

Occupational Risk Assessment

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A methodology and associated tools for supporting decisions relevant to the management of occupational risk have been developed in the ORCA (Occupational Risk Calculator) project. As part of the ORCA project a list of 63 generic hazards related to various aspects of worker's activities has been identified and the risk to Dutch workers from each of these hazards has been quantified. Quantification of risk requires in general two types of data: a) Number of accidents; b) Exposure of working population to the corresponding hazard. The number of reported accidents during the period 1998-2010 has been assessed from the analysis of the data base of the Dutch Labour Inspectorate (I-SZW), where work related serious accidents are reported under Dutch law. A survey of the Dutch working population performed in 2011, has provided the total time the worker population subject to the reportable system has spent working in activities involving each of the 63 hazards. Assuming that the occurrence of accidents follows a Poisson random process, the risk for each generic hazard has been assessed as a maximum likelihood approximation. Point estimates of the risks have been calculated using the average yearly exposure of the workers to each hazard. Risk has also been assessed for the several sectors such as industry and mining, agriculture and forestry, construction, trade and transportation and communication. A relative ranking of the 63 hazards on the basis of the risk of fatality, recoverable and permanent injury per working hour is provided for the specific sectors and for the overall working population. Risk assessment across sectors permits the estimation of the most risky ones for each hazard and therefore the introduction of specific safety measures for the needs of each sector.