



RĪGA STRADIŅŠ
UNIVERSITY



DEVELOPMENT OF THE RSU INSTITUTE OF OCCUPATIONAL SAFETY AND ENVIRONMENTAL HEALTH





Development of the RSU Institute of Occupational safety and environmental health

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The Institute of Occupational Safety and Environmental Health (IOSEH) is the leading research and training institution in Latvia in the area of occupational safety and health.

History of the Institute

The establishment of the IOSEH is the result of long-term working cooperation of several occupational safety and environmental health institutions, namely, the Laboratory of Hygiene and Occupational Diseases and the Department of Occupational and Environmental Medicine of Riga Stradiņš University, as well as the Occupational and Radiological Medical Centre of Pauls Stradiņš Clinical University Hospital.

The Hygiene Department (later the Department of Occupational and Environmental Medicine) was established in 1949 at Riga Medical Institute (later



Experts from the Hygiene and Occupational Diseases Department of Central Research Laboratory during their work at company (around 1985)

Latvian Medical Academy and afterwards Riga Stradiņš University). In 1966 the **Hygiene and Occupational Diseases Department** was organized at the Central Research Laboratory of Riga Medical Institute. Its founder was Professor Ļevs Izrailietis (1924–1980). His enthusiasm and work capacity established scientific grounds of Latvian occupational health as science. Over time, the two organisations have experienced major changes, but have not lost their original aims and objectives: ensuring student and staff training and conducting of research. In 1992 both structures merged as the **Institute of Occupational Medicine**.

It should be noted that in the 20th century in the developed countries much attention is paid to occupational safety and health of employees. It can partly be explained by changes in the nature of work – many employees shift from the industrial sector to the service sector and there is a need to take action to improve the working conditions. Due to the differences in the production sector and working conditions in different countries of the world the occupational medicine has also developed differently. In the 20th century in many industrialized countries occupational health clinics were established, various occupational hygiene and medical research institutes founded as well as similar departments at universities.

In 1953 a special ward (No 29) was opened at Pauls Stradiņš Republican Clinical Hospital (RCS). At first it was a therapeutic ward with 45 beds. In 1969 the number of beds was increased and investigation and treatment of occupational diseases as well as complex analysis of employees' work capacity started. Later the occupational and radiation pathology sectors at the outpatient clinic of RCS were established. The biochemistry laboratory of RCS began identifying heavy metals in the body's biological environment. These institutions worked together to provide diagnosis and treatment of occupational diseases in Latvia. In 1976 they merged and the **Republican Centre of Occupational Diseases (RCOD)** was created.

In the 1980s there was a rapid increase in the newly diagnosed occupational diseases in Latvia. The reasons for it were the changes in the legislation on compensations for occupational diseases also for retired patients on the one hand, and unfavorable working conditions in many Latvian industrial and agricultural enterprises on the other.

After the accident in the Chernobyl nuclear power plant in 1986, more than 6000 Latvian citizens took part in the clean-up work of the contaminated area. Latvian doctors had to face a lot of new challenges due to the effects of ionizing radiation on the human body. As the number of patients with occupational diseases and the affected Chernobyl clean-up workers increased the issues to be solved became more complex, thus the RCOD was reorganized and enlarged. In 1993 the RCOD was renamed the **Occupational and Radiological Medical Centre**. By using its data in 1994 the Register of Participants in the Clean-up of the Chernobyl Nuclear Power Plant Accident and People Affected by Radiation was started.

Over the time there had been changes in the requirements for diagnostics and treatment methods of occupational diseases, scientific research and training, so an idea of a modern institute that would meet the new requirements was born. It was decided to merge all the agencies involved in order to build a strong and modern institution that could ensure meeting of the new requirements. So, in 1996 the Institute of Occupational Medicine became the **Institute of Occupational and Environmental Health**.

The Occupational and Radiological Medical Centre of Pauls Stradiņš Clinical University Hospital became an associate department in the Institute of Occupational and Environmental Health of the Latvian Academy of Medicine in 1996. At that time the Institute consisted of:

- Department of Hygiene and Occupational Diseases (Head *Dr. med.* Dagmāra Sprūdža), including the environmental chemistry group (Head *Dr. med.* Māriete Ārija Baķe);
- Department of Occupational and Environmental Medicine (Head prof. Maija Eglīte).

The aim of the **Department of Hygiene and Occupational Diseases** (DHOD) was to investigate the causes of diseases and to elaborate preventive measures, thereby enhancing the development of occupational health science. Special attention was paid to allergic occupational disorders. The Department staff was the first in the former Soviet Union that scientifically justified the antibiotics hygiene by analysis of their effects and produced maximum concentration values (occupational exposure limits) of several substances

with allergenic potential. In 1970 Ļevs Izrailietis defended his doctoral thesis “Antibiotic-associated occupational diseases under industrial conditions”. Professor Izrailietis established occupational health services in Latvia. He was Head of the Department for 14 years until his last day on 6 August 1980.

In 1980 the senior research fellow Maija Eglīte became Head of the Department of Hygiene and Occupational Diseases. In 1987 M. Eglīte defended her doctoral thesis “Allergic diseases of poultry breeders” in Moscow. In 1990 M. Eglīte was elected professor of the Latvian Medical Academy, of the Department of Occupational and Environmental Medicine, and since then she has been Head of the Department.

The DHOD employed the largest number of people in the period 1976–1989 when the full-time staff and temporary contract workers reached 35–47 people.

The DHOD scientific directions were the research of occupational hygiene and occupational disorders in pharmaceutical and microbiological industry as well as examination of the working conditions in various industries, including production of construction materials.

Great work was undertaken by researching the effects of different factors of work environment upon the human body – occupational exposure limits were elaborated for 98 chemical substances and products. For each hazardous substance an adequate chemical identification method was developed and 27 of these methods have been validated as methodological guidance.

Along with the rapid changes in Latvia after regaining its independence in 1990 there were big changes in the field of occupational hygiene and occupational diseases. In 1990 the Central Research Laboratory was closed and the **Laboratory of Hygiene and Occupational Diseases (LHOD)** at the Latvian Medical Academy continued operating as an independent institution at the Latvian Medical Academy. The senior research fellow Dagmāra Sprūdža became Head of the LHOD, holding the position until 2008.

In 1996 the Latvian National Accreditation Bureau accredited the Laboratory according to ISO 45001 standards competent to perform an environmental assessment of physico-chemical factors.

Since 2002 the LHOD is accredited in accordance with ISO/IEC 17025:2005 standard requirements and is competent to carry out testing of the air in environment and physico-chemical testing of medical products, environmental and occupational physical factors. Every year the Laboratory tests environmental risk factors for more than 200 companies.

Supported by international projects the LHOD has purchased new equipment for chemical substance detection, lighting measurement, noise level measurement as well as has acquired new workplace risk assessment methods.

The Laboratory evaluates and measures work environmental risk factors (chemicals, noise, vibration, lighting and microclimate indicators, biological, ergonomic and psychosocial factors), it also completes and edits material



With Project partners from Sweden, Denmark and Great Britain
(1997)

safety data sheets. Since 2008 Head of the LHOD is Žanna Martinsone who defended her doctoral thesis in 2012.

In 2007 as a result of the implementation of the EU transition project No 2004/006-245-03-01 “Occupational Health and Safety System (further development)” recommendations were made for the development of the labor protection system and development. Part of these recommendations included transformation of the Institute of Occupational and Environmental Health into the **Institute of Occupational Safety and Environmental Health (IOSEH)**, which is an agency of Riga Stradiņš University (RSU).

Professor Maija Eglīte, *Dr. habil. med.*, was appointed Director of the newly established institute in 1992, holding the position till 2010, when Director of the Institute became *Dr. med.* Ivars Vanadziņš.



Provision of workplace risk measurements at company

The current IOSEH functions are versatile and related to research in the area of occupational health and safety as well as to information activities. The main functions of the IOSEH are as follows:

- public services in occupational safety and health to state and local authorities as well as individuals;
- scientific research on occupational safety and health as well as promotional activities for research qualification in occupational safety and environmental health;
- development of national and international research, training and information projects;
- occupational safety and environmental health-related education planning, preparation for national and local authorities as well as individuals;
- development of early diagnosis, treatment and rehabilitation and promotion of returning to work;
- workplace health promotion and promotion of quality of life.

To perform these functions, the IOSEH in cooperation with partner organizations has the following tasks:

- prepare research projects and programs, conduct researches in occupational safety and health;
- actively participate in the development of Latvian environmental science, environmental and occupational health sector, drafting of laws, regulations and various project documentation, creating hygienic standards and aligning them with those of the European Union;
- establish and maintain a database of occupational risk factors in Latvian enterprises;
- carry out toxicological studies to test the safety for human health of chemicals, biologicals, household chemicals, consumer products (creams, ointments, varnishes, etc.), building materials and medical products;
- monitor the work environment in the RSU premises, inform the employees on safety and environmental health, the impact of hazardous work environment on health and diseases;
- prepare and provide information to state and local government bodies and other organizations as well as professionals and society at large

on issues related to occupational safety and health and environmental health;

- continue environmental risk measurement and related activities essential for the occupational risk factor measurement.

Every year the Occupational Safety and Environmental Health Institute organizes special courses and workshops in collaboration with the Department of Occupational and Environmental Medicine, the Latvian Society of Occupational Physicians, the State Labour inspectorate as well as with international organizations (e.g. the Nordic occupational training institute NIVA, etc.). Course lecturers are well-known Latvian and foreign occupational health professionals who improve their knowledge in various seminars, courses, conferences as well as undertake research and student training.

The current situation in the work environment and rapid changes in the world require the ability to handle the “traditional” risks as well as new and emerging risks. Still the main objectives of the research remain similar – early diagnostics of occupational diseases, successful rehabilitation and early return to work. In order to achieve this, the IOSEH focuses on the following research topics:

- research of the most frequent causes of occupational diseases and their development;
- identification and research of the occupational risk factors in the key industry sectors of Latvia (pharmaceuticals, production of construction materials, logging, wood processing and furniture industry, etc);
- development of preventive measures;
- effects of small doses of ionizing radiation on the human organism (assessing the health of the Chernobyl clean-up workers);
- monitoring of metals as biological indicators of environmental pollution;
- determination of steady organic pollutants in breast milk, blood;
- research of nanoparticle effects on the body;
- indoor air quality.

In the modern world research is not limited to only one country but has become international so the IOSEH actively participates in international

research projects. The IOSEH has been involved in various EU funded projects as well as in projects with other countries, e.g. the USA. Altogether the IOSEH has taken part in more than 30 international projects.

Over the past five years, the Latvian Council of Science has funded three projects; the IOSEH has participated in twelve international research projects, including the Guidelines of the European Union Networks of Excellence, integrated projects and target-oriented research projects.

Current and recent most important projects:

- Central Baltic INTERREG project “Work Ability and Social Inclusion” (CB52)
- ESF Surveys “Working conditions and risks in Latvia, carried out in 2005–2006, 2009–2010 and 2012–2013”
- GRUNDTVIG-GMP “Strengthening of Integrated Skills of Less Educated Employees Concerning their Health Choices in the Context of the Changing Labour Market” (2008-3466/001-001)
- EEA “Office equipment caused indoor air pollution and its potential impact on organism”(EEZ09AP-22)
- EEA “Establishment of Environmental Modelling Centre in Riga Stradiņš University”(LV0042)
- Latvian Council of Sciences project “Impact of metals and persistent organic pollutants on the antioxidant activity of Latvian industrial workers”.

By applying clinical, epidemiological, physiological, immunological, allergological, sanitary, chemical, biochemical, etc. methods the Institute of Occupational Safety and Environmental Health has evaluated the state of health of more than 30 thousand employees.

Recently the IOSEH participated in three major surveys „Working conditions and risks in Latvia”. The projects were co-financed by the European Social Fund and Latvian government. The first survey was financed from Project “Labour Market Studies” (No VPD1/ ESF/NVA/04/ NP/3.1.5.1./0001/0003) in 2005–2006 and the others (2009–2010 and 2012–2013) from Project “Labor relations and application of occupational safety laws in different sectors and enterprises 2009–2010” (No 1DP/1.3.1.3.2./08/IPIA/NVA/002).



Working meeting of Laboratory of Hygiene and Occupational diseases (2012)

The objective of the surveys were analysis of occupational health and labor relations in the field to create an analytical framework that would be the basis for rational and effective decision-making, employment and social policy creation and sustainable development. During these projects surveys were carried out among the general population, employers, occupational health and safety professionals as well as analysis was done of the available health and safety data bases. Available data on objective situation was also done to support preparation of employment policy programs based on the research. The results of the surveys revealed that the laws and regulations on labor protection and labor relations were poorly complied with in the workplaces and the public awareness and understanding of the regulations was also low. The results of the survey in 2009–2010 indicated an improvement, but still the compliance with the laws and regulations in workplaces as well as public awareness level is inadequate. In the future the attention should be paid to simplifying the regulatory requirements, provision of alternative sources of information and training methods as well as regular and periodic data acquisition for evaluation of the measures taken for occupational health, safety and labor relations.

Over the last decade, seven doctoral theses had been defended for the degree Doctor of Medicine:

- Natalja Kurjāne “Clinical and immunological study of the Chernobyl clean-up workers 13-14 years after the accident (thyroid disease, poly-neuropathy and oncological diseases)”, 2001
- Tija Zvagule “Dynamics of health problems of the Chernobyl clean-up workers in the later stages of work in the contaminated environment (1996-2001)”, 2004
- Ženija Roja “Occupational diseases caused by ergonomic risks of the road construction industry workers in Latvia”, 2005
- Linda Matisāne “Ionizing radiation as an environmental risk factor for health care workers in Latvia - the incidence of malignant tumors”, 2008
- Ivars Vanadziņš “Occupational and preventive measures complex designed for employees in wood processing companies”, 2008
- Inese Mārtiņšone “Air pollution by metals and its impact on the health of welders work environment in Latvia”, 2011
- Žanna Martinsone “Non-industrial indoor air quality indicators and development of the principal method of work environment evaluation”, 2012
- Pavels Sudmalis “Persistent organic pollutants”, 2013

Research results are widely used in practical work, particularly in the development of preventive measures to reduce occupational diseases and accidents at work. The IOSEH uses the research experience gained from many years of cooperation with the European, USA, Japanese Institutes of Occupational Medicine and internships as well as the experience from working as experts in environmental and occupational health in the European Commission and as occupational health consultants across Europe.

The Faculty of Further Education in RSU is training specialists in occupational health and occupational physicians (one-year training in specialized courses) in accordance with professional standard PS 53.

The IOSEH staff took an active part in the preparation of the new Latvian occupational health strategy “Occupational Health and Safety Development Guidelines, 2008-2013” (approved in 2008). The aim of the paper was to identify the development directions of the Latvian occupational health system to ensure

effective implementation of laws and regulations into practice and to promote safe and healthy work environment for all employees. Besides, the IOSEH also participated in the preparation of “Labour Protection Development Programme, 2008–2010” and “Labour Protection Development Programme, 2011–2013”.

The IOSEH staff and lecturers of the Department of Occupational and Environmental Medicine are the authors of textbooks as well as of several books on the issues of health and occupational illnesses:

1. Aulika B. (1991) *Farmācijas higiēna*. Rīga: Zvaigzne.
2. Eglīte M., Matisāne L., Vanadziņš I., Antonoviča R., Baķe M.Ā., Borisņiks A., Druķis P., Dumbrovska S., Grīnberga S., Martinsone Ž., Mārtiņšone I., Piķe A., Sprūdža D. (2007) *Darba apstākļi un riski Latvijā*. Rīga: LRLM.
3. Aulika B., Avota M., Baķe M. Ā., Dundurs J., Eglīte M., Jēkabsone I., Sprūdža D., Vanadziņš I. (Ed. Eglīte M.) (2008) *Vides veselība*. Rīga: RSU.
4. Kaļķis V., Roja Ž. (Eds.; co-authors Eglīte M., Sprūdža D., Baķe M., Krēsliņš A., Staša J. u.c.). (2001) *Darba vides riska faktori un strādājošo veselības aizsardzība*. Rīga: Elpa.
5. Eglīte M. (2000) *Darba medicīna*. Rīga: Valmieras tipogrāfija.
6. Eglīte M. (2012) *Darba medicīna*. Rīga: RSU.
7. Eglīte M. (1990) *Putnkopju alerģiskās slimības*. Rīga: Zvaigzne.
8. Kļaviņš M., Filho W. L., Zaļoksnis J. (Eds.) (2010) *Environment and sustainable development*. Rīga: Academic Press of the University of Latvia.
9. Hincenberga J., Izrailietis Ļ., Eglīte M., Hļebnova I. (1976) *Ķīmisko vielu izraisītās arodslimības*. Rīga: Zvaigzne,
10. *Information notices on occupational diseases: a guide to diagnosis*. The materials prepared by the members of expert working group T. C. Aw, S. Ahmed, D. Choudat, C. Colosio, P. Cullinam, M. Eglite, V. Foa et al. (2009). Luxembourg: Office for Official Publications of the European Communities.
11. Izrailietis Ļ., Eglīte M. (1980) *Arodslimības*. Rīga: Zvaigzne.
12. Izrailietis Ļ., Trahtenbergs I. (1978) *Darba higiēna*. Rīga: Zvaigzne.
13. Lindberga Z., Bērziņa A., Audere A., Avots A. (1986, 1991) *Higiēna*. Rīga: Zvaigzne.

14. Kļaviņš M., Zaļoksnis J.(Eds., compiler Egļīte M.) (2010) *Vide un ilgtspējīga attīstība*. Rīga: LU Akadēmiskais apgāds.
15. Блюгер А. Ф., Израйлет Л. И., Корзан В. А., Соминский В. Н., Шибалева Т. Н. (1977) *Гигиена и профессиональные заболевания*. In Сборник научных статей, вып II. Рига: РМИ.
16. Блюгер А. Ф., Израйлет Л. И., Корзан В. А., Шакарнис В. Ф., Эглите М. Э. (1974) *Гигиена и профессиональные заболевания* In Сборник научных статей, вып. I. Рига: РМИ.
17. Блюгер А. Ф., Корзан В. А., Квятковская И. Я., Ходакель Э. Я., Эглите М. Э., Эрман М. Э. (1980) *Профессиональная аллергология и иммунология* In Сборник научных статей. Рига: РМИ.
18. Израйлет Л. И., Устиненко А. Н., Ремез И. М., Шальнова Г. А., Векслер Х. М. (1979) *Промышленность и иммунологическое состояние организма. Профессиональная аллергия*. Научное обозрение. Москва: ВНИИ Медицинской информации.
19. Израйлет Л. И., Эглите М. Э. (1978) *Промышленность и иммунологическое состояние организма. Профессиональная аллергия*. Научное обозрение. Москва: ВНИИ Медицинской информации.
20. Трахтенберг И. М., Тимофиевская А. А., Квятковская И. Я. (1987) *Методы изучения хронического действия химических и биологических загрязнителей*. Рига: Зинатне.

Since 2010 the IOSEH is collaborating with the State Social Insurance Agency to ensure the implementation of the “Occupational Health and Safety Prevention Plan” that is targeted at preparation of information materials on occupational health and safety – brochures, leaflets, posters, electronic materials, etc. The materials are designed for occupational health and safety professionals, occupational health and safety officers, managers, employees, and occupational health doctors and other interested people. The information materials shed light on different aspects of health and safety issues.

The Institute of Occupational Safety and Environmental Health and the Occupational and Radiological Medical Centre at Pauls Stradiņš Clinical University Hospital are constantly collaborating with the Institute of Occupational



Employees of Laboratory of Hygiene
(2011)

Medicine at the Academy of Medical Sciences in Russia and Ukraine, the Institute of Occupational Health of Denmark, Norway and Finland as well as the Institutes of Occupational Medicine and universities with similar departments in the USA, Belgium, the Czech Republic, Italy, Estonia, the United Kingdom, Lithuania, Canada, Japan, Poland, Hungary and Sweden.

The Institute of Occupational Safety and Environmental Health of RSU in collaboration with the other Baltic Sea countries are involved in the implementation of the project “Baltic Sea Network of Occupational Health and Safety”. It is aimed at each Baltic state maintaining a set of standard web site that would contain a wide range of informative material on the latest developments in national occupational health and safety issues (www.balticseaosh.net).

During its 50 years of development the RSU agency – the Institute of Occupational Safety and Environmental Health – has established itself as a hard-working, creative and friendly team that has contributed significantly to the

development of health sector in Latvia. Its staff is represented by various specialties – doctors, chemists, biologists, public health professionals, certified competent specialists in occupational health and safety.

Many of them have been granted the title of professor, associate professor, assistant professor, senior researcher and researcher and hold the doctoral degree or are undergraduates or graduates in medicine, chemistry, public health.



The staff of the Institute of Occupational Safety and Environmental Health of RSU: sitting (from the left) – leading researcher Inese Mārtiņšone, Director of the Institute Ivars Vanadžiņš, Professor Maija Eglīte, researcher Pāvels Sudmalis, methodologist Svetlana Lakiša, quality manager specialist-chemist Anita Seile; standing – leading researcher, assistant professor Mārīte Ārija Baķe, secretary Ilze Feldberga, leading researchers Dagmāra Sprūdža, Natalja Kurjāne and Tija Zvagule, Head of the Laboratory Žanna Martinšone

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