



**Cece Doucette,
Technology Safety Educator**

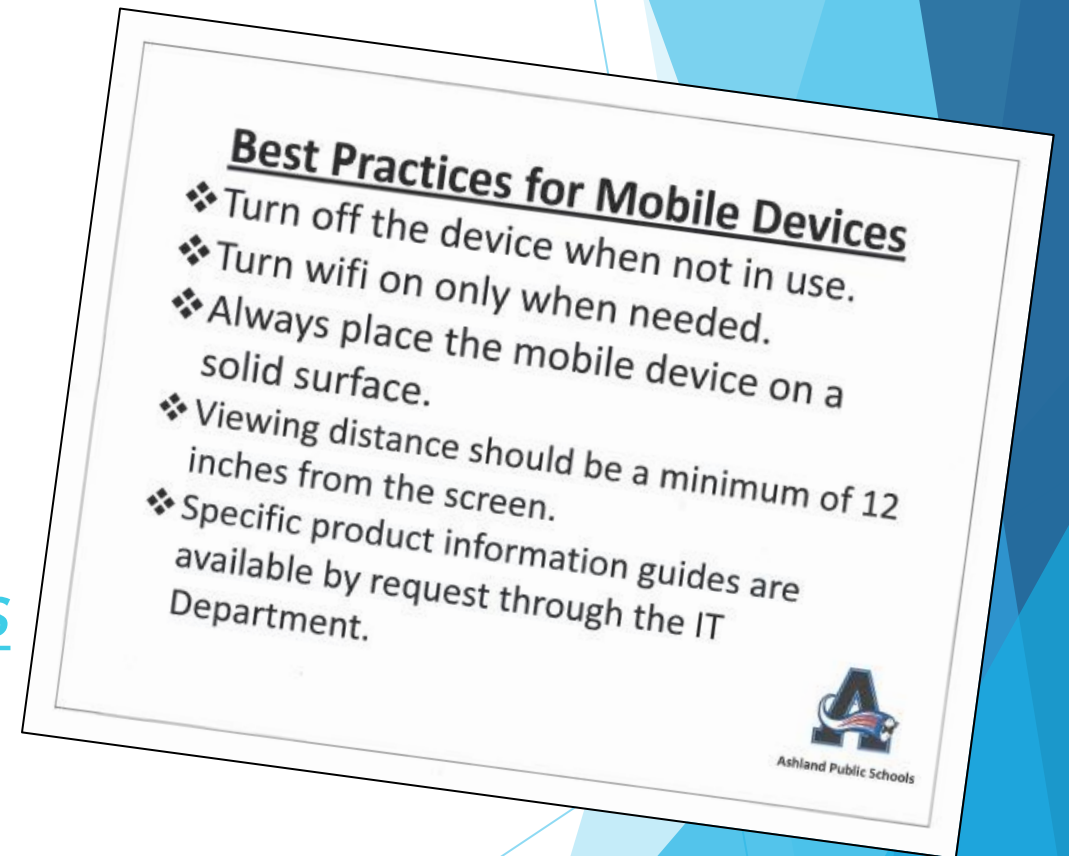
Hopkins Medical Group, May 2020

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 - Introduction
 - The Fine Print
 - Science
 - Solutions
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 - 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

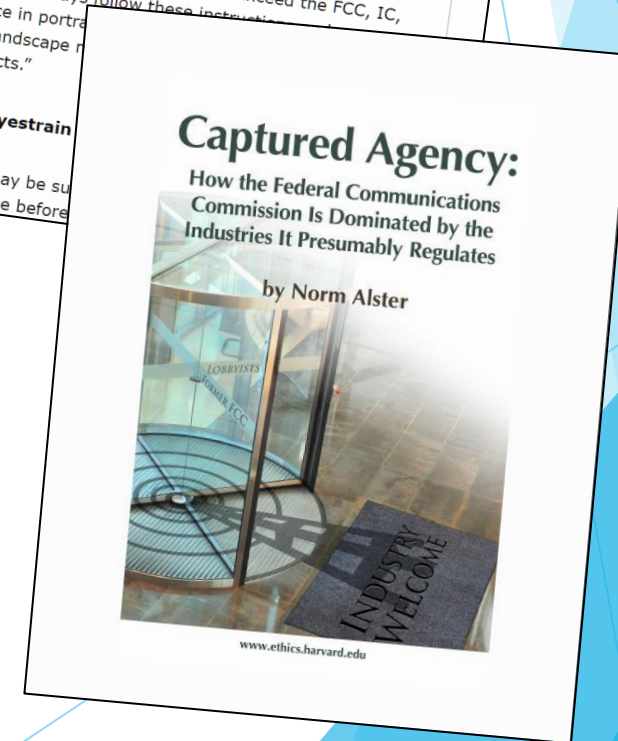
▶ **G**eneral

▶ **(A)**bout

▶ **L**egal & Regulatory

▶ RF Exposure

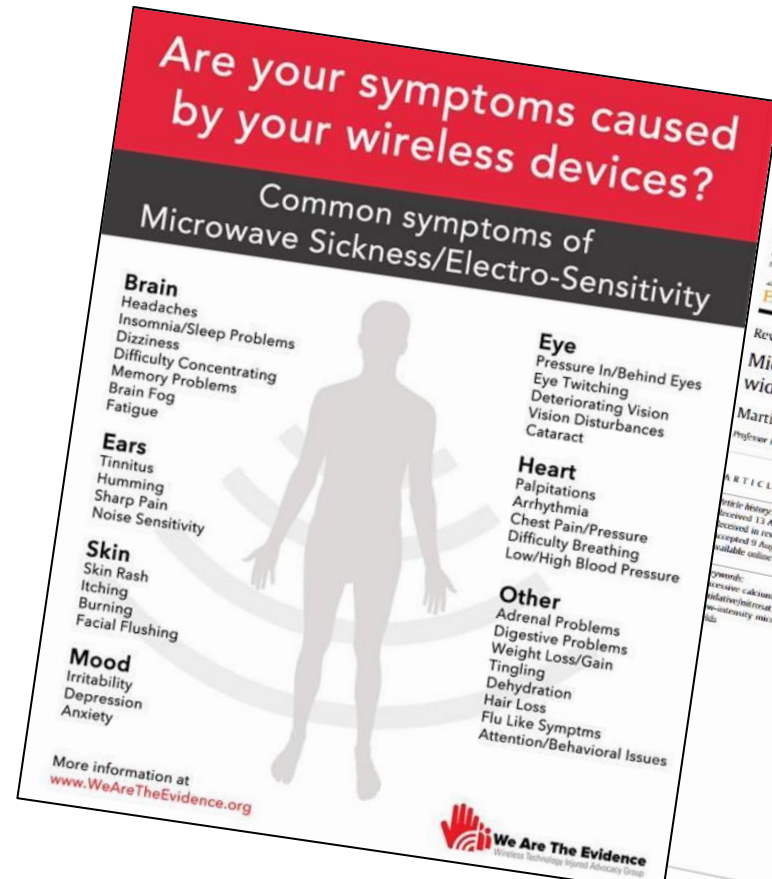
▶ Captured Agency



Science: Short-term Effects

► Electrical Sensitivities

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



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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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 female 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.

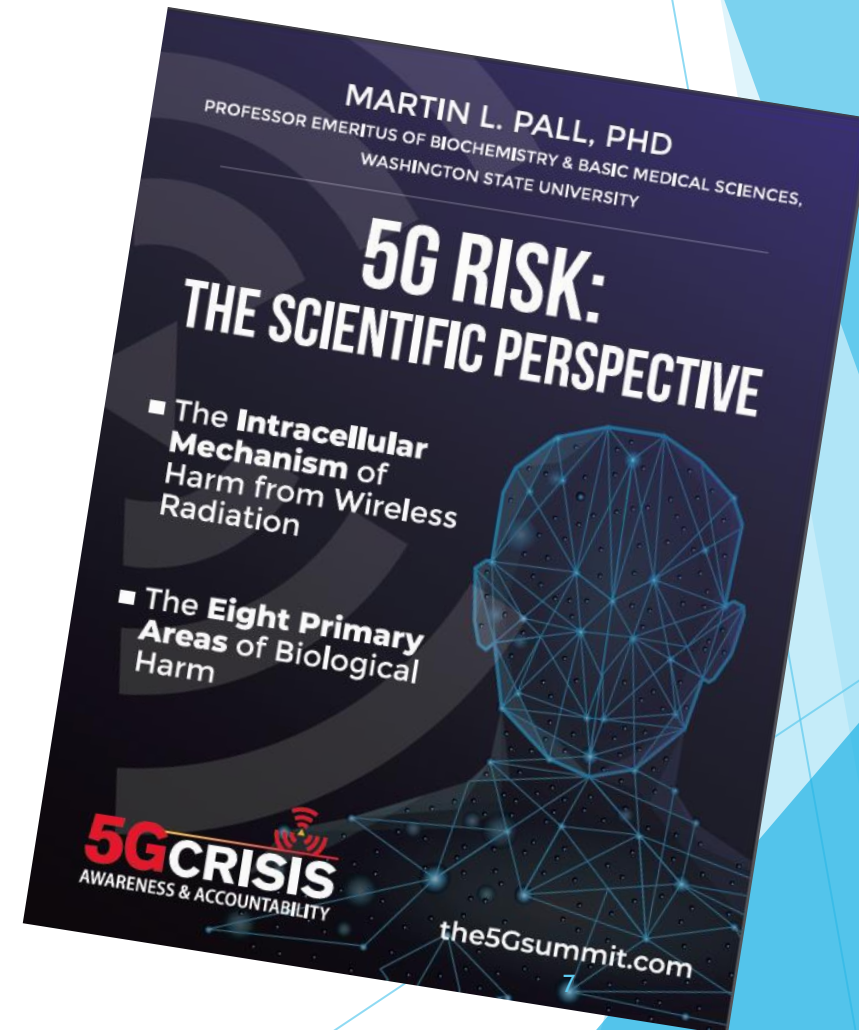
the potential carcinogenic risks of mobile phone use (RFR) raised in the early 2000 when, for the first time, people using mobile phones had a statistically significant increase in the incidence of brain and heart schwannomas was observed in people who had used mobile phones on the basis of epidemiological 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.

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, 2013). 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 (2018), <https://doi.org/10.1016/j.envres.2018.01.037>

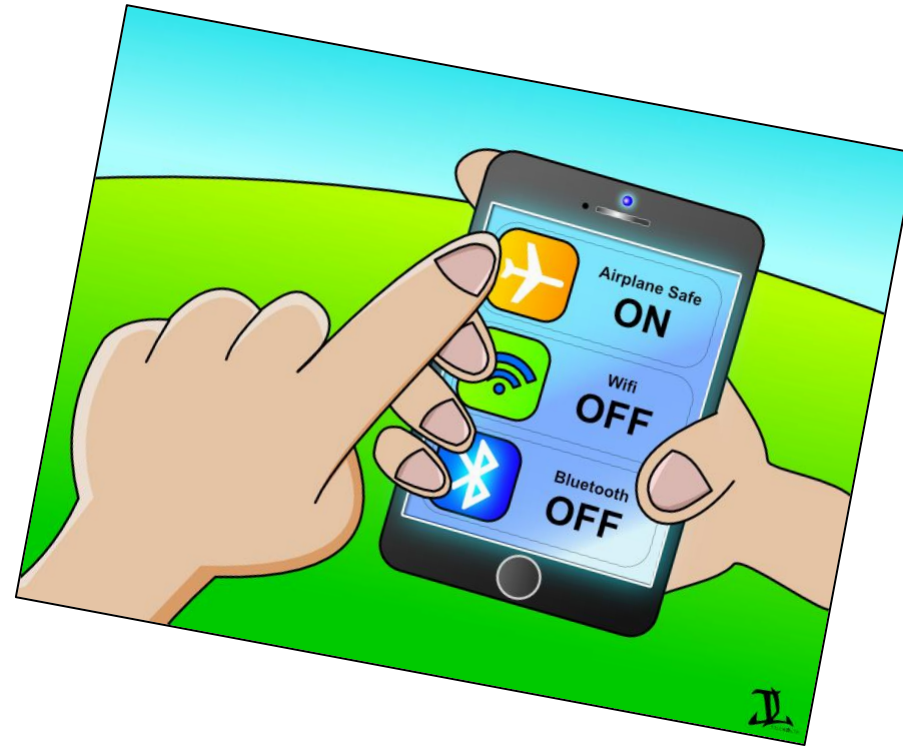
Science: Mechanisms of Harm

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



Safe Tech Solutions: Personal Level

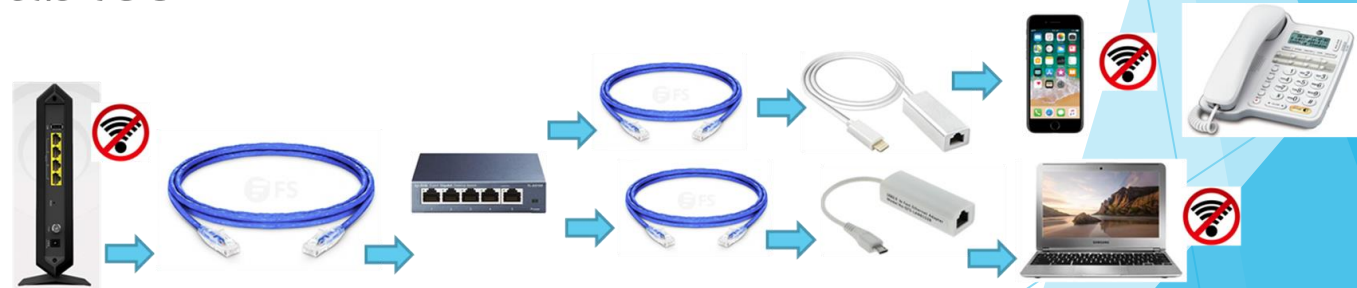
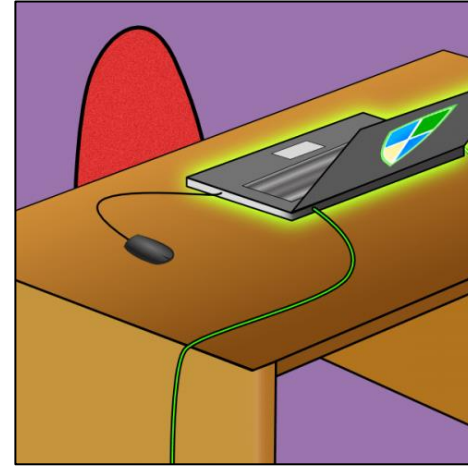
- ▶ *All devices off*
- ▶ Airplane mode
 - ▶ Cellular Off
 - ▶ Data Off
 - ▶ Wi-Fi Off
 - ▶ Bluetooth Off
 - ▶ Hotspot Off
- ▶ Second-hand radiation: people & pets



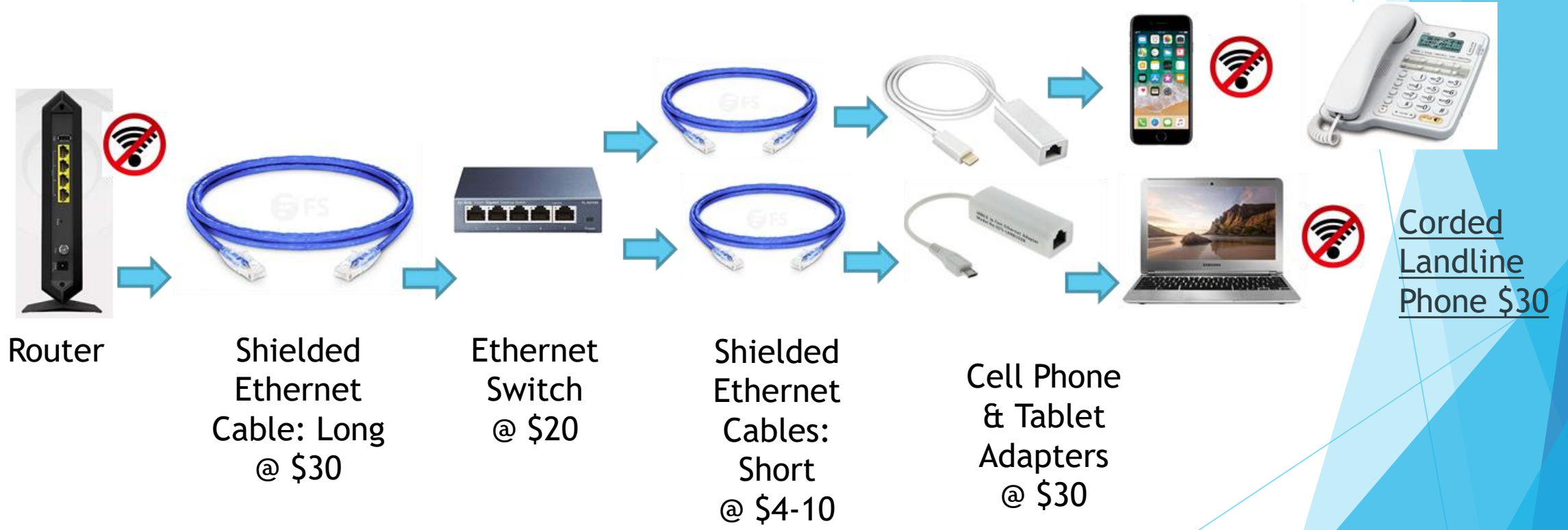
Safe Tech Solutions: Personal Level

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

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



Safe Tech Solutions: Personal Level



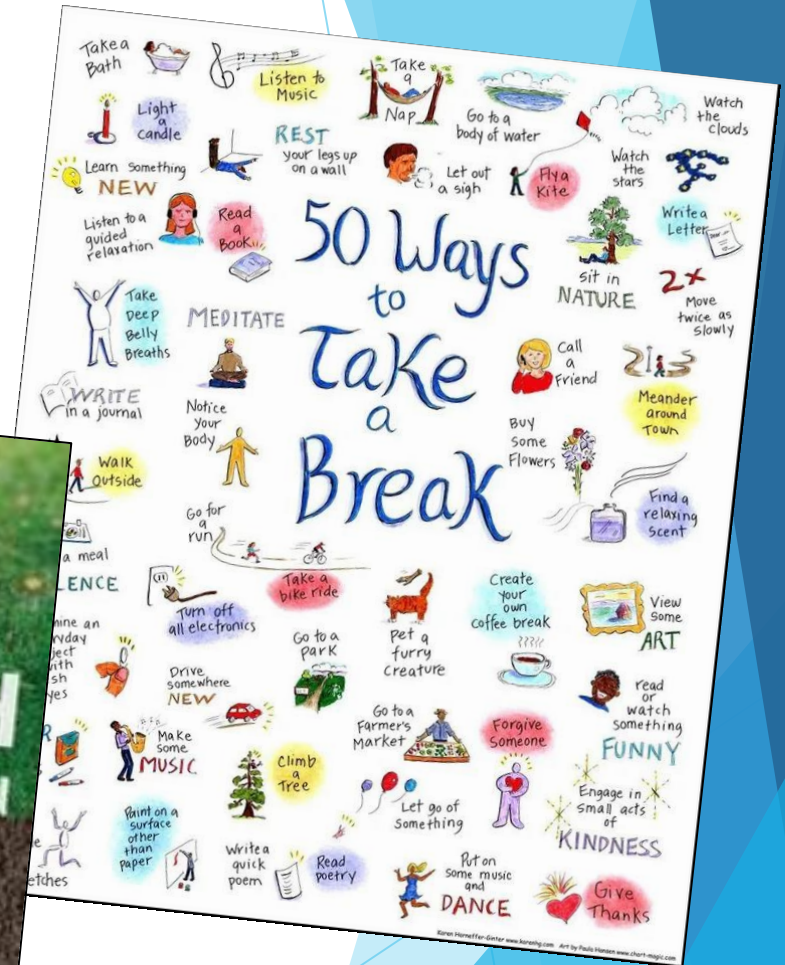
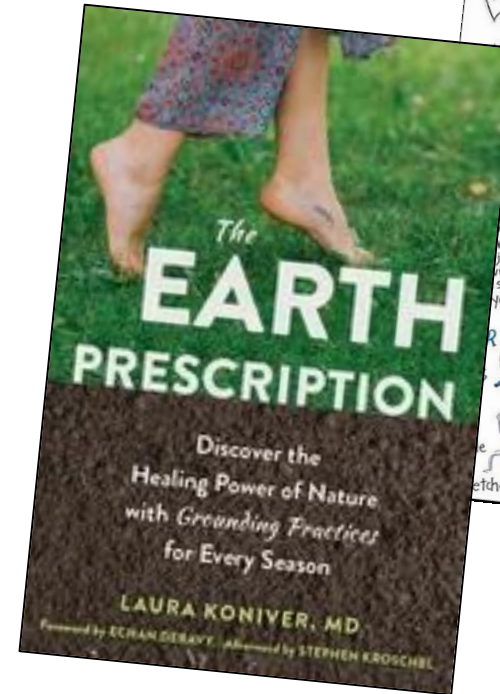
Safe Tech Solutions: Personal Level

- ▶ Turn off antennas in device Settings
- ▶ Measure
- ▶ 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



Next Steps: Educate Loved Ones

- ▶ Community Conversation: Wireless Technology Safety
- ▶ Award-winning film Generation Zapped
[Newton Event May 13](#)
- ▶ Non-profit Wireless Education's [Schools and Families Course](#) & [Free Quiz](#)



Next Steps: Help Others

- ▶ Join [Massachusetts for Safe Technology](#)
- ▶ Facebook [Page](#): MA for Safe Technology
- ▶ Facebook [Private Group](#): MA for Safe Technology



Thank You!

- ▶ Contact c2douce@gmail.com
- ▶ WirelessEducation.org

