



County of San Diego

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May 7, 2019

Susan Brinchman, Director
Center for Electrosmog Prevention
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RE: Electrosmog Pollution

Dear Ms.Brinchman:

At the request of Supervisor Dianne Jacob and Chief Administrative Officer Helen Robbins-Meyer, I am responding to your email inquiry received by Health and Human Services Agency (HHSA) staff, dated April 2, 2019. Your inquiry was regarding electrosmog in public places in San Diego County.

Definition of Electrosmog

Electrosmog is defined as the invisible electromagnetic radiation resulting from the use of wireless technology. The most common sources are cell towers, cordless phones, cordless baby alarms, mobile/cellular phones, and other wireless networks. Electromagnetic smog is classified as non-ionizing radiation. This means that the electromagnetic waves do not produce the energy required to remove electrons from atoms or molecules, unlike ionizing radiation such as radioactivity. The electromagnetic waves are sub-divided as follows: 1) low-frequency electric and magnetic fields, and 2) high-frequency electromagnetic fields. Electromagnetic fields can be produced artificially, but also occur naturally in the environment.

Electric and magnetic fields are part of the spectrum of electromagnetic radiation, which extends from static electric and magnetic fields (i.e., non-ionizing radiation/zero frequency), through radiofrequency, infrared radiation, and ultraviolet radiation, to X-rays (i.e., ionizing radiation/high frequency). The World Health Organization (WHO) states that there is no dispute that electromagnetic fields above certain levels can trigger biological effects. Research has shown that short-term exposure, at the levels present in the environment or in the home, do not cause any apparent adverse effects. Exposures to higher levels that might be harmful are restricted by national and

international guidelines. The current debate is centered on whether long-term low level exposure can cause biological responses and influence health effects.

Research Conducted

Evaluation of Research Information

When evaluating information regarding environmental factors for potential health hazards, it is important to review what is referred to as peer-reviewed articles. This means that other experts in the field evaluated the soundness of the methods used to gather the data and to evaluate it, ensuring the reliability, validity, and quality of the information. Weighted scientific evidence is also a measure used to judge scientific information. Weighted evidence refers to the concept that the results can be replicated by other independent research teams.

In recent years, several scientists have been exposed for fraud. When other researchers tried to replicate and build on the published data, they were never able to duplicate the results. After many years of trying, it turned out they were not able to replicate the results, because the original research was falsified, manipulated or otherwise inaccurate resulting in the original scientist being discredited. Unfortunately, even though these researchers end up being discredited, their misinformation is still causing confusion to the public. For this reason, it is important to carefully consider the “weight” of the scientific information before making important policy decisions.

WHO International Electromagnetic Field Project

To address growing public health concerns regarding possible health effects from exposure to electromagnetic field sources, in 1996, the WHO launched a large, multidisciplinary research effort. The *International Electromagnetic Field (EMF) Project* brings together current knowledge and available resources of key international and national agencies and scientific institutions.

In the area of biological effects and medical applications of non-ionizing radiation, approximately 25,000 articles have been published over the past 30 years. Despite concerns by some people that more research needs to be done, scientific knowledge in this area is now more extensive than for most chemicals. Based on a recent in-depth review of the scientific literature, the WHO concluded that current evidence does not confirm the existence of any health consequences from exposure to low level electromagnetic fields. However, some gaps in knowledge about biological effects exist and need further research. To date, scientific evidence does not support a link between reported symptoms (e.g., headaches, anxiety, suicide and depression, nausea, fatigue and loss of libido) and exposure to electromagnetic fields.

The overall weight of evidence shows that exposure to fields at typical environmental levels does not increase the risk of any adverse outcome, such as spontaneous abortions, malformations, low birth weight, and congenital diseases. There have been occasional reports of associations between health problems and presumed exposure to

electromagnetic fields, such as reports of prematurity and low birth weight in children of workers in the electronics industry, but these have not been regarded by the scientific community as being necessarily caused by the field exposures (as opposed to factors, such as exposure to solvents).

WHO and International Agency for Research on Cancer

In 2011, the WHO and the [International Agency for Research on Cancer \(IARC\)](#) classified EMF as “possibly carcinogenic to humans (Group 2B), based on an increased risk for glioma, a malignant type of brain cancer, associated with wireless phone use” ([WHO/IARC Press Release 208, May 31, 2011](#)). While the WHO does not classify it as a “known carcinogen,” it’s important to remember that such classification often takes decades—or longer.

Based on a review of a large body of research studies using dosimetry for evaluating exposure to Radiofrequency Electromagnetic Force (RF-EMF) in various settings (e.g., schools and educational settings, places of work, transportation), even the highest levels measured in transportation do not exceed 3% of the maximal radiation dose guidelines set by the International Commission on Non-Ionizing Radiation Protection (ICNIRP). Meaning that for all the studies conducted to date, the electromagnetic forces that the public currently is exposed to are far below the field strength that caused health problems. Also, given the weakness of the evidence for a link between exposure to extremely low frequency (ELF) magnetic fields and childhood leukemia, the benefits of exposure reduction on health are unclear.

Despite much research conducted, the evidence for adverse effects remain controversial. However, it is clear that if electromagnetic fields do have an effect on cancer, then any increase in risk will be extremely small. Research results, to date, contain many inconsistencies, but no large increases in risk have been found for any cancer in children or adults.

Guidance from California Department of Public Health

Because there are individuals who have concerns, in 2018, the California Department of Public Health (CDPH) issued guidance regarding cell phone use safety. This document provides guidance to people who are concerned and, as a precautionary measure, want to reduce their exposure, while the scientific community and public health institutions are still evaluating this still evolving issue.

The biggest concern regarding cell phones and RF radiation applies to the user of the cell phone. Each cell phone contains a built-in antenna and when using the phone near the head, the user may be exposed to a higher dose. Radiation decreases with the square of the distance from the device. Meaning when you double the distance, you reduce the radiation four (4) times. For this reason the CDPH recommends, in the “How to reduce exposure to Radiofrequency Energy from cell phones” guidance, that individuals keep phones a few feet away.


Susan Brinchman
May 7, 2019
Page 4

Conclusions

Based on the above explanations, at this time, no additional action regulating electrosmog in public places is warranted.

We appreciate your concerns regarding exposure to RF-EMF radiation within the community. Your input is important to us as we continually work to follow international, federal, and state recommendations to protect the health and wellbeing of residents in San Diego County. If you have any questions or need additional information, please contact me at wilma.wooten@sdcounty.ca.gov or 619-542-4181.

Sincerely,


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Public Health Officer and Director,
Public Health Services