Drinking Water and Leukemia

A study of 27 New Jersey towns, released by the NJ Department of Health last December, concludes that, in towns with toxic chemicals in their water supplies, there were excessive rates of leukemia during the period 1979-1984. Leukemia is cancer of the blood-forming cells.

The study looked at 27 towns in northern New Jersey, five of which have badly contaminated water supplies, 7 of which have moderately contaminated water, and 15 of which have clean water. The study found clear evidence that four of the five towns with the worst water also have excessive rates of leukemia (41 cases expected, 53 cases found), especially among women. The excessive leukemias do not seem to strike any particular age group.

The study avoids the conclusion that contaminated drinking water caused the leukemias. The authors point out that other explanations are possible. For example, the women who got leukemia may have worked for companies that used chemicals carelessly, exposing their employees and spilling chemicals on the ground, allowing contamination of local water supplies. In this scenario, the occupational exposures, not the drinking of polluted water, might have caused the disease.

Despite the study's reluctance to say bad water caused the leukemias, when a reporter asked State Health Commissioner Molly Coye, "Is the water in these towns safe to drink?," the Commissioner replied, "Obviously, it's not safe to drink for a lifetime or we wouldn't have consent orders for remediation."

The New Jersey study is the first of its kind because it covers many towns, with a total population of nearly 700,000 (about 10% of the state's population). One previous study, by researchers at Harvard University, had shown a link between contaminated water and leukemias among children in a single town--Woburn, Mass.

The findings of the New Jersey Health Department study are useful because they establish one more link between drinking water and disease, but even more important lessons can be learned from the New Jersey situation.

The four most-contaminated towns are Hawthorne, Garfield, Lodi, and Wellington. We'll focus on Hawthorne, a town of 20,000 people, many of whom live in spacious homes beneath overarchin oak trees.

In the early 1950s, the Inmont Chemical Company announced it would build a large plant in Hawthorne. "We thought the town fathers had found a perfect way to preserve our town," recalls Robert McKinley, 78, a 50-year resident of Hawthorne. "Now we're paying for our ignorance."

Mayor Bay defends the chemical companies, saying they are often accused of things they didn't do. Others are not so generous, especially those on the south end of town. For years they remember waking to smells "like rotten fish" and watching the paint flake off their cars.

Marjorie Fieldhouse stands on her porch, next to a rocking horse she's saving for her grandchildren, and recalls phoning the mayor about an odor problem. "He told me not to worry about it, that he wouldn't let anything happen," she says. Then she adds, "I should have made a stink."

Vincent and Eleanor Hartung moved to Hawthorne in 1973 and raised their large family, six sons and two daughters, in a rambling house at the end of a cul-de-sac, with stands of trees running up the hill beyond. Marlene Hartung was a strong, blonde, athletic young woman. She was a cheerleader in high school and later she retained an interest in sports and health. She liked to drink water. "She was a water freak," says her brother Glen, "always telling us how good it was for us."

"Yeah, she was always telling me to drink water, not beer," her father says. But in May, 1984, Marlene fell ill. Her doctor told her she had the flu, until lab tests two weeks later revealed acute lymphocytic leukemia.

Marlene was a fighter. She said leukemia would never get her. Twice she had bone marrow transplants, her brothers providing fresh bone marrow through painful medical procedures. Chemotherapy followed--multiple large injections of experimental drugs--leaving Marlene nauseous, fatigued, irritable. She lost all her hair. Trips to hospitals in New York, then to Seattle, nearly drove the Hartung family into bankruptcy, but the people of Hawthorne pitched in. Friends held car washes and raffles and saved the Hartungs from financial ruin.

But money could not save Marlene's life. After fighting the disease for two years, she died in August, 1986, at age 27. Her brother Glen was then a medical student. "We feel strongly that the water contributed to her death. And we feel the borough was negligent in not warning residents about the
It was Glen Hartung's phone call that initiated the first study of the problem by the NJ Department of Health. After the initial study was completed, Glen says, "I was stunned at the preliminary numbers on leukemia. And I got very, very angry, especially when I found the commissioners knew in 1979."

The New Jersey state Department of Environmental Protection (DEP) first reported water pollution in Hawthorne in 1979 but the state delayed six years before closing three contaminated municipal wells (out of nine that were found contaminated, among 22 the municipality uses). Tests showed the wells contaminated with trichloroethylene, tetrachloroethylene, carbon tetrachloride, and 1,1,1-trichloroethane at levels ranging from 37 to 72 parts per billion (ppb).

Three chemical companies--Calgon Corporation, United Technologies, and Inmont Chemical (a division of the West German conglomerate, BASF)-- have been investigated and blamed for contaminating Hawthorne's well water. The state DEP ordered these firms to make payments to the affected municipalities, or face fines triple the amount authorities would spend to cleanse municipal drinking water. When Inmont Chemical balked, in March, 1987, the state DEP said they were going to fine Inmont $25,000 per day until they reached an agreement with local authorities, but agreement was not reached for many months and no fines have ever been levied. Although state officials are certain they have found the responsible parties, no one is facing criminal charges, no one is facing punishment of any kind, and the companies, with heads held disdainfully high, are making payments to help clean Hawthorne's water while denying all responsibility.


--Peter Montague

Descriptor terms: drinking water; water; chlorination; chlorine; cancer; carcinogens; leukemia; ozone; studies; findings; nj; disease statistics; alternative treatment technologies; occupational safety and health; molly coye; harvard university; hawthorne, nj; garfield, nj; lodi, nj; wellington, nj; inmont chemical company; chemical industry; robert mckinley; robert bay; marjorie fieldhouse; vincent hartung; death; death statistics; water pollution; leaks; chloroethylene; tetrachloroethylene; carbon tetrachloride; 1,1,1-trichloroethane; calgon corp; united technologies; fines; lawsuits; investigations;