

The Fifth International Non-Ionizing Radiation Workshop & Symposium

The 5th International Workshop on Non-Ionizing Radiation (NIR), held in Seville, Spain, on May 20-22, 2004, reflected great interest in this field of science – more than 70 posters were presented, and the Workshop was attended by more than 200 participants. This was the largest audience ever in the history of International Commission on Non-Ionizing Radiation Protection (ICNIRP) Workshops.

The workshop was organized within ICNIRP's collaboration with the World Health Organization (WHO) – through the support of WHO International EMF (electromagnetic field) and INTERSUN projects, with the Commission K of the Union Radio-Scientifique Internationale (URSI), and with the International Occupational Health Organization (ICOH).

The Workshop and Symposium comprised lectures by internationally recognized experts in all non-ionizing radiation fields on characteristics, dosimetry, mechanisms of interaction, biology and health effects, standards and protective measures covering area from static fields to ultraviolet radiation (UVR).

Program of the Workshop was divided in the following 7 lecture and poster sessions:

- (1) Basics – sources and ICNIRP's philosophy of non-ionizing radiation protection,
- (2) Risks to health – WHO EMF project, WHO risk assessment and future research,
- (3) RF – Risks to health – epidemiological and biological evidence,
- (4) Wireless communications – new technologies, dosimetry, and human laboratory studies,
- (5) – UVR – epidemiological evidence, skin and ocular effects and protection,
– URSI – medical application of EMF (benefits and risks),
- (6) – Lasers and LEDs – bio-effects; exposure guidelines and practical protection,
– Magnetic Resonance Imaging (MRI) and Transcranial Magnetic Stimulation (TMS), and
- (7) Other topics – solar UV monitoring, sun tanning devices, occupational health perspectives, EMF and "Precautionary Framework", and future challenges in non-ionizing radiation protection.

General conclusions are best illustrated in the lecture of the new ICNIRP Chairman, Dr. Paolo Vecchia (2004–2008, National Institute of Health,

Department of Technology and Health, Italy), titled *New Challenges in NIR Protection – Priorities for the Next Future*. The review of the lecture is given in the following text.

At the beginning of the lecture, Dr. Vecchia stresses that connection between basic research and health protection is bi-directional. On one hand, scientific data are the basis for risk assessment and, consequently, for exposure guidelines or any other form of recommendation and advice. On the other hand, knowledge gaps and uncertainties are identified through comprehensive literature reviews, on the basis of which focused research may be suggested. There are certain topics which are of public interest, so the thorough studies on the following are suggested:

effects of electromagnetic fields on children, hypersensitivity and subjective symptoms, and exposure assessment of the general public and workers to new sources, related to emerging technologies.

The conduct and results of the studies should be treated with special regard, *inter alia*, to the possible negative psychological impact on population. This may be the case, for example, with the proposed epidemiological investigations directed towards the connection between mobile telephony and cancer. The sole conducting of such a study may lead people to believe that its implicit message is that tumor is inevitable effect of the mobile telephone usage, in spite of extremely low level of exposure. As a consequence, the level of anxiety may increase, harming the psychological well-being of the population.

Revision of guidelines. All protection measures, including exposure guidelines, should be revised over the time and updated when needed, according to:

new scientific data,
experience with practical implementation, and effectiveness.

The revision should be conducted with special reference to the existing standards, ICNIRP guidelines in particular, and in accordance with the intense research carried out in the last few years. Extensive reviews of scientific literature have been planned by WHO and IARC, and are included in the agenda of the WHO's international EMF project. The evaluation of carcinogenicity of static and ELF electric and magnetic fields has been completed (IARC 2001), and the comprehensive evaluation of negative health effects other than cancer is being carried out by WHO. A similar project has been planned for RF fields, but is not expected to start before the completion of the epidemiological study *Interphone* on the connection between mobile telephony and cancer.

It could be advisable to postpone a thorough revision of guidelines until the above mentioned reviews are completed; however, a certain degree of refinement and clarification is appropriate at the moment, and can be made by means of *ad hoc* statements.

Monitoring the development of new technologies. Technological development has lately been rapid, and is constantly speeding up. Time required for a new technology to develop and spread onto the market is often much shorter than time needed for a scientific assessment of its possible consequences on human health and environment. Mobile telephony is the most evident example. The impossibility of comprehensive *a priori* analyses should not prevent the performing of preliminary investigations and providing of interim advice, which will be adjusted according to the newly gained knowledge. Early actions might include, for example, the assessment of exposure to new sources, and the extrapolation to them – the study based on the data available for similar situations.

Advice on precautionary policies. While international health standards and most national health regulations are based on evident negative health effects, authorities are often urged to take precautionary measures in order to prevent or mitigate suspected adverse effects that are not direct results of a scientific study and, therefore, are not so obvious. Such measures may be appropriate in the precautionary framework for public health protection suggested by WHO. However, there is a possibility that precautionary actions directed towards population increase rather than mitigate anxiety and fear. This is a real health detriment, and should be prevented as other adverse effects of EMFs. Organizations like ICNIRP can provide useful advice for sensible precautionary policies.

Risk communication. Establishing and maintaining open and effective communication of all parties involved in EMF issues is a priority for WHO, ICNIRP, and any national or international authority with a certain level of responsibility in this field. Such an activity has always been performed within the organization of and the active participation in scientific symposia and public meetings. Reports, guidelines, statements and other similar documents are also means of communication, mainly addressed to professionals, health agencies, and political authorities. More direct communication towards the public has been established by WHO, and by several national authorities, by means of fact sheets and leaflets written in plain language and generally available online. Similar actions should be undertaken by other organizations.

At the end of his lecture, Dr. Vecchia concluded that the extensive research carried out in the last few years had provided no reasons for major

changes in existing guidelines on health protection against exposure to EMFs. However, the improved knowledge on biological effects and the deeper understanding of interaction mechanisms justify some refinement and clarification. At the same time, protection against electromagnetic fields must aim at preserving the “state of complete physical, mental, and social well-being” that constitutes health, according to the Statute of WHO, for the purpose of which a large number of different actions is required, involving international organizations and national authorities, with different responsibilities but close collaboration.

Branislav Vulević