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Epidemiological approaches in the investigation of environment and health: The case of a steel industry and a textile plant

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Environmental epidemiological research involves the identification of relationships between exposure and biological effect. Such relationships are often hard to fully characterize. Advances in statistical methodology and availability of high-resolution, geographically referenced health and environmental quality data have created unprecedented new opportunities to investigate environmental and other factors in explaining local geographic variations in diseases. They also present new challenges. Potential biases and confounding and a detailed understanding of data quality are important. Our study focuses on the case of the Europe's biggest steel plant. We enrolled a cohort study of more than 300 thousand people. Socioeconomic status and residence were assigned on the basis of geocoded addresses. People living in the districts closest to steel plant had higher mortality/morbidity levels compared to other districts, also taking into account the socioeconomic position. A case-crossover study was performed to assess short-term health effect too. Major challenge in occupational epidemiology is to fill the gap of exposure and health information. We report an occupational cohort study on a textile plant based on the analysis of hospital discharge data of 984 workers. The findings revealed that overall mortality/morbidity observed were lower than expected, probably along of healthy worker effect. Traditional epidemiological studies are unsatisfactory in evaluating the etiological relationship between health and environmental or occupational exposure. In the future, developments in exposure modeling and mapping, enhanced study designs, advanced "omics" technologies and new methods of surveillance of large health databases promise to improve our ability to understand the complex relationships of environment to health.

Biography

Maria Triassi, Medicine Doctor, now is Full Professor of Hygiene and Public Health, Director of the Department of Public Health at the Medical School and President of the Course in Techniques and Prevention in the Workplace at the University Federico II of Naples, Italy. She is the Director of the School of Specialization in Hygiene and Preventive Medicine of the University Federico II, Director of different graduate Masters in Health Management and Coordinator of the Doctorate in Economics and Management of Health at the University Federico II and Chief of the Area of Hygiene in the Workplace since 25.11.1996 of "Federico II" University Hospital since January 1998.

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