



**Cece Doucette,
Technology Safety Educator**

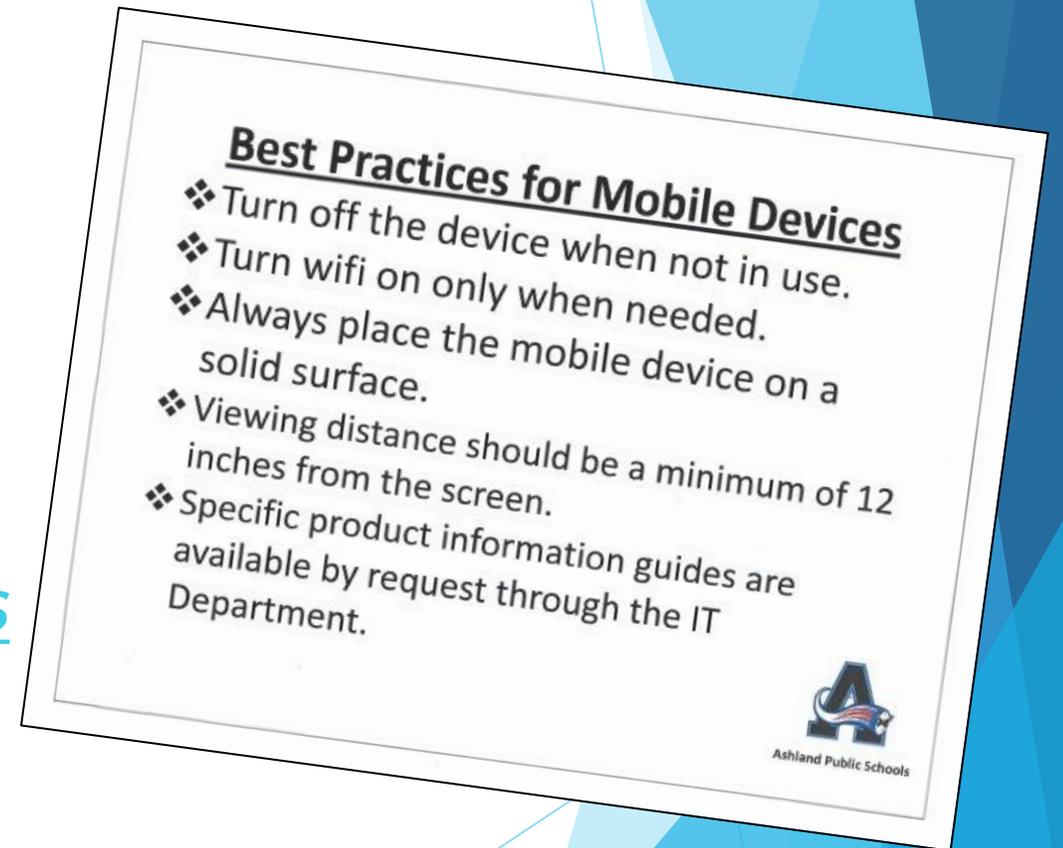
Zoom Event, May 2020

- ▶ Overview: links
 - ▶ Introduction
 - ▶ The Fine Print
 - ▶ Science Update
 - ▶ Solutions
 - ▶ Next Steps
 - ▶ Q&A



Cece Doucette, MTPW

- ▶ Former president, Ashland Education Foundation, MA
 - Brought in wireless technology
 - Discovered biological effects
 - First in the nation to post *Best Practices for Mobile Devices*



The Legal Fine Print

▶ See the Fine Print

▶ Settings

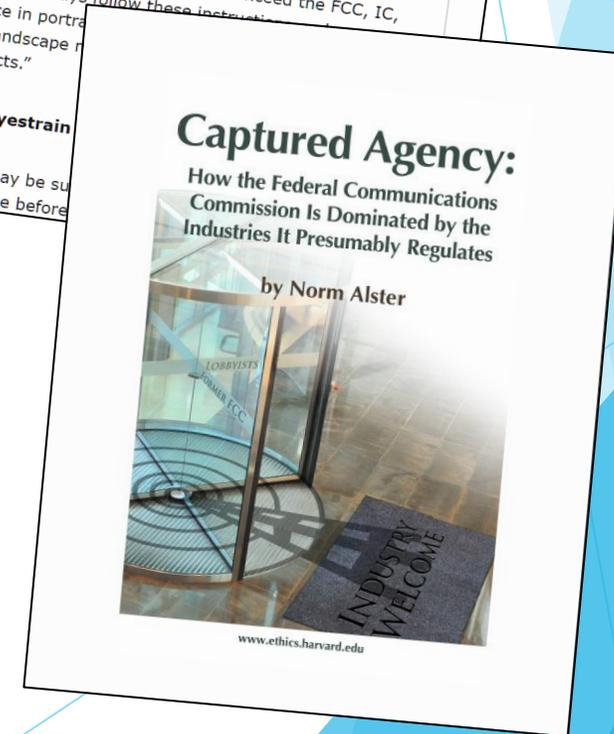
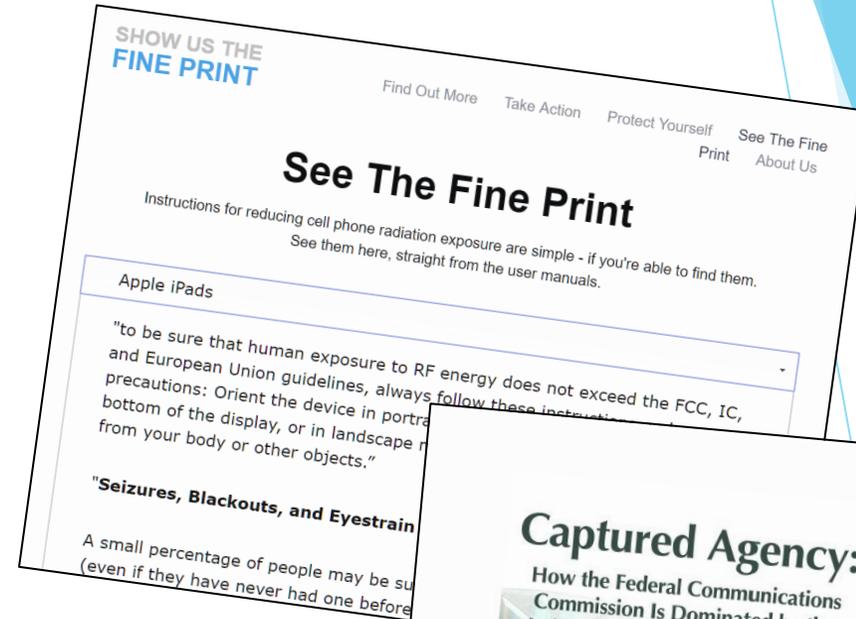
▶ **G**eneral

▶ **(A)**bout

▶ **L**egal & Regulatory

▶ RF Exposure

▶ Captured Agency



Science: Long-term Effects

- Infertility
- DNA Damage
- Child & Adult Cancers
- Neurotoxicity
- ADD/ADHD
- Autism
- Alzheimer's

National Toxicology Program
Headquartered at the National Institute of Environmental Health Sciences NIEHS

Cell Phone Radio Frequency Radiation Studies

Cell phones are used by 95% of American adults.¹ Given the large number of users, any harmful effects associated with cell phone use could be a significant public health concern.

Cell phones use radio frequency radiation (RFR) to transmit signals. The U.S. Food and Drug Administration (FDA) nominated RFR for study by the National Toxicology Program (NTP), due to widespread human exposure and limited information about the potential health effects of long-term use of cell phones.

What did NTP study?

NTP conducted toxicology studies in rats and mice to help clarify potential health hazards, including cancer risk, from exposure to RFR used in 2G and 3G cell phones. 2G and 3G networks were standard when the studies were designed and are still used for phone calls and texting.

The \$30 million NTP studies took more than 10 years to complete and are the most comprehensive assessment, to date, of health effects in animals exposed to RFR. The results will help guide other studies of newer technologies.

What did the studies find?

NTP studies found that exposure to high levels of RFR, like that used in 2G and 3G cell phones, was associated with:

- Clear evidence of tumors in the hearts of male rats. The tumors were malignant schwannomas.
- Some evidence of tumors in the brains of male rats. The tumors were malignant gliomas.
- Some evidence of tumors in the adrenal glands of male rats. The tumors were pheochromocytomas.

For female rats, and male and female mice, it was unclear, also known as equivocal, whether cancers observed in the studies were associated with exposure to RFR.

The conclusions were based on the NTP four categories of evidence that a substance may cause cancer.

- Clear evidence (highest)
- Some evidence
- Equivocal evidence
- No evidence (lowest)

If you are concerned about potential health risks from RFR, the FDA suggests the following tips:²

- Use speaker mode or a headset to place more distance between your head and the cell phone.
- Reduce the amount of time spent using your cell phone.



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Phone: 919-541-3345 • <https://ntp.niehs.nih.gov>
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Report of final results regarding brain and heart tumors in Sprague-Dawley rats exposed from prenatal life until natural death to mobile phone radiofrequency field representative of a 1.8 GHz GSM base station environmental emission

L. Falcioni, L. Bua, E. Tibaldi, M. Lauriola, L. De Angelis, F. Gnudi, D. Mandrioli, M. Manservigi, F. Manservigi, I. Manzoli, L. Menghetti, R. Montella, S. Panzacchi, D. Sgargi, V. Strollo, A. Vornoli, F. Belgoggi^a

^aCenter Malignant Cancer Research Center, Ramazzini Institute, Casella di Battifoglio, Via Sallustiana 3, Battifoglio, 40019 Bologna, Italy

ABSTRACT

Background: In 2011, IARC classified radiofrequency radiation (RFR) as possible human carcinogen (Group 2B). According to IARC, animal studies, as well as epidemiological ones, showed limited evidence of carcinogenicity. In 2016, the NTP published the first results of its long-term study on male RFR, reporting increased incidence of malignant glioma tumors of the brain and heart schwannoma in rats exposed to GSM- and CDMA-modulated cell phone RFR. The tumors observed in the NTP study are of the type similar to the ones observed in some epidemiological studies of cell phone users.

Objectives: The Ramazzini Institute (RI) performed a life-span carcinogenic study on Sprague-Dawley rats to evaluate the carcinogenic effects of RFR in the situation of field use, reproducing the environmental exposure to RFR generated by 1.8 GHz GSM antenna of the radio base stations of mobile phone. This is the largest long-term study ever performed in rats on the health effects of RFR, including 2448 animals. In this article, we reported the final results regarding brain and heart tumors.

Methods: Male and female Sprague-Dawley rats were exposed from prenatal life until natural death to a 1.8 GHz GSM (for field of 0, 5, 25, 50 V/m) with a whole-body exposure for 19 h/day.

Results: A statistically significant increase in the incidence of heart schwannomas was observed in treated male rats at the highest dose (50 V/m). Furthermore, an increase in the incidence of heart schwannoma was observed in treated male rats at the highest dose (50 V/m), although not statistically significant. The RI findings on rat field exposure to RFR are consistent with and reinforce the results of the NTP study on near field exposure, as both reported an increase in the incidence of tumors of the brain and heart in RFR-exposed Sprague-Dawley rats. These tumors are of the same histotype of those observed in some epidemiological studies on cell phone users. These experimental studies provide sufficient evidence to call for the re-evaluation of IARC conclusions regarding the carcinogenic potential of RFR in humans.

the potential carcinogenic risks of mobile phone use (RFR) raised in the early 2000 when, for the first time, people using mobile phones had a statistically significant increase in the incidence of brain and heart schwannomas and brain gliomas (Schwannomas and brain gliomas) (F. Belgoggi, 2000, 2002). In 2011, the International Agency for Research on Cancer (IARC) classified RFR as possible human carcinogen (Group 2B) based on limited evidence both in humans and experimental animals (Bua et al., 2011; IARC, 2011). Two epidemiological case-control studies resulted more informative for the IARC evaluation, showing that the risk to develop brain tumors and ventricular Schwannomas was increased in people with the highest cumulative use of mobile phones, in people who had used mobile phones on the

Environmental Research (F. Belgoggi),
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revised and revised form 19 December 2017; Accepted 23 January 2018
doi:10.1016/j.envres.2018.01.037
Fax: Falcioni, L., Environmental Research (2018), <https://doi.org/10.1016/j.envres.2018.01.037>

Science: Short-term Effects

► Electrical Sensitivities

- Insomnia
- Headaches
- Nosebleeds/earbleeds
- Fatigue
- Pain
- Skin abnormalities
- Irregular heartbeats
- Cognitive impairment
- Anger, behavior issues
- Anxiety, depression, suicidal ideation

Are your symptoms caused by your wireless devices?

Common symptoms of Microwave Sickness/Electro-Sensitivity



Brain
Headaches
Insomnia/Sleep Problems
Dizziness
Difficulty Concentrating
Memory Problems
Brain Fog
Fatigue

Eye
Pressure In/Behind Eyes
Eye Twitching
Deteriorating Vision
Vision Disturbances
Cataract

Heart
Palpitations
Arrhythmia
Chest Pain/Pressure
Difficulty Breathing
Low/High Blood Pressure

Other
Adrenal Problems
Digestive Problems
Weight Loss/Gain
Tingling
Dehydration
Hair Loss
Flu Like Symptoms
Attention/Behavioral Issues

Ears
Tinnitus
Humming
Sharp Pain
Noise Sensitivity

Skin
Skin Rash
Itching
Burning
Facial Flushing

Mood
Irritability
Depression
Anxiety

More information at www.WeAreTheEvidence.org

We Are The Evidence
Wireless Technology Threat Advocacy Group

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ELSEVIER

Review
Microwave frequency electromagnetic fields (EMFs) produce widespread neuropsychiatric effects including depression
Martin L. Pall
Professor Emeritus of Biochemistry and Basic Medical Sciences, Washington State University, 601 N. 41st Avenue, Portland, OR 97222-3122, USA

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oxidative/nitrosative stress
non-thermal microwave electromagnetic fields

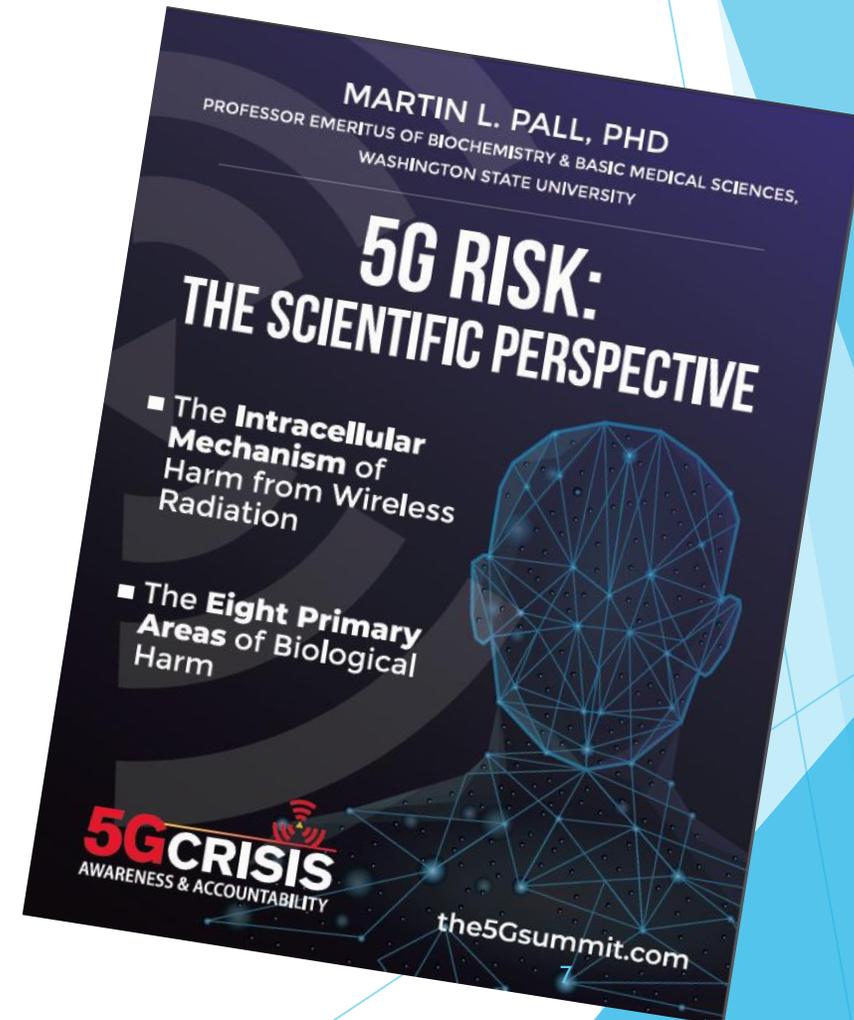
ABSTRACT
Non thermal microwave/lower frequency electromagnetic fields (EMFs) act via voltage-gated calcium channel (VGCC) activation. Calcium channel blockers block EMF effects and several types of additional evidence confirm this mechanism. Low intensity microwave EMFs have been proposed to produce neuropsychiatric effects, sometimes called microwave syndrome, and the focus of this review is whether these are indeed well documented and consistent with the known mechanism(s) of action of such EMFs. VGCCs occur in very high densities throughout the nervous system and have near universal roles in much of the impact of non thermal microwave exposures in experimental animals showing that substantial changes. These may be generated through roles of VGCC activation, producing excessive neurotransmitter/neuroendocrine release as well as oxidative/nitrosative stress and other responses. Excessive VGCC activity has been shown from genetic polymorphism studies to have roles in producing neuropsychiatric changes in humans. Two U.S. government reports from the 1970s to 1980s provide evidence for many neuropsychiatric effects of non thermal microwave EMFs, based on occupational exposure studies. 18 more recent epidemiological studies, provide substantial evidence that microwave exposure studies. 18 more recent epidemiological studies, provide substantial evidence that microwave EMFs from cell/mobile phone base stations, excessive cell/mobile phone usage and from wireless smart meters can each produce similar patterns of neuropsychiatric effects, with several of these studies showing clear dose-response relationships. Lesser evidence from 6 additional studies suggests that short wave, radio stations, occupational and digital TV antenna exposures may produce similar neuropsychiatric effects. Among the more commonly reported changes are sleep disturbance/attention dysfunction, depression/depressive symptoms, fatigue/tiredness, dyspareunia, concentration/anxiety, nausea, skin burning/itching/dermatographism and EEG changes. In summary, then, the mechanism of action of microwave EMFs, the role of the VGCCs in the brain, the impact of non thermal EMFs on the brain, extensive epidemiological studies performed over the past 50 years, and five criteria testing for causality, all collectively show that various non thermal microwave EMF exposures produce diverse neuropsychiatric effects.

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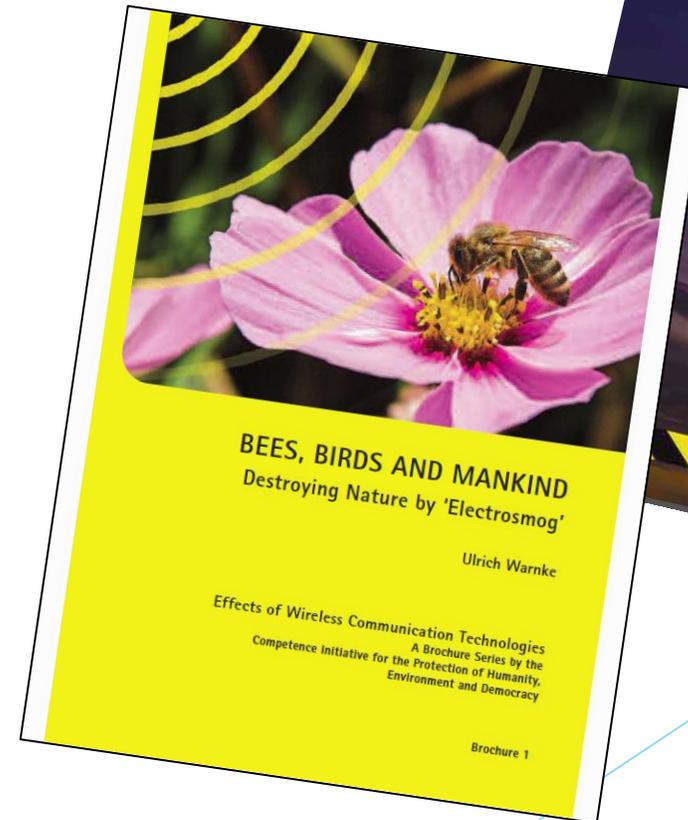
Science: Mechanisms of Harm

- ▶ Rouloux Effect
- ▶ Melatonin Suppression
 - Sleep
 - Toxins removal
- ▶ Voltage-Gated Calcium Channels
 - Peroxynitrite
- ▶ Blood-Brain-Barrier
- ▶ Cell Growth Acceleration
- ▶ Immune System Compromise



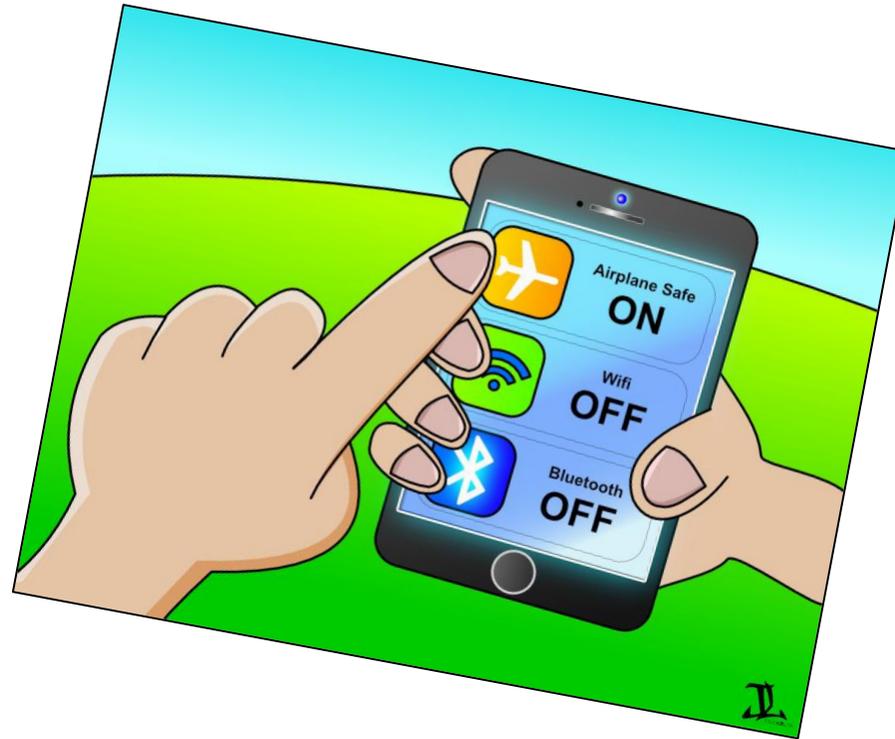
Science: Planetary Impact

- ▶ Pollinators
- ▶ Birds
- ▶ Energy consumption
 - Mineral extraction
 - Data warehouses
 - Networks
 - Personal devices
 - Streaming
 - Send/receive
 - Charging
 - Continuous app updates



Safe Tech Solutions: Personal Level

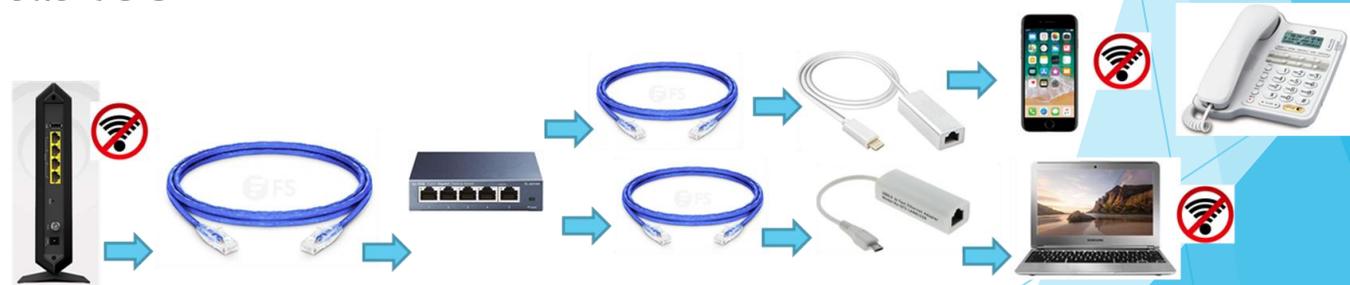
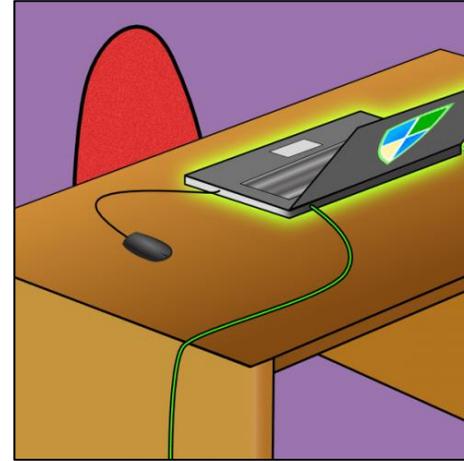
- ▶ *All devices off*
- ▶ Airplane mode
 - ▶ Cellular Off
 - ▶ Data Off
 - ▶ Wi-Fi Off
 - ▶ Bluetooth Off
 - ▶ Hotspot Off
- ▶ Second-hand radiation: people & pets



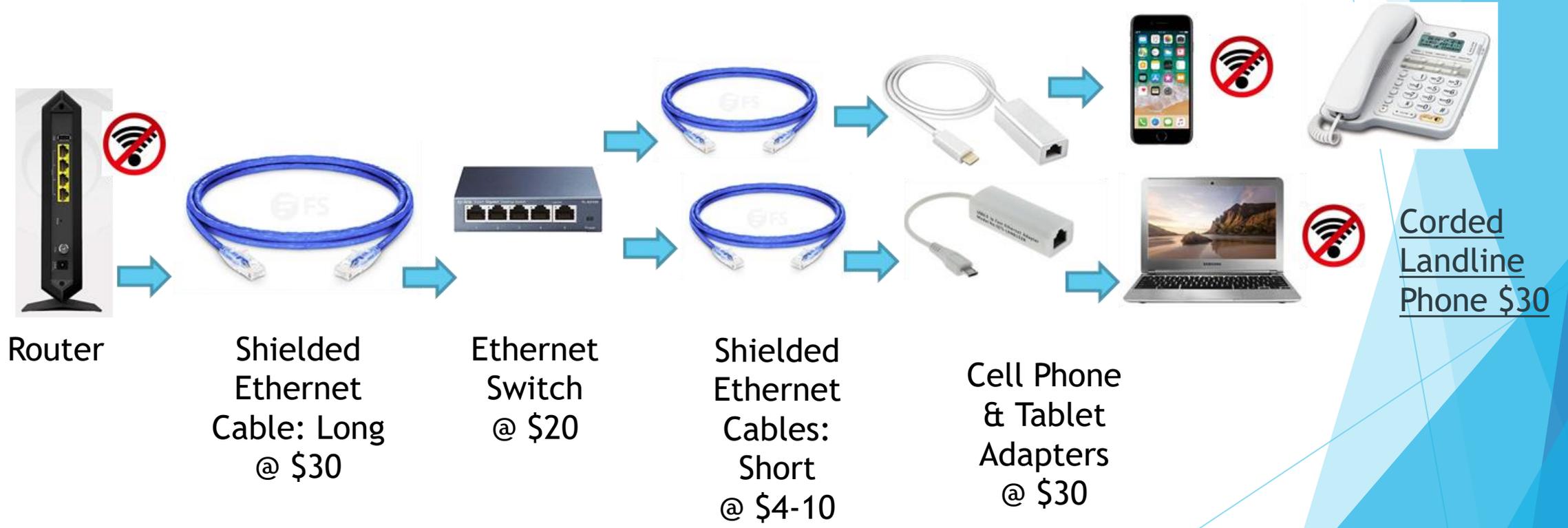
Safe Tech Solutions: Personal Level

▶ Safe technology is easier than we think: hard-wire

- ▶ Router
- ▶ Shielded Ethernet cables
- ▶ Ethernet switch
- ▶ Adapters



Safe Tech Solutions: Personal Level



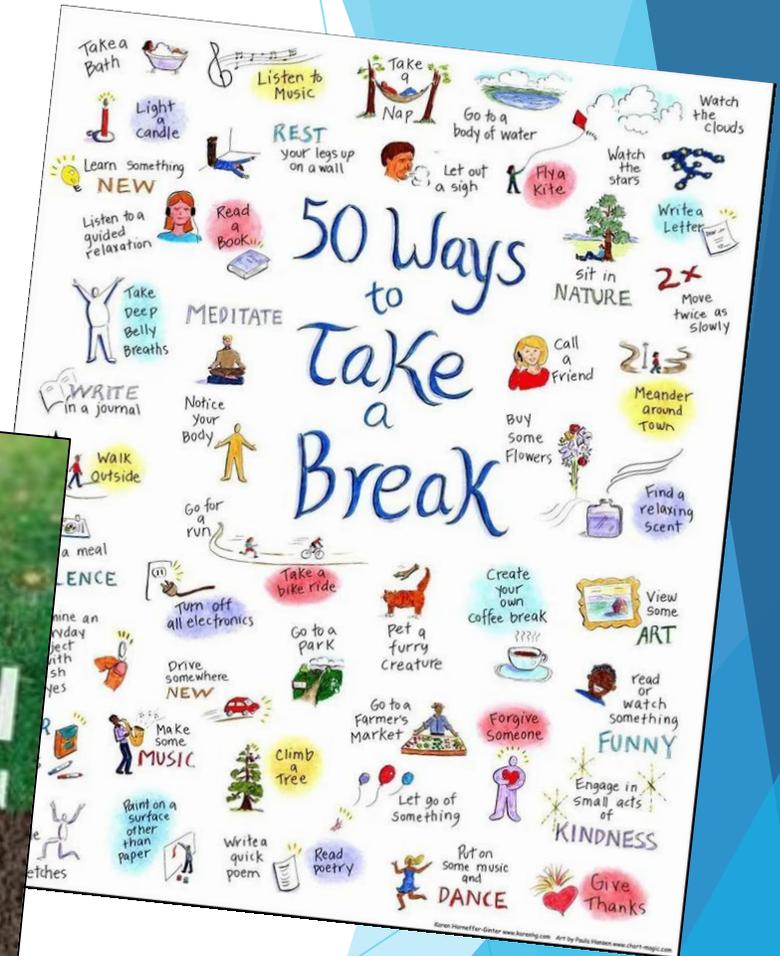
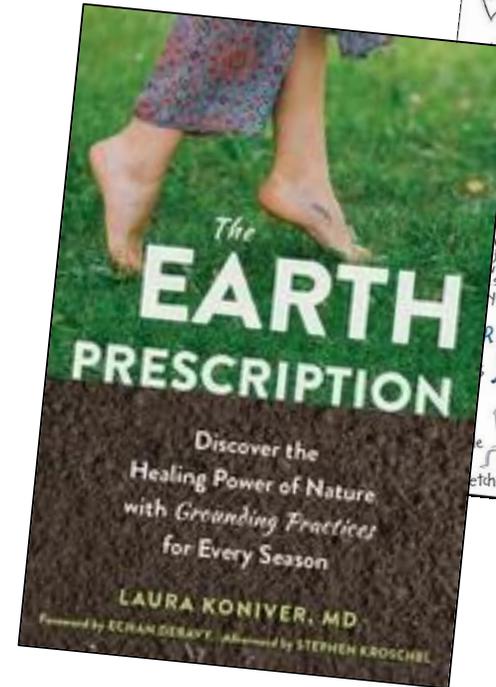
Safe Tech Solutions: Personal Level

- ▶ Turn off antennas in device Settings
- ▶ Measure
 - ▶ Borrow Acoustimeter
- ▶ Professional Help:
Building Biologists



Safe Tech Solutions: Physical & Mental Health

- ▶ Avoid excessive screen time
 - ▶ Set limits for yourself and children
 - ▶ Model good behavior
- ▶ 50 Ways to Take a Break
- ▶ The Earth Prescription



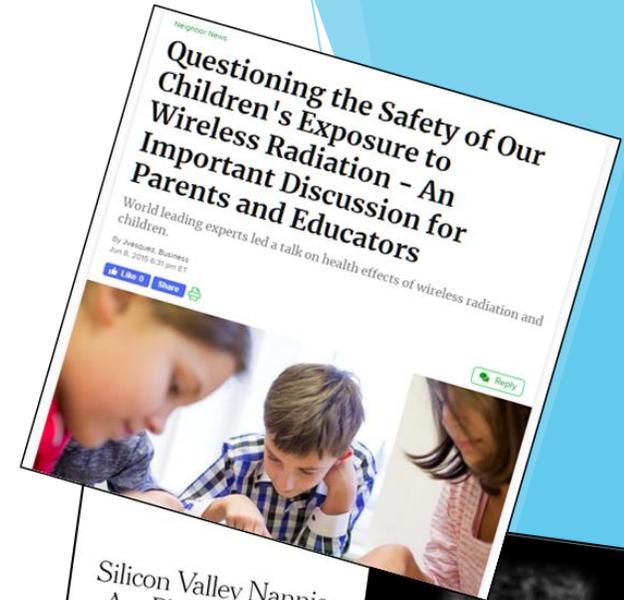
Safe Tech Solutions: Your Health Care Team

- ▶ [EMF Conference videos](#) for health care providers, [2021 Conference](#)
- ▶ Recommendations by child psychiatrist & psychologist
 - ▶ Dr. Victoria Dunkley, MD
[Reset Your Child's Brain](#)
 - ▶ Dr. Catherine Steiner-Adair, Ph.D.
[The Big Disconnect](#)



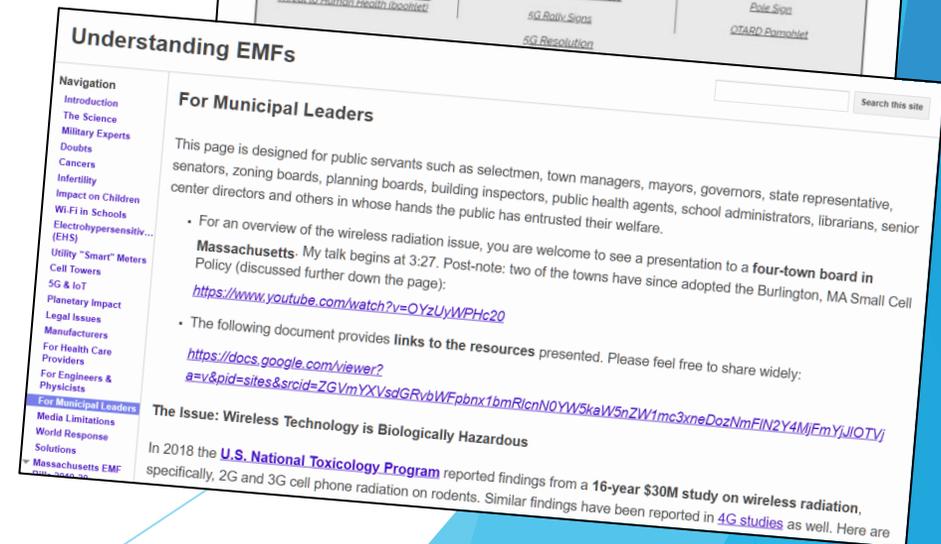
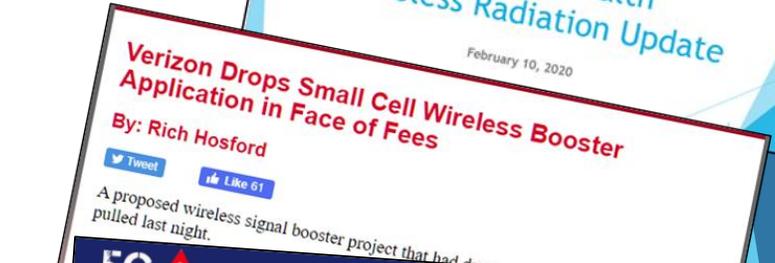
Safe Tech Solutions: Schools

- ▶ Expert panel: [Questioning the Safety of Our Children's Exposure to Wireless Radiation in School](#)
- ▶ [New York Times](#): Silicon Valley execs banning screens from their children
- ▶ [Maryland](#) first public health agency to recommend hard-wiring in schools
- ▶ United States Collaborative for High Performance Schools [Low-EMF User Practices](#)
- ▶ [Study at home guidelines](#)



Safe Tech Solutions: Municipal Level

- ▶ Board of Health: [Presentation](#) & [Slides](#)
- ▶ Burlington, MA [Small Cell Policy](#)
- ▶ 5GCrisis.com [Tool Kit](#)
- ▶ Resources for [Municipal Leaders](#)



Safe Tech Solutions: State Policy-Level

- ▶ Advancing MA [EMF bills](#), [NH & OR](#)
- ▶ CA Dept. of Public Health [Cell Phone Guidance](#)
- ▶ MA [DPH fact sheets](#)
 - ▶ [Boston Globe](#) article
 - ▶ State's [Radiation Control](#) website
- ▶ MA Department of [Elementary & Secondary Education](#)
- ▶ MA Department of [Public Utilities](#)
- ▶ Attorney General's Office

New Hampshire General Court
Statutory and Study Committees

Main Page Documents Agendas Minutes Reports

Commission to Study the Environmental & Health Effects of Evolving 5G Technology

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

Business

Could your cellphone's electromagnetic field make you sick?

Many scientists say exposure to electromagnetic fields may pose a health risk, especially concerned about cellphones, because of their position close to the head.

By Hiawatha Bray
GLOBE STAFF | JANUARY 17, 2019

Electromagnetic Fields (EMFs) Fact Sheet

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH | BUREAU OF ENVIRONMENTAL HEALTH

This fact sheet is designed to offer information and precautionary measures for using EMF-emitting technology more safely.

WHAT ARE MAN-MADE EMFS?
Today's telecommunications technologies that send and receive data wirelessly emit man-made radiofrequency (RF) and microwave radiation, also known as electromagnetic fields (EMFs). Other electronics, appliances and wiring emit a related type of low frequency magnetic field called extremely low frequency electrical or magnetic fields (ELF-EMFs).

Common Sources of EMFs

- Cell phones
- Cordless DECT phones and other tablets
- Wireless printers, mice and keyboards
- Wearables
- Baby monitors
- Cleaning devices
- Routes and access points
- TV streaming devices, Chromecast, Roku and other tablets
- Virtual Reality Glasses
- Bluetooth
- Wireless headsets
- Microwave ovens
- Laptop "smart" meters
- "Smart" appliances
- Cell mast antennas
- Poorly grounded electricity

IS EXPOSURE TO EMFS HARMFUL?
Humans and the earth have been naturally occurring EMFs much lower than man-made EMFs. In 2011 the World Health Organization (WHO) classified radiofrequency electromagnetic fields as 2B. "Possibly Carcinogenic to Humans."

Until recently, it was generally believed that to cause harm a device had to emit enough heat to raise the temperature of body tissue (known as the thermal effect). In 2018, findings from a U.S. National Toxicology Program peer-reviewed study showed evidence that EMFs may cause biological harm at the non-thermal level. The rodent study designed to mimic human exposure found a positive statistically significant association between certain non-thermal EMF exposure levels and cancer and pre-cancerous cells in the brain and heart.

IS CANCER THE ONLY CONCERN?
Other EMF studies in the U.S. and around the world have identified additional risks including:

- Damage to sperm and reproductive systems
- Brain system impairment
- Effects on Autism and ADHD
- Electrosensitivity (EHS)
- DNA and genetic damage
- Heart irregularities
- DNA and genetic damage
- Neurological disorders
- Learning and memory deficits
- Behavioral issues
- Sleep disruption

WHAT IS ELECTROSENSITIVITY?
Electrosensitivity (ES) is a physical reaction or allergy to EMF exposure. The American Medical Association indicates, "Patients may experience sleep problems, fatigue, exhaustion, lack of energy, restlessness, heart and joint pain, headaches, depression, difficulty concentrating, forgetfulness, dizziness, urinary urgency, anxiety (heart race/failure), dizziness, tremors (trembling or lurching in the arms) and sensations of pressure in the head and the ears."

The health problems may range in severity from benign, temporary symptoms, such as slight headaches or numbness (tingling or prickling in the hand or hand) when using a cell phone, to severe, debilitating symptoms that drastically impair physical and mental health.

Science indicates that children, fetuses, those with existing health conditions and those sensitive to fluorescent lights (another form of EMF) may be especially vulnerable.

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 be harmful at the non-thermal level. The rodent study designed to mimic human exposure found a positive statistically significant association between certain non-thermal EMF exposure levels and cancer and pre-cancerous cells in the brain and heart.

What is RF energy?
Cell phones work by sending and receiving signals to and from cell towers. These signals are a form of electromagnetic radiation called radiofrequency (RF) energy. Other sources of RF energy include power lines, TV and radio towers, smart meters, and Wi-Fi routers. When a phone is used as a tower, the RF energy from the phone's antenna is emitted in all directions, including towards the user's head and body. The phone cell phone emits RF energy when using features like Bluetooth, but it is not as powerful or as close to the head or DNA as some other electromagnetic radiation like X-rays or UV light. Some scientific studies have suggested increased health risks from RF energy.

Safe Tech Solutions: Legal Action

- ▶ [Irregulators vs. FCC](#)
- ▶ [Environmental Health Trust vs. FCC](#)
- ▶ [Children's Health Defense vs. FCC](#)
- ▶ Burlington, MA lawsuit with Verizon
- ▶ Centerville Concerned Citizens
- ▶ Keene, NH moratorium and legal action
- ▶ [Much more](#) domestically and internationally

MARCH 16th, 2020: RELEASE: IRREGULATORS BIG WIN: We Freed the States to Get the Money Back from AT&T, Verizon & CenturyLink.

March 13th, 2020: The DC Court of Appeals issued an Opinion.

- **SUMMARY:** IRREGULATORS v FCC Moves Forward: Billions of Dollars Per State are in Play.
- **PODCASTS:** WHY IRREGULATORS

[Read the Details About the Cases](#)

ENVIRONMENTAL HEALTH TRUST

Want to Learn More About Our FCC Lawsuit?

EHT is part of a group of scientists, consumer health nonprofits, and citizens who have filed historic legal action against the FCC for its refusal to update its 24-year-old cell phone and wireless radiofrequency (RF) radiation guidelines. Get updates about our suit and learn more about how EHT is protecting families from wireless radiation exposure and other environmental pollutants.

* Email

First Name

Children's Health Defense

HISTORIC CASE CHD vs. FCC SUBMITTED!

The FCC false health guidelines are **HARMING OUR CHILDREN** and enabling 5G deployment

Support the Children's Health Defense and help us **STOP THE FCC!**

PLEASE HELP US PROTECT OUR CHILDREN
To Donate: www.childrenshealthdefense.org/donate (choose Stop 5G)



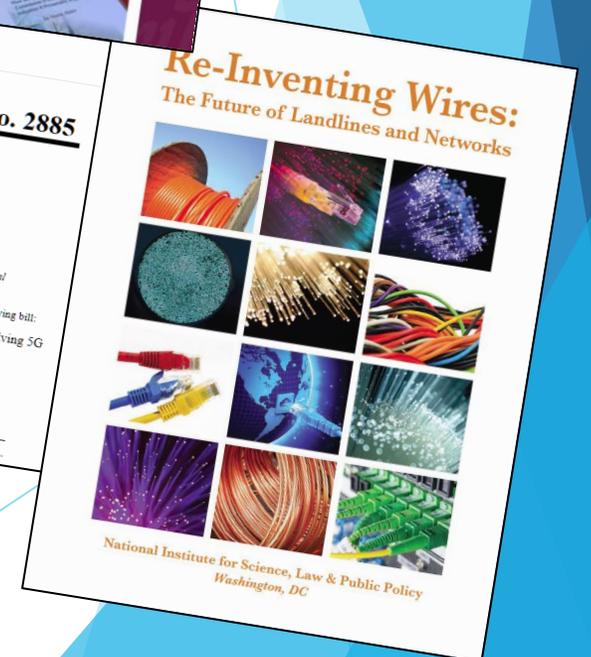
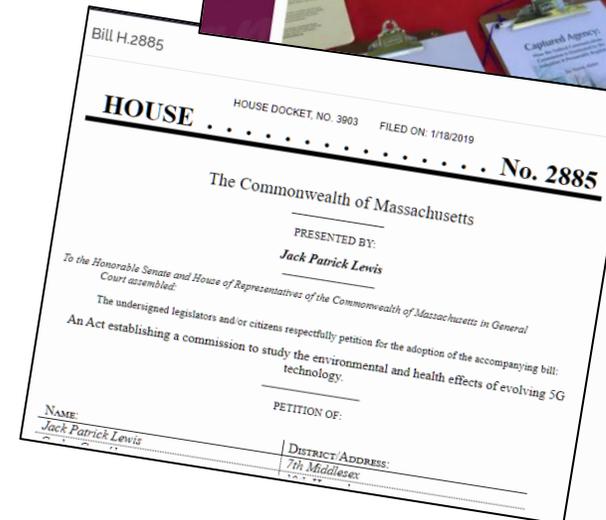
Next Steps: Educate Loved Ones

- ▶ Community Conversation: Wireless Technology Safety
- ▶ Kanopy or [Generation Zapped](#)
- ▶ [Screenagers](#)
- ▶ Non-profit Wireless Education's [Schools and Families Course](#) & [Free Quiz](#)



Next Steps: Protect Your Community

- ▶ Join [MA for Safe Technology](#) or [other groups](#)
 - ▶ Don't go it alone
 - ▶ Stop small cell installations
 - ▶ Contact legislators & other state-level authorities
- ▶ Educate [local public servants](#)
 - ▶ Speed, reliability, privacy
 - ▶ Energy consumption
 - ▶ Legal liability
 - ▶ Sustainability



Questions & Answers

- ▶ Please use Chat feature



Thank You!



- ▶ Contact Dr. Judy Tsafrir:
www.JudyTsafrirMD.com
- ▶ Contact Cece Doucette:
c2douce@gmail.com
WirelessEducation.org
- ▶ Contact Newton Free Library:
newtonfreelibrary.net

