

A PMR and PCMR Analysis of Radiation and Mesothelioma in the United States Transuranium and Uranium Registries

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Objectives. This study examined the relationship between radiation and excess deaths from mesothelioma among former nuclear workers.

Methods. PMR and PCMR analysis was performed using the NIOSH Life Table Analysis System. Frequency analysis was performed utilizing SAS 9.1 software.

Results. A PMR of 62.40 ($p < 0.05$) and a PCMR of 46.92 ($p < 0.05$) were found for mesothelioma. PMRs for the four external cumulative external radiation dose quartiles were 61.83, 57.43, 74.46, and 83.31. PCMRs were 36.16, 47.07, 50.31, and 69.43. The PMR and PCMR for trachea, bronchus, and lung cancer were not significantly elevated.

Conclusions. The exposure response relationship between cumulative external radiation dose and the PMR and PCMR for mesothelioma suggest that external radiation at nuclear facilities is associated with an increased risk of mesothelioma. The lack of a significantly elevated PMR and PCMR for trachea, bronchus, and lung cancer suggests that asbestos did not confound this relationship.

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