

EMR and Health

Report on electromagnetic radiation, health and well-being

Vol 16 No 5 Nov 2020

New Hampshire report

US state calls for wireless safety action.

On November 1, the US state of New Hampshire, published 15

recommendations on the environmental and health effects of 5G radiation. The 'Final Report of the Commission to Study the Environmental and Health Effects of Evolving 5G Technology' calls for action to reduce the impact of radiofrequency radiation on people and the environment.

According to the report, 'The objective of those recommendations is to bring about greater awareness of cell phone, wireless and 5G radiation health effects and to provide guidance to officials on steps and policies that can reduce public exposure. We also recommend partnering with our federal delegation to facilitate the reevaluation of radiation exposure guidelines and policies by federal agencies (i.e., the FCC, FDA, NASA, NOAA, FAA, EPA, etc.) to protect people, wildlife, and the environment from harmful levels of radiation.'

The report recommends that:

1. the government review the current radiofrequency standard and



conduct a study on how to reduce the health risks of wireless technology

2. state authorities provide website and public service announcements about the risks of RF radiation and how to reduce exposure
3. structures supporting 5G antennas be labelled as such
4. schools and libraries transition to hardwired internet connections
5. emissions of all new infrastructure be measured
6. protocols be developed for better measuring wireless emissions
7. new infrastructure be set back from homes, businesses and schools
8. home inspectors measure RF radiation

(Continued on page 2)

In This Issue

New Australian standard—update	3
Mobile phones and tumours	3
Pilots and radiation	4
Digital devices and sperm	4
Smart phones and headaches	4
Legal challenge UK	5
Legal challenge, US	5
5G disinformation	6
Cell damage	6
Protecting against damage	6
Electromagnetic hypersensitivity	7
Doctors say halt 5G, Chile	7
EMF conference 2021	8



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9. the government measure RF radiation around the state and develop a map of exposure levels
10. mobile phones be sold with software that prevents them operating when held against the body
11. fibre optic and wired cables be used in commercial and public buildings
12. the medical community be educated about the symptoms of RF exposure
13. exposure warning signs be posted in commercial and public buildings and radiation-free zones be established
14. New Hampshire develop RF radiation safety limits that will protect trees, plants, birds, insects, and pollinators
15. New Hampshire ask the FCC to conduct an environmental impact statement on the effects of RF radiation on the state.

‘ the leadership roles in some agencies (the FCC in particular) are filled by individuals with strong industry ties and hence are more focused on industry interests than the health of citizens’

The commissioners met during 2019 and 2020 and heard evidence from a range of stakeholders before compiling their report. They wrote, the Commission ‘is aware that there is much research showing potential health risks and understands that much more research is required; is cognizant that our country historically has been beset by examples of products being declared safe only later to be proven unsafe; and is very aware that the World Health Organization and the whole insurance industry are hedging their bets against RF-radiation because of potential harm’.

On the question of why US regulators have dismissed the scientific evidence of harm from mobile phone radiation,

the Commissioners wrote, ‘This report documents how the leadership roles in some agencies (the FCC in particular) are filled by individuals with strong industry ties and hence are more focused on industry interests than the health of citizens.’



‘Final Report of the Commission to Study The Environmental and Health Effects of Evolving 5G Technology’, [http://](http://www.gencourt.state.nh.us/statstudcomm/committees/1474/reports/5G%20final%20report.pdf)

www.gencourt.state.nh.us/statstudcomm/committees/1474/reports/5G%20final%20report.pdf

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More details, page 8

New Australian standard—update

On 31 August the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) released a new draft standard for public comment, until 21 October. Details and concerns about the proposed 'Standard for Limiting Exposure to Radiofrequency Fields – 100 KHz to 300 GHz (RPS S-1)' were reported in the September issue *EMR and Health*.

EMR Australia asked ARPANSA what will happen from this point and the Agency replied as follows.

When will the submissions be reviewed & when do you expect to release the new standard?

A. Careful consideration of the submissions will begin immediately. ARPANSA is committed to reviewing all submissions in detail, which means the timeline for addressing the submissions and making changes to the draft Standard will depend on the complexity of the comments. Any changes to the draft will need to be approved by ARPANSA's Radiation Health Committee before the new Standard is published.

Q. Who will be on the committee reviewing the submissions?

A. The submissions will be considered by the Working Group developing the draft Standard which is chaired by Dr Ken Karipidis. A list of the members of the Working Group, which includes various ARPANSA and external subject matter experts, is provided at the end of the draft Standard (page 40). You can access that draft [here](#).

Q. Will ARPANSA provide feedback on all the points raised in the submissions?

A. ARPANSA will provide a response to all points that are directly relevant to the Standard, but may not address points that do not address the Standard directly or other unrelated issues.

EMR and Health will continue to report on the development of the new standard.

Mobile phones and tumours

In a new study, scientists from Korea and the US have found evidence that high mobile phone use increases the risk of tumours.

Yoon-Jung Choi and colleagues performed a meta-analysis of 46 case-control studies conducted before July 2018, including studies on brain tumours, head and neck cancers, leukemia, non-Hodgkins lymphoma, melanoma and testicular cancer.

The authors found 'significant evidence linking cellular phone use to increased tumor risk, especially among cell phone users with cumulative cell phone use of 1000 or more hours in their lifetime (which corresponds to about 17 min per day over 10 years), and especially among studies that employed high quality methods.'

Interestingly, the study found that the funding source made a difference to the findings. Studies conducted by Professor Lennart Hardell, an oncologist from Orebro University in Sweden, received no funding from the mobile phone industry and found a high correlation between mobile phone use and tumour development.

On the other hand, all studies conducted as part of the INTERPHONE project received partial funding from the mobile phone industry and found lower associations between mobile phone use and tumours.

Choi, Y-J et al, 'Cellular Phone Use and Risk of Tumors: Systematic Review and Meta-analysis', *Int J Environ Res Pub Health*, 2020, 17, 8079, <https://www.mdpi.com/1660-4601/17/21/8079>

Pilots and radiation

Can radiofrequency radiation in aircraft cockpits contribute to pilot disorientation and crashes?

To answer this question, the US Defence Department's Advanced Research Projects Agency (DARPA) is commissioning a study aimed at 'understanding the feasibility of Impact of Cockpit Electro-Magnetics on Aircrew Neurology (ICEMAN)'. The project involves measuring the RF fields and proposing mitigation strategies, if appropriate.

The DARPA researchers say, 'The Current cockpits are flooded with radio frequency (RF) noise from on-board emissions, communication links, and navigation electronics, including strong electromagnetic (EM) fields from audio headsets and helmet tracking technologies. Pilots often report minor cognitive performance challenges during flight, and from 1993 to 2013, spatial disorientation in US Air Force pilots accounted for 72 Class A mishaps, 101 deaths, and 65 aircraft lost. It has been hypothesized that the cockpit RF and EM fields may influence cognitive performance including task saturation, misprioritization, complacency and Spatial Disorientation. However, EM fields and radio waves in cockpits are not currently monitored, little effort has been made to shield pilots from these fields, and the potential impacts of these fields on cognition have not been assessed.'

Submissions for the project have closed and the project, when commenced, is expected to take approximately three years.

<https://www.militaryaerospace.com/rf-analog/article/14182172/rf-noise-aircraft-cockpits-think>; <https://beta.sam.gov/opp/45cf0a26208f441db092e9a2653bddd6/view>

Digital devices and sperm

Using digital devices after bed has been shown to reduce sperm quality in men, in a study published in May. The researchers took samples of sperm from 116 men, aged 21 to 59, and asked them to complete a survey about their use of digital devices.

The results showed that using a smart phone and tablet after bed was linked to several indicators of reduced fertility: lower levels of sperm motility and sperm concentration and higher levels of immotile sperm. Sleep time was also related to sperm quality.

Green, A et al, '0029 Light Emitted from Media Devices at Night is Associated with Decline in Sperm Quality', *Sleep*, Vol 43, Issue Supplement_1, April 2020, Page A12, <https://doi.org/10.1093/sleep/zsaa056.028>

Smart phones and headaches

Researchers from India conducted a study to see whether using a smart phone was related to headaches or severity of headaches.

The investigators conducted a survey of 400 patients, some of whom used a smart phone and others who didn't.

They found that the smartphone users were more likely to take pain-relieving drugs for their headaches than non-users, with 96% of smartphone users taking these drugs, compared to 81% of non-users. Smartphone users took an average of eight pills per month compared to five pills per month for non-users. Smartphone users also reported less relief from the medication, with 84% gaining moderate or complete relief of headache pain, compared to 94% of non-users.

Uttarwar, P et al, 'Smartphone use and primary headache', *Neurology Clinical Practice*, March 4, 2020, DOI: <https://doi.org/10.1212/CPJ.0000000000000816>

Legal challenge, UK

The UK government is facing a legal challenge over its intention to relax planning permission to allow 5G transmitters to be installed. Claimants, who include individuals reporting symptoms from radiofrequency radiation, argue that the government did not conduct adequate consultation before making the decision.

The case is being conducted by Learmond Criqui Sokel and litigants will be represented by well-known barrister David Wolfe QC.

<https://www.standard.co.uk/news/uk/government-5g-phone-mast-radiation-safety-fears-a4560011.html>

Legal challenge, US

The Children's Health Defense (CHD) is taking legal action against the US Federal Communications Commission (FCC) in the Court of Appeals, Columbia. The CHD argues that the Agency has refused to update obsolete radiation guidelines and to adopt standards that protect public health. It further says that the FCC has dismissed important research conducted by the national Toxicology Program showing that radiofrequency radiation increased rates of cancer and DNA damage.

'The majority of independent experts, as represented by the BioInitiative and EMF Scientist Appeal, don't agree with the FCC guidelines. The scientific consensus is that the radiation emitted by wireless sources such as cell phones, Wi-Fi and cell towers within FCC allowed levels was proven to harm human and the environment,' the CHD says.

Chair of the CHD Robert F Kennedy JR said, 'CHD is committed to protecting children from toxic exposures. This case seeks justice for parents of kids who have suffered health impacts from wireless radiation.'

Media Release, CHD, 21.10.20

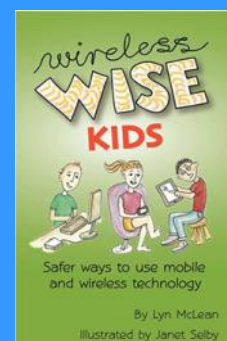
Books by Lyn McLean



The Force



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everything you need to
know about keeping
your family EMR-safe

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5G disinformation

European governments have called on the European Commission to counter the spread of disinformation about 5G networks.

On 14 October, Marek Zagórski, the Polish Minister of Digital Affairs, wrote to the EU on behalf of fifteen countries: Austria, Bulgaria, Croatia, Czech Republic, Cyprus, Estonia, Finland, Greece, Latvia, Lithuania, Luxembourg, Poland, Portugal, Slovakia, and Sweden.

The letter called on the European Union to develop a 'communication strategy that provides reliable information related to EMF and radio equipment including 5G to the Member States and European Citizens.'

https://www.politico.eu/wp-content/uploads/2020/10/POLITICO-Letter-to-EC_5G-disinformation-cover-note.pdf

Cell damage

There are more people wearing wireless devices than ever, but is this safe?

To help answer this question, Swiss researchers investigated the effects of a radiofrequency signal (935 MHz) that was modulated with extremely low-frequency (ELF) signals on two types of cells.

They found that effects depended on the type of cells—in other words different cell types reacted differently to the same exposures.

They also found that exposure at levels that complied with international standards may nevertheless cause oxidative stress, which can lead to cell and tissue damage and aging.

Zielinski, J et al, 'Effects of pulse-modulated radiofrequency magnetic field (RF-EMF) exposure on apoptosis, autophagy, oxidative stress and electron chain transport function in human neuroblastoma and murine microglial cells', *Toxicol in Vitro*, 68:104963, oct 2020, <https://pubmed.ncbi.nlm.nih.gov/32777439/>

Protecting against damage

From Iran comes more evidence that mobile phone radiation causes oxidative damage and that antioxidants can provide valuable protection.

Mitra Shokri and team from the Mazandaran University of Medical Sciences conducted an animal study to determine if melatonin, a powerful antioxidant, could help protect against the damage that mobile phone radiation is known to have on male reproductive organs.

They found that mice exposed to mobile phone radiation showed evidence of oxida-

'exposure at levels that complied with international standards may nevertheless cause oxidative stress'



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tive stress (free radical damage), damage to testes and reduced levels of the hormone testosterone which plays a key role in reproduction.

When mice were exposed to mobile phone radiation and treated with melatonin, they showed far less damage. There was less oxidative stress and less damage to the testes.

Shokri, M et al, 'The protective effect of melatonin on radiofrequency electromagnetic fields of mobile phone-induced testicular damage in an experimental mouse model', *Andrologia*, Oct 11, 2020, doi: 10.1111/and.13834

Electromagnetic hypersensitivity

On May 31st, 2019 a symposium on electromagnetic hypersensitivity (EHS) was hosted by the Environmental Health Clinic at Women's College Hospital entitled: Impacts of Wireless Technology on Health: A symposium for Ontario's medical community.

The conference proceedings have been reviewed by medical peers and published (October 2020), entitled, 'Clinical Practice Guidelines for EHS—Proceedings from a Symposium on the Impacts of Wireless Technology on Health', Edited by Dr. Riina Bray MD and David Fancy PhD

They are available here:

<https://www.womenscollegehospital.ca/assets/pdf/environmental/Clinical%20Practice%20Guidelines%20for%20EHS%20and%20Symposium%20Proceedings%20-%20Final.pdf>

Doctors say halt 5G, Chile

One hundred and thirty five Chilean doctors have written an open letter to the Minister of Health, calling for a halt on the rollout of 5G technology until it can be demonstrated that it doesn't harm human health or the environment.

'The biological effect of non-ionizing electromagnetic radiation, such as the 5G technology, has been extensively researched by independent industry scientists and there are thousands of studies that reliably demonstrate the negative biological effects on the health of the human being and the environment,' the doctors wrote.

The doctors requested that the government halt the bidding process on 5G technology and establish a Commission of Experts, to review the science. The Commission should include health experts and members should be 'independent of economic and political groups'.

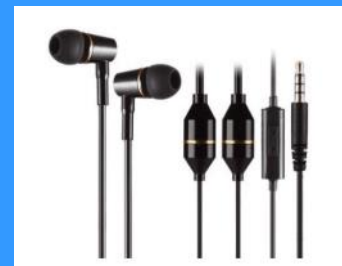
'Much of the damage associated with microwave frequencies comes from non-thermal biological effects,' the letter says.

https://uxtr.org/wp-content/uploads/2020/10/Carta_Abierta_Dr._Enrique_Paris_UXTR_VersionFinal_.pdf

Mobile phone protection



Wavewall mobile phone cases protect the head, body and the phone



Airtube headsets—no wire to conduct radiation into the head

'there are thousands of studies that reliably demonstrate the negative biological effects on the health of the human being and the environment'



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We're 25 years young

With this issue, we've reached a significant milestone.

Our team has now been producing a regular newsletter about the effects of electromagnetic radiation—both online and hardcopies—for 25 years!

Some of you, our valued readers, have been with us for all that time.

We thank all of our readers for your interest and support and we look forward to keeping you updated for the next 25 years!!

