

CAMPAIGN FOR SAFER CELL PHONES



BRIEFING BOOK

CALL TO ACTION

- Inform the public about known and suspected health impacts of electromagnetic radiation, especially on children.

Some studies have found that after a decade of heavy cell phone use, brain tumor risks double in adults and quadruple in those who started to use cell phones as teenagers.

- Advise that phones should not be held at the head or on the body when in standby mode or used at all when the signal strength is weak.
 - Require that manufacturers sell cell phones with earpieces, speakerphone option, and **WARNING LABELS**.
 - Review and revise safety standards with state of the art independent science with head and body models for persons of different ages and genders.
 - Support major, long-term, multidisciplinary independent research and training programs on cell phones and health (funded by manufacturers providing fees currently placed on cell phone bills).
 - Require pre-market health and safety testing and post-market safety surveillance.
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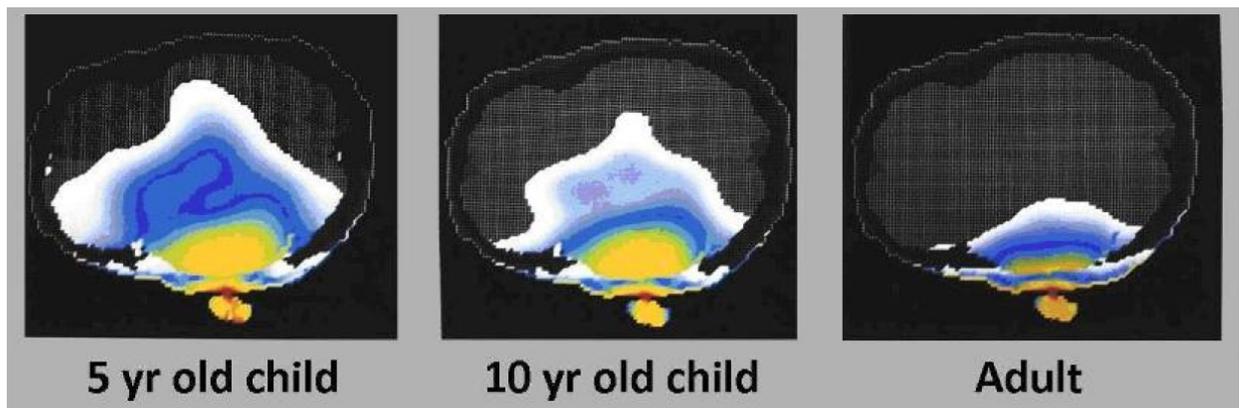
BACKGROUND

More than a dozen countries restrict the use of cell phones by children and advise precautions regarding their use. The National Academy of Sciences (2008), the European Environment Agency (2008; 2009), and the U.S. Senate hearing and Environmental Health Trust Expert Conference On Cell Phones and Health (September 13–15, 2009) identified major gaps in our understanding of cell phone science and the need for precautionary policies to prevent future harm. Nearly all studies of those who have used cell phones for a decade or more have found doubled risks of brain tumors.

When first introduced in the 1980s, cell phones were exempted from regulation and were intended for short use by working adults. Over the past decade, millions of children and young people have become regular users. We do not believe in abandoning this revolutionary technology but in promoting safer use and designs. We applaud efforts to ban the use of cell phones while driving in order to reduce traffic fatalities. We support efforts to promote safer cell phone use and designs to reduce potential long-term chronic health impacts.

CHILDREN, whose brains are more vulnerable than those of adults, may well be at higher risk than adults from lifelong use.

EXPOSURE models used to set standards today rest on the head of a tall, heavy man and do not take into account the greater vulnerability of a man's sperm, or the smaller and more vulnerable skulls, skin, bone marrow, and brains of children and the fetus.



With Permission, Prof. Om P. Gandhi

Cell phone radiation affects children's brains more than adults' brains

DOCUMENTED RISKS *

- **For children**, those who began using mobile phones as teenagers have four to five times greater risk of developing malignant brain tumors compared to those who did not use phones at these ages.
- **For men who wish to become fathers**, those who use their cell phones 4 hours per day have been found to have half the sperm count of non-users.
- **For the developing fetus**, prolonged cell phone use or placing the cell phone in “standby” mode near the fetus significantly increases the risk of learning problems in children and may present other dangers to child development.
- **Those who regularly use cell phones** with higher radiated power, such as people living in rural areas or using phones in moving cars, face significantly greater risks of brain tumors and other chronic health problems.
- **Other serious health problems** significantly associated with regular cell phone usage include: short-term memory loss, sleep and attention disturbances, headache, hearing loss, cognitive impairments, dementia and possibly Alzheimer’s Disease.
- **Experimental studies find that cell phone radiation damages DNA**, increases abnormal proteins, alters memory, behavior and brain chemistry, and increases the uptake of pollutants up into the brain.

* Scientific studies corroborating these and other serious health risks can be found at www.environmentalhealthtrust.org and www.bioinitiative.org

WARNING

Five out of every six people alive today use cell phones. The majority is under age 30. Children are growing up with exposures to cell phone radiation that did not exist five years ago. Standards for today’s phones were set more than a decade ago. Brain tumors can take 10 or more years to develop. Most published studies of brain tumors and cell phone use have not found a risk, and have studied people for periods of less than 10 years. One half of the budget of the EMF project of the World Health Organization (WHO) was funded by the Mobile Manufacturers Forum (MMF). The \$30 million 13 country WHO Interphone Study of brain tumors and cell phone use has been heavily funded by industry for the past decade. Results were promised in 2005 and have still not been released. Preliminary reports from some of the study countries in 2008 indicated a doubled risk of brain tumors in long-term cell phone users a decade after their use first began. Over the past three years, researchers from participating countries of Denmark, France, Israel, and Finland have confirmed increased brain tumor risk in long-term users and have issued warnings about the need to take precautions to lower exposures. The long-delayed release of final Interphone results is subject to approval by the industry sponsors.

EXPERT OPINIONS

Ronald Herberman, former Director Emeritus of the University of Pittsburgh Cancer Institute, now Medical Director of Intrexon:

“Based on my extensive scientific experience as a leader in basic research and director of a comprehensive cancer center for the National Cancer Institute, I believe that we have ample evidence for questioning the long-term impacts of cell phones on health and solid grounds for concerns about the long-term implications of their use.”

CURRENT UNITED STATES GOVERNMENT ADVISORIES ON CELL PHONES

Cell Phone Radiation Is Not Reviewed by Food and Drug Administration

“Under the law, FDA does not review the safety of radiation-emitting consumer products such as cell phones and similar wireless devices before they can be sold, as it does with new drugs or medical devices. However, FDA does have the authority to take action if cell phones are shown to emit radiofrequency energy (RF) at a level that is hazardous to the user. In such a case, FDA could require cell phone manufacturers to notify users of the health hazard and to repair, replace or recall the phones so that the hazard no longer exists.”

Source: <http://www.fda.gov/Radiation-EmittingProducts/RadiationEmittingProductsandProcedures/HomeBusinessandEntertainment/CellPhones/default.htm>

FCC Consumer Warning: “What You Can Do” November 5, 2009

“When considering these precautions, remember that your wireless device only emits RF energy when you are using it and that the closer the device is to you, the more energy you will absorb. Also, some parties assert that any potential health risks are probably greater for children than for adults. Finally, some experts think that low frequency magnetic fields rather than RF energy measured by the SAR possibly are responsible for any potential risk associated with wireless devices.” The SAR refers to the Specific Absorption Rate, which is “a measure of the amount of radiofrequency energy absorbed by the body when using a mobile phone.

Source: <http://www.fcc.gov/cgb/consumerfacts/mobilephone.html>

CURRENT MANUFACTURER ADVISORIES ON CELL PHONES

New cell phone packaging inserts today contain ‘fineprint’ warnings to keep the phone away from the body. Most people do not read these warnings, which are tossed into the garbage with the packaging.

Nokia 1100 warns, “This product meets RF exposure guidelines...when positioned at least 1.5 cm (~1/4 inch) away from the body...and should position the product at least 1.5 cm away from your body.”

Motorola V195 GSM warns, “keep the mobile device and its antenna at least 2.5 centimeters (1 inch) from your body.”

BlackBerry 8300 warns, “When using any data feature of the BlackBerry device, with or without a USB cable, keep the device at least 0.98 inches (25 mm) from your body,” and “SHOULD NOT be worn or carried on the body.” [CAPITALIZATION in the original]

Source: http://www.environmentalhealthtrust.org/sites/test1.nbcomp.com/files/reasons_us.pdf

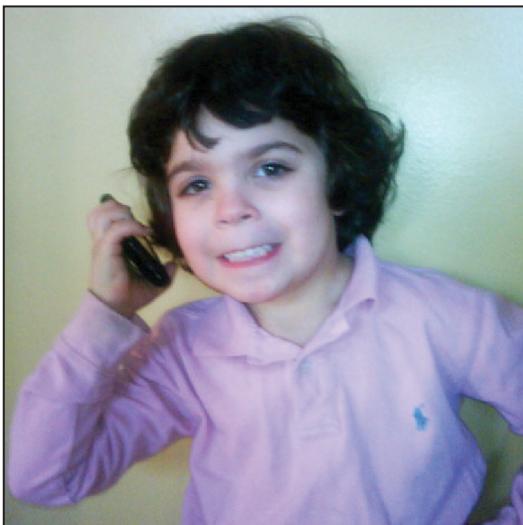
ISRAELI HEALTH MINISTRY GUIDELINES FOR CELL PHONE USE (2008)

These recommendations accord with guidelines issued in other countries and are based on the “precautionary principle”. Both the technological needs of Israeli society and the level of caution required on the basis of current scientific data, balancing population needs and preservation of health were considered. The following recommendations were made:

- Use a speaker, hands-free device, or earphones when speaking as distancing the cell phone from the body and head minimizes exposure to RF radiation. Keep the phone away from the body when speaking (examples: do not carry it on a belt or in a pocket of trousers/pants; do not string around the neck). Reduce the quantity and duration of phone conversations to minimize exposure.
- Limit speaking in areas where reception is weak or blocked (examples: few antennas; in elevators; in trains; when traveling in a vehicle) as exposure to radiation increases.
- It is highly recommended that these precautionary measures be implemented especially for children, who generally have greater susceptibility to cancer development following exposure to carcinogens. Since cell phone use among children began later than in adults, the effects of childhood exposure has not yet been assessed. In light of their increased sensitivity, the long life expectancy of young populations (which includes a significant accumulation of exposure and long period of time for morbidity development), and ethical issues that are involved in the decision making process in minors, special precaution for this population is required. Therefore, the Ministry of Health recommends that parents reduce exposure of children to cell phones as much as possible, carefully consider the age at which use should start, and in any case, ensure that children use (non-wireless) earphones or speakers when using a cell phone.
- The SAR (Specific Absorption Rate) is a measure for calculating the level of radiation absorbed by the body. This measure expresses the rate of energy absorption by the tissue, and is expressed in watt/kg. The consumer protection regulations issued in 2002 require that the level of radiation of the type of telephone, as well as the maximum amount of radiation permitted, be marked on the phone. This regulation enables comparison of levels of radiation emitted from different devices, providing an additional factor that can be considered when purchasing a new cell phone.

-Siegal Sadetzki, MD, PhD 2009 (Source: Israeli Ministry of Health's Recommendations of the Ministry of Health Regarding Cell Phone Use, August 11, 2008.

(<http://www.health.gov.il/pages/default.asp?PageId=4408&catId=838&maincat=46>, accessed September 6, 2009.)



GOVERNMENT ACTION AND RECOMMENDATIONS

www.ewg.org/cellphoneradiation/Government-Action, adapted below

SWITZERLAND : Federal Office of Public Health (FOPH 2009c)	
Restricting children's cell phone use	Keep your calls short or send a text message (SMS) instead. This advice applies especially to children and adolescents.
Headset	Use a wireless hands-free system (headphone, headset) with a low power Bluetooth emitter to reduce radiation to the head.
Other	When buying a mobile phone, make sure it has a low SAR. Whenever possible, only use a phone when signal quality is good. Be wary of shields and protective devices that claim to limit radiation exposure; they may reduce connection quality and force the phone to transmit at higher output power.
GERMANY : Federal Office for Radiation Protection (Bundesamt für Strahlenschutz (BfS) 2008d)	
Restricting children's cell phone use	Exposure minimization for children and youngsters.
Headset	Best to use a headset instead of talking directly into the cell phone.
Other	Use a landline telephone whenever available. Use cell phones with a low SAR value (<0.6 W/kg). Avoid making calls on a cell phone (or make shorter calls) when phone has a weak signal. Send an SMS instead of calling.
FRANCE : Legislation being developed by the French Senate and the Ministry of Health and Sports (Ministère de la Santé et des Sports 2009; Sénat français 2009)	
Restricting children's cell phone use	All public communication, that aim directly or indirectly to promote sale, availability, or use of cell phones by children younger than age 14 would be prohibited. Sale or free distribution of products containing radiofrequency devices and aimed specifically for use by children younger than age 6 may be forbidden by order of the Health Minister, in order to limit excessive exposure of children.
Headset	Under the new legislation, radiofrequency devices that would be connected to any public cell phone service provider may not be sold without an accessory device that would allow limiting head exposure to radiofrequency waves.
ISRAEL : Ministry of Health (2008)	
Restricting children's cell phone use	Limit children's use of cell phones.
Headset	Use wired earpieces and label the cell phone with the SAR.
Other	Avoid cellular communication in enclosed places (e.g., elevators, trains).
KOREA : Seoul Metropolitan Council (2009)	
Restricting children's cell phone use	Ban the use of cell phones at schools. At elementary schools students will not be able to come to school with phones. Middle and high schools would collect the phones and return them after school.

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GOVERNMENT ACTION AND RECOMMENDATIONS (cont'd)

UNITED KINGDOM : Department of Health (2005)	
Restricting children's cell phone use	Chief Medical Officers strongly advise that where children and young people use mobile phones, encourage: use for essential purposes only, short calls. Longer use prolongs exposure and should be discouraged.
Other	Keep calls short. Consider relative SAR values when buying a new phone.
CANADA : The city of Toronto's Department of Public Health (Toronto Public Health 2008a, 2008b)	
Restricting children's cell phone use	Cell phones are used increasingly by children and youth ages 10 to 19 years. It is prudent to continue to direct messages to the public to avoid unnecessary RF exposure among young people. Cell phones are important for communication and safety reasons, but parents should be aware of how to reduce risks from their child's use of a cell phone. Today's children use cell phones at a younger age, therefore their lifetime exposure to cell phone RFs will likely be greater, thus the chances that a child could develop harmful health effects from using a cell phone for a long time may be greater.
Headset	Toronto Public Health recommends that children use landlines and use cell phones for essential purposes only (limiting the length of calls) and using headsets or hands-free options, whenever possible.
Other	Parents who buy cell phones should look for phones with the lowest emissions of RF waves. When cell phone reception is low and when a cell phone is used during high speed travel (e.g., driving in a car), power emitted from the cell phone increases to maintain reception. To reduce RF exposure, children's cell phone use should be limited during these times.
RUSSIA : Russian National Committee on Non-Ionizing Radiation Protection (2008)	
Restricting children's cell phone use	Potential risk for children's health is very high. Current safety standards for exposure to microwaves from mobile phones have been developed for adults and do not consider characteristic features of a child's body.
Other	Ultimate urgency to defend children's health from the influence of the EMF [electromagnetic fields] of the mobile communication systems.
FINLAND : Finnish Radiation and Nuclear Safety Authority [Säteilyturvakeskus (STUK) 2009]	
Restricting children's cell phone use	Restrict children's use of mobile phones. Precaution is recommended for children as all of the effects are not known.
Headset	Parents should give children hands-free headsets that significantly minimize head exposure. Keep the mobile phone at least a few centimetres away from the body.
Other	Children should be advised to use SMS messages instead of making calls. Parents may restrict the number of their children's mobile phone calls and call duration. STUK does not find it justifiable to totally prohibit children's use of mobile phones. Mobile phones also create safety because they make children's communication with parents easier.

GOVERNMENT ACTION AND RECOMMENDATIONS (cont'd)

EUROPEAN UNION MEMBER STATES : European Parliament (2008b; 2009)	
Restricting children's cell phone use	Limits set on the general public's exposure to electromagnetic fields are obsolete and do not consider developments in communication technologies or vulnerable groups (e.g., pregnant women, newborns, children). Set stricter exposure limits for all equipment which emits electromagnetic waves in the frequencies between 0.1 MHz and 300 GHz.
Headset	Use hands-free kits.
Other	A wide-ranging awareness campaign to familiarize young Europeans with good mobile phone techniques (e.g., hands-free kit, keep calls short, switch off phones when not in use, use phones in good reception areas.
EUROPEAN ENVIRONMENT AGENCY : Policy Statement, Director J. McGlade (2009)	
Restricting children's cell phone use	Advise against regular use of cell phones by children.
Other	Propose precautionary actions to reduce the general public's radiation exposures.
UNITED STATES :	
(1) Food and Drug Administration (FDA) Office of Women's Health (FDA 2007)	
Other	Cell phones should expose people to the least RF [radiofrequency radiation] possible. Cell phone users need to be told of any bad effects.
(2) FCC Consumer Warning (November 5, 2009)	
Restricting children's cell phone use	Some parties assert potential health risks are probably greater for children than for adults.
Headset	Use an earpiece or headset. Wired earpieces may conduct energy to the head and wireless earpieces emit a small amount of RF energy; earpieces remove the greatest source of RF energy from proximity to the head and thus can greatly reduce total head exposure. Avoid continually wearing a wireless earpiece when not in use.
Other	Keep wireless devices away from your body when they are on. Do not attach them to belts or carry them in pockets. Use the cell phone speaker to reduce head exposure. Consider texting rather than talking. Buy a wireless device with lower SAR. The FCC does not require manufacturers to disclose the RF exposure from their devices. Note that the variation in SAR from one mobile device to the next is relatively small compared to the reduction that can be achieved by using an earpiece or headset.
(3) California, Senate Bill 1212 introduced on the subject Cell Phone: Specific Absorption Rate Disclosure, Senator Mark Leno (2010)	
Restricting children's cell phone use	Discourage children's use of cell phones.
Headset	Manufacturers to provide headsets.
Other	Manufacturers to provide SAR labels.

LINKS TO SOME CELL PHONE LEGISLATION AND WARNINGS

FRANCE

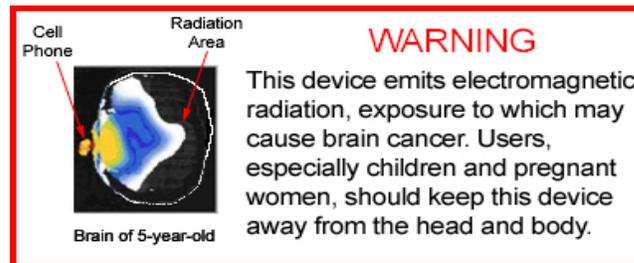
In 2009 the French National Agency for Environmental Safety recommended more research to eliminate the uncertainties, evaluate new technologies and minimize public exposure. They adopted the As Low As Reasonably Achievable (ALARA) principle in which the International Commission on Radiological Protection recommends a system for limiting doses; lower SAR for mobile phones, and labeling of all phones with the SAR. In addition, the French Health Minister issued a public warning against use of mobile phones by children. Mobile phones cannot be advertised to those under 12, nor developed specially for children; and there is legislation pending to not allow those under 16 to use cell phones. (www.priartem.fr/IMG/jpg/091015_Avis_Afsset.jpg ; <http://www.cdurable.info/Grenelle-Environnement-avant-projet-de-loi-Engagement-National-pour-Environnement,1439.html>)

ISRAEL

In 2002 the Israeli Protection Agency required that the SAR level as well as the maximum amount of radiation be marked on every cell phone. The Israeli Health Ministry in 2008 set recommendations based on the Precautionary Principle warning citizens of potential health risks, and advised of specific ways to reduce exposures by: keeping phones away from the body when turned on, using earpieces, and avoiding use of phones when in areas with weak signals, driving, or in metal enclosures such as elevators, and discouraging children from using cell phones close to their head.

STATE OF MAINE, U.S.

The proposed bill provides that a manufacturer may not sell at retail in this State, or to a retailer in this State a cellular telephone unless, at no cost to the Maine retailer or Maine distributor, the cellular telephone and its packaging bear a warning label about the brain cancer risk associated with the radiofrequency emitted from cellular telephones, with the recommendation that users, especially children and pregnant women, keep the device away from their head and body. A violation of this provision is a violation of the Maine Unfair Trade Practices Act. (<http://www.maine.gov/legis/housedems/aboland/index.html>)



INDIA

In 2009 they considered banning use of cell phones for children under 16.

RUSSIA

Advised that children under 18 not use a cell phone. Russian National Committee on Non-Ionizing Radiation Protection. (http://emfacts.com/papers/rncnirp_children.pdf)

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LINKS TO SOME CELL PHONE LEGISLATION AND WARNINGS (cont'd)

UNITED KINGDOM

In 2000 the government advised general limitations on the use of cell phones for those under 12 and issued warnings to the general public to reduce cell phone radiation exposures.

GERMANY

From 2004-09 public warnings have been issued by many cities and the German Medical Society.

TORONTO

In 2009 the government issued a warning that children under 8 should only use cell phones in emergencies and others should curtail direct exposure to the head, using speakerphones or headsets.

EUROPEAN PARLIAMENT

In April 2009 they passed by 559-22 a resolution entitled “Health Concerns Associated With Electromagnetic Fields” which calls for, among other things, governmental action by member nations to address concerns over the “link between use of mobile phones and certain types of cancer, including brain, auditory nerve, and parotid gland tumors, especially where children are concerned.” [www.radiationresearch.org/political.asp (scroll down to “European Parliament resolution of 2 April 2009 on health concerns associated with electromagnetic fields”)]

EUROPEAN ENVIRONMENT AGENCY

In September 2009, Director Jacqueline McGlade issued a policy statement, on the occasion of the Environmental Health Trust Expert Meeting on Cell Phones and Health in Washington, D.C., advising against regular use of cell phones by children and proposing precautionary actions to reduce radiation exposures to the general public. (www.environmentalhealthtrust.org)

FINNISH RADIATION AND NUCLEAR SAFETY AUTHORITY (STUK)

In January 2009 the government issued a paper stating, “with children we have reason to be especially careful” and recommended children text only, that parents limit number and duration of calls, use hands-free devices, avoid calls from a moving car or train, and avoid calls in rural areas.

KOREA

On July 9, 2009 The Seoul Metropolitan Council proposed regulations to ban the use of cell phones at schools. At elementary schools students will not be able to come to school with phones. Middle and high schools would collect the phones and return them after school. (http://www.koreatimes.co.kr/www/news/nation/2009/07/117_48198.html)

“Cellphones and Brain Tumors: 15 Reasons for Concern”

Published August, 2009, adapted below

http://www.environmentalhealthtrust.org/sites/test1.nbcomp.com/files/reasons_us.pdf

- 1: Industry’s own research shows that long-term use of cellphones significantly increases brain tumor risk.
- 2: Independent research also shows there is risk of brain tumors from cellphone use.
- 3: The danger of brain tumors from cellphone use is highest in those who begin using cellphones regularly before age 20.
- 4: In 1996, FCC mandated exposure limits for cellphones 13 years after phones were introduced using standards developed by an industry group, the IEEE.
- 5: Cellphone radiation damages DNA, which can lead to cancer and other diseases.
- 6: Cellphone radiation has been shown to cause the blood-brain barrier to leak, potentially increasing absorption of toxic materials from the blood into the brain.
- 7: Male fertility is impaired by cellphone radiation.
- 8: The European Parliament voted for major cellphone policy changes in 2008 based on strong evidence of the health effects of electromagnetic radiation.
- 9: Cellphone user manuals warn customers to keep the cellphone away from the body even when the cellphone is not in use.

RECOMMENDATIONS

We the endorsers and the editors of Cellphones and Brain Tumors:15 Reasons To Be Concerned support the full set of actions called for by the European Parliament regarding “Health Concerns Associated With Electromagnetic Fields”:

- Ban marketing campaigns of cell phones designed solely for children.
- Require proof of liability insurance coverage for potential health risks associated with cell phones and similar wireless devices prior to their being offered for sale.
- Review the scientific basis and adequacy of the EMF exposure limits.
- Allocate research funding, independent of industry funds and influence, to evaluate long-term adverse effects from cell phones and other harmful effects from different sources of EMF, particularly where children are concerned.
- Finance a wide ranging awareness campaign aimed at young people to minimize their exposures to cell phone radiation.
- Require warning labels on all wireless devices.
- Make available maps showing exposure to high-voltage power lines, radio frequency and microwaves from telecommunication masts (cell towers), radio repeaters and telephone antennas.
- Publish a yearly report on the level of electromagnetic radiation in our respective nations.

“Cellphones and Brain Tumors: 15 Reasons for Concern, Science, Spin and the Truth Behind Interphone” was prepared by eight health advocates on two continents, including L. Lloyd Morgan, B.Sc., USA, Lead Author; Elizabeth Barris, USA, ThePeoplesInitiative.org, Founder; Janet Newton, USA, EMR Policy Institute, President; Eileen O’Connor, UK, Radiation Research Trust, Director; Alasdair Philips, UK, Powerwatch, Director, Electronics Engineer and EMF Consultant; Graham Philips, UK, Powerwatch, Technical Manager; Camilla Rees, USA, ElectromagneticHealth.org, Founder; Brian Stein, UK, Radiation Research Trust, Chairman

SAMPLING OF RECENT PUBLICATIONS

1. **Hardell, Khurana, et al September 2009:** Literature review indicates that using a cell phone for greater than 10 years approximately doubles the risk of being diagnosed with a brain tumor on the same side of the head as that preferred for cell phone use. The data achieve statistical significations for glioma and acoustic neuroma. There is adequate epidemiologic evidence to suggest a link between prolonged cell phone usage and the development of an ipsilateral brain tumor. Dr. Khurana says that because of their much broader use today cell phone use “has far broader public health ramifications than asbestos and smoking, and directly concerns all of us, particularly the younger generation, including very young children.” Khurana V., Teo C., Kundi M., Hardell L., Carlberg M., Cell phones and Brain tumors: A review including the long-term epidemiologic data. Surgical Neurology 72 (3) 205-214.
2. **Myung et al 2009:** Mobile Phone Use and Risk of Tumors: A Meta-Analysis, investigated the qualities of individual studies. Combined results of the poor quality studies (mostly Telecom funded studies) found cell phone use provided statistically significant protection from tumors, while independently funded high quality studies found a statistically significant risk of tumors. *J Clin Oncol.* 2009 Nov 20;27(33):5565-72.
3. **Physics in Medicine and Biology 2008,** revealed that some parts of the brains of children absorb twice as much radiation from cell phones as that of an adult.
4. **Dr. Siegal Sadetzki 2007,** Chaim Sheba Medical Center, Tel Hashomer, Israel: Found link between brain tumors and cell phones. They also reported heavy cell phone users were more likely to have tumors of the salivary gland compared to those that did not use cell phones. (<http://aje.oxfordjournals.org/cgi/reprint/167/4/457>)
5. **Interphone Study:** The 13-country Telecom funded Interphone Study: Underway for 10 years costing \$30+ million. The full 13-country results were to be published in 2005 but have been repeatedly delayed because of internal conflict and changes in leadership. While they cannot agree on how to report the findings, researchers from several participating countries including Sweden, France, Denmark, and Israel have published their own results and warned their citizens of the health risk.
6. **Hardell et al 2006a,2006b** concluded that studies of those using a cell phone for greater than 10 years give a consistent pattern of an increased risk for acoustic neuroma and glioma with the risk being highest for a tumor on the same side of the head that the phone is used. a) *Int Arch Occup Environ Health.* 2006 Sep;79(8):630-9, and b) *Int J Oncol.* 2006 Feb;28(2):509-18.
7. **Han et al 2009** found that use of cell phone for a decade or more doubled the risk of acoustic neuroma in all studies ever conducted. Han YY et al, Cell Phone use and Acoustic Neuroma: the Need for Standardized Questionnaires and Access to Industry Data, Surgical Neurology 2009 Sept. 72 (3) 216-22.
8. **Jerry Philips, Narendra Singu, Henry Lai 2009:** Electromagnetic Fields and DNA Damage survey the many studies and show that DNA is damaged by EMF fields. *Pathophysiology* 2009 Aug;16(2-3):79-88.
9. **Salford et al, Blood-Brain Barrier Study 2003:** “Nerve cell damage in mammalian from GSM mobile phones” shows cell phone radiation cause the blood-brain barrier (BBB) to leak causing nerve cell brain death after exposure to microwaves. Later studies showed by Salford et al. rats with brains damaged by BBB leakage were less capable in memory test compared to unexposed rats, implying mental impairment. *Environ Health Perspect.* 2003 Jun;111(7):881-3.
10. Recent Huffington Posts on this issue can be found at the websites:
www.huffingtonpost.com/scott-mendelson-md/your-cell-phone-will-not_b_416588.html
www.huffingtonpost.com/devra-davis-phd/are-cell-phones-causing-d_b_359456.html

PERSONAL STATEMENTS

CASE 1

I have been a patient at UCSF since November 2007 when I was diagnosed with stage IV glioblastoma multiforme at age 37. I am now 40. I have had two craniotomies thus far and continue treatment every two weeks. The tumor has been stable through 2009. **It is my strong opinion that cellular phone usage was the cause of my disease.** I used a cell phone for the past 18 years with extremely high usage due to my work in commercial real estate. I used approximately 8 different phones over the years (some even looked like military radios). My tumor was located in my left occipital lobe and was approximately 8 cm x 6 cm in size. In the past I only talked on my cell phone held to my left ear—my tumor is there, also at my left ear area. **I have met several patients and friends afflicted with the same disease. The common denominator is that each of our tumors is located at the area where we hold our cell phones whether it be left or right. Seems like a stretch to call our commonality a coincidence.**

CASE 2

My husband was a healthy brilliant man. He used a cell phone for over 20 years with over 10,000 lifetime hours of use for business. At 56 he had a grand mal seizure while asleep (10 days prior to Senator Kennedy) and was immediately diagnosed with a cancerous mass (oligodendroglioma) in his right frontal lobe. He always held his phone to his right ear. After hearing the Kennedy family suspected that the Senator's tumor may be connected to his cell phone use, we researched extensively. We sent my husband's medical records and cell phone records to international experts who confirmed our suspicions that my husband is the unfortunate poster-boy for the glioma/cell phone link. Had there been a warning or pre-safety testing this could have been avoided. He is the tip of the iceberg—I am advocating so others do not have to suffer as my family has. I have met scores of others with brain tumors who feel they are attributable to their cell phone use. Some, in their 30's and 40's, have already died. My husband is 57 and may only live a few more years. The right frontal lobe where his tumor originated is the core of empathy for loved ones, knowing the difference between right and wrong, and many other personality and cognitive functions. His cell phone use and subsequent tumor transformed our family life. This slow-growing tumor destroyed his soul and destroyed our family long before the diagnosis. We now live with the after-effects of the craniotomy (brain injury) and in fear of his death and our financial ruin.

Expert Opinion on this case:

“It is more probable than not that this man's glioma was caused by his long-term mobile phone use according to current literature. The risk for glioma for ipsilateral (same side of the head) use of mobile phone use during 10 years or more is significantly increased, odds ratio (OR) -1.9, 95% confidence interval (CI)=1.4-2.4 (Hardell et al 2009, Khurana et al 2009). Since Patient X used mobile phone at least 20 years and 10,000 hours his probability would even be higher than the 95%. **Signed: Lennart Hardell, MD, PhD, Professor and Director of Oncology, Orebro, Sweden**



Case 2 using cell phone at site of invention of first telephone

PERSONAL STATEMENTS (cont'd)

CASE 3

Until he was 48, my husband was a healthy, brilliant and vibrant man. He was a football coach at a California State University, who constantly used his cell phone. When he was recruiting, he would often speak on his cell phone for the entire 4-hour trip to his recruiting area in Southern California. There was one phone in particular that he complained would make his head and ear hurt when he spoke on it for more than several minutes. His right ear would be bright red where he had held his phone. He complained so much about his cell phone that I took it to Sprint to trade it for a different model, but because it was assigned to the university I was unable to do so. It is not surprising that his first symptom (a seizure) occurred while he was talking on his cell phone. Over the next few years my beautiful husband underwent two brain surgeries, ceaseless rounds of experimental chemotherapy and dangerous radiation, all with the knowledge that there was no cure for his stage 4 glioblastoma multiforme tumor. Within a few months my husband went from knocking 250-pound linebackers on their rear ends during practice drills to patting them on their heads to console them as they knelt by his deathbed. My love died on March 13, 2009. He was only 48 when diagnosed and died at age 50. We both knew his disease came about because of his cell phone use. The saddest part about this story is that if there had been a label on his cell phone (or the packaging) warning us that cell phones might cause brain tumors, he would be alive today. I am 100% certain of that. But instead, we are asked to believe cellular phones are safe and my six children and I are left to pick up the pieces. How many more must die?

CASE 4

I was a healthy active mother of three children who spent much of my time driving my children to and from school, soccer and other activities. For every hour of the waking day for 5 years I kept my cell phone in my bra and used a Bluetooth device which only worked if the phone was close to the device. At age 39, I was diagnosed with an unusual breast tumor that appeared precisely under the area where the phone radiation was transmitted. My physicians believe that this tumor arose because of the unusual direct exposure to the breast tissue from the phone.



RECENT MEDIA REPORTS

<http://www.gq.com/cars-gear/gear-and-gadgets/201002/warning-cell-phone-radiation?currentPage=1>

Warning: Your Cell Phone May Be Hazardous To Your Health, February 2010

<http://sixtyminutes.ninemsn.com.au/article.aspx?id=797215>

Australian Sixty Minutes report stating that there should be genuine concern that cell phones are causing brain tumors.

<http://www.cnbc.com/id/34502456/for/cnbc/>

A Maine legislator wants to make the state the first to require cell phones to carry warnings that they may cause brain cancer. A similar action is afoot in San Francisco, where Mayor Newsom wants his city to be the nation's first to require the warnings.

<http://www.ktvu.com/video/21968251/index.html?taf=fran>

Lafayette Real Estate Broker, Alan Marks, 57, had a grand mal seizure last year after 20 years of intense cell phone use. He estimates he used a cell phone for about 10,000 hours. Prominent doctors have gone on record that Marks' cell phone use likely contributed to his golfball-sized malignant glioma adjacent to where he held his cell phone.

<http://www.youtube.com/watch?v=IKXzHW9qMKE>

On Good Morning America with Diane Sawyer, Dr. Mehmet Oz reports that radiofrequency rays from cell phones cause damage to brain cells. He suggests children should text only and everyone should hold the phone away from their head and body. Use of a wired headset is suggested and men should not keep them in their pockets as a recent report by the Cleveland Clinic showed that cell phones lower sperm count.

http://www.next-up.org/pdf/Mobile_phones_and_real_pandemics_05_01_2010.pdf

Can the adage "everything that is exaggerated is unimportant" be applied to the present avalanche in the media across the Atlantic of the dire warnings affecting the 400 million people who use mobile phones? At long last the Americans are waking up to the fact that they have been completely misled about the dangers of exposure coming from their "precious mobile phones"

<http://www.youtube.com/watch?v=4Uc8O2-KV5w>

<http://www.youtube.com/watch?v=Cczwz1SE64c>

<http://www.youtube.com/watch?v=BL1q1cEH-cg>

Alan Marks and his family on the Dr. Oz show with Dr. Joel Moskowitz and Dr. Devra Davis. The Marks' son Zack worked for Senator Kennedy and stated how devastating it was for both his father and the Senator to be diagnosed with a malignant brain tumor within days of one another. The Marks' daughter Mandy shared her feelings about her dad's illness and his cell phone use. She is angry, scared and devastated. Dr. Oz believes there is serious cause for alarm and solid reasons to take simple precautions.

http://www.huffingtonpost.com/andrew-weil-md/cell-phones-and-cancer_b_315714.html?view=print

Dr. Andrew Weil, October, 2009

Damage from RF energy may be cumulative over very long periods. Since cell phones show no signs of going away—indeed, most American children today face a lifetime of exposure—it's vital to focus closely on the most recently published studies, the ones that show the effects of longer-term exposure. I am not persuaded that the FDA has done that sufficiently.

http://www.everydayhealth.com/blog/dr-black-brain-health/brain-tumor-risk-and-cell-phones/?comment_id=3

Dr. Keith Black, neurosurgeon Cedars-Sinai December, 2009

I use a wired headset and I encourage my patients to do the same. Another recommendation is to limit children's cell phone usage. Since we know that children's brains are still developing and may be more susceptible than adult's brains to tumor formation this is a prudent preventative measure.

SAR (SPECIFIC ABSORPTION RATE) DISCUSSION

The SAR exposure limit was developed in 1982 in an attempt to establish a safety limit that was set to be lower than levels of radiofrequency (RF) exposures then known to increase changes in temperature or other physical response in animals. Safety limits based on SAR were reaffirmed in 1991 and then again in 1999. More than a decade later, there are numerous papers showing that a range of biological effects can occur to cells at levels of RF emissions below the SAR in which heating can not be detected. Furthermore, because of the increasing popularity of personal wireless devices, unlike the late 1970's when the SAR limits were developed, today the public is exposed to RF radiation each and every day from many different sources.

The current exposure limits that are used by the FCC to set standards were developed in 1997 and were based on the 90th percentile of a military recruit—a 200-pound 6-foot tall man with an 11-pound head—using a phone for 6 minutes. This standard is obviously neither applicable to children and women nor to current use patterns where average call length is considerably longer.

SAR values are reported to the FCC by the manufacturer and have been known to vary from the reported number by a factor of two across models of the same phone. There is little or no ongoing monitoring of the SAR values submitted by manufacturers. In one case, Canada found cell phones with SAR's of 2.5 W/kg (the limit is 1.6 W/kg) and rejected them, albeit a year after they had been on the market.

The SAR value varies with the source of exposure and the person using the phone. For example, if you are in a rural area or in an elevator or a car, where the cell phone uses more power, your brain will get a greater exposure from the higher power required in these instances. Likewise, if you use a low SAR value phone for long durations, you will be more exposed than someone who uses a low SAR value phone infrequently.

With the use of a headset connected to a cell phone, the cell phone is not held against the ear and thus the absorbed radiation to the brain could be reduced by several orders-of-magnitude, providing that the phone is *not* kept close to or on the body. Thus, holding a lower SAR phone next to the head for hours a day will not protect a user from increased risk of brain tumors, neurological disorders, and of course car crashes. Because the SAR was developed for a large heavy man, children and smaller adults will need to keep their phones even farther from their bodies and heads than the manufacturers recommend (see page 3: Current Manufacturer Advisories on Cell Phones).



If someone begins using a cell phone prior to age 20, there is a 5-fold increased risk of brain cancer later in life. -Lennart Hardell, MD, PhD et al 2009

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NATIONAL RESEARCH CENTER FOR WOMEN AND FAMILIES
www.center4research.org

THE CANCER SOCIETY OF SOUTH AFRICA www.cansa.org.za

CALIFORNIA BRAIN TUMOR ASSOCIATION www.cabta.org

THE EMR POLICY INSTITUTE www.emrpolicy.org

RADIATION RESCUE www.radiationrescue.org

ElectromagneticHealth.org electromagnetichealth.org

MOMS FOR SAFE WIRELESS www.momsforsafewireless.org

TEENS TURNING GREEN www.teensturninggreen.org

MORE GREEN MOMS www.moregreenmoms.com

RADIATION RESEARCH TRUST www.radiationresearchtrust.org

Note: All weblinks in this document were accessed during the month of February 2010.