

EMR and Health

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Tumour or not tumour?

- that is the question that scientists have asked in a study investigating a connection between brain tumour rates and mobile phone use in Australia.

A controversial new paper claims that there is no evidence of increased brain tumour rates correlated to mobile phone use in Australia.

The paper, by Sydney University's Professor Simon Chapman, compared brain tumour incidence and mobile phone use from 1982 to 2012. 'After nearly 30 years of mobile phone use in Australia among millions of people, there is no evidence of any rise in age group that could be plausibly attributed to mobile phones,' the authors said.

The authors did not obtain information about individuals' use of mobile phones. Instead, they obtained data on the number of mobile phone accounts in existence and estimated use where data was missing. They assumed that if brain tumours appeared ten years after exposures and if mobile phone use increased brain tumour risks by 50%, then there would be a higher rate of cancers than they found in the data of the Australian Institute of Health Welfare.

'In the 25 years since the rapid and widespread adoption of mobile phones in Australia, the incidence of brain cancer has not risen in any age group other than those aged 70 to 84 years of age,' the authors wrote.

The Chapman study took a different approach to assessing exposure to mobile phone radiation than that taken by other investigators. It did this by investigating and



Credit: iStockphoto/Luis Pedrosa

estimating the number of phone accounts. It is not entirely certain how good an approximation of exposure this is. Additionally, the paper considered data on brain cancers in every part of the brain, not just those close to the position in which the mobile phone is held—the frontal and temporal lobes and cerebellum.

Not surprisingly, the Australian Mobile Telecommunications Association (AMTA) was quick to report, 'No increase in brain cancer across 29 years of mobile phone use in Australia'.

But other experts are sceptical.

Professor Devra Davis says there are several reasons not to exonerate mobile phone radiation.

First, she says that not all brain cancers are linked with mobile phone use. 'Gliomas are the type of brain cancer tied with cell phone use and constitute about 30% of all brain cancers. These cell-phone-related cancers are increased in Australia and in the US in precisely those parts of the brain that absorb most of the microwave radiation emitted or received by phones.'

Secondly, she says that, 'the lag between when an exposure takes place and evidence

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Low level fields can cause health problems

Distinguished US scientists have shown how long-term exposure to weak fields can cause health problems.

International guidelines for radiation exposure have been designed to protect against a limited number of problems occurring over minutes, with the addition of a safety factor. Yet very much lower fields may be causing health problems such as cancer and Alzheimers, say Frank Barnes and Ben Greenebaum, writing in the March issue of IEEE Power Electronics Magazine.

Barnes, an engineer, is a Professor Emeritus at the University of Colorado. Greenebaum, a physicist, is Professor Emeritus at the University of Wisconsin-Parkside and former editor of *Bioelectromagnetics*.

In their paper, they present a theory and supporting evidence to demonstrate just how these effects could occur.

The authors suggest that static, magnetic and radiofrequency fields change concentrations of radicals. Radicals are molecules with an unpaired electron in their orbit that makes them highly reactive and they include nitric oxide, superoxide and hydrogen peroxide. Electromagnetic fields affect the spin of these radicals. The authors demonstrate diagrammatically how this occurs and refer to studies which show these effects.

Changes to radicals can have wide-reaching effects on the body because radicals perform a diverse range of activities. They act as signaling molecules, transmitting information between cells; they attack pathogens; they reduce muscular tension; they activate the macrophages of the immune cells that mop up debris; they modify sodium, calcium and potassium ion channels and they affect phosphorylation (which regulates proteins) of many molecules. High radical concentration over a long period is associated with ageing, cancer and Alzheimer's disease.

'We think that there are now both the theoretical bases and sufficient experimental results for further consideration of the possibility that long-term exposures to magnetic fields can lead to both useful applications in treating diseases and to undesired health effects,' the authors wrote. They suggested that these effects would depend on frequency, amplitude and time of exposure as well as the state of the body.

(Barnes, F and Greenebaum, B, 'Some Effects of Weak Magnetic Fields on Biological Systems: RF fields can change radical concentrations and cancer cell growth rates', *IEEE Power Electronics Magazine*, March 2016.)

'We think that there are now both the theoretical bases and sufficient experimental results for further consideration of the possibility that long-term exposures to magnetic fields can lead to both useful applications in treating diseases and to undesired health effects,'

Unions call for WiFi bans

Two Canadian teacher unions have called for a ban on WiFi in schools, based on their concerns about the health effects of the WiFi radiation.

The Ontario Secondary School Teachers Federation (OSSTF) has taken its concerns to trustees of the Limestone School District. District President Andrea Loken told CKNWS News on 10 March that there are 'thousands of published, peer-reviewed papers' showing harmful effects from wireless radiation. She said that France, Italy and Israel are already taking steps to ban WiFi in schools and day care centres.

The Limestone District School Board responded, saying that 'Providing safe and appropriate places to learn and work is a priority' and that 'Trustees understand and are sensitive to the safety concerns some community members have regarding use of Wi-Fi in schools.'

The Elementary Teachers Federation of Ontario is also concerned about the use of WiFi in schools and a representative told CKNWS News that some teachers suffer from electromagnetic hypersensitivity—symptoms that develop after exposure to wireless radiation.

Individual schools have taken action to refuse, remove or limit WiFi in a number of countries, including Australia, New Zealand, Canada, USA, France, Finland, Switzerland, Italy and Belgium.

CKNWS News, 10 March, 2016; <http://ehtrust.org/policy/schools-unions-and-pta-actions>

of a disease occurs depends on two factors: how many people were in fact exposed and how extensive their exposure has been. While cell phones have been around since the 1990s, they have only lately become essential components of modern life. Proportionally few Australians were heavy users of cell phones thirty years ago.’³

Whereas the Chapman study found no increased rate in brain tumours in Australia, a contrary outcome was reported by brain surgeon Dr Vini Khurana and team (Dobes et al). In their 2011 study, they compiled information from databases operating in NSW and the ACT for information about brain tumours diagnosed from January 2000 to December 2008. They reported that, ‘A significant increase in primary malignant brain tumors from 2000 to 2008 was observed.’⁴

‘Chapman’s citation of the Dobes et al (2011) paper was not only biased, it omitted some key findings that contradicted his position,’ says Dr Joel M. Moskowitz, Director of the Center for Family and Community Health at the University of California. ‘He failed to mention that Dobes et al reported a significant increase in meningioma in all males and in males 20-64 years of age. Further, they actually reported an overall significant increase in glioblastomas (the most serious and most common form of brain cancer), as well as in the 65+ age group.’

“people who had used a mobile phone for 25 years or more had three times the expected rate of gliomas”

Another Australian brain surgeon who has reported an observed increase in brain tumours is Dr Charlie Teo. He has been often-quoted in the media as reporting an increase in brain tumours, especially among young people. ‘It’s increasing in frequency both in this country and developing countries and it used to be ranked out of the top 10 but it’s just joined the top 10 most common cancers,’ he said back in 2009.⁵

Three major research efforts have found a link between mobile phone use and increased rates of brain tumours.

The first of these is the 13-country Interphone study conducted by the WHO. It found no overall risk increase among people who used mobile phones for one call a week for six months or more. However, it did find an increased rate of glioma, meningioma and acoustic neuroma brain tumours among long-term and/or heavy mobile phone users.⁶

Similar increases were found in the CERENAT brain tumour study conducted in France. Once again, heavy and long-term users were found to have higher rates of glioma and meningioma tumours. People who used mobile phones for 896 hours or more had nearly treble the rate of gliomas and just over two and a half times the expected rate for meningiomas. Risks were higher in the temporal area of the brain, close to where the mobile phone was positioned during calls.⁷

Further evidence for increased brain tumour risks for mobile and cordless phone use comes from a series of studies conducted by Professor Lennart Hardell and his team from Örebro University Hospital in Sweden. In 2015 Hardell reported that people who had used a mobile phone for 25 years or more had three times the expected rate of gliomas and those who’d used a cordless phone for 15 to 20 years had 70% more gliomas than expected. Of particular concern was the fact that people who began using a wireless phone before the age of 20 had higher glioma risks than people who began using a mobile or cordless phone at a later age.⁸

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‘Cell Phones, Wireless And Children’s Health Symposium’, 2016 Pediatric Academic Societies

This important conference, organised by the Environmental Health Trust, brought together scientists with vital information for every child and parent.

You can see more about the conference, and online support materials at: <http://ehtrust.org/science/key-scientific-lectures/cell-phones-wireless-childrens-health-symposium-2016-pediatric-societies/>

Genetic damage

Mobile phone radiation may cause genetic damage that is a risk factor for cancer, according to a new study from India.

The researchers classified volunteers into two categories of mobile phone users: the low-use group, which had used a mobile phone for less than five years and less than three hours a week, and the high-use group, which had used their phone for more than five years and more than ten hours a week.

From each volunteer, they took samples of cells from the inside of the mouth, and examined the incidence of micronucleated cells—which are indicators of chromosomal damage.

The scientists found that the volunteers in the high-use group had more micronucleated cells—that is, more genetic damage, than the low-use group. They concluded that longer-duration exposure to mobile phone radiation can be genotoxic and suggested that exposure could be diminished with the use of headsets.

(Banerjee, S et al, Analysis of the Genotoxic Effects of Mobile Phone Radiation using Buccal Micronucleus Assay: A Comparative Evaluation’, *J Clin Diagn Res* 10(3), March, 2016.)

RESEARCH UPDATES

ELF fields (from electrical sources)

Brain damage

Power-frequency electric fields could have harmful effects on the brain, say scientists from Turkey. The researchers compared three groups of rats—those exposed prenatally, postnatally and both pre-and postnatally—with unexposed controls. They found that the brain tissue of all exposed animals had increased levels of oxidative damage. Akpinar, D et al, *Electromagn Biol Med* April 12, 2016.)

Signal pathways

A similar experiment by some of the same authors tested the effects of power-frequency electric fields on sensory and visual signal pathways. They again compared unexposed rats with those exposed to electric fields prenatally, postnatally and pre-and postnatally. They found evidence of lipid peroxidation in exposed animals in the retina and brain. (Gok, DK et al, *Electromagn Biol Med* 35 (1): 65-74, 2016.)

Leukemia

A research project involving scientists from eight countries has strengthened the link between electromagnetic fields and childhood leukemia. Experiments with mice were conducted by the Advanced Research on Interaction Mechanisms of electroMagnetic exposures with Organisms for Risk Assessment (ARIMMORA) project. The researchers' findings were consistent with previous conclusions that these fields may be possibly carcinogenic to humans. (Schüz, J et al, *Bioelectromagnetics* March 15, 2016.)

Depression

Do power-frequency magnetic fields contribute to depression? To help answer that question, researchers from Japan studied cells from the adrenal cortex of

mice and humans. They found that exposure stimulated the production of steroids in mouse cells but less so in human cells, which could contribute to depression and the researchers described the mechanism by which that occurred. (Kitaoka, K et al, *PLoS One*, 11(4), Apr 21, 2016.)

Fertility

Does exposure to magnetic fields affect female fertility? To help answer this question, scientists from Iran exposed two groups of female rats to a 50 Hz field for various lengths of time. They found that exposure during embryonic development caused changes in oocytes (immature eggs) that could contribute to infertility or reduced fertility. (Ahmadi, SS et al, *Electron Physician* 8(3):2168-74, 2016.)

RF/wireless radiation

Salivary gland tumours

Mobile phone use has been once again linked with salivary gland tumours in a small study from Saudi Arabia. Patients with parotid gland tumours were more than three times as likely to be exposed to mobile phone radiation as those without the tumours. The author found the association between the tumours and mobile phone use of more than one hour a day. (Al-Qahtani, K, *Gulf J Oncolog* 1 (20):71-8, 2016.)

Female fertility

Female fertility could be affected by mobile phone radiation, according to a study from Turkey. The researchers exposed pregnant rats to a 900 MHz mobile phone signal for an hour a day for nine days during pregnancy. They found that the female offspring had decreased numbers of ovarian follicles, from which eggs are released for fertilisation. (Türedi, S et al, *Int J Radiat Biol* Mar 23:1-9, 2016.)



'The brain tissue of exposed animals had increased levels of oxidative damage.'

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

Fertility

Another team from Turkey examined the effects of GSM-mobile phone radiation on the offspring of adult frogs. The longer the exposure of the frogs, the greater the percentage of abnormal and dead embryos. The researchers also observed that the offspring of exposed females behaved more aggressively than the offspring of the unexposed controls. (Boga, A et al, *Ecotoxicol Environ Saf* Mar 24:129:137-44, 2016.)

More on male fertility

M Radwin and team studied a group of 286 men attending an infertility clinic, who had normal or slightly reduced semen concentration levels. They found that men who used a mobile phone for more than ten years had DNA damage which could reduce their ability to father children. Other factors that contributed to DNA damage in the study were age, obesity and occupational stress. (Radwan, M et al, *Int J Impotence Res*, 14 Apr 2016.)

Phone towers

Could living near a mobile phone base station pose a risk to health? To answer this question, researchers from India studied subjects living close to a base station were compared with those living further away. Those who lived close complained of sleep and concentration problems, headaches, dizziness, irritability and hypertension. They also had lower salivary gland secretions. Long-term effects on public health can't be ruled out, the researchers said. (Singh, K et al, *J Int Soc Prev Community Dent* 6(1):54-9, 2016.)

Sleep

Yet another study has found a link between heavy mobile phone use and sleep problems. In this study, Iranian researchers investigated mobile phone habits and sleep quality of 380 university students. They found that overuse of the internet, particularly for social networking, was associated with poor sleep quality and quantity. (Mohammadbeigi, A et al, *J Res Health Sci*, 16(1):46-50, 2016.)

Immunity

Mobile phone radiation could affect immunity, according to researchers.

Scientists collect blood samples from 16 healthy volunteers, which they exposed to a radiation from a smartphone for 30 minutes. The scientists found that exposed blood showed decreased parameters of neutrophils—white blood cells that are important for immunity. (Lippi, G et al, *Clin Chem Lab Med*, Feb 12, 2016.)

Autism

A mother's exposure to electromagnetic radiation may contribute to the risk of autism in her offspring, say researchers from Iran. Exposure of foetuses and young children to mercury has been linked to autism spectrum disorders, ADHD and neurological problems. Additionally, exposure to mobile phones or MRIs can increase the release of mercury from dental amalgams. Thus, say the authors, the EMR exposure of women with dental amalgams may elevate their mercury levels and increase autism in their children. (Mortazavi, G et al, *J Biomed Phys Eng*, 6 (1):41-6, 2016.)

Plants

Wireless radiation affects plants, according to researchers from France. The scientists observed a considerable range of effects in exposed plants, including effects on metabolism, gene expression and reduced growth. Effects occurred at low (athermal) levels of exposure and were observed in tissues directly exposed as well as those further away from the source. (Vian, A et al, *Biomed Res Int*, 2016.)

Control

What impact does mobile technology have on gratification and impulse control? To answer this question, scientists from Temple University in the US recruited 91 university students who underwent cognitive tests and answered a questionnaire. The researchers found that heavy mobile phone use was related to a need for instant gratification and more impulsive behaviour. 'Habits, such as frequent checking, are driven most strongly by uncontrolled impulses,' the authors wrote. (Wilmer, H H and Chein, J M, *Psychon Bull Rev*, DOI 10.3758/s13423-016-1011-z)

Bone development

Exposure to wireless radiation of 1800 MHz had a harmful effect on the development of

(Continued on page 6)

'A mother's exposure to electromagnetic radiation may contribute to the risk of autism in her offspring.'



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"Mobile phone use has been linked with salivary gland tumours"

Learning problems

Reliance on screen-based educational tools may be hindering our children's ability to learn.

Professor Geoff Kaufman, from Carnegie Mellon University in the US, conducted a study to see whether students learned more effectively when information was presented on paper or on a screen. He presented 300 volunteers aged 20 to 24 with a number of tests. Some of them were presented on paper and some on screen, using the identical size and format.

He found that students generally performed better when the information was presented on paper. In a comprehension test, the print readers had a better understanding of the overall story, whereas the screen-readers tended to better recall minor details. Screen-readers scored better on concrete questions, but print readers scored better on questions involving abstract thinking. Print-readers also scored better in an evaluation test.

The results of the study were presented at the Association for Computing Machinery Computer-Human Interaction 2016 conference in May.

The results come at a time when most schools are moving to screen-based learning platforms.

(*Mirror*, <http://www.msn.com/en-gb/news/indepth/smartphones-and-ipads-change-how-the-human-brain-works-and-are-destroying-our-memories/ar-BBsOjtm?li=BBBoPOOL&ocid=mailsignoutmd>)

(Continued from page 5)

bones and muscles of rats. The scientists exposed rats prenatally to either six, 12 or 25 hours of radiation a day for 20 days. They found that exposure had harmful effects on the growth of several bones, including the femur, tibia and ulna. (Erkut, A et al, *Acta Cir Bras* 31 (2):74-83, 2016.)

Blood damage

Radiation from a smart phone had a deleterious effect on blood platelets in a study from Italy. Researchers exposed blood samples from 16 healthy volunteers to 30-minutes of radiation from a smart phone operating at 900 MHz (at a 1 cm distance). Exposed blood showed changes to platelet structure and function and the scientists recommended that blood products be kept away from smart phones. (Lippi, G et al, *Blood Transfus* May 6:1-5, 2016.)

Other studies showing effects from RF radiation

- Mobile phone use affected heart rate variability in health humans. (Ekici, B et al *Anatol J Cardiol*, 7 Apr, 2016.)

Autoimmune disease

Wireless radiation could be contributing to the symptoms of autoimmune disease, says Professor Trevor Marshall.

In his presentation the 10th International Congress on Autoimmunity in Leipzig on April 7, Professor Marshall referred to conditions of Fibromyalgia and Chronic Fatigue Syndrome, from which many people with electromagnetic hypersensitivity suffer. According to Professor Martin Pall, these three conditions may have a common mechanism of action.

Professor Marshall explained that the receptor for Vitamin D (VDR) is affected by wireless radiation at 6 GHz. In an experiment, he asked people with autoimmune diseases to wear a shielded cap for some hours as they slept and during the day. The cap was made of shielding material containing a silver thread which blocked wireless radiation to the head and lymph nodes. Many of those who took part in the experiment reported improvement of their symptoms.

Medical practitioners treating people with autoimmune disease need to take the wireless environments of their patients into consideration, Professor Marshall advised.

EMF Appeal update

On 11 May, 191 scientists from 39 countries round the world submitted an appeal to the UN and WHO known as the 'EMF Scientists Appeal'. The signatories expressed concerns about the risks of wireless radiation and called on the authorities to implement stricter standards, protect children and pregnant women, educate medical professionals and inform the general public about this radiation.

In April 2016, the number of scientists endorsing the appeal has risen to 220 from 41 nations.

(<https://www.emfscientist.org>)



THE FORCE

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

www.emraustralia.com.au

UPDATES FROM AROUND THE WORLD

Sweden

A Swedish political party is calling for a ban on smart phones and tablets in preschools. Spokesperson of the right-wing Moderaterna party, Britta Lindgren, said that young children are particularly vulnerable to radiation and should not even be exposed to radiation from the wireless devices used by staff. (*Sydostran*, 30.03.2016.)

Italy

The Italian Society of Preventative and Social Pediatricians has called for a ban on mobile phone use among children under ten years of age. The doctors say that mobile phone use is contributing to concentration and memory problems, learning problems, reduced sleep and increased aggression. They are also concerned that intensive mobile phone use causes addiction and anti-social behaviour that could lead children to become socially isolated. (*Il Tirreno Toscana*, 14.01.16.)

Israel

WiFi computer networks are to be disconnected in schools and kindergartens in Haifa, Israel's third largest city. Wired computer networks will take their place. The order to disconnect the WiFi came from the city's mayor Yona Yahav and Head of the Education Department, Ilana Truck and was based on concerns about the potential risks to children's health.

Haifa is planning a conference on mobile phone and WiFi radiation in May that will discuss the development of a policy for mobile phone use in schools. ('Local', 18.04.16; <http://www.local.co.il/haifa/134582/Article/>)

However, according to a correspondent from Israel, the present reality may fall short of the situation described in the Israeli report.

Argentina

Proposed legislation in Argentina aims to reduce public exposure to wireless radiation from mobile phones, base stations and WiFi.

The bill, introduced by Deputy Gabriela Troiano, aims to protect people from both the heating and biological effects of wireless radiation and follows widespread public outcries against electromagnetic pollution.

It proposes:

- to limit emissions from digital mobile phone base stations to 0.1 uW/cm²;
- to keep mobile base stations at least 100 metres from residences;
- to prohibit the installation of wireless transmitters and EMF-emitting equipment within 100 metres of parks, health, educational, sporting and cultural facilities
- to require wired, rather than wireless, internet in educational and health facilities;
- to require all mobile phones to be sold with information about emissions, a health warning and an accessory to reduce exposure.

The bill has strong support from unions, NGOs and local resident groups.

A translation of the article in El Nuevo Cronista can be found at: https://translate.google.com/translate?sl=es&tl=en&js=y&prev=_t&hl=en&ie=UTF-8&u=http://www.nuevocronista.com/argentina-busca-una-ley-nacional-contr-la-contaminacion-electromagnetica/&edit-text=

Poland

The Ministry of Digitalisation plans to introduce legislation to control the impacts of electromagnetic radiation on people. It will conduct a series of discussions, with

stakeholders and plans to give the community a greater voice regarding the location of new base stations. (*Telecompaper*, 22.04.16.)

Spain

Spain has recognised Multiple Chemical Sensitivity (MCS) as a disease by incorporating it in the latest edition of its International Classification of Diseases (ICD), published 1 January.

MCS affects many people with electromagnetic hypersensitivity and the two conditions may have a common pathology, according to Professor Martin Pall.

The classification is hoped to facilitate better research and physician awareness about the condition. (Press release, 01.05.16, <http://www.sensibilidadquimicamultiple.org/2016/05/mcs-in-icd10es-press-release.html>)

Cyprus

The Cyprus National Committee on Environment and Children's Health has released a short video recommending people reduce exposure to electromagnetic radiation, particularly children.

'The recommendations of scientists, educators and doctors is to reduce radiation exposure to children from electronics: mobile phones, tablets with internet connections especially at home and school,' the video says.

The video, with English subtitles, is available at <https://www.youtube.com/watch?v=H43lKNjTvRM>



Cellraid—mobile phone app for exposure information

Finnish start-up company, Cellraid has developed a unique application to help mobile phone users understand more about their exposure to wireless radiation.

According to Cellraid's CEO, Pasi Ala-Mieto, 'Our development is not only good news for Cellraid, but also for five billion cellphone users, telecom operators, phone manufacturers and telecom authorities—all of whom could benefit from our discovery of how to make cellphone use less risky, especially for the younger, smartphone generation.'

Current regulation of cellphone radiation dates back to 1996, when mobile phones were simply used for occasional voice services by business people. Phones were manufactured so as not to exceed the SAR [Specific Absorption Rate—a measure of radiation absorption] value of 1.6 w/kg [2 W/kg in Australia] when kept at a certain angle, 15mms from the user's skull. This laboratory set-up is far removed from today's communications.

Today, over 90% of mobile phone transmissions are for data and smartphones are not kept against the head, as they were 20 years ago. The phone is mostly kept in the user's pocket, often very close to the reproductive organs and other important organs of the body. Additionally, the phone is transmitting data—social media, news and messages—often 24/7. This is true, even when it's being kept in a schoolboy's pocket, a bra or close to a developing foetus.

Ala-Mieto says, 'As the phone is a ubiquitous toy and tool, used by people from toddlers to grannies, it might be worth giving more attention to the possible risk of being exposed to the radiofrequency radiation the phones emit, especially when this radiation has been classified as being possibly carcinogenic to humans by the International Agency for Research on Cancer.'

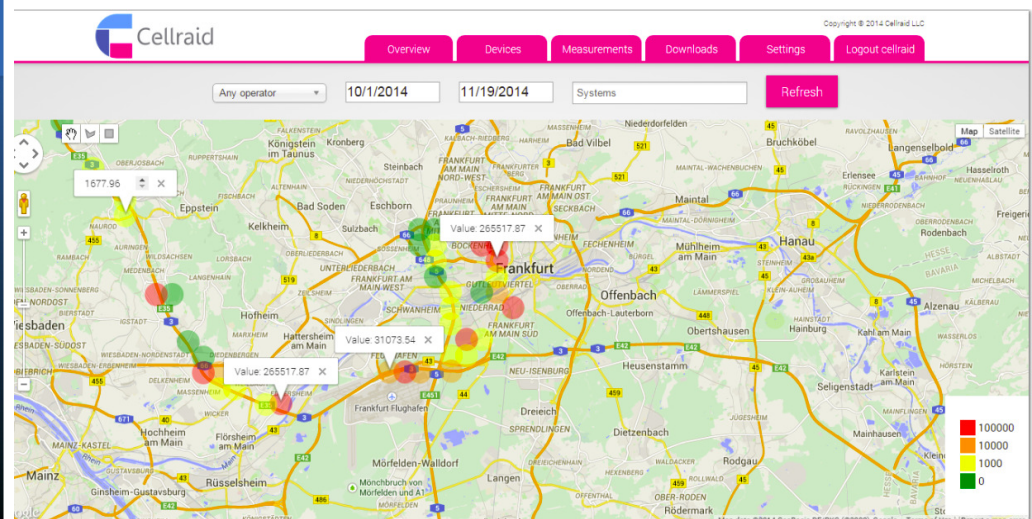
Cellraid has developed tools for both the mass market and professional use, to increase awareness of radio frequency exposure.

Its Quanta Pro measurement software, suitable for Android phones, can be used to measure RF exposure levels outdoors, in streets, buildings, homes and work places. 'It could be used by telecommunications companies and their operators to identify high RF exposure locations and take appropriate action. The Quanta Pro measures the exposure from phones, base stations and WiFi,' the company says.

'The odd thing is that telecom authorities and operators are focusing today on measuring downlink radiation from their own antennas, which represents only 0.001% of people's exposure,' Ala-Mieto told *EMR and Health*. 'However, uplink radiation from phones is the main source, producing 99.9989% of the radiation exposure. The further away the base station is, the higher the RF exposure caused by the phone as phone's power level needs to be higher to catch the weak signal. I hope that soon every operator will be measuring the total RF exposure level. There will be real competition when customers choose their provider according to the one that is "the healthiest" in certain areas.'

The company has also developed Quanta Monitor, which is a free-of-charge app for consumers to monitor their personal RF exposure levels in real-time. 'Now the consumer can be aware of his or her exposure level at home and work, compare different operators, and have a history of accumulated exposure,' Ala-Mieto says.

For more information, see www.cellraid.com



Phone tower legal case pending

The Queensland community of New Farm is planning legal action to stop the installation of a mobile phone telecommunications base station in close proximity to homes and a school.

The action is being spearheaded by Louise Brosnan, who suffers from electromagnetic hypersensitivity and who is concerned about the impact of the radiation the base station will emit.

According to Louise, the grounds for her objection to the tower relate to the issue of assault. She says, 'In Queensland assault is a crime. Under section 75 of the Queensland Criminal Code there is also a crime called "Threatening to Assault". Assault includes applying or "threatening" to apply non-consensual 'force' to a person. The words "applies force" are defined under the Criminal Code to include "electrical energy".'

Louise considers that her sensitivity to wireless radiation is such that the electrical emission from the tower threaten her with assault.

A Justice of the Peace has considered the evidence against the Telcos pursuant to the provisions of the Peace and Good Behaviour Act, endorsing the issuing of a complaint and summons against the companies involved. The Telcos have been summoned to appear in Brisbane Magistrates Court on 16 June 2016 to face complaints against them. If the evidence proves conclusive, the Telcos will be forced to keep the peace that will restrain them from emitting EMR emissions.

Louise will be represented by Tasmanian barrister Raymond Broomhall.

If successful, she believes the case could benefit other Australians who are being assaulted by the radiation from base stations, smart meters and other wireless sources.

In order to assist her efforts, Louise is seeking donations to help meet her legal fees.

Anyone able to assist in this way is invited to call Louise on 07 3265421. Alternatively, it's possible to PLEDGE funds which will be called on when needed. Donors will be kept updated on the progress of the case. Pledges can be recorded on the Survey Monkey page at: <https://www.surveymonkey.com/r/5Q9VXF>

(Continued from page 3)

As early as 2013, Professor Hardell stated his belief that 'glioma and acoustic neuroma should be considered to be caused by RF-EMF emissions from wireless phones' and that the International Agency for Research on Cancer should reclassify this radiation as a Class 1 carcinogen.⁹

Does mobile phone radiation increase the risk of developing brain tumours, especially in the long term? We still don't know for sure. But, until we have the complete picture—which may be many years down the track—it's up to us to decide just how much risk we are willing to take.

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French doctors launch appeal on EHS

CALL for doctors and health professionals the Conference of February 11, 2016, National Assembly "To better understand and recognize the electrohypersensitivity."

We, doctors, scientists and health professionals, considering the Freiburg Appeal of 2002 signed by doctors, find in recent years during our consultations, a dramatic increase in serious and chronic diseases in our patients, such as:

- Symptoms generally observed in the use of the mobile phone:
 - pain or warmth in the ear,
 - disorders of superficial sensitivity - dysesthesia (tingling, stinging, burning, or itching) at the level of the face, scalp or arm;
- Then little by little, and permanently:
 - headache, associated with characteristical stiffness and pain in the neck,
 - tinnitus, Hyperacusis [sound sensitivity],
 - visual disturbances—blurred vision,
 - anomalies of deep sensitivity (false Vertigo), malaise,
 - skin lesions with burning sensation (causalgias) or pruritis,
 - muscle disorders (myalgia, spasms, twitching) or joint (arthralgias, stiffness),
 - cognitive disorders.
- Second phase:
 - appearance of severe cognitive impairment (deficit of attention and concentration, loss of short-term memory),
 - vegetative symptoms (chest tightness, tachycardia),
 - digestive or urinary tract, disorders,
 - insomnia, chronic fatigue and possibly depressed tendencies.

- And finally, in the absence of treatment and protection, the evolution is marked by the progressive constitution of injury pathology and is totally irreversible:
 - confusion, absences, disorientation temporo-spatial or dementia akin to an Alzheimer's, including in young subjects,
 - Childhood: headaches and sleep disorders, dyslexia, disorders of attention and concentration, memory loss, sometimes poor behaviour (child refusing to go to school without reason).

Considering that we know the residential environment and the habits of our patients, we often observed a correlation in time and space, between the onset of these disorders and the beginning of the extension of irradiation from electromagnetic waves, in cases such as:

- the installation of an antenna relay of mobile telephony in the vicinity of the home or workplace of the patient ,
- the intensive use of a mobile phone,
- the use of a DECT wireless telephone at home or at work.

Electromagnetic fields seem to partly explain these disorders.

As indicated by the International Scientific Declaration on electrohypersensitivity and Multiple Chemical Sensitivity, signed by scientists and physicians from around the world gathered at the Royal Academy of Medicine in Brussels in May 2015, on the initiative of the ECERI, the biological markers have been identified in electrohypersensitive patients which establish the existence of actual disabling pathologies. So some people must isolate themselves from places polluted by electromagnetic fields (wifi, mobile phones...) in order to continue to live in the most normal manner possible. However, this pathology is not recognised by the French health authorities.

Given the Court of Toulouse's recognition of an 80% disability experienced by a patient with electrohypersensitivity, we believe that it is time to finally recognise this major public health issue.

This pathology is complex and multifactorial. We are poorly informed about these people, whose physical suffering is real and proven symptoms. Although there is scientific controversy on the subject, these patients exist and there must be a medical response to alleviate their suffering.

We need to be better informed about the health effects of electromagnetic fields and be equipped with tools to help these patients.

(Continued on page 11)

WATT'S THE BUZZ?

Against nature

British children are spending less time outdoors and are more disconnected from nature than ever. A recent survey of 2000 parents of children aged 5 to 12 found that children spent twice as much time playing on screen-based devices as they did playing outside. It found that about 20% of children didn't typically play outside and that about 75% spent less time outdoors than prison inmates. (*The Guardian*, 25.03.16.)

What a waste!

As users race to purchase the latest model electronic devices, older technologies are being discarded in vast numbers, many ending up in landfill. These devices contain toxic materials—such as lead, nickel, mercury, copper and zinc—which can be carcinogenic to humans and/or toxic to the environment. (Woo, SH et al, *Integr Environ Assess Manag* 12(2):364-70, 2016.)



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Fashion statement

Not receiving enough radiation? Try this out for size.

Researchers at Ohio State University are developing fabrics that can be used to transmit or receive electromagnetic signals. Called e-textiles, the fabrics are embroidered with silver thread, the shape of the embroidered design determining the frequency.

The plan is to use the fabrics to boost phone signals or transmit data about body function to a device. (Ohio State University news, 13.04.16.)

Smash!

Why are so many motor cyclists involved in traffic accidents in Vietnam?

Well, it could have something to do with their mobile phone use.

Researchers observed over 26,000 riders at a busy intersection over a six-hour period. They found that eight percent—that's over 2,100 riders, used a mobile phone while driving! (Truong, LT et al, *Accid Anal Prev*, 91:208-15, 2016.)

Yum

Here's a case of a man with a real hunger for technology.

A 29-year old man in Ireland underwent surgery after swallowing his mobile phone. Surgeons eventually removed the phone from his gastrointestinal tract and referred the patient for counselling.

The doctors described the details of the operation in a medical journal in case other medical practitioners encounter similar phone-swallowing cases. (Obinwa, O et al, *Int J Surg Case Rep*: 22:86-9, 2016.)

Natural selection

Pedestrians have found a brand new way of killing themselves. Instead of checking out traffic at dangerous road crossings, they're checking their phones.

After the death of a young girl, who was hit by a car while answering her phone as she crossed the road, the German city of Augsburg decided to take action. Its solution: it's installed traffic lights on the ground so that smart phone users don't have to bother looking up. (*Washington Post*, 25.04.16.)

(Continued from page 10)

Thus, we call on the French Government and, in particular, the Minister of Health to make the health impact of electromagnetic fields a health priority and to help these patients, of whom there are more and more, who are mostly in great difficulty and a socially precarious situation.

It seems to us essential, as a precaution, to lower the exposure of the general population to electromagnetic fields, particularly in children, and reduce their exposure to WiFi and tablets in schools.

Independent and in-depth research should be conducted on the subject and individuals with electromagnetic environmental sensitivities should take refuge in "white areas".

Finally, the decision of government bodies dealing with persons with disabilities to recognise electrohypersensitivity as a disability must be permanently validated and applied by all MDPH so that EHS individuals are all supported.

Case study

An IT worker from Melbourne moved in to a new apartment and developed bizarre headaches, numbness in his hands and was not sleeping at night. After his doctor suggested a possible environmental cause, he realised two mobile phone antennas were located outside his apartment and almost at the same height. He hired our Acoustimeter and measured fields of over 6 V/m and nearly 40,500 uW/m² on the balcony closest to the antennas and high fields in the bedroom where he'd been sleeping.

When sleeping in the main bedroom, he woke feeling that the nerves in his entire body were literally buzzing. This did not happen when he slept in the second bedroom, where the fields from the antennas were lower.

He had no doubt that his symptoms were correlated with his exposure. They were not psychosomatic – they began before he was aware that radiation from a base station could possibly affect his health.

Competition

You're invited to take part in a competition being run by Lucinda Curran in conjunction with the 2016 Environmental Sensitivities Symposium. Here's her message to readers:

WHAT I AM LOOKING FOR:

I am looking for creative and inspiring expressions of ES. It may be that you discovered a creative talent *because* of ES. It may be something you have always done.

This could be anything, including, but not limited to:

- a drawing or painting that you have created
- a poem
- a short story
- your photography
- an inspiring fictional piece

~~~ The key is that it is inspiring. ~~~

**PRIZE:** Having your contribution published in the e-magazine that will go out to all participants of the 2016 Environmental Sensitivities Symposium.

**LIMITS:** For all written pieces, 350 words. For visual pieces, the limit is one piece.

**ENTRIES CLOSE:** 21st June 2016.

**HOW TO ENTER:** Email your entry to [Lucinda@EcoHealthSolutions.com.au](mailto:Lucinda@EcoHealthSolutions.com.au) or post it to 366 Rathdowne Street Carlton North VIC 3054.

Be sure to include your name and regular email address or, if you don't have email, your phone number.

Winners will be contacted directly around 30th June.

Given I am expecting a LOT of entries, I will only be in touch if you are successful. But, please know that I appreciate your efforts and desire to be involved - and that, as one person without an admin team, it may be impossible for me to write to you personally to thank you.

Shine and Succeed!

Lucinda



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