

National activity report – ISRAEL 2018

General Research Activities related to EMF

- **MOBI-KIDS study** - The Cancer & Radiation Epidemiology Unit at the Gertner Institute is one of 16 study groups of this international case-control study. The study, launched in 2009, *aims to examine the association between mobile phone use and other communication devices and risk of developing brain tumors among children & adolescents*. The data collection of this study has been finalized and data analysis has been conducted. Results regarding the role of IF and RF in the risk to develop brain cancer among young people were presented, using an improved evaluation of RF exposure from mobile phones, including data collected from XMobi-Survey. In addition, the Gertner institute study team is in charge of: 1- Evaluation of maternal and fetal exposures and brain tumor risk in childhood and adolescence 2- Investigation of the role of atopic condition, morbidities and family history of cancer in the development of malignant brain tumors among children and adolescents.
- **GERoNiMo study (Generalized EMF Research using Novel Methods)** - The Cancer & Radiation Epidemiology Unit is participating in an international study that involves 19 research institutes from 13 countries. The study, launched in 2014, *aims to close knowledge gaps on health effects of EMF and to suggest ways to reduce exposure*. In this framework, the objectives of the Mobi-Kids epidemiological study were expanded to assess exposure to IF (in addition to RF, ELF). The Cancer & Radiation Epidemiology Unit took part in 4 (out of 10) work packages. In December 2018, a delegate of our unit attended the GERoNiMo final consortium meeting in Brussels. During these 2-days meeting, an integrative and cumulative exposure assessment tool was presented as well as the main results of the various working packages. This meeting also included fruitful discussions between the collaborators and other scientists concerning the research findings.
- **Possible effects of fetal exposure to MRI on neurodevelopmental, behavioral & hearing outcomes** - This historical prospective study is conducted by the Cancer & Radiation Epidemiology Unit. Following a feasibility study, data collection has started in 2017. The study population for this cohort survey is comprised of children who were exposed prenatally to MRI and individually matched unexposed group. Data is being collected from medical records and from a structured maternal telephone interview. To date, more than 50% of the target population has been interviewed. We are now in the process of collaborating with an additional medical center in order to broaden the sample size and the study population.
- **Possible association between childhood exposure to MRI and cancer incidence** – This historical prospective study is conducted by collaboration between the Cancer & Radiation Epidemiology unit and the Clalit HMO research institute. In this study, cancer incidence rates will be compared between a group of individuals who underwent MRI examination in childhood and a group comprising of randomly age and sex matched sampled unexposed children. The relative risks for cancer development will be controlled for performance of CT scans and other potential risk factors. Data analyses of this project are undertaken.
- **A Field measurement of ELF exposure in hybrid cars versus gasoline cars** – This research was conducted by the Ministry of Environmental Protection and Hadassah Academic College. The results showed that ELF levels of radiation are lower in gasoline cars and that depending on the wiring method there are large distributions of ELF levels of radiation between the different models of hybrid cars.

New Policies and Legislations Regarding EMF Exposure

- In January 2011, the Ministry of Health and the Ministry of Environmental Protection recommended guidelines for maximal permitted exposure limits to radiation from electric installations. These recommendations have not been translated to formal regulations due to opposition by the Ministry of Economy & Industry and the Ministry of Finance. Following an appeal submitted in 2015 to the High Court of Justice, an agreement was reached recently between the ministries and regulations based on the policy implemented from 1993 by the

California public utilities commission addressing electromagnetic fields emanating from regulated utility facilities.

- The continuous monitoring of cellular radiation by collecting information directly from the radio switch networks of the cellular carriers nationwide (see National Activity Report – 2010) was fully extended to monitor LTE technology.
- As a result of a mandatory policy to share cellular sites, the number of sites in the last two years decreased by 20% and both coverage and capacity improved. At the same time cellular radiation around these sites increased by 16%, in spite of a 4 fold increase in the amount of data used by mobile devices through the cellular sites.
- **An international survey to examine "E-learning" programs policy in schools** - Following the survey carried out in 2017, regarding "E-learning" programs policy in schools, the TNUDA Center has decided to expand its scope in 2018. The goal of this survey was to learn whether health ministries formed guidelines, aimed for children (and especially in schools), regarding educated use of end-user devices emitting NIR (the previous survey was addressed to Ministries of Education). In addition, we wished to learn whether any collaboration exists between the relevant ministries to include health aspects related to NIR technology when implementing E-learning programs in schools.

The survey results indicated that the Ministries of Health do not have guidelines in this issue. Few ministries addressed Wi-Fi use and noted that based upon current scientific knowledge, Wi-Fi use in schools does not endanger students and there is no reason not to continue using Wi-Fi in schools. No collaboration between the relevant ministries was reported; few countries indicated that the Ministry of Education does consult the Ministry of Health / Ministry of Environmental Protection regarding the educated use of digital technology/Wi-Fi.

Areas of Public Concern and National Responses

- The perspective that the 5G technology will be widely implemented is an increasing public concern. The Ministry of Environmental Protection prepared a paper presenting the advantages of using directional narrow RF beams of low power.

New Public Information Activities

- In the northern part of Israel (Haifa region), the Environmental Protection Unit is renting, at a very modest price, EMF accurate meters. This service is very well appreciated by the population while significantly increasing the level of confidence and decreasing radiation concerns. When high radiation level is recorded, a new measurement is done by a specialized engineer.
- The Ministry of Environmental Protection published its position regarding the need to limit the blue light part of artificial light. The Ministry recommends minimizing the exposure of the public to artificial blue such that the power peak of blue light will not exceed 50% of the power peak in the visible range.

Activities of Israeli National Information Center for Non-Ionizing Radiation, TNUDA

- **Summary of scientific literature & Providing access to knowledge**
 - ***The possible association between exposure to extremely low frequency magnetic fields and spontaneous abortion*** - The discussion regarding health risks associated with exposure to extremely low frequency magnetic fields often focuses on the possible association between this exposure and the development of cancer. Yet, a study published in 2018 has found an association between this type of exposure and increased risk of spontaneous abortion. It should be noted that the WHO report (2007) presented limited evidence for this association. A review conducted by the TNUDA Center found that findings presented by few

epidemiological studies published after 2007, were not well established. Accordingly, and considering the precautionary principle, the Center has published its recommendations for educated use of household appliances to reduce the exposure.

- **Electromagnetic hypersensitivity (EHS)** - As part of the consultation provided by TNUDA Center to the Ministry of Education regarding the health aspects of implementing NIR technologies in schools, TNUDA conducted a comprehensive and up-to-date review on Electromagnetic hypersensitivity. The review presented the estimated prevalence of this phenomenon, its symptoms, and several studies examining the association between exposure to electromagnetic radiation and the symptoms attributed to it, in the general population and among children and adolescents. In addition, recommendations of international health organizations for coping with these symptoms were presented.