15.6.2018

WHO International EMF Project
Report on activities in Finland from June 2017 to May 2018

General research activities related to EMF health

The international collaborative cohort study of mobile phone use and health (COSMOS) is on-going and the first analyses of health outcomes are being carried out at University of Tampere (UTA). The study involves approximately 11,000 Finnish participants who filled in the baseline questionnaires and have been followed up since 2009-2010. Call data were obtained from the traffic databases of two major mobile network operators.

UTA is analyzing trends in brain tumor incidence in 1999-2006 to evaluate whether there is any hint of a relation to the increase in radio frequency (RF) electromagnetic field exposure in the population. Cancer cases were identified from the Finnish cancer registry and histological types defined from the cancer notification forms.

Together with the other Nordic Interphone investigators, UTA is analyzing the possible association of mobile phone use with survival from malignant brain tumors, suggested in a Swedish study. The analysis is coordinated by the International Agency for Research on Cancer (IARC).

UTA has compiled residential histories for subjects of the Finnish Interphone study to evaluate whether any interaction between RF-EMF from mobile phone use and mutagenic chemicals in drinking water. This analysis is carried out in collaboration with University of Eastern Finland (UEF).

UTA has obtained data on residences and high-power TV and radio broadcast transmitters for a case-control study of childhood leukemia. A software has been acquired for calculation of residential RF exposure.

Leena Korpinen (North Karelia Central Hospital) and Finland's transmission system operator Fingrid Oyj have assessed occupational exposure to low frequency electric and magnetic fields and static magnetic fields near power lines and electric substations. The lower action level for magnetic flux density (directive 2013/35/EU) was exceeded at two measurement locations near 20 kV shunt reactors and their cables. The action level for magnetic flux density was not exceeded during measurements near high voltage (500 kV) DC cables. The higher action level for electric field strength was exceeded at both examined 220 kV substations.

Radio frequency (RF) radiation is used in several cosmetic applications for e.g. cellulite treatment or skin rejuvenation. The power levels used in the treatments can be high (> 100 W) and even a short treatment period may result in tissue damage. In Finland treatments exceeding the RF exposure limits are allowed only in health care procedures. STUK (Radiation and Nuclear Safety Authority) carried out temperature rise measurements in a liquid phantom and numerical simulations to assess the exposure levels during RF treatment. The exposure limits for general public (ICNIRP 1998 guidelines) were exceeded in a very short time.

New policies and legislations regarding EMF exposure

Government proposal for a new radiation act has been sent to the Finnish Parliament. New exposure limits for electromagnetic fields will be presented in a decree for non-ionizing radiation prepared by

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the Ministry of Social Affairs and Health. The new radiation act and the decree should be implemented by the end of 2018.

Areas of public concern and national responses

Possible health effects from base stations have been the main area of public concern during last year. The emerging 5G technology has raised several questions on possible health effects.

Municipal authorities requested statements from STUK on several proposals for a town plan where new residential areas were located near existing power lines or on new power lines planned to be constructed near residential houses. STUK evaluated 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

No new public information activities during the time period.

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