

Thursday, September 1, 2016

Wi-Fi in Schools & Other Public Places

Please see the end of this post for a resource list.
Also see [recent research on Wi-Fi biologic and health effects.](#)

Many experts have raised serious health concerns about exposing students to wireless radiation in school because no research proves that long-term exposure to low intensity, microwave radiation is safe for children. Moreover, a considerable amount of [research](#) published in peer-reviewed journals strongly suggests that wireless radiation from laptops and other wireless devices (including cell phones and cordless phones) is harmful to children's health.

Opposition to Wi-Fi adoption in schools is mounting as schools in the U.S. and other countries have begun to adopt Wi-Fi to provide internet access to students even though a wired solution would be safer.

The Los Angeles Unified School District was the first major school district in the U.S. to adopt Wi-Fi in all classrooms.

Following is a summary of the evidence that health experts submitted to the Los Angeles School Board in opposition to this plan. This is followed by a list of resources for those who are concerned about Wi-Fi adoption in their local schools.

Also see below an open letter from the BioInitiative Working Group to the CEO's of major technology corporations in the U.S.

For a list of research studies that have found adverse biological or health effects from Wi-Fi radiation, see a [website maintained by some scientists in the United Kingdom.](#)

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Canadian Teachers' Unions Demands for No Wi-Fi in Schools Puts Spotlight on Health Concerns

Education World, Mar 21, 2016

The unions want the WiFi routers turned off until they can be proven to be safe.

<http://bit.ly/1pG6INa>

Radio Canada International

<http://bit.ly/1WDBvnW>

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In the U.S. the **United Federation of Teachers** has a page on its website that educates teachers about the biologic effects and potential health risks of wireless radiation.

<http://bit.ly/UFTwireless>

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Italian town shuts down Wi-Fi over health fears

The Local, Jan 8, 2016

The mayor of Borgofranco d'Ivrea, a town in Piedmont, has ordered Wi-Fi to be turned off in two schools over health fears.

Also see **La Stampa Cronache** article in Italian: <http://bit.ly/1RdVDhh>

<http://bit.ly/1PO4inl>

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Message to Public Schools and Parents about Wireless Devices and Health

Ronald M. Powell, PhD, The Green Gazette, Nov 12, 2015

If wireless devices, such as WiFi, are used in your schools, then the health of your staff, your teachers, and your students can be at risk. But this problem can be successfully addressed, and with benefit to all.

<snip>

<http://bit.ly/1NSxmLg>

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Why the FCC's safety guidelines for Wi-Fi need to be re-evaluated

Ajay Malik, Network World, Nov 12, 2015

FCC guidelines are based on the assumption that Wi-Fi signals are received by a human body from a distance for one transmitting antenna. However, we are not exposed to one Wi-Fi transmitting antenna anymore.

<snip>

<http://bit.ly/1RRYI3l>

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Expert Docs Urge U.S. Secretary of Education: Play It Safe with Kids - Go Wired Not WiFi

Press Release, Environmental Health Trust, Oct 14, 2015

Leading expert scientists and doctors who are advisors of the Environmental Health Trust (EHT) have sent an [open letter](#) to U.S. Secretary of Education Arne Duncan and incoming acting Secretary John King detailing children's unique vulnerability to the health risks of wireless technology. The scientists outline specific steps the U.S. Department of Education can take to safeguard children's health in the 21st century, such as choosing safe corded (non-wireless) technology and creating a national education program for students. The scientists applaud the fact that such efforts are already well implemented in several schools and countries and call on the United States to take a leadership role.

The letter cites how [over 20 countries](#) have taken a precautionary approach to the issue of wireless and are educating citizens on how to reduce exposures with many recommending against wireless in schools. Early in 2015, France passed a national law banning wifi from nursery schools and mandating that schools turn off wifi whenever it is not in use, and [Israel](#) has established a new national institute to review scientific evidence and recommends wired computers for teachers. In the United States both [public](#) and [private](#) schools are taking steps to reduce and remove wireless exposures. EHT maintains an updated list of these [policy actions](#).

In 2013, the [American Academy of Pediatrics wrote to the FCC](#) calling for more protective wireless RF-EMF radiation exposure standards and stated, "Children are not little adults and are disproportionately impacted by all environmental exposures, including cellphone radiation. Current FCC standards do not account for the unique vulnerability and use patterns specific to pregnant women and children."

"Considering that no research documents long-term exposure to low-intensity microwave radiation as safe for children, the best approach is precautionary." The letter references the accumulated scientific research showing that wireless radiation, also known as radio-frequency (RF) radiation or microwave radiation, could increase cancer risk and has been shown to damage the reproductive system and alter neurological development.

The letter cites [the research](#) of Yale Professor Dr. Hugh Taylor that showed prenatal exposure resulted in decreased memory and hyperactivity in offspring. This study joins a growing list of [experimental research](#) showing neurotoxic effects which has informed the [BabySafe Project](#) of over 100 physicians who recommend reduced wireless exposures for pregnant women in order to mitigate the risk of fetal brain damage.

Professor Martha Herbert, MD PhD, a Harvard pediatric neurologist, is [quoted](#): "RF radiation 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."

The scientists made the following recommendations to the U.S. Department of Education:

1. Raise school community awareness through new educational curriculum: Students, teachers, and their families should be given information on wireless health risks and simple precautionary steps they can take to protect their health. It is important to teach children how to use technology both safely and more responsibly in order to protect their health and wellbeing.
2. Install a safe communication and information technology infrastructure in schools to meet educational needs: Solutions exist to reduce exposures to wireless emissions and mitigate the health

risk. Low-EMF Best Practices have been developed allowing educational needs to be met with safer hard-wired Internet connections, which are also faster and more secure.

"A 21st century classroom must bridge the digital divide in the safest way possible. The United States of America can thoughtfully integrate safe technology into every classroom while safeguarding the health of generations to come by installing safe and secure wired internet connections." stated Dr. Davis, President of the EHT and Visiting Professor, The Hebrew University Medical School.

Please download the letter at this [link](#).

In fall 2014, the EHT wrote to several educational organizations—including the National Education Association, the National Association of Independent Schools and the National Parent Teacher Association—informing them of the health risks of wireless installations. Letters are available on the EHT [Schools and Safe Technology webpage](#).

This new letter calls on the U.S. Department of Education to provide leadership on common sense technology steps to safeguard children's health just as classrooms across the country are upgrading their technology systems. EHT applauds the [Collaborative for High Performance Schools](#) Low EMF criteria which provides the detailed steps schools can take to reduce EMF exposures.

Scientists have long been [cautioning against wireless networks](#) in schools and, most recently, [new letters](#) from scientists to a Massachusetts school were included in a [federal complaint](#) filed by parents alleging the school's upgraded wireless network made their child ill.

In 2014, an independent group of 29 international expert scientists of the Bioinitiative Report [wrote a letter to the CEOs of wireless technology](#) education companies such as Google, Dell, Apple, Adobe and Facebook stating that, "It does not reflect well on the ethics of your corporations to encourage the FCC to provide \$2 billion dollars for new wireless classroom infrastructure and devices for school children, knowing that wireless emissions have been classified as a Possible Human Carcinogen by the World Health Organization's International Agency for Research on Cancer (2011). To promote wireless technologies in schools is to deliberately and knowingly disregard current health warnings from international science and public health experts." These scientists have long made [clear recommendations](#) for Low-EMF Best Practices in schools based on the published scientific research.

Recently, a group of over [200 scientists](#) (who have collectively published over 2,000 peer-reviewed papers on non-ionizing radiation) appealed to the United Nations for immediate action on this issue in order to protect public health and the environment.

Over [20 countries](#) now take a precautionary stance towards wireless radiation. As an example, former Microsoft President Frank Clegg heads a safe technology organization [C4ST](#) calling on federal election candidates in Canada to develop an awareness campaign related to the safe use of information and communication technologies in schools after the Canadian Parliamentary Health Committee unanimously voted for [12 recommendations](#) concerning wireless radiation and public health.

About The Scientists

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Resources

Download the October 13, 2015 Letter here

<http://ehtrust.org/wp-content/uploads/2015/10/Letter-to-U.S.-Secretary-of-Education-from-EHT-on->

[Wireless-in-Schools-October-13-2015-.pdf](#)

Letters by Scientific Experts Against Wireless Networks to Fay School Trustees

<http://ehtrust.org/wp-content/uploads/2015/10/Expert-Letters-Against-WiFi-to-Fay-school-trustees.pdf>

Collaborative for High Performance Schools Low-EMF Best Practices

http://ehtrust.org/wp-content/uploads/2015/10/US-CHPS__Criteria_2014_Low-EMF-Criteria102314.pdf

Videos

Dr. Devra Davis and Dr. Sharma Lecture at George Washington University on Wireless and Health June 2015

<https://www.youtube.com/watch?v=LNeA26lQTvA>

Dr. Devra Davis lectures at the National Institute of Environmental Health Sciences (NIEHS)

<https://www.youtube.com/watch?v=wNNSztN7wJc>

Excerpt from Q and A at George Washington University on the issue of wireless in school

<https://www.youtube.com/watch?v=1gkcPZV4coQ>

<http://bit.ly/1OCXedx>

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Legislation eyed for Wi-Fi warnings in county buildings

Justine Schoenbart, The Island Now, Jul 23, 2015

Nassau County Legislator Delia DeRiggi-Whitton announced last Tuesday that she is proposing a bill that would place visible warning signs in all county buildings and facilities where a wireless router is located ...

<http://bit.ly/1lh8Jk6>

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May 8, 2015

Oregon House Bill 3350

Oregon State Representative Alissa Kenyguyer has proposed [House Bill 3350](#) which directs the Oregon Department of Education to prepare a statement that would disclose the potential health risks of wireless technology.

The bill requires public and private schools to distribute the statement annually to school employees and to parents of students. The bill declares an emergency stating that such an act is necessary for the immediate preservation of public peace, health and safety.

The bill was introduced on February 27, 2015 and was referred to the Health Care Committee on March 6. If the bill is adopted, it would take effect on July 15, 2015.

For more information: <https://legiscan.com/OR/bill/HB3350/2015>

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May 6, 2015

First official health accommodation for public school teacher in US due to electromagnetic hypersensitivity (EHS)

[CBS television news in Los Angeles interviewed Anura Lawson](#) an eighth grade teacher whose electromagnetic hypersensitivity made it extremely difficult for her to work after the Los Angeles Unified School District installed Wi-Fi routers in her school. According to the news report, "she is believed to be the first public school teacher in the U.S. granted a health accommodation for electromagnetic hypersensitivity."

There is some irony in this story as Ms. Lawson teaches at Johnnie Cochran Middle School. The school is named after the famous attorney who died of a brain tumor. Dr. Keith Black, his neurosurgeon at Cedars-Sinai, attributed Mr. Cochran's tumor to his heavy cell phone use. Many individuals who suffer from EHS cannot use cell phones.

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April 16, 2015

L.A. school district demands iPad refund from Apple

The L.A. Unified School District's long-running, troubled saga with iPads continues.

<http://lat.ms/1Oj7fP2>

October 16, 2014

iPad Scandal in 2nd Largest School District in U.S.

The Superintendent of the Los Angeles Unified School District announced his resignation today due to a controversy over the district's billion-dollar iPad program. The program was suspended after the Superintendent received criticism about his close ties to Apple and Pearson, the company that manages the educational content.

<http://bit.ly/1uc4Cil>

October 10, 2014

Los Angeles Unified School District Accommodates Teacher Who Fell Ill After Wireless Installation

The National Association for Children and Safe Technology, Oct 10, 2014

Students were bleeding from the ears and nose and no incident reports were allowed by the school states the teacher who required medical intervention.

YouTube video: <http://bit.ly/1vXgwAY> (3 minutes)

PRLog - Oct. 10, 2014 - In the Fall of 2014, LAUSD, the second largest public school district in the US, officially accommodated teacher Ms. Anura Lawson by approving her request to have the Wi-Fi turned off in her classroom during the 2014-2015 school year and alternatively approving a reassignment to a different school site where Wi-Fi has yet to be installed.

The Middle School teacher reported that she fell seriously ill after a wireless system upgrade in her school in Spring 2014. She described her cardiac symptoms during a May 28, LAUSD Common Core Tech Project meeting. Ms. Lawson also stated, "The students are having nosebleeds and the main offices are refusing to do incident reports. I have had two seventh grade students bleeding out of their ears." See <http://www.youtube.com/watch?v=wghaMbzRnb4&feature=youtu.be>

This is the first accommodation in a US public school system for microwave sickness.

Microwave sickness, also known as electro hypersensitivity (EHS), is not widely recognized in the US. However, physicians in many other countries are familiar with this medical condition and the diagnosis is more common. EHS symptoms include: headaches, dizziness, anxiety, rapid heart beat (tachycardia) and irregular heart beat (arrhythmia), ear and nose bleeds, tinnitus, red and irritated eyes, increased mucous and upper airway congestion, itchy skin rashes, abdominal pain, poor focus and attention, memory and sleep problems.

In March 2012, the Austrian Medical Association recognized and developed EHS treatment guidelines. In the United States, adverse effects were identified before 1988 when a US Air Force Review stated that "Experimental evidence has shown that exposure to low intensity radiation can have a profound effect on biological processes."

The LAUSD Board of Education went ahead with a wireless technology plan in February 2013, even after they were presented with numerous letters from many noted medical doctors and researchers, including the American Academy of Environmental Medicine, imploring them to use wired technology in the classroom because of the health impacts from wireless radiation. See <http://wifiinschools.com/lausd-testimony.html>

Wireless LAUSD classrooms typically employ 30+ devices (iPads) in addition to an industrial-sized router. These devices all emit microwave radiation and represent an unprecedented level of exposure to children.

Decades of accumulated research show wireless radiation damages neurological, immune, and reproductive systems in addition to increasing cancer risk. Professor Olle Johansson, Karolinska Institute, Stockholm Sweden, has stated that wireless radiation exposure studies have indicated "irreversible sterility within five generations." As this damage is cumulative, the longer the radiation exposure, the greater the health impact over time.

"We are getting reports of headaches and cardiac issues from across the country. The time to act is now," stated a spokesperson for the National Association for Children and Safe Technology (NACST).

NACST is an organization dedicated to raising awareness of the health impacts of wireless radiation on children. They are calling for schools to use wired Internet only. Their website details both the accumulated research showing wireless radiation's acute as well as long term health impacts.

The National Association for Children and Safe Technology

<http://www.nacst.org>
contact@nacst.org

<http://bit.ly/1stRqcd>

February 9, 2013

The Los Angeles Unified School District plans to spend \$500 million to install Wi-Fi in every classroom and provide every student with a wireless tablet or laptop.

The initial \$50 million pilot phase for this project was discussed at a School Board meeting on February 13, 2013. Although written and oral testimony was presented to the Board in opposition to this plan based on concerns about the health and safety of students and employees from continued exposure to Wi-Fi radiation, the Board approved the pilot plan.

For background on this issue and video clips, see these news stories:

http://www.dailynews.com/news/ci_22568864/tamar-galatzan-l-schools-need-technology-but-how
http://www.dailynews.com/news/ci_22577480/lausd-approves-50m-computer-tablets
<http://eon3emfblog.net/?p=5706>

Following are excerpts from eight of the letters submitted in opposition to the plan.

Excerpts from Selected Letters

Martin Blank, Ph.D., College of Physicians and Surgeons, Columbia University

“As a researcher on biological effects of electromagnetic fields (EMF) for over twenty five years, as well as one of the contributors to the 2007 and 2012 Bioinitiative Reports, I am writing to you concerning the health risks associated with the radiation from WiFi and to urge you not to install WiFi in the schools in your district.”

“RF radiation can cause single and double strand DNA breaks at exposure levels that are currently considered safe under the FCC guidelines. There are also epidemiological studies that show an increased risk of cancers associated with exposure to RF.”

“RF has been shown to cause other potentially harmful biological effects, such as leakage of the blood brain barrier that can lead to damage of neurons in the brain, increased micronuclei (DNA fragments) in human blood lymphocytes--all at RF exposures that are well below the limits in the current FCC guidelines.”

“As noted above, many potentially harmful effects, such as the stress response and DNA strand breaks, occur at nonthermal levels. Since these field strengths do not cause a temperature increase (the only parameter currently accepted as dangerous), they are unwisely considered safe. It is clear that the safety standards must be revised downward to take into account nonthermal as well as thermal biological responses. Given the problems in current standards, it is essential, for the protection of ourselves and our children, to take a precautionary approach and not install a WiFi system.”

Devra Davis, Ph.D., MPH, Environmental Health Trust

“In our new paper, we conclude that the weight of scientific evidence available at this time supports a classification of cell phone and other wireless technology as a "probable human carcinogen." (2A) The information on which we base this view includes experimental studies as well as a growing number of studies in humans. The criteria on which we rely have been validated through more than three decades of use by the IARC; other materials classified as probable human carcinogen include: diesel engine exhaust, tars, petroleum refining and a number of pesticides. Our paper reviews new studies not available to the IARC in its determination in 2011, including several reports from the team of Swedish investigators led by Lennart Hardell.”

“We note that the American Academy of Pediatrics has expressed its concerns about the growing exposures to children in a letter to Congress dated 12 December 2012: ‘Children are disproportionately affected by environmental exposures, including cell phone radiation. The differences in bone density and the amount of fluid in a child’s brain compared to an adult’s brain could allow children to absorb greater quantities of RF energy deeper into their brains than adults. It is essential that any new standards for cell phones or other wireless devices be based on protecting the youngest and most vulnerable populations to ensure they are safeguarded through their lifetimes.’”

"As many researchers have noted, children are not merely little adults. Their brains and skulls absorb more radiation than do adults. Empirical data have shown a difference in 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."

"Please be aware that national authorities in France and Israel are advising against wi-fi expansion, especially in schools with younger children. Many authorities have noted that standards for wireless exposures differ by several orders of magnitude, with those in the home country of the World Health Organization, Switzerland being among the most stringent in the world."

"In fact, research on this topic remains poorly funded in the U.S. The absence of definitive information on risks from wi-fi in the U.S. at this time should not be interpreted as proof of safety."

"Wired systems are far more safe, secure, and speedy, and avoid potential long term public health issues. In addition, wired systems will protect the growing number of persons who are hypersensitive to wi-fi exposures, as well as limit risks to persons with pace-makers or those with other implanted electronic or metal devices that can absorb greater amounts of such radiation."

Katharina Gustavs, Cert. EOH, Building Biology Consultant IBN

“Second, as an EMF consultant, I recommend choosing wired technologies, especially for Internet access in schools and, in general, keeping RF radiation exposures from all sources as low as possible. In this I follow the recommendations of the German Federal Office for Radiation Protection (2007), the Parliament of the Federal State of Salzburg (2007), the Israeli Parliament (2010), the International Commission for Electromagnetic Safety (ICEMS), the BioInitiative Working Group (2012), and the Seletun Scientific Panel (2010), just to name a few. Understand that with each additional wireless transmitter you add to the school environment, you unnecessarily increase the overall exposure to radio-frequency radiation for each student and staff member. Be inspired by other government agencies and school districts that try reducing the RF exposure of their students and staff members. “

“Last year the Physicians’ Working Group of the Competence Initiative not only launched another International Doctors’ Appeal, but they also released another warning regarding Wi-Fi in which it says: ‘Wi-Fi radiation seems to be perceived as particularly stressful. Not only electrohypersensitive people say so, but also healthy people report their discomfort in the presence of Wi-Fi radiation.’”

“Laboratory tests of laptops have shown that the exposure level for a user can easily be greater than 100,000 $\mu\text{W}/\text{m}^2$ when the laptop is placed in the lap, which is definitely higher than even elevated urban RF levels. The recently released EMF Guidelines by the EMF Working Group of the Austrian Medical Association consider any level greater than 1000 $\mu\text{W}/\text{m}^2$ ‘very far above normal,’ and greater than 10 $\mu\text{W}/\text{m}^2$ ‘far above normal.’”

“Do not be fooled by the URS report.* In my testing experience, people tend to adversely react to Wi-Fi radiation, starting at 100 $\mu\text{W}/\text{m}^2$ (0.01 $\mu\text{W}/\text{cm}^2$). And this is not a whole-body, time-averaged value, which would be much lower, but a peak value. The human body does not care about the ‘accepted practice’ of the FCC.”

“Also, basic logic seems to escape the authors of the URS report. On the one hand, they claim that ‘a cautionary level of 0.1 $\mu\text{W}/\text{cm}^2$ is attainable within LAUSD classrooms.’ At what distance from any device? At the user distance? From one single Wi-Fi device? For any scenario when all devices in a given classroom are working? How can recommendation number 3 on page 1-2 be reconciled with number 6? Does this mean that the recommended cautionary level only applies to a single frequency band, i.e. Wi-Fi? What about cumulative exposure from all the different types of wireless frequencies?”

“Ambient exposure levels in a classroom with a Wi-Fi access point may range from 100-4,000 $\mu\text{W}/\text{m}^2$ (up to 90,000 $\mu\text{W}/\text{m}^2$), depending on a person’s distance to the access point. Compared to the 10 million $\mu\text{W}/\text{m}^2$ of the FCC limit, 1000 $\mu\text{W}/\text{m}^2$ (0.1 $\mu\text{W}/\text{cm}^2$) may sound rather small. Considering that the natural background radiation (in which human life has evolved) is over a billion times lower (ca. 0.000001 $\mu\text{W}/\text{m}^2$), this may give you pause. For your orientation, I have compiled a table with various Wi-Fi exposure levels: <http://buildingbiology.ca/wd/wp-content/uploads/2012/10/Wi-Fi-Exposure-Levels-2012.pdf>.”

“The electromagnetic quality of our indoor environment is part of a healthy learning environment. Just because we cannot smell RF radiation does not mean it cannot cause any harm at low levels. Be smart; invest in wired networks and the future health of our children.”

Magda Havas, Ph.D., Environmental & Resource Studies, Trent University, Canada

“The safest way to connect to the internet in the classroom is through either Ethernet cable or through fiber optics. The worst way to connect to the internet from a health perspective is through Wi-Fi routers. However, if Wi-Fi routers are deployed in the classroom it is essential that the routers be turned off when not in use and/or turned down to minimize exposure of students and staff.”

“The scientific evidence clearly shows that microwave radiation at levels well below the Federal Communication Commission (FCC) guidelines and at levels now commonly found inside classrooms with Wi-Fi routers causes cancer in laboratory animals, causes heart palpitations in sensitive adults, causes reduced sperm motility and viability, and is associated with symptoms of electrosensitivity that include—but are not limited to—cognitive dysfunction, pain, fatigue, mood disorders (depression, anxiety, irritability), dizziness, nausea, weakness, skin problems, and tinnitus.”

“The current guidelines for microwave radiation are based on a heating effect of a healthy adult male (as they were originally designed for military personnel working near radar antennas). These

guidelines were never designed nor intended to protect children and pregnant women. The guideline in the U.S. is calculated as the average exposure over a 30-minute period that does not raise the body temperature of tissue by 1 degree Celsius. The U.S. has no long-term guidelines and no biological guidelines for microwave radiation. The guidelines in Russia, Switzerland and many other countries are 100 times more protective than those in the United States.”

“Furthermore, in 2011 the World Health Organization classified radio frequency electromagnetic fields as a possible human carcinogen, which is a warning to governments around the world. Why would we want to place a possible human carcinogen in the classroom?”

Martha Herbert, M.D., Harvard Medical School, Massachusetts General Hospital :

“In fact, there are thousands of papers that have accumulated over decades and are now accumulating at an accelerating pace, as our ability to measure impacts become more sensitive that document adverse health and neurological impacts of EMF/RFR. Children are more vulnerable than adults, and children with chronic illnesses and/or neurodevelopmental disabilities are even more vulnerable. “

“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.”

“I urge you to step back from your intention to go wifi in the LAUSD, and instead opt for wired technologies, particularly for those subpopulations that are most sensitive. It will be easier for you to make a healthier decision now than to undo a misguided decision later.”

Olle Johansson, Ph.D., Dept of Neuroscience, Karolinska Institute, Sweden

“In November, 2009, a Scientific Panel comprised of international experts on the biological effects of electromagnetic fields met in Seletun, Norway, for three days of intensive discussion on existing scientific evidence and public health implications of the unprecedented global exposures to artificial electromagnetic fields (EMF) from telecommunications and electric power technologies. This meeting was a direct consequence of on-going discussions already from the mid-nineties, when cellular communications infrastructure began to rapidly proliferate, and stretching through, among many, the Benevento (2006), Venice (2008) and London (2009) Resolutions from this decade, and involving important conclusions drawn from the 600-page Bioinitiative Report published August 31, 2007, which was a review of over 2,000 studies showing biological effects from electromagnetic radiation at non-thermal levels of exposure, which partly was published subsequently in the journal Pathophysiology (Volume 16, 2009). The Bioinitiative Report has, in addition, recently been updated (2012).”

“The Seletun Scientific Statement (2011) recommends that lower limits be established for electromagnetic fields and wireless exposures, based on scientific studies reporting health impacts at much lower exposure levels. Many researchers now believe the existing safety limits are inadequate to protect public health because they do not consider prolonged exposure to lower emission levels that are now widespread.”

“Furthermore, based on the available scientific data, the Seletun Scientific Panel states that:

- Sensitive populations (for example, the elderly, the ill, the genetically and/or immunologically challenged) and children and fetuses may be additionally vulnerable to health risks; their exposures are largely involuntary and they are less protected by existing public safety standards.

- It is well established that children are more vulnerable to health risks from environmental toxins in general.
- The Panel strongly recommends against the exposure from wireless systems of children of any age.
- The Panel strongly recommends against the exposure from wireless systems of pregnant women.”

“Another misunderstanding is the use of scientific publications (as the tobacco industry did for many years) as 'weights' to balance each other. But you can NEVER balance a report showing a negative health effect with one showing nothing! This is a misunderstanding which, unfortunately, is very often used both by the industrial representatives as well as official authorities.”

Joel Moskowitz, Ph.D., School of Public Health, University of California, Berkeley

“Based upon my review of the research of the health effects associated with exposure to radiofrequency (RF) electromagnetic radiation (EMR), especially microwave radiation, I feel compelled to register my concern that adoption of Wi-Fi in LAUSD classrooms is likely to put at risk the health of many students and employees in the District.”

“...I was concerned about the health risks of unnecessarily subjecting 660,000 children to 13,000 hours of Wi-Fi microwave radiation during their K-12 school years.”

“I have been calling on the FCC to strengthen its standards and testing procedures to protect the public and workers from the low-intensity, non-thermal risks of RF EMR exposure that have been reported in hundreds, if not thousands, of research studies. These include increased risk of neurological and cardiovascular problems, sperm damage and male infertility, reproductive health risks, and cancer.”

“The *precautionary principle* should be applied to this critical policy decision. This principle, developed at a U.N. environmental conference in 1992 states that in the absence of scientific consensus if an action has a suspected risk of causing harm, the burden of proof it is not harmful falls on those taking the action, and all reasonable measures to reduce the risk must be taken. Internet access can be provided to students through wires or optical fiber without installing Wi-Fi in the classrooms.”

(Complete letter: <http://saferemr.blogspot.com/2013/02/adoption-of-wi-fi-in-los-angeles-usd.html> .)

Cindy Sage, M.A., Sage Associates, Santa Barbara, CA

“The LAUSD will place hundreds of thousands of school children at risk for illness, learning impairments and other health problems by choosing a delivery technology that produces a toxic emission (radiofrequency and microwave radiation) that has recently been classified as a Possible Human Carcinogen.”

“There is overwhelming evidence that children are more vulnerable than adults to many different exposures (Sly and Carpenter, 2012), including RFR (Wart et al, 2008), and that the diseases of greatest concern are cancer and adverse effects on neurodevelopment. “

“Existing FCC safety standards are under formal review by the FCC (Proceeding 03-137). The US Government Accountability Office Report of 2012 recommends to the FCC that it formally reassess, and, if appropriate, change it's current RF energy exposure limit and mobile phone testing requirements related to likely usage configurations, particularly when phones are held against the body (US GAO, 2012). The existing FCC public safety standards cannot be presumed for purposes

of the LAUSD decision on wireless to be protective of public health under these circumstances. The existing safety limits do not protect against chronic exposures nor against non-thermal effects of radiofrequency and microwave radiation on human health. They are specifically not protective of children or smaller-stature individuals (they are developed to be suitable to protect a six-foot man (in stature). They address acute, but not chronic exposures. And they are not protective against biological effects of non-thermal low-intensity RFR exposures for either children, adults, or the disabled.”

“LAUSD must incorporate appropriate measures to address the recent World Health Organization International Agency for Research on Cancer (IARC) classification of RFR as a Possible Human Carcinogen before subjecting widespread hundreds of thousands of its District personnel and students to a preventable toxic exposure. The WHO IARC classified RF radiation as a Group 2B Possible Human Carcinogen; it joins the IARC classification of ELF-EMF (Extremely Low Frequency Electromagnetic Fields) as a Group 2B Possible Human Carcinogen. The evidence for carcinogenicity for RFR was primarily from cell phone/brain tumor studies but IARC applies this classification to all RFR exposures.”

“New scientific studies of radiofrequency radiation of the kind and at the levels associated with wireless classroom environments report that chronic, whole-body RFR exposure at levels as low as 0.003 microwatts per square centimeter result in adverse health effects on children and adolescents (Thomas et al 2008; Heinrich et al 2010; Thomas et al 2010; Mohler et al 2010). Wireless classrooms will create unavoidable and involuntary exposure to RFR at levels shown to adversely affect memory, learning, cognition, attention, concentration and behavior to school occupants. No level of RFR exposure has been conclusively determined to be safe.”

“LAUSD should not encourage or mandate the use of wireless devices like iPads or wireless computers with associated wireless access points installed in classrooms; or cell phones in learning environments on LAUSD properties. There is evidence that is sufficient to warn against chronic use of wireless devices near or worn on the body related to reproductive organs in both males and females (See Footnote 1).”

Other Submissions

Numerous other individuals submitted written testimony in opposition to the LAUSD WiFi plan including Stephanie and Jeff Austin, Liz Barris, Mary Beth Brangan (Ecological Options Network), Susan Brinchman (Center for Electrosmog Prevention), Merry Callahan, Sue Chiang (Center for Environmental Health), Linda Ewart (Citizens for Safe Technology), C. Gartz, Shane Gregory, Kim Hahn, Joshua Hart (Stop Smart Meters), Kawartha Safe Technology Initiative, Elizabeth Kelley, Barbara Li Santi, Ellen Marks (California Brain Tumor Association), Kiki Iwata and Gail Nicol, Garril Page, Ray Pealer, Sharon Phillips, Deb Rubin, Victoria Siever, Toni Stein (Environmental Health Trust), K. Sundmark, R. Paul Sundmark, and Diane Whitmire.

The testimony in opposition to this policy is available at:
<http://www.wifiinschools.com/laUSD-testimony.html>

March 11, 2013

Dear School Board Members:

I wish to bring to your attention a press release I distributed today as it is relevant to the District's Technology Plan. At a recent meeting, the Board decided to adopt a Wi-Fi system in the LA Unified

schools against the recommendations of some American health experts as well as the Council of Europe:

<http://saferemr.blogspot.com/2013/02/testimony-in-opposition-to-laUSD-wi-fi.html> and <http://saferemr.blogspot.com/2013/03/council-of-europe-called-for-council-of.html>.

As you may know, the FCC's regulatory standard protects the population from thermal exposure to microwave radiation from wireless equipment but not from low-intensity, non-thermal exposures.

Since the District ignored these warnings and intends to install wireless networks in the schools, I suggest you consider a requirement that the systems be designed consistent with the **ALARA (as low as reasonably achievable) principle** in order to minimize potential health risks to students and staff. It would be prudent for the Board to follow this course of action based upon the precautionary principle.

In 2003, a major telecommunications company acknowledged in a patent filing that exposure to low intensity, non-thermal wireless radiation is carcinogenic. The technology described in this patent could substantially reduce microwave radiation exposure from a local wireless network. Although I have not done a patent search, I would imagine that the wireless industry holds numerous patents that could reduce microwave radiation exposure from wireless local networks. Unfortunately, the industry has little incentive to apply these patents to extant technology because the FCC has been lax in its regulation of microwave radiation.

The District could become a model for the nation by adopting a Wi-Fi system and distributing tablets/laptops that are compliant with the ALARA principle. School districts and their students throughout the country could also benefit if the Board requires the wireless industry to make this option available to the public.

Sincerely,

Joel M. Moskowitz, Ph.D.

Wireless Industry's Patented System to Reduce Cancer Risk from Wireless Local Networks Never Adopted

A major telecom company patented a system to reduce "electrosmog" from wireless local networks to reduce cancer risks associated with non-thermal exposures to microwave radiation. The industry has known the risks for many years but has failed to act. Joel M. Moskowitz, PRLog (Press Release) - Mar 11, 2013

Swisscom AG, a major telecommunications provider in Switzerland, filed U.S. and international patent applications for an innovative system to reduce "electrosmog" from wireless local networks (i.e., Wi-Fi) in 2003.

This patent application acknowledged the cancer risk from exposure to wireless radiation eight years before the WHO's International Agency for Research on Cancer declared that radiofrequency energy, including cell phone and Wi-Fi radiation, is a "possible carcinogen" to humans, like DDT and lead.

Furthermore, the application acknowledged that low-intensity, non-thermal exposures to wireless radiation is genotoxic. This is critical because the current U.S. regulatory standard for wireless radiation, established in 1996, does not protect us from non-thermal exposures ...

To see entire news release: <http://www.prlog.org/12094566>

March 25, 2013

On March 19, the Executive Committee of the **American Academy of Environmental Medicine**, an international association of physicians and other professionals, wrote a letter to the Los Angeles Unified School District that makes the following recommendation:

"do not add to the burden of public health by installing blanket wireless internet connections in Los Angeles schools. Hardwired internet connections are not only safer, they are stronger, and more secure."

The letter discusses why precaution is warranted:

"There is consistent emerging science that shows people, especially children are affected by the increasing exposure to wireless radiation. In September 2010, the Journal of the American Society for Reproductive Medicine - Fertility and Sterility reported that only four hours of exposure to a standard laptop using WiFi caused DNA damage to human sperm."

"In May 2011, the World Health Organization elevated exposure to wireless radiation, including WiFi, onto the Class 2b list of Carcinogens."

"In October 2012, the AAEM issued a public warning about WiFi in schools that stated:

'Adverse health effects from wireless radio frequency fields, such as learning disabilities, altered immune responses, and headaches, clearly exist and are well documented in the scientific literature. Safer technology, such as use of hardwiring, is strongly recommended in schools.'"

"In December 2012, the American Academy of Pediatrics - representing 60,000 pediatricians, wrote to Congress requesting it update the safety levels of microwave radiation exposure especially for children and pregnant women."

"The WiFi systems in schools are typically hundreds of times more powerful than the home consumer systems you may be familiar with. They are also dozens of times more powerful than the cafe and restaurant systems you may have been exposed to. The WiFi systems in schools are necessarily more powerful than any microwave communication systems in any other setting because they are required to run hundreds of computers simultaneously. They are also exposing children - the most vulnerable to microwave radiation - to extended periods all day, for their entire childhood."

"This is an unprecedented exposure with unknown outcome on the health and reproductive potential of a generation."

"To install this system in Los Angeles risks a widespread public health question that the medical system is not yet prepared to answer."

The Academy forewarns the District, **"caution must be exercised to prevent a potential public health disaster."**

"It is unlikely that there are currently enough doctors in Los Angeles County familiar with the biological effects of microwave radiation to diagnose and treat the numbers of children who will potentially become symptomatic from exposure to your wireless system should you elect to install it. Statistics show that you

can expect an immediate reaction in 3% of your students and time-delayed reactions in 30% of them. This will also include teachers."

The full text of this letter is available at:

[American Academy of Environmental Medicine Letter to LAUSD 3-19-2013](#)

Resources on WiFi in the Schools

(Last updated: 7/29/2015)

Is WiFi in Schools Safe?

Brian Spero, Boston Parents Paper, undated. <http://bit.ly/1LYPgvu>

Wi Fi in Schools: Are we Playing it Safe with our Kids?

Cindy Russell, MD, The Bulletin (Santa Clara County/Monterey County Medical Association), March/April 2015, pp. 16-21. <http://bit.ly/1HtJ9eU>

CEO Wireless Letter from the Bioinitiative Working Group

September 17, 2014

[The BioInitiative Working Group consists of 29 scientists from ten nations.]

On behalf of the BioInitiative Working Group, we are writing to express our concern about the views expressed by CEOs from Google, Dell, Apple, Adobe, eBay, Facebook, the George Lucas Educational Foundation and others to the FCC supporting wireless technologies in schools

Saturating schools with wireless technology will likely create unnecessary liability for municipalities and result in a loss of public trust and confidence in the corporations that push their wireless products with a blind eye toward health concerns.

Epidemiological studies show links between radiofrequency radiation (RFR) exposure and cancers, neurological disorders, hormonal changes, symptoms of electrical hypersensitivity (EHS) and more. Laboratory studies show that RFR exposure increases risk of cancer, abnormal sperm, learning and memory deficits, and heart irregularities. Fetal exposures in both animal and human studies result in altered brain development in the young offspring, with disruption in learning, memory and behavior.

The brain development of a fetus can be impaired by in-utero exposure to a pregnant woman. The evidence for these statements is based on hundreds of published, peer-reviewed scientific studies that report adverse effects at levels much lower than current FCC public safety limits. WiFi in schools, in contrast to wired internet connections, will increase risk of neurologic impairment and long-term risk of cancer in students. Corporations cannot avoid responsibility simply by asserting compliance with existing legal, but outdated and inadequate FCC public safety limits ...

<http://bit.ly/1w9yXSc>

Wi-Fi Resource List

Ahonen, M. & Koppel, T. (2012). Mobile Learning and Health-Risk Management of Pulsed Microwave Technologies. In Specht, M. et al. (Eds.) mLearn 2012, Mobile and Contextual Learning, Proceedings of the 11th International Conference on Mobile and Contextual Learning 2012 Helsinki, Finland, October 16 -18, 2012. Helsinki, 134-139. (CEUR Workshop Proceedings Vol-955). <http://bit.ly/1f1tDcc>

Many schools and educational institutions are using wireless Wi-Fi and Tablet technologies in their education. Recently WHO IARC classified radiofrequency (RF) radiation 'possibly carcinogenic to humans'. Currently guidance levels for electromagnetic fields (including RF) are based on thermal effects while effects have been reported on non-thermal levels. Possibly these biological, non-thermal effects are brain-related and affect cognition, memorizing and learning. We start by describing our measurement method used for Wi-Fi routers and laptop Wi-Fi antennas. Then a historical overview on thermal and non-thermal viewpoints is provided. The objective of this study is to quantify the actual RF radiation levels around Wi-Fi access points and laptop computers at educational facilities and to assess their compliance with the current thermal-only guidelines and also with precautionary, biological guidance levels. This paper ends to recommendations how to minimize radiation exposure in educational institutions.

Ahonen, M. Mobile Learning and Health Risks—Implications for Pedagogical and Educational Practices (Based on a presentation in the Online Education Berlin 2008, slides updated in March 2011). <http://slidesha.re/1cECBlj>

American Academy of Environmental Medicine –Statement on WiFi in Schools
<http://aaemonline.org/wifischool.html>

American Academy of Pediatrics – Protection of Children and Pregnant Women from Wireless Radiation
<http://www.safeinschool.org/2013/12/americanacademy-pediatrics-aap-radiation-children.html>

Boston Parents Paper. "Is Wi-Fi in Schools Safe? Putting EMF exposure on your radar of potential health risks." <http://bit.ly/2bVo5Gc>

Canadians for Safe Technology (C4ST)– WiFi in Schools
<http://www.c4st.org/news/category/wifi-in-schools/>

Citizens for Safe Technology – WiFi (Schools, Children and Families)
<http://www.citizensforsafetechnology.org/wi-fi-in-schools-children-and-families,19,0>

Council of Europe: Restrict Wi-Fi and Mobile Phone Use in Schools
<http://www.saferemr.com/2013/03/council-of-europe-called-for-council-of.html>

EMF in Schools – Collaboration for High Performance Schools
<http://healthybuildingscience.com/2015/01/21/emf-in-schools/>

EMF-Portal - Search on "wifi" for summaries of more than 175 studies
<http://www.emf-portal.de/suche.php?l=e>

EMR Policy Institute
http://www.emrpolicy.org/public_policy/schools/index.htm

Environmental Health Trust: School, Union, and PTA Actions
<http://bit.ly/1MMxbmi>

Greater Victoria Teachers' Association

<http://gvta.net/index.php/health-safety/2013-02-20-23-22-17>

"[Health Dangers of WiFi in Schools](#)," CBC News

Magda Havas, Ph.D.

<http://www.magdahavas.com/wifi-in-schools-and-health-effects/>

Kadaras, Nicholas, Ph.D. "Screens in Schools are a \$60 Billion Hoax." TIME. Aug 31, 2016.

ti.me/2blp6Ce

New Jersey Education Association. Minimize health risks from electronic devices. Sep 2016.

<http://bit.ly/2cSV2Ry>

No Radiation For You

<http://www.norad4u.com/knowledge/wifi-in-schools>

Parents for Safe Schools

<http://parentsforasafeschool.blogspot.ca>

Parents Against WiFi in Schools

<https://www.facebook.com/ParentsAgainstWiFiinSchool>

Powerwatch

<http://www.powerwatch.org.uk/news/20130214-norwich-wifi.asp>

http://www.powerwatch.org.uk/pdfs/20071210_wifi_signals.pdf

SafeinSchool.org

<http://www.safeinschool.org/>

Stop UMTS! – WiFi in Schools

http://www.stopumts.nl/doc.php/Folders%20en%20publicaties/8021/wifi_in_scholen_een_aantal_brieven_van_wetenschappers_en_medische_experts

WiFi in Schools

<http://www.wifiinschools.com/>

WiFi in Schools Australia

<http://www.wifi-in-schools-australia.org/>

WiFi in Schools United Kingdom

<http://wifiinschools.org.uk/>

Wired Child

<http://www.wiredchild.org/schools.html>

Wireless Watch – WiFi in Schools

<http://www.wirelesswatchblog.org/wi-fi-in-schools/>

Source: <http://www.saferemr.com/2013/03/opposition-to-los-angeles-public.html>