

On the Need to Promote Sensible Policies Regarding Cell Phones in the District of Columbia as part of the Budget Process

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Before Washington, D.C. City Council  
Health Committee Budget Hearing  
Chairperson Alexander  
April 10, 2013

Thank you for inviting me to testify today before this committee, as you consider the challenges the District of Columbia faces operating in a fiscally constrained universe to address major health issues of our residents.

Environmental Health Trust is a non-profit research and public educational institution that works with leading scholars around the world to provide cutting edge studies on important avoidable environmental health threats.

### ***Background***

My personal background includes a career in academic medicine and government service over the past forty years. I have worked with local, national and international public health groups to provide advice and expert review on wide-ranging environmental problems. I was confirmed by the U.S. Senate as a Presidential Appointee to the National Chemical Safety and Hazard Investigation Board in 1994, after a career as founding director of the Board on Environmental Studies and Toxicology from 1983 to 1993, at the U.S. National Research Council of the National Academy of Sciences and as the only woman to have been appointed Scholar in Residence there.

I have served as a Lead Author of the Intergovernmental Panel on Climate Change for the United Nations Framework Convention—the group awarded the Nobel Peace Prize with Al Gore in 2007, and have chaired, organized and edited proceedings from an international expert meeting for the IPCC and the Organization for Economic Cooperation and Development on the Ancillary Benefits of Climate Change, as well as expert meetings on cell phones and health in Washington, DC., Helsinki, Finland, and Istanbul Turkey, over the past few years. I am a Fellow of the American College of Epidemiology and toxicologist

who has written more than 190 scientific publications and served as a Scientific Reviewer of the U.S. National Toxicology Program. I received my B.S. and M.A. degrees from the University of Pittsburgh in 1967, my Ph.D. in science studies from the University of Chicago in 1972, and a post-doctoral Masters in Public Health, from Johns Hopkins University, where I held a Senior National Cancer Institute Post-Doctoral Fellowship in Cancer Epidemiology. I also held a National Science Foundation Post-Doctoral Fellowship at Catholic University in the History, Philosophy and Sociology of Science.

I have worked in the administrations of Presidents Carter, Reagan, George H. W. Bush, and Clinton and served on numerous national, state and international advisory committees on public health and the environment. I was also appointed by the Speaker of the House of Representatives to the Mickey Leland Air Toxics Board, on which I served from 1994-2000.

In 2002, a book I wrote, *[When Smoke Ran Like Water](#)*, was the first book on the environment to become a National Book Award finalist in nonfiction since Rachel Carson's *The Sea Around Us*. These written remarks provide the basis of my oral comments before this committee, and are drawn from my recent book, *[Disconnect—the truth about cellphone radiation, what industry has done to hide it, and how to protect your family](#)*--and several recent scientific publications—one of which we are releasing here today to this committee. In addition, previous testimony I have provided to the President's Cancer Panel and to the U.S. Senate that can be found on our website, provide additional technical information that may be of interest. [www.ehtrust.org](http://www.ehtrust.org)

### *Overview*

In my testimony today, I will:

Explain why cell phone education and policy are major concerns for public health and pose a major threat to the budget for health care in this city.

Review recent studies showing increased risks of malignant brain tumors tied with cell phones, as well as learning disabilities and brain damage tied with prenatal exposure to cell phones, and comment briefly on why most studies of brain cancer and cell phone use do *not* find any increased risk

Summarize recent policy developments that have resulted in the U.S. Federal Communications Commission seeking comments on revamping its approach to cell phones, and recent development in technologically advanced nations such as Israel, Finland, India, Switzerland and others, that suggest simple educational and policy options to promote sensible strategies to prevent harm and promote health.

Finally, I will bring to your attention the need to include in the health education component of the budget a major multi-media program on the right to know about how to use cell phones safely, especially for children and drivers In that regard, it is especially noteworthy that the FCC just this past Good Friday at 3 p.m. released an Official Notice of Inquiry seeking advice on whether its 16 year old approach to cell phones should be changed. I want to urge that this Committee add its good offices and voice to that of the American Academy of Pediatrics, EHT, and other groups that are urging more protective policies be taken for our children with respect to cell phones.

For your information, I invite those of you that have iPhones to go to settings/general/about/legal/RF regulatory. There you will find the only text on the iPhone that cannot be made bigger or copied, alerting those users who know how to find it that phones should be held *at least 10 millimeters from the body*. This advice can be found in fine print warnings with all smart phones today, but the public remains unaware of it.

I will show the Council how some phone makers are stepping up to the plate to provide information about how to reduce exposures to cell phones recent changes in cell phone design and advice provided to consumers. The Town of [Jackson, Wyoming](#) and that of [Pembroke Pines, Florida](#) have recently issued their own Proclamations of Cell Phone Safety Awareness. I hope that the District will be

able to join in this effort to promote understanding of the reasons why it makes sense to Practice Safe Phone

This written testimony is submitted for the Committee's record, along with our new scientific publication in the Journal of Pathophysiology, and the Doctor's Advice to Patients and Their Families—a pamphlet being handed out in doctors' offices and clinics in this city, as well as in Finland, Turkey, Austria, Italy, Puerto Rico and many other locations around the world. and I will briefly summarize the findings today. Recent scientific evidence on the importance of preventing direct microwave exposure to the brain and body that can arise from using cell phones today has become stronger overall, even though the literature is not consistent.

Like many cities, public health officials in Washington, D.C. need to address the importance for preventive policies regarding the use of cell phones especially by children. Several efforts that have been taken in sophisticated nations such as Israel, France, Finland, Austria, Switzerland and India can be found in [a briefing pamphlet](#) available on our website [www.ehtrust.org/resources](http://www.ehtrust.org/resources) as well as the [Doctors Advice](#).

### ***Background Information—Prevention Better Than Cure***

Current costs to the District of Columbia for treating preventable medical problems are mounting. Prevention Programs aimed at obesity, smoking, lead poisoning and other so-called lifestyle risks are important and have been accorded appropriate funding from this city. As Ben Franklin quipped three centuries ago—an ounce of prevention is worth a pound of cure.

In that regard, efforts to prevent teen smoking have been found to be especially cost-effective at reducing the future burdens on society of smoking-related disease. The best way to keep people from becoming sick or dying from tobacco is to keep them from starting to smoke in the first place.

Similarly, reducing other environmental risk factors can also dramatically reduce future disease. This Council is well aware of the burden on society that stems from lead poisoning of our children. Lead is understood to have permanent impacts on the developing brain and has been shown in a number of studies to be tied with increased criminal behavior, learning problems, and overall reduced intelligence.

Data on the benefits of lead paint prevention programs have shown that for every single dollar spent to control lead paint hazards, the city receives a benefit of \$17. This results in a net savings to the city of about a quarter of a billion dollars—between \$181-269, As reported in <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2717145/> dollar invested in lead paint hazard control results in a return of \$17–\$221 or a net savings of \$181–269 billion.

This Council is also aware of the need to promote the use of bike helmets, especially for children. More than a decade ago, the Council passed the DC Bike Helmet Law, "**Child Helmet Safety Amendment Act of 2000**"

- The law mandates that riders under 16 are required to wear a helmet while cycling in the District of Columbia.
- The law also requires that children under the age of 16 wear a helmet when riding a scooter, skateboard, sled, coaster, toy vehicle, or any similar device.

The rationale for this law is straightforward. Studies indicate that preventable bike trauma is a major cause of disability and death in children.

According to an analysis recently produced by the National Bureau of Economic Research in February of this year, on THE EFFECTS OF BICYCLE HELMET LAWS ON CHILDREN'S INJURIES by Pinka Chatterji and Sara Markowitz, Working Paper 18773

<http://www.nber.org/papers/w18773>

In 2009, bicycle accidents resulted in half a million emergency room visits (CDC 2012a; CDC 2012b). Children aged 19 and under account for 57 percent of all bicycle injuries treated in emergency rooms and 15 percent of deaths. In fact, bicycle accidents are a leading cause of accidental death among children (CDC 2012b).

Deaths and serious injuries from bicycle accidents frequently result from trauma to the head, and children are more likely than any other age group to die from a bicycle-related head injury (Safe Kids USA, 2012). Injured children also are more than twice as likely as injured adults to suffer from a head or facial injury (Rodgers 2001). Based on 1994-2001 admissions data from the National Pediatric Trauma Registry (NPTR), the National Safe Kids Campaign estimates that almost half of children ages 14 and under who were hospitalized for a bicycle related accident

had a traumatic brain injury. Most (about 75 percent) of these hospitalized children were males (National Safe Kids Campaign 2002).

With 5.9 billion devices in use, mobile phones constitute a new, ubiquitous and rapidly growing exposure worldwide. Mobile phones are two-way microwave radios that also emit low levels of electromagnetic radiation. The public remains confused because inconsistent results have been published on potential risks of brain tumors tied with mobile phone use.

Most studies find no increase in risk. But, most of these studies follow people who have used phones for less than ten years. In addition, these negative studies usually do not include information on cordless phones that can emit wireless radiation 24/7.

These studies that have examined mobile phone users for periods of time that are too short to detect an increased risk of brain cancer find no increased risk. While others have misclassified exposures by placing those with exposures to microwave radiation from cordless phones in the control group, or failing to attribute such exposures in the cases and also find no increased risk.

When one looks only at those studies that have followed people who have used cell phones regularly for a decade or more, an increased risk of malignant advanced brain cancer—called glioblastoma multiforme--consistently is found, ranging from 50% to 800% more than those who have not used phones as much.

Despite a number of limits of available data, two years ago the World Health Organization, International Agency for Research on Cancer (IARC) completed a year long review and advised that electromagnetic radiation from mobile phone and other wireless devices constitutes a “possible human carcinogen,” 2B.

Our new paper reviews recent analyses not available at the time that the IARC completed its deliberations that take into account these methodological shortcomings from a number of authors, along with newly completed studies on those who begin using cell phones regularly before age 20.

My co-authors on this new paper include Santosh Kesari, MD, PhD, chief of neuro-oncology at the University of California, San Diego, as well as distinguished epidemiologists Anthony B. Miller and Colin Soskolne. We conclude that brain tumour risk is significantly elevated for those who have used mobile phones for at least a decade.

Newly completed Swedish studies on human health and cell phone use, combined with other experimental data, showing that cell phone radiation can cause genetic damage known to be tied with cancer,

We are especially concerned that these new studies carried out in Sweden indicate that those who begin using either cordless or mobile phones regularly before age 20 have greater than a 4-fold increased risk of ipsilateral glioma.

Cancer remains a difficult disease for more than ten million Americans and their families. The direct costs of the illness can be devastating. Given that treatment for a single case of brain cancer can cost between \$100,000 for radiation therapy alone and up to \$1 million depending on drug costs, resources to address this illness are already in short supply and not universally available in either developing or developed countries. Significant additional shortages in oncology services are expected at the current growth of cancer. \

We are often asked why there is no general epidemic of brain cancer now, given how widely phones are used.

To answer this question, it's important to appreciate that not even tobacco produced an increase in the general population in cancer within a decade that heavy regular smoking habits had been in place.

No other environmental carcinogen has produced evidence of an increased risk in just one decade.

Further strengthening the view of many national authorities in Israel, Finland, Belgium, Austria and India are other data that show that the brains of children are especially sensitive to microwave radiation, as they are to lead poisoning, and many other environmental hazards.

There is a difference in what is called the dielectric properties of tissues as a function of age, mostly due to the higher water content in children's tissues. High resolution computerized models based on human imaging data suggest that children are indeed more susceptible to the effects of EMF exposure at microwave frequencies. If the increased brain cancer risk found in young users in these recent studies does apply at the global level, the gap between supply and demand for oncology services will continue to widen. Many nations, phone manufacturers, and expert groups, advise prevention in light of these concerns by taking the simple

precaution of “distance” to minimize exposures to the brain and body. We note that brain cancer is the proverbial “tip of the iceberg”; the rest of the body is also showing effects other than cancers.

On Good Friday, March 29, 2013, at 3 P.M., when much of the world was otherwise engaged, the FCC website issued a Notice of Inquiry on Cell Phones, in response in part to the Government Accountability Office report from this past summer entitled:

## **TELECOMMUNICATIONS**

### **Exposure and Testing Requirements for Mobile Phones Should Be Reassessed**

GAO-12-771, Jul 24, 2012

Environmental Health Trust has long argued in both technical and popular writings that these testing requirements should be revised to use more sophisticated methods that reflect human biology and the smaller size and faster pace of development of millions of young users. We are deeply concerned that the FCC appears to be considering increasing exposures to microwave radiation from phones, rather than reducing them.

Let me explain two technical points that should be of great concern.

First of all, there is the issue of averaging volume that will be used to establish maximum radiation exposure for cell phones.

The FCC notes that international standards rely on a 10 gram mass or cube of tissue that can absorb as much as 4 watts of power for every kilogram. Current U.S. standards are more stringent, allowing no more than 1.6 watts of power for every kilogram as applied to 1 gram mass of tissue.

The difference can be illustrated by comparing the size of a small grape tomato with that of a blueberry. If you average radiation over the size of a small tomato, then larger amounts of radiation are permitted into this larger object overall, than if the radiation can only be distributed into a smaller sized object such as a blueberry.

In fact, because we comparing different sized masses and different amounts of power, the differences between using the European standard compared to the U.S. standard can result in 20-30 times greater exposures with the larger volume and higher power.



This is not merely a theoretical concern. Growing numbers of toddlers and infants are using phones as technological pacifiers.

Phones are tested today using a large head modeled on a man who was at the top 10% of all military recruits in 1989, weighing about 220 pounds, with a head that weighed about eleven pounds. This Standard Anthropomorphic Mannequin (SAM) is tested with a computer driven program that determines how much heat could be absorbed into an empty plastic shell filled with fluid to represent the human brain.

Growing numbers of studies find that contrary to FCC assumptions and those of the agency advisory committees, cell phones do produce small hotspots within living brain. Moreover, there is strong evidence that microwave radiation from cell phones causes damage to cells without producing any measurable change in temperature at all.

The projected absorption of radiation is one issue, but the rapidly growing nature of the young brain is well understood to place young children at special vulnerability. This is one reason why the European Union is now spearheading a major commission to reduce overall exposures to microwave radiation by fifty percent in the next few years. Led by French Telecom's leading expert in cell phone radiation measurement and modeling, Joe Wiartt, a team of 17 scientists from 9 countries is now seeking ways to develop and evaluate technologies to reduce human exposure, especially to reduce the power emitted by base stations and mobile phones without compromising quality of services.

*(See Appendix at end for description of LEXNET Program)*

### ***Recommendations***

The current SAR method for setting FCC exposure limits to phones and other wireless devices should be replaced by one that is biologically and anatomically based on the full age and size range of users and reflects current patterns of use.

*The method used to certify that wireless devices meet the exposure limits should be changed* such that children's and fetuses' exposures are included along with the most vulnerable tissues (e.g., female breasts, testes, eyes, brain, parotid & thyroid glands.). The certification process would explicitly model interactions of microwave radiation with metal worn by persons (e.g., metal frame eyeglasses, ear rings, metal necklaces, wire supported in bras, body-piercing studs, orthodontic

braces, etc.) along with any materials used in cases such as metal (decorations or otherwise) placed on a cellphone's case.

The method used to certify that all wireless devices do not exceed the exposure limit should take into account specific tissue's electromagnetic radiation (EMR) absorption parameters by age, body and head size and by carrier frequency.

The certification process should use the smallest tissue volume as reasonable achievable even though the existing exposure limit is for any 1 gram of tissue (1 cm<sup>3</sup> of tissue), in order to determine if a smaller tissue volume should be used in the future.

Every 5 years after the adoption of the new certification method, the standard for evaluating exposure including the tissue volume shall be reevaluated using the database of wireless device certifications in the previous 5 years.

## *Appendix*

### *LEXNET Project: Reducing electromagnetic field exposure [Date: 2013-03-28]*

Wireless communications systems that use electromagnetic fields (EMF) are increasingly used both at home and on the move. Although no adverse health effects have been established, public concerns persist - a 2010 Eurobarometer poll for example found that 67% of respondents thought that mobile phones affect citizens' health.

While practices and measures designed to minimise EMF exposure have been put forward at the national level, these actions focus mainly on cellular network base stations and access points. This is why a group of 17 leading telecommunications operators, vendors, research centres and academic institutions recently launched LEXNET (Low EMF Exposure Future Networks), a European-funded project designed to develop effective mechanisms to reduce by 50% EMF exposure without compromising the quality of service.

"It is important to study innovative low RF exposure solutions at many levels, ranging from the radio devices to the network architecture, topologies, management and the provision of services," said LEXNET project manager Dr Joe Wiart.

The project will define a global index of exposure, in order to assess the averaged exposure of the population over space and time. This will be composed of up- and downlink sources. The project will also identify future network mechanisms, technologies, architectures and parameters, which will allow for the reduction of human exposure.

The LEXNET project is partially funded by the European Commission's Seventh Framework Program (FP7), within the Work Programme for Information and Communication Technologies under the objective "Network of the Future". This objective supports the development of future network infrastructures that allow the convergence and interoperability of heterogeneous mobile, wired and wireless broadband network technologies as enablers of the future Internet.