Audio and Summary, Children's Health Expert Panel June 2013:

"Cell Phones & WiFi – Are Children, Fetuses and Fertility at Risk?"

Dr. Devra Davis | Hugh Taylor, MD | David Carpenter, MD | Martin Blank, PhD | Camilla Rees, MBA

Listen to the Audio Recording https://vimeo.com/73165877
Panelist Bios: http://electromagnetichealth.org/electromagnetic-health-blog/ct-childrens-health-panel/#panelists

Dedication to Ronald Herberman, MD

The program June 28, 2013 was dedicated to the late Ronald B. Herberman, Founding Director of the University of Pittsburgh Cancer Institute, Vice Chancellor of Cancer Research at University of Pittsburgh and the first head of an NCI funded cancer center to speak out on the risks from cell phones. He issued a warning of these risks to his 3,000 employees, addressed Congress, and, regarding inaccurate media reporting on cell phone radiation health risks in the *Economist*, Dr. Herberman said:

> ***"A disservice has been done in inaccurately depicting the body of science, which actually indicates that there ARE biological effects from the radiation emitted by wireless devices, including damage to DNA, and evidence for increased risk of cancer and other substantial health consequences…The public the world over has been misled by this reporting."***

May we all find within us the courage Dr. Braverman repeatedly exhibited during his life.

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Conference Highlights: Discussion of Key Evidence EMFs Negatively Impact Children, Fetuses and Fertility

The panel presented a wide range of scientific evidence that electromagnetic radiation of the kind emitted by portable phones, Wi-Fi routers, baby monitors, Bluetooth earpieces, towers, antennas, smart boards, smart meters, Google glass and other devices is adversely affecting people across the globe, and especially children. This radiation may be 'non-thermal', but has clear and indisputable biological and health effects.

DNA is being damaged, and natural repair processes impaired, in this unnatural bath of radiation. Children are especially vulnerable to DNA effects due to the rapid growth and development of cells, as well as a longer lifetime of exposure. All frequencies react similarly with DNA, whether higher frequency or lower frequency. Some are faster, some are slower, but the effects are happening all the same. Cancer is believed to result from changes in DNA. DNA's coil of coil structure makes it exquisitely sensitive to EMF, more than other tissue in the body. The long-term impact for our species is unknown.

An increasing number of people listen, learn and think better in electromagnetically clean environments. The audience was asked to turn off their cell phones and wireless devices for this reason.

Cell phones, tablets and other wireless devices also have batteries that emit *lower frequency forms* of radiation—and these, too, along with RF and microwaves, have consequences, such as increased risk for childhood asthma and obesity when exposed in utero.

Impacts of electromagnetic fields on children*:

⇒Research shows radiation emitted by cell phones and WiFi impacts children's development *in utero*, their cognitive function, attention, memory, perception, learning capacity, energy, emotions and social skills.

⇒There is also diminished reaction time, decreased motor function, increased distraction, hyperactivity, and inability to focus on complex and long-term tasks.

⇒Cellular devices can lead to a heightened sense of anxiety in children, to isolation, and feelings of psychological and physical dependency.

⇒There are now 9 types of cancer linked to cell phone use:

1. Glioma (Brain Cancer)
2. Acoustic Neuroma (tumor on acoustic nerve)
3. Meningioma (tumor of the meninges)
4. Salivary Gland cancer (parotid gland in cheek)
5. Eye Cancer
6. Testicular Cancer
7. Leukemia
8. Thyroid Cancer
9. Breast Cancer

⇒There is a direct relationship between duration of cell phone use and sperm count decline. Sperm count is reduced by half in men who carry cell phones in their pants pockets for four hours per day. The motility of the sperm is also impaired. The testicular barrier, that protects sperm, is the most sensitive of tissues in the body, and is 100x more absorbent. Besides sperm count and function, the mitochondrial DNA of sperm are damaged 3x more if exposed to cell phone radiation.

⇒DNA mutations have been linked more to damage on the male side in research from Iceland (http://www.nature.com/news/fathers-bequeath-more-mutations-as-they-age-1.11247), the assumption being that male sperm is more vulnerable than female eggs, which are more protected. Mutations increase with the age of the father, and more autism and schizophrenia increase with the age of the father.

⇒WiFi in homes depletes melatonin and leads to poor sleep quality and difficulty falling asleep.

⇒Use of wireless devices after lights out has been associated with children's mental health risks and suicide.

⇒Some of the most profound effects in children from *in utero* EMF exposure are emotional and behavioral.

⇒Online time, particularly multi-tasking in young children, has been linked with a chronically distracted view of the world (http://paw.princeton.edu/issues/2013/04/03/pages/3052/index.xml) preventing learning critical social, emotional and relational skills.

⇒There is imbalanced development of the right and left hemispheres of the brain, resulting in children having impaired ability to remember basic things, to use handwriting, or to feel empathy. There is a physiological as well as psychological addiction that is taking place.

Think about what it would be like to have an entire generation that has not developed the capacity for empathy."

—Devra Lee Davis, PhD MPH, Environmental Health Trust

⇒ *Children are beginning to show signs of dementia, where they cannot remember basic things, a global phenomenon now being called "Digital Dementia", (http://www.telegraph.co.uk/news/worldnews/asia/southkorea/10138403/Surge-in-digital-dementia.html) believed to potentially be irreversible. There are hundreds of digital detox camps in China and S. Korea; the first U.S. camp (http://campgrounded.org/) opened in Northern California this year.*

Devra Davis, PhD,
Environmental Health Trust
Watch Video: vimeo.com/71749330

⇒*Dr. Taylor summarized his recent study (http://www.yalemedicalgroup.org/cellphonestudy2012) at Yale University: A standard cell phone with a SAR rating of 1.6W/kg was placed atop the cages of pregnant mice for the duration of their pregnancy. Their offspring showed hyperactivity, diminished memory, apathy, impulsiveness, and other behaviors, compared to unexposed controls, mirroring children with ADHD. The severity of the effect depended on the length of exposure.*

Hugh Taylor, MD,
Yale University
Watch Video: vimeo.com/73431739

⇒*Dr. Taylor said the incidence of ADHD in the U.S. is on the rise (3-5% of school aged children or 2mm children have ADHD) and the growth parallels the increased use of cell phones.*

⇒*Besides observing behaviors in the mice, the Yale researchers also measured electrical activity in the brain of the exposed and unexposed mice. They found the mice that had been exposed briefly in utero had changes to the electrical signaling processes in the brain as adults. Note, the mice had only been exposed during pregnancy, not subsequently, but the brain function was "permanently altered". There appears to have been a dose-response relationship, where the longer the mice had been exposed per day during the study the greater the changes in brain function. Continuous exposure throughout pregnancy was much more dangerous than briefer exposures.*

⇒ *Dr. Taylor reminded the audience that while we don't think of ourselves as being on the cell phone 24 hours a day, the cell phone is still emitting radiation 24/7 and impacting us if it is turned on and near us, day or night. "It's not talking on the phone that matters, it's any time the phone is turned on", he said. Every 900 milliseconds, whether you are using the phone or not, your cell phone has a*

spike in radiation because it is looking for a signal from the tower, according to Dr. Davis.

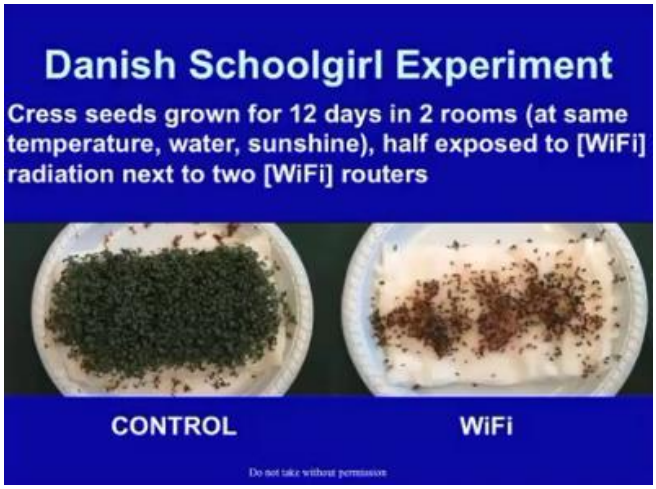
⇒Researchers at UCLA (http://www.ncbi.nlm.nih.gov/pubmed/18467962) found that children of mothers who used cell phones most frequently during pregnancy showed nearly a two-fold increase in behavioral and emotional problems and hyperactivity by the time they reached school age. Dr. Hugh Taylor stated:

> ***"When you combine data like this—studies that show there is in fact an association in humans, with our studies in animals—it is clearly cause and effect."***

⇒Wi-Fi in schools is an 'enormous problem'. Some schools install massive, industrial strength routers right next to where children sit. Symptoms reported by children who sit near Wi-Fi routers include nausea, headaches, blurred vision, and poor sleep. The Israeli Health Ministry issued a report recommending against Wi-Fi in schools because there is simply no information about the effects of this type of chronic exposure.

⇒Russians caused the same EHS symptoms in the U.S. Embassy in cold war. Symptoms of electrohypersensitivity in WIFi environments—of fatigue, irritability, concentration difficulty—are the same symptoms experienced by US Embassy personnel in Moscow in the cold war, that came to be known as microwave syndrome (or radiowave sickness).

⇒There are reports of children dropping dead in Canada, or needing to wear pacemakers, after Wi-Fi installation in their schools.



⇒Dr. Blank presented a simple study done by Danish high school girls wanting to study effects of WiFi. They took cress cells and exposed half to WiFi for 12 days. At left are the unexposed and exposed cress cells, the effects of WiFi on this plant having been made clear.

⇒Turkish scientists recently discovered that mice exposed to cell phone radiation produced offspring with smaller brains, and more brain, liver, and eye damage. The Turkish government is launching a major campaign to raise awareness about cell phone radiation safety specifically geared towards pregnant women and young men interested in fathering healthy children.

⇒*Prenatal exposure results in fewer cells in the hippocampus of the brain, the area we need for thinking, reasoning, judgment and significantly impairs the development of neurons in the brain.*

⇒*There is also irreversible DNA damage occurring from these devices, which effects the functioning of the child's body, and the quality of the genes they then pass on to future generations. Human cells, like all matter, are made up of charged particles, and these particles respond to EMFs. DNA has many different lengths and responds differently to various radiation frequencies—like different length antennas—and many effects are irreversible. DNA damage and mutations can cause cancer and other illnesses, but it can take years to detect symptoms.*

"The range of frequencies used today can cause damage to DNA, at levels that are currently being used."

—Martin Blank, PhD, Special Lecturer and Retired Associate Professor of Physiology and Cellular Biophysics, Columbia University

⇒*Fetal effects from cellphone and wireless include faster heart rates, genetic changes, altered brain development, and increased behavioral and emotional problems after birth.*

⇒***The strongest evidence for EMF effects are the science showing the connection between cell phone use and brain cancer (Hardell 2008, Kundi 2008), according to Dr. Carpenter.*** *The latency period between cell phone use and brain cancer is thought to be 20 to 30 years. Brain cancer rates are double for people who've been using cell phones for 10 years or more, appearing on the side of the head where they hold their phones, and risks are 5x greater for children using cell phones under the age of 20 than those over the age of 50.*

⇒*Because children's nervous systems are still developing, synapses and myelin are being laid down continuously. For the body to create proteins, it must have correct DNA coding. EMFs break DNA apart, resulting in bad coding and mutations that result in poor brain function. Teenagers and children using cell phones before the myelination process is completed in the 20s are having a "whopping impact" on their brains.*

⇒*There is some evidence that DNA mutations resulting from radiofrequency signals are part of what's driving today's increased autism and schizophrenia rates. The evidence was summarized in December in the landmark BioInitiative Report 2012 by Harvard Professor, Dr. Martha Herbert, MD who runs the Transcend Research Lab at Mass General.*

Dr. Herbert stated:

"EMF/RFR from wifi and cell towers can exert a disorganizing effect on the ability to learn and remember, and can also be destabilizing to immune and metabolic function. This will make it harder for some children to learn, particularly those who are already having problems in the first place.

"Powerful industrial entities have a vested interest in leading the public to believe that EMF/RFR, which we cannot see, taste or touch, is harmless, but this is not true."

⇒***Radio towers, not just cell towers, are also a factor****. Based on 50 years of data, the closer a child lives to a radio tower, the higher his or her risk for developing cancer. The standard for "safe" power density remains 1,000 times too high. A 6x risk of cancer is still considered 'safe'.*

Politics of EMF Science

Martin Blank, PhD,
Columbia University
Watch Video: vimeo.com/71837266

No more research is needed in order to say with certainly that these effects are real, and there is sufficient cause to take action now to protect adults and children. *More research is desirable to better understand certain connections, and to continue looking at the long-term trends with epidemiology, but there is sufficient scientific evidence today on which to take precautionary steps to minimize this radiation in our lives.*

Regulatory bodies have allowed a trillion dollar wireless industry to emerge without pre-market health testing or post-market health surveillance.

A whole generation of people has been unaware of the risks of wireless radiation, and have not been taking precautions*. This is why public health officials are so concerned. There is already evidence that exposure to radiofrequency radiation in excess leads to disease. And exposures have grown dramatically in the last few years.*

Frank Clegg,
Canadians 4 Safe Technology
Watch Video: vimeo.com/71996834

Our grandchildren and children are "being used as lab rats in an experiment with no controls*….that's what we are doing with cell phone and wireless radiation with our children today."—Devra Davis, PhD, MPH. Environmental Health Trust*

Scientists who expose the truth about the risks from electromagnetic fields are intimidated and attacked and their careers jeopardized. *Industry-associated science is also designed to underestimate risks, thereby refuting the independent science and 'Manufacturing Doubt'. Esteemed scientists are sometimes finding it hard to publish.*

Just as Bill Moyers recently described was the case with suppression of evidence about lead ("The Toxic Politics of Science", *http://billmoyers.com/tag/lead-wars-the-politics-of-science-and-the-fate-of-americas-children/****), the wireless industry behaves as if risks from cell phones and wireless devices and infrastructure is 'a PR problem, not a public health problem'.***

The FCC has inadequate exposure guidelines. *US standards for radiofrequency/microwave exposure are based on an outdated, erroneous assumption that EMFs have no biological effects unless they cause tissue heating, like a high powered microwave oven heating your potato. Science has disproven this myth. The exposure guidelines fail to protect about 97 percent of the population, most especially children.*

"The cell phone standards we use today for the 6.5 billion cell phones in the world were set 17 years ago and have never been updated, despite the fact that the users and uses of cell phones are very different now. And they've never been tested for their safety around children…We're in the midst of a huge experiment on ourselves and on our children"

—Devra Lee Davis, PhD, MPH, cancer epidemiologist and toxicologist, President of Environmental Health Trust, and author of Disconnect: The Truth About Cell Phone Radiation, What the Industry Is Doing to Hide It, and How to Protect Your Family

Lower power towers and devices are possible, though instead power levels are being continually increased. *Cell phones and cell towers can be made safer, by using far less power. Also, most towers emit far more radiation than they're supposed to.*

Many countries are issuing advisories: *Australia advises limiting children's exposure to cell phones; Belgium has banned sales of cell phones for use by children under age 7; Turkey has banned ads targeting sales to children. The French National Assembly has banned WiFi in schools. Italy had a Supreme Court ruling in favor of a man who claimed his tumor was from cell phone use. A region of India, Rajasthan, has banned cell towers near schools, and won a court battle to defeat industries opposition. Standards in the Eastern block are 1,000 times stricter.*

"It may take some sort of catastrophe to get people's attention."*—Frank Clegg, former president of Microsoft Canada and founder of Canadians 4 Safe Technology, a member of the audience who later joined the panel to share his perspective.*

Several panel members compared the current situation where health risks of cell phone and wireless radiation are being downplayed, and the science suppressed, to other well-known public health scandals driven by commercial interests, *such as tobacco, lead, asbestos, DDT, Bisphenyl A, silica, vinyl chloride, PCBs, GMOs, pesticides in food, fracking, the neionicotinoid chemicals impacting bees.*

Safety Recommendations

- ***Extreme caution was advised for pregnant women or women hoping to conceive due to the profound long-term impact of environmental factors.*** *"A lot of who we are right now has to do with what our mothers did when they were pregnant and what type of exposures they had."—Hugh Taylor, MD, Chairman of Obstetrics and Gynecology and Reproductive Sciences, Yale University. As with DES and many other toxic substances, he said, the effects from exposure to the fetus may not appear for a generation.*
- ***Children should not be playing with radiating cell phones.*** *Young children should not be using cell phones, except in an emergency. If your child wants to play with the device, disconnect it from Wi-Fi and Internet, and put it in "airplane mode."*
- ***Limit or eliminate WiFi exposures.*** *If you have Wi-Fi, get rid of it if you can. If you can't, make sure your router is not in a high use area. Keep it turned it off as much as possible, or put it on a timer.*
- ***Schools should not have WiFi.*** *Panelists strongly opposed the installation of Wi-Fi in schools. Cabled/wired connections do not have the same risks.*
- ***Resume using landline phones whenever possible.*** *Get rid of your portable phone and use a landline instead. If you have a portable phone, don't sleep with it in your bedroom.*
- ***Keep your cell phone away from your body.*** *If you have a cell phone, keep it away from your body, as opposed to in your pocket or on your belt. If you're pregnant, keep it away from your belly. Keep your cell at the other end of the room, or on the seat of the car. Use texting more than talking. Special cell phone cases are available that filter out a significant portion of the radiation, but not all. Many metal cases can actually magnify radiation.*
- ***Use a wired earpiece with cell phones.***
- ***Caution about using cell phones in cars.*** *Signals bounce around inside your vehicle—and your head is the antenna.*
- ***Opt-out of new utility meters called 'smart meters'.*** *When possible, prevent smart meters from being installed in your home.*
- ***Never use wireless baby monitors.*** *Avoid the use of baby monitors as they all operate on microwave frequency.*
- ***Know your exposures.*** *For about $500, you or your community can purchase a meter (http://emfsafetystore.com/) with which to measure the EMF in any particular area—homes, schools, churches, etc.*
- ***EMF free zones are needed for pregnant women and children.*** *"Wi-Fi free" or "low Wi-Fi" zones should be designated for pregnant women and children, and others who are particularly sensitive to EMFs. The same applies in schools.*
- ***We need to be tracking biological effects****. "We need to seriously begin tracking the biological effects of EMFs…We need to be monitoring our children's*

health routinely. We have to train people how to do the research, and we have to invest in the research that's not being done."—Devra Lee Davis, PhD MPH

- ***We must take precaution.*** *"The precautionary principle is in order here—certain precautions should be taken as a result of the risk that's been identified. That's the reason we have seat belts in cars… not because every car is going to crash, but because we want to minimize the damage when they do."—Martin Blank, PhD*
- ***A one-dollar fee has been proposed on the sale of all cell phones as a means of generating revenue for research and education.*** *Over several years, such a levy would generate billions of dollars to finalize any unanswered questions about risks.*
- ***Industry must become engaged.*** *Strategies must be introduced to get industry involved, such as providing incentives or rewards for safer technology, or even amnesty. If all else fails, lawsuits, some of which are in the works, will get their attention.*
- ***FCC safety guidelines must be updated.*** *Outdated, unrealistic safety guidelines must be replaced with new ones that reflect modern science, such as those suggested in the BioInitiative Report 2012 (http://www.bioinitiative.org/).*
- ***Support labeling laws*** *requiring cell phone manufacturers to list radiation levels in an obvious place on the packaging and at the retailer.*
- ***Educated parents need to become involved, especially to protect our children.*** *Contact www.ElectromagneticHealth.org or www.EnvironmentalHealthTrust.org to learn how your can become involved in raising awareness on this important children's health issue, or by funding research, media communications and support for local communities. Keep abreast on this subject going forward as it related to children, fetuses and schools at Campaign for Radiation Free Schools (https://www.facebook.com/login.php?next=https%3A%2F%2Fwww.facebook.com%2Fgroups%2F110896245588878%2F) on Facebook.*
- ***Finding the Political Will.***

> ***"Find the place within that wants the truth about the degradation of our health and children's health to be known, that wants the deeply held value for health, and for true caring, that we all certainly share, to be at the core of our society, guiding our representatives in Congress, as well as the media."***

—Camilla Rees, MBA, Founder, ElectromagneticHealth.org, co-author "Public Health SOS: The Shadow Side of the Wireless Revolution" and organizer of the Children's Health Expert Forum "Cell Phones & WiFi—Are Children, Fetuses and Fertility at Risk?"

**** For References see:***

- ***"Mobile Phone Health Risks: The Case for Action to Protect Children"*** *(http://www.mobilewise.org/) Mobilewise, November 2011*

- ***Bioinitiative Report 2012, Section on Autism*** ***(****http://electromagnetichealth.org/electromagnetic-health-blog/herbert-lausd/****)*** *Martha Herbert, MD, Harvard University; Transcend Research Laboratory at Massachusetts General (autism research)*

- *"****Cell Phones: Technology, Exposures, Health Effects****," (http://www.ehhi.org/reports/cellphones/) John Wargo, PhD, and Hugh S Taylor, MD, Yale University, Environment & Human Health, Inc. December 2012*

- ***The Toxic Politics of Science****, (http://billmoyers.com/tag/lead-wars-the-politics-of-science-and-the-fate-of-americas-children/) Moyers & Co.*

- ***Campaign for Radiation Free Schools (Facebook)*** *(https://www.facebook.com/groups/110896245588878/)*

- ***Letter to Parents on Fertility and Other Risks to Children from Wireless Technologies*** *(http://electromagnetichealth.org/electromagnetic-health-blog/letter-to-parents/), by Camilla Rees (Including Research Bibliography)*

- ***Clifford Nass, PhD, Thomas M. Storke Professor at Stanford University and director of the Communication between Humans and Interactive Media (CHIMe) Lab.*** *(http://paw.princeton.edu/issues/2013/04/03/pages/3052/index.xml)*

- ***ElectromagneticHealth.org's Recommended EMF Books on Amazon*** *(http://astore.amazon.com/bescom08-20)*

- ***Remediation Resources (meters, shielding materials, etc.):*** *www.EMFSafetyStore.com*

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