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Submission to the Inquiry: Telecommunications Amendment (Enhancing Community Consultation) Bill 2011

Dear Members of the House of Representatives Standing Committee on Infrastructure and Communications: Ms Sharon Bird, Mr Paul Hinkler, Mr Paul Fletcher, Mr Ed Husic, Mr Stephen Jones, Mrs Jane Prentice, Mr Mike Symon, and Mr Rob Oakeshott,

I ask you to please recommend supporting the proposed Telecommunications Amendment (Enhancing Community Consultation) Bill 2011.

This is a deeply personal request as **Optus have built a mobile phone tower just six meters from my father's home in Lennox Head, NSW.** I am very distressed that he has been placed in such an inhumane situation, forced to live with potentially devastating health risks or he is effectively homeless. This is my submission, including the details of his situation.

My father's home is extremely close to the site of the nearby antenna (visible in the second photograph below you can see his bedroom at the front of the house).

Image 1: Residents protesting at the site

Image 2: Optus starting construction

My father is now living in a dangerous RF high risk area

Optus has placed a warning sign on the gate to the water tank and mobile phone antennas which reads, “RF Hazard Area Beyond this Point”. The strong electromagnetic field of the mobile phone antennas can disrupt biomedical devices like pacemakers. It can also affect the cells and systems of the human body, causing a range of health problems, the most serious being an increased incidence of cancers, including childhood brain tumours and leukaemia (see the documented cases and scientific research discussed in the following sections).

Image 3: Warning sign on the gate

The bedrooms in my father’s house are closer to the nearest antenna than this warning sign. So my father is being forced to live each day and to sleep every night in a declared dangerous RF high risk area. How is he supposed to sleep at night?

This is an absolutely inhumane situation. He’s a resilient, honourable and courageous man, who doesn’t easily complain, but I can see the toll the stress of the situation is taking on him.

Image 4: The mobile phone antennas and my father's home: I'd like to ask how you would feel if this was your father who had to sleep next to a mobile phone relay antenna every night?

He can't rent or sell his home in these circumstances. He does not have the resources to buy or rent an alternative place to live. He is being forced by Optus to live day and night with possibly devastating health risks, or he is effectively homeless. He is 71 years old, and has worked incredibly hard all his life (as a high school math teacher and running a farm at the same time, and now as an S.E.S. volunteer and trainer), he deserves better than this. Everyone does.

The health risks for people living or working in close proximity to mobile phone towers

The World Health Organization safety standards for exposure to electromagnetic fields quoted by Optus and other telecommunications companies are not relevant and are thus misleading. They are based on high level **but short term** exposure, and rely on measuring the heat generated in living tissue to determine potential harm. The safety standards for **long term and continuous exposure** (where damage to living tissue can occur at lower levels and without generating heat) need to be revised and far lower (see Dr Khurana's attached article, p. 226).

The "International Bio-Initiative Report**:** A Rationale for a Biologically-based Public Exposure Standard for Electromagnetic Fields (ELF and RF)," prepared by a respected international group of scientists, researchers and public health policy professionals in 2007, states *'... what is clear is that the existing public safety standards limiting these radiation levels in nearly every country of the world look to be thousands of times too lenient. Changes are needed.*'
(See: http://www.bioinitiative.org/freeaccess/report/index.htm)

The European Parliament Committee on the Environment, Public Health and Food Safety stated that *'the limits of exposure to electromagnetic fields which have been set for the general public are obsolete'*. **The EU and countries including Italy, Switzerland, China, Russia, and Salzburg in Austria, have been dramatically reducing the limit considered safe for long term exposure.**

On the 31st May 2011, the World Health Organization's International Agency for Research on Cancer (IARC) classified radiofrequency electromagnetic fields as possibly carcinogenic to humans.

The IARC Working Group, made up of 31 leading scientists in the field from 14 countries, met in Lyon, France from the 24th-31st May "to assess the potential carcinogenic hazards from exposure to radiofrequency electromagnetic fields." This group of international experts "discussed and evaluated the available research literature" (hundreds of scientific articles) and found that ***"the evidence, while still accumulating, is strong enough to support a conclusion and the 2B classification" – electromagnetic fields are possibly carcinogenic to humans.*** They did not give it a classification 4 – "the agent is probably not carcinogenic to humans." (See www.iarc.fr/en/media-centre/pr/2011/pdfs/pr208_E.pdf)

Long term exposure to the radio-frequency electromagnetic fields of both mobile phone towers and radio / TV broadcasting antennas has been linked to incidences of unusual clusters of cancers in people living or working (and children at schools) in close proximity to mobile phone and broadcasting towers in the UK, France, Italy, Germany, Spain, Israel, the US, Korea and Australia. Following are three examples, two Australian and one from France.

- Fifteen women, who had worked for the ABC in Brisbane, often in the same newsroom, for long periods between 1995 and 2007, developed breast cancer. The facilities included powerful broadcasting antennas on the roof and a lot of electronic equipment in the room in which they worked. In 2006 the ABC shut down its operations there. Three more women who had worked at the Toowong ABC building during those years have since been diagnosed with breast cancer, bringing the total to eighteen. This is eleven times the national average.
- In May 2006, seven people working at the Royal Melbourne Institute of Technology (RMIT) were discovered to have brain tumours, two of which were malignant cancers. All of these staff had worked on the top two floors of the University's Bourke St building for periods of up to ten years. During which time there had been Telstra mobile phone towers on the roof of the building, metres above their heads.
  (see www.abc.net.au/worldtoday/content/2006/s1637123.htm)
- In March 2003, the telecommunications company Orange suspended the operation of two mobile phone transmitters on the roof of a school outside Paris after an eighth child was confirmed to have developed cancer (see *Le Monde,* 16 March 2003).

Many more cases have been documented and the growing body of evidence suggests a very reasonable and serious cause for concern.

Six studies published in very good, peer reviewed medical and scientific journals: Navarro (2003, Spain), Santini (2003, France), Gadzicka (2006, Poland), Abdel-Rassoul (2007, Egypt) and Blettner (2009, Germany) all documented **increased headaches and neurological impairment** in those living close to mobile phone antennas.

A German study by Eger, Hagen, Lucas, Vogel, and Voit, "The influence of being physically near to a cell phone transmission mast on the incidence of cancer," published in 2004, clearly documented that people living under 400 metres from mobile phone towers had **three times the risk of developing cancer**, after five years of exposure, than the rest of the population.

A study undertaken in Israel, by Wolf and Wolf, also in 2004, showed that people living within 350 metres from a mobile phone tower had **four times the risk of developing cancer**, with 3 to 7 years of exposure, than the national average. Both studies showed that those who developed cancer were younger than usual.

The intensity of radiofrequency electromagnetic radiation drops off quickly as you move away from the source. Living 6 metres from a tower, my father is exposed to 40 times the amount of radiation that a person living 120 metres from a tower will be exposed to. What do you think his chances of developing cancer are?

I beg you to please read the short and clear summary of the existing epidemiological research: **"Epidemiological Evidence for a Health Risk from Mobile Phone Base Stations,"** by Dr Vini Khurana (from the Department of Neurosurgery, The Canberra Hospital and The Australian National University Medical School) and five other highly qualified researchers, in the *International Journal of Occupational and Environmental Health*, Vol 16, No 3, July/September 2010, pp. 263-267. It is attached at the end of my submission and includes the details of the research studies I have mentioned.

It will be a very sad day if the telecommunications companies end up needing to pay compensation for the devastation of people's lives because they ignored the World Health Organization's warning that radiofrequency electromagnetic fields are possibly carcinogenic to human beings and the increasing scientific evidence that it is. Saddest of all for the people and families devastated by the severe illness, or death, of a loved one, from cancer. Would it not be far better for everyone (including telecommunications companies) to get it right from the beginning with appropriate guidelines?

On these grounds I ask you to please support the amendment and the precautionary principle so that, until the scientific evidence is absolutely clear, we take reasonable precautions not to put people's health and lives at risk.

The present legislation is flawed

Because the existing legislation has allowed facilities to be deemed "low impact" and avoid being subject to state or local government planning laws, it has left telecommunications companies largely in a position of self-regulation, and they have not been demonstrating any capacity for ethical self-regulation.

It allows irresponsible misuse of the term 'low impact' facilities

"Low impact" is being defined as low visual or aesthetic impact, so 'low impact' facilities can be emitting as much electromagnetic radiation as those defined as 'high impact' and the potential health impacts are not being considered responsibly at all by the telecommunications companies or by the Telecommunications Industry Ombudsman (TIO) or the Australian Media and Telecommunications Authority (ACMA). The amendment of the existing legislation is needed to require that all these organizations take the potential health risks seriously and act with responsible caution in relation to protecting public health.

There is no genuine 'consultation with communities'

In Lennox Head, Optus selected a site in the middle of a residential street and near a childcare centre. Subsequently, Optus received 135 submissions (and a 300 signature petition) opposing its plan to build a phone tower in the residential neighbourhood.

Ballina Shire Council voted unanimously to oppose Optus' proposal to build the phone tower in the middle of a residential street, recommending that Optus co-locate it's antennas with existing Telstra facilities on another water tank on the same large hill in Lennox Head, which was not close to homes or the childcare centre. Optus simply ignored all of this community response.

There is no consideration of the possible impact on resident's health

Despite all of the clear and unanimous opposition from the nearby local residents, and Ballina Shire Council, and the option of another viable location, Optus informed Ballina Council that they intended to go ahead with their preferred location anyway. They were not willing to consider the impact on the residents. Council responded with a unanimous decision to take the case to the Telecommunications Industry Ombudsman (TIO) and then to the Australian Media and Telecommunications Authority (ACMA), but both appeals failed because the potential health impact on the residents was not even a consideration.

Optus went ahead with construction in September 2011. This kind of process is what they are calling 'community consultation'. I would call this 'ignoring people' who will be adversely affected by what they plan to do and showing no ethical duty of care in relation to the potential harm, suffering and distress they may cause. **With the existing legislation there are no further avenues of appeal, other than costly legal action.**

The situation the residents have been left with and have to go on living with is horrendous: there is a facility near their homes emitting radiation that could be slowly making them very sick and there's nothing they can do. They can't remove it, and they can't remove themselves, very few people will want to rent or buy their homes in these circumstances. How would you feel if you were forced to live somewhere that could be slowly making you or someone you love very sick?

Please support the Telecommunications Amendment (Mobile Phone Towers) Bill 2011, so that the telecommunications companies will be required by the law to genuinely consult with communities and to act responsibly in relation to potential health risks to the public.

Yours most sincerely,
Jacqui Godwin

Sources:

Press coverage of the situation at Lennox Head:

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www.ballinaadvocate.com.au/story/2010/09/28/tower-plan-opposed/

www.abc.net.au/news/2011-03-25/council-disconnects-phone-tower-plans/2643202

www.echo.net.au/newsitem/optus-towers-over-lennox-head-families

www.nbntv.com.au/index.php/2010/11/07/lennox-head-residents-outraged-over-optus-tower/

Epidemiological Evidence for a Health Risk from Mobile Phone Base Stations

VINI G. KHURANA, LENNART HARDELL, JORIS EVERAERT, ALICJA BORTKIEWICZ, MICHAEL CARLBERG, MIKKO AHONEN

Human populations are increasingly exposed to microwave/radiofrequency (RF) emissions from wireless communication technology, including mobile phones and their base stations. By searching PubMed, we identified a total of 10 epidemiological studies that assessed for putative health effects of mobile phone base stations. Seven of these studies explored the association between base station proximity and neurobehavioral effects and three investigated cancer. We found that eight of the 10 studies reported increased prevalence of adverse neurobehavioral symptoms or cancer in populations living at distances < 500 meters from base stations. None of the studies reported exposure above accepted international guidelines, suggesting that current guidelines may be inadequate in protecting the health of human populations. We believe that comprehensive epidemiological studies of long-term mobile phone base station exposure are urgently required to more definitively understand its health impact. *Key words*: base stations; electromagnetic field (EMF); epidemiology; health effects; mobile phone; radiofrequency (RF); electromagnetic radiation.

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INTRODUCTION

Mobile phone base stations are now found ubiquitously in communities worldwide. They are frequently found near or on shops, homes, schools, daycare centers, and hospitals (Figure 1). The radiofrequency (RF) electromagnetic radiation from these base stations is regarded as being low power; however, their output is continuous.[1] This raises the question as to whether the health of people residing or working in close proximity to base stations is at any risk.

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Disclosures: The authors declare no conflicts of interest.

METHODS

By searching PubMed and using keywords such as base station, mast, electromagnetic field (EMF), radiofrequency (RF), epidemiology, health effects, mobile phone, and cell phone, and by searching the references of primary sources, we were able to find only 10 human population studies from seven countries that examined the health effects of mobile phone base stations. Seven of the studies explored the association between base station proximity and neurobehavioral symptoms via population-based questionnaires; the other three retrospectively explored the association between base station proximity and cancer via medical records. A meta-analysis based on this literature is not possible due to differences in study design, statistical measures/risk estimates, exposure categories, and endpoints/outcomes. The 10 studies are therefore summarized in chronological order (Table 1).

RESULTS AND DISCUSSION

We found epidemiological studies pertaining to the health effects of mobile phone base station RF emissions to be quite consistent in pointing to a possible adverse health impact. Eight of the 10 studies reported increased prevalence of adverse neurobehavioral symptoms or cancer in populations living at distances < 500 meters from base stations. The studies by Navarro et al.,[2] Santini et al.,[3] Gadzicka et al.,[4] and Hutter et al.[5] reported differences in the distance-dependent prevalence of symptoms such as headache, impaired concentration, and irritability, while Abdel-Rassoul et al.[6] also found lower cognitive performance in individuals living ≤ 10 meters from base stations compared with the more distant control group. The studies by Eger et al.[7] and Wolf and Wolf[8] reported increased incidence of cancer in persons living for several years < 400 meters from base stations. By contrast, the large retrospective study by Meyer et al.[9] found no increased incidence of cancer near base stations in Bavaria. Blettner et al.[10] reported in Phase 1 of their study that more health problems were found closer to base stations, but in Phase 2[11] concluded that measured EMF emissions were not related to adverse health effects (Table 1).

Each of the 10 studies reviewed by us had various strengths and limitations as summarized in Table 1. Per-

Figure 1—Mobile phone base stations ("antennae" or "masts") in Australia. Upper left: Community shop roof showing plethora of flat panel antennae. Upper right: Hospital roof with flat panel antennae painted to blend in. Lower left: Top of a street light pole. Lower center: Mast erected next to a daycare center. Lower right: Antennae mounted on an office block top floor.

taining to those base station studies in which EMF measurements were not carried out,[3,4,7,9] it should be noted that distance is not the most suitable classifier for exposure to RF-EMF. Antennae numbers and configurations, as well as the absorption and reflection of their fields by houses, trees, or other geographic hindrances may influence the exposure level. Further, self-estimation of distance to nearest base station is not the best predictor of exposure since the location of the closest base station is not always known. Such exposure misclassification inevitably biases any association towards null. Multiple testing might also produce spurious results if not adjusted for,[3,5] as might failure to adjust for participant age and gender.[7] Latency is also an important consideration in the context of cancer incidence following or during a putative environmental exposure. In this regard, the study by Meyer et al.[9] found no association between mobile phone base station exposure and cancer incidence, but had a relatively limited observation period of only two years. On the other hand, the studies by Eger et al.[7] and Wolf and Wolf[8] found a significant association between mobile phone base station exposure and increased cancer incidence, although the approximate five-year latency between base station exposure and cancer diagnosis appears to be unexpectedly short in both of these studies.

Other problems in several population-based questionnaires are the potential for bias, especially selection[8] and participation[2,3,5,6,11] biases, and self-reporting of outcomes in combination with the exposure assessment methods used. For example, regarding limitations in exposure assessment, in a large two-phase base station study from Germany,[12,13]of the Phase 1 participants (n = 30,047), only 1326 (4.4%) participated with a single "spot" EMF measurement recorded in the bedroom for Phase 2. Further, health effect contributions from all relevant EMF sources and other non-EMF environmental sources need to be taken into account.[12] We acknowledge that participant concern instead of exposure could be the triggering factor of adverse health effects, however this "nocebo effect" does not appear to fully explain the findings.[4,5] Further, the biological relevance of the overall adverse findings (Table 1) is supported by the fact that some of the symptoms in these base-station studies have also been reported among mobile phone users, such as headaches, concentration difficulties, and sleep disorders.[13,14] Finally, none of the studies that found adverse health effects of base stations reported RF exposures above accepted international guidelines, the implication being that if such findings continue to be reproduced, current exposure standards are inadequate in protecting human populations.[15]

TABLE 1 Summary of Epidemiological Studies of Mobile Phone Base Station Health Effects

Publication (Year; Country)	Clinical Assessment	Study Design	Base Station Details	Participants	EMF Measured	Key Findings	Strengths	Limitations
Navarro[2] (2003; Spain)	Neuro-behavioral	Survey-questionnaire	GSM-DCS 1800 MHz	101	Yes	More symptoms with closer proximity to base station (< 150 m)	Detailed questionnaire, EMF measured, distances studied[a]	Low participation, self-estimated distances, subjects aware[b]
Santini[2] (2003; France)	Neuro-behavioral	Survey-questionnaire	n/s	530	No	More symptoms with closer proximity to base station (< 300 m)	Detailed questionnaire, distances & other EMF exposures assessed	As above, plus no EMF measurements, no base station details
Eger[7] (2004; Germany)	Cancer incidence	Retrospective case review	GSM 935 MHz	967	No	3 x risk of cancer after 5 yrs of exposure (< 400 m); early age of cancer diagnosis	Maximum beam intensity calculated, reliable cancer data collection	Other environmental risk factors not assessed; analysis not adjusted for age and sex.
Wolf & Wolf[8] (2004; Israel)	Cancer incidence	Retrospective case review	TDMA 850 MHz	1844	Yes	> 4 x risk of cancer after 3–7 yrs exposure (< 350 m); early age of cancer diagnosis	Reliable cancer & demographic data, no other major environmental pollutant identified	Not all environmental risk factors assessed; possible selection bias; no age, sex adjustment.
Gadzicka[4] (2006; Poland)	Neuro-behavioral	Survey-questionnaire	n/s	500	No	More headache with proximity < 150 m; nocebo unlikely[c]	Detailed questionnaire, distances & EMF studied, nocebo studied	Subjects aware, no base station details
Hutter[5] (2006; Austria)	Neuro-behavioral	Cross-sectional	900 MHz	336	Yes	Headaches & impaired concentration at higher power density; nocebo unlikely	Detailed questionnaire and testing, EMF measured, distances studied; nocebo effect studied	Subjects aware, low participation rate
Meyer[9] (2006; Germany)	Cancer incidence	Retrospective case review	n/s	177,428	No	No increased cancer incidence in municipalities with or without base stations	Wide population assessed (Bavaria)	Observation period only 2 years, vague definitions of exposure, exposure onset unknown, distance to base station unknown
Abdel-Rassoul[6] (2007; Egypt)	Neuro-behavioral	Cross-sectional	n/s	165	Yes	More symptoms & lower cognitive performance if living under or < 10 m from base station	Detailed questionnaire and testing, EMF measured, distances studied, subjects unaware	Exact base station details n/s, low number of participants
Blettner[10] (2009; Germany)	Neuro-behavioral	Cross-sectional	n/s	30,047	No	More health complaints closer to base station (< 500 m)	Wide population assessed, detailed survey, nocebo effect assessed	EMF measurements not carried out (see phase II in Berg-Beckhoff et al., 2009; below)
Berg-Beckhoff[11] (2009; Germany)	Neuro-behavioral	Cross-sectional	GSM 900 MHz GSM 1800 MHz UMTS 1920–1980 MHz	1326	Yes	Health effects probably caused by stress and not by RF-EMF	Measured EMF emissions, standardized questionnaires	Low participation, no detailed list of symptoms published, single "spot" measurement in one place in dwelling, no occupational exposure assessed, time lag from assessment of symptoms and EMF measurement

n / s = not specified.
[a]"Distance" refers to distance between base station and subjects' households.
[b]"Subjects aware" refers to study participants being aware of the nature of the study.
[c]"Nocebo" effect unlikely because the majority of subjects in the study reported little or no concern for base station proximity.

CONCLUSIONS

Despite variations in the design, size and quality of these studies as summarized in Table 1, it is the consistency of the base-station epidemiological literature from several countries that we find striking. In particular, the increased prevalence of adverse neurobehavioral symptoms or cancer in populations living at distances < 500 meters from base stations found in 80% of the available studies. It should be pointed out that the overall findings of health problems associated with base stations might be based on methodological weaknesses, especially since exposure to RF electromagnetic radiation was not always measured.

There are some proposed mechanisms via which low-intensity EMF might affect animal and human health,[16,17] but full comprehensive mechanisms still remain to be determined.[18,19] Despite this, the accumulating epidemiological literature pertaining to the health effects of mobile phones[13,20] and their base stations (Table 1) suggests that previous exposure standards based on the thermal effects of EMF should no longer be regarded as tenable. In August 2007, an international working group of scientists, researchers, and public health policy professionals (the BioInitiative Working Group) released its report on EMF and health.[21] It raised evidence-based concerns about the safety of existing public limits that regulate how much EMF is allowable from power lines, cellular phones, base stations, and many other sources of EMF exposure in daily life. The BioInitiative Report[21] provided detailed scientific information on health impacts when people were exposed to electromagnetic radiation hundreds or even thousands of times below limits currently established by the FCC and International Commission for Non-Ionizing Radiation Protection in Europe (ICNIRP). The authors reviewed more than 2000 scientific studies and reviews, and have concluded that: (1) the existing public safety limits are inadequate to protect public health; and (2) from a public health policy standpoint, new public safety limits and limits on further deployment of risky technologies are warranted based on the total weight of evidence.[21] A precautionary limit of 1 mW/m^2 (0.1 $microW/cm^2$ or 0.614 V/m) was suggested in Section 17 of the BioInitiative Report to be adopted for outdoor, cumulative RF exposure.[21] This limit is a cautious approximation based on the results of several human RF-EMF studies in which no substantial adverse effects on well being were found at low exposures akin to power densities of less than 0.5 – 1 mW/m^2.[2,5,22–26] RF-EMF exposure at distances > 500 m from the types of mobile phone base stations reviewed herein should fall below the precautionary limit of 0.614 V/m.

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