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July 11, 2018

## **Re: Open Letter Regarding Wi-Fi in Public Places and Parks**

This is an update of an open letter I wrote about Wi-Fi in schools, May 5, 2009 (the original letter follows this updated information). Much of the information in that letter also applies to Wi-Fi in public places and in parks.

Much has happened since 2009 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.

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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.]

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 electromagnetic pollution and effects on the environment.

*Item 7: Moreover, the Assembly notes that the problem of electromagnetic fields or waves and their potential consequences for the environment and health has clear parallels with other current issues, such as the licensing of medication, chemicals, pesticides, heavy metals or genetically modified organisms. It therefore highlights that the issue of independence and credibility of scientific expertise is crucial to accomplish a transparent and balanced assessment of potential negative impacts on the environment and human health.*

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-onthe-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 public places can be as high as that generated by smart meters. If a moratorium on smart meters is requested that should also apply to deployment of Wi-Fi in public places and parks.

6. **The Ontario English Catholic Teacher's Association (OECTA)** prepared a position paper **February 2012** regarding the use of Wi-Fi in the workplace. This document is available at <http://www.magdahavas.com/ontarioenglish-catholic-teachers-association-wi-fi-in-the-workplace/> It is an excellent document that all school boards should take seriously. Since we want our parks to be used by all generations, it is essential that they remain relatively free of microwave radiation.

7. **The EMF International Scientists** presented an Appeal to the WHO and the UN that was signed by scientists and physicians who do research in this field asking for the following (see appeal at [www.emfscientist.org](http://www.emfscientist.org)):

1. children and pregnant women be protected;
2. guidelines and regulatory standards be strengthened;
3. manufacturers be encouraged to develop safer technology;
4. utilities responsible for the generation, transmission, distribution, and monitoring of electricity maintain adequate power quality and ensure proper electrical wiring to minimize harmful ground current;
5. the public be fully informed about the potential health risks from electromagnetic energy and taught harm reduction strategies;
6. medical professionals be educated about the biological effects of electromagnetic energy and be provided training on treatment of patients with electromagnetic sensitivity;
7. governments fund training and research on electromagnetic fields and health that is independent of industry and mandate industry cooperation with researchers;
8. media disclose experts' financial relationships with industry when citing their opinions regarding health and safety aspects of EMF-emitting technologies; and
9. white-zones (radiation-free areas) be established.

8. In **2015**, **Brussels International Scientific Declaration on Electromagnetic Hypersensitivity and Multiple Chemical Sensitivity**, available [here](#). Once again, an international group of medical doctors and scientists signed the Brussels Appeal and stated the following:

We, physicians, acting in accordance with the Hippocratic Oath, we, scientists, acting in the name of scientific truth, we all, medical doctors and researchers working in different countries worldwide, hereby state in full independence of judgment,

1. that a high and growing number of persons are suffering from EHS and MCS worldwide;
2. that EHS and MCS affect women, men and children;
3. that on the basis of the presently available peer-reviewed scientific evidence of adverse health effects of electromagnetic fields (EMFs) and various chemicals,

and on the basis of clinical and biological investigations of patients, EHS is associated with exposure to EMFs and MCS with chemical exposure;

4. that many frequencies of the electromagnetic spectrum (radio- and microwave frequencies as well as low and extremely low frequencies) and multiple chemicals are involved in the occurrence of EHS and MCS respectively;
  5. that the trigger for illness can be acute high intensity exposure or chronic very low intensity exposure and that reversibility can be obtained with a natural environment characterized by limited levels of anthropogenic EMFs and chemicals;
  6. that current case-control epidemiological studies and provocative studies aiming at reproducing EHS and/or MCS are scientifically difficult to construct and due to the present design flaws are in fact not suitable to prove or disprove causality; in particular because objective inclusion/exclusion criteria and endpoint evaluation criteria need to be more clearly defined; because responses to EMFs/chemicals are highly individual and depend on a variety of exposure parameters; and finally because test conditions are often reducing signal-to-noise ratio thereby obscuring evidence of a possible effect;
  7. that the nocebo<sup>2</sup> effect is not a relevant nor a valid explanation when considering scientifically valuable blind provocation studies, since objective biological markers are detectable in patients as well as in animals;
  8. that new approaches are emerging for clinical and biological diagnosis and for monitoring of EHS and MCS including the use of reliable biomarkers;
  9. that EHS and MCS may be two faces of the same hypersensitivity-associated pathological condition and that this condition is causing serious consequences to health, professional and family life;
  10. finally that EHS and MCS ought therefore to be fully recognized by international and national institutions with responsibility for human health.
11. **The Austrian Medical Association (2016)** 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. This is difficult if people are unable to enjoy nature because parks have Wi-Fi access point and generate microwave radiation. Available here:  
<https://ecfsapi.fcc.gov/file/10910251701394/EUROPAEM%20EMF%20Guideline%202016%20for%20the%20prevention%20and%20treatment%20of%20EMF-related%20health%20problems.pdf>

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<sup>2</sup> Nocebo: A negative placebo effect as, for example, when patients taking medications experience adverse side effects unrelated to the specific pharmacological action of the drug. ... Nocebo comes from the Latin noceo, to harm and means "I shall harm" whereas placebo means "I shall please."

12. In **2018**, **The National Toxicology Program** in the U.S. (supported by the **Ramazzini Report** from Italy) released part of their multi-million, multi-year study on the effect of cell phones on laboratory rats and mice. They reported an increased risk of two types of cancers (that are also documented in the human population and are associated with cell phone use). Cell phones and cell phone base stations (antennas) also generate microwave radiation at frequencies similar to Wi-Fi (cellular 0.9 to 1.9 GHz vs. Wi-Fi at 2.4 GHz). These studies are documenting a cause:effect relationship and should be taken seriously by anyone who uses cell phones or exposes their body to Wi-Fi radiation. See <http://magdahavas.com/rats-using-cell-phones-are-developing-tumours/>
13. We also have evidence that use of screen technology is becoming an addiction among children and adults alike. Combine this with sexting, cyber bullying, and one outcome is suicide that is becoming more common among teenagers. These are already difficult years with a myriad of hormonal changes. See **2018** article “*Sexting, suicide and addiction - the children whose lives have been ruined by the Internet*” at <https://www.telegraph.co.uk/news/2018/06/10/sexting-suicide-addiction-children-whose-lives-have-ruined/>

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 human health?

Most people do not want to live near cell phone towers but they may not realize that exposure is similar with Wi-Fi microwave transmitters in a park environment.

Are we willing to sacrifice health and limit the ability of those who have developed electrohypersensitivity (a disability according to the Canadian Human Rights Commission, Sears 2007 available here:

[http://www.chrccdp.gc.ca/sites/default/files/envsensitivity\\_en.pdf](http://www.chrccdp.gc.ca/sites/default/files/envsensitivity_en.pdf)) to visit parks because of the ubiquitous microwave radiation generated by Wi-Fi routers?

Is no place sacred?

I prepared a 25-minute video on Wi-Fi in schools. Some of this will be applicable to Wi-Fi in public places. Please watch it and then decide if the convenience is worth the risk.

<http://www.youtube.com/watch?v=6v75sKAUFdc>

Also, for more information about *Living with Electrohypersensitivity: A Survival Guide*, please visit <http://www.weepinitiative.org/livingwithEHS.html>

Respectfully Submitted by Magda Havas, BSc, PhD, July 11, 2018.

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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 Wi-Fi 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

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

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Switzerland the guideline is 1 and in Canada it is 1000 microW/cm ! 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-FiNetwork* (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