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October 1, 2019

Honorable Representative Anna Eshoo
241 Cannon Building
Washington, DC 20515

Re: 1) FDA response to inquiry regarding current safety limits for RFR energy exposure and acceptability to protect human health 2) Congressional hearing

Dear Honorable Congresswoman Eshoo:

Thank you for your continued efforts to shed light and transparency on the issue of safety of radiofrequency (RF) radiation we are increasingly exposed to. As you know on August 8, 2019, FCC Chairman Ajit Pai proposed that the FCC maintain its current RFR exposure limits. We have read with interest the letter of response to you, from Dr. Jeffrey Shuren and Edward Margerrison, PhD of the FDA, dated Sept 9, 2019, regarding their determination that the current safety limits for RFR energy exposure are acceptable to protect human health. You requested the agency make available a summary of the research and methodologies used to reach its conclusions.

We believe that there are a number of inconsistencies, misstatements and flaws in the research summaries the FDA provided which we would like to comment on. We request:

- That you ask for a full list of research papers that the agency considered as well as their deliberation. When they state they used “all relevant data”, we would like to see exactly what data they consider relevant, and
- Request documentation that the Secretary of Health and Human Services has established and is carrying out an “electronic product radiation control program” and is prescribing “performance standards for electronic product radiation” through the FDCA, as stated in your prior letter, and
- Consider holding a Congressional hearing on the matter of radiofrequency and cell phone radiation exposures

1) What is the FDA’s “comprehensive approach”?: The public and non-governmental scientists deserve to know and have access to all of the information used, not just a summary of research. This is critical in light of the FCC proposal for a massive increase in radiation with small cell towers every 200 to 300 feet and much closer proximity. Even a small increase in risk in those exposed translates into a large number of people affected. This is not just a moral issue, it is an economic issue, as health care costs continue to rise from chronic illness. In addition, an abundance of newer literature has emerged providing a significant body of evidence that non-thermal levels of RF radiation are a biologic toxin. None of this research is currently considered as guidelines continue to look at only heat effects of RFR. In addition, the RFR standards widely used are based on those of IEEE and ICNIRP (in Canadian and European Union countries), which are based on selective data and have serious flaws. (Hardell June 25, 2019)

- 2) **Conclusions of scientific research can be entirely reversed or questioned by the addition or omission of key data** as well as subjective interpretation. We need to see all the detailed research papers and analysis, not just cite a website with studies or a few studies. We note,
- A) The European Commission’s Scientific Committee on Emerging and Newly Identified Health Risks (SCENIHR 2015), claims that there are no established non-thermal EMF effects but the agency has ignored at least 20 robust reviews. Pall (2018) in “5G: Great Risk for EU...” points out the omissions, flaws and falsehoods in this report.
 - B) The Swedish Radiation Safety Authority’s (SSM) Scientific Council report on EMF 2018, states that no new health effects have been identified, results were inconsistent and “some studies” indicate oxidative stress. Yakymenko showed at least 93 of 100 studies cause oxidative stress. Dr. Henry Lai in his research summary at BioInitiative identified 203 of 225 studies (or 89%) that reported oxidative damage from RF exposure vs only 22 studies that showed no effect (89% vs 11%) on RF oxidation. In addition, regarding research on neurological effects of RF radiation, Dr. Lai found that 222 of 305 (or 72%) scientific studies published reported neurologic damage from wireless RF radiation exposure.
 - C) The European Scientific Committee on Health, Environmental and Emerging Risks (SCHEER) 2018 lists electromagnetic radiation as an emerging risk.
 - D) NTP Study: Dr. Melnick, who was involved with the NTP study design, notes that the NIEHS NTP study (2018) was designed to test the null hypothesis that long-term exposure to non-thermal levels of RF radiation is a risk factor for brain tumors. The study showed a health risk for brain tumors and heart tumors as well as DNA damage, cardiomyopathy and clear evidence of carcinogenicity, all at non-thermal levels.
 - E) Ramazzani Study: This large well-controlled independent Italian study corroborated the NTP study. Researchers also found increased incidences of heart schwannomas and Schwann cell hyperplasia at RF intensities below current safety limits for both IEEE/FCC and ICNIRP guidelines.
- 3) **Two mechanisms of harm are strongly supported** to be oxidative damage via reactive oxygen species and through calcium channel membrane effects that are non-thermal and non-ionizing (Bioinitiative 2019, Pall 2018, Yakymenko 2016).
- 4) **Brain tumors are rising:** Research from the Interphone Study Group (2010), Hardell (2013, 2015, 2017) and Coueau (2013) have demonstrated a statistically significant increase in brain tumors with cell phone use over 10 years. Their research indicates a doubling of risk with 10 years of cell phone use and a tripling of risk with 25 years of use. According to the American Brain Tumor Association (ABTA) brain tumors are now the most common cancer in youth ages 0-14, followed by testes and leukemia. (Ostrom et al, 2015) A recent study by Dr. Alasdair Philips (2018) revealed a “sustained and highly statistically significant ASR rise in glioblastoma multiforme (GBM) across all ages.” in England.
- 5) **Risk assessment is not just based on human studies:** The full body of research must be considered in reaching a conclusion that an exposure is safe for the public. This includes basic science laboratory research, controlled animal studies, clinical studies, case reports, as well as epidemiologic studies. According to the National Academy of Science report on Assessment of Toxicity, *“Data used in hazard identification typically are derived from animal studies and other types of experimental work, but can also come from epidemiologic studies.”* They go on to state, *“in the case of chemicals suspected of causing cancer in humans, expert groups (“working groups”) are regularly convened by the International Agency for Research on Cancer (IARC) to consider and evaluate epidemiologic evidence.”* As well as to determine “a consistent pattern of responses”. Consensus is not easy to achieve and industry influence must be weighed as part of their conclusions. Note that IARC has listed RF radiation to be a Class 2B Possible Carcinogen based on careful research. Independent EMR scientists who have published new research feel the weight of scientific evidence has shifted enough to classify

RF radiation as a Class 1 Known Carcinogen. (Hardell and Carlberg 2018) They state, " *There is clear evidence that RF radiation causes cancer/tumor at multiple sites, primarily in the brain (glioma) and head (acoustic neuroma). There is also evidence of an increased risk of developing other tumor types. The results are similar in both the NTP studies (19,20) and the Ramazzini Institute findings (34). Based on the IARC preamble to the monographs, RF radiation should be classified as Group 1: The agent is carcinogenic to humans.*"

- 6) **The Finding of Non-linearity of Effects** is a common phenomenon found with other toxic exposures such as endocrine disruptors. This effect is also seen in EMF research, due to complex cellular interactions, as well as different characteristics of the radiofrequency radiation emitted, including pulsation form, frequency, power and wave mix, as well as individual health, biological and cellular differences, and cumulative effects. Just because a study shows non-linearity does not mean the study is invalid. (Levitt and Lai 2010) The effect is to be expected rather than dismissed. (Sage, 2015)
- 7) **Main Health Outcome is not just cancer.** The FDA letter references only cancer as a health effect, ignoring a large and growing body of evidence on RFR and harm to reproduction, the nervous system, immune system, endocrine system, prenatal development as well as DNA and protein damage. (EMF Portal, Oceania Radiofrequency Scientific Advisory Association Committee, BioInitiative Report)
- 8) **The assumption of safety of 5G is not based on science.** There is every indication that incoming 5G, and the broad mix of 2G, 3G and 4G frequencies we will still be exposed to, will be increasingly harmful to humans and the environment. (Russell 2018) The 2019 Danish Legal Opinion on Whether it Would be in Contravention of Human Rights and Environmental Law to Establish the 5G-System in Denmark, by attorney Christian Jensen, stated that, "activating the 5G-network, as it is currently described, would be in contravention of current human and environmental laws enshrined in the European Convention on Human Rights, the UN Convention on the Rights of the Child, EU regulations, and the Bern- and Bonn-conventions. The reason is the very significant body of scientific documentation available, showing that radiofrequency electromagnetic radiation is harmful and dangerous to the health of humans (particularly children), animals and plants. This also applies when the radiation remains within the limits recommended by ICNIRP and currently used in Denmark as well as broadly within the EU.

Despite the FDA letter stating that there is "no convincing evidence", "no clear evidence", and no "consistent pattern" that current standards are unsafe, scientific research proves otherwise. This inconvenient truth needs to be widely recognized and action taken to reduce our exposures, allow health considerations, base standards of RF emissions on biologic effects and use a cautionary approach to protect human health and the environment we all depend upon.

Sincerely,

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