



European Environment Agency



Fact sheet 02/2002

Copenhagen and Brussels, 15 April 2002

Main risks to children from exposure to environmental hazards

Asthma

Over the last few decades, asthma and allergies have become increasingly prevalent throughout the WHO European Region; almost every third child suffers from asthmatic symptoms in some areas. In western Europe, the symptom rate is more than tenfold higher than in eastern countries. In 1995/1996, the international study of asthma and allergies in childhood found an annual prevalence of self-reported asthma symptoms in children aged 13–14 years ranging from 32.2% in the United Kingdom to 2.6% in Albania. This suggests that a so-called western lifestyle is associated with aspects determining the manifestation of allergic diseases in childhood.

Environmental tobacco smoke and air pollution are among the major threats to respiratory health, especially early in life, and are likely to worsen asthma. A WHO study on air pollution in eight major Italian cities, published in June 2000, reports 30 000 asthma attacks a year in children younger than 15. Children living near roads with heavy traffic have double the risk of suffering respiratory problems than those living near less congested streets. Also exposed to loud noise, such children show impairments in the acquisition of reading skills, attention and problem-solving ability. Further, environmental tobacco smoke and maternal smoking during pregnancy increase children's risks of reduced birth weight, sudden infant death, respiratory infections, middle-ear disease and impairment of pulmonary function.

Injuries

Injuries kill 3–4 of every 10 children aged 1–14 who die in the European Region, but mortality rates from this cause vary widely between eastern and western countries. Driven mainly by drowning, poisoning, fires and falls, mortality rates are particularly high in the newly independent states of the former USSR: up to more than eight times the rates in western Europe.

Road-traffic accidents represent the primary cause of injuries in north-western Europe: one in three deaths from traffic accidents involves a person under 25 years of age. Every year, some 9000 children and young people under 19 die in traffic accidents and 355 000 are injured. These figures represent about 10% of all deaths and 15% of all injuries from traffic accidents. Traffic injuries sometimes result in permanent disability.

Neurodevelopmental disorders

Very early in life, the developing nervous system is particularly vulnerable to damage from exposure to particular contaminants, such as lead, methylmercury and polychlorinated biphenyls (PCBs). According to 1986 estimates by the United States Environmental Protection Agency, a child can absorb as much as 50% of the lead present in food, while an adult takes up only 10%. Exposure to such substances has been associated with developmental disabilities in the forms of

physical, cognitive, sensory and speech impairments, particularly including learning disabilities and mental retardation. Prevalence ranges up to about 10% in certain populations. When incurred early in life, such developmental effects are likely to be permanent and may therefore affect an individual's lifetime prospects for quality of life and social success.

Cancer

Cancer in childhood is rare and has potentially dramatic outcomes: in European countries, 1 out of 500 children is estimated to be diagnosed with cancer before the age of 15. Although the role of environmental exposure in childhood cancer is limited, children are more prone to biological events potentially related to the development of cancer (multistage carcinogenesis) because exposure to carcinogens during childhood can lead to cancer later in life, as in the case of excessive exposure to ultraviolet radiation causing melanoma.

Food- and waterborne diseases

Children under the age of 10 are among the groups most vulnerable to food- and waterborne diseases. The possible health consequences of exposure to pesticide residues and chemicals potentially present in the environment, food and water include immunological effects, endocrine disruption, neurotoxic disorders and cancer.

Data from the WHO surveillance system show that, in the WHO European Region, 36% of food- and waterborne diseases are acquired in private homes, while kindergarten and school canteens account for approximately 6%. In some eastern countries, the latter figure is much higher, reaching 74.2% between 1994 and 1998.

The political response

Establishing a causal link between environmental factors and harm to health often involves a degree of scientific uncertainty. Various international agreements recommend using the precautionary principle when dealing with new substances on which data that are sufficiently rigorous to permit evidence-based responses are not available and where there is a risk of severe and irreversible damage. As stated at the WHO Third Ministerial Conference on Environment and Health in 1999, the precautionary principle, along with exposure prevention, should be translated into environmental health policies targeting children's particular vulnerabilities.

There is an urgent need to evaluate and reduce children's exposure to environmental hazards, from conception right through to adolescence, taking account of their particular susceptibility and activity patterns. Children and infants cannot simply be regarded as little adults. This realization provides the rationale for specific policies to protect the fetus and the child from harm, and to promote healthy environments for them. "Policy-makers, as well as the scientific community, need to give priority to addressing children's particular vulnerability: involving the relevant communities and other stakeholders in the assessment process is important to ensure participatory decision-making," emphasizes Roberto Bertollini, Director, Division of Technical Support at the WHO Regional Office for Europe, "An adequate risk management process needs to follow a rational approach, including an estimation of available evidence and a comprehensive cost-benefit analysis of the various policy options."

Several international agencies, including WHO and the European Environment Agency (EEA), are working in this direction. This entails the establishment of a monitoring and reporting system for the whole European Region, based on key indicators that are relevant for all countries. These key indicators should be used to evaluate the impact of environmental policies on children's health, and improvements in their health should be one of the measures of the effectiveness of policies. The forthcoming WHO Fourth Ministerial Conference on Environment and Health, taking place in Budapest in 2004, will focus on the health of children and future generations in

the broader context of sustainable development: this will mark a further step in the work in progress represented by the WHO–EEA monograph *Children's health and environment: a review of evidence*. Scientists working in this area are invited to contribute their comments and suggestions to the discussion started by the monograph, in order to update it periodically and move towards a broad consensus among experts.

Health as a human right, equity and solidarity, participation and accountability, the right to know, sustainable development and the precautionary principle are the basic values and principles that should guide improvements in reporting and in policy support to develop healthy environments for our children.

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