ANALYSIS OF CANCER RISKS IN POPULATIONS NEAR NUCLEAR FACILITIES: PHASE 1

John Burris, Committee Chair

Forth Committee Meeting
Irvine, California
July 21, 2011
STUDY REQUEST

• U.S.NRC approached NAS to update the 1990 NCI study
  ✣ ecologic study with mortality as endpoint
  ✣ no data on exposures
  ✣ Included only facilities that were operational as of 1982

• NAS agreed to carry out a two-phase study
  ✣ Phase 1: Scoping study to identify scientifically sound approaches for carrying out the cancer risk assessment
  ✣ Phase 2: Cancer risk assessment informed by Phase 1 results
STATEMENT OF TASK (1)

1. Methodological approaches for assessing off-site radiation dose, including consideration of:
   • Pathways, receptors, and source terms
   • Availability, completeness, and quality of information on gaseous and liquid radioactive releases and direct radiation exposure from nuclear facilities
   • Approaches for overcoming potential methodological limitations arising from the variability in radioactive releases over time and other confounding factors
   • Approaches for characterizing and communicating uncertainties
STATEMENT OF TASK (2)

2. Methodological approaches for assessing cancer epidemiology, including consideration of:
   • Characteristics of the study populations (e.g., socioeconomic factors, all age groups, children only, and nuclear facility workers)
   • Geographic areas to use in the study (e.g. county, zip codes, census tracts, or annular rings around the facility at some nominal distances)
   • Cancer types and health outcomes of morbidity and mortality
STATEMENT OF TASK (3)

• Availability, completeness, and quality of cancer incidence and mortality data
• Different epidemiological study designs and statistical assessment methods (e.g., ecologic or case-control study designs)
• Approaches for overcoming potential methodological limitations arising from low statistical power, random clustering, changes in population characteristics over time, and other confounding factors
• Approaches for characterizing and communicating uncertainties
STUDY SCHEDULE

• Study approved by NAS: July 2010
• Provisional committee appointed: December 2010
• First committee meeting: February 24-25, 2011
• Final report released to U.S.NRC and public: December 31, 2011
• Sponsor and public comments on Phase 1 report: January-February 2012
COMMITTEE EXPERTISE

• Biostatistics
• Contaminant fate and transport
• Environmental exposure monitoring
• Epidemiology
• Public health and medicine
• Radiation dosimetry
• Radiobiology
• Social science/risk communication
• Toxicology
COMMITTEE MEMBERSHIP

John E. Burris, Chair, Burroughs Wellcome Fund
John C. Bailar, III, University of Chicago (retired)
Harold L. Beck, Environmental Measurements Laboratory (retired)
Andre Bouville, National Cancer Institute (retired)
Phaedra S. Corso, University of Georgia
Patricia J. Culligan, Columbia University
Paul M. DeLuca, Jr., University of Wisconsin
Raymond A. Guilmette, Lovelace Respiratory Research Institute
George M. Hornberger, Vanderbilt Institute for Energy and Environment
Margaret Karagas, Dartmouth University
Roger E. Kasperson, Clark University (retired)
James E. Klaunig, Indiana University
Timothy Mousseau, University of South Carolina
Sharon B. Murphy, University of Texas Health Science Center (retired)
Roy E. Shore, Radiation Effects Research Foundation
Daniel O. Stram, University of Southern California
Margot Tirmarche, Institute of Radiation Protection and Nuclear Safety
Lance Waller, Emory University
Gayle E. Woloschak, Northwestern University
Jeffrey J. Wong, California Environmental Protection Agency
WORK PLAN

Meeting # 1: Organizational meeting (Washington DC, February 24-25)

Meetings # 2 – 5: Regional meetings to

- obtain briefings from subject-matter experts
- solicit public input

#2 Chicago (April 18-19)
#3 Atlanta (May 23-24)
#4 Los Angeles (July 20-21)
#5 TBD (August 29-30)
QUESTIONS, COMMENTS OR SUGGESTIONS?

Please contact us:

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