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February 13, 2021

Oregon Health Authority
Public Health Division
Center for Health Protection
800 NE Oregon St, Portland, OR 97232

Re: OHA Wireless Technology Health Risks Report 2020 (SB 283):

Physicians for Safe Technology (PST) is writing to comment on the inadequacy of your review and conclusions in the OHA Wireless Technology Health Risks Report 2020. We urge you to rescind it or substantially revise it for consistency with basic public health policies that require a showing of substantial evidence to take preventative action when potential health risks have been clearly demonstrated, rather than the ‘causal’ standard of evidence you have employed here. It is not difficult to draw conclusions from the large body of evidence of radiofrequency (RF) health effects, nor is it reasonable to expect that all studies would show the same effects. If they did, those results would be suspect. Science does not work that way.

PST believes that today the scientific evidence strongly suggests risks for cancers, neurological disease, reproductive harm and neurodevelopmental risks for the fetus and newborn. Sufficient evidence exists in peer-reviewed professional and scientific papers published over more than two decades to reach the conclusion that public health warnings are necessary, and that the public should be both educated and protected by health agencies. Overall, the available epidemiological research examining RFR health effects DOES provide sufficient evidence to conclude that RFR exposures now typical in wireless classrooms is associated with adverse health effects on children.

Studies report adverse health consequences at RF intensities now commonly found in school classrooms with wireless routers and wireless device use by students (Exhibits A and B). It is irrelevant and misleading to say that such studies are not informative here, because they were not conducted in school classrooms, but in other test environments equivalent in RF exposure intensity, duration, modulation, etc. It is highly unlikely that any Institutional Review Board (IRB) would grant approval for human experimentation on children in schools. It isn't the school environment, it is the equivalence of RF exposure factors which is critical.



No positive assertion of safety of radiofrequency radiation (wireless technologies) can be made by the Oregon Health Authority that are consistent with your professional duties as public health officials. Your OHA 2020 Report endangers the public by asserting that health risks are absent or minimal.

Existing FCC guidelines for public exposure are grossly inadequate. The public is not protected by them. The State of Oregon is unwise to rely on the FCCs outdated and grossly inadequate wireless health safety standards as a measure of protection for children.

Very Sincerely,

Cindy Sage
Physicians for Safe Technology

Cindy Lee Russell, M.D.
Executive Director
Physicians for Safe Technology

Exhibit A

**Table 1: RFR Levels in Cell Tower Studies Reporting Adverse Health Impacts
(RFR levels from cell towers are similar or lower than for WI-FI devices)**

Study	RFR Level	Reported Health Impacts
Navarro (2003)	0.01 – 0.11 uW/cm ²	Fatigue, headaches, sleeping problems
Thomas (2008)	0.005 – 0.04 uW/cm ²	Headaches, sleep and concentration difficulties
Heinrich (2010)	0.003 – 0.02 uW/cm ²	Headaches, irritation, concentration difficulties
Thomas (2010)	0.003 – 0.02 uW/cm ²	Behavioral problems in children, adolescents
Mohler (2010)	0.005 uW/cm ²	Sleep disturbances
Hutter (2006)	0.05 – 1.0 uW/cm ²	Headache, sleep, concentration problems, other neurological problems.
Kundi (2009)	0.05 – 1.0 uW/cm ²	Review of 14 studies on cell tower-level RFR at and above 0.05 – 1.0 uW/cm ² impairs health.
Buchner (2012)	0.006 – 0.01 uW/cm ²	Significant impact on stress hormones; children and chronically ill adults most at risk.
Oberfeld (2004)	0.01 uW/cm ²	Sleep and concentration disruption, fatigue and cardiovascular problems.
Zwamborn (2003)	0.13 uW/cm ²	Anxiety, hostility, impaired cognition
Avendano (2012)	0.5 – 1.0 uW/cm ²	Sperm damage (DNA fragmentation, low motility) from laptop in wireless mode (in lap)



Exhibit B – Studies Reporting Adverse Health Effects with Chronic Exposure to Low-Intensity Radiofrequency Radiation (Wireless)

Thomas et al (2008) reported an increase in adult complaints of headaches and concentration difficulties with short-term cell phone radiation exposure at 0.005 to 0.04 $\mu\text{W}/\text{cm}^2$ exposure levels.

Citation: Thomas, S., K€uhnlein, A., Heinrich, S., Praml, G., Nowak, D., von Kries, R., & Radon, K. (2008). **Personal exposure to mobile phone frequencies and well-being in adults: a cross-sectional study based on dosimetry.** *Bioelectromagnetics* 29, 463–470. doi:10.1002/bem.20414

Heinrich et al (2010) reported that children and adolescents (8-17 years old) with short-term exposure to base-station level RFR experienced headache, irritation, and concentration difficulties in school. RFR levels were 0.003 - 0.02 $\mu\text{W}/\text{cm}^2$.

Citation: Heinrich, S., Thomas, S., Heumann, C., von Kries, R., & Radon, K. (2010). **Association between exposure to radiofrequency electromagnetic fields assessed by dosimetry and acute symptoms in children and adolescents: a population based cross-sectional study.** *Environmental Health*, 9, 75. doi:10.1186/1476-069X-9-75

Thomas et al (2010) reported that RFR levels of 0.003 - 0.02 $\mu\text{W}/\text{cm}^2$ resulted in conduct and behavioral problems in children and adolescents (8-17 years old) exposed to short-term cell phone radiation in school.

Citation: Thomas, S., Heinrich, S., von Kries, R., & Radon, K. (2010). **Exposure to radio-frequency electromagnetic fields and behavioural problems in Bavarian children and adolescents.** *European Journal of Epidemiology*, 25, 135– 141. doi:10.1007/s10654-009-9408-x

Mohler et al (2010) reported that adults exposed to 0.005 $\mu\text{W}/\text{cm}^2$ cell phone radiation (base-station exposure levels) had sleep disturbances with chronic exposure, but this effect was not significantly increased across the entire population.

Citation: Mohler, E., Frei, P., Braun-Fahrlander, C., Fr€ohlich, J., Neubauer, G., & R€osli, M; Qualifax Team. (2010). **Effects of everyday radiofrequency electromagnetic exposure on sleep quality: a cross-sectional study.** *Radiant Research*, 174, 347–356. doi:10.1667/RR2153.