

Expressions of Concern from Scientists, Physicians, Health Policy Experts & Others

William Rea, MD

Founder & Director of the Environmental Health Center, Dallas

Past President, American Academy of Environmental Medicine

“Sensitivity to electromagnetic radiation is the emerging health problem of the 21st century. It is imperative health practitioners, governments, schools and parents learn more about it. The human health stakes are significant”.

Martin Blank, PhD

Associate Professor, Department of Physiology and Cellular Biophysics,

Columbia University, College of Physicians and Surgeons; Researcher in Bioelectromagnetics;

Author of the BioInitiative Report’s section on Stress Proteins.

“Cells in the body react to EMFs as potentially harmful, just like to other environmental toxins, including heavy metals and toxic chemicals. The DNA in living cells recognizes electromagnetic fields at very low levels of exposure; and produces a biochemical stress response. The scientific evidence tells us that our safety standards are inadequate, and that we must protect ourselves from exposure to EMF due to power lines, cell phones and the like, or risk the known consequences. The science is very strong and we should sit up and pay attention.”

Olle Johansson, Ph.D.

Associate Professor, The Experimental Dermatology Unit, Department of Neuroscience, Karolinska Institute, Stockholm, Sweden; Author of the BioInitiative Report’s section on the Immune System.

“It is evident that various biological alterations, including immune system modulation, are present in electrohypersensitive persons. There must be an end to the pervasive nonchalance, indifference and lack of heartfelt respect for the plight of these persons. It is clear something serious has happened and is happening. Every aspect of electrohypersensitive peoples’ lives, including the ability to work productively in society, have healthy relations and find safe, permanent housing, is at stake. The basics of life are becoming increasingly inaccessible to a growing percentage of the world’s population. I strongly advise all governments to take the issue of electromagnetic health hazards seriously and to take action while there is still time. There is too great a risk that the ever increasing RF-based communications technologies represent a real danger to humans, especially because of their exponential, ongoing and unchecked growth. Governments should act decisively to protect public health by changing the exposure standards to be biologically-based, communicating the results of the independent science on this topic and aggressively researching links with a multitude of associated medical conditions.”

David Carpenter, MD

Professor, Environmental Health Sciences, and Director, Institute for Health and the Environment, School of Public Health, University of Albany, SUNY

Co-Editor, The BioInitiative Report (www.BioInitiative.org)

Electromagnetic fields are packets of energy that does not have any mass, and visible light is what we know best. X-rays are also electromagnetic fields, but they are more energetic than visible light. Our concern is for those electromagnetic fields that are less energetic than visible light, including those that are associated with electricity and those used for communications and in microwave ovens. The fields associated with electricity are commonly called “extremely low frequency” fields (ELF), while those used in communication and microwave ovens are called “radiofrequency” (RF) fields. Studies of people have shown that both ELF and RF exposures result in an increased risk of cancer, and that this occurs at

intensities that are too low to cause tissue heating. Unfortunately, all of our exposure standards are based on the false assumption that there are no hazardous effects at intensities that do not cause tissue heating. Based on the existing science, many public health experts believe it is possible we will face an epidemic of cancers in the future resulting from uncontrolled use of cell phones and increased population exposure to WiFi and other wireless devices. Thus it is important that all of us, and especially children, restrict our use of cell phones, limit exposure to background levels of Wi-Fi, and that government and industry discover ways in which to allow use of wireless devices without such elevated risk of serious disease. We need to educate decision-makers that ‘business as usual’ is unacceptable. The importance of this public health issue can not be underestimated.”

Magda Havas, PhD

Associate Professor, Environment & Resource Studies, Trent University, Canada.

Expert in radiofrequency radiation, electromagnetic fields, dirty electricity and ground current.

“Radio frequency radiation and other forms of electromagnetic pollution are harmful at orders of magnitude well below existing guidelines. Science is one of the tools society uses to decide health policy. In the case of telecommunications equipment, such as cell phones, wireless networks, cell phone antennas, PDAs, and portable phones, the science is being ignored. Current guidelines urgently need to be re-examined by government and reduced to reflect the state of the science. There is an emerging public health crisis at hand and time is of the essence.”

Whitney North Seymour, Jr., Esq.

Retired Attorney; Former New York State Senator & United States Attorney, Southern District of NY

Co-Founder, Natural Resources Defense Council

“Electromagnetic radiation is a very serious human and environmental health issue that needs immediate attention by Congress. The BioInitiative Report is a major milestone in understanding the health risks from wireless technology. Every responsible elected official owes it to his or her constituents to learn and act on its finding and policy recommendations.”

B. Blake Levitt

Former New York Times journalist and author of *Electromagnetic Fields, A Consumer’s Guide to the Issues and How to Protect Ourselves*, and Editor of *Cell Towers, Wireless Convenience? Or Environmental Hazard?*

Ambient man-made electromagnetic fields (EMFs), across a range of frequencies, are a serious environmental issue. Yet most environmentalists know little about it, perhaps because the subject has been the purview of physicists and engineers for so long that biologists have lost touch with electromagnetism’s fundamental inclusion in the biological paradigm. All living cells and indeed whole living beings, no matter what genus or species, are dynamic coherent electrical systems utterly reliant on bioelectricity for life’s most basic metabolic processes. It turns out that most living things are fantastically sensitive to vanishingly small EMF exposures. Living cells interpret such exposures as part of our normal cellular activities (think heartbeats, brainwaves, cell division itself, etc.) The problem is, man-made electromagnetic exposures aren’t “normal.” They are artificial artifacts, with unusual intensities, signaling characteristics, pulsing patterns, and wave forms, that don’t exist in nature. And they can misdirect cells in myriad ways. Every aspect of the ecosystem may be affected, including all living species from animals, humans, plants and even microorganisms in water and soil. We are already seeing problems in sentinel species like birds, bats, and bees. Wildlife is known to abandon areas when cell towers are placed. Radiofrequency radiation (RF)—the part of the electromagnetic spectrum used in all-things-wireless today—is a known immune system suppressor, among other things. RF is a form of energetic air pollution and we need to understand it as such. Humans are not the only species being affected. The

health of our planet may be in jeopardy from this newest environmental concern—added to all the others. Citizens need to call upon government to fund appropriate research and to get industry influence out of the dialogue. We ignore this at our own peril now.”

Eric Braverman, MD

Brain researcher, Author of *The Edge Effect*, and Director of Path Medical in New York City and The PATH Foundation. Expert in the brain’s global impact on illness and health.

“There is no question EMFs have a major effect on neurological functioning. They slow our brain waves and affect our long-term mental clarity. We should minimize exposures as much as possible to optimize neurotransmitter levels and prevent deterioration of health”.

Abraham R. Liboff, PhD

Research Professor

Center for Molecular Biology and Biotechnology

Florida Atlantic University, Boca Raton, Florida

Co-Editor, *Electromagnetic Biology and Medicine*

“The key point about electromagnetic pollution that the public has to realize is that it is not necessary that the intensity be large for a biological interaction to occur. There is now considerable evidence that extremely weak signals can have physiological consequences. These interactive intensities are about 1000 times smaller than the threshold values formerly estimated by otherwise knowledgeable theoreticians, who, in their vainglorious approach to science, rejected all evidence to the contrary as inconsistent with their magnificent calculations. These faulty estimated thresholds are yet to be corrected by both regulators and the media.

The overall problem with environmental electromagnetism is much deeper, not only of concern at power line frequencies, but also in the radiofrequency range encompassing mobile phones. Here the public’s continuing exposure to electromagnetic radiation is largely connected to money. Indeed the tens of billions of dollars in sales one finds in the cell phone industry makes it mandatory to corporate leaders that they deny, in knee-jerk fashion, any indication of hazard.

There may be hope for the future in knowing that weakly intense electromagnetic interactions can be used for good as well as harm. The fact that such fields are biologically effective also implies the likelihood of medical applications, something that is now taking place. As this happens, I think it will make us more aware about how our bodies react to electromagnetism, and it should become even clearer to everyone concerned that there is reason to be very, very careful about ambient electromagnetic fields.”

Lennart Hardell, MD, PhD

Professor at University Hospital, Orebro, Sweden.

World-renowned expert on cell phones, cordless phones, brain tumors, and the safety of wireless radiofrequency and microwave radiation.

Co-authored the [BioInitiative Report’s section on Brain Tumors](#) by Dr. Hardell

“The evidence for risks from prolonged cell phone and cordless phone use is quite strong when you look at people who have used these devices for 10 years or longer, and when they are used mainly on one side of the head. Recent studies that do not report increased risk of brain tumors and acoustic neuromas have not looked at heavy users, use over ten years or longer, and do not look at the part of the brain which would reasonably have exposure to produce a tumor.”

Samuel Milham MD, MPH

Medical epidemiologist in occupational epidemiology.

First scientist to report increased leukemia and other cancers in electrical workers and to demonstrate that the childhood age peak in leukemia emerged in conjunction with the spread of residential electrification.

“Very recently, new research is suggesting that nearly all the human plagues which emerged in the twentieth century, like common acute lymphoblastic leukemia in children, female breast cancer, malignant melanoma and asthma, can be tied to some facet of our use of electricity. There is an urgent need for governments and individuals to take steps to minimize community and personal EMF exposures.”

Libby Kelley, MA

Managing Secretariat International Commission For Electromagnetic Safety; Founder, Council on Wireless Technology Impacts; Co-Producer of documentary, “Public Exposure: DNA, Democracy and the Wireless Revolution”; EMF environmental consultant and leading appellant in challenging the FCC Radio Frequency Radiation human exposure guidelines, 1997-2000. (www.icems.eu)

“Radiofrequency radiation human exposure standards for personal wireless communications devices and for environmental exposure to wireless transmitters are set by national governments to guide the use of wireless communications devices and for wireless transmitters. In the U.S., the Food and Drug Administration and the Federal Communications Commission set these standards. The Council on Wireless Technology Impacts considers these exposure standards to be inadequate as they are based on heating effects and do not accommodate the low level, cumulative exposure conditions in which the public now lives. These standards are also designed for acute, short term exposure conditions and do not acknowledge the medical evidence pointing to increased risks and actual harm that results from chronic, intermittent exposure. Federal and State public health agencies are not officially addressing what many concerned scientists and medical doctors now see as an emerging public health problem. There are no health surveillance or remedial response systems in place to advise citizens about electromagnetic radiation exposure (EMR). As wireless technology evolves, ambient background levels increase, creating electrical pollution conditions which are becoming ubiquitous and more invasive. We strongly encourage consumers, manufacturers, utility providers and policymakers to reduce, eliminate and mitigate EMR exposure conditions and to support biologically based standards.”

James S. Turner, Esq.

Chairman of the Board, Citizens for Health

Co-author, *Voice of the People: The Transpartisan Imperative in American Life*

Attorney, Swankin-Turner, Washington, DC

“According to the *BioInitiative Report: A Rationale for a Biologically-Based Public Exposure Standard for Electromagnetic Fields*—from electrical and electronic appliances, power lines and wireless devices such as cell phones, cordless phones, cellular antennas, towers, and broadcast transmission towers—we live in an invisible fog of EMF which thirty years of science, including over 2,000 peer reviewed studies, shows exposes us to serious health risks such as increased Alzheimer’s disease, breast cancer, Lou Gehrig disease, EMF immune system hypersensitivity and disruption of brain function and DNA. The public needs to wake up politicians and public officials to the need for updating the decades old EMF public health standards. This report tells how.”

Camilla Rees, MBA

CEO, Wide Angle Health, LLC

Patient education and advocacy

“The U.S. spends over \$2 trillion dollars on health care each year, of which about 78% is from people with chronic illnesses, without adequately exploring and understanding what factors—including

EMF/RF—contribute to imbalances in peoples' bodies' in the first place. After reading The BioInitiative Report, it should come as no surprise to policymakers, given the continually increasing levels of EMF/RF exposures in our environment, that close to 50% of Americans now live with a chronic illness. I grieve for people who needlessly suffer these illnesses and hold out the hope that our government leaders will become more cognizant of the role electromagnetic factors are playing in disease, health care costs and the erosion of quality of life and productivity in America.”

L. Lloyd Morgan, BS Electronic Engineering

Director Central Brain Tumor Registry of the United States, Member Bioelectromagnetics Society, Member Brain Tumor Epidemiological Consortium *

“There is every indication that cell phones cause brain tumors, salivary gland tumors and eye cancer. Yet, because the cell phone industry provides a substantial proportion of research funding, this reality is hidden from the general public. The Interphone Study, a 13-country research project, substantially funded by the cell phone industry has consistently shown that use of a cell phone protects the user from risk of a brain tumor! Does anything more need to be said? It is time that fully independent studies be funded by those governmental agencies whose charter is to protect its citizens so that the truth about the very damaging health hazards of microwave radiation becomes clear and well known.”

**For identification purposes only: All statements are mine and mine alone and do not represent positions or opinions of the Central Brain Tumor Registry of the United States, the Bioelectromagnetics Society or the Brain Tumor Epidemiological Consortia.*

Janet Newton

President, The EMR Policy Institute

www.EMRPolicy.org

“The radiofrequency radiation safety policy in force in the United States fails to protect the public. Currently in the US there are more than 260 million wireless subscribers, the demand that drives the continuing build-out of antenna sites in residential and commercial neighborhoods, including near schools, daycare centers, and senior living centers and in the workplace. The January 2008 report issued by the National Academy of Sciences committee whose task was to examine the needs and gaps in the research on the biological effects of exposure to these antennas points out that the research studies to date do not adequately represent exposure realities. Specifically, the studies 1) assume a single antenna rather than the typical arrangements of a minimum of four to six antennas per site, thereby underestimating exposure intensities, 2) do not pertain to the commonly used multiple-element base station antennas, thereby not taking into account exposures to multiple frequencies, 3) lack models of several heights for men, women, and children of various ages for use in the characterization of Specific Absorption Rate (SAR) distributions for exposures from cell phones, wireless PCs, and base stations and 4) do not take into consideration absorption effects of exposures from the many different radio frequency emitting devices to which the public is often simultaneously exposed. A federal research strategy to address these very serious inadequacies in the science on which our government is basing health policy is sorely needed now.”

Prof. Livio Giuliani, PhD

Spokesperson, International Commission for Electromagnetic Safety (www.icems.eu)

Deputy Director, Italian National Institute for Worker Protection and Safety, East Venice and South Tyrol; Professor, School of Biochemistry of Camerino University, Italy

The Venice Resolution, initiated by the International Commission for Electromagnetic Safety (ICEMS) on June 6, 2008, and now signed by nearly 50 peer reviewed scientists worldwide, states in part, “We are compelled to confirm the existence of non-thermal effects of electromagnetic fields on living matter,

which seem to occur at every level of investigation from molecular to epidemiological. Recent epidemiological evidence is stronger than before. We recognize the growing public health problem known as electrohypersensitivity. We strongly advise limited use of cell phones, and other similar devices, by young children and teenagers, and we call upon governments to apply the Precautionary Principle as an interim measure while more biologically relevant exposure standards are developed.”

Professor Jacqueline McGlade

Executive Director, European Environmental Agency

Advisor to European Union countries under the European Commission

“There are many examples of the failure to use the precautionary principle in the past, which have resulted in serious and often irreversible damage to health and environments. Appropriate, precautionary and proportionate actions taken now to avoid plausible and potentially serious threats to health from EMF are likely to be seen as prudent and wise from future perspectives.”

Paul J. Rosch, MD

Clinical Professor of Medicine and Psychiatry, New York Medical College; Honorary Vice President International Stress Management Association; Diplomat, National Board of Medical Examiners; Full Member, Russian Academy of Medical Sciences; Fellow, The Royal Society of Medicine; Emeritus Member, The Bioelectromagnetics Society

Claims that cell phones pose no health hazards are supported solely by Specific Absorption Rate (SAR) limits safety standards written by the telecommunications industry decades ago based on studies they funded. These have made the erroneous assumption that the only harm that could come from cell phone radiofrequency emissions would be from a thermal or heating action, since such non thermal fields can have no biological effects. The late Dr. Ross Adey disproved this three decades ago by demonstrating that very similar radiofrequency fields with certain carrier and modulation frequencies that had insufficient energy to produce any heating could cause the release of calcium ions from cells. Since then, numerous research reports have confirmed that non thermal fields from cell phones, tower transmitters, power lines, and other man made sources can significantly affect various tissues and physiologic functions.

We are constantly being bathed in an increasing sea of radiation from exposure to the above, as well as electrical appliances, computers, Bluetooth devices, Wi-Fi installations and over 2,000 communications satellites in outer space that shower us with signals to GPS receivers. New WiMax transmitters on cell phone towers that have a range of up to two square miles compared to Wi-Fi's 300 feet will soon turn the core of North America into one huge electromagnetic hot spot. Children are more severely affected because their brains are developing and their skulls are thinner. A two-minute call can alter brain function in a child for an hour, which is why other countries ban their sale or discourage their use under the age of 18. In contrast, this is the segment of the population now being targeted here in a \$2 billion U.S. advertising campaign that views “tweens” (children between 8 and 12 years old) as the next big cell phone market. Firefly and Barbie cell phones are also being promoted for 6 to 8-year-olds.

It is not generally appreciated that there is a cumulative effect and that talking on a cell phone for just an hour a day for ten years can add up to 10,000 watts of radiation. That's ten times more than from putting your head in a microwave oven. Pregnant women may also be at increased risk based on a study showing that children born to mothers who used a cell phone just two or three times a day during pregnancy showed a dramatic increase in hyperactivity and other behavioral and emotional problems. And for the 30% of children who had also used a cell phone by age 7, the incidence of behavioral problems was 80% higher! Whether ontogeny (embryonic development) recapitulates phylogeny is debatable, but it is clear that lower forms of life are also much more sensitive. If you put the positive electrode of a 1.5 volt battery

in the Pacific Ocean at San Francisco and the negative one off San Diego, sharks in the in between these cities can detect the few billionths of a volt electrical field. EMF fields have also been implicated in the recent massive but mysterious disappearance of honeybee colonies essential for pollinating over 90 commercial crops. As Albert Einstein warned, “If the bee disappeared off the surface of the globe, then man would only have four years of life left.”

Finally, all life on earth evolved under the influence of solar radiation and geomagnetic forces that we have learned to adapt to and in some instances even utilize. The health of all living systems (ranging upward from a cell, tissue, organ or person, to a family, organization or nation) depends on good communication – good communication within, as well as with the external environment. All communication in the body eventually takes place via very subtle electromagnetic signaling between cells that is now being disrupted by artificial electropollution we have not had time to adapt to. As Alvin Toffler emphasized in *Future Shock*, too much change in too short a time produces severe stress due to adaptational failure. The adverse effects of electrosmog may take decades to be appreciated, although some, like carcinogenicity, are already starting to surface. This gigantic experiment on our children and grandchildren could result in massive damage to mind and body with the potential to produce a disaster of unprecedented proportions, unless proper precautions are immediately implemented. At the same time, we must acknowledge that novel electromagnetic therapies have been shown to benefit stress related disorders ranging from anxiety, depression and insomnia, to arthritis, migraine and tension headaches. As demonstrated in *Bioelectromagnetic Medicine*, they may also be much safer and more effective than drugs, so we need to avoid throwing the baby out with the bathwater.”