HHS Request for Information: EMF and Human Health

1. Who I Am - RFI Question 2

I have worked professionally with electromagnetic fields (EMFs) since 2014 through the EMF Center, an electromagnetic consulting and education business established in 1992. I conduct on-site assessments primarily in Northern California and provide phone consultations to clients in the U.S. and internationally. I also provide free EMF consultation and support to schools and childcare facilities. A significant part of my work involves measuring and reducing radiofrequency (RF) exposures from cell phones, Wi-Fi devices, smart meters, baby monitors, cell and radio towers, and other wireless technologies.

My comments represent the perspective of an EMF consulting and education business and are based on my professional field experience, client reports, published scientific research, government reports, and existing exposure guidelines and recommendations.

2. What I Have Observed Professionally - RFI Question 3

Over the past 12 years, I have worked with hundreds of clients who have hired me, sometimes despite very challenging circumstances, to help them reduce their exposure to electromagnetic radiation.

I have seen people turn their lives upside down in an attempt to find relief from exposures they believe are affecting their health. When talking with people who are not sensitive to EMFs, I sometimes use an allergy as an analogy for electromagnetic sensitivity because people tend to understand the general dynamics and potential severity of such reactions.

One of the most common complaints I hear about is extreme headaches associated with wireless signals. Brain fog, tinnitus, anxiety, sleep issues, skin-related symptoms, and heart palpitations are also among the more common symptoms reported to me.

As I appreciate a healthy degree of skepticism and like to personally validate my beliefs whenever possible, I want to share an experience I had many years ago while working for a client in San Francisco who was having construction work done on her home.

Before I took my initial EMF measurements onsite, she told me that when the workers plugged their tools into one particular electrical outlet, she felt bad. When I tested the electrical wiring for issues that can create unusual magnetic fields, I found that there was indeed a wiring issue associated with that specific outlet. I did not find the same unusual magnetic field when power was drawn from the other outlets I tested.

As far as I know, she did not have any EMF test meters and therefore had no measurement-based way of knowing beforehand that this particular outlet produced an unusual magnetic field when power was being drawn from it.

To me, that was very compelling evidence that some people react to EMF exposures that most of us do not significantly feel. I recognize that this individual observation does not by itself establish causation scientifically, but I believe experiences of this kind are worthy of serious investigation rather than dismissal.

On a related note, one of my recent clients told me that she experiences different kinds of headaches from different RF sources, which she described to me in considerable detail. Many of my clients have described themselves as being a very good "EMF meter" because of the reactions they experience.

As it is very relevant to their overall EMF-related distress, I also want to mention that many of my clients face significant difficulties with friends and family members, some of whom are openly hostile toward their EMF concerns.

The way I sometimes describe this is that it is hard enough to live in this world if you are allergic to microwaves, without people thinking you are crazy on top of that.

Instead of receiving the support they need, some of my clients have been told to "go get your tin foil hat" or have otherwise had their experiences dismissed as imaginary, leaving them with a profound sense of isolation in addition to the physical symptoms they experience.

Michael Neuert, the founder of the EMF Center, with whom I trained and worked, worked professionally with electromagnetic fields for more than 30 years beginning in 1992. As an engineer and licensed electrical contractor in California, he worked with thousands of clients, including many people reporting significant electromagnetic sensitivity. Based on his professional experience, Michael developed precautionary exposure recommendations, including a general-public precautionary level of 100 µW/m² for RF exposure and a much lower level of 1 µW/m² for people reporting electromagnetic hypersensitivity. The lower recommendation was an attempt to account for the extreme reactions reported by some of the highly sensitive individuals with whom he worked. [7]

These recommendations are based substantially on his extensive professional experience rather than controlled scientific research, and I do not present them as established safety thresholds. I include them because I believe observations accumulated over more than three decades of working directly with thousands of clients, including many highly sensitive individuals, may also be valuable for HHS to consider.

3. Selected Information for HHS to Consider - RFI Questions 5, 12 and 18

The following are some examples I believe are relevant for HHS to consider:

France: In 2015, France enacted legislation prohibiting the installation of fixed wireless internet equipment in areas dedicated to the care, rest, and activities of children under three in covered childcare facilities. The law also requires wireless access points installed in primary-school classrooms after the law took effect to be turned off when they are not being used for digital educational activities. [1]

Council of Europe: In 2011, the Parliamentary Assembly of the Council of Europe, composed of parliamentarians from 47 European countries, adopted Resolution 1815 recommending measures to reduce exposure to electromagnetic fields, particularly for children and young people. For long-duration indoor microwave exposure, it recommended an initial preventive level of approximately 1,000 µW/m², with a goal of reducing this to approximately 100 µW/m². It also recommended giving preference to wired internet connections in schools and classrooms and reconsidering the scientific basis of existing exposure standards. [2]

By comparison, current general-public exposure limits established by the FCC in the United States and recommended by the International Commission on Non-Ionizing Radiation Protection (ICNIRP) reach 10,000,000 µW/m² at certain commonly used wireless frequencies, although these limits vary by frequency and are subject to specified averaging conditions. This is 100,000 times higher than the Council of Europe's approximately 100 µW/m² goal. [3][4]

International Agency for Research on Cancer (IARC): In 2011, IARC, the specialized cancer agency of the World Health Organization, classified radiofrequency electromagnetic fields as possibly carcinogenic to humans (Group 2B). [5]

U.S. National Toxicology Program (NTP): In large animal studies, the NTP reported clear evidence of carcinogenic activity in male rats based on malignant schwannomas of the heart following high exposure to cell-phone radiofrequency radiation. The NTP also reported some evidence involving malignant gliomas of the brain and adrenal-gland tumors in male rats. The NTP cautions that the exposure conditions in these studies should not be directly extrapolated to typical human cell-phone exposure. [6]

BioInitiative Report: The BioInitiative Report brings together research concerning biological and health-related effects of electromagnetic fields. Its RF Color Charts compile numerous published studies reporting biological effects from radiofrequency exposure. In the power-density portion of the charts, approximately 60 reported-effect entries are shown below the public exposure limits displayed in the charts, including studies involving neurological, reproductive, oxidative-stress, DNA, immune, and other biological effects. [8]

Based on its review of low-level RF research, the BioInitiative Working Group identified 30 µW/m² as a "lowest observed effect level" and proposed a precautionary action level of 3-6 µW/m² for chronic exposure and/or sensitive populations such as children. [8]

By comparison, the FCC general-public exposure limits discussed above reach 10,000,000 µW/m² at certain commonly used wireless frequencies. This is approximately 333,000 times higher than BioInitiative's 30 µW/m² lowest observed effect level and approximately 1.7 million to 3.3 million times higher than its proposed 3-6 µW/m² precautionary action level. These figures represent different types of thresholds based on different approaches: the FCC figure is a regulatory exposure limit under specified conditions, while the BioInitiative figures are proposed biologically based effect and precautionary levels. [3][8]

The BioInitiative Report's interpretation of the scientific literature and its recommendations have been criticized by some scientific and governmental bodies. I nevertheless believe the studies compiled in its RF Color Charts provide a useful resource for HHS to examine individually when considering whether biological effects may occur at exposure levels below existing limits. [8]

Sweden: In 2000, the Swedish government explicitly acknowledged people reporting symptoms associated with electromagnetic sensitivity and emphasized that they should be taken seriously and receive care and support, while noting uncertainty about causation. The Swedish Association of Electrosensitive People has also received government financial support as an organization representing people with disabilities. [9][10]

4. A Precautionary Approach - RFI Questions 11 and 18

I encourage HHS to apply the precautionary principle when evaluating EMF exposure, particularly where children and other potentially vulnerable populations are concerned. The principle reflects a simple and broadly applicable idea: when there is credible evidence of potential harm but scientific uncertainty remains, reasonable precautions are appropriate while the science continues to develop.

History provides important reasons not to equate the absence of conclusive evidence of harm with evidence of safety. For example, radioactive substances were once incorporated into consumer and health products, sometimes with claims of health benefits, before their dangers were fully acknowledged. [11]

Similarly, evidence linking cigarette smoking with serious disease accumulated for many years before the landmark 1964 Surgeon General's report concluded that cigarette smoking caused lung cancer in men and represented a health hazard warranting remedial action. [12] And it was not until 2006 that the Surgeon General concluded that there is no risk-free level of exposure to secondhand smoke. [13]

These examples are not meant to suggest that EMF exposure presents the same risks as ionizing radiation or cigarette smoking. Rather, they illustrate the value of taking reasonable precautions when credible evidence of potential harm exists and scientific uncertainties remain.

I therefore encourage HHS to consider practical ways to reduce EMF exposure, especially for children, while continuing to support rigorous, independent research into the possible health effects at exposure levels below existing limits.

Sources

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