

Central Vermont Medical Center

**MONTPELIER
INTEGRATIVE
FAMILY HEALTH**

156 Main Street
Montpelier
Vermont 05602
802.223.4738

Rima Carlson, MD
Jeremiah Eckhaus, MD, ABHM
Paul Laffal, MD

Emily Byrne, FNP
Jennifer Gordon, LICSW
Kathleen Jackman, MSN, FNP
Monique Karthaus, MS, PA-C

March 29, 2013

To parents, school administrators, teachers, and elected officials:

I am a family physician and medical director at the Montpelier Integrative Family Health Center in Vermont. I am board certified by the American Board of Family Practice and the American Board of Holistic Medicine.

I am writing to you about the problem of WiFi in schools, which based on my review of the scientific literature, represents a potential health hazard, particularly for young people, those who are pregnant or planning a future pregnancy, those who have preexisting diseases and impairments, the elderly, and those with implanted medical devices such as cochlear implants, pacemakers and insulin pumps.

As you may know, WiFi emits radiofrequency / microwave (RF/MW) radiation. Radiation exposure levels in a WiFi enabled classroom are often higher than if there were a cell tower on school grounds. Most of us would never consider allowing a cell tower to be placed next to our schools, but we inadvertently bring this same kind of radiation into the classroom when schools select WiFi as the means by which they connect to the internet.

There exist, contrary to some public statements, many long-term human studies of RF/MW radiation at exposure levels comparable to and less than those in WiFi'd microenvironments. These peer-reviewed studies consistently conclude adverse biological and health effects. According to prolific researcher Dimitri Panagopoulos PhD, in his 2008 review, the consistency in the showing of harm appears particularly with chronic exposure durations. "Chronic" may mean radiation all day every day or much of a day almost all days, such as children and other school occupants receive from WiFi deployment. By way of chronic duration, school WiFi may be more harmful than intermittent cell phone use.

There are many RF/MW radiation studies that range from as far back as the 1920s up to the present. When one looks at the actual scientific research, one sees very compelling and recent scientific conclusions that adverse effects occur at radiation exposure levels lower than those in WiFi-enabled classrooms.

For more information about other members of the CVMC Medical Group call 371.5972 or consult our website: cvmc.org.

CARDIOLOGY

Central Vermont Cardiology

FAMILY HEALTH

Associates in Family Health
Central Vermont Primary Care
Green Mountain Family Practice
Mad River Family Practice
Montpelier Integrative Family Health
Waterbury Medical Associates

INTERNAL MEDICINE

Barre Internal Medicine
Mountainview Medical

MEDICAL ONCOLOGY

Mountainview Medical

NEUROLOGY

Central Vermont Neurology

OBSTETRICS, GYNECOLOGY

Central Vermont Women's
Health

PEDIATRICS

Associates in Pediatrics - Barre
Associates in Pediatrics - Berlin

RHEUMATOLOGY

Central Vermont Rheumatology

PSYCHIATRY

Family Psychiatry Associates

UROLOGY

Berlin Urology
MountainView Urology

For example, in 2011 a study published in the *Journal of Fertility and Sterility* found increased DNA fragmentation and reduced sperm motility in just four hours of exposure to a WiFi laptop.

<http://www.ncbi.nlm.nih.gov/pubmed/22112647>

Since DNA damage occurs within just a few hours of exposure to WiFi radiation, even more significant damage to reproductive health is predictable for those who use these devices for longer periods of time and over many years, particularly for children whose bodies are still developing.

A 2012 study published in *The Journal of Pediatric Urology* reported pathological changes indicative of DNA damage within the reproductive system resulting from exposure to WiFi-emitted radiation. The authors state:

“These findings raise questions about the safety of radiofrequency exposure from Wi-Fi Internet access devices for growing organisms of reproductive age, with a potential effect on both fertility and the integrity of germ cells.”

<http://www.ncbi.nlm.nih.gov/pubmed/22465825>

These studies are but a very few of many peer-reviewed papers --demonstrating that RF/MW radiation is genotoxic, meaning that it causes damage to DNA and other genetic material.

As you are likely aware, DNA is our “instruction manual” found in all of our cells. If DNA becomes damaged, and is not repaired, cells may get the wrong instructions and start to multiply out of control, leading to cancer.

DNA damage happens all the time during daily life, with single-strand breaks that can usually be repaired by the body. Double-strand DNA breaks cause the death of the cell, which is especially consequential to brain health, as brain cells do not reproduce as frequently as do other cells. However, single-strand breaks may be more harmful to the organism as a whole, because they produce permanent genetic mutations. Both single- and double-strand DNA breakage from RF/MW exposure is reported within the scientific literature.

Here is a large, international and very recent review of the scientific literature:

http://www.bioinitiative.org/report/wp-content/uploads/pdfs/sec06_2012_genetic_effects_non-ionizing.pdf

As a medical doctor, these findings prompt me to urge the implementation of policies that restrict the use of WiFi in classrooms. I understand the need for our children to utilize computer technology in order to be successful in our changing world. I believe that this can be achieved safely by using “wired” internet connections instead of WiFi.

As we've seen with asbestos, DDT, tobacco, lead paint, BPA, and other chemicals, it can take decades for public policy to catch up with science. These toxins have caused suffering for many people long after the primary science made it clear that they are harmful.

A century ago it was commonly believed that RF/MW radiation did not cause DNA damage, simply because it was non-ionizing. The research now shows that this presumption is false; as over fifty research papers published in the last seven years report damage to DNA and other genetic material from RF radiation.

There is more than enough evidence now for public health policy makers and the scientific community in this country to make a stand and prevent unnecessary harm, as is beginning to happen in Europe.

I urge you to consider the work of Dr. Martha Herbert MD of the Harvard Medical School, who has reviewed the scientific literature, and calls for protection of vulnerable individuals including children from WiFi radiation in schools.

http://www.wifiinschools.com/uploads/3/0/4/2/3042232/martha_herbert.md_laUSD_wifi_in_schools.pdf

In many ways the solution is very simple. Use wired technology in schools, instead of wireless ones, to prevent potential harm to children. Unfortunately, I recognize that the decision to do this is not a simple one. The "pro-WiFi" lobby of the telecommunications industry is substantial, and I understand that making a decision to restrict WiFi exposure to children can be a very daunting task. I urge you to have the strength to make a wise decision right now. Please do not hesitate to contact me if I can be of any further assistance.

Sincerely,



Jeremiah M. Eckhaus, MD, ABHM
Adjunct Assistant Professor
Community and Family Medicine
Geisel School of Medicine at Dartmouth
Medical Director, Montpelier Integrative Family Health
156 Main Street
Montpelier, VT 05602
802-223-4738