

Construction of job-exposure matrices for the Nordic countries

Timo Kauppinen^a, Pirjo Heikkilä^a, Nils Plato^b, Torill Woldbaek^c, Kaare Lenvik^c,
Johnni Hansen^d, Vidir Kristjansson^e, Eero Pukkala^f

^a Finnish Institute of Occupational Health, Helsinki, Finland

^b Karolinska Institute, Stockholm, Sweden

^c National Institute of Occupational Health, Oslo, Norway

^d Danish Cancer Society, Copenhagen, Denmark

^e Administration of Occupational Safety and Health, Reykjavik, Iceland

^f Finnish Cancer Registry, Helsinki, Finland

Background and aims: The Nordic Occupational Cancer study (NOCCA) is a cohort study based on working populations in one or more censuses in Denmark, Finland, Iceland, Norway and Sweden. The large size of the cohort allows us to study rare cancers and even small to moderate risks by occupation and by specific occupational exposures.

Methods: Job-exposure matrices (JEMs) were constructed on the basis of a Finnish matrix (FINJEM) for each Nordic country by a team of experts to assess exposures in the NOCCA study. The selection of priority agent-occupation combinations and the adoption of general principles in the beginning of the work were necessary because of the high number of estimates to be evaluated (over 50,000/country).

Results: The structure of NOCCA-JEMs is three-dimensional (over 300 occupations, 28 agents, 4 periods covering 1945-1995). Exposure is characterized by country-, occupation- agent- and period-specific estimates of the prevalence (%) and level of exposure. Significant exposure differences between the Nordic countries were observed for many exposures.

Discussion and conclusions: The selective modification of an existing JEM for use in other countries was a feasible albeit challenging task because exposure data from Nordic data bases and information about the use of chemicals in the past was scanty. It will increase the validity of dose-response and risk estimates of occupational cancer to be expected soon as the main outcome of the NOCCA project.

Keywords: Job-exposure matrix; Cancer; Epidemiology; Nordic countries