

EMR and Health

Quarterly report on electromagnetic radiation, health and well-being

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Precautionary French law

France has adopted legislation to reduce public exposure to electromagnetic fields.

On 29 January the French National Assembly voted in favour of legislation establishing a precautionary approach to exposure to electromagnetic fields, in order to protect public health. The 'Law on sobriety, transparency, information and consultation for exposure to electromagnetic fields' is the first of its kind anywhere in the world.

The new law, which is less strict than the bill introduced by Greens parliamentarian Laurence Abeille in 2013, is nevertheless a great step forward in protecting public health.

Rather than mandating new exposure levels, the legislation introduces the nebulous concept of 'sobriety' in connection with exposure.

Among the other requirements of the new law are:

- The National Frequency Agency will conduct an annual assessment of public exposure levels. In locations where exposures are higher than those generally observed, operators will be required to reduce them.
- Carriers will be required to communicate with local governments before constructing new base stations, increasing the likelihood that members of the public will be informed about them.



- An educational campaign will be conducted to inform people how to use mobile devices in a 'responsible and rational' way.
- No wireless devices will be allowed in facilities that cater to children under three years of age, including child care centres.
- WiFi in schools must be turned off when it is not being used for educational activities.
- The government is required to provide a report on the condition of electromagnetic hypersensitivity to the Parliament within 12 months.

(*Le Monde*, 29.01.15, http://www.lemonde.fr/planete/article/2015/01/29/une-loi-pour-encadrer-l-exposition-aux-ondes_4565339_3244.html#meter_toaster)

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Mobile phone warning labels

The Canadian government is considering a bill to require warning labels on all mobile phones for sale. Called 'Warning Labels for Radio Apparatus Act', the bill was introduced to the House of Commons by MP Terence Young, member for Oakville on 11 December.

'The purpose of Bill C-648 is to protect Canadians, by changing the way we think about cellular telephones, Wi-Fi, portable telephones, baby monitors and other wireless devices by empowering them with the information they need to understand potential serious risks to their health from long term and continuous use of these devices, AND the greater risks to children,' said Mr Young,

In its present form, the bill requires warning labels to be attached to any radio apparatus used by the public or to its packaging. The warnings must be displayed both at point of sale and on websites for Canadian customers.

The bill empowers the Minister of Industry to regulate the wording and positioning of the information on the labels and to review them. However, this information should include a symbol for non-ionising radiation, information about the health risks of radiofrequency radiation, the fact that this radiation has been classified as possibly carcinogenic to humans by the International Agency for Research on Cancer, as well as contact details for manufacturers or distributors.

Noncompliance could result in fines of up to \$100,000 or imprisonment.

'There is a growing awareness of and concern about environmental exposure to radiofrequency radiation associated with the transmission of signals for wireless telecommunication,' the bill says. 'It is in the interest of all Canadians to be warned of potential health hazards associated with the use of radio apparatus, thus enabling them to make informed choice.'

<http://www.parl.gc.ca/LegisInfo/BillDetails.aspx?Mode=1&Bill=C648&Parl=41&Ses=2&Language=E>; <http://www.terenceyoung.com/>

Smart meter symptoms

Australians are reporting a range of unpleasant symptoms from the radiation emitted by smart meters, according to a new study by Australian medical practitioner Dr Federica Lamech. (See our interview with Dr Lamech on page 8.)

The electricity meters, dubbed 'smart' by the electricity industry, transmit information about electricity consumption to energy suppliers by radiofrequency radiation on a daily basis. Since 2006 almost 2.8 million smart meters have been installed in Victoria, the first Australian state to mandate the rollout. Many have been installed on bedroom walls, often directly behind, and just a short distance, from a bed.

In her study, Dr Lamech investigated responses to a website survey. 92 Victorians participated. Even though the subjects lived in different parts of the state and had no knowledge of each other or their experiences, they reported symptoms which showed a remarkable degree of similarity. Further, symptoms developed after exposure started and often improved when participants took action (such as shielding or moving away from the meters) to reduce their exposure.

The main symptoms were, in order of prevalence, insomnia, headaches, tinnitus, lethargy/fatigue, cognitive disturbances, dysesthesias and dizziness. These symptoms are consistent with the condition of electromagnetic hypersensitivity (EHS) and with symptoms reported by people exposed to radiofrequency radiation from other sources. 'Biological effects from nonionizing radiation are the same irrespective of the device that emits them,' Dr Lamech observed.

Most respondents (92%) did not report suffering from EHS before the smart meters were installed. Among those few who did, two reported that smart meter radiation had worsened their condition.

(Continued on page 6)

EHS recognition—nearly, but not yet

The European Economic and Social Committee (EESC), a consultative body of the European Union, has adopted an opinion on electromagnetic hypersensitivity (EHS). However, the final opinion, adopted on 21-22 January, is a far cry from the opinion developed by the Section for Transport, Energy, Infrastructure and the Information Society on 13 January and presented to the EESC for approval.

The 13 January version of the document states, 'The EESC advocates the adoption of protective and binding legislation that includes reducing and mitigating human exposure to electromagnetic fields.' It recognised EHS as a syndrome that could cause biological and functional problems and permanent disability and could seriously impact on quality of life.

It listed possible symptoms of EHS as, 'headaches, chronic fatigue, recurring infections, difficulties concentrating, memory loss, inexplicable unhappiness, dermatological symptoms, irritability or sleeplessness, heart problems, poor blood circulation, disorientation, nasal congestion, reduced libido, thyroid disorders, eye discomfort, tinnitus, increased need to urinate, listlessness, capillary fragility, cold hands and feet, and stiff muscles.'

The document also made a series of recommendations including:

- recognising the condition of EHS;
- including the ALARA (As Low as Reasonably Achievable) principle in EU legislation;
- introducing labels to advise of the presence of EMR, SARs and health risks;
- placing restrictions on advertising;
- conducting relevant research;
- preventing and managing workplace risks;
- educating the public about minimising exposure;
- developing exposure maps and safety thresholds.

"The EESC advocates the adoption of protective and binding legislation that includes reducing and mitigating human exposure to electromagnetic fields."

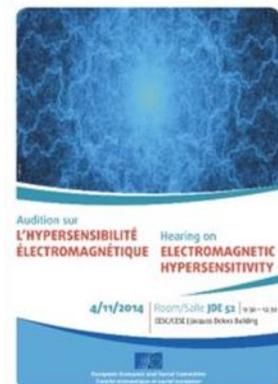
Prior to voting on the document, the EESC held a public hearing on EHS in Brussels on 21 January. The half day event heard speakers from various interest groups, including Professor Olle Johansson, who has researched and extensively written about the condition.

At the January 21-22 Plenary session, a counter opinion, introduced by member Richard Adams, was adopted by 136 votes to 110. This opinion states that 'The overwhelming medical and scientific opinion is that there is no conclusive evidence to link the wide range of symptoms described as EHS to electromagnetic or radiofrequency exposure (EMF).' It implies that sufferers have aversions to modern society.

It is relevant that Mr Adams may have a conflict of interests through his involvement with the charity Sustainability First and its work on behalf of smart grids.

In announcing the release of its opinion on EHS, the EESC called for 'sympathetic and appropriate treatment and support for this condition. It said, 'The EESC ... urges continuance of the precautionary principle through regulation and advisory work, particularly as further research is still needed to accumulate evidence concerning any potential health impact from long-term exposure.'

https://toad.eesc.europa.eu/ViewDoc.aspx?doc=ces%5cten%5cten559%5cES%5cEESC-2014-05117-00-00-AS-TRA_ES.doc&docid=3045930; <http://www.eesc.europa.eu/?i=portal.en.events-and-activities-electromagnetic-hypersensitivity>; <http://www.sustainabilityfirst.org.uk/projects.htm>; EESC press release, 23.1.15.



RESEARCH UPDATES

ELF fields (from electrical sources)

Proteins

Power-frequency fields affected proteins in a study from Iran. H Hasanzadeh and team exposed human neuroblastoma (cancer) cells to a very high 50 Hz magnetic field of 20 000 mG for three hours. They showed that exposure changed the expression of 189 proteins in the cells. (Hasanzadeh, H et al, *Iran J Cancer Prev* 7(1):22-7, 2014.)

Cell type differences

Why do some studies find that magnetic fields produce effects on organisms and others don't? One reason could be that different cell types respond to exposure differently, say researchers from Taiwan. C Huang and team exposed two different types of epidermal keratinocytes (cells in the outer skin layer) and observed they reacted differently. (Huang, CY et al, *PLoS One*, 9(11), Nov 2014.)

Stress

In a study from Iran, S Mahdavi and colleagues exposed rats to 1Hz and 5Hz signals and found that the different frequencies produced different effects on metabolism, hormones and stress behaviours. They also found that the time of exposure played a role in producing effects. (Mahdavi, SM et al, *Biomol Ther (Seoul)* 22(6):570-6, 2014.)

Other effects

- Rats exposed to magnetic fields had changes to levels of nitric oxide and neurotransmitters in different parts of their brains. (Chung, YH et al, *Korean J Physiol Pharmacol* 19(1):15-20, 2015.)
- Magnetic field exposure was found to be a risk factor for miscarriage. (Delabaere A et al, *J Gynecol Obstet Biol Reprod (Paris)* 6;43(10):764-775,

2014.)

- Exposure to magnetic fields was associated with increased rates of non specific physical symptoms. (Bolte, JF et al, *Environmental Pollution* 224-9, 2015.)
- Rats with kidney disease exposed to magnetic fields developed calcification in the cardiovascular system. (Shuvy, M et al, *Exp Toxicol Pathol* 66(7):345-50, 2014.)
- Leukemia cells exposed to magnetic fields showed changes to enzymes. (Patrino, A et al, *Life Sci*, Dec 11, 2014.)

RF/wireless radiation

Blood changes

Exposure to RF radiation had a deleterious effect on blood cells in research from Uzbekistan. G Khamidova examined the effects on 119 people of exposure to RF for up to 5, 10, 15, 20, 25 years and more than 25 years. She examined the status of blood platelets which are important indicators of thrombosis and atherosclerosis. Changes to platelets (hyper- and hypoaggregation) were observed in exposed subjects, with the greatest effects found on those who had been exposed for more than 25 years. 'The structure of the cell membrane is changed: the membrane is destroyed and intermolecular bonds are ruptured,' Dr Khamidova concluded. (Khamidova, GM, *Int J BioMedicine* 4(3):155-58, 2014.)

Base station symptoms

Living near a mobile phone base station was related to psychological and biological problems in Iran. Researchers collected information through questionnaires from 250 people living different distances from base stations. They found that people



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

living within 300 metres of a base station reported more symptoms than those living further away. Symptoms included nausea, headaches, dizziness, irritability, discomfort, nervousness, depression, sleep problems, memory problems and reduced libido. (Shahbazi-Gahrouei, D et al, *Electromagn Biol Med* 33(3):206-10, 2014.)

Postural problems

Using a mobile phone causes postural changes that, over time, can stress the spine, says a New York spine surgeon. K Hansraj used computer models to assess the effects on the spine of inclining the head forward at various angles to read and text on a smart phone. With good posture (ie upright head), the head weighs 4.5 to 5.4 kilos. The weight on the spine increases with the degree of head tilt—from 12 kilos at 15 degrees, 18 kilos at 30 degrees and 27 kilos at 60 degrees. People read and text on smart phones for approximately two hours a day or up to 1400 hours a year. This stress on the spine can lead to wear and tear, damage and possible surgery, Dr Hansraj said. (*Surg Technol Int* 25:277-9, Nov 2014.)

Parotid glands

Mobile phone radiation caused harmful changes to the parotid gland of rats in a study from Turkey. The animals were exposed to a 2100 MHz mobile phone signal for 6 hours a day for 5 days a week for either 10 or 40 days. The exposed animals had many harmful changes to the salivary glands and the changes were more pronounced in the animals exposed for the longer period. (Aydogan, F et al, *Am J Otolaryngol*, 36(1):39-46, Jan-Feb, 2015.)

Melanoma

FM transmissions may be responsible for melanomas, suggest scientists from Sweden and Germany. Ö Hallberg and colleagues found an exponential increase in melanoma rates in Estonia and Nordic countries and hypothesised that this is caused by exposure to FM radiation of approximately 100 MHz, a frequency which is effectively absorbed by the human body. They suggest that FM radiation should be taken into account as a possible cause of cancer. (Hallberg, Ö, *Electromagn Bio Med* 23.12.14 1-3.)

Synapses

Microwave radiation caused changes in the structure of synapses (involved in electrical signalling). Chinese scientists exposed rats to a microwave signals for ten minutes a day on three occasions and exposed PC 12 cells to a microwave signal for 5 minutes. They found changes in the structure of the hippocampus and PC12 cells, and other changes that they say were linked with 'impaired synaptic plasticity'. (Xiong, L et al, *Biomed Environ Sci*, 28(1):13-24, 2015.)

Heart

In a study from China, rats were exposed to microwave radiation at various intensities for up to 12 months. The researchers found a range of changes and concluded that exposure could cause structural damage of the sinatrial node which is involved in causing the heart to beat. (Liu, YQ et al, *Biomed Environ Sci*, 28(1):72-5, 2015.)

Smoking

Using a mobile phone may not be a good idea for smokers, suggest researchers from Turkey. The scientists exposed frog embryos to mobile phone signals of 900 and 1800 MHz for 4, 6 and 8 hours. They found that exposure to mobile phone radiation together with nicotine sulphate caused 'dramatic abnormalities and death' of embryos. (Boga, A et al, *Ecotoxicol Environ Saf* Dec 19, 2014.)

Stress

Indian scientists measured heat shock proteins (HSPs—stress proteins, responsible for repairing or eliminating proteins), heat shock protein gene expression and C-reactive protein (CRP—which deals with inflammation). They found that frequent mobile phone users had higher levels of all three than people who were infrequency phone users. (Balakrishnan, K et al, *J Environ Pathol Toxicol Oncol* 33 (4):339-47, 2014.)

Blood-brain barrier

Mobile phone radiation caused breaches of the blood-brain barrier (BBB) in rats in China. Researchers exposed the animals to a 900 MHz signal for 3 hours a day for up to 28 days. They found that exposure for 28 days caused permeability of the barrier,

(Continued on page 6)

People living within 300 metres of a base station reported more symptoms than those living further away



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Mobile phone radiation caused breaches of the blood-brain-barrier.

Council's phone advice

In late November the Greenbelt Maryland City Council in the US voted to inform residents about keeping mobile phones away from the body and to petition the Federal Government for improved radiation standards.

The Council's decision followed a 27 October petition by resident Theodora Scarato, who read the meeting a letter by the mother of Tiffany Frantz, a young woman who developed breast cancer after carrying her mobile phone in her bra for seven years.

The Councillors unanimously agreed to disseminate information that would help people reduce their exposure to mobile phone radiation. According to the minutes of the meeting, the 'Staff further recommends that the City make brochures available which encourage simple safety steps when using these devices. These brochures can be distributed at City events like the health fair and will help raise awareness about this issue.'

The meeting also agreed to write to Tom Wheeler, Chairman of the Federal Communications Commission requesting improvements to the country's radiation standards. 'The City encourages the Federal Communications Commission (FCC) to adopt radiation standards that will: protect children's health and safety, reflect current use patterns, and provide meaningful consumer disclosure of warnings,' says a draft letter from Mayor Emmett Jordan. 'Organisations such as the World Health Organization and the American Academy of Pediatrics have expressed these concerns and noted potential links to cancer. The concern is even greater for young children and women who are pregnant.'

(City Council Agenda, 24 November, 2014, <http://md-greenbelt.civicplus.com/AgendaCenter/ViewFile/Agenda/11242014-399?html=true> and Environmental Health Trust, <http://ehtrust.org/maryland-city-votes-unanimously-alert-citizens-health-risks-cell-phonewireless-radiation-oppose-cell-towers-school-grounds/>)

(Continued from page 2)

The survey found that people reported diverse and often dramatic effects on their lives. These included sleeping in different rooms, shielding the meter, reduced performance, going on a disability pension and even moving interstate.

The timing of exposure to smart meter radiation and the development of symptoms suggested a relationship between the two, the paper suggest. 'This finding suggested ... smart meter exposure leads people to reach a personal threshold beyond which adverse health effects are consciously perceived.'

Lamech, F, 'Self-Reporting of Symptom Development From Exposure to Radiofrequency Fields of Wireless Smart Meters in Victoria, Australia: A Case Series', *Altern Ther Health Med* 2014; 20 (6): 28 - 39, 2014.

A digital version of the article can be purchased at: <https://www.scribd.com/doc/249193352/Self-Reporting-of-Symptom-Development-From-Exposure-to-Radiofrequency-Fields-of-Wireless-Smart-Meters-in-Victoria-Australia-A-Case-Series>

potentially allowing harmful substances to enter the brain, and damaged spatial memory. (Tang, J et al, *Brain Res* Jan 15, 2015.)

Other studies showing effects from RF radiation

- Fruit flies exposed to a 900 MHz mobile phone signal lay less eggs than insects exposed to a 1880 MHz cordless phone. (Geronikolou, S et al, *PLoS One*, 9(11), 2014.)
- Male rats exposed to a 1.8 GHz mobile phone signal for 3 days showed stressful behaviours. (Júnior, LC et al, *Neurol Res* 36 (9), 2014.)
- Radiation from mobile phones carried in the pocket had harmful effects on sperm quality. (Agarwal, A and Durairajanayagam, D, *Asian J Androl* Nov 18, 2014.)
- Mobile phone and base station radiation adversely affected the growth of soybean seedlings. (Halgamuge, MN et al, *Bioelectromagnetics* 36(2):87-95, 2015.)

Techi Toddlers

Children under the age of five are using radiation-emitting digital devices for as much as 20 hours a week.

This startling finding was revealed in a study conducted by marketing research company Pulp Strategy Communications in India.

The study asked two thousand parents about their children's use of digital technology. All of the parents allowed their children to play with these devices—the majority played with their parents' devices, while about 12% had their own.

Children are also spending more and more time using apps, the study found. Of these, most were used for playing games and less than a quarter for learning.

Children are not only addicted to smart devices, but they are learning to use them before they can read, the study's author, Ambika Sharma told reports at Mid-day. (www.mid-day.com. 03.02.15.)

UPDATES FROM AROUND THE WORLD

Phone warning

The Cancer Association of South Africa (CANSA) has warned against children's use of wireless devices. CANSA's head of health, Professor Michael Herbst, said that his organisation supported warnings about the effects of radiation on children's heads and the limitations of international standards. He predicted that brain diseases may increase in the future. (<http://www.timeslive.co.za/thetimes/2014/12/11/cellphones-fry-young-brains>)

No smart phones

The Spanish region of Castilla-La Mancha has introduced legislation to ban smart phones in schools. The law aims to combat problems of phone use such as cyberbullying, cheating and interruptions in class. (*Guardian*, 25.11.14.)

Litigation

A man from Orange County in the US has filed a federal law suit after experiencing problems with his smart meter. Bill Metallo, a disabled war veteran, told WFTV Channel 9 that he suffered from skin problems and sleepless nights after his smart meter was installed by electrical utility OUC. Metallo asked OUC to replace the smart meter with a non-wireless analogue meter which they did—at an initial and ongoing cost. Metallo claims the fees are contrary to the Americans with Disabilities Act and has taken the matter to the federal court. (<http://www.wftv.com/news/news/local/man-claims-oucs-smart-meter-made-him-sick-files-fe/njKZc/>)

Signage

Suffolk County in the US has passed a law which will require county buildings to place notices advising people of the presence of devices that emit wireless radiation. The law was introduced by legislator William Spencer last year. (*Newsday*, 2.12.14.)

Phone precautions

A US oncologist has warned against

children's use of mobile phones. Speaking at a seminar in India, Dr MV Pillai, recommended precautions to protect children, whose skulls are thinner than adults, including the use of headphones. (*Times of India*, 16.01.15.)

Tasmania

The Tasmanian government is considering introducing 'smart' electricity meters to the state. In its draft 'Tasmanian Energy Strategy', the Government says, 'A smarter electricity network has the potential to significantly improve operational efficiency.' No mention is made of the health impacts of the radiation the meters emit. The document was open to public comment until February 15. (<http://www.stategrowth.tas.gov.au/energy/strategy>) EMR Australia's submission can be found on our website.

Taiwan's new law

The Taiwanese government has introduced legislation to reduce children's exposure to electronic devices. Passed in January, the legislation requires parents to refrain from letting children under two years of age play with any electronic devices. Further, parents are required to ensure that children under 18 years of age use the devices for no more than a 'reasonable' time period. Failure to comply carries a fine of over \$2000 AUD. (*Daily Mail*, 28.01.15.)

Compensation

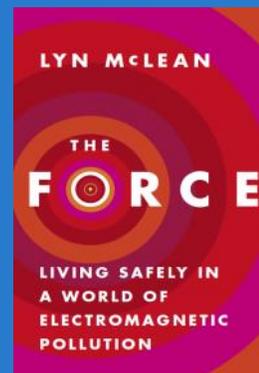
A Brazilian court has ordered Nokia to pay compensation to a telecommunications worker. The Paraná Regional Labor Court determined that there was evidence linking the worker's rare bone cancer with electromagnetic fields emitted by the base stations which he maintained—and which were not turned off during maintenance. Three of the worker's colleagues died from the same type of cancer. The court criticised the telecommunications company for not monitoring and preventing risks. (MRE Engenharian, 01.02.15.)

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 law ... will require county buildings to place notices advising people of the devices that emit wireless radiation."



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Interview with Dr Federica Lamech

Lyn McLean interviews Dr Lamech, author of the smart meter study (page 2).

1. What made you develop an interest in smart meters and health?

It was a local issue for me as a Victorian because this was the first state that mandated the rollout of smart meters. There were anecdotes in the media about people developing symptoms from smart meters and that piqued my curiosity. With my very long background in medical practice and teaching medical students at the Department of Community Medicine at Monash, I have always had a strong interest in public health issues. It seemed to me that this could represent an emerging public health issue for Victoria.

2. Do you think the symptoms are *caused* by smart meter radiation?

Yes, I do. The report shows that people from very different parts of Victoria, who couldn't have known each other, were reporting identical symptoms, mirror symptoms. I couldn't pinpoint anything geographical or seasonal that could offer an alternative explanation. What's not as clear in the study as it was to me reading the participants' reports, is that people appeared very clear on the time relationship between having a smart meter and the development of symptoms. People were quite certain of the relationship between that exposure and symptom development.

3. Do you think that electromagnetic hypersensitivity (EHS) is a real condition?

I do think that EHS is a real condition. I think, however, it is a purely physical condition and I don't think there is a psychological component. I think that any psychological issues or symptoms are



secondary to having the physical symptoms and having to cope with the consequences of having the condition. Participants did describe having secondary stress and depression as a result of having the condition.

Many people who have to live with the condition do develop true psychological anxiety and depression as a result of the changes it brings into their lives, but I don't believe that EHS, itself, has any psychological component.

That was looked at in a study on transmitter at Schwarzenberg in the 90s. It was found that there was no personality difference—no difference in anxiety about health—between people who developed symptoms and those who didn't. This is consistent with my belief that there is no psychological component of EHS.

4. What do you advise about accepting a smart meter on a person's property?

My advice would be they should try everything not to accept one.

Firstly, it is possible that they will develop acute symptoms – that is possible for anyone because, in my report, I found that only eight percent of the participants claimed to have EHS prior to exposure to the smart meter. So a person could be

quite well and using their smart phone and thinking it will never happen to them. But it may.

Secondly, the WHO has classified radiofrequency radiation—like that emitted by smart meters— as a Class 2B (possible) carcinogen. If we were asked to have our house sprayed with DDT [also a class 2B carcinogen] would we accept it? Or would we try everything we could to avoid that?

I don't think it can be said that smart meter radiation is safe in the long-term. There is still a huge question mark about it.

5. What do you advise governments considering the roll out of smart meters in other states?

My advice would be: don't.

First of all, the public health issues are too large, given the sheer number of people involved. Governments could be imposing what could be a public health problem on the entire population. Much more proper research needs to be undertaken before any real statements can be made by governments on the safety of these meters.

Secondly, what real advantage is smart meter technology to electricity consumers? The Victorian experiment hasn't really shown that it has brought them any real advantages. Instead, there are huge cost issues. Smart meters are very expensive to install and maintain because they need a wireless infrastructure, which means the establishment of transmissions towers, transmission points, software, IT engineers. And smart meters, as opposed to non-wireless meters, need to be changed quite often because they have a finite life span. From what I've read, they're meant to last about five years and

it's a huge cost to replace them that often.

I would caution states which haven't rolled the meters out yet to look at what's happened in Victoria and be very careful.

One of the main reasons why the Victorian Government said the meters were being rolled out was to introduce time of use tariffs. However, a recent article in the Herald-Sun said the take-up of time of use tariffs has been absolutely minimal – only 6000 people have picked it up in the whole state.

6. Do you have any stories to share with us?

These stories are not from the report but are about people that I have met personally.

The first is about a young man in his twenties, really hip, good looking, well-educated, not likely to even worry about things like smart meters. He started to become severely ill at work—giddy, disoriented, quite pale, and with what he described as 'kidney pain'. He had to leave work but once he was home, he felt better. (He didn't have a smart meter at home.) He had medical tests but nothing was found. Eventually he discovered there was a smart meter at work *inside* the room he worked in. He discovered that *after* his symptoms developed and that excludes any psychological component for them. As far as I know, he's remained EHS ever since.

The second is about a young woman from the inner city, living with her partner. She developed severe symptoms: complete inability to sleep and palpitations so severe she was rushed to the emergency department twice with heart arrhythmia. She found, if she went camping, she could sleep and eventually traced her problems to the smart meter. The sad thing is that her relationship fell apart because of the stresses of her reactions and she has moved to a remote location interstate.

Technology and the brain

Are you a technology function hopper?

Perhaps you look up something on the internet, check your emails, post on Facebook, send an SMS, make a call—then repeat the process over and over again.

Most of us skip from task to task in an attempt to juggle the plethora of messages we receive each day, congratulating ourselves on our ability to multitask. However, multitasking isn't really good for us, says Daniel J Levitan in his new book, 'The Organized Mind: Thinking Straight in the Age of Information Overload'.

Rather than making us more efficient, multitasking actually reduces our efficiency. It increases levels of several stress hormones that prepare the body for fight and flight by increasing our capacity for physical action at the expense of mental function. Research has shown, for example, that even knowing that an email sits unopened in a person's inbox, reduces their concentration on a task by ten IQ points.

Each time a person responds to a message, Levitan says, the body's innate reward system is activated, sending hormones of pleasure coursing through the brain. The more we send and open messages, the better we feel and so we do it again and again and again in a spiral of addiction.

Moreover, Levitan shows that switching from task to task uses more energy than focusing on a single task at a time. No wonder so many people feel tired at the end of the work day!

'Organized Mind: Thinking Straight in the Age of Information Overload' by Daniel J Levitan is published by Viking (*Guardian* 18.01.15.)

EMF and spring coil beds

Sleeping on a spring coil mattress could be a health risk, according to a new study from Europe.

To test their hypothesis that breast cancer is related to sleep on a metal coil mattress, researchers from Sweden and Finland investigated the relationship between cancer incidence, sleep duration and the use of these mattresses in four countries. They found that people in western countries who slept for more than 7.5 hours a night had higher rates of breast cancer and general mortality. However, that was not the case in Japan, where spring coil mattresses are not generally used and where long sleep times were linked with lower risks of breast and prostate cancer.

The authors also measured electric fields from FM signals above beds with and without metal coil mattresses. They found that, above metal coil beds, fields were low close to the surface of a mattress, but increased with distance from it. (This was not the case for beds without metal coil mattresses.) They suggest that, because most people sleep for longer on the right side of their body, sleepers would be exposed to higher fields on the left side, where most breast cancers are, in fact, found.

'These measurements show clearly that a metal spring mattress is capable of changing electromagnetic fields and creating new standing waves which may disturb the immune system and be harmful to health,' the authors said. If that is the case, changing mattress type, could reduce the incidence of the disease. (Hallberg Ö, Huttunen P, Johansson O, 'Cancer incidence vs. population average sleep duration on spring mattresses,' *Adv Stud Med Sci* ; 2: 1-15, 2014.)

Netbrain?

Heavy use of the internet is not only changing people's brains, but their personalities as well. According to the latest research, people are developing increased levels of narcissism, poor attention span and a fear of missing out in a new technology-related disorder dubbed NetBrain.

The disorder was co-discovered by Professor Tomas Chamorro Premuzic, a psychologist from University College London, by analysing the internet activities of a thousand subjects. He found that the disorder is potentially affecting about six million people in the UK alone.

Netbrain, the study found, is more likely to occur in people who are passionate and uninhibited. It is also considerably more likely to be found in people who use smart phones.

People with the disorder are more than usually likely to allow work to intrude in their private lives and to show antisocial use of digital media.

At the present time, internet addiction is thought to affect about 180 million people worldwide.

Daily Mail 09.01.15

Chemical sensitivity

Multiple chemical sensitivity (MCS) has long been associated with electromagnetic hypersensitivity (EHS). Not only do sufferers of MCS often develop EHS, but the reverse is also the case. In fact, chemical sensitivity is extremely common among people affected by electromagnetic radiation and reducing sensitivity to chemicals often improves symptoms of EHS.

On 15 January, the Association for Environmental and Chronic Toxic Injury, AMICA, released a resolution on 'The Consensus on MCS therapies and prevention strategies'. Known as the Rome Resolution, the document was signed by medical practitioners, researchers and specialists at the conference 'MCS Therapies and Prevention'.

The resolutions states that:

- 'MCS is a physiological illness that is characterized by chemical sensitivity and the presence of symptoms in multiple organ systems.
- 'In MCS there are several physiological changes, including oxidative/nitrosative stress, inflammation, immunological and neurological dysfunctions.
- 'MCS needs a multi-disciplinary care approach that is useful also for the management of other chronic diseases linked to the environment...'

The resolution says that people with MCS need to avoid exposure to chemicals and that the workplace needs to support them in these efforts.

The Association's website can be found at: www.infoamica.it

Wireless and sleep

Teenagers' heavy use of electronic devices is interfering with their sleep, according to recent studies from Australia and Norway.

In Australia, researchers from the University of Sydney conducted the nation-wide Big Sleep Survey of teenagers aged between 11 and 17.¹

They found that nearly three quarters of the teens surveyed had at least two electronic devices in their bedrooms at night and nearly half the teens used them several nights a week. Those who used these devices at night tended to go to sleep later and wake up later.

'This pattern of results is consistent with night-time technology use having deleterious effects on both the sleep and circadian systems, potentially impacting on psychological and physical well-being,' the authors said.

A Norwegian study, published in February, looked at the sleeping and technology habits of nearly ten thousand teens aged 16 to 19. They found that teenagers spent a great deal of time using screen-based technologies and the more time they spent using them, the worse they slept.²

Teenagers should avoid having screen-based technologies in their bedrooms at night and should be logged off an hour before bedtime, said Dr Mari Hysing, one of the study's authors.

1. Gamble, AL et al, *PLoS One*, 9 (11):e111700, Nov 2014;
2. Hysing, M et al, *BMJ Open* 5 (1):2015.

WATT'S THE BUZZ?

Power problems

What's causing Australia's high electricity prices? In a submission to the Senate inquiry into the performance and management of electricity network companies, former analyst, Bruce Robertson, strongly criticises the industry. He argues that companies are artificially inflating the cost of their assets—poles and wires—in order to charge consumers more money for their services. He also says that, while other industries are more productive now than in the past, the productivity of electricity companies has fallen 25% since 1995. The result is, he said, high electricity costs that affect all levels of society and people unable to afford their electricity bills. (*SMH*, 27-8.12.14.)

Environmental sensitivities symposium

Lyn McLean, Editor of *EMR and Health*, will be speaking about electromagnetic radiation at the Environmental Sensitivities Symposium starting in March. See page 12 for details.



Just bad luck?

Bad luck cancer may be—but is that all? The International Agency for Research on Cancer (IARC), a division of the WHO, has criticised a study which claims that random mutations—or bad luck—are the 'major contributors' to cancer. The study, by Tomasetti and Vogelstein, was published in the journal *Science* in January. In its criticism, the IARC identified a number of limitations of the study and said that 'some of the most frequent cancers worldwide ... [are] known to be associated with infections or lifestyle and environmental factors. Nearly half of all cancer cases worldwide can be prevented,' the IARC said. (IARC Press release no 231, 13.1.15)

Harassment

Use of mobile phones for harassment is alive and well in Nigeria. A survey of junior secondary school students showed that students were receiving abuse, ridicule, and subjected to rumours and solicitations for relationships and even sex. (Olumide, AO et al, *J Adolesc* 39C, 24 Dec, 2014.)

Beauty risk

Could your mobile phone or tablet be giving you wrinkles?

Dr Christopher Rowland Payne, a Dermatologist from The London Clinic thinks so. He said that younger women have been developing what he calls 'tech-neck' - wrinkles and sagging of jowls and neck that otherwise don't develop till late middle age.

Those most at risk are women who have multiple digital devices and look

at them up to 150 times a day, he found.

So prevalent is the condition, that one cosmetics manufacturer is developing a cream to target the problem. (*Telegraph* UK, 12.01.15.)

Brain changes

Using mobile phones is changing the behaviour of our brains. Scientists measured the electrical signals of the brain while volunteers were using their phones and found changes in response that were greater for smart phone users. (*BBC News online* 23.12.14.)

Smart move

Thousands of smart meters are being replaced in Ontario, Canada because of fire risk concerns. The Electrical Safety Authority (ESA) made the announcement after eight fires were linked to the Sensus 3.3 smart meter. Approximately 5,400 meters are expected to be replaced. (*thestar.com*,



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MCS/electromagnetic hypersensitivity book

This is an unforgettable story of multiple chemical sensitivity—and so much more.

In the 1970s Diana Crumpler, well educated and highly intelligent, was a healthy and active farming wife and mother of two young children. She and her husband had purchased their wheat and cattle property to live what should have been an idyllic lifestyle in the country. However, dream turned to nightmare when the entire family became poisoned by pesticides.

Diana developed multiple chemical sensitivity (MCS) and, ultimately, EHS. Riddled with pain, exquisitely sensitive to man-made radiation, intolerant of light, she became a virtual recluse. 'EHS, she said, 'is the most soul-destroying and isolating of all contemporary illnesses.'

However, worse was to come. Diana was kidnapped—her home broken into, she was forcibly removed from it—not by lawbreakers or terrorists, but by policemen, paramedics and psychiatric nurses. Diana was taken to hospital, given over to the

care of a psychiatrist and treated in a degrading and inhumane manner.

The reason for her incarceration: her belief in MCS and EHS.

In her new book 'Prostituting Science', Diana describes her extraordinary story—her descent into hell, and how she has coped with it and the unwillingness of Australian authorities to either listen or help.

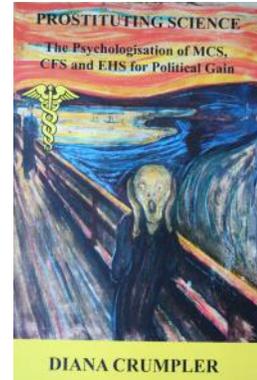
But her book contains so much more. Diana provides evidence that MCS, EHS, chronic fatigue and fibromyalgia are real and related conditions and suggests mechanisms that can account for them.

The book discusses the huge impact of chemical exposures on society and their link to conditions like Alzheimer's, allergies, autism, birth and fertility problems.

And it looks at how and why our society has closed its ears to this truth.

'Prostituting Science, the psychologisation of MCS, CFS and EHS for political gain' by Diana Crumpler, 278 pages. Cost: \$25 plus \$7.50 p & h.

The book is available from Inkling Australia, PO Box 422, Maryborough Vic 3465.



'EHS is the most soul-destroying and isolating of all contemporary illnesses.'



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