2) I am making this comment as an individual consumer and a patient.

Most of the rest of this comment addresses questions under 3)

3) a.b.c.

Severe Electromagnetic Hypersensitivity (EHS) hit me like a hammer in early June 2017. It was a no-brainer to make the connection between my symptoms and their cause: when I had my (brand new) **iPhone** on, the painful pressure in my head (right side) and pain in my right ear would **immediately** commence. When I kept the phone on airplane mode or powered it off, these symptoms went away or didn't arise. I had had glimpses of the **ear pain since 2011** when we got a **cordless phone**. At the time, I attributed the pain to a poor quality phone and avoided using it. I only used it to get myself to a good, wired landline phone where I would then begin the phone conversation. In April 2017, I began to feel that pain anytime I used my iPhone at my ear; when the phone jack broke, it became hard to avoid using it at my head in certain circumstances. For a while I found that if I removed my earring in the ear near the phone, the pain wouldn't be quite as bad, but later it made no difference.

3) a. b. c. d. f.

Then over a **one-week period** the perfect storm hit me: I experienced extreme emotional and physical stress, associated with being a caregiver, along with a high increase in radiofrequency radiation (RFR) (activation of my new iPhone and **Comcast doubling our Internet speed** unsolicited). Within a day of activating my new iPhone, just having it connected and reading my email triggered the pain. Soon thereafter, I could no longer be anywhere near it unless it was on airplane mode or powered off. Before long, I could even feel the smartphones of our next door neighbors and their workers (who were building a porch about 20 feet from where I worked in my living room), even when the phones were just connected, and not in active use. Needless to say, I **canceled my cell phone plan and completely stopped using it very quickly!**

3) b. c. d. f.

During the first couple of weeks, the burning pain in my ear and pressure in my head were preceded by a very unpleasant, indescribable sensation, similar to but different from **vertigo** (which I have also experienced), accompanied by a very faint, oddly **metallic smell**. The metallic odor I have not had since then, though the "dizzy" sensation comes on every now and then even today (but is a rare EHS symptom for me). Since we live in an area with poor reception, the cell signals emitted by cell phones where I live are particularly strong. I couldn't work on my computer in the living room when the workers were working on the porch next door. **But when I went to the nearby regional park that has almost no cell phone reception and thus no RFR to speak of (if no one with a cell phone was nearby), my symptoms would quickly subside and I'd feel fine (as long as I avoided people there too, since the signals are even stronger there, since reception is almost nil).**

3) f.

A small and very accurate RFR meter (Acousticom 2) that I purchased very soon after onset of EHS and began to carry with me everywhere invariably revealed an extremely high level of RFR(1.0 v/m to 6.0 v/m or higher) in any place where I felt the strongest symptoms. And the places where it measured low RFR levels, I felt fine, unless the electric fields (EFs) or magnetic fields (MFs) were at an unhealthy level (I had other meters to measure those too now). (Using the meter revealed to me how strong the RFR from our Xfinity WiFi router was and motivated me to try and shield it/smother it, with an aluminum poncho, with only moderate success, before I got rid of it entirely.) After a few years, I stopped using the RFR meter all the time, but it still comes in very handy on occasion, to show someone how extremely high the RFR emitted from a wireless device they carry is. It helps persuade people to put those devices far from me and/or power them off for me.

3) a. c.

Exposure to high RFR eventually triggered in me a range of possible symptoms **very quickly**, so I had no doubt as to the cause. The most common one (and generally the first one to appear) was a painful "buzzy" **pressure in my head** on the right side (temples, cheekbones, or sides of head near my ears). It felt as if my head were in a slowly tightening vise. This would occur when I was near a connected **smartphone, a cordless phone base, or in high ambient RFR (such as WiFi**), as well as high **MFs** (which are generally quite rare, except in our house until we got it rewired). Depending on the phone or the strength of the WiFi, it would take from mere **seconds to 20 minutes** for the symptoms to set in strongly. If I were just a few feet away from someone talking on a smartphone, I ***immediately*** experienced terrible **burning pain** in and around my right ear, and that pain would **linger with me for hours, sometimes till the end of the day, unless** I was able to go to **my shielded bed canopy** or to the **local park** (mentioned above) for at least half an hour to recover. Sometimes, it felt as if my eardrum was expanding and might burst: extremely painful! At other times, it was more like an **earache, a searing burning pain** in my ear that often started as a small pinprick sensation and soon spread, growing more intense and broader.

3) f.

Today, the ear pain is not such a prominent symptom for me, but only because I spent thousands of dollars at a biological dentist practice to get **my bite reset** to where it would have been if I hadn't had lots of orthodontic work done as a child (including the removal of 4 bicuspids, which is what changed my bite for the worse, constricting the area where the nerves run to get to the ear). He diagnosed me with **TMJ (Temporal Mandibular Joint) dysfunction**. I knew that I was onto something that was going to help when I noticed a small but significant reduction in nerve sensitivity at church the first time I attended with a generic plastic bite guard in my mouth, while waiting for my customized appliance to be made. Wearing the customized appliance over a period of **five years** helped to slowly shift my bite and set it in the new position.

3) b. d.

I still get some painful pressure in my head although it no longer comes on within seconds, but the nerve pain has subsided, thankfully. I have a much longer "leash" and can strike up conversations with strangers without needing to ask them nearly immediately if they would be willing to power off their phone (which is a very difficult thing to do, makes for very awkward exchanges). During the first year or two of the pandemic, I really liked the 6-foot of social distancing that people were imposing on themselves, because it helped spare me the worst effects of their cell phones!

3) c. e.

Along with the pain in my head, even today I invariably develop **brainfog:** poor short term memory, slow mental cognition, and difficulty speaking and finding words and proper names. In addition, I often would become very **irritable and short-tempered** with both family and strangers (which is not at all my normal temperament). For a few years, I tried out many types of very structured diets (such as a FODMAP elimination diet, when I was diagnosed with **SIBO** by one functional medicine doctor and later a 4-day rotational diet recommended by the Environmental Health Clinic in Dallas, TX). Alas, the diets didn't seem to have any effect on my EHS, but they, along with the depleting effects of EMFs did contribute to my **insatiable appetite.** And although I couldn't stop eating, I **lost weight**. **Deep fatigue** is another frequent symptom: I find myself yawning deeply, after I've entered a zone high in RFR, even if my energy level had been fine up to then. Prolonged high exposure often causes increasing tenderness in the area under my ear, down into my neck even now. Finally, when exposed to high RFR and/or high DE, I sometimes feel a **constriction in my chest** (especially when I was still working halftime from home on my iMac). Several years into having EHS, I also began to experience **tinnitus** mainly noticeable at night when going to sleep. When it is particularly strong and bothersome, I have always gotten unusually bad RFR exposure during the day. In short, high EMFs and especially high RFR exposure cause a **whole-body/mind effect** on me.

6)

Peer-reviewed scientific studies on EHS validate my experience that RFR can trigger a wide range of symptoms. For instance, here is the abstract (alas, the full text is not available to the public) for an article published by Yael Stein, MD, and Iris G. Udasin, MD, dated July 2020, "Electromagnetic hypersensitivity (EHS, microwave syndrome) – Review of mechanisms" (See https://maisonsaine.ca/uploads/cem-electrosmog/ehs-mechanisms-ys-iu.pdf and I will attach the pdf to this comment as well.) (Text in boldface below indicates observations that either resonate strongly with my experience or that I wholeheartedly agree with.)

> Electromagnetic hypersensitivity (EHS), known in the past as "Microwave syndrome", is a clinical syndrome characterized by the presence of a wide spectrum of non-specific multiple organ symptoms, typically including central nervous system symptoms, that occur following the patient's acute or chronic

exposure to electromagnetic fields in the environment or in occupational settings. Numerous studies have shown biological effects at the cellular level of electromagnetic fields (EMF) at magnetic (ELF) and radio-frequency (RF) frequencies in extremely low intensities. Many of the mechanisms described for Multiple Chemical Sensitivity (MCS) apply with modification to EHS. Repeated exposures result in sensitization and consequent enhancement of response. **Many hypersensitive patients appear to have impaired detoxification systems that become overloaded by excessive oxidative stress.** EMF can induce changes in calcium signaling cascades, significant activation of free radical processes and overproduction of reactive oxygen species (ROS) in living cells as well as **altered neurological and cognitive functions and disruption of the blood-brain barrier**. Magnetite crystals absorbed from combustion air pollution could have an important role in brain effects of EMF. Autonomic nervous system effects of EMF could also be expressed as symptoms in the cardiovascular system. Other common effects of EMF include effects on skin, microvasculature, immune and hematologic systems. It is concluded that the mechanisms underlying the symptoms of EHS are **biologically plausible** and that **many organic physiologic responses occur following EMF exposure**. Patients can have neurologic, neuro-hormonal and neuro-psychiatric symptoms following exposure to EMF as a consequence of neural damage and over-sensitized neural responses. More relevant diagnostic tests for EHS should be developed. **Exposure limits should be lowered to safeguard against biologic effects of EMF.** Spread of local and global wireless networks should be decreased, and safer wired networks should be used instead of wireless, to protect susceptible members of the public. **Public places should be made accessible for electrohypersensitive individuals.**

Martin Pall, PhD, and Professor Emeritus at the Washington State University has published an article that documents the wide range of biological systems affected by RFR, tidily summed up in his 2018 article, "Wi-Fi is an important threat to human health" (https://www.sciencedirect.com/science/article/pii/S0013935118300355) which I will also attach in full as a pdf with my comment. In it, he shows how RFR (WiFi) have seven systemic effects on the human body (**oxidative stress, sperm/testicular damage, neuropsychiatric effects, apoptosis [i.e., cell death], cellular DNA damage, endocrine changes, and calcium overload**) from which can cascade a plethora of symptoms.

3) e.

Within months of developing EHS, I located a doctor not too far away from me who had developed EHS ten years earlier and this doctor was able to diagnose me with it (using the survey included in the "2016 EUROPAEM EMF Guideline for the prevention, diagnosis and treatment of EMF-related health problems and illnesses": https://www.degruyterbrill.com/document/doi/10.1515/reveh-2016-0011/html). However, when I went to see specialists regarding specific symptoms I was usually the one educating them. The first ENT I went for my ear pain symptoms was quite open to what I had to say and informed me after examining my ear, that my **ear drum appeared to be sunburned**. Instead of being transparent, it had thickened and was

yellowish in color. That made sense to me. Unfortunately, his openness and helpfulness have been the exception rather than the rule. Most conventional doctors I've seen turn a deaf ear to my EHS diagnosis or just don't know what to do with me, as I don't fit into any paradigms they know about. Functional medicine doctors I've seen/worked with (four total), although many of them know about EHS, have not been that helpful. Treating the mild case of SIBO that tests revealed I had did not help my EHS… nor did taking a wide variety of supplements over many years (including, to my dismay, liposomal glutathione, which everyone who has EHS, including me [confirmed definitively by an Organic Acids blood test] are woefully low in).

3) e.

If I didn't have abundant evidence of the trigger for these symptoms, I (or a conventional doctor who is unaware of EHS or the negative effects of RFR and EMFS) might think that I had chronic fatigue syndrome, symptoms of (pre, peri or post-) menopause, or just a mystery illness with weird, fluctuating, variable symptoms. **Menopause** is the most recent diagnosis I have gotten from one doctor from whom I was trying to get a neuropsych test to establish a baseline for my cognitive functioning. She couldn't seem to assimilate the information I gave her (repeatedly) that the brainfog symptoms always coincide with high RFR exposure. Furthermore, official menopause began for me in 2021, **four** years after I developed full-blown EHS, and a nearly **20 years** after my first symptoms of electrical sensitivity began. Of course it's not necessarily and either/or thing: I am open to the possibility that my current symptoms are a lethal combination of RFR and menopause. I have observed countless times in other people that RFR exacerbates whatever health fault lines people have. High prolonged RFR exposure makes any health issue worse or brings it on sooner and more intensely than it would have otherwise.

3) a. b. c. d. e.

With the awareness of EMFs that developing EHS has given me, I am confident that my first symptoms of electrical sensitivity began back in 2002, when I sustained what should have been a minor soft-tissue injury in my left foot from overexertion one day. Instead of healing on its own, the problem lingered and eventually became a disabling injury that got diagnosed a year later as **atypical Reflex Sympathetic Dystrophy (RSD, now called Complex Regional Pain Syndrome [CRPS**]).

Why do I think EMFs played a role in this injury becoming chronic, debilitating foot pain that still affects my life in profound ways today? Firstly, I was able to learn that **a cell antenna** within a half a mile of where I was living had been installed and activated the summer before my foot injury, which occurred my second year living there. Secondly, I am pretty sure that the older apartment building where I lived had **nob and tube wiring** (given the state of the basement where the washing machines were located, no renovation or updating had been done to the electrical system for a very long time, if ever). Nob and tube wiring exposes people to much higher EMFs (especially **electric fields**). I live on the other side of the country from that building and cannot verify this claim, but I have a high degree of confidence about it. The nob and tube wiring is important because I used my **iBook** constantly while living there, for teaching

preparation and research. The laptop would be plugged into the outlet, so I would be exposed to its high electric field at close range. Before we got my **childhood home rewired with metal-clad wiring** in 2019 after onset of EHS, the house had nob and tube wiring and I was able to measure how extremely high the EFs were with both my body voltage meter and with other EMF meters. So I have a pretty good idea about what I was getting exposed to in the apartment in 2002 after my foot injury.

3) a. b. c. d.

Further evidence of a strong link between RFR exposure and worsening of my chronic foot pain: the second year after the original injury, I moved to another state to take a new teaching position. At first, my foot seemed to be much better, but after I moved into a condominium, within days, my foot had a terrible flare up and I could no longer bear any weight on it. I spent the next nine months there using crutches or in a wheelchair. With the wisdom of hindsight, I now have a good idea of why that happened. My bedroom was directly above the kitchen which was where the **cordless phone base** was located. Cordless phone bases are like mini-cell antennas in one's home and the RFR easily penetrates through walls to upper floors. My foot barely improved that whole year, despite getting regular, quality physical and manual therapy for it. I moved back home to California with my parents the following year, and was able to find more cutting edge manual therapy methods that helped my foot improve to some degree, but still not enough to walk or stand very much. Progress was very slow, likely because I was still living in a building with nob and tube wiring and thus high EMFs. The year after moving back, in September of 2005, I acquired my first cell phone. From then on until 2017, I was never far from it (in my pocket or next to my bed at night, on all the time). So that likely continued to impede recovery of my foot too, although things did get somewhat better. In addition, for 5 years (2005-2010), I used a mobility scooter to take the subway to work in the city and back, and the scooter was powered by a large lithium battery, which likely emitted a high Magnetic Field. All I knew at the time was that when I was on the scooter, I had to keep my bad foot elevated while it was on. Otherwise, my foot would start to burn and flare up immediately.

3) a. b. f.

The strongest evidence that EMFs (RFR in particular, but not exclusively) were a root cause of my chronic foot pain is that after the full-blown EHS hit me, and I radically reduced my daily exposure to high RFR at close quarters, my foot began to improve significantly for the first time in 20 years. Soon after onset of EHS, I stopped using a cell phone (12 years after getting my first one, and one and a quarter years after getting my first smartphone, an iPhone), opted out of our utility's **SmartMeter** (which had been installed in 2010 on the outside of one of my bedroom walls), got rid of our **Xfinity WiFi router** (I got a Comcast-compatible modem that has no WiFi capacity), **rewired my house**, and began to sleep in a **shielded canopy**. Even if my EHS didn't get better, my foot gradually began to improve, to the point where, now, eight years later (and 25 years after the chronic foot pain began) I can once again walk up steep inclines (inclines used to really trigger the foot pain). I no longer need to walk with the portable cane/chair I used to carry with me everywhere when I'd leave the house (because standing more than a minute or two was too painful). I haven't used the medical

mobility scooter since 2017. (However, my foot [actually, both feet] are not yet pain free, as you will learn about later in this comment. They continue to disrupt my life in profound ways, with high RFR and/or MFs the culprit.)

3) a. b. c.

Additionally, another compelling piece of evidence that the RFR and the foot pain are closely related is that currently, for the last year or so, as other EHS symptoms have been improving somewhat (less intense and less immediate), one of the most reliable (and unpleasant) signals my body still gives me of an increase in RFR exposure is that my feet start to feel the telltale burning sensation that I used to live with constantly. Invariably, when I feel the soles of my feet begin to "burn" in my home, it's because someone is visiting who has some wireless device with them that they have forgotten to leave in their car (often a smartwatch) or are not even aware is a wireless device that could trigger me (namely, the remote car key fob of an EV parked down the street).

3) a. b.

As I alluded to briefly above, EXTREMELY high MFs were another important factor in my foot problem, primarily but not exclusively from MRIs. I had three MRIs of my foot taken within the first two years of my foot injury. After the first MRI was done, six months after the initial injury, my foot pain increased considerably. That's when what doctors later considered to be my RSD symptoms first set in: neuropathy, burning, temperature sensitivity, swelling, and heightened sensitivity to touch and "vibration." It was a revelation for me to learn recently that MRIs involve not only high MFs, but also RFR, I learned this from talking with a man who used to work for a company that created the MRI machines back when the technology was under development.

3) a. b. c. f.

Unfortunately, because of lingering potential for strong neuropathy in my feet, I still can't drive without using hand controls, because the neuropathy gets triggered by what I used to call "vibration" of the car coming from contact with the gas and accelerator pedals. I now am confident that the problem is the high MFs in the pedal area (particularly high with physical contact). Starting in 2010, the neuropathy spread to both feet and I had to learn how to drive with hand controls and always drive with my bad foot elevated above the floor (as I did on the mobility scooter).

3) a. b.

Magnetic Fields have also played a large role in my developing full blown EHS. The EMF consultant who first assessed our home (the home I grew up in, from age 2) in 2017 identified a high MF "faultline" (about a foot in width) that ran through the home from the main electric panel through my bedroom (never directly under my bed, thankfully, but it caused the MF where I slept to be higher than is safe) through the main hallway and to the subpanel in the middle of the house (staircase). It was probably caused by a wiring error. The lowest level of MFs I could measure anywhere on it was around 35 mG 30s, and when the fridge was running or the dryer was on, it would get up to close to

100 mG. To put these levels in perspective, one should not sleep in MFs higher than 2 mG according to the Building Biology Institute standards for MF. Ever since we got the house rewired, I have generally felt much better at home (except when I'm on my computer).

3) a. b. c. d. f.

Microwave sickness has completely turned my life upside down, far more than the chronic foot condition had (which I must acknowledge had been quite disruptive too, forcing me to change professions, move back home, curtailing many of my favorite activities, and ending my ability to travel). About two weeks after it started to develop, I had to stop going into the office altogether and take a leave of absence. A few months later, I began to work halftime from home. But about six months into working from home, I also began to develop increasing sensitivity to another form of electricity, "dirty electricity" (aka electromagnetic interference [EMI], which is emitted by LED lights, the inverters of solar panel systems, any energy-saving appliance, flat screens, and any appliance with a dual-speed motor). For a more in-depth introduction to EMI, read this article by Oram Miller, a building biologist: https://createhealthyhomes.com/education/dirty-electricity/ (I will upload the pdf of the article to my comment too). I had to stop working from home altogether due to intolerance of my computer. I have not been able to work since then. Even today can only spend about an hour on the computer max before I start to get neuropathy in my feet and experience tension in my chest, as well as increased irritability, impaired cognition, and fatigue. Needless to say, writing up this comment has been a very draining experience, which I have had to work on bit by bit over many days.

3) a. b. d.

As luck would have it, just weeks after onset of EHS, our next door neighbors had solar panels installed on their roof. I am sure that increased the level of DE on our electric wires (produced by the inverter that converts the direct current to alternating current) contributed to my becoming intolerant of my computer as I worked from home four hours a day starting in August 2017. DE from one home does not stay contained there, but instead spreads out over the whole electrical grid feeding nearby homes. (See the articles by EMF consultant Oram Miller on DE https://createhealthyhomes.com/education/dirty-electricity/ and on solar panels https://createhealthyhomes.com/education/solar-panels/, which I will also attach in full to this comment.)

3) f.

At the same time as I have seen a huge income loss since developing EHS, I have had to spend thousands and thousands of dollars to deal with my condition. I have done my best to make my home a semi-tolerable place to live and to find effective treatment: a bed canopy, shielding film on the windows, all sorts of new equipment to ameliorate my computer setup (shielded ethernet wiring, grounding the modem, etc.), consultations from multiple EMF consultants and consultations with innumerable doctors, most of

whom do not work with insurance and require patients to pay them directly. The biggest expense of all (second only to the lost income from not being able to work now) was for rewiring our house, replacing all the circuits with metal-clad wiring (up to commercial code), per the recommendations of the two EMF consultants we hired.

3) f.

One online support group for EHS is aptly called "EMF Refugee." I have heard some call EHS a form of technological leprosy, which is so true. I had to stop attending the church my family had gone to since I was born, because it is located across the street from multiple cell antennas. For the last eight years, movie theaters, concert halls, most churches, and most restaurants and cafés have been off limits to me because the RFR is too high for me from WiFi routers, and ubiquitous wireless devices people carry. I have only seen one movie in a movie theater since 2017, and it was a movie about people like me ("The Sensitives"), so there weren't many people in the theater. When the lockdowns hit during the pandemic, nothing changed for me; the only difference was that other people were temporarily living lives nearly as restricted as mine.

3) a. f.

It's a good thing I did a lot of worldwide traveling when I was younger, as I will probably never be able to fly, take a train, or travel on any form of public transportation again. I initially stopped traveling due to the chronic foot pain, but now the EHS has made it impossible for other, more insurmountable reasons. Uber and Lyft are also off limits to me. If the electrification plans of those trying to fight climate change get fully implemented and gas-powered vehicles are eventually completely banned, then I may have to stop driving or riding in a car altogether! I can't even park next to a Tesla (with the camera on, those cars emit RFR constantly in all directions and are like a giant cell antenna) without seeing negative effects. So driving or riding in one would be completely suicidal/lethal (even hybrid cars are not good for me due to the high MF emitted by the battery, not to mention all the Bluetooth that all new cars come loaded to the gills with these days). Furthermore, I often drive many blocks "out of my way" to avoid driving right by a cell antenna (or, worse yet, getting stuck at a red light near one). I especially try to avoid the deceptively named, newer "small cell wireless facilities," which are some of the most lethal ones I've encountered, because they are so low to the ground and as often as potent (or more potent due to their proximity) as the earlier tall cell tower masts, which used to be relegated to industrial zones and the outskirts of town, whose antennas were elevated higher off the ground.

3) f.

I can only visit a couple of my friends in their homes. Those who live in apartments or condos can't temporarily lower the RFR level enough for me (their neighbors' WiFi keeps the RFR level too high). Other friends live too close to cell phone antennas and towers for me to visit them. For birthday and other group celebrations, I have to meet most of my friends in a couple of regional and city parks where the RFR is still low enough. I have only eaten in a handful of restaurants over the last eight years, always places that had few other customers and with groups of people who have all been

willing to power off their smartphones (and other wireless devices) for me. I have had to stop participating in nearly all the social activities I used to love, because most people just can't be deprived of their beloved wireless devices, and in some cases, their need for a wireless device is medical (glucose monitors, pacemakers, hearing aids, nearly all of which emit RFR nowadays).

3) f.

I had to change my primary care physician and find someone who was open to my condition *and* whose office had a bearable level of RF. When I go to the dentist (or anywhere, for that matter), I am at the mercy of other people around me who generally all want to keep their phone connected and/or use it to pass the time while they're waiting for their appointment. Even today, eight years into this odyssey, it is still challenging for me to ask someone to inconvenience themselves for me, a stranger, and potentially risk their disbelief or ridicule over my condition. Every stranger whom I encounter in public is a potential threat, possibly a source of emotional as well as physical pain. I do always ask doctors and medical providers to accommodate me by leaving their wireless devices outside of the exam room and for the most part, they respond professionally and do so graciously (regardless of what they really think). I also make a similar request for everyone who comes to the house to work (caregivers, painters, handymen, etc.).

3) f.

Carrying out my duties as a caregiver for my 92-year old father in the last few years of his life became extremely difficult. When my dad had to go the ER again after I'd become electrically sensitive, for the first time, I was not able to be an effective health advocate for him. My mom (who is practically deaf), was the only person who could go to the front desk and complain or ask for information. I wore a protective head hood in my dad's ER room, but it only shielded me so much *and* made everyone think I was crazy. Plus, I could no longer accompany my dad into the consultation rooms of most of his doctors, so he lost his best health care advocate there too. Alas, tall medical buildings often are garlanded with cell antennas, hanging off of them on all sides. I have had to rule out working with many health care providers even though they work near me or do treat people with EHS because I just can't get to their offices (or be in them) without compromising my health.

Multiple Chemical Sensitivity

People with MCS are more prone to getting EHS and vice versa. (See Belpomme's 2015 article "Reliable disease biomarkers characterizing and identifying electrohypersensitivity and multiple chemical sensitivity as two etiopathogenic aspects of a unique pathological disorder" at https://www.jrseco.com/wp-content/uploads/Belpomme-Environmental-health-2015.pdf, also attached to my comment as a pdf).

I believe that I developed EHS, not just because of overexposure to EMFs from MRIs and high MFs in the house I grew up in, but also in great part because my detoxification

pathways are not very efficient. This manifested first as mild MCS, and later as severe EHS. Whether the detoxification pathways are inefficient due to a genetic mutation or to overexposure to chemical toxins throughout my life, I do not yet know. What I do know is the one test I did recommended by a functional medicine practitioner revealed that I had sky high levels (in the 95th percentile) of EBTE/MBTE, a gasoline additive. It looked to the practitioner as if I lived next to a freeway, but I live miles from the nearest freeway. However, I do live where we are often engulfed in fog much of the year, and it is fog that flows in from the bay and the ocean, and I have heard that such situations can convey airborne pollutants long distances. That is the only explanation I can come up with for my incredibly high levels of ETBE/MTBE, in addition to poor detoxification pathways. It would be interesting to know what the ETBE/MTBE levels of my neighbors are, especially the people I grew up with who are still living here (or have returned after a hiatus, as I did). Given several other toxins I have tested high in (such as perchlorate and another insecticide), the genetic theory might be more compelling than the environmental factors (overexposure). However on second thought, both factors could be contributing, given the number of chemical toxin exposure events I have experienced in my life, as outlined below.

For the last fifteen or so years, I have had mild chemical sensitivity. I first noticed it around 2010 when certain perfumes started to bother me. I don't think it's a coincidence that just a year before my onset of EHS, we had our bathroom remodeled, which likely exposed me to a lot of toxic chemicals (including VOCs) in the air. I distinctly remember being very bothered by the smell of the dry wall being put up in the bathroom even when I was way on the other side of the house, where neither of my parents could smell it. I can't help but wonder how much that renovation project filled up my bucket (toxic body burden), leaving little room left for the toxins that RFR exposure release in the body.

I also can't help but wonder how much living in a freshly painted dorm room in France for nine months in the 1998/1999 academic year contributed to that body burden (along with all the ambient cigarette smoke I encountered). The dorm room reeked of the paint for months into my stay there. Finally, in Fall 2015, over a three month period, I got frequent exposure to the noxious fumes emitted by a backup power generator at the skilled nursing home where my father was doing rehab. His room was right above the generator, which they operated once a day or every few days for at least an hour. We visited him every day for many hours and would try to close the window when the generator came on, but we couldn't completely eliminate the fumes from the room.

I almost forgot to mention another very bad airborne chemical and heavy metal exposure, which occurred in Spring 2004, a few years into my chronic foot pain. My laptop got overheated (I later learned that model laptop was prone to overheating with heavy use) and started to emit noxious odors. Unfortunately, I continued to use it longer than I should, maybe even up to a month after it started (I think it was the end of the semester and I simply had not time or energy to get a new laptop). I wouldn't be surprised if the metallic odor I smelled initially when the full blown EHS began was related to that toxic exposure fifteen years earlier.

A Few Public Policy Recommendations

11)

People with EHS are one of the most vulnerable populations in a world where RFR exposure (among other forms of EMFs) is rapidly increasing and is set to increase exponentially if AI and data centers proliferate as planned. But children, the infirm, and the elderly are also very vulnerable. Children are vulnerable because their skulls are much thinner, so the RFR can penetrate deeper into the head and brain, and also because whatever negative effects on their DNA will have farther reaching consequences, since their bodies are still developing and they have their whole lives ahead of them to see the effects play out. People who are ill or have preexisting medical conditions are also particularly vulnerable because RFR exacerbates whatever weaknesses the body already has. The same is true for the elderly, who often have more weaknesses due to aging processes and all that they have already been subjected to over their lifetime.

In addition, people with metal medical devices (implanted or worn) which often have a wireless capacity these days (for instance, current pacemakers, most hearing aids, glucose monitors, Fitbits and similar health data collecting wearables) are also at higher risk, due to the higher, unremitting RFR they get exposed to within or very near their body (distance is always your friend when it comes to RFR exposure). In addition, the simple fact of having metal implanted in your body makes you more conductive, even if it involves no form of electricity (such as metal fillings, pins, ballbearings, plates, etc.).

Workers with elevated occupational exposure now include just about everyone, from teachers (who often have a WiFi router hanging on the ceiling above them) to truck drivers (who now are monitored by their employers via streaming devices that keep track of their every move as they drive). Famous popular singers and musicians, as well as news broadcasters all of whom have to wear headsets and mikes day after day in their concerts/broadcasts are also in high-risk professions, as are police officers who wear multiple devices that emit wireless radiation. Of course, it is undeniable that certain professions, such as electricians and utility workers installing cell antennas and other wireless infrastructure are getting particularly high exposure.

In Sweden, they have special sections of their hospitals for people with EHS. The condition is an officially recognized disability impairment and came to society's attention much earlier than elsewhere maybe because widespread adoption of cell phones occurred quite early on there, in the mid-90s. In Switzerland, some apartment buildings have been designed to accommodate people with EHS and MCS. In India, some hotels advertise themselves as being WiFi-free (or at least they did back around 2020 when a friend of mine returned from attending her daughter's wedding ceremony there).

Clearly, many places outside of the U.S. are far ahead of us in addressing RFR accessibility issues. If public places such as medical buildings, schools, government buildings, etc. were required to provide accessible spaces for people with EHS, (low EMF zones) much of the rest of the population would benefit as well, just as mothers

with strollers and the wider public benefit from the curb cuts required to provide greater accessibility for people in wheelchairs. Furthermore, building codes in general need to be upgraded to reflect the growing set of literature about the biological harms caused by EMFs, including but not limited to RFR and DE, especially as electrification plans roll out (which will increase the levels of DE everywhere).

Federal Research Priorities

16)

I would recommend studying the incidence of many chronic conditions prevalent and/or growing in our country and RFR, as well as MF and DE exposure: ADHD, autism, depression, anxiety, Alzheimer's, dementia and related conditions, neuromuscular degenerative conditions (ALS, Parkinson's Disease, MS, Huntington's Disease, etc.), diabetes, obesity, rheumatoid arthritis and other autoimmune conditions, to name just a few. An easy way to study this would be to see if the rate of these conditions changes in a neighborhood after a cell antenna goes in. Examining changes in the rate of strokes and heartattacks should be done as well.

I would also recommend further study of the possible contribution of RFR from smartphones to the growing rate of colorectal cancer in young people. Dr. Ke-Kun Li, a senior epidemiologist at Kaiser Permanente in Oakland, California, found a statistically significant correlation between colorectal cancer and carrying the phone in a pocket on the side where that type of cancer most often occurs. (The MicrowaveNews.com September 30, 2024 article devoted to these research findings is no longer available online: how convenient for the smartphone industry! But I was able to locate the article on the Internet Archive: https://web.archive.org/web/20240930032752/https://microwavenews.com/news-center/new-clues-colorectal-cancer-among-young-adults).

I believe it would also be enlightening to study the rate at which people who need hip or knee replacements carry their smartphone in the pocket on the side that needs the replacement, and the rate at which people who develop glioblastoma generally used their phone on the side of their head where the tumor developed (which I understand was the case for John McCain, Senator Robert Kennedy, and Joseph Biden's older son who all died of glioblastama).

Thank you for inviting the public to provide input on this very important subject, which has been the elephant in the room for so long.

Sincerely,
Constance Anderson