Hungary Ratified ILO Convention 161 Thirty Years Ago – the Significance of Occupational Medicine Specialist Training and Continuing Education in the Occupational Health Medical Practice Replacing Factory Health

In Lieu of an Editorial through the Eyes of One Last Witness

GYÖRGY UNGVÁRY

Abstract

The author briefly summarizes the tasks to which the solutions were developed in Hungary in accordance with the spirit of ILO Convention 161 for the purpose of training and continuing education of occupational medicine specialists, and which were introduced in specialist training, continuing education as additions to the basic knowledge of the field with the help of the staff of the National Institute of Occupational Health (hereinafter: NIOH) and the Haynal Imre University of Health Sciences, Postgraduate Medical Faculty (hereinafter HIETE) Department of Occupational Health. He points out that the results achieved through the solving and application of these tasks – determination of stress and strain, exploration and qualification of internal factors and all factors originating from the external environment that affect the human body, the risk assessment, management and communication of all stress factors – in everyday occupational health practice suggest that additional tasks need to be introduced and solved even following the significant advances made. He stresses specifically the importance of the more comprehensive reporting and diagnosis of occupational diseases, their scientific and practical significance. He adds: these are not exclusively Hungarian issues; their solution requires international collective thinking and cooperation. To achieve these goals in Hungary – in addition to resolving several other problems requiring international agreement/action only tangentially mentioned in this current article – he suggests partly the analysis of the activities of the occupational health services, their re-regulation, amending of their finances, partly the renewal of specialist training – specially the continuing education of specialists. He sees the solution to this, in accordance with Hungarian traditions, in the organization and operation of a re-created independent department operating as part of a postgraduate medical university/faculty based on an independent institute with up-to-date infrastructure, instrumentation, scientifically prepared, professional staff capable of providing higher education, also in accordance with Hungarian traditions. Regarding the content of the continuing education, he believes the presentation of the most up-to-date scientifically based results to be of utmost importance.

Key Words: ratification of ILO 161, factory health to occupational health, professional knowledge, institutional framework, educators, practical knowledge, scientific work, specialist training, continuing education for doctors

Corresponding author: György Ungváry, MD, PhD., DSc.
Nagyvárad tér 2, Budapest, Hungary, H-1096
E-mail: ungvary.gyorgy@oki.antsz.hu

Received: 15th October 2018
Accepted: 19th November 2018

RATIFICATION OF ILO CONVENTION 161: 1988. FACTORY HEALTH CARE TO OCCUPATIONAL HEALTH – RE-ORGANIZATION

In the 1980s, the decade preceding the social, political and economic regime change, average life expectancy at birth of the Hungarian population was distressingly low. In 1990, life expectancy at birth in the developed Western-European countries was ~79-81 years for women, ~72-73 years for men, in Hungary the numbers were ~73 and ~65 years respectively (Tomak, 2009; KSH, 2010). The alarming economic, social, health, environmental, work safety, etc., data, indicator parameter values showed the deep crisis, inoperability of the so-called socialist society, forecasting the need for radical change. The solution for this was introduced by reform ideas – including the development of the health care reforms. A reform committee had already been created in the second half of the 1980s by the Hungarian Academy of Sciences chaired by the academic Rudolf Andorka and the Ministry of Health led by András Jávor M.D. for the comprehensive analysis of the social situation of the society, the improvement of the living conditions of the population, development of recommendations, programmes aimed at changing lifestyles that threatened health. The problems of public health were addressed within both committees by sections made up of the professionally recognized leaders of the era, under the chairmanships of Professor Pál Kertai and Dr. Mihály Kökény, respectively. This author, as a Doctor of Medicine and the head of the Department of Occupational Health of the Postgraduate Medical University[1], as a member of the public health sections of both committees, strived to assist the work of the committees primarily through analysing and addressing occupational health issues (Ungváry et al., 1988). As a result of the efforts in part of these reform committees, in part of those working in the field of labour safety urging reforms, Hungary was among the first countries to ratify ILO Convention 161 published in 1985 and legislated its implementation. The date of "birth" of the introduction of occupational health care can therefore in principle be regarded as being the year 1988.The practical implementation of ILO Convention 161, the transposition of the Convention in Hungary was begun in parallel with the development of NPHMOS Act of 1991 regulating the operation of the National Public Health and Medical Officer Service (hereinafter: NPHMOS) that was re-created following the regime change, as well as that of the Labour Safety Act of 1993 (hereinafter Mvt.), and it was finished following the entry into force of these two laws.

[1] *Following the transition to a market economy, the Postgraduate Medical University took the name of Professor Imre Haynal and continued to operate as the Haynal Imre University of Health Sciences (HIETE) with an added department providing graduate training for non-physician professionals working in health care. The departments providing specialist and continuing education made up the Postgraduate Medical Faculty of the HIETE.*

The leadership of the Ministry of Welfare of the first government of the free Hungary, the Ministry of Labour, or more precisely the National Labour Safety and Labour Inspectorate (hereinafter OMMF[2]) changed/restructured following the regime change, as well as the institute operating in the field of occupational medicine and work hygiene (the previously mentioned NIOH), the professional association, the Hungarian Society of Occupational Health and Medicine (hereinafter: MÜTT), the leadership of the newly formed occupational health section of the Hungarian Chamber of Medicine and the Department of Occupational Health of the HIETE played especially important roles in this effort. The government and ministry decrees regulating in detail the structure and operation of the occupational health system to be established from the factory health system[3], in line with the Mvt. and the NPHMOS acts were published in 1995.

Until the entry into force of the regulations of occupational health – primarily due to the dismantling of the giant state-owned enterprises, factories, at the start of the privatisation process – factory physicians left the specialty in droves, their numbers fell to ~50% of the original numbers. The re-regulation of the field, giving priority to prevention, but above all the new funding system[4] dependent on the number of employees served and the workplace risks, provided by the employers, independent of the National Health Insurance Fund (OEP) quickly brought the expected results. The number of physicians working in the field increased by 50% in 1996, and in 1997 achieved the number that (in theory) was necessary to fully "cover"/serve all employees in the country.

The process, and within this the development of the professional expectations, can be followed well in part through the reports and communications of the national institute (NIOH, 1991-1998., Ungváry, 1991., Ungváry et al., 1994., 1997., Grónai et al., 1996., Béleczki et al., 1996.), in part through the publications, chapters in books written at the request of international organizations and leading institutes of several countries (Ungváry, 1994A,B,C; 2003, Bencko and Ungvary, 1994, Ungváry et al., 1995), indicating the international recognition for the organization of occupational health in Hungary. The quality assurance system for the service was also developed (Ungváry and Grónai, 2017), however we were unable to make this mandatory and have it introduced nationally. As previously mentioned, the regulations determining the steps of reorganization were published in 1995, therefore the technical execution of the reorganization began in 1995 and finished in 1998 (NIOH, 1991-1998). I.e. 10 years had passed since the ratification of ILO Convention 161. This is a long time, but since actual work only started following the transition

[2] *The effect of the reforms, history of the OMMF on the effectiveness of the operation of Hungarian labour safety could form the subject of a separate study (Ungváry, 2016).*

[3] *In this article (and in professional language in Hungary) factory health means the healing-preventive service/ system based on a Soviet model within which the workers of state or cooperative-owned industrial units, farms, as well as the employees of mostly state-run institutions (e.g. hospitals, schools, ministries or councils) received treatment / preventive care prior to the transition to a market economy.*

[4] *Success was ensured by the Mvt, which mandated that employers provide occupational health primary services covering all workers in addition to all other obligations also specified in the Mvt (as specified in separate legislation – legislations of 1995). This could be done through employer operated services, or through a contract between the employer and an external service provider. Occupational medicine specialists worked in the primary services, the majority of these services were headed by these specialists. Note: i) occupational medicine specialists were authorized to carry out occupational health activities, ii) most of the leaders responsible for the field considered direct employer financing to be a temporary emergency solution, no other resources were available between 1993-1995.*

to a market economy, very intensive work was required from those participating in the execution of the tasks. Just as a reminder: these activities include, among others, the solving, elaboration, fulfilment of the Functions specified in part II of the Convention, the Organizational requirements summarized in part III, the Conditions of Operation described in Part IV. Having said this, it must be stressed that during the reorganization the day-to-day theoretical and practical activities of occupational medicine had to be defined and elaborated according to the spirit of ILO Convention 161, and for the education of the practitioners of occupational medicine, all of these had to be organized into a "*textbook format*"! I would like to refer to our previous communication (Ungváry, 2017) regarding several historical details of this work. I would like to briefly highlight: we began working on the theoretical foundation already prior to the regime change, independent of ILO 161. We relied on the works of Professor Dr. Andor Erdélyi, the recommendations of the WHO-EURO and our own experiences from the department and national institute (Erdélyi et al., 1981, Erdélyi, 1983, WHO-Euro, 1985, Ungváry, 1989A,B; 1991, 1997A; NIOH, 1991-1998). We helped interested factory medicine or other specialists understand the rudiments of occupational medicine, as well as the main differences compared with factory medicine as early as between 1991 and 1993 through a series of presentations and by handing out the photocopied abstracts of the presentations. The first summaries were published in 1994, the first lecture notes used for specialist training in 1997 (Ungváry, 1994A,B,C; 1997B). Following the publications and lecture notes, textbooks for specialist training were also published in 2000, 2004 and 2010 (Ungváry, 2000; 2004; Ungváry and Morvai, 2010). The textbooks were/are consistent with the spirit of ILO Convention 161. Primarily the members of the HIETE department /chair (built on the base of NIOH) and – in the teaching of individual subskills – the professional leaders of the NIOH and several highly qualified teachers working in other departments played determining roles in achieving this. This same committee – consisting mostly of qualified professionals – carried out specialist training, administered practical examinations to specialist candidates, provided continuing education for occupational medicine specialists. It should be emphasized that specialist training and continuing education for specialists were carried out at the national institute, a base institution with near optimal infrastructure and instrumentation in all subfields of the profession, without which educational activity of expected level cannot be carried out[5].

[5] *The NIOH which was created by the legal act in 1949, and began its operations in 1950, had an occupational in-patient department and outpatient clinics (occupational toxicology, pulmonology, dermatology, vibration, audiology, allergology, neurology, occupational psychology, clinical laboratory, radiology). These units carry/ carried out the investigation, review and treatment of occupational diseases at the outpatient clinics and the in-patient department which was closed in 2006, in addition to the country-wide professional, organizational, methodological activities. Similar departments, clinics did not operate and do not currently operate at any other university (including all graduate medical universities). Later on, starting in 2004, preventive medicine and work hygiene training based on public health specialist qualification also started in Hungary. Training (continuing education) took place in the professional units of the base institute under the direction of the department based on the base institute. Experimental and applied toxicology, experimental and applied physiology, biochemistry, pathology, cytogenetics, chemical, dust, noise, vibration, lighting measurement, biological and environmental monitoring departments, laboratories, the toxicology rapid reaction unit, toxicology 24-hour information service participated in the training and continuing education of work hygienists. Microbiology-epidemiology, food safety and radiation health education were provided by the postgraduate medical departments build on the base of the partner institutes (National Centre for Epidemiology, National Institute of Nutrition and the National Research Institute for Radiobiology and Radiohygiene). The heads, teachers of the individual educational areas were teaching certified; between 1992 and 2005 more than 1/3 of the graduate staff of the base institute had academic degrees;*

INTRODUCTION AND DEVELOPMENT OF THE BASIC THEORETICAL AND PRACTICAL CONCEPTS OF OCCUPATIONAL MEDICINE

As previously noted, the ILO published its Convention 161 on the Occupational Health Services in 1985, in accordance with the ILO Convention 155 on occupational safety and health. The Convention expects from occupational health (very simply put) primarily the operation of a system whose priorities are preventive and advisory functions, but whose activities include the development of criteria for the safety of work environment that does not threaten health, or more precisely, participation therein, as well as guaranteeing the adaptation of work to the physical, mental health of the worker. Naturally – as previously mentioned - the Convention provides more detail on the tasks than this concise summary. These were specified in more detail in the Mvt., the NPHMOS act, as well as the relevant government and ministry legislation that entered into force in 1995, and the legal acts (regulations, directives, decisions, recommendations) that became part of the Hungarian legal system prior to the accession to the European Union. We can state that by 2004 (the country's accession to the EU) the regulation of the workplace health and safety of workers in Hungary became similar to that of the most developed EU Member States and other developed industrialized countries[6]. Taking all these into account, knowledge needed to address new or novel tasks which could be implemented into everyday practice and which at the same time could make wholly achievable, feasible the prevention/prevention objectives defined in the Convention, legislation, legal acts had to be incorporated into the syllabus of occupational medicine specialist training and specialist continuing education. These – as previously noted – had to be organized into a "textbook level" form. Their knowledge and application make it clear that occupational medicine preventive work is guaranteed to be significantly more effective than the previous factory-health that copied the Soviet system. From the newly introduced knowledge, tasks, we would like to highlight here – due to their importance – the issues of risk analysis to guarantee health and safety at work that deals with stress-strain, as well as the origin, quality and measure of stress, and is related to both.

during this period 4-6 Doctors of the Hungarian Academy of Sciences and 12-16 Candidates (PhD equivalents) worked at the institute. The institute worked as the WHO collaborating centre in the field of occupational health. The institute earned permanent merits for its work in European legal harmonization. The institute – relying primarily on its highly qualified toxicologists – developed the world's first chemical safety legislation; since 2000, in the framework of the WHO and ILO joint programme, with support from the EU, the institute publishes the official Hungarian translation of the so-called Chemical Safety Cards (ICSC) drawn up in English (these are available on the website of both the ILO and the institute). During this period the institute operated as part of the Fodor Jozsef National Public Health Centre, whose director was a leading member of the IPCS Steering Committee, the experts from the Central and Eastern European countries elected him Chair of the Central and Eastern European Region of the Intergovernmental Forum on Chemical Safety (IFCS) and he also served as one of the vice-presidents of the IFCS; at his recommendation and organization, with the approval of the senior leadership, Europe's second National Chemical Safety Institute began its operations in Hungary.

[6] *Note: the establishment of an integrated workplace safety and labour safety supervision responsible for the operation and supervision of the uniform/integrated workplace safety and occupational health did not take place. The creation of the integrated labour safety supervision dates to 2007. A comprehensive analysis was prepared on the work, current issues of the Labour Inspectorate for the Preventive Medicine Committee of the Department of Medical Sciences of the Hungarian Academy of Sciences (Ungváry, 2016). Important: the creation of an integrated labour safety raises the issue of the need for the operation of an integrated background institution working at equally high levels in management, research and education. The national institute operating in the field of labour safety was closed in 2007 (Ungváry, 2016).*

The reason for this: these were given enhanced priority; but this is precisely the area where we have been less successful than expected[7], and more progress is needed.

Stress and strain. In the 2000, 2004 and 2010 editions of our Occupational Health textbook (subsequent editions were expanded taking into account new knowledge), we relied primarily on the research at the institute when elaborating the topic. As previously mentioned, we especially relied on the work of Professor Erdélyi defining and introducing the concept of occupational physiology distinct from work physiology (Erdélyi et al., 1981; Erdélyi, 1983)[8]. We first wrote a summary of the complex stress-strain system we developed based on Professor Erdélyi's works as a chapter of the publication urged by the International Commission on Occupational Health (ICOH) written at the request of the editors of the publication, to improve occupational health. (Ungváry, 1994). The upgraded versions of the schematic illustration published in the international monograph were presented in a series of Hungarian textbooks and periodicals for continuing education (*Figure 1***;** Dési, 1998; Ádány, 2006; Ember, 2007; Ungváry, 2008; 2009A,B; Ungváry et al., 2008).

Stress: The physiological definition of stress *was formulated by Miller in 1965 in the following way*: „In every living system, each of the many variables has a stability range. This is the range in which the degree of correction of deviations is minimal or zero, and outside of which correction is made; therefore, any material, energy, or information uptake or release that causes the variables to be outside their stability *range* due to a lack or excess of any component, is stress." (cit.: Erdélyi, 1983)

According *to the occupational physiology/medicine definition* the summary of the impacts from the internal environment of the human/worker's body, and those from the surrounding external environment is called stress (see also *Figure 1* and explanation). I.e.: the classic physiological and occupational medicine definitions of stress are not identical. The occupational physiological/medicine definition makes the estimation of stress simple and usable in every day practice from the aspect of occupational health practice. Its reduction is also simple because by eliminating and/or reducing the size of one or more of its components, the total stress responsible for strain can be reduced, or in some cases, by adding another component, it can be increased or made more varied. This latter, for example, is important for the prevention of monotonous work.

The interaction between the effects of total stress and the responses of the body is called *strain (Figure 1)*. It follows logically from the definition that strain cannot be broken down into components, its change can only be achieved by changing the stress.

---

[7] *The newly introduced theoretical and practical developments serve the special occupational medicine clinical prevention and the purpose of assessing the fitness for work of workers for a specific job. Naturally clinical prevention is not the same as primary, secondary or tertiary prevention applicable as a public health obligation and is also not identical to the technical, work organization or personal protective equipment prevention known from the physician's work hygiene function.*

[8] *Note: as far as we are aware, it was Professor Erdélyi who first introduced the concept of occupational physiology. He wanted to indicate that the physiology of occupations cannot be simplified to work physiology as many of its characteristics work physiology does not even know about. Professor Erdélyi developed and published the concept prior to the publication of ILO 161 (Erdélyi et al., 1981; Erdélyi, 1983).*

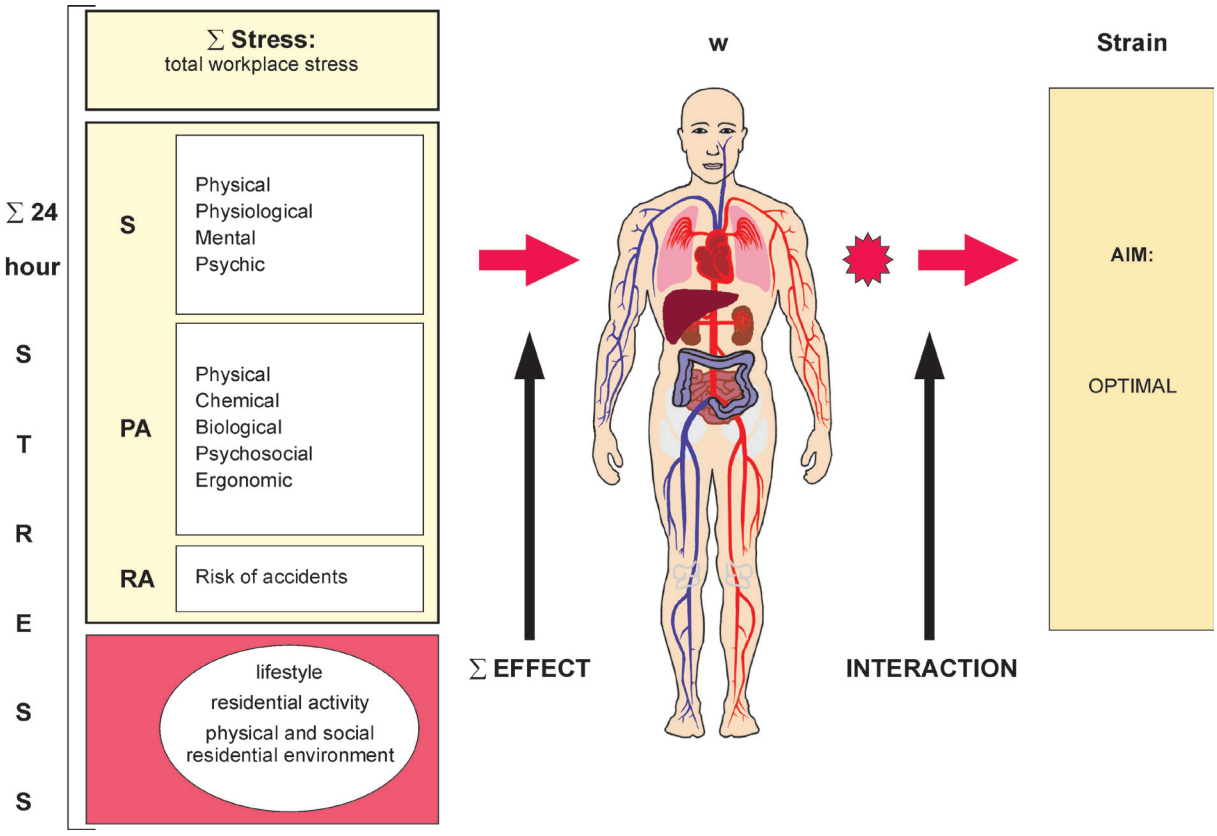


Figure 1. Explanation of 24-hour and workplace stress and strain. The left side of the figure shows the effects from work and work environment/work conditions [the components of classic stress (S): physical, physiological, mental, psychic; Pathological agents (PA): physical, chemical, biological, psychosocial, ergonomic; risk of accidents (RA)]. These effects [together total workplace stress (∑ stress)] reach the human body (W) and trigger responses. The interaction between current stress and the human body's responses is the strain (Strain). Further explanation can be found in the text section. Source: Ungváry, 1994A.

From the aspect of occupational medicine practice, the measurement and the measured values of an ever increasing number of so-called strain indicator parameters (e.g. in addition to heart rate, respiratory rate, respiratory minute volume, other ergometric parameters, biochemical, chemical parameters suitable for assessing fatigue, fitness, detoxification) are important; but we also believe the evaluation of the data obtained from so-called paper and pencil tests and the results of work-psychology tests to be important for assessing strain. For more details we would like to refer to the relevant chapters of our textbooks (Ádány, 2006; Ember, 2007; Ungváry and Morvai, 2010). It is evident that close to optimum strain is the basis for the attainment of health and safety at work. Its determination is the ultimate goal and number one task of the clinical prevention task of the occupational medicine practitioner. In order to provide close to optimum strain value, the *first mandatory task* of occupational health (specialist) is determination, qualification of various factors from the internal or external environments involving a flow of materials, energy and/or information, reaching the worker's body. Their analysis is also the basis for determining and qualifying work-capacity. *Figures 2 and 3* provide help to correctly perform this activity. Factors causing stress originate from the internal and external environments. The diseases of the internal environment

(the human body) must receive special attention from the aspect of complex stress. The external environment is divided into workplace and residential environment[9], and both into physical and social one *(Figure 2)*.

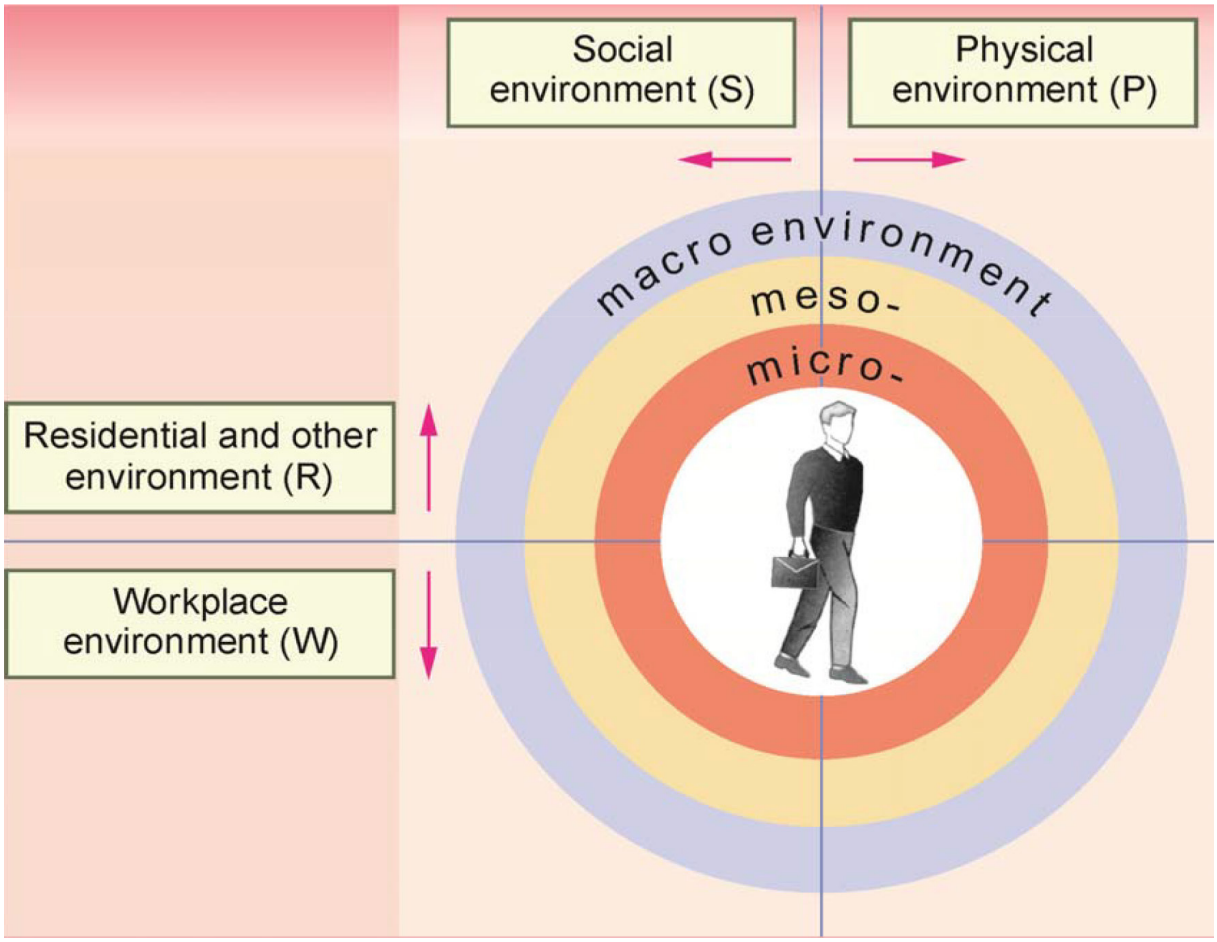


Figure 2. The relationship between man and the environment I. The white circle and the human figure inside together symbolise the human body (internal environment). After Erdélyi (1983) the external environment is divided into physical (P), social (S), residential (R) and workplace (W) environment. In all sections of the external environment, the zone (red) immediately surrounding the human (internal environment) is called the micro-zone, the zone surrounding this (yellow) is the meso-zone and the zone farthest away from the human (blue) is called macro-zone. Further explanation can be found in the text section. Source: Ungváry, 2000; 2004; Ungváry and Morvai, 2010.

It is important to be aware that the effects of the stress factors from these reaching the body also depend on whether they originate from the zone closest to, farther or farthest away from the worker (at his residence: resident) *(Figure 3)* since the factors reaching the body from the different zones are of different nature and have different effects (Ungváry, 2000; 2004; Ádány, 2006; Ember, 2007; Ungváry and Morvai, 2010). To fully consider them we are preparing a questionnaire which, knowing the job, includes factors from work and the work environment presumably reaching the body, and in addition to these, the most important qualitative and quantitative characteristics can also be recorded.

[9] *Note: in case analysis becomes necessary, the natural environment is analysed together with the residential environment; the part of the environment serving as the place of work is logically analysed as the workplace environment.*

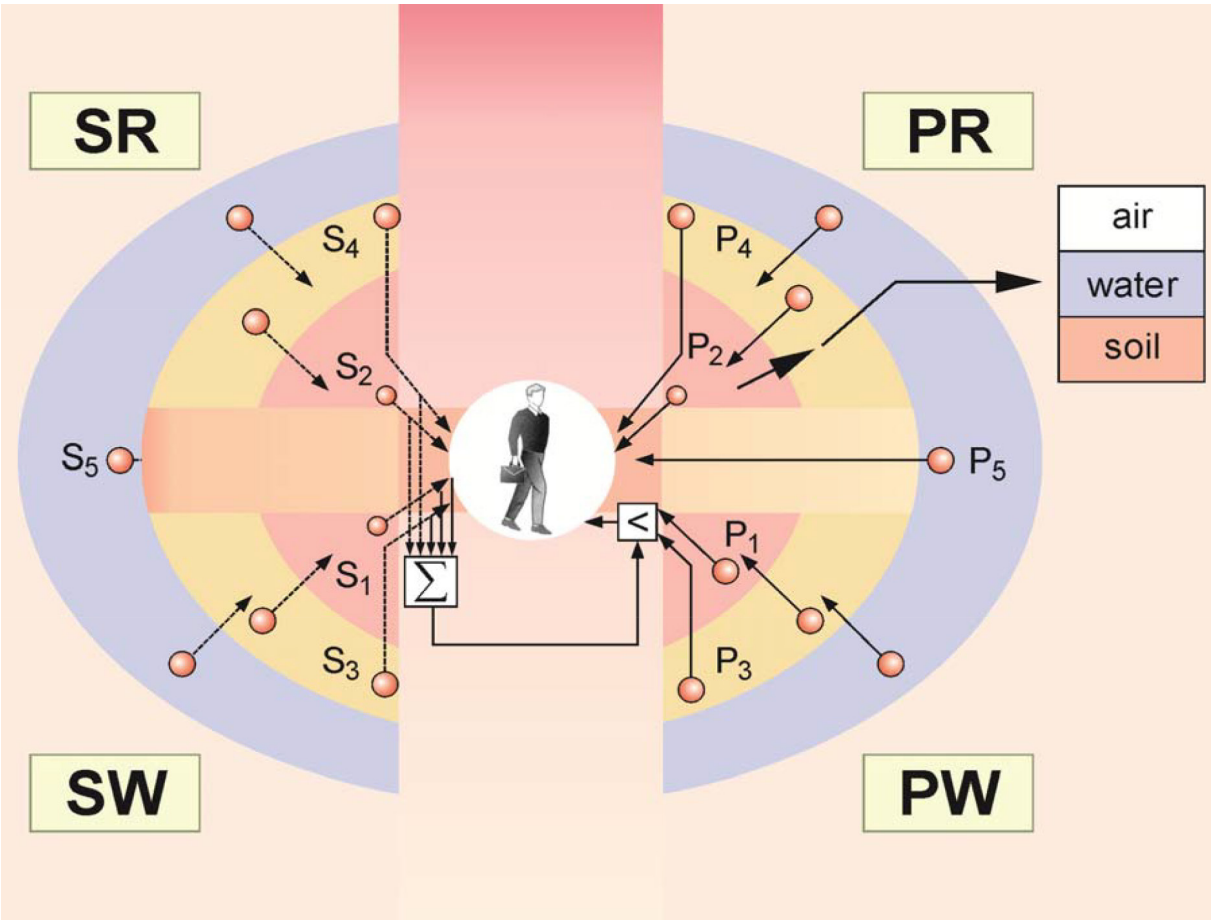


Figure 3. The relationship between man and his environment II. Internal and external environmental impacts with material, energy and information content. S: social; P: physical; R: residential; W: workplace environment (SR: residential-social, SW: workplace-social, PR: residential-physical, PW: workplace-physical environment). ;Blue: macro-, yellow: meso-, red: micro-zone; continuous arrow: material and/or energy flow; broken arrow: information flow; the events, characteristics of the internal environment (e.g. diseases, anthropometric, ethnic differences) are symbolized by the two interconnected ∑ and < signs enclosed within the squares. Further explanation can be found in the text section. Source: Ungváry, 2000; 2004; Ungváry and Morvai, 2010.

Textbooks provide detailed information on e.g. what factors should/could be considered from the inner, middle or outer zone of the workplace physical or social environment. To ensure that workplace stress and its impact can be separated from residential effects and effects of life events, during family, personal history taking (also on a questionnaire, form prepared by a physician) stress factors arising from the physical and social "half" of the residential environment, as well as the inner (indoor and out-door features of the home/family circle), middle (environment of the residence/friends, relatives), outer (built and natural environment/society of the country) zones, as well as those e.g. originating from life events or even the country's relationships with neighbouring countries, political-economic groups of countries are recorded. Without knowing these, workplace and non-workplace effects and the addition of the two types of resulting effects or the possible interactions between them cannot be determined. Good doctor-patient relationship, compliance with medical ethics during the recording of these factors is very important! (Ungváry and Morvai, 2010). Note: both completed questionnaires are

attached to work history recorded according to the professional requirements which includes the stress, consequences of strain affecting the worker in any previous jobs, workplaces.

To ensure close to optimum strain, the *second mandatory task* of the occupational health service specialist (in some cases the *occupational hygiene specialist, occupational psychology specialist* employed by the service) is the risk analysis (risk assessment/evaluation; risk management; risk communication) aimed at eliminating, or at least reducing to a tolerable level the "pathological factors" determined during the course of the first mandatory task. The steps of risk analysis are shown in *Table I*. Regarding its implementation, we would like to refer to the occupational health textbooks, the relevant chapters of Hungarian textbooks. (Ungváry, 2000; 2004; Ádány, 2006; Ember, 2007; Ungváry and Morvai, 2010).

Table I.

The process and steps of risk analysis (Analysis).

1. Risk assessment	**2. Risk management**	**3. Risk communication**
1.1 Hazard identification	2.1 Risk evaluation	3.1 Determining the tasks of the management and publicize to workplace, home and business partners
1.2 Hazard characterization	2.2 Risk management strategy	3.2 Determining the tasks of the employees and controlling the execution of the tasks
1.3 Exposure estimation/ measurement	2.2.1. a) measures to avoid risk b) measures for risk reduction	3.3 Education, training, PR activities
1.4 Risk characterization (quantitative/ qualitative)	2.2.2 Continuous risk control programme	3.4 Public information
	2.2.3 Measuring the effectiveness of risk management – measures: controlling the work of persons in charge with repeated risk assessments	3.5 Worker satisfaction with workplace risk management
	2.2.4 Assessing the effectiveness of risk management – costs	3.6 Public satisfaction with environmental risk management

To ensure close to optimum strain the *third mandatory task* of the occupational health service specialist is knowledge of the latest literature on the advances in occupational health (occupational medicine, work hygiene), and the incorporation of the relevant achievements by related specialities into the above system. The appropriate theoretical and practical (!) continuing education courses need to provide support for this. We would like to note here: in the first decade of the 21st century already, we focused on the newest science-based tasks of occupational health. We were particularly concerned about the four interrelated shock waves of civilization – demographic, economic, technical-technological, ecological – afflicting society and the effect these have on health, as well as their expected demands on occupational health (Rorbach and Dézsy, 2008; Ungváry, 2008; 2009A; 2009B; 2016; Ungváry et al., 2008; MÜTT Presidency, 2010;

Professional College, 2010; Morvai, 2010; Ungváry and Morvai, 2010). In addition to these, or among these, priority must be given to stress, distress and the consequences of this latter, the series of behavioural, psychosomatic and psychiatric disorders. Brundtland (2001) called chronic stress and its consequences the plague of our times, which, at the end of the 20th and the beginning of the 21st century also gained significant ground at the workplaces. Considering the Hungarian traditions as well (namely the works of Selye, 1936; 1956; Palkovits, 1985[10]) and the alarming domestic situation (Léder et al., 2002; Ungváry et al., 2002), we developed a so-called stress monitor (Ungváry et al., 2008; Ungváry, 2009B) for the prevention of workplace strain. Unfortunately, the mandatory implementation of the monitor in Hungary never took place. In 2017, the legal successor of the NIOH states in its 2016 annual report that 946,272 and in 2015: 836,827 workers were exposed to increased psychic stress (Nagy et al., 2017) based on the reports of occupational medicine specialists who took into account (at least in part) the fundamental innovations in occupational health. Considering that these cases were out of a total of ~3 million workers, the proportion of those affected is very high. It would be useful to address the issue in more detail and with a more professional approach. E.g. the effects of psychic stress as stressors, the resulting strain and its consequences should be evaluated (chronic strain, distress, other disorders). The stress monitor is well suited for this purpose.

The European Commission's periodic safety and health at work strategy (EU Commission, 2014), and the National Labour Safety Policy (2016) based on this provide rapid information on the detection and management of new and emerging factors from the constantly and rapidly changing world of work. However, the regular and precise publication and execution of these cannot replace the knowledge provided by international literature, for the understanding and transposition into domestic practice of which the activities of professionals experienced in the scientific achievements in the specialty, participating in scientific research therein, are indispensable.

Solving the three tasks developed to optimize strain can increase the effectiveness of the prevention work of the occupational health services several fold over the effectiveness of the prevention activity required in factory health, therefore carrying this out in occupational health is theoretically a requirement.

RESOLVING THE PRIMARY PREVENTION TASK OF OCCUPATIONAL MEDICINE IN THE SPIRIT OF ILO 161 UP TO NOW

It was made mandatory for the physicians working in the occupational health service set up by 1998 to obtain occupational medicine specialist qualification. Specialist examination was not mandatory for the doctors working in the factory health system organized Soviet-style, which functioned practically as a second general practitioner system. Therefore, doctors working in occupational health provide clinical prevention to the workers under their care based on a higher qualification level than the factory health physicians, while the content of clinical prevention has also changed considerably and expanded with the practical application of the concept of

[10] *Regarding the discovery of strain we would like to mention that Kálmán Lissák, a Hungarian professor of medicine also contributed to the discovery of Cannon's acute stress response. (Cannon and Lissák , 1939).*

stress strain. As a result of this (also) the adaptation of work to the worker (the priority task of labour safety) became more precise. We rightly expected from this medical staff capable of a higher-than-before level of clinical prevention a decrease in the frequency of similar types of occupational diseases and cases of increased exposure among the workers in enterprises that continue to operate using the same technology following the regime change. The economic system and/or structural change that were part of the transition to a market economy, and the mass unemployment this entailed drastically reduced the numbers of occupational diseases and cases of increased exposure *(Figure 4),* which however made it impossible or hardly possible to judge the effectiveness of the newly introduced prevention system. A subsequent retrospective analysis showed the impressively improved figures resulting from the re-regulation (e.g. occupational health care covering almost all workers, close to optimum number/proportion of doctors with specialist qualification working in occupational health, the more professional documentation possibility of the registration than before, analysis of work environment pathological factors). However, the publication indicated: "the efficiency of the operation of the service can hardly be assessed from the implemented controls and the expected reports" (Ungváry and Grónai, 2007). Another analysis following the finding also stated: the functional structure of the occupational health service is capable of providing occupational health care to the workers regardless of the so-called headcount categories. But at the same time, it highlighted: "Yet, the service lags behind expected efficiency!" (Ungváry, 2017). This statement is in line with the positions of the scientific society and professional college operating in the field, and the reports of the NIOH. These organizations' documents state: there is a serious deficiency in the reporting and/or registering of occupational diseases. Since in this country 80-90% of the addressing of these tasks is expected from the occupational health service (including the national institute and the specialist locations), the unresolvedness of the problem also burdens the service[11]. The situation is similar in the case of extreme reduction in the frequency of cases of increased exposure; the difference is that the responsibility for the latter lies 100% with the occupational health service.

The above problems mean: if we are unable to find the occupational diseases and cases of increased exposure caused by working conditions and/or work, logically we will not be able to find their sources either; however the elimination of the sources – also as a key (single?) tool for preventing occupational diseases – is one of the cornerstones of our primary prevention (including clinical prevention) work.

Let us briefly confirm that the problem raised is real.

In Hungary the reporting and registration of occupational diseases have been documented since 1956 *(Figure 4)*. The decrease in incidence following the regime change, the collapse of the industry of the so-called "country of iron and steel" was logical. The very low frequency of occupational diseases of the past 10-12 years can only be explained by the insufficient reporting. The frequency of reporting of occupational diseases in Hungary is not realistic, the incidence of registered occupational diseases is significantly below the actual value. This statement is confirmed by the following data.

[11] *Since occupational diseases manifesting after active working age do not come to the attention of the service (the mutual information exchange system between the general practitioner and the occupational health systems does not or barely operates).*

Comparing the annual frequency of reported and registered occupational diseases standardized for 100,000 workers between 1990 and 1999 in Hungary with the similar data from Sweden, Switzerland, Portugal, Austria, Germany, Italy and France, extreme differences were observed: between 1990 and 1994 the frequency of occupational diseases was higher in all countries than in Hungary; in Sweden for example, the frequency was 10-30 times higher in each year of the period than in Hungary. We concluded (considering e.g. the modernity of the national economies of the countries, national incomes, quality of life of workers, etc.) that the low frequency in Hungary was unrealistic, and could only be explained by the incomplete, inaccurate reporting, and/or reporting systems not based on the same principle (Ungváry, 2016; 2017). Kudász et al. (2017) compared the Hungarian data with the data from the Czech Republic and Belgium: the frequency of occupational diseases was the lowest in Hungary; summarizing their findings they concluded that the "critically low Hungarian case numbers are not a cause for reassurance but rather concern."

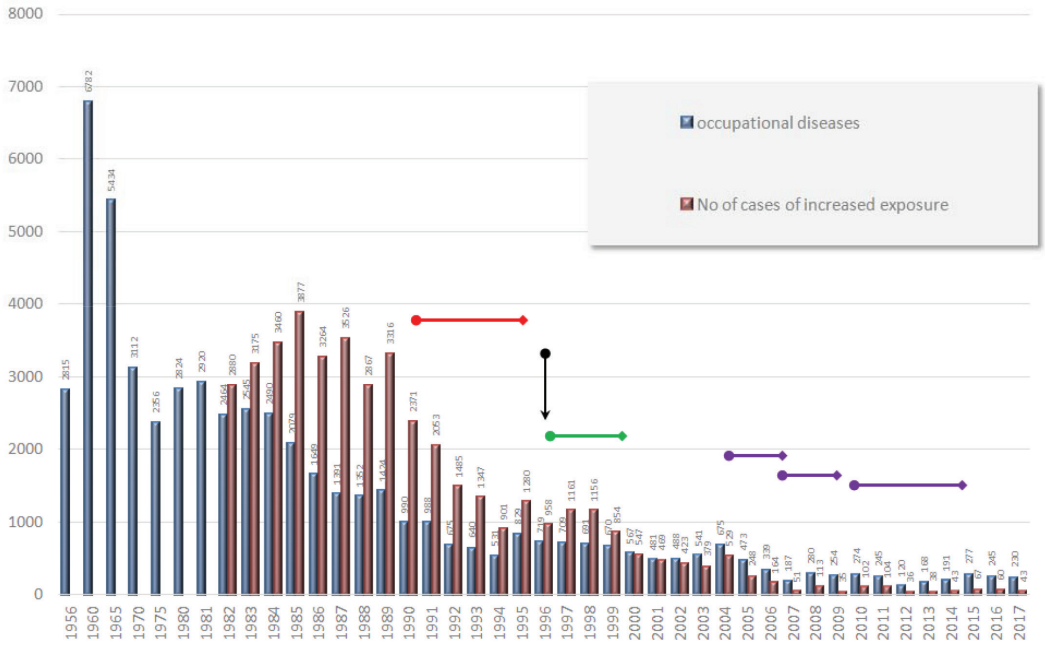


Figure 4. Annual number of reported and confirmed/registered occupational diseases and cases of increased exposure in Hungary from the beginning of the mandatory reporting (from 1956, and 1982) until 2017. Following the transition to a market economy, between 1989 and 1994 (period marked with a red horizontal arrow) the frequency of both parameters decreased drastically; the reason: the structural change of Hungarian industry and agriculture related to the regime change (termination of the "further development" of the "country of iron and steel" based on unsustainable conditions – collapse/ending of heavy industry, deep mining), as well as the mass unemployment that emerged in connection with this. Occupational health service transformed from factory health service, primarily responsible for the reporting of the two indicator parameters began its operation in 1995 and it seemed that the reporting of the two parameters would approach a realistic value (1995-1998, period marked with a green horizontal arrow). However, starting from 1999-2000 the two indicator parameters dipped below real values. Between 2003 and 2005 the case numbers temporarily increased (to a slight extent) following the professional instructions/measures of the occupational health surveillance, chief medical officer; due to the changes entailing downsizing that affected the occupational health system between 2005-2007, followed by the global financial-economic crisis adding to the operation-inhibiting effect of the restructurings between 2008-2014, the frequency of the two indicator parameters fell to unrealistically low levels from which they were unable to meaningfully increase even after the crisis (from 2015 to present day) (see further explanation in the text section). Source: Based on the annual reports of the national institute (NIOH, 1991-1998; 2018; Ungváry, 2016).

Table II.

Number of work-related fatalities in Hungary and in the European Union in 2011

Work-related diseases, work accidents	European Union	Hungary*
Circulatory diseases	53 419	2639
Malignant neoplasms	102 527	1072
Communicable diseases	5 000	86
Respiratory diseases	12 079	102
Other diseases	14 467	87
Total diseases	**187 492**	**3986**
Fatal work accidents	4 692	96
Work-related mortality (total)	**192 184**	**4082**

**WHO-EURO as reference; number of fatal cases of malignant neoplasm of occupational origin in Hungary according to EU-28 reference: 1 808. Source: Takala et al., 2017.*

According to the seemingly most accurate and most recent estimates (Hämäläinen et al., 2017; Takala et al., 2017), in Hungary the annual number of cases of fatal occupational diseases is almost 4000 *(Table II),* while the total number of reported and registered cases of (practically exclusively non-fatal) occupational diseases in the country in the past 10-15 years is just 200-300 *(Figure 4).* Even more striking is that distribution by diagnosis, organ damage of the improbably small number of occupational diseases is not in harmony with not just the estimated work-related mortality in the world[12], but also with the estimated work-related mortality in Hungary *(Figure 5)* or the WHO European Region *(Figure 6)* either.

[12] *We recommend the introduction of the recording of the annual data of work-related mortality developed by Hämäläinen (2010), which can now be estimated using an internationally accepted method. "Work related mortality" ("work related mortality"/mortality rate/ratio) is the sum of the annual number of cases of fatal occupation-related diseases and work accidents, which are determined for individual countries, geographical regions, groups of countries at different levels of social development or even the whole world (globally). Working out a way to join work-related mortality with etiological factors can be the basis for the effective prevention of the worst occupational diseases.*

A

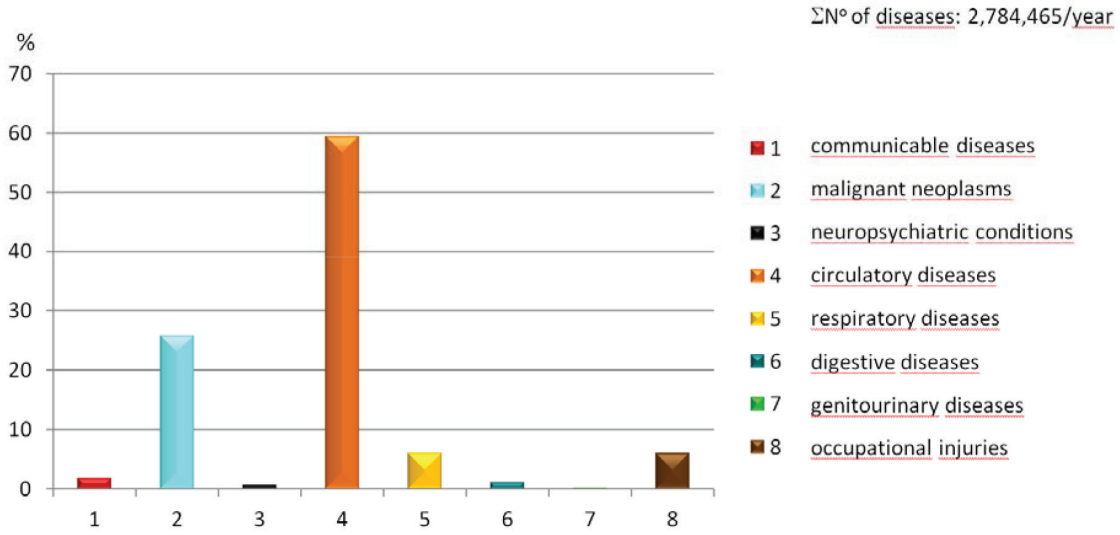
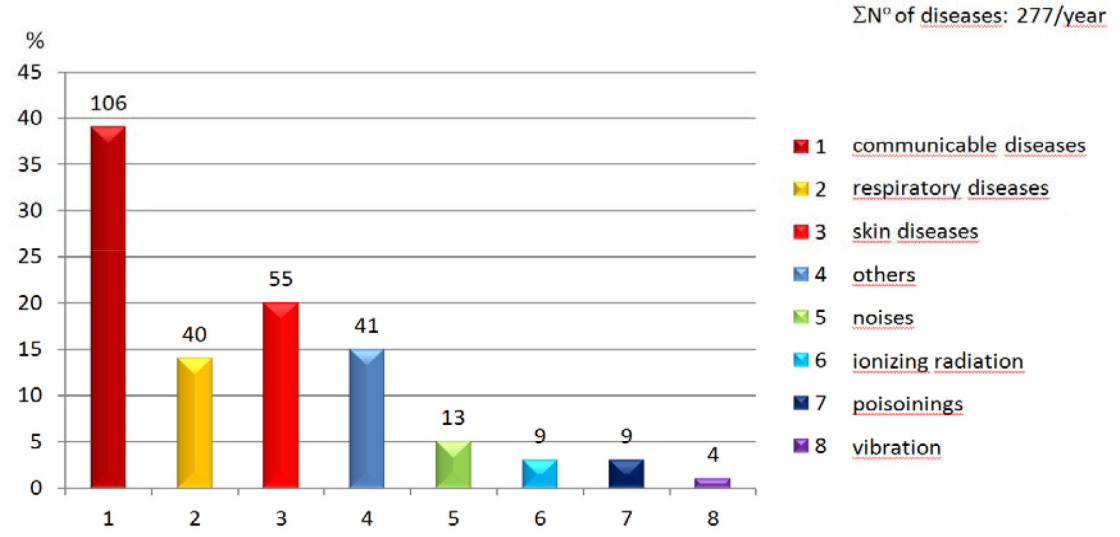


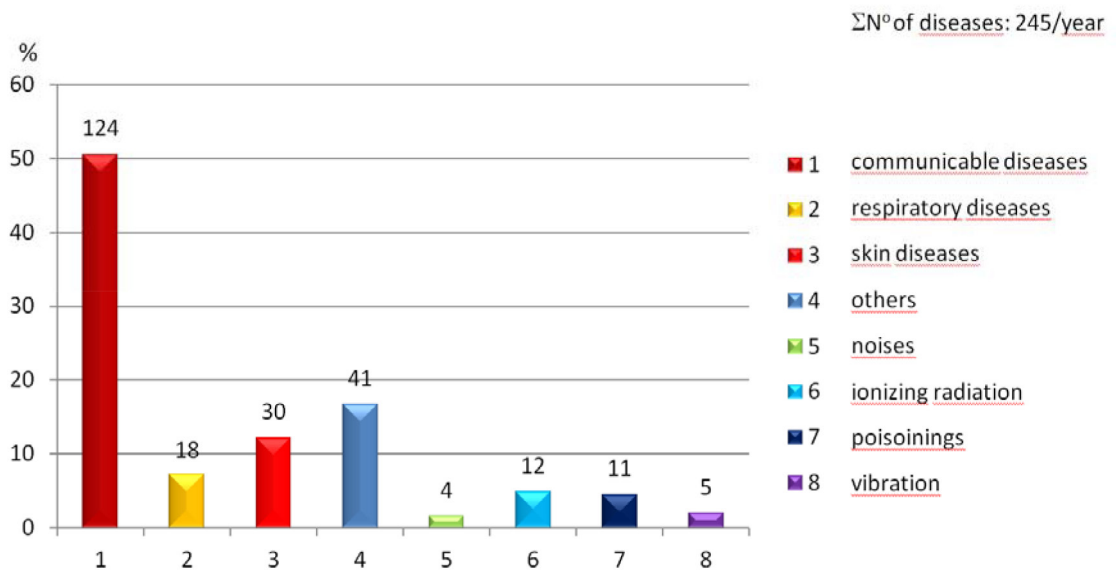
Figure 5. / A: % distribution and total case numbers of occupation-related fatal diseases in the WHO-Euro Region in 2015. Source: Hämäläinen et al., 2017.

B

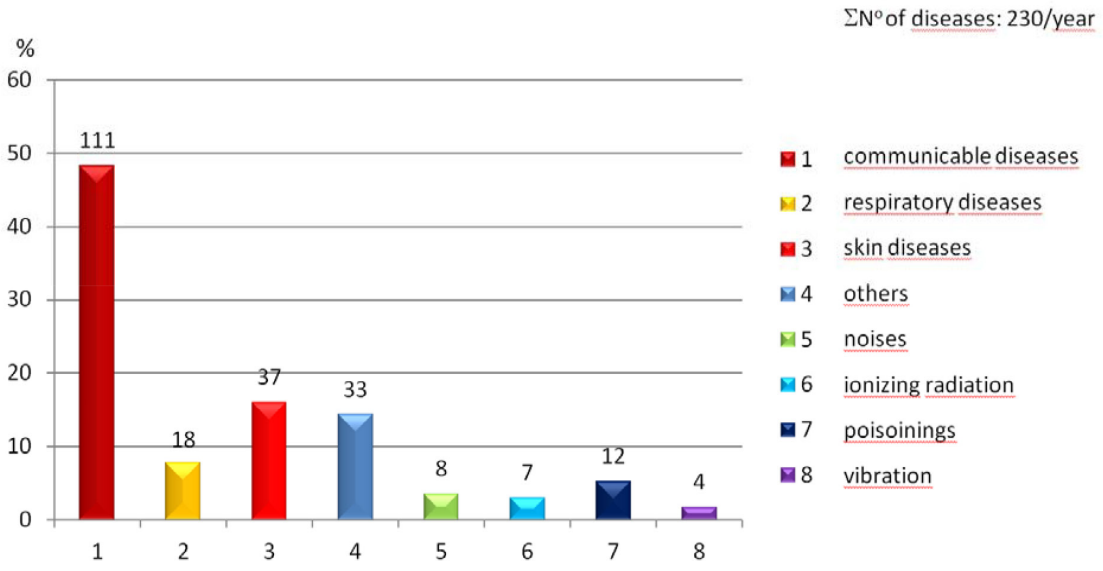


Figures 5. / B, C, D: % distribution and total annual number of cases of reported and registered occupational diseases in Hungary in 2015 (B), 2016 (C), 2017 (D). The number of cases in each disease group is shown on top of each column. There is no comparison between the pattern of occupation-related fatal diseases shown by the WHO-EURO Region bar chart and the distribution of the reported and registered occupational diseases in Hungary between 2015 and 2017. The high proportion of communicable diseases, which is ~ 40% of the total number of cases, in the Hungarian data series is striking (note: fatal cases are very rare among this group).

C



D



This comparison row which exceeds by more than one order of magnitude the frequency of Hungarian reporting, discredits their quantitative and qualitative characteristics even if we take into account that on the one hand Hungarian reportings were made according to a list set out in Hungarian legislation that barely differs from the EU schedule of reportable occupational diseases; [the distribution of fatal occupational diseases were shown according to the estimates drawn up by Hämäläinen (2010)]; on the other hand the first detection of fatal occupational diseases and

the time when the suspicion of their occupational origin is even raised, unless it is during the active working age of the worker, will not even get to the sphere of vision of the occupational health service due to the imprecise regulation of our reporting system; thirdly: during the past years no occupational disease examinations were conducted in accordance with the rules of the profession in the case of a group of about 100,000 workers exposed to workplace psychic stress.

These deficiencies/inaccuracies/omissions can hint not just at the low level of the prevention activities of the occupational health services but also raise serious ethical, health care organizational-regulatory/professional and regulatory oversight as well as economic issues. The issues and the responses to the issues are summarized and commented below.

Ethical issues. We have no data on the deliberate non-reporting of an occupational disease that was intended to help cover up a bad labour safety solution. There is also no proven case in which an unfit for work worker is given fit qualification due to "humane" compassion on the part of the doctor, this solution can endanger the life of the worker who "gets helped out" and in some cases even the health and safety of his/her colleagues. The two types of reporting irregularities described are also serious ethical violations.

Health care organizational-regulatory issues. The professional leadership of the field (scientific society, professional college, successor organization of the NIOH, heads of department) deemed/deems several decisions by the top decision makers related to the correct reporting of occupational diseases to be expressly disadvantageous.

On the one hand: „In line with the concept of WHO "Occupational Health Care for All" strategy, which was declared and adopted with resolution 49.12 of the UN General Assembly in 1996, and further in line with the document entitled "Declaration on Workers' Health" adopted by the representatives of 45 WHO Collaborating Centres in Occupational Health in Stresa, Italy, June 8-9, 2006, in line with the National Labour Safety Policy (2001) published in resolution No. 20/2001 (III. 30.) OGY of the Hungarian Parliament, we, the participants of the 26th Congress of the Hungarian Society of Occupational Health and Medicine, would like to draw attention to the following:

Although ILO Convention 161 requires that work be adapted to the worker's physical, mental (we would like to add: psychic) abilities, despite many years of protest by the profession, unlike the specialists in other fields, Hungarian regulations do not allow the specialists of the occupational health service to call for specialist consultation, examination financed by the National Health Insurance Fund" (MÜTT General Assembly, 2006).

The professional bodies repeatedly addressing the issue believe that the Hungarian regulatory decision according to which an occupational health specialist cannot refer a worker to a doctor of another specialty at the expense of the National Health Insurance Fund (e.g. to obtain knowledge necessary to assess fitness for job) must be based on a professional misunderstanding because i) it can increase the frequency of workers' morbidity, mortality, endanger their ability to work and earn; ii) instead of saving money, it causes serious financial losses for both the National Health Insurance Fund and the Hungarian taxpayers (MÜTT General Assembly, 2008; 2010; Morvai, 2010).

No action was taken by the decision makers. This hinders the effective prevention work, may adversely, and not without errors, affect its effectiveness. (Note: the doctors of the occupational health services may request, use other specialist examinations by going through the general practitioners.)

On the other hand: the financing of the services based on direct contract by the employer in compliance with regulation (for more details see footnote 4) is such that in many cases the specialists not just do not have any interest in the complete solving of all tasks listed, but adhering to a professional solution may conflict with their own existential interests, as well as with the employers' and even the workers' interests and this in itself may call into question the accuracy of the reporting of occupational diseases, and significantly impedes prevention work[13] (Professional College, 2010).

Professional and regulatory oversight efficiency. We have no evaluable analysis of the effectiveness of the chief medical specialist oversight activities of the occupational health services. Of the control activities of the Labour Safety Authority, we can state that they perform their work in a professional manner but within very narrow possibilities (Ungváry, 2016). The authority manages to visit each employment unit once every 30-50 years at most (Groszmann and Nagy, 2012; Madarász, 2016; Ungváry, 2016). Both professional and official controls are insufficient. Their inadequate operation in the inadequate reporting of occupational diseases requires analysis and the consequences drawn from the analysis will most likely require measures.

Economic issues. The inadequate reporting of occupational diseases, the level lagging behind attainable of the effectiveness of primary and/or secondary prevention raises major economic questions, including the question of cost-benefit. According to calculations made within a SROP project in 2015, the cost effect of work accidents and occupational diseases in Hungary was estimated at HUF 214.2 billion (EUR ~720 million) for 2013 (Nesztinger, 2016). The cost implications are significant. We did not find any data on cost-benefit analysis (Morvai and Ungváry, 2010).

We believe the summarized official decisions expressly obstructing prevention work – in line with the resolutions and opinions of the scientific society and the professional college in the field - require unconditional and immediate correction. We would like to add: the elimination of the deficiencies identified in Hungary, the solving of the problems will alone not solve the issue of the correct reporting of occupational diseases, but their implementation may significantly improve the prevention of occupational diseases.

The questions arise: 1. Is the accurate reporting of occupational diseases important, and 2. How can accurate reporting be achieved? Can it be achieved?

---

[13] *We would like to note: the document developed together with top decision makers, the National Health Insurance Fund and the profession intended to place the ethically, professionally and economically equally objectionable financing on a new footing was published in a 2001 Parliament decree and called for the establishment of a third insurance (or so-called accident insurance fund), as well as included the obligation to provide mutual reporting with the general practitioner practices (MÜTT General Assembly, 2010). The solution was rejected by the new government that took office in early summer 2002.*

ad1. The importance of the accuracy of the reporting is determined by the importance of the objective of the creation of the reporting system. Based on the above it can again be stated that the current Hungarian reporting system is unsuitable for achieving any known objective. Based on their investigations Kudász et al (2017) state that (currently) it is unsuitable for either the purposes of assessing individual indemnities, the objective in most Western countries, or for the full prevention of occupational diseases (elimination of the pathological factors of the diseases) or even for defining a national strategy aimed at eliminating health impairment from disease-causing exposures at the workplaces. We concur with the statement based on our previous findings and the present review. However, our position is that the importance and necessity of accurate reporting are indisputable. The number one objective and task of labour safety is the prevention of occupational diseases and work accidents. Knowledge of the full range of potentially recognizable occupational diseases is therefore an obligation[14].

ad2. The regular and precise recording of the incidence of encountered occupational diseases must be resolved. To this end: the current reporting system must be corrected forthwith with changes to resolve the identified problems. Here we would only like to refer to the itemized list above. Just as an example: the issues of the financing of the occupational health care systems, referral to specialists, the insufficient oversight system await resolution, among others. Activities to be carried out under the improved reporting system must be enforced by compliance with laws. This is in the interest of labour safety and public health in Hungary.

Note: The international comparability of the reporting could significantly facilitate the accuracy of reporting, approximating the frequency reported diseases to the actual frequency of diseases. The regulation of labour safety is identical in the EU Member States. Therefore, it seems possible to work out a similar (perhaps identical) reporting system for the EU Member States. In the case of a system of similar/identical structure the countries that are behind in the reporting ranking can rectify their shortcomings (knowing the reasons for their lagging behind) in light of the analysis of the results of the leading groups of countries.

SPECIALIST TRAINING, CONTINUING EDUCATION FOR DOCTORS

The occupational medicine specialist training and continuing education of professionals played a key role in the process transforming factory health into occupational health. However, the above seem to point to the fact that the lack of accurate reporting of occupational diseases can be traced back to the noted ethical, health care organizational, oversight, etc. irregularities. Although this seem undoubtable, at the same time the question arises whether the professional knowledge of the reporting doctors and the professional contents of the reports kept up with the developments in the field. Undoubtedly, for example, the diagnosis of occupational diseases is not a simple task. This is demonstrated by initiatives such as the Guide published by the EU Commission (2009). For our part we find such initiatives to be of dubious value. It would be strange if specialists engaged in

[14] *We would like to note: the accurate operation of the reporting system is logically indispensable for assessing individual indemnifications, the calculation of the occupational disease burden, or effective workplace prevention activities.*

occupational health professional work were advised to diagnose from a playbook. We consider it a proven fact that the way to maintain, develop and enhance professional knowledge is the specialist training and continuing education operating under conditions known worldwide[15], and this is also the case for occupational medicine specialists. The question arises: what is the continuing education for doctors like in Hungary?

Specialist training and continuing education of appropriate level for doctors require an independent institute with state-of-the-art infrastructure and instrumentation that meets the requirements of the field as well as a department based on this (Ungváry, 2016; 2017). In Hungary this had been achieved until the integration of universities in 2000, with the department operating as part of the HIETE, which was built on the national institute as the base institute[16]. However, since specialist training and continuing education for specialists in the field of occupational health are carried out at institutions formerly undertaking only graduate training at the four universities providing graduate medical training, the situation changed significantly. At these institutions (through no fault of their own) the above conditions were not available at the time of integration and are not presently available, either. The author is convinced that professional staff familiar with both the theoretical and practical aspects of the subfields, performing scientific activities expected of participants in higher education, with the heads of the subfields, the heads of staff academically qualified must be available for specialist training and (especially) continuing education for specialists. The institutes previously providing only graduate training cannot (also through no fault of their own) meet this requirement, either.

The firm opinion of the former president of the Hungarian Academy of Sciences, which is about an independent postgraduate medical institution, university (and professional continuing education in general), also indicates the severity of the problems briefly outlined in connection with specialist training. Ferenc Glatz wrote in 2005 – among other things – "As after 15 years it is now perhaps time to prepare the political-social balance of the regime change, so it would perhaps also be time in intellectual policy to look back at our own past now with a European horizon? Also, at continuing education?" (Glatz, 2005.) The independent postgraduate medicaluniversity/institute has not been operating in Hungary for 17-18 years now[17].

---

[15] *Note: it is logical that the EU labour safety campaigns are not substitutes for specialist trainings, continuing education. Campaigns and continuing education for doctors have different target groups and these target groups have different basic education and knowledge enhancements needs.*

[16] *Following the transition to a market economy, from 2006, the national institute – whose heyday was between 1991 and 2005 – gradually deteriorated coupled with multiple reorganizations. Today it can no longer fulfil the role it played in occupational medicine and work hygiene specialist training and continuing education through the department based on it. Multiple of its departments (e.g. occupational health inpatient department, experimental and applied toxicology, physiology, pathology department) are no longer operational. Currently it does not even statutory cooperation with the Semmelweis University that includes the former HIETE (Ungváry, 2016).*

[17] *Note: the inclusion of occupational health (labour safety?) in the graduate training of physicians is not the subject of this publication. The issue of including this educational activity of public health significance in the programme should be the subject of a separate study. The inclusion of occupational health (occupational medicine and work hygiene) in graduate training is supported by numerous arguments not presented here; the author knows from his own experience that his occupational medicine lectures held as part of an optional course at the Szeged University of Sciences Faculty of General Medicine were met with surprisingly great interest by the medical students.*

It is worth noting in connection with this that the resolution of the Presidency of the Medical Research Council (ETT) stated in 2015:

„The integrated university operating system initiated in 1997 and created in 2000 did not strengthen the training of doctors in Hungary, but in many ways weakened it. … This unfortunate process has been confirmed with facts, comprehensive statistics by the parallel accreditation procedure of the Hungarian Accreditation Committee (hereinafter MAB) conducted in 2014."

The Presidential resolution went on to say:

„In connection with this we recommend the restoration of the integrity of Hungarian *health specialist training and continuing education*, the medical-health research-development, the top institutions of the patient care system!"

The recommendations we made years earlier were in full agreement with the Presidential executive summary.

The recommendation of the author, consistent with the past president of the Hungarian Academy of Sciences, the opinion of the MAB, the resolution and recommendations of the Presidency of the Hungarian Research Council, as outlined above: in accordance with the successful Hungarian traditions of prior to 2000, the training, and continuing education of specialists require the organization and operation of an independent specialist training and postgraduate training department operating at a university /university faculty, which on the one hand focuses exclusively on postgraduate training, and on the other hand, is based on an institute/institution operating in the field, with the infrastructure of the individual professional subfield units (departments, laboratories) always at state-of-the-art level, and in which a professional staff works under the direction of scientifically qualified heads of subfields and highly qualified institute director. It is important that the department be able to provide individual practical training within the framework of specialist continuing education.

THE CONTENT OF MEDICAL CONTINUING EDUCATION

The issue of medical continuing education was raised primarily to illuminate and solve problems in Hungary. The "infrastructure" and professional staff of medical continuing education serve the objective and content of continuing education. If the content of the continuing education reaches its target (in the case of medical continuing education the target group is the group of occupational medicine specialists), it significantly promotes/periodically defines the effectiveness of the work of the professionals in the field; the effectiveness is confirmed by the practice, it is controlled and recorded by the professional and supervisory authorities. The analysis and resolution of the problem in Hungary is/was also warranted by the fact that neither the knowledge in adequate professional detail, nor the solution options of such studies of discovery significance, such as e.g. the estimation results of occupational related fatal diseases (Hämäläinen, 2010; Hämäläinen et al., 2017; Takala et al., 2017), or the occupational health consequences of civilization shock waves

that have already emerged as problems (Rorbach and Dézsy, 2008) or even the effects of workplace stress affecting large groups of workers (Brundtland, 2001) reach/reached our specialists.

It seems however that the definition, drawing up of the content of continuing education for specialists is not just a problem in Hungary but can also raise issues internationally. Unfortunately, we did not find an international analysis or review summary of the continuing education for physicians related to labour safety. We do not know how information about the above mentioned or other emerging occupational diseases is delivered to the doctors working in labour safety in the individual countries? What is current information? Or: what are the practical results of the knowledge gained through continuing education by doctors working in labour safety in the individual countries? We do know however what international literature makes undoubtable: if the prevention of occupational diseases is treated as a priority task in accordance with the requirements of labour safety, then neither the problems listed above, nor the facts/factors potentially harmful to health uncovered through the most recent scientific advances can/should be avoided.

What we see instead, however, is that neither diseases caused by the factors listed above nor those related to newly emerging factors (e.g. psychic stress increasing non-optimal strain, burnout, distress caused by workplace stressors, psychosomatic, behavioural psychiatric disorders, health impairment caused newly emerging infections – SARS, bird flu – nanoparticles) are listed in not just the Hungarian but also the EU or ILO schedules of mandatorily reportable occupational diseases. In order to expect the accurate reporting of occupational diseases and their effective prevention, these must be included in the schedules.

Although – as previously noted – the reporting of occupational diseases may serve other purposes (e.g. assessing individual indemnifications, calculating the burden of diseases needed for developing budgets), from the aspect of labour safety its priority and single purpose is the prevention of occupational diseases. If we acknowledge that the primary task of labour safety, or of even occupational health that operates as a part of this, is the prevention of occupational diseases and work accidents, then this is evident.

I.e.: since the primary task of the occupational health service is the prevention of occupational diseases, to this end, the detection of every single occupational disease is an obligation. Therefore, a reporting system ("register"/schedule) must be developed which, with appropriate diagnostic activity, makes this possible. We believe that a technically/structurally identical register that enables comparison between countries has the same content, if it is up-to-date, continuously updated, facilitates prevention by requiring the identification of the sources, the pathogens of the diseases. Note: the background information for the accuracy of the register is not the subject of this article. As an indication of its importance, we would just like to mention work history: the work history of every single worker from starting at the first job until finishing work at the last job must be available to the labour safety authority, respecting confidentiality and personal rights. Stress and (at least estimated) strain must be continuously recorded in the work history. We believe that with international cooperation this goal/task is not just achievable and feasible but also an obligation.

Reviewing the 30-year history of ILO Convention 161 in Hungary, it seems proven that its spirit played decisive roles in both the change in approach and practical activity of the specialty. The spirit of ILO Convention 161 should be retained in the future, but greater emphasis must be placed on the fact that the activities of decision makers, specialists directing or carrying out day-to-day practical work who take into account numerous other aspects, be more in synch with the spirit of the Convention. This requires the solving of definable tasks by those preparing decisions, decision-makers and those implementing decisions in day-to-day practice working in labour safety in individual countries, country-communities and international organizations. Solving these tasks is the cornerstone of the successful work requiring improvements in the field.

ABBREVIATIONS. ***ETT:*** Medical Research Council; ***HIETE:*** Haynal Imre University of Health Sciencies, Postgraduate Medical Faculty; ***KSH:*** Central Statistical Office, Budapest; ***MAB:*** Hungarian Accreditation Committee; ***MÜTT:*** Hungarian Society of Occupational Health and Medicine; ***Mvt:*** Labour Safety Act; ***NIOH:*** National Institute of Occupational Health; ***OEP:*** National Health Insurance Fund; ***OMMF:*** National Labour Safety and Labour Inspectorate.

REFERENCES

ÁDÁNY, R. (ed.) (2006). Preventive Medicine and Public Health Sciences. (in Hungarian), Medicina Könyvkiadó Zrt., Budapest, pp. 1-678.

BENCKO, V. and UNGVÁRY, G. (1994). Risk assessment and environmental concerns of industrialisation: A Central European experience. In: Occupational Health in national development. Eds: Jeyaratnam J., Chia K.S. Singapore, New Jersey. London. Hong Kong. World Scientific. pp. 275-299.

BÉLECZKI, L., GRÓNAI, É. and UNGVÁRY, G. (1996). Factory Health and the First Year of the Operation of the Occupational Health Services. Labour Safety Information Notice. (in Hungarian). MÉM, 15(4):3-23.

BRUNDTLAND, G.H. (2001). „Message from Director General". In: WHO: Mental Health. New Understanding, New Hope. The World Health Organization Report. WHO, Geneva, pp. 9-10.

CANNON, W.B. and LISSÁK, K. (1939). Evidence for adrenalin in adrenergic neurones. Amer. J. Physiol. 125:765-777.

COMMISSION of the EUROPEAN COMMUNITIES. II. (2003). Commission recommendation of 19 September 2003 concerning the European schedule of occupational diseases (notified under document number C(2003)3297.) (Text with EEA relevance). (2003/670/EC) Official Journal of the European Union. L238/28-L238/34. 2003.

DEUTSCHE FORSCHUNSGEMEINSCHAFT (2013). List of MAK and BAT Values. Wiley-VCH. Verlag GmbH&Co. KgaA.

DÉSI, I. (ed.) (1998). Public Health Sciences (1st Edition) (in Hungarian), Semmelweis Kiadó. Budapest, pp. 1-557.

EMBER, I. (ed.) (2007). Public Health Medicine. (in Hungarian). Dialóg Campus Kiadó. Pécs, pp. 1-856.

ERDÉLYI, A. (1983). The Occupational Physiology of the Load Capacity of the Female Body. In: Biological Problems of Women's Social Involvement. ed. by Csaba Gy. (in Hungarian), TIT, Budapest, pp. 49-86.

ERDÉLYI, A., MITSÁNYI, A. and HÓDOS, T. (1981). Human-Stress-Strain. In: Occupational Health, Factory Health, ed. by Tímár M. (in Hungarian), Medicina Könyvkiadó. Budapest. pp. 173-193.

ETT (2015). Presidency of the Medical Research Council: Situation of the Medical Universities, Trends of Changes, Aspects of Medical Education. Executive Summary. (in Hungarian), ETT Elnökség, Budapest, 15056-2/2015-ETT.

EU COMMISSION (2014). Communication from the Commission to the European Parliament, to the Council, the European Economic and Social Committee and the Committee of the Regions on the EU Strategic Framework on Health and Safety at Work 2014-2020. Brussels, 6.6. COM(2014) 332 final.

EUROPEAN COMMISSION (2009). Information notices on occupational diseases: a guide to diagnosis. Luxembourg: Office for Official Publications of the European Communities.

GLATZ, F. (2005). The Szabolcs Street Hospital and its Doctors 1889-2004. Greeting. In: Internal Medicine, Cardiology in The Szabolcs Street 1889-2005. Jewish Hospital, Postgraduate Medical University, ed. by Préda I. (in Hungarian), Historia Alapítvány. Budapest. pp. 1-12.

GRÓNAI, É., BÉLECZKI, L., and UNGVÁRY, G. (1996). Development and activities of the Occupational Health in 1995. (in Hungarian) Munkavédelmi Tájékoztató – MÉM. 15(2):3-14.

GROSZMANN, M. and NAGY, I. (2012). Current Issues of the Prevention of Work-Related Health Problems. (in Hungarian). Foglalkozás-egészségügy, 16(3):120-144.

HÄMÄLÄINEN, P. (2010). Global estimates of occupational accidents and fatal work-related diseases. Doctoral dissertation, Publication 917, Tampere University of Technology. Finland. Available at: http://displace.ee.tut.fi./sequence=1 Accessed on 11th September 2014, cit. Takala et al., 2017.

HÄMÄLÄINEN, P., TAKALA, J. and KIAT, T.B. (2017). Global estimates of occupational accidents and work-related diseases 2017. WHS Institute, Ministry of Social Affairs and Health. Finland. pp. 1.-20.

HUNGARIAN LABOUR INSPECTORATE (2018). Webpage of the Ministry for National Economy – Hungarian Labour Inspectorate, NGM Budapest, Historical Overview (in Hungarian), pp. 2-12.) http://www.ommf.gov.hu/index.php?akt - menu=362; Labour Safety Research, Technical Development (in Hungarian), pp. 2-3, http://www.ommf.gov.hu/index.php?akt - menu=378

KSH (2010). Central Statistical Office: Territorial Differences in Life Expectancy at Birth. Statistical Mirror 4(115). (In Hungarian.) Központi Statisztikai Hivatal, Budapest. www.ksh.hu

KUDÁSZ, F., NAGY, K. and NAGY, I. (2017). Occupational diseases in Belgium, the Czech Republic and Hungary – A comparison. Centr. Eur. J. Occup. Environm. Med. 23:32-49.

LÉDER, L., KOPP, M., SZEDMÁK, S. and LÁZÁR, I. (2002). Object Loss and Health Status. II. On Unemployment. In: Quality of Life, Dead Ends and Ways Out (ed. by Vizy E.S.) (in Hungarian), MTA. Budapest. pp. 63-95.

MADARÁSZ, G. (2016). Labour safety situation of the National Economy. Manuscript (in Hungarian) cit. Ungváry, 2016.

MORVAI, V. and UNGVÁRY, G. (2010). Cost and benefit of the Occupational Health Services: Preliminary Study (In Hungarian). Foglalkozás-egészségügy, 14(4):149-154.

MORVAI, V. (2010). Review of the new Széchenyi Plan. MÜTT Presidential Resolution, Budapest.

MÜTT PRESIDENCY (2008). Resolution of the Presidency of the Hungarian Society for Occupational Health and Medicine on the Right of the Occupational Health Primary Care Services to Referral to Specialist at the Expense of the National Health Insurance Fund (in Hungarian). MÜTT Elnökség, Budapest

MÜTT PRESIDENCY (2010). Remarks on and Suggestions for Change in our Field of the Hungarian Society for Occupational Health and Medicine to the Planned Proposal for the Medium-Term Development of Health Care Prepared by MOTESZ (in Hungarian), MÜTT Elnökség, Budapest

MÜTT GENERAL ASSEMBLY (2006). Resolution, Remarks of the Hungarian Society for Occupational Health and Medicine at its 26th Congress Held in Balatonalmádi, October 5-7, 2006 (in Hungarian) Foglalkozás-egészségügy. 10(4):36-38.

MÜTT GENERAL ASSEMBLY (2008). Resolution, Remarks of the Hungarian Society for Occupational Health and Medicine at its Congress Held in Budapest in 2008 (in Hungarian), MÜTT, Budapest

MÜTT GENERAL ASSEMBLY (2010). Resolution on the Issues, Challenges of our Specialty Based on the Decision of the General Assembly of the 30th National Congress of the Hungarian Society for Occupational Health and Medicine Held in Székesfehérvár, October 7-9, 2010 (in Hungarian), MÜTT, Budapest

NAGY, I., GRÓNAI, É., NAGY, Z., and BRUNNER, P. (2017). The activities of the Occupational Health Service in Hungary in 2016 (in Hungarian) Foglalkozás-egészségügy, 21(3):122-142.

NATIONAL LABOUR SAFETY POLICY 2016-2020. 1581/2016. (X.25.) Government Resolution (in Hungarian), Magyar Közlöny 2016/164, December 12, 2016.

MINISTRY OF WELFARE Decree 27/1996 (VIII.8.) On the Reporting and Investigation of Occupational Diseases and Cases of Increased Exposure (in Hungarian)

NESZTINGER, P. (2015). The Estimated Domestic Cost Impact of Work Accidents and Domestic Occupational Diseases in 2013 (in Hungarian), TÁMOP 2.4.8.-12 project

NIOH (1991-1998). Annual Reports of the Legal Successors of the National Institute of Occupational Health, between 1991 and 1998 (in Hungarian), Budapest

PALKOVITS, M. (1989). Neuroanatomical overview of brain neurotransmitters in strain. In: Van loon C.R., Kvetnansky R., McCarty R., Axelrod J. eds. Strain: neurochemical and humoral mechanisms. Vol. 1. New York: Gordon and Breach Scientific Publischers, pp.31-32

PROFESSIONAL COLLEGE (2010). Need for a "Paradigm Shift" in Occupational Health. Resolution of the Professional College Operating in the Field of Occupational Medicine (in Hungarian)

ROHRBACH, W. (2008). An der Wende zweier Zeitalter. In: Gesundheitsreport Zukunftsaspekte der arztlich-pflegerischen Versorgung in Spiegel der democratischen Entwicklung. (J.Dézsy). W. Mandrich Verlag. Wien. 2008. pp.7-27.

SELYE, H. (1936). A syndrome produced by diverse nocuous agents. Nature. 138(1):32.

SELYE, J. (1964). The Strain of Life. McGraw-Hill Book Company Inc. New York. 1956. (Published in official Hungarian version by the Hungarian Academy of Sciences in 1964).

TAKALA, J., HÄMÄLÄINEN, P., NENONEN, N., et al. (2017). Comparative analysis of the burden and injury and illness at work in selected countries and regions. Centr. Eur. J. Occup. Environm. Med. 23(1-2):16-31.

TOMKA, B. (2009). Social History of Europe in the 20th Century (in Hungarian) TÁMOP. 4.2.5. pályázat könyvei, Osiris Kiadó. Budapest. www.tankonyvtar,hu/tartalom/tamop426/2

UNGVÁRY, G. (1989A). MAK Standard. A Breath of Health (in Hungarian) Szabvány és Világ. 41(3):20-22.
UNGVÁRY, G. (1989B). Toxicology and primary prevention (in Hungarian) Egészségtudomány. 33:4-14.

UNGVÁRY, G. (1991). History of Occupational Health in Hungary. Proceedings of the Finnish-Hungarian Symposium. Natl. Inst. Occup. Hlth., Budapest. pp. 5-8.

UNGVÁRY, G. (1994A). Occupational health in Hungary. In: Occupational health in national development. Eds.: Jeyaratnam J., Chia K.S. Singapore. New Jersey. London. Hon Kong. Word Scientific. pp. 410-424.

UNGVÁRY, G. (1994B). Reform of occupational medicine in Hungary (in Russian), Medicina Truda Estonii. 1-29.

UNGVÁRY, G. (1994C). Reform of occupational medicine in Hungary (in Estonian) Esti Töötervishoid. 1/94:10-11.

UNGVÁRY, G. (1997A). Updating the training, specialist education of doctors working in occupational health care. (in Hungarian), Foglalkozás-egészségügy, 1997/1:3-5.

UNGVÁRY, G. (ed.) (1997B). Occupational Medicine Practical Notes (in Hungarian), Budapest, 368 pages

UNGVÁRY, G. (ed.) (2000). Occupational Health, 1st edition (in Hungarian), Medicina Könyvkiadó Zrt. Budapest.

UNGVÁRY, G. (2003). Occupational health in Hungary and the history of the Hungarian Scientific Society for Occupational Health and Medicine. In: Origins of Occupational Health Associations in the World. Eds.: Grieco, A., Fano, D., Carter, T. Javicoli S., Elsevier. Amsterdam, Boston, Heidelberg etc.

UNGVÁRY, G. (ed.) (2004). Occupational Health, 2nd edition (in Hungarian), Medicina Könyvkiadó Zrt. Budapest.

UNGVÁRY, G. (2008). Transformation of factory health care into occupational health care and the current issues. New challenges of occupational health care (in Hungarian), Orvostovábbképző Szemle. 15 (5):13-15.

UNGVÁRY, G. (2009A). New challenges of health and safety at work in the first decade of the 21st century (in Hungarian), Népegészségügy 87(4):309-321.

UNGVÁRY, G. (2009B). Prevention of workplace stress – stress monitor (in Hungarian), Foglalkozás-egészségügy. 13(2):11-22.

UNGVÁRY, G. (2016). Current issues of labour safety (occupational health and workplace safety, with special regard to the period since the accession to the EU. Review summary for the Preventive Medicine Committee of the Section of Medical Sciences of the Hungarian Academy of Sciences (in Hungarian), Budapest, pp. 1-64.

UNGVÁRY, G. (2017). Current issues of recognition and prevention of occupational health damages in Hungary from the social, political and economic changes of regime up to now. Centr. Eur. J. Occup. Environm. Med. 23(3-4):6-30.

UNGVÁRY, G., ROZGONYI, T., and SZOLLÁR, L. (1988). "It does not just ennoble" – Adverse health effects of the work environment In: Encouraging. "Keep Your Life" ed. by Szollár L., (in Hungarian), Akadémiai Kiadó, Budapest, pp. 129-140. (ISBN 963-05-4898-4).

UNGVÁRY, G., BÉLECZKI, L., and NAGY, I. (1994). How can factory health be transformed into occupational health? OSH Information (in Hungarian), MÉM. 13(3):30-38.

UNGVÁRY, G.; BÉLECZKI, L. and NAGY, I. (1995). Occupational diseases in Hungary. Legislation and case law. (in Italian) L'Assistenza Soc. 4:362-370

UNGVÁRY, G., BÉLECZKI, L. and GRÓNAI, É. (1997). Transformation of factory health care service and the first-year activities of the new occupational health service in Hungary. Centr. Eur. J. Occup. Environm. Med. 3(1):8-23.

UNGVÁRY, G., and GRÓNAI, É. (1997). Quality assurance in occupational health (in Hungarian), Foglalkozás-egészségügy. 1(2):3-7.

UNGVÁRY, G. and Grónai, É. (2007). Occupational Health in Hungary from the transition to a market economy to the accession to the European Union I. (in Hungarian), Foglalkozás-egészségügy, 11(2):3

UNGVÁRY, G., MORVAI, V., and SZAKMÁRY, É. (2008). Preventing workplace stress – Stress monitor. Centr. Eur. J. Occup. Environm. Med. 14(4):321-338.

UNGVÁRY, G. and MORVAI V. (eds.) (2010). Occupational Health. 3rd edition (in Hungarian), Medicina Könyvkiadó Zrt., Budapest.

UNGVÁRY, G., NAGY, I., and MORVAI, V. (2002). Unemployment and life quality. In: Quality of Life, Dead Ends and Ways Out (ed. by Vizy E.S.) (in Hungarian) MTA. Budapest. 2002. pp. 32-62.

WHO-EURO (1985). Occupational Health in the 1990s. Main directions of the changes In: European Occupational Health Series. Issue No. 1. (in Hungarian, translated by OMÜI), pp. 1.-64.