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Safety of cell phones and cell phone towers

With cell phones being used every day in Canada, questions have been raised about their safety. Some members of the public have also expressed concern about the possible health effects of living near [cell phone towers \(http://www.hc-sc.gc.ca/ewh-semt/radiation/cons/stations/index-eng.php\)](http://www.hc-sc.gc.ca/ewh-semt/radiation/cons/stations/index-eng.php).

Cell phones and cell phone towers

The [radiofrequency fields \(http://www.hc-sc.gc.ca/ewh-semt/radiation/cons/radiofreq/index-eng.php\)](http://www.hc-sc.gc.ca/ewh-semt/radiation/cons/radiofreq/index-eng.php) given off by cell phones and cell phone towers is a type of non-ionizing radiation. It is similar to the type of energy used in AM/FM radio and TV broadcast signals. Unlike [ionizing radiation \(http://www.hc-sc.gc.ca/hl-vs/iyh-vsv/environ/expos-eng.php#he\)](http://www.hc-sc.gc.ca/hl-vs/iyh-vsv/environ/expos-eng.php#he) (as emitted by X-ray machines), RF energy from cell phones and other wireless devices cannot break chemical bonds in your body.

Cell phones and cell phone towers in Canada must meet regulatory requirements that limit human exposure to RF energy. See the section "The Government of Canada's Role" for further details. Cell phones emit low-levels of radiofrequency (RF) energy, some of which is absorbed into your body. The amount of RF energy you absorb depends on many factors, such as how close you hold the cell phone to your body and the strength of the signal.

Cell phones are designed to operate at the minimum power necessary to connect and maintain a quality call. Cell phones send and receive radio signals from a network of fixed, low-power, cell phone towers (or base stations). These towers are usually located on rooftops, towers and utility poles. The transmitting power of a cell phone varies, depending on the type of network and its distance from the cell phone tower. The power generally increases the further you move away from the nearest cell phone tower.

Health risks from cell phones and cell phone towers

The number of cell phone users in Canada rose from 100,000 in 1987 to more than 24 million by the end of 2010. To meet the demand for new wireless services, cell phone towers have been put up across the country.

There are a small number of epidemiology studies that have shown brain cancer rates may be

elevated in long-term/heavy cell phone users. Other epidemiology studies on cell phone users, laboratory studies and animal cancer studies have not supported this association.

In 2011, the [International Agency for Research on Cancer \(IARC\)](http://www.iarc.fr/) (<http://www.iarc.fr/>) classified RF energy as "possibly carcinogenic to humans". The IARC classification of RF energy reflects the fact that some limited evidence exists that RF energy might be a risk factor for cancer. However, the vast majority of scientific research to date does not support a link between RF energy exposure and human cancers. At present, the evidence of a possible link between RF energy exposure and cancer risk is far from conclusive and more research is needed to clarify this "possible" link. Health Canada is in agreement with both the World Health Organization and IARC that additional research in this area is warranted.

Although the RF energy from cell phones poses no confirmed health risks, cell phone use is not entirely risk-free. Studies have shown that:

- Using cell phones or other wireless devices can be distracting. Your risk of serious injury may increase if you use these devices while driving, walking, cycling, or doing any other activity that requires concentration for personal safety.
- Cell phones may interfere with medical devices such as cardiac pacemakers, defibrillators, and hearing aids.
- Cell phones may also interfere with other sensitive electronic equipment, such as aircraft communication and navigation systems.

With respect to cell phone towers, as long as exposures respect the limits set in Health Canada's guidelines, there is no scientific reason to consider cell phone towers dangerous to the public.

Reduce your risk

Health Canada reminds cell phone users that they can take practical measures to reduce their RF exposure by:

- limiting the length of cell phone calls
- using "hands-free" devices
- replacing cell phone calls with text messages

Health Canada also encourages parents to take these measures to reduce their children's RF exposure from cell phones since children are typically more sensitive to a variety of environmental agents.

Precautions to limit exposure to RF energy from cell phone towers are unnecessary because exposure levels are typically well below those specified in health-based exposure standards.

The Government of Canada's Role

Health Canada has developed guidelines for safe human exposure to RF energy. The current version of these exposure guidelines is specified in a document called: [Limits of Human Exposure to](#)

[Radiofrequency Electromagnetic Energy in the Frequency Range from 3 kHz to 300 GHz - Safety Code 6 \(2015\)](http://www.hc-sc.gc.ca/ewh-semt/pubs/radiation/radio_guide-lignes_direct/index-eng.php) (http://www.hc-sc.gc.ca/ewh-semt/pubs/radiation/radio_guide-lignes_direct/index-eng.php).

The limits specified in these guidelines are based on an ongoing review of published scientific studies on the health impacts of RF energy. Using data from these studies, Health Canada set the general public exposure limits 50 times lower than the threshold for potentially adverse health effects.

Cell phones are regulated by [Industry Canada](http://www.ic.gc.ca/eic/site/ic1.nsf/eng/h_00000.html?OpenDocument) (http://www.ic.gc.ca/eic/site/ic1.nsf/eng/h_00000.html?OpenDocument). This department also oversees the licensing and placement of cell phone towers, considers the effects on the environment and local land use before towers are installed, and ensures that these towers comply with regulatory requirements. Industry Canada has adopted part of Health Canada's RF exposure guidelines to protect the general public by ensuring that exposure from cell phones and cell phone towers do not exceed the specified limits.

Health Canada continues to monitor the science regarding RF exposure and would take action if future research establishes that RF energy exposure poses a health risk to Canadians.

For more information

- Health Canada, [Cell Phone Towers](http://www.hc-sc.gc.ca/ewh-semt/radiation/cons/stations/index-eng.php) (<http://www.hc-sc.gc.ca/ewh-semt/radiation/cons/stations/index-eng.php>)
- *It's Your Health*, [The Safety of Wi-Fi Equipment](http://www.hc-sc.gc.ca/hl-vs/iyh-vsv/prod/wifi-eng.php) (<http://www.hc-sc.gc.ca/hl-vs/iyh-vsv/prod/wifi-eng.php>)
- World Health Organization, [Electromagnetic fields and public health - mobile phones](http://www.who.int/mediacentre/factsheets/fs193/en/index.html) (<http://www.who.int/mediacentre/factsheets/fs193/en/index.html>)
- World Health Organization, [Electromagnetic fields and public health - base stations and wireless technologies](http://www.who.int/peh-emf/publications/factsheets/en/index.html) (<http://www.who.int/peh-emf/publications/factsheets/en/index.html>)
- International Agency for Research on Cancer [Radiofrequency electromagnetic fields as possibly carcinogenic to humans news release](http://www.iarc.fr/en/media-centre/pr/2011/pdfs/pr208_E.pdf) (http://www.iarc.fr/en/media-centre/pr/2011/pdfs/pr208_E.pdf)

For industry and professionals

- Health Canada's [Consumer and Clinical Radiation Protection Bureau](http://www.hc-sc.gc.ca/ahc-asc/branch-dirgen/hecs-dgsesc/psp-ppp/ccrpb-bpcrcc-eng.php) (<http://www.hc-sc.gc.ca/ahc-asc/branch-dirgen/hecs-dgsesc/psp-ppp/ccrpb-bpcrcc-eng.php>)
- Health Canada's [RF exposure guidelines \(Safety Code 6\)](http://www.hc-sc.gc.ca/ewh-semt/pubs/radiation/radio_guide-lignes_direct/index-eng.php) (http://www.hc-sc.gc.ca/ewh-semt/pubs/radiation/radio_guide-lignes_direct/index-eng.php)
- Industry Canada's [Radio Standards Specification 102](http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf01904.html) (<http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf01904.html>)
- Industry Canada's [Client Procedures Circular CPC-2-0-03](http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf08777.html) (<http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf08777.html>)
- Industry Canada, [Consumer Trends Update - The Expansion of Cell Phone Services](http://www.ic.gc.ca/eic/site/ic1.nsf/eng/03179.html) (<http://www.ic.gc.ca/eic/site/ic1.nsf/eng/03179.html>)

- Industry Canada's *Guidelines for the Protection of the General Public in Compliance with Safety Code 6* (<http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf05990.html>)
- World Health Organization, *Electromagnetic Fields* (http://www.who.int/topics/electromagnetic_fields/en/)

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Government of Canada activities and initiatives

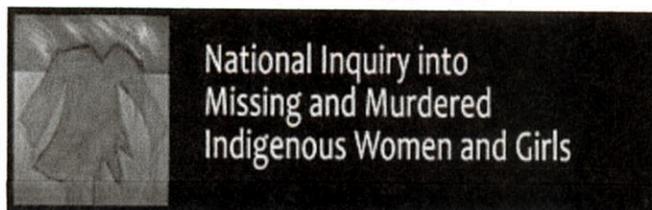
Let's talk clean resources – join the conversation



(<http://www.letstalkcleanresources.ca/>)

Join the conversation on clean technology in Canada's natural resource sectors. Ask a question, share an idea, answer a poll question and get involved.

National Inquiry into Missing and Murdered Indigenous Women and Girls



(<http://www.aadnc-aandc.gc.ca/eng/1448633299414/1448633350146>)

Get the latest on the independent inquiry, the commissioners and their mandate.

Fifth Replenishment Conference of the Global Fund to Fight AIDS, Tuberculosis and Malaria





<http://international.gc.ca/world-monde/campaign-campagne/gfatm-fmstp/replenishment-conference-reconstitution.aspx?lang=eng>

On September 16-17, Canada will host the 5th Replenishment Conference of the Global Fund in Montreal. The conference will bring together allies to raise funds to end AIDS, Tuberculosis and Malaria.