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### **REVIEW OF RECENT LITERATURE ON ELECTROMAGNETIC FIELDS**

**The Health and Emergency Medical Services Committee recommends the adoption of the recommendation contained in the following report, August 16, 2007, from the Commissioner of Community Services, Housing and Health Services:**

#### **1. RECOMMENDATION**

It is recommended that:

1. This report be received for information.

#### **2. PURPOSE**

This report provides York Region Health Services comments on two recently published documents:

- a) Stakeholder Advisory Group on Extremely Low Frequency Electromagnetic Fields (SAGE) Precautionary Approaches to Extremely Low Frequency Electromagnetic Fields (ELF EMF) – First Interim Assessment: Power Lines and Property, Wiring in Homes, and Electrical Equipment in Homes, 2007 (SAGE report).
- b) Medical Perspectives on Environmental Sensitivities, prepared by Margaret E. Sears for the Canadian Human Rights Commission, 2007 (Sears report).

#### **3. BACKGROUND**

On June 21, 2007, through the adoption of Clause No. 3 of Report No. 4 of the Health and Emergency Medical Services Committee, Council received correspondence from Mrs. Sue Fusco of the group Stop Transmission lines Over People (S.T.O.P.), which included the SAGE report and the Sears report as attachments. The attached documents were referred to staff for review and report back.

#### **4. ANALYSIS AND OPTIONS**

Since 1995, the York Region Health Services Department has promoted the prudent avoidance approach towards EMFs. The World Health Organization (WHO) defines prudent avoidance as “taking simple, easily achievable, low cost measures to reduce exposure, even in the absence of demonstrable risk.” Both Health Canada and the Ministry of Health and Long-Term Care (MOHLTC) support prudent avoidance and reasonable action as the appropriate response to EMF concerns.

#### **4.1 New Reports Do Not Provide Evidence to Change Approach to EMFs**

Neither the SAGE report nor the Sears report provide any strong evidence suggesting that the Health Services Department change its current approach of prudent avoidance to EMFs. These reports show that, while the quantity and sophistication of research on EMF exposure has increased, the bulk of evidence remains similar to that of 1995.

When assessing the science behind potential health risks, the weight of available evidence must be taken into account. This includes both the quantity, and quality of scientific evidence. For the issue of EMFs, in order to establish a cause and effect relationship, there would have to be a number of well-conducted studies, each showing that there is definitive evidence of an association.

#### **4.2 The SAGE Report**

The SAGE group was tasked with providing advice to the government of the United Kingdom (UK) on precautionary measures that could be undertaken by the government or citizens to reduce exposure to extremely-low frequency EMFs. The group includes electric utility personnel, representatives from concerned community groups, representatives from academia and representatives from Britain's Department of Health.

As stated in the paper, the assessment is not the UK government's policy statement on health effects and/or recommendations on exposure to EMFs.

##### **4.2.1 SAGE Report Does Not Address Question of Whether EMFs Cause Health Impacts**

The SAGE paper describes several precautionary options that the UK government could choose to endorse (or enforce) which would lead to less exposure to EMFs in the general public. The paper does not address the question of whether EMFs cause health impacts.

“We wish to stress that our task has been to consider possible precautionary measures. By discussing what to do if EMFs caused certain health effects, we are not making any comment on how likely or unlikely it is that EMFs actually do cause those effects, and this Assessment should not be interpreted in that way.”

##### **4.2.2 SAGE Report Recommends Precautionary Approaches to Extremely Low Frequency EMFs**

The specific advice that the SAGE report provides can be described as a precautionary approach. The SAGE report lists various options for reducing exposures to sources of EMFs, such as home wiring, equipment in the home, and power lines, and then discusses which options are recommended or not.

The paper's recommendations include:

- Specific recommendations for changing the building code to mandate specific wiring practices that are thought to reduce EMF production.

- That UK's Health Protection Agency create educational materials for the public on typical sources of EMF exposure in households and how to mitigate these sources.
- That appliance manufacturers be encouraged to reduce the energy use and EMFs created by their products.
- Restrictions on new homes and schools being built close to existing lines, and on new lines close to existing homes and schools.

#### **4.2.3 Federal and Provincial Positions on EMF Exposure Remain Unchanged**

Health Canada's Electromagnetics Division conducts research on EMF exposure levels, monitors research on the biological effects of EMFs, advises the government, industry, and the general public on exposure to EMFs, and develops guidelines for the protection of the general public and workers from exposure to EMFs. Presently, however, the Canadian government has not published exposure guidelines for EMFs at extremely low frequencies, as Health Canada does not deem the scientific evidence strong enough to warrant guidelines.

Health Canada also participates on the Federal-Provincial-Territorial Radiation Protection Committee (FPTRPC), whose Extremely Low Frequency Working Group was established to conduct reviews of scientific literature and exposure guidelines and recommend actions to address extremely low frequency EMFs. In January 2005, this Committee released a report titled "Health Effects and Exposure Guidelines Related to Extremely Low Frequency Electric and Magnetic Fields." The report contains a position statement for the general public on health effects which states:

"Based on the available scientific evidence to date, the FPTRPC concludes that adverse health effects from exposure to power-frequency EMFs, at levels normally encountered in homes, schools and offices, have not been established."

Both the Ministry of Health and Long-Term Care (MOHLTC) and Health Canada were recently contacted by the Health Services Department. While neither agency had reviewed the SAGE report, their position and advice on exposure to EMFs has not changed. Specifically, the MOHLTC representative stated that the Ministry stands by their comments provided in early 2006: "Overall, the scientific evidence does not support a causal association between EMF exposure and human health risks."

Any specific comments on the SAGE report recommendations by the York Region Health Services Department would have to be done in consultation with the MOHLTC and Health Canada.

#### **4.3 The Sears Report**

A 2007 report, *The Medical Perspective on Environmental Sensitivities*, was prepared by Margaret E. Sears for the Canadian Human Rights Commission. The Canadian Human Rights Commission clearly states that "[t]he opinions expressed in this report are those of

the author and do not necessarily reflect the views of the Canadian Human Rights Commission.”

The Sears report discusses environmental sensitivities, defined as “a variety of reactions to chemicals, electromagnetic radiation and other environmental factors at exposure levels commonly tolerated by many people.” The Health Services Department will only focus on sensitivities to electromagnetic radiation, also termed electromagnetic hypersensitivity (EHS), in this report.

#### **4.3.1 Health Services Department Concerns Relating to Sears Report**

While the Health Services Department does not disagree with the claim in the Sears report that people’s responses to factors in their environment vary enormously, we maintain that there is limited evidence of a relationship between EMFs and the existence of environmental hypersensitivities.

The Health Services Department has a number of concerns about the statements made in the Sears report regarding an association between EMFs and EHS. These include study findings that are not referenced, not peer-reviewed, cited as personal communications, or not related to EMF typical exposure levels. In addition, the Sears report recommends specific technology to reduce EMF exposures (Graham Stetzer Filters) that Health Canada has concluded can actually increase the magnetic field in the home and increase the burden on the electricity supply.

Finally, the Sears report inaccurately attributes statements and positions to agencies such as the WHO. The WHO’s Fact Sheet from 2005 on “Electromagnetic fields and public health: Electromagnetic hypersensitivity,” states that:

“A number of studies have been conducted where EHS individuals were exposed to EMFs similar to those that they attributed to the cause of their symptoms.... Well controlled and conducted double-blind studies have shown that symptoms were not correlated with EMF exposure.... There are also some indications that these symptoms may be due to pre-existing psychiatric conditions as well as stress reactions as a result of worrying about EMF health effects, rather than the EMF exposure itself.”

The WHO’s Research Agenda for Radio Frequency Fields does not recommend further studies on the relationship between EMFs and EHS since, “...from the studies completed so far, there was no substantial evidence for a causal relationship.”

## **5. FINANCIAL IMPLICATIONS**

There are no financial implications associated with this report.

**6. LOCAL MUNICIPAL IMPACT**

There is no municipal impact associated with this report.

**7. CONCLUSION**

The SAGE report and the Sears report show that, while the quantity and sophistication of research on EMF exposure has increased, the bulk of evidence remains similar to that of 1995, when the Health Services Department first adopted its approach of prudent avoidance to EMFs. Therefore, the Health Services Department maintains its prudent avoidance approach to EMFs.

For more information on this report, contact Dr. Karim Kurji, Acting Medical Officer of Health, in the Public Health Branch of the Health Services Department.

The Senior Management Group has reviewed this report.