

2. In your response, please describe which perspective(s) your comments represent: individual consumer, patient, family member, or caregiver; healthcare professional; worker with occupational exposure; equipment or product manufacturer; service or infrastructure provider; business; industry group; government; research entity; or another type of organization or perspective.

2. I have been medically diagnosed with electromagnetic hypersensitivity, and my comments reflect my lived experience of being affected by electromagnetic fields and wireless radiation.

I am also a business owner. I own Safe Kids Strong Moms, an education and advocacy business focused on protecting children from wireless harm

3. We invite individuals, families, caregivers, healthcare professionals, and organizations to share experiences regarding potential adverse health effects they believe may be associated with exposure to RF/EMFs. Respondents are encouraged to provide as much detail as they are comfortable sharing, recognizing that responses to this RFI will be public and therefore should not include PII or PHI. Examples of information that may be helpful to include are the following:

a. The type(s) of wireless technology or RF/EMF source(s) involved (*e.g.*, mobile phones, Wi-Fi, smart meters, wireless infrastructure, wearable devices, occupational equipment).

3a, I experience significant sensitivity to electrical fields, magnetic fields, dirty electricity, and radiofrequency (RF) radiation. This includes exposure from mobile phones, Wi-Fi, smart meters, wireless infrastructure and wearable devices

b. The nature, duration, frequency, and approximate timing of the reported exposure(s).

3b. I was medically diagnosed with electromagnetic hypersensitivity nearly 10 years ago. The challenges associated with my exposure are a daily occurrence.

I cannot use a mobile phone, wear wireless devices, or have smart meters near my home. I also cannot be near 5G towers, which has further limited my ability to navigate daily life safely.

c. The potential adverse health effects experienced. *This answer includes d, e and f*

d. When potential adverse health effects first appeared relative to when exposure began and whether any changes in exposure coincided with potential adverse health effects.

e. Whether medical evaluation or treatment was sought, including any diagnoses received (if the respondent chooses to share them).

f. Whether steps to reduce or eliminate exposure were taken and, if so, whether any subsequent changes in potential adverse health effects were observed.

3c,d,e,f I developed EHS approximately seven years ago. It changed my life in ways that are still difficult to put into words.

For six months, I lived in the dark with every electrical breaker in my home turned off. I relied on one flashlight and one burner. I did not know whether I would survive. I did not know whether my marriage would survive. We eventually brought in an EMF electrician to remediate our home. It cost approximately \$20,000 to make the house tolerable enough for me to remain there.

That did not heal me. It gave me a place where I could survive.

Since then, I have spent close to \$70,000 trying to regain my health. I have sought help from medical doctors, alternative practitioners, homeopaths, and other providers. I have spent years looking for answers to a condition that took away the life I once had.

I can no longer do many of the most ordinary things people take for granted. I cannot simply go to a restaurant, visit someone's home, attend gatherings, travel freely, or enter public spaces without carefully considering the wireless exposure.

I have not seen family members in years. If someone I love died, I would face the unbearable reality that I could not be there to say goodbye. I could not get on a plane to reach them. I could not stay in a hotel. I could not stay in a family member's home. I could not gather with my family to grieve, to honor their life, or to hold the people I love when they needed me most. I would be separated from them not because I did not care, but because the wireless exposure surrounding modern life makes those places inaccessible to me.

Most days, I feel sick because there is no real escape from wireless exposure. I live with brain fog, constant ringing in my ears, and episodes where I have nearly passed out. I have been taken to the hospital twice for atrial fibrillation, and I recently had to undergo surgery because of it.

Even when I seek medical care, I face barriers. I have been refused treatment because I asked for basic accommodations: that cellphones and smartwatches be kept away from me while I was seeing the practitioner. I was not asking for special treatment. I was asking for an environment where I could safely receive care.

No one should be denied medical treatment because they ask for reasonable accommodations to protect their health.

Our community in Arizona is now discussing the placement of additional wireless facilities in our area. If that happens, I will have to leave my home and my community. But the truth is, there may be nowhere for me to go. Wireless companies have placed 5G infrastructure not only in cities and neighborhoods, but increasingly in rural and remote places as well.

What is left for people like me when there is nowhere safe to exist?

This creates profound isolation. It separates people from family, friends, medical care, travel, work, and community life. It can make a person feel trapped in their own home, or unable to remain in their own home at all. The widespread misinformation and dismissal surrounding

EHS make that isolation even more devastating. People are told their symptoms are not real, that their suffering does not matter, or that they simply need to adapt to technology that is making them ill.

g. Any supporting documentation, including scientific reports, exposure measurements, or other relevant information.

4. We invite healthcare professionals, researchers, and public health practitioners to describe observations from clinical practice, occupational settings, or research that may help identify patterns, if any, of reported potential adverse health effects associated with RF/EMF radiation and exposure. In describing these observations, please include where available:

h. The types of potential adverse health effects reported.

i. Onset of potential adverse health effects.

j. Characteristics of the individuals or populations involved, excluding any identifying information such as PII or PHI.

k. Any observed exposure patterns.

l. What standardized methods were used to assess exposure or potential adverse health effects, if any were used.

m. Recommendations for future research or surveillance.

Exposure Standards and Risk Assessment

5. What existing national and international exposure standards, guidelines, or regulatory frameworks should federal health agencies consider when evaluating the potential adverse health effects of human exposure to RF/EMF?

5. When federal health agencies evaluate the potential adverse health effects of RF/EMF exposure, they must also confront the legal framework that currently denies both communities and injured individuals the ability to act on those health concerns.

The most consequential U.S. regulatory provision is Section 704 of the Telecommunications Act of 1996 (47 U.S.C. § 332(c)(7)(B)(iv)). This law prohibits state and local governments from regulating the placement, construction, or modification of wireless facilities on the basis of the environmental or health effects of radiofrequency emissions, as long as the facilities comply with the FCC's RF exposure limits.

The practical consequences are severe:

- ***Communities have lost the right to make local decisions based on health. Zoning boards, city councils, and health departments cannot deny or remove a tower near homes or schools solely because of health concerns.***
- ***People who have become sick after a tower is installed near their home have effectively lost the ability to hold anyone accountable. Under the preemptive force of Section 704***

and the FCC's exposure limits, private citizens face nearly insurmountable barriers when they try to sue wireless companies for personal injury, nuisance, or other health-related harms caused by compliant facilities. Courts routinely dismiss or severely restrict these claims on the grounds that federal law has already determined the emissions are "safe."

In short, Section 704 has created a system in which the FCC sets the exposure limits, local governments are forbidden from second-guessing those limits on health grounds, and people who suffer harm are left with almost no legal recourse against either the companies or the agency that authorized the infrastructure.

Federal health agencies cannot meaningfully evaluate RF/EMF health risks while ignoring this legal reality. Any honest assessment must acknowledge that the current U.S. framework not only relies on outdated thermal-based limits, but also strips communities of decision-making authority and denies sick individuals the basic right to seek accountability through the courts.

n. What scientific, technical, or regulatory changes by federal health agencies, if any, would improve the assessment, disclosure, and regulation of wireless radiation exposure?

5n. Federal health agencies should take the following concrete steps to improve the assessment, disclosure, and regulation of wireless (RF/EMF) radiation exposure:

1. Restore and adequately fund independent research

Reinstate a coordinated, multi-agency RF/EMF bioeffects research program across NIH/NIEHS (including the National Toxicology Program), FDA, CDC, and EPA.

Provide dedicated annual appropriations for studies on long-term and chronic low-level exposure, children's and pregnant women's vulnerability, cumulative multi-source exposure, non-cancer endpoints (neurological, reproductive, immune, developmental), and real-world exposure measurement.

Require that research be independent of industry funding, with public data sharing, replication requirements, and annual public reporting.

Fund engineering research on lower-exposure antenna designs, power-control methods, optical (Li-Fi) alternatives, and other safer-technology approaches.

2. Update assessment methods and testing protocols

Require device testing under realistic conditions that reflect actual use (body-contact or near-contact positions, simultaneous multi-band exposure, children's tissue models, duty cycle, and modulation characteristics) rather than outdated separation distances or idealized laboratory setups.

Develop and adopt standardized methods for measuring cumulative and ambient exposure across environments, including schools, homes, and workplaces.

Conduct transparent, systematic evidence reviews using modern risk-assessment methods that evaluate the full body of peer-reviewed science, including studies reporting effects below current thermal thresholds.

3. Strengthen disclosure

Require clear, consumer-facing disclosure of measured RF exposure levels under realistic use conditions.

Provide public education on simple exposure-reduction practices and on the availability of lower-exposure or non-RF alternatives (wired connections, optical systems, distance-based use).

Maintain publicly accessible databases of device compliance data and ambient exposure measurements.

4. Update regulation and require safer technology

Direct the FCC, with formal input from health agencies, to revise exposure limits so they protect against long-term, non-thermal, and cumulative effects and include adequate safety margins for children and vulnerable populations, based on current science.

Establish pre-market and post-market requirements that incentivize or mandate lower-exposure designs, automatic power reduction near the body, and availability of safer alternatives.

Improve interagency coordination so that health agencies (FDA, NIH, CDC, EPA) actively assess health risks and advise on limits, while the FCC implements engineering compliance and enforcement.

Fund routine compliance audits and meaningful enforcement.

These changes would replace the current vacuum in which exposure limits have remained essentially unchanged since 1996, federal health-agency research capacity has been minimal, testing does not reflect real-world use, and safer technologies that already exist have not been systematically encouraged or required. Independent research funding and clear regulatory requirements are essential so that assessment, disclosure, and regulation keep pace with the ubiquity of wireless devices and the available engineering solutions.

o. Is additional research needed to develop, test, and evaluate the effectiveness of procedures and techniques for minimizing exposure to electronic product radiation? Where are the largest gaps, if any, in

knowledge? What research is needed to appropriately evaluate current or future national and international exposure standards, guidelines, or regulatory frameworks.

p. How, if at all, should a classification system account for exposure-related characteristics, including operating frequency, power density, specific absorption rate (SAR), electric- and magnetic-field strength, modulation and pulse characteristics, duty cycle, beamforming, simultaneous exposure to multiple frequencies, duration of exposure, distance from the source, proximity to the body, and cumulative exposure over time?

6. What scientific evidence exists about potential adverse health effects caused by current exposure limits?

6. I will be answering this question somewhat differently, I will address the question then talk about how AI creates disbelief.

There is a substantial body of research examining possible adverse effects from radiofrequency electromagnetic-field exposures at levels permitted under current FCC and ICNIRP limits. That research includes laboratory, animal, and human studies reporting findings involving cancer-related outcomes, oxidative stress, DNA damage, fertility and reproductive measures, neurological function, cognition, sleep, and other biological effects.

The risk is that people increasingly turn to AI for health information because it sounds confident, cites “science,” and appears to provide a quick, unbiased answer. Yet AI systems may prioritize or repeat the positions of government health agencies without presenting the full scientific context, including research reporting clinical symptoms, biological findings, methodological concerns, and the lived impact of people who identify as having electromagnetic hypersensitivity, or EHS.

Government health agencies have a responsibility to ensure that the information people encounter through AI is accurate, balanced, and clearly qualified. They should not allow simplified statements such as “there is no evidence,” “EHS is not real,” or “it is anxiety” to stand as complete answers. Those statements can misrepresent an unsettled body of research and can lead people to view individuals reporting EHS symptoms as unreliable, irrational, delusional, or incapable of understanding what is happening in their own bodies.

<https://www.safekidsstrongmoms.com/articles/one-ai-answer>

Measuring Human Exposure and Public Health Surveillance

7. What scientific methods are currently available for accurately characterizing individual and population-level RF radiation exposure?

8. What, if any, improvements in exposure assessment methodologies are needed to better evaluate real-world exposure conditions?

9. What, if any, technical and exposure-related information should be disclosed to consumers, residents, workers, schools, healthcare providers, and local governments?

10. What data sources or surveillance systems currently exist to monitor potential adverse health effects associated with RF radiation exposure? Should additional data sources or surveillance systems be developed? Please discuss the benefits and challenges of the following data sources and surveillance systems, as relevant:

- a. disease registries.
- b. occupational monitoring.
- c. environmental monitoring.
- d. longitudinal cohort studies.
- e. biomonitoring.
- f. adverse event reporting.
- g. disease or illness clusters.
- h. Other.

11. Should exposure assessment or risk evaluation differ for sensitive populations such as those noted below? Please explain.

- a. children.
- b. pregnant women.
- c. older adults.
- d. individuals with implanted medical devices.
- e. workers with elevated occupational exposure.
- f. individuals with preexisting medical conditions.
- g. Other populations that may uniquely experience potential adverse health effects in response to RF radiation.

Existing Evidence

11. a-g No. This cannot be framed as though only certain groups need a different assessment. The real issue is that the population affected will become much larger unless action is taken immediately.

Children, pregnant women, older adults, people with implanted medical devices, workers with high occupational exposure, and people with preexisting conditions deserve additional protection. But they are not the only people at risk. People who are considered healthy today can become sick after ongoing, cumulative exposure to wireless radiation. The question is not simply how to assess those already labeled “sensitive.” It is how to prevent a far larger population from becoming sensitive, developing EHS, or experiencing other health effects as wireless exposure continues to grow.

From my professional standpoint as the owner of Safe Kids Strong Moms, I believe the number of people affected is vastly underestimated. Many people are already experiencing

effects but attribute them to the stress of daily life, anxiety, poor sleep, aging, work pressure, or other common explanations. Because EHS is frequently dismissed or misunderstood, many affected people are never identified, counted, or supported.

Meanwhile, the list of wireless sources continues to grow irresponsibly. Technology companies promote their products as tools for our well-being, while wireless companies continue promoting and expanding their infrastructure as though there are no health consequences. People are exposed daily with no ability to separate themselves from that exposure.

Federal health agencies must assess the full risk to the entire population, including people who may not yet know they are being affected. They must examine long-term and cumulative exposure from all sources operating around people every day and night.

It is not responsible to wait until people become sick and then call them “sensitive populations.” The government must act now to prevent more people from developing EHS and other health problems.

12. What scientific evidence exists regarding potential adverse health effects associated with RF radiation exposure at levels below current federal exposure limits?

13. According to scientific evidence, how do the technologies below affect cumulative exposure patterns?

a. 5G.

b. 6G.

13 a and b 5G has already expanded radiofrequency exposure through more antennas, small cells, beamforming, connected devices, and infrastructure placed closer to homes, schools, workplaces, and neighborhoods. There is a growing body of research raising concerns about potential biological effects of radiofrequency radiation, including cancer-related findings in animal studies, oxidative stress, DNA damage, reproductive effects, neurological effects, and effects on wildlife. The research is contested, but it is substantial enough that it should not be dismissed or treated as irrelevant simply because current government standards have not changed.pubmed.ncbi.nlm.nih+2

The public should not be asked to accept another, more powerful generation of wireless infrastructure while serious questions about 5G and cumulative exposure remain unanswered. 5G has not been adequately studied under real-world, long-term conditions that reflect continuous, overlapping exposure from towers, small cells, home Wi-Fi, phones, wearables, vehicles, smart meters, and other wireless sources. There is even less long-term research on 6G, which is expected to use denser networks, additional frequency bands, advanced beamforming, integrated sensing, and potentially sub-terahertz or terahertz frequencies.[itu](https://www.itu.int/)+2

Moving from 5G to 6G before resolving the health concerns associated with 5G is not responsible innovation. It is escalation without adequate safeguards.

Where communities report worsening health after a tower or small cell is installed, agencies should not dismiss residents or tell them that compliance with an exposure limit ends the inquiry. They should investigate the exposure conditions, evaluate the health complaints, make data public, and remove or relocate infrastructure when there is a credible risk of harm or when safer alternatives are available.

6G should not be authorized for public deployment unless and until independent, transparent, long-term research demonstrates that it will not intensify health risks from cumulative wireless exposure. That research must examine real-world exposure from multiple sources, long-term and lifetime effects, children and other vulnerable populations, wildlife and ecosystems, and the consequences of higher-frequency signals, dense antenna placement, and beamforming.

No community should be made sicker in the name of faster technology. The burden belongs on industry and government to prove safety before expanding exposure, not on families, workers, children, or wildlife to prove harm after the infrastructure is already in place.

- c. Wi-Fi.
- d. Satellite-based communications.
- e. Internet of Things (IoT).
- f. Wearable technologies.
- g. Smart homes/appliances.
- h. Smart cities.
- i. Autonomous vehicles.
- j. Wireless medical devices.
- k. Communication enabled smart meters.

13.c,d,e,f,g,h,I,j,k

Scientific evidence exists indicating that RF radiation can produce adverse biological and health effects at exposure levels below current federal limits. This evidence includes findings of oxidative stress, DNA damage, reproductive harm, neurological effects, and tumor development in animal research. Research also documents that people who identify as electromagnetically sensitive, including individuals with electromagnetic hypersensitivity (EHS), may experience serious and life-altering symptoms in environments with wireless and other electromagnetic exposures.

Current federal RF exposure limits were developed principally around preventing excessive tissue heating. They do not adequately address the growing body of research and public concern involving chronic, low-level, pulsed, close-to-body, cumulative, and multi-source RF exposure. The federal framework begins with a 4 W/kg whole-body SAR thermal threshold and applies safety factors, but that approach was not designed to evaluate the complex, always-connected exposure environment people live in today.pmc.ncbi.nlm.nih

The U.S. National Toxicology Program found clear evidence of carcinogenic activity in male rats exposed to cell-phone-type RF radiation, based on malignant schwannomas of the heart. These findings are especially significant because they demonstrate harmful biological effects in an exposure model that did not rely on excessive heating as the explanation.ntp.niehs.nih.gov¹

The International Agency for Research on Cancer classified RF electromagnetic fields as Group 2B, “possibly carcinogenic to humans,” based on evidence including associations with glioma and acoustic neuroma. This classification recognizes a credible cancer concern and supports continued protection, research, and caution rather than assurances that exposures below current limits are harmless.pib.gov¹

The Secondhand-Exposure Principle

The issue is not limited to an individual’s personal choice to use a cell phone, smartwatch, wireless earbuds, or other wireless device. People are increasingly exposed to RF radiation from devices and infrastructure they did not choose, do not control, and often cannot avoid.

The comparison to secondhand smoke is based on the public-health principle of involuntary exposure. When tobacco smoke was recognized as harmful, nonsmokers were not expected to bear the burden of avoiding restaurants, workplaces, housing, health-care settings, or public spaces. Public policy recognized that people have a right to protection from exposures imposed by others.

The same principle applies to RF radiation. A person may choose not to own wireless devices, yet still be exposed in their home, apartment, workplace, school, health-care setting, neighborhood, sidewalk, vehicle, or public building. There is no meaningful “non-smoking section” for RF exposure in a wireless society.

For people with EHS, this lack of choice can be particularly severe. They may experience symptoms when near wireless devices, wireless infrastructure, smart meters, routers, cellular equipment, or other RF-emitting technologies. When wireless systems are installed in homes, multifamily housing, workplaces, medical facilities, and public spaces without meaningful alternatives, affected individuals can be effectively excluded from housing, employment, education, health care, public services, and community participation.

Technologies That Create Secondhand RF Exposure

<i>Technology</i>	<i>How it creates involuntary RF exposure</i>
<i>Wi-Fi</i>	<i>Routers and access points operate in homes, apartments, schools, offices, businesses, libraries, medical facilities, and public spaces. Neighbors, tenants, employees, visitors, students, patients, and children may be exposed without choosing the service.</i>
<i>Satellite-based communications</i>	<i>Satellite systems depend on terminals, antennas, ground equipment, and connected devices that create local RF emissions. People near those systems may be exposed even if they do not subscribe to or use the service.</i>

Technology	How it creates involuntary RF exposure
Internet of Things (IoT)	<i>Sensors, cameras, trackers, security devices, meters, appliances, and industrial equipment can transmit automatically and repeatedly in homes, workplaces, stores, schools, and public areas. People nearby may not know the systems are operating or be able to avoid them.</i>
Wearable technologies	<i>Smartwatches, fitness trackers, smart rings, wireless earbuds, and wireless health monitors can transmit while attached to a person's body. The wearer chooses the device; family members, classmates, coworkers, passengers, patients, and caregivers may be exposed without making that choice.</i>
Smart homes and appliances	<i>Smart speakers, connected televisions, thermostats, security systems, cameras, refrigerators, and other appliances communicate through Wi-Fi, Bluetooth, cellular, Zigbee, and other wireless systems. A homeowner's decision can affect household members, adjacent apartments, neighbors, guests, caregivers, and workers.</i>
Smart cities	<i>Wireless streetlights, traffic systems, public Wi-Fi, cameras, environmental sensors, parking systems, small cells, and public-safety communications operate in sidewalks, parks, transit areas, streets, and public buildings. Residents and visitors cannot reasonably avoid these settings while living normal daily lives.</i>
Autonomous vehicles	<i>Connected and autonomous vehicles use cellular links, Wi-Fi, Bluetooth, vehicle-to-vehicle communication, vehicle-to-infrastructure communication, and other wireless systems. Passengers, pedestrians, cyclists, roadside workers, and residents near traffic corridors may be exposed without choosing the technology.</i>
Wireless medical devices	<i>Implanted-device operate continuously. Patients, staff, caregivers, visitors, friends, family and other patients can share the exposure environment, often without practical alternatives.</i>
Communication-enabled smart meters	<i>Smart meters transmit usage data wirelessly from homes and buildings. Utilities, builders, landlords, or property owners may authorize installation, while residents, tenants, neighbors, children, and visitors may have little or no control over proximity to the meter.</i>

People should not have to prove injury after years of exposure to technologies they did not choose before receiving reasonable protection. Compliance with a thermal-based standard should not be treated as a complete answer when research raises concerns about non-thermal, chronic, cumulative, close-range, and involuntary exposure.

The public-health principle is straightforward: people should not be forced to accept continuous RF exposure from other people's devices and shared infrastructure, particularly when they experience symptoms, have limited ability to avoid exposure, and current regulatory standards do not fully address the modern wireless environment.

14. What scientific evidence exists regarding potential adverse environmental effects associated with RF radiation?

15. What types of scientific evidence should be considered when evaluating RF exposure associated with wireless infrastructure? Please comment on:

- a. proximity to homes, schools, childcare facilities, healthcare facilities, and/or workplaces.
- b. cumulative neighborhood exposure.
- c. antenna density.
- d. small-cell deployment.
- e. livestock.

Federal Research Priorities

16. What are the highest priority research gaps regarding EMF and RF radiation and public health that the federal health agencies should address?

17. How can federal health agencies improve coordination of EMF and RF radiation research? Please comment on potential roles for federal health agencies including, but not limited to:

- a. HHS Food and Drug Administration (FDA).
- b. HHS National Institutes of Health (NIH).
- c. HHS Centers for Disease Control and Prevention (CDC).

Additional Information

18. Please identify any additional scientific evidence, technical information, data, or recommendations that federal health agencies should consider when evaluating potential adverse health effects associated with RF/EMF radiation exposure.

Robert F. Kennedy, Jr.,
Secretary, Department of Health and Human Services.
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