

Shortcomings of Health Canada's Safety Code 6: Guidelines for human exposure to radiation from wireless transmitting devices

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**Canadians for Safe Technology
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Agenda

- Overview of C4ST, Canadians for Safe Technology
- “Based on a thorough review of all available data, it is Health Canada’s position that there are no established adverse health effects at levels below the limits outlined in Safety Code 6.”
- Health Canada’s reliance on, and references to an old and incomplete literature database
- Concerns regarding the monitoring of the most recent science based evidence
- Long-standing concerns raised by international experts regarding the review of the scientific evidence
- Counter balancing opinion and expertise from Health Canada’s employees’ public positions
- Continued reliance and reference to the Royal Society expert panel report
- Requested actions

C4ST: Canadians for Safe Technology

- Not-for-profit, completely volunteer-based, national coalition of parents, citizens and experts
- To educate and inform Canadians about the dangers of the exposures to unsafe levels of radiation from wireless technology
- To work with all levels of government to create healthier communities for children and families from coast to coast to coast.

“It is Health Canada’s position that there are no established adverse health effects at levels below the limits outlined in Safety Code 6.”

- Letters from Minister Philpott, HESA report response
- In testimony before the Parliamentary Health Committee on March 24, 2015, Mr. Andrew Adams, Director General Environmental and Radiation Health Sciences Directorate for Health Canada, stated there are studies that show harm at levels below Safety Code 6. Mr. Adams continued “While it is true that some of these studies report biological or adverse health effects of RF fields at levels below the limits in Safety Code 6, I want to emphasize that these studies are in the minority and they do not represent the prevailing line of scientific evidence in this area.”
- Health Canada also produced a document during the Parliamentary committee hearings that “determined that 36 studies were of “sufficient quality for inclusion in the Risk Assessment”. 24 were at, or below Safety Code 6 limits
- C4ST summary of 60 studies published from January, 2015 to April 2016 reporting potential harm at or below Safety Code 6 (2015)
- Scientific procedure calls for an investigation including new, outlying evidence, not excuses why it should be ignored

Reliance on, and references to, old and incomplete literature database

- HESA response references 2011 IARC Class 2B designation
 - Hardell (whose work contributed to this decision, has published more evidence, including an argument for Class 1)
 - CERENAT study supported Hardell's research
 - Other published, peer-reviewed documents provide further proof of harm
- Health Canada website's most recent reference is studies published in 2009
- Safety Code 6 (2015) Rationale document's most recent reference is 2012
- What is Health Canada's response to the US NTP study and Lerchel et al (2015) that challenge the core assumption that harm from RF radiation can only come from thermal effects?
- Cherry picking of reviews that support Health Canada's position and ignoring other data (as compiled in the Bioinitiative Report).
- Over 223 scientists from 41 nations, who have published peer-reviewed papers on the biological or health effects of non-ionizing radiation have called for safer standards¹

¹ <https://www.emfscientist.org/>

Concerns regarding the monitoring of the most recent science based evidence

- Ensure the proper tools (software) and expertise (epidemiology and review methodology) are available to evaluate the mounting body of evidence (2-3 studies per month)
- Create a plan to invest in capturing the whole body of relevant literature
- Create a rigorous and transparent process to evaluate new scientific evidence as it is published
- Begin by applying international standards to the studies reporting bioeffects or adverse health outcomes at RF field intensities below the limits in Safety Code 6.
- Create a process to identify and consider studies that replicate findings pre-dating the current SC6 update
- In order to establish limits, all research should be considered, not just research citing precise exposure measurements.
- Health Canada should display the 2006 WHO Framework ,Figure 1, page 9 in its communications materials and discuss how this framework is applied to the evidence
- For the weight of evidence, adapt and adopt a framework such as that proposed by the US National Toxicology Program
- Acknowledge, instead of disregarding, dozens of studies and excluding hundreds of others, that challenge the assumptions use to set Safety Code 6 limits

Long-standing concerns raised by international experts regarding the review of the scientific evidence

- What actions were taken or suggestions implemented from the Sept., 2014 meeting with Dr.'s Sears and Moher re the incomplete literature review used to set Safety Code 6 (2015)?
- Reliance on a review of review vs. the actual research publications.
- Why will Health Canada not publish:
 - WOE database. (Tables of evidence and weighing thereof)¹?
 - Risk Assessment definitions, criteria, assumptions, interpretations and decisions?
 - List the studies included and excluded [with reasons] and evidence tables?
 - Grading of study quality to permit meaningful public participation?
- For the first time, publish a monograph in support of the Safety Code 6 update.
- Health Canada reference to WHO standards cannot be verified in any published documents²
- Ineffective public consultation process. For the last review, public input was restricted; no meaningful public summary of the input; no visible evidence of the public's impact.
- Will Health Canada consider funding sources in determining study viability?

¹ (US National Toxicology Program framework) <https://ntp.niehs.nih.gov/pubhealth/hat/noms/index-2.html>

² <http://www.who.int/peh-emf/standards/framework/en/>

Counter balancing opinion and expertise

- Health Canada's employees' have taken public positions and published research stating there is no harm at levels below Safety Code 6
 - James McNamee testimony in Châteauguay¹
 - Most recent published paper "Analysis of gene expression in mouse brain regions after exposure to 1.9 GHz radiofrequency fields" by Health Canada employees: McNamee, Belliera, Lemay and Gajda
- Proper scientific analysis requires a debate about the facts
- Health Canada needs to identify an independent, scientific panel with representation of opinions and counter opinions of the harmful effects of wireless radiation
 - With the mandate, capability and resources to validate and further update the full literature searches and study selection addressing various effects;
 - All views should be included in the final decision

¹ <http://cqlpe.ca/pdf/TemoignageMcNamee.pdf>

Royal Society expert panel report

- Concerns were raised in 2013 regarding the RSC panel member conflicts and dependence on industry funding
 - How was the counter-balancing opinion represented?
- Peer reviewed input of Dr. Miller and Dr. Blank was ignored
 - *Insufficient expertise in epidemiology*
 - *Lack of expertise in cell biology*
 - *Key scientific evidence was ignored*
- There was only a "comprehensive" review of the science, with a reliance on "authoritative reviews"
- ATI requests show that the report was not independent
 - Panel members suggested, limited scope of analysis
 - Health Canada stated in the contract "public meetings or input would not likely provide any additional value"
- This is a report to the Royal Society of Canada, not a report of the Royal Society
- RSC panel members (Foster and Prato) have stated there is new evidence of harm from RF radiation below Safety Code 6 limits; will this be considered?

Requested actions

- A response to the US National Toxicology Program Study results; cancer in rats by the Lerchl and Chou studies and of DNA damage found by Dr. Lai and others at below Safety Code 6 limits
- Updated warnings to provinces and territories including school boards?
- When will the statement re EHS removed from the 2009 Safety Code 6 update be re-instated?
- When will the WOE and risk assessment criteria be published?
- Given the new science based evidence, when will there be a review of Safety Code 6 that meets international standards?
 - Review the original research publications, not just review articles
 - For the weight of evidence, adapt and adopt a framework such as that proposed by the US National Toxicology Program with complete transparency.
 - List the studies included and excluded [with reasons], evidence tables, grading of study quality to permit meaningful public participation to ensure a “rigorous, transparent” review
- When will there be a proper monograph published for Safety Code 6 (2015)?
- Will there be an true independent, scientific panel with representation of varying and opposing views with appropriate mandate and resources?

Handouts

- Synopsisi/Analysis of the 140 Studies Submitted by C4ST During the Public Comment Period on Safety Code 6
- 60 scientific studies published in 2015 and up to April 2016 reporting potential harm at or below Safety Code 6 (2015)
- Dr. Moskowitz's summary of arguments that counter those dismissing the NTP study
- "Weight of Evidence: A Review of Concept and Methods"
- "Wi-Fi in Canadian Schools: A Health and Safety Issue - Peer-reviewed scientific studies (50) documenting potentially harmful biological effects of Wi-Fi frequency (2.4-2.45 GHz) at or below Health Canada's Safety Code 6 guidelines and recommendations for precautionary measures
- NTP study cover page

Appendix

The US National Toxicology Program Study

- \$25 million study involving over 2500 rodents in twenty-one separate “reverberation chambers”
- Contains peer-reviewed, neoplastic and hyperplastic findings only in the brain and heart of rats exposed to RFR starting *in utero* and continuing throughout their lifetimes.
- These studies found low incidences, yet statistically significant increases, in malignant gliomas in the brain and schwannomas in the heart of male rats
- The study results break the old paradigm that tissues must be heated to be harmed.
- The tumors in the brain and heart observed are similar to tumors observed in human epidemiology studies of cell phone use.
- Rats were exposed to RFR of the two types CDMA and GSM currently used in U.S. wireless networks. (Below Safety Code 6 guidelines.)
- Even a very small increase in the incidence of disease resulting from exposure to RFR could have broad implications for public health (due to the widespread global usage of mobile communications among users of all ages).
- This document reviews only the findings from the brain and heart and is not a complete report of all findings from the NTP’s studies.
- Additional data from studies in rats and similar studies conducted in mice are currently under evaluation and will be reported together with the current findings in two forthcoming NTP Technical Reports.

The NTP Study – Potential implications

- Dr. Ken Foster, member of the Royal Society Panel that defended Safety Code 6 levels:
 - Expects more governments to put out cautionary guidelines and radiation labeling for cellphones.
 - Wouldn't be surprised if the IARC ups its classification rating from 2B: possibly carcinogenic to humans to 2A: probably carcinogenic to humans and states they wouldn't be out of line in doing that
 - "This is going to change the rhetoric in the field. People can point to much more hard evidence that [cellphone RF exposure] really is a problem."
- Otis Brawley, chief medical officer at the American Cancer Society: "*It's a paradigm shift in my mind because this is the first study where tremendous care was taken to use nonionizing radiation, and not heat up tissue, and then find that nonionizing radiation caused tumors,*" "
- Founding study leader is calling for:
 - Avoidance of the use of cell phones by children.
 - Cell phone companies to provide newer devices with much reduced emissions
- Experts are stating:
 - This study should put an end to those who doubt the capacity of non-thermal levels of wireless radiation to cause biological effects including cancer.
 - The study results clearly show that cell phone radiation can cause adverse health effects; The counter argument has no validity.
 - This is the best designed animal study every conducted on this topic.
 - The experiment has been done and, after extensive reviews, the consensus is there was a carcinogenic effect.

The NTP Study – Criticisms/Bias

- Statistically significant cancers were found only in male rats
- Analysis of NTP database shows it is not uncommon for male rats to show a higher level of incidence <http://www.ncbi.nlm.nih.gov/pubmed/22585941>
- The “prevailing view” of science is there is no harm.
- Refer to <https://www.emfscientist.org/> an appeal to the WHO and UN signed by 220 experts and scientists from 41 nations
- If cell phones caused harm, we would see an increase in cancer rates
- A study published in the Oxford Journals and reports that brain tumours are now the leading cancer in American adolescents http://neuro-oncology.oxfordjournals.org/content/18/suppl_1/i1.full
- Other argument rebutals are in our included documents and can be found at <https://drive.google.com/file/d/oB14R6QNkmaXuUmZtWE5oQotBUG8/view?pli=1>