

ANALYSIS OF CANCER RISKS IN POPULATIONS NEAR NUCLEAR FACILITIES: PHASE 2 PILOT

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25th ANNUAL REGULATORY INFORMATION CONFERENCE

March 14, 2013

TOPICS TO BE ADDRESSED

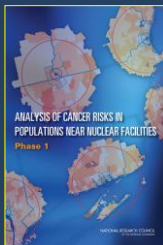
- Study request and phasing
- Scientific challenges
- Phase 1 recommendations
- Phase 2 pilot statement of task
- Phase 2 pilot schedule
- Closing comment

STUDY REQUEST AND PHASING

The U.S. Nuclear Regulatory Commission (NRC) requested that the National Academy of Sciences (NAS) perform an assessment of cancer risks in populations near NRC-regulated nuclear facilities

NAS agreed to carry out an assessment in two phases:

- Phase 1: Epidemiology study design
- Phase 2: Assessment of cancer risks using recommended design



Download Phase 1 report at:
http://www.nap.edu/catalog.php?record_id=13388

Cancer in Populations Living Near Nuclear Facilities

A Survey of Mortality Nationwide and Incidence in Two States

Am. J. Cancer (1968), 36, 475-483. © The Mortality Press Ltd., 1968

Seymour Jablon, MA, Zdenek Hubec, ScD, John D. Boice, Jr. J. Cancer 128: 723-726 (2008) © 2007 Wiley-Liss, Inc.

Geographical variation in mortality from leukaemia and other cancers in England and Wales in relation to proximity to nuclear installations, 1969-78
P.J. Cook-Munatui¹, S.C. Darby¹, R. Doll¹, D. Forman¹, C. Horne¹, M.C. Pike² & T. Viney²

Leukaemia in young children living in the vicinity of German nuclear power plants
Peter Katuske¹, Claudia Sals, Renate Schütz-Rath, Sven Schüttdiel and Maria Blatte

Childhood leukemia around French nuclear power plants—The Gouvion study, 2002–2007
Ben D. Spycher,^{1,2} Martin Felber,¹ Marcel Zwahlen,¹ Martin Röösli,^{1,3} Nicolas X von der Weid,¹ & T. Viney²

Childhood cancer and nuclear power plants in Switzerland: a census-based cohort study
Ben D Spycher,^{1,2} Martin Felber,¹ Marcel Zwahlen,¹ Martin Röösli,^{1,3} Nicolas X von der Weid,¹ & T. Viney²

Cancer incidence in the vicinity of Finnish nuclear power plants: an emphasis on childhood leukemia
Sirpa Heinävaara - Salla Teikama - Kari Paanen - Pia K. Verkasalo - Päivi Kurtti - Anni Anttonen

Research on potential radiation risks in areas with nuclear power plants in Japan: leukaemia and malignant lymphoma mortality between 1972 and 1997 in 100 selected municipalities
Yoshiko Yoshida¹, Shigeharu², Kazuhiko Yamawaki³, Kazuo Fujimori⁴, Kazuo Ohshima⁵ and Yasuhiko Suzuki⁶

Monitoring of Possible Health Effects of Living in the Vicinity of Nuclear Sites in Belgium

SCIENTIFIC CHALLENGES

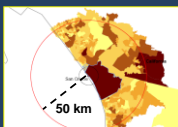
The NAS report from the Phase 1 study identified several scientific challenges for carrying out an assessment of cancer risks in populations near NRC-regulated nuclear facilities:

- Low expected statistical power
- Uneven availability and quality of cancer registration data
- Uneven availability and quality of data on nuclear facility effluent releases
- Inability to reliably capture information on population mobility, risk factors, and potential confounding factors

PHASE 1 RECOMMENDATIONS

Recommendation 1. Should the NRC decide to proceed with an epidemiology study of cancer risks in populations near nuclear facilities, the committee recommends that this investigation be carried out by conducting the following two studies, subject to the feasibility assessment described in Recommendation 2:

- Ecologic study of multiple cancer types in populations living near nuclear facilities
- Record-linkage based case-control study of cancers in children born near nuclear facilities

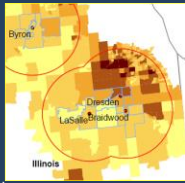


Absorbed doses to individual organs should be estimated for those living/born within approximately 50 km of nuclear facilities.

Recommendation 2. A pilot study should be carried out to assess the feasibility of the committee-recommended dose assessment and epidemiology studies and to estimate the required time and resources.

Recommended Pilot Study Plants

- Dresden, Illinois (BWR, 1959 –)
- Oyster Creek, New Jersey (BWR, 1969 –)
- Millstone, Connecticut (PWR, 1970 –)
- San Onofre, California (PWR, 1967 –)
- Big Rock Point, Michigan (BWR, 1962 – 1997)
- Haddam Neck, Connecticut (PWR, 1968 – 1996)
- Nuclear Fuel Services, Tennessee (Fuel fabrication, 1957 –)



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Recommendation 3. The epidemiology studies should include processes for involving and communicating with stakeholders. A plan for stakeholder engagement should be developed prior to the initiation of data gathering and analysis for these studies.

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NRC NEWS

U.S. NUCLEAR REGULATORY COMMISSION
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No. 12-117

October 23, 2012

NRC SPONSORING NATIONAL ACADEMY OF SCIENCES EFFORT TO CARRY OUT PILOT OF CANCER RISK STUDY

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PHASE 2 PILOT STATEMENT OF TASK

The pilot study will focus on the five activities described below:

- Obtain and digitize effluent release and meteorology data
- Estimate absorbed doses to individual organs
- Obtain cancer incidence and mortality data
- Link birth registration and cancer incidence
- Develop processes for communicating with the public

NAS will prepare a report regarding the scientific feasibility of carrying out an assessment of cancer risks

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PHASE 2 PILOT SCHEDULE

The pilot study will be carried out in two steps:

Planning Step

Focus: Assess availability of effluent data, registration data, and dose models; develop cost and time estimates

- Start date (tentative): April 2013
- Duration: 12 months

Execution Step

- Focus: Obtain data and perform analyses specified in the pilot statement of task
- Start date and duration: To be determined

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Closing Comment: Why did NAS agree to carry out Phase 2 pilot study in view of the technical challenges?

- The Phase 1 committee recommended two science-based study designs for the Phase 2 pilot
- NRC made a policy decision to proceed with the Phase 2 pilot
- There was strong support for the Phase 2 pilot from members of the public who live near some NRC-regulated nuclear plants
- The Phase 2 pilot could provide useful information for informing the public about cancer risks in populations near nuclear plants

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QUESTIONS, COMMENTS, OR SUGGESTIONS?

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