

HHS Responses to Listed Questions

Question 2:

- I hold two Master's degrees (in Public Health and in Psychology); I am also an individual who experiences adverse symptoms in the presence of RF radiation and some low-frequency electromagnetic fields.

Question 3:

- I get symptoms in the presence of wireless/RF devices including mobile phones, computers, routers, cell towers/antennae, smart meters, wearable devices, etc). These symptoms vary, seemingly depending on aspects of the exposure (eg, proximity, features of the device (brand, wavelength, power, etc)) and duration of exposure.
- The first symptom I noticed was chronic pain behind my right ear, which was not affected by chiropractic treatment, massage or other manual intervention, and which I eventually connected to the bluetooth earpiece that I wore over that ear when talking on the flip phone I had at the time. I had been using a cell phone with no problem for 2-3 years before this started. This was confirmed when I tried wearing the earpiece on my left ear, and got the same pain on that side. Since I stopped using the bluetooth earpiece (and using my phone for anything other than short calls) the pain has never come back. At that time I was also experiencing buzzing sensations in my hands and on the tops of my thighs when I was using my laptop on my lap. These would go away when I stopped using the laptop. At that time I was also experiencing insomnia which resolved completely when I started turning off the router at night.
- Currently I live in an area with very poor cell signal and all of the potentially wireless devices in my home are wired. When exposed in public areas, stores, etc., I have different symptoms depending on the exposure, duration, etc. If I hold a cell phone that is turned on for more than 3-4 minutes, I get pain in that hand. I can't hold a phone to my ear for more than 20-30 seconds without getting pain on that side of my face. If I use earbuds, even the "air-tube" kind, I get pain in my ears. (So, mainly I use my phone for texting, and only when I have to, eg, if I am on the road.) If someone is sitting next to me who is using a phone or has it on in their pocket on the side closest to me, I get an uncomfortable "brain-buzz" feeling and often pain in the metal fillings in my teeth, all within a few minutes. This lasts until the phone is turned off or moved further away. (The tooth pain seems to depend on the kind of phone, it doesn't happen all the time when I am near a phone.) Sometimes the bluetooth feature on my computer seems to turn itself on; when this happens, I start feeling edgy and get some of the brain-buzz feeling- which I have learned to recognize. The last time I spent a couple of hours in an Apple store getting my computer repaired, I landed in bed for three days with incredible fatigue and brain-fog. I am unable to use public transportation due to the powerful, ubiquitous wifi, which results in similar brain-fog and fatigue. And I am unable to stay in hotels or most other lodging due to the same, plus insomnia. If I have to drive any distance on the highway, I wear shielding fabric to help minimize the intense exposure coming from all the towers along major highways and also the other cars. It is a hassle (and really a drag in hot weather), but my energy levels at the end of the same long drive are much better when I use the shielding.

Question 5:

- **Policy:**

- The US exposure standards need to be updated. They were last updated in 1996(!), based on studies done in the 1980s, a time when cell phones were barely in use, and the frequencies and technologies were much different than they are today. There have been so many changes since then, whose impacts either have not been evaluated, or have been evaluated but have not been applied to the current exposure standards. Of particular importance are: the *amount* of exposure the average person is exposed to, both on a daily basis and over a lifetime; the impact of non-thermal exposure (which has been shown to have biological effects, which was not understood or taken into account when the current exposure standards were set); and the variable vulnerability of different populations groups, ie children in particular.
- Federal Health Agencies should also look at the standards of other countries, many of whom have lower standards than ours.
- An Agency that is qualified to evaluate the health impacts (eg, not the FCC, which is not staffed by physicians) needs to be put in charge of establishing exposure standards and related policy. In particular, the “precautionary principle” needs to be applied here. There are plenty of reputable scientific studies showing harm of potential harm. If the FDA standards for a drug were applied to this situation, we would not be fast-tracking the expansion of cell infrastructure nationwide and devices into every home. The standards should not be based on “what has been proven harmful;” rather, the industry should be required to demonstrate safety.
- There should be rules in place to keep the Agency or Agencies involved in regulating the wireless industry from being staffed by former industry leaders/lawyers. **A Harvard study has documented the “revolving door” relationships between leaders in the telecommunications industry and FCC staff.** This results in the industry’s financial interests being given precedence over public health and safety. For example, telecommunications companies have been allowed to publish “SAR” levels that appear to be within the safe exposure limits, but these levels were tested at distances from the body that don’t match how users use their phones (ie, > 5mm from the body). When the levels are assessed when the phone is in contact with the body, or < 2mm, SAR levels grossly exceed the exposure standards. Cell phone and wireless device compliance tests should be updated to reflect real-world use of people of all ages, including direct body contact and simultaneous exposure from multiple devices.
- The 1996 Telecommunications Act needs to be altered, in particular Clause 704, which actually prohibits towns from even considering the health effects of cell infrastructure when they are presented with a siting request from a telecom provider(!). There need to be avenues for the public to weigh in on these issues. Individuals need to be able to choose to limit their exposure to this technology that has been shown to have health effects, and that an increasing number of citizens are sensitive to (it’s radiation(!)).
- Telecommunications should be considered as utilities, and subjected to the same requirements and public accountability.

- The rights and welfare of the growing number of people who are becoming sensitive to wireless radiation need to be given consideration. Our current policy of proliferating wireless infrastructure with no checks is effectively disabling a growing portion of the population. It's almost impossible to find a place to live without cell signal, and people are finding themselves unable to use public transportation or lodging, go to workplaces, or even leave home in heavily populated areas. Of particular importance for this population is the inaccessibility of hospitals, rehab and elder care facilities.
 - In particular:
 - Ensure public libraries and other public accommodations provide designated areas free of intentional wireless RF emissions, with wired internet access and measures to minimize other non-ionizing EMF exposures.
 - Ensure hospitals, medical offices, and other healthcare facilities provide designated areas and reasonable accommodations for people needing no/low EMF areas while maintaining access to necessary medical equipment and care.
 - Establish safeguards and exposure-reduction protocols in patient rooms, waiting areas, maternity units, neonatal units, and other settings serving medically vulnerable populations.
 - The rapid expansion of cell infrastructure needs to be HALTED, even rolled back, until new standards and policies can be established, based on scientific studies that assess the health impacts of the volume/density of exposure, of non-ionizing radiation exposure, of long-term exposure, etc. The precautionary principle absolutely needs to be applied here.
 - Federal agencies should fund research into both the biological mechanisms of EMR-S, including whether there are specific frequencies or other parameters of exposure that contribute, and treatment.
- The rights and welfare of children need to be given consideration. We don't know what the effects of a lifetime of exposure might be. Policy needs to be put in place to protect children's developing brains; at the very least, requiring schools to use wired technologies, and prohibiting cell infrastructure within a meaningful distance from schools, nurseries, and daycare centers. And women who are pregnant or plan to become pregnant need to be given information about how to protect the fetus.
- Premarket safety testing for health effects from chronic exposure for all new wireless technologies, and for proposed electrical grid infrastructure (such as high voltage 765 kv power lines) emissions should be required, just like is required for drugs.
- Routine, robust post-market RF radiation compliance testing should be required for all cell phones, RF emitting devices, cell towers, base stations etc., with all results publicly posted. Enforcement should be meaningful, and should be conducted by an agency that is not staffed by people with industry ties.
- State and Local Authority over wireless infrastructure placement, etc should be restored
 - Congress should restore state and local authority to consider health and environmental effects when deciding where wireless infrastructure may be located, including by amending federal laws that restrict such consideration.

- State and local governments should be empowered to establish protective setbacks for cell towers, high voltage power lines and substations, assess cumulative exposures, protect schools and other sensitive locations, and require meaningful public participation in siting decisions.
- Placement of cell infrastructure in the atmosphere should be discontinued, and existing structures removed until safety is conclusively established.
- **Knowledge Gaps**
 - How people, other creatures and plants are affected by: a) individual frequencies, wavelengths, and other parameters of exposure, and, b) the sum total of all the wireless exposure we are all exposed to on a daily basis. This really needs to be measured, and the biological and health impacts need to be assessed.
 - What is going on in people who develop EMR-S. Is their physiology different than other people? Are there individual or group characteristics that put some people more at risk? Or does it have more to do with characteristics of exposure, eg certain combinations of types/ duration/proximity/density, etc.?
 - Treatment options for EMR-S, other than avoidance.
 - Methods for accurately characterizing individual and population-level RF radiation exposure.
- **Risk Mitigation and Exposure Reduction**
 - Mitigate RF and EMF exposures in schools and childcare settings, prioritize wired connections, and establish protective siting policies to ensure schools are not near RF or EMF emitting infrastructure.
 - Prohibit cell towers and high-voltage power lines on or near schools.
 - Incentivize technologies and research that eliminate and/or reduce exposure, including readily available Ethernet connections and other wired options.
 - Require manufacturers to provide readily usable wired connection options, including plug-and-play Ethernet and cable connections instead of wireless.
 - Require manufacturers and network developers to demonstrate that they have researched and integrated EMF reduction strategies into devices and network deployment.
 - Consider a federal certification program for no/low EMF technologies and spaces.
 - Issue guidance to local governments and institutions on reducing exposures through infrastructure siting, land use planning, building networks, and device selection.
- **Education and Training for Medical Professionals**
 - Incorporate education on RF and other non-ionizing EMF exposures into medical, nursing, and allied health curricula.
 - Develop independent continuing education on the scientific evidence, research gaps, exposure assessment, and practical exposure-reduction measures.
 - Train healthcare professionals to take environmental and occupational exposure histories, including exposures from wireless devices, cell towers, power lines, and workplace equipment.
 - Develop clinical guidance for evaluating and supporting patients reporting symptoms associated with EMF exposure, including assessment of other possible causes and appropriate referrals.

- Train healthcare professionals on exposure-reduction counseling for children, pregnant patients, workers, and medically vulnerable populations.
 - Provide training on reasonable accommodations and reducing exposures in healthcare settings.
 - Establish training on documenting and reporting suspected adverse effects to the national health surveillance system.
 - Develop medical education materials and training programs.
- **Consumer Information and Public Education**
 - Require all relevant federal agencies to provide clear, publicly accessible information on RF and other non-ionizing EMF exposures, acknowledging that scientific evidence exists reporting associations with adverse health effects, with links to the research and explanations of findings and uncertainties.
 - Require the CDC, FDA, and other relevant federal health and environmental agencies to educate the public on practical ways to reduce RF and EMF exposures, including the use of wired alternatives. This should extend beyond cell phones.
 - Require the FDA to establish and enforce clear RF and EMF radiation exposure labeling requirements for cell phones and other RF-emitting consumer devices, including information on packaging and at the point of sale, applicable testing separation distances, and practical instructions to reduce exposure.
 - Require all wireless devices to be labelled not only with a warning about the radiation exposure, but also a warning about the risk of developing EMR-S, especially with cumulative exposure.
 - **Workplace Safeguards**
 - Establish a comprehensive occupational health program for EMF safety
 - Characterize and monitor exposure levels in a broad range of exposed occupations, from telecom, plastic industry, utilities, healthcare, military, to retail and education.
 - Establish standardized medical surveillance with mandatory recordkeeping and reporting to track worker health and exposure incidents, including overexposures.
 - Initiate R&D and innovation programs that prioritize low-EMF design and emission reduction in industrial and workplace technologies, focusing on minimizing unnecessary EMF exposures through improved engineering and manufacturing practices.
 - Require machinery and equipment to incorporate engineered EMF controls, shielding, and design features that minimize worker exposure, with verified performance and routine maintenance checks.
 - Issue comprehensive, site-specific guidance to minimize EMF exposure and mitigate risk, with special provisions for accommodating pregnant workers, medically vulnerable individuals, and persons with implants.
 - Ensure employer/worker training and education.

Question 6:

- Please see: <https://ehtrust.org/send-science-to-the-fcc-govt-is-asking-for-evidence-you-can-help-now/>
- Please see: <https://icbe-emf.org/publications/>
- Please see the “science” tab at: <https://ehtrust.org/>

- Please see: <https://ehsciences.org/science-and-policy-citations-on-non-ionizing-electromagnetic-fields/>
- **Question 8:**
 - Implement a nationwide RF and EMF exposure measuring and monitoring program prioritizing schools, workplaces, residential areas, and sensitive wildlife habitats with 24/7 monitoring.
 - All measurements should be publicly posted on an easy to access website with the ability to see measurements over time.
 - Analyze data with regular updates for the public.
 - Create a national health and environmental surveillance system to document and investigate suspected adverse effects.
 - All of above also need to factor in ALL the exposures- home, school, work, transportation and roadways, etc. It's not different from looking at the effects of, say, lead, in a single food versus in the overall diet. It's much more meaningful to look at both.
- **Question 9:**
 - Require clear RF radiation exposure labeling on all cell phones, Wi-Fi, Bluetooth and wireless devices, packaging, and at the point of sale, including applicable separation distances for the test system (if the FCC continues to refuse to update the tests to reflect the SAR within 2mm distance) and practical instructions to reduce exposure. These labels should include the documented health risks, including lowered sperm count (for men), and the risk of developing and possibly becoming functionally handicapped by EMR-S.
 - Require clear EMF exposure labeling for charging cords, power adapters, appliances, and other electronics, including information on electric and magnetic field emissions and practical instructions to reduce exposure.
 - Launch a multimedia public health education campaign for the American public on wireless and cell phone radiation, covering cell phones, Bluetooth devices, laptops, tablets, Wi-Fi routers, and other RF-emitting devices, with clear, practical guidance on the health risks (including that of developing EMR-S), reducing exposure and using wired alternatives. Ensure clear straightforward guidance and the importance of using wired alternatives.
 - Expand public education to address electric and magnetic field exposures from charging cords, power adapters, appliances, and other electronics, with clear guidance on reducing exposure through distance, placement, and equipment use.
- **Question 10:**
 - I am not aware of any data sources or surveillance systems currently in existence to monitor potential adverse health effects associated with RF radiation exposure. Yes, additional data sources or surveillance systems should be developed. I'm not qualified to discuss the benefits and challenges of establishing the 8 types of surveillance systems listed; however, all seem highly relevant to protecting public and environmental health.
- **Question 11:**
 - I look at this issue a little differently than the way the question is posed. Please allow me to explain: Individuals in the listed population groups do not live or spend time in distinct locations, rather, they are dispersed throughout all areas of the country. Also, "membership"

in these groups is fluid and difficult to ascertain-, ie, almost any woman can become pregnant at any time, anyone could have a device implanted, children are born and grow up, etc. And any individual can become sensitive to electromagnetic fields anywhere, at any time. Also, environmental exposures (stores, public buildings, workplaces, roadways, even outdoors) can't easily be managed in a way that affects specific population groups differently (other than perhaps in schools and certain occupational exposures). And in general we are talking about cumulative exposure, not necessarily exposure in a single location. So, rather than asking whether assessment and risk evaluation should be different for these groups that are hard to pin down, I would suggest that country-wide exposure levels and risk assessment should be based on the impact to the most vulnerable among us. Meaning, exposure levels should be set and managed to ensure the safety of the most sensitive and vulnerable. Research could be conducted to determine the characteristics of this group. However, common sense would suggest that individuals who have become sensitive to wireless radiation, like canaries in a coal mine, have already shown themselves be the most vulnerable. Therefore, their needs should be prioritized in the establishment of new exposure standards and other regulatory boundaries and processes; doing so would effectively protect the remainder of the population. This is particularly important in the places and for the technologies that all members of the population need to have safe access to, eg hospitals, schools, public transportation and facilities, public lodging, hospice and elder care facilities, and communications and other technology.

- **Question 12:**

- Please see: <https://icbe-emf.org/cell-phone-and-wireless-radiation-limits-fail-to-protect-against-cancer-and-reproductive-harm-new-study-finds/>
- Please see response to Question 6, above

- **Question 13:**

- I am not aware of any scientific research into the cumulative effect of exposure to 5G, 6G, Wifi, Satellite communications, IoT, etc. (Which does not mean it doesn't exist.) I think research into the such cumulative effects of our national and international exposure is critical. We are conducting a global experiment with radiation on the entire population, and we need to know whether it is safe to continue!

- **Question 14:**

- Please see studies listed here: <https://ehsciences.org/wireless-radiation-impacts-wildlife/>
- And here: <https://ehtrust.org/environmental-effects-of-wireless-radiation-and-electromagnetic-fields/>

- **Question 15:**

- All of the categories listed need to be evaluated, and I would add wildlife, insects and plant life to this list. We really need to know the impact of our overall/cumulative exposure. And, since wireless is not likely to go away, it also will be critical to identify how we can mitigate the risk using distance, types of emitters (towers vs antennae), etc.

- **Questions 16-17:**

- Independent federal research programs and coordinated interagency review of the scientific evidence should be re-established. All activities and funding should be publicly reported.
 - The National Academies of Sciences, Engineering, and Medicine should be directed to review the health and environmental effects of non-ionizing electromagnetic fields, including RF and ELF exposures, and issue actionable policy recommendations, research priorities, monitoring, and protection of children, workers, and ecosystems.
 - The National Institute of Environmental Health Sciences (NIEHS) should be directed to conduct a comprehensive, transparent review of human, animal, and mechanistic evidence on the health effects of RF, ELF and other non-ionizing exposures, including chronic exposure and vulnerable populations.
 - Evaluations of RF radiation and ELF magnetic fields should be prioritized for inclusion in the National Toxicology Program's Report on Carcinogens.
 - Research encompassing all artificial non-ionizing frequencies, including power lines, charging systems, wireless power transfer, LED systems, satellite systems, and mmWave–THz bands associated with emerging technologies needs to be expanded
- **Question 18:**
- It is critical that Federal health agencies and policies also give meaningful consideration to those members of the public who have developed electromagnetic radiation syndrome (EMR-S, formerly EHS). The effects of EMR-S are immediate and acute, and are effectively disabling a growing percentage of the population. (The Federal Access Board has recognized EMR-S as a disability eligible for benefits when the effects qualify.) A recent study found that 12.6% of the US population suffers from some degree of “wireless sensitivity,” with the highest incidence among young males. (<https://www.sciencedirect.com/science/article/pii/S3050475926002745>), That is a substantial and meaningful number!
 - To date, there is no treatment for EMR-S other than avoidance of RF radiation. These individuals need access to places to live where they will not be exposed to wireless signal, as well as to communications and other products/equipment that do not emit wireless signal, including medical devices (eg, at-home sleep test devices and continuous glucose monitors).
 - It's becoming increasingly difficult for those who cannot use a cellphone (those with EMR-S, and also many elderly citizens) to conduct certain kinds of transactions (parking meter payment, online identity authentications, etc.). Organizations need to be required to provide alternative means of conducting these transactions and other activities.
 - Finding a personal vehicle is another significant challenge for those who cannot tolerate RF radiation, or for those who wish to avoid it (eg, pregnant women). New cars are all equipped with wifi/bluetooth, cellular GPS, “Onstar” or other vehicle location technologies, etc. - which cannot be disabled or turned off. It is increasingly difficult to find a vehicle that doesn't emit some kind of wireless signal as older cars are aging out of the market. Ironically, Federal law requires new vehicles to have some of these technologies for “safety.” These laws need to be changed. Of course many consumers want these features, but vehicle manufacturers should be required to make it possible for them to be disabled or turned off by the consumer (not requiring a mechanic). This is also a problem with electric and hybrid vehicles, whose electrical systems are

problematic for many with EMR-S. These parts of the vehicle can be shielded to protect divers and passengers, but this won't happen unless vehicle manufacturers are required to do so.