Cell Phones and Public Health Policy

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

Saferemr.com
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

EMFscientist.org
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radiation standards used by the FCC continue to be based on thermal heating, a criterion now nearly 30 years out of date and inapplicable today.”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. [Link](http://bit.ly/FCCcaptured)
Agencies & organizations call for FCC policy changes
Industry influence:
Microwave News & The Nation

http://Microwavenews.com

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

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

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?

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.
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

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 that long-term, high-use of cell phones may be linked to certain types of cancer and other health effects, including:
- increased risk of brain cancer and tumors of the acoustic nerve (needed for hearing and maintaining balance) and salivary glands
- lower sperm counts and active or less motile sperm
- headaches and effects on learning and memory, hearing, behavior, and sleep

These studies do not establish the link definitively, 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 family’s exposures to RF energy from cell phones, despite this uncertainty.

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—or use a 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 video or 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 holder. Because your phone’s antenna tries to stay connected with a cell tower wherever it is on, it emits some RF energy even when you are not using it. It does not emit RF energy when it is in airplane mode. (Airplane mode turns off cellular, Wi-Fi, and Bluetooth.)

Reduce or avoid using your cell phone when it is transmitting high levels of RF energy. This happens mainly when:
- You use 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.

Talk off the headset when you’ve hung up 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 to have future exposure to RF energy.
- RF energy cannot reach a larger area of a child’s brain than an adult’s brain.
- A child’s brain continues to 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 lingering.
- A child who uses a cell phone will have 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.

Next Step: Every city or county in U.S. can now disseminate this document.
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
5G: Scientists & doctors call for moratorium on deployment

- Moratorium on roll-out of 5\textsuperscript{th} generation cellular technology
- 2017: Submitted to European Commission
- Signed by >200 scientists & physicians
  - 38 nations

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
Contact information

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Supplementary Slides

- Peak Oil
- Food Supply
- Cell Phone Radiation
- Ozone Holes
- Melting Ice Caps
- A Pandemic is Coming Soon!
- The End is Nigh
- Bird Flu
- Antibiotic Resistance
“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.”

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)
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 (5th 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)

<table>
<thead>
<tr>
<th>Location</th>
<th>Reference</th>
<th>Exposure time</th>
<th>Limit Based On</th>
<th>Lower by</th>
<th>μW/m²</th>
<th>V/m</th>
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<tbody>
<tr>
<td>Most of Western Europe</td>
<td>IEEE C95.1-1999 and ICNIRP</td>
<td>30 minutes</td>
<td>Thermal / Heating</td>
<td>-</td>
<td>10,000,000</td>
<td>61.4</td>
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<tr>
<td>USA</td>
<td>(FCC) IEEE C95.1-1999 and ICNIRP</td>
<td>30 minutes</td>
<td>Thermal / Heating</td>
<td>-</td>
<td>10,000,000</td>
<td>61.4</td>
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<tr>
<td>Canada</td>
<td>Safety Code 6, Table 5 (2015)</td>
<td>6 minutes</td>
<td>Thermal / Heating</td>
<td>66 x</td>
<td>4,393,278.4</td>
<td>40.7</td>
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<tr>
<td>Russia</td>
<td>Sanitary Norms and Regulations 2.2.4/2.1.8.055-96</td>
<td>3 hours +</td>
<td>Biological Effects</td>
<td>100 x</td>
<td>100,000</td>
<td>6.14</td>
</tr>
<tr>
<td>China</td>
<td>UDC 614.898.5 GB 9175 –88</td>
<td>3 hours +</td>
<td>Biological Effects</td>
<td>100 x</td>
<td>100,000</td>
<td>6.14</td>
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<tr>
<td>Italy</td>
<td>Sanitary Norms and Regulations 2.2.4/2.1.8.055-96</td>
<td>3 hours +</td>
<td>Biological Effects</td>
<td>100 x</td>
<td>100,000</td>
<td>6.14</td>
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<tr>
<td>Most of Eastern Europe</td>
<td>Sanitary Norms and Regulations 2.2.4/2.1.8.055-96</td>
<td>3 hours +</td>
<td>Biological Effects</td>
<td>100 x</td>
<td>100,000</td>
<td>6.14</td>
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<td>Switzerland</td>
<td>Ordinance on Protection from Non-ionising Radiation (NISV)</td>
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<td>Toronto Board of Health, Canada</td>
<td>Proposed 1999</td>
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<td>Salzburg Resolution on Mobile Telecommunication</td>
<td>Preventive public health protection, Salzburg, June 7-8, 2000</td>
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<td>European Parliament</td>
<td>Resolution 1815, Strasburg, May 27, 2011</td>
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<td>Building Biology Guidelines</td>
<td>SBM2008 - Level of No Biological Concern</td>
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<td>Germany (Sleeping Areas)</td>
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<td>Cell Phone Operational</td>
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<td>Requirements</td>
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<td>Natural Cosmic Radiation</td>
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<td>Average Indoor Urban Exposure</td>
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