Scientists and Medical Doctors Advise Against WiFi in Schools

Dr. David O Carpenter, MD, Director Institute for Health and the Environment, University at Albany and Professor of Environmental Health Sciences, School of Public Health, USA.

Chronic, such as all-day, school exposure, is more likely than short and intermittent exposure, such as cell phone use, to produce harmful health effects, and is likely to do so at lower exposure levels.

Children are more vulnerable to RF/MW radiation because of the susceptibility of their developing nervous systems. Children are largely unable to remove themselves from exposures to harmful substances in their environments. Their exposure is involuntary. There is a major legal difference between an exposure that an individual chooses to accept and one that is forced upon a person, especially a dependent, who can do nothing about it. WiFi must be banned from school deployment.

Professor Lukas H. Margaritis, PhD, Professor Emeritus of Cell Biology and Radiobiology, Dept of Cell Biology and Biophysics, University of Athens, Greece.

Having done experiments on cellular model systems we have found an effect from electromagnetic radiation from WiFi. I have strongly suggested for years now that they should be used only if absolutely necessary in the home and not at all in schools. There is no reason for having WiFi in schools since there is an alternative - wired connections which are safer and faster.

Dr Mae-Wan Ho, PhD, FRSA, Director of the Institute of Science in Society, London, UK.

It is very important for schools and other public places frequented by children to be free of Wi-Fi. The evidence on 'non-thermal' biological effects of electromagnetic fields is now indisputable and children are many times more at risk than adults.

Dr Norbert Hankin, PhD, Environmental Scientist, Office of Radiation and Indoor Air, Environmental Protection Agency, USA.

The growing use of wireless communications by children and by schools will result in prolonged long-term exposure of developing children to low-intensity pulse modulated radiofrequency radiation.

Recent studies involving short-term exposures have demonstrated that subtle effects on brain functions can be produced by low-intensity pulse modulated radiofrequency radiation. Some research involving rodents has shown adverse effects on short-term and long-term memory. The concern is that if such effects may occur in young children, then even slight impairment of learning ability over years of education may negatively affect the quality of life that could be achieved by these individuals, when adults.

Dr Annie Sasco, MD, PhD, Director, Epidemiology for Cancer Prevention, INSERM (Institut national de la santé et de la recherche médicale) Research Unit, School of Public Health, Victor-Segalen Bordeaux 2 Université, France. Formerly International Agency for Research on Cancer (IARC) Unit Chief of Epidemiology for Cancer Prevention.

If we want to wait for final proof, at least in terms of cancer, it may still take 20 years and the issue will become that we will not have unexposed population to act as control. We may never have the absolute final proof. But we have enough data to go ahead with a precautionary principle to avoid exposures (radiofrequencies) which are unnecessary if our goal is to reduce somewhat the burden of cancer in the years to come and other chronic diseases.

Dr Stelios A. Zinelis, BA, MD, Hellenic Cancer Society, Cefallonia, Greece

We should not subject and force electromagnetic radiation on school children. Technology can be applied by a wired connection. Effects of the electromagnetic radiation have been well documented and should not be ignored. The past has taught as many lessons, for example asbestos.

Dr Belyaev Dr.Sc., Head Research Scientist, Cancer Research Institute, Slovak Academy of Science, Slovak Republic; Associate Professor in Toxicological Genetics, Faculty of Natural Science, Stockholm University, Sweden.

To my opinion, which is based on 25-year research of non-thermal effects of microwaves, usage of Wi-Fi and cell/mobile/smart phones in the classroom should be either forbidden or reduced as much as possible. I believe that the majority of scientists with long lasting experience in this scientific field are of the same opinion. Several national authorities have already advised limiting usage of mobile communication by children.

Dr Samuel Milham MD, MPH, Epidemiology and Public Health, Formerly Washington State Department of Health, USA.

Wireless technologies have no place in schools. I strongly recommend that where they exist, they be replaced by fiber-optic cable and hard wiring.

Professor Dr. Franz Adlkofer, MD, Chairman of Pandora - Foundation for Independent Research.

While the use of mobile phones is the result of people's free choice, their exposure to W-LAN and other wireless applications is mostly compulsory. Especially concerned are children in schools where this technology has been given preference to wired computers. Since our knowledge on possible adverse effects of radiofrequency electromagnetic fields is still rather poor, it is obvious that at present the biggest biophysical experiment of mankind is under way – with an uncertain outcome.

In May 2011, the uncertainty has been strengthened by the International Agency for Research on Cancer (IARC) that classified radiofrequency electromagnetic fields as 'possibly carcinogenic to humans'. This decision was mainly based on the results of epidemiological studies that observed after long-term (>10 years) and intensive use of mobile phones an increased risk for brain tumors exactly at the side of the head at which the mobile phone was used. The results from animal experiments, although of minor significance, supported the decision. Not discussed, however, was research that shows changes in the structure and functions of genes. Had they been included in the evaluation, the classification would not have been 'possibly carcinogenic' but rather 'probably carcinogenic'.

The general public is confronted with two different views, one represented by politics and industry and one by the growing number of independent researchers. Ordinary people have either no idea of the probably adverse effects of radiofrequency radiation or have full confidence in the exposure limits that according to their governments reliably protect from risk to the health. They do not know that the exposure limits are based on pseudo-science thought to create the necessary legal frame for a telecommunication industry that wants to make use of the new technology without being hampered by medical considerations.

For a medical doctor like me, the conclusion from the present state of knowledge must be that a precautionary approach is overdue and must not be delayed anymore.

Dr Alfonso Balmori, PhD, Biologist, Researcher on effects of electromagnetic fields on wildlife, Valladolid, Spain.

The ongoing invasion of radiation caused by Wi-Fi transmitters and other radiofrequency sources represents a denial of scientific evidence and extreme myopia. It is absurd when cable can be used with much greater speeds that schools choose to do so by air. Moreover health must take priority over access to information. Wi-Fi systems are being senselessly installed, even for young children. Society is performing an extremely dangerous and suicidal experiment with them. In it are included not only the children of those who are convinced that electromagnetic radiation is harmful but also the children of the promoters of such systems, both politicians and those who work in the communications industry and also the scientists who deny the evidence. The problems of depression, attention deficit and insomnia in children are increasing worldwide at an alarming rate.

Dr Vini G. Khurana, MBBS, BSc (Med), PhD, FRACS, Associate Professor of Neurosurgery, Australian National University Medical School; Currently Visiting Attending Neurosurgeon, Royal Melbourne Hospital.

The concerns raised regarding the unnecessary and prolonged exposure of children to near-field radiofrequency electromagnetic radiation (RF-EMR) from mobile phones, wireless laptops and nearby Wi-Fi transmitters in schools are shared by many.

A precautionary approach is realistically achieved without compromising convenience and safety.

There are good grounds for adopting such an approach in children, particularly in the context of the WHO's recent classification of RF-EMR as "possibly carcinogenic to humans", and the fact that children may be more susceptible to any adverse health effects of RF-EMR owing to their thinner scalp and skull, increased brain water content, lower brain volume, and rapidly developing neural connections.

Dr Erica Mallery-Blythe, BM, Emergency Room Registrar, Medical Advisor ES-UK

Radiofrequency radiation was classified last year (2011) as a class 2B carcinogen by the International Agency for Research on Cancer (IARC)/World Health Organization (WHO). This means that Global Health Authorities are concerned that this kind of radiation (used by many kinds of household wireless devices) may cause cancer. There are several convincing mechanisms via which cellular disruption is taking place and all bodily systems are potentially vulnerable. All persons should, in my opinion, take precaution to reduce their exposure to unnatural radiation, including that from non-ionizing, non-thermal sources such as cell phones, Wi-Fi routers, cordless landlines and many others. This advice is particularly important for parents and Education Authorities when creating home and school environments because children are more vulnerable to this kind of radiation.

Science has repeatedly and clearly demonstrated adverse effects of artificial electromagnetic fields on biological systems. It is far too late for timely intervention, but failure to act now with conviction and protect our children could lead to a national health disaster.

Dr Olle Johansson, Associate Professor, Karolinska Institute, Stockholm, and Professor, The Royal Institute of Technology, Stockholm, Sweden.

Wireless communication is now being implemented in our daily life in a very fast way. At the same time, it is becoming more and more obvious that the exposure to the electromagnetic fields used by these systems not only may induce acute thermal effects to living organisms, but also non-thermal effects, the latter often after longer exposures. This has been demonstrated in a very large number of studies and includes cellular DNA-damage, disruptions and alterations of cellular functions like increases in intracellular stimulatory pathways and calcium handling, disruption of tissue structures like the blood-brain barrier, impact on vessel and immune functions, association to cancer, and loss of fertility.

Wireless systems, such as Wi-Fi routers and cell/mobile/smart phones, cannot be regarded as safe in schools, but must be deemed highly hazardous and unsafe for the children as well as for the staff.

Dr Martin Blank, Ph.D., Associate Professor of Physiology and Cellular Biophysics, College of Physicians and Surgeons, Columbia University, New York, USA.

Just because we allow microwaves, doesn't mean that Wi-Fi at the same frequency should be allowed into all classrooms. There is now sufficient scientific data about the biological effects of electromagnetic fields (EMF), and in particular about radiofrequency (RF) radiation, to argue for adoption of precautionary measures. We can state unequivocally that EMF can cause single and double strand DNA breakage at exposure levels that are considered safe under the FCC guidelines in the USA.

EMF have been shown to cause other potentially harmful biological effects, such as leakage of the blood brain barrier that can lead to damage of neurons in the brain, increased micronuclei (DNA fragments) in human blood lymphocytes, all at EMF exposures well below the limits in the current FCC guidelines. Probably the most convincing evidence of potential harm comes from living cells themselves when they start to manufacture stress proteins upon exposure to EMF. The stress response occurs with a number of potentially harmful environmental factors, such as elevated temperature, changes in pH, toxic metals, etc. This means that when stress protein synthesis is stimulated by radiofrequency or power frequency EMF, the body is telling us in its own language that RF exposure is potentially harmful.

It is obvious that the safety standards must be revised downward to take into account the non-thermal as well as thermal biological responses that occur at much lower intensities. Since we cannot rely on the current standards, it is best to act according to the precautionary principle. The precautionary approach appears to be the most reasonable for those who must protect the health and welfare of the public and especially its most vulnerable members, children of school-age.

Professor Dr. Oleg Grigoriev, PhD, Director of the Russian Centre for Electromagnetic Safety and Vice-Chairman of the RCNIRP. Dr. of Medical Science, Chairman of the Russian National Committee on Non-Ionizing Radiation Protection (RCNIRP); member of International Advising Committee on WHO EMF Project.

Our committee is against the use of Wi-Fi systems in schools. The reason is that it forms a very complex form of electromagnetic field, but in this case the probability of biological effect is higher than when the same total dose is created by one source of unmodulated electromagnetic field. This pattern is for non-thermal electromagnetic fields. There are very good studies that have shown that prolonged exposure to low-intensity radio waves in children disturbed cognitive function, and we trust this research.

Dr Magda Havas, PhD, Associate Professor, Environmental and Resource Studies, Trent University, Ontario, Canada.

I am a scientist researching the adverse health outcomes of electromagnetic radiation exposure, including from sources such as WI-FI networks and cell towers. I conducted a study that showed immediate and dramatic changes in both heart rate and heart rate variability associated with microwave exposure to a frequency of 2.4 GHz at levels well below (0.5 percent) federal guidelines. The reactions include heart irregularities, a rapid heart rate, up-regulation of the sympathetic nervous system, and down-regulation of the parasympathetic nervous system.

It is important that children be exposed to the important education, life experiences, and social structures that public education offers, but they must not be risking their health to do so! Children must not be exposed to a constant background of pulsed microwave radiation from WI-FI (or other sources) while at school.

The Internet is an important learning device that should not be taken away. I simply urge that its access be made available through wires rather than Wi-Fi.

Professor Dr. Christos Georgiou, PhD, Professor of Biochemistry, University of Patras, Greece

Every child has the non-negotiable, obvious right to a healthy and safe school environment.

Governments and school boards can no longer trust the wireless communication industry's monotonous slogan that Wi-Fi and cell phones are safe. In May 2011, the World Health Organization (WHO) classified microwave radiation, emitted by such wireless devices, as a possible carcinogen. WHO could no longer ignore the scientific and social pressure from numerous studies, which have shown that WiFi/cell phone radiation penetrates the body, affects cell membranes, makes cells lose their ability to function properly over time, and disturbs the body's normal metabolism causing numerous abnormalities and diseases.

Children are especially vulnerable to microwave radiation because their nervous system and especially the brain are still developing. Moreover, their skulls are thinner and smaller than those of the adults, so the radiation penetrates their brains more freely and deeply.

Microwave radiation displays in children life threatening short and long term effects: the short term effects are experienced as headaches, dizziness, nausea, vertigo, fatigue, visual and auditory distortion (voices change volume, ringing ears), abnormal heart rates (racing heart rate or tachycardia, erratic heart rates), memory loss, attention deficit (trouble concentrating while in class), skin rash, hyperactivity, anxiety, autism, depression, night sweats, insomnia (microwaves affect melatonin levels), learning impairment, behavioral changes etc; the long term effects are expressed as stress, a weakened immune system, seizures, epilepsy, high blood pressure, brain damage, diabetes, fibromyalgia, infertility, birth defects, DNA damage, leukemia, cancer, etc.

Professor Dr. Alvaro Augusto A. de Salles, PhD, Electrical Engineering Department, Federal University of Rio Grande do Sul, Porto Alegre, Brazil.

I believe that responsible governments should act firmly to avoid the use of mobile/smart phones and Wi-Fi in schools.

The main reasons are due to the scientific evidence already available in the international literature (e.g., Bioinitiative report, Pathophysiology 2009, Interphone report, Hardell's group papers, etc) showing health risks even at low level exposure to the non-ionizing radiation (NIR), the 2011 IARC/WHO possible carcinogenic (2 B) classification of the NIR and because due to different reasons, the children are more susceptible to this radiation.

Then the "Precautionary Principle" should effectively be used in this subject and instead of wireless connection, other fixed connections such as twisted pairs, coaxial cables, optical fiber, etc should be available for each student, avoiding therefore exposure during several hours to the NIR.

If serious and responsible decisions are not taken in due time, the price in terms of future generations public health can be very high.

Professor Dr. Nesrin Seyhan, Medical Faculty and Chair of Biophysics Department, Gazi University, Turkey; WHO EMF International Advisory Committee; Panel Member NATO RTA Human Factors and Medicine.

Dr. Seyhan, founder of the Gazi Non-Ionizing Protection Center (GNRK), always opposes radiofrequency sources near schools. She believes that potential adverse health effects from the children's use of Wi-Fi and cell/mobile/smart phone would be greater than with respect to adults. She also recommends that children younger than 16-years-old should not have their own mobile phone.