The WiFi Health Debate: A Summary Sheet

As public ICT infrastructure extends to remote Canadian communities, the literature on the health effects of radiofrequency (RF) radiation grows likewise. Documented symptoms include tinnitus, insomnia, headaches, chronic fatigue, and respiratory issues, among others. Bioeffects involve DNA breakages, disruptions to enzyme activity, cell membrane function, and metabolism.[1] While the recent folding of municipal wireless networks in San Francisco, Chicago, Houston, and St. Louis cannot be directly attributed to the growing grassroots movement against all forms of electromagnetic field (EMF) radiation, the mounting opposition has worked effectively to place the issue of health effects closer to the top of the agenda in ongoing community wireless projects.

In Canada, the Radiation Protection Bureau of Health Canada's Safety Code 6 regulates the health effects of RFs. For the general public who could be exposed for 24 hours a day to RF fields, the maximum threshold is one-fiftieth of the lowest level of exposure that could cause harm.[2] The Toronto Health Department's guideline for public exposure limits is based on the siting of cellular telephone base transmitters, and a 1999 Board of Health report, which led to the city's adoption of a "Prudent Avoidance Policy," setting current limits to 100 times lower than the threshold in Safety Code 6.[3]

Controversy over the long-term biological impacts of wireless communications technology exists as part of the larger debate on the health consequences of a variety of infrastructure and consumer devices like power lines, microwaves, and radio towers. Since January 1, 2004, Lakehead University's president, Dr. Frederick Gilbert has stalled the campus wide roll-out of Wi-Fi, citing uncertainties over the technology's health implications. The campus remains Wi-Fi free today.[4] When Toronto Hydro Telecom made the Spring 2006 announcement that the downtown core would soon be fitted with Wi-Fi access points, cautionary articles appeared in the local media focusing on the health implications of the non-ionizing, lower-frequency range of the spectrum occupied by Wi-Fi.[5] News reports in the last year or so also cite examples in the United Kingdom and the United States where parents successfully lobbied or sued school boards that deployed wireless networks without consultation with the community such as the Oak Park Elementary School District lawsuit in Cook County, Illinois.[6]

While a number of recent studies support both sides of the debate, the two most frequently cited reports, conducted by the World Health Organization (WHO) and the California Public Utilities Commission (CPUC), fail to find conclusive scientific evidence to link RFs with negative health consequences. In 2006, CPUC reviewed and upheld the results of its June 2002 study with the added implementation of a prudent avoidance policy.[7] In 1996, the WHO created the International Electromagnetic Fields (EMF) Project to investigate health risks and arrived at similar results.[8] However, Canadian scientist Magda Havas, frequently referenced to demonstrate the adverse biological impact of electromagnetic radiation, links the development of certain cancers and lymphoma tumours to RF exposure at levels well below the thresholds set by international and domestic guidelines.[9]

The call for a Precautionary Principle on EMFs has been supported in writing by the European Union and the WHO.[10] This initiative has been bolstered by the International Commission for Electromagnetic Safety (ICEMS) at its 2006 conference,

with the Benevento Resolution. The Precautionary Principle emphasises preventative mitigation of possible negative health impacts by shifting "the burden of proof from those suspecting a risk to those who discount it."[11] This approach has been championed by grassroots organisations like the San Francisco Neighborhood Antenna-Free Union (SNAFU) and The Canadian Initiative for Safe Wireless, Electric and Electromagnetic Policies (SWEEP). These groups suggest variable levels of implementation of the precautionary principle, ranging from an immediate moratorium on the new deployment of wireless technology, a more comprehensive review of existing regulations, to the creation of an independent, scientific monitoring system to document the accumulated long-term effects of RF emissions levels.[12]

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[1] City and County of San Francisco. Board of Supervisors. Analysis of Health and Environmental Effects of Proposed San Francisco Earthlink Wi-Fi Network. Havas, Magda. Case No. 2007.0097E (Submitted) May 31, 2007.

[2] Canada. Health Canada. Environmental Health Directorate Health Protection Branch. Limits of Human Exposure to Radiofrequency Electromagnetic Fields in the Frequency Range from 3 kHz to 300 GHz. Safety Code 6.0. Catalogue No. H46-2/99-237E. Ottawa: Minister of Public Works and Government Services, 1999.

[3] Toronto. Toronto Public Health. Health Concerns of Radio Frequency Fields Near Base Telephone Transmission Towers. MacFarlane, Ronald. City of Toronto, 1999.

[4] Lakehead University. Wi-Fi Policy. 1 Jan. 2004. <http://policies.lakeheadu.ca/policy.php?pid=178>.

[5] Vasil, Adria. Wi-Fi's Electric Shock. *NOW Magazine*. 9 – 15 Mar. 2006: 25 (28).

[6] Beschizza, Rob. "Wi-Fi as a Health Hazard." *Wired Magazine*. Dec. 12, 2006.

[7] California Public Utilities Commission (CPUC). Opinion on Commission Policies Addressing Electromagnetic Fields Emanating from Regulated Utility Facilities. Decision 06-01-042. 26 Jan. 2006.

[8] Repacholi Michael. WHO's Health Risk Assessment of ELF fields. Radiation Protection Dosimetry, 106(4):297-299, 2007.

[9] Havas, Magda. Analysis of Health and Environmental Effects of Proposed San Francisco Earthlink Wi-Fi Network. May 31, 2007.

[10] European Union Precautionary Principle. Brussels (2000). 18 July 2006. <http://ec.europa.eu/environment/docum/20001_en.htm>.

[11] International Commission for Electromagnetic Safety (ICEMS). Benevento Resolution. Benevento, Italty (2006).

[12] San Fransisco Neighborhood Antenna-Free Union. Goals. 17 July 2007. <http://www.antennafreeunion.org/snafu.htm#goals>.