

CHILD LEUKEMIA DEATH RATES INCREASE NEAR U.S. NUCLEAR PLANTS

RISES GREATEST NEAR OLDEST PLANTS, DECLINES NEAR CLOSED PLANTS

Contact Joseph Mangano, 609-399-4343

New York, Nov. 11, 2008. Leukemia death rates in U.S. children near nuclear reactors rose sharply (vs. the national trend) in the past two decades, according to a recent study.

The greatest mortality increases occurred near the oldest nuclear plants, while declines were observed near plants that closed permanently in the 1980s and 1990s. The study was published in the most recent issue of the *European Journal of Cancer Care*.

The study updates an analysis conducted in the late 1980s by the National Cancer Institute (NCI). That analysis, mandated by Senator Edward M. Kennedy (D-MA), is the only attempt federal officials have made to examine cancer rates near U.S. nuclear plants.

U.S. Rep. Edward J. Markey (D-MA), a senior member of the House Energy and Commerce Committee, said, "Nothing is more important to American families than the health of their children. It is critical that we continue to improve our understanding of the causes of child leukemia and learn how this heartbreaking disease be prevented, therefore this study deserves critical consideration."

Actor and advocate Alec Baldwin said "exposure to ambient levels of radiation near nuclear reactors used by public utilities has long been suspected as a significant contributor to various cancers and other diseases." Baldwin, who has a long-standing interest in radiation health issues, adds "nuclear power is not the clean, efficient energy panacea to which we are presently being reintroduced. It is dirty, poses serious security threats to our country, and is ridiculously expensive. Nukes are still a military technology forced on the American public with a dressed up civilian application."

Study authors were epidemiologist Joseph Mangano MPH MBA, Director of the Radiation and Public Health Project and toxicologist Janette Sherman MD of the Environmental Institute at Western Michigan University. They analyzed leukemia deaths in children age 0-19 in the 67 counties near 51 nuclear power plants starting 1957-1981 (the same counties in the NCI study). About 25 million people live in these 67 counties, and the 51 plants represent nearly half of the U.S. total).

Using mortality statistics from the U.S. Centers for Disease Control and Prevention, Mangano and Sherman found that in 1985-2004, the change in local child leukemia mortality (vs. the U.S.) compared to the earliest years of reactor operations were:

Leukemia

Linked To Low-Level

Radiation

Leukemia linked to low-level radiation

■ Studies of children exposed to Chernobyl fallout while in the womb show elevated levels of the cancer.

Associated Press

NEW YORK - For the first time, researchers have detected elevated leukemia rates among children exposed in the womb to fallout from the Chernobyl nuclear disaster, raising disturbing questions about the effects of everyday, low-level radiation on early pregnancy.

Infant leukemia rates more than doubled among Greek children who were exposed to the nuclear power plant's fallout while in the early stages of pregnancy, according to a study released Thursday.

The radiation exposure in Greece was only up to five times higher than what Greeks normally would have received in the year after the accident.

That suggested to the researchers that even the low levels of radiation people are exposed to every day - much of it naturally occurring in food, water and the air - also could contribute to cancer. There are trace amounts of radioactive elements everywhere.

"This is going to create a lot of objections from people who think there is an overanxiety over low levels of exposure," said one of the authors, Dimitrios Trichopoulos of the Harvard Center for Cancer Prevention in Boston.

The study, published in the journal *Nature*, is the first indication leukemia rates might have increased in areas affected by the Chernobyl fallout. Other studies have found elevated rates of thyroid cancer among children.

The researchers collected information on 1.3 million children born in Greece during the 1980s. Among those born in the months after Chernobyl, the researchers found, children in parts of Greece exposed to the fallout were 2.6 times more likely to suffer from leukemia than their unexposed counterparts.

Radiation exposure in Greece was much lower than in regions closer to the accident, which occurred near the Ukrainian city of Kiev.

In Europe overall, about one in 2,000 children develops leukemia by the age of 15. The cancer, which affects the tissues that generate blood cells in the bone marrow and lymph system, is fatal for about three out of four infants who get the disease.

Among epidemiologists, the dangers of low radiation doses from such sources as X-rays and natural radon gas are greatly disputed.

Some researchers point out that there is little direct information about low doses, because the health effects of radiation largely have been studied among populations exposed to high levels, such as survivors of the Hiroshima and Nagasaki atomic bombs.

The study detected additional leukemia cases by looking not just at who was exposed to Chernobyl's radiation, but when. Babies conceived after the fallout had dissipated had no increased incidence of leukemia. Neither did children who were exposed as infants or during the last stages of pregnancy.

Only infants who were exposed during the early stages of fetal development suffered leukemia at increased levels, the study found.

Based on that finding, the researchers suggested the radiation may have caused genetic damage during the critical early stages of pregnancy that led to the leukemia.

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ABSTRACT

Editorial Review Board

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Commentary by Steve Wing, PhD and Carl Sky, MD, Dr. PH, University of North Carolina School of Public Health. It is well known that ionizing radiation can cause cancer, especially leukemia, thyroid, lung and breast cancer, in heavily exposed persons. But in this study, workers at the Oak Ridge National Laboratory were not highly exposed; their average exposures were hardly above usual background levels of ionizing radiation. The death rates of these workers for cancers and for all causes combined was below the national average. However, their leukemia death rate was slightly elevated (63% above average); this finding is significant because leukemia is one of the sentinel cancers caused by ionizing radiation. Of greater significance is that workers who were exposed to slightly greater levels of ionizing radiation showed higher death rates from all cancers combined as well as from leukemia compared to less exposed workers and the risk of cancer increased with the amount of radiation received at the work place. Furthermore, the radiation induced cancers did not appear until 35 years or more after the laboratory was first opened suggesting that there is a long delay between first exposures to low level radiation and the manifestation of excess cancer deaths.

Can these results be directly applied to ionizing radiation from medical x-rays or to workers in the nuclear power industry? The simplest answer is: possibly, but we don't know. Some workers at the Oak Ridge National Laboratory were simultaneously exposed to other cancer risk factors, such as tobacco smoking, alcohol, chemical solvents and reagents, sunlight, and some components of diet. Their life style, living standards and work experiences differ from those of other population groups exposed to ionizing radiation. Although our analysis controlled for some of these variables to the extent that there was information about other cancer risk factors, any epidemiological study of prolonged low level radiation is subject to uncertainties, due to lack of complete information on all relevant factors and to problems in measuring exposure to radiation itself. Until these results are confirmed in other studies of workers exposed to prolonged low level radiation, we cannot answer the question about the direct applicability of these results to other exposed persons. However, this study, along with other evidence, opens to question the existing standards for occupational exposure to ionizing radiation, since out of 88,000 annual dose readings for workers at the Laboratory, only 135 ever exceeded the present occupational standard.

The emergence in this study of a pattern of increasing cancer death rates with increasing low level radiation exposure, the stronger association with radiation received decades ago than with recent doses, the specificity of the association with cancer rather than with other causes of death and the observation of an overall excess of leukemia deaths compared with the general population, all are consistent with a real low dose radiation effect. This raises concern that our results may be applicable to other populations exposed to low level radiation. It is crucial that epidemiological studies of other occupationally exposed populations be conducted to address the ultimate implications of this study.

UNINTENDED HUMAN EXPERIMENT

BREAST CANCER DEATHS

WOMEN OVER 65 - 1980-1997 THREE YEAR MOVING AVERAGE

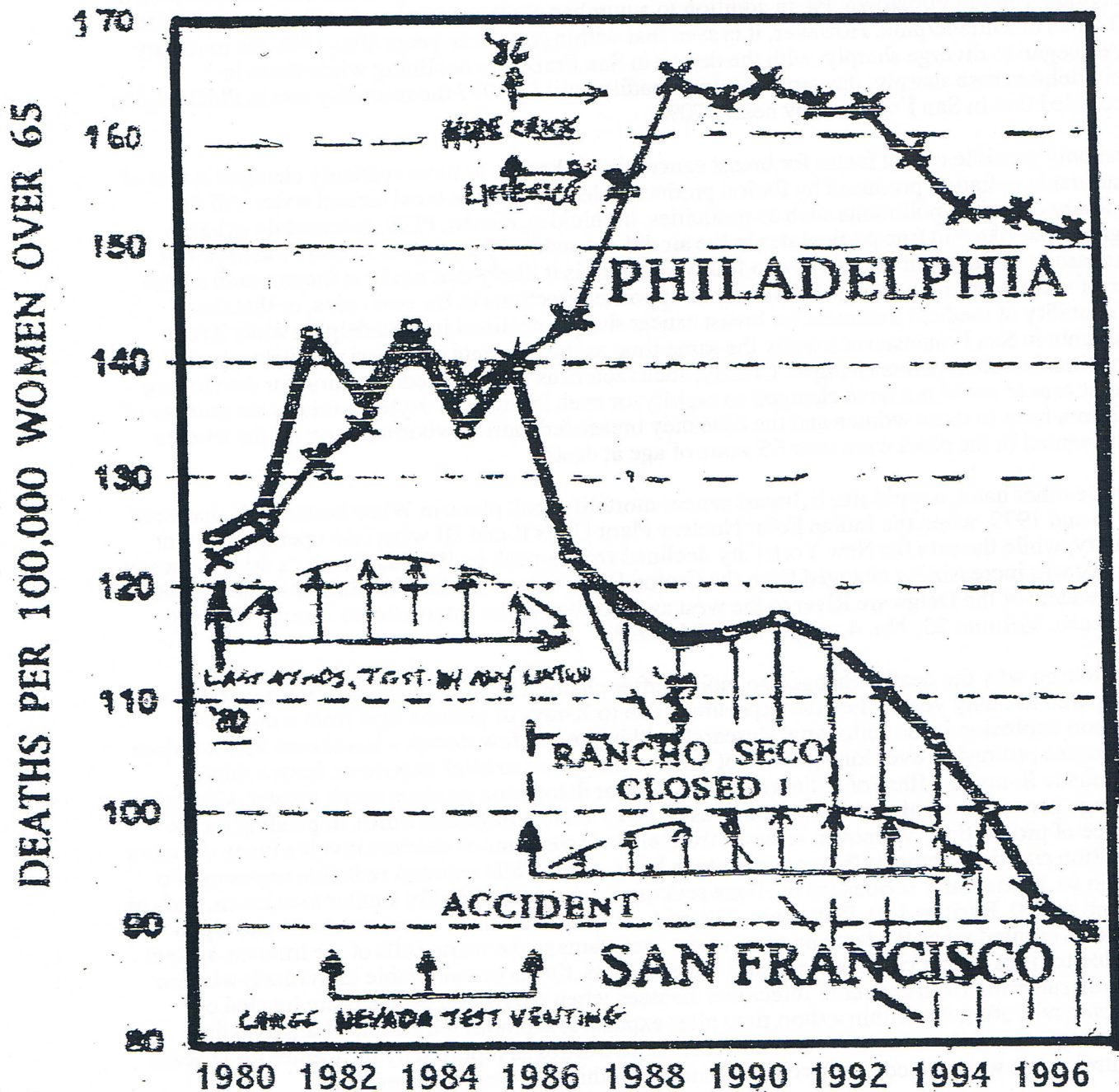
During The Same Time Period:

Rancho Seco Nuclear Power Plant (San Francisco) Closed And

BREAST CANCER RATES WENT DOWN

Limerick Nuclear Power Plant (Philadelphia) Opened And

BREAST CANCER RATES WENT UP

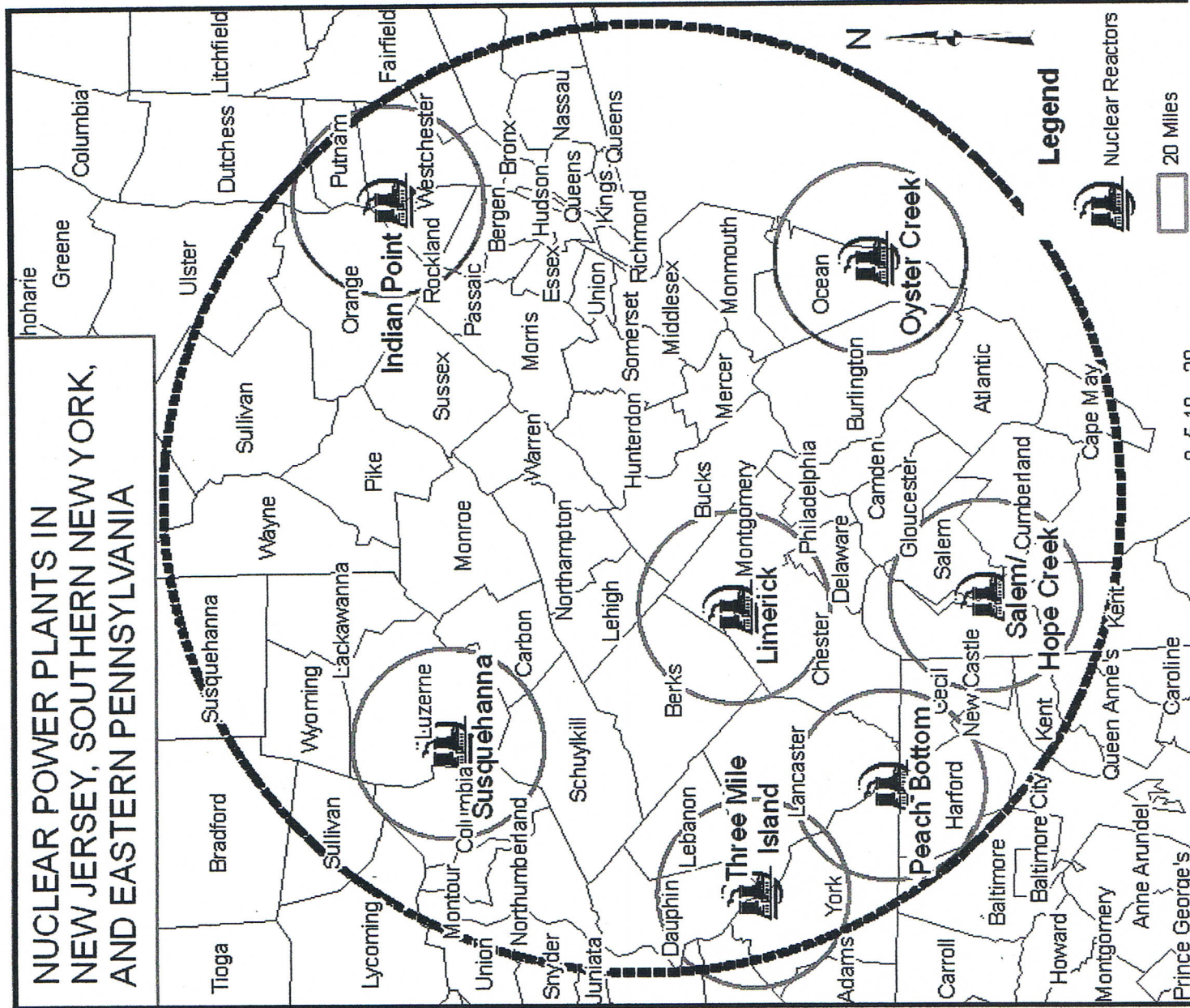


NUCLEAR POWER PLANTS IN NEW JERSEY, SOUTHERN NEW YORK, AND EASTERN PENNSYLVANIA

THYROID CANCER CLUSTERS

Near Nuclear Reactors

Including Limerick Nuclear Power Plant



THYROID CANCER

In Montgomery County

Soared Since Limerick Nuclear Plant Started Operating

1998, 1999, 2000 – Thyroid Cancer Rate Was About

75% Higher Than U.S. Rate (Also Rising)

128% Thyroid Cancer Increase

1985-86 to 1996-97

THYROID CANCER

Incidence Rates

U.S. 1980 - 2006 154.7 % Increase

PA 2001-2005 Highest State In U.S.

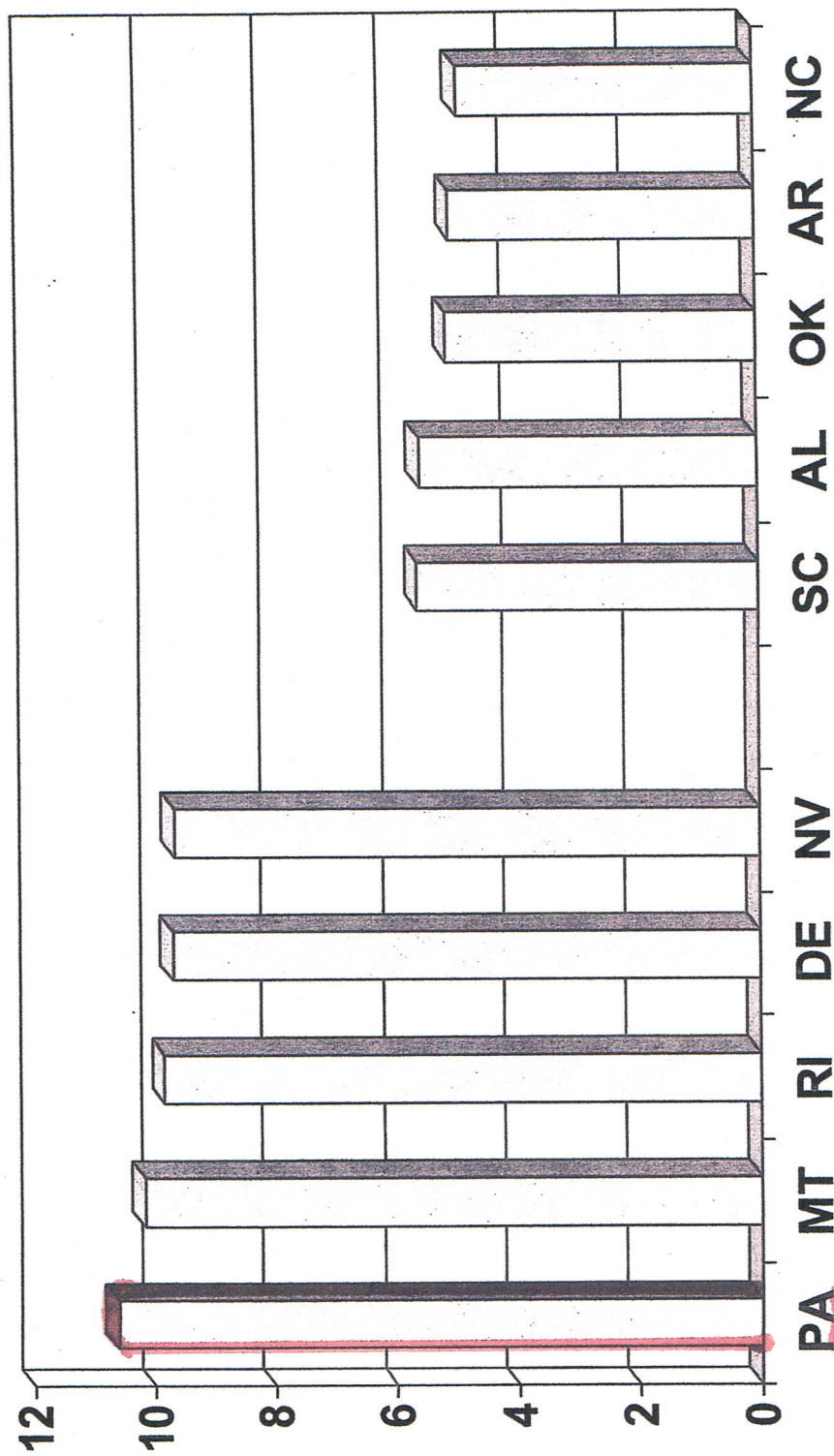
**Montgomery County Home of Limerick
56.2 % Higher THAN U.S.**

**Chester County Borders Limerick
53.9 % Higher THAN U.S.**

Thyroid Cancer – State Comparisons

1999 – 2002

PA Highest In US

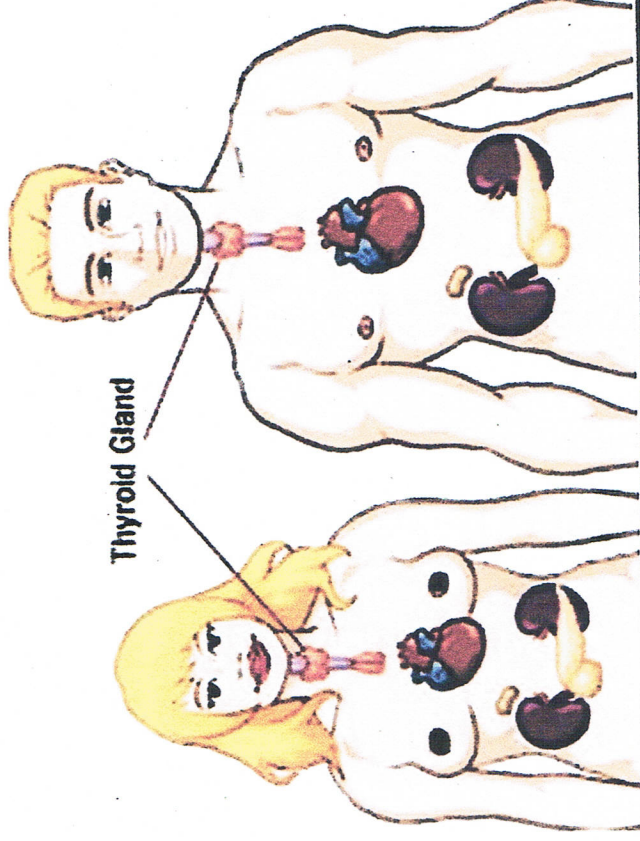


Hormonal Imbalance - Male And Female

By Zhang Bing

Thyroid Function

Hormone Imbalance



**Damage To The Thyroid Gland
Leads To Hormonal Imbalance**

Samuel S. Epstein

Cancer prevention expert, professor emeritus at U. of IL School of Public Health, Chicago

Posted: August 4, 2009 02:02 PM

Nuclear Power Causes Cancer: What Industry Doesn't Want You To Know

Nuclear power, frequently mentioned as one option for meeting future energy needs, would pose a health threat to Americans if a meltdown occurred. But despite meltdowns at Chernobyl and Three Mile Island, and many other near-miss accidents, there is another dirty little secret the nuclear industry doesn't want you to know. Cancer risk from nuclear plants aren't just *potential* risks, they are *actual* risks.

Every day, reactors must routinely release a portion of radioactive chemicals into local air and water -- the same chemicals found in atomic bomb tests. They enter human bodies through breathing and the food chain. Federal law obligates nuclear companies to measure these emissions and the amounts that end up in air, water, and food, and to report them to federal regulators.

However, nuclear advocates consistently claim that these releases are below federally-permitted limits, and thus are harmless. But this thinking is a leap that ignores hard evidence from scientific studies. Now, after half a century of a large-scale experiment with nuclear power, the verdict is in: nuclear reactors cause cancer.

The claim that low doses of radiation are harmless has always been just a claim. It led to practices like routine diagnostic X-rays to the pelvis of pregnant women, until the work of the University of Oxford's Dr. Alice Stewart found that these X-rays doubled the chance that the fetus would die of cancer as a child. Many studies later, independent experts agreed that no dose is safe. A 2005 report by a blue-ribbon panel of the National Academy of Sciences reviewed hundreds of scientific articles, and concluded that there is no risk-free dose of radiation.

Federal health officials, who should be responsible for tracking cancer near nuclear reactors and analyzing their nuclear contaminants, have ignored the dangers. The only national analysis of the topic was a 1990 study mandated by Senator Edward Kennedy, and conducted by the National Cancer Institute. But this study was biased before it even got started. A January 28, 1988 letter to Senator Kennedy from National Institutes of Health Director Dr. James Wyngaarden brazenly declared "The most serious impact of the Three Mile Island accident that can be identified with certainty is mental stress to those living near the plant, particularly pregnant women and families with teenagers and young children." Not surprisingly, the study concluded there was no evidence of high cancer rates near reactors. No updated study has since been conducted by federal officials.

With government on the sidelines, it has been up to independent researchers -- publishing results in medical and scientific journals, to generate the needed evidence. Studies were limited until the 1990s, but the few publications consistently documented high local cancer rates near reactors. Dr. Richard Clapp of Boston University found high leukemia rates near the Pilgrim plant in Massachusetts. Colorado health official Dr. Carl Johnson documented high child cancer rates near the San Onofre plant in California.

Columbia University researchers showed that cancer cases within a 10 mile radius of the Three Mile Island plant soared 64% in the first five years after the 1979 meltdown. Following the federal government's party line, they claimed that "stress" rather than radiation caused this increase. But the cat was out of the bag. Dr. Steven Wing of the University of North Carolina published a paper using the same data confirming the radiation-cancer link.

Joseph Mangano, MPH, MBA, Executive Director of the Radiation and Public Health Project, has authored 23 scientific articles since the mid-1990s documenting high local cancer rates near nukes. One study showed child cancer exceeded the national rate near 14 of 14 plants in the eastern U.S. Another showed that when U.S. nuclear plants closed, local infant deaths and child cancer cases plunged immediately after shutdown.

Other publications by Mangano have shown rising levels of radioactive Strontium-90, emitted by reactors, in baby teeth of children living near reactors, which were closely linked with trends in childhood cancer rates.

The young aren't the only ones affected by reactor emissions. New evidence has examined adult rates of thyroid cancer, a disease especially sensitive to radiation. Thyroid is the fastest-rising cancer in the U.S., nearly tripling since

1980. This evidence proves that most U.S. counties with the highest thyroid cancer rates are within a 90-mile radius covering eastern Pennsylvania, New Jersey, and southern New York. This area has 16 nuclear reactors (13 still in operation) at 7 plants, the densest concentration of reactors in the U.S.

A November 2007 article on U.S. child leukemia deaths updated the 1990 National Cancer Institute study and showed local rates rose as nuclear plants aged -- except near plants that shut down.

A nationwide study of current cancer rates near nukes is sorely needed. In May this year, the U.S. Nuclear Regulatory Commission (NRC) quietly announced it was commissioning an update of the 1990 National Cancer study. This sounds like a positive step. However, the NRC has long been a harsh critic of any suggestion that reactors cause cancer. This is not surprising, since the Commission receives 90% of its funds from nuclear companies that operate reactors.

Rather than ask for competitive bids for the cancer study, the NRC simply handed the job to the Oak Ridge Institute for Science and Education. Oak Ridge is an Energy Department contractor in the city that has operated a nuclear weapons plant for over half a century. The "Institute" is merely a front for pro-nuclear forces. It has no record of publishing scientific articles on cancer rates near reactors. The whitewash is on.

Several steps must be taken urgently. President Obama, who will appoint replacements for 2 of the 5 NRC commissioners later this year, should select independent members -- not the yes men for the nuclear industry who have run the NRC for so many years. The NRC should bow out of the cancer study. Finally, Congress should appropriate funds supporting a truly independent study on cancer rates near U.S. reactors. The American public deserves to know just what these machines have done to them, so that future energy policies will better protect public health.

Samuel S. Epstein, M.D. is professor emeritus of Environmental and Occupational Medicine at the University of Illinois at Chicago School of Public Health; Chairman of the Cancer Prevention Coalition; and author of over 200 scientific articles and 15 books on cancer, including the groundbreaking 1979 The Politics of Cancer, and the 2009 Toxic Beauty.

INFANT MORTALITY AND NEONATAL MORTALITY

**IN 2003, EPA REPORTED
(BASED ON STATE HEALTH DATA)**

"DISTURBING NUMBERS"

AROUND

LIMERICK NUCLEAR PLANT

"FAR ABOVE STATE AVERAGE"

NUMBERS EVEN SURPASSING PHILADELPHIA AND READING

- Mercury news started reporting on high infant mortality in the Pottstown region in 1997. October 5, 2003 EPA's report showed infant mortality rates in the area around Limerick remained far higher than the state average, and even higher than Philadelphia and Reading.
- Research links infant mortality to radiation exposure. Limerick Nuclear Plant has been routinely releasing radiation into the air and water since 1985. Limerick's radiation is contaminating soil, vegetation, food, and milk.
- Officials tried to blame high rates on lifestyle, but lifestyle alone cannot account for infant mortality that is far higher than in Philadelphia, Reading, or the state average.

Low-Level Radiation Exposure and Elevated Infant Mortality

Is There A Link In Pottstown?

- Hiroshima and Nagasaki data show children and infants are more sensitive to the effects of low levels of ionizing radiation.
- Data collected from Chernobyl show from monitoring stations as far as 9,000 miles away that infant mortality rates rose after the accident.
- Researchers suggest that EPA limits on exposures to low level radiation may need to be tightened by as much as a factor of 1000.
- Infant mortality rates rose after the rod meltdown in Savannah River, Georgia.
- Infant mortality rates also rose after the Three Mile Island accident where people received only low doses of radiation.

The cumulative weight of this data collected on affected populations is persuasive enough to call for PRECAUTION!

The Mercury

<http://www.pottstamc.com>

FEBRUARY 28, 1999

A PULITZER PRIZE-WINNING NEWSPAPER

POTTSTOWN

Too many baby deaths in Pottstown

"This is embarrassing. This county is too wealthy and too educated to have this happen. For a county this wealthy we need to do better."

—James W. Maza

By CARL HESSLER JR.
Mercury Staff Writer

NORRISTOWN — Despite health department efforts to curb infant deaths in Pottstown during the last several years, Pottstown continues to have a higher than average infant mortality rate.

And those babies born to black mothers are dying more often than babies born to white mothers.

"This is embarrassing. This county

is too wealthy and too educated to have this happen. For a county this wealthy we need to do better," Democratic commissioner James W. Maza said when confronted with infant mortality statistics.

According to statistics compiled by the Montgomery County Health Department, the Pottstown area averaged 7.9 infant deaths for every 1,000 live births between 1987 and 1988, the last year for which statistics are avail-

able. The Pottstown area includes Pottstown, Lower Pottsgrove, Upper Pottsgrove and West Pottsgrove.

Overall, the countywide infant mortality rate (deaths of children under age 1) during the same time period was 7.0. The white infant mortality rate countywide was 6.2 and the black infant mortality rate was 15.2.

The statistics indicated that in the Pottstown area, the white infant mortality rate was 6.8 deaths per 1,000.

live births between 1987 and 1988 while the black infant mortality rate was 16.1 per 1,000 live births.

Robert Gage, director of the county health department, said health officials have been working intensely since to try to decrease the infant mortality rates. The department has a program where public health nurses visit Pottstown area pregnant women to

(See INFANT MORTALITY on A3)

Borough's baby death rate fuels 'concern'

By CARL HESSLER JR.
Mercury Staff Writer

10/13/97

NORRISTOWN — Pottstown has a higher than average infant mortality rate and those babies under 1-year-old born to black mothers are dying more often than their white counterparts, according to Montgomery County health officials.

"It's mostly because of the socio-economic backgrounds and educational levels that (the infant mortality rate) is higher than average in Pottstown," said Anita Crielly, director of clinical services for the health department.

According to a child health needs assessment report released this month by the health department, between 1986 and

1995, Pottstown averaged 9.7 infant deaths for every 1,000 live births.

In comparison, there were 6.1 infant deaths for every 1,000 live births countywide in 1995.

Still, the infant mortality rate in Pottstown was better than that in Norristown, where 15.2 infants died for every 1,000 live births over the 10-year period between 1986 and 1995.

"It's causing us some concern. We have work to do in those areas," said Crielly, referring to the rates in Pottstown and Norristown.

While Pottstown and Norristown continue to have higher than average infant mortality rates, overall, infant mortality rates declined

countywide during the 10-year period — from 7.8 infant deaths per 1,000 live births in 1986 to 6.1 infant deaths per 1,000 live births in 1995.

Crielly said the county is below the federal health goal for infant mortality for the year 2000, which is seven deaths for every 1,000 live births.

"Overall, it looks like we are meeting the year 2000 objectives. But when you break it out by race, we found that the black race has a really high infant mortality rate," Crielly said.

In 1995, 18.4 black infants died for every 1,000 live births in the county. Granted, that

(See INFANTS on A4)

Borough's baby deaths are fueling 'concern'

(INFANTS from A1)

is a decrease from the all-time high rate of 25.4 black infant deaths per 1,000 live births in 1988, but still higher than the federal health goal of 11 deaths for every 1,000 live births by the year 2000, Crielly said.

In comparison, 5.1 white infants died for every 1,000 live births during 1986, according to the study.

Crielly said efforts to curb black infant mortality must intensify in the next few years if the county is going to meet the year 2000 goal.

Crielly said the mortality rates tend to be closely tied to low birth weight and a mother's access to proper prenatal care.

"We believe that a woman should be seen at least once by an obstetrician in her first trimester of pregnancy," Crielly said. "One of the most important things a woman can do to ensure good health outcome from a pregnancy is prenatal care."

Health officials said the year 2000 goal is to have at least 90 percent of all pregnant women receive prenatal care in the first three months of pregnancy.

The study found that 90.4 percent of new mothers in 1995 did initiate prenatal care in the first three months of pregnancy.

"But a lot of poorer women are not in contact with a doctor during the first three months," Crielly said.

Only 72 percent of new mothers in Pottstown receive prenatal care in the first three months and only 71 percent of new mothers in Norristown receive prenatal care, according to the study.

Once again, the racial breakdown produces disturbing statistics, Crielly said.

About 30 percent of new black mothers countywide delayed their prenatal care in 1995 while only about 10 percent of white mothers delayed their prenatal care in the first trimester.

Officials said women cite a lack

of transportation and a lack of insurance coverage as the major barriers to receiving timely prenatal care.

To reverse the trends, Crielly said health officials will focus their educational efforts toward minority women in the geographical areas, such as Pottstown and Norristown, where there are high infant mortality rates.

"We are going to have outreach workers going into the communities at welfare and WIC (Women and Infant Care) offices to provide information about prenatal care to pregnant women," Crielly said.

The women will be encouraged to sign up for prenatal care programs or the health department's home visiting program, under which the county's public health nurses visit the homes of low-in-

come women. The outreach workers can help women overcome such barriers as lack of transportation or day care services in order for them to obtain prenatal care.

Crielly said health department officials will also provide prenatal care information to pregnant women they meet while conducting lead poisoning screenings at homes in the county.

Health officials also plan to educate women about the dangers of tobacco and alcohol use during pregnancy. Smoking is closely associated with low birth weight and drug and alcohol abuse among pregnant women can lead to poor pregnancy outcomes, officials said.

Infant Death and Childhood Cancer Reductions

After Nuclear Plant Closings in the United States.

Archives of Environmental Health; 1/1/2002; McDonnell, William

Subsequent to 1987, 8 U.S. nuclear plants located at least 113 km from other reactors ceased operations. Strontium-90 levels in local milk declined sharply after closings, as did deaths among infants who had lived downwind and within 64 km of each plant. These reductions occurred during the first 2 yr that followed closing of the plants, were sustained for at least 6 yr, and were especially pronounced for birth defects. Trends in infant deaths in proximate areas not downwind, and more than 64 km from the closed plants, were not different from the national patterns. In proximate areas for which data were available, cancer incidence in children younger than 5 yr of age fell significantly after the shutdowns. Changes in health following nuclear reactor closings may help elucidate the relationship between low-dose radiation exposure and disease.

THERE IS A RELATIVE PAUCITY of research that documents the beneficial health effects to humans following a reduction in the level of **environmental toxins**. Existing data provide evidence for immediate responses, as well as for responses with longer latencies. Motor vehicle restrictions during the 1996 Summer Olympic Games resulted in a 28% drop in peak ozone concentration and a more than 40% reduction in asthma admissions/emergency room visits among Atlanta children. (1) The decline in smoking for U.S. adult males, from 52% in 1965 to 28% in 1990, (2) was not followed by a reduction in age-adjusted incidence of lung-bronchial cancers until 1984. (3)

Reduction of ionizing radiation in the environment, and hence in the food chain, occurred after enactment of the Partial Test Ban Treaty of 1963 that prohibited atmospheric atomic weapons testing by the United States, the (then) Soviet Union, and Great Britain. In the United States, dietary levels of short-lived isotopes, such as iodine-131 (I-131) and strontium-89 (Sr-89), with respective biological half-lives of 8 and 50 days, fell dramatically. Even concentrations of a long-lived isotope such as strontium-90 (half-life = 28.7 yr) in raw milk declined by one-half in 9 U.S. cities from the peak of April/May 1964 to November/December 1965. This decline, from an average of 30 to 15 picocuries per liter, fell further to 6 by 1970. (4,5)

Diminishing radioactivity levels in the diet were accompanied by immediate and significant morbidity and mortality reductions among infants and young children. U.S. infant deaths per 1,000 births fell from 24.7 to 19.1 from 1965 to 1971, respectively--a rate of decrease more than 4 times greater than for 1951-1965, (6) respectively. (Note: Atmospheric bomb testing in Nevada began in January 1951.) (7) Cancer incidence in children who were younger than 5 yr of age and who lived in Connecticut--the only U.S. state that operated a comprehensive tumor registry--dropped 30% from the 1962-1964 peak of 20.38 cases/100,000 to 14.21 by 1967-1969, following a 40% rise during the time of atmospheric bomb testing. (8)

Although most permanent shutdowns of nuclear power reactors are relatively recent, periods that follow unexpectedly large releases of airborne emissions offer an example of reduced **environmental** radioactivity. In the 1960s, declines in local infant mortality were documented after substantial reductions in gaseous emissions from several nuclear facilities. (9) In downwind areas within 64 km of 5 closed reactors, infant deaths declined at an unexpectedly rapid rate in the first 2 yr that followed closing. (10) We propose to extend that report by presenting data on all reactors for which post-shutdown data are currently available. Mortality 2 yr and 6 yr after reactor closings will be reviewed; the purpose of which will be assessment of whether immediate reductions are sustained over longer periods of time. Proximate areas that are not downwind from closed reactors and 64-129 km downwind will be examined. Finally, childhood cancer incidence trends near closed reactors will also be considered.

Method

EPA Said: Children Are More At Risk

March, 2003

EPA stated:

- **Fetuses and Children under two are at 10 times greater risk from cancer causing chemicals.**
- **Children 3 to 15 face a risk at least 3 times greater than adults.**

ACE Conclusions:

Routine radiation emissions from Limerick Nuclear Power Plant clearly have to be a major factor in the extraordinarily high rates of childhood cancer, far higher than the national, state, and tri-county averages in the six communities studied that are close to Limerick Nuclear Plant.

Radiation is one of the most potent carcinogens. The National Academy of Sciences in 2005 said there is no safe level of radiation exposure.

There are 100 to 200 radionuclides associated with producing nuclear power. Limerick routinely releases a broad range of radionuclides. Levels released into the air are not accurately measured. Not all radionuclides released are even known, much less reported.

Shocking elevated childhood cancer statistics close to Limerick Nuclear Plant are not surprising. When radiation is routinely released into the air and there is no safe level of exposure, it is easy to understand why children in communities close to Limerick Nuclear Plant have far higher cancer rates than the nation, state, and tri county.