Big data in Environmental and occupational EPidemiology (BEEP)

The main goal of the BEEP project was to estimate, through BIGDATA methodology, the health effects of air pollution, noise and temperature on the Italian general population. The project consisted of specific objectives focused on different spatial domains, from the whole nation to the urban micro-scale. The focus was on the risk of morbidity, hospitalization, mortality, and occupational injuries. The applied methodologies included: numerical model simulations (WRF-ARW and FARM model) and random forests models applied to satellite, environmental monitoring, land use and traffic flow data. Different types of regression models (Cox, Poisson, conditional and standard logistic) revealed that air pollution and extreme temperatures have both short-term and long-term effects on the health of the general population and in populations of workers, in particular in children and in the elderly, and in rural-suburban areas aside from metropolitan ones. The results provided important indications to public decision makers about air quality, urban environment planning, and protection of the health of the population.


Keywords: Air pollution; Big Data; Hospitalization; Morbidity; Mortality; Noise; Temperature

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