

Department

Date

Reference

Your date

Your reference

CEO Dr. Andrew Zuckerman
Montgomery County Schools
Carver Educational Services Center
850 Hungerford Drive
Rockville, MD 20850
USA

November 30, 2015

To Montgomery County Public Schools' CEO Dr. Andrew Zuckerman

Regarding: Wireless technology should not be used in schools or pre-schools due to health risks for children and employees

It has come to our attention that MCPS has measured the radiofrequency radiation in several of your schools. We also understand the district is sharing information with parents and teachers and staff about the potential health risks of wireless radiation. Based on current published scientific studies, we urge your administration to educate themselves on the potential risks from wireless technologies in schools, and to choose wired teaching technologies. The well-being and educational potential of children depends on it.

High-speed connectivity to schools is important but it can be a wired connection instead of Wi-Fi. Wireless classroom infrastructure and wireless devices for schoolchildren should be avoided for these reasons:

- Wireless radiofrequency radiation emissions were classified as a Possible Human Carcinogen (group 2B) by the World Health Organization International Agency for Research on Cancer (IARC) in May 2011. One of the signers, Dr Hardell, was part of the evaluation group.
- The IARC classification holds for *all forms of radio frequency radiation* including RF-EMF emissions from wireless transmitters (access points) in schools, tablets and laptops.
- Epidemiological studies show links between radiofrequency radiation (RFR) exposure and cancers, neurological disorders, hormonal changes, symptoms of electrical hypersensitivity (EHS) and more. Laboratory studies show that RFR exposure increases risk of cancer, abnormal sperm, learning and memory deficits, and heart irregularities. Foetal exposures in both animal and human studies may result in altered brain development in the young offspring, with disruption in learning, memory and behaviour.
- The research showing increased brain cancer risk *has strengthened* since the IARC 2011 classification as new research has been published which repeatedly shows a significant association after RF exposure. In addition, tumour promotion studies have now been replicated showing cancer promotion after exposures at low levels. Therefore, it is our opinion and that of many colleagues that the current IARC cancer risk classification should move to an *even higher* risk group.

The evidence for these statements is based on hundreds of published, peer-reviewed scientific studies that report adverse health effects at levels much lower than current ICNIRP and FCC

public safety limits. Compliance with government regulations does not mean that the school wireless environment is safe for children and staff (especially pregnant staff).

As researchers in cancer epidemiology and radio frequency radiation exposures, we have published extensively in this area and it is our opinion that schools should choose wired Internet connections. Multiple epidemiological research studies show that exposures equivalent to 30 minutes a day of cell phone use over ten years results in significantly increased brain cancer risk (Please update your Radio Frequency FAQ on cancer risk with this information).

What will be the health effect for a child exposed all day long in school for 12 years? Wireless networks in schools results in full body low level RF-EMF exposures that can have a cumulative effect on the developing body of a child. No safe level of this radiation has been determined by any health agency and therefore we have no safety assurances. Cancers can have long latency periods (time from first exposure until diagnosis) and it will take decades before we know the full extent of health impacts from this radiation. The statistics and effects will be borne by the children you serve.

Wi-Fi in schools, in contrast to wired Internet connections, will increase risk of neurologic impairment and long-term risk of cancer in students. Promoting wireless technology in schools disregards the current health warnings from international science and public health experts in this field.

We recommend that your school district install wired Internet connections and develop curriculum that teaches students at all ages safer ways to use their technology devices. If cell phones and other wireless devices are used in the school curriculum (as many schools are now doing with Bring your Own Device Policy) then there should be educational curriculum in place and well posted instructions in classrooms so that the students and staff use these devices in ways so that exposure to the radiation is reduced as much as possible.

Supporting wired educational technologies is the safe solution in contrast to potentially hazardous exposures from wireless radiation.

Respectfully submitted



Lennart Hardell, MD, PhD
Department of Oncology,
Orebro University Hospital,
SE-701 85 Orebro, Sweden

E-mail: lennart.hardell@regionorebrolan.se



Michael Carlberg, MSc
Department of Oncology,
Orebro University Hospital,
SE-701 85 Orebro, Sweden

michael.carlberg@regionorebrolan.se

References and additional reading:

Coureau G, Bouvier G, Lebailly P, Fabbro-Peray P, Gruber A, Leffondre K, Guillaumo JS, Loiseau H, Mathoulin-Pélissier S, Salamon R, Baldi I. **Mobile phone use and brain tumours in the CERENAT case-control study.** *Occup Environ Med.* 2014;71(7):514-22.

Carlberg M, Hardell L. **Decreased survival of glioma patients with astrocytoma grade IV (glioblastoma multiforme) associated with long-term use of mobile and cordless phones.** *Int J Environ Res Public Health.* 2014;11(10):10790-805.

Hardell L, Carlberg M. **Mobile phone and cordless phone use and the risk for glioma - Analysis of pooled case-control studies in Sweden, 1997-2003 and 2007-2009.** *Pathophysiology.* 2015;22(1):1-13.

Hardell L, Carlberg M, Söderqvist F, Hansson Mild K. **Case-control study of the association between malignant brain tumours diagnosed between 2007 and 2009 and mobile and cordless phone use.** *Int J Oncol.* 2013;43(6):1833-45.

Hardell L, Carlberg M, Hansson Mild K. **Pooled analysis of two case-control studies on the use of cellular and cordless telephones and the risk of benign brain tumours diagnosed during 1997-2003.** *Int J Oncol.* 2006;28(2):509-18.

Hardell L, Carlberg M, Söderqvist F, Hansson Mild K. **Pooled analysis of case-control studies on acoustic neuroma diagnosed 1997-2003 and 2007-2009 and use of mobile and cordless phones.** *Int J Oncol.* 2013;43(4): 1036-44.

Hardell L, Carlberg M, Hansson Mild K. **Pooled analysis of case-control studies on malignant brain tumours and the use of mobile and cordless phones including living and deceased subjects.** *Int J Oncol.* 2011;38(5):1465-74.

Hardell L, Carlberg M. **Using the Hill viewpoints from 1965 for evaluating strengths of evidence of the risk for brain tumors associated with use of mobile and cordless phones.** *Rev Environ Health.* 2013;28(2-3):97-106.

Hardell L, Carlberg M, Hansson Mild K. **Use of mobile phones and cordless phones is associated with increased risk for glioma and acoustic neuroma.** *Pathophysiology.* 2013;20(2):85-110.

International Agency for Research on Cancer (IARC). **Non-ionizing radiation, Part II: Radiofrequency electromagnetic fields.** *IARC Monogr Eval Carcinog Risks Hum.* 2011;102(2):1-460.

Lerchl A, Klose M, Grote K, Wilhelm AF, Spathmann O, Fiedler T, Streckert J, Hansen V, Clemens M. **Tumor promotion by exposure to radiofrequency electromagnetic fields below exposure limits for humans.** *Biochem Biophys Res Commun.* 2015;459(4):585-90.