

Health Fact Sheets

Blood pressure of adults, 2016-2019

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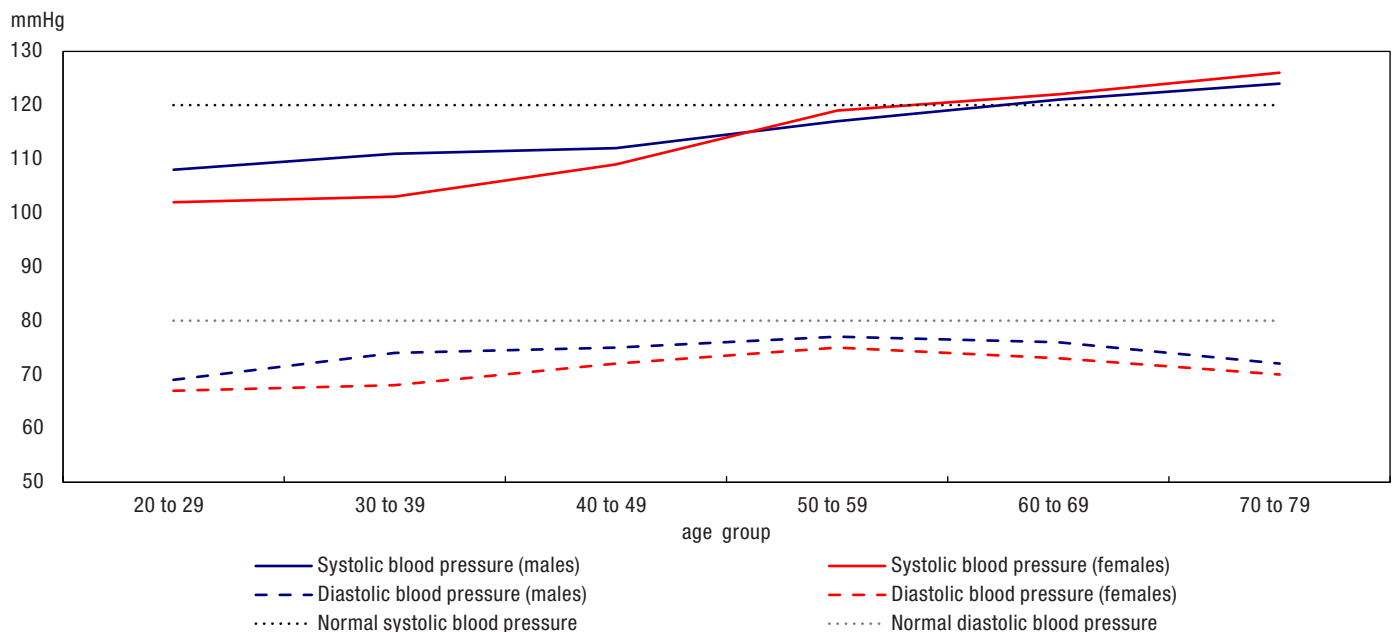
Health Fact Sheets

Statistics Canada, Catalogue no.82-625-X

Blood pressure of adults, 2016-2019

Blood pressure has many implications for health and is a leading contributor to disability adjusted life years, a measure of overall burden of disease which combines years of life lost due to ill-health, disability or early death.¹ High systolic blood pressure (SBP) and/or high diastolic blood pressure (DBP) can cause damage to blood vessels and can result in cardiovascular disease or events, such as heart attack or stroke, which are among the leading causes of hospitalization and death in Canada.^{2,3} Hypertension is a leading risk factor for death globally. Canada along with Germany, South Korea, and the United States have the highest rates of hypertension awareness, treatment, and control amongst high income countries.⁴

Chart 1 Mean systolic and diastolic blood pressure (mmHg) in adults aged 20 to 79, by sex and age group, household population, Canada, 2016-2019

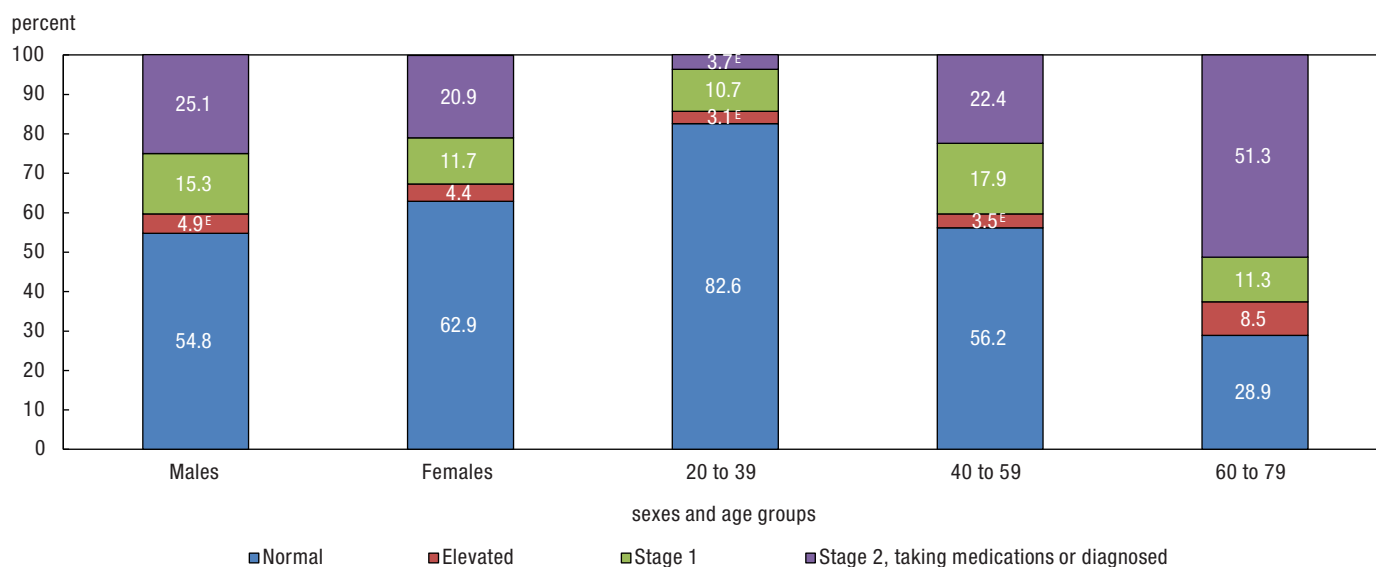


Source: Canadian Health Measures Survey, Cycle 5 (2016 and 2017) and Cycle 6 (2018 and 2019).

Results from the 2016-2019⁵ Canadian Health Measures Survey (CHMS) indicate that Canadian adults aged 20 to 79 had a measured average resting blood pressure of 114/72 mmHg. For both males and females, average resting blood pressure increased significantly with age (Chart 1). The average resting blood pressure for males aged 20 to 29 was 108/69 mmHg, compared with 124/72 mmHg for males aged 70 to 79. The average resting blood pressure for females aged 20 to 29 was 102/69 mmHg, compared with 126/70 mmHg for females aged 70 to 79. Average resting systolic blood pressure tended to be significantly higher for males in younger age groups (aged 20 to 49) but significantly lower for males in the oldest age group (aged 70 to 79) compared with females in those same age groups. It is important to note that structural changes in large arteries observed in systolic hypertension are similar to those caused by ageing making it difficult to ascertain whether arterial changes are due to disease.⁶

Hypertension

Chart 2 Distribution of adults aged 20 to 79 with normal, elevated, stage 1 hypertension, and stage 2 hypertension or taking anti-hypertension medication or diagnosed with high blood pressure, by sex and age group, household population, Canada, 2016-2019

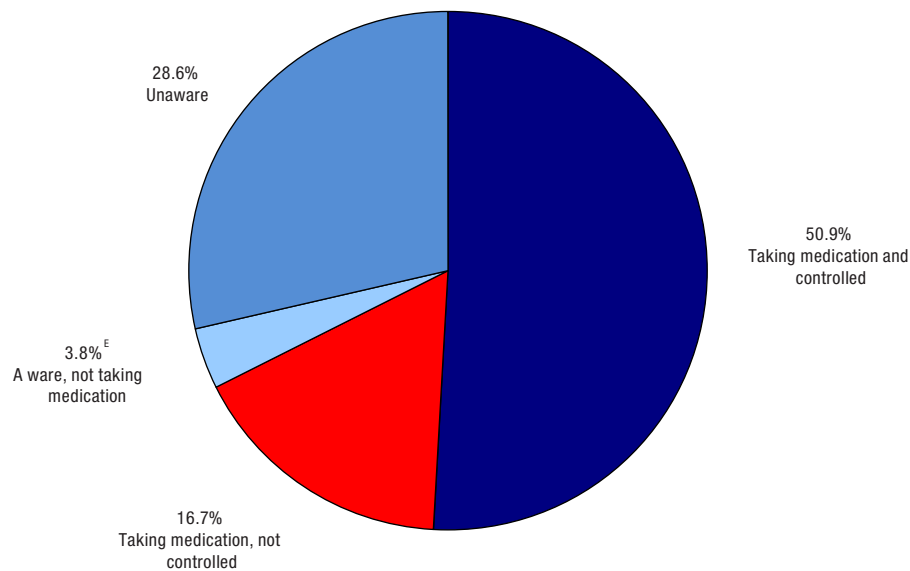


^E use with caution.

Source: Canadian Health Measures Survey, Cycle 5 (2016 and 2017) and Cycle 6 (2018 and 2019).

Among Canadian adults aged 20 to 79, 23% reported they had been diagnosed with hypertension by a health-care professional, were taking anti-hypertensive medication, or had high measured blood pressure equivalent to stage 2 hypertension. This proportion increased significantly with age such that just over half of (51%) of adults aged 60 to 79 had stage 2 hypertension compared to 22% of adults aged 40 to 59 (Chart 2). In comparison, only 14% of Canadian adults aged 20 to 79 had a measured blood pressure equivalent to stage 1 hypertension, with significantly more adults (18%) aged 40 to 59 meeting this criteria than adults aged 20 to 39 and adults aged 60 to 79 (both 11%) (Chart 2).

Chart 3 Percentage of adults aged 20 to 79 with stage 2 hypertension based on awareness of their condition and taking/not taking medication to treat hypertension, household population, Canada, 2016-2019



^E use with caution.

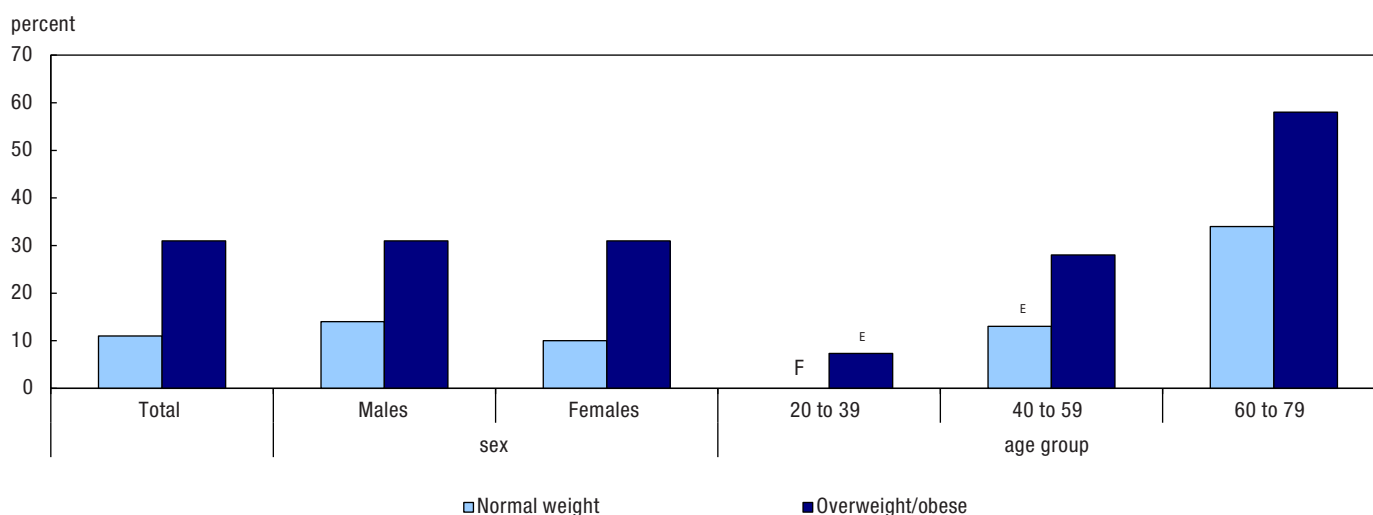
Note: "Controlled" refers to a measured resting blood pressure < 140/90 mmHg.

Source: Canadian Health Measures Survey, Cycle 5 (2016 and 2017) and Cycle 6 (2018 and 2019).

Over half of Canadian adults with stage 2 hypertension were aware of their condition and were controlling it through medication use (Chart 3). Approximately 29% of Canadian adults with stage 2 hypertension were unaware of their condition (Chart 3). The proportion of adults who were aware of their condition and treated by medication, but the condition was not controlled (i.e. reported taking medication for high blood pressure yet had a measured blood pressure greater than or equal to 140/90 mmHg) was 17%, and another 4% were aware of their condition but not treated.

Nearly 74% were unaware of having stage 1 hypertension. The proportion of adults who were aware of having stage 1 hypertension and treated by medication, but not controlled (i.e. reported taking medication for high blood pressure yet had a measured blood pressure greater than or equal to 130/80 mmHg) was 22%. Another 5% were aware of having stage 1 hypertension but were not treated (data not shown).

Chart 4 Distribution of adults aged 20 to 79 with stage 2 hypertension, by sex, age group and body mass index (BMI), household population, Canada, 2016-2019



^E use with caution.

^F too unreliable to be published (data with a coefficient of variation (CV) greater than 33.3%; suppressed due to extreme sampling variability).

Note: The body mass index (BMI) classification is based on the "*Canadian guidelines for body weight classification in adults*" (Health Canada, 2003).

Source: Canadian Health Measures Survey, Cycle 5 (2016 and 2017) and Cycle 6 (2018 and 2019).

An important risk factor for hypertension is being overweight or living with obesity.⁷ Results from the CHMS show that measured hypertension was more than two times as likely to occur among adults who were overweight or living with obesity, compared with their normal-weight counterparts.

Stage 2 hypertension was prevalent in 31% of Canadian adults who were classified as being overweight or living with obesity, compared with 11% of those who were normal weight. Adults who are overweight or living with obesity aged 60 to 79 had the highest prevalence of hypertension (58%), while adults aged 20 to 39 had the lowest, regardless of weight status (Chart 4).

Stage 1 hypertension was prevalent in 25% of Canadian adults who were classified as being overweight or living with obesity, compared with 9% of those who were normal weight (data not shown). Overweight or adults with obesity aged 40 to 59 had the highest prevalence of stage 1 hypertension (30%), compared with the 20 to 39 year olds (18%) and 60 to 79 year olds (24%) (data not shown).

About blood pressure

Blood pressure (BP) is a measure of the force of blood against the artery walls, and is expressed as systolic blood pressure (SBP)/diastolic blood pressure (DBP) in millimetres of mercury (e.g., 120/80 mmHg). The systolic pressure (top number) is the pressure when the heart contracts and pushes the blood out, and the diastolic pressure (bottom number) is the lowest pressure when the heart relaxes between beats.

In 2017, the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines recommended new thresholds which divide the 2003 guideline's pre-hypertension into elevated and stage 1 hypertension.⁸ A person is considered to have elevated hypertension if they have a mean measured SBP between 120-129 and a mean measured DBP below 80, while a mean SBP between 130-139 or a mean DBP between 80-89 mmHg is classified as stage 1 hypertension. A mean measured SBP greater or equal to 140 or a DBP greater or equal to 90 is now defined as stage 2 hypertension. For the purpose of this analysis, respondents who were diagnosed with hypertension by a health care professional or reported anti-hypertensive medication use in the past month were grouped in stage 2.

The CHMS measured resting blood pressure using an automated device (BPT^{ru}TM) following a five minute rest period. The BPT^{ru}TM recorded six measurements, one minute apart. The average SBP and DBP were calculated using the last five of the six measurements. Respondents were also asked to report if they have ever been diagnosed with high blood pressure by a health care professional or if they have taken medication for high blood pressure in the past month.

The criteria for blood pressure classification used in this analysis for adults are as follows:

| Category | Description |
|---|--|
| Normal | Mean SBP/DBP < 120/80 mmHg |
| Elevated (Previously pre-hypertension) | Mean SBP 120-129 mmHg and DBP <80 mmHg |
| Stage 1 hypertension (Previously pre-hypertension) | Mean SBP 130-139 mm Hg or mean DBP 80-89 mm Hg |
| Stage 2 hypertension (Previously hypertension) | Mean SBP ≥ 140 mmHg OR Mean DBP ≥ 90 mmHg OR Self-reported use of medication for high blood pressure within the past month OR Self-reported having been diagnosed with hypertension by a health-care professional |

SBP: systolic blood pressure
DBP: diastolic blood pressure

Individuals with SBP and DBP in 2 categories should be designated to the higher BP categories

Data

The Canadian Health Measures Survey (CHMS) is a two-step survey. The first step is a personal interview at the respondent's household. The second step is a visit to the CHMS mobile clinic where physical measurements and blood and urine samples are taken.

The 2016-2019 reference period refers to combined results from Cycle 5 (2016 and 2017) and Cycle 6 (2018 and 2019) of the CHMS.

The target population for the CHMS consists of persons 3 to 79 years of age living in the 10 provinces. The observed population excludes: persons living in the three territories; persons living on reserves and other Aboriginal settlements in the provinces; full-time members of the Canadian Forces; the institutionalized population and residents of certain remote regions. Altogether these exclusions represent approximately 3% of the target population.

Survey weight and bootstrap weight files and instructions are available for combining Cycle 6 Canadian Health Measures Survey data (where possible) with equivalent data from Cycles 1 to 5.

Canadian Health Measures Survey data related to this Health Fact Sheet are available in data tables [13-10-0319-01](#), [13-10-0373-01](#), [13-10-0326-01](#) and [13-10-0384-01](#).

Notes

1. GBD 2015. Risk factors collaborators. Global, regional, and national comparative risk assessment of 79 behavioral, environmental and occupational, and metabolic risks or clusters of risks, 1990-2015: a systematic analysis for the global burden of disease study 2015. *The Lancet*; 388:1659-1724.
2. Statistics Canada. 2015. "[Trends in mortality rates, 2000 to 2012](#)". *Health Fact Sheets*. Statistics Canada catalogue no. 82-625-X. <http://www.statcan.gc.ca/pub/82-625-x/2015001/article/14297-eng.htm>.
3. Public Health Agency of Canada. 2013. "[Leading causes of hospitalizations, Canada, 2009/10, males and females combined, counts \(age-specific hospitalization rate per 100,000\)](#)". <http://www.phac-aspc.gc.ca/publicat/lcd-pcd97/table2-eng.php>.
4. NCD Risk Factor Collaboration (NCD-RisC). Long-term and recent trends in hypertension awareness, treatment, and control in 12 high-income countries: an analysis of 123 nationally representative surveys. *The Lancet*. Aug 24;394(10199):639-651. doi: 10.1016/S0140-6736(19)31145-6. Epub 2019 Jul 18. PMID: 31327564; PMCID: PMC6717084.
5. Blood pressure data from Cycle 5 (2016 and 2017) and Cycle 6 (2018 and 2019) of the CHMS were combined for this fact sheet.
6. Pinto E. (2007). Blood pressure and ageing. *Postgraduate medical journal*, 83(976), 109-114. <https://doi.org/10.1136/pgmj.2006.048371>. (Accessed February 8, 2021).
7. Chobanian, A.V., Bakris, G.L., Black, H.R., et al. 2003. "Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure". *Hypertension*; 42: 1206-52.
8. Whelton PK, Carey RM, Aronow WS, et al. 2017. ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA Guideline for the prevention, detection, evaluation, and management of high blood pressure in adults. *Hypertension*; HYP.0000000000000065. Available at: <https://doi.org/10.1161/HYP.0000000000000065>. (Accessed December 29, 2020.)

For more information on the Canadian Health Measures Survey, please contact Statistics Canada's Statistical Information Service (toll-free 1-800-263-1136; 514-283-8300; STATCAN.infostats-infostats.STATCAN@canada.ca).