



Introduction

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Many aspects of human well-being are influenced by environment, and many diseases can be initiated, promoted, sustained, or stimulated by environmental factors. Preventing disease and injury is at the heart of public health and health systems. According to World Health Organization the environment is responsible for as much as 24% of the total burden of disease of the population. Food and waterborne diseases, respiratory diseases due to air pollution, toxic effects of the chemicals, injuries, global warming health effects, climate disturbances, etc. are becoming more and more important topic of the public health science and practice.

Environmental health, as a part of public health, comprises those aspects of human health and disease that are determined by factors in the environment. It also refers to the theory and practice of assessing and controlling factors in the environment that can potentially affect health. As used by WHO/Europe, environmental health includes both the direct pathological effects of chemicals, radiation and some biological agents, and the effects (direct or indirect) on health and wellbeing of the broad physical, psychological, social and aesthetic environment. It relates to all issues of human health related to environmental factors and all factors of the environment which have potential of affecting health negatively or positively.

Environment and health issues are essentially cross-sectoral and human health can only be protected from risks from a hazardous or contaminated environment through a coordinated interdisciplinary input from different sectors, greater capacity from the health sector to enlist the support of these different actors, to develop a high level of targeted activities and to ensure consistency and synergy with other relevant commitments taken by the State Administration.

Basically, pollutions of the environment are product of community, as well as the health and wellbeing. One of the primary goals of the environmental health is to understand the various ways in which human interact with their environment. A primary step is to study the process or operation that leads to the generation of an environmental health problem and to determine how best to achieve control. Components of that process include determining the source and nature of contaminant or stress; assessing how and in what form the contaminant comes in contact with people; measuring the resulting effects; and applying controls when and where appropriate. Because of the complexity of the environment one have to have in mind that there are huge number of biological, physical, chemical, and other potentially harmful factors which are coming in contact with humans through various environmental media e.g. food, water, air, etc. Even after a problem is understood and linked with health outcomes, there are lot of obstacles, problems and interest which have to be overcome in performing any preventive mea-

sure and strong support from different groups and sectors is necessary if the public health goals are to be achieved.

Fortunately, advances in modern science and technology have given humans the capability to control much of the natural and anthropological environmental problems. But new technologies are often coming with new risks, so the battle will continue.

Under the auspice of the Croatian Environmental Health Society, an expert session on December 13, 2006 was held under the title *Round Table on the Condition and Prospects of Environmental Health*. The objective was to discuss the condition of the above medical branch, whose mission it is to protect human health from adverse environmental factors. The following are

CONCLUSIONS

- There is more and more evidence corroborating the fact that environmental factors greatly influence human health, both directly and indirectly. An important share of the adverse effects may be reduced or eliminated using suitable health care measures;

- The legislative basis for functioning of the above system is the Health Care Act. However, there are no appropriate implementation regulations or financial support to back it up;

- There are administrative hindrances to carrying out adequate professional training for physicians and associates in the area of environmental health (lack of post-graduate courses, no more specializations), as well as to the hiring of suitable interdisciplinary experts;

- Insufficient attention is given to drafting and implementation of environmental health policy and strategy, while problems are being tackled reactively rather than proactively;

- Certain organizational elements of the environmental health system at the public health institutes – environmental health services – are, fundingwise, completely at the mercy of the laboratory service market, while service laboratories have atrophied. Since experts are dependent on laboratories they are forced to take on some of the workload of the latter;

- The authorities for the matters of environmental health are overly vertically split, while there are no mechanisms or instruments of horizontal connection between departments and institutions under their respective departments;

- Environmental health IT system is just developing. Unfortunately, due to funding problems, its development is hindered and present potentials limited;

RECOMMENDATIONS

1. The health care system combating adverse environmental factors needs to be legally defined. The umbrella authority for human health needs to be seated at the

Ministry of Health and Social Welfare (MHSW). Defining means of coordination and instruments of cooperation with other administrative bodies and institutions is also needed.

Implementation regulations should be passed and funding mechanisms set up. Regarding policy and strategy documents, it is recommended to follow the EU Strategy and Action Plan, as well as the WHO Guidelines;

2. Though environmental health has still not been recognized in the greater part of the world as a separate branch of medicine, organizationwise, different agencies, administrative health bodies, public health services and institutes have been setting up new departments and units for the study, monitoring and prevention of adverse effects of environmental factors, following the example of the WHO. In a flourishing public health tradition of the Region, Croatia has built a network of environmental health services, within public health institutes, and sanitary inspection (with significant funding resources and staff training) to integrate the systems of prevention and combating of diseases, as well as control and monitoring of environmental risks. The same foundation should serve to produce an environmental health network with new tasks of effective monitoring of adverse environmental factors, the evaluation of the effects on human health, as well as passing and carrying out preventive activities aiming to protect human health. Furthermore, it is important to strengthen the administrative capacities of the MHSW and sanitary inspection. By transferring the authority for given environmental health issues from the MHSW to other ministries, the latter's administrative obstacles often complicate the work of public health laboratories, which should be avoided in a country with limited human and technical capacities, such as Croatia.

3. The network needs strengthening, in terms of analytical, expert and administrative capacities (including territorial structure) needed for effective and independent implementation of the government environmental health policy, which is to be covered by the state budget. A prerequisite for the above is founding an organizational unit at the MHSW as an administrative (management) top of a pyramid of the environmental health system. Subsequently, the expert, scientific and coordinative roles of the Croatian National Institute of Public Health also need strengthening and clearly defined authorities in forming and coordination of a network of county and their associate institutions. A share of the network's analytical capacities may still remain on the lab service market. However, in that case, a legal basis for functioning of market principles needs to be secured, with clearly defined responsibilities and obligations.

4. Though environmental health is an interdisciplinary profession, one specific part of it – dealing with the study and monitoring of the adverse effects on human health (*Environmental health impact assessment*), as well as adopting and undertaking health care measures to prevent, reduce or eliminate the same effects – is and should be medical science and profession. In that sense it

is crucial to find a suitable place for environmental health while drafting plans and programs of professional training for medical doctors. The optimal recommendation would be to make environmental health an independent specialization area, as usually is the case prior to passing an existing ordinance. If there are justifiable objections to the above, the program should still retain the possibility of subspecialization, after certain corrections. Any other option would mean revoking environmental health as a medical profession and preventive branch of medicine, which in Croatia has had a long and fruitful tradition.

5. For the sake of recognizing environmental problems bearing on human health, it is important to set up systems of monitoring environmental factors, some of which already exist (air quality), and define environmental health indicators. The purpose of these indicators is to study the kind and scope of effects environmental factors have on human health, and to recognize trends. All of the above provides a basis for creating an evidence-based public health policy with a clearly outlined program of preventive measures and activities. Monitoring should be planned and guided in accordance with the rules of profession, and covered by the state budget.

6. Based on results of environmental monitoring and other available data, an environmental health IT system should be set up. The above data should be connected with the data on the health condition of the population for the purpose of problem prioritization and due adoption of public health programs.

7. An evaluation of the effects on human health should be one of the key elements when making decisions on spatial plans and building industrial, infrastructural and other facilities. Some countries evaluate environmental effects on human health as a separate process of approving facilities, while Croatia evaluates only some elements in relation to human health (noise, air) through environmental studies. However, Croatian environmental studies rarely include health experts personally. Environmental health should be included in the evaluation of the environmental and health effects of interventions in the environment and strategic programs, which, first and

foremost, requires a change in the legislation and system of environmental studies.

8. One of the key tasks of the environmental health network is to continually inform and educate the population about potential health hazards, proper risk perception, and to ensure their cooperation and understanding while adopting certain measures of environment and health protection.

9. When educating and informing the population, cooperation and partnership with the media is essential. Sensationalism should, naturally, be avoided as it creates panic, risk misperception and useless tension.

10. Incidents and crises that took place in 2007 (Karlovac, Sisak, Vrbani) point to a lack of appropriate plans for crisis solution, poorly defined responsibility of governmental departments for given environmental and health issues (other departments have taken over their authority, but not their responsibility for the consequences on human health), lack of coordination of inspection services and state administration bodies, as well as a poorly defined role of the public health institutes and their laboratories in dealing with crises. While creating the environmental health network and drafting legislation, one should take into consideration the system of and capacities for dealing with environmental crises, as was done in creating an epidemiological network for combating outbreaks of communicable diseases.

11. Within the scope of their activities, the Environmental Health Society must also cooperate with NGOs dealing with environment and health protection. One of the positive roles of NGOs is calling the attention of the public, media and administrative structures to the environmental and health problems. Croatian NGOs often demonstrate great enthusiasm, but sometimes lack the information and training, and, consequently, send wrong messages out to the public and misshape the perception of environmental hazards and risks. Cooperation with environmental experts is, therefore, crucial. A positive example of NGO action in motivating administrative structures is shutting down the Rockwool plant in Istria due to insisting on meeting the required procedures and environment and health protection measures.