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CONCERN THAT JAPAN RADIATION COULD HARM AMERICANS EMERGES
Medical Studies Suggest 1986 Chernobyl Fallout Posed Health Hazard to U.S. Young

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March 21, 2011 – Radiation released from stricken Japanese nuclear reactors now entering the U.S. environment and diet may pose a health risk to Americans, according to scientists who studied U.S. health patterns after the 1986 Chernobyl meltdown.

In particular, increased rates of disease and death could soon occur among fetuses and infants, as the radioactive plume now moving across the Pacific Ocean enters the American diet, similar to what occurred after Chernobyl.

"Chernobyl fallout reached the U.S. atmosphere just nine days after the meltdown, and entered the American diet," says Joseph Mangano MPH MBA. "Medical journal articles show American infants and children suffered from higher rates of infant deaths, leukemia, thyroid cancer, and under-active thyroid glands. Similar studies should be conducted in the U.S. to measure effects of radiation from Japan." Mangano is an epidemiologist, and Executive Director of the Radiation and Public Health Project (RPHP), a group of researchers who study radiation health risk.

Mangano asserts that any current declarations that elevated radiation levels in the U.S. environment and diet are "harmless" are premature. He cites the 2005 report of the blue ribbon Committee on the Biological Effects of Ionizing Radiation, which concludes that all radiation exposures, even low doses, carry risk. Mangano offers the following evidence that low doses of radioactive chemicals from Chernobyl entering the U.S. diet were soon followed by poorer health status among young Americans:

1. Fast-Decaying Radioactivity. For six weeks in May-June 1986, **the average level of radioactive Iodine-131 in U.S. milk was nearly six times greater than normal**, according to 563 measurements taken by the Environmental Protection Agency at 68 locations. I-131, which damages thyroid cells, decays quickly (half life 8 days). Boise ID and Spokane WA averages were 28 and 22 times above normal, as rainfall was greatest in the northwest. By July 1986, I-131 levels had returned to normal. (1)

2. Slow-Decaying Radioactivity. For the same six weeks in spring 1986, **the average level of radioactive Cesium-137 in U.S. milk was nearly four times greater than normal**, according to EPA data. Cs-137, which damages soft tissues, decays slowly (half life 30 years). The average in Seattle WA and Spokane WA was 15 and 11 times above normal. Cs-137 levels only returned to normal three years later. (2)

Radiation doses to Americans were well below the high doses to the European portion of the former Soviet Union, which had 132 to 379 times the amount taken up by Americans, depending on the type of radiation, according to an article in the journal *Science.* (3)

3. Infant Deaths. In the four months after Chernobyl, **the U.S. infant death rate rose 0.43% from the year before, vs. a decline of 4.22% for the rest of the year**. Thus, an "excess" of 593 U.S. infants of 12,800 died before age one. (4)

4. Infant Leukemia. A study published in the *British Medical Journal* showed that **the rate of leukemia diagnosed in U.S. infants was 30% higher** among babies born in 1986 and 1987, who were exposed to the highest levels of Chernobyl fallout in the critical fetal and infant periods, compared to other infants born in the 1980s. (5)

5. Newborn Hypothyroidism. In an article published in the journal *Lancet*, the 1986-1987 U.S. rate of hypothyroidism (under-active thyroid gland) among newborns was 8.3% greater than in 1984-1985. Again, infants born in 1986 and 1987 were exposed to the highest levels of Chernobyl fallout in the fetal period. **The greatest increase in newborn hypothyroidism occurred in the northwest states (23.3%), where levels of Chernobyl fallout in the diet were highest**. (6)

6. Child Thyroid Cancer. From 1985-89 to 1990-92, **thyroid cancer rose 94% in Connecticut children, from 1.6 to 3.1 cases per million**, according to a study published in the *British Medical Journal*. Connecticut has the most established cancer registry in the U.S. The increase occurred when child thyroid cancer rates in Belarus and the Ukraine soared, and while Connecticut thyroid cancer rates for all ages rose 25%. (7)

7. Total Deaths. Similar to infant deaths, the four months following Chernobyl saw a spike in total U.S. deaths for Americans of all ages. **In May-August 1986, the number of deaths increased 2.32% from the previous year, and rose only 0.26% for the rest of the year, translating into 13,549 "excess" deaths**. The study was published in the journal CHEMTECH. Most deaths occur in elderly persons, who also may have been affected by Chernobyl fallout. (8)

The New York-based RPHP studies health risks of nuclear reactor emissions. Its members have published 27 journal articles and 7 books, and conducted the only study of radiation in bodies of Americans near nuclear plants (Strontium-90 in 5,000 baby teeth).

REFERENCES

1. Iodine 131 concentrations in U.S. milk (I-131 has half life of 8 days)

Date	Stations/ Measurements		Average	Times vs. 1985
May 1 – June 30, 1985	55	103	**2.53**	---
May 13 – June 23, 1986	68	563	**14.15**	**5.6**
May 13 – June 23, 1986				
Boise ID	1	8	71.00	**28.1**
Spokane WA	1	9	56.44	**22.3**
Helena MT	1	10	33.30	13.2
Rapid City SD	1	10	31.90	12.6
Seattle WA	1	9	30.67	12.1
Salt Lake City UT	1	10	29.70	11.7
Portland OR	1	7	24.00	9.5

Source: Office of Radiation Programs. Environmental Radiation Data. Montgomery AL: U.S. Environmental Protection Agency, 1985 and 1986. Volumes 42 and 46. Averages are in picocuries of I-131 per liter of pasteurized milk.

2. Cesium 137 concentrations in U.S. milk (Cs-137 has half life of 30 years)

Date	Stations/ Measurements		Average	Times vs. 1985
May 1 – June 30, 1985	55	103	**2.63**	---
May 13 – June 23, 1986	68	563	**9.47**	**3.6**
May 13 – June 23, 1986				
Seattle WA	1	9	39.33	**15.0**
Spokane WA	1	9	29.44	**11.2**
Helena MT	1	10	22.50	8.6
Boise ID	1	8	21.38	8.2
Portland OR	1	7	21.14	8.0
May 1 – June 30, 1987	57	109	**6.28**	2.4
May 1 – June 30, 1988	55	105	**4.04**	0.5
May 1 – June 30, 1989	53	104	**2.02**	- 0.3

Source: Office of Radiation Programs. Environmental Radiation Data. Montgomery AL: U.S. Environmental Protection Agency, 1985 and 1986. Volumes 42, 46, 50, 54, and 58. Averages are in picocuries of Cs-137 per liter of pasteurized milk.

3. Uptake of Radiation from Chernobyl, U.S. vs. European Portion of the USSR

Cesium-137 deposition (grays)
USSR Europe 3.7×10^{16} (**132 x higher**)
United States 2.8×10^{14}

Collective 50 year total body ingestion dose (grays)
USSR Europe 3.2×10^{5} (**291x higher**)
United States 1.1×10^{3}

Individual 50 year external dose (grays)
USSR Europe 9.1×10^{-4} (**379 x higher**)
United States 2.4×10^{-6}

Source: Anspaugh LR, Catlin RJ, Goldman M. The Global Impact of the Chernobyl Reactor Accident. Science, Volume 242, December 16, 1988, pp. 1513-1518.

4. Changes in Infant Death Rates, U.S., 1985-1986

	Deaths < 1 Yr		Rate/1,000		% Change
Date	1985	1986	1985	1986	In Rate
May-August	12788	12800	9.85	9.90	+ **0.43**
Other 8 Mos.	27242	26091	11.04	10.58	**- 4.22**

Excess Deaths = Rate Change (Oth. 8 – May Aug.) x May-Aug 1986 Deaths = **593**

Source: Gould JM and Sternglass EJ. Low-level radiation and mortality. CHEMTECH, January 1989, pp. 18-21.

5. Changes in Infant Leukemia, U.S. (7 States and 5 Metropolitan Areas)

Birth Cohort	Leukemia Cases < 1 Yr	Live Births	Cases/ 1,000,000	% Excess
Exposed (1986, 1987)	62	1,462,631	42.4	**+29.7**
Unexposed (1980-85, 1988-90)	214	6.540,769	32.7	---

Source: Mangano J. Childhood leukaemia in US may have risen due to fallout from Chernobyl. British Medical Journal, Vol. 314, April 19, 1997, p. 1200. States include Connecticut, Hawaii, Iowa, New Mexico, New York, Utah, and Wisconsin; metropolitan areas include Atlanta, Denver, Detroit, San Francisco, and Seattle.

6. Changes in Newborn Hypothyroidism, U.S. (32 States)

	Hypothyroid Cases		Cases/100,000 Births		
Area	1984-85	1986-87	1984-85	1986-87	% Ch
Northwest (high fallout)	113	136	20.84	25.69	**+23.3**
Southeast (low fallout)	200	204	16.03	15.87	**- 1.0**
U.S. (32 States)	1029	1140	20.47	22.16	+ 8.3

Source: Mangano J. Chernobyl and hypothyroidism. Lancet, Vol. 347, May 25, 1996, pp. 1482-1483. Includes 32 states with mandatory screening programs for hypothyroidism in newborns, representing 68% of all U.S. births.

7. Changes in Thyroid Cancer Incidence Age 0-14, Connecticut

	Thyroid Cancer Cases		Cases/100,000 Pop.		
Area	1985-89	1990-92	1985-89	1990-92	% Ch
Connecticut	5	6	1.6	3.1	**+93.8**

Source: Reid W. and Mangano J. Thyroid cancer in the United States since the accident at Chernobyl. British Medical Journal, Vol. 311, August 19, 1995. p. 511.

8. Changes in Total Deaths, U.S., 1985-1986

	Total U.S. Deaths		
Date	1985	1986	% Change
May-August	657,311	672,569	+ **2.32**
Other 8 Mos.	1,432,067	1,435,815	+ **0.26**

Excess Deaths = Deaths (Oth. 8 – May Aug.) x May-Aug 1986 Deaths = **13,549**

Source: Gould JM and Sternglass EJ. Low-level radiation and mortality. CHEMTECH, January 1989, pp. 18-21.