



European Cancer and Environment Research Institute

ECERI NEWSLETTER

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EDITO

The meeting with WHO's representatives and a delegation from the ECERI this month stands as a major turning point for our Institute. This opens a new opportunity for scientific collaboration on EMFs within the ECERI, aiming at having non-thermal effects recognized once for all by the international scientific and political community. This will require a global and collective effort from all of our members. But in the context of the fast development of more powerful and detrimental wireless technologies, particularly 5G, this has become a high priority.

Christine Campagnac, General Secretary

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Meeting with WHO on electromagnetic fields, 3rd of March, 2017

Maria Neira, Director, Public Health and the Environment Department, World Health Organisation and **Emilie van Deventer**, Team Leader of the Radiation Programme at the WHO received on March the 3rd, in Geneva, a scientific delegation of the ECERI, composed of Dominique Belpomme (F), Igor Belyaev (SKA), Ernesto Burgio (I), Christine Campagnac (F), David Carpenter (US), Tarmo Koppel (EE) and Lennart Hardell (SE) to discuss the health effects of EMFs.



David Carpenter introduced the talk, reminding that there are numerous significant human health hazards of concern, due to non-thermal effects of EMFs. He expressed the particular concern of the ECERI Group that a new WHO Environmental Health Criteria (EHC) document on radiofrequency electromagnetic fields (RF EMFs) is scheduled to be released in 2017, and that the members of the EHC Core Group are in denial of serious non-thermal effects of RF EMFs in spite of overwhelming evidence to the contrary. Regarding the particular vulnerability of children and their high exposure, the scientific group urges WHO to address the hazards of RF EMF.

Igor Belyaev pointed at genotoxicity induced by exposure to RF can under specific conditions of exposure (type of cells, type of signal etc) and at all other biological effects of RF (blood brain barrier, melatonin, oxidative stress, gene/protein proliferation) induced under specific conditions of non-thermal RF exposure. In contrast to the Russian National Committee of Non-Ionizing Radiation Protection, the ICNIRP safety standards do not take into account non-thermal effects and prolonged exposures, and are in evident contradiction with classification of RF as possible carcinogen, group 2B, by IARC.

Igor Belyaev delivers to Maria Neira a letter from Oleg Grigoriev, Head of the Russian National Committee on Non-Ionizing Radiation Protection (RNCNIRP). "Based on multiple Russian studies and emerging number of studies coming from other countries, RNCNIRP has consistently warned against possible health effects from mobile communication" writes Oleg Grigoriev, requesting that WHO balances the RF working group in the evaluation of RF health effects to get more credible conclusions.

Lennart Hardell presented the results of his epidemiological studies on brain tumor risks and exposure to EMF. His data strongly suggest that RF EMF should be classified not as Group IIB, as it is presently the case, ie as possible carcinogenic, but as IIA, ie as probably carcinogenic. His studies were recently confirmed by other independent scientific group (see page 4 of the present letter).

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Dominique Belpomme presented the results of his study on electromagnetic hypersensitivity. Based on a series of 1,500 EHS and/or MCS cases, it was found that EHS can be objectively characterized by a battery of biomarkers reflecting oxidative stress, low grade neuro-inflammation and BBB opening.

Presently 1-10% of the investigated population in Europe is estimated to be EHS-self reporting persons. The ECERI group calls WHO to urgently accomplish its humanitarian worldwide public health mission: (1) by reexamining objectively the EHS-related health problem, independent of non-science-based external types of conflicting pressures; (2) by considering EHS and MCS as two new emerging well identified pathological disorders; (3) by including EHS and MCS in separate codes in the next version of the WHO ICD.

Ernesto Burgio pointed at the epigenetics mechanisms by which children are very vulnerable to RF EMF. EMFs (both ELF and RFR) are among the environmental factors already proven to be at the same time constantly increasing in the environment and mostly interfering on the less differentiated cells, on stem cell differentiation and on the early stages of brain development, on cell migration and synaptogenesis, and on the gametes.

This raises concerns for public health, regarding the possible effects (neurodevelopmental disorders, cancer etc.) of long-term exposure to low intensity, environmental daily life levels on the directly exposed subjects and even on the future generations. He concluded that this may impose a drastic reduction of the exposure to EMFs of pregnant women and infants.

Emilie van Deventer invited the ECERI scientific group to provide as many adding publications as possible, particularly peer-reviewed meta-analysis.

Regarding the preliminary monography released last year, she precised that the conclusions were not included given that the document was not achieved. She added that the Task Group was not defined yet, and that it was still possible to apply. The date for the final release of the monography is not planned yet either.



The ECERI delegation, in front of the WHO headquarters, Geneva, on March, the 3rd.

From left to right :

Tarmo Koppel (EE),
Dominique Belpomme (F), Ernesto Burgio (I),
Christine Campagnac (F),
David Carpenter (US),
Lennart Hardell (SE), and
Igor Belyaev (SKA).

International EMFs Expertise Group

Following the meeting with Maria Neira, the ECERI group defined a new strategy on EMFs for the future. The present members unanimously decided to join efforts to make non-thermal effects of EMF definitely recognized at an international level. The principle of an ECERI collective scientific publication on non-thermal effects of EMFs was agreed. This publication should be issued by June.

An International EMF Expertise Group issued from ECERI is under development, aiming at publishing meta-analysis on EMFs health effects, in order to counterbalance ICNIRP's political influence.

Some recent publications of ECERI members and associated members

Weak-field H₃O⁺ ion cyclotron resonance alters water refractive index.

[D'Emilia E](#), [Ledda M](#), [Foletti A](#), [Lisi A](#), [Giuliani L](#), [Grimaldi S](#), [Liboff AR](#). [Electromagn Biol Med](#). 2017;36(1):55-62. Epub 2016 Jul 1.

Heretofore only observed in living systems, this study reports that weak-field ion cyclotron resonance (ICR) also occurs in inanimate matter. Weak magnetic field (50 nT) hydronium ICR at the field combination (7.84 Hz, 7.5 μT) markedly changes water structure, as evidenced by finding an altered index of refraction exactly at this combined field.

Life-span exposure to sinusoidal-50 Hz magnetic field and acute low-dose γ radiation induce carcinogenic effects in Sprague-Dawley rats.

[Soffritti M](#), [Tibaldi E](#), [Padovani M](#), [Hoel DG](#), [Giuliani L](#), [Bua L](#), [Lauriola M](#), [Falcioni L](#), [Manservigi M](#), [Manservigi F](#), [Panzacchi S](#), [Belpoggi F](#). [Int J Radiat Biol](#). 2016;92(4):202-14. doi: 10.3109/09553002.2016.1144942. Epub 2016 Feb 19.

To study the carcinogenic effects of combined exposure to sinusoidal-50 Hz (S-50 Hz) magnetic fields and acute γ radiation in Sprague-Dawley rats. Groups of male and female Sprague-Dawley rats were exposed from prenatal life until natural death to 20 or 1000 μT S-50 Hz MF and also to 0.1 Gy γ radiation delivered as a single acute exposure at 6 weeks of age. The results showed significant carcinogenic effects for the mammary gland in males and females and a significant increased incidence of malignant schwannomas of the heart as well as increased incidence of lymphomas/leukemias in males.

Validation of JCountPro software for efficient assessment of ionizing radiation-induced foci in human lymphocytes.

[Jakl L](#), [Lobachevsky](#), [Vokálová](#), [Durdík M](#), [Marková E](#), [Belyaev I](#).

[Int J Radiat Biol](#). 2016 Dec;92(12):766-773. Epub 2016 Sep 20.

In conclusion, the JCountPro software is efficient in objectively enumerating IRIF regardless of an individual researcher's bias and has a potential for usage in clinics and molecular epidemiology.

[When theory and observation collide: Can non-ionizing radiation cause cancer?](#)

[Havas M](#). [Environ Pollut](#). 2017 Feb;221:501-505. doi: 10.1016/j.envpol.2016.10.018. Epub 2016 Nov 28. This letter concludes that we know enough to act and that we need to take steps to reduce public exposure if we are to minimize an emerging health crisis.

Exacerbation of demyelinating syndrome after exposure to wireless modem with public hotspot.

[Johansson O](#), [Redmayne M](#). [Electromagn Biol Med](#). 2016;35(4):393-7. doi: 10.3109/15368378.2015.1107839. Epub 2016 Jun 29

A possible association between electrohypersensitivity, myelin integrity and exposure to low-intensity radiofrequency electromagnetic fields (RF-EMF) typical in the modern world has recently been proposed. Since the West Nile virus attacks both the nerve cells and the glial ones, one explanation to the observed case effects is that the initial virus attack and the wireless modem's RF-EMF affect the nervous system through very similar avenues via the oligodendrocytes.

No effect of mobile phone exposure on average erythrocyte aggregation as viewed in dark-field microscopy, with or without a "mobileFloww" device. A double-blind pilot study.

Mak, P., Johansson, O., van Wersch, A., Huebner, S.(2016), Teesside University,

The aim of this study was to examine whether a mobile phone has any measurable effects on the average erythrocyte aggregation (AEA) in whole undried peripheral blood, and whether a mobileFloww device has any measurable effects on the AEA size in such whole undried peripheral blood. The study was a placebo-controlled double-blind randomised one. No statistically significant differences were established meaning that we could not demonstrate any effect of mobile phone radiation on the AEA of peripheral blood, and, thus, as a consequence we could not establish any possible effect of the "mobileFloww" device.



Epidemiological studies

Radiofrequency radiation at Stockholm Central Railway Station in Sweden and some medical aspects on public exposure to RF fields. [Hardell L](#), [Koppel T](#), [Carlberg M](#), [Ahonen M](#), [Hedendahl L](#). *Int J Oncol*. 2016 Oct;49(4):1315-1324. doi: 10.3892/ijo.2016.3657. Epub 2016 Aug 12.

The Stockholm Central Railway Station in Sweden was investigated for public radiofrequency (RF) radiation exposure. In total 1,669 data points were recorded. The median value for total exposure was 921 $\mu\text{W}/\text{m}^2$ with some outliers over 95,544 $\mu\text{W}/\text{m}^2$ (6 V/m, upper detection limit). Hot spots were identified, for ex close to a wall mounted base station yielding over 95,544 $\mu\text{W}/\text{m}^2$ and thus exceeding the exposimeter's detection limit. Almost all of the total measured levels were above the precautionary target level of 3-6 $\mu\text{W}/\text{m}^2$ proposed by the Biolnitiative Group. These RF radiation levels give transient exposure, since people are generally passing through the areas tested, except for people who are there for hours each day of work.

Using the Hill viewpoints from 1965 for evaluating strengths of evidence of the risk for brain tumors associated with use of mobile and cordless phones. [Hardell L](#), [Carlberg M](#). *Rev Environ Health*. 2013;28(2-3):97-106. doi: 10.1515/reveh-2013-0006.

Based on the Hill criteria, glioma and acoustic neuroma should be considered to be caused by RF-EMF emissions from wireless phones and regarded as carcinogenic to humans, classifying it as group 1 according to the IARC classification. Current guidelines for exposure need to be urgently revised.

Two meta-analyses in February reporting a statistically significant relationship between cell phone use of ten or more years and increased brain tumor risk.

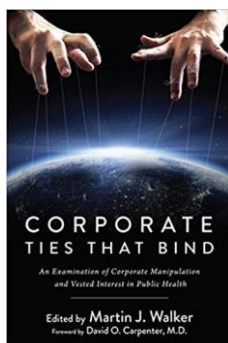
Mobile phone use and risk for intracranial tumors and salivary gland tumors - A meta-analysis. [Bortkiewicz A](#), [Gadzicka E](#), [Szymczak W](#). *Int J Occup Med Env Health*. 2017 Feb 21;30(1):27-43. doi: 10.13075/ijom.1896.00802. Epub 2017 Feb 13.

Twenty four were included into the meta-analysis. A significantly higher risk of an intracranial tumor (all types) was noted for the period of mobile phone use over 10 years (OR = 1.324), and for the ipsilateral location (OR = 1.249). The results support the hypothesis that long-term use of mobile phone increases risk of intracranial tumors, especially in the case of ipsilateral exposure.

Mobile phone use and risk of brain tumours: a systematic review of association between study quality, source of funding, and research outcomes. [Prasad M](#), [Kathuria P](#), [Nair P](#), [Kumar A](#), [Prasad K](#). *Neurol Sci*. 2017 Feb 17. doi: 10.1007/s10072-017-2850-8. [Epub ahead of print]

For mobile phone use of 10 years or longer (or >1640 h), the overall result of the meta-analysis showed a significant 1.33 times increase in risk. The summary estimate of government funded as well as phone industry funded studies showed no significant increase, while mixed funded studies did not show any increase in risk of brain tumour. The association was significantly linked with methodological study quality. Evidence linking mobile phone use and risk of brain tumours especially in long-term users (≥ 10 years) was found. Studies with higher quality showed a trend towards high risk of brain tumour, while lower quality showed a trend towards lower risk/protection.

Books



Corporate Ties That Bind: An Examination of Corporate manipulation and Vested Interest in Public Health, MARTIN J. WALKER

This is a collection of essays written by influential academic scholars, activists, and epidemiologists from around the world that scrutinize the corporate reasoning, false science and trickery involving those, like in-house epidemiologists, who mediate the scientific message of organizations who attack and censure independent voices. This book addresses how the growth of corporatism is destroying liberal democracy and personal choice. Whether addressing asbestos, radiation, PCBs, or vaccine regulation, the essays here address the dangers of trusting corporations, and uncover the lengths to which corporations put profits before health.