

High Resolution Data to Estimate Effects of Pollution and Temperatures in Italy: The BEEP Project

A. Cernigliaro¹, M. Stafoggia², C. Gariazzo³, G. Viegi⁴, F. de' Donato², S. Scodotto¹, on behalf of the BEEP collaborative group.

1. Department of Health Activities and Epidemiological Observatory, Health Authority, Sicily Region, Italy
2. Department of Epidemiology, Lazio Regional Health Service / ASL Roma 1, Rome, Italy
3. INAIL, Department of Occupational & Environmental Medicine, Monteporzio Catone, Italy
4. Institute of Biomedicine and Molecular Immunology (CNR-IBIM), Palermo, Italy

INTRODUCTION

The BEEP (Big data in Environmental and occupational Epidemiology) project aims to estimate the health effects of several environmental risk factors on the Italian population at various levels, including the municipal one. Specific focus is being devoted to the risk of hospitalizations and mortality at the national level and within the major metropolitan areas and the risk of occupational injuries.

RESULTS

Particulate matter concentrations and mean air temperatures (1x1km) were estimated using satellite data, land use data and observed data from monitoring networks for the Italian domain for 10 years. The short-term effects of PM and air temperature on morbidity (nationwide) and mortality only in Sicily, Lazio, Puglia, Emilia Romagna and Piedmont, were assessed.

The preliminary results show: an increased risk of natural mortality, cardiovascular and respiratory hospitalizations in subjects exposed to PM, as well as higher effects in the older age on respiratory admissions in males. Associations were found also in the municipalities of medium and low level of urbanization; a non-linear relationship was found with increased risk of hospitalizations and mortality for high and low temperatures. Effects of heat and cold were observed for both cardiovascular and respiratory mortality. Further, an effect of heat was observed only on respiratory admissions whilst an effect of exposures to low temperatures on both cardiovascular and respiratory admissions. Larger effects of heat and cold were estimated in the elderly and in rural and urban municipalities. A larger risk of occupational accidents in the construction industry for hot temperatures and in the transport sector for cold temperatures were shown.

CONCLUSION

Results of the BEEP project provide innovative findings on the health risks of environmental exposures in both urban and rural settings throughout and provide decision makers with important information for the definition of prevention measures.

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Corresponding author: achille.cernigliaro@regione.sicilia.it

