

# Implementazione ed applicazione di un metodo ad indici per la valutazione del rischio da esposizione occupazionale ad agenti biologici in ambito ospedaliero

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## KEY WORDS

Biological risk; exposure assessment; health care workers

## SUMMARY

**«Implementation and application of an index method for assessment of occupational biological risk in a hospital setting».** **Background:** Over the last years several mathematical methods have been proposed by The Italian Society for Occupational Health and Industrial Hygiene (SIMLII) with the aim of assessing exposure to occupational risks. The current way of assessing biological risk is based on the widely used but poorly accurate formula  $R = P \times D$ . Use of more complex methods of assessment of exposure involves many problems due to: complexity and poor standardisation of micro-organisms concentration, ubiquitous diffusion of biological agents in the working environment, lack of dose-response curves, uncertainty about the existence of an effective infection threshold for many micro-organisms, etc. **Objectives:** In order to assess occupational exposure to biological risk in health care settings an index method was developed according to the Guidelines for health surveillance of health care workers drawn up by SIMLII. **Methods:** A check-list containing the features of the two main modes of transmission of infectious diseases (blood-borne and air-borne) was applied to the wards of Cuneo Hospital. The selected variables were combined, according to the different transmission modalities, into two mathematical models producing, for each of them, a numeric value of the degree of the risk. **Results and Conclusions:** The cut-off values chosen to separate both the final degrees of exposure by blood-borne (mild, medium and high) or by air-borne transmission (very low, very limited, limited, medium) were statistically different ( $P < 0.001$ ). The most important determinants of the differences found in the comparison between different exposure levels were: frequency of work manoeuvres at high risk of exposure and/or frequency of performance, building deficiencies, extent of application of the work and behaviour procedures, degree of training, number of occupational injuries, the occupation of physician, and, for the nursing category, duty in a medical ward. This index method seems to assure better results, both in terms of efficacy and appropriateness, compared to the methods previously used to assess biological exposure. The results justify the need for further investigation.