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RE: Pittsfield testing of RFR emissions

Date: July 6, 2021

Dear Board of Health Members:

I am a practicing physician who has studied the health impacts of environmental toxins through our local County Medical Association and the California Medical Association for over 25 years. I began studying the health impacts of wireless radiation when I learned of a proposal to place a cell tower on my daughter’s school.

Over the 10 years of research into the literature and talking to a variety of people with electrosensitivity I, like many others in the medical and scientific community, have come to the conclusion that wireless radiation is a pollutant just like lead or pesticides or mercury or toxic industrial waste. The mechanisms are similar - oxidation, the effects are broad on all living organisms and people are often unaware they are exposed to the toxin - unless they are “sensitive”. Wireless radiation causes oxidative stress and at low levels of radiation. These low levels cause a slow decline in physiologic processes, and for those who have become sensitive - an immediate reaction.

Regarding measurements taken in Pittsfield

1) These values are averaged and the peak pulse is not considered. The peak pulse is what is important, as this is what injures the cell, not the average power over time. The average speed of a tornado passing though may be low over time but the damage is seen in the few minutes it is strongest and passes over your house and removes your roof.

2) The testing was not transparent. For an issue like this city officials and stakeholders such as citizens should have been made aware of exactly what and where the radiation levels were tested.

3) The testing results were expected to be within FCC limits as these are inappropriately high. Italy and Russia have limits 100 times less.

4) FCC limits are based only on the heating of tissue, not biologic harm that is silent-similar to chemicals. A lawsuit has been filed to force the FCC to reevaluate their standards based on modern science and acknowledge the flaws in this standard setting, which

5) A building biologist can be consulted to improve the assessment

**Antioxidants and Health**

As we now know small amounts of toxins can cause harm in certain windows of development thus children are more vulnerable. We also know effects are cumulative. People vary in their vulnerability due to age, genetics and other toxic exposures. Not all people react the same. Our health, wellness and aging are determined by oxidation levels in our tissues that injure our DNA, proteins and lipids, thus antioxidants in foods have been shown to block oxidation, neutralize cellular injury and promote health. This is well established in the nutrition literature. The literature also demonstrates that taking antioxidants (Vitamin E, zinc and melatonin) protects the cell from oxidation injury from wireless radiation. Oxidative stress plays a major part in the development of chronic, degenerative and inflammatory illnesses such as cancer, autoimmune disorders, aging, cataracts, rheumatoid arthritis, cardiovascular and neurodegenerative diseases, as well as some acute pathologies (trauma, stroke). It is well established that wireless radiation of all frequencies and at non thermal levels causes oxidative stress. Effects of this are cumulative.

**We Evolved in Low Electromagnetic Environment**

The natural environment of the Earth is electromagnetic. We have terrestrial electric and magnetic fields, radiation from the sun and cosmic microwaves. All living things evolved in harmony with the Earth’s natural low-level electromagnetic rhythms. Birds, bees and mammals have magnetite in their bodies and brains that use the Earth’s magnetic field for navigation and foraging. Our nervous system, heart, reproductive and endocrine systems rely on minute electromagnetic signals for complex functions. Manmade electromagnetic fields (EMF) emitted by our modern technology can distort our bodies electric currents, delicate cell membranes and cause broad dysfunction. This can be with long term or sometimes short exposures with higher power and different pulsations. Science has shown us that organisms adapt to constant electromagnetic fields found in nature much easier than artificial pulsed radiation that is emitted from cell towers and wireless devices.

**Wildlife**

You need to consider the unique ecosystem which surrounds this lovely town. Science has shown us that levels of artificial electromagnetic radiation we are increasingly exposed to is harming not only humans but the sensitive environment that we tend to ignore but depend upon for our sustenance and mental health. [https://mdsafetech.org/environmental-and-wildlife-effects/](https://mdsafetech.org/environmental-and-wildlife-effects/)

**New Review on Wildlife**

A new comprehensive article by Levitt, Lai and Manville (2021) provides an updated and thorough overview of RFR and effects on all wildlife with a plethora of references. The authors state, “But is there a larger environmental downside to rising ambient EMF exposures — particularly RFR — from popular mobile communication devices, WiFi antennas, and all accompanying infrastructure that is being overlooked by environmentalists, researchers, and government regulators alike. We may be missing critical physiological effects across species based on obsolete assumptions about low-level far-field exposures being too weak to adversely
affect living tissue. We have yet to take into consideration the unique physiologies of other species, or how they use the environment in ways that humans do not, when we assume that the unfettered use of EMF/RFR can continue unabated and be allowed to grow indefinitely.” Effects of non-ionizing electromagnetic fields on flora and fauna, part 1. Rising ambient EMF levels in the environment. (2021) Levitt BB et al. Rev Environ Health. 2021 May 27. https://pubmed.ncbi.nlm.nih.gov/34047144/

UNESCO World Heritage Wildlife Area Species Disappearing
An abundance of peer reviewed literature demonstrates adverse impacts to the environment with declines in insect, bird and wildlife populations in cities and where cell towers are placed. This spells disaster for biodiversity, fragile wildlife areas, critical pollinators and agriculture, especially with additive effects of pesticides, toxins and loss of habitat. A report on Unesco’s Mt. Nardia World Heritage Park documents this slow decline in populations of species after cell towers were placed. Unesco Report on Disappearance of Species from Mt. Nardia Park World Heritage Area 2000-2015 with Increased Expansion of Telecommunications Antenna. Ethno-Botanist Mark Broomhall. UNESCO Report on Disappearance of Species from Mt. Nardia with Increased EMR 2000-2015.

MOEF Report on Wildlife
The Inter-Ministerial Committee (IMC) of expert scientists reviewed the literature of the effects of RF-EMF radiations on wildlife, humans and the biosphere. In their 2010 MOEF Report they found that out of the 919 research papers collected on birds, bees, plants, other animals, and humans, 593 showed impacts, 180 showed no impacts, and 196 were inconclusive studies. All organisms had effects.

Human Effects— 62% showed effects, 13% no effect and 25% inconclusive

Plant Effects— 87% showed effects and 13% were inconclusive

Wildlife Effects- 62% showed effects, 4% no effect and 36% inconclusive

Bee Effects—85% showed effects and 15% no effect

Bird Effects- 77% showed effects, 10% no effect and 13% inconclusive

Current Standards are Scientifically Out of Date
Current standards are based on short term thermal exposures and discount the abundant peer reviewed literature on harm from low level, non-thermal effects. It is clear that the limits for radiofrequency radiation are set too high in the U.S. and Canada, 100 times that of Italy and Russia, who set their standards based on methodical research on immunologic, neurologic and biologic effects of low-level radiation fields. Current limits are up to 1,000 microwatts/cm2  with symptoms seen at levels of 0.005 microwatts/cm2.

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 µW/cm2 exposure

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 μW/cm². 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 μW/cm² resulted in conduct and behavioral problems in children and adolescents (8-17 years old) exposed to short-term cell phone radiation in school. 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 μW/cm² 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, et al. (2010). Effects of everyday radiofrequency electromagnetic fields exposure on sleep quality: a cross-sectional study. Radiant Research, 174, 347–356. doi:10.1667/RR2153.

5G: A Manufactured Need by Industry

The telecommunications industry has largely manufactured a “need” for expanding wireless technology in cities, while halting projects for safer fiberoptic broadband. Note a 2020 report, 5G: State of Play in Europe, USA and Asia. In Depth Analysis, indicates 5G is a manufactured need. “As 5G is driven by the telecoms supply industry, and its long tail of component manufacturers, a major campaign is under way to convince governments that the economy and jobs will be strongly stimulated by 5G deployment.”

Industry has deliberately influenced laws to prevent health or environmental effects from being considered in the placement of cell towers (See FCC Captured Agency). They knew of the harm in early studies done by Dr. George Carlo in the 1990’s but suppressed the data so they could move forward. A blizzard of robust science has appeared now to show biological and health impacts of wireless technology, but it is still denied, and the basis for “safety” is flawed. An exponential growth in cell towers is now being played out with cities being left on their own to figure out how to regulate these towers locally. Industry places a heavy hand and complex laws on local policy makers who must navigate these complex FCC policies to prevent legal action.

Insurance Has an Exclusion for Radiofrequency Radiation as an Emerging Risk
Insurance companies consider wireless radiation to be similar to asbestos in long term health impacts and do not provide coverage from harm for RF health effects. The cities are left with that liability unless they can provide insurance.

In a 2019 report, New Emerging Risk Insights, by Swiss RE Insurance Company, the second largest reinsurance company in the world, 5G is listed as an emerging concern in the high risk category within 3 years. Included in the high risk trends are artificial intelligence and the existential threats of climate change. “The top five emerging risks in our SONAR 2019 report are digital technology’s clash with legacy hardware, potential threats from the spread of 5G mobile networks, increasingly limited fiscal and monetary flexibility by central banks, genetic testing’s implications on life insurers, and the impact of climate change on the life and health sector.” [https://www.swissre.com/institute/research/sonar/sonar2019.html](https://www.swissre.com/institute/research/sonar/sonar2019.html)

National Academy of Sciences Report is Evidence of Electromagnetic Illness

Courtney Gilardi, her kids and her neighbors are not alone in having symptoms near cell towers set at FCC limits. Not only do studies demonstrate symptoms near cell towers, they show an increase in cancer over time. In addition, a recent report by the National Academy of Sciences concluded that the “sonic attacks” on diplomats in Cuba and China were most likely due to pulsed radiofrequency from directed energy weapons. They had symptoms similar to those who live near cell towers (headache, nausea, insomnia, dizziness, memory loss, heart palpitations, depression). Firefighters experience the same symptoms when cell towers are placed on their fire stations thus created a resolution in 2011 to fight cell towers on their stations (see references). Dr. Beatrice Golomb wrote the most extensive report to date on this subject linking these mystery “directed energy attacks” to pulsed microwaves similar to the wireless devices we use daily. In the case of these high powered beams there was documented injury to brain networks found by the University of Pittsburgh physicians who studied the diplomats. Dr Golomb highlights that the strength of the health effects are related to the peak power not the average power.

The EUROPAEM EMF Guideline 2016 for the prevention, diagnosis and treatment of EMF-related health problems and illnesses is a comprehensive guide written by many scientists and physicians in Europe who are part of the European Academy for Environmental Medicine (EUROPAEM) – EMF working group who have recognized and treated those with electrosensitivity for many years. This is a thorough, well researched and well-referenced scientific paper that is based on the 2012 Austrian Medical Association Guidelines for the Diagnosis and Treatment of EMF Illness. A questionnaire from their group is included in the attachments.

Public Health Surveys

Many successful published and informal health surveys have been done to identify and link radiofrequency radiation to health effects. You should do this as well considering you have a defined population and one cell tower in Pittsfield, Massachusetts.
1) A Maine Health Survey of Smart Meters was performed by Richard Conrad, PhD, a John Hopkins biochemist, which provided an abundance of testimony and research. He performed a health symptom survey of residents in Maine after the installation of smart meters in 2012. This was in response to reports of neurologic symptoms in residents after smart meters were attached to their homes. A constellation of “severe” symptoms of electrosensitivity that developed in residents included fatigue, insomnia, difficulty concentrating, headaches, agitation, ringing in the ears, pressure in the head, tingling burning skin, heart racing, arrhythmia, memory problems.

Dr. Conrad’s survey was not a prevalence survey. He solicited responses only from persons who already felt that they had experienced health effects/symptoms from exposure to smart meters. Two of the key questions he wanted answers to were: 1) do smart meters initiate electrical sensitivities in previously normal persons, and 2) do smart meters worsen the electrical sensitivities in persons who were already electrically sensitive?

He concluded, “The survey results provide very strong evidence that smart meters are causing painful and debilitating new symptoms in many previously normal healthy people, and causing them to become electrically sensitive to a whole range of electronic devices including Wi-Fi, cell phones and computers. Because of exposure to smart meters, people are becoming electrically sensitive at an unprecedented rate. Many of these people had previously lived with Wi-Fi in their homes on 24/7, worked in offices with Wi-Fi and many computers all day long, and had used a cell phone, all without symptoms. This includes professionals from all walks of life: doctors, dentists, nurses, teachers, realtors, salesmen, and many who absolutely needed their computers for their work and had loved their electronic devices: computer programmers, electronic engineers, accountants and graphic artists.”


4) Cell Tower Transmitter Health Studies – 28 Summaries – Testimony -

New Hampshire 5G Commission Finds Radiofrequency Radiation Problematic

The first Commission formed in the United States to study the environmental and health effects of 5G technology released their comprehensive final report November 1, 2020. The Commission to Study the Environmental and Health Effects of Evolving 5G Technology was mandated by HB 522 passed by the state legislature in New Hampshire. Their final report included 15 recommendations addressing the need for public education about wireless hazards, RF health studies, RF measurements, cell antenna setbacks, fiberoptic rather than wireless deployment, commercial warning signs and wildlife protection. After hearing extensive testimony in a series
of 13 meetings over the course of a year and reviewing an abundance of research, the Commission highlighted the lack of a single definition for 5G, insufficient evidence of safety for 5th generation technology, a concern that safety standards for wireless technologies have not been updated with the latest science and that 5G is largely a marketing concept. They also expressed concern that the FCC has a long history of being accountable to industry over the desires of communities and individuals.

**FCC Limits: A False Sense of Security**

We are told by the FCC that wireless radiation and cell towers are safe within current safety guidelines, or that we do not really know if there is harm or that the research is inconclusive or that it is not ionizing (like x-rays) so it cannot hurt us. This is the same dismissive and doubt creating language used by the tobacco industry and a host of other chemical companies to protect their toxic products, thus profits. The research shows that we do know, beyond a doubt, that wireless radiation is harmful to all living system below the current safety standards. The most obvious evidence is that more and more children and adults are reporting symptoms of electrosensitivity (EHS) in the presence of wireless radiation when they live in a home near a cell tower, or in schools where wireless devices and cell towers are increasing.

I advise a consultation with a certified experienced building biologist to measure peak levels.

I thank you for reading this letter and taking seriously this issue which is critical to the health and wellbeing of your community and your families. You have more power and influence than you are aware of.

Sincerely,

Cindy Russell, MD

**References**

https://www.researchgate.net/publication/6836231_Letter_to_the_Editor_Will_We_All_Become_Electrosensitive


Prevalence Studies
- Metabolic and Genetic Screening of Electromagnetic Hypersensitive Subjects as a Feasible Tool for Diagnostics and Intervention. (2014) De Luca et al. Mediators of


