Questions for OHA Re: SB 283 Report on RFR in Schools

1 Why were animal studies excluded from the literature review? Don't they have an important role to play in assessing risk?

2 Why did OHA exclude consideration of the $30-million, 10-year, U.S. government study conducted by the National Toxicology Program that found "clear evidence" of cancer. The federal government described it as "the most comprehensive assessment, to date, of health effects in animals exposed to RFR."

This is in response to both questions 1 and 2:

2.a To clarify, sb 283 required OHA to conduct a literature review which does not entail a hazard evaluation or risk assessment.

2.b **The wording of sb283 specifically asks for recommendations from OHA regarding the safety of wireless technology in schools resulting from a literature review. How is that not a risk assessment? A hazard assessment requires an onsite visit to the classroom to take measurements and survey the environment for potential hazards. A risk assessment can certainly be attained from a literature review. Perhaps OHA should have stated at the outset that they were not prepared to do the review and make conclusions to the Dept. Of Education as stated in the bill: "***the department of education shall develop recommendations to schools in this state for practices and alternative technologies that would reduce students' exposure to micro-wave radiation that the review described in subsection (1) of this section identifies as harmful***. A hazard assessment is different than a risk assessment.**

2.c **OHA released a faulty risk assessment**: *"finally, the available epidemiology research examining rfr health effects...*

Does not provide sufficient evidence to conclude that rfr exposure in school settings is associated with adverse health effects"

2.d A risk assessment is a much more involved process that estimates the nature and probability of adverse health effects – … " in humans finally, the available epidemiology research examining rfr health effects does not provide sufficient evidence to conclude that rfr exposure in school settings is associated with adverse health effects**"** who may be exposed to chemicals (or other stressors) in the environment, presently or in the future. A literature review synthesizes scholarly literature on a topic by evaluating a selection of sources. It describes common themes, but also demonstrates the authors' understanding of the literature through critical analysis, as well as identifying gaps, biases or controversies in the research. **That makes no sense. What is the goal of a literature review without an evaluation leading to a conclusion or speculation. Without that there is no purpose, no assessment.**

2.e **Animal studies can play an important role in the *hazard evaluation*** and risk assessment of environmental exposures. However, for this literature review OHA prioritized the review of the numerous available human (epidemiological) studies as the most relevant for school settings OHA utilized limited existing resources to complete a review of the observational studies on humans. **If resources were so limited to have excluded the most relevant data then OHA should not have done the "review" and ultimately should never have been so irresponsible to have issued a conclusion, especially when children's lives are at risk. Animal studies have been routinely used, by OHA, in determining risk to humans. Would it have cost more to use animal studies? There is no defensible reason to have eliminated animal studies other than to have squashed the process. The study lacks validity needs to be retracted.**

2.f OHA focused on human (epidemiology) studies and included over 200 epidemiology studies in its report. An extensive review of studies examining cancer related endpoints in animal studies has been conducted by the US Food and Drug Administration. **The FDA has not done an extensive review -- certainly not in the last 30 years as determined in the recent court ruling by the D.C. Court of Appeals against the FCC. The court determined the FCC was derelict in fulfilling it's duty to review science relating to the harmful effects of non-ionizing radiation. The FCC website is says they rely on the fda and other agencies for guidance. The D.C. Court ruling reveals lies by the FCC. The FCC states on their website: "the FCC closely monitors all of these study results. However, at this time, there is no basis on which to establish a different safety threshold than our current requirements." And, as stated was stated on the FDA website: "U*nder the law, FDA does not review the safety of radiation-emitting consumer products such as cell phones and similar wireless devices before they can be sold, as it does with new drugs or medical devices*."**

2.g OHA later included a summary of conclusions from the national institutes of health's national toxicology program (ntp) animal study in its faqs here: **Why was this expensive, ground breaking study left out of the original review and addressed in retrospect, only after a firestorm of criticism by an international community of scientists, health researchers and organizations and advocates?**

2.h https://www.oregon.gov/oHEALTHYENVIRONMENTS/RADIATIONPROTECTION/Documents/SB_283_FAQ.pdf. In sum:

2.h.i NTP assessed the health effects of exposure to RFR in rats (male and female) and mice (male and female). The lowest exposure level for rats (1.5 W/kg) was similar to the maximum allowed for humans (1.6 W/kg) by the Federal Communications Commission. The lowest exposure level for mice was 2.5 W/kg.

2.h.ii The animals were exposed for a total of 9 hours and 10 minutes a day (in 10 minutes on, 10 minutes off cycles during a period of 18 hours and 20 minutes each day) for up to a period of two years (most of the life of rats and mice). The exposure was to the whole body. The animals were examined for tumor formation and other toxicity endpoints.

2.h.iii NTP concluded that there was clear evidence of RFR association with tumors in the hearts of male rats and some evidence of RFR association with brain and adrenal gland tumors, also in male rats. However, NTP did not find clear evidence in female rats, male mice, and female mice in the study. NTP also found that the exposed male rats at every exposure level lived longer than control rats, possibly due to a decrease in chronic kidney problems.

2.h.iv There was also no RFR-related exposure-dependent effects on reproductive parameters examined in this study in mice and rats.

2.h.v The NTP stated that the findings in this study cannot be directly applied to humans because the exposure levels and durations were greater than what people may receive from cellphones. **Dr. Ronald Melnick, a principal in the design of the NTP study, anticipated the subsequent downplaying of the results of the study and authored a paper addressing "unfounded criticism:" "The NTP findings are most important because the International Agency for Research on Cancer (IARC) classified radio frequency radiation as a "possible human carcinogen" based largely on increased risks of gliomas and acoustic neuromas (which are schwann cell tumors on the acoustic nerve) among long term users of cell phones. The concordance between rats and humans in cell type affected by rfr strengthens the animal-to-human association. This commentary addresses several un-founded criticisms about the design and results of the ntp study that have been promoted to minimize the utility of the experimental data on rfr for assessing human health risks. In contrast to those criticisms, an expert peer-review panel recently concluded that the NTP studies were well designed, and that the results demonstrated that both gsm- and cdma-modulated RFR were carcinogenic to the heart (schwannomas) and brain (gliomas) of male rats."**

2.h.vi In their report presenting the genotoxic effects from the NTP study, agency authors (Smith-Roe et al., 2019)[1] find that it is premature to draw solid conclusions based on existing epidemiology studies that found associations between cell phone use (and potentially RFR) and certain brain cancers. They stated that,

> *"Concern exists as to whether cell phone RFR frequencies are capable of adversely affecting human health. Although some epidemiological studies suggest that cell phone use might increase the risk for certain brain cancers, such as gliomas and acoustic neuromas (a,k,a, vestibular schwannomas), the odds ratios for these increased risks are quite low (INTERPHONE Study Group 2010; Cardis et al. 2011; Hardell et al. 2011; Larjavaara et al. 2011; Sato et al. 2011; Hardell and Carlberg 2015). Conclusions drawn from these observations may be premature, as cell phone use has become commonplace only within the past two decades, a period of time that may be insufficient to accurately assess cancer-related outcomes."*

Myles Capstick, Ph.D., of the IT'IS Foundation

[1] https://onlinelibrary.wiley.com/doi/full/10.1002/em.22343

explained that they wanted to expose the whole animals because they were not sure where health effects might occur. "We were aiming to expose as many tissues as possible, not mimic a phone next to the head," said Capstick.
In relation to previous studies on the topic, and as an example for why scientists need to consider the totality of the science before making hard claims for public health action, the authors state that,

> *"results of previous rodent cancer studies conducted with a variety of rfr exposures and durations are inconsistent and inconclusive,* ***inconsistent and inconclusive are industry terms that have been used to sow doubt and do not negate a single study that does show harm. There are now at least 10,000 studies by all branches of the military and NASA that confirm hundreds of biological and health effects.*** *and many of these studies used experimental protocols with important limitations, indicating a need for a more definitive study (iarc working group on the evaluation of carcinogenic risks to humans 2013). Additionally, extensive reviews of the literature on the genotoxicity of various frequencies and modulations of RFR have concluded that evidence for RFR-associated genotoxicity is inconsistent (****again, inconsistent does not negate studies showing harm. This is disinformation****) and weak (Brusick et al. 1998; ruediger 2009;* **statements that are over 10 years old. The use of these words inconsistent and inconclusive is an industry ploy used to create doubt and has been used most notably by the tobacco industry and now consistently by those embracing telecommunication industry dogma. It does not negate studies that are positive and conclusive. Variables like funding and other factors can affect outcomes. Science is never absolute and always subject to revision.** *Verschaeve et al. 2010), and some key studies reporting RFR-associated genotoxicity in human cell lines could not be replicated (Speit et al. 2013)."*

It is consistent with the design and implementation of the OHA "review," and its use of many industry funded studies, to look to the IT'IS Foundation, an industry funded organization, for opinions to support it's conclusions. OHA should look outside of corporate friendly organizations for unbiased information. The following is an astonishing list of the corporate sponsors of the IT'IS Foundation:

Corporations: Alcatel-Lucent, France, ARIB, Japan, Arizona Chemical, USA, Biotronik, Germany, Boston Scientific Corporation, USA, Cisco Systems, USA, Clarins Laboratories, France, CTIA, USA, Disney Research, USA, Ericsson, Sweden, GE Medical Systems, USA, GSM Association, Switzerland, Intel Corporation, USA, International Business Machines Corporation (IBM), USA, Kaba, Switzerland, LG Electronics, Korea, Micro Systems Engineering, USA, Mitsubishi Electric, Japan , Motorola, USA, Nokia, Finland, Nokia Solutions and Networks, Finland, NTT DoCoMo, Japan, Panasonic, Japan, Philips Healthcare, Netherlands, Phonak Communications AG, Switzerland, Qualcomm Inc., USA, Sagem, France, Samsung, Korea, Siemens Healthcare, Germany, Sony Ericsson,

Japan, Sorin S.A.S., France, Sunrise Communications AG, Switzerland, TCT Mobile & Alcatel Mobile Phones, France, Toshiba Medical Research Institute USA, Inc., USA, Vodafone, United Kingdom Antia Therapeutics AG, Switzerland, Felsenmeer AG, Switzerland, maxwave AG, Switzerland, MED-EL, Austria Schmid & Partner Engineering AG (SPEAG), Switzerland, Sensimed AG, Switzerland, VAT Vacuumvalves AG, Switzerland, ZMT Zurich MedTech AG, Switzerland

2.h.vii Extrapolating from animal health effects to human health effects can be quite complex, particularly for radiation. OHA looks to the FDA and NIH (NTP) to determine the implications of the findings of this NTP study for humans. **The NTP has stated implications of the findings but OHA is determined to come to a biased conclusion by criticising valid studies and ignoring the results of the NTP study.** Even if a determination for an environmental agent is made as carcinogenic, the risk would need to be put in perspective. **What does OHA mean by perspective? Does that mean acceptable losses? How many children's lives do they think are worth sacrificing as a result of radiation exposure in schools?** We are exposed daily to environmental agents and adopt lifestyle practices that have the potential to cause both cancer and noncancer health effects; however, the exposure level there is not a linear dose response. frequency, and duration are key to estimating those risks when they exist. **Is 7 hours each day of exposure to non-ionizing radiation considered long term exposure?**

2.h.viii The OHA SB 283 report did not include a limitations section, including the lack of an animal study review. However, OHA later included a summary of the NTP study in its FAQs with links to NTP materials. Inclusion of this study would not have changed OHA's overall conclusion. **Why would the definitive conclusions stated in the NTP study not have changed the conclusions?**

3 The article in the *Washington Spectator* alleges that Dr. Ali Hamade, the report's lead author, deleted pages of evidence found by the report's initial authors (interns from OSU) of wireless radiation's link to increased risk of harm? If true, why was this done?

3.a OHA staff examined reports and scientific analyses of reports with an aim to distinguish association from causation. This was the purpose of the edits that staff made to initial drafts. For example, if a study found that increasing time spent on a wireless gadget screen is associated with sleep problems or behavioral changes, this does not necessarily mean that the sleep problems or behavioral changes were due to radiation exposure. **This is speculative and not relevant to the firm conclusions of harm from exposure to radiation. This is a convenient ploy to support the unsupportable logic that some stated results of exposure might have been tainted by unknowns? There are biological effects that can and have been measured by exposure. Animal studies are done in carefully controlled environments and as such would have been the most relevant to have completed this project. If the results were subject to other influences then why use those studies only to invalidate them in the end when they don't agree with the preconceived conclusions?** There are many other factors that could be behind this association

including, but not limited to, the content viewed on the gadget and the possibility that someone's mental state or mood made them more likely than others to spend time on a gadget such as phone or tablet. There are many such studies in the literature. **OHA is reaching into the speculative hinterlands to invent the aforementioned logic. One can say that anything could have affected a study but what is the point here? Incredible baseless double talk with no value or place in a serious evaluation of science.** Similarly, most studies do not account for co-occurring environmental exposures or lifestyle habits that might have the effect the study is examining. **OHA consistently invents potential alternate realities to support their practice of negating science.** Lacking those measurements or considerations makes the outcomes less certain, even if they stimulate further thinking and study design.

3.b All authors contributing to the report indicated their approval of edits in the final drafts of the report. The changes noted are part of routine document editing.

Here is the most concerning material that was found in the first draft and omitted from the final draft:

- **increased leukemia in children 5 kilometers from vatican cell towers.**
- **13% increase in cancer from cell towers in taiwan.**
- **other studies-- high blood glucose in males, 21 studies showed negative effects on heart function, negative effects on memory, cognitive function, brain structure and function.**
- **pre natal exposure studies showed spontaneous abortion, altered thyroid function, adverse effects fetal growth and child development, genotoxicity of oral mucosal cells, impact on salivary gland. Other studies showed negative affects on mental health & depression, as well as 21 studies showing alterations in brain physiology and cerebral blood flow.**
- **"all studies showed negative outcome on health. All studies showed negative effects on reproductive organs."** The purpose of a student internship is to gain experience in critically evaluating and synthesizing information on a topic. This report was part of that experience and edits made were crucial for both accuracy and to provide a fruitful learning experience. **If the students learned anything from this project it was that the Oregon State agency responsible for public health policy is dishonest, corrupt and possibly criminally liable for their handling of SB 283.**

4 Please comment on the allegation that it was the deletion of the following two findings from the first draft that allowed the report to conclude that there was not significant risk from RFR in schools:

- *"All the studies that investigated the outcomes of general health and symptoms of ill health found that EMF exposure negatively impacted health."*
- *"All studies that investigated the reproductive system found a negative association with EMF exposure."*

Please refer to the answer to question 3. The purpose of multiple layers of review within OHA is to ensure that the report provides an objective assessment of the science. Any changes made to statements by the reviewers was to best represent the totality of the evidence. **Please refer to the text in red in 3b above.**

5 Why was the first draft withheld from a formal public records request for all drafts of the report?

The initial request specified "*ALL draft versions of the Oregon Health Authority's report, 'Wireless Technology Health Risks' that were distributed for review prior to its publication on Dec 31, 2020. Date range: Sept 2019 - Dec 2020.*" The draft versions that were released to the requester were the drafts that were distributed by the authors to the reviewers. The subsequent request (a few months later) was for all drafts. At that time, OHA released the drafts provided to the original request in addition to other (previous) drafts. OHA has met all its obligation under the public records requests.

Oha did not meet its obligation in releasing records from a foia request. The first draft was obtained from an employee of oha and given to a journalist after being withheld from a FOIA request. After that I requested a copy of the first draft and it was released to me by that same employee.

6 Bandara and Carpenter's 2018 analysis of 2,266 studies found that 68 percent "demonstrated significant biological or health effects associated with exposure to anthropogenic electromagnetic fields." Similarly, of the 166 scientific articles (out of 218 total) where the OHA risk report makes a Yes/No determination as to whether the paper in question found a link to an adverse health effect, a majority were in the affirmative (84 Yes and 82 No). Why did that not trigger a more affirmative conclusion in the report?

6.a Bandara and Carpenter (2018) is an opinion piece that did not analyze the 2,266 studies. Bandara and Carpenter referenced a paper that *seems* to have reviewed fewer studies on the oxidative stress effects of electromagnetic radiation, although the 2,266 studies might have been reviewed in a separate effort by the authors and filed in a database. *It is not clear if that effort was peer reviewed.*

6.b OHA's Yes determination was used if the study reported an association. It is not based on a causal effect. Association is only one factor in determining causation. One example of a Yes that does not help the weight of evidence is illustrated in the answer to question 3 above. This is the case where screen time is associated with sleep or behavioral change, but not necessarily an electromagnetic field or RFR exposure. OHA looks forward to more studies on the topic and to more syntheses of the science by federal agencies.

6.c In 2011, an International Agency for Research of Cancer (IARC) working group assessed the potential carcinogenic hazards associated with radiofrequency electromagnetic fields and labeled it as *possibly carcinogenic* to humans based on *limited evidence* among users of wireless telephones for glioma and acoustic neuroma. "Toxic substance causing chronic illness" means any of the following:

(a)

Human carcinogens.

(b)

Potential human carcinogens. (5)

"Potential human carcinogen" means one of the following:

(a)

Any substance which does not meet the definition of human carcinogen, but for which there exists sufficient evidence of carcinogenicity in animals, as determined by the International Agency for Research on Cancer.

(b)

Any chemical shown to be changed by the human body into a human carcinogen Dr. Jonathan Samet, chair of the working group, along with IARC staff, summarized the uncertainties associated with the relevant epidemiology studies[2] considered for the decision and indicated that these studies did not provide sufficient evidence to classify radiofrequency electromagnetic fields as *probably carcinogenic* to humans. **Despite another attempt by OHA to muddy the waters, Dr. Jonathan Samet stated unequivocally that the classification of EMF as a Possible Carcinogen did include radiation from Wi-Fi.** OHA's review indicates that the uncertainties persist. **Yet in the Oregon Statutes ORS 453.205 to 453.275 Hazardous Substances, to be avoided in a school setting include any substance classified as a "potential human carcinogen" by the WHO. It defines "Potential human carcinogen" as:**

"Any substance which does not meet the definition of human carcinogen, but for which there exists sufficient evidence of carcinogenicity in animals, as determined by the International Agency for Research on Cancer. In this list of responses OHA claims to embrace the precautionary principle yet in practice does not even apply a stricter standard stated in the Oregon Statutes."

OHA's review further point to the large cohorts from the United States and Nordic countries that did not show evidence of increased cancer incidence in association with the increase in cell phone use (also summarized in the OHA report.) **Typically the OHA turns to the Danish Cohort Study that has been harshly criticized for it's industry funding and flawed design. The Danish Cohort cell phone and cancer study was originally funded by Two Danish Telecom Companies and an industry-linked organization, the International Epidemiology Institute.**

- **The Danish Cohort study was established with support from two Danish telecom operating companies—TeleDenmark Mobil (partially owned by SBC Communications, which is Denmark's largest phone company) and Sonafon. This support is stated in the first** 2001 Danish Cohort publication.
- **The study was conducted by the industry-friendly International Epidemiology Institute (IEI) known as an industry defense firm as IEI studies were funded by an industry making a product, found "no" or "unclear" evidence of a problem and were used in legal battles.**

---

2 https://journals.lww.com/epidem/Fulltext/2014/01000/Commentary__Mobile_Phones_and_Cancer__Next_Steps.7.aspx

Regardless, OHA looks to ongoing studies and subsequent syntheses of the science to help drive knowledge on this topic. Even if a determination for an environmental agent is made as carcinogenic, the risk would need to be put in perspective. We are exposed daily to environmental agents and adopt lifestyles that have the potential to cause both cancer and noncancer health effects; **this is a distraction and has nothing to do with the state of the science of harm from wireless technology. No legitimate scientific institution would resort to what is nothing but reaching for reasons to support their conclusions.**. however, the exposure level, frequency, and duration are key to estimating those risks when they exist. **OHA did not do any onsite testing of exposure levels in schools and does not know what those levels are. When speaking of duration, we know that children are exposed to high power wireless routers, radiation from multiple computers and other wireless devices in classrooms. The sum of that exposure results in a dangerous level of radiation within a 7 hours of exposure. The accumulated amount of radiation is far higher than short intermittent exposure from cell phones.**

7 SB 283 required OHA to use "independently funded scientific studies" as the basis of its conclusions, but it in fact included studies with funding from industry (somewhere between six and an alleged 27).

SB 283 did not define the term "independently funded scientific studies."

Within the scientific community the term, "independently funded scientific studies" does not need definition. Several years ago professor Henry Lai, of the University of Washington Bioelectromagnetics Dept. analyzed 326 cellphone radiation studies. He found that 72 percent of industry-funded studies found no biological effect from cellphone radiation exposure — but that of the studies not funded by industry, only 33 percent found no biological effect. Funding matters. This is the most egregious lie OHA is using to attempt to confuse the issue with.

The plain meaning of the term would mean research that is funded by the person/entity conducting the study and not by other parties. By that meaning a pharmaceutical company funding its own drug study would be considered independent while an academic researcher conducting a study funded by a non-profit advocacy organization would not be considered independent.

Absurd. To consider a pharmaceutical or telecommunications industry funded study as independent does not address the obvious aspect of conflict of interest. Industry funded studies are always suspect as was proven by the above study by Dr. Henry Lai. There are few non-profit advocacy organizations that have the money to fund expensive studies. Oha's logic here is an embarrassment and further degrades that agency.

From the legislative record it could be assumed the term to mean independent of telecom industry funding, however the meaning of the term is still ambiguous. As stated in the FAQs to SB283, OHA considered independently funded studies to include all epidemiology primary research. These studies were all conducted by scientists and underwent peer-review, regardless of funding source. When possible OHA indicated funding sources for the reviewed studies in an appendix to the report. **The funding sources for many studies were not included and upon further investigation found to have been funded by industry. OHA was secretive,**

covert and dishonest in it's omission of funding sources. For more information on who pays for science please see: **Why was there a side note in one of the reviews noting there might be some questions about using industry funded studies if oha was so confused about independent vs. Industry funded studies** https://undsci.berkeley.edu/article/who_pays.

8 Dr. David Bangsberg, chair of the Oregon Health Policy Board, reviewed the report, consulted with OHA, and concluded the following: "While the available data do not prove a causal effect, *neither do they exclude the possibility of a causal effect*." Given that possibility, shouldn't the "precautionary principle" lead the Legislature to consider steps to reduce children's exposure to WiFi in a school setting? To what extent should the precautionary principle be driving public policy. What are the next steps that the OHA would recommend as a follow-up to the SB 283 study?

8.a The state of the science is inconclusive **(the state of the science is not inconclusive. OHA has denied science in support of a predeterimined conclusion. OHA has cherry picked data)** on the health effects of rfr to people from sources that could be present in a school setting. The above quoted statement simply means that *OHA cannot say with a 100% certainty that no effects are possible.* As OHA states in its report in fulfilment of SB 283 requirements, it looks forward to more research and literature synthesis on this topic.

8.b *OHA embraces the precautionary principle* in its approach to environmental exposures and strives to ensure that there is an adequate margin of safety separating people from environmental exposures. The evidence for health effects from RFR exposures in a school setting is not yet available and therefore there is no benchmark from where to draw precaution. **Though there is definitive proof of harm from over 10,000 scientific studies from all branches of the U.S. military and NASA over the last 40 years, this statement: *" neither do they exclude the possibility of a causal effect"* requires the implementation of the precautionary principle. The position on the PP by OHA in this case is indefensible. This is science denial. An agency or municipality does not need proof of harm.**

8.c Oha looks to any new determinations from the US Food and Drug Administration, **(regarding the FDA-- Dr. Henry Lai says enough researchers besides his own have found DNA breaks, including a multi-center study in Europe within the past few months, for scientific concern, but the FDA and other government agencies aren't paying attention. "if they're wrong, the problem will be a big problem in the future," Lai said. "It will show up in years to come.")** , the National Institutes of Health, the Federal Communications Commission, and other agencies with appropriate expertise on this topic.

There were also reported effects on reproductive endpoints, but these studies were also not consistent in their findings and were unable to account for many potential confounders. For example, the longer use of phones associated with increased sperm abnormalities in men might be a result of long periods of sitting down or having a running laptop in contact with the body for extended periods rather than RFR from the phone or a Wi-Fi router. **Again, this is speculation that serves no purpose other than to create doubt which was the primary tactic utilized by the tobacco industry. This is another example of a weak attempt to negate science. Oha does not believe in science and interjects its own bias to achieve a desired result. Who is behind this?**

OHA noted a variety of effects among studies looking at health outcomes associated with phone use and screen time (including TV, laptops, etc.). There is good evidence to suggest that screen and phone time are associated with poorer mental health indicators and sleep **By what criteria has OHA determined "good scientific evidence" exists showing sleep and mental health effects while in the same breath conclude studies showing biological and health effects are "inconclusive" or weak? This further invalidates the logic that oha has used throughout their answers to this questionnaire.**