

EMR and Health

Quarterly report on electromagnetic radiation, health and well-being

Vol 11 No 2 Jun 2015

International Appeal

Scientists have appealed to international authorities to address risks of electromagnetic fields (EMFs).

EMFs are harmful to people and the environment and international standards are not sufficiently protective. This is the message that 191 scientists from 39 nations submitted to the United Nations, its member states and the World Health Organisation in the 'EMF Scientists Appeal' launched on 11 May.

'Effects include increased cancer risk, cellular stress, increase in harmful free radicals, genetic damages, structural and functional changes of the reproductive system, learning and memory deficits, neurological disorders, and negative impacts on general well-being in humans,' the Appeal states.

Not only does exposure adversely affect humans, the document claims, but it can harm plants and animals as well.

According to the appeal, current standards do not protect public health because they address neither long-term nor non-heating (athermal) effects of exposure. 'The various agencies setting safety standards have failed to impose sufficient guidelines to protect the general public, particularly children who are more vulnerable to the effects of EMF.'

The Appeal referred to the failure of the WHO to reassess the exposure levels it recommends, even though the International Agency for Research on Cancer classified



radiofrequency radiation as a Class 2B Carcinogen in 2011.

The Appeal called on the UN to establish an independent committee to investigate methods of reducing public exposure to EMFs.

'Solutions must be found that place the highest priority on protecting people and the planet over the powerful economic forces driving new technologies without thought for biology, said Elizabeth Kelly, Director of *EMFscientist.org*. 'We can have both innovation and public safety if there is political will. This transcends national boundaries. The UN, WHO and UNEP are the best organizations on earth to make these recommendations.'

The Appeal called on the UN and WHO to ensure that:

1. 'children and pregnant women be protected;
2. 'guidelines and regulatory standards be strengthened;
3. 'manufacturers be encouraged to develop safer technology;
4. 'utilities responsible for the generation, transmission, distribution, and monitoring of electricity maintain adequate power quality

(Continued on page 3)

In This Issue

Mobiles and cancer	2
OH NO, Canada	2
WiFi risks	3
Research updates	4-5
ARPANSA on EHS	6
Phone tower protest	6
Not to miss online	6
Updates from around the world	7
Interview with Dr Kerry Crofton	8-9
Smart phone; dumb brain	9
Next generation kids	9
Not-so-smart meters	10
Not-so-smart phones	10
Wireless radiation and nature	10
Watt's the Buzz	11
Breaking news	12
Addiction	12
Baby love	12
Symposium	12

Publisher EMR Australia Pty Ltd

ABN 82 104 370 658

PO Box 347,
Sylvania Southgate NSW 2224

Tel: 61 2 9576 1772

© EMR Australia Pty Ltd, 2015.
Information contained in this newsletter does not constitute medical advice and EMR Australia PL disclaims any liability incurred as a consequence of its use. Contents may not be reproduced without permission.

Mobiles and cancer

The results of a new German study show that mobile phone radiation may promote cancer and suggest that current safety standards are not sufficiently protective.

'Our results show that electromagnetic fields obviously enhance the growth of tumors,' said Alexander Lerchl, a Professor of Biology at Jacobs University, who conducted the study.

Lerchl's study, which replicated a 2010 pilot study by Thomas Tillmann, exposed cancer-prone mice to mobile phone radiation of various intensities. He found that exposed animals had higher numbers of lung and liver cancers and higher rates of lymphomas.

What's remarkable about the study is that the cancers were found at what Lerchl's team called 'low to moderate exposure levels' - that is where the Specific Absorption Rates (SARs) were 0.04 and 0.4 Watts per kilo—far below those allowed by Australian and international standards for mobile phone use.

'Everyone using a 3G mobile phone or iPad or other tablet will be exposed at higher levels than this (0.04W/kg),' said Alasdair Phillips from Powerwatch. 'This study flags a big and important "wake up alarm call".'

With the results of this study, Professor Lerchl has not only cast doubt on the adequacy of safety standards, but he's reversed his previous view that mobile phone radiation is not a potential health risk.

'We can clearly demonstrate the effects,' Lerchl said of his current study. 'Now new studies must aim at explaining the underlying mechanisms.'

(Lerchl A et al, 'Tumor promotion by exposure to radiofrequency electromagnetic fields below exposure limits for humans', *Biochem Biophys Res Commun*, March 6, 2015.)

OH NO, Canada

The rationale for Canada's radiation health standards is wrong and it's time for a new paradigm to be adopted, says Professor Martin Pall, writing in the April issue of *Reviews of Environmental Health*.

Pall, a biochemist, strongly criticised the findings of the Canadian Safety Panel 6, released last year, which stated that only the thermal (heating) effects of radiation can cause health problems. This is a view also held by Australian authorities and the International Commission of Non-Ionising Radiation Protection (ICNIRP), whose exposure guidelines have been adopted by many countries in the world.

However, there are not only thousands of studies showing harmful effects of radiation at non-heating (athermal) levels of exposure, says Pall, there is a viable mechanism to account for them.

In his paper, Pall explains that two dozen studies have shown that low levels of electromagnetic radiation activate voltage-gated calcium channels (VGCCs) in cells. This causes calcium to flood into cells, beginning a cascade of effects that includes increased levels of nitric oxide (NO), peroxynitrite and oxidative stress.

This cascade, Pall says, can account for effects such as DNA breaks, reduced levels of the hormone melatonin, cancer and infertility. It can also explain symptoms that exposed people experience such as depression, heart and sleeping problems.

'It is time for a paradigm shift away from only thermal effects,' says Pall. His comments apply, not just to Canadian authorities, but to standard-setting agencies throughout the world.

Pall, M, 'Scientific evidence contradicts findings and assumptions of Canadian Safety Panel 6: microwaves act through voltage-gated calcium channel activation to induce biological impacts at non-thermal levels, supporting a paradigm shift for microwave/lower frequency electromagnetic field action', *Rev Environ Health*, 16 April, 2105.

WiFi risks

Wireless devices are widely used in offices, shopping centres, schools and most homes—yet the effects of long-term exposure are completely unknown.

To answer the question of whether such exposures could pose a potential health risk, scientists from Turkey conducted two studies, published in March, which found evidence that using WiFi for long periods could, indeed, be harmful.

In the first study, the researchers exposed rats into two groups, treated identically, except that one was exposed to Wi-Fi radiation (2.4 GHz) all day every day for a year. At the end of that time, the animals' brains were examined and the results from the two groups compared.

The scientists found that exposure altered the expression of microRNA. These are tiny molecules found in humans, animals and even plants that regulate the expression of genes and are involved in cell differentiation and growth, motility and death. In humans, microRNA is thought to influence about 30 percent of genes.

The scientists concluded that the microRNA changes caused by long-term exposure to WiFi radiation could lead to neurodegenerative diseases and recommended further studies be conducted on this possibility.

The second study, conducted by three of the same scientists, looked at the effects of WiFi exposure on the function of the testes.

They exposed male rats to WiFi radiation for 12 months and then compared their reproductive organs with those of identically-treated but unexposed animals. They found that exposed animals had more defects in the sperm head and detrimental changes to the weight and size of structures in their reproductive system.

Based on their observations, the authors recommended that men avoid long-term use of WiFi equipment.

1. Dasdag, S et al, 'Effects of 2.4 GHz Radiofrequency radiation emitted from Wi-Fi equipment on microRNA expression in brain tissue', *Int J Radiat Biol* Mar 16, 2015.
2. Dasdag S et al, 'Effect of long-term exposure of 2.4 GHz radiofrequency radiation emitted from Wi-Fi equipment on testes functions', *Electromagn Biol Med.* 2015 Mar;34(1):37-42

“The microRNA changes caused by long-term exposure to WiFi radiation could lead to neurodegenerative diseases”

(Continued from page 1)

and ensure proper electrical wiring to minimize harmful ground current;

5. 'the public be fully informed about the potential health risks from electromagnetic energy and taught harm reduction strategies;
6. 'medical professionals be educated about the biological effects of electromagnetic energy and be provided training on treatment of patients with electromagnetic sensitivity;
7. 'governments fund training and research on electromagnetic fields and health that is independent of industry and mandate industry cooperation with researchers;
8. 'media disclose experts' financial relationships with industry when citing their opinions regarding health and safety aspects of EMF-emitting technologies; and
9. 'white-zones (radiation-free areas) be established.'

For more information, see: <http://www.emfscientist.org/>

RESEARCH UPDATES

ELF fields (from electrical sources)

Hormones

Most-exposed workers in a power plant had experienced hormonal changes according to a study from China. Z Wang and team used questionnaires and plasma samples in a sample of 154 men, half of whom had high exposure to walkie-talkies and magnetic fields, the other half whose exposure was lower. They found that long-term exposure decreased testosterone and suggested this could affect fertility. (Wang, Z et al, *Int Arch Occup Environ Health*, Mar 26, 2015.)

MRI

MRI machines can have extremely high magnetic fields. In their recent paper, A Gorlin and team documented the case of an anaesthetist who experienced extreme vertigo while sedating a patient during an MRI scan. Vertigo is a symptom sometimes associated with magnetic field exposure. (Gorlin, A et al, *Med Devices (Auckl)*, Mar 2015.)

Circadian rhythms

Circadian rhythms affect the body's sleep/wake patterns, hormones, temperature and other functions. Recently Italian scientists found that magnetic fields from electrical sources change the expression of a number of genes that are involved in circadian rhythms. (Manzella, N et al, *Bioelectromagnetics* 22 Mar, 2015.)

Childhood leukemia

Iranian researchers investigated risk factors for the development of acute lymphoblastic leukemia (ALL) - a common form of childhood cancer. They found that, among the factors they considered, living near a high voltage power line before or after birth were the 'most important environmental risk factors'. (Tabrizi, MM and Bidgoli, SA, *Asian Pac J Cancer Prev* 16(6):2347-50, 2015.)

Fertility

The offspring of exposed mice had higher-than-usual risks for fertility problems in this study from China. Researchers exposed mice to a strong 50Hz field (500 mG) for one week, then exposed their offspring for up to 15 months. The female offspring had increased rates of chronic myeloid leukemia and males had reductions in the size of seminiferous tubules, which could interfere with fertility. (Qi, G et al, *Environ Health Prev Med* May 5, 2015.)

Dementia

Dutch researchers assessed people who'd been exposed to power-frequency magnetic fields—and other sources—at work as long as 17 years after their exposure. They found exposure was associated with non-vascular dementia in men. (Koeman, T et al, *Am J Ind Med* May 5, 2015.)

Other effects

- Long-term exposure to pulsed electromagnetic fields resulted in oxidative damage of liver and spleen in rats. (Lin, B and Li, W, *Wiener Klinische Wochenschrift*, 25 Apr, 2015.)

RF/wireless radiation

Brain effects

Exposure to wireless radiation caused harmful effects on rat brains in a study from India. Researchers exposed rats to chronic low levels of microwaves (frequencies of 900, 1800 and 2450 MHz for 180 days) and tested them for cognitive function. They found that exposure caused a decline in cognitive function (including impaired learning, memory and spatial memory), increased



A selection of studies showing effects of exposure

Abbreviations

RF radiofrequency radiation (including mobile technology)

ELF extra-low frequency radiation (including electrical sources)

EMF electromagnetic fields (often used alternatively for ELF)

mG milliGauss (measurement of magnetic field)

T Tesla - alternative measurement of magnetic field; also milliTesla (mT) and microTesla (μ T)

0.1 mT = 1000 mG

0.01 mT = 100 mG

1 μ T = 10 mG

Hz Hertz - a measure of frequency (cycles per second).

Megahertz (MHz) - million Hz

GigaHertz (GHz) thousand million hertz

levels of stress and DNA damage in the animals' brains. (Deshmukh, PS et al, *Int J Toxicol*, Mar 5, 2015.)

Hearing

Does mobile phone radiation affect hearing? To answer that question, A Özgür and team exposed a small group of rats to mobile phone radiation for 30 days. They found that exposed rats, unlike controls, had signs of degeneration in the auditory system. (Özgür, A et al, *ACTA Otolaryngol* 1-6, 2015.)

Testes

Mobile phone radiation caused changes to the chemistry and structure of rat testes after animals were exposed to a 900 MHz field for 1 hour a day for a month. Changes included reduced diameter of the seminiferous tubules which could cause fertility problems. (Odaci, E and Özyilmaz, C, *Int J Radiat Biol*, 1-20, 2015.)

Salivary changes

Researchers from India investigated the effects of mobile phone use on health by studying saliva samples in two groups of students—those with low and those with high mobile phone use. They found changes in saliva that could suggest harmful effects on the body of people who are high users of mobile phones. (Shivashankara, AR et al, *J Clin Diag Res* 9(2), 2015.)

Nasal mucus

Researchers from Turkey were interested to see whether radiofrequency radiation affected nasal mucociliary clearance—the ability of the body to clear the mucus it has generated to rid the sinuses of infection-causing microorganisms. To do this, they exposed rats to a 2100 MHz mobile phone signal for six hours a day for 10 or 40 days and compared the effects with unexposed rats. The researchers found that exposure damaged the mucosa (the membrane that generates mucus) and nasal mucociliary clearance. (Aydoğan, F et al, *Int Forum Allergy Rhinol*, Apr 16, 2015.)

Sperm

Yet more evidence that mobile phone radiation damages sperm comes from a study conducted in Egypt. Scientists took 124 samples of semen and divided them into two sections, one of which was exposed

to a mobile phone signal for one hour and the other which remained unexposed. They found that exposed sperm showed detrimental changes, including reduced motility, DNA fragmentation, changes to protein levels and gene expression. (Zalata, A et al, *Int J Fertil Steril* 9(1):129-36, 2015.)

Carcinogenicity

Mobile phone radiation increases the risk of gliomas and meningiomas brain tumours, and it should be classified as a probable human carcinogen (Class 2A), say researchers from the US. The authors recommended applying the ALARA (As Low As Reasonably Achievable) principle to exposure to wireless radiation. (Morgan, LL et al, *Int J Oncol* 46(5):1865-71, 2015.)

Miscarriage

Using a mobile phone could increase the risk of miscarriages, according to a study from Iran. Researchers conducted data from 292 women who had miscarried and a slightly larger group who had not. They found higher mobile phone use in the miscarriage group. (Mahmoudabadi FS et al, *J Environ Health Sci Eng*, 13:34, 2015.)

Miscarriage

Researchers from Beijing investigated possible causes of miscarriage in a group of over 34,000 women in China. They identified living within 100 metres of a mobile phone base station as one of the risk factors of miscarriage. (Zhou, LY et al, *Chin J Integr Med* Apr 14, 2015.)

Other studies showing effects from RF radiation

- Three cases of seminoma cancer (a tumour of the testicles) were found in men who were exposed to RF radiation in the work place. (Houshyari, M et al, *Iran J Cancer Prev* 8(1):66-8, 2015.)

Other news

The European Trade Union Institute has published 'Electromagnetic fields in working life. A guide to risk assessment', by Mild KH, and Sandström M. The 30p document provides information about how to monitor and reduce exposure to reduce risks. (<https://www.etui.org/Publications2/Guides/Electromagnetic-fields-in-working-life.-A-guide-to-risk-assessment>)

'exposed sperm showed detrimental changes, including reduced motility, DNA fragmentation, changes to protein levels and gene expression.'



MEASURE
YOUR
EXPOSURE

ELF AND WIRELESS
METERS FOR HIRE OR
PURCHASE

www.emraustralia.com.au



'exposure caused a decline in cognitive function'

ARPANSA on EHS

The Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) has formalised its long-held view that electromagnetic radiation is not the cause of electromagnetic hypersensitivity (EHS).

In its new fact sheet 'Electromagnetic Hypersensitivity', the Agency states, 'On the basis of current scientific information, there is no established evidence that EHS is caused by EMF at levels below exposure guidelines.'

This conclusion, it says, is based on a number of provocation studies that have shown that 'EHS individuals cannot detect the presence of EMF sources any more accurately than non-EHS individuals.'

Yet provocation studies of this sort have serious limitations in their ability to assess EHS. This is because many people with EHS don't react to the presence of a field immediately, as reactions can occur from minutes to hours later. Moreover, people's ability to consciously perceive the presence of a field is not necessarily related to whether the field is affecting them biologically.

In reaching the conclusions expressed in its new fact sheet, ARPANSA has unfortunately chosen to dismiss:

- the experiences of the many affected people and groups who have contacted them on this issue;
- those provocation studies which *have* found a link between exposure and symptoms;
- the evidence of thousands of studies showing biological effects at athermal levels of exposure that are consistent with symptoms of EHS, including the research by Professor Martin Pall on EHS (see page 2).

It is interesting to note that ARPANSA has published its opinion about EHS *before* the impending Australian study on EHS has been finalised and its results considered.

The fact sheet is available at: http://www.arpansa.gov.au/RadiationProtection/Factsheets/is_ehs.cfm

Phone tower protest

In an unprecedented action, Los Angeles firemen and police united in their opposition to a string of phone towers planned for construction on or near their stations. The towers were part of the Los Angeles Regional Interoperable Communications System (LA-RICS)—a series of 177 base stations aimed to facilitate emergency communication—some of which are already in place. Police and firemen had expressed concerns about the impacts of the transmitters on their health.

In late March, Los Angeles firemen staged a protest, gathering outside a Board of Supervisors meeting to draw attention to their concerns. As a result, the City Council unanimously voted in support of a motion that the authority responsible for the construction of the towers—the LA-RICS Joint Powers Authority—stop the planned construction of towers and reconsider the project altogether.

In early April the US Department of Commerce pulled the plug on the funding for the tower rollout, effectively stopping construction that was already underway.

However, US authorities are now considering other methods of achieving the same coverage.

(*CBS News*, 23.03.15; United Firefighters of Los Angeles City, <http://www.uflac.org/index.cfm?Section=1>; *CBS News* 03.04.15)

Not to miss online

'Is electromagnetic hypersensitivity real?' The Feed, SBS, Published on 23 April 2015 on SBS TWO:

<http://www.sbs.com.au/ondemand/video/432697924000/is-electromagnetic-hypersensitivity-real-the-feed>

Brain cancer Logie winning TV personality, Carrie Bickmore talked about brain cancer at her Logie acceptance speech:

<http://www.news.com.au/entertainment/awards/carrie-bickmore-wins-the-gold-logie-dons-a-beanie-in-dedication-to-her-late-husband/story-fn8cjm5-1227333524197>

Plants generate electrical signals, too: <https://www.youtube.com/watch?v=fGLABm7jJ-Y>

UPDATES FROM AROUND THE WORLD

Australian legal case

A Tasmanian woman has taken legal action to protect herself from electromagnetic radiation. Jodie Watkins, appealed to the Supreme Court of Tasmania to prevent an NBN tower being constructed near her home on the basis that wireless emissions affect her health. Jodie suffers from electromagnetic hypersensitivity. (*Mercury*, 28.04.15.)

India's research

The Government of India is committing to a major research initiative on wireless radiation. Funds have been awarded to 17 research institutions to investigate the health risks of mobile phones and base stations over the next three years. The aim of the project is to identify potential health risks and apply precautionary measures if warranted. (*Times of India* 25.03.15.)

EHS study

A US medical researcher is conducting a study on the condition of electromagnetic hypersensitivity (EHS). Dr Beatrice Golomb, a Professor of Medicine at the University of California, is gathering information from people who have been adversely affected by electromagnetic fields. You can take part in the online survey at: https://golombgroup.az1.qualtrics.com/SE/?SID=SV_bKSI2GWMqT5w7b

Tower moratorium

Residents of Spokane in the US have had an unexpected reprieve from the construction of new base stations in their neighbourhood. On 9 March Spokane City Council passed an ordinance which prohibits telecommunications companies from constructing new base stations for six months. This follows residents' complaints about the towers and the failure of telcos to adequately notify them. The Councillors' support for the ordinance was unanimous, even though it will most likely involve the Council in litigation. (*Inlander*, 10.03.15.)

Israel

On 29 April the Israeli Supreme Court rejected a petition to have WiFi banned in schools. Dafna Tachover, a lawyer involved with the case, reports that the Court ruled that the Government reliance on expert advisors meant that the Court could not rule that its actions were 'unreasonable'. (<http://ehsfighback.blogspot.com.au/2015/04/israeli-supreme-court-rejected-lawsuit.html#more>)

WHO

On 20 April, the World Health Organisation updated its webpage to provide information about international legislation on electromagnetic fields. The page includes an interactive graph with public and occupational exposure standards for different frequency ranges in different countries. The site can be accessed at: http://www.who.int/gho/phe/emf/legislation/en/?utm_campaign=Issue%20579_15_April_15&utm_medium=email&utm_source=Eloqua

EHS confirmed

According to the group Electrosensitives of France, electromagnetic sensitivity is about to be legitimised in that country. The authoritative Larousse dictionary is expected to include the term 'hyperélectrosensibilité' in its 2016 edition, defined as 'All physical disorders, according to the description of people, excessive sensitivity to the waves and ambient electromagnetic fields.' (<http://www.priartem.fr/L-electrosensibilite-fait-son.html>)

EHS experience

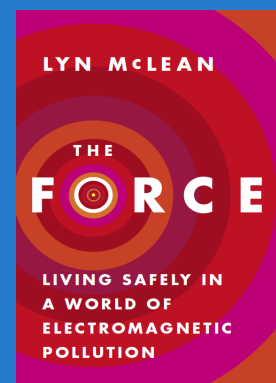
What happened when a computer-loving Israeli lawyer bought a new laptop? Dafna Tachover's descent into electromagnetic hypersensitivity is described in an online interview with New York magazine, entitled 'What It's Like to Be Allergic to Wi-Fi', which can be found at: <http://nymag.com/scienceofus/2015/03/what-its-like-to-be-allergic-to-wi-fi.html>.

EMR symptoms:

If you believe you experience symptoms from exposure to electromagnetic radiation, you can submit feedback to the government on ARPANSA's Electromagnetic Radiation Health Complaints Register at: <http://www.arpansa.gov.au/RadiationProtection/emr/index.cfm>

We would also appreciate you completing EMR Australia's symptoms form at: <http://emraustralia.com.au/>

'The Larousse dictionary is expected to include the term 'hyperélectrosensibilité' in its 2016 edition.'



THE FORCE

The book that tells you everything you need to know about electromagnetic radiation.

www.emraustralia.com.au

Interview with Dr Kerry Crofton

Lyn McLean interviews Dr Kerry Crofton, cofounder of Doctors for Safer Schools

When did you first become interested in EMR?

My doctorate is in psychology, but my speciality is in health education.

Several years ago, my daughter's school was building an addition. We went down to look at it and I noticed that it was very close to high voltage power lines. I'd been a health educator for many years and I knew there was fairly clear evidence of childhood leukemia in proximity to high voltage power lines. I didn't know much about it so I started to research. I went back to the site to measure. I looked up and saw there were cell tower antennas on the hillside not far away. So I thought, I'm going to research that as well.

Now honestly, I can't tell you whether I'm really glad, but I had what I call *the wireless wake up call*.

Were other people at the school outside?

Rather naively I thought that as soon as I told the school about the evidence I had seen— not just a few studies or even hundreds—but thousands of published, peer-reviewed studies, with clear evidence of harm— that the school would say: *My goodness, we wouldn't consider having our children put at risk with this WiFi network that these parents are clamouring for*. But, of course, the WiFi network went in. It was quite distressing to me that parents, who would go to any length to protect their children's health, were somehow able to avoid this reality.

Do you believe every-day levels of EMR can affect people's health?

No question. It affects them adversely. The jury is *not* still out.



Do you know people who have been affected by this sort of exposure?

Yes. Many people.

I made a connection with a few cardiologists who are working in this field. They explained that the heart is electrical in nature. It's very vulnerable to these artificial electromagnetic fields.

Also, when I worked in biofeedback and stress management, we knew that when the body was stressed, people would respond in the parts of the body that were their vulnerable areas. In people who are electrohypersensitive, we see cardiac symptoms, neurological symptoms, immune-related symptoms. I do know that there are people being adversely affected. This number is on the increase and the predictions are not good.

Dr Martin Blank, a scientist from Columbia University, has shown how low frequency electromagnetic fields stress the cells. We know it happens in the heart, we know it happens in the brain, we know it happens in the immune system.

What motivated you to write your book: 'A Wellness Guide

for the Digital Age'?

It has evolved since about 2009. After I had sought out the world's leading experts to come up with a mitigation plan for my own family, it was natural that I would want to communicate this and help others help their families.

Can you tell us about the book?

It covers everything. There's a questionnaire which helps people identify which symptoms, conditions and exposures are relevant to them. There's a section where we deal with every wireless and wired device, telling what we need to know about digital, cordless DECT phones, headsets, fluorescent lights, baby monitors. It gives the concerns and the solutions.

There's a section on breast cancer where I show that young women who carried mobile phones in their bras developed tumours in their breasts—with an outline that matched where the mobile phone was.

It's not what I'd call an entertaining read - it's an informative read. I really did try my best to empathise with the reader. I did try to put a lot of positive information and encourage people, to let people know that every time you reduce an exposure, you've done something great for your health.

Tell us about your work.

I'm working on several fronts. A cardiologist and I started a group called Doctors for Safer Schools – there's a dozen of us now. Initially, I had unrealistic expectations that we might be able to keep WiFi out of schools. No such luck! But our aspiration now is to give concerned parents and teachers some of the information they need to present to

their school boards; to tell them that this technology has not been properly tested and that there is evidence of harm at low levels of exposure.

I also really support people who are trying to work on the standards being changed. The reason we're in this health crisis is that the standards of exposure are not only incorrect, they're totally irrelevant.

For the last several years I've been working in WiFi in aircraft and aviation.

We are not against technology. We want our kids to be tech savvy—but we also want them to be healthy. We don't need to be putting our children at risk. They can be connected in safer ways—for example, using wires or fibre optics.

In my recent talk to the local school board, I said I had heard that some of the North American aboriginal tribes, when they were making a decision that would affect health and wellbeing, considered the impact for the next seven generations. I said to them: *we're not asking you to consider that much, we're asking you to consider just the next seven years.*

Are you seeing changes in people's attitudes?

I can't say we've turned the corner, I do believe the awareness has increased dramatically, which is a good thing because the proliferation of this WiFi and mobile radiation is extremely high and on the increase. I see often people concerned about the digital age issues, not so much from the health impact, but from the point of view of digital distraction, addiction and children being disconnected from nature. Those are important issues, too.

Kerry's website is www.SaferTechSolutions.org

Smart phone; dumb brain

What effect does using a smart phone have on the human brain?

To answer this question, psychologists from Canada's University of Waterloo conducted three studies of 660 subjects, looking at different styles of thinking and smart phone use.

They found that analytical thinkers were less likely to rely on their smart phones when solving problems.

'Our research provides support for an association between heavy smartphone use and lowered intelligence,' said Gordon Pennycook, a co-author of the study. 'Whether smartphones actually decrease intelligence is still an open question that requires future research.'

The researchers also found that people whose thinking style was less analytical and more intuitive, were more likely to use their smart phone to look up information. 'People may be prone to look up information that they actually know or could easily learn, but are unwilling to invest the cognitive cost associated with encoding and retrieval,' the authors said.

'We believe it imperative that more researchers consider reliance on Smartphones as a new kind of thinking, as our collective psychology may change alongside the technological advances,' the authors concluded. (Barr, N et al, 'The brain in your pocket: Evidence that Smartphones are used to supplant thinking', *Computers in Human Behaviour*, 48:473-80, July, 2015.)

Next generation kids

While many people are busy thinking about the next generation of mobile phone technology, perhaps we should spare a thought for the next generation of children.

Yes, people's offspring may well be affected by their mobile phone use, if a study from Russia is anything to go by.

The researchers exposed rats to mobile phone radiation of 897 MHz and then examined the effects on their progeny, both as foetuses and when newly born. They

found that rats whose parents had been exposed had lower birth rates, a higher ratio of males compared to females than usual, accelerated sexual development and reduced viability of sperm.¹

This is not the first study to find next-generation effects of mobile phone use. Previously, researchers showed that a mother rat's mobile phone use caused changes in the cerebellum to Purkinje neurons, which control motor function, in her babies.² Another study found that parents' exposure had harmful effects on the cognitive performance of their offspring.³

1. *Radiats Biol Radioecol*, 54(2), 2014; 2. Haghani, M et al, *Neuroscience* 250:588-98, 2013; 3. Razavinasab M et al, *Toxicol Ind Health*, Mar 6, 2014.

**A Wellness Guide
for the Digital Age**

With Safer-Tech Solutions for
All Things Wired & Wireless

Kerry Crofton

Un-knowingly and un-necessarily at risk

I highly recommend Dr. Crofton's award-winning
guide for the greatest medical threat of our time.
— cardiologist Stephen Sinatra, MD

Gold Award

Not-so-smart meters

A major UK business group has warned the British government against the rollout of smart meters. The Institute of Directors (IoD), an organisation dedicated to supporting business leaders and responsible business practices that will benefit society, has called the smart meter scheme 'a government IT disaster waiting to happen'.

The smart meter program should be changed or stopped, the IoD said in a major report on the subject entitled 'Not too clever: will Smart Meters be the next Government IT disaster?'

Among the problems the report identifies is that a smart network would be vulnerable to cyber-attack and disruption, that time-of-day pricing will only work with price increases, the technology is untested and the government is unlikely to be able to effectively manage the IT project.

It also points out that eleven EU nations have chosen against the rollout of smart meters.

'Consumers do not want the meters, they have proved a costly mistake in countries where they have been rolled out,' said the report's author Dan Lewis.

The report says that the smart meter scheme 'is far from smart' and suggests a series of recommendations to limit the rollout or that it be abandoned entirely. (IoD Media Release, 27.03.15.)

Not-so-smart smart phones

Consumers should be warned about the psychological problems associated with smart phone use, say researchers from the University of Derby in the UK.

Dr Zaheer Hussain, a lecturer in Psychology, and Claire Pearson conducted an online survey to identify the relationship between smart phone use and various personality disorders. Of the 256 smartphone users who participated, over 13% were addicted to their phones and the average user spent 3.6 hours a day on the device.

'Higher scores of narcissism (excessive interest or admiration of oneself and one's physical appearance) and levels of neuroticism (negative personality traits including moodiness, jealousy, envy and loneliness) were linked to smartphone addiction,' said Dr Hussain.

'A significant positive relationship was found between narcissism and addiction to the phones, suggesting that the more narcissistic a person is, the more likely they are to be addicted to their smartphone. When the participants were asked if they used their phone in banned areas, 35% answered yes.'

Participants admitted that their use of smart phones interfered in their real life relationships.

The authors suggest potential buyers should be made aware that smart phones can lead to addiction that can cause narcissism and 'potentially breakdown familial relationships.' (Pearson, C and Hussain, Z, 'Smartphone Use, Addiction, Narcissism, and Personality: A Mixed Methods Investigation,' *Internat J Cyber Behaviour, Psychology and Learning*, 5(1), 2015.)

Wireless radiation and nature

Wireless radiation is adversely affecting plants and animals and these effects should be better studied, says Dr Alfonso Balmori from the Directorate General for the Environment in Valladolid, Spain.

In a paper published earlier this year in the journal 'Science of the Total Environment', Dr Balmori referred to a range of studies that have shown this radiation is affecting many species.

Wireless radiation interferes with the ability of birds and insects to navigate using their magnetic compass to orient to the earth's magnetic field. Several species of birds have been shown to be affected, as have ants, bees, Monarch butterflies and even cockroaches. He wondered whether this might account for the declining populations of some populations, including bees, which play an important role in pollination.

Dr Balmori also referred to evidence that wireless radiation was shown to have harmful effects on some bats, cattle and plants.

More studies are needed on the effects of wireless radiation on wildlife, Dr Balmori advised, in light of the proliferation of wireless-emitting technologies.

He added that current safety standards, which are based on short-term, heating effects of radiation, do not provide adequate protection for wildlife and said that the 'standard should be based on the more sensitive, natural biological response.'

(Balmori, A, 'Anthropogenic radiofrequency electromagnetic fields as an emerging threat to wildlife orientation', *Sci Total Environ*, 518-519, 58-60, 2015.)

WATT'S THE BUZZ?

EHS airing

EHS is about to hit the screen in a way that that's never before been seen. The character Chuck McGill, a successful lawyer in the long-running series *Better Call Saul*, is to develop electromagnetic hypersensitivity. In an interview with Yahoo TV, actor Michael McKean talks about the challenges of researching and portraying the condition. (03.03.15; <https://www.yahoo.com/tv/better-call-saul-star-michael-mckean-on-chucks-112573996900.html>)

Bloodshed

Blood has been drawn in a protest against NBN towers in northern NSW. Opponents of the radiation-emitting towers have undergone blood tests and sent the results to the NBN. Their lawyer advised NBN that more blood tests will be taken after the tower is constructed and that NBN will held be responsible for any health changes that can be identified in the group as a whole. (*It News*, 17.02.15.)

Penalty

A Victorian man has received a hefty penalty for cutting the wires to his smart meter after it was installed without his approval in 2013. The Melbourne Magistrate's Court imposed a fine of \$750 and ordered the unnamed man to pay costs of over \$11,000. (*Herald-Sun*, 13.03.15.)

Hey presto

It might seem like magic—Disney World staff greet you by name without an introduction, produce your meal without taking your order, locate your table without any difficulty.

The secret is the MagicBand, worn around the wrist, that transmits information via a radio signal for a distance of more than 12 metres. The bands communicate with

thousands of sensors in the theme park so that guests can tap onto rides without tickets and so that Disney can locate anyone anywhere at any time.

A fairytale experience? That depends on how the wearer reacts to wireless radiation. (*Wired.com* 10.03.15.)

Too intelligent?

Could we humans be making computers too intelligent for our own good? Three of the great technical minds of the modern age, Stephen Hawking, Bill Gates and PayPal creator Elon Musk, say that artificial intelligence—the ability for a computer to copy human intelligence—could create huge problems for society.

Take the fact that electronic equipment (and even humans) are being implanted with devices that automatically connect to them internet—known as the Internet of Things (IoT).

Add them together and what do you have? Well, no one knows—but the possibilities make interesting speculation. (*Guardian* 21.02.15.)

Explosive news

Thousands of smart electricity meters exploded over a period of hours in Stockton, California, leaving residents without power. The explosions occurred as a result of a power surge caused by a truck hitting an electricity pole. Many residents were still without power 24 hours later and there are concerns that appliances may have been damaged in the surge. (CBS Sacramento, 30—31.03.15.)

Smart payment

Closer to home, an Australian utility has been ordered to pay millions of dollars to compensate customers for IT faults with their smart meters. AusNet Services will

pay \$125 to each of the 230,000 customers whose smart meters are not communicating as intended. Three other utilities will make similar payments to a much smaller number of customers. Faults with the meters are not expected to be resolved till the end of this year. (*Herald Sun* 06.04.15.)

Wireless ants

You can't use spray on these pesky insects!

Robotic ants are among the latest weird and wireless technologies to be developed. Created by German company Festo, the plastic creatures have cameras in their heads and use wireless radiation to connect with each other, enabling them to cooperate to perform tasks that are expected to be helpful in workplaces such as factories. (*Directindustry.com*, 02.04.15.)



TUBEZ AIRTUBE HEADSETS

Protect against mobile phone radiation

www.emraustralia.com.au

Breaking news

On Tuesday 12th May, Berkeley City councillors unanimously passed a regulation which will require mobile phones to be sold with a health warning.

The warning, which will be displayed at point of sale or on leaflets, will state: 'If you carry or use your phone in a pants or shirt pocket or tucked into a bra when the phone is ON and connected to a wireless network, you may exceed the federal guidelines for exposure to RF radiation. This potential risk is greater for children.' The regulation is expected to be effective from July. (*Guardian*, 16.05.15.)

Addiction

Australian behavioural neuroscientist Dr Lucia Kelleher has told ABC News that smart phone addiction does affect people's brains. Dr Kelleher said that smart phone addiction is characterised by the need to constantly look at and check the phone. It is an unconscious habit that prevents people from remaining focused. 'Our ability to focus and pay attention has essentially dropped by a factor of three in the past ten years,' she said in the interview.

To break the addiction, Dr Kelleher suggested meditation, mindfulness and exercise, which, she said, help switch the brain out of its overloaded state. (<http://www.abc.net.au/news/2015-03-19/are-you-addicted-to-your-smartphone/6331352>)

Baby love

Babies and toddlers are spending more time on wireless devices than ever, Dr Hilda Kabali told the annual meeting of the Paediatric Academic Society in the US. Her survey of families at a US paediatric clinic showed that babies are using smart phones and tablets before the age of one. By the age of two, toddlers are using the devices for an hour a day.

The survey showed that wireless devices are frequently used as babysitters. Three quarters of the parents surveyed gave devices to their child while they were busy, over a half used them to pacify their child, while nearly a third used them to put their child to sleep. (Hilda Kabali, M.D., *Medline Plus*, 26 April, 2015.)

Symposium

EMR Australia would like to sincerely thank Lucinda Curran for organising the 2015 Environmental Sensitivities Symposium, held in March.

The online Symposium brought together experts from around the world who discussed causes and treatments for environmental sensitivities and it is encouraging to know that there are so many helping hands available for sufferers.

'Each and every one of you who experiences Environmental Sensitivities does so...to change the world in a positive way, and by doing so, leave the world in a better shape for those who come after us,' said Lucinda.

The not-for-profit symposium donated funds from the event to a number of charities.

'A regulation will require mobile phones to be sold with a health warning.'



BLOCSOCK

MOBILE PHONE SHIELDS

Block over 96% of radiation
Protects brain & body.

New larger size now
available from

www.emraustralia.com.au

EMR AUSTRALIA

Quality meters
for sale or hire

Shielding paint,
fabrics & window
film

books

EMR testing
& remediation