

SPEAKING NOTES – WITNESS TO THE HOUSE OF COMMONS’ STANDING COMMITTEE ON HEALTH

From: Dr. Riina I Bray, BAsC, MSc, MD, FCFP, MHSc

Check against delivery

Good afternoon. My name is Dr. Bray. I achieved first-class honors in chemical engineering, then earned my Masters of Science degree in pharmacology in the area of addictions and toxicology. I then studied medicine at the University of Toronto and did a specialty in Family Practice at University of British Columbia. I hold a Master’s of Health Sciences (Public Health) in Family and Community Medicine.

I have been Medical Director of the Environmental Health Clinic at Women’s College Hospital and Associate Professor in the Department of Family and Community Medicine, University of Toronto since 2002. I was Chair of the Environmental Health Committee of the Ontario College of Family Physicians for ten years. I have taught University level courses, lectured widely to the public and peers, mentored and taught hundreds of medical students, done environmental health research, published and created educational materials in the areas of toxic metals, urban sprawl and children’s environmental health. I have been investigating electromagnetic fields and human health for the past 10 years.

Dear honourable chair and members of the committee. Thank you for inviting me to speak about my experiences in caring for patients who have developed hypersensitivities from chronically high levels of exposure to electromagnetic fields (EMFs) in everyday life. Since the time these diagnoses were initially made 10 years ago, the numbers have increased dramatically, perhaps due to increased awareness and perhaps due to increased unrestrained use of wireless devices. It is difficult to say. Individuals who are sensitive to EMF, or those with electromagnetic hypersensitivity (EHS), are canaries in a coal mine and lucky enough to have discovered what it is that is making them feel unwell. Many of them find everyday life and work difficult and uncomfortable. Most often we see them with family members who thought the patient had gone mad, but then realized that what they were saying was true through observations.

We see EHS in people who have predisposing stressors such as cardiac arrhythmias, neurological pathologies, physical and mental exhaustion due to stress causing lack of sleep and inadequate alimentation, previous prolonged exposures to EMFs such as teachers and technicians working in wireless institutions, the airline industry, computer and information technology, and health professionals in institutions where wireless technology is used for monitoring.

In my opinion, based on what I have seen and read, those at highest risk for EHS include the fetus, children, the infirm, those with predisposing morbidities (usually cardiac and neurological), those with a toxic overload either due to genetic polymorphism entailing poor detoxification or chronic exposures to chemicals, and the elderly. They are all at risk of adverse health effects from this insufficiently regulated, poorly studied, man-made environmental health hazard – radio and microwaves ranging from 10kHz to 10-100’s of GHz. People, despite the way they are feeling, have no choice to stop the radiation of their bodies or their children’s bodies, but must put faith in the government that there is indisputably no harm being done.

Sources causing a majority of problems in the patients we have seen include – airports, cellphone units/towers, cellphones, baby monitors, wifi routers, Wi-Fi hubs, laptops in groups such as lecture halls, ipads, and fluorescent lights including compact fluorescent lights.

Signs and symptoms include dermatological (redness, tingling, burning sensations), headache, tinnitus, brain fog, listlessness, neurasthenic and vegetative symptoms (such as fatigue and lack of motivation), concentration difficulties, dizziness, low mood, irritability, malaise, heart palpitations, nausea and digestive disturbances. We have found that about half have chemical sensitivities. Holter monitors have been helpful in proving that cardiac symptoms can be induced or provoked with increasing levels of exposure, such as being close to a cell phone tower or Wi-Fi hub.

EHS is characterized by these signs and symptoms, which occur due to high-levels, usually prolonged (hours) of exposure at work or school and abate when the person has been removed from that environment. Depending on the extent of disability, the symptoms can come on in 1-5 minutes and require the patient to take time off work or school in order to recuperate sufficiently. We have noted that it can take up to about 1 day to recover, although recovery is sometimes much faster, such as a few minutes, depending on the health of the individual.

The question that continues to alarm me is: what of those who have not yet become sensitized (or are unwell but have not realized it is the EMFs provoking the problem) and continue to try to function in an environment where the electrical and magnetic fields are high? Multiple Wi-Fi hubs, multiple laptops using Wi-Fi in a lecture hall, multiple cellphones all in one space such can reach levels of over 1,000,000 microwatts/m². This has been measured in a high school from the proximity of an adjacent classroom. The electrical field would be greater than 10⁷ microwatts per meter squared *in* that occupied classroom. What are the exposure levels for the students and teachers in a class of that type for hours daily, year after year? Has anyone done a study on that? No. Teachers are forbidden by school boards to take measurements on their own or turn off wifi hubs that are not even in use, or they will lose their jobs.

As a physician who has specialized in the area of environmental health for over 20 years, I am mortified at the lack of accountability regarding radio and microwave radiation use in the everyday lives of Canadians both young and old. I am appalled by the poor, impractical and unrealistic research done in this area and the lack of proper, relevant investigations that need to be done and have not. There are no longitudinal studies except the one going on right now on people who did not ask to be subjects, who gave no Research Ethics Board's consent, and on whom data is not being collected. This is not a "study" at all.

Some of my patients are going to Green Banks, West Virginia to recuperate. In Green Banks, there is a ban on sources of EMFs that would interfere with the operation of the radio telescopes. All of these patients' symptoms abate after a few days, but unfortunately return when they return to their Canadian homes.

Diagnosed and properly managed hypersensitive patients get better slowly (1-2 years) with the treatment of their current co-morbidities, the use of shielding to reduce exposure (and this is at their own expense), the diligent avoidance of environments with high exposures, and proper accommodation at work or school.

Questions that need answering include: what are other physicians in the community finding? Anecdotally, they are reporting more patient concerns for EMF exposures and noting symptoms related to EMFs, but we need to gather statistics properly. We also need a public opinion poll on the matter. The CCHS, the Canadian Community Health Survey, would be useful in this regard. We need find out how many complaints doctors are actually getting. How many people are out there feeling unwell from something they can't touch, see, smell or taste? (Many have increased tinnitus with close proximity to

cellphone towers). We must protect our citizens properly, and we have to be educated in order to do this.

How much are children (including the fetus) being exposed cumulatively on a daily basis, and how much EMF exposure could potentially cause problems in early years, or disease and illness in the later years?

Some physicians are taking some initiatives. For example, the Austrian Medical Society published a report on diagnosis and treatment of patients with EHS, and ongoing research examining biomarkers associated with the condition.

As a physician, educator, advocate and health care leader, I feel physicians are seriously lacking in the fundamentals in the science of EMFs from a physical science, technological and biological standpoint. They need to become aware of EMF sources and how the characteristics of this radiation impact the body. They need to understand the condition of EHS which affects about 3% of the population severely, and how this condition is related to other co-existing medical conditions. They need to understand the impacts of EMFs on children, issues arising in schools, baby care and pregnancy. They need to become aware of ways they can help patients protect themselves by minimizing exposures through common sense measures and shielding.

The EMF phenomenon has increased in intensity in our society from 10^{-6} microwatts per meter squared (the natural background level for our very recent ancestors) to 10^7 microwatts/m² in present day. This is an increase of ten million million times. This should be alarming. Tobacco, pesticides, lead, mercury, BPA, particulates in air pollution and a plethora of other environmental health hazards which have been deemed as having increasingly smaller "safe" limit thresholds, are a reminder to us that radio and microwave use, which is supposedly regulated and considered safe, is more than likely going to come to a similar unfavourable end. It does not have to be this way if we use technology responsibly.

Thank you.