October 17, 2015 Ronald M. Powell, Ph.D.

Message to Schools and Colleges about Wireless Devices and Health

If wireless devices, such as Wi-Fi, are used in your schools and colleges, then the health of your students, your faculty, and your staff can be at risk. This is a difficult problem but an addressable one if you act.

Background: Wireless devices transmit information using radiofrequency/microwave radiation. The international biomedical research community has been studying the biological impact of such radiation for decades, but more intensely in recent years. Thousands of peer-reviewed studies published in biomedical research journals have contributed to our understanding of this impact. So many serious biological effects have been found that immediate responsive action is warranted. Further, these biological effects are occurring at levels of radiation far lower than earlier understood. Simply stated, a worldwide health crisis is emerging and is becoming a hallmark of the 21st Century. The international biomedical research community is trying to warn us; but we, in the USA, are not yet listening. I hope this message will help to change that.

As a scientist, I urge you to look into the **health impact of the radiofrequency/microwave radiation** produced by wireless devices. Examples of wireless devices of concern in our environment are Wi-Fi in all of its forms; cell phones and cell towers (especially those located on school grounds); cordless phones; wireless computers, whether desktop, laptop, or tablet versions; wireless baby monitors; wireless smart electricity meters; emerging wireless smart appliances; and microwave ovens (because they always leak radiation).

This crisis is the consequence of many factors. Here are some of them:

- All living things are bioelectrical in nature. That is why electrocardiograms and electroencephalograms work. They, of course, measure the tiny electrical signals that operate the heart and the brain. The critical tasks performed by these tiny electrical signals, and so many other electrical signals in all living things, can be disrupted by radiofrequency/microwave radiation.
- The levels of manmade radiofrequency/microwave radiation in our environment are increasing exponentially and already exceed, by many orders of magnitude, the levels at which all life on Earth evolved. Simply stated, we are drowning in a rising sea of manmade radiofrequency/microwave radiation.
- The invisible nature of radiofrequency/microwave radiation leaves the public and the decision-makers unaware of the rising levels of radiation around them.
- The genuine usefulness of wireless devices promotes denial of the risks.
- The intense advertising, the economic power, and the political power of profitable wireless industries enable them to dominate the public dialogue and to hold sway over government regulators and legislators.

- Current Federal standards for limiting the exposure of the public to radiofrequency/microwave radiation are outdated and overly permissive. Those standards are based on thermal heating alone. In effect, the Government claims that if you are not cooked too much by the radiation, then you are fine. Those Federal standards ignore the many biological effects that occur at much lower levels of radiation, leaving the public unprotected.
- Federal and state governments are advocating unlimited expansion of wireless technology, and are even co-funding such expansion and mandating the acceptance of wireless technology by the public. Such actions reflect a widespread lack of understanding of, or willful blindness to, the underlying science and its consequences for public health.
- Some of the more serious consequences of exposure to radiofrequency/microwave radiation (such as DNA damage, cancer, and infertility) are especially nefarious because they give no early warning signs.
- Other consequences of exposure do give early warning signs (such as sleep disruption, headaches, fatigue, ringing in the ears, memory loss, dizziness, heart arrhythmia, and many others); but those signs are too often dismissed because they can have other causes as well, complicating identification of the true cause.
- The absence of routine training of physicians in the biological effects of radiofrequency/microwave radiation makes it difficult for physicians to identify the causes and to provide responsive guidance.
- Even aware individuals cannot control their exposure in any environment shared with others, because the radiation around them, much like second-hand smoke, is forced on them by unaware individuals. Only governments can fully solve this problem, but they are currently part of the problem. For now the public will have to protect itself, and that will require public education and action.

Fortunately, many of the services that wireless devices offer can be realized with much safer wired devices. The wired devices achieve connectivity with fiber-optic, coaxial, or Ethernet cables. The wired devices are faster, more reliable, and more cyber secure. They are, however, less mobile, often less convenient, and somewhat more expensive to install. But those drawbacks pale in comparison to the benefits of good health.

Simply stated, schools and colleges can protect their students, staff, and faculty from the health risks posed by wireless devices, including Wi-Fi, by converting to safe wired connectivity. If your institution lacks the resources to convert now, do consider shutting down your wireless devices anyway and converting as soon as you can. You can advance learning without leaving a trail of illness behind you, some of which can be lifelong.

As a suggested starting place for exploring the concerns about the radiation from wireless devices, I have appended an “Annotated List of References” and an “Annotated List of Videos”. Please view, especially, video (1) called “Wi-Fi in Schools, the Facts”, made in Australia, on page 6.

Regards,

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My background

I am a retired U.S. Government scientist (Ph.D., Applied Physics, Harvard University, 1975). During my Government career, I worked for the Executive Office of the President, the National Science Foundation, and the National Institute of Standards and Technology. For those organizations, respectively, I addressed Federal research and development program evaluation, energy policy research, and measurement development in support of the electronics and electrical-equipment industries and the biomedical research community. I currently interact with other scientists and with physicians around the world on the impact of the environment – including the radiofrequency/microwave environment – on human health.

ANNOTATED LIST OF REFERENCES

The international biomedical research community has conducted thousands of studies seeking to identify the biological effects of exposure to both low frequency and radiofrequency electromagnetic fields, extending into the microwave region. So many serious biological effects have been found from such fields, at levels earlier thought to be low enough to be safe, that immediate action is needed to alert and protect the public.

The most massive review of this biomedical literature is the 1479-page BioInitiative 2012 Report which considered about ***1800*** biomedical research publications, most issued in the previous five years. The BioInitiative 2012 Report was prepared by an international body of 29 experts, heavy in Ph.D.s and M.D.s, from 10 countries, including the USA which contributed the most experts (10). The review concludes that “The continued rollout of wireless technologies and devices puts global public health at risk from unrestricted wireless commerce unless new, and far lower[,] exposure limits and strong precautionary warnings for their use are implemented.”

> BioInitiative Working Group, Cindy Sage, M.A. and David O. Carpenter, M.D., Editors, BioInitiative Report: A Rationale for Biologically-based Public Exposure Standards for Electromagnetic Radiation, December 31, 2012
> http://www.bioinitiative.org

A group of six doctors in Oregon, led by Paul Dart, M.D., released, in June 2013, a 74-page review of ***279*** biomedical research publications. This review makes the health case against “cell phones, base stations, Wi-Fi, Smart Meters and other RF [radiofrequency] or ELF [extremely low frequency] -emitting devices”. The review notes that “The current levels of exposure need to be reduced rather than increased further. The FCC [Federal Communications Commission] must especially protect vulnerable groups in the population including children and teenagers, pregnant women, men of reproductive age, individuals with compromised immune systems, seniors, and workers.” This review is posted on the website of the FCC at the link entitled "Health Effects of RF - Research Review (87)".

> Biological and Health Effects of Microwave Radio Frequency Transmissions, A Review of the Research Literature, A Report to the Staff and Directors of the Eugene Water and Electric Board, June 4, 2013
> http://apps.fcc.gov/ecfs/comment/view?id=6017465430

Michael Bevington, in 2013, published a book that summarizes the findings of ***1828*** international biomedical research publications. The book describes the symptoms caused by exposure to electromagnetic radiation, the many diseases associated with such exposure, and the relative risk levels associated with specific sources of electromagnetic radiation. The citations of papers include the PMID index numbers for easy location on the PubMed.gov website of the National Institutes of Health. This website provides the largest index to the biomedical research literature in the world.

Electromagnetic Sensitivity and Electromagnetic Hypersensitivity: A Summary by Michael Bevington
NEW EDITION: March 2013
http://www.es-uk.info

About 200 scientists from 39 countries around the world submitted an international appeal to the United Nations and to the World Health Organization in May 2015. These scientists seek improved protection of the public from harm from the radiation produced by many wireless sources, including "cellular and cordless phones and their base stations, Wi-Fi, broadcast antennas, smart meters, and baby monitors" among others.

Together, these scientists have published about 2000 research papers on this subject.

https://www.emfscientist.org/index.php/emf-scientist-appeal

The International Agency for Research on Cancer, of the World Health Organization, has already classified radiofrequency electromagnetic fields as a Class 2B carcinogen ("possible carcinogen"), based primarily on the increased risk of brain cancer. That decision was made in 2011. Since then, the research supporting a higher classification of risk ("probable carcinogen", or even "known carcinogen") has continued to build.

http://www.iarc.fr/en/media-centre/pr/2011/pdfs/pr208_E.pdf

The American Academy of Environmental Medicine (AAEM), which trains physicians in preparation for Board Certification in Environmental Medicine, states: “The AAEM strongly supports the use of wired Internet connections, and encourages avoidance of radiofrequency such as from WiFi, cellular and mobile phones and towers, and ‘smart meters’.” AAEM further states that "The peer reviewed, scientific literature demonstrates the correlation between RF [radiofrequency] exposure and neurological, cardiac, and pulmonary disease as well as reproductive and developmental disorders, immune dysfunction, cancer and other health conditions. The evidence is irrefutable." The AAEM concludes: “To install WiFi in schools plus public spaces risks a widespread public health hazard that the medical system is not yet prepared to address.”

AAEM, Wireless Radiofrequency Radiation in Schools, November 14, 2013
http://www.aaemonline.org/pdf/WiredSchools.pdf

The American Academy of Pediatrics (AAP), whose 60,000 doctors care for our children, supports the development of more restrictive standards for radiofrequency radiation exposure that would better protect the public, particularly the children. The AAP, in a letter to the Federal Communications Commission (FCC) and the Food and Drug Administration (FDA), dated August 29, 2013, states that “Children are not little adults and are disproportionately impacted by all environmental exposures, including cell phone radiation. Current FCC standards do not account for the unique vulnerability and use patterns specific to pregnant women and children. It is essential that any new standard for cell phones or other wireless devices be based on protecting the youngest and most vulnerable populations to ensure they are safeguarded throughout their lifetimes.”

http://apps.fcc.gov/ecfs/document/view?id=7520941318

The U.S. Government bears a major responsibility for the exponential growth in the levels of radiation from wireless devices in the environment. In 1996, the U.S. Congress passed, and the President signed, the Telecommunications Act of 1996. Under pressure from the cell phone industries, this law included this provision: “No State or local government or instrumentality thereof may regulate the placement, construction, and modification of personal wireless service facilities [cell towers] on the basis of the environmental effects of radio frequency emissions to the extent that such facilities comply with the [Federal Communications] Commission's regulations concerning such emissions.” Because the Federal Communications Commission’s regulations on radiation exposure are so permissive, this provision prevents state and local governments from protecting their people from radiation from cell towers, based on health concerns.

> Telecommunications Act of 1996
> https://transition.fcc.gov/Reports/tcom1996.pdf

The Federal Communications Commission (FCC) has acted in partnership with the wireless industries by permitting wireless radiation levels far higher than the biomedical research literature indicates are necessary to protect human health. The success of the wireless industries in capturing the FCC, the committees in the U.S. Congress that oversee the FCC, and the Executive Branch is detailed in a new monograph from the Center for Ethics at Harvard University. As an example of that capture, the President recently appointed, as head of the FCC, the former head of the CTIA – The Wireless Association, which is the major lobbying organization for the wireless industry. This, of course, is the infamous "revolving door".

> Norm Alster, Captured Agency: How the Federal Communications Commission is Dominated by the Industries It Presumably Regulates (2015)
> http://ethics.harvard.edu/news/new-e-books-edmond-j-safra-research-lab

Further, the U.S. Government’s “American Recovery and Investment Act of 2009” provided funding that was used to motivate the installation of wireless smart meters (also called the “Advanced Metering Infrastructure” or “AMI”) by offering cost sharing, in the form of grants, to the utilities that would adopt such meters.

> https://www.smartgrid.gov/recovery_act/overview/smart_grid_investment_grant_program.html

Many states then extended the impact of the above Act by mandating the acceptance of wireless smart meters by the public. These meters contain microwave transmitters/receivers and are placed either on, or inside, every home. A California court-ordered document indicates that each smart meter broadcasts bursts of radiation, on average about 10,000 times per day and up to a maximum of about 190,000 times per day. Such bursts flood neighborhoods with radiation, every day and every night throughout the year.

> http://emfsafetynetwork.org/wp-content/uploads/2011/11/PGERFDataOpt-outalternatives_11-1-11-3pm.pdf

Increasingly, the public is becoming aware of the threat that wireless radiation poses to health. The initial opposition focuses primarily on mandated sources of exposure, especially when the individuals exposed include the unborn and young children as they are among the most vulnerable. Thus, the strongest initial opposition is surfacing for cell towers, especially on school grounds; for Wi-Fi in schools and colleges; and for wireless smart meters placed on, or inside, homes. Most states now have opposition groups, and some states have even 10 or 20 such groups. These groups are pursuing relief through state regulatory bodies, through state legislatures, and through the courts. Below is a sampling of the hundreds of U.S. websites that reflect the nature and scope of the opposition to the unbridled expansion of wireless technology. Such websites seek to educate the public and decision-makers, and thus to promote responsive action, based on the underlying science.

The BabySafe Project
http://www.babysafeproject.org/the-science/

National Association for Children and Safe Technology
http://www.nacst.org/

Stop Smart Meter's listing of groups in the USA and other countries opposed to wireless smart meters
http://stopsmartmeters.org/frequently-asked-questions/contacts-database/

Smart Grid Awareness, a Website by SkyVision Solutions, Consumer Protection Advocate
http://smartgridawareness.org

ANNOTATED LIST OF VIDEOS

There are hundreds of videos on the Internet that address the impact of wireless radiation on health. Here are just a few that provide an especially good introduction to this topic. An Internet search will surface many more.

(1) An introduction to the health risks posed by Wi-Fi in schools

Wi-Fi in Schools, the Facts (September 9, 2013) (18 minutes)
Produced by Wi-Fi in Schools Australia.
https://www.youtube.com/watch?v=QQryZbxlqXI&feature=youtu.be

(2) Wide ranging overview of the impact of electromagnetic radiation on human health, particularly at microwave frequencies, with a special emphasis on children and the school environment

Electromagnetic Radiation Health for Children 2014 (70 minutes)
Presented by Dr. Erica Mallery-Blythe, a UK physician.
https://www.youtube.com/watch?v=sNFdZVeXw7M

(3) Documentary on the wireless industry's efforts to suppress public awareness of the health effects of wireless radiation

Microwaves, Science & Lies (2014) (90 minutes)
Produced by Jean Heches and Nancy de Meritens of France.
https://vimeo.com/ondemand/17755/89417454

(4) Samples of video testimony by individuals harmed by the radiation from wireless devices

Cell Phones Cause Cancer (October 17, 2012) (9 minutes)
Presented by Jimmy Gonzalez, Esq.
https://www.youtube.com/watch?v=DIlOVJd0lA8

Woman suffers acute radiation exposure from a bank of smart meters (January 21, 2015) (3 minutes).
Produced by Maryland Smart Meter Awareness.
https://www.youtube.com/watch?v=F9QZuWPw6Y0&feature=youtu.be

Man experiences adverse health effects from exposure to a smart meter (March 7, 2013) (3 minutes).
Presented by Garic Schoen of Gaithersburg, MD.
Produced by Maryland Smart Meter Awareness.
http://marylandsmartmeterawareness.org/smart-meter-news/maryland-ms-resident-testimony-to-economic-matters-committee-re-hb1038-on-march-14-2013/

Individuals with high sensitivity to the radiation from wireless devices search for increasingly rare safe electromagnetic environments.
Searching for a Golden Cage (May 8, 2014) (13 minutes)
Produced by Nadav Neuhaus.
http://time.com/golden-cage/