

WHO PROGRAMME ON AIR QUALITY AND AIR POLLUTION EPIDEMIOLOGY

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RETROSPECT

The World Health Organization (WHO) has been active on air pollution control from the very beginning of its existence. Air quality issues picked up in importance in the early seventies. The first WHO publication on air quality criteria and guides for urban air pollutants was published in 1972 (1). The WHO Regional Office for Europe (WHO/EURO) started in 1971 the work on its manual on urban air quality management, which was published in 1976 (2).

In parallel an epidemiological study, started in 1972, was conducted on the effects of air pollution on school children, aged 8 to 10. A special protocol was developed for the study, as well as a questionnaire for parents and a clinical examinations form. The study was performed in collaboration with interested national institutes in Czechoslovakia, Denmark, Greece, the Netherlands, Poland, Romania, Spain, and Yugoslavia. The results from all the countries were statistically analysed by WHO. The report with the results was published in 1979 (3).

In 1975, WHO/EURO embarked on another long-term project dealing with ambient air pollutants from industrial sources. The work was completed in 1982, and the results, published in 1985 (4). A major part of this volume deals with health effects from nine major groups of air pollutants. With the initiative of the Netherlands and its generous financial support, WHO/EURO started in 1984 the preparation of air quality guidelines for some 28 major air pollutants. This volume was published in 1987 (5), and serves at present as a major source for health-related guidelines for air quality in Europe and other parts of the world.

WHO is executing for the United Nations Environment Programme (UNEP) some components of UNEP's programme on Global Environment Monitoring System (GEMS), including the component on air quality in urban areas. The resulting data have been published periodically starting with 1973. An intermediate review for the period 1973-1980 was published in 1984 (6). This project, however, lacks the analysis of the health impact. In 1983, WHO published guidelines on studies in environmental epidemiology (7), being one volume in a long series of environmental health criteria volumes discussing specific or groups of substances of concern to health, several of which are important air pollutants.

Two recent activities worth mentioning relate to the impact on human health of air pollution in Europe (8), being the first attempt to analyse this issue on a continent-wide basis. Closely related was a second study dealing specifically with risk to health from smog episodes (9). The major health-related issues identified in the analysis of the Europe-wide situation include summer- and winter-type smog due to petrochemical-type air pollution (i.e., hydrocarbons, nitrogen oxides and ozone), and

combustion products due to air pollution (i.e., sulfur oxides and suspended particulate matter), respectively. With respect to long-term multimedia exposure, some heavy metals (i.e., arsenic, cadmium, lead, and mercury), polycyclic aromatic hydrocarbons, polychlorinated biphenyls and dioxins were given special attention.

It is the intention of WHO/EURO to conduct in the near future major assessment studies for Europe related to various environmental parameters, with air pollution being a paramount part.

EPIDEMIOLOGICAL STUDIES

The need has been recognized for „multi-centre“ studies based on one similar working protocol to enable interstatistical analysis of the results. First, two categories of studies should be considered: hypothesis generating studies and hypothesis verifying studies. The first category would include ecological studies which may suggest evidence of attributable risk, e.g., for public exposure at air quality guideline levels or studies using small area statistics (SAS) techniques (i.e., using geographically indexed or coded public health data to relate residence to exposure at appropriate levels of geographic resolution). WHO/EURO has reached an agreement with each of two WHO collaborating centres (the Institute for Human Biology and Human Oncology, Turin, Italy, and the London School of Hygiene and Tropical Medicine) for a 4-year programme for the systematic development and implementation of such studies.

Secondly, in addition to the specific studies, WHO/EURO intends to develop a health and environment geographical information system (HEGIS), collecting public and environmental health information at the lowest level of aggregation. The sought data will be reported to WHO through local and national institutes and health authorities. So far, at least sixteen European countries have agreed to participate. The use of the HEGIS will demonstrate the degree of quality of the public health status. (This is very similar to the concerted action programme of the Commission of the European Communities on „unavoidable death“ risk maps in 360 districts within ten of their countries.)

Two recent WHO/EURO meetings have dealt with data requirements and methods for analysing spatial patterns of disease in small areas, and with the development of a health and environment geographical information system for the European Region. Detailed conclusions were made, and recommendations have been proposed for future action. The US National Institutes of Health, the US Environmental Protection Agency and the US Agency for Toxic Substances and Disease Registry have all agreed to cooperate on and provide funding

for the development of the entire WHO/EURO information system programme.

ACTIVITIES FOR CENTRAL AND EASTERN EUROPE

Great emphasis is being given by WHO/EURO to the development of work programmes and respective financial support for countries of central and eastern Europe (CCEE). Consequently, studies planned with the support of the Netherlands for Czech and Slovak Republics, Hungary and Poland, have a strong health element already built-in. These countries have already agreed to develop their national HEGIS programmes. The needed extrabudgetary (non-WHO) funds have already been approved for Czech and Slovak Republics and Poland, and a proposal has been submitted for activities in Hungary.

Matching studies on health outcome and related assessment of environmental health impact are necessary. Hence, cooperation is planned with the US National Institute of Environmental Health Services in North Carolina for joint studies on environment and health in CCEE.

Training in environmental epidemiology, including air pollution, is being planned. The two WHO collaborating centres (mentioned above) are responsible for the development of appropriate courses in the four CCEE countries mentioned. Moreover, an offer has been made by WHO/EURO to the new Environmental Protection Centre in Budapest for the provision

of information and resource development on HEGIS, and on techniques for environmental health epidemiology and the use of HEGIS.

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