

Environmental Threats to Children's Health: Research Needs and Future Directions for Central Asia to Reduce Exposure and Diseases in Children.

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While each region of the world faces unique public health challenges, environmental threats to children from the Middle East to Central Asia comprise a significant global public health challenge. Environmental threats to children's health are widespread, increasing as nations in the area undergo industrial development. Patterns of illness in children have changed dramatically in the last century, and will continue to change in this century. Major diseases confronting children are now chronic and disabling conditions: "the new pediatric morbidity"-- asthma, leukemia and brain cancer, neurodevelopmental and behavioral dysfunctions. Chemical toxicants in the environment, poverty, and little or no access to health care are all factors contributing to life-threatening pediatric diseases. Children are uniquely vulnerable to toxicants because of their disproportionately heavy exposures and their rapid biological growth and development, contributing to the etiologies of many diseases of childhood.

It is a truism that the major predictor of ill health is poverty. This reasoning stems from the fact that poor people are the least able to obtain uncontaminated water and food, receive immunizations and quality health care, and access the information necessary to avoid factors that cause sickness. Poor children are most at risk for environmental quality problems. They are the most vulnerable and disenfranchised segment of any society. Environmental hazards in conjunction with social stress, malnutrition, and in some instances, war, pose insurmountable barriers to a child's normal development.

It is vital that we develop a better understanding of the mechanisms and interactions between nutrition, infectious disease, environmental exposures, and genetic predisposition in order to develop better prevention methods. Further, there is a need to obtain better and more coordinated local and global data collection on environmental exposures in children and to relate these exposures to disease outcomes. It would be of great benefit to develop a global, strategic, epidemiologic effort to understand the relationship between environmental exposure and ill health in children. In so doing, we need to consider the entire environmental pathway, from driving forces to health impact, with design interventions that will improve the environmental health of all children. Therefore, to address these problems, pediatricians, environmental health scientists, and public health officials have to build local, national, and international research and prevention programs in children's environmental health. This is doable because for the first time in the history of science, there is a consciously developed body of research on children's environmental health. But for these research efforts to be truly successful, we must interpret these findings and translate the information for the target audiences and transfer the knowledge to the appropriate audiences. The region from the Middle East to Central Asia presents unique public health preventive research opportunities. It would be vital to develop and implement multidisciplinary research programs in order to bridge research gaps and meet the needs of affected communities, improving the overall public health of all the children.