

CANCER COMPENSATION CRITERIA FOR RADIATION WORKERS: USE OF THE
PROBABILITY OF CAUSATION APPROACH

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A need exists for methods to assess the contributions of carcinogenic agents, especially ionizing radiation, to the production of various types of cancer in man, on both an individual and population basis. Such methods are essential to the evaluations of risk to health that underlie important activities such as the setting of health protection standards and safety goals, and decisions on important matters including health research, the disposal of toxic wastes, and potential liability for compensation claims.

The use of attributable risk and probability of causation concepts for assessing workmen's compensation for cancer are reviewed and applied to radiation workers in U.S. nuclear power plants. Estimates of incidence for certain primary cancer sites in these workers are used to derive possible compensation costs for the period 1980 to 2045: these costs are shown to range from about 30 to 400 million U.S. dollars, depending primarily on the level of probability of causation above which compensation is paid, and on the compensation schedules selected. The probability of causation approach is shown to be quite sensitive to input parameter selection. Further, if the worker population is expanded to include those workers receiving occupational radiation exposure other than at nuclear power plants, the estimate of potential compensation liability overall would be larger, perhaps by a factor of 2 to 10.

Ultimately, the possible future liability for the nuclear industry will be determined largely by the level of probability established by law as the floor for compensation of cancer cases. Results from this study suggest that for the major cancers of interest, this floor should not deviate too far below the 50% probability of causation level, and that levels as low as 10% would be unjustified technically and would lead to gross public misunderstanding of the actual radiation risks involved. Of equal importance is the selection of the compensation schedules associated with these liability levels, because the combination of these two parameters primarily determine future compensation impact overall.