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Dear Members of the Montgomery County Board of Education:

I have read the online report “[MCPS Statement Concerning Deployment of Wireless Computing Technologies](#).” I am appalled that a public agency would rely on and relay a document containing numerous misrepresentations including outright falsehoods. Permit me to detail a few brief examples of serious errors. Should the Board request, Environmental Health Trust would be glad to provide more detailed review.

First, let me give you a short background on my qualifications. I am an electronics engineer with 38 years of high tech corporate experience to the Vice-Presidential level. For the past twenty years, I have been engaged in the field of bioelectromagnetics (the science of the interaction of biology with electromagnetic radiation). A list of my recent peer-reviewed publications is attached..

The World Health Organization (WHO) via its International Agency for Research on Cancer (IARC) declared in May 2011 that RFR from cell phones and other wireless transmitting devices are a Group 2B (possible) Human Carcinogen (among other 287 Group 2B carcinogens are: DDT, Diesel fuel, gasoline, and phenobarbital). MCPS falsely asserts that the WHO/IARC classified only cell phone radiation as a possible carcinogen and did not include other sources of wireless radiation.

The MCPS website cited above discusses the installation of Wi-Fi throughout the school district. This would create much higher exposures to RFR in every classroom, from wireless transmitting devices (WTDs) used by the students to access the Internet via Wi-Fi routers. The reason the WTDs are the primary source of exposure is because RFR decreases very rapidly with distance from the source. In a typical classroom, almost all of the RFR exposure for a given student comes from the student’s own WTD and from other students’ WTDs nearby (from her/his left and right, front and back).

Children’s risk from exposure to any carcinogen is greater than adults’. Younger children, who are smaller and growing rapidly face greater risks.

MCPS presents answers 10 hypothetical questions, many of which are incorrect or misleading.

Here I include a couple of the most egregious MCPS claims:

1. MCPS' answer to their question 9 incorrectly claims, "Using the Group 2B classification of the entire spectrum of radiofrequencies as an indication that Wi-Fi is harmful when the classification came about due to extremely heavy cell phone use and not Wi-Fi does not accurately represent the intention of the classification."

First, Dr. Robert Baan who led the IARC investigation by 30 experts from 14 countries, said that the intention of the study was "to assess the carcinogenicity of radiofrequency electromagnetic fields (RF-EMF)." In regard to children Baan stated, "When used by children, the average RF energy deposition is two times higher in the brain and up to ten times higher in the bone marrow of the skull, compared with mobile phone use by adults." [Lancet-Oncology (July 2011)]

Second, the "extremely heavy cell phone use" that resulted in the Group 2B Human Carcinogen determination was at most about 27 minutes per day. The students' exposure to Wi-Fi from their devices takes place over the entire school day, 5 days a week six or more hours a day.

2. The MCPS answer to question 5 erroneously states, "The FCC, the American Cancer Society (ACS), the Food and Drug Administration (FDA), and the National Cancer Institute (NCI) all have conducted reviews as recently as 2013 and found that there is no basis to establish a different safety threshold."

None of these organizations have conducted any such safety reviews.

The Board of Education has an obligation to protect health and safety, and to provide the safest possible learning environment, so must take all reasonable measures to keep exposures to a minimum, and to inform staff, parents and students of the risks. There are also serious financial risks if the Board proceeds to install wireless devices. It should be noted that insurance companies will not cover health damages from any wireless devices, as staff and students will be experiencing exposures to an agent for which they cannot obtain insurance protection.

Finally, multiple human epidemiological studies from a number of major industrial countries report statistically significant risks for brain, eye, hearing nerve, salivary gland, and leukemia cancers from exposure to RFR. Additionally, there are cell, animal and human studies showing deleterious effects on sperm including but not limited to sperm DNA fragmentation. Our website ehtrust.org provides an overview of scientific findings. The website showthefineprint.org provides information on distances that devices should be respected, noting that tablets are tested at 20 cm (8 inches) from an adult male body phantom.

The health and financial risks are completely unnecessary, because wired cable connections can provide computer access without exposing schools to radiation. I very much look forward to working with you to provide a more balanced and accurate accounting of effects of wireless radiation, and alternative technologies, so that MCPS can make informed decisions as they proceed.



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IF WE DO NOT LOOK, WE CANNOT FIND

Reference List

Morris, R.D.; Morgan, L.L.; Davis, D.L., "Children Absorb Higher Doses of Radio Frequency Electromagnetic Radiation From Mobile Phones Than Adults." in *Access, IEEE* , vol.3, no., pp.2379-2387, 2015 doi: 10.1109/ACCESS.2015.2478701

Morgan LL, Miller AB, Sasco A, Davis DL, Mobile phone radiation causes brain tumors and should be classified as a probable human carcinogen (2A) (review). *Int J Oncol.* 2015 May;46(5):1865-71. Epub 2015 Feb 25.

L. Lloyd Morgan, Santosh Kesari, Devra Lee Davis. Why children absorb more microwave radiation than adults: The consequences. *Journal of Microscopy and Ultrastructure* DOI: 10.1016/j.jmau.2014.06.005. In press. Published online Jul 15, 2014.

Gandhi OP, Morgan LL, De Salles AA, Han YY, Herberman RB, Davis DL. (2012). Exposure limits: the underestimation of absorbed cell phone radiation, especially in children. *Electromagn Biol Med.* 31(1), 3451.

Fernandez-Rodriguez, C.E.; Almeida de Salles, A.A.; Davis, D.L.; Morgan, L., SAR simulations in SAM varying the dimensions, the distances and the age dependent dielectric parameters. *Microwave and Optoelectronics Conference (IMOC) SBMO/IEEE MTT-S International*, Year 2015.

Morgan LL, Herberman RB, Philips A, Lee Davis D. Re: Mobile phone use and brain tumors in children and adolescents: a multicenter case-control study. *Journal of the National Cancer Institute*, 2012 Apr 18;104(8):635-7;

Fragopoulou A, Grigoriev Y, Johansson O, Margaritis LH, Morgan L, Richter E, Sage C., Scientific panel on electromagnetic field health risks: consensus points, recommendations, and rationales., *Rev Environ Health.* 2010 Oct-Dec;25(4):307-17.

Morgan LL., Estimating the risk of brain tumors from cellphone use: Published case-control studies., *Pathophysiology.* 2009 Aug;16(2-3):137-47. doi: 10.1016/j.pathophys.2009.01.009. Epub 2009 Apr 7.

Hardell L, Carlberg M, Söderqvist F, Mild KH, Morgan LL., Long-term use of cellular phones and brain tumours: increased risk associated with use for > or =10 years., *Occup Environ Med.* 2007 Sep;64(9):626-32. Epub 2007 Apr 4. Review.

Hallberg Ö, Morgan LL. The Potential Impact of Mobile Phone Use on Trends in Brain and CNS Tumors. *J Neurol Neurophysiol* 2011, S5. <http://dx.doi.org/10.4172/2155-9562.S5-003>

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