

SKINJEM: A JOB EXPOSURE MATRIX FOR OCCUPATIONAL SKIN CANCER RISK

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Background and Aims: Estimating occupational exposure to skin carcinogens at a population level is challenging due to a lack of specific tools to do so. The objective of this project is to create a job exposure matrix for skin carcinogens (SkinJEM), flagging industries and jobs with high potential for exposure in Canada.

Methods: SkinJEM is a 2-dimensional matrix created with a standard coding system (n=520) on one axis and exposure categories on the other. Exposures were selected from the CAREX Canada database and IARC monographs. Jobs were flagged as exposed if $\geq 25\%$ of workers were likely to be exposed. SkinJEM also includes a flag for 'expert re-evaluation', where exposures in a job differ by industry, or where there is textual information available. For situations where exposure is more industry-based than occupationally (i.e. arsenic exposure in wood preservation plants), data lines have been added to reflect this. There is also an indicator of confidence for each job line.

Results: Eight compounds (solar, artificial, and ionizing radiation; PAHs, creosotes, mineral oil, coal-tars; arsenic) in 3 categories (radiation, petroleum-related, metals) were identified. All 520 unique 4-digit job codes were included in the matrix, in addition to all roll-ups to less specific codes (to accommodate varying data quality in epidemiologic studies). Of note, many jobs had expected exposure to several skin carcinogens, including welders in construction, roofers, medical staff in hospitals, and workers in utilities.

Conclusions: Many Canadian workers are potentially exposed to agents that are known to or suspected of causing skin cancer. Through SkinJEM, we have found that these carcinogens may be encountered together in some workplaces. Further research is required to assess the skin toxicity of chemical/radiation mixtures. Next steps will include linkages of SkinJEM to cancer registries to examine risk for melanoma from occupational exposure to skin carcinogens.