

February 2011

Toronto Public Health's Position on Radiofrequencies (RFs) from Wi-Fi

1. POSITION STATEMENT

Because of the very low exposure to RFs associated with the use of Wi-Fi, it is not likely to lead to health effects in the general population, including children and seniors. There is no health reason to avoid the use of Wi-Fi.

2. DEFINITIONS AND ACRONYMS

Prudent avoidance policy: The City of Toronto policy providing a guideline for public exposure to RF such that people would be exposed to RF levels 100 times lower than (or 1% of) the federal standard known as Safety Code 6. The prudent avoidance policy is an application of the precautionary principle which acknowledges that evidence of harmful health effects from RFs is inconclusive; however reducing exposures to the public is prudent when it can be done at low or no cost and without jeopardizing other public policy objectives.

Radiofrequencies (RF): Energy waves that are part of the electromagnetic spectrum in the frequency range between 3 kHz and 300 GHz. RFs occur between FM radio waves and microwaves. People are exposed to many sources of RFs. Cell phone towers, cordless phones, pagers, remote control devices, wireless Internet services (also known as Wi-Fi) and cell phones all emit low levels of RFs.

Safety Code 6: Health Canada's exposure guideline for RFs.

Wi-Fi: Wi-Fi a trademarked name referring to the wireless technology that operates using RFs and allows internet access by devices such as laptop or desktop computers or Personal Digital Assistants (PDAs).

3. BACKGROUND

Key Points

- Published research indicates that exposure to RFs from Wi-Fi is very low - 1000 times or more below exposure guidelines such as Safety Code 6.¹
- RF levels from Wi-Fi are expected to meet the exposure recommendations set out in the City of Toronto Prudent Avoidance Policy.

Exposure to RFs from Wi-Fi

- RF measures from Wi-Fi vary and are higher during data transmission compared to when computers and access points are on standby.² RF measures also vary with distance from the computer or access points.
- Researchers from the UK Health Protection Agency (UK HPA) determined that maximum RF exposure for a child using a Wi-Fi-enabled laptop is about 0.35% of the RF exposure (known as the Specific Absorption Rate or SAR)¹ from typical use of a mobile phone.³

Wi-Fi in Toronto

- There are different ways to access the Internet. Wireless access is often preferred in institutional settings like schools because it allows for greater flexibility and convenience and is cost effective.
- Wi-Fi is available widely in Toronto and can be found in many public settings such as public libraries and many schools. It is also widely available in homes, hotels, coffee shops, shopping malls and long-term care homes.
- RF measurements taken in response to a public complaint about a Wi-Fi installation demonstrate that RFs are below the Toronto prudent avoidance policy RF level.

What do other agencies say about health risks from Wi-Fi?

- Because exposure to RFs from Wi-Fi is well below Safety Code 6, Health Canada states “there is no convincing scientific evidence that this equipment is dangerous to schoolchildren”.⁴
- The Ontario Agency for Health Protection and Promotion has summarized the scientific evidence and concludes that “RF exposures to the public, including school children, from Wi-Fi are far lower than occur with cell phone use and to date there is no plausible evidence that would indicate current public exposures to Wi-Fi are causing adverse effects on health.”⁵
- Dr. Arlene King, the Chief Medical Officer of Health for Ontario recently stated that the use of wireless communication systems does not pose a public health risk. ⁶
- The UK HPA indicates that there is no consistent evidence that Wi-Fi and WLANs adversely affect health of the general population and that schools can continue to use wireless networks and equipment.⁷ The UK HPA also states that as a precaution they are keeping this technology under “ongoing review so that parents and others can have as much reassurance as possible”.

4. REFERENCES/SOURCES

1. Foster KR. 2007. Radiofrequency exposure from wireless LANs utilizing Wi-Fi technology. *Health Phys.* 92:280-9.
2. United Kingdom, Health Protection Agency. 2010. Wireless Local Area Networks (WLANs). <http://www.hpa.org.uk/Topics/Radiation/UnderstandingRadiation/UnderstandingRadiationTopics/ElectromagneticFields/WirelessLocalAreaNetworks/>
3. Findlay RP and PJ Dimbylow. 2010. SAR in a child voxel phantom from exposure to wireless computer networks (Wi-Fi). *Phys. Med. Biol.* 55 N405
4. Health Canada Statement on Radiofrequency Energy and Wi-Fi Equipment. 2010-142. Aug 18, 2010 http://www.hc-sc.gc.ca/ahc-asc/media/fttr-ati/_2010/2010_142-eng.php

¹ SAR is a way of measuring the quantity of radio frequency (RF) energy that is absorbed by the body as opposed to power density, a measure of ambient RFs from the source device.

5. Ontario Agency for Health Protection and Promotion. 2010. Wireless technology and health outcomes: Evidence and review. September 16, 2010. http://www.oahpp.ca/about/whatsnew/201009_2.html
6. Statement from Dr. Arlene King, Chief Medical Officer of Health on the Safety of Wi-Fi http://www.health.gov.on.ca/en/news/bulletin/2010/cmoh_wifi.aspx
7. United Kingdom, Health Protection Agency. 2010. Wi-Fi. <http://www.hpa.org.uk/Topics/Radiation/UnderstandingRadiation/UnderstandingRadiationTopics/ElectromagneticFields/Wi-Fi>