

VULNERABLE POPULATIONS: LESSONS LEARNT FROM THE SUMMER 2003 HEAT WAVES IN EUROPE

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What lessons can be learnt from the exceptionally long and severe heat wave experienced in Europe in 2003?

First, that these heat waves can be responsible for a dramatic excess mortality: certainly more than 50 000 excess deaths for Europe in August 2003. The consequences of the heat wave were probably underestimated in many countries, at least those based on the first estimates. This excess mortality affects vulnerable groups, particularly those who are old or ill. Identification of risk factors is a priority if the necessary prevention actions are to be implemented.

There is no doubt that age is one of the main risk factors, particularly for those over 75 or 80 years, but age-associated factors are also very important. Case-control studies carried out in France found that loss of autonomy and social isolation played a major role in the risk factors for the elderly, as did living directly below the roof of a building, in a heat island, particularly in cities.

These heat waves make us question the ways in which our societies are changing, and how we organise them. The main challenge for the future is the aging of the population, particularly the growing number of very old people, and how they live in our cities (in terms of housing and social integration) or in nursing homes (quality of healthcare and management).

The next few decades will be marked by the convergence of three events that will transform the exceptional circumstances of 2003 into a recurrent risk that must be considered as a priority in our health policies.

These three events are population trends, air pollution and global warming.

- Population trends: as life expectancy increases, there will be increasing numbers of highly vulnerable people aged 80 years and over. The 25th International Population Conference, held in July in Tours (France), reported the human population is aging worldwide and that the proportion of those aged over 60 will double in the next 30 years. This aging trend is most marked in industrialised countries, particularly in Europe.

- Air pollution played an undeniable role in 2003. The respective roles of temperature and ozone in the excess mortality are difficult to assess [1]. The relationship between ozone pollution and excess mortality was estimated to be between 3% and 85% in nine French towns [2]. The reason for this high heterogeneity between towns remains unclear, and demands further study.

- Analysis of long term meteorological trends carried out in recent years underlines that global warming is a reality, and that more heat waves are highly likely to occur in the future.

It will no longer be possible for us to exclaim surprise at these climatic events and their consequences. We must reinforce policies for forecast, alert and prevention.

Nowadays, most European countries have implemented surveillance and alert systems. None of these systems can predict the occurrence of these events with any certainty, and the expected consequences of these heat waves, in terms of duration, intensity and populations affected, are difficult to estimate precisely. In other words, the positive predictive value of an increase in temperature versus mortality is low when analysing the historical series of heat waves and mortality. It is difficult to choose the sensitivity of the alert threshold. If the biometeorological indicators chosen are too high, this could result in inappropriate identification of risks linked to less severe heat waves. We should not rely totally on any alert system, whatever its sophistication.

The objective of the alert system must be to set up strengthened action and prevention measures, based on sound advice for vulnerable populations. Nevertheless, the uncertainties about the efficiency of these actions, launched just before or during threat of a climatic event, highlight the need to consider the problem in depth, so that we can prevent future risks, independently from any alert system.

This is why it is important to analyse the determinants of excess mortality during heat waves.

It addresses our capacity to respond the needs of vulnerable persons: town planning needs to come up with solutions to reduce the effects of heat islands, and we ourselves need to strengthen social bonds with vulnerable people, particularly elderly and dependent people, and to improve the quality of the facilities and the skills of the staff who care for these people in hospitals and nursing homes.

Some may have fatalistically viewed the 2003 heat wave as a natural event whose effects were inescapable, but the epidemiological, environmental, and sociological study reveal the ways in which deficiencies in the care of these vulnerable populations and the lack of control in town planning increase the health risks linked to weather conditions.

Once again, surveillance programmes are invaluable for anticipating and managing those risks. A concerted action to deal with climatic risks at the European level is urgently needed.

References

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