

# Cell Phones and Public Health Policy

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**Joel M. Moskowitz, Ph.D.**

**School of Public Health  
University of California, Berkeley**

**Collaborative on Health and the Environment  
Webinar, May 9, 2018**

**[Saferemr.com](http://Saferemr.com)**



**School of  
Public Health**

UNIVERSITY OF CALIFORNIA, BERKELEY



# IARC working group press release



International Agency for Research on Cancer



**PRESS RELEASE**  
**N° 208**

**31 May 2011**

## **IARC CLASSIFIES RADIOFREQUENCY ELECTROMAGNETIC FIELDS AS POSSIBLY CARCINOGENIC TO HUMANS**

Lyon, France, May 31, 2011 -- The WHO/International Agency for Research on Cancer (IARC) has classified radiofrequency electromagnetic fields as **possibly carcinogenic to humans (Group 2B)**, based on an increased risk for **glioma**, a malignant type of brain cancer, associated with wireless phone use.



# International EMF Scientist Appeal



- 2015: Submitted to U.N. & WHO
- Stronger regulation of electromagnetic fields (EMF) & health warnings
- 237 EMF scientists now signed Appeal
  - 41 nations, >2000 EMF papers



# U.S. government: “Wait and see”

- **Wait and see:** demands conclusive evidence
  - Federal govt. made minimal investment in research
    - 1999: FDA called for NTP cell phone radiation study
    - 2018: NTP draft final reports reviewed
  - Boston & Philadelphia (2013): “overlap of federal agency responsibilities ... leaves leadership unclear and encourages a **pass-the-buck attitude**.”
  - U.S. Dept of Interior (2014): “electromagnetic radiation standards used by the FCC continue to be based on thermal heating, a criterion now nearly **30 years out of date** and inapplicable today.”

# WHO & US federal agency websites: Risk minimization language



- **WHO**: “To date, **no adverse health effects have been established as being caused by** mobile phone use.”
- **NCI**: “currently **no consistent evidence** that non-ionizing radiation increases cancer risk ...The only consistently recognized biological effect of radiofrequency energy is heating.”
- **FDA**: “The **scientific evidence does not show a danger to any users** of cell phones from RF exposure, including children and teenagers.”
- **FCC**: “currently **no scientific evidence establishes a causal link** between wireless device use and cancer or other illnesses.”

# US govt: Radio Frequency Interagency Work Group dysfunctional



Alster N. *Captured agency: How the FCC is dominated by the industries it presumably regulates.* <http://bit.ly/FCCcaptured>





# Agencies & organizations call for FCC policy changes



AMERICAN  
ACADEMY OF  
ENVIRONMENTAL  
MEDICINE



California Medical Association



ENVIRONMENTAL  
WORKING GROUP

**Consumers  
Union**

**ENVIRONMENTAL  
HEALTH TRUST**

# Industry influence: *Microwave News & The Nation*



**MICROWAVE NEWS**

## A Report on Non-Ionizing Radiation

Home News Center About Us EMF/EMR Meters EMF/EMR Directory Support Us

### About Us

For more than 35 years, **Microwave News** has been reporting on the potential health and environmental impacts of electromagnetic fields and radiation. We are widely recognized as a fair and objective source of information on this controversial subject.

**MICROWAVE NEWS IS...**

"Meticulously researched and thoroughly documented."  
— *Time Magazine*

"Influential and pioneering."

<http://Microwavenews.com>

**THE NATION.** Politics World Economy Culture Take Action

SCIENCE AND HEALTH CONSUMER RIGHTS ACTIVISM FEATURE APRIL 23, 2018, ISSUE

## How Big Wireless Made Us Think That Cell Phones Are Safe: A Special Investigation

*The disinformation campaign—and massive radiation increase—behind the 5G rollout.*

By Mark Hertsgaard and Mark Dowie

MARCH 29, 2018

<http://bit.ly/BigWireless>



# Industry influence: CTIA—The Wireless Association



*“The FCC, the FDA, the WHO, the American Cancer Society and numerous other international and U.S. organizations and health experts say that the scientific evidence shows no known health risk due to the RF energy emitted by cellphones.”*

CTIA, Feb 9, 2018

<http://bit.ly/CTIAstates>





# San Francisco: Cell phone “right to know” ordinance

- 2010: SF Board of Supervisors adopted law
- 2010: CTIA filed federal lawsuit
- 2011: Supervisors revised fact sheet based on judge’s ruling
- 2012: Federal appeals court overturned lower court in unpublished opinion
- 2013: Supervisors killed law

<http://bit.ly/sflaw>

The material was prepared under the City and County of San Francisco and made available to consumers under local law.

## Cell Phones Emit Radio-frequency Energy

Studies continue to assess potential health effects of mobile phone use.

If you wish to reduce your exposure, the City of San Francisco recommends that you:

- Keep distance between your phone and body
- Use a headset, speakerphone, or text instead
- Ask for a free factsheet with more tips

Learn More

U.S. Department of Environment • [EPA.gov](http://EPA.gov)  
Federal Communications Commission • [FCC.gov](http://FCC.gov)  
World Health Organization • [WHO.int](http://WHO.int)

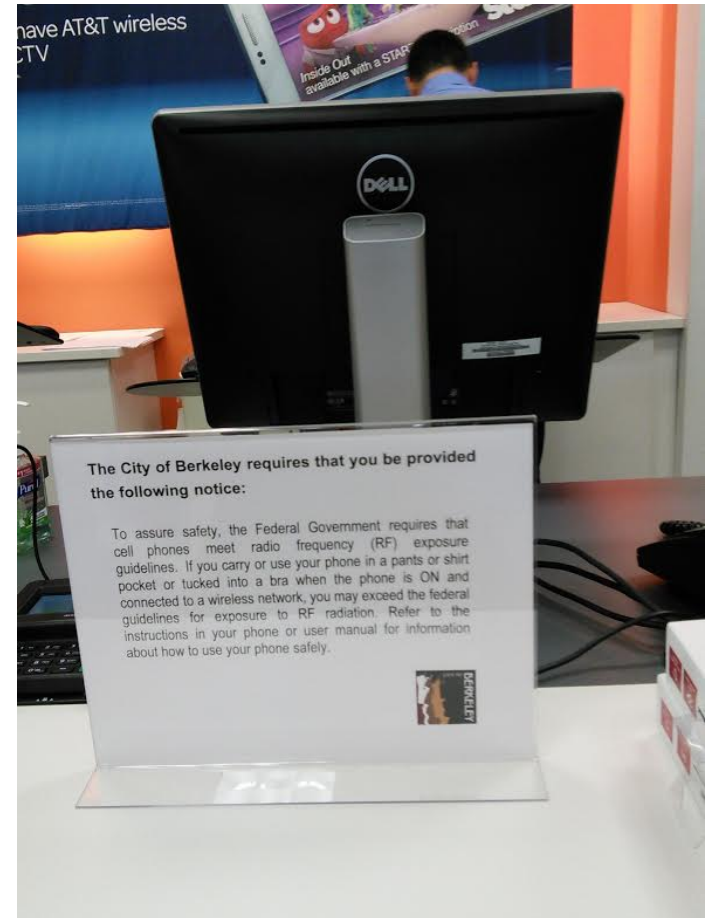
The material was prepared under the City and County of San Francisco and made available to consumers under local law.

# City of Berkeley: Cell phone “right to know” ordinance



- 2015: City Council adopted law
- 2015: CTIA filed federal lawsuit
- 2015: City adopted minor revision based on court ruling
- 2016: Law took effect
- 2017: Federal appeals court upheld law
- 2018: CTIA appealed to US Supreme Court
- Next steps?

<http://bit.ly/berkeleycell>

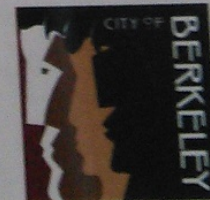


# Berkeley cell phone notice



**The City of Berkeley requires that you be provided the following notice:**

To assure safety, the Federal Government requires that cell phones meet radio frequency (RF) exposure guidelines. If you carry or use your phone in a pants or shirt pocket or tucked into a bra when the phone is ON and connected to a wireless network, you may exceed the federal guidelines for exposure to RF radiation. Refer to the instructions in your phone or user manual for information about how to use your phone safely.





# California Department of Public Health



- 2009: CDPH drafted cell phone safety guidance – suppressed for 8 years
- 2014: Three public records requests
- 2016: UC Berkeley Law clinic & First Amendment Project filed lawsuit
- 2017: Court ordered release of draft guidance documents
- 2017: CDPH published final guidance

<http://bit.ly/CDPHstory>

# CDPH: Cell phone safety guidance – Dec. 2017



Division of Environmental and Occupational Disease Control • California Department of Public Health

## How to Reduce Exposure to Radiofrequency Energy from Cell Phones



The use of cell phones has increased dramatically in recent years, including among children and young adults. These phones put out radio frequency (RF) energy.

Some scientists and public health officials believe RF energy may affect human

health. This guidance document describes RF energy, lists some of the potential health concerns, and provides guidance on how people can reduce their exposure.

### Why are people concerned about exposure to RF energy from cell phones?

Although the science is still evolving, some laboratory experiments and human health studies have suggested the possibility that long-term, high use of cell phones may be linked to certain types of cancer and other health effects, including:

- brain cancer and tumors of the acoustic nerve (needed for hearing and maintaining balance) and salivary glands
- lower sperm counts and inactive or less mobile sperm
- headaches and effects on learning and memory, hearing, behavior, and sleep

These studies do not establish the link definitely, however, and scientists disagree about whether cell phones cause these health problems and how great the risks might be. This document is intended to provide guidance for those people who want to reduce their own and their families' exposures to RF energy from cell phones, despite this uncertainty.

### What is RF energy?

Cell phones work by sending and receiving signals to and from cell phone towers. These signals are a form of electromagnetic radiation called radiofrequency (RF) energy. Other sources of RF energy include cell phone towers, TV and radio transmitters, smart meters, and microwave ovens. When a phone sends signals to a tower, the RF energy goes from the phone's antenna out in all directions, including into the head and body of the person using the phone. Cell phones also emit RF energy when using Wi-Fi and/or Bluetooth, but at lower levels.

RF energy is not as powerful or as damaging to cells or DNA as some other kinds of electromagnetic radiation, such as X-rays or UV rays from the sun. Some scientific studies have, however, suggested that there may be increased health risks from exposure to RF energy.

## Next Step: Every city or county in U.S. can now disseminate this document.

### How can you reduce your exposure?

Keep your phone away from your body. Keeping your phone just a few feet away from you can make a big difference.

- **When you talk on your cell phone, avoid holding it to your head—use the speakerphone or a headset instead.** Wireless (Bluetooth) and wired headsets emit much less RF energy than cell phones.
- **Send text messages instead of talking on the phone.**
- **If you are streaming or if you are downloading or sending large files, try to keep the phone away from your head and body.**
- **Carry your cell phone in a backpack, briefcase, or purse; NOT in a pocket, bra or belt holster.** Because your phone's antenna tries to stay connected with a cell tower whenever it's on, it emits some RF energy even when you are not using it. It does not emit RF energy when it's in airplane mode. (Airplane mode turns off cellular, Wi-Fi, and Bluetooth.)

Reduce or avoid using your cell phone when it is sending out high levels of RF energy. This happens mainly when:

- **You see only one or two bars displayed.** Cell phones put out more RF energy to connect with cell towers when the signal is weak. If you must use your phone when the signal is weak, try to follow the other guidance on this page.
- **You are in a fast-moving car, bus, or train.** Your phone puts out more RF energy to maintain connections to avoid dropping calls as it switches connections from one cell tower to the next unless it is in airplane mode.
- **You are streaming audio or video, or downloading or sending large files.** To watch movies or listen to playlists on your phone, download them first, then switch to airplane mode while you watch or listen.

Don't sleep with your phone in your bed or near your head. Unless the phone is off or in airplane mode, keep it at least a few feet away from your bed.

Take off the headset when you're not on a call. Headsets release small amounts of RF energy even when you are not using your phone.



### What about children?

Children may be more at risk for harm from exposure to RF energy because:

- RF energy can reach a larger area of a child's brain than an adult's brain.
- A child's brain and body grow and develop through the teen years. During this time, the body may be more easily affected by RF energy and the effect may be more harmful and longer-lasting.
- A child who uses a cell phone will have many more years of exposure to RF energy in his or her lifetime than someone who started using a cell phone as an adult.

There is not a lot of research about the effects of cell phone RF energy on children or teenagers, but a few studies have shown that there may be hearing loss or ringing in the ears, headaches, and decreased general well-being.

## CDPH cell phone safety guidance

Don't rely on a "radiation shield" or other products claiming to block RF energy, electromagnetic fields, or radiation from cell phones. According to the U.S. Federal Trade Commission, products that interfere with the phone's signal may force it to work harder and emit more RF energy in order to stay connected, possibly increasing your exposure.

For more information, please visit these websites:

U.S. Centers for Disease Control and Prevention:

- [FAQs about Cell Phones and Your Health](https://www.cdc.gov/radiation/cell_phones_faqs.html) ([https://www.cdc.gov/radiation/cell\\_phones\\_faqs.html](https://www.cdc.gov/radiation/cell_phones_faqs.html))
- [Frequently Asked Questions about Cell Phones and Your Health](https://www.fda.gov/radiation/cell_phones_and_your_health_and_cancer_health.asp) ([https://www.fda.gov/radiation/cell\\_phones\\_and\\_your\\_health\\_and\\_cancer\\_health.asp](https://www.fda.gov/radiation/cell_phones_and_your_health_and_cancer_health.asp))

U.S. Federal Communications Commission (FCC):

- [RF Safety FAQ](https://www.fcc.gov/opening-technology/electromagnetic-compatibility-division/radio-frequency-safety/fcc-factsheet) (<https://www.fcc.gov/opening-technology/electromagnetic-compatibility-division/radio-frequency-safety/fcc-factsheet>)  
(The FCC is responsible for regulating RF emissions from cell phones; the regulations were last updated in 1996.)

U.S. Federal Trade Commission (FTC):

- [Cell Phone Radiation Scams](https://www.consumer.ftc.gov/articles/0309-cell-phone-radiation-scams) (<https://www.consumer.ftc.gov/articles/0309-cell-phone-radiation-scams>)

World Health Organization:

- [Electromagnetic fields and public health: mobile phones](https://www.who.int/mediacentre/factsheets/fs392/en/) (<https://www.who.int/mediacentre/factsheets/fs392/en/>)

American Academy of Pediatrics:

- [Cell Phone Radiation & Children's Health: What Parents Need to Know](https://www.aap.org/en-us/advocacy-and-policy/advocacy/child-health/Pages/Cell-Phone-Radiation-Children-health.aspx) (<https://www.aap.org/en-us/advocacy-and-policy/advocacy/child-health/Pages/Cell-Phone-Radiation-Children-health.aspx>)

Consumer Reports:

- [Does Cell Phone Radiation Cause Cancer?](https://www.consumerreports.org/2017/07/13/cell-phone-radiation/) (<https://www.consumerreports.org/2017/07/13/cell-phone-radiation/>)



# 5G: Latest threat to population & environmental health



- Electromagnetic Radiation Safety
  - Scientists and doctors demand moratorium on 5G
  - Is 5G harmful to our health?
  - Millimeter wave health effects
  - Cutting through the hype
  - Newspaper editorials oppose "small cell" antenna bills
- Physicians for Safe Technology
- Environmental Health Trust

**A 5G WIRELESS FUTURE**

**WILL IT GIVE US A SMART NATION OR CONTRIBUTE TO AN UNHEALTHY ONE?**

**Dr. Cindy Russell**  
SCDMA V.P. Community Health

**I**t would greatly extend FCC's current policy of the mandatory notification of the public, without adequate prior study of the potential health impact and assurance of safety. It would reach everyone, including the most vulnerable to harm from radiofrequency radiation: pregnant women, unborn children, young children, teenagers, men of reproductive age, the elderly, the disabled, and the chronically ill." —Ronald Powell, PhD, Letter to FCC on 5G expansion (7)

**BRAVE NEW WORLD OF COMMUNICATION**

The use of mobile wireless technologies continues to increase worldwide. A new faster 5th generation (5G) telecommunication system has recently been approved by the Federal Communications Commission (FCC) with new antennas already being installed and tested in Palo Alto and Mountain View. While it may give us ultra automation and instantaneous "immersive entertainment" a lot of questions remain with regards to public health and safety of wireless devices. Will the adoption of this new 5G technology harm directly or indirectly the consumers and businesses it hopes to attract?

5G is the new promised land for wireless technology. It could connect us in our homes, workplaces and city streets to over a trillion objects around the world. (8) The Internet of Things (IoT) is primed to give us self-driving cars, appliances that can order their own laundry soap, automation hubs that pay your bills, not to mention fast movie downloads and virtual reality streaming from anywhere when you are on the go. Companies are already asking local cities and counties to move forward to create "Smart Cities" which have comprehensive digital connectivity by installing a massive wireless sensor network of almost invisible small cell antennas on light poles, utility poles, homes and businesses throughout neighborhoods and towns in order to integrate IoT with IT. They state it will improve services, the economy and quality of life. This communication network will

30 | THE BULLETIN | JANUARY / FEBRUARY 2017

# 5G: Scientists & doctors call for moratorium on deployment



## The 5G appeal

Scientists and doctors call for a moratorium on the roll-out of 5G. 5G will substantially increase exposure to radiofrequency electromagnetic fields RF-EMF, that has been proven to be harmful for humans and the environment.

- Moratorium on roll-out of 5<sup>th</sup> generation cellular technology
- 2017: Submitted to European Commission
- Signed by >200 scientists & physicians
  - 38 nations

[www.5gappeal.eu](http://www.5gappeal.eu)

# 5G: Intl Society of Doctors for the Environment Appeal



“5G networks in European Countries: Appeal for a standstill in the respect of the precautionary principle.”  
Apr 2018.

[http://www.isde.org/5G\\_appeal.pdf](http://www.isde.org/5G_appeal.pdf)

Albania	National Association of Hygienists of Albania (NAHA)
Algeria	Association for the Protection of the Environment and Sustainable Development (APEDD); Association des jeunes volontaire pour la protection et la sauvegarde de l'environnement (AJVPSE)
Argentina	Asociación Argentina de Médicos por el Medio Ambiente (AAMMA)
Australia	Doctors for the Environment (Australia) Inc. (DEA)
Austria	Ärztinnen und Ärzte für eine Gesunde Umwelt (ÄGU) - ISDE Austria
Bangladesh	Environment and Social Development Organization (ESDO)
Belgium	Belgische Artsen voor het Milieu - Médecins Belges pour l'Environnement
Belgium	HECTOR asbl - Health and Environment Care Technical Organisation
Brazil	Medicos pelo Ambiente (MEPA)
Canada	Canadian Association of Physicians for the Environment (CAPE)
Ecuador	Corporación para el Desarrollo de la Producción y el Medio Ambiente Laboral
France	L'Association pour la Recherche Thérapeutique Anti-Cancéreuse, ARTAC
Germany	Ökologischer Ärztbund (ÖÄB)
India	Orissa State Volunteers and Social Workers Association (OSVSWA)
Italy	Associazione Medici per l'Ambiente - ISDE Italia
Kenya	Association of Physicians and Medical Workers for Social Responsibility, PSR Kenya
Macedonia	Zdruzenie na Doktori za zivotna sredina MADE
Malta	SahhAmbjent
Pakistan	Sustainable Development Policy Institute (SDPI)
Pakistan	National Integrated Development Association (NIDA Pakistan)
Netherlands	Nederlandse Vereniging voor Medische Milieukunde (NVMM)
Serbia	Society of ecologists in health-care (SEHC)
Sweden	Läkare för Miljön (Lfm)
Switzerland	Ärztinnen und Ärzte für Umweltschutz, Médecins en Faveur de l'Environnement, Medici per l'Ambiente (AefU)
Turkey	Cevre Icin Hekimler Dernegi
Ukraine	Green Doctors - Ukrainian Association of Doctors for the Environment
UK	British Society for Ecological Medicine (BSEM)
USA	Physicians for Social Responsibility (PSR)
Uzbekistan	Center Perzent - The Karakalpak Center for Reproductive Health and Environment



# Contact information



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

**[jmm@berkeley.edu](mailto:jmm@berkeley.edu)**

**[Saferemr.com](http://Saferemr.com)**





# Supplementary Slides





# Precautionary principle

**“Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.”**

Principle 15. Report of the U.N. Conference on Environment and Development (Rio de Janeiro, 1992)





# European Union: Policy recommendations



- **Governments:** adopt more stringent radiation standards & fund research ([European Environment Agency](#) [EEA], 2011)
- **Manufacturers:** improve cell phone design & issue warning labels (EEA, 2011)
- **Consumers:** reduce exposure (especially children); hands-free use (EEA, 2011)
- **Schools:** restrict Wi-Fi & mobile phone use ([Council of Europe](#), 2011)

# Consumer Reports magazine

## November, 2015 issue



- Consumers Union agrees with **American Academy of Pediatrics** & the **GAO** that **FCC** should develop new cell phone tests that account for children's vulnerability as children's brains absorb more radiation.
- Cell-phone **manufacturers** should prominently display advice on how to reduce cell-phone radiation exposure.

# Massachusetts: Pending wireless safety legislation



- [S.107](#) Provide RF notifications on wireless devices
- [S.108](#) Disclose safe use of handheld devices by children on product packaging
- [S.1268](#) Commission to examine EMF health impacts
- [S.1864](#) Allow consumers to retain non-wireless radiation-emitting meters at no-cost
- [H.2030](#) Wireless management practices in public schools & colleges
- [S.2079](#) Reduce EMF exposure in schools
- [S.2080](#) Increase medical awareness & insurance coverage of non-ionizing radiation injuries

# Emerging Wireless Technology



- **Wearable wireless devices**
  - Watches, glasses, baby devices, implants
- **5G (5<sup>th</sup> generation cellular technology)**
  - Low-, mid-, high (millimeter waves) bands
- **Internet of Things**
  - Smart ...locks, thermostats, appliances, etc.
- **Autonomous vehicles**
- **Smart cities**



# RF Exposure Limits

## International Radio Frequency "RF" Exposure Limits for 1800 MHz Range

(Cell Phone, WiFi, Smart Meters, etc)

Location	Reference	Exposure time	Limit Based On	Lower by	$\mu\text{W}/\text{m}^2$	V/m
Most of Western Europe	IEEE C95.1-1999 and ICNIRP	30 minutes	Thermal / Heating	-	10,000,000	61.4
USA	(FCC) IEEE C95.1-1999 and ICNIRP	30 minutes	Thermal / Heating	-	10,000,000	61.4
Canada	Safety Code 6, Table 5 (2015)	6 minutes	Thermal / Heating	66 x	4,393,278.4	40.7
Russia	Sanitary Norms and Regulations 2.2.4/2.1.8.055-96	3 hours +	Biological Effects	100 x	100,000	6.14
China	UDC 614.898.5 GB 9175 -88	3 hours +	Biological Effects	100 x	100,000	6.14
Italy	Sanitary Norms and Regulations 2.2.4/2.1.8.055-96	3 hours +	Biological Effects	100 x	100,000	6.14
Most of Eastern Europe	Sanitary Norms and Regulations 2.2.4/2.1.8.055-96	3 hours +	Biological Effects	100 x	100,000	6.14
Switzerland	Ordinance on Protection from Non-ionising Radiation (NISV)	Long Term	Precautionary	100 x	100,000	6.14
Toronto Board of Health, Canada	Proposed 1999	Long Term	Precautionary	100 x	100,000	6.14
Bio-Initiative Report recommendation	Bio-Initiative Report 2007	Long Term	Biological / Precautionary	10,000 x	1,000	0.614
Salzburg Resolution on Mobile Telecommunication	Preventive public health protection, Salzburg, June 7-8, 2000	Long Term	Precautionary	10,000 x	1,000	0.614
European Parliament	Resolution 1815, Strasbourg, May 27, 2011	Long Term	Precautionary	10,000 x	106	0.2
Building Biology Guidelines Germany (Sleeping Areas)	SBM2008 - Level of No Biological Concern	Long Term	Precautionary	100,000,000 x	0.1	0.006,14
Cell Phone Operational Requirements				10,000,000,000 x	0.001	0.000,061,4
Natural Cosmic Radiation	MAES 2000	Long Term	Natural Exposure	10,000,000,000,000 x	0.000,001	0.000,000,061,4
Average Indoor Urban Exposure Toronto, Canada	Safe Living Technologies Inc. 2011	Long Term			200 - 5000	0.3 - 1.4