

Oct. 27, 2013

Dear Royal Society Panel Members:

RE: Safety Code 6 Review

We are concerned citizens and informed parents on the issue of non-ionizing radiation and wireless technology. We are a large group of hundreds of concerned and informed citizens who object to the implementation of Wi-Fi in our children's schools, known as Kawartha Safe Technology Initiative (www.kawarthasafetechnology.org). It is on our collective behalf that we write to you today as you undertake a review of Safety Code 6.

Given the dynamic and ambiguous nature of the evolving science of emf radiation and its impacts on human health; the highly contentious opinions of experts; and the presence of powerful vested interests affecting science and opinion, our perspective is simple: Nothing short of a 'Precautionary Principle' is required to determine and set the limits of electromagnetic frequency (emf) exposure for human health. In our view, the serious potential health risks are too high to ignore, particularly in light of the growing, pervasive nature of microwave radiation exposure. We feel that nowhere is this more critically important than for the health of children, who are being exposed in their schools and classrooms, in an unprecedented manner and extent, to many forms of emf radiation, often simultaneously, and on a daily basis.

We ask you to consider the following:

GAPS IN KNOWLEDGE

As you are aware, the 2010 federal Health Standing Committee's examination of the potential health impacts of radiofrequency electromagnetic radiation concluded that "there were gaps in the scientific literature related to children's exposure, effects on brain function, and possible effects on reproductive capacity". The committee went so far as to recommend that the federal government consider funding further research in support of long-term studies examining the effects of microwave emf exposure on health.

In fact, no research has been done using children to determine the impacts of long-term microwave emf exposure. It would be unethical to do so, without first informing parents of the study, informing them of all of the potential risks, and gaining express parental consent.

In effect however, children and youth in schools are being used as test subjects in an uncontrolled experiment on long-term exposure. Not only have parents not been informed of the potential health risks of microwave emf radiation, which are extremely serious, but parents have also not consented to the use of a 'possible carcinogen' on their children every day while at school for up to 14 years of their life. For example, most parents are unaware that children in classrooms with routers encounter more

radiation than is found within 100 meters of a cell tower. Though these levels are below SC 6, many epidemiological studies indicate increased health effects (including cancer) in residents who live within 400m of a cell tower, especially after 5 years. What might this mean for student and teachers who will be exposed daily to similar levels for many more years than that? Most parents are also unaware this radiation is in the same class of possible carcinogens as lead, DDT and chloroform – which we do not pump into our classrooms continuously, as is being done with Wi-Fi in schools. In reality, most citizens are simply unaware just how much of an experiment this is on their children, as well as the general public.

This situation is highly untenable and a gross betrayal of parents' trust in our health care providers. It is further unacceptable to parents who have primary rights regarding their children's welfare, and a primary responsibility to keep their children safe and secure.

Along with updating Safety Code 6 in line with a new precautionary limit, attention must be given to properly educating the public about sources of emf radiation, and ways to minimize exposure.

CHILDREN ARE NOT LITTLE ADULTS

It is an established fact that children are much more susceptible to the effects of any toxic substance than adults. There is evidence indicating that children's brains absorb as much as twice the amount of emf radiation as adult brains. Further, their lifetime exposure will be much greater than that of adults today. The World Health Organization acknowledges that 'children are not little adults', due generally to their dynamic developmental physiology, unique exposures, and longer life expectancy. For this reason, all medicines are prescribed with children's doses as separate from adult doses. 'One size' does not and should not fit all.

Safety Code Six was originally designed to protect military personal (205 lbs man) using radar from the short-term, thermal effects of an acute (6 minutes average exposure) - not long term, low-level exposure over many years. It was not meant to be used as a standard of protection for children in school who are exposed to 1250 hours of non-ionizing radiation in a single school year. The relevance of a thermal-based safety standard is almost non-existent for those exposed on a continuous basis and must be seriously questioned.

While some would argue that Safety Code 6 builds in a safety factor of 50, this is hardly comforting knowing that voluminous research we have seen shows harmful health effects occurring at thousands of levels below the current standard of 10W/m², and that those in the know would argue Safety Code 6 is hundreds if not thousands of times higher than it should be.

By maintaining current Safety Code 6 levels and allowing children to be subjected to long-term emf radiation exposure without adequate knowledge of the long-term

impacts to their brain function and reproductive capacity, we are taking an irresponsible and unnecessary risk with their health.

At a minimum, precaution demands that Safety Code 6 levels be modified significantly to address the unique physiology and increased risk susceptibility of children and youth in particular.

MULTIPLE SOURCES OF RADIATION

How does SC6 in its present form account for multiple sources of radiation? These sources occur in tandem often in the form of cell phones, cell towers, Wi-Fi in the home and at school, I-Pads, I-Pods, Wii's, baby monitors, etc. Some of these, such as smart meters and Wi-Fi, are continuously radiating sources. These exposures are occurring in homes, in school settings, in workplaces, and in neighbourhoods. While cell tower companies are required to ensure their individual towers do not exceed Safety Code 6, no one is keeping track of, or measuring, combined sources of radiation, and the effects of those multiple sources on the human body.

Students are being encouraged to bring electronic devices to school, schools are emitting Wi-Fi all day every day; many students are using or require laptops, Ipods, and tablets. All of these emit emf radiation, yet none of these are collectively being measured for impacts to human health. Apart from inadequate and improperly-taken, yearly readings by school boards when students are not around or operating a device, no one is measuring the combined radiation exposure of children to multiple devices, at the proximity or duration at which they are using them. There may be cell towers in the vicinity of schools adding to the exposure levels. 'Smart meters' for electricity have already been rolled in, emitting constant radiation in homes. Due to a lack of public information on the subject, no one is aware of the sources and possible risks of radiation, much less having them measured. Thus no one, besides those informed, are taking actions to minimize their emf exposure.

The lack of scientific research on the health impacts of multiple and/or continuous sources of non-ionizing radiation on humans dictates the need to err on the side of caution and substantially reducing safe exposure limits in Safety Code 6. Public education is also needed.

CONFLICT OF INTEREST

There is a growing trend towards partnerships between government and industry. While the need for such partnerships produces financial benefits for governments, it is obvious that there are also financial benefits for industry, which would not otherwise enter into them. This has to be acknowledged and scrupulously taken into account by governments, who after all, are empowered to act for the benefit of the public at large. If it is not, then the government may 'save money' in the short term, but the public, usually future generations, end up paying the real price in the long term.

In this case, we see the collaboration of the telecommunications industry with government as an inherent conflict in two ways. To summarize it as succinctly as possible, Health Canada sets a safety standard that is Safety Code 6. Industry Canada has the authority to regulate radiofrequency spectrums and cell tower licenses coveted by industry, which collectively bring in billions of dollars in revenue for the government. Health Canada's emf safety standard in its present form happens to allow cell towers to be built virtually indiscriminately across the country. Were Safety Code 6 to be made more protective (i.e. tightened in favour of precaution), this would necessarily reduce the amount of money government could bring in through the sale of radiofrequency spectrum and approval of cell towers. This is a fundamental conflict with public health, as it discourages any change to Safety Code 6 for any reason.

The second conflict occurs when industry funds studies (relating to the products that it sells or makes) which governments use to determine safety standards. 'Funding bias' is an established phenomenon in all major industries; the telecom industry would be no exception. Research has proven this. Unless they are blind studies, the public cannot be convinced that the studies produced and paid for by any industry about the health effects of its own products are not biased in their favour. Those with the deepest pockets can afford to fund the biggest studies and pay the biggest salaries. This is a fact. To deny or ignore this is like wearing blinders to the truth, and shows a profound lack of respect and credence for the public's ability to understand this basic tenet.

Such inherent conflicts of interest against the health of Canadians demand that the Precautionary Principle be established and used as a basis for developing appropriately protective emf radiation standards.

LACK OF TRANSPARENCY

Despite the strong and growing concerns of Canadians about emf radiation exposure, Health Canada continues to state the "weight of evidence" shows that there is no harm to health. Given the contention regarding the safety standard, it behooves government to provide these studies to the public, including details of the funding sources.

If the reason for the current standard on the basis of "thermal effects" rather than biological effects, is based on a weight of evidence approach, then the public deserves to know the list of studies considered, and specifically which 51% led them to conclude there are "thermal effects only". It is neither fair nor democratic to base public policy on science that the public does not have the advantage of seeing and knowing about. Neither is this lack of knowledge in the public interest.

As a case in point, when asked in a Quebec Superior court dealing with a proposed cell tower, about the studies that were reviewed to determine our current emf standard, Health Canada scientist, James McNamee, indicated essentially that they do not review all the emf studies, but only those that support their 'safety' conclusion ([link](#)). This is an outrageous situation that does a discredit to the scientific profession, which

is supposed to objectively review all the facts before coming to conclusions. It is moreover, a serious oversight and insult to informed citizens who are aware of the copious literature and studies available showing serious health effects occurring at biological levels; and of the more protective policies and steps taken by other countries and governments to protect their citizens.

If after a proper review, all of the evidence of harm is still 'not clear' or 'not consistent', this only further emphasizes the need for more independently funded research until we know definitively that it is safe, and begs for precaution in the meantime. Such findings should not signal permission to simply carry on until damage starts to occur. Too many painful mistakes following this formula have been made in the past by Health Canada, and the public will not tolerate continuing this way.

As such, we request the Royal Society of Canada to ensure that its review of Safety Code 6 does not mimic Health Canada's methodology for assessing scientific studies against current Safety Code 6. It should further provide scrupulous transparency of the documentation reviewed, including the funding sources of studies used to form its conclusions.

RESEARCH AND THE PUBLIC INTEREST

In this era of technological advances, citizens have more access than ever before to the breadth and depth of knowledge on almost any subject, and it continues to grow exponentially. The subject of emf radiation and its possible health impacts is no exception. While it is said that a little knowledge is a dangerous thing, a lot of knowledge allows us to carefully ascertain all sides of an issue and, with some wisdom and experience, presumably make better, informed decisions.

As concerned citizens and parents, we have seen the voluminous research that exists on the subject of exposure to emf radiation. We understand that the perspective of scientists is borne of a more specialized knowledge and methodology, both of which have led to undeniable societal advances. The scientific perspective is one of probabilities with little emotion attached. This is very different than that of ordinary citizens and especially parents, for whom the safety of their children is paramount, and who would tend to view prudence, over probability, as a guide to their conduct.

As parents, we register extreme concern at the 2,000+ studies of the Bioinitiative Report (2007) or the 2,000+ studies documented prior to the 1970's by a US naval researcher ([link](#)), all of which overwhelmingly conclude harmful effects from emf exposure. Health Canada scientists however, appear to glibly eschew it due to lack of peer review, proper methodologies, or consensus with established views. We as parents are shocked at the 1800+ studies done in the last 5 years alone, as reviewed by 29 international, independents scientists (Bioinitiative Report 2012). It calls for reduced levels of emf exposure on the order of not just hundreds, or thousands, but hundreds of thousands times below our current safety standard. To date however, almost a year later, we have not heard a word from Health Canada about this report.

Are they studying it, are they ignoring it? – we have no idea.

If advised to do so, would a group of laypeople reviewing this issue simply set aside 5,000+ studies for not meeting proper scientific ‘standards’ or established consensus? Would they also ignore funding bias? Or would they practically conclude that even if only 10% of these studies are correct, that this still warrants additional protective action? Would the spectre of even 500 studies showing possible increased long-term risks (such as serious brain cancers, other tumours, infertility, DNA damage, blood/brain barrier leakage), and short-term risks (such as electro hypersensitivity, heart arrhythmias, insomnia, rashes, concentration and learning difficulties) not demand that precaution be taken – at least out of consideration of future generations?

In our view, a prudent body, entrusted with responsibility for the health of millions of people, would look at the serious implications of at least 500 studies and use them as a basis for being more protective of public health than at present. They would be doing this not mainly as scientists wearing a science hat, but as public health protectors doing what is BEST for the public and our future generations.

By ignoring studies that do not meet certain scientific standards, established consensus, or are not deemed properly peer-reviewed, those scientists are choosing not to risk taking any proactive action that might reflect on their scientific ‘credibility’. However, in choosing to ignore these harm-finding studies, they are by default, choosing to risk human health.

In effect, those with professional interests appear to be willing to risk the ‘public good’ for their ‘professional good’. This is precisely why, for example, in a criminal court of law, it is a jury of peers (lay people) that is empowered to make decisions, not the ‘experts’. The collective wisdom of ordinary people is based on much more than facts: it includes common sense, fairness and compassion, and tends to be reasonable. This humanity is not reflected in the scientific method. There is no denying the weight of scientific expertise and knowledge. It is an essential aspect of the knowledge needed to make a public policy decision such as this. However, ultimately, it is not the experts that are qualified to make legal decisions or public policy. It is the people.

Recognizing your role as reviewers of public policy, this fundamental dichotomy between ‘experts’ and ‘reasonable lay people’ must be acknowledged as an established rationale for not relying solely on scientific advice in policy making.

Given that there is significant research established since the 1970's to the present time suggesting serious short and long-term health risks from exposure to emf radiation, and knowing that children are particularly susceptible to toxic substances, this level of risk is UNACCEPTABLE to take with our children's well-being at stake, at the very least. Nothing short of a precautionary approach is acceptable under these circumstances. Based on our view as informed citizens, the recommended standard of the Bioinitiative Report 2007 (.001W/m²) should be the basis of a revised Safety Code 6.

CONCLUSION

On behalf of Kawartha Safe Technology Initiative, we urge this panel to strongly consider the above comments in the context of your role not just as scientists, but also as protectors of public health, and especially of children.

Sincerely,

Kawartha Safe Technology Initiative
www.kawarthasafetechnology.org
Peterborough, ON