



Vulnerability to air pollution health effects

Nikolaos I. Stilianakis, Joint Research Centre (JRC), European Commission, Ispra (VA), Italy

Exposure to ambient air pollutants can have adverse effects on the health of exposed populations, but individuals or sub-populations are not equally vulnerable. Differences in vulnerability can be attributed to characteristics that affect exposure, biological susceptibility, and social capacity to manage risk. Thus, variability in the distribution of health effects in a population may be expected, both in terms of the risk of developing an effect and in terms of severity. Health effects or risk estimates that are expressed as total-population averages do not represent differences across vulnerable sub-populations. While the use of total-population risks is a valid approach for public health protection, it is increasingly recognized that more attention on vulnerable groups is necessary.

Information related to susceptibility, exposure and social-economic factors is employed to describe vulnerability to air pollution-associated health effects. Population characteristics and factors that contribute to vulnerability are discussed. Notably, for populations vulnerable largely due to susceptibility, exposure-related and social factors may have a significant role and can be more amenable to prevention. Developing a better understanding of population vulnerability can inform future research and policy measures to reduce health impacts of air pollution. -

