Childhood Cancer in New Jersey 1979-2005

Cancer Epidemiology Services
New Jersey Department of Health and Senior Services

Jon S. Corzine
Governor

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INTRODUCTION

Cancer in children is rare, accounting for about one percent of all cancers. Despite its rarity and great improvements in treatment and supportive care, cancer is still a leading cause of death in children younger than 15 years old, second only to accidents.[1] The American Cancer Society estimates that in the U.S. in 2008, 10,730 children under 15 years of age will be diagnosed with cancer and 1,490 children will die from the disease. Five-year relative survival from childhood cancer has increased markedly over the past 30 years, from less than 50 percent before 1970 to 80 percent now.[1]

The types of cancers that occur in children are very different from those seen in adults. Leukemias, brain and other nervous system tumors, lymphomas (lymph node cancers), bone cancers, soft tissue sarcomas, kidney cancers, eye cancers and adrenal gland cancers are the most common cancers in children. Skin, prostate, breast, lung, and colorectal cancers are the most common in adults.[2]

Cancer is caused by a mutation (change) in a gene (DNA). During the past few years, scientists have made much progress in understanding how certain changes in a person's DNA can cause cells of the body to become cancerous. DNA changes influence the risks for developing certain diseases, including some kinds of cancer. When children are born with mutated DNA that was inherited from parents, the mutations are present in every cell of the child's body. The great majority of childhood cancers, however, are not caused by inherited DNA mutations. They are the result of mutations acquired early in the child's lifetime. The reasons for the DNA changes that lead to childhood cancers are not completely known. Some of these are already present at birth.[3]

The trends in incidence, mortality, and survival vary by the type of childhood cancer, as well as by gender, race, age at diagnosis, clinical characteristics and molecular abnormalities of the children with cancer. Thus, scientists believe that there are separate causes for some types of childhood cancer.[4]

This report, an update of our previous report, *Childhood Cancer in New Jersey, 1979-1995*,[5] presents detailed cancer incidence and mortality data for 1979 through 2005 on children up to 19 years of age who resided in New Jersey at the time of diagnosis and/or death. Included in the report are data by type of cancer, sex, race, age group, county and time period. Also included in the report is a comparison of the New Jersey and U.S. childhood cancer incidence and mortality rates and trends over time. Some background and risk factor information for the most common types of childhood cancer is presented as well.

Additional New Jersey cancer incidence, prevalence, risk, mortality, and survival data are available from the Cancer Epidemiology Services office (609/588-3500) or on our website, http://www.state.nj.us/health/ces/index.shtml, including:

- *Cancer Incidence & Mortality in New Jersey 2001-2005*;

- *Area Socioeconomic Variations in Cancer Incidence and Stage at Diagnosis in New Jersey, 1996-2002*;
- *Cancer Prevalence in New Jersey on January 1, 2003;*
- *Probability of Developing Cancer for Selected Age Groups by Sex, 2001-2003 (New Jersey and U.S.)*;
- *Cancer Survival in New Jersey, 1979-1997*;
- *Cancer Incidence Rates in New Jersey's Ten Most Populated Municipalities, 1998-2002*; and
- *Trends in Cancer Incidence and Mortality in New Jersey, 1979-2002*.

Our interactive cancer data mapping application provides Statewide and county-level cancer incidence and mortality data by cancer site, gender, race, and ethnicity for the most recent five years of data, currently 2001-2005. Similar data are available for cancer mortality. Additionally, statewide age-specific incidence and mortality data may be obtained from this site. The interactive cancer data mapping application can be found at http://nj.gov/health/ces/cancer-rates.shtml. This application is updated annually.

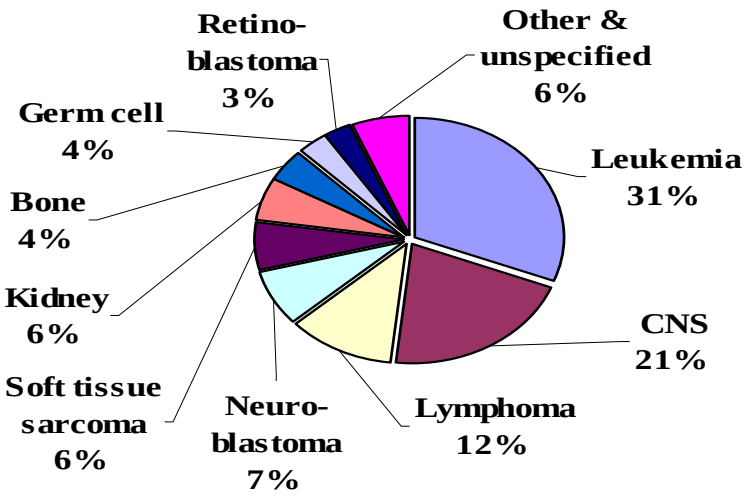
Additional New Jersey and U.S. cancer data and information can be found on the following websites:

- New Jersey Department of Health & Senior Services at http://www.state.nj.us/health/ces/cci.shtml;
- Cancer Control P.L.A.N.E.T. at http://cancercontrolplanet.cancer.gov/;
- North American Association of Central Cancer Registries'(NAACCR) *Cancer in North America 2000-2004* at http://www.naaccr.org/index.asp?Col_SectionKey=11&Col_ContentID=50; and
- Surveillance, Epidemiology and End Results Program (SEER) Cancer Statistics at http://surveillance.cancer.gov/statistics/.

ALL CHILDHOOD CANCERS COMBINED

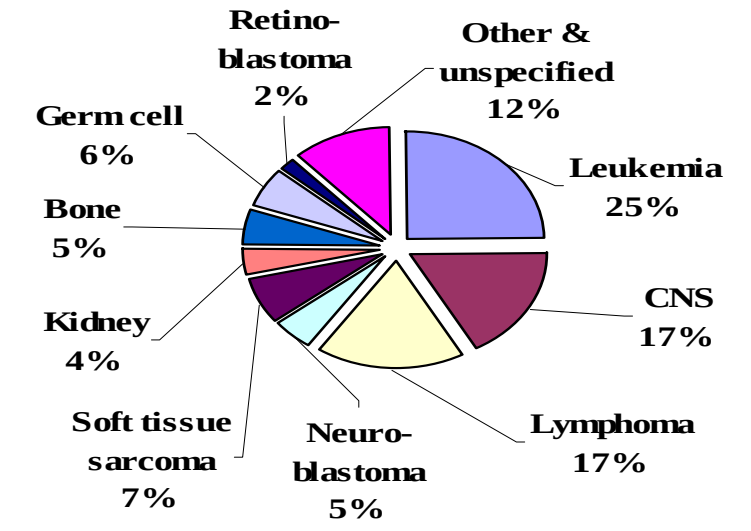
Incidence Distribution by Cancer Type in New Jersey (ICCC Category)

Figure 1.
Childhood Cancer Incidence by Type, New Jersey, 1979-2005, Ages 0-14, N=6,945*



*Data source – New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services.

Figure 2.
Childhood Cancer Incidence by Type, New Jersey, 1979-2005, Ages 0-19, N=10,262*



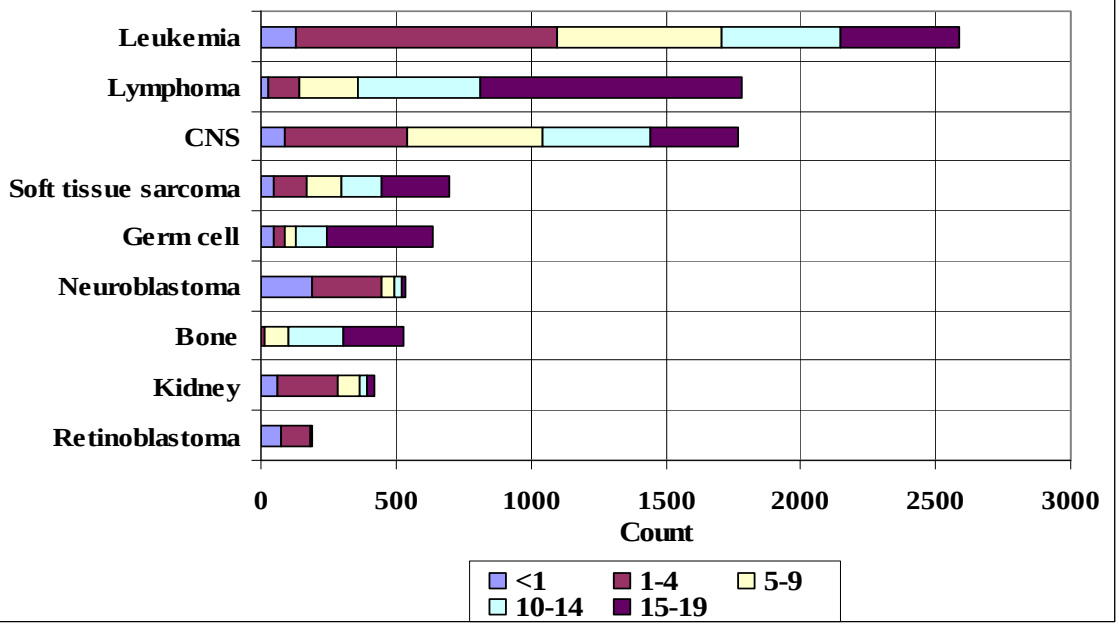
*Data source – New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services.

- In New Jersey from 1979 through 2005, 6,945 cases of cancer were diagnosed among children 0-14 years of age and 10,262 cases among children 0-19 years of age.

- The most common cancers among children 0-14 years of age were leukemia (31%), central nervous system (21%), and lymphoma (12%). The most common cancers among children 0-19 years of age were the same but in different proportions – leukemia (25%), lymphoma (17%), and central nervous system (17%).

Cancer Incidence Distribution by Cancer Type and Age Group in New Jersey (ICCC Category)

Figure 3.
Childhood Cancer Incidence by Type and Age Group, New Jersey, 0-19, 1979-2005, N=10,262*



*Data source – New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services.

- Among infants, the most common cancers were neuroblastoma (27%), leukemia (18%) and central nervous system (12%). The three most common cancers among children 1-4 were the same as infants but in very different proportions; leukemia (41%), central nervous system (19%) and neuroblastoma (11%).

- Like children 1-4, the two most common cancers in children 5-9 were leukemia and central nervous system at 34% and 28%, respectively. However, lymphoma (12%) was the third most common cancer, rather than neuroblastoma. In children 10-14, lymphoma was the most common cancer (22%) with leukemia (21%) and central nervous system (20%) close behind.

- The most common cancers among children 15-19 were lymphoma (29%), leukemia (13%), and germ cell (12%). Please see Table A1 in Appendix A for detailed data.

Incidence Rates by Gender in New Jersey and the U.S.

Table 1. Childhood Cancer Incidence Rates by Gender and Age Group				
ICCC Category*	**New Jersey - 1979-2005**		**U.S. - 1979-2004**	
	0-14 n=6,945	**0-19 n=10,262**	**0-14**	**0-19**
Both genders	**15.8**	**17.3**	**14.2**	**15.7**
Male	17.0	18.5	15.0	16.6
Female	14.6	16.1	13.3	14.8

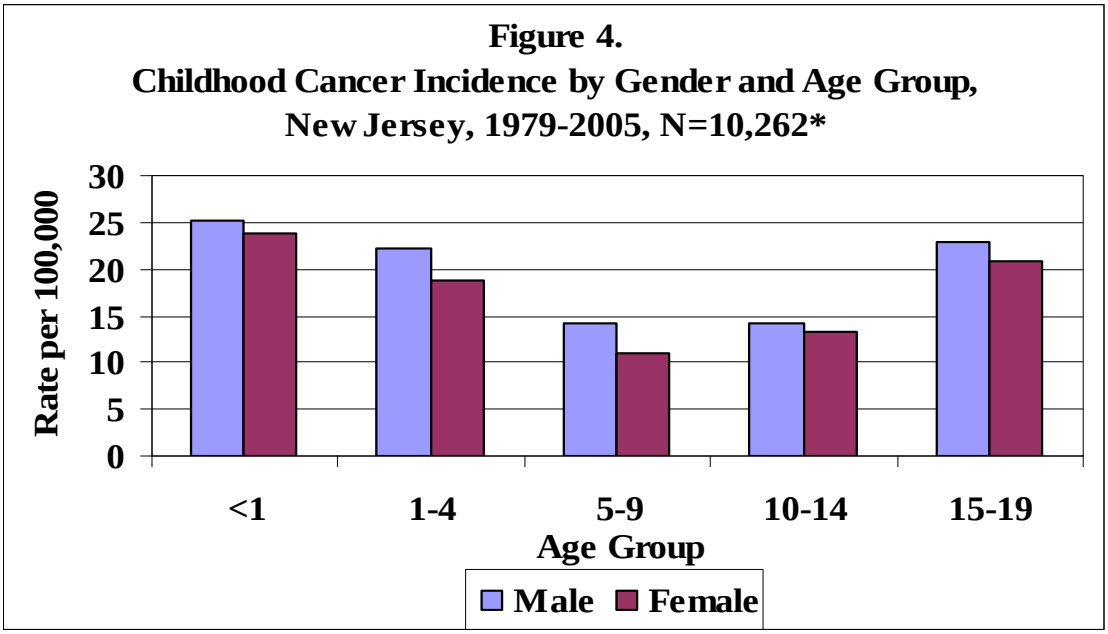
*International Classification of Childhood Cancer (ICCC) is based on ICD-O-3. Average annual rates. Rates are per 100,000 and age-adjusted to the 2000 U.S. Standard Population.
Data sources: New Jersey - New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services; U.S. - SEER Program, National Cancer Institute.

- New Jersey childhood cancer incidence rates were higher than the U.S. rates in each gender and age group.

- Male children had higher rates of childhood cancer than female children in each age group in both New Jersey and the U.S.

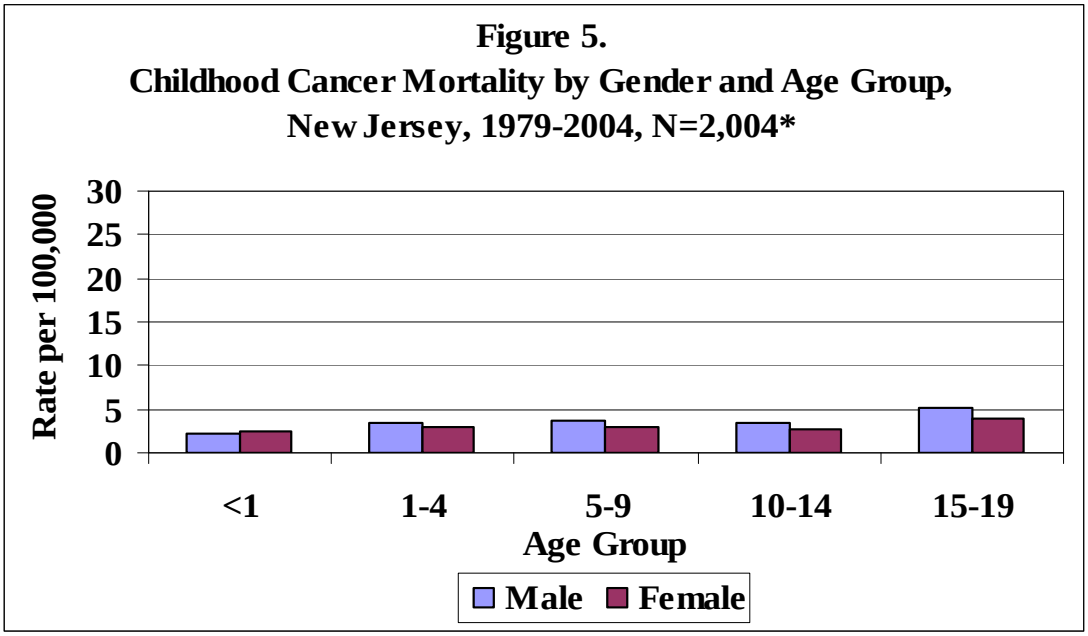
Please see Tables A2 and A3 in Appendix A for detailed data.

Age-Specific Incidence and Mortality Rates by Gender in New Jersey



*Average annual rates. Rates are per 100,000. Data source – New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services.

Figure 5.
Childhood Cancer Mortality by Gender and Age Group, New Jersey, 1979-2004, N=2,004*



***** Average annual rates. Rates are per 100,000. Data source – National Center for Health Statistics.

- Infants (< 1 year old) had the highest **incidence** rates for all childhood cancers, about 25 cases per 100,000 children a year. The rates decreased through the 5-9 year age group and then increased in the two oldest age groups. (Figure 4.)

- In each age group the male **incidence** rates were higher than the female rates. (Figure 4.)

- The **mortality** rates for all childhood cancers were much lower than the incidence rates, ranging from about 2 to 5 deaths per 100,000 children a year. (Figure 5.)

- In general the **mortality** rates rose with increasing age. (Figure 5.)

- Male **mortality** rates were higher than female rates in each age group except infants. (Figure 5.)

Please see Tables A4-A7 in Appendix A for detailed data.

New Jersey and U.S. Incidence and Mortality Time Trends

Figure 6.
Childhood Cancer Incidence and Mortality Rates by Year, New Jersey and U.S., Ages 0-14, 1979-2005*

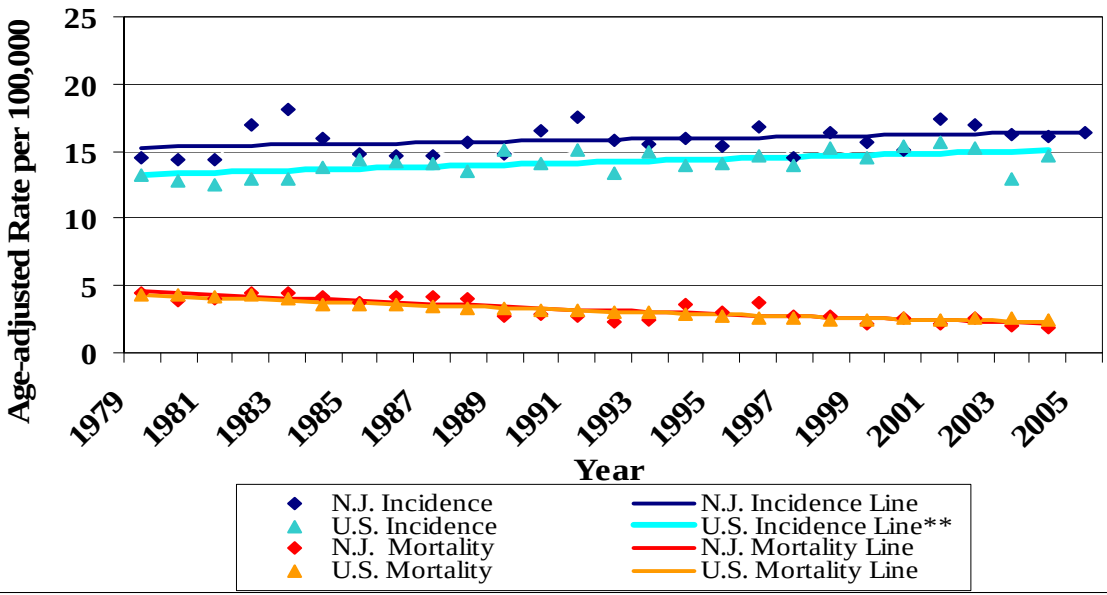
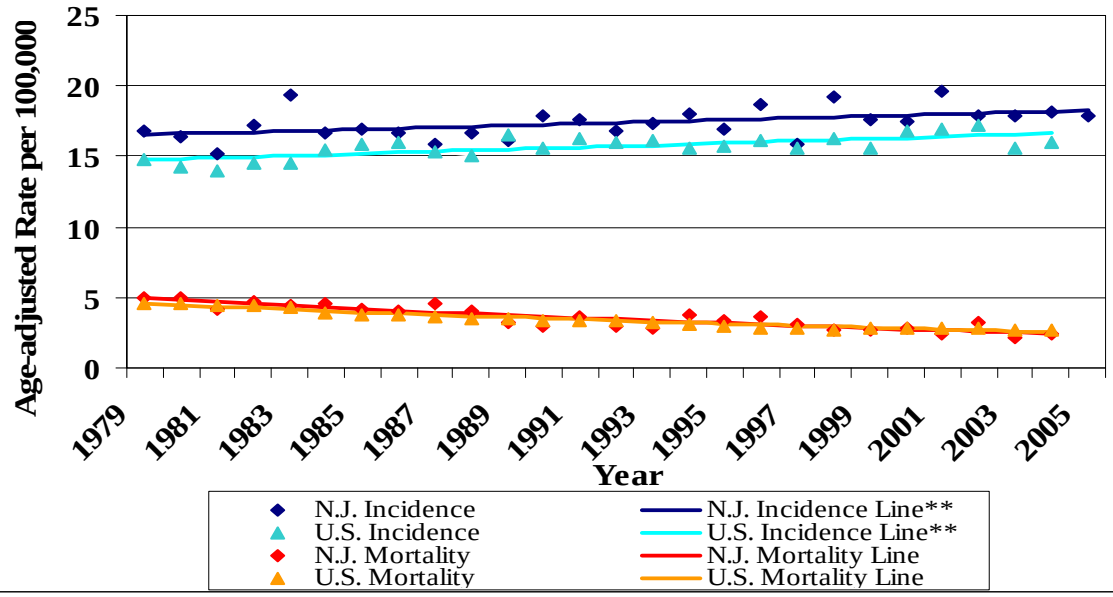


Figure 7.
Childhood Cancer Incidence and Mortality Rates by Year, New Jersey and U.S., Ages 0-19, 1979-2005*



*Rates are per 100,000 and age-adjusted to the 2000 U.S. Population Standard. Data sources: New Jersey incidence – New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services; U.S. incidence – SEER Program, National Cancer Institute; mortality – National Center for Health Statistics. The regression lines were calculated using NCI's Joinpoint statistical program. **Statistically significant increase in rates over time, $p<0.05$.

Figure 8.
Childhood Cancer Incidence and Mortality Rates by Race and Year, New Jersey, Ages 0-14, 1979-2005*

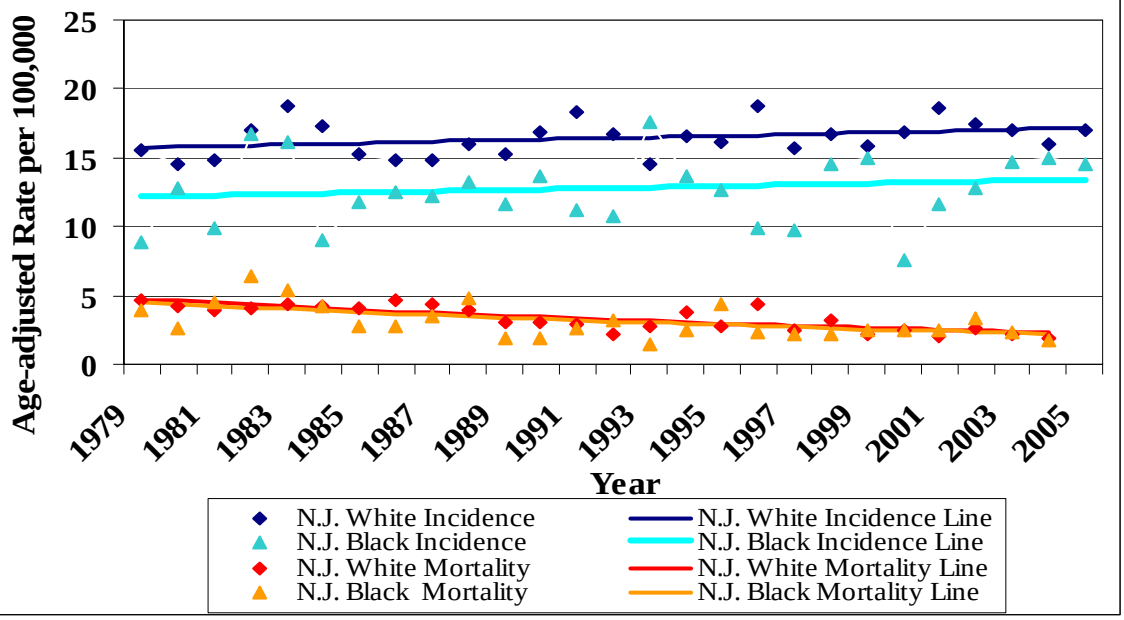
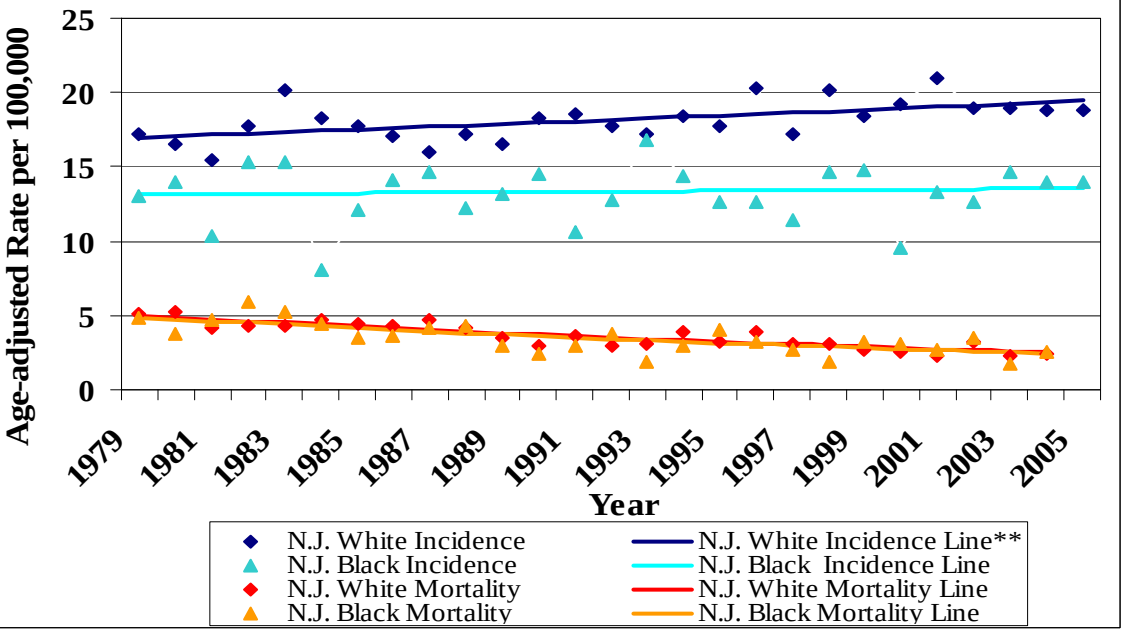


Figure 9.
Childhood Cancer Incidence and Mortality Rates by Race and Year, New Jersey, Ages 0-19, 1979-2005*



*Rates are per 100,000 and age-adjusted to the 2000 U.S. Population Standard. Data sources: incidence - New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services; mortality – National Center for Health Statistics. The regression lines were calculated using NCI's Joinpoint statistical program. **Statistically significant increase in rates over time, $p<0.05$.

- Childhood cancer **incidence** rates increased between 1979 and 2004 in both age groups in New Jersey and the U.S. The increases in New Jersey and the U.S. were statistically significant except for New Jersey children age 0-14. (Figures 6. and 7.)

- New Jersey childhood cancer **incidence** rates were higher than the U.S. rates throughout 1979-2004; the difference was greater in the 0-19 age group. (Figures 6. and 7.)

- In both age groups, the New Jersey and U.S. **mortality** rates declined between 1979 and 2004 by about half, despite the increase in incidence. (Figures 6. and 7.)

- The New Jersey and U.S. childhood **mortality** rates were very similar throughout the time period. (Figures 6. and 7.)

- In New Jersey, the cancer **incidence** rates increased between 1979 and 2005 among white and black children. The increase was statistically significant for white children in the 0-19 age group. (Figures 8. and 9.)

- Throughout the time period 1979-2005, white children had higher childhood cancer **incidence** rates than black children in New Jersey. (Figures 8. and 9.)

- The cancer **mortality** rates declined by about half from 1979 to 2004 for white and black children in both age groups in New Jersey. (Figures 8. and 9.)

- In 1979 through 2004, New Jersey black children in both age groups had similar **mortality** rates to New Jersey white children despite having lower childhood cancer incidence rates. (Figures 8. and 9.)

Please see Tables A8 and A9 in Appendix A for detailed data.

LEUKEMIA

Background and Risk Factors

- Leukemias are cancers of the blood-forming organs and are divided into acute and chronic types. They are further classified according to the type of cancer cells involved - lymphoid, myeloid or biphenotypic (both lymphoid and myeloid).[6]

- Leukemias are the most common childhood cancers, accounting for about 30 percent of all cancers in children 0-14.[2] Acute lymphocytic leukemia (ALL), a cancer of the white blood cells, specifically the lymphoid cells, accounts for nearly three-quarters of childhood (0-14) leukemias.[7] Acute myeloid leukemia (AML, formerly referred to as acute non-lymphocytic leukemia) represents about 15 percent of childhood (0-14) cancers. The five-year relative survival for ALL is about 80 percent.[9] Many possible risk factors for childhood leukemia have been studied, but few are well established.[4]

- Inherited conditions associated with ALL include Down syndrome, neurofibromatosis, Schwachman syndrome, Bloom syndrome, ataxia telangiectasia, Langerhans cell histiocytosis, and Klinefelter syndrome. Inherited conditions related to AML include Down syndrome, neurofibromatosis, Schwachman syndrome, Bloom syndrome, familial monosomy 7, Kostmann granulocytopenia, and Fanconi anemia. These conditions relate to a very small percentage of the cases.[4]

- Exposure to diagnostic radiation (ionizing radiation) in utero raises the risk of ALL and AML, but explains very few of the cases. Other types of ionizing radiation exposure may be related to leukemia; i.e., atomic bomb fallout, radon, postnatal X-rays, paternal occupational or diagnostic radiation. Childhood exposure to very high levels of electromagnetic fields (EMFs), a type of non-ionizing radiation, also may be associated with leukemia.[4]

- Maternal age greater than 35 years at the time of the child's birth and maternal history of fetal loss appear to be related to ALL. Maternal alcohol use while pregnant and parental exposure to pesticides and benzene may increase the risk of AML. Paternal pre-conceptual smoking and high birth weight may be related to acute leukemia.[4]

- Childhood leukemia has been theorized to be related to infection, either in general or by a specific infectious agent yet to be discovered, due to: 1. greater occurrence in industrialized countries and in higher socio-economic status populations; 2. lower rates with increased attendance at day care and lower birth order; 3. the protective effect of prolonged breast feeding which may give immunity to the child; and 4. raised rates of leukemia following an influx of newcomers to an isolated area (population mixing) or population growth and greater diversity in the population. This evidence supports the theory that the risk of leukemia increases with children's later age at first exposure to infection(s), similar to the way in which paralytic poliomyelitis works.[4]

Incidence Rates by Gender in New Jersey and the U.S. (ICCC Category)

Table 2. Childhood Leukemia Incidence Rates by Gender and Age Group				
ICCC Category*	**New Jersey - 1979-2005**		**U.S. - 1979-2004**	
	0-14 n=2,145	**0-19 n=2,586**	**0-14**	**0-19**
Leukemia	**4.9**	**4.4**	**4.3**	**3.8**
Male	5.3	4.9	4.7	4.2
Female	4.4	3.9	4.0	3.5
Lymphoid**	**3.8**	**3.2**	**3.4**	**2.9**
Male	4.1	3.6	3.7	3.2
Female	3.5	2.9	3.1	2.6
Acute myeloid (AML)***	**0.7**	**0.7**	**0.7**	**0.7**
Male	0.8	0.9	0.7	0.7
Female	0.6	0.6	0.6	0.7

*International Classification of Childhood Cancer (ICCC) is based on ICD-O-3. Average annual rates. Rates are per 100,000 and age-adjusted to the 2000 U.S. Standard Population.
**Ninety-seven percent (97%) of the New Jersey lymphoid leukemias are acute lymphoid leukemia (ALL).
***Formerly referred to as acute non-lymphocytic leukemia.
Data sources: New Jersey - New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services; U.S. - SEER Program, National Cancer Institute.

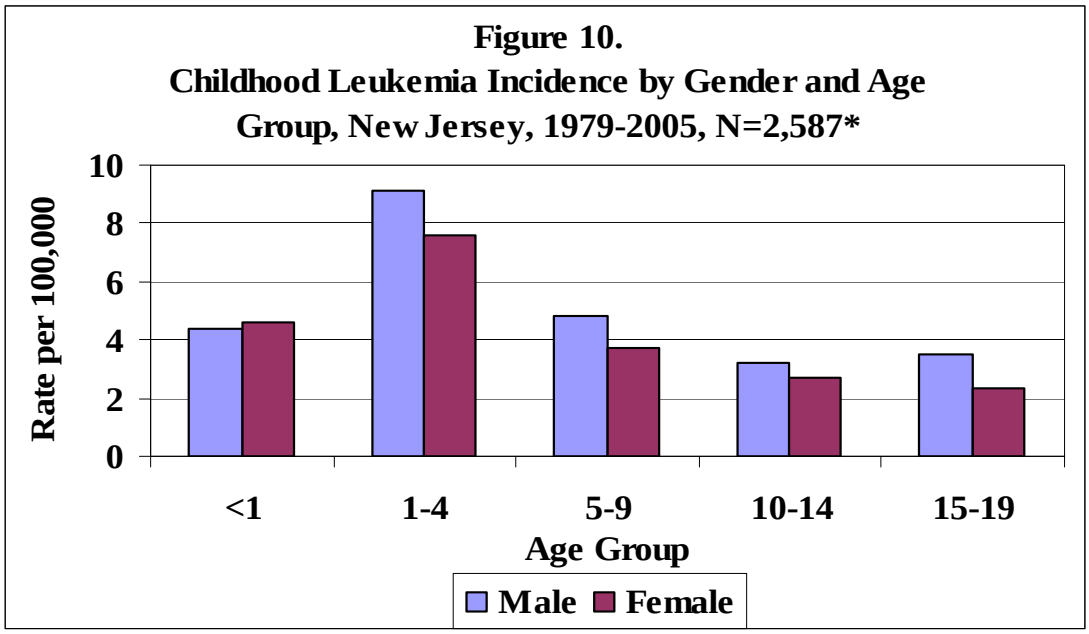
- New Jersey childhood total leukemia and lymphoid leukemia (97% ALL) incidence rates were higher than the U.S. rates in each gender and age group.

- New Jersey childhood AML incidence rates were the same as the U.S. rates for both genders combined in each age group. However, the New Jersey male rates were higher and the New Jersey female rates were the same or lower than the U.S. rates.

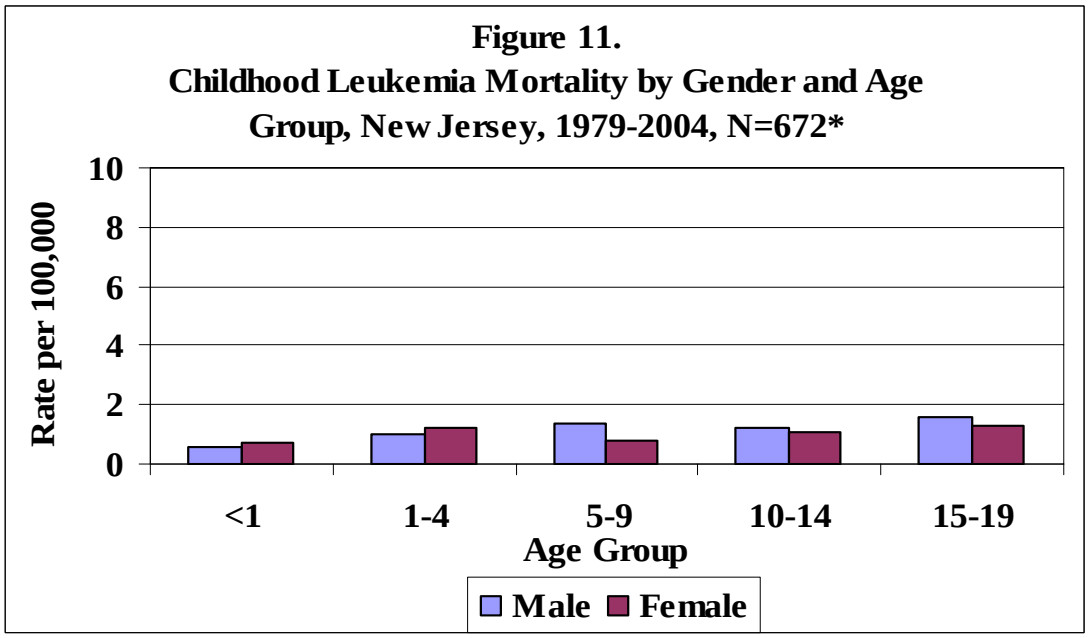
- The male rates were higher than the female rates in every ICCC category and age group for both New Jersey and the U.S., except the male and female AML rates were the same in the U.S. age group 0-19.

Please see Tables A2 and A3 in Appendix A for detailed data.

Age-Specific Incidence and Mortality Rates by Gender in New Jersey (ICD-O-3, ICD-9, 10 Primary Site)



*Average annual rates. Rates are per 100,000. Data source – New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services.



*Average annual rates. Rates are per 100,000. Data source – National Center for Health Statistics.

- The leukemia **incidence** rates peaked in the 1-4 year age group, at about 9 and 7.5 cases per 100,000 children a year for males and females, respectively. The two oldest age groups had the lowest rates. (Figure 10.)

- Males had higher leukemia **incidence** rates than females in every age group except infants. (Figure 10.)

- The leukemia **mortality** rates were low, ranging from fewer than 1 to fewer than 2 deaths per 100,000 children a year. (Figure 11.)

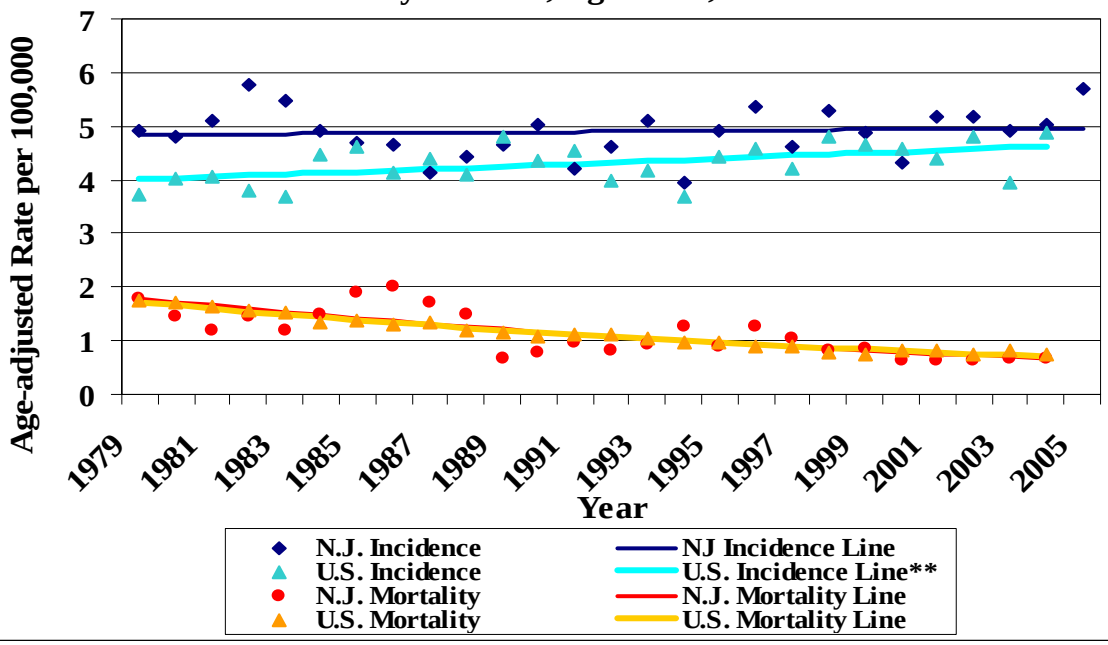
- In general, the leukemia **mortality** rates increased with increasing age. (Figure 11.)

- The female leukemia **mortality** rates were higher than the male rates in the two youngest age groups, but lower than the male rates in the three older age groups. (Figure 11.)

Please see Tables A4-A7 in Appendix A for detailed data.

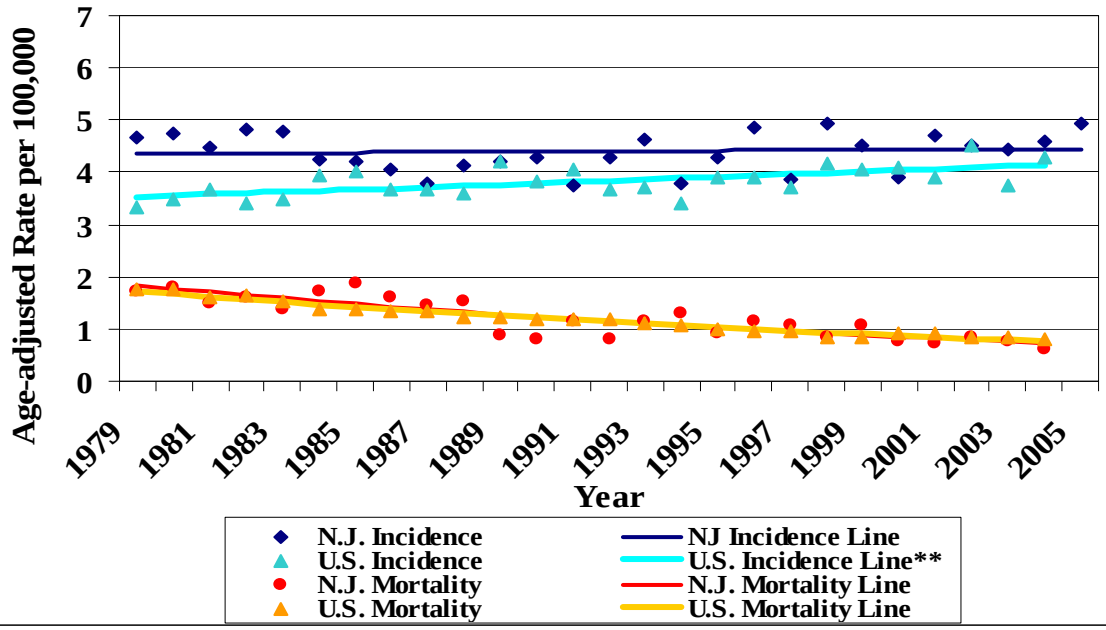
New Jersey and U.S. Incidence and Mortality Time Trends (ICD-O-3, ICD-9, 10 Primary Site)

Figure 12.
Childhood Leukemia Incidence and Mortality Rates by Year, New Jersey and U.S., Ages 0-14, 1979-2005*



*Rates are per 100,000 and age-adjusted to the 2000 U.S. Population Standard. Data sources: New Jersey incidence - New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services; U.S. incidence – SEER Program, National Cancer Institute; mortality – National Center for Health Statistics. The regression lines were calculated using NCI's Joinpoint statistical program. **Statistically significant increase in rates over time, $p<0.05$.

Figure 13.
Childhood Leukemia Incidence and Mortality Rates by Year, New Jersey and U.S., Ages 0-19, 1979-2005*



*Rates are per 100,000 and age-adjusted to the 2000 U.S. Population Standard. Data sources: New Jersey incidence - New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services; U.S. incidence – SEER Program, National Cancer Institute; mortality – National Center for Health Statistics. The regression lines were calculated using NCI's Joinpoint statistical program. **Statistically significant increase in rates over time, $p<0.05$.

- In both age groups, 0-14 and 0-19, between 1979 and 2004, the New Jersey leukemia **incidence** rates slightly increased, and the U.S. rates increased at a greater rate than the New Jersey rates. The increase in the U.S. rates was statistically significant in both age groups. (Figures 12. and 13.)

- In 1979, the New Jersey childhood leukemia **incidence** rates were about a third higher than the U.S. rates for each age group. By 2004, the U.S. rates had become much closer to the New Jersey rates. (Figures 12. and 13.)

- Despite the increase in childhood leukemia incidence, the childhood leukemia **mortality** rates declined by over 50 percent from 1979 to 2004 in both age groups in New Jersey and the U.S. (Figures 12. and 13.)

- In both age groups, the New Jersey leukemia **mortality** rates were very similar to the U.S. rates throughout the years 1979 to 2004. (Figures 12. and 13.)

Please see Tables A10 and A11 in Appendix A for detailed data.

CENTRAL NERVOUS SYSTEM (CNS) CANCERS

Background and Risk Factors

- The central nervous system (CNS) is made up of the brain and spinal cord.[8] Cancers that originate in other intracranial sites such as the pituitary or pineal glands also are included in this ICCC category.[9]

- Cancers of the CNS are the second most common type of childhood cancer (ages 0-14) after the leukemias, representing over 20 percent.[2] These cancers occur primarily in the cerebellum (part of the brain) or brain stem.[2] The most common form of CNS cancers are gliomas, which account for over half of CNS cancers in children (ages 0-14), followed by primative neuroectodermal cancers (PNET), which account for over a fifth of CNS cancers in children. Gliomas comprise several different types of cancers, including astrocytomas.[4] The five-year relative survival from CNS cancers is low, less than 60 percent, except for astrocytomas.[9] The risk factors listed below explain only a small proportion of the CNS cancers in children.[4]

- Certain inherited conditions – Li-Fraumeni syndrome, neurofibromatosis, tuberous sclerosis, nevoid basal cell syndrome and Turcot syndrome – are associated with CNS cancers. Therapeutic radiation to the head results in an increased risk of CNS cancer, but accounts for a very small proportion of CNS childhood cancers today.[4]

- Maternal consumption of cured meats (a source of nitrite precursors which are converted to N-nitroso compounds in the body) and use of nitrosable drugs may be risk factors for CNS childhood cancers. Infection with polyoma viruses including Simian virus 40 (SV40), BK and JC may also cause CNS cancer in children, as may living on a farm or parental occupation as a farmworker.[4]

- Other factors that have been studied with no associations or doubtful results are pesticides, epilepsy, brain injury, and electromagnetic fields.[4]

- Consumption of vitamins in fruits, vegetables and supplements by pregnant women may reduce the risk of CNS cancer in their children.[4]

Incidence Rates by Gender in New Jersey and the U.S. (ICCC Category)

Table 3.
Childhood Central Nervous System Cancer Incidence Rates by Gender and Age Group

ICCC Category*	New Jersey - 1979-2005		U.S. - 1979-2004	
	0-14 n=1,441	0-19 n=1,767	0-14	0-19
Total central nervous system (CNS)	**3.3**	**3.0**	**3.1**	**2.8**
Male	3.6	3.2	3.3	3.1
Female	3.0	2.8	2.8	2.5
Astrocytomas	**1.5**	**1.4**	**1.5**	**1.4**
Male	1.6	1.5	1.5	1.5
Female	1.4	1.3	1.5	1.4
Intracranial & intraspinal embryonal**	**0.7**	**0.6**	**0.7**	**0.6**
Male	0.8	0.7	0.8	0.7
Female	0.6	0.5	0.5	0.4

*International Classification of Childhood Cancer (ICCC) is based on ICD-O-3. Average annual rates. Rates are per 100,000 and age-adjusted to the 2000 U.S. Standard Population.
**Ninety-four percent (94%) are primitive neuroectodermal tumours (PNET) in New Jersey.
Data sources: New Jersey - New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services; U.S. - SEER Program, National Cancer Institute.

- For childhood central nervous system cancers, the New Jersey incidence rates were higher than the U.S. rates in each gender and age group.

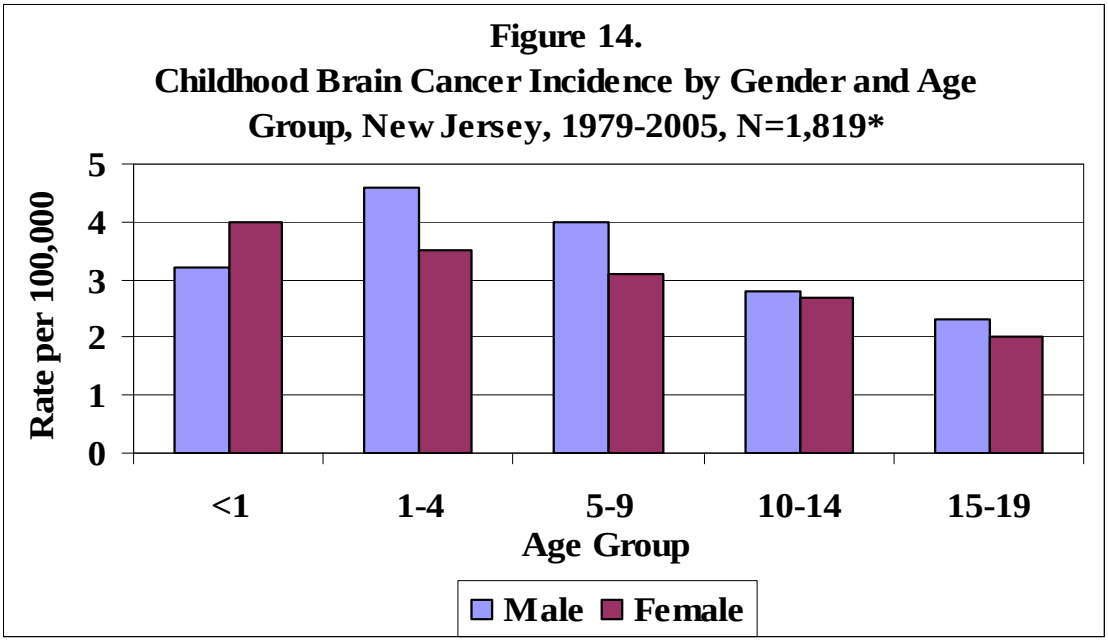
- However, the childhood astrocytoma incidence rates were the same in New Jersey and the U.S. for both genders combined and males 0-19; males 0-14 had slightly higher rates in New Jersey. The female childhood astrocytoma rates were lower in New Jersey than the U.S. in both age groups.

- Male children had higher central nervous system cancer and astrocytoma incidence rates than female children in both age groups in New Jersey and the U.S., except the astrocytoma incidence rates were the same for males and females in the U.S. 0-14 age group.

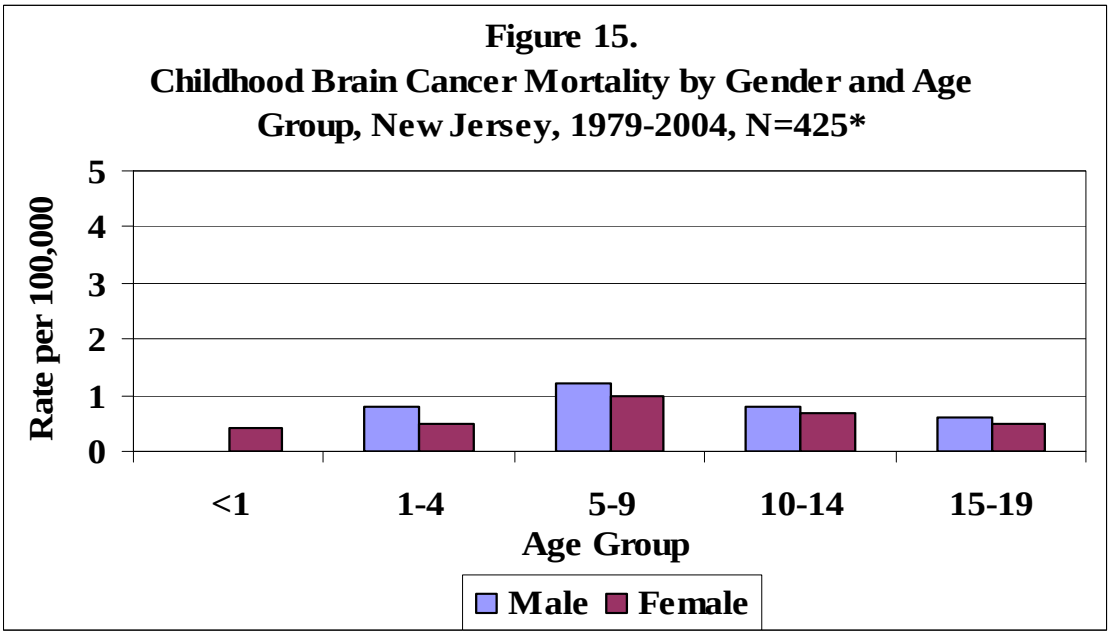
- New Jersey and U.S. male children in both age groups had the same incidence rates of intracranial and intraspinal embryonal cancers, most of which were primitive neuroectodermal tumours (PNET). However, New Jersey female children in each age group had slightly higher rates of this cancer than U.S. female children.

Please see Tables A2 and A3 in Appendix A for detailed data.

Age-Specific Incidence and Mortality Rates by Gender in New Jersey (ICD-O-3, ICD-9, 10 Primary Site)



*Average annual rates. Rates are per 100,000. Data source – New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services.



*Average annual rates. Rates are per 100,000. Data source – National Center for Health Statistics. The mortality rate is not shown for males in the <1 age group because the number of deaths was fewer than 5.

- Childhood brain and other nervous system (brain) cancer **incidence** rates peaked in the 1-4 age group, at about 4.5 and 3.5 cases per 100,000 children a year in males and females, respectively. The rates declined with each successive older age group. (Figure 14.)

- Males had higher brain cancer **incidence** rates than females in every age group except infants (< 1 year). (Figure 14.)

- Childhood brain cancer **mortality** was much lower than incidence in each age group. (Figure 15.)

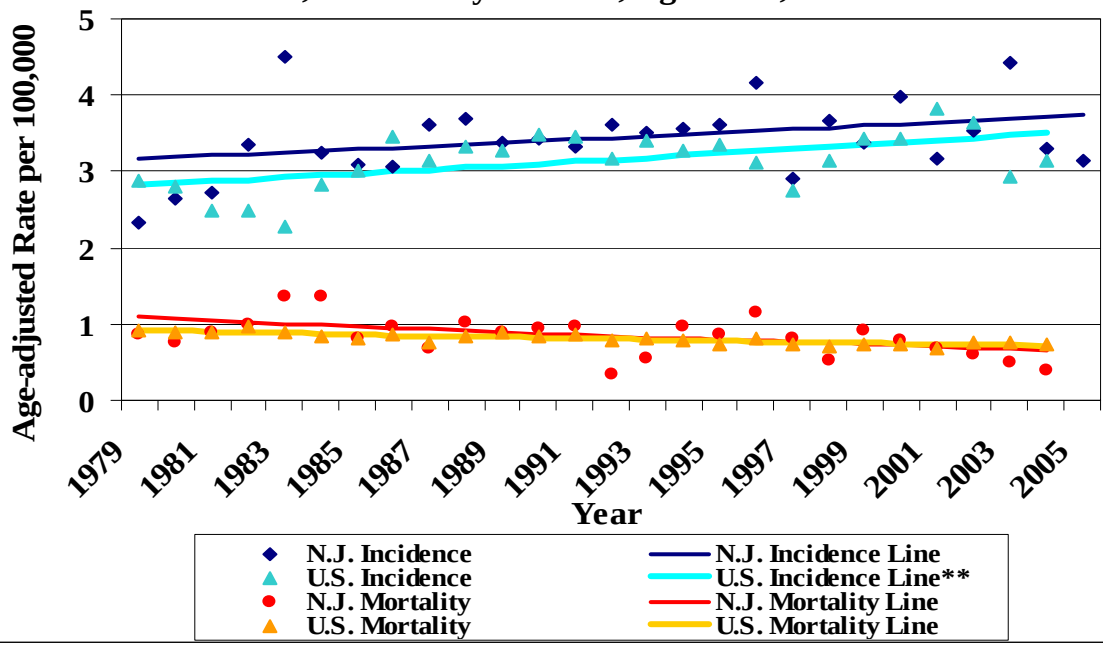
- Childhood brain cancer **mortality** peaked in the 5-9 year age group at about one death per 100,000 children. (Figure 15.)

- Males had higher brain cancer **mortality** rates than females in every age group except infants. (Figure 15.)

Please see Tables A4-A7 in Appendix A for detailed data.

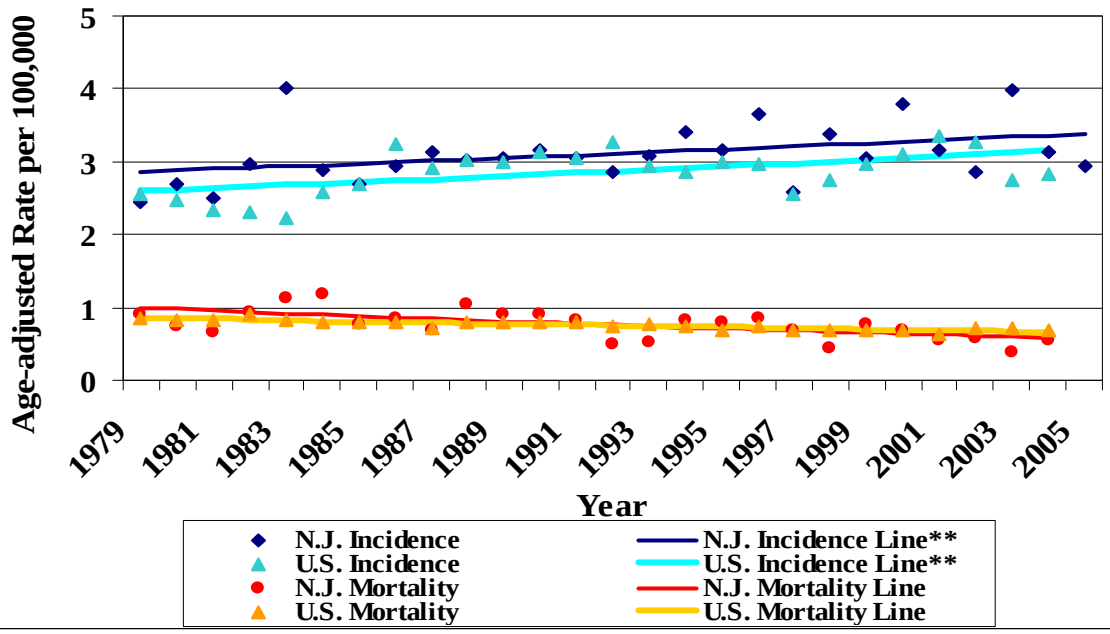
New Jersey and U.S. Incidence and Mortality Time Trends (ICD-O-3, ICD-9, 10 Primary Site)

Figure 16.
Childhood Brain Cancer Incidence and Mortality Rates by Year, New Jersey and U.S., Ages 0-14, 1979-2005*



*Rates are per 100,000 and age-adjusted to the 2000 U.S. Population Standard. Data sources: New Jersey incidence - New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services; U.S. incidence – SEER Program, National Cancer Institute; mortality – National Center for Health Statistics. The regression lines were calculated using NCI's Joinpoint statistical program. **Statistically significant increase in rates over time, $p<0.05$.

Figure 17.
Childhood Brain Cancer Incidence and Mortality Rates by Year, New Jersey and U.S., Ages 0-19, 1979-2005*



*Rates are per 100,000 and age-adjusted to the 2000 U.S. Population Standard. Data sources: New Jersey incidence - New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services; U.S. incidence – SEER Program, National Cancer Institute; mortality – National Center for Health Statistics. The regression lines were calculated using NCI's Joinpoint statistical program. **Statistically significant increase in rates over time, $p<0.05$.

- From 1979 through 2004, New Jersey childhood brain cancer **incidence** rates increased in both age groups, similar to the U.S. rates. The increases over time were statistically significant except in the New Jersey 0-14 age group. (Figures 16. and 17.)

- Generally, the New Jersey childhood brain cancer **incidence** rates were higher than the U.S. rates in both age groups throughout 1979 to 2004. (Figures 16. and 17.)

- Although the incidence rates increased, the New Jersey and U.S. childhood brain cancer **mortality** rates in both age groups declined between 1979 and 2004 to well below one death per 100,000 children. (Figures 16. and 17.)

- New Jersey childhood brain cancer **mortality** was very similar to U.S. mortality in both age groups. (Figures 16. and 17.)

Please see Tables A12 and A13 in Appendix A for detailed data.

LYMPHOMAS

Background and Risk Factors

- Lymphomas affect the white blood cells of the immune system and are characterized by abnormal growth of lymphocytes, the infection-fighting cells in the lymph nodes, spleen and thymus.[10]

- Lymphomas are the third most commonly diagnosed cancer among children (0-14) and the majority are Hodgkin disease (HD) and non-Hodgkin lymphoma (NHL).[9] Burkitt lymphoma, a NHL, is usually categorized separately. Five-year relative survival is high, over 90 percent for HD and about 75 percent for NHL.[9]

- HD in children is associated with a family history of HD, Epstein-Barr virus infection, and lower socioeconomic status.[4] Higher socioeconomic status is associated with HD in young adults 15-34, leading to suspicions of an infectious cause for HD in this age group.[4] Also, genetic susceptibility may be a factor for HD in young adults.[4]

- NHL is associated with genetic factors involved with congenital (present at birth) immunodeficiency syndromes such as ataxia-telangiectasia, Wiskott-Aldrich syndrome, X-linked lymphoproliferative disease, acquired immunodeficiency syndrome (AIDS), and prior immunosuppressive therapy. Other factors that may increase the risk are viral infections during the mother's pregnancy, low birth weight, paracervical anesthesia during the mother's labor, C-section birth, pesticide exposure in the home and population mixing.[4]

- While infection with the Epstein-Barr virus is linked with Burkitt lymphoma in African children, it is rarely associated with Burkitt lymphoma in the U.S.[4]

- Children who are breast-fed may be protected against both HD and NHL.[4]

Incidence Rates by Gender in New Jersey and the U.S. (ICCC Category)

Table 4.
Childhood Lymphoma Incidence Rates by Gender and Age Group

ICCC Category*	New Jersey 1979-2005		U.S. 1979-2004	
	0-14 n=815	0-19 n=1,780	0-14	0-19
Total lymphoma	**1.9**	**3.0**	**1.5**	**2.4**
Male	2.4	3.5	1.9	2.8
Female	1.3	2.5	1.1	2.0
Hodgkin disease (HD)	**0.7**	**1.6**	**0.6**	**1.3**
Male	0.8	1.6	0.6	1.3
Female	0.6	1.6	0.5	1.3
Non-Hodgkin lymphoma (NHL)**	**0.7**	**0.9**	**0.6**	**0.8**
Male	0.9	1.2	0.7	1.0
Female	0.4	0.6	0.4	0.5

*International Classification of Childhood Cancer (ICCC) is based on ICD-O-3. Average annual rates. Rates are per 100,000 and age-adjusted to the 2000 U.S. Standard Population.

**Does not include Burkitt lymphoma.

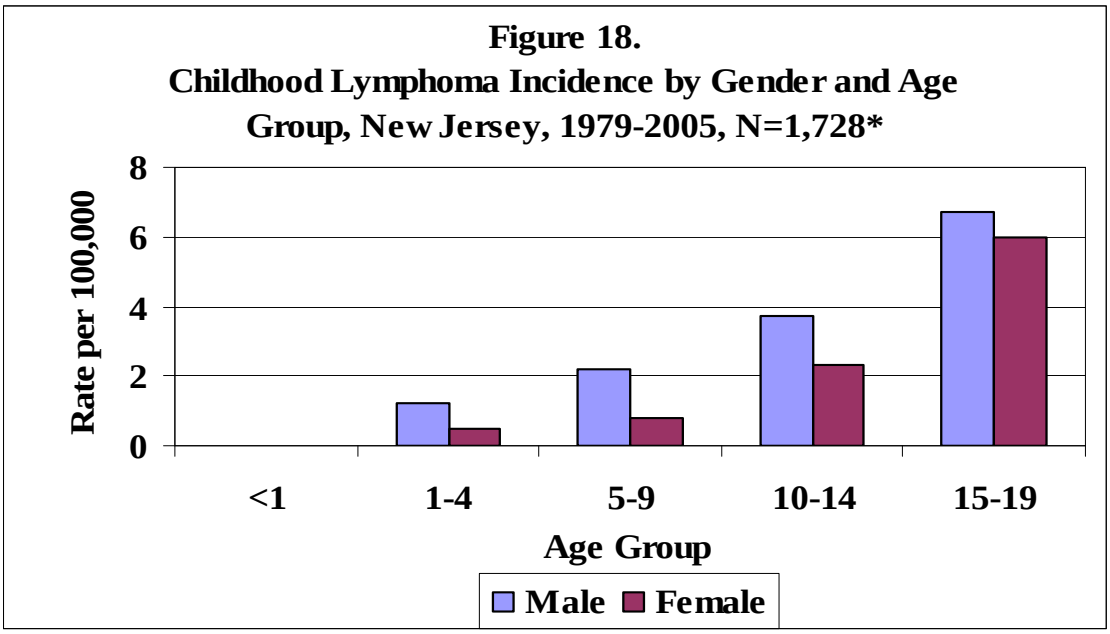
Data sources: New Jersey - New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services; U.S. - SEER Program, National Cancer Institute.

- Childhood lymphoma, HD and NHL incidence rates were higher in New Jersey than in the U.S. in every gender and age group, except females 0-14 in New Jersey and the U.S. had the same NHL incidence rates.

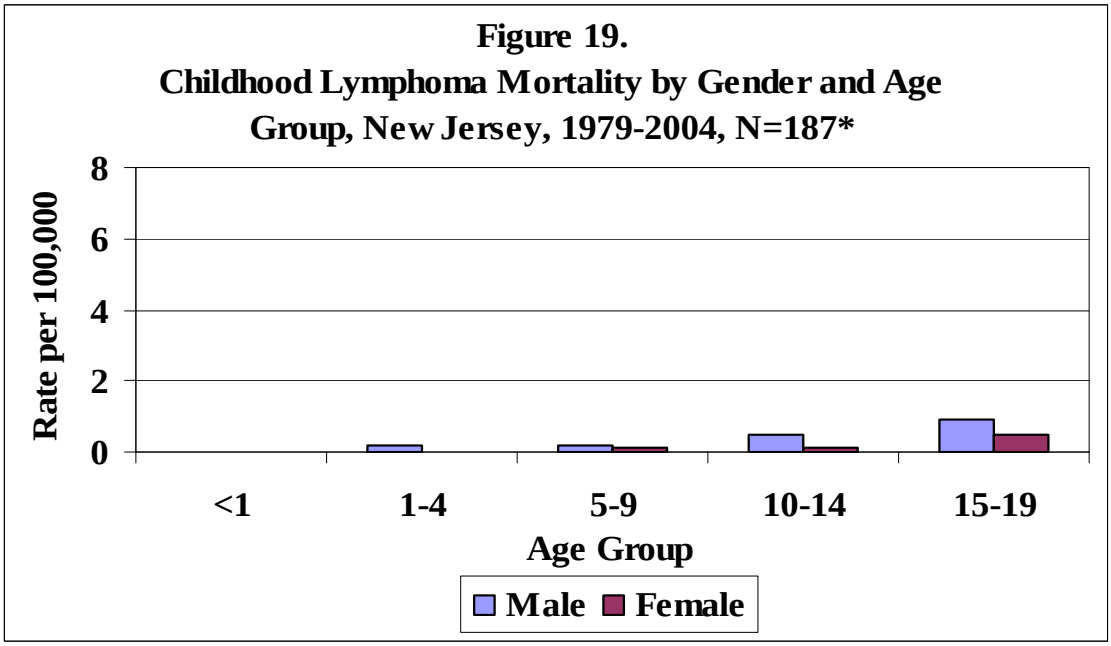
- For lymphoma, HD and NHL, the male incidence rates were higher than the female rates in New Jersey and the U.S. for every age group, except the HD incidence rates were the same for males and females 0-19 in New Jersey and the U.S.

Please see Tables A2 and A3 in the Appendix for detailed data.

Age-Specific Incidence and Mortality Rates by Gender in New Jersey (ICD-O-3, ICD-9, 10 Primary Site)



*Average annual rates. Rates are per 100,000. Data source – New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services. Incidence rates are not shown for the <1 age group because the number of cases was fewer than 5.



*Average annual rates. Rates are per 100,000. Data source – National Center for Health Statistics. Mortality rates are not shown for the <1 age group and females in the 1-4 age group because the number of deaths was fewer than 5.

- Childhood lymphoma **incidence** rates increased with each successive older age group, with rates of about 6 cases per 100,000 children a year in the 15-19 age group. (Figure 18.)

- In each age group males had higher lymphoma **incidence** rates than females, but the difference between the two genders decreased with each older age group. (Figure 18.)

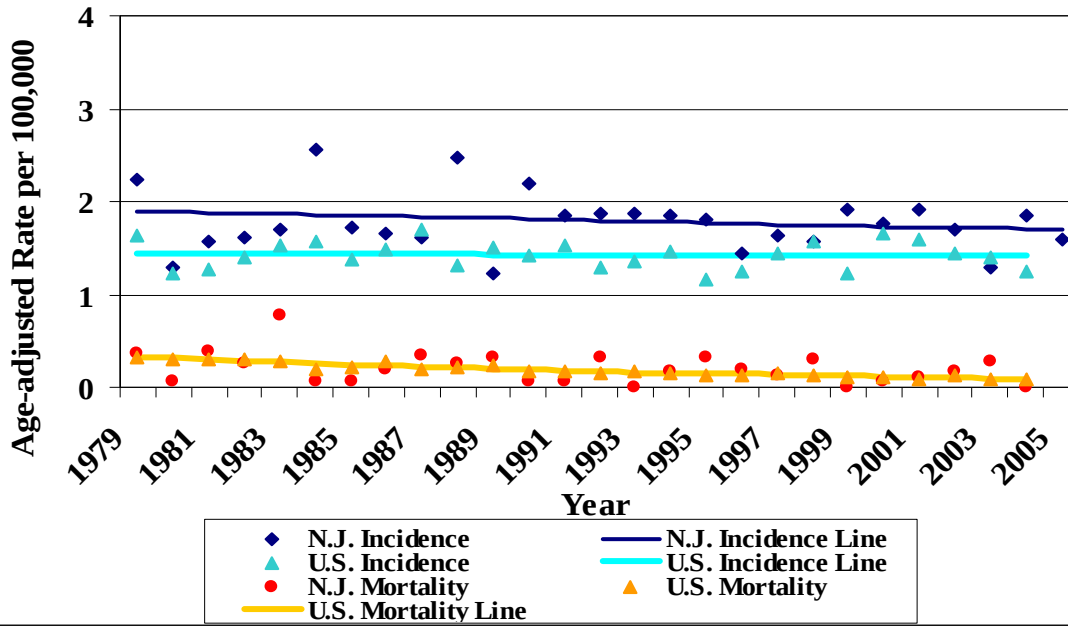
- The lymphoma **mortality** rates were lower than the incidence rates with much less than 1 death per 100,000 children a year, except among males 15-19 years old who had nearly 1 death per 100,000. (Figure 19.)

- Except for infants (< 1 year), among whom there were no lymphoma deaths, males had at least twice the **mortality** rate of females. (Figure 19.)

Please see Tables A4-A7 in Appendix A for detailed data.

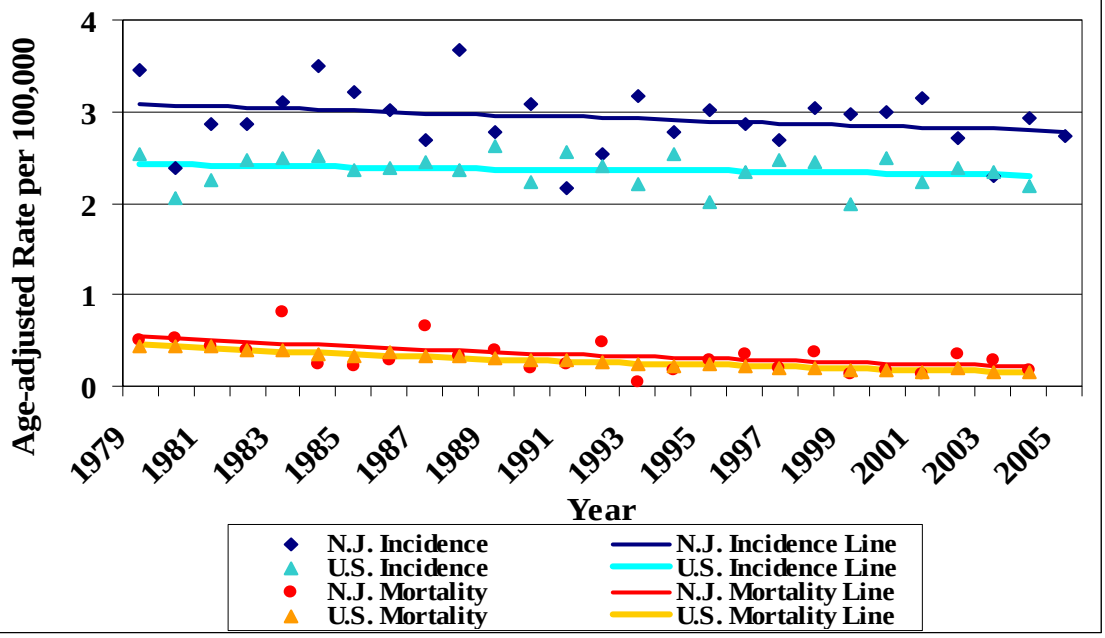
New Jersey and U.S. Incidence and Mortality Time Trends (ICD-O-3, ICD-9, 10 Primary Site)

Figure 20.
Childhood Lymphoma Incidence and Mortality Rates by Year, New Jersey and U.S., Ages 0-14, 1979-2005*



*Rates are per 100,000 and age-adjusted to the 2000 U.S. Population Standard. Data sources: New Jersey incidence - New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services; U.S. incidence – SEER Program, National Cancer Institute; mortality – National Center for Health Statistics. The regression lines were calculated using NCI's Joinpoint statistical program. A regression line for New Jersey mortality was not calculated because the mortality rate was zero for more than one year.

Figure 21.
Childhood Lymphoma Incidence and Mortality Rates by Year, New Jersey and U.S., Ages 0-19, 1979-2005*



*Rates are per 100,000 and age-adjusted to the 2000 U.S. Population Standard. Data sources: New Jersey incidence - New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services; U.S. incidence – SEER Program, National Cancer Institute; mortality – National Center for Health Statistics. The regression lines were calculated using NCI's Joinpoint statistical program.

- Between 1979 and 2004, the childhood lymphoma **incidence** rates declined in both age groups in New Jersey and the U.S., although more so in New Jersey. (Figures 20. and 21.)

- From 1979 through 2004, New Jersey lymphoma **incidence** rates generally were higher than the U.S. rates in the 0-14 age group and even more so in the 0-19 age group. (Figures 20. and 21.)

- The **mortality** rates for childhood lymphoma declined to nearly zero between 1979 and 2004 in each age group in both New Jersey and the U.S. (Figures 20. and 21.)

- The childhood lymphoma **mortality** rates in New Jersey and the U.S. were similar for both age groups throughout 1979-2004. (Figures 20. and 21.)

Please see Tables A14 and A15 in Appendix A for detailed data.

SYMPATHETIC NERVOUS SYSTEM CANCERS (NEUROBLASTOMA)

Background and Risk Factors

- The sympathetic nervous system (SNS) is the part of the nervous system that controls the vital functions of the body that are not consciously regulated. It includes the activity of the heart, the smooth muscles (such as digestive muscles), and glands.

- The great majority of cancers of the SNS are neuroblastomas which are most often diagnosed in infants (less than one year old) and are the most common cancer of infancy.[9] Neuroblastoma is a cancer that begins in pregnancy; it arises from the primordial neural crest cells that form the adrenal medulla and sympathetic nervous system.[4] Neuroblastomas can occur anywhere on the body but usually are found in the abdomen.[2] Five-year relative survival rates for neuroblastoma are about 85 percent for infants and 55 percent for children older than one year.[9] Little is known about what causes neuroblastoma.

- A small percentage of childhood neuroblastoma cases have a genetic predisposition. A few studies have found associations with farm residence or parental employment in agriculture. Paternal employment in electronics-related occupations, such as broadcast/telephone operators and electrical power workers, in landscape, grounds keeping or painting occupations, or occupational exposure to electromagnetic fields and aromatic hydrocarbons are possibly related to neuroblastoma in children. Maternal employment as farmers/farmworkers, florists, garden workers or hair dressers also may be related to neuroblastoma in children. Pesticide use in the garden and home has been associated with neuroblastoma.[4]

- Recent studies have explored maternal use of oral contraceptives or infertility drugs, medications such as amphetamines, diuretics, and tranquilizers, and alcohol and tobacco use before or during pregnancy as potential risk factors. Both low birth weight and increased birth weight also have been associated with neuroblastoma.[4]

- Maternal vitamin use during pregnancy and breastfeeding may be associated with a reduced risk of neuroblastoma.[4]

- The data presented in this section are limited to neuroblastoma.

Incidence Rates in New Jersey and the U.S. (ICCC Category)

Table 5.
Childhood Neuroblastoma Incidence Rates by Gender and Age Group

ICCC Category*	New Jersey - 1979-2005		U.S. - 1979-2004	
	0-14 n=512	0-19 n=522	0-14	0-19
Neuroblastoma	**1.1**	**0.9**	**1.1**	**0.8**
Male	1.2	0.9	1.1	0.8
Female	1.1	0.8	1.0	0.8

*International Classification of Childhood Cancer (ICCC) is based on ICD-O-3. Average annual rates. Rates are per 100,000 and age-adjusted to the 2000 U.S. Standard Population. Neuroblastomas are over 97% of the sympathetic nervous system cancers in New Jersey.
Data sources: New Jersey - New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services; U.S. - SEER Program, National Cancer Institute.

- The New Jersey neuroblastoma incidence rates were slightly higher than the U.S. rates in each gender and age group, except among females 0-19 the New Jersey and U.S. rates were the same.

- In New Jersey and the U.S., males had slightly higher neuroblastoma incidence rates than females in each age group, except the U.S. rates were the same for males and females in the 0-19 age group.

Please see Tables A2 and A3 in Appendix A for detailed data.

SOFT-TISSUE SARCOMA

Background and Risk Factors

- Soft-tissue sarcomas (STS) occur in connective tissue such as muscles, tendons and fat. The most common soft-tissue sarcoma in children is rhabdomyosarcoma (cancer of striated muscles), representing about half the cases. Five-year relative survival rates for STS are about 70 percent; however, for rhabdomyosarcoma the rate is 64 percent.[9]

- Certain major birth defects and syndromes -- Beckwith-Wiedermann, Costello syndrome, neurofibromatosis, genitourinary anomalies -- and other genetic conditions such as Li-Fraumeni syndrome are linked with rhabdomyosarcoma.[4]

- Other factors that may be related to soft-tissue sarcoma in children include lower socio-economic status, older maternal age, fewer previous pregnancies, maternal toxemia (poisons from bacteria in the blood), paternal smoking, parental marijuana or cocaine use, and prenatal exposure to radiation.[4]

Incidence Rates by Gender in New Jersey and the U.S. (ICCC Category)

Table 6.
Childhood Soft-Tissue Sarcoma Incidence Rates by Gender and Age Group

ICCC Category*	New Jersey - 1979-2005		U.S. - 1979-2004	
	0-14 n=445	0-19 n=696	0-14	0-19
Soft Tissue Sarcoma	**1.0**	**1.2**	**1.0**	**1.1**
Male	1.1	1.3	1.0	1.2
Female	0.9	1.0	0.9	1.0
Rhabdomyosarcoma	**0.5**	**0.5**	**0.5**	**0.5**
Male	0.6	0.6	0.6	0.5
Female	0.5	0.4	0.4	0.4

*International Classification of Childhood Cancer (ICCC) is based on ICD-O-3. Average annual rates. Rates are per 100,000 and age-adjusted to the 2000 U.S. Standard Population.
Data sources: New Jersey - New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services; U.S. - SEER Program, National Cancer Institute.

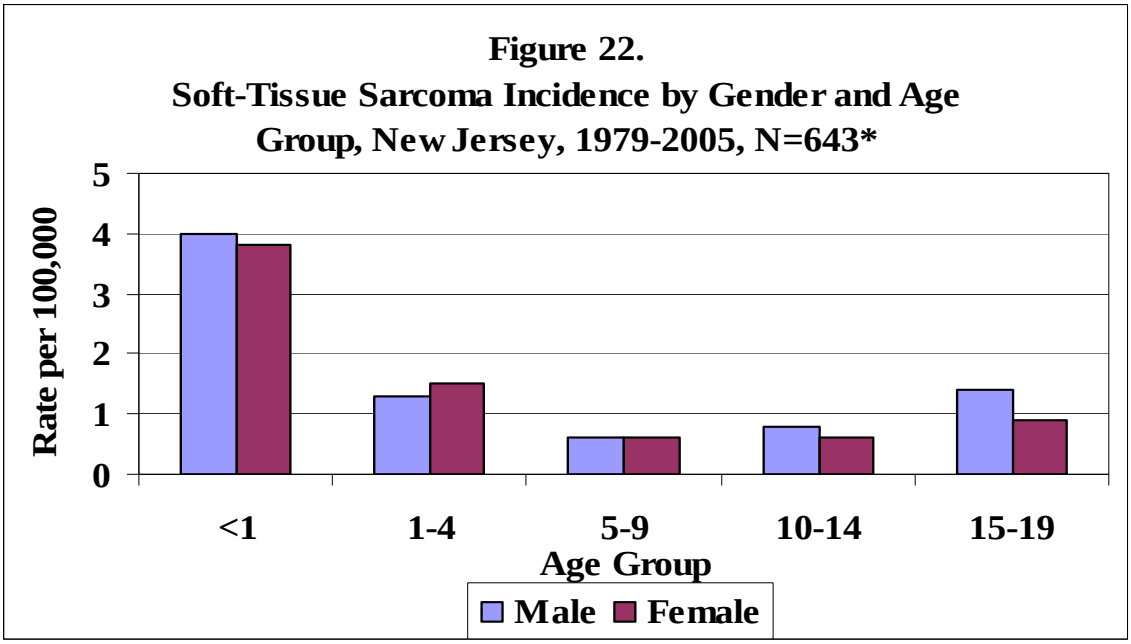
- The female childhood soft-tissue sarcoma incidence rates were the same in New Jersey and the U.S. for each age group, while the male childhood soft-tissue sarcoma incidence rates were slightly higher in New Jersey than in the U.S.

- For rhabdomyosarcoma, the incidence rates were the same in New Jersey and the U.S. except the New Jersey 0-19 male rate and 0-14 female rate were slightly higher than the analogous U.S. rates.

- In each age group, New Jersey and U.S. males had slightly higher incidence rates of soft-tissue sarcoma and rhabdomyosarcoma than females.

Please see Tables A2 and A3 in Appendix A for detailed data.

Age-Specific Incidence and Mortality Rates by Gender in New Jersey (ICD-O-3, ICD-9, 10 Primary Site)

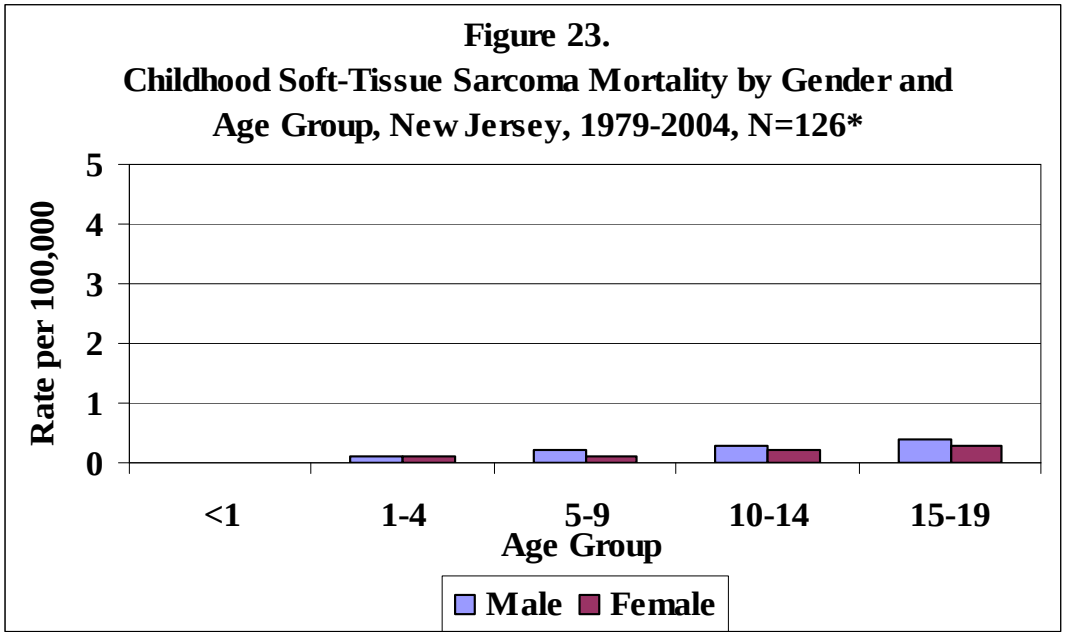


*Average annual rates. Rates are per 100,000. Data source – New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services.

- Infants had the highest childhood soft-tissue sarcoma **incidence** rates, 4 cases per 100,000 children a year. Incidence rates in the other age groups were much lower, less than 1 to 1.5 cases per 100,000 children a year. (Figure 22.)

- Male childhood soft-tissue sarcoma **incidence** rates were higher than female rates, except in the 1-4 and 5-9 age groups. (Figure 22.)

Please see Tables A4 and A5 in Appendix A for detailed data.



*Average annual rates. Rates are per 100,000. Data source – National Center for Health Statistics. Mortality rates are not shown for the <1 age group because the number of deaths was fewer than 5.

- Childhood soft-tissue sarcoma **mortality** rates were very low, far less than 1 death per 100,000 children a year. (Figure 23.)

- The soft-tissue sarcoma **mortality** rates increased with each older age group. (Figure 23.)

- In general, males had higher soft-tissue sarcoma **mortality** rates than females. (Figure 23.)

Please see Tables A6 and A7 in Appendix A for detailed data.

KIDNEY CANCERS

Background and Risk Factors

- About 95 percent of the renal (kidney) cancers that occur in children (0-14) are Wilms tumors (or nephroblastomas), which are believed to arise from primitive metanephric blastema (the tissue from which the normal kidney develops).[9] Wilms tumor usually affects just one kidney, but can affect both, and most often occurs in children between 2 and 3 years old.[2] The five-year relative survival rate for Wilms tumor is over 90 percent.[9]

- Risk factors for Wilms tumor include certain congenital anomalies and genetic conditions such as: Wilms tumor, aniridia, genitourinary anomalies and mental retardation (WAGR) syndrome; aniridia; Beckwith-Wiedermann syndrome; Perlman syndrome; Denys-Drash syndrome; Simpson-Golabi-Behmel syndrome and hemihypertrophy.[4]

- Possible risk factors for Wilms tumor are parental exposure to pesticides, maternal use of coffee or tea, hair dye and medications during pregnancy, paternal occupational exposure to hydrocarbons, lead, or other metals before conception, and high birth weight.[4]

Incidence Rates by Gender in New Jersey and the U.S. (ICCC Category)

Table 7.
Childhood Kidney Cancer Incidence Rates by Gender and Age Group

ICCC Category*	New Jersey - 1979-2005		U.S. - 1979-2004	
	0-14 n=395	0-19 n=422	0-14	0-19
Kidney cancer**	**0.9**	**0.7**	**0.9**	**0.7**
Male	0.8	0.6	0.8	0.6
Female	1.0	0.8	0.9	0.7
Nephroblastoma & other nonepithelial renal tumors**	**0.8**	**06**	**0.8**	**0.6**
Male	0.7	0.6	0.8	0.6
Female	0.9	0.7	0.9	0.7

*International Classification of Childhood Cancer (ICCC) is based on ICD-O-3. Average annual rates. Rates are per 100,000 and age-adjusted to the 2000 U.S. Standard Population.
**Includes Wilms tumor which is about 92% of kidney cancers among 0-19 year olds in New Jersey and the U.S.
Data sources: New Jersey - New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services; U.S. - SEER Program, National Cancer Institute.

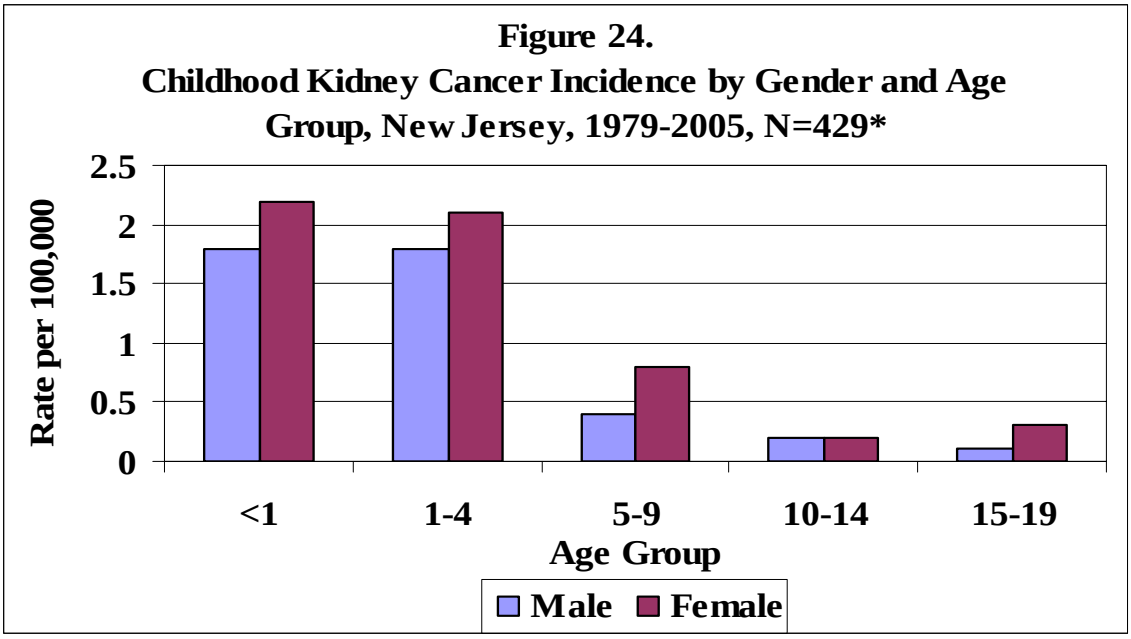
- The New Jersey and U.S. kidney cancer incidence rates were the same for males in each age group. In each age group, the New Jersey female kidney cancer incidence rate was slightly higher than the U.S. female rate.

- The incidence rates of nephroblastoma and other nonepithelial renal tumors were the same in New Jersey and the U.S. for males and females in each age group, except in the 0-14 age group the New Jersey male rate was slightly lower than the U.S. male rate.

- In each age group, the female kidney cancer incidence rates were higher than the male rates, unlike most other childhood cancers for which the male rates were higher than the female rates.

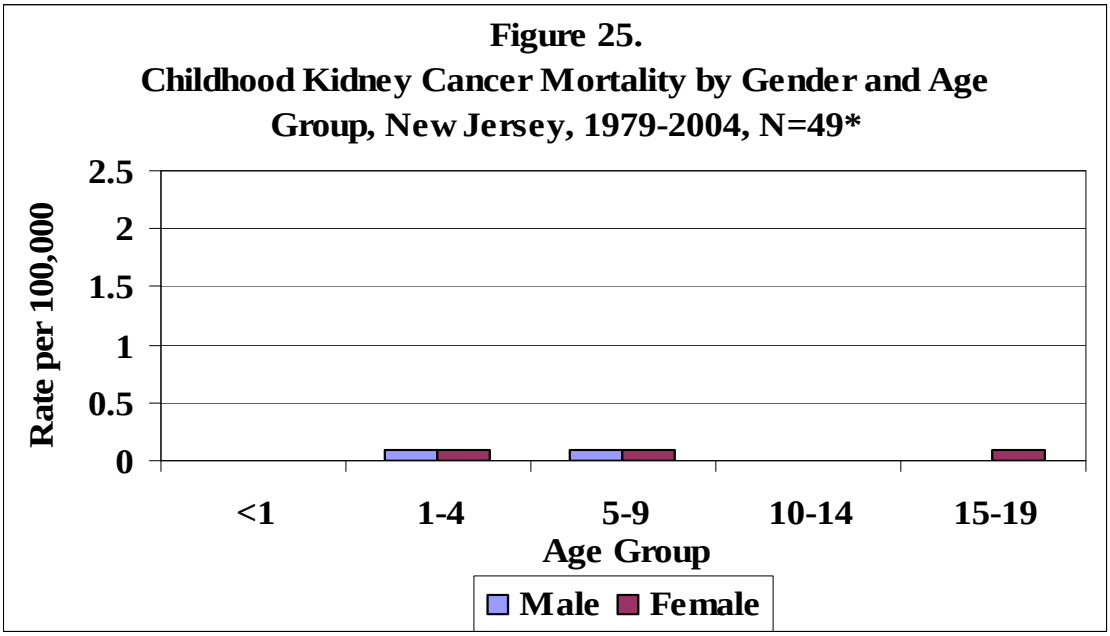
Please see Tables A2 and A3 in Appendix A for detailed data.

Age-Specific Incidence and Mortality Rates by Gender in New Jersey (ICD-O-3, ICD-9, 10 Primary Site)



*Average annual rates. Rates are per 100,000. Data source – New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services.

Figure 25.
Childhood Kidney Cancer Mortality by Gender and Age Group, New Jersey, 1979-2004, N=49*



*Average annual rates. Rates are per 100,000. Data source – National Center for Health Statistics. Mortality rates are not shown for the <1 and 10-14 age groups and males in the 15-19 age group because the number of deaths was fewer than 5.

- Childhood kidney cancer **incidence** rates were highest in infants (<1 year) and the 1-4 age group, at about 2 cases per 100,000 children a year. (Figure 24.)

- Females had higher kidney cancer **incidence** rates than males in every age group except the 10-14 age group, unlike the other childhood cancers. (Figure 24.)

- The **mortality** rate for childhood kidney cancer was very low, with very little difference between males and females. (Figure 25.)

Please see Tables A4-A7 in Appendix A for detailed data.

GERM CELL TUMORS

Background and Risk Factors

- Germ cell tumors originate from the primordial germ cells during fetal development and include gonadal (e.g. testes, ovaries) and non-gonadal germ cell tumors. The germ cell tumors of infancy and early childhood are different from those that occur in older children and adolescents.[4,9]

- Incidence rates for germ cell tumors are elevated in infancy and then decline until about age 10, then rapidly rise in the older ages.[4] Five-year survival rates for children diagnosed with a germ cell tumor are very good, about 90 percent.[4]

- Cryptorchidism (undescended testis) is one of the few known risk factors for testicular germ cell tumors. High maternal hormone levels during pregnancy may also be associated with testicular germ cell tumors.[4,9]

- Other possible risk factors for germ cell tumors are radiation exposure during pregnancy, pre-term birth, congenital malformation, viral infections such as mumps, and parental exposures to chemicals and solvents. High birth weight, prolonged breast feeding, and maternal urinary tract infection during pregnancy also may be associated with germ cell tumors.[4]

Incidence Rates by Gender in New Jersey and the U.S. (ICCC Category)

Table 8.
Childhood Germ Cell Cancer Incidence Rates by Gender and Age Group

ICCC Category*	New Jersey - 1979-2005		U.S. - 1979-2004	
	0-14 n=247	0-19 n=636	0-14	0-19
Germ cell & tropoblastic tumors & neoplasms of gonads	**0.6**	**1.1**	**0.5**	**1.0**
Male	0.5	1.2	0.4	1.2
Female	0.7	0.9	0.6	0.9

*International Classification of Childhood Cancer (ICCC) is based on ICD-O-3. Average annual rates. Rates are per 100,000 and age-adjusted to the 2000 U.S. Standard Population.
Data sources: New Jersey - New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services; U.S. - SEER Program, National Cancer Institute.

- The New Jersey incidence rates for childhood germ cell cancer were somewhat higher than the U.S. rates for each gender in the 0-14 age group. In contrast, the New Jersey and U.S. rates were the same for males and females 0-19 years of age.

- In the 0-14 age group, females had higher rates than males in both New Jersey and the U.S. The relationship was reversed in the 0-19 age group – males had higher rates than females.

Please see Tables A2 and A3 in Appendix A for detailed data.

BONE CANCERS

Background and Risk Factors

- Bone cancers account for about five percent of all childhood cancers. The two main classifications of bone cancers in children are osteosarcoma, which accounts for over half of the cases of bone cancer, and Ewing sarcoma, which accounts for about a third of the cases. Eighty percent of osteosarcomas occur in the long bones of the leg, and twelve percent arise in the long bones of the arm.[4,9] The five-year relative survival from bone cancer is low compared to other childhood cancers, a little over 60 percent.[9]

- That osteosarcoma incidence increases with childhood growth and occurs in the long bones suggests an etiology (cause) linked with bone development.[4]

- Osteosarcoma is related to some genetic conditions such as Li-Fraumeni syndrome, hereditary retinoblastoma, and Rothmund-Thomson syndrome, but these conditions account for few cases.[4,9]

- Some evidence indicates that Ewing sarcoma may result from a genetic predisposition; for example, it rarely occurs among black children in the U.S. or Africa. Parental farm work has been associated with Ewing sarcoma.[4]

Incidence Rates by Gender in New Jersey and the U.S. (ICCC Category)

Table 9.
Childhood Bone Cancer Incidence Rates by Gender and Age Group

ICCC Category*	New Jersey - 1979-2005		U.S. - 1979-2004	
	0-14 n=307	0-19 n=529	0-14	0-19
Bone cancer	**0.7**	**0.9**	**0.7**	**0.9**
Male	0.8	1.0	0.7	1.0
Female	0.6	0.8	0.6	0.7
Osteosarcoma	**0.4**	**0.5**	**0.4**	**0.5**
Male	0.4	0.5	0.4	0.6
Female	0.4	0.4	0.4	0.4
Ewing tumor & related sarcomas	**0.3**	**0.3**	**0.2**	**0.3**
Male	0.3	0.3	0.3	0.3
Female	0.2	0.2	0.2	0.3

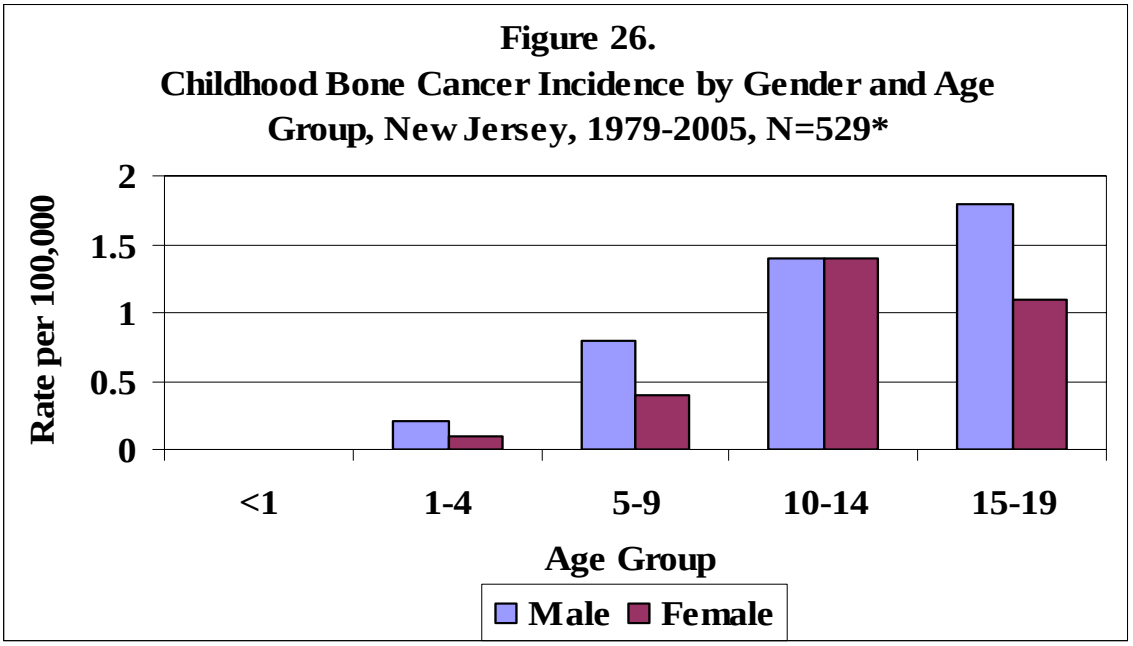
*International Classification of Childhood Cancer (ICCC) is based on ICD-O-3. Average annual rates. Rates are per 100,000 and age-adjusted to the 2000 U.S. Standard Population.
Data sources: New Jersey - New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services; U.S. - SEER Program, National Cancer Institute.

- New Jersey incidence rates for all bone cancers, osteosarcoma and Ewing tumor are the same as the U.S. rates with several exceptions in which the New Jersey rate is slightly lower or higher than the U.S. rate.

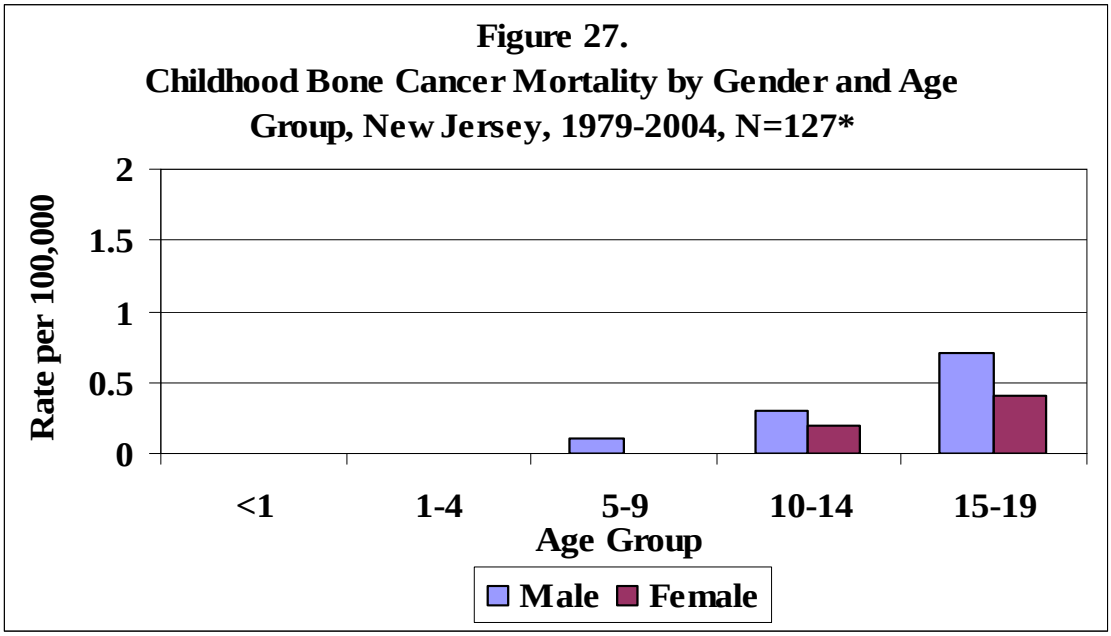
- For both New Jersey and the U.S., in each age group the male incidence rates for bone cancers, osteosarcoma, and Ewing tumor are higher than or the same as the female rates.

Please see Tables A2 and A3 in Appendix A for detailed data.

Age-Specific Incidence and Mortality Rates by Gender in New Jersey (ICD-O-3, ICD-9, 10 Primary Site)



*Average annual rates. Rates are per 100,000. Data source – New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services. Incidence rates are not shown for the <1 age group because the number of cases was fewer than 5.



*Average annual rates. Rates are per 100,000. Data source – National Center for Health Statistics. Mortality rates are not shown for the <1 and 1-4 age groups and females in the 5-9 age group because the number of deaths was fewer than 5.

- Among males, the childhood bone cancer **incidence** rates increased with each succeeding older age group up to nearly 2 cases per 100,000 children a year in the 15-19 age group. Among females, the rate peaked in the 10-14 age group at nearly 1.5 cases per 100,000 children a year. (Figure 26.)

- In each age group, except 10-14, the male childhood bone cancer **incidence** rates were higher than the female rates. (Figure 26.)

- The childhood bone cancer **mortality** rates were very low, fewer than 1 death per 100,000 children a year in each age group. (Figure 27.)

- The **mortality** rates increased in each succeeding older age group. (Figure 27.)

- Male **mortality** rates were higher than female mortality rates. (Figure 27.)

Please see Tables A4-A7 in Appendix A for detailed data.

RETINOBLASTOMA

Background and Risk Factors

- Retinoblastoma is a cancer that arises in the developing cells (primitive neuroectodermal cells) in the retina of the eye.[4,9] It accounts for less than 3 percent of childhood (ages 0-14) cancers, but causes 5 percent of childhood blindness.[2] Nearly all retinoblastomas are diagnosed in children younger than five years of age.[9] Five-year relative survival is very good – 93 percent.[4]

- There are two types of retinoblastoma -- hereditary retinoblastoma and sporadic (non-heritable) retinoblastoma. The hereditary retinoblastomas account for about 40 percent of all retinoblastomas and are more likely to occur in both eyes in the first year of life, while the sporadic retinoblastomas usually occur in one eye after infancy.[4,9]
- The hereditary retinoblastomas are divided into two groups – those which arise in children who carry the retinoblastoma gene inherited from one or both parents (familial retinoblastoma) and those which result from a new mutation in the father's sperm or, less often, in the mother's egg (sporadic heritable retinoblastoma).[4,9]
- Parental employment in the military and metal manufacturing and older paternal and maternal age have been associated with sporadic heritable retinoblastoma.[4]
- Possible risk factors for non-heritable retinoblastoma include paternal occupations as welders and machinists, maternal morning sickness medication, and fetal exposure to x-rays.[4]
- A recent study found that in vitro fertilization was related to an increased risk of retinoblastoma in the children.[4]

Incidence Rates by Gender in New Jersey and the U.S. (ICCC Category)

Table 10.
Childhood Retinoblastoma Incidence Rates by Gender and Age Group

ICCC Category*	New Jersey - 1979-2005		U.S. - 1979-2004	
	0-14 n=192	0-19 n=192	0-14	0-19
Retinoblastoma	**0.4**	**0.3**	**0.4**	**0.3**
Male	0.5	0.3	0.4	0.3
Female	0.4	0.3	0.4	0.3

*International Classification of Childhood Cancer (ICCC) is based on ICD-O-3. Average annual rates. Rates are per 100,000 and age-adjusted to the 2000 U.S. Standard Population.
Data sources: New Jersey - New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services; U.S. - SEER Program, National Cancer Institute.

- In each gender and age group, the New Jersey and U.S. incidence rates for childhood retinoblastoma were the same, except among males 0-14 the New Jersey incidence rate was slightly higher than the U.S. rate.

- The male incidence rates were the same as the female rates in every age group, except among males 0-14 in New Jersey the rate was slightly higher than among females 0-14.

- In New Jersey there were no retinoblastomas diagnosed in 15-19 year olds.

Please see Tables A2 and A3 in Appendix A for detailed data.

CHILDHOOD CANCER BY COUNTY

Tables 11 and 12 show the New Jersey county incidence rates for the most common childhood cancers in each age group, 0-14 and 0-19. Childhood cancer rates, like adult cancer and other non-infectious disease rates, fluctuate greatly over time and by geographic location. Accordingly, the county counts and rates for the childhood cancers vary greatly among the counties and by time period. This is primarily due to the fact that childhood cancers are rare and that the numbers of children in smaller geographic areas such as counties are small. Thus, a small change in the number of cases can cause a large difference in the rate. The incidence rates are adjusted only for age so differences in the prevalence of other risk factors in these counties, such as parental exposures, genetic conditions, other diseases, race, ethnicity, and socio-economic status, may explain the county differences.

Please see Tables A16 – A21 in Appendix A for detailed data.

Table 11.
Childhood Cancer Incidence by County, Selected Cancers
New Jersey, 1979-2005, 0-14*

County	Total		Leukemia	CNS**	Lymphoma	Neuro-blastoma	STS**
	Cases	Rate	Rate	Rate	Rate	Rate	Rate
Atlantic	230	18.2	5.5	3.6	2.6	1.2	1.3
Bergen	628	15.0	5.0	2.9	1.7	0.9	0.8
Burlington	360	15.7	5.1	3.0	1.5	1.3	1.1
Camden	470	15.6	4.7	3.3	1.8	1.2	1.0
Cape May	91	19.3	6.2	4.0	2.1	1.5	1.3
Cumberland	128	15.4	5.0	3.7	1.3	1.3	1.3
Essex	653	14.0	4.0	2.7	1.9	1.0	1.2
Gloucester	239	17.1	5.1	3.9	2.1	1.7	0.9
Hudson	495	16.4	5.3	3.1	2.1	1.1	0.7
Hunterdon	115	18.5	6.1	3.9	1.8	1.3	1.3
Mercer	267	15.1	4.2	3.7	2.2	0.8	0.5
Middlesex	585	16.2	5.7	3.2	1.9	1.1	0.7
Monmouth	538	16.5	4.3	4.1	2.0	1.2	1.0
Morris	391	16.1	5.2	3.5	1.4	1.3	1.0
Ocean	417	17.5	4.9	4.5	1.9	1.5	1.4
Passaic	422	15.3	4.7	3.2	1.7	0.9	1.2
Salem	58	15.6	4.3	2.7	1.8	-	1.4
Somerset	239	16.8	5.1	3.9	2.2	1.5	0.8
Sussex	143	16.8	5.1	3.4	2.2	1.4	0.7
Union	383	14.1	4.3	2.4	1.7	0.9	1.3
Warren	93	17.0	5.3	2.5	2.2	1.4	1.3
State	6,945	15.8	4.9	3.3	1.9	1.1	1.0

* International Classification of Childhood Cancer (ICCC) is based on ICD-O-3. Average annual rates. Rates are per 100,000 and age-adjusted to the 2000 U.S. Standard Population.
**CNS is central nervous system, STS is soft-tissue sarcoma.
- Counts and rates are suppressed when fewer than 5 cases to ensure confidentiality and statistical reliability.
Data source: New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services, January 2008.

Table 12.
Childhood Cancer Incidence by County, Selected Cancers
New Jersey, 1979-2005, 0-19*

County	Total		Leukemia	CNS**	Lymphoma	STS**	Germ Cell
	Cases	Rate	Rate	Rate	Rate	Rate	Rate
Atlantic	308	18.2	4.8	3.1	3.3	1.4	0.9
Bergen	1,002	17.5	4.6	2.7	3.1	1.0	1.0
Burlington	528	16.9	4.5	2.8	2.6	1.4	1.2
Camden	708	17.6	4.4	3.0	3.0	1.0	1.1
Cape May	125	19.7	5.9	3.3	2.7	1.6	0.9
Cumberland	183	16.3	4.4	3.1	2.1	1.3	1.8
Essex	983	15.6	3.6	2.4	2.8	1.4	1.1
Gloucester	356	18.8	4.5	3.4	3.4	1.3	1.3
Hudson	690	16.9	4.7	2.8	2.9	0.8	1.0
Hunterdon	159	19.4	5.6	3.5	3.1	1.2	0.9
Mercer	379	15.4	3.9	3.2	2.8	0.6	0.9
Middlesex	882	17.6	4.9	3.0	3.2	0.9	1.2
Monmouth	793	18.2	3.8	3.7	3.1	1.2	1.1
Morris	589	18.1	4.5	3.1	2.7	1.3	1.1
Ocean	585	18.8	4.5	3.7	3.0	1.5	1.0
Passaic	639	17.3	4.2	3.1	3.1	1.3	1.1
Salem	90	17.7	3.4	2.8	3.1	1.6	--
Somerset	327	17.7	5.0	3.8	2.8	0.8	0.7
Sussex	220	20.1	4.3	3.4	4.3	1.2	0.8
Union	575	15.7	4.2	2.3	2.9	1.4	1.0
Warren	141	19.6	4.8	2.5	3.2	1.2	1.1
State	10,262	17.3	4.4	3.0	3.0	1.2	1.1

* International Classification of Childhood Cancer (ICCC) is based on ICD-O-3. Average annual rates. Rates are per 100,000 and age-adjusted to the 2000 U.S. Standard Population.
**CNS is central nervous system, STS is soft-tissue sarcoma.
- Counts and rates are suppressed when fewer than 5 cases to ensure confidentiality and statistical reliability.
Data source: New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services, January.2008.

TECHNICAL NOTES

New Jersey State Cancer Registry (NJSCR)

NJSCR Overview

The objectives of the New Jersey State Cancer Registry (NJSCR) are to:

- monitor cancer trends in New Jersey;
- promote scientific research;
- respond to New Jersey residents about cancer concerns;
- educate the public;
- provide information for planning and evaluating cancer prevention and control activities; and
- share and compare cancer data with other states and the nation.

The NJSCR is a population-based cancer incidence registry that serves the entire state of New Jersey, which has a population of over 8.7 million people. The NJSCR was established by legislation (NJSA 26:2-104 et. seq.) and includes all cases of cancer diagnosed in New Jersey residents since October 1, 1978. New Jersey regulations (NJAC 8:57A) require the reporting of all newly diagnosed cancer cases to the NJSCR within three months of hospital discharge or six months of diagnosis, whichever is sooner. Reports are filed by hospitals, diagnosing physicians, dentists, and independent clinical laboratories. Every hospital in New Jersey reports cancer cases electronically. In addition, reporting agreements are maintained with Delaware, Florida, Maryland, New York, North Carolina and Pennsylvania so that New Jersey residents diagnosed with cancer outside the state can be identified. Legislation passed in 1996 strengthened the NJSCR by requiring electronic reporting, requiring abstracting by certified tumor registrars (CTRs) and establishing penalties for late or incomplete reporting.

All primary invasive and *in situ* neoplasms are reportable to the NJSCR, except cervical cancer *in situ* diagnosed after 1994 and certain carcinomas of the skin. Benign brain/central nervous system (CNS) tumors have been collected since 2004, as required by the federal Benign Brain Tumor Cancer Registries Act signed in October, 2002. The information collected by the NJSCR on each cancer includes basic patient identifiers, demographic characteristics of the patient, medical information on each cancer diagnosis such as the anatomic site, histologic type and stage of disease, first course of treatment and vital status (alive or deceased) determined annually. For deceased cases, the underlying cause of death is also included. The primary site, behavior, grade, and histology of each cancer are coded according to the *International Classification of Diseases for Oncology (ICD-O), 2nd edition*[10] for cancers diagnosed through 2000 and the *3rd edition*[11] for cancers diagnosed after 2000.

The NJSCR follows the data standards promulgated by the North American Association of Central Cancer Registries (NAACCR), including the use of the Surveillance,

Epidemiology, and End Results (SEER) multiple primary rules. An individual may develop more than one cancer. Following the SEER multiple primary rules, patients could therefore be counted more than once if they were diagnosed with two or more primary cancers.

The NJSCR is a member of NAACCR, an organization that sets standards for cancer registries, facilitates data exchange and publishes cancer data. The NJSCR has been a participant of the National Program of Cancer Registries (NPCR) sponsored by the Centers for Disease Control and Prevention (CDC) since it began in 1994 and is one of the National Cancer Institute's (NCI) SEER expansion registries.

NJSCR Data Quality

NAACCR has awarded the Gold Standard, the highest standard possible, to the NJSCR for the quality of the 1995 through 2005 data. The NJSCR has consistently achieved the highest level of certification for its data since the inception of this award. The criteria used to judge the quality of the data are completeness of cancer case ascertainment, completeness of certain information on the cancer cases, percent of death certificate only cases, percent of duplicate cases, passing an editing program, and timeliness.

Completeness of reporting to the NJSCR was estimated by comparing New Jersey and U.S. incidence to mortality ratios for whites standardized for age, gender, and cancer site. The data used to generate these ratios were the cancer incidence rates for all SEER registries combined. Using these standard formulae, it is possible for the estimation of completeness to be greater than 100 percent. For the NJSCR 2005 data, the completeness of case reporting was estimated as 107.4 percent at the time this report was prepared.

While our estimates of completeness are very high, some cases of cancer among New Jersey residents who were diagnosed and/or treated in out-of-state facilities may not yet have been reported to the NJSCR by other state registries. This should be considered in interpreting the data for the more recent years. However, these relatively few cases will not significantly affect the cancer rates, nor alter the overall trends presented in this report.

Other 2005 cancer incidence data quality indicators that were measured include:

- percent death-certificate-only cases - 1.4 percent;
- percent of unresolved duplicates – less than 0.1 percent;
- percent of cases with unknown race - 1.7 percent;
- percent of cases with unknown county - 0.02 percent;
- number of cases with unknown age – 14; and
- number of cases with unknown gender – 1.

It should also be noted that minor fluctuations in incidence may be seen from the previous childhood cancer report[5] due to ongoing editing and review of the data.

Similarly, the 2005 incidence counts presented here are expected to increase by the time all data are complete, and, therefore, are considered preliminary.

The NJSCR continues to work toward improving the quality and number of its reporting sources. Over the past few years, significant improvements have been realized in this regard. For example, some of these improvements have resulted in better reporting of skin cancers such as melanoma. One of the most significant improvements has been the implementation of electronic pathology laboratory reporting (E-path) from a national pathology laboratory and several hospital-based laboratories. The ultimate goal is to enable E-path laboratory reporting from every laboratory that serves New Jersey. E-path reporting has improved the timeliness and completeness of cancer reporting, especially for non-hospitalized cases.

In order to minimize the number of cases with an unknown county of residence, the NJSCR runs all addresses through a standardization and geocoding process as described below. For this report, cases where the county of residence at diagnosis is unknown have been excluded. This is a change from the previous childhood cancer report[5], in which cases with unknown county were included. This change was made so that NJSCR methods are in accordance with the standard procedures used by SEER. The effect of this change on the incidence rates is very small. For example, the total number of childhood cancer cases with an unknown county in 1979-2005 is six among children 0-14 years of age and nine among children 0-19 years of age, which represents 0.09% of the total case population.

Geocoding

The NJSCR geocodes the residential address at the time of cancer diagnosis for each case. To ensure accuracy of address information, follow-up with physicians and hospitals to verify address data is conducted prior to the geocoding process. The geocoding process involves matching the cases' addresses to a street level reference map containing its geographic coordinates (latitude and longitude). The NJSCR employs both automated and interactive goecoding. The automated geocoding is done through the New Jersey Office of Information Technology Services (NJOITS). The NJOITS geocoding system employs Integrity software and the most recent street boundary file provided by Tele Atlas. The NJSCR has attempted to geocode all cancer cases beginning with the 1979 cases and updates the registry on a monthly basis. Interactive geocoding is performed by NJSCR trained staff and is used to manually examine and review cases that could not be geocoded through the automated process. Staff persons also use the Tele Atlas boundary file for the interactive process.

Data Sources and Specifications for This Report

Data Sources

New Jersey cancer incidence data were taken from the January 2008 analytic file of the NJSCR. U.S. cancer incidence data, obtained from the SEER Program, are from nine registries in the U.S. that cover about ten percent of the U.S. population.[12] At the time of the preparation of this report, year 2005 U.S. incidence data were not available. Because SEER does not include all of the U.S. states, the total cases would not be meaningful and therefore were not presented in this report.

New Jersey and U.S. cancer mortality data were obtained from the SEER Program.[13] The underlying mortality data were from the National Center for Health Statistics (NCHS). At the time of the preparation of this report, year 2005 mortality data were not available.

The 1979-2005 population data used in this report are estimates from the NCHS based on U.S. Census Bureau data downloaded from SEER's website - http://seer.cancer.gov/popdata/download.htm.

Data Specifications

Cases were limited to children whose age at diagnosis was from birth to age nineteen (0-19). The age at diagnosis in the NJSCR was derived from the date of birth and the date of diagnosis information in the medical records. The data are presented for two age categories – 0-14 and 0-19 - as both these age groups appear in the childhood cancer literature and reports from SEER and other organizations.

Out-of-state residents and cases whose residence in New Jersey at the time of diagnosis could not be confirmed (unknown county) were excluded from the New Jersey incidence rates and counts, as were persons of unknown age and/or gender. All invasive cancers plus bladder cancer *in situ* were included in the incidence data. Race-specific information is not shown separately for persons whose race is other than white or black (including unknown race); these persons are included in the all races category.

Two classification systems were used for cancer incidence in this report. The International Classification of Childhood Cancer (ICCC) from the International Agency for Research on Cancer (IARC)[14] was used for the cancer incidence counts and rates in Tables A1-A3 and A16-A21. This classification system for childhood cancer is based on tumor histology rather than, as for adults, the site of the tumor, as histology is often more relevant than site for childhood cancers. The following SEER web link contains additional information on the translation from cancer site and histology to the ICCC - http://www.seer.cancer.gov/iccc/iccc3.html.

The ICD-O-3 coding system[11] was used for incidence data that is compared with cancer mortality (Tables A4-A15) because the ICD-O-3 coding system is more consistent with the cause of death classification system used for mortality data described below. Some

ICCC site codes do not have an analogous mortality ICD-9 or ICD-10 code, preventing a valid comparison between incidence and mortality. For example, the ICCC codes for neuroblastoma and Wilms tumor do not have equivalent ICD-9 or ICD-10 codes. A complete listing of the ICD-O-3 site codes is at http://seer.cancer.gov/siterecode/icdo3_d01272003/. The table below shows differences between the ICCC and ICD-O-3 coding system for the major cancer groups.

ICD-O-3 Primary Site (ICCC Category)*	In ICD-O-3, but not in ICCC	In ICCC, but not in ICD-0-3
All cancers combined	0	0
Leukemia (Leukemia)	1	0
Brain (CNS)	99	47
Lymphoma (Lymphoma)	0	52
Non-Hodgkin	0	52
Hodgkin disease	0	0
Soft-tissue (Soft-tissue)	221	274
Kidney (Renal)	8	1
Bones (Bone)	3	3
*The ICCC categories of sympathetic nervous system (neuroblastoma), germ-cell tumors, and retinoblastoma do not have analogous ICD-O-3 primary sites.		

Beginning with the year 1999, coding and classification for cause of death has been in accordance with the *10th edition* of the World Health Organization's *International Classification of Diseases (ICD-10)*. From 1979-1998, cause of death coding was based on the 9th *edition (ICD-9)*. Changes in classification detail, coding rules, and classification code numbers with the new version have caused some discontinuities in trends for cancer deaths. Although these discontinuities vary, research has found that using ICD-10 assigns approximately 0.7 percent more deaths to the category of cancer than does ICD-9, which may slightly increase some site-specific age-specific mortality rates for 1999 and later. A listing of the ICD-9 and ICD-10 codes is at http://seer.cancer.gov/codrecode/1969+_d03252004/index.html.

With the inclusion of the year 2000 population data, we must take into account the new way in which the U.S. Bureau of the Census collected population data. With the 2000 Census, individuals were given the opportunity to categorize themselves as more than one race, as specified in the 1997 Office of Management and Budget (OMB) standards (http://www.whitehouse.gov/omb/fedreg/directive_15.html). For the first time, individuals could "mark [X] one or more races to indicate what this person considers himself/herself to be." Because of this change, 2000 population estimates for "White only" and "Black only" in earlier cancer incidence and mortality reports are 4-6 percent lower than the 1999 populations for "White only" and “Black only” in New Jersey.

The population estimates incorporate new annual bridged single-race estimates for July 1, 2000 to July 1, 2005, which are derived from the original multiple race categories in the 2000 Census as specified in the 1997 OMB Standards for the collection of data on race and ethnicity. For agencies such as NCI and NCHS to continue reporting long-term

trends in disease rates for single-race groups, a method is needed to "bridge" these multi-race classifications into a single-race category. Such a method was developed by NCHS using information collected as part of their National Health Interview Survey. In collaboration with NCHS, the Census Bureau produced a set of year 2000 population estimates that assigned everyone to one race group only.[15] The bridged single-race estimates and a more in-depth description of the methodology used to develop them are on the NCHS web site at http://www.cdc.gov/nchs/about/major/dvs/popbridge/popbridge.htm.

Furthermore, 2000 population estimates used to calculate rates for the years 1991 through 1999 for previous reports have been found to differ from the actual 2000 census counts, especially the specific race estimates. Therefore, the 1991-1999 intercensal population estimates were revised by the Census Bureau by distributing the difference between the original post-1990 census estimates of the 2000 population and the actual April 1, 2000 census. The new population estimates affected primarily smaller populations such as race subgroups.

Calculation of Rates

Age-Adjusted Rates and the Year 2000 Standard

The U.S. Department of Health and Human Services requires that health data be age-adjusted using the U.S. year 2000 population as a standard, beginning with the 1999 reporting year. Age-adjustment to the year 2000 population as the standard was first used in one of our earlier annual reports, *Cancer Incidence and Mortality in New Jersey 1996-2000*, issued in December 2002. Prior to the release of 1999 data, various federal and state agencies calculated disease rates using different U.S. population standards, including the 1940 and 1970 standard populations. Our previous childhood cancer report, *Childhood Cancer in New Jersey, 1979-1995*,[5] used the 1970 population standard.

Calculations using the 2000 U.S. standard population do not indicate a change in cancer incidence or occurrence - only a different representation of the rates of reported cancer. Using the 2000 U.S. population as the standard produces standardized cancer rates that appear to be about 20 percent higher than previously reported.

For this report, the 2000 U.S. Standard Population (19 age groups-Census P25-1130) was used for age-adjustment instead of the 2000 U.S. Standard Million (19 age groups). This has been standard practice for all NCI SEER reports with incidence or mortality data for 2002 or later. The 2000 U.S. Standard Population was created for use with single year of age population data. Differences in the age-adjusted rates using the 2000 U.S. Standard Million and the new 2000 U.S. Standard Population are minimal. For further details, see SEER's website at http://seer.cancer.gov/stdpopulations/single_age.html.

Rate Calculation Formulas

A cancer incidence rate is defined as the number of new cases of cancer diagnosed during a specified time period in a specified population. Cancer rates are most commonly expressed as cases per 100,000 population. Cancer occurs at different rates in different age groups, and population subgroups defined by gender and race have different age distributions. Therefore, before a valid comparison can be made between rates, it is necessary to standardize the rates to the age distribution of a standard population. In this report, the 2000 U.S. Standard Population (19 age groups-Census P25-1130) was used. Records that were missing gender, age, or race were not included in the rates presented in this report. Since the number of records so affected was very small, the rates were virtually unaffected by the non-inclusion of these records.

The first step in the age-standardization procedure is to determine the age-specific rates. For each age group for a given time interval (within each race-gender group, for the entire state), the following formula is applied:

$$r_a = \frac{n_a}{t \; x \; P_a}$$

where:

- r_a = the age-specific rate for age group a;
- n_a = the number of events (cancer diagnoses) in the age group during the time interval;
- t = the length of the time interval (in years); and
- P_a = average size of the population in the age group during the time interval (mid-year population or average of mid-year population sizes).

In order to determine the age-adjusted rate, a weighted average of the age-specific rates is calculated, using the age distribution of the standard population to derive the age-specific weighting factors.[16] This is the technique of direct standardization, which uses the following formula:

$$R = \frac{\sum_{a=1}^{n} r_a \; x \; Std.P_a}{\sum_{a=1}^{n} Std.P_a}$$

where:

- R = the age-adjusted rate;
- r_a = the age-specific rate for age group a; and
- $Std.P_a$ = the size of the standard population in each age group a.

While age standardization facilitates the comparison of rates among different populations, there can be important age-specific differences in disease occurrence, which are not apparent in comparisons of the age-adjusted rates.[17]

Analogous definitions and calculations apply for the cancer mortality rates. All the counts and rates were tabulated using SEER*Stat Version 6.3, a statistical software package distributed by the NCI available at http://www.seer.cancer.gov/seerstat/.

Other Statistical Methods

Joinpoint Regression Modeling for Time Trends in Rates

Joinpoint software from NCI[18] was used to determine if any significant changes in annual incidence or mortality rate trends occurred in New Jersey and the U.S. from 1979 to 2004 (1979-2005 for New Jersey incidence data). The joinpoint software uses regression modeling to analyze trend data (e.g. annual cancer incidence rates) by identifying points (joinpoints) where the rate of change significantly changes and by providing the estimated annual percent change (APC) for each line segment between joinpoints. It fits the simplest joinpoint model to the data, such that if one more joinpoint is added it does not statistically significantly improve the model.

For this report, the regression models with zero joinpoints were used to compare New Jersey and U.S. incidence and mortality and to compare incidence and mortality between whites and blacks in New Jersey, because for New Jersey all except one type of cancer had zero joinpoints, i.e. no changes in the time trends. The APCs and their 95 percent confidence intervals from the zero joinpoint models were used to determine if the annual rates significantly increased or decreased during the time period 1979-2004. Additional statistical details on joinpoint regression may be found in an article by Kim, et al.[19]

The APC is calculated by first fitting a regression line to the natural logarithms of the rates [ln(r)] using calendar year (x) as a regressor variable. For this report the method of weighted least squares was used to calculate the regression equation. If $\ln(r) = mx + b$ is the resulting regression equation (with slope m), then the $APC = 100(e^m - 1)$. A positive APC corresponds to an increasing trend and a negative APC to a decreasing trend. To determine the statistical significance of the APC, the null hypothesis that APC = 0 is tested, which is equivalent to testing the hypothesis that m = 0. A t-test is used and the hypothesis is rejected at $p < 0.05$. The APC was not calculated if the rate for more than one year within the time period was 0.

Suppression of Rates and Counts Under Five

The annual rates for relatively uncommon cancers, such as childhood cancers, tend to fluctuate substantially from year to year because of small numbers of cases, particularly in minority populations. Rates generated from small numbers should be interpreted with caution. For this report, rates based on counts less than 5 were suppressed to ensure confidentiality and a greater level of statistical reliability. The suppressed cases, however, are included in the counts and rates for larger categories.

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GLOSSARY

Clinical Terms

Cancer: A group of more than 100 diseases characterized by uncontrolled growth and spread of abnormal cells.

Carcinogen: Any substance that causes cancer or helps cancer to develop.

Carcinoma: Cancer of the epithelial cells that cover or line the internal organs, body surface, internal cavities and form glands.

Diagnosis: Identifying a disease by its signs, symptoms, and laboratory findings; usually the earlier a diagnosis of cancer is made, the better the chance for cure.

Histology: Microscopic identification of cells and tissue.

Infant: Birth to 12 months of age.

Leukemia: Cancer of the blood-forming organs. Leukemias are classified according to the type of cancer cells involved (e.g. lymphocytes or myelocytes) and according to whether the disease is acute or chronic. Acute leukemias have rapid onset and are characterized by accumulation in the blood of immature blood cells. Chronic leukemias progress more gradually and are characterized by more functional blood cells.

Lymphoma: Cancer of the lymphoid organs, such as the lymph nodes, spleen and thymus, which produce and store infection-fighting cells. These types of cells also occur in almost all tissues of the body, and lymphomas therefore may develop in a wide variety of organs.

Malignant: Rapidly growing cells with the ability to invade and spread.

Metastasis: The spread of cancer cells to distant areas of the body through the lymph system or bloodstream.

Neuroblastoma: Cancer of the peripheral nervous system which can occur almost anywhere in the body. Neuroblastoma is the most common childhood cancer of the sympathetic nervous system (SNS).

Primary site: The site in the body where the cancer began; usually cancer is named after the organ in which it started, e.g. breast cancer. It is possible to have more than one primary cancer or multiple primaries at the same time.

Risk factor: Anything that increases a person's chance of getting a disease such as cancer.

Sarcoma: Cancer of connective tissue such as bone, cartilage, fat, muscle, nerve sheath, or blood vessels.

Soft-tissue sarcoma:
Sarcomas in the soft tissue are a diverse group of malignant tumors that share common origin in mesenchymal (tissue developed in the early stages of life) tissue.

Sympathetic nervous system (SNS):
The part of the nervous system that controls the vital functions of the body that are not consciously regulated. It includes the activity of the heart, the smooth muscles (such as digestive muscles), and glands.

Tumor or Neoplasm:
An abnormal growth of tissue; benign (not cancer) or malignant (cancer).

Epidemiological Terms

Epidemiology: The study of patterns of the occurrence of disease in human populations and the factors that influence these patterns.

Incidence: The number of newly diagnosed cases of disease occurring in a specific population during a specific time period.

Incidence rate (or crude incidence rate):
The number of newly diagnosed cases of disease in a specific population during a specific time period per "***x***" number of people. Usually the time period is one year and the "***x***" number of people is 100,000.

- **Age-specific incidence rate:**
  The number of newly diagnosed cases of a disease in a specific age group in a specific population over a specific time period per "***x***" number of people in the specific age group. Usually five-year age groups (0-4, 5-9, 10-14, etc.) are used. The time period is usually one year and the "***x***" number of people is 100,000.

- **Age-standardization (or age-adjustment):**
  The statistical adjustment of crude rates for differences in age distributions in order to compare rates in different populations. There are two types of standardization, direct and indirect.

APPENDIX A – TABLES

Table A1: Childhood Cancer Incidence Cases and Percent Distributions by ICCC Category and Age Group
New Jersey, All Races, 1979-2005

ICCC Category[a]	Age Group													
	0-14		0-19		<1		1-4		5-9		10-14		15-19	
	Cases	Percent	Cases	Percent	Cases	Percent	Cases	Percent	Cases	Percent	Cases	Percent	Cases	Percent
All Cancers	**6,945**	**100%**	**10,262**	**100%**	**720**	**100%**	**2,377**	**100%**	**1,810**	**100%**	**2,038**	**100%**	**3,317**	**100%**
I Leukemias, myeloproliferative & myelodysplastic diseases	**2,145**	**30.9%**	**2,586**	**25.2%**	**130**	**18.1%**	**965**	**40.6%**	**614**	**33.9%**	**436**	**21.4%**	**441**	**13.3%**
I(a) Lymphoid leukemias	1,665	24.0%	1,903	18.5%	56	7.8%	821	34.5%	501	27.7%	287	14.1%	238	7.2%
I(b) Acute myeloid leukemias	322	4.6%	444	4.3%	52	7.2%	99	4.2%	66	3.6%	105	5.2%	122	3.7%
I(c) Chronic myeloproliferative diseases	30	0.4%	63	0.6%	--	--	6	0.3%	6	0.3%	16	0.8%	33	1.0%
I(d) Myelodysplastic syndrome & other myeloproliferative	10	0.1%	10	0.1%	5	0.7%	--	--	--	--	--	--	--	--
I(e) Unspecified & other specified leukemias	118	1.7%	166	1.6%	15	2.1%	35	1.5%	41	2.3%	27	1.3%	48	1.4%
II Lymphomas & reticuloendothelial neoplasms	**815**	**11.7%**	**1,780**	**17.3%**	**28**	**3.9%**	**114**	**4.8%**	**220**	**12.2%**	**453**	**22.2%**	**965**	**29.1%**
II(a) Hodgkin lymphomas	312	4.5%	966	9.4%	--	--	14	0.6%	58	3.2%	239	11.7%	654	19.7%
II(b) Non-Hodgkin lymphomas (except Burkitt lymphoma)	288	4.1%	524	5.1%	5	0.7%	51	2.1%	93	5.1%	139	6.8%	236	7.1%
II(c) Burkitt lymphoma	121	1.7%	152	1.5%	0	0.0%	28	1.2%	51	2.8%	42	2.1%	31	0.9%
II(d) Miscellaneous lymphoreticular neoplasms	47	0.7%	51	0.5%	22	3.1%	14	0.6%	--	--	7	0.3%	--	--
II(e) Unspecified lymphomas	47	0.7%	87	0.8%	--	--	7	0.3%	14	0.8%	26	1.3%	40	1.2%
III CNS & miscellaneous intracranial & intraspinal neoplasms	**1,441**	**20.7%**	**1,767**	**17.2%**	**86**	**11.9%**	**453**	**19.1%**	**505**	**27.9%**	**397**	**19.5%**	**326**	**9.8%**
III(a) Ependymomas & choroid plexus tumor	117	1.7%	137	1.3%	9	1.3%	53	2.2%	32	1.8%	23	1.1%	20	0.6%
III(b) Astrocytomas	670	9.6%	847	8.3%	39	5.4%	196	8.2%	218	12.0%	217	10.6%	177	5.3%
III(c) Intracranial & intraspinal embryonal tumors	308	4.4%	341	3.3%	23	3.2%	112	4.7%	102	5.6%	71	3.5%	33	1.0%
III(d) Other gliomas	227	3.3%	282	2.7%	6	0.8%	60	2.5%	113	6.2%	48	2.4%	55	1.7%
III(e) Other specified intracranial/intraspinal neoplasms	20	0.3%	27	0.3%	--	--	8	0.3%	5	0.3%	5	0.2%	7	0.2%
III(f) Unspecified intracranial & intraspinal neoplasms	99	1.4%	133	1.3%	7	1.0%	24	1.0%	35	1.9%	33	1.6%	34	1.0%

Table A1 (cont'd): Childhood Cancer Incidence Cases and Percent Distributions by ICCC Category and Age Group
New Jersey, All Races, 1979-2005

ICCC Category[a]	Age Group													
	0-14		0-19		<1		1-4		5-9		10-14		15-19	
	Cases	Percent	Cases	Percent	Cases	Percent	Cases	Percent	Cases	Percent	Cases	Percent	Cases	Percent
IV Neuroblastoma & other peripheral nervous cell tumors	**520**	**7.5%**	**536**	**5.2%**	**192**	**26.7%**	**253**	**10.6%**	**49**	**2.7%**	**26**	**1.3%**	**16**	**0.5%**
IV(a) Neuroblastoma & ganglioneuroblastoma	512	7.4%	522	5.1%	192	26.7%	251	10.6%	49	2.7%	20	1.0%	10	0.3%
IV(b) Other peripheral nervous cell tumors	8	0.1%	14	0.1%	--	--	--	--	--	--	6	0.3%	6	0.2%
V Retinoblastoma	**192**	**2.8%**	**192**	**1.9%**	**73**	**10.1%**	**113**	**4.8%**	**5**	**0.3%**	**--**	**--**	**--**	**--**
VI Renal tumors	**395**	**5.7%**	**422**	**4.1%**	**60**	**8.3%**	**222**	**9.3%**	**87**	**4.8%**	**26**	**1.3%**	**27**	**0.8%**
VI(a) Nephroblastoma & other nonepithelial renal tumors	372	5.4%	379	3.7%	60	8.3%	216	9.1%	83	4.6%	13	0.6%	7	0.2%
VI(b) Renal carcinomas	19	0.3%	37	0.4%	--	--	--	--	--	--	12	0.6%	18	0.5%
VI(c) Unspecified renal tumors	--	--	6	0.1%	--	--	--	--	--	--	--	--	--	--
VII Hepatic tumors	**83**	**1.2%**	**94**	**0.9%**	**32**	**4.4%**	**38**	**1.6%**	**5**	**0.3%**	**8**	**0.4%**	**11**	**0.3%**
VII(a) Hepatoblastoma	58	0.8%	58	0.6%	29	4.0%	28	1.2%	--	--	--	--	--	--
VII(b) Hepatic carcinomas	21	0.3%	32	0.3%	--	--	7	0.3%	5	0.3%	6	0.3%	11	0.3%
VII(c) Unspecified malignant hepatic tumors	--	--	--	--	--	--	--	--	--	--	--	--	--	--
VIII Malignant bone tumors	**307**	**4.4%**	**529**	**5.2%**	**--**	**--**	**15**	**0.6%**	**84**	**4.6%**	**207**	**10.2%**	**222**	**6.7%**
VIII(a) Osteosarcomas	164	2.4%	277	2.7%	--	--	--	--	41	2.3%	119	5.8%	113	3.4%
VIII(b) Chondrosarcomas	9	0.1%	34	0.3%	--	--	--	--	--	--	5	0.2%	25	0.8%
VIII(c) Ewing tumor & related sarcomas of bone	110	1.6%	173	1.7%	--	--	8	0.3%	32	1.8%	70	3.4%	63	1.9%
VIII(d) Other specified malignant bone tumors	12	0.2%	23	0.2%	--	--	--	--	--	--	7	0.3%	11	0.3%
VIII(e) Unspecified malignant bone tumors	12	0.2%	22	0.2%	--	--	--	--	--	--	6	0.3%	10	0.3%
IX Soft-tissue & other extraosseous sarcomas	**445**	**6.4%**	**696**	**6.8%**	**46**	**6.4%**	**123**	**5.2%**	**129**	**7.1%**	**147**	**7.2%**	**251**	**7.6%**
IX(a) Rhabdomyosarcomas	231	3.3%	287	2.8%	20	2.8%	91	3.8%	71	3.9%	49	2.4%	56	1.7%
IX(b) Fibrosarcomas, peripheral nerve sheath & other fibrous neoplasms	56	0.8%	85	0.8%	15	2.1%	6	0.3%	8	0.4%	27	1.3%	29	0.9%
IX(c) Kaposi sarcoma	--	--	10	0.1%	--	--	--	--	--	--	--	--	7	0.2%
IX(d) Other specified soft-tissue sarcomas	119	1.7%	250	2.4%	9	1.3%	20	0.8%	39	2.2%	51	2.5%	131	3.9%
IX(e) Unspecified soft-tissue sarcomas	36	0.5%	64	0.6%	--	--	5	0.2%	10	0.6%	19	0.9%	28	0.8%

Table A1 (cont'd): Childhood Cancer Incidence Cases and Percent Distributions by ICCC Category and Age Group
New Jersey, All Races, 1979-2005

ICCC Category[a]	Age Group													
	0-14		0-19		<1		1-4		5-9		10-14		15-19	
	Cases	Percent	Cases	Percent	Cases	Percent	Cases	Percent	Cases	Percent	Cases	Percent	Cases	Percent
X Germ cell & trophoblastic tumors & neoplasms of gonads	**247**	**3.6%**	**636**	**6.2%**	**50**	**6.9%**	**41**	**1.7%**	**40**	**2.2%**	**116**	**5.7%**	**389**	**11.7%**
X(a) Intracranial & intraspinal germ cell tumors	39	0.6%	67	0.7%	6	0.8%	--	--	9	0.5%	24	1.2%	28	0.8%
X(b) Extracranial & extragonadal germ cell tumors	68	1.0%	107	1.0%	26	3.6%	22	0.9%	8	0.4%	12	0.6%	39	1.2%
X(c) Malignant gonadal germ cell tumors	122	1.8%	399	3.9%	18	2.5%	18	0.8%	20	1.1%	66	3.2%	277	8.4%
X(d) Gonadal carcinomas	10	0.1%	46	0.4%	--	--	--	--	--	--	9	0.4%	36	1.1%
X(e) Other & unspecified malignant gonadal tumors	8	0.1%	17	0.2%	--	--	--	--	--	--	5	0.2%	9	0.3%
XI Other malignant epithelial neoplasms & melanomas	**256**	**3.7%**	**848**	**8.3%**	**7**	**1.0%**	**14**	**0.6%**	**49**	**2.7%**	**186**	**9.1%**	**592**	**17.8%**
XI(a) Adrenocortical carcinomas	8	0.1%	13	0.1%	--	--	--	--	--	--	--	--	5	0.2%
XI(b) Thyroid carcinomas	86	1.2%	324	3.2%	--	--	--	--	13	0.7%	70	3.4%	238	7.2%
XI(c) Nasopharyngeal carcinomas	13	0.2%	35	0.3%	--	--	--	--	--	--	12	0.6%	22	0.7%
XI(d) Malignant melanomas	66	1.0%	223	2.2%	--	--	--	--	17	0.9%	45	2.2%	157	4.7%
XI(e) Skin carcinomas	--	--	--	--	--	--	--	--	--	--	--	--	--	--
XI(f) Other & unspecified carcinomas	81	1.2%	249	2.4%	5	0.7%	--	--	16	0.9%	56	2.7%	168	5.1%
XII Other & unspecified malignant neoplasms	**91**	**1.3%**	**156**	**1.5%**	**13**	**1.8%**	**23**	**1.0%**	**21**	**1.2%**	**34**	**1.7%**	**65**	**2.0%**
XII(a) Other specified malignant tumors	14	0.2%	17	0.2%	--	--	--	--	--	--	8	0.4%	--	--
XII(b) Other unspecified malignant tumors	77	1.1%	139	1.4%	10	1.4%	20	0.8%	21	1.2%	26	1.3%	62	1.9%
Not classified by ICCC or *in situ*	**8**	**0.1%**	**20**	**0.2%**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**12**	**0.4%**

[a]International Classification of Childhood Cancer (ICCC) is based on ICD-O-3. For details see NCI's SEER program website http://www.seer.cancer.gov/iccc/iccc3.html. Only invasive cases are included except bladder cancer *in situ* is included in All Cancers and Not classified.
-- Counts and percents are suppressed when fewer than 5 cases to ensure confidentiality and statistical reliability.
Data source: New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services, January 2008.

Table A2: Childhood Cancer Cases and Incidence Rates by ICCC Category and Gender
New Jersey and the U.S., All Races, Ages 0-14

ICCC Category[a]	New Jersey 1979-2005				U. S. 1979-2004		
	Total Cases	Total Rate	Male Rate	Female Rate	Total Rate	Male Rate	Female Rate
All Cancers	**6,945**	**15.8**	**17.0**	**14.6**	**14.2**	**15.0**	**13.3**
I Leukemias, myeloproliferative & myelodysplastic diseases	**2,145**	**4.9**	**5.3**	**4.4**	**4.3**	**4.7**	**4.0**
I(a) Lymphoid leukemias	1,665	3.8	4.1	3.5	3.4	3.7	3.1
I(b) Acute myeloid leukemias	322	0.7	0.8	0.6	0.7	0.7	0.6
I(c) Chronic myeloproliferative diseases	30	0.1	0.1	0.1	0.1	0.1	0.1
I(d) Myelodysplastic syndrome & other myeloproliferative	10	<0.05	--	--	<0.05	<0.05	<0.05
I(e) Unspecified & other specified leukemias	118	0.3	0.3	0.2	0.1	0.2	0.1
II Lymphomas & reticuloendothelial neoplasms	**815**	**1.9**	**2.4**	**1.3**	**1.5**	**1.9**	**1.1**
II(a) Hodgkin lymphomas	312	0.7	0.8	0.6	0.6	0.6	0.5
II(b) Non-Hodgkin lymphomas (except Burkitt lymphoma)	288	0.7	0.9	0.4	0.6	0.7	0.4
II(c) Burkitt lymphoma	121	0.3	0.4	0.1	0.2	0.4	0.1
II(d) Miscellaneous lymphoreticular neoplasms	47	0.1	0.1	0.1	0.1	0.1	0.1
II(e) Unspecified lymphomas	47	0.1	0.2	0.1	0.1	0.1	<0.05
III CNS & miscellaneous intracranial & intraspinal neoplasms	**1,441**	**3.3**	**3.6**	**3.0**	**3.1**	**3.3**	**2.8**
III(a) Ependymomas & choroid plexus tumor	117	0.3	0.3	0.2	0.3	0.3	0.2
III(b) Astrocytomas	670	1.5	1.6	1.4	1.5	1.5	1.5
III(c) Intracranial & intraspinal embryonal tumors	308	0.7	0.8	0.6	0.7	0.8	0.5
III(d) Other gliomas	227	0.5	0.5	0.5	0.5	0.6	0.5
III(e) Other specified intracranial/intraspinal neoplasms	20	<0.05	<0.05	0.1	<0.05	<0.05	<0.05
III(f) Unspecified intracranial & intraspinal neoplasms	99	0.2	0.2	0.2	0.1	0.1	<0.05
IV Neuroblastoma & other peripheral nervous cell tumors	**520**	**1.2**	**1.2**	**1.1**	**1.1**	**1.1**	**1.1**
IV(a) Neuroblastoma & ganglioneuroblastoma	512	1.1	1.2	1.1	1.1	1.1	1.0
IV(b) Other peripheral nervous cell tumors	8	<0.05	<0.05	--	<0.05	<0.05	<0.05
V Retinoblastoma	**192**	**0.4**	**0.5**	**0.4**	**0.4**	**0.4**	**0.4**
VI Renal tumors	**395**	**0.9**	**0.8**	**1.0**	**0.9**	**0.8**	**0.9**
VI(a) Nephroblastoma & other nonepithelial renal tumors	372	0.8	0.7	0.9	0.8	0.8	0.9
VI(b) Renal carcinomas	19	<0.05	<0.05	0.1	<0.05	<0.05	<0.05
VI(c) Unspecified malignant renal tumors	--	--	--	--	--	--	--
VII Hepatic tumors	**83**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**
VII(a) Hepatoblastoma	58	0.1	0.2	0.1	0.2	0.2	0.2
VII(b) Hepatic carcinomas	21	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
VII(c) Unspecified malignant hepatic tumors	--	--	--	--	--	--	--

Table A2 (cont'd): Childhood Cancer Cases and Incidence Rates by ICCC Category and Gender
New Jersey and the U.S., All Races, Ages 0-14

ICCC Category[a]	New Jersey 1979-2005				U. S. 1979-2004		
	Total Cases	Total Rate	Male Rate	Female Rate	Total Rate	Male Rate	Female Rate
VIII Malignant bone tumors	**307**	**0.7**	**0.8**	**0.6**	**0.7**	**0.7**	**0.6**
VIII(a) Osteosarcomas	164	0.4	0.4	0.4	0.4	0.4	0.4
VIII(b) Chondrosarcomas	9	<0.05	<0.05	--	<0.05	<0.05	<0.05
VIII(c) Ewing tumor & related sarcomas of bone	110	0.3	0.3	0.2	0.2	0.3	0.2
VIII(d) Other specified malignant bone tumors	12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
VIII(e) Unspecified malignant bone tumors	12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
IX Soft-tissue & other extraosseous sarcomas	**445**	**1.0**	**1.1**	**0.9**	**1.0**	**1.0**	**0.9**
IX(a) Rhabdomyosarcomas	231	0.5	0.6	0.5	0.5	0.6	0.4
IX(b) Fibrosarcomas, peripheral nerve sheath & other fibrous neoplasms	56	0.1	0.1	0.1	0.1	0.1	0.1
IX(c) Kaposi sarcoma	--	--	--	--	<0.05	<0.05	<0.05
IX(d) Other specified soft-tissue sarcomas	119	0.3	0.3	0.2	0.3	0.3	0.3
IX(e) Unspecified soft-tissue sarcomas	36	0.1	0.1	0.1	0.1	0.1	0.1
X Germ cell & trophoblastic tumors & neoplasms of gonads	**247**	**0.6**	**0.5**	**0.7**	**0.5**	**0.4**	**0.6**
X(a) Intracranial & intraspinal germ cell tumors	39	0.1	0.1	0.1	0.1	0.2	0.1
X(b) Extracranial & extragonadal germ cell tumors	68	0.2	0.1	0.2	0.1	0.1	0.2
X(c) Malignant gonadal germ cell tumors	122	0.3	0.2	0.3	0.2	0.2	0.2
X(d) Gonadal carcinomas	10	<0.05	--	<0.05	<0.05	<0.05	<0.05
X(e) Other & unspecified malignant gonadal tumors	8	<0.05	--	<0.05	<0.05	<0.05	<0.05
XI Other malignant epithelial neoplasms & melanomas	**256**	**0.6**	**0.5**	**0.7**	**0.5**	**0.4**	**0.7**
XI(a) Adrenocortical carcinomas	8	<0.05	--	--	<0.05	<0.05	<0.05
XI(b) Thyroid carcinomas	86	0.2	0.1	0.3	0.2	0.1	0.3
XI(c) Nasopharyngeal carcinomas	13	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
XI(d) Malignant melanomas	66	0.2	0.1	0.2	0.2	0.1	0.2
XI(e) Skin carcinomas	--	--	--	--	<0.05	--	--
XI(f) Other & unspecified carcinomas	81	0.2	0.2	0.2	0.1	0.1	0.2
XII Other & unspecified malignant neoplasms	**91**	**0.2**	**0.2**	**0.2**	**<0.05**	**<0.05**	**<0.05**
XII(a) Other specified malignant tumors	14	<0.05	--	0.1	<0.05	<0.05	<0.05
XII(b) Other unspecified malignant tumors	77	0.2	0.2	0.2	<0.05	<0.05	<0.05
Not classified by ICCC or *in situ*	**8**	**<0.05**	**<0.05**	**--**	**<0.05**	**<0.05**	**<0.05**

[a]International Classification of Childhood Cancer (ICCC) is based on ICD-O-3. For details see NCI's SEER program website http://www.seer.cancer.gov/iccc/iccc3.html. Only invasive cases are included except bladder cancer *in situ* is included in All Cancers and Not Classified.
Average annual rates. Rates are per 100,000 population and age-adjusted to the 2000 U. S. Population (19 age groups - Census P25-1130) standard. Rates are rounded to the nearest tenth.
-- Counts and rates are suppressed when fewer than 5 cases to ensure confidentiality and statistical reliability.
Data sources: New Jersey data - New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services, January 2008; U.S. data - Surveillance, Epidemiology, and End Results (SEER) Program 9 Registries Limited-Use November 2006 data.

Table A3: Childhood Cancer Cases and Incidence Rates by ICCC Category and Gender
New Jersey and the U.S., All Races, Ages 0-19

ICCC Category[a]	New Jersey 1979-2005				U.S. 1979-2004		
	Total Cases	Total Rate	Male Rate	Female Rate	Total Rate	Male Rate	Female Rate
All Cancers	**10,262**	**17.3**	**18.5**	**16.1**	**15.7**	**16.6**	**14.8**
I Leukemias, myeloproliferative & myelodysplastic diseases	**2,586**	**4.4**	**4.9**	**3.9**	**3.8**	**4.2**	**3.5**
I(a) Lymphoid leukemias	1,903	3.2	3.6	2.9	2.9	3.2	2.6
I(b) Acute myeloid leukemias	444	0.7	0.9	0.6	0.7	0.7	0.7
I(c) Chronic myeloproliferative diseases	63	0.1	0.1	0.1	0.1	0.1	0.1
I(d) Myelodysplastic syndrome & other myeloproliferative	10	<0.05	--	--	<0.05	<0.05	<0.05
I(e) Unspecified & other specified leukemias	166	0.3	0.3	0.2	0.1	0.1	0.1
II Lymphomas & reticuloendothelial neoplasms	**1,780**	**3.0**	**3.5**	**2.5**	**2.4**	**2.8**	**2.0**
II(a) Hodgkin lymphomas	966	1.6	1.6	1.6	1.3	1.3	1.3
II(b) Non-Hodgkin lymphomas (except Burkitt lymphoma)	524	0.9	1.2	0.6	0.8	1.0	0.5
II(c) Burkitt lymphoma	152	0.3	0.4	0.1	0.2	0.4	0.1
II(d) Miscellaneous lymphoreticular neoplasms	51	0.1	0.1	0.1	0.1	0.1	<0.05
II(e) Unspecified lymphomas	87	0.1	0.2	0.1	0.1	0.1	<0.05
III CNS & miscellaneous intracranial & intraspinal neoplasms	**1,767**	**3.0**	**3.2**	**2.8**	**2.8**	**3.1**	**2.5**
III(a) Ependymomas & choroid plexus tumor	137	0.2	0.3	0.2	0.2	0.3	0.2
III(b) Astrocytomas	847	1.4	1.5	1.3	1.4	1.5	1.4
III(c) Intracranial & intraspinal embryonal tumors	341	0.6	0.7	0.5	0.6	0.7	0.4
III(d) Other gliomas	282	0.5	0.5	0.5	0.5	0.5	0.5
III(e) Other specified intracranial/intraspinal neoplasms	27	<0.05	<0.05	0.1	<0.05	<0.05	<0.05
III(f) Unspecified intracranial & intraspinal neoplasms	133	0.2	0.2	0.3	<0.05	<0.05	<0.05
IV Neuroblastoma & other peripheral nervous cell tumors	**536**	**0.9**	**1.0**	**0.8**	**0.8**	**0.9**	**0.8**
IV(a) Neuroblastoma & ganglioneuroblastoma	522	0.9	0.9	0.8	0.8	0.8	0.8
IV(b) Other peripheral nervous cell tumors	14	<0.05	<0.05	--	<0.05	<0.05	<0.05
V Retinoblastoma	**192**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**
VI Renal tumors	**422**	**0.7**	**0.6**	**0.8**	**0.7**	**0.6**	**0.7**
VI(a) Nephroblastoma & other nonepithelial renal tumors	379	0.6	0.6	0.7	0.6	0.6	0.7
VI(b) Renal carcinomas	37	0.1	<0.05	0.1	<0.05	<0.05	0.1
VI(c) Unspecified malignant renal tumors	6	<0.05	--	--	<0.05	<0.05	<0.05
VII Hepatic tumors	**94**	**0.2**	**0.2**	**0.1**	**0.2**	**0.2**	**0.2**
VII(a) Hepatoblastoma	58	0.1	0.1	0.1	0.1	0.1	0.1
VII(b) Hepatic carcinomas	32	0.1	<0.05	0.1	<0.05	0.1	<0.05
VII(c) Unspecified malignant hepatic tumors	--	--	--	--	<0.05	<0.05	<0.05

Table A3 (cont'd): Childhood Cancer Cases and Incidence Rates by ICCC Category and Gender
New Jersey and the U.S., All Races, Ages 0-19

ICCC Category[a]	New Jersey 1979-2005				U. S. 1979-2004		
	Total Cases	Total Rate	Male Rate	Female Rate	Total Rate	Male Rate	Female Rate
VIII Malignant bone tumors	**529**	**0.9**	**1.0**	**0.8**	**0.9**	**1.0**	**0.7**
VIII(a) Osteosarcomas	277	0.5	0.5	0.4	0.5	0.6	0.4
VIII(b) Chondrosarcomas	34	0.1	0.1	<0.05	<0.05	0.1	<0.05
VIII(c) Ewing tumor & related sarcomas of bone	173	0.3	0.3	0.2	0.3	0.3	0.3
VIII(d) Other specified malignant bone tumors	23	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
VIII(e) Unspecified malignant bone tumors	22	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
IX Soft-tissue & other extraosseous sarcomas	**696**	**1.2**	**1.3**	**1.0**	**1.1**	**1.2**	**1.0**
IX(a) Rhabdomyosarcomas	287	0.5	0.6	0.4	0.5	0.5	0.4
IX(b) Fibrosarcomas, peripheral nerve sheath & other fibrous neoplasms	85	0.1	0.1	0.1	0.1	0.1	0.2
IX(c) Kaposi sarcoma	10	<0.05	<0.05	--	<0.05	<0.05	<0.05
IX(d) Other specified soft-tissue sarcomas	250	0.4	0.5	0.4	0.4	0.4	0.4
IX(e) Unspecified soft-tissue sarcomas	64	0.1	0.1	0.1	0.1	0.1	0.1
X Germ cell & trophoblastic tumors & neoplasms of gonads	**636**	**1.1**	**1.2**	**0.9**	**1.0**	**1.2**	**0.9**
X(a) Intracranial & intraspinal germ cell tumors	67	0.1	0.2	0.1	0.2	0.2	0.1
X(b) Extracranial & extragonadal germ cell tumors	107	0.2	0.1	0.2	0.2	0.1	0.2
X(c) Malignant gonadal germ cell tumors	399	0.7	0.9	0.5	0.7	0.9	0.5
X(d) Gonadal carcinomas	46	0.1	--	0.1	0.1	<0.05	0.1
X(e) Other & unspecified malignant gonadal tumors	17	<0.05	--	0.1	<0.05	<0.05	<0.05
XI Other malignant epithelial neoplasms & melanomas	**848**	**1.4**	**1.0**	**1.8**	**1.5**	**1.0**	**2.1**
XI(a) Adrenocortical carcinomas	13	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
XI(b) Thyroid carcinomas	324	0.5	0.2	0.9	0.5	0.2	0.9
XI(c) Nasopharyngeal carcinomas	35	0.1	0.1	<0.05	0.1	0.1	<0.05
XI(d) Malignant melanomas	223	0.4	0.3	0.4	0.5	0.4	0.6
XI(e) Skin carcinomas	--	--	--	--	<0.05	<0.05	<0.05
XI(f) Other & unspecified carcinomas	249	0.4	0.4	0.5	0.4	0.3	0.4
XII Other & unspecified malignant neoplasms	**156**	**0.3**	**0.2**	**0.3**	**0.1**	**0.1**	**0.1**
XII(a) Other specified malignant tumors	17	<0.05	--	0.1	<0.05	<0.05	<0.05
XII(b) Other unspecified malignant tumors	139	0.2	0.2	0.3	<0.05	<0.05	<0.05
Not classified by ICCC or *in situ*	**20**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**0.1**	**<0.05**

[a]International Classification of Childhood Cancer (ICCC) is based on ICD-O-3. For details see NCI's SEER program website http://www.seer.cancer.gov/iccc/iccc3.html. Only invasive cases are included except bladder cancer *in situ* is included in All Cancers and Not Classified.

Average annual rates. Rates are per 100,000 population and age-adjusted to the 2000 U. S. Population (19 age groups - Census P25-1130) standard. Rates are rounded to the nearest tenth.

Counts and rates are suppressed when fewer than 5 cases to ensure confidentiality and statistical reliability.

Data sources: New Jersey data - New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services, January 2008; U.S. data - Surveillance, Epidemiology, and End Results (SEER) Program 9 Registries Limited-Use November 2006 data.

Table A4: Childhood Cancer Incidence by Primary Site and Age Group, New Jersey, All Races, Males, 1979-2005

Primary Cancer Site[a]	Age Groups													
	0-14[b]		0-19[b]		<1		1-4		5-9		10-14		15-19	
	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases
All Sites	**17.0**	**3,820**	**18.5**	**5,598**	**25.3**	**378**	**22.3**	**1,318**	**14.2**	**1,046**	**14.2**	**1,078**	**22.9**	**1,778**
White	17.7	3,060	19.4	4,552	26.3	301	24.0	1,094	14.7	829	14.2	836	24.5	1,492
Black	13.7	538	14.0	740	19.3	51	14.3	148	12.5	162	13.3	177	15.0	202
Bones & Joints	0.8	172	1.0	312	--	--	0.2	9	0.8	56	1.4	106	1.8	140
Brain & Other Nervous System	3.7	831	3.4	1,007	3.2	48	4.6	271	4.0	296	2.8	216	2.3	176
Lymphoma	2.3	516	3.4	1,036	--	--	1.2	70	2.2	162	3.7	280	6.7	520
Non-Hodgkin Lymphoma	1.5	328	1.8	538	--	--	1.0	60	1.6	117	1.9	147	2.7	210
Hodgkin Lymphoma	0.8	188	1.6	498	--	--	0.2	10	0.6	45	1.8	133	4.0	310
Kidney and Renal Pelvis	0.8	182	0.6	191	1.8	27	1.8	109	0.4	31	0.2	15	0.1	9
Leukemia	5.3	1,195	4.9	1,467	4.4	65	9.1	537	4.8	353	3.2	240	3.5	272
Acute Lymphocytic Leukemia	4.0	903	3.5	1,044	1.5	23	7.5	443	3.8	279	2.1	158	1.8	141
Soft-Tissue including Heart	1.1	240	1.1	349	4.0	59	1.3	78	0.6	42	0.8	61	1.4	109

[a]Primary Cancer Site (ICD-O-3) codes were used to ensure that incidence rates are comparable to mortality rates. A complete listing of the ICD-0-3 site codes can be found at - http://seer.cancer.gov/siterecode/icdo3_d01272003/. Only invasive cases are included except bladder cancer *in situ* is included in All Sites. Average annual rates. Rates are per 100,000 population and rounded to the nearest tenth.

[b]For age groups 0-14 and 0-19 the rates are age-adjusted to the 2000 U. S. Population (19 age groups - Census P25-1130) standard.

-- Counts and rates are suppressed when fewer than 5 cases to ensure confidentiality and statistical reliability.

Data source: New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services, January 2008.

Table A5: Childhood Cancer Incidence by Primary Site and Age Group, New Jersey, All Races, Females, 1979-2005

Primary Cancer Site[a]	Age Groups													
	0-14[b]		0-19[b]		<1		1-4		5-9		10-14		15-19	
	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases
All Sites	**14.6**	**3,125**	**16.1**	**4,664**	**23.9**	**342**	**18.8**	**1,059**	**10.9**	**764**	**13.3**	**960**	**20.9**	**1,539**
White	15.0	2,480	16.8	3,735	25.7	282	19.3	837	11.2	602	13.6	759	21.9	1,255
Black	11.5	439	12.4	637	14.8	38	14.3	143	9.3	117	10.9	141	15.0	198
Bones & Joints	0.6	135	0.8	217	--	--	0.1	5	0.4	28	1.4	102	1.1	82
Brain & Other Nervous System	3.1	663	2.8	812	4.0	57	3.5	196	3.1	216	2.7	194	2.0	149
Lymphoma	1.2	251	2.4	692	--	--	0.5	30	0.8	54	2.3	166	6.0	441
Non-Hodgkin Lymphoma	0.6	127	0.8	224	--	--	0.5	26	0.6	41	0.8	60	1.3	97
Hodgkin Lymphoma	0.6	124	1.6	468	--	--	--	--	0.2	13	1.5	106	4.7	344
Kidney and Renal Pelvis	1.0	219	0.8	238	2.2	32	2.1	118	0.8	57	0.2	12	0.3	19
Leukemia	4.4	951	3.9	1,120	4.6	66	7.6	428	3.7	261	2.7	196	2.3	169
Acute Lymphocytic Leukemia	3.4	733	2.8	815	2.2	31	6.5	367	3.0	212	1.7	123	1.1	82
Soft-Tissue including Heart	1.0	227	1.0	294	3.8	55	1.5	84	0.6	42	0.6	46	0.9	67

[a]Primary Cancer Site (ICD-O-3) codes were used to ensure that incidence rates are comparable to mortality rates. A complete listing of the ICD-0-3 site codes can be found at - http://seer.cancer.gov/siterecode/icdo3_d01272003/. Only invasive cases are included except bladder cancer *in situ* is included in All Sites. Average annual rates. Rates are per 100,000 population and rounded to the nearest tenth.

[b]For age groups 0-14 and 0-19 the rates are age-adjusted to the 2000 U. S. Population (19 age groups - Census P25-1130) standard.

-- Counts and rates are suppressed when fewer than 5 cases to ensure confidentiality and statistical reliability.

Data source: New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services, January 2008.

Table A6: Childhood Cancer Mortality by Primary Site and Age Group, New Jersey, All Races, Males, 1979-2004

Primary Cancer Site[a]	Age Groups													
	0-14[b]		0-19[b]		<1		1-4		5-9		10-14		15-19	
	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases
All Sites	**3.5**	**747**	**3.9**	**1,129**	**2.2**	**31**	**3.4**	**195**	**3.8**	**267**	**3.5**	**254**	**5.1**	**382**
White	3.5	584	4.0	892	2.5	28	3.6	158	3.9	210	3.3	188	5.2	308
Black	3.6	135	3.9	198	--	--	2.7	27	3.9	49	4.5	58	4.9	63
Bones and Joints	0.1	27	0.3	77	--	--	--	--	0.1	5	0.3	21	0.7	50
Brain and Other Nervous System	0.9	190	0.8	238	--	--	0.8	43	1.2	84	0.8	60	0.6	48
Lymphoma	0.3	64	0.4	130	--	--	0.2	12	0.2	16	0.5	36	0.9	66
Non-Hodgkin Lymphoma	0.3	61	0.4	109	--	--	0.2	11	0.2	16	0.5	34	0.6	48
Hodgkin Lymphoma	--	--	0.1	21	--	--	--	--	--	--	--	--	0.2	18
Kidney and Renal Pelvis	0.1	21	0.1	23	--	--	0.1	8	0.1	9	--	--	--	--
Leukemia	1.2	252	1.3	372	0.6	8	1.0	57	1.4	96	1.2	91	1.6	120
Acute Lymphocytic Leukemia	0.6	136	0.6	178	--	--	0.4	23	0.8	55	0.8	57	0.6	42
Soft-Tissue including Heart	0.2	42	0.2	71	--	--	0.1	6	0.2	16	0.3	19	0.4	29

[a]Primary Cancer Site (ICD-9 & ICD-10). A complete listing of the codes can be found at - http://seer.cancer.gov/codrecode/1969+_d03252004/index.html. Average annual rates. Rates are per 100,000 population and rounded to the nearest tenth.

[b]For age groups 0-14 and 0-19 the rates are age-adjusted to the 2000 U. S. Population (19 age groups - Census P25-1130) standard.

-- Counts and rates are suppressed when fewer than 5 cases to ensure confidentiality and statistical reliability.

Data source: Underlying mortality data were provided by the National Center for Health Statistics (www.cdc.gov/nchs).

Table A7: Childhood Cancer Mortality by Primary Site and Age Group, New Jersey, All Races, Females, 1979-2004

Primary Cancer Site[a]	Age Groups													
	0-14[b]		0-19[b]		<1		1-4		5-9		10-14		15-19	
	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases
All Sites	**2.9**	**591**	**3.2**	**875**	**2.4**	**33**	**3.0**	**164**	**2.9**	**199**	**2.8**	**195**	**4.0**	**284**
White	3.0	481	3.3	699	2.5	26	3.2	135	3.2	167	2.9	153	3.9	218
Black	2.5	91	3.0	148	2.4	6	2.1	20	2.4	29	2.9	36	4.5	57
Bones and Joints	0.1	18	0.2	50	--	--	--	--	--	--	0.2	13	0.4	32
Brain and Other Nervous System	0.8	154	0.7	187	0.4	6	0.5	28	1.0	68	0.7	52	0.5	33
Lymphoma	0.1	20	0.2	57	--	--	--	--	0.1	6	0.1	10	0.5	37
Non-Hodgkin Lymphoma	0.1	16	0.1	32	--	--	--	--	0.1	6	0.1	6	0.2	16
Hodgkin Lymphoma	--	--	0.1	25	--	--	--	--	--	--	--	--	0.3	21
Kidney and Renal Pelvis	0.1	19	0.1	26	--	--	0.1	5	0.1	8	--	--	0.1	7
Leukemia	1.0	209	1.1	300	0.7	9	1.2	67	0.8	57	1.1	76	1.3	91
Acute Lymphocytic Leukemia	0.5	103	0.5	141	--	--	0.5	27	0.5	36	0.5	38	0.5	38
Soft-Tissue including Heart	0.2	33	0.2	55	--	--	0.1	8	0.1	10	0.2	14	0.3	22

[a]Primary Cancer Site (ICD-9 & ICD-10). A complete listing of the codes can be found at - http://seer.cancer.gov/codrecode/1969+_d03252004/index.html. Average annual rates. Rates are per 100,000 population and rounded to the nearest tenth.

[b]For age groups 0-14 and 0-19 the rates are age-adjusted to the 2000 U. S. Population (19 age groups - Census P25-1130) standard.

-- Counts and rates are suppressed when fewer than 5 cases to ensure confidentiality and statistical reliability.

Data source: Underlying mortality data were provided by the National Center for Health Statistics (www.cdc.gov/nchs).

Table A8: Childhood Cancer Incidence by Age Group and Year
New Jersey and U.S., 1979-2005[a]

Year	New Jersey						U.S.					
	0-14			0-19			0-14			0-19		
	Total	White	Black	Total	White	Black	Total	White	Black	Total	White	Black
APC	**0.27**	**0.33**	**0.37**	**0.38***	**0.53***	**0.12**	**0.51***	**0.65***	**-0.03**	**0.49***	**0.652***	**-0.16**
1979	14.47	15.48	8.85	16.78	17.24	13.10	13.19	13.83	10.65	14.74	15.36	12.80
1980	14.42	14.48	12.76	16.40	16.52	14.03	12.84	13.06	11.12	14.30	14.75	10.97
1981	14.37	14.84	9.84	15.19	15.49	10.39	12.46	12.50	13.16	13.98	14.30	13.02
1982	16.92	17.00	16.74	17.27	17.69	15.33	12.95	13.17	11.72	14.53	15.15	11.75
1983	18.09	18.73	16.10	19.33	20.21	15.38	12.91	13.66	10.02	14.55	15.42	11.21
1984	15.98	17.30	9.08	16.71	18.31	8.01	13.80	14.32	10.39	15.44	16.06	12.19
1985	14.79	15.26	11.80	16.97	17.70	12.06	14.40	15.46	9.98	15.83	17.00	10.39
1986	14.64	14.88	12.55	16.64	17.07	14.15	14.25	14.94	10.87	15.94	16.72	12.55
1987	14.63	14.77	12.17	15.89	16.05	14.69	14.14	14.63	11.64	15.33	16.27	11.32
1988	15.73	15.94	13.22	16.71	17.27	12.22	13.49	13.99	11.94	15.09	15.59	12.88
1989	14.80	15.24	11.58	16.16	16.58	13.19	15.10	15.59	13.70	16.56	17.23	13.98
1990	16.58	16.80	13.60	17.86	18.29	14.48	14.15	14.20	12.23	15.57	15.87	13.14
1991	17.46	18.28	11.20	17.56	18.59	10.61	15.08	16.13	11.47	16.30	17.48	12.16
1992	15.74	16.72	10.76	16.86	17.68	12.80	13.34	13.78	11.99	16.01	16.80	12.36
1993	15.56	14.48	17.62	17.35	17.17	16.83	14.88	15.16	12.32	16.13	16.64	12.91
1994	15.98	16.52	13.66	17.97	18.40	14.34	13.91	14.47	12.04	15.54	16.18	12.90
1995	15.31	16.14	12.64	16.89	17.74	12.67	14.01	14.75	11.34	15.73	16.64	11.97
1996	16.88	18.74	9.95	18.64	20.36	12.69	14.64	14.84	11.65	16.15	16.51	12.67
1997	14.47	15.71	9.70	15.88	17.20	11.42	13.97	14.62	11.28	15.63	16.71	11.15
1998	16.39	16.68	14.47	19.16	20.14	14.70	15.28	16.19	10.03	16.27	17.37	11.30
1999	15.70	15.79	14.93	17.58	18.46	14.81	14.44	15.39	10.46	15.62	16.61	11.07
2000	15.15	16.84	7.55	17.41	19.26	9.55	15.36	16.64	11.89	16.83	18.21	12.89
2001	17.45	18.63	11.69	19.69	21.03	13.37	15.63	16.82	10.98	16.92	18.31	11.30
2002	16.93	17.39	12.79	17.90	18.94	12.61	15.23	16.58	11.07	17.19	19.07	10.91
2003	16.22	16.96	14.66	17.87	19.00	14.71	12.92	13.66	9.63	15.54	16.63	10.88
2004	16.07	15.93	15.01	18.13	18.87	13.92	14.71	15.28	13.22	15.95	17.07	12.93
2005	16.43	17.04	14.53	17.84	18.78	13.95						

[a]Primary Cancer Site (ICD-O-3) codes were used to ensure that incidence rates are comparable to mortality rates. A complete listing of the codes can be found at - http://seer.cancer.gov/codrecode/1969+_d03252004/index.html. Only invasive cases were included except bladder cancer *in situ* was included. Rates are per 100,000 population. The rates are age-adjusted to the 2000 U. S. Population (19 age groups - Census P25-1130) standard.
[b]APC – Annual percent change over the time period. APCs were calculated using NCI's Joinpoint statistical program.
*Statistically significant increase, $p<0.05$.
Data Sources: New Jersey – New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services; U.S. – SEER Program, National Cancer Institute.

Table A9: Childhood Cancer Mortality by Age Group and Year
New Jersey and U.S., 1979-2004[a]

Year	New Jersey						U.S.					
	0-14			0-19			0-14			0-19		
	Total	White	Black	Total	White	Black	Total	White	Black	Total	White	Black
APC[b]	**-2.86**	**-2.88**	**-2.82**	**-2.76**	**-2.71**	**-2.71**	**-2.54**	**-2.57**	**-2.37**	**-2.32**	**-2.36**	**-2.07**
1979	4.52	4.69	3.92	5.01	5.05	4.85	4.37	4.49	4.03	4.62	4.72	4.31
1980	3.83	4.21	2.57	5.00	5.22	3.81	4.27	4.43	3.79	4.56	4.68	4.20
1981	3.99	3.95	4.44	4.15	4.10	4.72	4.20	4.25	4.21	4.43	4.45	4.50
1982	4.51	4.05	6.33	4.65	4.30	5.90	4.25	4.34	3.96	4.50	4.56	4.31
1983	4.42	4.29	5.42	4.42	4.33	5.25	4.09	4.16	3.91	4.30	4.42	3.82
1984	4.17	4.24	4.25	4.55	4.64	4.40	3.66	3.70	3.47	3.95	4.01	3.73
1985	3.67	4.03	2.77	4.17	4.42	3.56	3.57	3.65	3.27	3.83	3.92	3.49
1986	4.13	4.64	2.77	3.98	4.26	3.58	3.55	3.62	3.45	3.79	3.87	3.69
1987	4.20	4.42	3.50	4.54	4.73	4.15	3.44	3.56	3.00	3.66	3.72	3.57
1988	4.02	3.97	4.77	4.09	4.18	4.35	3.29	3.32	3.19	3.55	3.61	3.47
1989	2.73	3.09	1.83	3.28	3.47	2.97	3.32	3.39	3.16	3.54	3.59	3.51
1990	2.87	3.01	1.87	2.89	2.96	2.48	3.14	3.19	3.01	3.42	3.46	3.38
1991	2.75	2.89	2.55	3.59	3.69	3.02	3.09	3.15	3.04	3.40	3.45	3.35
1992	2.31	2.25	3.20	3.01	3.02	3.80	2.99	3.08	2.65	3.31	3.40	2.99
1993	2.46	2.80	1.44	2.77	3.04	1.92	2.97	3.07	2.63	3.26	3.33	3.09
1994	3.59	3.75	2.40	3.75	3.94	2.89	2.81	2.83	2.82	3.12	3.14	3.20
1995	3.06	2.82	4.38	3.30	3.17	4.08	2.71	2.68	2.86	2.98	2.95	3.15
1996	3.78	4.29	2.26	3.62	3.87	3.27	2.62	2.70	2.47	2.87	2.92	2.88
1997	2.68	2.46	2.21	3.13	3.08	2.70	2.64	2.67	2.46	2.88	2.90	2.86
1998	2.80	3.18	2.24	2.68	3.09	1.94	2.45	2.49	2.40	2.75	2.81	2.57
1999	2.18	2.22	2.50	2.69	2.69	3.17	2.50	2.53	2.47	2.80	2.80	2.98
2000	2.56	2.43	2.48	2.77	2.58	3.14	2.53	2.61	2.33	2.82	2.86	2.84
2001	2.20	1.97	2.50	2.43	2.33	2.63	2.47	2.53	2.30	2.76	2.82	2.63
2002	2.64	2.65	3.39	3.18	3.23	3.53	2.56	2.57	2.58	2.81	2.82	2.85
2003	2.07	2.13	2.38	2.21	2.29	1.78	2.54	2.62	2.36	2.75	2.84	2.50
2004	1.89	1.90	1.77	2.36	2.39	2.51	2.46	2.48	2.43	2.73	2.75	2.78

[a]Primary Cancer Site (ICD-9 & ICD-10). Rates are per 100,000 population. The rates are age-adjusted to the 2000 U. S. Population (19 age groups - Census P25-1130) standard.
[b]APC – Annual percent change over the time period. APCs were calculated using NCI's Joinpoint statistical program.
Data source - Underlying mortality data were provided by the National Center for Health Statistics (www.cdc.gov/nchs).

Table A10: Childhood Leukemia Incidence by Age Group and Year
New Jersey and U.S., 1979-2005[a]

Year	New Jersey		U.S.	
	0-14	0-19	0-14	0-19
APC[b]	**0.11**	**0.09**	**0.58***	**0.64***
1979	4.93	4.65	3.73	3.34
1980	4.80	4.75	4.02	3.48
1981	5.11	4.46	4.05	3.68
1982	5.77	4.82	3.79	3.39
1983	5.48	4.78	3.69	3.47
1984	4.92	4.26	4.45	3.95
1985	4.69	4.22	4.61	4.01
1986	4.67	4.05	4.14	3.66
1987	4.14	3.79	4.39	3.66
1988	4.43	4.13	4.11	3.59
1989	4.66	4.20	4.79	4.22
1990	5.02	4.30	4.37	3.83
1991	4.19	3.75	4.56	4.06
1992	4.61	4.27	4.00	3.66
1993	5.09	4.63	4.18	3.71
1994	3.96	3.78	3.67	3.41
1995	4.92	4.29	4.43	3.92
1996	5.38	4.87	4.57	3.92
1997	4.63	3.86	4.22	3.72
1998	5.27	4.92	4.80	4.16
1999	4.86	4.50	4.67	4.05
2000	4.33	3.91	4.58	4.10
2001	5.17	4.71	4.39	3.92
2002	5.17	4.51	4.79	4.52
2003	4.91	4.44	3.96	3.73
2004	5.04	4.60	4.86	4.28
2005	5.68	4.94		

[a]Primary Cancer Site (ICD-O-3) codes were used to ensure that incidence rates are comparable to mortality rates. A complete listing of the codes can be found at - http://seer.cancer.gov/codrecode/1969+_d03252004/index.html. Only invasive cases were included. Rates are per 100,000 population. The rates are age-adjusted to the 2000 U. S. Population (19 age groups - Census P25-1130) standard.

[b]APC – Annual percent change over the time period. APCs were calculated using NCI's Joinpoint statistical program.

*Statistically significant increase, $p<0.05$.

Data Sources: New Jersey – New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services; U.S. – SEER Program, National Cancer Institute.

Table A11: Childhood Leukemia Mortality by Age Group and Year
New Jersey and U.S., 1979-2004[a]

Year	New Jersey		U.S.	
	0-14	0-19	0-14	0-19
APC[b]	**-3.82**	**-3.55**	**-3.53**	**-3.17**
1979	1.79	1.74	1.76	1.76
1980	1.45	1.80	1.71	1.75
1981	1.21	1.50	1.64	1.62
1982	1.47	1.60	1.57	1.63
1983	1.20	1.37	1.52	1.53
1984	1.48	1.72	1.34	1.38
1985	1.91	1.89	1.39	1.39
1986	2.02	1.60	1.30	1.34
1987	1.70	1.45	1.34	1.35
1988	1.50	1.53	1.19	1.24
1989	0.66	0.88	1.17	1.21
1990	0.79	0.79	1.07	1.19
1991	0.97	1.14	1.11	1.18
1992	0.82	0.82	1.13	1.17
1993	0.92	1.15	1.05	1.12
1994	1.28	1.31	0.95	1.06
1995	0.89	0.92	0.98	1.01
1996	1.25	1.13	0.91	0.95
1997	1.05	1.08	0.90	0.95
1998	0.81	0.85	0.78	0.85
1999	0.86	1.08	0.75	0.84
2000	0.63	0.75	0.81	0.91
2001	0.62	0.74	0.83	0.90
2002	0.62	0.86	0.73	0.84
2003	0.67	0.76	0.83	0.85
2004	0.66	0.62	0.75	0.82

[a]Primary Cancer Site (ICD-9 & ICD-10). Rates are per 100,000 population. The rates are age-adjusted to the 2000 U. S. Population (19 age groups - Census P25-1130) standard.
[b]APC – Annual percent change over the time period. APCs were calculated using NCI's Joinpoint statistical program.
Data source - Underlying mortality data were provided by the National Center for Health Statistics (www.cdc.gov/nchs).

Table A12: Childhood Brain Cancer Incidence by Age Group and Year
New Jersey and U.S., 1979-2005[a]

Year	New Jersey		U.S.	
	0-14	0-19	0-14	0-19
APC[b]	**0.64**	**0.65***	**0.86***	**0.77***
1979	2.33	2.45	2.87	2.56
1980	2.64	2.68	2.80	2.46
1981	2.72	2.49	2.49	2.34
1982	3.36	2.97	2.48	2.31
1983	4.49	4.00	2.27	2.22
1984	3.25	2.88	2.83	2.58
1985	3.08	2.68	3.01	2.69
1986	3.07	2.93	3.46	3.24
1987	3.60	3.13	3.13	2.92
1988	3.68	3.03	3.33	3.03
1989	3.39	3.06	3.26	2.99
1990	3.44	3.17	3.48	3.14
1991	3.32	3.04	3.46	3.04
1992	3.61	2.86	3.18	3.26
1993	3.50	3.08	3.40	2.95
1994	3.55	3.42	3.26	2.86
1995	3.61	3.15	3.34	2.99
1996	4.16	3.66	3.11	2.96
1997	2.91	2.57	2.74	2.55
1998	3.66	3.37	3.14	2.75
1999	3.38	3.06	3.44	2.98
2000	3.97	3.78	3.42	3.11
2001	3.18	3.17	3.82	3.36
2002	3.53	2.87	3.64	3.28
2003	4.43	3.99	2.94	2.76
2004	3.29	3.12	3.15	2.83
2005	3.13	2.94		

[a]Primary Cancer Site (ICD-O-3) codes were used to ensure that incidence rates are comparable to mortality rates. A complete listing of the codes can be found at - http://seer.cancer.gov/codrecode/1969+_d03252004/index.html. Only invasive cases were included. Rates are per 100,000 population. The rates are age-adjusted to the 2000 U. S. Population (19 age groups - Census P25-1130) standard.
[b]APC – Annual percent change over the time period. APCs were calculated using NCI's Joinpoint statistical program.
*Statistically significant increase, $p<0.05$.
Data Sources: New Jersey – New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services; U.S. – SEER Program, National Cancer Institute.

Table A13: Childhood Brain Cancer Mortality by Age Group and Year
New Jersey and U.S., 1979-2004[a]

Year	New Jersey		U.S.	
	0-14	0-19	0-14	0-19
APC[b]	**-1.96**	**-2.13**	**-1.01**	**-1.01**
1979	0.86	0.90	0.92	0.86
1980	0.76	0.75	0.90	0.83
1981	0.88	0.66	0.90	0.82
1982	1.00	0.94	0.97	0.91
1983	1.36	1.14	0.89	0.82
1984	1.36	1.18	0.83	0.79
1985	0.82	0.78	0.82	0.79
1986	0.97	0.85	0.86	0.81
1987	0.68	0.68	0.75	0.71
1988	1.02	1.04	0.83	0.80
1989	0.88	0.90	0.88	0.80
1990	0.94	0.90	0.85	0.79
1991	0.96	0.82	0.86	0.80
1992	0.33	0.50	0.78	0.74
1993	0.56	0.52	0.80	0.77
1994	0.97	0.83	0.78	0.73
1995	0.87	0.80	0.73	0.68
1996	1.14	0.85	0.80	0.74
1997	0.81	0.70	0.73	0.69
1998	0.53	0.44	0.71	0.68
1999	0.91	0.78	0.72	0.68
2000	0.79	0.69	0.73	0.68
2001	0.68	0.55	0.69	0.64
2002	0.61	0.59	0.77	0.71
2003	0.51	0.38	0.76	0.71
2004	0.40	0.55	0.74	0.69

[a]Primary Cancer Site (ICD-9 & ICD-10). Rates are per 100,000 population. The rates are age-adjusted to the 2000 U. S. Population (19 age groups - Census P25-1130) standard.
[b]APC – Annual percent change over the time period. APCs were calculated using NCI's Joinpoint statistical program.
Data source - Underlying mortality data were provided by the National Center for Health Statistics (www.cdc.gov/nchs).

Table A14: Childhood Lymphoma Incidence by Age Group and Year
New Jersey and U.S., 1979-2005[a]

Year	New Jersey		U.S.	
	0-14	0-19	0-14	0-19
APC[b]	**-0.45**	**-0.38**	**-0.12**	**-0.20**
1979	2.23	3.45	1.64	2.53
1980	1.29	2.38	1.22	2.06
1981	1.57	2.86	1.26	2.25
1982	1.62	2.86	1.40	2.48
1983	1.70	3.10	1.52	2.49
1984	2.55	3.50	1.58	2.52
1985	1.73	3.22	1.38	2.37
1986	1.65	3.02	1.48	2.39
1987	1.61	2.69	1.69	2.44
1988	2.48	3.67	1.32	2.37
1989	1.23	2.77	1.50	2.63
1990	2.20	3.08	1.42	2.22
1991	1.86	2.16	1.52	2.55
1992	1.88	2.54	1.29	2.40
1993	1.88	3.16	1.35	2.20
1994	1.86	2.77	1.47	2.53
1995	1.80	3.01	1.16	2.02
1996	1.44	2.86	1.25	2.34
1997	1.63	2.69	1.45	2.46
1998	1.58	3.03	1.56	2.45
1999	1.91	2.98	1.23	2.00
2000	1.77	3.00	1.65	2.50
2001	1.91	3.15	1.59	2.22
2002	1.69	2.72	1.45	2.39
2003	1.28	2.30	1.39	2.34
2004	1.85	2.92	1.25	2.18
2005	1.60	2.74		

[a]Primary Cancer Site (ICD-O-3) codes were used to ensure that incidence rates are comparable to mortality rates. A complete listing of the codes can be found at - http://seer.cancer.gov/codrecode/1969+_d03252004/index.html. Only invasive cases were included. Rates are per 100,000 population. The rates are age-adjusted to the 2000 U. S. Population (19 age groups - Census P25-1130) standard.
[b]APC – Annual percent change over the time period. APCs were calculated using NCI's Joinpoint statistical program.
Data Sources: New Jersey – New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services; U.S. – SEER Program, National Cancer Institute.

Table A15: Childhood Lymphoma Mortality by Age Group and Year
New Jersey and U.S., 1979-2004[a]

Year	New Jersey		U.S.	
	0-14	0-19	0-14	0-19
APC[b]	*****	**-3.57**	**-5.18**	**-4.31**
1979	0.37	0.50	0.33	0.43
1980	0.06	0.53	0.31	0.43
1981	0.38	0.44	0.30	0.44
1982	0.26	0.39	0.31	0.39
1983	0.77	0.81	0.27	0.40
1984	0.06	0.25	0.19	0.34
1985	0.07	0.22	0.21	0.32
1986	0.20	0.28	0.28	0.38
1987	0.35	0.65	0.19	0.32
1988	0.27	0.33	0.22	0.32
1989	0.33	0.39	0.23	0.31
1990	0.07	0.20	0.18	0.28
1991	0.07	0.25	0.17	0.28
1992	0.32	0.49	0.15	0.26
1993	0.00	0.05	0.17	0.25
1994	0.18	0.18	0.16	0.22
1995	0.31	0.28	0.13	0.23
1996	0.18	0.34	0.13	0.21
1997	0.12	0.19	0.14	0.20
1998	0.30	0.37	0.12	0.19
1999	0.00	0.14	0.11	0.18
2000	0.06	0.18	0.10	0.18
2001	0.11	0.13	0.08	0.16
2002	0.17	0.35	0.13	0.19
2003	0.28	0.29	0.09	0.15
2004	0.00	0.17	0.08	0.15

[a]Primary Cancer Site (ICD-9 & ICD-10). Rates are per 100,000 population. The rates are age-adjusted to the 2000 U. S. Population (19 age groups - Census P25-1130) standard.
[b]APC – Annual percent change over the time period. APCs were calculated using NCI's Joinpoint statistical program.
*The APC was not calculated if the rate was zero in more than one year.
Data source - Underlying mortality data were provided by the National Center for Health Statistics (www.cdc.gov/nchs).

Table A16: Total Childhood Cancer Incidence by County, Age Group and 9-Year Time Periods, New Jersey, 1979-2005

County	0-14								0-19							
	1979-2005		1979-1987		1988-1996		1997-2005		1979-2005		1979-1987		1988-1996		1997-2005	
	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases
Atlantic	18.2	230	18.1	65	19.6	83	17.1	82	18.2	308	18.0	91	19.0	106	17.7	111
Bergen	15.0	628	13.9	182	15.5	211	15.5	235	17.5	1,002	16.2	319	18.0	320	18.5	363
Burlington	15.7	360	16.5	120	14.8	115	15.9	125	16.9	528	17.3	183	16.2	165	17.4	180
Camden	15.6	470	16.2	158	14.7	154	15.9	158	17.6	708	18.0	245	17.3	231	17.7	232
Cape May	19.3	91	17.8	25	18.1	31	21.9	35	19.7	125	18.1	36	20.5	45	20.5	44
Cumberland	15.4	128	15.4	42	14.9	42	16.1	44	16.3	183	16.4	63	15.3	57	17.3	63
Essex	14.0	653	13.2	208	14.7	222	14.2	223	15.6	983	14.9	337	15.7	314	16.4	332
Gloucester	17.1	239	19.9	85	14.6	71	17.1	83	18.8	356	21.5	129	15.1	96	19.8	131
Hudson	16.4	495	15.3	151	18.5	182	15.5	162	16.9	690	15.7	220	18.3	239	16.9	231
Hunterdon	18.5	115	24.9	44	16.0	34	16.0	37	19.4	159	24.6	61	17.9	48	16.7	50
Mercer	15.1	267	15.1	82	15.1	90	15.0	95	15.4	379	15.9	128	14.6	118	15.4	133
Middlesex	16.2	585	16.3	172	16.3	194	16.1	219	17.6	882	16.9	267	17.7	284	18.3	331
Monmouth	16.5	538	15.2	149	19.6	214	14.8	175	18.2	793	17.0	238	21.0	295	17.0	260
Morris	16.1	391	15.0	112	16.7	130	16.7	149	18.1	589	16.8	184	18.9	192	18.8	213
Ocean	17.5	417	16.3	110	17.6	141	18.1	166	18.8	585	16.7	152	19.1	195	20.3	238
Passaic	15.3	422	15.1	128	14.7	134	16.3	160	17.3	639	17.3	212	16.2	194	18.3	233
Salem	15.6	58	17.8	23	12.0	15	17.2	20	17.7	90	22.2	41	13.8	23	16.5	26
Somerset	16.8	239	12.3	44	16.5	77	20.0	118	17.7	327	14.4	76	16.0	95	21.2	156
Sussex	16.8	143	18.4	49	13.6	40	18.7	54	20.1	220	20.1	71	17.4	63	22.8	86
Union	14.1	383	13.4	110	13.2	117	15.6	156	15.7	575	15.6	190	15.0	172	16.6	213
Warren	17.0	93	14.0	23	19.4	36	17.0	34	19.6	141	16.5	38	22.3	52	19.8	51
State	15.8	6,945	15.4	2,082	16.0	2,333	16.1	2,530	17.3	10,262	16.8	3,281	17.3	3,304	17.9	3,677

Only invasive cases are included except bladder cancer *in situ* is included.
Average annual rates. Rates are per 100,000 population and age-adjusted to the 2000 U. S. Population (19 age groups - Census P25-1130) standard.
Rates are rounded to the nearest tenth.
Data source: New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services, January 2008.

Table A17: Childhood Leukemia Incidence by County, Age Group and 9-Year Time Periods, New Jersey, 1979-2005[a]

County	0-14								0-19							
	1979-2005		1979-1987		1988-1996		1997-2005		1979-2005		1979-1987		1988-1996		1997-2005	
	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases
Atlantic	5.5	70	5.4	19	5.7	25	5.4	26	4.8	82	5.1	25	4.8	28	4.6	29
Bergen	5.0	210	5.4	70	4.6	64	5.0	76	4.6	258	4.8	86	4.4	80	4.6	92
Burlington	5.1	116	5.6	40	4.6	36	5.1	40	4.5	139	4.9	49	4.0	41	4.7	49
Camden	4.7	143	4.7	45	4.6	49	4.9	49	4.4	177	4.4	59	4.4	61	4.3	57
Cape May	6.2	29	6.6	9	4.6	8	7.6	12	5.9	37	5.8	11	4.4	10	7.5	16
Cumberland	5.0	41	4.0	11	5.6	16	5.1	14	4.4	49	3.7	14	4.8	18	4.7	17
Essex	4.0	188	4.0	62	4.1	63	4.0	63	3.6	228	3.4	73	3.9	80	3.6	75
Gloucester	5.1	72	6.4	27	4.9	24	4.3	21	4.5	85	5.5	32	4.2	27	4.0	26
Hudson	5.3	160	5.4	53	5.2	51	5.3	56	4.7	191	4.9	67	4.6	60	4.6	64
Hunterdon	6.1	38	8.1	14	3.7	8	6.9	16	5.6	46	7.1	17	4.1	11	5.9	18
Mercer	4.2	75	5.0	27	4.0	24	3.8	24	3.9	95	4.6	36	3.6	29	3.5	30
Middlesex	5.7	208	6.5	67	4.8	58	6.1	83	4.9	243	5.7	84	4.1	66	5.1	93
Monmouth	4.3	141	3.9	38	5.7	63	3.4	40	3.8	167	3.7	50	4.7	69	3.1	48
Morris	5.2	127	4.0	29	5.8	45	5.9	53	4.5	146	3.5	36	5.1	52	4.9	58
Ocean	4.9	118	4.3	29	5.5	44	4.9	45	4.5	142	3.9	35	5.0	52	4.6	55
Passaic	4.7	130	5.1	43	3.9	36	5.2	51	4.2	155	4.3	50	3.6	44	4.7	61
Salem	4.3	16	--	--	3.9	5	6.7	8	3.4	17	--	--	3.6	6	5.0	8
Somerset	5.1	73	5.2	18	3.3	16	6.5	39	5.0	94	5.4	27	3.3	20	6.2	47
Sussex	5.1	43	5.2	14	4.7	14	5.4	15	4.3	48	4.2	15	4.4	17	4.3	16
Union	4.3	118	4.3	35	3.9	35	4.8	48	4.2	152	4.0	47	3.7	44	4.7	61
Warren	5.3	29	6.1	10	5.0	9	5.0	10	4.8	35	5.0	11	4.7	11	5.0	13
State	4.9	2,145	5.0	663	4.7	693	5.0	789	4.4	2,586	4.4	827	4.2	826	4.5	933

[a]International Classification of Childhood Cancer (ICCC) is based on ICD-O-3. For details see NCI's SEER program website http://www.seer.cancer.gov/iccc/iccc3.html. Only invasive cases are included except bladder cancer *in situ* is included.
Average annual rates. Rates are per 100,000 population and age-adjusted to the 2000 U. S. Population (19 age groups - Census P25-1130) standard.
Rates are rounded to the nearest tenth.
-- Counts and rates are suppressed when fewer than 5 cases to ensure confidentiality and statistical reliability.
Data source: New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services, January 2008.

Table A18: Childhood Lymphoid Leukemia Incidence County, Age Group and by 9-Year Time Periods, New Jersey 1979-2005[a]

County	0-14								0-19							
	1979-2005		1979-1987		1988-1996		1997-2005		1979-2005		1979-1987		1988-1996		1997-2005	
	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases
Atlantic	4.2	53	3.9	14	4.5	19	4.2	20	3.5	59	3.6	18	3.7	21	3.1	20
Bergen	4.0	167	3.8	49	3.7	52	4.3	66	3.4	194	3.1	55	3.5	64	3.7	75
Burlington	3.5	81	3.6	26	3.1	25	3.8	30	3.1	96	3.2	32	2.8	29	3.4	35
Camden	3.9	119	3.6	35	4.2	45	3.9	39	3.3	132	3.1	40	3.6	50	3.2	42
Cape May	4.9	23	5.8	8	4.0	7	5.0	8	4.6	29	4.8	9	4.0	9	5.1	11
Cumberland	4.0	33	2.9	8	4.5	13	4.4	12	3.4	38	2.6	10	3.7	14	3.8	14
Essex	3.1	143	2.7	42	3.3	51	3.2	50	2.6	163	2.2	47	2.9	58	2.8	58
Gloucester	4.1	58	4.8	20	4.1	20	3.7	18	3.5	65	4.0	23	3.2	21	3.2	21
Hudson	4.1	124	4.0	39	4.2	42	4.1	43	3.4	137	3.3	44	3.4	45	3.4	48
Hunterdon	5.7	35	7.6	13	3.2	7	6.5	15	5.0	41	6.7	16	3.3	9	5.2	16
Mercer	3.1	54	3.2	17	3.0	18	3.0	19	2.8	67	3.0	23	2.7	22	2.6	22
Middlesex	4.3	156	4.8	49	3.7	45	4.5	62	3.6	175	3.9	56	3.1	51	3.7	68
Monmouth	3.5	113	3.0	29	5.0	55	2.4	29	3.0	130	2.6	34	4.2	61	2.2	35
Morris	4.0	97	2.9	21	4.5	35	4.5	41	3.3	108	2.3	22	4.0	41	3.8	45
Ocean	3.9	95	3.6	24	4.5	36	3.8	35	3.4	108	3.2	29	3.7	39	3.3	40
Passaic	3.8	105	4.2	36	3.2	30	3.9	39	3.2	118	3.4	39	2.7	33	3.5	46
Salem	3.2	12	--	--	--	--	5.9	7	2.4	12	--	--	--	--	4.4	7
Somerset	3.9	56	4.1	14	2.7	13	4.8	29	3.6	67	3.4	16	2.4	15	4.8	36
Sussex	4.2	36	4.5	12	4.0	12	4.3	12	3.3	37	3.4	12	3.0	12	3.5	13
Union	3.0	82	2.8	23	2.5	23	3.6	36	2.8	101	2.5	29	2.4	28	3.4	44
Warren	4.2	23	5.5	9	3.9	7	3.5	7	3.6	26	4.1	9	3.9	9	3.0	8
State	3.8	1,665	3.7	489	3.8	559	3.9	617	3.2	1,903	3.1	564	3.2	635	3.4	704

[a]International Classification of Childhood Cancer (ICCC) is based on ICD-O-3. For details see NCI's SEER program website http://www.seer.cancer.gov/iccc/iccc3.html. Only invasive cases are included except bladder cancer *in situ* is included.

Average annual rates. Rates are per 100,000 population and age-adjusted to the 2000 U. S. Population (19 age groups - Census P25-1130) standard. Rates are rounded to the nearest tenth.

-- Counts and rates are suppressed when fewer than 5 cases to ensure confidentiality and statistical reliability.

Data source: New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services, January 2008.

Table A19: Childhood Central Nervous System Cancer Incidence by County, Age Group and 9-Year Time Periods New Jersey, 1979-2005[a]

County	0-14								0-19							
	1979-2005		1979-87		1988-96		1997-05		1979-2005		1979-87		1988-96		1997-05	
	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases
Atlantic	3.6	45	4.0	14	4.5	19	2.5	12	3.1	53	3.3	16	4.0	22	2.4	15
Bergen	2.9	122	2.0	26	2.8	38	3.8	58	2.7	152	2.1	41	2.5	44	3.3	67
Burlington	3.0	69	3.6	26	2.4	19	3.0	24	2.8	86	3.2	33	2.4	25	2.7	28
Camden	3.3	98	3.8	37	3.4	35	2.6	26	3.0	119	3.8	50	3.0	41	2.1	28
Cape May	4.0	19	3.5	5	4.1	7	4.1	7	3.3	21	3.1	6	3.5	8	3.1	7
Cumberland	3.7	31	2.5	7	3.5	10	5.1	14	3.1	35	1.9	7	3.2	12	4.4	16
Essex	2.7	123	2.2	34	3.2	47	2.7	42	2.4	151	2.2	49	2.7	53	2.4	49
Gloucester	3.9	54	4.0	17	3.7	18	3.9	19	3.4	64	3.3	19	3.3	21	3.6	24
Hudson	3.1	93	2.4	23	4.5	44	2.5	26	2.8	114	2.3	31	3.7	48	2.6	35
Hunterdon	3.9	24	5.2	9	2.8	6	3.8	9	3.5	29	4.2	10	2.5	7	3.9	12
Mercer	3.7	65	2.6	14	4.4	26	4.0	25	3.2	77	2.1	15	3.5	28	3.9	34
Middlesex	3.2	113	2.2	23	4.1	47	3.2	43	3.0	147	2.0	31	3.7	58	3.2	58
Monmouth	4.1	134	3.5	34	4.7	51	4.1	49	3.7	163	3.3	44	4.4	63	3.6	56
Morris	3.5	84	4.4	33	3.1	24	3.0	27	3.1	100	3.7	38	3.0	30	2.7	32
Ocean	4.5	107	4.9	33	3.6	29	4.9	45	3.7	118	4.1	37	3.2	33	4.0	48
Passaic	3.2	88	3.1	26	3.0	27	3.6	35	3.1	114	3.4	41	2.5	30	3.4	43
Salem	2.7	10	--	--	--	--	--	--	2.8	14	3.3	6	--	--	3.2	5
Somerset	3.9	55	3.4	12	3.9	18	4.2	25	3.8	70	3.2	16	3.5	21	4.5	33
Sussex	3.4	29	2.6	7	2.7	8	4.7	14	3.4	38	3.4	12	2.6	10	4.1	16
Union	2.4	64	2.8	22	2.3	20	2.2	22	2.3	84	2.6	30	2.2	25	2.2	29
Warren	2.5	14	--	--	5.2	10	--	--	2.5	18	--	--	4.4	11	--	--
State	3.3	1,441	3.0	407	3.5	505	3.4	529	3.0	1,767	2.8	535	3.1	593	3.1	639

[a]International Classification of Childhood Cancer (ICCC) is based on ICD-O-3. For details see NCI's SEER program website http://www.seer.cancer.gov/iccc/iccc3.html. Only invasive cases are included except bladder cancer *in situ* is included.

Average annual rates. Rates are per 100,000 population and age-adjusted to the 2000 U. S. Population (19 age groups - Census P25-1130) standard. Rates are rounded to the nearest tenth.

-- Counts and rates are suppressed when fewer than 5 cases to ensure confidentiality and statistical reliability.

Data source: New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services, January 2008.

Table A20: Incidence of Selected Childhood Cancers by County, New Jersey, Ages 0-14, 1979-2005[a]

County	Lymphomas		Hodgkin Lymphomas		Non-Hodgkin Lymphomas		Neuroblastoma		Renal Tumors		Bone Tumors		Soft-Tissue Sarcomas		Germ Cell Tumors	
	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases
Atlantic	2.6	32	0.9	11	1.2	15	1.2	16	1.4	18	0.6	8	1.3	16	0.7	9
Bergen	1.7	72	0.7	31	0.4	19	0.9	36	0.7	31	0.8	34	0.8	33	0.5	21
Burlington	1.5	34	0.6	13	0.7	15	1.3	29	0.9	21	0.6	13	1.1	26	0.7	17
Camden	1.8	53	0.5	15	0.9	26	1.2	38	0.9	27	0.5	14	1.0	30	0.6	19
Cape May	2.1	10	1.0	5	1.1	5	1.5	7	2.1	10	--	--	1.3	6	1.1	5
Cumberland	1.3	11	--	--	--	--	1.3	11	--	--	0.8	7	1.3	11	1.0	8
Essex	1.9	89	0.9	41	0.6	26	1.0	49	0.8	39	0.6	27	1.2	55	0.6	29
Gloucester	2.1	30	0.7	10	1.0	14	1.7	24	0.8	11	0.7	10	0.9	13	0.7	10
Hudson	2.1	61	0.8	24	0.6	18	1.1	34	0.8	25	1.0	29	0.7	22	0.6	17
Hunterdon	1.8	11	1.0	6	--	--	1.3	8	1.0	6	--	--	1.3	8	--	--
Mercer	2.2	38	1.0	17	0.9	16	0.8	14	1.0	18	0.9	15	0.5	9	0.3	6
Middlesex	1.9	69	0.6	21	0.9	31	1.1	41	0.7	24	0.6	20	0.7	26	0.6	23
Monmouth	2.0	65	0.8	27	0.7	23	1.2	37	1.0	33	1.0	32	1.0	33	0.4	14
Morris	1.4	35	0.4	11	0.4	10	1.3	32	0.9	23	0.8	19	1.0	25	0.5	12
Ocean	1.9	45	0.6	15	0.6	14	1.5	37	1.0	23	0.7	17	1.4	34	0.5	11
Passaic	1.7	46	0.6	16	0.6	16	0.9	26	0.9	26	0.5	14	1.2	33	0.7	18
Salem	1.8	7	--	--	--	--	--	--	1.7	6	1.3	5	1.4	5	--	--
Somerset	2.2	30	1.1	15	0.6	8	1.5	23	0.9	13	0.6	8	0.8	11	--	--
Sussex	2.2	19	1.2	10	--	--	1.4	12	1.2	10	0.7	6	0.7	6	--	--
Union	1.7	46	0.5	13	0.7	18	0.9	26	0.9	25	0.6	17	1.3	36	0.7	19
Warren	2.2	12	1.1	6	--	--	1.4	8	0.9	5	1.1	6	1.3	7	--	--
State	1.9	815	0.7	312	0.7	288	1.1	512	0.9	395	0.7	307	1.0	445	0.6	247

[a]International Classification of Childhood Cancer (ICCC) is based on ICD-O-3. For details see NCI's SEER program website http://www.seer.cancer.gov/iccc/iccc3.html. Only invasive cases are included except bladder cancer *in situ* is included.

Average annual rates. Rates are per 100,000 population and age-adjusted to the 2000 U. S. Population (19 age groups - Census P25-1130) standard. Rates are rounded to the nearest tenth.

-- Counts and rates are suppressed when fewer than 5 cases to ensure confidentiality and statistical reliability.

Data source: New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services, January 2008.

Table A21: Incidence of Selected Childhood Cancers by County, New Jersey, Ages 0-19, 1979-2005[a]

County	Lymphomas		Hodgkin Lymphomas		Non-Hodgkin Lymphomas		Neuroblastoma		Renal Tumors		Bone Tumors		Soft-Tissue Sarcomas		Germ Cell Tumors	
	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate	Cases
Atlantic	3.3	55	1.7	28	1.1	18	0.9	16	1.1	18	0.9	15	1.4	23	0.9	15
Bergen	3.1	182	1.9	113	0.8	44	0.7	37	0.7	38	1.0	60	1.0	60	1.0	57
Burlington	2.6	84	1.5	47	0.9	29	1.0	29	0.7	22	0.9	29	1.4	43	1.2	38
Camden	3.0	121	1.5	59	1.1	42	1.0	39	0.7	28	0.7	29	1.0	42	1.1	45
Cape May	2.7	17	1.1	7	0.9	6	1.3	8	1.6	10	0.8	5	1.6	10	0.9	6
Cumberland	2.1	24	1.0	11	0.6	7	1.0	11	--	--	0.9	10	1.3	14	1.8	20
Essex	2.8	178	1.5	95	0.8	53	0.8	50	0.7	43	0.8	49	1.4	91	1.1	73
Gloucester	3.4	65	1.7	33	1.2	23	1.4	25	0.6	12	0.9	18	1.3	24	1.3	24
Hudson	2.9	119	1.6	64	0.9	35	0.8	34	0.6	26	1.1	44	0.8	34	1.0	40
Hunterdon	3.1	25	2.1	17	0.7	6	1.0	8	0.7	6	0.7	6	1.2	10	0.9	7
Mercer	2.8	71	1.4	35	1.0	25	0.6	14	0.8	18	0.8	19	0.6	16	0.9	24
Middlesex	3.2	165	1.6	85	1.1	53	0.8	42	0.5	25	0.8	41	0.9	45	1.2	61
Monmouth	3.1	136	1.9	81	0.8	36	0.9	38	0.8	35	1.2	51	1.2	51	1.1	48
Morris	2.7	90	1.4	46	0.8	25	1.0	33	0.7	24	0.9	29	1.3	42	1.1	36
Ocean	3.0	90	1.6	49	0.7	22	1.2	39	0.8	25	0.9	28	1.5	48	1.0	29
Passaic	3.1	115	1.7	62	0.8	30	0.7	26	0.7	27	0.9	31	1.3	47	1.1	42
Salem	3.1	16	2.1	11	--	--	--	--	1.2	6	1.5	8	1.6	8	--	--
Somerset	2.8	51	1.8	32	0.7	12	1.2	23	0.7	13	0.7	12	0.8	15	0.7	13
Sussex	4.3	46	2.4	26	1.4	15	1.1	12	1.1	12	0.9	10	1.2	13	0.8	8
Union	2.9	107	1.4	52	1.0	35	0.7	26	0.7	27	0.6	23	1.4	51	1.0	38
Warren	3.2	23	1.8	13	0.7	5	1.1	8	0.8	6	1.7	12	1.2	9	1.1	8
State	3.0	1,780	1.6	966	0.9	524	0.9	522	0.7	422	0.9	529	1.2	696	1.1	636

[a]International Classification of Childhood Cancer (ICCC) is based on ICD-O-3. For details see NCI's SEER program website http://www.seer.cancer.gov/iccc/iccc3.html. Only invasive cases are included except bladder cancer *in situ* is included.

Average annual rates. Rates are per 100,000 population and age-adjusted to the 2000 U. S. Population (19 age groups - Census P25-1130) standard. Rates are rounded to the nearest tenth.

-- Counts and rates are suppressed when fewer than 5 cases to ensure confidentiality and statistical reliability.

Data source: New Jersey State Cancer Registry, New Jersey Department of Health and Senior Services, January 2008.