTS

A total of 844 cases that met the study criteria were diagnosed among Idaho residents aged less than 20 years between 2000 and 2009, yielding an overall age-adjusted rate of 191.2 cases per million population. In comparison, the SEER rate for Whites was 203.8 cases per million population for 2007-2009. The distribution of pediatric cancers by ICCC grouping was very similar for Idaho and SEER Regions. Idaho's pediatric rate of astrocytomas was about 20% higher than the rate for SEER Whites, but the confidence intervals for the two rates overlapped. For no ICCC grouping did Idaho show a statistically significantly higher rate than SEER Regions based on the comparison of 95% confidence intervals.

For all races combined, Idaho ranked 14th highest among states in pediatric (ages 0-19) cancer incidence 2000-2009.[1,2] This result is partially related to differences in the distribution of race by state. Pediatric cancer incidence is higher among Whites, and Idaho has a higher proportion of White residents than many states. Among Whites, Idaho ranked 17th in pediatric cancer incidence.

Over 80% of children aged less than 20 years diagnosed with malignant cancer survived at least 5 years after their diagnosis, both in Idaho and SEER Regions. For no ICCC major classification category, nor overall, was there a statistically significant difference in 5-year relative survival between Idaho and SEER cases.

Pediatric cancer incidence increased at a rate of about 0.8% per year in Idaho from 1970 to 2009. This parallels the long term increase observed in SEER Regions from 1973 to 2009 of about 0.7% per year.

Health District 2 had statistically significantly lower ($p<.05$) rates of ICCC major classification category I (leukemias, myeloproliferative & myelodysplastic diseases) and all sites combined than the State of Idaho. Health District 5 had a statistically significantly higher ($p<.05$) rate of ICCC major classification category II (lymphomas and reticuloendothelial neoplasms) than the State of Idaho. Health District 4 had a statistically significantly higher rate and Health District 6 had a statistically significantly lower rate of ICCC major classification category XI (other malignant epithelial neoplasms and melanomas) than the State of Idaho. This may indicate underreporting of melanomas and thyroid carcinomas from Health District 6. CDRI is presently conducting surveys to investigate underreporting of physician and pathology laboratory cases in Health Districts 6 and 7. Health District 7 had a statistically significantly lower ($p<.05$) rate of ICCC major classification category X (germ cell & trophoblastic tumors & neoplasms of gonads) than the State of Idaho. For no other ICCC major classification category was there a statistically significant difference between any health district and the State of Idaho.

From 2000 to 2010, 124 of Idaho's children aged 0-19 died from some form of cancer.[5] The leading types of cancer mortality were leukemia and brain and other central nervous system. While pediatric cancer incidence rates have increased over time, mortality rates have decreased. From 1975-2009, pediatric cancer mortality rates have decreased about 2% per year, in Idaho and the U.S. The

annual rates plotted for Idaho demonstrate large year-to-year variability that is expected due to the relatively small numbers of deaths per year. Idaho ranked 42nd highest among states in pediatric (ages 0-19) cancer mortality 2000-2009.

CONCLUSIONS

These data demonstrate strong similarity in pediatric cancer incidence and survival patterns between Idaho and SEER Regions. Compared with cancer in adults, there is less geographic variability in pediatric cancer incidence. Nonetheless, Idaho continues to rank in the highest tertile among states in terms of pediatric cancer incidence.

Largely because of improvements in therapy for pediatric cancers, there has been a decrease in mortality rates over time. Data collected by CDRI for 2010 show that approximately two-thirds of pediatric patients participated in clinical trials at Idaho institutions. In addition, many pediatric cases are treated out-of-state, and may be enrolled in clinical trials through out-of-state treatment facilities. While this clinical trial participation rate is much higher than that for adults (3%), there remains room for improvement.

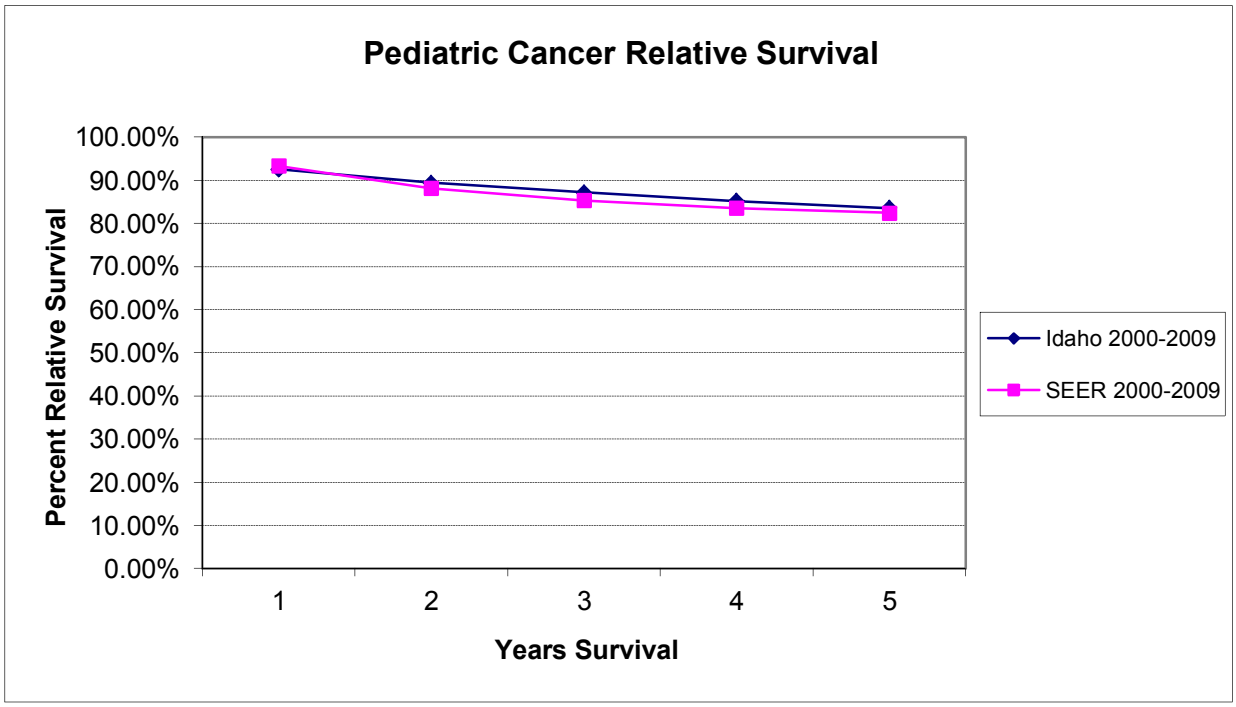
Pediatric Cancer Incidence in Idaho and SEER Regions (Ages 0-19)

Site/Type of Cancer	Idaho 2000-2009			SEER 2007-2009		
	Rate	Cases	Pop	Rate	Cases	Pop
All Sites Combined	191.2	844	4,371,857	203.8	5,116	24,915,130
I Leukemias, myeloproliferative & myelodysplastic diseases	44.1	195	4,371,857	50.9	1,292	24,915,130
I(a) Lymphoid leukemias	31.6	139	4,371,857	39.2	997	24,915,130
I(b) Acute myeloid leukemias	7.4	33	4,371,857	7.5	191	24,915,130
I(c) Chronic myeloproliferative diseases	2.1	9	4,371,857	2.0	49	24,915,130
I(d) Myelodysplastic syndrome and other myeloproliferative	2.0	9	4,371,857	1.2	30	24,915,130
I(e) Unspecified and other specified leukemias	1.1	5	4,371,857	1.0	25	24,915,130
II Lymphomas and reticuloendothelial neoplasms	23.9	105	4,371,857	26.6	656	24,915,130
II(a) Hodgkin lymphomas	12.7	56	4,371,857	13.9	342	24,915,130
II(b) Non-Hodgkin lymphomas (except Burkitt lymphoma)	7.1	31	4,371,857	9.0	222	24,915,130
II(c) Burkitt lymphoma	2.6	11	4,371,857	2.6	63	24,915,130
II(d) Miscellaneous lymphoreticular neoplasms	1.3	6	4,371,857	0.6	16	24,915,130
II(e) Unspecified lymphomas	0.2	1	4,371,857	0.5	13	24,915,130
III CNS and misc intracranial and intraspinal neoplasms	44.0	193	4,371,857	45.1	1,126	24,915,130
III(a) Ependymomas and choroid plexus tumor	3.6	16	4,371,857	4.1	103	24,915,130
III(b) Astrocytomas	18.3	80	4,371,857	15.3	382	24,915,130
III(c) Intracranial and intraspinal embryonal tumors	7.3	32	4,371,857	7.1	181	24,915,130
III(d) Other gliomas	5.7	25	4,371,857	5.7	142	24,915,130
III(e) Other specified intracranial/intraspinal neoplasms	8.7	38	4,371,857	11.7	288	24,915,130
III(f) Unspecified intracranial and intraspinal neoplasms	0.4	2	4,371,857	1.2	30	24,915,130
IV Neuroblastoma and other peripheral nervous cell tumors	7.5	34	4,371,857	7.7	203	24,915,130
IV(a) Neuroblastoma and ganglioneuroblastoma	7.0	32	4,371,857	7.5	198	24,915,130
IV(b) Other peripheral nervous cell tumors	0.5	2	4,371,857	0.2	5	24,915,130
V Retinoblastoma	3.9	18	4,371,857	2.4	63	24,915,130
VI Renal tumors	7.1	32	4,371,857	6.7	173	24,915,130
VI(a) Nephroblastoma and other nonepithelial renal tumors	6.9	31	4,371,857	6.1	159	24,915,130
VI(b) Renal carcinomas	0.2	1	4,371,857	0.6	14	24,915,130
VI(c) Unspecified malignant renal tumors	0.0	0	4,371,857	0.0	0	24,915,130
VII Hepatic tumors	1.8	8	4,371,857	2.5	66	24,915,130
VII(a) Hepatoblastoma	1.3	6	4,371,857	1.9	50	24,915,130
VII(b) Hepatic carcinomas	0.5	2	4,371,857	0.7	16	24,915,130
VII(c) Unspecified malignant hepatic tumors	0.0	0	4,371,857	0.0	0	24,915,130
VIII Malignant bone tumors	10.2	44	4,371,857	10.6	258	24,915,130
VIII(a) Osteosarcomas	7.2	31	4,371,857	5.6	136	24,915,130
VIII(b) Chondrosarcomas	0.2	1	4,371,857	0.5	13	24,915,130
VIII(c) Ewing tumor and related sarcomas of bone	2.8	12	4,371,857	3.9	96	24,915,130
VIII(d) Other specified malignant bone tumors	0.0	0	4,371,857	0.4	9	24,915,130
VIII(e) Unspecified malignant bone tumors	0.0	0	4,371,857	0.2	4	24,915,130
IX Soft tissue and other extraosseous sarcomas	14.3	63	4,371,857	16.3	407	24,915,130
IX(a) Rhabdomyosarcomas	4.5	20	4,371,857	4.0	102	24,915,130
IX(b) Fibrosarcomas, peripheral nerve & other fibrous	2.7	12	4,371,857	4.0	101	24,915,130
IX(c) Kaposi sarcoma	0.0	0	4,371,857	0.1	2	24,915,130
IX(d) Other specified soft tissue sarcomas	4.7	21	4,371,857	6.9	171	24,915,130
IX(e) Unspecified soft tissue sarcomas	2.3	10	4,371,857	1.2	31	24,915,130
X Germ cell & trophoblastic tumors & neoplasms of gonads	10.5	47	4,371,857	14.6	364	24,915,130
X(a) Intracranial & intraspinal germ cell tumors	0.4	2	4,371,857	1.9	46	24,915,130
X(b) Extracranial & extragonadal germ cell tumors	1.3	6	4,371,857	1.2	32	24,915,130
X(c) Malignant gonadal germ cell tumors	7.9	35	4,371,857	10.9	272	24,915,130
X(d) Gonadal carcinomas	0.7	3	4,371,857	0.5	12	24,915,130
X(e) Other and unspecified malignant gonadal tumors	0.2	1	4,371,857	0.1	2	24,915,130

Pediatric Cancer Incidence in Idaho and SEER Regions (Ages 0-19) - continued

Site/Type of Cancer	Idaho 2000-2009			SEER 2007-2009		
	Rate	Cases	Pop	Rate	Cases	Pop
XI Other malignant epithelial neoplasms and melanomas	23.4	103	4,371,857	20.0	496	24,915,130
XI(a) Adrenocortical carcinomas	0.0	0	4,371,857	0.1	3	24,915,130
XI(b) Thyroid carcinomas	9.7	43	4,371,857	9.3	229	24,915,130
XI(c) Nasopharyngeal carcinomas	0.2	1	4,371,857	0.2	4	24,915,130
XI(d) Malignant melanomas	7.9	35	4,371,857	6.1	151	24,915,130
XI(e) Skin carcinomas	0.0	0	4,371,857	0.1	3	24,915,130
XI(f) Other and unspecified carcinomas	5.5	24	4,371,857	4.3	106	24,915,130
XII Other and unspecified malignant neoplasms	0.4	2	4,371,857	0.5	12	24,915,130
XII(a) Other specified malignant tumors	0.4	2	4,371,857	0.3	7	24,915,130
XII(b) Other unspecified malignant tumors	0.0	0	4,371,857	0.2	5	24,915,130
Not classified by ICCC or in situ	4.0	18	4,371,857	4.0	101	24,915,130

Rates are per 1,000,000 and age-adjusted to the 2000 U.S. standard.
SEER data are for White race. Cases and rates are for benign, borderline, and malignant behavior.
Statistical Note: Rates based upon 10 or fewer cases (numerator) should be interpreted with caution.



Five-Year Relative Cancer Survival by Major ICCC Classification Category

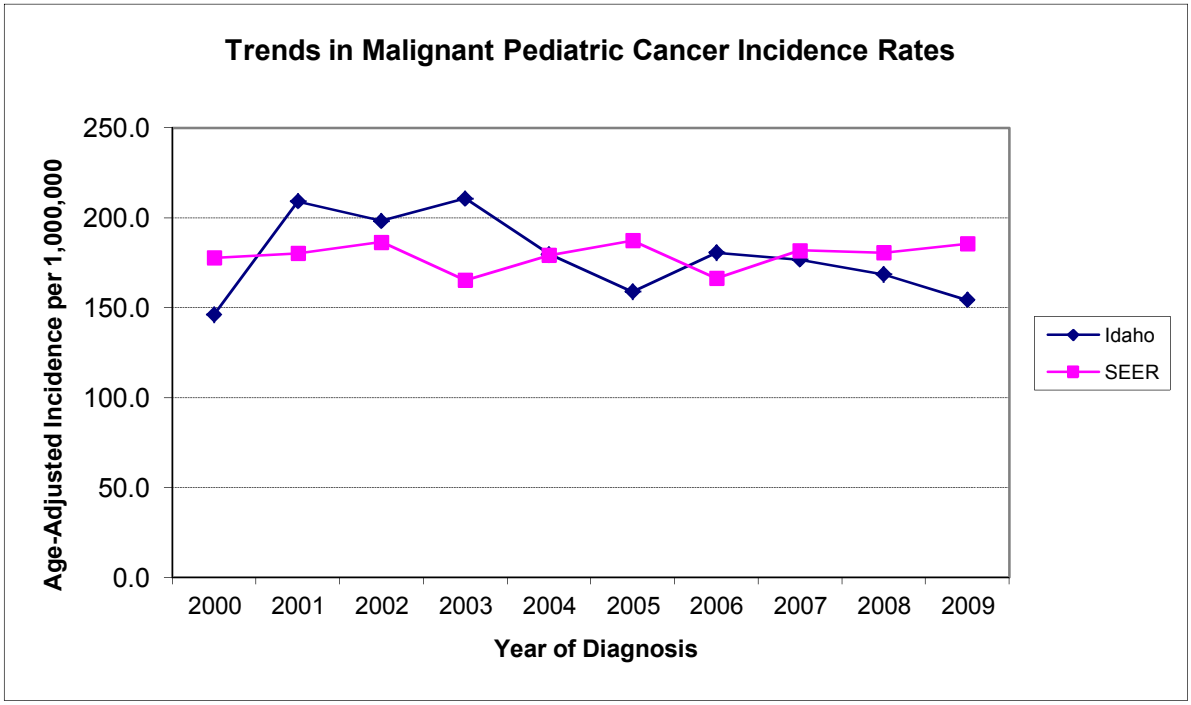
Site/Type of Cancer	Idaho 2000-2009			SEER 2000-2009		
	Cases	% Survival	95% CI	Cases	% Survival	95% CI
All Sites Combined	770	83.5%	80.2% - 86.2%	14,521	82.4%	81.7% - 83.1%
I Leukemias, myeloproliferative & myelodysplastic diseases	191	82.3%	75.2% - 87.5%	3,984	81.7%	80.2% - 83.0%
II Lymphomas and reticuloendothelial neoplasms	103	93.3%	85.2% - 97.1%	2,033	90.7%	89.2% - 92.1%
III CNS and misc intracranial and intraspinal neoplasms	147	76.2%	67.7% - 82.7%	2,501	74.3%	72.3% - 76.1%
IV Neuroblastoma and other peripheral nervous cell tumors	31	69.3%	35.7% - 87.7%	691	78.5%	74.7% - 81.8%
V Retinoblastoma	18	92.3%	54.2% - 98.9%	276	99.5%	94.9% - 99.9%
VI Renal tumors	31	91.4%	68.5% - 97.9%	503	88.5%	84.9% - 91.3%
VII Hepatic tumors	8	56.3%	14.7% - 84.2%	204	70.4%	62.8% - 76.8%
VIII Malignant bone tumors	41	67.8%	47.0% - 81.9%	749	67.3%	63.1% - 71.3%
IX Soft tissue and other extraosseous sarcomas	51	80.3%	65.1% - 89.4%	983	72.3%	69.0% - 75.3%
X Germ cell & trophoblastic tumors & neoplasms of gonads	47	91.0%	76.7% - 96.7%	1,114	92.0%	90.0% - 93.6%
XI Other malignant epithelial neoplasms and melanomas	100	90.9%	82.3% - 95.5%	1,446	92.4%	90.7% - 93.8%
XII Other and unspecified malignant neoplasms	2	+	+ - +	37	69.7%	49.1% - 83.2%

+ The statistic could not be calculated.

Malignant Pediatric Cancer Incidence in Idaho and SEER Regions (Ages 0-19)

Year of Diagnosis	Idaho 2000-2009			SEER 2000-2009		
	Rate	Cases	Pop	Rate	Cases	Pop
Total	177.9	786	4,371,857	179.2	14,990	83,213,754
2000	146.2	61	415,345	177.8	1,481	8,339,416
2001	209.2	88	418,612	180.3	1,507	8,355,249
2002	198.2	84	420,738	186.6	1,558	8,343,056
2003	210.7	90	422,969	165.4	1,381	8,332,503
2004	179.8	78	427,516	179.3	1,502	8,329,748
2005	159.0	70	435,886	187.4	1,570	8,304,410
2006	180.6	82	445,358	166.4	1,393	8,294,242
2007	176.7	82	455,480	182.0	1,523	8,291,023
2008	168.6	78	463,085	180.7	1,517	8,304,712
2009	154.3	73	466,868	185.7	1,558	8,319,395

Rates are per 1,000,000 and age-adjusted to the 2000 U.S. standard.



Pediatric Cancer Incidence in Idaho (Ages 0-19) by Health District, Major Classification Categories, 2000-2009

Site/Type of Cancer	Health District 1			Health District 2			Health District 3		
	Rate	95% CI	Cases	Rate	95% CI	Cases	Rate	95% CI	Cases
All Sites Combined	173.4	139.8 - 212.7	92	104.8	68.6 - 153.4	27	204.2	172.7 - 239.7	150
I Leukemias, myeloproliferative & myelodysplastic diseases	48.4	31.3 - 71.4	25	12.7	2.6 - 36.8	3	56.1	40.4 - 75.9	42
II Lymphomas and reticuloendothelial neoplasms	20.4	10.2 - 36.5	11	17.0	5.4 - 41.3	5	25.4	15.0 - 40.0	18
III CNS and misc intracranial and intraspinal neoplasms	33.8	20.0 - 53.5	18	28.0	11.1 - 58.2	7	48.5	33.9 - 67.2	36
IV Neuroblastoma and other peripheral nervous cell tumors	5.9	1.2 - 17.1	3	17.5	4.8 - 44.2	4	3.6	0.7 - 10.8	3
V Retinoblastoma	2.0	0.0 - 10.8	1	0.0	0.0 - 14.9	0	2.4	0.3 - 9.1	2
VI Renal tumors	9.7	3.2 - 22.6	5	0.0	0.0 - 14.9	0	15.0	7.7 - 26.3	12
VII Hepatic tumors	0.0	0.0 - 7.0	0	0.0	0.0 - 14.9	0	0.0	0.0 - 4.9	0
VIII Malignant bone tumors	11.2	4.1 - 24.4	6	8.2	1.0 - 29.5	2	4.2	0.9 - 12.2	3
IX Soft tissue and other extraosseous sarcomas	9.1	3.0 - 21.4	5	4.3	0.1 - 23.3	1	5.6	1.5 - 14.2	4
X Germ cell & trophoblastic tumors & neoplasms of gonads	9.4	3.0 - 22.0	5	10.0	2.0 - 31.2	3	18.7	9.9 - 31.8	13
XI Other malignant epithelial neoplasms and melanomas	23.6	12.6 - 40.5	13	7.0	0.8 - 26.7	2	24.6	14.3 - 39.3	17
XII Other and unspecified malignant neoplasms	0.0	0.0 - 7.0	0	0.0	0.0 - 14.9	0	0.0	0.0 - 4.9	0

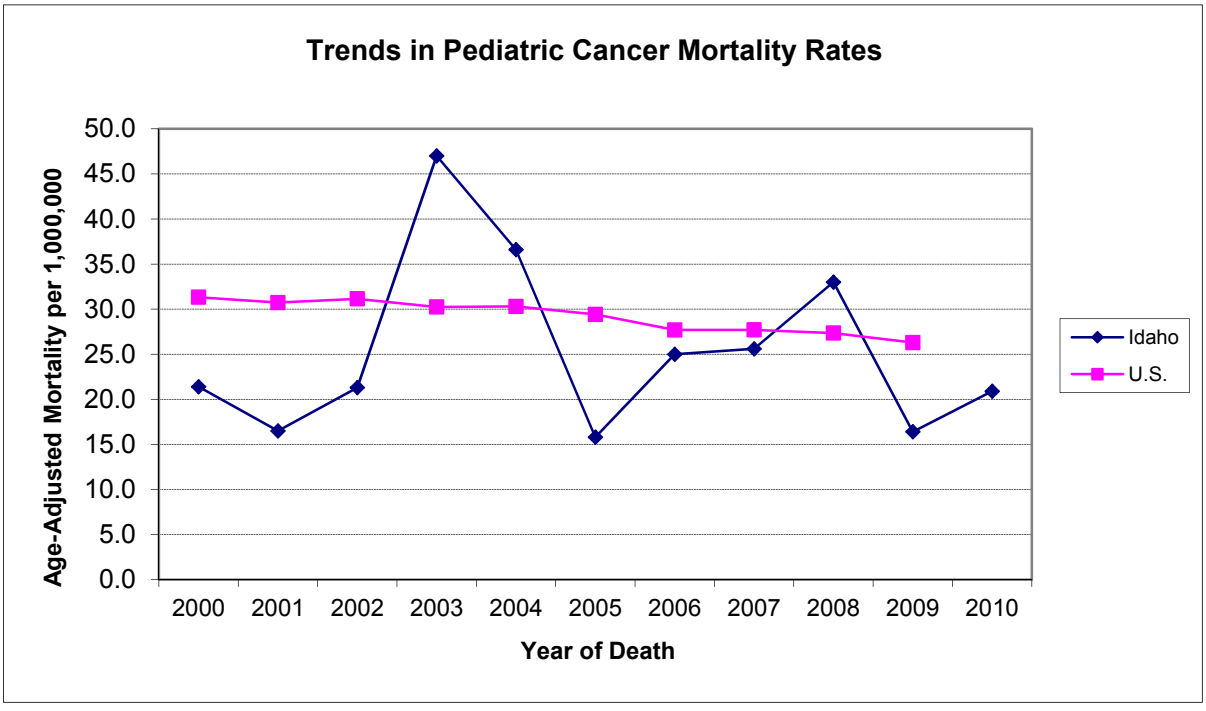
Site/Type of Cancer	Health District 4			Health District 5			Health District 6			Health District 7		
	Rate	95% CI	Cases	Rate	95% CI	Cases	Rate	95% CI	Cases	Rate	95% CI	Cases
All Sites Combined	220.8	194.1 - 250.2	247	196.2	160.4 - 237.5	105	182.7	148.7 - 222.0	101	184.2	152.5 - 220.6	120
I Leukemias…	48.8	36.9 - 63.5	56	46.2	29.9 - 68.2	25	31.1	18.1 - 49.8	17	43.4	28.5 - 63.2	27
II Lymphomas…	18.0	11.0 - 27.8	20	41.5	26.0 - 62.8	22	23.7	12.6 - 40.6	13	22.9	12.7 - 37.9	15
III CNS and…	46.1	34.4 - 60.5	52	42.8	27.1 - 64.2	23	52.8	35.3 - 75.8	29	43.8	29.0 - 63.5	28
IV Neuroblastoma…	9.1	4.5 - 16.4	11	1.8	0.0 - 10.0	1	12.3	5.0 - 25.5	7	7.7	2.5 - 18.1	5
V Retinoblastoma	4.8	1.8 - 10.7	6	3.6	0.4 - 13.2	2	3.7	0.4 - 13.2	2	7.5	2.4 - 17.6	5
VI Renal tumors	6.8	2.9 - 13.4	8	3.5	0.4 - 12.9	2	5.4	1.1 - 15.9	3	3.3	0.4 - 11.7	2
VII Hepatic tumors	5.1	1.9 - 11.1	6	3.7	0.4 - 13.3	2	0.0	0.0 - 6.7	0	0.0	0.0 - 5.8	0
VIII Malignant bone tumors	12.1	6.5 - 20.7	13	17.1	7.8 - 32.3	9	11.1	4.1 - 24.0	6	8.4	2.7 - 19.4	5
IX Soft tissue…	20.0	12.5 - 30.3	22	11.4	4.2 - 24.8	6	21.5	11.1 - 37.6	12	19.2	10.2 - 33.0	13
X Germ cell…	11.1	5.7 - 19.3	12	5.5	1.1 - 16.2	3	15.7	7.2 - 30.0	9	2.6	0.3 - 10.1	2
XI Other malig epithelial…	38.9	27.9 - 52.6	41	19.0	9.1 - 34.9	10	5.3	1.1 - 15.5	3	22.5	12.8 - 36.8	16
XII Other/unspecified…	0.0	0.0 - 3.2	0	0.0	0.0 - 6.8	0	0.0	0.0 - 6.7	0	2.8	0.3 - 10.6	2

Rates are per 1,000,000 and age-adjusted to the 2000 U.S. standard.
Confidence intervals (CIs) are 95% for rates.
Statistical Note: Rates based upon 10 or fewer cases (numerator) should be interpreted with caution.

Pediatric Cancer Mortality in Idaho and the U.S. (Ages 0-19)

Year of Death	Idaho 2000-2010			U.S. 2000-2009		
	Rate	Deaths	Pop	Rate	Deaths	Pop
Total	25.4	124	4,847,138	29.2	23,986	819,975,927
2000	21.4	9	415,345	31.3	2,523	80,576,090
2001	16.5	7	418,612	30.7	2,487	80,936,178
2002	21.3	9	420,738	31.1	2,530	81,220,566
2003	47.0	20	422,969	30.2	2,466	81,485,313
2004	36.6	16	427,516	30.3	2,481	81,819,970
2005	15.8	7	435,886	29.4	2,420	82,072,745
2006	25.0	11	445,358	27.7	2,291	82,389,800
2007	25.6	12	455,480	27.7	2,302	82,856,970
2008	33.0	15	463,085	27.3	2,286	83,197,604
2009	16.4	8	466,868	26.3	2,200	83,420,691
2010	20.9	10	475,281			

Rates are per 1,000,000 and age-adjusted to the 2000 U.S. standard.



Appendix A

Site/histology recode based on International Classification of Childhood Cancer, Third edition (ICCC-3) based on ICD-O-3[1]

Site Group	ICD-O-3 Histology (Type)	ICD-O-2/3 Site	Recode
I Leukemias, myeloproliferative diseases, and myelodysplastic diseases			
(a) Lymphoid leukemias	9820, 9823, 9826, 9827, 9831-9837, 9940, 9948	C000-C809	011
(b) Acute myeloid leukemias	9840, 9861, 9866, 9867, 9870-9874, 9891, 9895-9897, 9910, 9920, 9931	C000-C809	012
(c) Chronic myeloproliferative diseases	9863, 9875, 9876, 9950, 9960-9964	C000-C809	013
(d) Myelodysplastic syndrome and other myeloproliferative diseases	9945, 9946, 9975, 9980, 9982-9987, 9989	C000-C809	014
(e) Unspecified and other specified leukemias	9800, 9801, 9805, 9860, 9930	C000-C809	015
II Lymphomas and reticuloendothelial neoplasms			
(a) Hodgkin lymphomas	9650-9655, 9659, 9661-9665, 9667	C000-C809	021
(b) Non-Hodgkin lymphomas (except Burkitt lymphoma)	9591, 9670, 9671, 9673, 9675, 9678-9680, 9684, 9689-9691, 9695, 9698-9702, 9705, 9708, 9709, 9714, 9716-9719, 9727-9729, 9731-9734, 9760-9762, 9764-9769, 9970	C000-C809	022
(c) Burkitt lymphoma	9687	C000-C809	023
(d) Miscellaneous lymphoreticular neoplasms	9740-9742, 9750, 9754-9758	C000-C809	024
(e) Unspecified lymphomas	9590, 9596	C000-C809	025
III CNS and miscellaneous intracranial and intraspinal neoplasms			
(a) Ependymomas and choroid plexus tumor	9383, 9390-9394	C000-C809	031
(b) Astrocytomas	9380	C723	032
	9384, 9400-9411, 9420, 9421-9424, 9440-9442	C000-C809	032
(c) Intracranial and intraspinal embryonal tumors	9470-9474, 9480, 9508	C000-C809	033
	9501-9504	C700-C729	033
(d) Other gliomas	9380	C700-C722, C724-C729, C751, C753	034
	9381, 9382, 9430, 9444, 9450, 9451, 9460	C000-C809	034

(e) Other specified intracranial and intraspinal neoplasms	8270-8281, 8300, 9350-9352, 9360-9362, 9412, 9413, 9492, 9493, 9505-9507, 9530-9539, 9582	C000-C809	035
(f) Unspecified intracranial and intraspinal neoplasms	8000-8005	C700-C729, C751-C753	036
IV Neuroblastoma and other peripheral nervous cell tumors			
(a) Neuroblastoma and ganglioneuroblastoma	9490, 9500	C000-C809	041
(b) Other peripheral nervous cell tumors	8680-8683, 8690-8693, 8700, 9520-9523	C000-C809	042
	9501-9504	C000-C699, C739-C768, C809	042
V Retinoblastoma	9510-9514	C000-C809	050
VI Renal tumors			
(a) Nephroblastoma and other nonepithelial renal tumors	8959, 8960, 8964-8967	C000-C809	061
	8963, 9364	C649	061
(b) Renal carcinomas	8010-8041, 8050-8075, 8082, 8120-8122, 8130-8141, 8143, 8155, 8190-8201, 8210, 8211, 8221-8231, 8240, 8241, 8244-8246, 8260-8263, 8290, 8310, 8320, 8323, 8401, 8430, 8440, 8480-8490, 8504, 8510, 8550, 8560-8576	C649	062
	8311, 8312, 8316-8319, 8361	C000-C809	062
(c) Unspecified malignant renal tumors	8000-8005	C649	063
VII Hepatic tumors			
(a) Hepatoblastoma	8970	C000-C809	071
(b) Hepatic carcinomas	8010-8041, 8050-8075, 8082, 8120-8122, 8140, 8141, 8143, 8155, 8190-8201, 8210, 8211, 8230, 8231, 8240, 8241, 8244-8246, 8260-8264, 8310, 8320, 8323, 8401, 8430, 8440, 8480-8490, 8504, 8510, 8550, 8560-8576	C220, C221	072
	8160-8180	C000-C809	072
(c) Unspecified malignant hepatic tumors	8000-8005	C220, C221	073
VIII Malignant bone tumors			
(a) Osteosarcomas	9180-9187, 9191-9195, 9200	C400-C419, C760-C768, C809	081
(b) Chondrosarcomas	9210, 9220, 9240	C400-C419, C760-C768, C809	082
	9221, 9230, 9241-9243	C000-C809	082
(c) Ewing tumor and related sarcomas of bone	9260	C400-C419, C760-C768, C809	083
	9363-9365	C400-C419	083

(d) Other specified malignant bone tumors	8810, 8811, 8823, 8830	C400-C419	084
	8812, 9250, 9261, 9262, 9270-9275, 9280-9282, 9290, 9300-9302, 9310-9312, 9320-9322, 9330, 9340-9342, 9370-9372	C000-C809	084
(e) Unspecified malignant bone tumors	8000-8005, 8800, 8801, 8803-8805	C400-C419	085
IX Soft tissue and other extraosseous sarcomas			
(a)Rhabdomyosarcomas	8900-8905, 8910, 8912, 8920, 8991	C000-C809	091
(b) Fibrosarcomas, peripheral nerve sheath tumors, and other fibrous neoplasms	8810, 8811, 8813-8815, 8821, 8823, 8834-8835	C000-C399, C440-C768, C809	092
	8820, 8822, 8824-8827, 9150, 9160, 9491, 9540-9571, 9580	C000-C809	092
(c) Kaposi sarcoma	9140	C000-C809	093
(d) Other specified soft tissue sarcomas	8587, 8710-8713, 8806, 8831-8833, 8836, 8840-8842, 8850-8858, 8860-8862, 8870, 8880, 8881, 8890-8898, 8921, 8982, 8990, 9040-9044, 9120-9125, 9130-9133, 9135, 9136, 9141, 9142, 9161, 9170-9175, 9231, 9251, 9252, 9373, 9581	C000-C809	094
	8830	C000-C399, C440-C768, C809	094
	8963	C000-C639, C659-C699, C739-C768, C809	094
	9180, 9210, 9220, 9240	C490-C499	094
	9260	C000-C399, C470-C759	094
	9364	C000-C399, C470-C639, C659-C699, C739-C768, C809	094
	9365	C000-C399, C470-C639, C659-C768, C809	094
(e) Unspecified soft tissue sarcomas	8800-8805	C000-C399, C440-C768, C809	095
X Germ cell tumors, trophoblastic tumors, and neoplasms of gonads			
(a) Intracranial and intraspinal germ cell tumors	9060-9065, 9070-9072, 9080-9085, 9100, 9101	C700-C729, C751-C753	101
(b) Malignant extracranial and extragonadal germ cell tumors	9060-9065, 9070-9072, 9080-9085, 9100-9105	C000-C559, C570-C619, C630-C699, C739-C750, C754-C768, C809	102
(c) Malignant gonadal germ cell tumors	9060-9065, 9070-9073, 9080-9085, 9090, 9091, 9100, 9101	C569, C620-C629	103
(d) Gonadal carcinomas	8010-8041, 8050-8075, 8082, 8120-8122, 8130-8141, 8143, 8190-8201,	C569, C620-C629	104

	8210, 8211, 8221-8241, 8244-8246, 8260-8263, 8290, 8310, 8313, 8320, 8323, 8380-8384, 8430, 8440, 8480-8490, 8504, 8510, 8550, 8560-8573, 9000, 9014, 9015		
	8441-8444, 8450, 8451, 8460-8473	C000-C809	104
(e) Other and unspecified malignant gonadal tumors	8590-8671	C000-C809	105
	8000-8005	C569, C620-C629	105
XI Other malignant epithelial neoplasms and malignant melanomas			
(a) Adrenocortical carcinomas	8370-8375	C000-C809	111
(b) Thyroid carcinomas	8010-8041, 8050-8075, 8082, 8120-8122, 8130-8141, 8190, 8200, 8201, 8211, 8230, 8231, 8244-8246, 8260-8263, 8290, 8310, 8320, 8323, 8430, 8440, 8480, 8481, 8510, 8560-8573	C739	112
	8330-8337, 8340-8347, 8350	C000-C809	112
(c) Nasopharyngeal carcinomas	8010-8041, 8050-8075, 8082, 8083, 8120-8122, 8130-8141, 8190, 8200, 8201, 8211, 8230, 8231, 8244-8246, 8260-8263, 8290, 8310, 8320, 8323, 8430, 8440, 8480, 8481, 8500-8576	C110-C119	113
(d) Malignant melanomas	8720-8780, 8790	C000-C809	114
(e) Skin carcinomas	8010-8041, 8050-8075, 8078, 8082, 8090-8110, 8140, 8143, 8147, 8190, 8200, 8240, 8246, 8247, 8260, 8310, 8320, 8323, 8390-8420, 8430, 8480, 8542, 8560, 8570-8573, 8940, 8941	C440-C449	115
(f) Other and unspecified carcinomas	8010-8084, 8120-8157, 8190-8264, 8290, 8310, 8313-8315, 8320-8325, 8360, 8380-8384, 8430-8440, 8452-8454, 8480-8586, 8588-8589, 8940, 8941, 8983, 9000, 9010-9016, 9020, 9030	C000-C109, C129-C218, C239-C399, C480-C488, C500-C559, C570-C619, C630-C639, C659-C729, C750-C768, C809	116
XII Other and unspecified malignant neoplasms			
(a) Other specified malignant tumors	8930-8936, 8950, 8951, 8971-8981, 9050-9055, 9110	C000-C809	121
	9363	C000-C399, C470-C759	121
(b) Other unspecified malignant tumors	8000-8005	C000-C218, C239-C399, C420-C559, C570-C619, C630-C639, C659-C699, C739-C750, C754-C809	122
Not Classified by ICCC or in situ			999

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