

**Expert Advisory Board (EAB) on Non-Ionizing Radiation,
Ministry of Health, Bulgaria**

International EMF Project

REPORT

International Advisory Committee Meeting

WHO, Geneva, 11th – 13rd June 2024

Geneva, Switzerland,

(for the period June 2023 – May 2024)

I. General research activities in Bulgaria related to EMF health

Ongoing projects

International EMF Project, WHO: *Biological effects of static and time-varying electric and magnetic fields*

- Informational system+3D presentation
- Unfortunately, the annual meeting of the EAB was not conducted in 2023, and there is not any report of the EAB activities to the stakeholders in this period.

Project “*Analysis and development of methods for measuring and exposure assessment of NIR in new technologies (mainly 5G)*”

Aim: Development of new methods for exposure assessment of EMF emitted by 5G technology. Public perception.

Objectives:

- Developing of guideline for modeling and calculation of the “exposure zone” around sources of EMF used in 5G technology in residential areas
- Training of the specialists from the Regional Health Inspectorates (RHI) and accredited laboratories in the field of control of 5G sources of radiation.

Funds: NCPHA

Deadline: 3 years (starting on 2021)

Project: *Exposure assessment of low frequency (LF) electric and magnetic fields, emitted from sources of generation, transmission, distribution, consumption of electricity*

Aim: Exposure evaluation of LF electric and magnetic field generated by electrical system (transformer stations, power lines)

Objectives: In our country, there is still no adopted legislation for the protection of the general population from exposure to power frequencies. There is a lack of sufficient data on the actual exposure of the population to LF electric and magnetic fields.

Main activities:

- Calculation and simulation of LF electric and magnetic fields around built in transformer stations and power lines
- Performing measurement and exposure assessment campaign

- Providing data from simulation and measurements of ELF in the National Information System of the Sources of electromagnetic fields.

Funds: NCPHA

Deadline: 3 years (starting on 2023).

Project: *Exposure assessment of electric and magnetic field, generated by electric vehicles (EVs).*

Aim: Characterization and evaluation of specific complex EMF emitted by the driving systems of EVs

Objectives: Considering the long-term exposure to EMF in EVs and the potential from exposure to complex EMF in time and frequency domains, there is a need to perform evaluation on EMF exposure related to the use of EVs.

Main activities:

- Investigations of static magnetic field, low frequency and radiofrequency EMF emitted by various electrical components of EVs
- Development of methodology for EMF exposure assessment
- Measurement campaign – electric cars, urban transport.

Funds: NCPHA

Deadline: 3 years (starting on 2023)

Scientific forums and publications:

1. Scientific forums

11th International Conference on Radiation, Natural Sciences, Medicine, Engineering, Technology and Ecology – RAD 2023“, 19 - 23 June 2023, Herceg Novi, Montenegro,

Presentation: *Exposure assessment of electromagnetic field from telecommunications sources in populated areas in correlation with public concern* - Victoria Zaryabova, Tsvetelina Shalamanova, Michel Israel, Mihaela Ivanova

2. Publications

Kjell Hansson Mild, Mats-Olof Mattsson, Peter Jeschke, Michel Israel, Mihaela Ivanova, Tsvetelina Shalamanova, *Occupational Exposure to Electromagnetic Fields—Different from General Public Exposure and Laboratory Studies*, *Int. J. Environ. Res. Public Health* 2023, 20(16), 6552; <https://doi.org/10.3390/ijerph20166552>

II. New Policies and Legislation regarding EMF exposure

1. New policy for medical physicists in Europe

As members of the Bulgarian Society of Biomedical Physics and Engineering (BSMPE), we continue to rise the problem that medical physicists and biomedical engineers are engaged not only with sources of ionizing radiation, and also with non-ionizing radiation and other physical factors in clinic, medical facilities and studying occupational and environmental health. These specialists are working in the field of exposure and risk assessment, protection, health policy, quality assurance, training in physiotherapy, MRI diagnosis and protection, optical and laser radiation, health services and environmental health.

As a result, the European Federation of Organizations of Medical Physics (EFOMP) issued the Statements 14, 17, 18, and the new PS21 "The role of the Medical Physicist in the management of medical laser sources". All of them introduce non-ionizing radiation as one of the main areas of medical physicists' research and practice, and recognize their profession in the field of NIR diagnostics, treatment, protection.

2. New method for calculation of the “exposure zone” around sources of EMF radiation in telecommunication

This method was developed in 2023, includes all kind of telecommunication sources including 5G technology, and is a practical use for control of the telecommunication sources of radiation.

3. Collecting data for the electronic register of communication sources of EMF radiation in residential areas.

Data were collected by measurements performed by the NCPHA and by the Regional Health Inspectorates (RHI) in residential areas. NCPHA analyses this data for all sources in the country.

Periodically the specialists from the Regional Health Inspectorates (RHI) are trained in the field of EMF measurement and exposure assessment. The latter is needed to maintain competence in the field of EMF monitoring as well as to present the specifics and requirements arising from the introduction of next generation communication sources.

4. Concerning the EU Directive 2013/35/EC for protection of workers against EMF radiation transposed in Ordinance RD 07-5, Official State Gazette 95, 2016, the efforts were directed through the European Forum, coordinated by the Federal Institute of Occupational Health in Dortmund, Germany in 2022. Still there are serious problems with the practical implementation of the Directive.

5. The Council Recommendations 1999/519/EC on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz) still is not in use in Bulgaria. There is new draft of an Ordinance that includes most of the requirements and reference levels from this Council Recommendations for practical use in Bulgaria.

6. Development of a project for an ordinance for health requirements to the safety zones in urban territories. The draft document contains requirements for determination and control on exposure zones around EMF sources. Zones connected to the generation, transmission and distribution of electricity are defined depending on the voltage of the installation. The exposure zones around telecommunication sources are determined by calculation method described in the draft of the new Ordinance.

III. Areas of public concern and national responses

The developed electronic register for complaints of individuals concerning the exposure to EMF is in use since May 2017, and it continues to be used and improved.

The trend of reduction of the public concern – less people (less complaints), the same complaining people for a long period continued in the reported period. More fears are coming with the implementation of new technologies, as 5G, new power lines with 400 kV, photovoltaic plants.

IV. New public information activities:

Within the framework of the European Public Health Week 2024 organized by the EUPHA, the Physical Factors Department at the National Centre of Public Health and Analyses hosted an online event on 15 May 2024 on the topic ***“Frequently asked questions about telecommunication technologies (5G...)”***. It has been organized by Ch. Expert V. Zaryabova supported by Prof. M. Israel, Assoc. Prof. T. Shalamanova, and Ch. Expert eng. H. Petkova.

Public perception and misinformation regarding the introduction of new telecommunications technologies after post-pandemic 2020 are studied. The survey is based on a WHO questionnaire, questions asked by the general population in Bulgaria and the author's materials. Material is available on the NCPHA website <https://ncpha.government.bg/index/334-chesto-zadavani-vuprosi.html>.

A hotline has been provided for discussion, as well.

A discussion hotline was also provided: via email 5Ginfo@ncpha.government.bg and social media <https://www.facebook.com/ncpha.government.bg>.

Every year, the Ministry of Health issues annual report on the health of the nation, which contains chapter on non-ionizing radiation. There activities of the Expert Advisory Board on NIR, NCPHA, and Regional Health Inspectorates are presented. The information includes the state of legislation for EMF; results of the monitoring of EMF exposures etc. The report is available to the public at the web site of the Ministry of Health.

Prof. M. Israel, Ph.D.,
Bulgarian Expert Advisory Board
International Project “Electromagnetic fields”

E-mail addresses: michelisrael@abv.bg ; m.israel@ncpha.government.bg

Addresses for correspondence:

Medical University – Pleven 1, St. Kl. Ohridski Str., 5800 Pleven, Bulgaria	National Centre of Public Health and Analysis, 15, Acad. Iv. Geshov Boul., 1431 Sofia, Bulgaria
--	--