

Article

Mercury concentrations in the Canadian population, 2007 to 2009



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Mercury concentrations in the Canadian population, 2007 to 2009

From 2007 to 2009, the geometric mean of total blood mercury of Canadians aged 6 to 79 was 0.69 micrograms per litre ($\mu\text{g/L}$).

Background

Mercury is a naturally occurring heavy metal that exists in three forms: elemental, inorganic and organic. The most common form of organic mercury is methylmercury. Use of mercury in consumer products has been limited. It has been phased out of most products including thermometers and gauges. It is still used in some medical devices and dental fillings, as well as in button-cell batteries (commonly used in small electronics and hearing aids) and, more recently, in compact fluorescent bulbs.

Mercury is found throughout the environment, including in remote Arctic regions, due to its persistence, mobility and tendency to accumulate in colder climates. Exposure of the general population is primarily to methylmercury and occurs through the consumption of fish and seafood. To a much lesser extent, the general population may be exposed to inorganic mercury through dental fillings.

Chronic exposure to high levels of methylmercury may cause numbness and tingling in the extremities, blurred vision, deafness, lack of muscle coordination and intellectual impairment, as well as adverse effects on the cardiovascular, gastrointestinal and reproductive systems. Prenatal exposure may interfere with development of the central nervous system and can cause neurological and developmental delays.

Health Canada has established a total mercury (that is, to all forms of mercury combined) blood guidance value of 20 micrograms per litre ($\mu\text{g/L}$) for the general adult population. A revised guidance value of 8 $\mu\text{g/L}$ for children, pregnant women and women of childbearing age has recently been recommended.

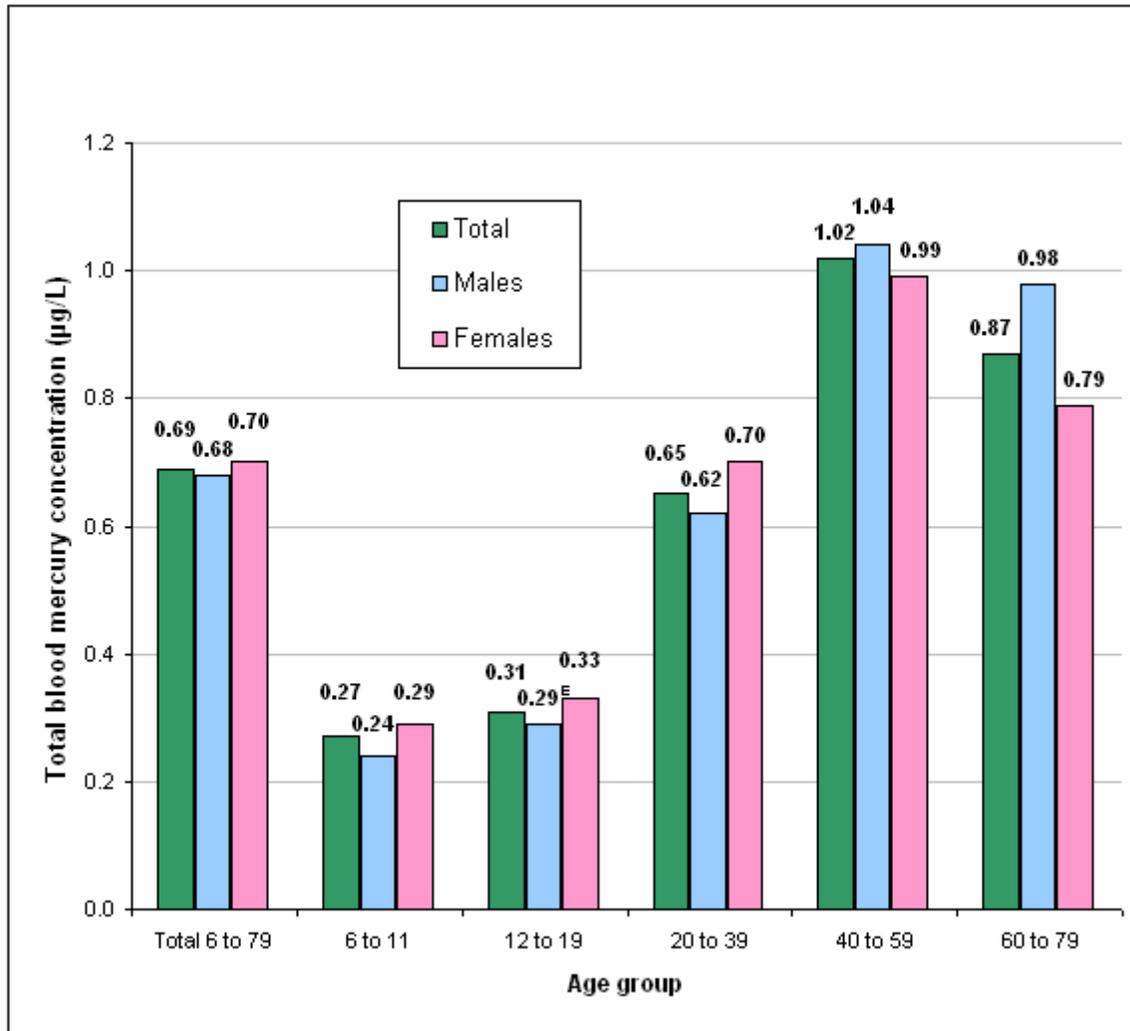
Results

The Canadian Health Measures Survey (CHMS) measured mercury and other environmental contaminants in the Canadian population from 2007 to 2009. Total mercury was measured in the blood of participants aged 6 to 79.



Chart 1

Total blood mercury concentrations in the Canadian population, by age group and sex, 2007 to 2009 (geometric means)



Note: ^E Use with caution (data with a coefficient of variation from 16.6% to 33.3%)

A geometric mean is a type of average that is less influenced by extreme values than the traditional arithmetic mean. The geometric mean provides a better estimate of central tendency for highly skewed data. This type of data is common in the measurement of environmental chemicals in blood and urine.

Source: Canadian Health Measures Survey, 2007 to 2009

From 2007 to 2009 total mercury in blood was detected in 88% of the Canadian population aged 6 to 79. The geometric mean concentration across the population was 0.69 µg/L. Mercury concentrations were lower for children and teens aged 6 to 19 than for adults. Children aged 6 to 11 years had a geometric mean concentration of 0.27 µg/L, similar to that of teens aged 12 to 19 (0.31 µg/L). Geometric mean concentrations increased with age reaching 1.02 µg/L for those aged 40 to 59, before decreasing to 0.87 µg/L in the 60– to 79–year age group.



Canadian Health Measures Survey

Geometric mean concentrations of mercury were similar for males and females across all age groups, with no significant differences between the two sexes.

Health Canada has produced the *Report on Human Biomonitoring of Environmental Chemicals in Canada* (<http://www.hc-sc.gc.ca/ewh-semt/pubs/contaminants/chms-ecms/index-eng.php>). Additional physical health measures information from the Canadian Health Measures Survey 2007 to 2009 is available at www.statcan.gc.ca/chms.

