

Childhood Cancer in Nevada, 2011-2021

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Background and Purpose

The purpose of this report is to provide an overview of childhood cancer in Nevada from 2011 to 2021. The data presented includes new cases (incidence) and deaths due to cancer among children. For the purpose of this report, "children" are individuals 19 years of age or younger at the time of diagnosis or death, following the Center for Disease Control and Prevention (CDC) guidelines. In 2021, Nevada recorded 14,774 cancer cases, with childhood cancers accounting for approximately 1% of these cases. There were 5,292 cancer-related deaths in the same year, with childhood deaths comprising less than 1%. Notably, childhood cancer is the seventh leading cause of death for children in Nevada.

Data Sources and Terminology

Confidence Interval (CI)

Range of values for a rate or prevalence with a specified probability that the true value of the rate or prevalence lies within that range of values. For example, 95% CI includes the true value of the rate 95% of the time.

Electronic Death Registry System (EDRS)

The Office of Vital Records within the Division of Public and Behavioral Health collects information through the cause of death listed on the death certificate. Causes of death are based on a system of medical codes, known as the ICD-10 codes, which align with national data and data from other states. The ICD-10 codes for cancer-related deaths and used in this report are: C00-C26, C30-C41, C43-C58, C60-C96, C7A, C7B.

Nevada Central Cancer Registry (NCCR)

A population-based, dynamic database containing information about incidence, mortality, staging, treatment and recurrence of cancer cases. As a population-based registry, it provides statewide standardized data that is utilized nationally and locally for research and epidemiological analyses of cancer occurrence in the state [1].

Nevada State Demographer Office

The Nevada State Demographer Office is funded by the Nevada Department of Taxation and is part of the Nevada Small Business Development Center. The Demographer’s Office is responsible for conducting annual population estimates for the State of Nevada, each county and other demographic groups. This report utilized population estimates provided by the State Demographer in 2023.

Rates

A rate is a measure of the frequency of a specific event over a given period, divided by the total number of people within the population over the same period of time. For this report, the population is children in Nevada 0–19 years of age. An age-adjusted rate is a rate that has been adjusted, or weighted, to the same age distribution as a “standard” population. Throughout this report, rates are adjusted to the standard U.S. population in the year 2000 (Census table P25-1130 Population Projections and Standard Age Groups). Rates are age-adjusted in order to eliminate any potential confounding effects, or biases, that may be a result of health factors that are associated with specific ages.

United States Cancer Statistics (USCS)

The U.S. Cancer Statistics Incidence and Mortality web-based report contains the official federal statistics on cancer incidence (newly diagnosed cases). Information on newly diagnosed cancer cases is based on data collected by registries in CDC’s National Program of Cancer Registries (NPCR) and National Cancer Institutes (NCI) Surveillance, Epidemiology, and End Results (SEER) Program. Together, NPCR and SEER collect cancer incidence data for the entire U.S. population. Information on cancer deaths is collected by the National Vital Statistics System (NVSS) of CDC’s National Center for Health Statistics (NCHS) [5].

Childhood Cancer Incidence

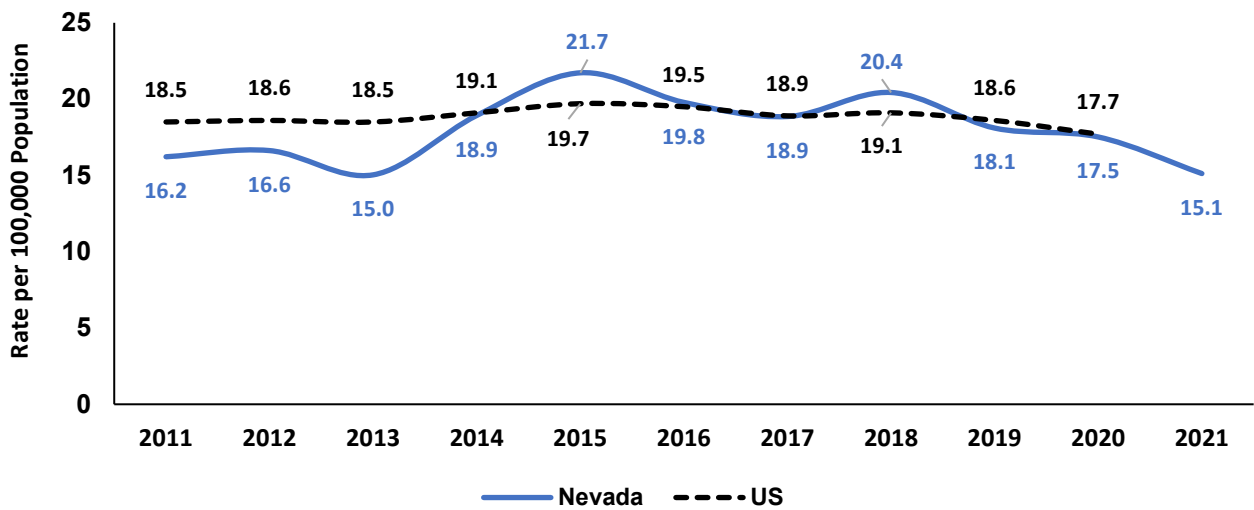
Childhood cancer incidence in Nevada has remained steady from 2011–2021, with the highest count of 167 (21.7 per 100,000 population) new cases in 2015. Although the count of new cases is similar from 2011–2021, the rate decreased slightly due to the change in population over the previous 10 years (Table 1).

Table 1: Childhood Cancer Incidence in Nevada, 2011-2021.

Year	Population (0-19)	Childhood Cancers Case Counts	Age-Adjusted Rate	95% CI Lower	95% CI Upper
2011	739,975	121	16.2	13.3	19.1
2012	741,807	123	16.6	13.7	19.6
2013	748,770	112	15.0	12.3	17.8
2014	753,680	142	18.9	15.8	22.0
2015	774,593	167	21.7	18.4	25.0
2016	785,238	154	19.8	16.7	22.9
2017	789,827	148	18.9	15.8	21.9
2018	804,259	164	20.4	17.3	23.6
2019	814,809	148	18.1	15.2	21.0
2020	823,766	145	17.5	14.7	20.4
2021	800,761	121	15.1	12.4	17.8
Total	-	1,545	18.1	17.2	19.0

Compared to the United States, Nevada’s incidences are slightly lower on average (Figure 1). Data for 2021 are not available for the United States.

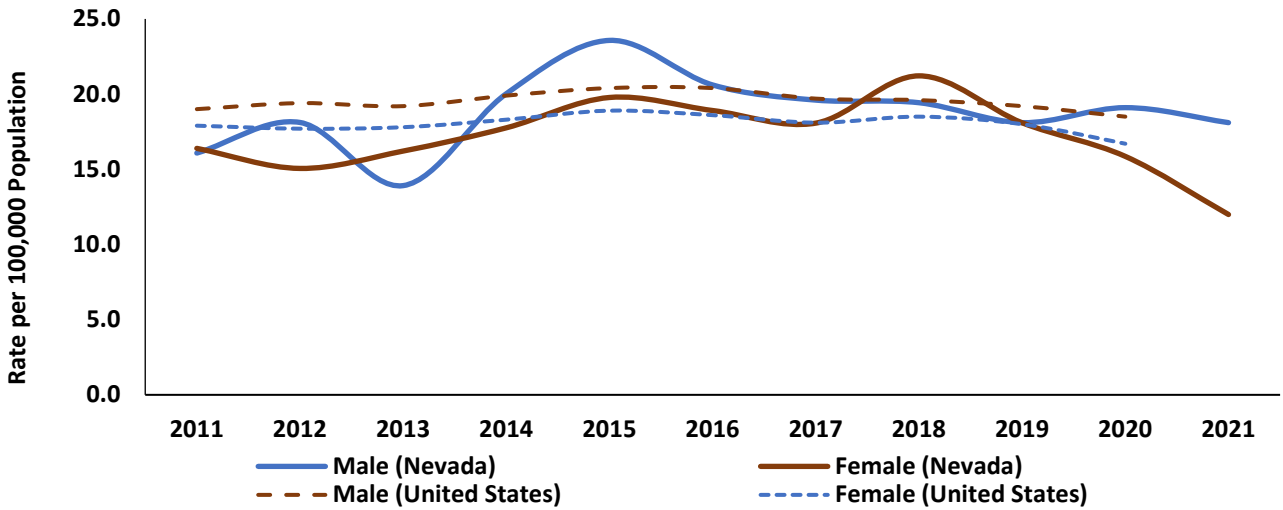
Figure 1: Age-Adjusted Childhood Cancer Incidence Rate, Nevada, and United States, 2011–2021.



Childhood Cancer in Nevada

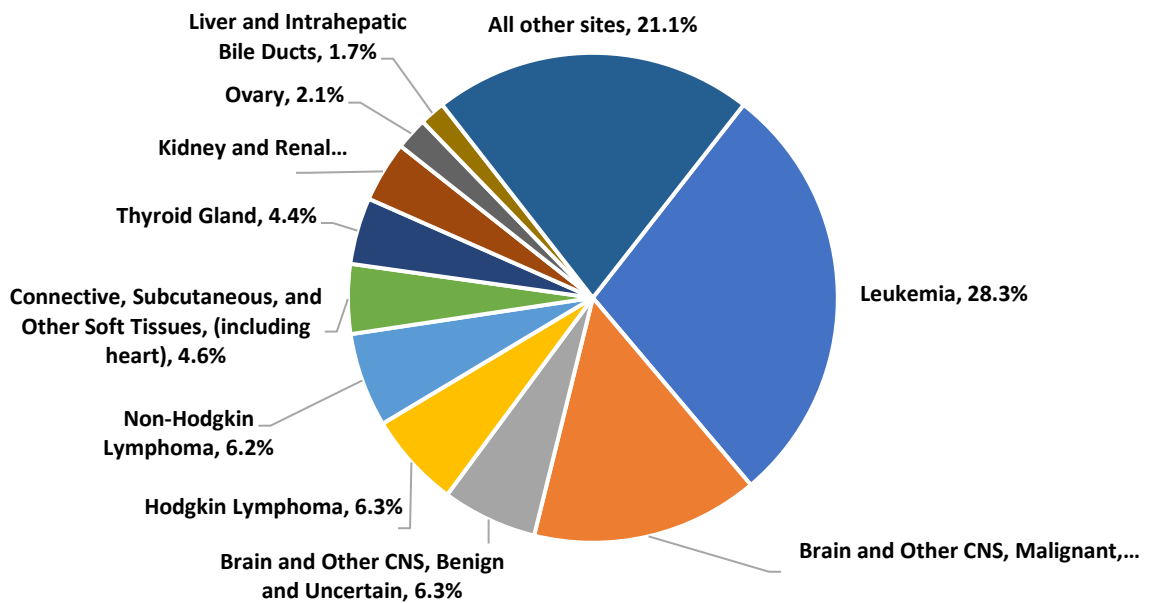
In 2021, there were 74 new cases of childhood cancers for males (18.1 per 100,000 age-specific population), whereas there were 47 new cases among females (12.0 per 100,000 age-specific population); however, this is not a statistically significant increase (Appendix Table 2 and Figure 2). The average number of new childhood cancer cases is 75 for males and 65 for females. There was one case where sex was missing and therefore not included in the figure.

Figure 2: Age-Adjusted Childhood Cancer Incidence Rates by Gender, Nevada and National, 2011-2021.



Leukemia was the most common childhood cancer diagnosis from 2011–2021, with 437 new cases. All other sites include, but is not limited to, colorectal (1.4%); melanoma/skin (0.8%); lip, oral cavity and pharynx (0.5%); pancreas (0.4%); lung and bronchus (0.3%); cervix uteri (0.3%); and stomach, prostate and urinary bladder (all 0.1%). The remaining 17.2% is all other types of cancer groups (Figure 3). There is no significant difference in cancer groups between genders.

Figure 3: Childhood Cancer Incidence by Type, Nevada, 2011–2021.



Childhood Cancer in Nevada

Figure 4 illustrates the incidence rates across the different regions in Nevada, highlighting the two urban counties (Clark and Washoe) and the combined rural counties in the remainder of the state. Clark County trends closely mirror Nevada, while trends among Washoe County and rural counties fluctuate over the period. Clark County's highest rate was 20.6 per 100,000 population in 2018. Washoe County has the highest rate of cases at 27.8 per 100,000 in 2015. The rural counties had the highest rate of cases at 25.9 per 100,000 in 2020. There were three cases where county is unknown and therefore not included in Figure 4.

Figure 4. Childhood Cancer Age-Adjusted Incidence Rates by County, 2011–2021.

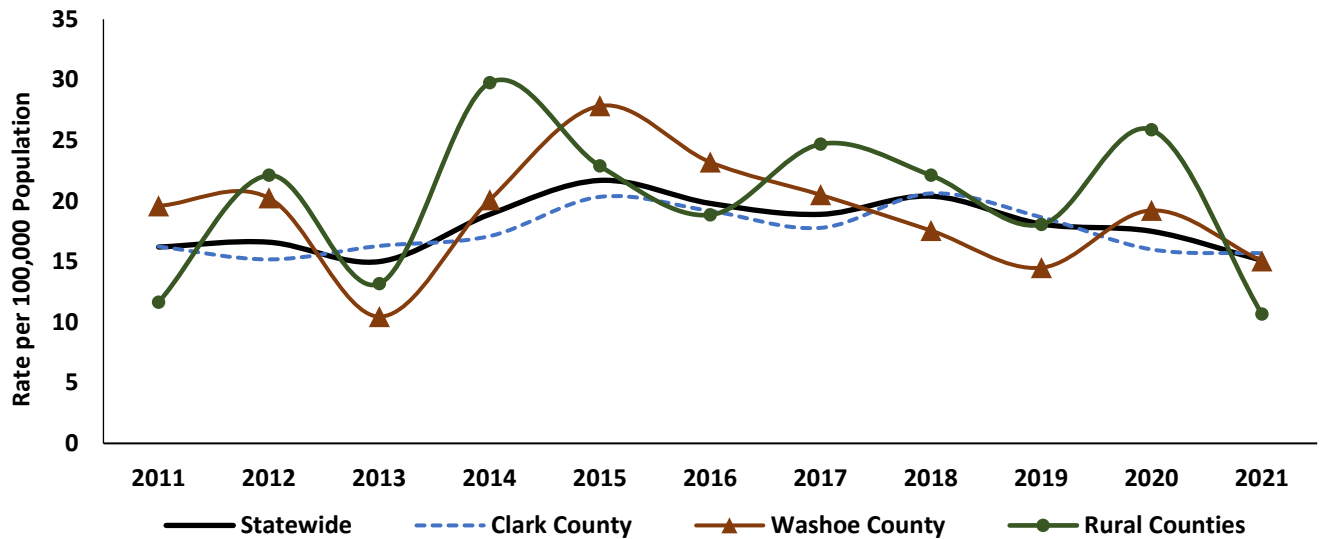
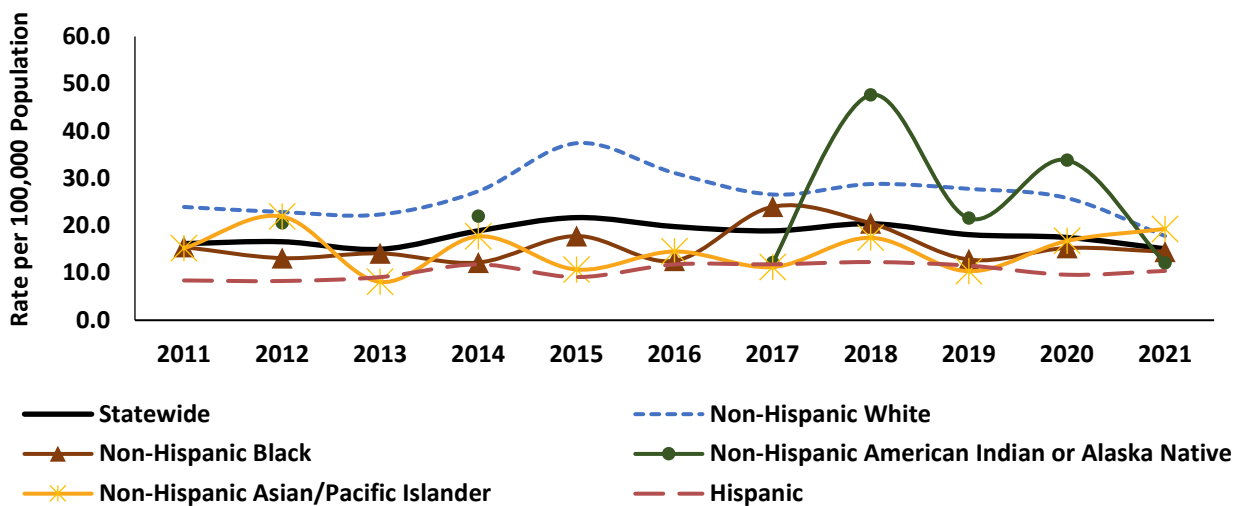


Figure 4 illustrates childhood cancer by race/ethnicity. There were two increases in the non-Hispanic American Indian or Alaskan Native group that were not statistically significant. The counts went from one to four cases in 2018, and from two to three cases in 2020

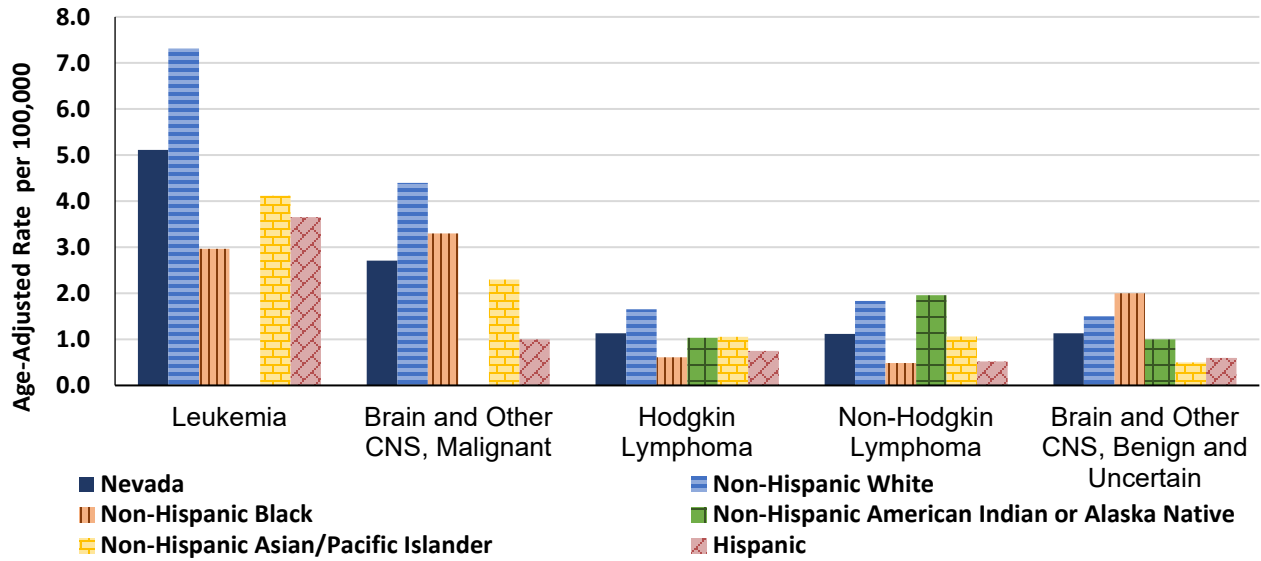
Figure 5. Childhood Cancer Age-Adjusted Incidence Rates by Race/Ethnicity, 2011–2021.



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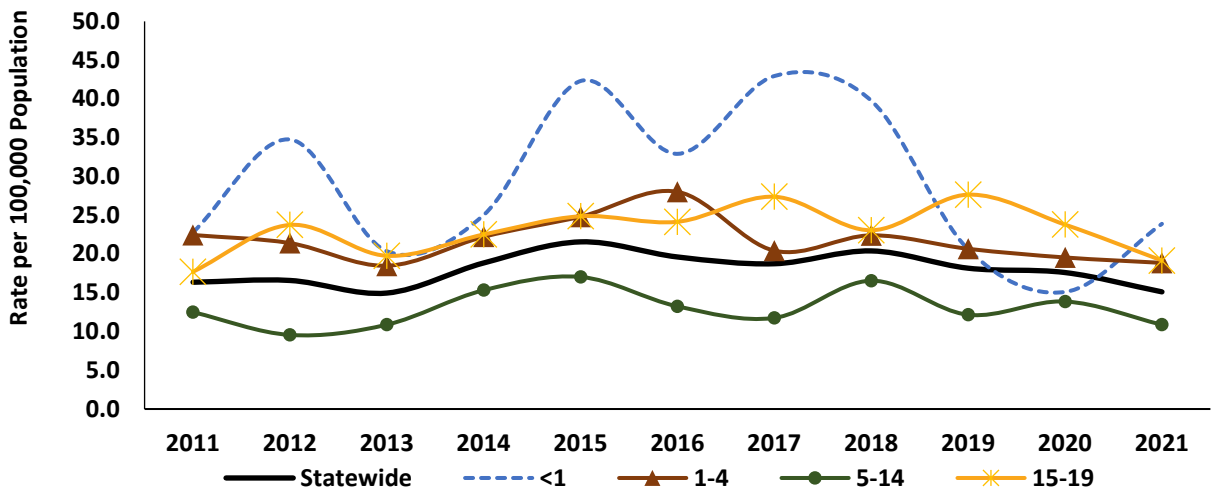
In Figure 5, race/ethnicity among cancer groups are compared to identify commonalities or differences. Leukemia incidence rates are highest for all race/ethnicities except non-Hispanic Black and non-Hispanic American Indian or Alaska Native populations.

Figure 6. Childhood Cancer Age-Adjusted Incidence Rates by Race/Ethnicity and Cancer Type, 2011–2021.



Age groups for childhood cancer were less than 1 year, 1–4, 5–14, 15–19 years of age at diagnosis. The <1 age group had higher incidence rates due to smaller counts and population. The age group with the highest incidence counts were the 5-14 years age group (Figure 6 and Appendix Table 4).

Figure 7. Childhood Cancer Crude Incidence Rates by Age Group, 2011–2021.



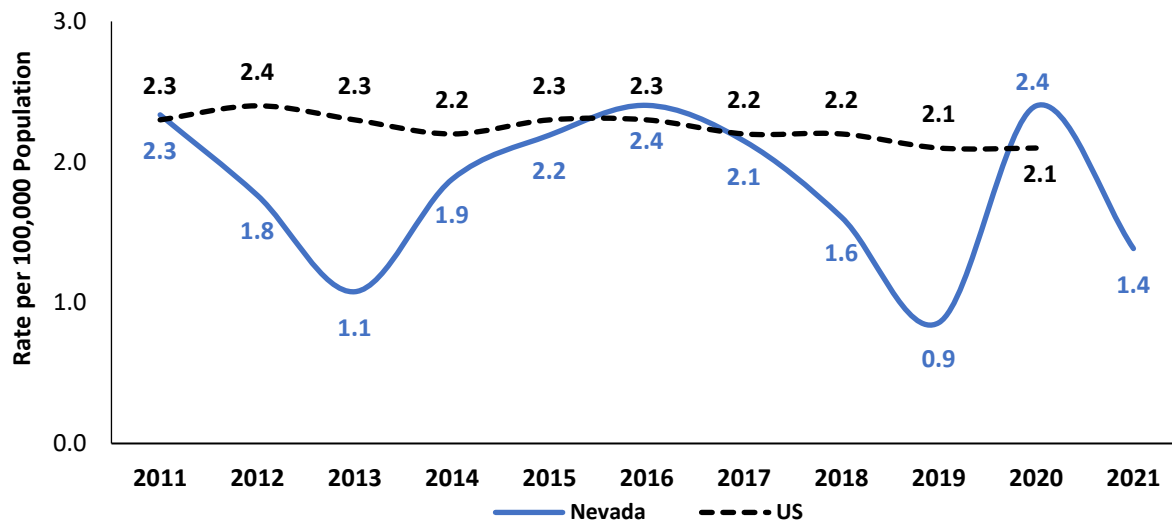
Childhood Cancer Deaths

From 2011 to 2021, deaths from childhood cancer averaged 14 per year. In 2020, there were 20 deaths with a rate of 2.4 per 100,000 age-specific population (Table 2). The national age-adjusted mortality rate for childhood cancer has remained steady from 2011–2021 (Figure 7).

Table 2: Childhood Cancer Deaths in Nevada, 2011–2021.

Year	Population (0-19)	Childhood Cancers Counts	Age-Adjusted Rate	CI Lower	CI Upper
2011	739,975	17	2.3	1.2	3.4
2012	741,807	13	1.8	0.8	2.7
2013	748,770	8	1.1	0.3	1.8
2014	753,680	14	1.9	0.9	2.9
2015	774,593	17	2.2	1.1	3.2
2016	785,238	19	2.4	1.3	3.5
2017	789,827	17	2.1	1.1	3.2
2018	804,259	13	1.6	0.7	2.5
2019	814,809	8	0.9	0.3	1.5
2020	823,766	20	2.4	1.3	3.5
2021	800,761	11	1.4	0.6	2.2
Total	-	157	1.8	1.5	2.1

Figure 8: Age-Adjusted Childhood Cancer Death Rate, Nevada and National, 2011–2021.



Childhood Cancer in Nevada

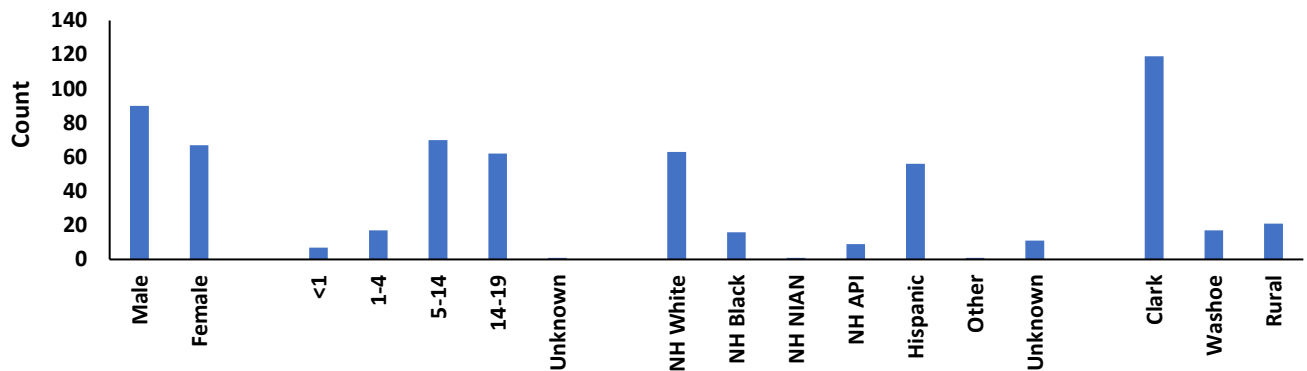
Table 3 and Figure 8 display the demographics of childhood cancer deaths from 2011–2021. The only significant group breakout was within the 15–19 age group, which was significantly higher.

Table 3: Childhood Cancer Deaths by Select Demographic, 2011–2021 combined.

Demographic	Count	Percent	Rate*	CI Lower	CI Upper
Gender					
Male	90	57.3%	2.0	1.6	2.4
Female	67	42.7%	1.6	1.2	2.0
Age Group					
<1	7	4.5%	1.8	0.5	3.1
1-4	17	10.8%	1.0	0.5	1.5
5-14	70	44.6%	1.6	1.2	2.0
15-19	62	39.5%	2.9	2.2	3.6
Unknown	1	0.6%	-	-	-
Race/Ethnicity					
Non-Hispanic White	63	40.1%	1.8	1.4	2.2
Non-Hispanic Black	16	10.2%	1.9	1.0	2.8
Non-Hispanic American Indian or Alaska Native	1	0.6%	1.0	0.0	3.1
Non-Hispanic Asian/Pacific Islander	9	5.7%	1.2	0.4	2.0
Hispanic	56	35.7%	1.6	1.2	2.1
Other	1	0.6%	-	-	-
Unknown	11	7.0%	-	-	-
County of Residence					
Clark County	119	75.8%	1.9	1.5	2.2
Washoe County	17	10.8%	1.3	0.7	1.9
Rural Counties	21	13.4%	2.2	1.3	3.2
Total	157	100.0%	1.8	1.5	2.1

*Age group rates are crude, while sex, race/ethnicity and county of residence are age-adjusted per 100,000 age-specific population.

Figure 9: Childhood Cancer Deaths by Select Demographic, 2011–2021 combined.



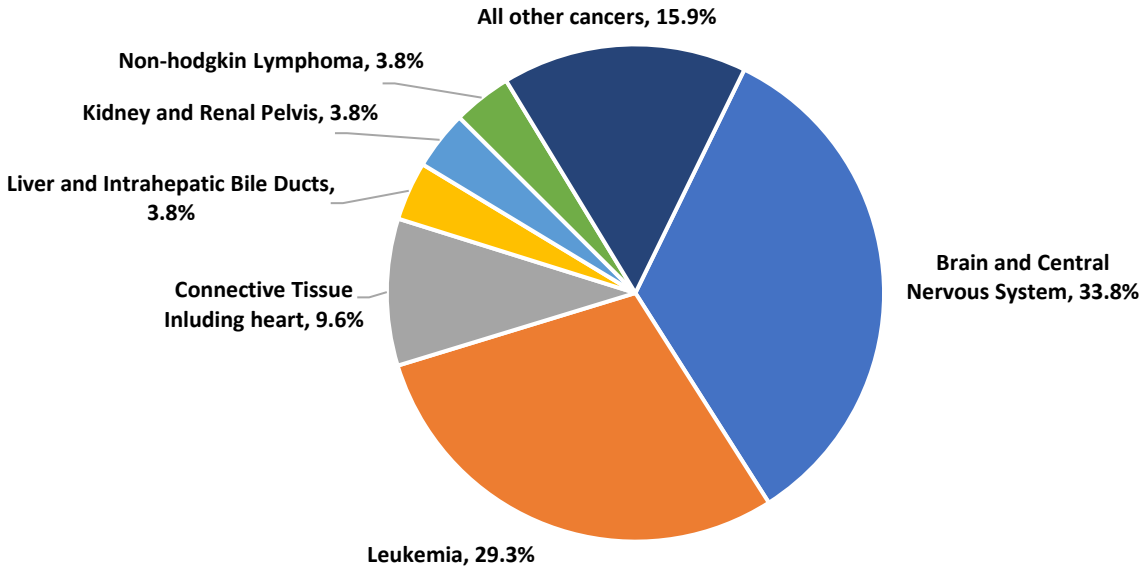
NH NIAN: Non-Hispanic American Indian or Alaskan Native. NH API: Non-Hispanic Asian Pacific Islander.

Childhood Cancer in Nevada

From 2011 to 2021, there were 53 deaths related to brain and central nervous system (CNS) cancer, accounting for 33.8%, the highest among all cancer types. Other cancers include, but are not limited to, lung and bronchus (1.9%), stomach, colorectal, skin and thyroid gland (each 0.6%). The remaining 11.5% encompasses all other cancer sites (Figure 9). There is no significant difference in cancer groups between genders.

While data is not displayed in a graph, it is important to note that for females the leading cancer death was the brain and other CNS (25.3%), whereas leukemia was the leading cancer death in males (24.4%).

Figure 10: Childhood Cancer Deaths by Type, 2011–2021.



Conclusion

Although childhood cancers constitute a small percentage of total cancer cases and deaths in Nevada, their impact is profound, with cancer being the seventh leading cause of death among children in the state. The data underscores the importance of continued research, early detection and comprehensive support systems for affected families. To address these challenges, it is crucial to invest in public health initiatives, increase awareness and enhance access to medical care. Looking ahead, ongoing efforts to understand and combat childhood cancer will be vital in reducing incidence and improving outcomes. The fight against childhood cancer requires a collective commitment from healthcare providers, policymakers, and the community to ensure a brighter future for all children.

References

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Appendix

Appendix Table 1: Childhood Cancer Incidence for Males in Nevada, 2011–2021.

Year	Male Population (0-19)	Male Counts	Age-Adjusted Rate	95% CI Lower	95% CI Upper
2011	379,809	62	16.1	12.1	20.1
2012	381,066	69	18.1	13.8	22.4
2013	384,407	53	13.9	10.2	17.7
2014	387,259	77	20.0	15.6	24.5
2015	397,003	93	23.6	18.8	28.4
2016	402,403	82	20.6	16.1	25.1
2017	404,906	79	19.6	15.3	23.9
2018	412,025	80	19.4	15.2	23.7
2019	417,250	76	18.1	14	22.2
2020	421,935	81	19.1	14.9	23.3
2021	409,775	74	18.1	14	22.2
2011-2021	-	826	18.8	17.5	20.1

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Appendix Table 2: Childhood Cancer Incidence for Males in Nevada, 2011–2021.

Year	Female Population (0-19)	Female Counts	Age-Adjusted Rate	95% CI Lower	95% CI Upper
2011	360,165	59	16.4	12.2	20.6
2012	360,741	54	15.1	11	19.1
2013	364,363	59	16.2	12.1	20.3
2014	366,421	65	17.8	13.4	22.1
2015	377,590	74	19.8	15.3	24.3
2016	382,835	72	18.9	14.5	23.3
2017	384,921	69	18.1	13.8	22.3
2018	392,234	83	21.2	16.7	25.8
2019	397,559	72	18.1	13.9	22.3
2020	401,831	64	15.9	12	19.7
2021	390,986	47	12.0	8.6	15.4
2011-2021	-	718	17.2	16	18.5

Appendix Table 3: Childhood Cancer Incidence by Region in Nevada, 2011–2021.

Year	Clark County		Washoe County		Rural Counties	
	Count	Age-Adjusted Rate (CI)	Count	Age-Adjusted Rate (CI)	Count	Age-Adjusted Rate (CI)
2011	89	16.2 (12.9 - 19.6)	22	19.6 (11.4 - 27.8)	10	11.6 (4.4 - 18.9)
2012	82	15.2 (11.9 - 18.5)	23	20.2 (12.0 - 28.5)	18	22.1 (11.9 - 32.3)
2013	89	16.3 (12.9 - 19.7)	12	10.5 (4.5 - 16.4)	11	13.2 (5.4 - 21.0)
2014	95	17.1 (13.7 - 20.5)	23	20.1 (11.9 - 28.3)	24	29.8 (17.8 - 41.7)
2015	117	20.3 (16.7 - 24.0)	32	27.8 (18.2 - 37.5)	18	22.9 (12.3 - 33.4)
2016	112	19.2 (15.6 - 22.7)	27	23.2 (14.4 - 32.0)	15	18.9 (9.3 - 28.4)
2017	105	17.8 (14.4 - 21.2)	24	20.5 (12.3 - 28.7)	19	24.7 (13.6 - 35.8)
2018	125	20.6 (17.0 - 24.2)	21	17.6 (10.0 - 25.1)	17	22.1 (11.6 - 32.6)
2019	115	18.7 (15.2 - 22.1)	18	14.5 (7.8 - 21.2)	14	18.1 (8.6 - 27.5)
2020	100	16.0 (12.9 - 19.1)	24	19.2 (11.5 - 26.9)	20	25.9 (14.5 - 37.2)
2021	94	15.7 (12.5 - 18.9)	19	15.0 (8.3 - 21.8)	8	10.7 (3.3 - 18.0)
2011-2021	1,123	17.6 (16.6 - 18.6)	245	18.9 (16.6 - 21.3)	174	19.9 (16.9 - 22.9)

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Appendix Table 4: Childhood Cancer Incidence by Age Group in Nevada, 2011–2021.

Year	<1		1-4		5-14		15-19	
	Count	Age-Adjusted Rate (CI)	Count	Age-Adjusted Rate (CI)	Count	Age-Adjusted Rate (CI)	Count	Age-Adjusted Rate (CI)
2011	8	22.8 (7.0 - 38.6)	35	22.4 (15.0 - 29.9)	46	12.5 (8.9 - 16.1)	32	17.7 (11.6 - 23.8)
2012	12	34.8 (15.1 - 54.4)	32	21.4 (14.0 - 28.8)	36	9.6 (6.4 - 12.7)	43	23.7 (16.6 - 30.8)
2013	7	20.4 (5.3 - 35.4)	27	18.5 (11.5 - 25.5)	42	10.9 (7.6 - 14.2)	36	19.8 (13.3 - 26.2)
2014	9	25.0 (8.7 - 41.4)	32	22.2 (14.5 - 29.9)	60	15.3 (11.4 - 19.2)	41	22.5 (15.6 - 29.4)
2015	15	42.3 (20.9 - 63.7)	36	24.8 (16.7 - 32.9)	69	17.0 (13.0 - 21.1)	47	24.9 (17.8 - 32.0)
2016	12	32.9 (14.3 - 51.5)	41	28.0 (19.4 - 36.6)	54	13.2 (9.7 - 16.8)	47	24.2 (17.2 - 31.1)
2017	16	43.0 (21.9 - 64.0)	30	20.4 (13.1 - 27.7)	48	11.8 (8.4 - 15.1)	54	27.4 (20.1 - 34.7)
2018	15	39.8 (19.6 - 59.9)	34	22.4 (14.9 - 29.9)	68	16.5 (12.6 - 20.5)	47	23.1 (16.5 - 29.6)
2019	8	20.6 (6.3 - 34.8)	32	20.7 (13.5 - 27.8)	50	12.2 (8.8 - 15.5)	58	27.7 (20.5 - 34.8)
2020	6	15.1 (3.0 - 27.2)	31	19.5 (12.7 - 26.4)	57	13.9 (10.3 - 17.5)	51	23.8 (17.3 - 30.3)
2021	8	23.9 (7.3 - 40.4)	27	18.8 (11.7 - 26.0)	44	10.9 (7.7 - 14.1)	42	19.2 (13.4 - 24.9)