

Analysis of Cancer Incidence in the Pompton Lakes Neighborhood Impacted by the DuPont Groundwater Plume

Pompton Lakes, Passaic County, NJ

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What is the purpose of this Health Consultation?

Residents and local elected officials were concerned about cancer incidence in the area of Pompton Lakes situated above the DuPont Pompton Lakes groundwater contamination plume. At the request of the mayor of Pompton Lakes, cancer incidence in the neighborhood was evaluated in comparison to cancer rates in the State of New Jersey.

What kinds of cancers are included in this analysis?

There are many types of cancers affecting different organs and tissues in the body. For this health consultation, total cancer incidence (all cancer types combined) and 13 specific cancer types were evaluated. The specific cancer types were selected because they represent cancer groupings that may be more sensitive to the effects of environmental exposure, though not necessarily related to potential groundwater contaminants. These individual types were: leukemia, non-Hodgkin lymphoma, and cancers of the urinary bladder, brain and central nervous system, female breast, colorectum, esophagus, pancreas, lung, liver, bone, stomach, and kidney.

How does the NJDHSS know who has cancer in the Pompton Lakes neighborhood above the contaminated groundwater?

The New Jersey State Cancer Registry (NJSCR) was used to determine cancer cases. Since October 1978, most cases of cancer newly diagnosed among New Jersey residents are required by law to be reported to the NJSCR. Hospitals, clinical laboratories, and health care providers are the main groups reporting incident cancer cases to the Registry. In addition, the NJSCR has agreements with several other states so that information on New Jersey residents who are diagnosed with cancer in those states is supplied to the NJSCR.

All cancer cases from the NJSCR identified as Pompton Lakes residents were reviewed to determine geographic location of residence at the time of diagnosis within the Borough, using information found in the Registry, the U.S. Census Bureau website (AmericanFactFinder), and maps.



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Cancer Incidence Health Consultation

continued

How was the neighborhood population defined?

The geographic area for this cancer incidence evaluation consisted of the population residing in U.S Census blocks containing residential homes sitting above the groundwater contamination plume. Population counts for the area were determined from the 2000 U.S. Census block data. Since the groundwater plume does not exactly match census block boundaries, some residences included in the survey area are not above the plume.

How was the cancer data analyzed?

For this analysis, we evaluated cancer incidence for a 28-year period (1979 through 2006), the time period for which there was complete reporting of cancer incidence data to the NJSCR. In addition, cancer incidence was evaluated for the most recent 13-year period (1994 through 2006). For total cancers and for the 13 cancer types, the observed number of cases in the area was compared to the number of cases that would be expected to occur in a population of that size and age composition over that period of time, based on State cancer rates.

What were the findings for the Pompton Lakes community closest to the contaminated groundwater?

- Overall cancer incidence (all cancers combined) was not elevated in the Pompton Lakes groundwater plume area.
- Kidney cancer incidence was higher than expected in females, but similar to the expected in males.
- Non-Hodgkin lymphoma was higher than expected in males during the most recent 13-year evaluation period, but not in females.
- Brain and central nervous system cancer incidence, which was of particular concern to the community, was not elevated compared to the State.

What do these findings mean?

This is a descriptive analysis of cancer incidence in a geographic area, to provide basic information to a community. By itself, a descriptive analysis does not provide evidence of a specific relationship to environmental contamination.

Two of the chemicals found in the groundwater contamination plume (trichloroethylene and perchloroethylene) have been found to increase the risk of kidney cancer or non-Hodgkin lymphoma (among other cancers) in experimental animals and/or human workers exposed to very high amounts of these chemicals, so exposure to these chemicals from the groundwater cannot be ruled out as a potential cause.

However, the inconsistency in results between males and females in the population would not support a causal association with these potential environmental exposures. Other plausible explanations for findings of elevated cancer incidence rates in a specific community include other, unmeasured risk factors for these cancers (e.g., cigarette smoking or occupational exposures), or chance alone.

Residents above the groundwater plume can decrease their current and future exposures to these chemicals by participating in the remediation system program.