24.4.2015

WHO International EMF Project
Report on activities in Finland from June 2014 to May 2015

General research activities related to EMF health

An international epidemiological follow-up study on health effects of mobile phone use (COSMOS; COhort Study of MObile phone uSe and health) was started in 2009. Radiation and Nuclear Safety Authority (STUK) is the national coordinator of the project in Finland. Finnish cohort comprises of approximately 15 500 participants recruited during the years 2009, 2010 and 2011. An invitation to fill in a repeated questionnaire was sent in October 2014 for all the participants (N = 9 739) who initially participated Finnish COSMOS during the year 2010 or 2011 and completed the baseline questionnaire. Among them, 4 245 (44%) filled in the repeated questionnaire. Traffic data for COSMOS study was collected according to the original study protocol from two major Finnish mobile telephone operators. First analysis on the data, i.e. analysis on symptoms related to mobile phone use, are being prepared and the study group aims to publish the results during the year 2015.

STUK and Finnish Institute of Occupational Health (FIOH) are collaborating in a research project on safety and well-being of MRI personnel at their work. The project was started in 2011 and it consists of a questionnaire and magnetic field and motion velocity measurements near MRI devices. A practical guide for the personnel will be written based on project results and literature. The project will continue until the end of November 2015. The project is funded by the Finnish Work Environment Fund.

FIOH and VTT (Technical Research Center of Finland) are collaborating in a research project on safety of welders (HITOP). In one of the project tasks a possibility of magnetic field shielding of welders is studied and piloted. The project will continue until 2016 and is funded by the Finnish Work Environment Fund.

University of Eastern Finland (UEF) and FIOH participate in an international multidisciplinary research program (GERoNiMO; Generalized EMF research using novel methods) which was started in the beginning of 2014. Finland is responsible for the biological module of the program. European Union has given financial support for the program.

Tampere University of Technology (TUT) investigated the influence of electric and magnetic fields on active implanted medical devices (AIMD) and drug pumps. TUT has performed experiments using a human-shaped phantom near 400 kV power lines and at 400 kV substations. The tests found that the electric field under a 400 kV power line (6.7 – 7.5 kV/m) may disturb a pace maker in unipolar mode. Disturbance may occur at tasks under 400 kV power lines or at 110 kV or higher substations. Therefore it is important to study the electric field influences on AIMDs in more detail.

STUK carried out a survey on transformer stations (20/0.4 kV) located inside apartment buildings in 2014. A questionnaire on indoor transformers located near apartments was sent to power companies having electric distribution substations. The companies were also asked to categorize the transformers according to the type and location of secondary conductors. Based on the replies received from the power companies it was evaluated that there are approximately 2800 transformers next to apartments in Finland. About half of the transformers has their secondary conductors near the ceiling and may so cause high magnetic fields in the apartments located above the transformers.

STUK started a survey on radio devices used near the body at work places (ALKRAD project) in 2015. The objective of the survey is to list the radio devices, to find out their radiation characteristics and the

ways they are used in the work. The human exposure to the electromagnetic fields (EMF) from these devices will be estimated primarily by using the information obtained from the literature. Devices causing the highest exposure to EMF will be examined in more detail and the specific absorption rate will be measured for some devices by using the DASY52 dosimetric assessment system of STUK. The final report will be published by the end of 2015 including the safety evaluations and the instructions for the safe use of the radio devices. The project is funded by the Ministry of Social Affairs and Health.

New policies and legislations regarding EMF exposure

Ministry of Social Affairs and Health added environmental intolerances including electromagnetic hypersensitivity to Finnish ICD-10 (International Classification of Diseases) classification. The classification promotes treatment of the patients and compilation of statistics for environmental intolerances. The classification doesn't give an entitlement to social security benefits.

Areas of public concern and national responses

Possible health effects from base stations and wireless local area networks (WLAN) were the main areas of public concern. Especially the safety of WLAN transmitters in school premises has been a hot topic. Some schools have inquired information from STUK on the safety of WLANs in schools. Also two councilors have given initiatives to municipal councils to forbid the placement of WLAN transmitters in schools. Parliament members have given two written questions to Finnish Government on base stations and electromagnetic hypersensitivity. STUK has given expert help on these issues. STUK has also been interviewed several times by the media on these topics.

Municipal authorities requested comments from STUK on several planned power lines and planned residential areas near existing lines. STUK assessed the magnetic fields near power lines and gave recommendations for spatial planning. STUK recommends that premises where the presence of children is permanent should not be located so that the average magnetic flux density exceeds 0.4 μT.

New public information activities

A measurement campaign on general public's exposure to RF fields from mobile phone base stations was carried out by STUK during 2010-2012. The measured RF fields were very low compared to the national regulations. The measurement results were published in a technical report (in Finnish) in August 2014.