



*State of New Jersey*

**DEPARTMENT OF HEALTH**

CONSUMER, ENVIRONMENTAL AND OCCUPATIONAL HEALTH SERVICE  
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*Commissioner*

July 10, 2013

Kelly Terry  
1637 Finderne Street  
Oakhurst, NJ 07755

Dear Mrs. Terry:

This letter is a follow-up to our telephone conversation regarding both your concerns and those of the community regarding the number of children diagnosed with cancer who reside in the Oakhurst section of Ocean Township (Monmouth County), NJ. First, let me express how sorry I am to hear how cancer has affected your daughter and other children in your community. The experience of having a child diagnosed with cancer must be devastating and I understand how concerned you and other members of your community are. I hope the following information will be helpful. We plan to send a similar letter with attachments to Mr. John Lysko, Superintendent of the Township of Ocean School District.

As you are aware, we were provided with information that three Ocean Township children under the age of ten were diagnosed with leukemia, one of whom was diagnosed with lymphoma several years prior to a diagnosis of leukemia. Additionally, other parents in Monmouth County have raised concerns about other childhood cancers, which we are looking into.

The New Jersey State Cancer Registry (NJSCR) receives reports on all cancers that are diagnosed in New Jersey residents including reports on New Jersey residents from six other states. Presently, NJSCR data are considered complete through 2010. In response to community concerns, the New Jersey Department of Health conducted a standardized incidence ratio (SIRs) analysis for both Ocean Township and the Oakhurst section of Ocean Township. SIR analysis is the standard method used by the Centers for Disease Control and Prevention (CDC) and other states to evaluate cancer incidence in particular geographic areas. Please refer to the attached SIR fact sheet for a description of this type of analysis. SIR analysis of a geographic location requires precise age-specific population data, which is available for municipalities as well census designated places (CDP). Because Oakhurst-CDP is a census designated place, we are able to

perform this type of analysis for it as well as for Ocean Township. Additionally, each case included in the calculation of the SIR analysis must be verified from the NJSCR to ensure accurate diagnosis and residential location.

Unfortunately, small numbers of cases are subject to a high amount of random variation and therefore statistical analyses do not yield reliable results. For this reason, we restrict our analysis to cancer subsites in which there is a minimum of 3 cases. In order to protect confidentiality, results are not reported when case counts are less than five.

For the SIR analysis, we evaluated all invasive childhood (ages 0-14 and 0-19 years) cancers for 1990-2010 for males and females together for Ocean Township and the Oakhurst-CDP separately. It should be noted that the analysis for Ocean Township included all Oakhurst-CDP cases as well as all other local communities that fall within the Ocean Township boundaries.

### Ocean Township

For Ocean Township, all childhood cancer types combined, the analysis revealed that the number of cases was similar to the number that would be expected if state rates occurred there and any differences were not statistically significantly elevated at the 95% confidence level. The use of the word “expected” refers to statewide comparisons and should not be construed to mean acceptability. Additionally, the Ocean Township SIR analysis indicated that childhood leukemia and lymphoma (ages 0-14 and 0-19 years) were not statistically significantly elevated at the 95% confidence level. For childhood lymphoma ages 0-14, the observed of 5 versus the expected of 2.1, is likely due to random variation that is generally seen with small numbers. The New Jersey Department of Health (NJDOH) plans to continue to revisit this analysis as additional years of data become available to determine if this pattern persists.

**Standardized Incidence Ratio (SIR) Analysis  
Children Ages 0-14, Male and Female Combined  
Ocean Township, NJ (Monmouth County)**

		Obs	Exp	SIR	95% LCI	95% UCI
1990-2010	All sites	20	18.4	1.1	0.7	1.7
	Leukemias	6	5.7	1.1	0.4	2.3
	Lymphoma	5	2.1	2.4	0.8	5.5

95% LCI- Lower 95% Confidence Limit  
95% UCI- Upper 95% Confidence Limit

**Standardized Incidence Ratio (SIR) Analysis  
Children Ages 0-19, Male and Female Combined  
Ocean Township, NJ (Monmouth County)**

		OBS	Exp	SIR	95% LCI	95% UCI
1990-2010	All sites	26	26.9	1.0	0.6	1.4
	Leukemias	7	6.7	1.0	0.4	2.1
	Lymphoma	5	4.4	1.1	0.4	2.7

95% LCI- Lower 95% Confidence Limit  
95% UCI- Upper 95% Confidence Limit

## Oakhurst-CDP

For Oakhurst-CDP, all childhood cancer types combined for age groups 0-14 and 0-19 years, the analysis revealed that the number was less than five for both age groups. These observed numbers of cases were similar to the numbers that would be expected if state rates occurred there and any differences were not statistically significantly elevated at the 95% confidence level. Based on the age-specific population of Oakhurst-CDP the expected number of total childhood cancers from 1990-2010 was 3.8 cases for ages 0-14 and 5.6 cases for ages 0-19. The Oakhurst-CDP childhood (ages 0-14 and 0-19) counts for leukemia and lymphoma were each less than 3 and analysis would not yield statistically reliable results.

## Monmouth County

The NJDOH also took this opportunity to review the cancer rates for children ages 0-14 and 0-19 from 1990-2010 for Monmouth County compared to the state of New Jersey and several surrounding counties. A review of the data shows that the Monmouth County age-adjusted rates for both age groups (0-14 and 0-19 years) for all childhood cancers combined as well as leukemias, lymphomas, brain and central nervous system (CNS), neuroblastoma and malignant bone cancers were not statistically significantly different from the state or the counties of Mercer, Middlesex and Ocean.

**Childhood (Ages 0-14) Age-Adjusted Cancer Rates, 95% Confidence Intervals and Counts, 1990-2010  
New Jersey and Selected Counties**

	All Sites				Leukemias				Lymphomas			
	Rate	95% LCI	95% UCI	Count	Rate	95% LCI	95% UCI	Count	Rate	95% LCI	95% UCI	Count
Mercer	15.0	13.1	17.2	217	4.2	3.2	5.4	61	2.0	1.3	2.8	28
Middlesex	17.6	16.1	19.1	541	5.7	4.9	6.7	178	2.0	1.5	2.6	60
Monmouth	16.9	15.3	18.5	450	4.7	3.9	5.6	126	1.8	1.3	2.4	48
Ocean	18.0	16.2	19.9	382	4.8	3.9	5.8	102	1.9	1.3	2.6	39
NJ State	16.6	16.1	17.0	5,938	5.1	4.9	5.4	1,846	1.8	1.7	2.0	648

	Neuroblastoma				Brain and CNS				Malignant bone tumors			
	Rate	95% LCI	95% UCI	Count	Rate	95% LCI	95% UCI	Count	Rate	95% LCI	95% UCI	Count
Mercer	1.1	0.6	1.8	16	3.9	2.9	5.0	56	0.4	0.1	0.8	5
Middlesex	1.3	0.9	1.8	42	3.9	3.3	4.7	120	0.6	0.4	1.0	19
Monmouth	1.4	0.9	1.9	35	4.3	3.6	5.2	116	1.0	0.6	1.4	26
Ocean	1.5	1.0	2.1	33	4.7	3.8	5.7	99	0.8	0.4	1.3	16
NJ State	1.2	1.1	1.4	451	3.6	3.4	3.8	1,270	0.8	0.7	0.9	271

Rates per 100,00 population and age-adjusted to the 2000 U.S. population standard

^ Counts and Rates suppressed when fewer than 5 cases to ensure statistical reliability

LCI-Lower Confidence Interval UCI-Upper Confidence Interval

Data obtained from the New Jersey State Cancer Registry (NJSCR) - Created 5/2013

Rates are considered statistically significantly different from another rate if the 95% confidence intervals do not overlap

**Childhood (Ages 0-19) Age-Adjusted Cancer Rates, 95% Confidence Intervals and Counts, 1990-2010  
New Jersey and Selected Counties**

	All Sites				Leukemias				Lymphomas			
	Rate	95% LCI	95% UCI	Count	Rate	95% LCI	95% UCI	Count	Rate	95% LCI	95% UCI	Count
Mercer	15.5	13.8	17.3	306	3.8	2.9	4.7	74	2.4	1.8	3.2	48
Middlesex	19.1	17.8	20.5	788	4.9	4.3	5.6	204	3.0	2.5	3.6	124
Monmouth	19.0	17.6	20.5	661	4.2	3.5	4.9	148	3.0	2.4	3.6	102
Ocean	20.6	19.0	22.4	559	4.5	3.8	5.4	126	3.4	2.7	4.2	88
NJ State	18.3	17.9	18.7	8608	4.6	4.4	4.8	2197	2.9	2.8	3.1	1350

	Neuroblastoma				Brain and CNS				Malignant bone tumors			
	Rate	95% LCI	95% UCI	Count	Rate	95% LCI	95% UCI	Count	Rate	95% LCI	95% UCI	Count
Mercer	0.9	0.5	1.4	17	3.6	2.8	4.5	70	0.5	0.2	0.9	10
Middlesex	1.0	0.7	1.4	43	3.7	3.1	4.3	151	0.9	0.7	1.3	38
Monmouth	1.0	0.7	1.4	35	4.0	3.3	4.7	140	1.1	0.7	1.5	37
Ocean	1.2	0.8	1.7	35	4.0	3.3	4.9	112	1.1	0.7	1.5	28
NJ State	1.0	0.9	1.0	465	3.3	3.1	3.4	1546	1.0	0.9	1.1	459

Rates per 100,00 population and age-adjusted to the 2000 U.S. population standard

^ Counts and Rates suppressed when fewer than 5 cases to ensure statistical reliability

LCI-Lower Confidence Interval UCI-Upper Confidence Interval

Data obtained from the New Jersey State Cancer Registry (NJSCR) - Created 5/2013

Rates are considered statistically significantly different from another rate if the 95% confidence intervals do not overlap

The NJDOH will continue to monitor the rates of childhood cancers in Ocean Township, Oakhurst and Monmouth County and update the SIRs each year as additional years of NJSCR data become available. We will provide updates to you and to the local health department as new information becomes available.

Though the recent occurrence of these cancers may seem unusual to many people, it is important to remember that childhood cancers, like other health events, do not occur evenly in the population and therefore, some places and times appear to have more than expected and others less than expected numbers, mostly due to random variation or chance. It should be noted that rare events, such as childhood cancers are more likely to demonstrate a higher degree of random variation. These facts, however, do not make childhood cancer any less worrisome.

As you may know, childhood cancers occur less often than adult cancers, and represent about one percent of all cancers in New Jersey and the United States. During recent years, the rates of newly diagnosed cancers among children have remained fairly stable in New Jersey and the United States. The mortality rates for most types of childhood cancer have steadily decreased in recent years due to improvements in cancer treatments.

In terms of childhood cancers, it is very important to note that the set of risk factors for a specific cancer diagnosed in children do differ from those diagnosed in adults. Often the risk factors for childhood cancers are heavily weighted towards prenatal exposures and genetic predisposition. Known risk factors for some childhood cancers include prenatal diagnostic

radiation exposure and selected genetic conditions. Possible risk factors for childhood cancer include prenatal exposure to certain medications, cancer-causing chemicals, neonatal infections and history of birth defects in relatives. These factors do not explain all childhood cancers, but much research is underway to determine the causes.

Leukemia is the most common cancer diagnosed among children and adolescents, representing about 1 out of every 3 cancers in children. The cause of most cases of childhood leukemia is not known and most children diagnosed with leukemia do not have any known risk factors. Known risk factors for childhood leukemia include having any of several inherited disorders, such as Li-Fraumeni syndrome, Down syndrome, and Klinefelter syndrome. Exposure to certain chemotherapy drugs are also risk factors for childhood leukemia. Immune system problems resulting from certain inherited diseases, such as ataxia telangiectasia, Wiscott-Aldrich syndrome, and Bloom syndrome, also may place children at a heightened risk for developing leukemia. Exposure to high levels of radiation represents a known environmental risk factor for this group of cancers. However, possible risks from fetal or childhood exposure to lower levels of radiation, resulting primarily from diagnostic medical scans, are far less certain and likely to be quite small.

The two main groups of lymphoma are non-Hodgkin lymphoma (NHL) and Hodgkin lymphoma (HL). According to the National Cancer Institute, the incidence rates of NHL for both children and adults have been increasing in the United States including New Jersey. The reasons for this increase are not clear and research is underway to find some answers. NHL usually occurs in younger children (age 0-9) while HL occurs more frequently among older children and adolescents (age 10-19). Most causes of NHL and HL are unknown. NHL has been linked to impaired immune function due to infection or immunosuppressive therapies, genetic susceptibility or Epstein-Barr infection as well as radiation exposure. Among children, NHL incidence is twice as high in males than females and is higher in whites than blacks. The known risk factors for HL include family history, Epstein-Barr virus infection and higher socioeconomic status.

Most health scientists currently believe that a relatively small proportion of all cancers are related to exposure to hazardous substances found in the home, community, or workplace. In order for environmental contaminants to cause cancers, or any other disease, there must be a completed pathway through which the contaminants could travel from their source and through the environment to enter the human body through air, water, food, or direct contact with the skin. It is important that any environmental contamination that violates federal or state standards be rectified properly, whether or not such a hazard is found to cause disease. As you are aware, a number of residents are concerned that these cancers may be related to the Deal Test Site. A search of the Agency for Toxic Substances and Disease Registry (ATSDR) and the New Jersey Department of Environmental Protection (NJDEP) on-line databases did not reveal documentation that would indicate contamination at the Deal Test Site. Additionally, there appears to be no documented previous land use that would indicate a potential for contamination.

In addition, to the cancer data provided in this letter, the New Jersey Department of Health produces a childhood cancer report every few years. The most recent childhood cancer

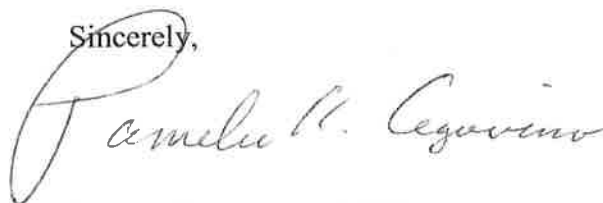
report can be found at the following link with the complete listing of their reports to date.  
<http://www.state.nj.us/health/ces/reports.shtml>.

For your information, I have enclosed information on childhood leukemia and non-Hodgkin lymphoma from the American Cancer Society (ACS) as well as a fact sheet entitled *Cancer Clusters* from the National Cancer Institute (NCI). Additionally, I have enclosed a New York Times article entitled *Probing Disease Cluster: Easier to Spot Than Prove*, that may be helpful in understanding the geographic distribution of cancer occurrence. If you would like more information on childhood cancer, you may contact:

American Cancer Society: 1-800-ACS-2345 ([www.cancer.org](http://www.cancer.org))  
National Cancer Institute: 1-800-4-CANCER ([www.nci.nih.gov](http://www.nci.nih.gov))

So that we may be able to better assist future callers, we would appreciate your feedback by completing the enclosed form and mailing it in the postage paid envelope, also enclosed. Your assistance is greatly appreciated. Please feel free to call me at the Environmental and Occupational Health Surveillance Program Monday through Friday between 9:00 a.m. and 5:00 p.m. at (609) 826-4984 with any other information or questions you may have.

Sincerely,



Pamela K. Agovino, MPH  
Research Scientist  
Cancer Surveillance Unit

Enclosure  
C:

Michael A. Meddis, Public Health Coordinator / Health Officer  
Monmouth County Board of Health

**Cancer Inquiry Feedback Form**  
**New Jersey Department of Health and Senior Services**  
**Environmental and Occupational Health Surveillance Program**  
**609-826-4984**

We would like to find out how well we helped you so we can better assist other callers in the future. Please answer the following questions to the best of your ability. Please check one circle for each question.

	Yes	Maybe	No
Did staff understand your concerns?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Was staff knowledgeable about your concerns?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Was staff courteous?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Were your questions/concerns answered in the telephone conversation?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Were the letter, fact sheets, pamphlets, and articles sent to you helpful?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Were the referrals to other contacts useful?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Were you satisfied with the response time in answering your concerns?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overall, were you satisfied with the response you received?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Comments:**

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Please return this form in the enclosed postage-paid envelope or to **Environmental and Occupational Health Surveillance Program, New Jersey Department of Health and Senior Services, PO BOX 369, Trenton, NJ 08625-0011**. Feel free to call us if you would like additional information. Thank you for your assistance.