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May 2, 2012

## **Re: Open Letter to Parents, Teachers, School Boards. Regarding Wi-Fi Networks in Schools**

This is an update of an open letter I wrote May 5, 2009 (the original letter follows the updated information).

Much has happened during the past 3 years regarding our understanding of the health effects associated with microwave radiation<sup>1</sup>.

### **New Developments Regarding Radio Frequency Radiation and Health since 2009**

**1. On May 31<sup>st</sup>, 2011, the World Health Organization** classified radio frequency electromagnetic fields as a possible human carcinogen. Although this does not sound harmful, as it is just “possible” and not “probable,” it is never-the-less a warning that we may be playing with fire by exposing students and their teachers (some of whom may be pregnant) to microwave radiation generated by Wi-Fi routers in the classroom. Health authorities, like Health Canada, have tried to downplay this new classification and wrongly assumed that it applied only to cell phones. It applies to ALL forms of radio frequency radiation as stated by Dr. Jonathan Samet (University of California) in this short video. <http://www.youtube.com/watch?v=s4E2i5XFX9M> See also: <http://www.magdahavas.com/iarc-declares-rf-from-cell-phones-and-cell-towers-dangerous/>

Radio frequency is generated by Wi-Fi routers, cell phones, mobile phones, wireless baby monitors, wireless games and toys that are remote controlled, smart meters, some home security systems, and antennas that support cell phone, broadcast radio and television as well as radar.

**2. Also in May 2011, The Parliamentary Assembly Council of Europe (PACE) released Resolution 1815** on the Potential Dangers of Electromagnetic Fields and their Effect on the Environment. Here is the link to the Resolution <http://assembly.coe.int/Mainf.asp?link=/Documents/AdoptedText/ta11/ERES1815.htm>

This is what they had to say about Wi-Fi in schools.

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<sup>1</sup> [Wi-Fi uses microwave radiation (also referred as radio frequency radiation) at two different frequencies 2.4 and 5.8 GHz. The 2.4 GHz is similar to that used in a microwave oven.]

8.3.2. for children in general, and particularly in schools and classrooms, give preference to wired Internet connections, and strictly regulate the use of mobile phones by schoolchildren on school premises;

3. A subcommittee of the **WHO held a meeting in Geneva on May 13, 2011** to discuss multiple chemical sensitivity and electrohypersensitivity (EHS) and placing these two illnesses on the WHO's International Classification of Diseases (ICD).

Electrohypersensitivity, refers to an adverse physiological reaction experienced by some individuals when they are exposed to electromagnetic fields and/or radiation. Symptoms include chronic pain, chronic fatigue, difficulty sleeping, cognitive dysfunction, mood disorders, dizziness, nausea, tinnitus, skin disorders etc. EHS is not yet officially recognized in Canada although physicians and some medical centres are diagnosing and treating patients with this illness.

4. **The International Electromagnetic Field Alliance (IEMFA)**—consisting of an international group of scientists—released the **Seletun Statement (Norway) 2010**, which states the following:

*The Scientific Panel recognizes that the body of evidence on EMF requires a new approach to protection of public health; the growth and development of the fetus, and of children; and argues for strong preventative actions. New, biologically-based public exposure standards are urgently needed to protect public health worldwide. <http://www.magdahavas.com/international-experts'-perspective-on-the-health-effects-of-electromagnetic-fields-emf-and-electromagnetic-radiation-emr/>*

5. **The American Academy of Environmental Medicine** (2012) recently requested a moratorium on smart meters in their position paper on “Electromagnetic and Radiofrequency Fields Effect on Human Health.” I would contend that the radiation from Wi-Fi in schools is as high, if not higher than the radiation generated by smart meters. If a moratorium on smart meters is requested that should also apply to deployment of Wi-Fi in schools.

6. **The Austrian Medical Association**, on March 3, 2012, released their guide for diagnosing and treating people who have electrosensitivity. The more we exposed populations to electrosmog the more people are going to become sensitive to this radiation. One of the main recommendations is the reduction of EMF exposure.

7. **The Ontario English Catholic Teacher's Association (OECTA)** prepared a position paper February 2012 regarding the use of WiFi in the workplace. This document is available at <http://www.magdahavas.com/ontario-english-catholic-teachers-association-wi-fi-in-the-workplace/> It is an excellent document that all school boards should take seriously.

How many scientific and medical warnings do we need before we begin to practice good electromagnetic hygiene? What if those who believe this radiation is safe . . . are wrong? Who will take responsibility for the increase in neurological disorders and cancers that may develop as well as reproductive problems (microwave radiation affects sperm)? Is the convenience of wireless more important than the health of students and teachers? Most people do not want to live near cell phone towers but they are willing to put similar microwave transmitters inside a school environment?

Wired connects (Ethernet or fibre optics) are the best solution and many schools that are now installing Wi-Fi already have Ethernet ports for internet access.

For those who want more information. I prepared a 25-minute video on Wi-Fi in schools. Please watch it and then decide if the convenience is worth the risk. <http://www.youtube.com/watch?v=6v75sKAUFdc>

Magda Havas, BSc., Ph.D., May 2, 2012.

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**Original Open Letter dated: May 5, 2009.**

I am a scientist who does research on the health effects of electromagnetic radiation and I am becoming increasingly concerned that a growing number of schools are installing WiFi networks and are making their school grounds available for cell phone antennas.

You will be told by both the federal government (Health Canada and Industry Canada) as well as by the Wi-Fi provider that this technology is **safe** provided that exposures to radio frequency radiation remain below federal guidelines.

You should know that the guidelines we have in Canada protect the public against heating but NOT against biological effects. We have some of the worst guidelines in the world for radio frequency radiation.

This information is **outdated** and **incorrect** based on the growing number of scientific publications that are reporting adverse health and biological effects below our Safety Code 6 guidelines (see [www.bioinitiative.org](http://www.bioinitiative.org)) and the growing number of scientific and medical organizations that are asking for stricter guidelines to be enforced.

**For these reasons it is irresponsible to introduce Wi-Fi microwave radiation into a school environment where young children spend hours each day.**

**FACT:**

**1. GUIDELINES: Guidelines for microwave radiation (which is what is used in Wi-Fi) range 5 orders of magnitude in countries around the world.** The lowest guidelines are in Salzburg Austria and now in

Liechtenstein. The guideline in these countries is  $0.1 \text{ microW/cm}^2$ . See short video (<http://videos.nextup.org/SfTv/Liechtenstein/AdoptsTheStandardOf06VmBioInitiative/09112008.html>). In

Switzerland the guideline is 1 and in Canada it is  $1000 \text{ microW/cm}^2$  !

Why does Canada have guidelines that are so much higher than other countries? Canada's guidelines are based on a short-term (6-minute) heating effect. It is assumed that if this radiation does not heat your tissue it is "safe". This is not correct. Effects are documented at levels well below those that are able to heat body tissue. See attached report: *Analysis of Health and Environmental Effects of Proposed San Francisco Earthlink Wi-Fi Network* (2007). These biological effects include increased permeability of the blood brain barrier, increased calcium flux, increase in cancer and DNA breaks, induced stress proteins, and nerve damage. Exposure to this energy is associated with altered white blood cells in school children; childhood leukemia; impaired motor function, reaction time, and memory; headaches, dizziness, fatigue, weakness, and insomnia.

**2. ELECTRO-HYPER-SENSITIVITY:** A growing population is adversely affected by these electromagnetic frequencies. The illness is referred to as "electro-hyper-sensitivity" (EHS) and is recognized as a disability in Sweden. The World Health Organization defines EHS as:

*“ . . . a phenomenon where individuals experience adverse health effects while using or being in the vicinity of devices emanating electric, magnetic, or electromagnetic fields (EMFs). . . EHS is a real and sometimes a debilitating problem for the affected persons, while the level of EMF in their neighborhood is no greater than is encountered in normal living environments. Their exposures are generally several orders of magnitude under the limits in internationally accepted standards. “*

Health Canada acknowledges in their Safety Code 6 guideline that some people are more sensitive to this form of energy but they have yet to address this by revising their guidelines.

Symptoms of EHS include sleep disturbance, fatigue, pain, nausea, skin disorders, problems with eyes and ears (tinnitus), dizziness, etc. It is estimated that 3% of the population are severely affected and another 35% have moderate symptoms. Prolonged exposure may be related to sensitivity and for this reason it is

imperative that children's exposure to microwave radiation (Wi-Fi and mobile phones) be minimized as much as possible.

**3. CHILDREN'S SENSITIVITY:** Children are more sensitive to environmental contaminants and that includes microwave radiation. The Stewart Report (2000) recommended that children not use cell phones except for emergencies. The cell phone exposes your head to microwave radiation. A wireless computer (Wi-Fi) exposes your entire upper body and if you have the computer on your lap it exposes your reproductive organs as well. Certainly this is not desirable, especially for younger children and teenagers. For this reason we need to discourage the use of wireless technology by children, especially in elementary schools. That does not mean that students cannot go on the Internet. It simply means that access to the Internet needs to be through wires rather than through the air (wireless, Wi-Fi).

**4. REMOVAL OF WI-FI:** Most people do not want to live near either cell phone antennas or Wi-Fi antennas because of health concerns. Yet when Wi-Fi (wireless routers) are used inside buildings it is similar to the antenna being inside the building rather than outside and is potentially much worse with respect to exposure since you are closer to the source of emission.

Libraries in France are removing Wi-Fi because of concern from both the scientific community and their employees and patrons.

The Vancouver School Board (VSB) passed a resolution in January 2005 that prohibits construction of cellular antennas within 1000 feet (305 m) from school property.

Palm Beach, Florida, Los Angeles, California, and New Zealand have all prohibited cell phone base stations and antennas near schools due to safety concerns. The decision not to place cell antennas near schools is based on the likelihood that children are more susceptible to this form of radiation. **Clearly if we do not want antennas "near" schools, we certainly do not want antennas "inside" schools!** The safest route is to have wired internet access rather than wireless. While this is the more costly alternative in the short-term it is the least costly alternative in the long run if we factor in the cost of ill health of both teachers and students.

**5. ADVISORIES:** Advisories to limit cell phone use have been issued by the various countries and organizations including the UK (2000), Germany (2007), France, Russia, India, Belgium (2008) as well as the Toronto Board of Health (July 2008) and the Pittsburgh Cancer Institute (July 2008). While these advisories relate to cell phone use, they apply to Wi-Fi exposure as well since both use microwave radiation. If anything, Wi-Fi computers expose more of the body to this radiation than do cell phones.

**6. PRECAUTIONARY PRINCIPLE:** Even those who do not "accept" the science showing adverse biological effects of microwave exposure should recognize the need to be careful with the health of children. For this reason we have the Precautionary Principle, which states:

*In order to protect the environment, the precautionary approach shall be widely applied by States according to their capability. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost effective measures to prevent environmental degradation.*

In this case "States" refers to the School Board and those who make decisions about the health of children.

The two most important environments in a child's life are the home (especially the bedroom) and the school. For this reason it is imperative that these environments remain as safe as possible. **If we are to err, please let us err on the side of caution.**

Respectfully submitted, Dr. Magda Havas, Associate Professor Trent University May 5, 2009