

September 13, 2015

Dear Dr. Davies,

Representative Brig. Gen. Pendleton forwarded to us the Department of Health and Human Services' (DHHS) report on the Health Impacts of Smart Meters. We found your agency's review profoundly lacking in accuracy, rigor and thoroughness. Because of these flaws, Brig. Gen. Pendleton is being greatly misled, and his desire to communicate with the the NC Medical Society and the NC Hospital Association "that some people are affected by this and we just want you to know, so if you see these symptoms, that could be it..." cannot be supported by this report. (March 5, 2015, meeting recording, 11:06). In addition, because the DHHS report is so flawed, the report negates Brig. Gen. Pendleton's interest in "consider[ing] letting people opt-out if they want to." (March 5, 2015, meeting recording, 17:15). Consequently, we are providing comments and concerns and urge you to reconsider your agency's findings, recognize the adverse health impacts of low intensity radiofrequency radiation (RF) and smart meters, and support a non-monetary, non-penalty smart meter opt-out law or policy.

Before getting into specifics, we want to state up front it is exceptionally disappointing that DHHS ignored the [most recent and best available published scientific information](#), "Oxidative mechanisms of biological activity of low-intensity radiofrequency radiation" in Electromagnetic Biology and Medicine (EBM) on July 7, 2015. Andrew forwarded this journal article to you on August 11, 2015, when we became aware of it. This report focuses on 100 peer-reviewed studies investigating the adverse health effects RF, which was the focus of your team's review. Based on the EBM report and so many others, the DHHS report is undercut and without credible foundation, and we are unable to understand why your agency did not include the EBM report in its review. Please explain. In addition, we are requesting your agency's response to the points below.

Executive Summary

1. DHHS "...concluded the current Federal Communications Commission (FCC) guidelines protect the public from the thermal health effects related to RF exposure." As we discussed during our meeting and as is presented in the materials that we provided to you, the FCC guidelines are problematic and inapplicable for numerous reasons. When we met I emphasized that the independent research on the **non**-thermal biological effects must be considered in your review. As we feared, your agency has largely ignored or misrepresented the independent research and only parroted the FCC thermal standards and industry positions. In addition, DHHS's reporting of RF-related health impacts documented

in the literature is exceptionally incomplete and inaccurate. Full reporting of this information would significantly undermine any DHHS conclusions made about the appropriateness and applicability of FCC standards. Examples are below.

2. DHHS states:

Non-thermal health concerns evaluated included cancer, reproductive effects, cellular effects, neurological behavioral effects, and electromagnetic sensitivity. There is insufficient evidence to link RF exposures to adverse health outcomes. This is consistent with conclusions of other organizations including the National Cancer Institute, the Centers for Disease Control and Prevention, and the World Health Organization. It is also consistent with smart meter reviews performed by other states.

The DHHS statement is so poorly founded and researched that it would be laughable if the repercussions were not so serious. It appears that your staff relied heavily on the [National Cancer Institute](#) (NCI) to guide what it reported in Appendix B, but it failed to reference some key information reported by NCI. Note that the NCI states that: “The [International Agency for Research on Cancer](#) (IARC), a component of the World Health Organization, has recently classified radiofrequency fields as ‘possibly carcinogenic to humans...’” NCI and IARC do state that the evidence is limited and still accumulating (explained further below), but clearly IARC found it compelling enough to take action and classify RF as a possible human carcinogen and NCI compelling enough to report it. This information directly contradicts the DHHS Executive Summary.

Why would the DHHS finally mention this information at the end of the cancer discussion on page 4 and mischaracterize it, as discussed in comment 14 below? Further, research continues and health impacts continue to be documented, so much so that the fifth Paris Appeal congress (discussed in comments 4 and 5 below) is recommending that **electrohypersensitivity (EHS) caused by RF (discussed in comment 3 below) be classified as a disease**. Clearly the DHHS Executive Summary is exceptionally flawed by claiming there is no link between RF and adverse health outcomes.

Here is the leading Conclusion statement of the IARC report, which supports putting the cancer-related classification in the DHHS Executive Summary:

Dr Jonathan Samet (University of Southern California, USA), overall Chairman of the Working Group, indicated that ‘the evidence, while still accumulating, is strong enough to support a conclusion and the 2B classification. The conclusion means that there could be some risk, and

therefore we need to keep a close watch for a link between cell phones and cancer risk.'

Of the sources in Appendix B, the DHHS report references IARC's work more heavily, but only partially. Why did the DHHS omit the 2B classification and report only that evidence is "weak" and "insufficient?" At the very least, DHHS should have reported the classification and then gone on to explain why they believe that the chair of the IARC group, who is far more qualified than DHHS personnel, is mistaken in his findings. **We recommend that your staff review the [IARC report](#) and request that they provide their rationale for partially reporting IARC's work in such a way that the threat of RF exposure appears weak to non-existent and omits IARC's 2B classification in the Executive Summary.**

The IARC also found that cell phone RF causes acoustic neuroma, described by the Mayo Clinic as

...an uncommon, noncancerous (benign) and usually slow-growing tumor that develops on the main nerve leading from your inner ear to your brain. Because branches of this nerve directly influence your balance and hearing, pressure from an acoustic neuroma can cause hearing loss, ringing in your ear and unsteadiness.

While not cancerous, this is a troubling finding that should have at least been mentioned by the DHHS in the Executive Summary. Please explain why it was omitted. Please also note that the DHHS does not seem to understand the definition of acoustic neuroma, as discussed in comment 16 below.

3. In addition to improperly reporting the published information upon which the DHHS relied to make its case, the DHHS report is directly contradicted by the article "[Oxidative mechanisms of biological activity of low-intensity radiofrequency radiation](#)" published in [Electromagnetic Biology and Medicine](#) on July 7, 2015, which we mentioned above. As stated in the study Abstract:

This review aims to cover experimental data on oxidative effects of low-intensity radiofrequency radiation (RFR) in living cells. **Analysis of the currently available peer-reviewed scientific literature reveals molecular effects induced by low-intensity RFR in living cells; this includes significant activation of key pathways generating reactive oxygen species (ROS), activation of peroxidation, oxidative damage of DNA and changes in the activity of antioxidant enzymes. It indicates that among 100 currently available peer-reviewed studies dealing with oxidative effects of low-intensity RFR, in general, 93 confirmed that RFR induces oxidative effects**

in biological systems. A wide pathogenic potential of the induced ROS and their involvement in cell signaling pathways explains a range of biological/health effects of low-intensity RFR, which include both cancer and non-cancer pathologies. In conclusion, our analysis demonstrates that low-intensity RFR is an expressive oxidative agent for living cells with a high pathogenic potential and that the oxidative stress induced by RFR exposure should be recognized as one of the primary mechanisms of the biological activity of this kind of radiation.

Based on a review the DHHS report references, it appears that DHHS relied on ten peer reviewed studies, which is woefully inadequate compared to the 100 peer reviewed studies referenced in the EBM report. Why did DHHS ignore the EBM report, which, again, was provided prior to the finalization of the DHS report? Why did the DHHS limit itself to only 10 studies?

We request that the DHHS explain why it supports the conclusion that “There is insufficient evidence to link RF exposures to adverse health outcomes” and why it appears to reject the EBM study conclusions. The EBM study is highly compelling, and we won’t go through it point by point, but this statement regarding EHS stands out in stark contrast to the DHHS conclusions:

A new medical condition, so-called electrohypersensitivity (EHS), in which people suffer due to RFR exposure, has been described (Johansson, 2006). Typically, these persons suffer from skin- and mucosa-related symptoms (itching, smarting, pain, heat sensation), or heart and nervous system disorders after exposure to computer monitors, cell phones and other electromagnetic devices. This disorder is growing continuously: starting from 0.06% of the total population in 1985, this category now includes as much as 9–11% of the European population (Hallberg and Oberfeld, 2006). In Sweden, for example, EHS has become an officially recognized health impairment.

The study concludes that:

In turn, a broad biological potential of ROS and other free radicals, including both their mutagenic effects and their signaling regulatory potential, makes RFR a potentially hazardous factor for human health. **We suggest minimizing the intensity and time of RFR exposures, and taking a precautionary approach towards wireless technologies in everyday human life.**

4. The May 2015 proceedings from the European Cancer and Environment Research Institute's fifth Paris Appeal congress (Paris Appeal congress), entitled "Idiopathic Environmental Intolerance: What Role for Electromagnetic Fields and Chemicals?" involved highly credentialed, leading RF and chemical sensitivity researchers from around the world who met and presented their research regarding the real and growing problem of RF, chemical sensitivity and EHS. Did the DHHS review the report? If so, what is the agency's opinion? If the agency disagrees with the report, please provide a detailed response explaining how so many specialized and highly credentialed researchers are mistaken in their research, findings and recommendations.
5. Please note that on September 4, 2015, the Paris Appeal congress issued a ["Common International Declaration"](#) to request that **WHO recognize EHS and Multiple Chemical Sensitivities as diseases**. The declaration goes on to say:

This International Declaration also asks national and international institutions to adopt **simple precautionary measures of prevention**, to inform populations and requires the appointment of real independent expert groups to evaluate these sanitary risks in total scientific objectivity, which is not the case today.

In addition to the Declaration, the Paris Appeal Congress provided a [five page statement supporting its declaration](#).

We urge the DHHS to review these findings, revise its opinion, and state its rationale for agreement or rejection of the Paris Appeal congress findings.

6. The reliance on industry studies and commentary in the DHHS report is significant, including three references to the Electric Power Research Institute (EPRI). Per the EPRI website, most members are electric utilities and their leadership, almost without exception, has deep roots in the electric industry. Any studies, opinions or data generated by an organization heavily dominated by electric utilities should be treated with skepticism due to likely bias in favor of the utilities and not the public. In fact, the EPRI heavily attacked the 2012 Bioinitiative Report by Sage and Associates, which the DHHS woefully underreports and mischaracterizes. What is highly troubling is that DHHS apparently did not review [Cindy Sage's response to EPRI's attack](#), showing that DHHS is not exercising the skepticism necessary to create a fair legislative report for Representative Pendleton's review.

Ms. Sage ends her response to EPRI as follows, which seems exceptionally applicable to the DHHS's report, given its apparent reliance on industry information:

No positive assertion of safety can be made by the parties involved in this issue without better, independent information. Currently, the data made available by the utilities that are installing smart meters is non-existent, piecemeal and without sufficient basis to verify. In

addition, there are different types of meters being deployed, so a full accounting of each one should be public information.

Please explain why DHHS chose to not explore rebuttals to utility industry criticisms of the Bioinitiative Report and seemingly to accept the industry's criticisms at face value.

Finally, the DHHS in its Executive Summary, paragraph 2, sentence 1, should reference the utility industry in the list of organizations from which it obtained information, given the fact that the industry is included in the DHHS report's references. Without properly highlighting the utility industry, one could conclude that the DHHS is trying to divert attention away from the impact of the utility industry on the DHHS report.

7. The 2012 Bioinitiative Report is briefly discussed on page 8 of the DHHS report, and the DHHS's portrayal further shows a potential strong bias toward the utility industry. The DHHS has selectively taken information from the report to paint a completely inaccurate picture that supports the DHHS's "insufficient evidence" conclusion. DHHS states that "...the Bioinitiative Report drew the similar conclusion that there is not sufficient evidence that RF fields alter neurological behaviors..." This characterization is directly contradicted by the [Bioinitiative Report update, page 2](#):

...analyses show that there are more publications showing effects than no effects with the recent neurological literature. With E representing a biological effect, and NE representing no biological effects, the recent literature finds in 211 studies, RFR-neurological effects at: E=144 publications (68%); NE=67 publications (32%); and 105 ELF-neurological effects studies: E=95 (90%); NE=10 (10%).

Please explain why the DHHS chose not to include this information in its report.

More importantly, the DHHS focuses on only one part of the Bioinitiative Report. The Bioinitiative Report focuses on many health impacts, which are highlighted in the [Report's conclusions](#) updated in March 2014, including adverse effects on:

- genetics and DNA
- the immune system
- metabolic processes
- reproduction
- the blood-brain barrier

The Bioinitiative Report cites the following adverse health effects in relation to cell tower RFR exposure:

- headaches
- concentration difficulties and behavioral problems in children and adolescents
- sleep disturbances, headaches and concentration problems in adults

Finally, “Evidence for Electrohypersensitivity” is presented in the Bioinitiative Report’s [“Summary for the Public 2014 Supplement.”](#) In short, the Bioinitiative Report, such as with this statement, flies in the face of the DHHS findings:

The contentious question of whether electrohypersensitivity exists as a medical condition and what kinds of testing might reveal biomarkers for diagnosis and treatment has been furthered by several new studies presented in Section 24 – Key Scientific Evidence and Public Health Policy Recommendations. **What is evident is that a growing number of people world-wide have serious and debilitating symptoms that key to various types of EMF and RFR exposure. Of this there is little doubt. The continued massive rollout of wireless technologies, in particular the wireless ‘smart’ utility meter, has triggered thousands of complaints of ill-health and disabling symptoms when the installation of these meters is in close proximity to family home living spaces.**

The Bioinitiative Report then goes on to present studies backing this conclusion. What did the DHHS find objectionable about findings like this and why did it choose to completely reject the findings of the Bioinitiative Report and instead partially and misleadingly use the very same report to support the DHHS position that there is no problem? In short, the DHHS seems to have blatantly cherry picked the information, created an inaccurate Executive Summary and hoped it would not get caught.

Introduction

8. Page 2, Purpose – The last sentence of this paragraph reads: “The broader issue of possible health hazards associated with electromagnetic fields (EMF) is beyond the scope of this project.” It is unclear why the DHHS has taken this position because RF causes EMFs. [Techopedia](#) defines a radiofrequency field, which the DHHS claims to be considering in its report: “A radio frequency field (RF field) is an alternating current which, when put through an antenna, generates an electromagnetic field for wireless broadcasting or communication by sending a current through an antenna.” To take it further, [IARC](#) links RF and EMFs so closely that they use the term “radiofrequency

electromagnetic fields.” Given that RF causes EMFs, why would the DHHS choose to ignore the impacts of EMFs on health, yet in the Electromagnetic Sensitivity discussion on page 6 DHHS discusses EMF without defining it. This basic lack of understanding or confusing application casts additional doubt on the seriousness with which the DHHS undertook their report.

Findings

9. The DHHS states in the Introduction, page 2, that the agency is to “...summarize our findings including any uncertainties.” A review of the Findings section does not contain any discussion of uncertainties. Based on the scientific literature-related comments above which refute the DHHS report, in addition to the studies cited below, all of which were easily available when the DHHS did its research, please explain how the DHHS did not find any uncertainties to report in its Findings section?
10. As discussed in comment 2 above, IARC classified RF as a possibly carcinogenic to humans in 2011. This is a very significant finding that should be reported. Why was it omitted?
11. The DHHS cites that:

The National Cancer Institute, Centers for Disease Control and Prevention, World Health Organization, and the UK Health Protection Agency have issued statements that the current scientific consensus is the evidence is not strong enough to link cell phone RF exposures to adverse health outcomes.

This is an oversimplification, and in the case of the World Health Organization (WHO) an inaccurate reporting of the agency’s findings. The World Health Organization’s IARC issued a 2B cancer classification in relation to cell phones. For DHHS to claim that the WHO simply said that “the evidence is not strong enough to link cell phone RF exposures to adverse health outcomes” is unfounded and inconsistent with WHO’s 2B classification and warnings. [Dr. Jonathan Samet](#), the chair of WHO’s IARC did say:

...the evidence, while still accumulating, is strong enough to support a conclusion and the 2B classification. The conclusion means that there could be some risk, and therefore we need to keep a close watch for a link between cell phones and cancer risk.

Christopher Wild, IARC Director, stated: "Given the potential consequences for public health of this classification and findings, it is important that additional research be conducted into the long- term, heavy use of mobile phones."

WHO certainly realizes that more research is needed, but even without it they did find "a positive association" between cell phones and one type of cancer. It is astonishing that this information is not reported by DHHS.

[The WHO reaffirmed its position in 2013](#) after another review of the scientific literature:

There is limited evidence in humans for the carcinogenicity of radiofrequency radiation. Positive associations have been observed between exposure to radiofrequency radiation from wireless phones and glioma, and acoustic neuroma.

Why did the DHHS not include this updated information in its report? Was the agency unaware of it? Exclusion of information such as this casts additional doubt on the DHHS's intentions and efforts.

Further, the DHHS only mentions in passing Dr. Lennart Hardell, MD, one of the most published and knowledgeable RF researchers involved with the Bioinitiative Report, the EBM report, and the Paris conference, all mentioned above. Given the controversy surrounding smart meters and RF and the importance of a non-penalizing opt-out law or policy, it is incumbent that the DHHS provide details about Dr. Hardell's work and findings, as well as that of other leading researchers, and if the DHS disagrees with these findings it must provide evidence for disagreement.

The DHHS had six months to create its report. Our rebuttal of this report has taken approximately 30 hours. Surely the DHHS could allocate more time to review the work of the leading researchers and their opinions. As you will see if you investigate the references below to the findings of the cities of Santa Cruz and Toronto, government health officials for both cities reviewed far more independent scientific research than the DHHS. Why did the DHHS overlook so many studies?

12. The DHHS states that:

The team also examined health impact reviews on smart meters performed by other states, including California, Texas, Vermont, Maine, and Arizona. The findings were consistent among the reports. The main conclusions were that the current Federal Communication Commission (FCC)

guidelines are adequate to protect the public from thermal effects of RF exposure and there is not sufficient evidence to link RF exposure to non-thermal adverse health effects.

The DHHS was provided in March, 2015 with the city of [Santa Cruz Health Officer's report](#), which came to very different conclusions, one of which is to reject the applicability of the FCC standards that the DHHS relies upon:

The guidelines currently used by the FCC were adopted in 1996, are thermally based, and are believed to protect against injury that may be caused by acute exposures that result in tissue heating or electric shock. FCC guidelines have a much lower certainty of safety than standards. Meeting the current FCC guidelines only assures that one should not have heat damage from SmartMeter exposure. It says nothing about safety from the risk of many chronic diseases that the public is most concerned about such as cancer, miscarriage, birth defects, semen quality, autoimmune diseases, etc. **Therefore, when it comes to nonthermal effects of RF, FCC guidelines are irrelevant and cannot be used for any claims of SmartMeter safety unless heat damage is involved (Li, 2011).**

Why did the DHS not include the Santa Cruz report's findings in its discussion? If the DHHS disagrees with the report it should state its rationale for disagreement. Further, the DHHS should review the references in this report to see additional applicable scientific findings.

Discussion - Cancer

13. The DHHS states: "Advocates opposed to the use of smart meters have also requested the use of the precautionary principle to limit RF field exposures until more health information is available." It is imperative that DHHS note that the NC citizens who attended the meeting with state agency staff and Representative Pendleton in no way stated opposition to smart meters. We do support smart meter choice and a no-charge smart meter opt-out law or policy. To potentially give readers the impression otherwise is misleading and inflammatory. Please clarify that the citizens who approached the DHHS requested a no-charge opt-out policy or law and did not oppose the implementation of smart meters.

14. DHHS's characterization of the IARC's findings is unacceptably inaccurate:

In 2011, a Working Group (WG) of scientists met at the International Agency for Research on Cancer (IARC) to assess the carcinogenicity of RF fields. Many of the studies reviewed did not find any association of cell phones with cancer but some studies have been suggestive.

While some studies did not find an association, the ones that did were more than suggestive, resulting in the IARC categorizing RF as Group 2B, possibly carcinogenic to humans. The IARC described the data as:

'Limited evidence of carcinogenicity': A positive association has been observed between exposure to the agent and cancer for which a causal interpretation is considered by the Working Group to be credible, but chance, bias or confounding could not be ruled out with reasonable confidence.

This IARC description is stronger and clearer than the DHHS characterization that "...there is limited evidence of carcinogenicity in humans and less than sufficient evidence of carcinogenicity in experimental animals." It is very concerning that the DHHS is not presenting the information with the appropriate level of rigor and accuracy, and the DHHS should accurately present the IARC's rationale for a Group 2B finding.

15. The DHHS relies on the Interphone study to minimize cell phone health-related concerns. The DHHS reliance is contradicted by [this review of the Interphone study](#) by IARC members and other highly qualified researchers, which shows that among other problems, the study was flawed by:

- Selection bias
- Inappropriate definitions
- Exclusion of young people and other segments of the cell phone using population
- Exclusion of certain brain tumors
- Self-reporting of cell phone use
- Funding bias

The DHHS should review this critique and adjust its reliance on the Interphone study accordingly.

16. The DHHS appears to characterize acoustic neuroma as a cancer. Please note that acoustic neuroma is not cancerous, as discussed above in the Mayo Clinic reference above.

Discussion – Reproductive Effects

17. The DHHS reports some studies show possible effects on reproduction. With the findings being mixed, why didn't the DHHS report this as an uncertainty, as they stated they would in the Findings section?

Discussion – Cellular Effects

18. The DHHS reports that the United Kingdom (UK) Independent Advisory Group found "...evidence for genotoxic effects is not convincing and remains weak." This report is contradicted by the [most recently and best available information](#) published in Electromagnetic Biology and Medicine in 2015, as discussed in comment 3 above. In summary, the 2015 report found oxidative damage to DNA: "To date more than hundred papers have been published on mutagenic effects of RFR and most of them revealed significant effects (Ruediger, 2009)." Please explain why the DHHS did not consider the most recent information. **Further, the DHHS cited the uncertainty around the UK findings. Given that there is again uncertainty, the case for the precautionary principle is stronger.**
19. The DHHS reports on the findings of the Norwegian Expert Committee (2012). The Expert Committee's findings note that "...changes in gene expression have been observed after RF exposure," but that results are inconsistent. This reported modification of gene expression contradicts the UK findings and the DHHS findings, supporting the need for caution, not the DHHS's blanket statement that "There is insufficient evidence to link RF exposures to adverse health outcomes."

Discussion - Electromagnetic Sensitivity

20. The DHHS reports that:

While electromagnetic sensitivity has not been established as a medical condition, some people attribute illnesses to electromagnetic fields (EMF). The introduction of another electromagnetic magnetic field into their houses has caused

concern among people who identify as electromagnetically sensitive.

This statement is incomplete and misleading in that EHS, while not yet recognized as a medical condition, is recognized as a disability in the United States and Sweden. [The United States Access Board](#), for example, states that:

The Board recognizes that multiple chemical sensitivities and electromagnetic sensitivities may be considered disabilities under the ADA if they so severely impair the neurological, respiratory or other functions of an individual that it substantially limits one or more of the individual's major life activities. The Board plans to closely examine the needs of this population, and undertake activities that address accessibility issues for these individuals.

The Board plans to develop technical assistance materials on best practices for accommodating individuals with multiple chemical sensitivities and electromagnetic sensitivities. The Board also plans to sponsor a project on indoor environmental quality. In this project, the Board will bring together building owners, architects, building product manufacturers, model code and standard-setting organizations, individuals with multiple chemical sensitivities and electromagnetic sensitivities, and other individuals. This group will examine building design and construction issues that affect the indoor environment, and develop an action plan that can be used to reduce the level of chemicals and electromagnetic fields in the built environment.

It is important to note the difference between a medical condition and a disability and report the disability aspect. We recommend that the DHHS read this EHS research paper by Dr. Olle Johansson, a neuroscientist: [Aspects of Studies on the Functional Impairment](#). In addition, we recommend that the DHHS recognize that the United States and Sweden treat EHS as a disability and further explore the research and remedies around this. If the DHHS is opposed to this investigation, please state the rationale. Finally, the DHHS should note that the Paris Appeal congress is petitioning WHO to classify EHS as a medical condition.

The DHHS should recognize the research of Dr. Andrew Marino when exploring the link between RF and EHS as a medical condition. Here is a published study documenting EHS, which can be read in the International Journal of Neuroscience:

[Electromagnetic hypersensitivity: evidence for a novel neurological syndrome](#). This quote by Dr. Marino from a [Guardian article](#) articulates the openness that all scientists should have when confronted with a large and growing problem:

When people say they feel unwell and trace that to a Wi-Fi signal or a phone, that is a kind of experiment. It may not be well designed, they may not understand blinks and double blinks, but if they are reasonable people, carefully noting what they are suffering, we should take a look at that.

Why did the DHHS not review work by Dr. Marino, Dr. Johansson and other scientists, such as the highly qualified contributors to the 2012 Bioinitiative Report, who recognize EHS? Why did DHHS not include Sweden's determination to treat EHS as a disability?

Dr. Marino also raises the important issue of study funding, which was initially discussed in comment 6 above. Has the DHHS considered the funding sources for the studies it relied on to determine that there are no health concerns related to RF? If the DHHS did not, it should. Dr. Marino states in the Guardian article: "It's easy to find nothing.' The common denominator he identified in the papers casting doubt on EHS is that they were funded by the telecommunications industry."

In this [2009 Electromagnetic Biology and Medicine article](#), Dr. Marino states the cell phone industry:

...funded, partly or wholly, at least 87% of the reports.

From an analysis of their cognitive framework, the common use of disclaimers, the absence of information concerning conflicts of interest, and the industry's donations to the principal EMF journal, we inferred that the doubt was manufactured by the industry. The crucial scientific question of the pathophysiology of mobile-phone EMFs as reflected in measurements of brain electrical activity remains unanswered, and essentially unaddressed.

Dr. Henry Lai, University of Washington and researcher cited by the DHHS, further amplifies the problems related to funding bias and research related to the health impacts of cell phones. The DHHS should consider the review of Dr. Lai's work found on page 28 of this report: [Cellphones and Brain Tumors 15 Reasons for Concern](#).

Dr. Lennart Hardell, MD, PhD, cited by the DHHS, was lead author of a 2006 American Journal of Industrial Medicine article detailing the influence of industry on research, including cell phone research: [Secret Ties to Industry and Conflicting Interests in Cancer Research](#).

At a minimum, the DHHS should highlight the large and highly qualified number of scientists who have studied and recognize that EHS is a problem, not ignore them, and point out industry involvement in any studies that it uses to contend that there are no health-related problems associated with RF. As stated above, there are peer reviewed reports recognizing EHS, many highly qualified researchers understand that EMF's cause problems, yet these sources were not included in the DHHS report. The DHHS's bias is palpable, concluding that "Altogether, the available scientific peer-reviewed literature does not support EHS as a medical condition. No studies have concluded that EHS individuals are more sensitive to EMF than other individuals."

Limitations

21. While there are limitations regarding the the existing published research, the DHHS does not go far enough when discussing some of them. As discussed immediately above, understanding the funding sources for the literature that the DHHS relies on is imperative.
22. The DHHS discounts anecdotal data: "Another limitation is the prevalence of self-reported symptoms describing the health effects of exposure to smart meters," which is also known as anecdotal data. As the DHHS states, there is a "scarcity of studies on smart meters." Anecdotal data should not be viewed as a limitation, especially when there is a "scarcity of studies." Anecdotal data should be used to inform the need for more studies, and when anecdotal data contradict the existing scientific research cited by the DHHS, whether it is related to cell phones or smart meters, the DHHS-cited scientific research should be questioned and scrutinized to determine why there is an extreme misalignment. For example, are the researchers who reject the anecdotal data qualified to be conducting their research? Is their methodology sound? Who is funding it?

The pharmaceutical industry can be cited as a parallel and reason to highly question industry funded studies. We have seen countless examples in the pharmaceutical industry where industry funded studies have led to unacceptable amounts of injury and death (Onglyza, Januvia, Byetta, Victoza, all diabetes drugs, Vioxx and many other drugs).

One legal example of questionable practices by a utility company in relation to EMFs (but not RF) and public safety is *Houston Lighting & Power Co. v. Klein Independent School District*. As presented in the [Florida State University Journal of Land Use & Environmental Law](#):

An important case involving a jury's decision after hearing evidence on the fear of electromagnetic fields and the effect of EMF on property that had been condemned for the construction of high-voltage transmission lines is *Houston Lighting & Power Co. v. Klein Independent School District*.^[36] Following the utility's condemnation of a strip of land owned by the school district, the school district was awarded \$78,604 by the Public Utilities Commission (PUC).^[37] The school district then filed objections with the trial court.^[38] The utility deposited \$78,604 with the court, took possession of the strip of land, and constructed the transmission lines, which were energized in 1984.^[39] The school district's pleadings alleged that the callous decision to locate the line on the school property, disregarding the safety and health of the school children, made the condemnation void.^[40]

At trial, several experts testified for the school district. An engineering professor testified that the children in the intermediate school located 300 feet from the transmission line were being exposed to magnetic fields between six and ten milligauss.^[41] An epidemiologist testified about the studies she and other epidemiologists conducted that showed correlation between cancer and power lines.^[42] She concluded that the children in the schools were at increased risk of cancer because of the electromagnetic fields.^[43] An oncologist testified similarly.^[44] A pharmacology department chairman testified that because the electromagnetic fields were not obstructed by buildings or anything else, the children would be exposed to them daily.^[45] Testifying for the utility was an expert who critiqued the school district's expert studies.^[46]

The jury awarded the school district \$104,275 actual damages and \$25 million punitive damages, finding that the utility had abused its discretion in condemning the line and that it erected the line in reckless disregard of the school district's use of its property.^[47] The lower court permanently enjoined the utility from using the transmission lines and

ordered possession of the property restored to the school district.[48]

The appellate court ultimately modified the trial court judgment, deleting the award of punitive damages, and affirming the actual damages.[49] At the time of the appellate decision, the utility had already received permission from the PUC to relocate the transmission lines in order to avoid the school district property.[50]

It is exceptionally disappointing that the DHHS does not adequately explore, question and recognize the limitations of the published research. Dr. John Ioannidis, Stanford University Professor, has led the campaign to raise the alarm about the wide ranging flaws in research studies (see [John Ioannidis has dedicated his life to quantifying how science is broken](#), [Why Most Published Research Findings Are False](#) and [Lies, Damned Lies, and Medical Science](#)). Consequently, it is incumbent on the DHHS to stop dismissing anecdotal reports of adverse health impacts and vet the research it relies upon.

Precautionary Principle

23. This DHHS discussion is perhaps the most absurd of all. The DHHS concludes its discussion as follows:

We are exposed to multiple sources of RF fields including cell phones, microwave ovens, baby monitors, broadcast radio/television, and Wi Fi. The technology has been incorporated into cameras, laptops, printers, appliances, and automobiles. We are exposed to RF fields at home, work, public spaces, restaurants, and other commercial establishments.

Is the DHHS unaware that people can greatly reduce or eliminate their RF exposure by:

- removing wireless devices such as WiFi, RF cameras, laptops, printers and appliances from their homes
- not using cell phones or microwave ovens
- avoiding RF in public spaces as able

- enjoying modifications by their employer of their work environment such that RF exposure is reduced or eliminated

The fact that the DHHS appears to not have explored these remedies or recognize that the United States Access Board is working to address EHS is sickening. The fact that DHHS throws up its hands and says that because RF is everywhere the application of the Precautionary Principle is inappropriate is negligence at its worst. The DHHS must recognize that people are willing to take responsibility for their personal care and not accept the status quo, resulting in the agency embracing the Precautionary Principle.

The materials that we provided to the DHHS at our meeting and via email easily support use of the Precautionary Principle, and the most recent findings from the Paris Appeal Congress officials shatter any doubt that the Precautionary Principle is well-supported. Please explain why the DHHS rejects the fifth Paris Appeal congress's and the Bioinitiative Report's recommendations, the work by the United States Access Board, and that the Precautionary Principle, and why the DHHS is qualified to reject those findings and recommendations. Please consider Mr. David Gee's Bioinitiative Report findings in your response: [The Precautionary Principle "Late Lessons from Early Warnings: Towards Realism and Precaution with EMF?"](#) and [The Precautionary Principle 2012 Supplement](#).

Note that [Mr. Gee's qualifications](#), which are many, include scientific committee membership on the European Cancer and Environment Research Institute board, in addition to the following:

He has published reports and peer reviewed articles and **lectured on several issues, including Scientific Uncertainty; the Precautionary Principle**; Environmental Health; Environmental Taxes and Ecological Tax Reform; Clean production/ Eco-efficiency; Endocrine disrupting chemicals; Electromagnetic fields etc. **He is initiator, co-editor and contributor to the widely cited and used EEA report, "Late Lessons from Early Warnings: the Precautionary Principle 1898- 2000" (2001) which has now evolved into vol. 2 & 3 (EEA, 2013).**

If the DHHS continues to reject the Precautionary Principle as related to RF and smart meters, please address the applicability of the power line siting-related precedent of "prudent avoidance" as discussed in the WHO report [THE PRECAUTIONARY PRINCIPLE AND EMF](#). Per the report:

More frequently than guidelines, governments have adopted “prudent avoidance,” a concept introduced by M. Granger Morgan, H. Keith Florig, and Indira Nair at Carnegie Mellon University. In a 1989 U.S. Office of Technology Assessment (OTA) report (Nair et al., 1989), they suggested prudent avoidance as a policy option. The report defined prudent avoidance as “taking steps to keep people out of fields both by rerouting facilities and redesigning electrical systems and appliances;” prudence was defined as “undertaking only those avoidance activities which carry modest costs.” Introduced as “an example of using incomplete science to make a reasoned judgment in the face of uncertainty,” prudent avoidance can be seen as an application of the precautionary principle, which calls for taking simple, easily achievable, low-cost measures to minimize exposure even in the absence of a demonstrable risk.

[Toronto, Canada](#) applied “prudent avoidance” to the siting of cell phone base stations in 1999 and the Medical Officer of Health reaffirmed this application in 2007. Toronto boldly took this action because:

[The] increasing concentration of telecommunication towers in many locations increases the level of radiofrequencies (RFs) to which the public in the immediate surrounding area is exposed involuntarily. Residents in some areas of Toronto have expressed concerns related to the potential health effects that may be associated with this exposure.

The 2007 technical report explaining the Medical Health Officer’s recommendations, including an impressive number of references to the leading RF researchers, is located here: [Update and Review of Research on Radiofrequencies: Implications for a Prudent Avoidance Policy in Toronto](#).

Applying the regulatory principle of “prudent avoidance” to cases of EHS and requests for a non-penalty smart meter opt-out law or policy would clearly help the affected public to avoid EMF exposure and would involve modest costs. Prudent avoidance has been applied to RF exposure in the case of Toronto, and given the mismatch between the utility industry’s stance that RF causes no harm and the public’s reports of harm and the growing evidence and researcher recognition of direct harm, at a minimum the DHHS should support the principle of “prudent

avoidance” and support a non-fee based smart meter opt-out program. If the DHHS rejects “prudent avoidance,” please explain the rationale.

Finally, science is often wrong due to simple mistakes or corruption, and it can be many years behind the anecdotal evidence. Blind adherence to the existing “science” when heavily contradicted by the anecdotal data, such as with the case with RF, is irresponsible and dangerous. For example, thanks to the corrupted “science” of Dr. Ancel Keys, Americans avoided healthy saturated fats and cholesterol for decades, resulting in declining health. Finally, in 2015, Dr. Keys’ “science” has been formally rejected and the United States government has removed the label “nutrient of concern” in relation to cholesterol. In short, Americans can feel good about eating eggs and butter again after decades of wrongful health warnings.

Another prime example of the “science” not keeping pace with the anecdotal information involves the gut/brain connection and the need for a healthy gut microbiome. [Dr. Natasha Campbell-McBride](#) is a leader in improving gut health and brain function. She was more than a decade ahead of the medical literature and was vilified by skeptics. Fortunately, that did not stop thousands of parents from following her recommendations and improving their children’s physical, mental and emotional health. Today, the medical literature has caught up and thousands of peer-reviewed articles support Dr. McBride’s work.

These are two of many examples where the science went wrong or simply didn’t exist and those who either rejected the incorrect science or persevered without it experienced improved quality of life. To not acknowledge a similar potential outcome and maintain the status quo based on incompatible and outdated FCC standards and research in relation to RF and smart meters is contrary to and a threat to the public interest.

One has to wonder if the medical officers for the cities of Santa Cruz and Toronto are poorly educated and lacking in critical thinking because they reached such dramatically different recommendations than the DHHS, or are they the only critical thinking public officials with enough courage to state that the FCC or similar standards are inapplicable, that EHS is significantly problematic for a segment of the population, and that the option of protecting oneself from RF without penalty must be available and preserved?

Conclusion

As you will recall, Andrew asked if anyone objected to his recording our March 2015 meeting, and there were no objections. Here are the related parts of the recording where Andrew expressed his concerns about how government agencies treat smart meter-related concerns:

15:00 Mr. McAfee: "I've done this before, and what has happens is, you're going to pass the buck up..."

Dr. Davies: "No, sir, I am not going to pass the buck to anybody"

Mr. McAfee: "...and the FCC will come back down with their standard."

16:20 Dr. Burk: "One of the things to keep in mind as you watch the video and as you evaluate the literature is these federal standards of safety are set to prevent microwave from heating your body, particularly cell phones causing heating effects on the body. And that requires a lot of energy to create heating. There is an entire body of literature in the peer-reviewed literature that looks at the non-thermal effects of magnetic fields causing cancer and various other health effects. And the problem is when you go to the industry and say "Well, you know, our smart meters are below the existing standard." Ok, that means your smart meters are not heating anyone up. That's great, but, unless they catch fire of course they occasionally do, but it doesn't account for all of the a-thermal effects which are really related to chronic exposure to these things."

20:00 Mr. McAfee: "And the power you have, Representative Pendleton, is that you can get NC to think for itself. I have done this twice before...and it always hits the ceiling and it comes right down. 'I am sorry the FCC standards are this and there is nothing we can do.' So if NC can start looking at this issue on their own and start looking at independent research and make up your own minds, I think this will be a game changer."

Mr. Cox: "Well, I think that NC usually does think on it's own."

32:20 Dr. Davies: "I just want to be very straight with you. What we rely on more than anything in the division of public health is credibility and so we are very conservative about taking a stand on science and on saying science one way or another, so that when we take that stand, that credibility is there."

The DHHS report is exceedingly disappointing in light of this discussion and the information provided above. It is filled with incomplete representations and at times

misrepresentations, ignores published findings, working group findings, leading researcher findings and opinions and anecdotal data. This is exasperating. The public is entitled to a fair and balanced representation.

We look forward to the DHHS's responses to the concerns raised above. Thank you for your attention to this important matter.

Sincerely,

A handwritten signature in black ink, appearing to read "Andrew McAfee". The signature is fluid and cursive, with a prominent initial "A" and "M".

Andrew McAfee

A handwritten signature in black ink, appearing to read "Laura Ruhana Combs". The signature is cursive and spans across the width of the page.

Laura Ruhana Combs

cc: Representative Brig. Gen. Pendleton