

## APPUNTI DI METODO

# Una proposta metodologica per la valutazione del rischio: l'esempio del 1,3-butadiene

C. ZOCCHETTI, ANGELA C. PESATORI\*, P.A. BERTAZZI\*

Osservatorio Epidemiologico e Sistemi di Remunerazione, Direzione Generale Sanità, Regione Lombardia, Milano

\* Dipartimento di Medicina del Lavoro "Clinica del Lavoro Luigi Devoto", Università degli Studi e Istituti Clinici di Perfezionamento, Milano

## KEY WORDS

Risk assessment; 1,3-butadiene; epidemiologic methods

## SUMMARY

**«A simple method for risk assessment and its application to 1,3-butadiene».** **Background:** *This paper presents a risk assessment exercise applied to 1,3-butadiene, a probable carcinogenic agent, in the context of the activity of the Scientific Committee on Occupational Exposure Limits (SCOEL) of the European Commission. Data on cumulative exposures and relative risks for leukaemia in humans were derived from the open literature.* **Methods:** *A variety of excess relative risk models were applied taking into consideration, in a life-table fashion, mortality from leukaemia by age.* **Results:** *As an example of the outcome of the method, results are presented for a 1 ppm exposure (each year) lasting for a working lifetime. They show that in a population of 1,000 adult males experiencing mortality rates similar to those of the 1981 male population of England and Wales, occupational exposure to 1 ppm of 1,3-butadiene for each year of a working life (40 years between the age of 20 and 65) will cause from 0 to 7.1 extra leukaemia deaths between the age 20-85 years, in addition to the 5.1 leukaemia deaths expected to occur in the absence of exposure to 1,3-butadiene. A summary of the estimates, in terms of excess leukaemia deaths, obtained for 0.1 ppm, 0.2 ppm, 0.5 ppm, 1.0 ppm, 2.0 ppm, 5.0 ppm, and 10 ppm of exposure (each year) is also presented.* **Conclusions:** *The method can be applied to predict the risk of carcinogenic agents for which dose-response data exist and no health-based limit value can be established. Results are consistent with those of previous risk assessments based on similar assumptions.*

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Corrispondenza: Carlo Zocchetti, Osservatorio Epidemiologico e Sistemi di Remunerazione, Direzione Generale Sanità, Regione Lombardia, Via Pola 9, 20124 Milano - Tel: +39 02 6765.3277 - Fax: +39 02 6765.3128

E-mail: Carlo\_Zocchetti@regione.lombardia.it