

EMR and Health

Quarterly report on electromagnetic radiation, health and well-being

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Brain tumour risk grows

Brain tumour findings strengthen the case for the carcinogenicity of mobile phone radiation.

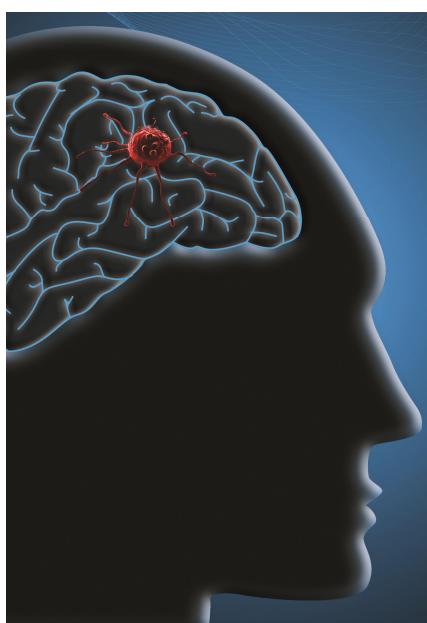
Long-term use of cordless and mobile phones decreases the survival of people with brain tumours and this finding strengthens the evidence that wireless radiation causes brain tumours, say researchers from Sweden.

Co-author Lennart Hardell has previously shown that long-term mobile phone use increases the risk of gliomas and acoustic neuromas. In his latest study, with Michael Carlberg, Hardell shows that it also has a bearing on patients' survival.

The authors analysed data from Hardell's previous survival studies and tracked 1678 gliomas patients till December 2013. They found increased risks of early death from brain tumours, which they referred to as Hazard Ratio (HR). Their findings showed that:

- using a cordless phone for more than 20 years increased the HR for gliomas by 80%;
- people who used mobiles for more than 20 years had double the HR of the most malignant type of gliomas—astrocytoma IV—and the risk was more than treble for cordless phone users;
- people who began using a mobile or wireless phone before the age of 20 had double or more risk of early death;
- mobile phone users with grade IV astrocytomas had bigger tumours than non-users.

The authors say, 'Subjects with first use before the age of 20 have higher risk to



develop astrocytoma grade IV, and they have also worse prognosis than in higher age groups.' This has important implications for children's use of wireless phones.

'The study strengthens the proposed causal association between use of mobile and cordless phones and gliomas,' the paper says. According to the authors, the International Agency for Research on Cancer (IARC) should reclassify radiofrequency radiation as a human carcinogen (it's currently categorised as a 'possible' carcinogen) and international guidelines for exposure should be revised.

The authors' findings are supported by a recent study by Akhavan-Sigari et al (see page 4).

(Carlberg, M and Hardell, L, *Int J Environ Res Public Health* 11:10790-10805, 2014.)

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Phone tower bill

On 27 October, Andrew Wilkie, Independent MP for Denison in Tasmania, introduced a Private Members Bill for an Act aimed at giving communities more say about the siting of mobile phone base stations. In introducing the bill to the parliament, Mr Wilkie said that he was not trying to stop the construction of the base stations, but to give councils and communities more power and his bill was prompted by the large numbers of complaints he had received from communities around Australia.

'No one seems to be listening. Telcos have all the rights. councils have few rights and the community seem to have no rights,' he told the House. 'Powerful companies, whether they be banks, supermarkets or telecommunications companies, seem to be able to dangle governments on fairly short strings almost like puppets. These big companies seem to be able to do whatever they want.'

In 2011 Mr Wilkie moved a bill which would have given the community more rights in relation to phone towers but said that bill had gone 'nowhere'. The current bill aims to:

- expand the number of people to be notified about new mobile phone base stations, requiring consultation for residents living within 500 metres of new facilities;
- extend the timeframe for people to respond to applications for base stations to 30 days;
- prevent the construction of base stations within 100 metres of 'sensitive sites' such as schools;
- limit the number of facilities that can escape council approval by being classified as 'low impact';
- stop carriers from adding new antennas to existing facilities under the guise of 'maintenance' to avoid council approval.

'Many new phone towers in recent years have been badly sited and subject to no or little community consultation,' Mr Wilkie said. 'Frankly, residents are the ones who have to live with mobile phone tower developments so they should have a say as to where they're sited.'

(Media release, 27.10.14; <http://www.andrewwilkie.org/content/index.php/awmp/media>)

EHS, Science & Wireless and ARPANSA

In what could hardly be considered a master stroke of public relations, Australian authorities have both reneged on their undertakings to the Australian community and alienated the EHS population of the country.

On the evening of Tuesday 11th November, Australia's research consortium, the Australian Centre for Electromagnetic Bioeffects Research (ACEBR) and the Illawarra Health and Medical Research Institute hosted a public forum at Wollongong University on the topic of electromagnetic hypersensitivity. The forum featured a line-up of speakers well-known for their no-effects stance on EMR.

Professor Rodney Croft, Director of ACEBR, told the meeting that reviews had found 'no evidence of health effects' from electromagnetic radiation. 'If you ask me: do I think we'll find an association between symptoms and RF, I'd say certainly I don't.'

Dr Eric van Rongen, from the Health Council of the Netherlands, said that symptoms of EHS—such as sleep disorders, fatigue, headaches, concentration difficulties, skin prickling—were attributed to electromagnetic fields, but not necessarily caused by them. The incidence of such complaints varied from 1.5% of the population (Sweden 2002) to 13.3% (Taiwan 2011). He said there was 'no relationship between actual electromagnetic exposure and occurrence of symptoms' and continued that there was more evidence of a relationship between symptoms of EHS and psychological problems than symptoms of EHS and electromagnetic fields.

Similarly, Professor Michael Repacholi, former head of the WHO's EME project, dismissed any connection between electromagnetic hypersensitivity and electromagnetic radiation. 'EMF does not cause EHS,' he told the meeting. 'Affected individuals should seek help from appropriate health care professionals.'

In presenting their views that electromagnetic fields are not involved in electromagnetic hypersensitivity and do not cause

(Continued on page 9)

The myelin connection

Could myelin damage account for the symptoms that many people experience when exposed to wireless radiation?

This is a possibility that should be taken seriously, say Dr Mary Redmayne and Prof Olle Johansson, writing in the September issue of the Journal of Toxicology and Environmental Health.

Myelin is a protective layer of fatty membrane that coats the nerves of the central and peripheral nervous systems (CNS and PNS). It acts as an insulator, facilitating the transmission of electrical signals that convey information along nerves.

Damage to the myelin sheath results in symptoms that, for the most part, resemble those of electromagnetic hypersensitivity (EHS): problems with vision, numbness, weakness, tickling, prickling, burning sensations, tremor, memory problems, concentration problems, depression, irritability and anxiety.

However, it's not just the correlation of symptoms that makes a connection between myelin damage and EHS a possibility, say Redmayne and Johansson. There are a number of studies that support it, too. In one study, scientists exposed rats to a signal of 2450 MHz and found that they had more than usual myelin protrusions into cortical dendrites. In another study, guinea pigs exposed to a 3000 MHz signal for three hours a day for three months developed metachromatic bodies in their myelin.

Myelin damage occurs in Multiple Sclerosis (MS). In a Danish study on MS, scientists showed that people who had owned a mobile phone for more than ten years had a higher incidence of MS. Further, people with MS who had owned a phone for seven to nine years after diagnosis, had higher death rates than MS sufferers without mobile phone subscriptions.

Additionally, Redmayne and Johansson showed evidence that wireless radiation affects proteins that are involved in the production of myelin.

Even though demyelination and EHS have many common symptoms, not all symptoms can be correlated. Reduced muscle control is found in people with demyelination but not in EHS. Similarly, symptoms of headaches, tinnitus, heart arrhythmia and skin problems are found in people with EHS but not myelin degeneration.

If wireless radiation impacts on myelin integrity in ways that produce unpleasant symptoms, there are significant implications for society's use of radiating technologies. The production of myelin occurs during the latter half of gestation and continues through adolescence and possibly into middle age. 'The CNS of the fetus, infant, child, and adolescent, whose myelination is incomplete, ... and whose neural connections are rapidly forming and being pruned may be most susceptible, as may that of older people whose myelin protection is already degenerating', the authors said.

While not conclusive, the link between wireless radiation, myelin damage and symptoms of EHS is sufficient to justify study and to warrant precautions. The authors believe that 'the evidence from in vivo, in vitro, and epidemiological studies is sufficiently strong to warrant urging that RF-EMF exposure from prebirth through to at least mid teens should be minimized until this issue is clarified.'

Commenting on the study, Prof Olle Johansson told *EMR and Health*, 'The importance of this, and other papers seeking the mechanism behind the functional impairment electrohypersensitivity, is that it tries to establish a biophysical/biomedical framework within which the impact of electromagnetic fields on our body can be understood, and hinting to parallels extracted from already established fields of medicine, such as multiple sclerosis.'

'Since the study clearly points to a possible association between low-intensity radiofrequency electromagnetic fields (RF-EMFs) and myelin alterations, it is fair to ask for further studies into this particular field of science, as well as looking for common denominators between electrohypersensitivity and diseases such multiple sclerosis and dementia. Maybe electrohypersensitivity could be an indicator of the latter, or perhaps electrohypersensitivity actually protects humans against these illnesses through the classical avoidance behaviour of persons with this disability.'

'Finally, the conclusions of our paper may also have an impact on the research regarding cancers of the nervous system, since changes in the protective myelin could be a factor to be accounted for during the initial stages of tumour growth. Of special interest is the fact that such myelin-associated tumours are most common in younger subjects. However, only future research will clear these issues,' Prof Johansson said.

Redmayne M, Johansson O. "Could myelin damage from radiofrequency electromagnetic field exposure help explain the functional impairment electrohypersensitivity? A review of the evidence", *J Toxicol Environ Health B Crit Rev* 2014; 17(5): 247-58. doi: 10.1080/10937404.2014.923356.

"Damage to the myelin sheath results in symptoms that, for the most part, resemble those of electromagnetic hypersensitivity"

RESEARCH UPDATES

ELF fields (from electrical sources)

Pituitary

Power frequency magnetic fields had a harmful effect on the pituitary gland, which links the nervous and endocrine systems and releases a range of hormones. Serbian researchers exposed rats for one day, 7 days or 3 months and observed changes in the volume and nature of pituitary cells, concluding that exposure could be considered a stressor. (Rauš Balind, S et al, *Environ Toxicol*, Oct 27, 2014.)

Other effects

- Magnetic fields caused liver damage in rats. (*Gig Sanit* 3(92-4), 2014.)
- Magnetic fields damaged the developing embryos of zebrafish. (Li, Y et al, *Biol Trace Elem Res*, Sep 28, 2014.)

RF/wireless radiation

Improved standards needed

Mobile phone radiation has harmful effects on the brain and better regulations are needed, say Russian researchers. The unnamed authors said that mobile phone radiation had been shown to lead to fatigue, reduced performance, attention and memory and changes to auditory-motor responses. The authors state that regulations are needed that take into account the accumulation of biological effects from long-term exposure. (*Gig Sanit* (3):11-6, 2014.)

Brain tumours

Mobile phone use may be changing the expression of a gene that plays an important role in cancer prevention. The

p53 gene is normally involved in tumour suppression but mobile phone radiation may change its role. Scientists from Germany and Iran examined 63 patients with glioblastoma multiforme, the most common and aggressive malignant brain tumour. They found that using a mobile phone for three or more hours a day was linked with an increased risk of mutant p53 expression and reduced survival time. (Akhavan-Sigari, R et al, *Rare Tumors* 6 (3):5350, 2014.)

Inflammation

Effects on the central nervous system are often thought to explain the symptoms of RF exposure. In this study, researchers exposed microglial and astrocyte cells of the CNS to fields of 1800 MHz for different periods of time. They found that exposure caused pro-inflammatory responses in each line of cells and suggested that this may lead to effects on the nervous system. They also found that, in microglia pretreated with transcription factor STAT3, the inflammation was inhibited and they suggested that this may protect against RF exposure. (Lu Y et al, *PLoS One* 9(9), 2014.)

Bladder inflammation

Turkish scientists have found evidence that mobile phone radiation adversely affects the bladder. The researchers exposed male rats to mobile phone radiation for 8 hours a day for 20 days and found severe inflammation in bladder tissue. They advised reducing mobile phone use to control inflammatory diseases. (Koca, O et al, *Int Braz J Urol*, 40(4):520-5, 2014.)

Blood-brain-barrier

Mobile phone radiation may cause permeability of the blood-brain-barrier (BBB) which lines blood vessels in the brain to prevent potentially harmful substances from the blood entering it. L Wang and team exposed human BBB cells to microwave radiation for 5 minutes and observed increased permeability.



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

They concluded that microwave radiation can cause BBB damage and suggested a mechanism that could cause it. (Wang, LF et al, *Mol Neurobiol* Sept 9, 2014.)

Performance

To assess how mobile phone radiation might affect the brain, scientists exposed a young rats to a 900 MHz mobile phone signal for a period of four weeks and then assessed their behaviour. The authors found that exposed rats had indicators of oxidative stress and suggested this might cause the behavioural problems they observed. (*Bratisl Lek Listy* 115(5):260-6, 2014.)

Testicular damage

Mobile phone radiation may cause testicular problems, say scientists from Shiraz University in Iran. The researchers exposed rats to a 900 MHz mobile phone signal for 1-4 hours a day for a month and found increased levels of proteins that contribute to stress or the misfolding of proteins. The authors concluded that exposure contributed to non-thermal stress in testicular tissue.

(Sepehrimanesh, M et al, *Electrophoresis*, Aug 21, 2014.)

Reproduction

Scientists from India have found further evidence that mobile phone radiation adversely affects reproduction. S Kumar and team showed that rats exposed to a 3G mobile phone signal had lower sperm counts, sperm damage, reduced testicular weight, DNA damage and other indicators of reduced fertility. (*Indian J Exp Biol* 52(9):890-7, 2014.)

Phone habits

Teenagers don't like to be parted from their mobile phones at night, according to the latest research from Lebanon. Adachi-Mejia and colleagues conducted a pilot survey of 454 patents aged 12 to 20 to identify their mobile phone habits at night. They found that nearly 63% of the teens took their mobiles to bed; 47% used their mobiles as alarms; 37% texted after going to bed and nearly 8% were woken by texts during the night. (Adachi-Mejia, AM et al, *Fam Community Health* 37(4):252-7, 2014.)

Depression

Teenagers could benefit from education about using electronic devices at night, say researchers from Switzerland. The authors investigated sleep quality, depression and electronic media use in a group of 362 teenagers. They found that teens who used smart phones were more likely to go to bed late and use electronic media in bed than teens with conventional mobiles. They also found that use of electronic media was related to less time sleeping and more sleeping difficulties and to depression. (Lemola, S et al, *J Youth Adolesc* Sept 10, 2014.)

Hydrogen peroxide

Tumour cells exposed to radiofrequency radiation for 8 hours increased their production of hydrogen peroxide by 55%. (Castello, PR et al, *Bioelectromagnetics* 23 Sept 2014.) [Professor Martin Pall believes that increases in hydrogen peroxide cause a cycle of damage that cause symptoms of chronic disease.]

Foetal effects

The first study to find that males and females react differently to microwave radiation was conducted by Y Zhang and team from China. The researchers exposed mouse foetuses to a 9.417 GHz field and then subjected the babies to various behavioural tests. They found that exposure increased anxiety and reduced depression. Males showed memory and learning problems, whereas females did not. (Zhang, Y et al, *J Radiat Res* Oct 30, 2014.)

Electromagnetic hypersensitivity

Scientists from Sweden investigated whether people with electromagnetic hypersensitivity were more intolerant of noise and odor than healthy volunteers. Subjects participated in two tests for sensitivity and those with electromagnetic hypersensitivity showed higher than normal scores for sensitivity to both chemicals and noise. (Nordin, S et al, *Int J Environ Res Public Health* 11(9):8794-805, 2014.)

Mobile phone radiation adversely affects reproduction.



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Mobile phone radiation may cause testicular problems.

Reviewing the reviews

Since 2008 over 30 international authorities have published reviews of studies conducted on the link between radiofrequency radiation and health, producing voluminous tomes of notes and recommendations. Now the highlights of this information are available in a paper by Vijayalaxmi and Maria Scarfi, published in the *International Journal of Environmental Research and Public Health* in early September.¹

In the paper, Vijayalaxmi and Scarfi summarised the conclusions and recommendations of many governments and concluded that most authorities believed 'there was inadequate evidence for increased biological and health risks in humans exposed to RF fields emitted from wireless communications devices.' However, because of the potential for long-term effects, most of them recommend both precautions to reduce exposure and further research.

The authors say that countries which recommend precautions include Australia, Finland, Latin America, Norway, Switzerland and the UK. Those which recommend reducing exposure include Canada, France, New Zealand, Sweden, the UK and USA.

Vijayalaxmi and Scarfi's paper also reviews the reviewers themselves by taking into consideration the membership of the working groups which produced the reports. Among the authors' criticisms was the fact that some of the participants were effectively reviewing their own studies. Further, 'there was an apparent "bias" in selecting the papers for evaluation: the reports that support their analysis were reviewed and left out those that contradict their conclusions.' [stet]

Vijayalaxmi and Scarfi's paper did not extend to investigating independent reviews, such as the *BioInitiative Report*², which found stronger associations between exposure to radiofrequency radiation and health problems.

1. Vijayalaxmi and Scarfi, M, 'International and National Expert Group Evaluations: Biological/Health Effects of Radiofrequency Fields', *Int J Environ Res Public Health*, 2014 Sep 10;11:9376-9408
2. BioInitiative Working Group, *BioInitiative 2012*, <http://www.bioinitiative.org/>

New WHO monograph

The World Health Organisation recently released a draft review of scientific research on radiofrequency radiation and health published before 2013. Entitled 'Radio Frequency fields: Environmental Health Criteria Monograph', the incomplete document was opened for consultation by RF experts until mid November. When completed, the document is likely to influence policy of radiation authorities worldwide.

The draft perpetuates the view that health effects are due to thermal exposures and that nonthermal effects are unlikely to cause health problems. The available chapters contain summaries of relevant studies but no conclusions as to the significance of their findings.

Oddly, the document was released for comment with three nuts-and-bolts chapters still unwritten. They are the chapters on 'Health risk assessment', 'Protective measures' and the 'Summary and recommendations for further study'.

The draft document is available from the WHO at: http://www.who.int/peh-emf/research/ef_ehc_page/en/

EHS victory

A US education authority has agreed to accommodate a teacher with electro-magnetic hypersensitivity (EHS). Anura Lawson, a secondary teacher at Johnnie Cochran Middle School, appealed to the Los Angeles Unified School District (LAUSD) to be able to teach in a WiFi-free classroom.

On 28 May Ms Lawson told a hearing of the LAUSD that, after the WiFi was turned on at school, she collapsed and was rushed to hospital for surgery and her students suffered from nose and ear and ear bleeds. Ms Lawson, a cancer survivor and mother of six, said that she wanted 'to be around to see them grow up' and reminded the hearing that the constitution required authorities to do no harm.¹

On 18 September, the Board's Disability Coordinator, Demetrius Patrick, wrote to Ms Lawson acceding to her request. His letter stated: 'The Committee approved your request to have the Wi-Fi turned off in your classroom during the 2014-2015 school year. As an alternate accommodation, the Committee also approved a reassignment to a different school site where Wi-Fi has yet to be installed.'²

1 LAUSD hearing: <http://www.youtube.com/watch?v=wghaMbzRnb4&feature=youtu.be%20-%20See%20more%20at:%20http://thefullertoninformer.com/lausd-wifi-systems-students-were-bleeding-from-the-ears-and-nose-and-no-incident-reports-were-allowed-by-the-school-states-the-teacher-who-required-medical-intervention/#sthash.i7pRtJWN.dpuf>

2 Correspondence, Demetrius Patrick, Los Angeles Unified School District, 18.09.2014

Hybrid cars

In our last issue, *EMR and Health* ran an article about a study on hybrid cars from Wyoming Institute of Technology. This study was a hoax and EMR Australia apologises for including it in our report.

Nevertheless, hybrid cars have been found to have high magnetic fields.

UPDATES FROM AROUND THE WORLD

EHS hearing

On 4 November, the European Economic and Social Committee (EESC), a consultative body of the European Union, held a public hearing in Belgium to debate how the EU should deal with the issue of electromagnetic hypersensitivity and to give input for the EESC's opinion that is scheduled for adoption in January 2015. (<http://www.eesc.europa.eu>)

Smart meter class action

A community group is preparing for a class action law suit on smart meters. In an open letter dated 5 September, Don Powers, an Attorney from Powers at Law, and Jo Esposito of Stop Smart Meters in Oklahoma, invited readers to contact them if they are concerned about smart meters or wished to participate in the suit. : <http://www.rense.com/general96/OKLAHOMA.JoeEsposito.pdf>

Mobile phone suit

Another law suit is expected to commence in the US in March against mobile phone manufacturers and network providers. It will be filed by the firm of Peter Angelos on behalf of mobile phone users with brain tumours. It will claim compensation for brain tumour patients and their families and loss of income as a result of the disease. (*Daily Mail Australia*, 07.10.14.)

Netherlands report

On 5 September, the Health Council of the Netherlands released a report called 'Mobile Phones and Cancer' covering animal studies on cancer. The report concluded, 'Overall the studies discussed in this report show that no effects of long-term exposure to RF/EMF on the development or growth of tumours in general, or on specific types of tumours, have been demonstrated in rodents.' (Health Council of the Netherlands, 'Mobile Phones and Cancer', <http://www.gezondheidsraad.nl/sites/default/files/>

[Mobile_phones_and_cancer_Part_2_Animal_studies_on_carcinogenesis.pdf](#))

Recognition

Associate Professor Olle Johansson has been made a Lifetime Member of Honour of the Danish Society for Electrohypersensitivity. The award was conferred at the September 20-21 Open Mind Conference at Kedelhallen in Copenhagen. Professor Johansson has written extensively about electromagnetic hypersensitivity and is author of a number of papers showing skin changes in sensitive volunteers exposed to electromagnetic radiation. (correspondence, 03.10.14.)

MCS recognised

In late September, Spain officially recognised the condition of Multiple Chemical Sensitivity (MCS), paving way for doctors to diagnose and treat patients with the condition. (2014 Association pour la santé environnementale du Québec, media release, 24.09.14.) This is an important step forward for people with electromagnetic hypersensitivity, many of whom also suffer from MCS.

CSIRO leadership

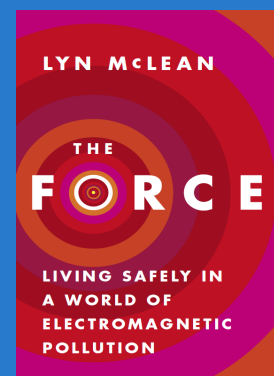
The new head of Australia's chief scientific organisation—the Commonwealth Scientific and Industrial Research Organisation (CSIRO)—has links with the telecommunications industry. Dr Larry Marshall, who will take over leadership of the CSIRO in January, is a physics-trained businessman who established a number of companies in the US, including a telecommunications company. Industry Minister Ian Macfarlane said, 'his experience in Silicon Valley, R&D development and the commercialisation of products and ideas will be valuable in ensuring CSIRO rightfully claims its place at the centre of Australian industry policy, building new links between business and research organisations.' (media release, 09.10.14.)

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/>

'A community group is preparing for a class action law suit on smart meters.'



THE FORCE

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Interview with Frank Clegg

Lyn McLean speaks with Frank Clegg, CEO of Canadians 4 Safe Technology

You were President of Microsoft Canada and now you're CEO of an organisation that promotes the risks of wireless radiation. What caused you to become concerned about this radiation?

I was approached by three different families from our local community who had cell towers right near their homes.

My wife and I attended a local council meeting, which representatives from Health Canada and Industry Canada attended and, by the time I finished that meeting, I was pretty motivated to get involved.

I discovered that the local municipality had no rights to stop the cell tower. We were told the only thing they could address was how it looked—the visual impact. We were not allowed to talk about health effects at the meeting. Certainly that presentation demonstrated how arrogant and uninterested the Federal Government is. Its representatives were just there to answer as few questions as they could.

That caused me to do more research myself, to read the studies, talk to more experts. I became convinced that the process was horrible. The more I investigated this, the more I was concerned. I just got more and more involved and, the more involved I got, the more determined I was to make a difference.

If you're open minded, you can only come up with the conclusion that our guidelines are not protecting us.

What led you to establish C4ST?

If you're going to change the guidelines of the Federal Government, you need an organisation that's going to be national in



scope, that's going to have credibility. It became very clear that we had to be involved at the federal level or there was no point.

Do you believe that electromagnetic hypersensitivity is real?

Absolutely! My wife is chemically sensitive and has been to hospital a couple of times from exposure to pesticides. Over the last year or so, she's been developing electrosensitivity.

I also get emails from people who are electrosensitive. Our website's got stories from 25 of them now. I certainly talk to a lot of them. Two of the members on our board in Quebec, are electrosensitive. One has chemical sensitivity and reacts to WiFi and smart meters and her mom became very ill as well. One of the members of our board has a son who is electrosensitive.

So I probably know closely about half a dozen people who have electrosensitivity.

What are your goals?

My personal goals and my work goals are very similar.

There are two parts to what we're trying to

do. The first is to raise awareness among Canadians and policy-makers that there are harmful effects of technology.

The second goal is to change our federal guidelines – Safety Code 6—so that it does a better job of protecting the public.

We spent a lot of time discussing whether we should just focus on one technology – WiFi in schools or cell towers. In Quebec and British Columbia they're very, very worried about smart meters. In Ontario there's been a huge interest in cell towers for the last couple of years and that's now starting to shift to Wifi in schools.

We felt that we had to go back to the source of the problem, which is Safety Code 6, and change that. Safety Code 6 is the umbrella that impacts everything.

The problem is that the higher the level of the goal, the more difficult it is to accomplish.

Is the Canadian government listening?

Has the government made any changes? I'd have to honestly say no.

Have we made a lot of contacts in the government? Yes, we have; we've had a lot of meetings. Have they sent us a lot of platitudes? Yes, they have. But if I was I to harshly evaluate this, right now I'd have to say—no.

Having said that, I'm encouraged because we are causing cell towers to be moved. And we've been told by the government that we are one of the organisations that they would go to to have dialogue.

There are a couple of things we've got that we've never had before. They've never gone to an independent expert review before. They've also, in the past, published guidelines without proper consultation process. So they are

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changing their game. We're having small wins.

I met someone who had been heavily involved in the tobacco issue. He said it can take as long as a decade to change policy.

Are Canadians listening?

We did a survey two years ago when we started the organisation. We thought: let's get a baseline about awareness. We were flabbergasted by the results. It was a survey of 1000 people by a polling organisation. It showed 70% of Canadians were aware of the potential harmful effects of wireless radiation and 60% were concerned. So I think people inherently know that devices that you hold to your head can't be good for you; inherently know that sitting in a classroom with WiFi isn't a good idea.

When people put a little bit of time into researching this, they become very aware and very concerned very quickly.

Sometimes they're in denial. But a lot of them change what they do, so that's encouraging.

Do you have any advice for readers?

There are five safety tips we recommend.

1. Distance is your friend. Keep your phone away from you. Don't put it to your head. Men, don't stick it in your trouser pocket. Young women, don't stick it in your bra. Don't have it near you when you're sleeping at night. Kids should not use them.

2 Don't use WiFi. I've never had WiFi in my home—people are surprised by that. If you have WiFi, go to a local hardware store and buy a timer and make sure that, when you go to bed at night, it's off and there won't be any chance of exposure and your children will have a chance to grow healthy cells.

2. Baby monitors are a no no. We have not been able to find a baby monitor that wasn't a problem.

3. Smart meters – if you have to have one, make sure it's not in an area where there's high traffic.

4. Portable phones for the home: don't use them! We didn't realise that the phone could be three or four rooms away and still be affecting us.

Society is going to reach a tipping point on this issue. Everything we do is moving that point forward. Sometimes I feel we've moved it forward a minute; other times I think we've moved it forward weeks or months.

We believe that that the most important thing people can do is get informed. Do not assume that your government has the resources to keep up with the tremendous advances in technology. You have to take responsibility to protect yourself and your family. People who aren't aware of this issue, I would encourage them to pick up and read just one article.

You as a consumer need to educate yourself. Don't rely on everyone else doing that for you. Technology can be used safely if it is used correctly. We're Canadians for Safe Technology, not No technology.

(Continued from page 2)

health problems, the speakers ignored a substantial body of scientific evidence that they are and they do. Numerous studies show a connection between symptoms, adverse biological effects and exposure, as reported in 'EMR and Health' for more than a decade.

The meeting was attended by a considerable number of members of the general public, many of whom suffer from electromagnetic hypersensitivity and who were not convinced that exposure was not responsible for their symptoms.

'I went to the ICNIRP/ACEBR workshop hoping that EHS would finally get the recognition that it deserves, but came away sorely disappointed,' said EHS sufferer Steve Weller.

When asked by Facilitator Professor Ray Kemp, who in the audience felt the Australian standard did not provide sufficient protection, there was a considerable show of hands.

The Australian community could reasonably have anticipated a different approach to addressing the problem of EHS from its authorities. At last year's Science and Wireless event in Melbourne, ARPANSA's Chief Radiation Health Scientist, Dr Stephen Solomon, responded to the audience's concerns about health effects from EMF, saying 'There is something happening here. We do need to work out a strategy to deal with this.' He subsequently told a meeting of the EME Reference Group that ARPANSA would host a public forum on EMR and health this year.

ARPANSA has neither developed a strategy, nor hosted a public forum on EMR and health.

If ACEBR felt it was stepping into the breach with the forum of 11th, it may actually have done more to alienate the EHS community than to assure it.

New film on electromagnetic hypersensitivity:

<http://www.youtube.com/watch>



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Brain tumour increase

In recent years, the incidence of brain tumours in Sweden has increased dramatically, yet this trend is not reflected in the Swedish Cancer Registry, according to the Swedish Radiation Protection Foundation.

The Foundation compiled statistics drawn from the Swedish Health Board and cancer registry which showed that the number of people who died from brain tumours 'of unknown origin' had increased by 157% between 2008 and 2013. Board of Health data showed that deaths from such tumours had increased from 96 in 2004 to 229 in 2013—yet no such increase is recorded in the data of the Swedish Cancer Registry.

Foundation chairman, Mona Nilsson, says that the underreporting of brain tumour incidence in the Cancer Registry is misleading. 'The Swedish cancer statistics of brain tumors is increasingly being used as an argument against increased risk of brain tumors from mobile phone use not only in Sweden, but also on an international level,' she said.

The Foundation has called on the Swedish Government and businesses to alert the community to the potential risks of brain tumours from mobile phone use.

(Press release, Swedish Radiation Protection Foundation: <http://www.stralskyddsstiftelsen.se/2014/10/increase-brain-tumors/>)

New standard in Israel

An Israeli municipality plans to introduce a standard which dramatically lowers the amount of radiofrequency (wireless) radiation exposure for residents.

The announcement was made following the development of cancer by three students in classrooms located near mobile phone antennas, which sparked a September demonstration by parents of students.

Zvika Zarfati and Eshel Armoni from the Mayor's office, wrote to parents at the school, promising action to protect the community from radiation from the base stations. 'The city of Kfar Saba decided to have the strictest standard that exists today—1 $\mu\text{W}/\text{cm}^2$ and to strive to reduce the radiation in educational institutions to the minimum possible, in any case below 1 $\mu\text{W}/\text{cm}^2$,' they wrote.

The letter advised parents that the city had negotiated with the telecommunications companies that owned antennas near the school to redirect the main beams of transmissions, such that they no longer fall across the school.

In the letter, the city promised to undertake further actions to protect students at the school. These include prohibiting the use of mobile phones at the school, relocating students to classrooms with the lowest radiation levels and monitoring radiation emissions.

'The mayor will lead a national move for coordination between Government Ministries to set a serious policy regarding everything that is related to cellular antennas that are close to educational institutions,' the letter said. It also undertook to encourage national authorities to update its radiation standard for educational institutions.

(*Hasharon Post*, 08.09.14, translated by Iris Atzmon)

C4ST presentations

Canadians for Safe Technology (C4ST) held a 'Symposium on Health Issues Associated with the Exposure to Electromagnetic Fields and Microwave Radiation' held at Women's College Hospital, Toronto, September 12.

Among the conclusions of the meeting was:

- "Radiofrequency fields are a probable human carcinogen' (Class 2A)' whereas the International Agency for Research on Cancer has classified them as a 'possible' carcinogen (Class 2B) - Professor Anthony Miller
- 'Cell phone use during pregnancy may be harmful to the fetus.' - Dr Hugh Taylor.
- Mobile phone radiation has harmful effects on sperm, cerebellum and hippocampus. —Dr Devra Davis
- Electrosensitivity 'is an emerged health crisis' and is associated with chronic health problems.- Dr Magda Havas.

Presentations can be found at: <http://www.c4st.org/> MDSymposium

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WATT'S THE BUZZ?

Time's up

Watch out for Apple's newest innovation. The Apple watch, coming in 2015, is the wearable wireless device that means its owner will always be connected to the virtual world. The watch can be used as a phone, to connect to the internet, for financial transactions, to play music, as a camera and iPad. It can also be used to monitor a person's vital information—health status and activity. This means that not only can the wearer use the watch to find out just about everything about the world, but the world can use it to find out just about everything about the wearer. (<http://www.apple.com/watch/>)

Poverty no barrier

Even living on the street is no barrier to mobile phone ownership. Researchers in Africa conducted a survey of young people living in the slums or streets of Kampala. They found that nearly 47% of those surveyed owned a mobile phone, especially if they were over 18 years of age. (Swahn, MH et al, *West J Emerg Med* 15(5):600-3, 2014.)

Road trial

NSW is about to embark on a trial of wireless technology for remotely sensing road conditions. The Co-operative Intelligent Transport Initiative (CITI) will be conducted along a stretch of the Hume Highway between Sydney and Port Kembla. During the trial, trucks fitted with a wireless system operating at 5.95 GHz will transmit and receive information from bases located along the highway. The trial, which has cost \$1.4 million so far, is scheduled to be underway by February. *The Australian* 23.09.14.)

Payphone conversions

Another trial of wireless technology is underway. As part of its plan to create WiFi hotspots in busy public areas, Telstra has begun converting public payphones into WiFi access points which will send wireless radiation for approximately 100 metres in all directions. The payphones will be just one of the two million or so hotspots the carrier intends to create across the country. (*Adelaide Advertiser*, 30.09.14.)

Airlines' costs

The use of WiFi and mobile devices on Boeing aircraft is about to cost US airlines up to US\$14 million. Tests conducted by the Federal Aviation Administration (FAA) showed that electronic equipment in the cockpit that conveys vital navigational information blanked out when exposed to WiFi radiation. The FAA ordered Boeing to replace the equipment. (*Reuters*, 30.09.14.)

Rise of wireless

Wired phones are giving way to wireless phone connections in many parts of the globe. In the US, there are more mobile phone subscriptions than there are people and ten percent of wired phones are being disconnected each year. (Insight Research Corporation, *US Wireless and Wireline Voice: Threats and Opportunities*, 2013-18)

High cost of WiFi

WiFi access didn't just cost these potential network users an arm and a leg. It cost them their first-born child. Six Londoners accidentally signed away ownership of their oldest child when they completed an online agreement for

WiFi access. The agreement was devised by security firm F-Secure as an experiment to point out the risks of connecting to dubious WiFi networks. It also showed that customers were willing to provide key personal data, including passwords, when asked for it. (*Washington Post*, 29.09.14.)

Zapped

It used to only happen to pets—but now humans are being implanted with computer chips, too.

Brisbane advertising executive Ben Slater is one of a number of Australians who have opted for the procedure. In September, Ben flew to a tattoo parlour in Melbourne to have a radio-frequency identification (RFID) device implanted in the webbing of his left hand. The device, somewhat larger than a grain of rice stores and transfers information using wireless signals. RFID can be used to turn equipment on and off, and locate products or pets—and now people. (*Sun-Herald*, 07.09.14.)



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Security vs privacy

Have you ever wondered why, when you're surfing the web, your screen produces an advertisement that matches your recent searches?

No, it's not a coincidence.

Internet and phone companies amass vast troves of user information—information that is often used for advertising. But that's not its only use. On 6 October, the ABC's 'Four Corners' program 'Privacy Lost' revealed how US intelligence agencies mine this information—both via agreements with search engine and social networking companies and by backdoor routes. The result is that these agencies possess extensive data streams containing information about private citizens, their contacts, thoughts and interests.

The extent of this surveillance was revealed when whistleblower Edward Snowden leaked secret government documents to the press and set off a heated international debate about privacy and security. (<http://www.abc.net.au/4corners/stories/2014/10/06/4099165.htm>)

Just two days after the Four Corners report, *The Australian* revealed that social networking site Twitter was taking legal action for the right to reveal the extent of

government surveillance. The company initiated a lawsuit against the FBI and US Department of Justice for the right to provide information about the information it is required to hand over to the government. (*The Australian*, 08.10.14.)

Revelations about the extent of US government data-mining come at the very time the Australian government is expanding the amount of digital data that intelligence agencies can access. Under proposed new laws, internet and phone companies will be required to retain data for two years and make it available to police and security agencies. The program has special significance in the wake of new government legislation in the process of being passed in Australia. Those laws will demand that web and mobile data be kept for two years so it can, if needed, be seized by law enforcement and intelligence agencies. The changes to law also mean that journalists can be jailed for publishing stories detailing what are called 'special intelligence operations'. www.abc.net.au/4corners/stories/2014/10/06/4099165.htm will require mandatory collection of mobile and internet data for two years. On 6 October, the ABC's 'Four Corners' program 'Privacy Lost' explored how intelligence agencies mine internet information: <http://www.abc.net.au/4corners/stories/2014/10/06/4099165.htm>

“these agencies possess extensive files of information about private citizens, their contacts and their interests”



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