

Superintendent Dr. Karen Salmon
Maryland Department of Education
State Education Building
200 West Baltimore St.
Baltimore, MD 21201 - 2595

March 19, 2017

Dear Maryland Department of Education Superintendent Dr. Karen Salmon,

I am writing because I just read [a letter you wrote dated March 15, 2017](#) concerning HB 1089. That letter states that “instructional use of devices in Maryland classrooms does not support nor encourage unsafe use of devices”.



I am writing out of concern that your Department’s characterization of digital device use in classrooms as “not unsafe” is inaccurate. Digital devices are, in fact, being used in unsafe ways in classrooms at this time.

Please note the image to the left from a video of Baltimore County Schools. I am concerned about the overuse of screens in classrooms, the physical positions children are in when using screens, the impacts of the blue lights on the eyes, the radiofrequency emissions and the social psychological impact on student’s mental health. Current digital device rollouts do not protect students from adverse physical and mental health effects and in addition, such rollouts are not proven to increase learning outcomes.

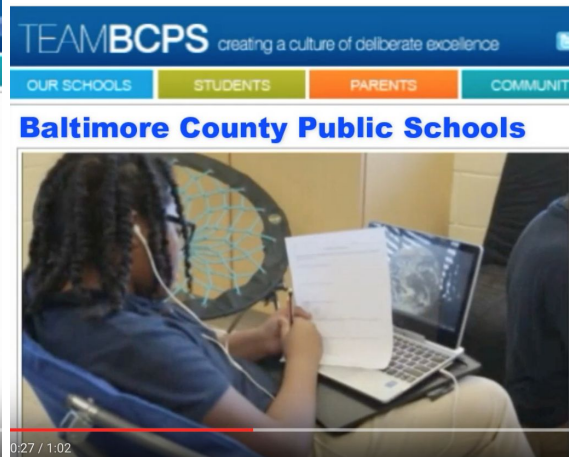
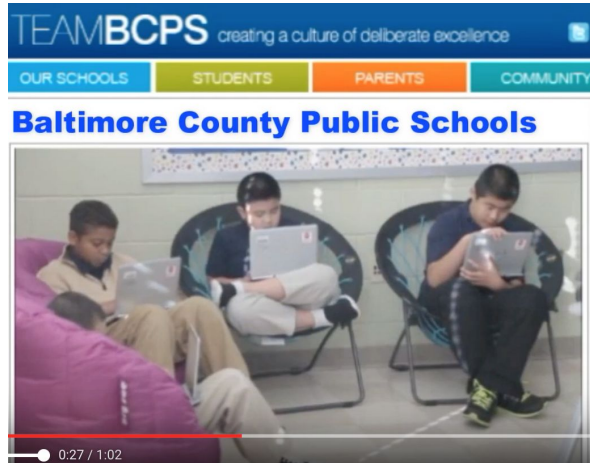
I will note that I have sent the Department such documentation on numerous past occasions and had several conversations and communications with Ms. Booker Dwyer who the Superintendent referred me to after I wrote the Department in the Fall of 2016 (as follow up to multiple letters written on the subject since 2014).



In October 2016 I was also told by the Department that "there is not enough evidence to support your claim that all of Maryland school systems are improperly using digital devices thereby increasing students' exposure to radio frequency emissions. "

In response to this statement in October 2016 I sent images of students in Maryland public schools using wireless devices in schools in unsafe ways. I am again sharing with you the images from news stories and Maryland school videos that showcase the unsafe use of digital devices in classrooms to ensure that the Department is informed of the unsafe use of devices in classrooms.

It is the responsibility of the school and of Maryland Department of Education to ensure that students are safe in classrooms. I ask that immediate action be taken to assure the students are safe.



These images below are found in a Baltimore Sun news report on Howard County Schools Bring Your Own Device News Report. [Click on the photo gallery section to see the pictures.](#)





Please also review this video of students in a Baltimore school found here and you will see devices used in a manner that the Dept of Labor recommends against. [Ted Ed Visits Baltimore Schools](#).



I have been writing the Department of Education for years about the scientific evidence documenting that microwave radiation from wireless devices is likely a [carcinogen](#) and more importantly is also linked to [sperm damage](#), [neurological problems](#) and [autism](#).

The Department has also been informed by well informed parents and the [Department of Health](#) that digital devices can damage the eyes of a child.

In response to my concerns in 2014, the [Maryland Department of Education wrote me a letter](#) recommending I go to the Maryland Children's Environmental Health and Protection Advisory Council for "guidance."

I also met in person with then Governor Martin O'Malley who responded that the Maryland Children's Environmental Health and Protection Advisory Council was "conscientiously monitoring all developments" "focused on maintaining health and safety."

Dr. Joshua Sharfstein, then Secretary of the Maryland Department of Health, [wrote me a letter](#) that, "It is fair to say there are legitimate questions about the long term health implications of microwave radiation" and the Department of Health "would be interested in the advice and counsel of groups such as the Children's Environmental Health and Protection Advisory Council."

So I went to the Council as recommended by these state agencies and asked them to provide guidance.

Three years later, after a [research](#) review, testimony from [scientists](#) and [parents across the state](#), the Maryland Children's Environmental Health and Protection Advisory Council - including the State Education Department representative on the Council- voted in favor of advising that wireless classrooms exposures be eliminated and/or reduced. [Read press release here.](#)



See to the side an image of a classroom using laptops connected with wires for electricity. Why not simply have an ethernet connection for these computers as well? It seems to me that if you can have computers wired for energy you also can have them wired for internet connections. This solution should be immediately implemented in all classrooms.

I am including [hundreds of pages documenting doctors letters recommending wired classrooms](#) as well as medical organizations which warn about the health impacts of wireless radiation.

Furthermore, as I testified to you at [a State Board of Education meeting](#), children are using wireless digital devices on school buses despite the American Academy of Pediatrics clearly recommending against such wireless device use due to the high radiation exposures the children will experience. [News reports document how various counties](#) are allowing the use of cellphones in school buses.

So I am writing you with these questions:

1. Why are you not taking immediate action to ensure safety in classrooms by instructing students and teachers as to keep all electronics off laps?
2. Why are not acting **to remove** wireless transmitters and wireless devices from the classrooms as the Advisory Council has recommended schools use wired networks.
3. Parents should not be waiting for a Bill to pass before children are protected. Why are you not taking immediate action to ensure safety in classrooms by consulting with medical doctors and developing health and safety guidelines for screen use in a transparent process whereby the science on which such guidance is based on is shared?
4. When new schools are being built - why are you not ensuring that wired rather than wireless internet networks are put in place to eliminate the need for wireless technology? (as recommended by the Advisory Council?)
5. Why are you not taking immediate action to ensure physical safety in classrooms by instructing students and teachers and staff to keep cellphones out of pants pockets bras and away from the body as stated in the user manual?
6. Cell phones should be 100% off in schools because their use exposes not only the user but also nearby students to radiofrequency exposures. Students and teachers are

accessing the District network and using the network for educational instruction and therefore the issue of cell phones IS the school system's responsibility.

7. Why are you allowing the use of cell phones and other wireless devices in school buses despite the American Academy of Pediatrics recommendations against such use? Please note that the radiation exposure can be intensified in a moving metal vehicle.
8. Why are you allowing children to place headphones on their ears when research indicates that such accessories can damage a child's hearing?
9. Why are you allowing children to sit in all manner of positions that do not support a healthy ergonomic working position and can result in physical problems for our children?
10. Considering over [100 doctors and medical experts recommend that pregnant women reduce exposures](#) to protect babies brain development, what are you doing to protect pregnant students and staff who are exposed to the wireless access points and digital devices while at work. This is your responsibility and you are accountable to inform them of this issue.
11. [The March letter](#) states that "we recognize that screen time and Wi-Fi radiation are cited in several research articles as concerns. At the same time many research articles refute the claims due to lack of evidence". I would like you to please send me the research articles that you have reviewed showing that wireless is a health concern.
12. Please send the research articles which you are referring to that "refute the claims due to lack of evidence."
13. [Your letter](#) also states MSDE feels that any possible concerns must be addressed. Could you please detail why you "feel" these concerns are addressed? I am unclear about how feelings are involved in regards to this issue. It is a health issue that requires risk mitigation and action. It is not about feeling nor the opinion of anyone other than a medical professional.
14. [In your letter you state that](#) "stakeholders from across the state are collaborating to develop a new state instructional technology plan: Maryland Digital Learning Framework." I have not been invited to be a stakeholder in this new plan and nor has any parents nor teachers I know. Has the community been invited? Therefore, could you please elaborate on who the "stakeholders" and the process by which they are picked?
15. The letter also states that "recommendations related to screen time and Wi-Fi are already embedded in the draft plan." Please specify exactly what you were referring to.
16. You also state "the MSDE draft of Maryland ESSA plan addresses both concerns". However I cannot find these issues in the current draft that I have available to me. Could you please send me the draft ESSA plan you are referring to and please highlight or specify exactly where there are recommendations related to screen time, eye health, posture, addiction, and Wi-Fi radiation.
17. Regardless of these drafts that you state are in draft form, the fact is that unsafe use is happening at this very moment in classrooms. Therefore action needs to be taken at this moment, not after draft plans are developed. Once the draft plan becomes an enforceable and actionable regulation then perhaps protections will be in place but that is in the future. As protections are not currently in place, action needs to be taken now

to protect children. Please specify what the MSDE is doing now to ensure safety in the classroom.

18. Please also specify what the school districts are doing, perhaps individually in their districts in regards to these health and safety issues. (If you are unaware of what individual districts are doing then I suggest you please find out as you are responsible for safety.)
19. How many hours are children on devices in Maryland schools? Some parents tell me their children are only on for a short time, some in almost every class. So it seems like there are various answers and yet this should have been worked out in advance.
20. Is there a policy that dictates the maximum amount of screen time children can be on in a day? (I should also add that I have heard the children are on digital devices during gym class.)

I would appreciate if you would respond to each one of my questions individually to ensure we have clarity in our communication. There are twenty important questions so you can simply number each one before your answer.

Thank you for your consideration and immediate attention to this health and safety matter.

Sincerely,
Theodora Scarato MSW

Please see more images below that document the use of digital devices in Maryland school classrooms below.

This image below is from [a Washington Post article](#) and the images are from Argyle Middle school in Maryland. Children are bringing Smartphones into class for educational purposes. They are not being informed about how to carry them. They are not being informed that the radiation emissions could exceed FCC limits if they are carried on the body. How are these boys carrying the devices from class to class? I would assume that many are carrying them in their pockets.



Dave de Giolitto, left, and Henry Allison on a project using the camera on a smartphone during sixth grade. (Kate Patterson/For The Washington Post)



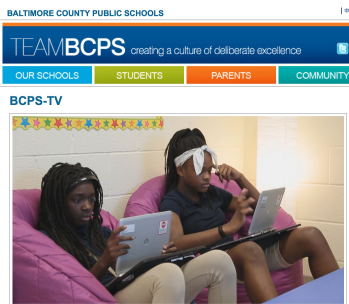
Angel Zelaya, Jimmy Benitez-Calderon and Devin Downer work together using personal smartphone cameras during sixth grade. (Kate Patterson/For The Washington Post)



These images show children bending in the screens which can result in impacts to their eyes from the blue light as well as the radiofrequency radiation emissions.

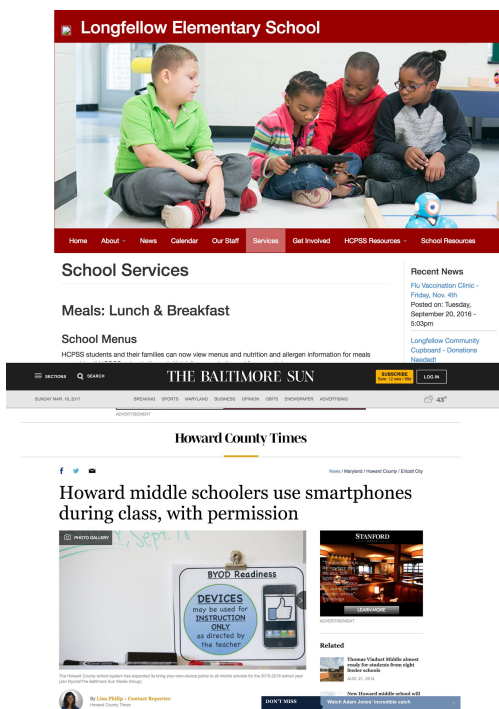
Additional videos showing unsafe digital device use can be found at
<http://www.bcps.org/bcpstv/video.html?Program=STAT&VideoID=597>
And
<http://www.bcps.org/bcpstv/video.html?Program=STAT&VideoID=610>
And
<http://www.bcps.org/bcpstv/video.html?Program=STAT&VideoID=600>

Please see more images below from STAT videos.



Howard County School website image with digital device on lap.
<http://lfes.hcpss.org/>

See news article on Howard County and smartphones.



<http://www.baltimoresun.com/news/maryland/howard/ellicott-city/ph-ho-cf-byod-middle-schools-0917-20150914-story.html>

New Jersey Education Association (NJEA)

The September 2016 NJEA Review recommends staff and students “*Minimize health risks from electronic devices*” and issues these steps to reduce radiation exposure:

- *Keep devices away from the body and bedroom.*
- *Carry phones in briefcases, etc., not on the body.*
- *Put devices on desks, not laps.*
- *Hard wire all devices that connect to the internet.*
- *Hard wire all fixed devices such as printers, projectors and boards.*
- *Use hard-wired phones instead of cell or cordless phones.*
- *Text rather than call.*
- *Keep conversations short or talk in person.*
- *Put devices in airplane mode, which suspends EMF transmission by the device, thereby disabling Bluetooth, GPS, phone calls, and WiFi.*
- *Use speaker phone or ear buds instead of holding the phone next your head.*
- *Take off Bluetooth devices when not using them.”*
- [Read the article on the NJEA Review here.](#) [Download a PDF of the article here.](#)

HEALTH & SAFETY

Minimize health risks from electronic devices

By Adrienne Markowitz and Ellen Senn

Desktops, laptops, tablets, eBook readers, printers, projectors, smart boards, smart TVs, cellphones, cordless phones and wireless networks (WiFi) have become ubiquitous in schools. At their best, they are powerful tools for education. At their worst, they threaten the physical and mental health of teachers, paraeducators, secretaries, librarians and other school staff members and students who spend numerous hours using the devices.

Physical health risks from electronic devices include pain and tingling from repetitive strain injuries to the hands and wrists; pain in the neck, shoulders and back; dry, burning, itchy eyes, blurred vision and headaches; altered sleep patterns and next-day fatigue from exposure to blue screen light; distracted driving; and various health problems from exposure to radiation.

Mental health risks arise from stress due to raised expectations for multitasking, productivity and proficiency with devices; dealing with malfunctioning devices; student and colleague distraction from and addiction to devices; and intrusion of devices into nonwork time.

WiFi devices emit radiation

Radio frequency (RF) electromagnetic frequency (EMF) radiation is sent and/or received by the antennae of phones, routers and other wireless devices. RF radiation is capable of causing cancer, reproductive, neurological and ocular effects. The amount of radiation exposure received depends on the amount of time exposed and distance from the source. Radiation levels fall off exponentially with distance from antennae. If you double the distance, the radiation is four times less. If you triple the distance, it is nine times less, and so on. Children and developing fetuses are particularly at risk because their bodies are still growing. People with implanted medical devices are at risk for device interference.

Hazards and solutions

The most straightforward ways to minimize health risks are to use electronic devices in moderation and to maximize your distance from them. There are also specific solutions to specific hazards listed below.

Local associations should work with their UniServ field representative to negotiate solutions that are in the control of district administrators such as providing training and ergonomic equipment and hard-wiring devices. Individuals should take steps within their control, such as:

For repetitive strain injuries

- Use voice control/speech recognition.
- Use ergonomic alternatives to traditional mice and keyboards.
- Use as many fingers as possible when typing and both thumbs when texting.

For neck, shoulder and back pain

- Ensure an ergonomic workstation.
- When using a hand-held device, support it and the forearms.
- Avoid bending the head down or jutting it forward.
- Take frequent, short breaks from the device.
- Ensure good posture and change positions frequently.
- Stand and do stretching exercises.

For eye pain, blurred vision and headaches

- Use sufficient, but not excessive, lighting.
- Use assistive technology built into Apple, Android and Windows devices.
- Enlarge and darken the cursor and pointer.
- Enlarge the font; magnify the text.
- Use text-to-speech instead of reading.
- Use special computer glasses.
- Relax the eyes on a minibreak.

For altered sleep patterns and next-day fatigue

- Stop using devices at least one hour before bedtime.

For distracted driving

- Use hands-free devices, preferably speakerphones.
- Pull over and park.
- Let someone else drive.

For radiation exposure

- Keep devices away from the body and bedroom.
- Carry phones in briefcases, etc., not on the body.
- Put devices on desks, not laps.
- Hard wire all devices that connect to the internet.
- Hard wire all fixed devices such as printers, projectors and boards.
- Use hard-wired phones instead of cell or cordless phones.
- Text rather than call.
- Keep conversations short or talk in person.
- Put devices in airplane mode, which suspends EMF transmission by the device, thereby disabling Bluetooth, GPS, phone calls, and WiFi.
- Use speaker phone or ear buds instead of holding the phone next your head.
- Take off Bluetooth devices when not using them.

For stress

- Training in device use, assistive technology.
- Easy access to user manuals.
- Easily available technical support. ☺

Adrienne Markowitz holds a Master of Science in Industrial Hygiene from Hunter College, City University of New York. Ellen Senn holds a Master of Science in Occupational Health from Temple University in Philadelphia. They are consultants with the New Jersey Work Environment Council, which is a frequent partner with NJEA on school health and safety concerns.

HEALTH & SAFETY

For more information

- ✓ "Job stress: Is it killing you?" NJEA Review, May 2012. [bit.ly/jobstress8](#)
- ✓ "As schools lift bans on cell phones, educators weigh pros and cons," Kinjo Kiema, NEA Today, Feb. 23, 2015. [bit.ly/2b6o0r8](#)
- ✓ Be kind to your eyes, NJEA Review, September 2012. [bit.ly/2b2n1p](#)
- ✓ Computer workstations eTool, Occupational Safety and Health Administration (OSHA). [bit.ly/2aJkRw](#)
- ✓ "Stretching Exercises at Your Desk, 12 Simple Tips," WebMD. [wb.md/2be0vUk](#)
- ✓ "Cell phone facts and tips," Grassroots Environmental Education. [bit.ly/2bqFQP](#)
- ✓ "Radiofrequency and microwave radiation," Occupational Safety and Health Administration (OSHA). [bit.ly/2aR1TY](#)
- ✓ "Report of Partial Findings from the National Toxicology Program (NTP) Carcinogenesis Studies of Cell Phone Radiofrequency Radiation in Hsd:Sprague Dawley SD Rats (Whole Body Exposure)." [bit.ly/2bq8Cc](#)
- ✓ "Low EMF Best Practices," Collaborative for High Performance Schools (CHPS), 2014. [bit.ly/2bs51Rx](#)
- ✓ Microsoft Accessibility Center: [www.microsoft.com/enable](#)
- ✓ Apple Accessibility Center: [www.apple.com/accessibility](#)
- ✓ Google/Android Accessibility Center: [www.google.com/accessibility/products-features.html](#)

Cell phones and cancer

The National Toxicology Program (NTP) is conducting the largest set of laboratory rodent studies to date on cellphone RF radiation. The studies cost \$25 million and are designed to mimic human exposure. They are based on the cellphone frequencies and modulations currently in use in the United States. The NTP studies are designed to look at effects in all parts of the body.

On May 27, 2016, NTP released a report with partial results of the studies. They found increased occurrence of rare brain tumors called gliomas and increases in nerve tumors called schwannoma of the heart in male rats. The released results are partial because more rat studies and all of the mouse studies will be forthcoming by 2017. The cells that became cancerous in the rats were the same types of cells as those that have been reported to develop into tumors in human cellphone users.

The EMF produced by cellphones was classified as possibly carcinogenic to humans by the World Health Organization in 2011. They found that long-term use of a cell phone might lead to two different types of tumors, gliomas and acoustic neuroma, a tumor of the auditory nerve.

njea

New Jersey Education Association Review March 2017

The BabySafe Project

As of August 2016 over 200 physicians, scientists and public health professionals from around the world have signed onto this Project “to express their concern about the risk that wireless radiation poses to pregnancy and to urge pregnant women to limit their exposures.”

Are You Pregnant? Protect Your Baby from Wireless Radiation!



Recent studies from Yale University show that exposure to wireless radiation can have profound effects on brain development, including symptoms of Attention Deficit/Hyperactivity Disorder (ADHD).

Now, doctors and researchers around the world are urging pregnant women to take simple steps to limit their exposure to wireless radiation.

For more information, including links to scientific studies and video interviews with medical doctors and public health experts, please visit our web site, BabySafeProject.org.

10 Tips for Reducing Your Exposure to Wireless Radiation

1. Avoid carrying your cell phone on your body (e.g. in a pocket or bra).
2. Avoid holding any wireless device against your body when in use.
3. Use your cell phone on speaker setting or with an “air tube” headset.
4. Avoid using your wireless device in cars, trains or elevators.
5. Avoid cordless phones, especially where you sleep.
6. Whenever possible, connect to the internet with wired cables.
7. When using Wi-Fi, connect only to download, then disconnect and disable Wi-Fi.
8. Avoid prolonged or direct exposure to Wi-Fi routers.
9. Unplug your home Wi-Fi router when not in use (e.g. at bedtime).
10. Sleep as far away from wireless utility meters (i.e. “smart” meters) as possible



The BabySafe Project
www.BabySafeProject.org
#KnowYourExposure



Produced by Grassroots Environmental Education, a non-profit organization, in association with Environmental Health Trust © 2014 Grassroots Environmental Education, Inc.

- “We call on our elected leaders to support such research and to advance policies and regulations that limit exposures for pregnant women. We call on industry to implement and explore technologies and designs that will reduce radiation exposures until such research is carried out.”

- The BabySafe Project Brochure [“Ten Ways to Reduce Your Wireless Exposure”](#) which includes “Whenever possible, connect to the internet with wired cables”.

- [The BabySafe Project Website](#)
- EPA Award: The BabySafe Project was recognized in the [US EPA 2016 Children's Environmental Health Excellence Award from the EPA's Office of Children's Health Protection](#). Patricia Wood was awarded based on three distinct initiatives including “the creation and development of the BabySafe Project, a program designed to inform doctors, neonatal health professionals and parents about the potential risks that wireless radiation poses to pregnancy”.

Maryland State Children’s Environmental Health And Protection Advisory Council 2017 Recommendations For Wired Internet In School Classrooms:

[The Maryland State Children’s Environmental Health and Protection Advisory Council](#) (CEHPAC) issued a Report advising the Department of Education to recommend local school districts reduce classroom wireless radiation exposures by providing wired—rather than wireless—internet connections. CEHPAC’s health experts include

Governor appointed pediatricians, Maryland State House/Senate appointees and representatives of the Department of Education and Department of Health.

[Wifi Radiation in Schools in Maryland Final Report](#)

[Letters from Physicians CEHPAC's Public Comments](#)

[Testimony to the Maryland State Children's Environmental Health and Protection](#)

[Advisory Council Selections of Testimony](#)

[Testimony to Maryland State Board of Education](#)

[Testimony of a High School Student to the Board of Education](#)

The California Medical Association

The California Medical Association (CMA) passed a Wireless Resolution in 2014 that states :

"Whereas scientists are increasingly identifying EMF from wireless devices as a new form of environmental pollution ...

Whereas peer reviewed research has demonstrated adverse biological effects of wireless EMF including single and double stranded DNA breaks, creation of reactive oxygen species, immune dysfunction, cognitive processing effects, stress protein synthesis in the brain, altered brain development, sleep and memory disturbances, ADHD, abnormal behavior, sperm dysfunction, and brain tumors; and...Resolved, That CMA support efforts to implement new safety exposure limits for wireless devices to levels that do not cause human or environmental harm based on scientific research."

[Read the full CMA Resolution here.](#)

[Read a the Santa Clara Medical Bulletin article by Dr. Cindy Russell that explains the CMA resolution and gives recommendations for schools.](#)

The Vienna Medical Association

The Vienna Medical Association has issued [Ten Medical Rules for Cell Phones](#) which includes:

"Make calls as short and little as possible, Do not position mobile phones directly on the body , Fewer apps means less radiation, Make calls at home and at work via the fixed corded (not wireless) network - Internet access via LAN cable, Constant radiation emitters like DECT cordless telephones, WLAN access points, data sticks and LTE Home base stations (Box, Cube etc.) should be avoided! Avoid Mobile phone calls in places with poor reception "

"The radiation from mobile phones or smartphones is most likely not as safe as cell phone providers claim it to be. Therefore, the Vienna Medical Association has decided to do the responsible thing and inform the Austrian public about possible adverse effects from a medical perspective."

The Connecticut Department of Public Health, USA

Public Health Department recommendations to reduce exposure to cellphone radiation. 7 steps on *how* people can reduce exposure.

"It is wise to reduce your exposure to radiofrequency energy from cell phones whenever possible." [Read the Connecticut Department of Public Health Cell Phone Q and A about Cell phones here.](#)

The Massachusetts Department of Health, USA

[BEST PRACTICES IN THE USE OF WIRELESS TECHNOLOGY](#) Dr. Robert S. Knorr Director,
Environmental Epidemiology Program Bureau of Environmental Health, Massachusetts
Department of Public Health

“Below are common recommendations and include those for both cell phone and non-cell phone sources:

- Use wired communication devices instead of wireless devices
- Limit children’s use of cell phones except for emergencies
- Keep cell phones and other sources at a distance
- If using wireless devices like computers, laptops, tablets, and printers, place the wireless router away from where children and adults usually spend time.

[Read all of the recommendations from the Mass Department of Health in full at this link.](#)

The French National Agency of Health Security of Food, Environment and Labour

2016 Report [“Radiofrequency Exposure and the Health of Children”](#) recommends reducing exposures to young children and strengthening regulations to ensure “sufficiently large safety margins” to adequately protect the health of young children.

- All wireless devices, including tablets, cordless phones, remote controlled toys, wireless toys, baby monitors and surveillance bracelets, should be subjected to the same regulatory obligations as cell phones.
- Compliance with regulatory exposure limits should be insured for the ways that devices are customarily used, such as positioned in contact with the body.
- Exposure limits for radiofrequency electromagnetic fields should be tightened to ensure sufficiently large safety margins to protect the health and safety of the general population, particularly the health and safety of children.
- Reliance on the specific absorption rate (SAR) to set human exposure limits should be re-evaluated and replaced through the development of an indicator to assess real exposures for mobile phone users that applies to various conditions: signal type, good or bad reception, mode of use (call, data loading, etc.), location device is used on the body.
- ANSES reiterated its recommendation, as previously stated, to reduce exposure to children: minimize use and prefer a hands-free kit.

2013 Report [“Radiofrequency Electromagnetic Fields and Health” Expert Appraisal:](#)

hands free phones, SAR labeling, and “limiting the population’s exposure to radiofrequencies... especially for children and intensive users, and controlling the overall exposure that results from relay antennas.”

2015 International Scientists Appeal to U.N. to Protect Humans and Wildlife from Electromagnetic Fields and Wireless Technology EMF Scientists

In May 2015, a group of over 200 scientists from 39 nations who have authored more than 2,000 articles on this topic appealed to the United Nations to address “the emerging public health crisis” related to cell phones and other wireless devices. These scientists state that “the

ICNIRP guidelines do not cover long-term exposure and low-intensity effects, and are “insufficient to protect public health.”

- They state that “the various agencies setting safety standards have failed to impose sufficient guidelines to protect the general public, particularly children who are more vulnerable to the effects of EMF.”
- See the [International Scientists Appeal to U.N. to Protect Humans and Wildlife from Electromagnetic Fields and Wireless Technology](#).

The World Health Organization's International Agency for Research on Cancer

The WHO/IARC classified all radiofrequency electromagnetic fields as “possibly carcinogenic to humans” in 2011 based on the opinion of a Working Group of 31 international experts who met in Lyon, France in May, 2011 based largely on positive associations have been observed between exposure to radiofrequency radiation from wireless phones and glioma, and acoustic neuroma.” ([p. 421](#))

- Read article in [The Lancet IARC 2011 on the classification](#),
- Read the [The 2011 IARC Press Release by the WHO IARC](#) in which precautions are recommended:

“Given the potential consequences for public health of this classification and findings, it is important that additional research be conducted into the long- term, heavy use of mobile phones. Pending the availability of such information, it is important to take pragmatic measures to reduce exposure such as hands-free devices or texting.”said IARC Director Christopher Wild.
- Read the [published the IARC Monograph on Non-Ionizing Radiation, Part 2: Radiofrequency Electromagnetic Fields](#) (April 2013) with scientific basis for classification.
 - “Due to the closer proximity of the phone to the brain of children compared with adults, the average exposure from use of the same mobile phone is higher by a factor of 2 in a child's brain and higher by a factor of 10 in the bone marrow of the skull.” ([p. 408](#))

Swiss Physicians Association of Doctors for Environmental Protection

[2012 Swiss Physicians Letter](#) “the risk of cancer for this type of [wireless] radiation is similar to that of the insecticide DDT, rightfully banned... From the medical point of view, it is urgent to apply the precautionary principle for mobile telephony, WiFi, power lines, etc.”

[2014: Preliminary draft for a federal law on the protection against dangers:](#) Non-ionizing radiation (NIS) is growing steadily. Especially the everyday stress in the area of low-frequency and high-frequency. [Read it here.](#)

[2016: Press Release on the NTP Study and Policy Implications:](#) “There are increasingly clear indications that mobile radio is a health hazard. From a medical point of view it is clear: the scientific results so far show it is clear that prudent avoidance of unnecessary exposures is necessary.”

- Additional Links by Swiss Physicians for the Environment
Report on [Smartphones- \(OEKOSKOP 1/16\)](#) [AefU-News about Electrosmog](#)

Dr. Eitan Kerem, Chairman, Department of Pediatrics at Hadassah Hebrew University Hospital

In response to the 2016 NIH/NIEHS/NTP Study results finding a link between RF-EMF and Cancer, Dr. Kerem issued a statement which includes:

"It is well known that children are more sensitive to radiation than adults; many of them are using cellphone and other radiating media more frequently than adults. The effect of radiation is accumulative and this may have long term effect on the growing child. Such findings in the pharma industry may prevent further developing of a drug until safety is proven, and until the findings of this study are confirmed parents should be aware of the potential hazards of carcinogenic potential of radiofrequency radiation." [Read the Statement by Dr. Eitan Kerem, Hadassah Hebrew University Hospital](#)

The American Academy of Environmental Medicine

[The American Academy of Environmental Medicine's Open Letter to the Superintendents of the School Districts of the United States](#)

"Adverse health effects, such as learning disabilities, altered immune responses, headaches, etc. from wireless radio frequency fields do exist and are well documented in the scientific literature. Safer technology, such as using hard-wiring, must be seriously considered in schools for the safety of those susceptible individuals who may be affected by this phenomenon. "

[Wireless Radiofrequency Radiation in Schools](#)
[American Academy of Environmental Medicine Recommendations Regarding Electromagnetic and Radiofrequency Exposure](#)
[Letter to the FCC regarding Radiofrequency Exposure Limits.](#)

International Society of Doctors for the Environment

ISDE has made the following recommendations: Avoid Wi-Fi in home or work if possible, particularly in schools or hospitals and Use wired technology whenever possible.

- "Because of the potentially increased risks for the foetus, infants and young children due to their thinner more permeable skulls and developing systems, particularly the immune and neurological systems, based on the precautionary principle and on the mounting evidence for harm at the sub-cellular level, we recommend that EMR exposure should be kept to a minimum."
- [Read the Statement Here.](#)

Irish Doctors Environmental Association

The Irish Doctors Environmental Association wrote a statement in 2013 concerning health concerns with Wi-Fi in school:

"We urge you to use wired technologies for your own safety and that of your pupils and staff." [Read the 2013 Letter](#)

Bioinitiative Working Group

[Bioinitiative 2012 Report](#): A report by [29 independent scientists and health experts](#) from around the world* about possible risks from wireless technologies and electromagnetic fields.

“The science, public health, public policy and global response to the growing health issue of chronic exposure to electromagnetic fields and radiofrequency radiation in the daily life of billions of people around the world. Covers brain tumor risks from cell phones, damage to DNA and genes, effects on memory, learning, behavior, attention; sleep disruption and cancer and neurological diseases like Alzheimer’s disease. Effects on sperm and miscarriage (fertility and reproduction), effects of wireless on the brain development of the fetus and infant, and effects of wireless classrooms on children and adolescents is addressed. Mechanisms for biological action and public health responses in other countries are discussed. Therapeutic use of very low intensity EMF and RFR are addressed.”

[Henry Lai’s Research Summaries](#): These abstracts (data-based to be searchable) cover the RFR scientific literature from both RFR and ELF on research published between 1990-2012.

[The Bioinitiative RF Color Charts](#) summarize many studies that report biological effects and adverse health effects relevant for cell towers, WI-FI, 'smart' wireless utility meters, wireless laptops, baby monitors, cell phones and cordless phones. The reader can compare the level of EMF used in specific research studies relative to the health effect.

[Bioinitiative Letter to Education Super Highway CEOs](#) the Co-Editors of the Bioinitiative Report Cindy Sage and David Carpenter sent a letter on behalf of the Bioinitiative Working Group to the CEO's on the health risks of wireless infrastructure in US schools stating:

“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. Today, corporations that deal with educational technology should be looking forward and helping school administrators and municipal leaders to access safe, wired solutions.” [Read the Letter to Education Super Highway CEOs](#),

Austrian Medical Association

[Guidelines of the Austrian Medical Association for the diagnosis and treatment of EMF related health problems and illnesses \(EMF syndrome\)](#): The Austrian Medical Association, on March 3, 2012, released their guide for diagnosing and treating people with EMF-related health problems.

"Wi-Fi environments will lead to high microwave exposure for students and teachers which might increase the burden of oxidative stress. Oxidative stress might slow down the energy production especially in brain cells and may lead e.g. to concentration difficulties and memory problems in certain individuals. The Austrian Medical Association recommends Wi-Fi free school environments."

Dr Gerd Oberfeld, MD, Public Health Department, Salzburg, Austria, on behalf of the Austrian Medical Association stated, "Schools should provide the best possible learning environments. In this context low noise levels, good air quality and low radiofrequency / microwave radiation are crucial. Wi-Fi environments will lead to high microwave exposure for students and teachers which might increase the burden of oxidative stress. Oxidative stress might slow down the energy production especially in brain cells and may lead e.g. to concentration difficulties and memory problems in certain individuals. The Austrian Medical Association recommends Wi-Fi free school environments".

Center for Environmental Oncology University of Pittsburgh Cancer Institute

Frequently Asked Questions about Cancer and the Environment

[Cell Phones and Cancer FactSheet](#) recommends reducing exposure.

Dr. Ronald B. Herberman, Director of the University of Pittsburgh Cancer Institute, issued a [Memo to PCI Staff: Important Precautionary Advice Regarding Cell Phone Use](#)

"Do not allow children to use a cell phone, except for emergencies. The developing organs of a fetus or child are the most likely to be sensitive to any possible effects of exposure to electromagnetic fields".

- [Prominent Cancer Doctor Warns About Cellphones](#): New York Times article
- [Statement Of Ronald B. Herberman, MD Director University of Pittsburgh Cancer Institute and UPMC Cancer Centers](#) to the Domestic Policy Subcommittee Oversight and Government Reform Committee Thursday, September 25, 2008 2154 Rayburn HOB 11:00 a.m. "Tumors and Cell Phone use: What the Science Says"

The Cancer Association of South Africa (CANSA)

"In order to prove that the use of cell phones can cause cancer, many thousands of cell phone users would need to be studied over many years. Such studies are now in progress in many countries and it is expected that definitive results will be forthcoming in the near future. However, just because there is no definite evidence at this stage, does not mean that there is no potential danger."

Recommendations to reduce Exposure: [CANSA has issued a Fact Sheet and Position Statement on Exposure to Radiofrequency Electromagnetic Fields](#)

"CANSA proposes that exposure to cell phone radiation be kept to a minimum by:
Limiting the number and duration of calls Texting rather than making calls Switching the sides of the head when a call is long – one should, however, avoid long conversations
Making use of hands-free kits or speaker phone mode to keep the phone a distance from the head. Instructing children and teenagers to limit calls to emergencies only as they are more vulnerable to electro-magnetic radiation because of the thickness of their skulls and their brains are still developing Not sleeping with one's cell phone close to one's bed or under one's pillow Women not to keep their cell phones in their brassiere Men not to carry their cell phones in the pockets of their pants (close to their testicles)."

The Canadian Medical Association

2011 Resolution on Cell Phone Radiation

"The Canadian Medical Association will educate and advise the profession and the public on methods of cellphone operation that will minimize radio frequency penetration to the brain."

[Read the 2011 General Council of the Canadian Medical Association Proceedings \(page 54\)](#)

Canadian Medical Association Journal reports Health Canada's wireless limits are "A Disaster to Public Health" [Read the article here](#).

Canadian Doctors

[2014 Letter by 55 Canadian Doctors](#)

The Doctors wrote Health Canada calling for more protective limits stating, *"There is considerable evidence and research from various scientific experts that exposure to microwave radiation from wireless devices; Wi-Fi, smart meters and cell towers can have an adverse impact on human physiological function".* - [Canadian Doctors Declaration to Health Canada](#),

International Group in Support of Safer Standards for Canadians

[53 Doctors sign a Scientific Declaration on Health Canada EMF Limits July 9,2014](#)

The Russian National Committee on Non-Ionizing Radiation Protection

[ELECTROMAGNETIC FIELDS FROM MOBILE PHONES: HEALTH EFFECT ON CHILDREN AND TEENAGERS \(2011\)](#) warns about electromagnetic radiation impacts on children and recommended WiFi not be used in schools.

- **Official Recommendations:** Those under the age of 18 should not use a mobile phone at all, recommends low- emission phones; and requires the following: on-device labelling notifying users that it is a source of RF-EMF, user guide information advising that "it is a source of harmful RF-EMF exposure" and the inclusion of courses in schools regarding mobile phones use and RF-EMF exposure issues. "Thus, for the first time in the human history, children using mobile telecommunications along with the adult population are included into the health risk group due to the RF EMF exposure."
 - "In children, the amount of so-called stem cells is larger than in adults and the stem cells were shown to be the most sensitive to RF EMF exposure."
 - "It is reasonable to set limits on mobile telecommunications use by children and adolescents, including ban on all types of advertisement of mobile telecommunications for children."

[Decision of Russian National Committee on Non-Ionizing Radiation Protection](#) 2008, "Children and Mobile Phones: The Health of the Following Generations is in Danger"

The Cyprus National Committee on Environment and Child Health

This Health Committee was created by the Cyprus government to advise on children's environmental health issues and is comprised of pediatricians. They have issued strong recommendations to reduce exposure to children.

- [Protecting children from radiation emitted by Wi-Fi, mobile phones and wireless](#) by Dr. Stella Kanna Michailidou of the National Committee Chairman "Environment and Children's Health"
- [See the Commission's EMF brochure](#) on reducing the risks to children from exposure to the Non Ionizing Radiation (mobile phones, Wi-Fi, tablets, etc.).
- The Cyprus National Committee on Environment and Child Health created [a short PSA for citizens](#) about children and wireless radiation and how to reduce Wi-Fi exposure.
<https://www.youtube.com/watch?v=996vzcCYCnE>

The Italian Society for Preventive and Social Pediatrics

The Society has officially called to prohibit cell phones for children under 10 years old.

"We do not know all the consequences associated with cell phone use, but excessive use could lead to concentration and memory loss, increase in aggressiveness and sleep disturbances," stated Giuseppe Di Mauro, President of [The Italian Society for Preventive and Social Pediatrics](#) stating, "The damage to health are increasingly evident."

-Read the News Article [Pediatricians Sound Alarm for Kids on Cell Phones](#)

European Academy for Environmental Medicine

2016 EMF Guidelines were published giving an overview of the current knowledge regarding EMF-related health risks and provides recommendations for the diagnosis, treatment and accessibility measures of EHS to improve and restore individual health outcomes as well as for the development of strategies for prevention.

- Read the [EUROPAEM EMF Guideline 2016 for the prevention, diagnosis and treatment of EMF-related health problems and illnesses](#)

British Medical Doctors

In 2014 a group of **British Medical Doctors** issued [Health and safety of Wi-Fi and mobile phones](#):

"We wish to highlight our concern over the safety of exposure to microwave radiation from wireless technology, particularly for vulnerable groups like children, pregnant women, the elderly and those with compromised health".

May 2016 Consumer Reports Recommendations to Government and Industry

"The substantial questions and concerns raised by this and previous research regarding cell phones and cancer requires swift and decisive action by the government and industry.

Specifically, Consumer Reports believes that:

- The National Institutes of Health should commission another animal study using current cell phone technology to determine if it poses the same risks as found in this new study.
- The Federal Communications Commission should update its requirements for testing the effect of cell phone radiation on human heads. The agency's current test is based on the

devices' possible effect on large adults, though research suggests that children's thinner skulls mean they may absorb more radiation. The FCC should develop new tests that take into account the potential increased vulnerability of children.

- The Food and Drug Administration and the FCC should determine whether the maximum specific absorption rate of 1.6 W/kg over a gram of tissue is an adequate maximum limit of radiation from cell phones.
- The Centers for Disease Control and Prevention should repost it's advice on the potential hazard of cell phone radiation and cautionary advice that was taken down in August 2014.
- Cell phone manufacturers should prominently display advice on steps that cell phone users can take to reduce exposure to cell phone radiation."

September 2015 Consumer Reports Recommendations in article [Does Cell-Phone Radiation Cause Cancer?: As the debate over cell-phone radiation heats up, consumers deserve answers to whether there's a cancer connection](#)

"We feel that the research does raise enough questions that taking some common-sense precautions when using your cell phone can make sense."

New Jersey Education Association (NJEA)

The September 2016 NJEA Review recommends staff and students "*Minimize health risks from electronic devices*" and issues these steps to reduce radiation exposure:

- *Keep devices away from the body and bedroom.*
- *Carry phones in briefcases, etc., not on the body.*
- *Put devices on desks, not laps.*
- *Hard wire all devices that connect to the internet.*
- *Hard wire all fixed devices such as printers, projectors and boards.*
- *Use hard-wired phones instead of cell or cordless phones.*
- *Text rather than call.*
- *Keep conversations short or talk in person.*
- *Put devices in airplane mode, which suspends EMF transmission by the device, thereby disabling Bluetooth, GPS, phone calls, and WiFi.*
- *Use speaker phone or ear buds instead of holding the phone next your head.*
- *Take off Bluetooth devices when not using them."*
- [Read the article on the NJEA Review here.](#) [Download a PDF of the article here.](#)