

# FROM GENERAL AND COMMUNAL HYGIENE TO THE CENTER OF ENVIRONMENTAL HEALTH AND CENTER OF HEALTH PROMOTION AND PROTECTION

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When browsing through the documents, literary fragments and memoirs which are related to the establishment and development of the National Institute of Public Health, we are convincing ourselves again and again of the old experience, that everything we consider to be our original idea and our unparalleled success to date, is only a somewhat higher level of what has already occurred once and probably repeatedly. This applies almost unreservedly in several areas such as public health. A look into history, whether far or recent, takes us back to a solid path towards progress, if we are enticed to individually conquer the tops glimmering around it. In other words, the efforts of past years are a good basis for current efforts and these are in the best case only a better and stronger cast of our past efforts.

The common interest of the Centers specified in the heading above is an effort for prevention and health promotion, especially in the area of chronic, non-communicable diseases. This area forms an up-to-date and increasingly frequently cited interest in all health policies, because epidemiological studies from all around the world have raised the alarm. The environment and in particular lifestyle are the current buzz words; and sometimes they seem not to be discovered earlier than during the last decades by us, contemporary with the public health system. Several years ago, we toyed with an absurd idea that the epidemiology of non-communicable diseases will no longer be required.

The National Institute of Public Health, however, included the Department of Food Inspection, Department of Health Education and Promotion, and Department of Social Hygiene shortly after its establishment. The Department of Social Hygiene comprised for example the Laboratory of Human Nutrition, Laboratory of Residential Hygiene, the Laboratory for the Hygiene of Clothing and Laboratory of Statistics. Department of Health Education and Promotion studied among other things fatigue of children in schools. All these areas were developed as part of a large international cooperation and cooperation with medical faculties and many

experts completed fellowships in the USA. When reading reports from those times, it crossed our minds whether our predecessors had reached further than us in their thinking and efforts.

After many events of the war years and searching for the relevant structure during the postwar years, the National Institute of Public Health was split in 1952 into smaller institutes, one of which was the Institute of Hygiene. At that time, another firm step was made towards the current centers. Being led by Prof. Karel Symon, M.D., the Institute of Hygiene already had similar tasks to those of the current centers of the National Institute of Public Health. These tasks included research, preparation of standard methodologies, creation of standards, education of employees in the hygiene service, and opinions on current professional needs of the Chief Hygiene Officer. The Institute served as a seat of the department of communal and general hygiene of the Hygiene Medical Faculty, which was also led by Prof. Symon. Many experts from the Institute took part in the teaching. The Institute dealt in particular with general and communal hygiene, school hygiene, personal hygiene, and hygiene of nutrition and common use objects. Development of these areas in the Czech Republic is associated with the Institute of Hygiene. In addition to these basic activities, the Institute established a tradition of issuing standard methodologies and updates for the needs of public health in the journal *Acta hygienica*. The Institute also served as a seat for the editorial staff of the journal *Československá hygiena* (*Czechoslovak Hygiene*).

As usual, the individual courses and specialties further developed according to the strength of personalities who represented them, and according to the requirements of that time. Poor air quality, especially in North Bohemia, spurred a significant direction of experimental and epidemiological studies of the influence of air pollution on children's health. This resulted in many hematological, biochemical, immunological, and physiological works to map this influence and define the needs for interventions. A tradition was established for convalescent stays

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of children from polluted areas. Other important studies were focused on the cleanliness of drinking water, and risk of nitrate-induced methemoglobinemia in infants. Studies evaluating the effects of the environment on the skin formed a basis for the current intensive activities in the evaluation of cosmetic products. The Institute of Hygiene connected on the almost hundred-year tradition of unique, cross-sectional, ten-year anthropometric studies to create growth curves, which were used to prove secular trends in the growth and development of children. Studies of pedagogical processes and school meals were started in the area of school hygiene. Basic conditions were established for recommended nutritional doses and care of extraneous substances in foodstuffs.

All research work was done in cooperation with the hygiene service and was interpreted as background for measures to be implemented by the public health.

In 1971, the independent institutes were merged again into the Institute of Hygiene and Epidemiology. Irrespective of the reasons that led the Ministry of Health to this merger, this step was a return to the spirit of the original National Institute of Public Health. The Institute was divided into eight centers, including those centers, which were later easily transformed to the current Center of Health Promotion and Protection and Center of Health and Environment.

The Center of General and Communal Hygiene, which was led by Prof. K. Symon and later by Prof. J. Lener, was further structured into several groups. The groups and their most important activities were as follows. General hygiene was focused on metals and trace elements, mutagenic effects of chemical substances from the air, and their genetic risks; Hygiene of Air further studied the effects of the polluted air on the health and possibilities to offset these effects; Hygiene of Water evaluated the process of water pollution and protection of water intended for supplies of drinking water; Hygiene of Living focused on the then major issues of building housing projects; Hygiene of Noise focused in particular on noise associated with urban agglomerations; and Hygiene of Skin searched for the ways of skin protection and identified potential risks of detergents and cosmetic products, thus serving as a basis for many later expert works.

The Center of Children and Adolescent Hygiene was led by Prof. F. Janda. It was a relatively small center that was divided into the two directions of research and other expert works. The Group Physical and Mental Development of Youth under different life conditions in particular continued to investigate the effects of air pollution on the development of children and brought many methods to perfection, such as a method for monitoring of bone maturation as a physiological indicator of effects of the external environment on health.

The group Hygiene of the Pedagogic Process in Daily Care Centers for Children and Adolescents performed experimental electrophysiological studies of children fatigue and in particular governed the broad array of tasks of the Chief Medical Officer in the area of pedagogical process hygiene during the 1980's. These projects resulted in the preparation of principles for the hygiene of the pedagogic process and were introduced into the schools in cooperation with pediatricians and school professionals as remedial measures. These were the first health promotion projects. It was no coincidence that the original employees of the Children and Adolescent Hygiene later ran many of these projects for public health promotion. And it is no coincidence that the current National Reference Center of Health Promotion Programs was established based on this Center for Children and Adolescent Hygiene.

Led by Prof. A. Wolf, the Center of Nutrition Hygiene was divided into three groups. The group Rationalization of National Nutrition gathered information on the nutritional consumption and state which were transformed into nutritional recommendations and nutritional requirements applied in a communal diet. The group Health Safety of Foodstuffs and Common Use Objects studied in particular the risks resulting from the presence of extraneous substances in food and packaging materials. A considerable part of this group's activities was focused on migration of chemical substances from plastics.

Established in 1985 as a specialized complex facility for food safety, the Center of Food Chain Hygiene is an independent facility, and has its seat in the premises of the University of Veterinary and Pharmaceutical Sciences in Brno.

The National Institute of Public Health was re-established in 1992. The Center of General and Communal Hygiene, Center of Children and Adolescent Hygiene, and Center of Nutrition Hygiene of the original Institute of Hygiene and Epidemiology were merged into the Center of Environmental Health with the basic idea to combine the activities used for the monitoring of those factors which influence the health from the environment and lifestyle, under one roof, including common directions of research and specialization. The uniting idea of prevention of non-communicable diseases thus reappeared after many years. However, it soon became evident that the effects of the environment and lifestyle are so abundant and variable, that their merging into one unit will clearly mean less attention for individual effects. Therefore the center was divided in 1994 into two independent centers: the Center of Environmental Health and Center of Health Promotion and Protection. But this is already the present situation.

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## CENTER OF ENVIRONMENTAL HEALTH

The Center of Environmental Health focuses on the issues of environmental effects on human health. One of its major activities is the operation of the Environmental Health Monitoring System, a comprehensive system of collection, processing and evaluation of data on contaminants in different environmental media and their effects on population health in the Czech Republic. The major objectives of the System are to study and to assess time series of the selected quality indicators for each environmental medium and population health indicators and to estimate levels of population exposure to pollutants and subsequent health effects and risks. The particular environmental health monitoring subsystems have been run routinely since 1994, so the year 2005 is the twelfth year of the standard monitoring activities. The Environmental Health Monitoring System is an open system and has developed continuously in terms of both the range of factors and pollutants monitored and methods of data processing and presentation used.

The Environmental Health Monitoring System has been operated as set out by Resolution No. 369/1991 of the Government of the Czech Republic. It is relied upon in the new Act No. 258/2000 on public health protection and is one of the priorities of the National Environmental Health Action Plan in the Czech Republic approved in Government Resolution No. 810/1998. The data obtained within this Monitoring System provide important background information for the long-term program focused on the improvement of population health in the Czech Republic, called "Health for All in the 21 Century", and approved by Resolution No. 1046/2002 of the Government of the Czech Republic. The data are also used in the assessment of impact of various activities, constructions and projects on health as required within Health Impact Assessment (HIA) and Environmental Impact Assessment (EIA). Aggregated results are presented as background information for the national authorities making decisions on environmental health, for the Public Health Service, co-operating sectors and institutions and for the interested public. Furthermore, the Environmental Health Monitoring System provides background data for the adoption of legislative measures and establishment and adjustment of pollutant limits. The comprehensive data also represent an information source for other countries in terms of the Czech population health status and risks from environmental pollution in the Czech Republic.

The Monitoring System is consistent with the general principles of any monitoring. This means that:

- the milestones to be reached are set,
- the monitoring is comprehensive, multi-component and integrated,
- the monitoring is designed to study the defined indicators in the defined areas in a long-term manner,
- the available funds are used purposefully and the existing facilities are exploited adequately,
- the data collected are systematically checked for quality,
- the results obtained are interpreted only after an expert audit,
- the monitoring is consistent with international agreements and recommendations.

In 2004, the Monitoring System involved the following eight subsystems (projects):

- Health effects and risks of air pollution (Subsystem I),
- Health effects and risks of drinking water pollution (Subsystem II),
- Health effects of and annoyance from noise (Subsystem III),
- Health effects of and risks of dietary exposure to contaminants (Subsystem IV),
- Health effects of exposure to toxic pollutants from the outdoor environment, biological monitoring (Subsystem V),
- Health status and selected parameters of demographic and health statistics (Subsystem VI),
- Health effects and risks of the occupational environment (Subsystem VII),
- Health risks of urban soil contamination (Subsystem VIII).

Various factors (pollutants, contaminants, analytes and indicators) are monitored within the individual monitoring subsystems. Their list is based on the respective regulations and analyses carried out both prior to the actual start and during the routine operation of the Environmental Health Monitoring System. For evaluation of the results, several types of limits have been applied. On the one hand, these are limits given in Czech standards and regulations, and, on the other hand, these are values taken from documents of supranational institutions (e.g. the World Health Organization and US Environmental Protection Agency), which usually do not have the force of standards in the Czech Republic. This is true namely of the exposure limits such as the acceptable daily intake (ADI) or recommended daily intake (RDA) applicable to contaminants or trace elements from foodstuffs or drinking water, or tolerable internal doses applicable to the content of toxic substances in biological material.

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These limits and values are being adjusted to keep up to date with the latest developments and the changes, if any, are indicated in the annually issued Technical Reports and Summary Report.

## **CENTER OF HEALTH PROMOTION AND PROTECTION**

Without a doubt, the behavior and actions of humans as individuals and communities has a major influence on the occurrence and development of chronic non-communicable diseases. This fact is reflected in the structure and work of the center, whose basic mission is protection and promotion of health in those areas of environmental integration that can be influenced by human acts and behavior. The principal areas of interest thus include nutrition, daily use objects and materials, food contact materials, materials for indoor use, health promotion and prevention of diseases, use of addictive substances in food, and health education.

The organizational structure is governed by the multi-lateral methodological, expert, specialized and research activities and applies to the facilities, which are designed as expert groups or reference centres or laboratories for the needs of public health authorities and other public health subjects. This includes in particular the following areas:

- programs for the health promotion and diseases prevention,
- nutrition and foodstuffs,
- food additives and special types of foods,
- plastics and other materials intended for food contact,
- cosmetic products,
- toys and objects for children under 3 years of age,
- pesticides,
- building materials and materials for indoor use,
- psychology,
- psychoactive substances,
- health education,
- database of NCD prevention,
- injuries.

In recent years, the work was influenced by the accession of the Czech Republic to the EU. In preparation for accession, harmonization of the legislation was required in many areas of consumer health protection. Currently many experts work in expert commissions and scientific committees of the EU, where they contribute to the creation of new documents and expert backgrounds for the European Commission. This applies in particular to the area of protection against pesticide residues, health safety of cosmetic products, materials intended for food

contact, and additives in food and toys. Based on the Regulation of the European Parliament, National Reference Laboratory for Materials and Objects Intended for Food Contact was established and incorporated into the network of reference laboratories of the EU member countries. The Center participated in the preparation of the European Regulation of Microbiological Criteria for Foodstuffs. The Center serves as a contact point for the RAPEX system, a system of rapid warning against occurrence of hazardous products on the EU market.

The laboratories of the Center were accredited by ČIA (Czech Accreditation Institute) to increase the quality of work and ensure the legislative duties in public health protection with respect to the manufacture of products. This certification created a basis for the centralization of laboratories.

In addition to serving as reference centers, the Center's laboratories are involved in a wide range of expert activities. Laboratory tests and expert opinions are provided in particular for cosmetic products, materials and objects for direct food contact, food additives and building materials.

The Center serves as a methodological center for the coordination and implementation of health promotion projects within the National Program of Health. An independent facility was established within the Center to coordinate the EU public health projects and cooperation with Euro Health Net, which implements and manages these projects. Long-term projects are managed as part of this cooperation, such as Getting Evidence into Practice, Healthy Ageing, Health and Social Inclusion, Alcohol Policy in a Larger Europe, Health Professionals and Smoking Cessation in a larger Europe, and others. Concerning its own expert activities, the Center manages and implements projects of nation-wide importance, focused on the improvement of nutrition, increasing of physical activities and prevention of sequelae from excess stress. Providing a systematic efforts to improve the prevention of cardiovascular and cancer diseases, the Center started integrated, complex projects of primary and secondary prevention during the 1990's with a joint project "Prevention of coronary heart disease in Czech Republic", which was managed in cooperation with the University of San Francisco, Stanford University, IKEM (Institute of Clinical and Experimental Medicine) and the 3<sup>rd</sup> Medical Faculty.

In 1994, the Center became a coordination facility of the program WHO CINDI. It has also served as a coordinator in the WHO program Health Promoting Schools, with the objective to change the relationships between teachers and students, to improve the cooperation of parents with schools, to improve behavior of pupils and to improve lifestyles.

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The Center also established the Coordination, monitoring and research facility for the implementation of the European action program Tobacco-free Europe, and the European action plan on alcohol. As part of these and other activities in the field of prevention of addictions, the Center organizes regular WHO campaigns known as "Quit and Win". In a similar fashion, other campaigns are organized on a regular basis within World No-Tobacco Day and International Non-Smoking Day. The Center undertakes abundant and wide-ranging educational activities in this area that are focused both on professionals and lay public.

Every year, the Center organizes several training courses and seminars for the further education of professionals working in public health protection and promotion and for experts from other departments. These educational courses are focused on new methodologies and news in the legislation.

Throughout the entire range of specialties, part of the capacities is dedicated to research. Studies aimed at

introducing alternative methods for the assessment of skin irritability are among those most important. The role of satisfaction, mental resistance and social support as requirements for healthy behavior are studied in a long run. Other areas studied include the nature of effects of main risk factors, such as socioeconomic status and health imbalance. The dynamics of smoking and the effects of smoking on mortality and morbidity are also monitored in a systematic fashion.

All results obtained from the wide spectrum of activities are applied in the health education as soon as possible. The Center is a publisher and producer of many health promotion materials. Many brochures, flyers, and posters for the lay public are published according to the editorial plan, which is prepared by the Editorial Board of the National Institute of Public Health on a yearly basis. Educational films are made regularly. Publications and video programs are distributed to the regional institutes of public health and employees of the Center contribute to many these programs as authors.