A new study by federal EPA (U.S. Environmental Protection Agency) personnel reveals excessive cancer deaths in counties that have Superfund dumps (which we call "Superfund counties"), compared to counties that do not have such dumps ("non-Superfund counties"). Counties that have Superfund dumps have excessive deaths from cancers of the lung, bladder, esophagus, stomach, large intestine, and rectum among white males; the same counties have excessive deaths from cancers of the lung, breast, bladder, stomach, large intestine and rectum among white females.

The study was conducted by two staff members at the EPA Health Effects Research Laboratory in Research Triangle, NC, and by a professor at the University of Miami School of Medicine in Miami, FL.

The study team used EPA data to identify 593 Superfund dump sites where there was laboratory-confirmed evidence of chemical contamination of groundwater supplies and where there was no alternate public water supply (in other words, where groundwater was the sole source of drinking water). The selected 593 dumps are located in 339 counties in 49 states. The study team used National Cancer Institute data on deaths among white males and females, 1970-1979, for 13 types of cancers to make the comparisons.

The excess cancers became apparent when the Superfund counties were compared to all non-Superfund counties, nationwide. The study team tried to match Superfund counties with other individual counties selected to have the same size white population over age 64, the same percent in-migration (people moving into the county during the study period), same median family income, and the same percentage of workers employed in manufacturing. However, 64 Superfund counties were unique (e.g., Los Angeles County, CA; Kings County, NY; Harris County, TX), so they abandoned the effort to find matching counties.

The study team then looked at geographical regions to see if they could identify a national patterns of disease. In EPA region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont) they compared 23 counties with Superfund sites vs. 44 counties without Superfund sites; in the counties with Superfund sites they found increased deaths from female breast cancer. In EPA region 2 (New York and New Jersey) they compared 40 Superfund counties vs. 43 non-Superfund counties and they found no excessive cancer deaths in the Superfund counties, compared to the non-Superfund counties; in EPA region 3 (Delaware, Maryland, Pennsylvania, Virginia, West Virginia) the team studied 11 Superfund counties vs. 83 non-Superfund counties and they found excessive deaths from bladder cancer in females, cancer of the large intestine among males and females, and cancer of the rectum in males; in the remaining EPA regions, 4-10, (which include all the rest of the U.S. except Alaska) they studied 241 Superfund counties vs. 2,560 non-Superfund counties and they found excessive deaths from lung cancer in males and females, female breast cancer, and bladder, esophageal, and rectum cancer among males.

[We note that an earlier study of New Jersey, using different techniques, identified several cancers that occurred at excessive rates in municipalities having Superfund dumps, compared to municipalities lacking Superfund dumps. See G. Reza Najem and others, "Clusters of Cancer Mortality in New Jersey Municipalities; With Special Reference to Chemical Toxic Waste Disposal Sites and Per Capita Income." INTERNATIONAL JOURNAL OF EPIDEMIOLOGY, Vol. 14, No. 4 (1985), pgs. 528-537.]

EPA region 3 (Delaware, Maryland, Pennsylvania, Virginia, West Virginia) is the only geographical area where deaths from cancers of the gastrointestinal tract occurred among both men and women.

The researchers point out that their study does not prove that the Superfund dumps caused the observed patterns of disease. They note, for example, that the excess cancer deaths in Superfund counties may have occurred not because of direct contamination from the dumps, but because companies that produced the wastes may also have contaminated local food supplies, local air, and local water directly by emitting chemicals into the local environment. Another possibility is the Superfund dumps are located in heavily industrialized areas, or may be located in areas that differ from non-Superfund-site locations in other important but unknown ways. (Our experience with Superfund sites indicates that they tend to be located in sparsely populated rural areas, not heavily industrialized urban areas. --Editors)


--Peter Montague

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NINE CANCERS STRIKE POPULATION AT PENNSYLVANIA SUPERFUND DUMP

A 1984 study by the federal Centers for Disease Control revealed a pattern of excessive cancer deaths in Clinton County, Pennsylvania, where the Drake Superfund site is located. The researchers focused first on bladder cancers, but then found others cancers in greater numbers.

Researchers from the federal Centers for Disease Control (CDC) evaluated health data for Clinton County and found that bladder cancers doubled in Clinton county from 1950 to 1979, whereas bladder cancers decreased for all of Pennsylvania and remained the same in the whole United States during the same time. Ten bladder cancers occurred among white males in Clinton (a county of 39,000 people) during the decade of the 1950s; by the decade of the 70s the rate was up to 23. However, during the same period, the bladder cancer rate among white females in Clinton decreased. On this basis, the CDC researchers conclude that probably the cancers were caused by occupational exposure to chemicals, rather than general exposure resulting from the Superfund dump.

The cancer rates for nine other types of cancer were even more elevated in Clinton County than were bladder cancers. The CDC researchers conclude that at least one of these cancers (non-Hodgkins lymphomas, or cancers of the lymph glands) struck both men and women in Clinton County at excessive rates, "suggesting" that a "general environmental exposure" to at least one carcinogenic chemical occurred.

Other elevated cancer rates in Clinton county included leukemias among women (but not men), bone cancer among men (but not women), cancer of the salivary glands (among men, but not women), cancer of the uterus, and cancers of the rectum and larynx (among women, but not men).


--Peter Montague

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