

## **Linkage study of cancer risk among lead-exposed workers in New Jersey**

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**OBJECTIVES:** Epidemiologic studies have illustrated a possible association between occupational exposure to lead and cancer, specifically cancers of the kidney, lung, stomach, and nervous system. We performed a linkage between two New Jersey databases: the Adult Blood Lead Epidemiology and Surveillance System (ABLES) and the New Jersey State Cancer Registry (NJSCR) for 1985-2001 to ascertain the risk of cancer in lead-exposed workers and to evaluate the usefulness of this type of linkage.

**METHODS:** A cohort of 3192 men from the ABLES database met the selection criteria before the linkage. AUTOMATCH was used to link the two databases. Person-time was stratified for each worker by five-year age group and calendar year. A standardized incidence ratios (SIR) analysis was performed.

**RESULTS:** 83 cases of cancer were found among 3165 men after all exclusions were made. Workers were followed for an average of ten years and contributed 30,401 person-years. The SIR analysis showed a large overall deficit of cancer (SIR=0.51; 95% CI 0.41 to 0.62). Cancers of the stomach, breast, larynx, intrahepatic bile duct, and chronic myeloid leukemia were non-significantly elevated. Prostate cancer showed the only statistically significant result, a deficit with an SIR of 0.35 (95% CI 0.20 to 0.57). Deficits also occurred in cancers of the lung, kidney, and brain.

**CONCLUSIONS:** The results do not indicate that occupational exposure to lead is associated with cancer. However, firm conclusions are not possible because of various study limitations, including small numbers, a large percentage of workers without age information, short follow-up time, and lack of vital status information. Cancer incidence in this cohort was expected to be low due to the Healthy Worker Effect and young age. Further follow-up of this cohort may be warranted since additional cancers may accrue as time from first exposure increases. Increased worker cohort information would also improve this type of study.

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