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New problems with cellphones

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The level of typical exposure to cellphone-related emissions has more than doubled for most Canadians in the last 5 years. This exposure has interacted with vaccines, common drugs and may be responsible for the genetic variations of Asian flu and E Coli *distribution. Although sensitivity and absorption of these emissions is not the same for all, children are more vulnerable then adults. What can soon happen on a large scale in Canada has already occurred in Japan where MDs specialize in pathologies related from cellphone emission exposure, with limited success.*

In our growing dependence on wireless telecommunication systems, we increasingly find ourselves absorbing electric and magnetic wave emissions from these microwave systems. Although the human species has evolved amidst a broad band of these same frequencies that originate from throughout the universe, in the last few decades, human exposure to artificial, repetitive signals has risen dramatically – by more than a trillion times. We can even compare the average United States exposure to radiofrequency and microwave fields in 1980 (0.005 microWatt/cm^2) with that of 1999 (1.0 μWatt/cm^2) we note a 200-fold increase, according to the **United States Environmental Protection Agency**. We can only expect further quantum leaps in exposure as the plans of investors, the military and other government agencies materialize: to have every dwelling, school, office and store in the world become a microwave transmitter for wireless computers and related linkages, and to have transceivers implanted within our bodies as guardian "digital angels".

What we are being currently exposed to?

In Southern Central Canada, the typical exposure to background microwave emissions from radio-microwave technology (0.5 Megahertz- 2GigaHz bandwidth) has also increased considerably the last few years. We have conducted several surveys along the principal highway corridors – in good and dry weather conditions, when field levels are at their lowest amplification mode - from Windsor, Ontario through Drummondville, Quebec, with northerly incursions from Toronto, through Peterborough, Ottawa, and Pembroke and north of the metropolitan Montreal area. The results are shown in Table 1.

Table 1. Background emissions (0.5 MHz – 2GHz band) along highways, selected Canadian cities, 2005

City	μWatt/cm^2	City	μWatt/cm^2	City	μWatt/cm^2
Windsor central	0.2 - 1.5	**Toronto**	2.5 – **100**	**Montreal**	0.1 – 2.5
Windsor South	0.2 – 2.5	Toronto East	1 – 2.5	Montreal East	0.1 – 2.5
Chatham	0.2	Toronto North	1 – **5**	**Longueuil**	0.1 – 1.5
Rodney	0.1	Pickering	1 – **5**	St-Hubert	0.1 – 1.5
Southwold	0.25	Ajax	1 – **5**	**St-Hyacinthe**	0.1 – 1.5
London	0.2 – 2	Whitby	1 - **5**	Drummondville	0.1 – 1.5
London suburb	0.05	**Oshawa**	1 – **5**	**Laval**	0.1 – 1.5
Ingersoll	0.05	Bowmanville	0.2 - 2	St-Jovite	0.1 – 1.5
Woodstock	0.25	Port Hope	0.25	St-Sauveur	0.1 - 0.25
Paris	0.1	Trenton	0.2 - 5	Ste-Adèle	0.1 - 0.25
Brantford	0.8 – **9**	**Belleville**	0.2 – 2.5	**Mirabel**	0.25 – **8**
Ancaster	0.25	**Kingston**	0.25	Lachute	0.05
Hamilton suburb	1.0 – 4	Brockville	0.25	Masson	0.1
Hamilton central	2.0 – **5**	Prescott	0.25	**Gatineau**	0.1 – 0.25
Burlington	1.0 – 4.5	**Cornwall**	0.25	Arnprior	0.1 – 0.25
Oakville	1.0 – 4.5	**Ottawa**	0.1 - **5**	Renfrew	0.1 – 0.25
Oakville industrial	2.5 – **8**	Vaudreuil	0.1 – 0.5	Perth	0.1 – 0.25
Mississauga	4.0 – **25**	Montreal West	0.1 – 0.5	**Peterborough**	0.25 - 1

The above minimum microwave power levels – mostly from cellphone technology - can be amplified by a number of factors by soil moisture, metallic structures, combination with other emitters, for example: radiofrequency emergency communication towers, trucks, telephony towers, and geographical features. Typical amplification after heavy rainfall is about 6-fold, electric composite waves with other transmitters, in wet weather allows for 10-fold power amplification. Thus, Toronto's background microwave power levels in some neighbourhoods can rise to between 25 and 1,000 μWatt/cm^2, well into Canada's regulatory ***Safety Code 6*** maximum permitted level, which is based on often-permanent heating effects for the whole body, such as increase in body temperature, often several degrees Celsius in directly exposed areas.

We are now approaching a situation where more and more often, even without using microwave technology appliances such as microwave ovens, cellphones, wireless computers, citizens in many areas will be exposed to levels higher than the legal exposure limit determined by the **Government of Canada**. In the meantime, millions of Canadians (there are over 15,000,000 Canadians owning cellphones) are exposed to power levels that exceed *Safety Code 6* while using government-sanctioned appliances.

Table 2. Typical microwave power emissions, various technologies

(***Canada Safety Code 6*** limit – about 600 - 1,000 μWatt/cm^2 – frequency dependent;
City of Toronto Board of Health guideline limit 10 μWatt/cm^2
Government of Italy, quality target: 0.1μWatt/cm^2)

Appliance, device (dry weather conditions)	**μWatt/cm^2**
Cellphone @ user	9 – ***3,500***
Cellphone, second hand exposure	1 - **200**
Microwave oven @ user	**10 – *2,000***
Cordless phone base station @ 2 to 6m	7 - **17**
Analog in urban environment (1-2 blocks away)	5 – **25**
Digital in urban environment (within 100m)	0.2 - 5
Analog in rural environment 500m	0.25 - **30**
Local amplification by metal window, door frames, studs, metal plumbing, grounding wire, unfiltered telephone and Cable TV wires	1 to 4.5 fold power increase

We can observe that there are many situations whereby microwave technology users and passer-bys can be exposed to levels that are critical. Note that the number of emitters can, in real life conditions, multiply these figures. In rooms, where you sit next to a window facing a transmitter can make a difference, since a window frame might be focusing signals, which are contemporaneously reradiated by a bulky metal radiator, or even a mirror. The zone where this combinatory effect exists may be very small, less than 2 square meters, however. Towers should never be at the same height as nearby residences.

Existing radio-frequency/microwave environments should be analyzed and considered to avoid microwave power amplification by radiofrequency fields with electric "composite waves", which are consistently vertically polarized. Composite waves are perceived by living bodies as *enhanced* microwaves. This is important in antenna farms and along highways where there is elevated use of radiofrequency/microwave technologies.

When using cellphone, localized re-radiation effects can be caused by such things are pimples on the face, eyeglasses, the structural frame of a car body, etc.

Inside large buildings that have wireless technology antennae, a safer place is usually in the shadow of the base station and worse at a short distance from the transmitter(s), especially if you actually see transmitter specifically directed towards your area.

There has been reported an alarming increase in autism in young persons associated with vaccines that appears to be associated with the mercury content therein used for stabilization. It is known that mercury amplified radiofrequency/microwave power absorption in tissue. This may be another example of new cellphone problem affecting a special market. 64% of Canadians between ages 15 and 29 own a cellphone and 40% of Canadians between ages 12 and 24 consider cellphones to be their main means of communication. Children are more consciously sensitive to microwaves than adults, according to a 1999 United Kingdom government scientific advisory.

What we can expect as health effects due to these new exposures?

Table 3. Experimental observations with low-level microwave exposure

Observation	Effects of microwave emissions	Exposure level
Effects on DNA	Single and double-strand breaks, electron flows within staked base pairs of double helix of DNA molecules, direct gene transcription, 40-90% increase in *Fos mRNA* from cellphone signals,	2h, 0.6W/kg, 0.001W/kg
Blood-brain barrier	Toxins may reach brain tissues: serotonin, glucose, selective permeability, allows glucose to pass	After 2 minutes, as low as 0.0004W/kg
Psychoactive Drugs	Neurotransmitter functions modified: Pentobarbital (alters narcosis), entylenetetrazol (more convulsions), Curare (less anaesthesia), Valium, Librium (potentiated). Endogenous *opiods* activated: increase in alcohol use, less of withdrawal symptoms in morphine-dependents	
Glaucoma, corneal eye damage	Worsen effects.	
Behavioural changes	Major errors in judgment, vision altered; disruptive attitude (hyperactivity); memory problems, [non-lethal weapons for combat advantage]; *synthase* inhibition caused by increase in body nitric oxide production by digital (pulsed) signals	
Cognitive functions	Faster reaction time, auditory memory retrieval [mind control], difficulty in concentration, “fuzzy thinking”, dizziness (indication of *serotonin* activity increase)	0.16 μWatt/cm^2
Sleep	May promote sleep, sleepiness, reduction of REM sleep (important to memory, learning)	
Melatonin	Melatonin secretion decreases	
Fundamental life processi	ELF-encodes in wireless transmissions may imitate heartbeat, cellular communications, brainwaves, cell growth, human metabolism; sperm count lowered, irreversible infertility in mice after 5 generations from “an antenna park”, chicken embryo mortality increases by half	As low as 0.005 W/kg
Dose-dependency	Observed in Korean War, US embassy personnel in Moscow, cumulative effects	
Microwave syndrome	Fatigue, irritability, nausea, anorexia, depression Cardiovascular disorders, hypo/hypertension Change in skin, skin allergies, eczema, psoriasis Increase in *lymphocytes*, effects in EEGs, reduced insulin production, multiple allergies, *Tinnitus*, itches in the ear, ears feel heated	As low as 0.02 to 8.0 μWatt/cm^2

Some, natural, highly-coherent oscillations in living beings have same or similar characteristics as those produced by wireless technologies. For example, the 2Hz-encoded signal from cellphones reporting to base stations resembles the heartbeat (and can entrain heartbeat). Other extremely-low-frequency-encoded signals resemble, and interact with, brain waves, cell growth, cell communication, calcium ion balance and other fundamental life processes, even at levels as low as 0.005W/kg.

Cellular antenna effects in neighbourhoods, including cancer

Health problems associated with antennae are also occurring in less affluent nations. In Slupsk, Poland at least 60 persons 25 to 30 meters from a radio-TV and cellular antenna farm died over a period of 4 years, apparently from transmission exposure. In Usfie, Israel, a cancer cluster was noted along a strip on Mount Carmel, adjacent to nearly 40 cellphone masts and 15 pirate radio transmitters. At issue are at least 89 deaths - mostly cancers, some strokes - and individuals with health problems such as depression. Suicides are also reported in the area. Student achievement levels dropped to the lowest in Israel; wild birds have deserted the area, and frequent birth defects were observed in pets. On March 14, 2000, the antennae were burned down by enraged citizens, after authorities denied antenna-inflicted injuries. Later, camouflaged antennae were installed and health problems recurred. Other Israeli communities have since learnt how to prevent cellular mast installations by demanding commitment from cellular companies to fund lawsuits filed for compensation as a result of installation. The method was applied by local authorities in Petah Tikva, whose demand to write a warranty (that transfers the responsibility to any lawsuit) from **Cellcom** company, eventually led the company's withdrawal from its intention to erect antennas in the city. The **Israeli National Planning and Construction Council** decided to enable warranty requirement from companies to protect local committees in case

lawsuits that prove damages. Lawyer **Ron Zin,** who represented Petah Tikva notes, "It turns out to be that the demand itself for a warranty, prevented erecting the antenna".

Situation in Japan – as a precursor to ours

The worldwide proliferation of ***Alzheimers*** is diagnosed reluctantly in Japan, due to a national stigma attached to the condition. While Japanese TV has health-topic programs on brain aging, noting that younger people show deterioration of mental faculties similar to the elderly and that chronic fatigue syndrome (CFS) and depression are rampant, these are ascribed to psychological factors. The shows point out missing nutrients or indicate mental exercises to keep "thinking young". The condition occurs in over 2 million Japanese, affecting all ages. Among the young, it manifests as social withdrawal, and they shut themselves off in rooms. At first, the media named it "jiheisho" (autism), then "hikikomori" or withdrawing and hiding. The sudden onset coincides with a major expansion of cell phone service. **Teruhisa Miikethat** of **Kumamoto University Medical School** notes that 75% of "withdrawn children" have CFS with reduced blood flow to the brain, accompanied by disorders in central nervous system function and immune function. "If you force them to go to school, they risk having real psychological problems as a result", he says. **Ryoichi Ogawa**, Kobe MD, reports that 80% of his CFS patients are frequent users on a daily basis of cellular phones, personal computers, TV games, etc.. He decided on a clinical study to test a cause-effect relationship of cellular phones and computers to CFS. Ogawa chose 40 from his young CFS patients (to compare them with 50 healthy persons) to measure their blood flow in the upper eyelid ophthalmic artery that branches off from the carotid artery carrying blood from heart to brain), with the *super Doppler method* - a test that verifies blockage of brain blood vessels. Subjects held a cellphone, at their left ear for 30 seconds. Prior to use, all showed normal blood flow of 10 cm/sec. in the arteries of both eyes; after phone use, the flow dropped to less than 5 cm/sec. for all those tested - a rate indicating reduced brain blood flow. Exposure from sitting within 1 meter of a video screen for 15 minutes also reduced brain blood flow to less than 5 cm/sec. in both eyes for all CFS patients; among the healthy, 78% had a reduction to less than 5 cm/sec. in both eyes. Healthy participants resumed normal flow within 30 min.; only 2/3rd of CFS ones recovered normally.

Perhaps, we are due to expect similar health patterns in such areas as the Toronto region, Brantford and perhaps Hamilton and Ottawa within the coming years. Clusters may be expected where analog telephones are widely used, in high traffic zones and near building complexes surrounding large shopping malls, hospitals, police, airports and educational facilities.

Effects on genetically-modified organisms

An unstable and misidentified genetically-modified corn *Bt176 has been* implicated in the deaths of at least a dozen German dairy cows. Various varieties of approved but unstable genetically-modified corn varieties have led to a trail of fatalities and cross-contamination and probably would have never been approved worldwide had more been known earlier about genetic engineering, and it may be too late to limit the damage still in progress. French and Belgian government scientists have recently reported "rearrangements, truncations and unexpected insertions", the main inserts occurring in suspected "*megatransposon*" that exchanges segments between chromosomes, rendering unstable some varieties. Thus, some genetically modified varieties produce about 7X more toxin protein than others! The **Canadian Food Inspection Agency** has reported 2 dangerous and 2 minor toxin proteins are actually processed or degraded in the popular *Bt11* variety GM corn! These mutation-toxins are unreported to the public.

Is it possible that the translation modification of proteins (in this case, new toxins) take place in the fields, due in part to exposure environmental microwave emissions in the farms?

In fact, we know much too little about genetics at this time to be able to protect ourselves from such mutations. Statistician **Ulrich Mansmann** at **University of Heidelberg** points out that a series of papers published in journals like ***Nature***, ***NEJM***, and ***The Lancet*** base their impressive results on *ad hoc* methods - so it is impossible to assess their quality. He refers to microarray studies as "a methodological wasteland", with evidence unacceptable in other medical tests, an opinion shared by ***PloS Medicine*** senior editor **Virginia Barbour** who also advises **Microarray Gene Expression Data Society**.

Aspects of cellular activity modulation and regulation require analysis of the *proteome* (complete profile of proteins). Microarrays of antibodies to proteins have already been considered. Studies show poor correlation between *mRNA* and protein, due to additional processes such as post-transcriptional control of protein translation, post-translational modification of proteins, and protein degradation. The current estimate is that there are more than 200 types of protein modification. 5 to 10% of mammalian genes code for proteins that modify other proteins. Consequently, the human *proteome* is expected to range from 100,000 to several million different protein molecules - in striking contrast to the

small number of genes. Furthermore, no function is known for more than 75% of predicted proteins of multicellular organisms, and the dynamic range of protein expression can be as large as 107. "Knowledge of genomic sequences and transcriptional profiles do not allow a reliable description of actual protein expression, let alone an examination of protein-protein interaction or prediction of the protein's biochemical activities," state **Wlad Kusnezow** and **Jörg Hoheisel** of **Functional Genome Analysis** in Heidelberg, Germany.

Margaret Cam at **DNA Microarray Core** at the **National Institute of Diabetes and Digestive and Kidney Diseases** wanted to use microarrays to study gene expression in pancreas cells. Her research team used same *RNA* samples on *DNA* microarrays from 3 suppliers and got highly inconsistent results. Out of 185 genes common to all 3 arrays, the expression pattern of only 4 genes agreed with one another - a noise level as high as 98%. **Marc Salit**, physical chemist at **National Institute of Standards and Technology** said Cam's findings causes "one's jaw to drop". Other former enthusiasts consider gene arrays oversold, especially for diagnostics. **Richard Klausner**, formerly at **National Cancer Institute**, now at **Bill and Melinda Gates Foundation**, admits to having been "naïve" to think that new hypotheses about disease would emerge from huge files of gene-expression data. The more data he gathered on kidney tumour cells, the less significant they became.

Microwave effects on avian flu, *E.Coli*, etc.

Influenza has a tendency to mutate into new serotypes and it is suggested that novel radiofrequency/microwave emissions (waveform, frequency, radiation mode, intensity) enable mutation into strains that do not meet adequate immunity responses. The 1918-19 pandemic of Spanish flu – which killed more persons than World War I, started on the world's first radio ship, as the surviving seaman collapsed at Bordeaux harbour from an avian flu virus that was genetically modified with on-board wireless equipment into a variation to which humanity had not acquired an immunity to. A more recent serotype in Hong Kong (2003) may have been the result of a combination of the introduction of a novel wireless technology, geography, moisture (and aerosol activity) and sanitary conditions; likewise, for the most recent cases of mutated avian flu in Beijing some weeks ago. Vietnam (2004) and Indonesia, with their own technological introduction of wireless technology and special fauna might have become new conditions for mutation, when historically they have not been in the past. Once in a while there are reports in luxury liners of unexplained mass health problems, clearly not associated with food poisoning, which may have been spawned as mutations with the introduction a high-tech wireless systems on board in conjunction with coastal security technologies.

It would be worthwhile to elaborate on the two recent Fraser Valley, British Columbia avian flu poultry issues as it covers several specializations: DNA effects from RF/mw exposure, radiation patterns (including re-radiation inside structures and from surrounding mountain chains), effects of weather (soil moisture) on intensity of signals, including those of other antennae sources through a beating process, etc. I believe that collectively we can develop a good case study and that we might even find funding to support it to a high level of detail and quality.

The deadly Walkerton, Ontario *Escherichia.Coli* strain was a rare, more deadly form only found in remote jungle of El Salvador. How did it get to Walkerton, and infect the community's water supply? The summer that spawned it was unusually wet, to the point that cattle manure overflowed in fields with their prominent *E.Coli* constituent of digestive flora being exposed to very powerful analog cellphone tower emissions, in tandem with other radiofrequency fields source to able to achieve a critical mass situation leading a locally-mutated *E.Coli* strain.

Anomalous situations

In the advent of wireless technology, we are witnessing more and more bizarre microwave phenomena in homes. A whole suburb in Ottawa near the airport's landing path has difficulty in establishing cellular phone connection. Cellular service companies have given up and are recommending other frequency phones devices. If you try to play a video cassette player, a talk-radio station broadcasting from about 20 km away will overwhelm the sound track! In Montreal, families can listen to wireless telephone conversations through the interference patterns between microwave ovens and cellular phone antennae located on top of a local school. Some individuals acquire microwave hearing and may find it easier – in certain zones – to follow aircraft-control tower communications and the like.

Hospitals have all kinds of security systems (most operating in radiofrequency ranges), polluting lighting fixtures by the beds, monitors, automated beds, medical devices each of which can produce "hot spots", usually near to patients (and which have the potential of even genetically modify hosts of microbes). Hospitals also acquiesce to the leasing of their roofs and perimeter walls for cellular phone antennae as a means for increasing revenues.

What can be done?

In many built environments, microwave power levels are too elevated for even minimum health risk conditions.

Many health practitioners are unaware either of the general exposure conditions, not those of their patients, thus not taking under consideration their bearing of the diagnosis, nor therapy at hand. Similarly, employers may not realize that the microwave environment faced by their employees might adversely affect their job performance, occupational health and safety and productivity.

Fortunately, appropriate design and careful oversight in installation can provide citizens with acceptable, safe and generally no-risk levels of electromagnetic fields.

But the implementation of these measures, even if they entail relatively no cost to the public or private purses, requires a public demand for common sense safety.

Municipal governments who participate in the siting process by issuing permits are in the frontline for complaints and legal filings because they are, legally, accomplices. The **City of Toronto** has an active guideline that provides for a Canadian platform for precedence from a health and safety legal perspective, that other communities can emulate, and eventually help industry and federal regulatory agencies, including the **Canadian Radio-Television and Telecommunications Commission** (CRTC), review their current policies and practices.

An **European Parliament** expert analysis in 2000, which was comprised of **World Health Organization, European Community** and scientific peers recommended that the average annual exposure near microwave emitters should not exceed 0.10 μWatt/cm^2 (following the lead of the **Italian Government** notion of quality target) and that anyone exposed to higher fields should receive regular medical attention, including blood analysis, EEG and ECG tests. All zones with higher exposure rates should be posted with markings on pavement and with road signs.

You can always view your wireless transmission environment on the Industry Canada website at http://spectrum.ic.gc.ca/tafl/tafindxf.html