

Canadian Health Measures Survey: Laboratory environmental data, 2012 and 2013

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Lead, mercury and cadmium

In 2012 and 2013, the Canadian Health Measures Survey (CHMS) measured lead, total mercury, and cadmium (heavy metals) in the blood of a representative sample of Canadians aged 3 to 79. Results show that the average concentration of blood lead was 1.1 micrograms per decilitre ($\mu\text{g}/\text{dL}$). Blood lead levels were higher in males (1.2 $\mu\text{g}/\text{dL}$) compared with females (0.97 $\mu\text{g}/\text{dL}$), and in adults aged 20 to 79 (1.2 $\mu\text{g}/\text{dL}$) compared with children and youth aged 3 to 19 (0.68 $\mu\text{g}/\text{dL}$).

The average concentration of total mercury in blood was 0.79 microgram per litre ($\mu\text{g}/\text{L}$). There were no significant differences between males and females, although the total blood mercury concentration was higher in adults (0.92 $\mu\text{g}/\text{L}$) compared with children and youth (0.42 $\mu\text{g}/\text{L}$).

The average blood cadmium concentration was 0.33 $\mu\text{g}/\text{L}$. There were no significant differences between males and females, although cadmium levels tended to be higher in adults (0.42 $\mu\text{g}/\text{L}$) compared with children and youth (0.12 $\mu\text{g}/\text{L}$).

Chronic and high-level exposure to these heavy metals can cause health issues including musculoskeletal or neurological problems. Average lead and mercury levels were well below Health Canada's established values above which follow-up action is recommended (10 $\mu\text{g}/\text{dL}$ for lead and 20 $\mu\text{g}/\text{L}$ for mercury). There is currently no recommended intervention level for cadmium.

Bisphenol A

The CHMS also measured bisphenol A (BPA) in the urine of Canadians aged 3 to 79. The average urine concentration was 1.1 $\mu\text{g}/\text{L}$. In contrast to the heavy metals, urinary BPA tended to be lower in adults aged 20 to 79 compared with children and youth aged 3 to 19.

Although Health Canada suggests that the current dietary exposure to BPA through food packaging is not proven to pose health risks to the general population, it is still recommended to limit exposure.

Tobacco use

The tobacco use of Canadians aged 12 to 79 was assessed based on levels of cotinine concentrations in urine. Results indicate that 21% or about 1 in 5 Canadians aged 12 to 79 were smokers. Smoking was more prevalent among males (25%) than females (17%) and among middle-aged adults aged 40 to 59 (27%) than among the older and younger age groups.

Note to readers

The Canadian Health Measures Survey was conducted from January 2012 to December 2013.



Definitions, data sources and methods: survey number [5071](#).

The fact sheets "[Bisphenol A concentrations in Canadians, 2012 and 2013](#)," "[Tobacco use of Canadians, 2012 and 2013](#)," and "[Lead, mercury and cadmium concentrations in Canadians, 2012 and 2013](#)" from the publication *Health Fact Sheets (82-625-X)* are now available from the *Browse by key resource* module of our website under *Publications*.

This release also includes data on other environmental contaminants measured in the blood and/or urine of respondents, including other metals and trace elements, acrylamide, methyl mercury, various insecticides and herbicides.

Additional information on many environmental substances is presented in the Health Canada document [Third Report on Human Biomonitoring of Environmental Chemicals in Canada](#).

Weight files and instructions are available for combining cycle 3 Canadian Health Measures Survey data (where possible) with equivalent data from cycle 1 and/or cycle 2.

For more information, or to enquire about the concepts, methods or data quality of this release, contact us (toll-free 1-800-263-1136; 514-283-8300; infostats@statcan.gc.ca) or Media Relations (613-951-4636; mediahotline@statcan.gc.ca).