

33 Recommendations for the FCC, FDA and Congress

The National Institute for Science, Law and Public Policy (“NISLAPP”) has reviewed steps being taken in over two-dozen countries today to encourage and empower citizens to live with and use wireless technologies more safely. Based on this review, we present here 33 steps the FCC, FDA and Congress might consider taking, or encourage manufacturers to take, in order to inform the American public about the radiation risks of cell phones and wireless transmitting devices (WTDs) and how these risks can be reduced.

The ‘33 Recommendations’ listed below are offered as opportunities for the FCC, FDA and Congress to reassure the American people that its top priority as a regulator is public safety, and to restore the trust that has been lost referenced in the Harvard Edmond J. Safra Center for Ethics report, [“Captured Agency: How the Federal Communications Commission is Dominated by the Industries it Presumably Regulates”](#).

1. **Develop an Awareness Campaign About Responsible and Rational Use of Mobile Devices**, similar to the French *“Law on sobriety, transparency, information and consultation for exposure to electromagnetic waves”* (January 29, 2015).¹
2. **Clarify the Pros and Cons of the Different Telecommunications Modalities**, including wireless, cable, landlines, fiber optics, etc., explaining the differences in speed, privacy, and potential health risks (including risks from duration of use and proximity to transmitters, etc.), so the public can make informed choices. The FCC’s role should be to *clarify* the options for the public, balancing support for industry participants seeking business growth with a fundamental commitment to the public’s best interest as its highest priority.
3. **Differentiate Cell Phones from Toys**. Ban manufacturers from embedding RF antennas in toys or children’s clothing, and discourage use of cell phones and wireless devices for the entertainment of children.
4. **Reinforce Cell Phones are for Communicating When Away from Home or Office and Should Not Be Used For Hours On End Every Day**, unless used with installed apps with the cellular and wireless antennas in the device turned off. The increased risk for brain and other tumors with over 10 years of use, at what might now be considered low usage levels, should be communicated to the public, as should research showing newer, lower power phones have *higher* risk for brain tumors than earlier phones, not less. Giving people information on the possible risks will help them use the devices more safely.
5. **Explain Brain Tumor Risk Increases With Cumulative Hours of Cell Phone Use, and the Magnitude of Risk Varies by Type of Modulation**. Explain risk differs by generation and modulation of phone, for example, with UMTS demonstrating

¹ (Law No. 2015-136 of 9 February 2015).

<http://www.loc.gov/law/foreign-news/article/france-law-on-public-exposure-to-electromagnetic-waves-adopted/>

greater brain tumor risk than GSM², and call for immediate federal testing to begin on LTE and UMTS (similar to the recent National Toxicology Program animal study)³. **Require that any future modulation technology, like the coming 5G technologies, be animal-tested for safety prior to release.**

6. **Encourage Use of Landline Phones and Hardwired Devices for Vulnerable Members of the Population**—i.e. people facing illnesses, elderly people, parents hoping to conceive, pregnant women, toddlers, school children, and people with implantable medical devices.
7. **Require New Cell Phones Have Software that Monitors Total Minutes of Cell Phone Use with a Visible Minutes Counter on the Face of the Cell Phone, Plus a Graphics App to Monitor Use Over Time**, breaking out the usage data by when the phone is used on speakerphone or headset. Ideally, this feature on phones would have the ability to pre-establish daily minute allowances.
8. **Encourage the Practice of Forwarding Cell Phone Calls to Landline Phones** when at home or an office, reserving cell phone use only for communicating on the go. Facilitate cell phone forwarding with a forwarding app on the front of the phone.
9. **Inform People of the Benefits of Turning Off Wi-Fi at Night**. Wi-Fi routers could be sold with timers to automatically turn routers off at night for durations programmed by the homeowner to both conserve energy and minimize exposures.
10. **Require Development of ‘On-Demand’ Wireless Transmitting Devices, such as Routers, Printers and Portable Phones**, so these devices are not always ‘on’, to cut down on total exposures, as well as to conserve energy. Future routers and wireless transmitting equipment should ‘listen’ for a request for wireless before transmitting, so the space is free of unnecessary radiation except during use.
11. **Require Wireless Service Providers Send Periodic Precautionary Text Messages to Cell Phones and Tablets** as is done in a limited way today by Telstra in Australia⁴. The text messages should recommend limiting the number and duration of calls, turning devices off when not in use, heeding the manual’s advice to keep devices a certain distance from the body and remind users of important additional risks from cumulative exposures and long-term use.
12. **Allow Consumers to Evaluate Differences in Cell Phone Speakerphone Volume Capacity, And Sound Quality, Before Purchasing a Phone through Audio Grading Metrics Displayed Clearly on Packaging**. Good speakerphone quality encourages speakerphone use.
13. **Require Cell Phone and Wireless Device Manufacturers Provide Clear and Highly Visible Instruction on How to Disable Wireless Functionality** on all wireless devices and packaging so people know turning off exposure to RF radiation is an option.
14. **Wearable Wireless Technology, Such As Smart Watches, Should Be Able to Have the Transmitter Turned Off**. Packaging should have clear instructions on how to do this. Packaging should also specify whether embedded antennas are directional, that is, radiating away from the body, or not. Non-directional antennas

² <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3834325/>

³ <https://ntp.niehs.nih.gov/results/areas/cellphones/>

⁴ <https://crowdsupport.telstra.com.au/t5/General-Mobiles-KB/Mobile-advice-and-tips/ta-p/175972>

on cell phones enable greater radiation to be absorbed into the body and should be discouraged.

15. **Wireless Transmitting Devices Used Close to the Eye Should be Prohibited Until There Has Been Pre-Market Safety Testing on Damage to the Eye and Brain from Transmitted Radiation.** This would include items like Google Glass and virtual reality viewers like Google Expeditions, as well as tablets and cell phones placed against the ear. Research showing eye impacts from radiofrequency radiation should be compiled and communicated to the public.
16. **Add Precautionary Warnings to Cell Phone Manuals Describing Circumstances in Which One May Be at Risk for Greater Exposures.** These would include instances when one is 1) using apps in the background on a tablet or phone; 2) or in metal enclosed places, like airplanes, trains, buses, cars and elevators, where reflections occur; 3) or places with poor reception; 4) when a call is first initializing; 5) when a device is playing video; 6) when wearing metal eyeglasses; 7) with wet hair; 8) when wearing smart watches or RF-emitting eyewear; 9) when on the speakerphone (when there are increased magnetic fields from the battery), 10) or when the power cord of a computer is not grounded (increasing electric fields).
17. **Support Awareness of Antenna Locations on Devices and in Buildings.** Require manufacturers to use red, orange, and/or yellow to indicate exactly the location of transmitting antenna(s) on wireless transmitting devices, such as cell phones, wireless computer equipment and routers. In public places, including schools, and places where base-station antennas are now intentionally concealed, the locations of all transmitters on the premises would be similarly posted with a consistent red, orange, and/or yellow symbol.
18. **Require All Wireless Industry Advertising Recommend Use Of A Cell Phone with a Speaker Phone or Headset, and Encourage Texting Instead of Placing a Transmitter Against the Head.**
19. **Recommend Wi-Fi Routers be Placed Away from Where People Spend Most of Their Time.**
20. **Require Cell Phone and Automobile Manufacturers Facilitate Use of the Car's External Antenna,** thereby greatly minimizing RF radiation exposure within a car where reflections can magnify exposures. Manufacturers should be instructed to restore the jacks on phones that previously allowed a connection between a cell phone and the external antennae.
21. **Ban or Discourage Use of Wireless Devices Near Toddlers and Newborns,** such as for teething, in cribs or playpens, in Neonatal Intensive Care units, for baby monitors, in baby monitoring clothing, on potty seats, or in homes where there are pregnant women or young children.
22. **Develop Recommendations to Preserve the Reproductive Capacities of Young People.** For example, recommend Wireless Transmitting Devices, such as cell phones, tablets or laptops, not be placed near reproductive organs, such as in pants pockets, or in jacket pockets in that region.
23. **Develop Recommendations to Protect Heart Function and the Breast by Not Placing Cell Phones or Wireless Transmitting Devices in Shirt Pockets.** Ban manufacturing of bras or sports attire with pockets for cell phones near the heart and breast.

24. **Involve Communities in the Approval Process for Neighborhood Antennas** to minimize RF exposures to residential areas, hospitals, retirement living centers or other places of special concern to residents.
25. **Recommend Congress Amend the Telecom Act of 1996** to restore the rights of local governments and communities to impact antenna siting decisions on the basis of health and environmental factors, rights taken away by Section 704 of the Act.
26. **Supply Communities With Diagrams of the Radiation Footprint from Cell Towers (in ‘peak maximum’ Power Density—not average Power Density—measured in Watts per Square Centimeter)** so residents will know if they are in the line of site of a tower’s emissions and understand the extent of their exposures.
27. **Commence Routine Monitoring of Emissions from Existing RF Infrastructure and Communicate FCC Plans to Mitigate Areas Saturated with Antennas.** Require wireless companies to keep updated technical specs of antennas, and emissions information, on a public website, and to improve characterization of population exposures in outdoor and indoor environments. Document existing installations causing the highest exposure to the public and investigate how these exposures can be reduced.
28. **Conduct Socially Responsible Advertising and/or Publicity Campaigns.** These would communicate that cell phones and other wireless communication technologies are intended to be productivity devices, in balanced lives, and care should be taken so they do not become an addiction. A communications campaign might reinforce key precautionary themes, such as ‘distance is your friend’; exposures to children, pregnant women, elderly and the sick should be minimized; and that people should seek out times and places where they can be technology-free. Advertising and/or publicity campaigns along these lines would be a public service by reinforcing the positive roles for technology in our lives while reminding people to exercise discipline to limit potential downsides.
29. **Collaborate With the CDC to Develop Recommendations for Parents and Schools Intended to Discourage Wireless Tech Overuse and Reduce RF Exposures to Children.**
 - **Explain to parents and schools there are greater physical and mental health risks to children from cell phones and wireless technologies,** including potential impacts on learning and behavior, and also that the effects of ongoing, cumulative exposures over a lifetime are largely unknown. Recommend minimal exposures for children given they have longer lifetimes of exposure.
 - **Discourage communities and schools from placement of cell towers and antennas in playgrounds, near schools, in recreational spaces, gardens and parks** (and encourage homeowners near these locations to not place transmitters on their private property).
 - **Recommend wireless access points/routers be disabled in primary schools when not in active use** with electronic education.
 - **Recommend not installing portable phones or any wireless equipment in children’s bedrooms** unless demand switches are used to shut off all equipment at night as well as when not being used.

- **Encourage periodic 3-4 week electronic fasts for children**, and courses in schools teaching how to use wireless devices more safely and responsibly.
 - **Encourage parents to role model abstinence, moderation and precautionary behaviors** with regard to cell phones and wireless technology themselves.
30. **Require a \$1/Year Fee per Cell Phone to Fund Independent Research on Remaining Questions About RF Safety.** The fund should be managed by a multi-disciplinary Advisory Board of scientists, public health experts as well as well-respected leaders from numerous sectors of society whose members have had no connection with the telecommunications industry in the previous 5-years, and who agree not to work with the telecommunications industry for the 5-years after the end of their term on the Advisory Board.
 31. **Demonstrate the FCC's Good Faith in Support of This Potentially Very Large Research Program by Announcing it Will Require Service Providers Disclose Usage Data for "Cases" Diagnosed with Brain and Other Tumors** associated with wireless communication, as well as usage data for "control" subjects⁵. This information, which could more clearly illuminate 'causation', *has to date been withheld from researchers*.
 32. **Inform the Public About Patents Held by Telecom Industry Companies that Could Reduce Risk to Users of Cell Phones and Wireless Transmitting Devices But That Are Not Being Used.**
 33. **Require Annual Public Disclosure by Manufacturers and Service Providers of What Steps They are Taking to Continually Improve Safety of Radiation-Emitting Devices.**

⁵ Persons similar to cases (in age, socioeconomic status, living location, etc.) who have not been diagnosed with a disease associated with use of wireless transmitting devices.