

A Surveillance System for Exposure to Occupational Factors Associated with Cancer in the Iranian Oil Industry

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Background: There are several risk factors related to the workplace that can cause cancer. Occupational cancer is completely preventable and interventions in the workplace can protect millions of lives per year. Occupational cancers are caused by exposure to carcinogens in the workplace. The main challenge in occupational cancer prevention is lack of knowledge about where carcinogenic exposures occur and how many workers are affected. Knowledge and identification of exposure to carcinogens in the workplace are needed for designing and implementing efficient prevention strategies and programs. Despite the existence of exposure databases in the workplace, including CAREX (CARcinogen EXposure) in Canada and Europe, there is no exposure database for occupational factors related to cancer in Iran. The aim of this study was to design a model and validate it through a pilot study.

Methods: For developing a sustained pragmatic model of exposure evaluation, we used comparative analysis through a systematic literature review based on the previous best practices and experiences. Some heuristic approaches completed the model. Dialogue methods to justify the conceptual model with current situation were used in negotiations with the HSE department of the oil industry. We used the routine data of exposure assessment from petrochemical industries of Shahzand (In Markazi Province) for validation of the conceptual model.

Results: The model has a qualitative assessment in the first part, which plays a screening role for occupational carcinogens; it then continues with quantitative evaluation of exposure in two steps: use of routine data of exposure measurement; creation of jobs-exposure matrix and

prioritizing risks of exposure to carcinogens.

The results of applying this model in a petrochemical complex showed that occupations related to repair and maintenance or workers with experience in these occupations, compared with other professions, have the highest level and diversity of exposure to occupational carcinogens.

Conclusion: The pattern designed in this study as a system of registration and care for exposure to occupational factors related to cancers, can be used to identify workers at high risk of exposure, set priorities for prevention, evaluate the effectiveness of rules and regulations to control exposures and the notifying epidemiological research.

It is necessary to have greater focus on highly exposed people in the measuring programs and quantitative exposure assessment, purposeful occupational examinations, and biological monitoring. This is a hot zone in cancer surveillance system.

Keywords: Surveillance System, Occupational Factors, Cancer, Risk Assessment.

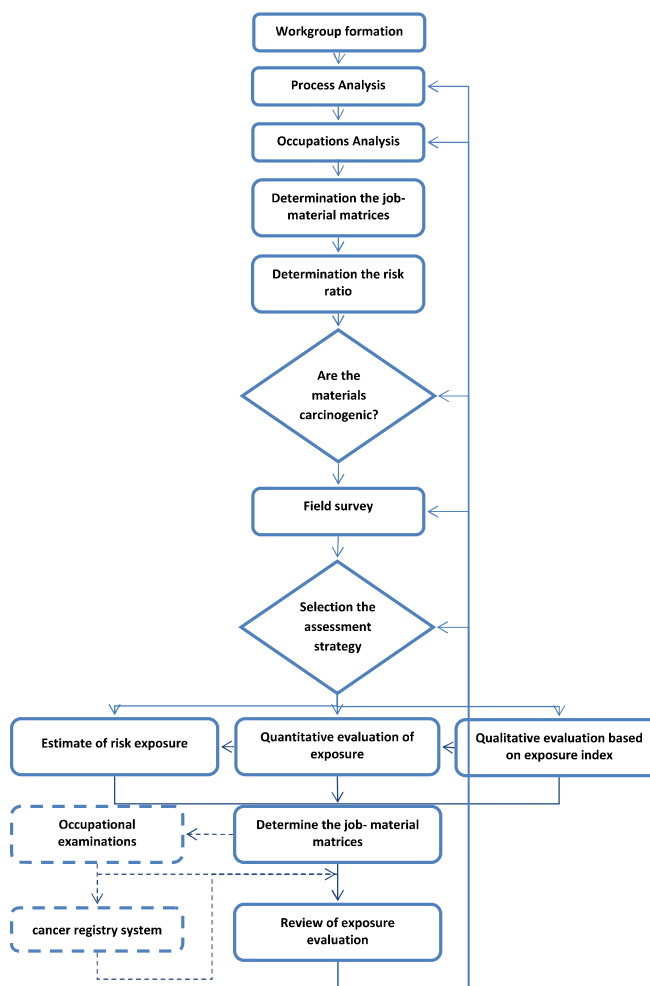


Fig1. A conceptual model of occupational cancer surveillance system in oil industry of Iran