Ottawa | Public Health
Santé publique

CLIMATE CHANGE AND PUBLIC HEALTH IN OTTAWA

2025 SURVEILLANCE REPORT

Land Acknowledgement

Odàwàng kì ombàkonigàde ega wìkàd kà mìgiwàniwang Màmìwininì Aishinàbe-wakì.

Pimàdizìg Màmìwininì Anishinàbeg kàgigekamig kì abig ondaje akìng. Odanishinàbewiziwiniwà obimàdjiwowiniwà ogì nanegàdjichigàdànàwà nanàj ako nongom iyo abinàs.

Kichi Odenaw Odàwàng okikàdjìyàwàn pimàdizìn Màmìwininì Anishinàben kaye okikàdjitònàwà iyo akì.

Ottawa is built on unceded Algonquin Anishinabe territory.

The peoples of the Algonquin Anishinabe Nation have lived on this territory for millennia. Their culture and presence have nurtured and continue to nurture this place.

The City of Ottawa honours the peoples and the land of the Algonquin Anishinabe Nation.

Acknowledgements

The analyses and report writing were carried out by members of the Ottawa Public Health Epidemiology and Evidence team:

Natalie Dang (Health Information Analyst); Ga Eun Lee (Field Epidemiologist); Catherine Millar (Senior Health Statistics and Data Consultant); Jacqueline Willmore (Epidemiologist)

We would like to thank the following at Ottawa Public Health for their support and expert contribution to this report:

Amira Ali (Public Health Program Manager); Kelly Biggs (Epidemiologist); Phillip Boyd (Public Health Strategic Program & Project Officer); Guylaine Chartier (Health Graphics Designer); Lydia Christ (Public Health Nurse); Cynthia Chung (Public Health Project Officer); Gillian Connelly (Program Manager); Kristen Cote (Environmental Health Specialist), Laurie Dojeiji (Knowledge Exchange Specialist); Denise Hébert (Program Manager); Birgit Isernhagen (Program Planning and Evaluation Officer); Katelyn LeBlanc (Public Health Program and Project Officer); Kiwi Martel-Bryden (Public Health Project Officer), Kristina Smith (Nursing Project Officer); Dr. Monir Taha (Associate Medical Officer of Health); Inge Roosendaal (Senior Planner); Katherine Russell (Epidemiologist), Sarah Wallingford (Senior Epidemiologist)

We would also like to thank the following at the City of Ottawa for their support and expert contribution to this report:

Julia Robinson (Program Manager); Sami Rehman (Project Manager)

Please use the following citation when referencing this document:

Ottawa Public Health. Climate Change and Public Health in Ottawa – 2025 Surveillance Report. Ottawa (ON): Ottawa Public Health; 2025

Abbreviations and Acronyms

µg/m^3	microgram per cubic metre
ACES	Acute Care Enhanced Surveillance
AQHI	Air Quality Health Index
CAMH	Centre for Addiction and Mental Health
CCHVAs	Climate Change and Health Vulnerability Assessments
CCHS	Canadian Community Health Survey
CI	confidence interval
CIHI	Canadian Institute for Health Information
DAD	Discharge Abstract Database
DPHS	Diseases of Public Health Significance
ECCC	Environment and Climate Change Canada
ED	emergency department
GTS	Greenbelt Tick Surveillance
HUS	hemolytic uremic syndrome
ICD	International Classification of Diseases
iPHIS	integrated Public Health Information System
MSC	Meteorological Service of Canada
NACRS	National Ambulatory Care Reporting System
NO_2	nitrogen dioxide
NR	not reportable
O_3	ozone (in this document refers to ground level ozone)
OPH	Ottawa Public Health
OSDUHS	Ontario Student Drug Use and Health Survey
PHO	Public Health Ontario
PHU	public health unit
$PM_{2.5}$	fine particulate matter
RAAQ	respiratory, asthma, and air quality
RF	risk factor
RRFSS	Rapid Risk Factor Surveillance System
SASSY	Six Americas Super Short Survey
SE	socio-economic
SES	socio-economic status
UV	ultraviolet
VBD	vector-borne disease
WNV	West Nile virus

Table of Contents

Introduction

The Healthy Environments and Climate Change Guideline,[1] under the Ontario Public Health Standards, states that public health units (PHUs) shall assess the health vulnerability status of their communities and address health impacts in key areas related to climate change. In October 2024, Ottawa Public Health (OPH) submitted a report to the Ottawa Board of Health summarizing the findings of OPH's Climate Change and Health Vulnerability Assessments (CCHVAs).[2] Local data gathered through public health surveillance along with partner consultations were used to better understand the Ottawa specific context in the CCHVAs. Five climate change hazards were identified as top health risks in the Ottawa area:

- extreme heat;
- vector-borne diseases;
- wildfire smoke;
- food- and water-borne illnesses; and
- ultraviolet (UV) radiation.

The aim of this public health surveillance report is to highlight local data related to climate change and the five climate change hazards outlined above. These data and analyses build upon previous work completed for the CCHVAs and include an additional section on the mental health impacts of climate change. While climate change affects all individuals in Ottawa, certain groups are more vulnerable to climate change hazards and may experience disproportionate impacts due to intersecting social, economic, and structural factors that influence their ability to prepare for, respond to, and recover from climate-related events and hazards (i.e., adaptive capacity).[3] These groups include older adults, persons with disabilities, persons living in poverty, racialized people, Indigenous people, rural residents, immigrants, women, and youth.[3] Detailed contextualization of the data for priority populations and adaptive capacity related to climate change hazards are discussed in the CCHVAs, and are not the focus of this report.

This report, in conjunction with the CCHVAs, have informed the City of Ottawa's Climate Resiliency Strategy, called Climate Ready Ottawa. This strategy includes long-term objectives and a 5-year action plan by using a distributed leadership model to address climate change hazards as this work requires a collaborative approach. All levels of government will need to work together to effectively address climate health impacts and climate mitigation and adaptation.

Key Findings

Climate change continues to present a significant and evolving risk to public health in Ottawa.

Mental health and wellness, beliefs, and awareness related to climate change

The mental health and wellness of Canadians is increasingly being challenged with the frequency, intensity, and duration of climate change events.[4–6] Climate change is related to mental health through direct and indirect pathways, and worsens existing inequities.[4,7,8]

- In 2023, nearly half of Ottawa students in grades 7 to 12 reported feeling depressed (sad) or worried about climate change.
- In 2024, close to 80% of Ottawa adults aged 18 years and older reported feeling “alarmed” or “concerned” about climate change.
- In 2019, 74-87% of Ottawa adults aged 18 years and older agreed that climate change is very likely to result in more negative environmental outcomes in Ottawa such as more extreme weather, more frequent and extreme heat waves, more days with poor air quality, and more insects carrying diseases. Seventy percent of Ottawa adults agreed that climate change has a negative effect on human health.

Extreme temperatures

By the 2050s, Ottawa is expected to have four times more days where temperatures exceed 30°C (32-43 days) and 35% less days where temperatures dip below -10°C (46-53 days) compared to years 1981-2010.[9] While the number of extreme cold weather events is expected to decrease, they are still predicted to occur.[10,11]

- High temperatures and heat warnings were accompanied by increases in heat-related emergency department (ED) visits and hospitalizations in Ottawa hospitals. Between 2016 and 2024, there was a yearly average of 112 heat-related ED visits and 9 heat-related hospitalizations in Ottawa hospitals.
- From 2016 to 2024, age-standardized rates of heat-related ED visits among Ottawa residents peaked at 15 visits per 100,000 population in 2018, then gradually declined to 7 visits per 100,000 population in 2024.
- Between 2016 and 2024, there was a yearly average of 151 cold-related ED visits and 27 cold-related hospitalizations in Ottawa hospitals.
- From 2016 to 2024, age-standardized rates of cold-related ED visits among Ottawa residents fluctuated between 8 and 23 visits per 100,000 population. The highest rates were observed in 2022 and 2023.

Solar ultraviolet radiation

With climate projections indicating warmer seasons in Ottawa, people may spend more time outdoors, increasing exposure to the sun's ultraviolet (UV) radiation.[12] Excessive UV exposure is linked with health harms including sunburns and skin cancers.[12] Some sunburns can be severe, causing blistering and intense pain, and may result in ED visits.[13–15]

- From 2010 to 2020, melanoma rates in Ottawa increased from 17.6 to 28.3 cases per 100,000 person-years and were higher than in Ontario in 2020 (21.1 cases per 100,000 person-years). Rates of melanoma in Ottawa are projected to increase to 31.2 cases per 100,000 person-years by 2030.
- In the past decade, there was a yearly average of 47 sunburn and other UV radiation-related ED visits in Ottawa hospitals. The number of ED visits generally increased as the number of very high UV index days increased.
- From 2016 to 2024, the age-standardized rates of UV-related ED visits among Ottawa residents decreased by almost half from 7.5 to 4 visits per 100,000 population.

Outdoor air quality

Climate predictions suggest that wildfire frequency, severity and distribution will change as a result of a warming climate.[16] Canada is already experiencing longer wildfire seasons with larger areas burned due to warming temperatures, more extreme weather, and drier conditions.[17] A threat to Ottawa's good air quality is long-range transport of wildfire smoke.

- Ottawa's outdoor air quality has been good in the past decade, with 96% of days within the low-risk range of the Air Quality Health Index (AQHI values 1 to 3)
- In summer 2023, Ottawa experienced two periods of very poor air quality (AQHI 7 and above) due to wildfire smoke. During the first period, there was a corresponding increase in suspected respiratory, asthma, and air-quality related ED visits in Ottawa hospitals.

Vector-borne diseases

Warmer seasons create favourable habitats and increased range for vectors of disease, such as mosquitoes and ticks.[18] Coupled with the growing population in Ottawa resulting in increased human activity outdoors in vector habitats, this increases the risk of vector-borne diseases.[18]

- The rate of Lyme disease infections among Ottawa residents has more than tripled over the last decade, from 8 cases per 100,000 population in 2015 to 37 cases per 100,000 population in 2024.
- In 2023, three new tick-borne diseases became reportable to public health units in Ontario as Diseases of Public Health Significance: anaplasmosis, babesiosis

and Powassan virus disease. In 2024, 23 Ottawa residents were reported with anaplasmosis, one with babesiosis, and none with Powassan virus.
- In 2024, there were 13 cases of West Nile virus among Ottawa residents. Rates have varied considerably over the last decade.

Food- and water-borne illness

Climate change is impacting food and water safety, leading to an increased risk of food- and waterborne illness due to contamination from changes in precipitation, temperature, and extreme weather.[19] Also, outdoor food preparation and consumption, a risk factor for food-borne illness, is likely to increase with longer summers.[20]

- While most food- and water-borne illnesses in 2024 remained below pre-pandemic levels (years 2017-2019), the rate of cryptosporidiosis among Ottawa residents in 2024 (3.7 cases per 100,000 population) was slightly above the pre-pandemic average rate (2.5 cases per 100,000 population).
- In 2024, the most frequently reported food-borne illnesses among Ottawa residents were salmonellosis (15 cases per 100,000 population) and *Campylobacter* enteritis (13 cases per 100,000 population).
- Giardiasis was the most frequently reported water-borne illness among Ottawa residents in 2024 with 10 cases per 100,000 population.
- From 2016 to 2024, beaches in Ottawa met provincial water quality standards 86% of the time.

Mental Health and Wellness, Beliefs, and Awareness Related to Climate Change

The mental health and wellness of Canadians is increasingly being challenged with the frequency, intensity, and duration of climate change events.[4–6] Climate change is related to mental health through direct and indirect pathways, and worsens existing inequities.[4,7,8] The stress of climate change may be experienced through a direct hazard, such as extreme heat events and wildfires, or through the indirect consequences of climate change, such as evacuations, displacement, and food and water insecurity.[4,7,8] Feelings such as hopelessness due to beliefs and awareness of climate change have also been shown to have adverse effects on mental health.[4,21,22]

Negative impacts on mental health are greater for people facing systemic disadvantages, such as people who are unhoused or unsuitably housed, socioeconomically disadvantaged, or facing other social and economic barriers. Impacts can also be greater for those with strong connections to the land, where changes to the environment or community can affect culture, livelihood, and sense of belonging. People with existing mental health, substance use health, or physical health conditions can also face added challenges during times of stress or disruption.[23]

People experience a wide range of emotional responses such as worry, fear, anger, sadness, grief, and frustration, both from immediate climate-related events and from ongoing concern about their long-term effects. Many of these emotions are normal and understandable responses to the global climate crisis.[23,24] However, research has also found links between climate change and traumatic climate events with mental health illnesses including depression, anxiety, and post-traumatic stress disorder.[22,23,25] Climate change can also negatively affect substance use health through a complex interplay of ongoing stressors, which can contribute to increased substance use related harms.[26,27]

Eco-depression and -anxiety among youth

Young people carry a high burden of the effects of climate change and are particularly vulnerable to the mental health effects of climate change, especially when thinking and planning for their futures.[28–30] In 2023, Ottawa youth were surveyed regarding their concerns about climate change through the Ontario Student Drug Use and Mental Health Survey (OSDUHS). Students in grades 7 to 12 in Ottawa schools were asked if

they felt depressed (sad) about the future because of climate change and how worried they were about climate change.[31]

In 2023, approximately half (49%) of Ottawa students in grades 7 to 12 strongly or somewhat agreed that they felt depressed (sad) about the future because of climate change (**Figure 1**), compared with 41% of students in the rest of Ontario. Female students (57%) were more likely to report being depressed (sad) about the future due to climate change than male students (42%).

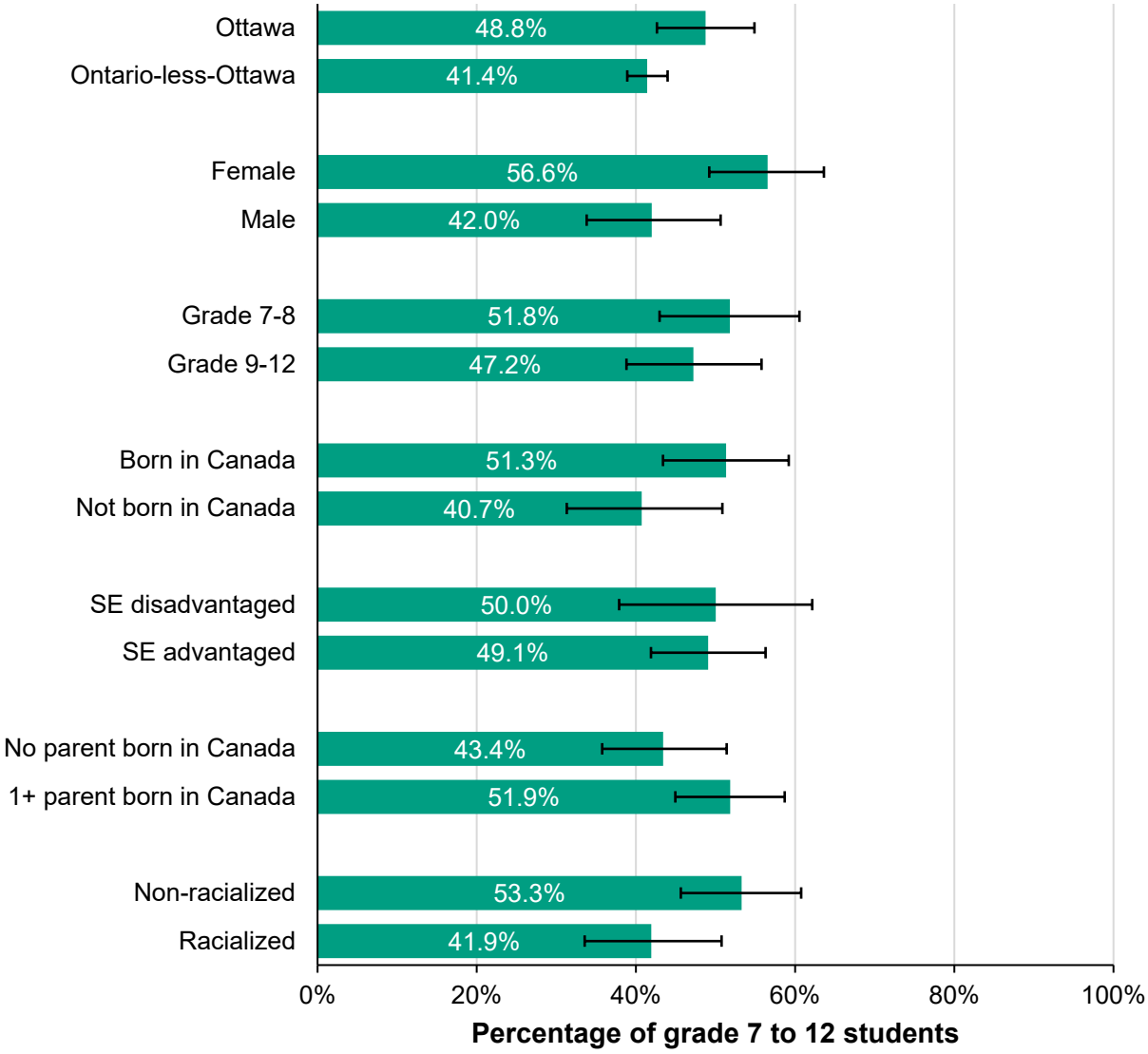

Figure 1. Percentage of grade 7 to 12 students in Ottawa depressed about the future because of climate change by subgroup, 2023

Data source for Figure 1: OSDUHS 2023, Centre for Addiction and Mental Health (CAMH) & OPH

Similarly, 47% of Ottawa students were fairly, very, or extremely worried about climate change compared with 42% of students in the rest of Ontario (**Figure 2**). Female students (53%) were more likely to report being worried about the future due to climate change than their male counterparts (42%).

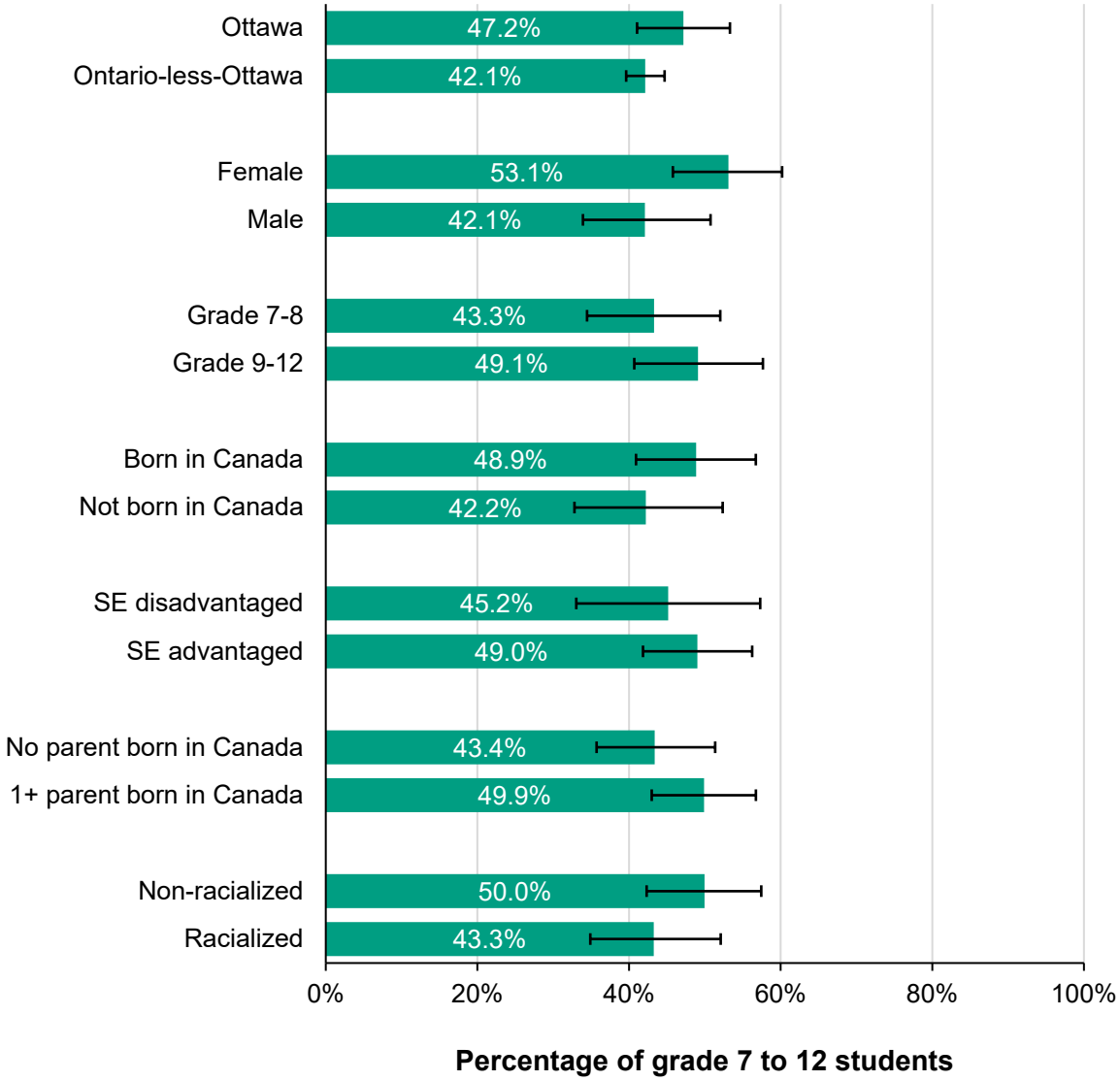

Figure 2. Percentage of grade 7 to 12 students in Ottawa worried about the future because of climate change by subgroup, 2023

Data source for Figure 2: OSDUHS 2023, CAMH & OPH

Beliefs and attitudes related to climate change among adults

The Six Americas Super Short Survey (SASSY) was used to understand the attitudes of Ottawa adults towards climate change as part of the Rapid Risk Factor Surveillance System (RRFSS) in 2024. SASSY is a tool developed and validated by the Yale Program on Climate Change Communication to profile public opinions towards climate change and to estimate the population distribution across six profiles. The population is sorted into six groups based on their beliefs and attitudes towards climate change: Alarmed, Concerned, Cautious, Disengaged, Doubtful, and Dismissive.[32]

The “Alarmed” group are deeply concerned about climate change and are actively taking action to address it. The “Concerned” group believe that climate change is happening and is a serious problem but are less active in addressing the issue personally. Three other groups – “Cautious”, “Disengaged”, and “Doubtful” – represent varying degrees of limited understanding and acceptance of climate change, and none are actively involved. Finally, the “Dismissive” group are very sure climate change is not happening and are actively involved as opponents.

Most adults in Ottawa were either “Alarmed” (44%) or “Concerned” (32%) about climate change (**Figure 3**). One in five Ottawa adults (22%) belong to “Cautious”, “Disengaged”, or “Doubtful” segments. While they represented a minority, 2%* of Ottawa adults were “Dismissive” of climate change. There were significant differences by sex and education level. Females (50%) were more likely to be “Alarmed” about climate change than males (38%); and those with post-secondary education or more (46%) were more likely to be “Alarmed” about climate change than those with less than post-secondary education (32%*).

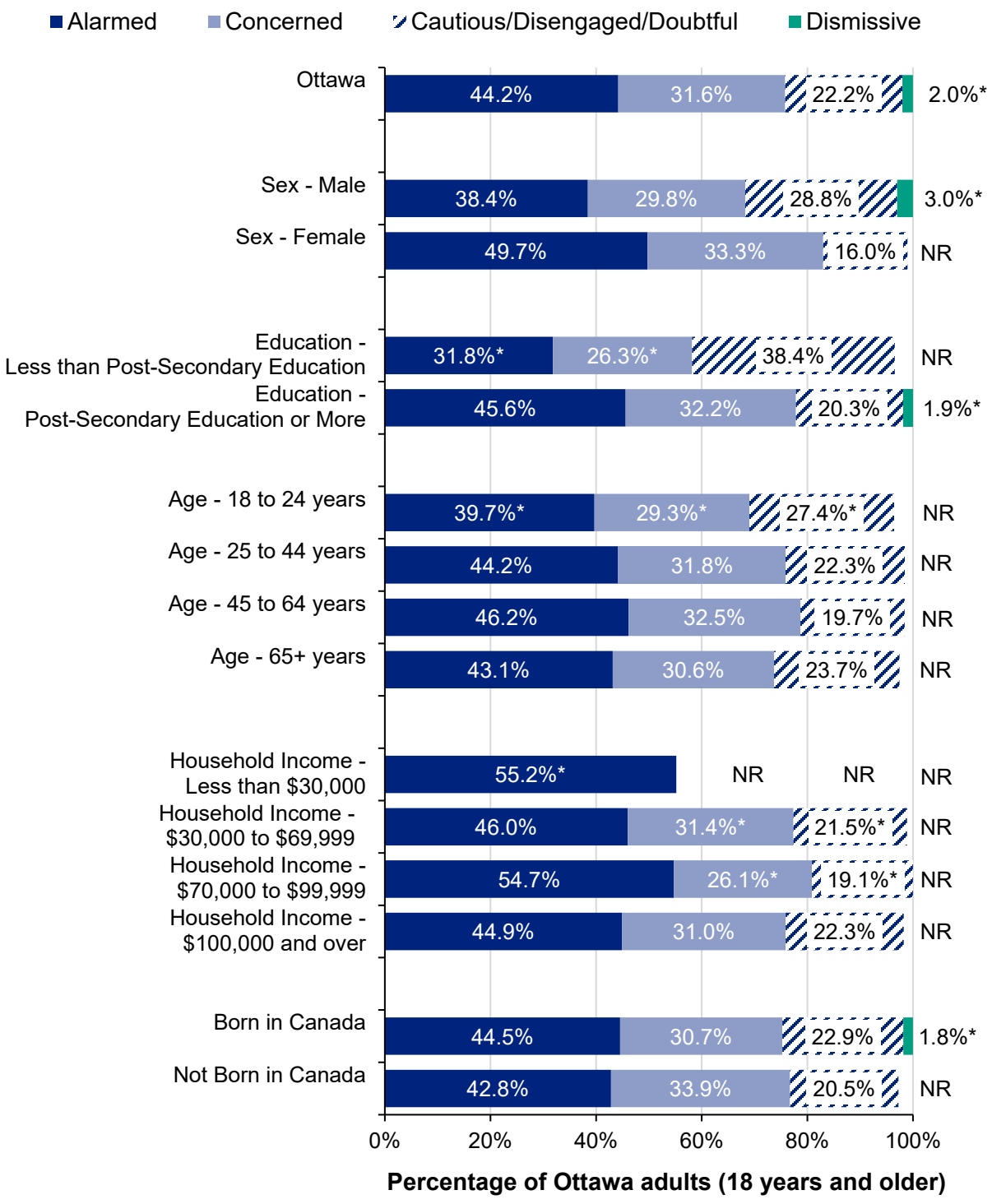

Figure 3. Beliefs and attitudes of Ottawa adults aged 18 years and older towards climate change by SASSY profile and subgroup, 2024

Data source for Figure 3: RRFSS 2024, OPH

Notes: *=Interpret with caution. NR=Data are not reportable.

Awareness of climate change

Awareness of climate change can have adverse effects on mental health.[33] Exposure to climate change news through media has been linked to increased worry and is also linked to a person's drive to take action.[34] Concerns about the future due to climate change may increase feelings of worry, distress, and anxiety.[33] Feelings of intense grief may be felt due to ecological losses of species, ecosystems, and landscapes.[35] Research has shown that individuals who have a close relationship with nature and greater knowledge of climate change are more vulnerable to climate anxiety.[36,23]

The awareness and knowledge of climate change among Ottawa residents may reflect the mental health and wellness impacts associated with climate change in the population. In 2019 and 2023, Ottawa residents aged 18 years and older were asked about their awareness and knowledge of climate change as part of the RRFSS.

Perceived causes of climate change

In 2019, there was high agreement (95%) among Ottawa adults that the world's climate is changing (**Figure 4**). Just over half (57%) agreed that climate change is caused by both human activity and natural causes, 37% agreed that it is mainly caused by humans, and 5%* agreed that it is mainly caused by natural changes. As the survey prompts did not define what "natural changes" and "human activities" mean, the answers were based on respondents' own interpretation. When asked about specific contributors, most Ottawa adults agreed that exhaust from vehicles (96%) and energy use at home (82%) contribute to climate change.

Older adults (aged 65 years and older) were less likely to believe that climate change is mainly caused by human activities: only 26% felt this way compared to 40% of adults aged 45 to 64. Males (43%) were more likely than females (32%) to think that human activities are the main cause of climate change, while females (63%) were more likely than males (51%) to believe it is a mix of both human and natural causes.

When asked if energy use at home contributes to climate change, 85% of Ottawa males agreed compared to 78% of females. Younger adults aged 25 to 44 were also more likely to agree that energy use at home contributes to climate change (88%) than adults aged 65 and older (70%). Adults with a high school education were less likely (69%) to agree that energy use at home contributes to climate change compared to adults with post-secondary education (85%).

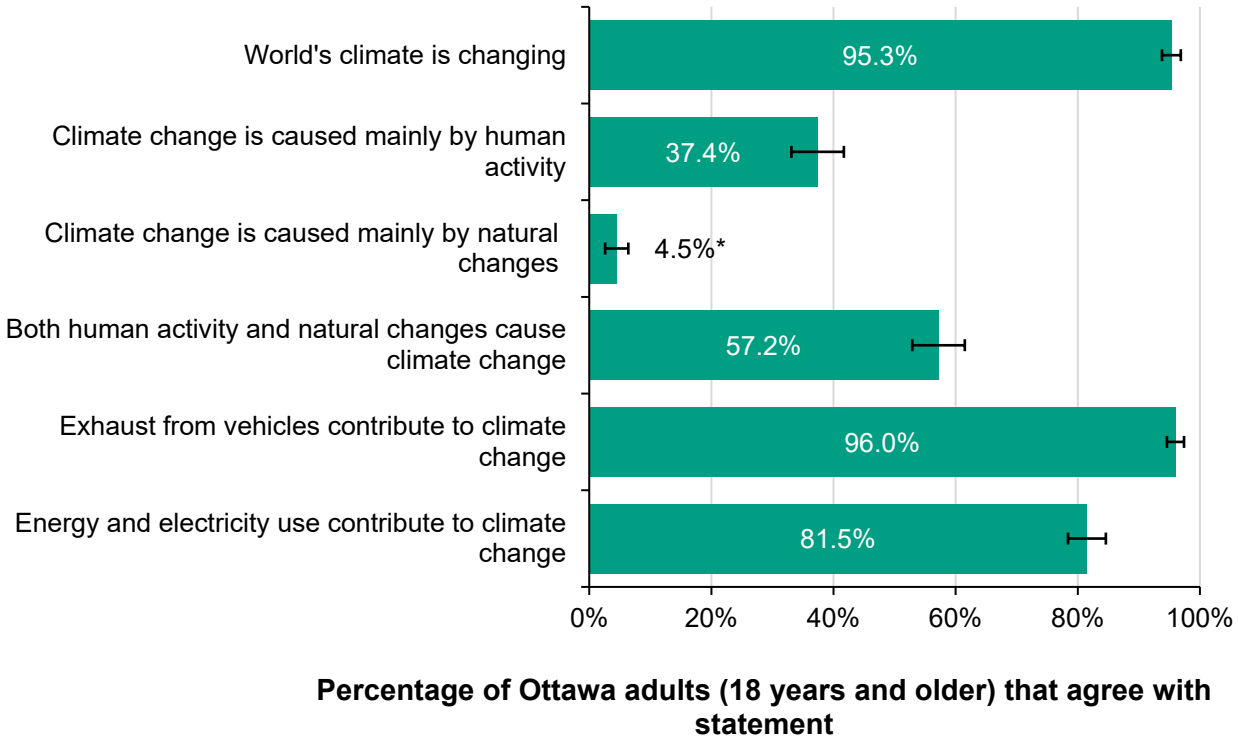

Figure 4. Perceptions of Ottawa adults aged 18 years and older regarding the causes of climate change, 2019

Data source for Figure 4: RRFSS 2019, OPH

Notes: *=Interpret with caution.

Perceived impact of climate change

When asked about their perception of the effects of climate change in 2019, most (74-87%) Ottawa adults agreed that climate change is very likely to result in more negative environmental outcomes in Ottawa including extreme weather, extreme heat waves, poor air quality, and insects carrying diseases (**Figure 5**).

Eighty-seven percent of Ottawa adults thought that climate change is very likely to cause more extreme weather such as flooding, ice storms, or heavy snowstorms. Females were more likely to report this view (90%) compared to males (84%). Among the 87% of adults believing that climate change would lead to more frequent and extreme heat waves, differences were observed across age groups: adults aged 65 years and older (76%) were less likely to agree than younger adults aged 18 to 24 years old (90%), 25 to 44 years old (92%), and 45 to 64 years old (86%). Among the 79% of Ottawa adults who agreed that climate change will result in more days with poor air quality, females (84%) were more likely to agree than males (74%). Lastly, 74% of respondents believed climate change will lead to more insects carrying diseases. This belief was more prevalent among females (79%) compared to males (68%).

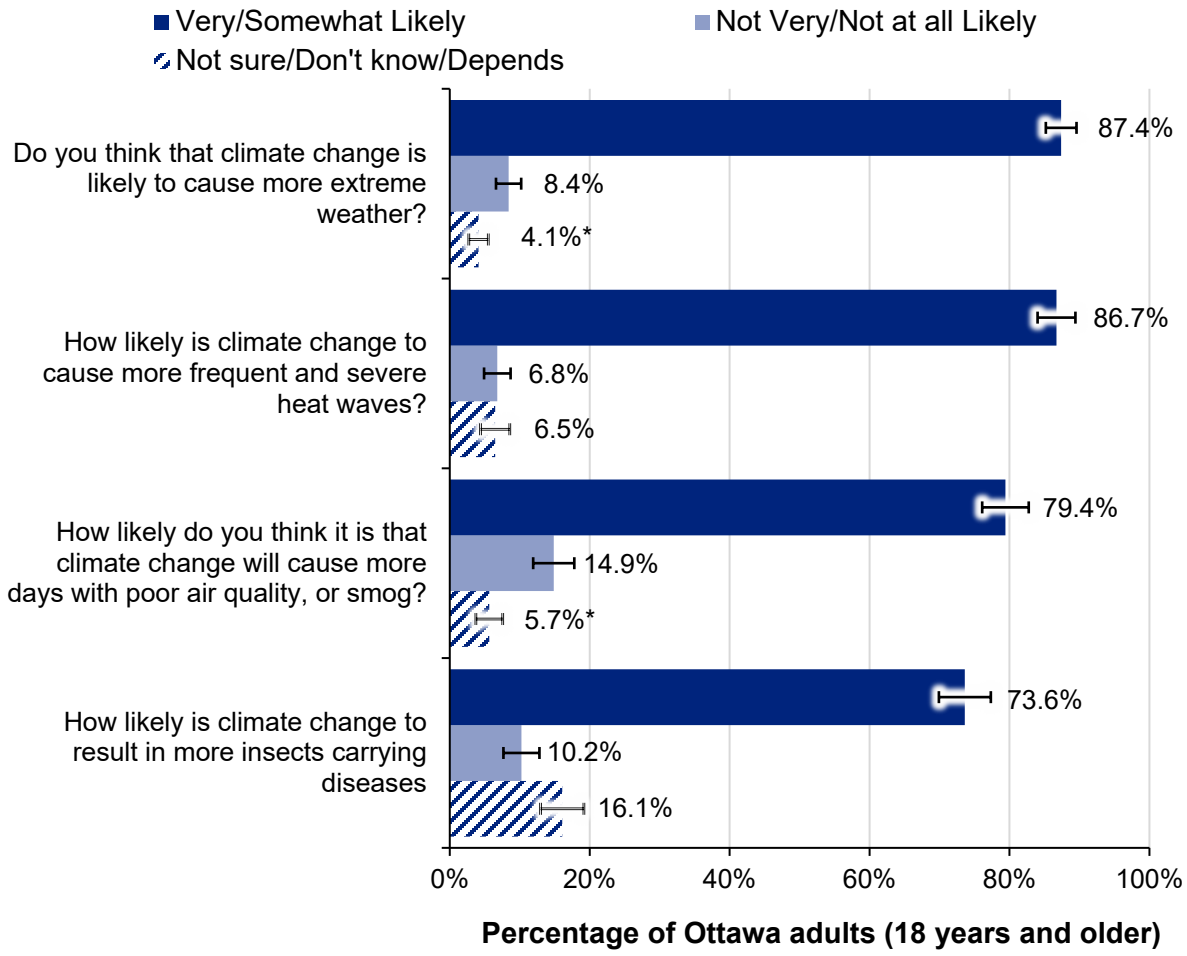

Figure 5. Perceptions of Ottawa adults aged 18 years and older on the impacts of climate change in Ottawa by type of impact, 2019

Data source Figure 5: RRFSS 2019, OPH

Notes: *=Interpret with caution.

Finally, 70% of adults agreed that climate change will negatively impact human health (**Figure 6**). Ottawa adults with a household income of less than $30,000 were less likely to agree (53%*) than those with a household income of $100,000 or more (78%).

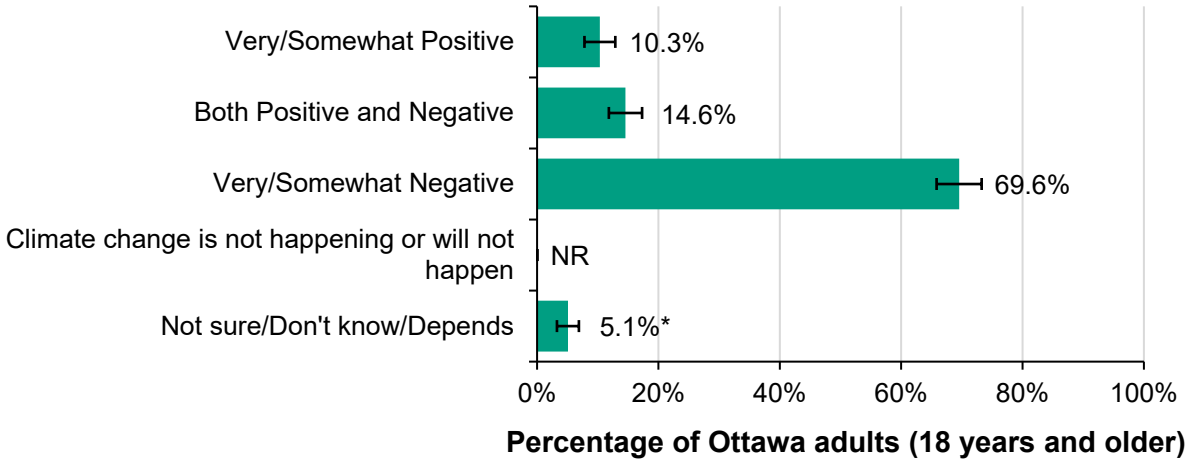

Figure 6. Perceptions of Ottawa adults aged 18 years and older on the effect of climate change on human health, 2019

Data source for Figure 6: RRFSS 2019, OPH

Notes: *=Interpret with caution. NR=Data are not reportable.

Perceived responsibility for action

In 2023, most (85%) Ottawa adults strongly or somewhat agreed that governments are responsible for protecting their citizens from the impacts of climate change and 78% strongly or somewhat agreed that individuals are responsible for protecting themselves from the impacts of climate change (**Figure 7**).

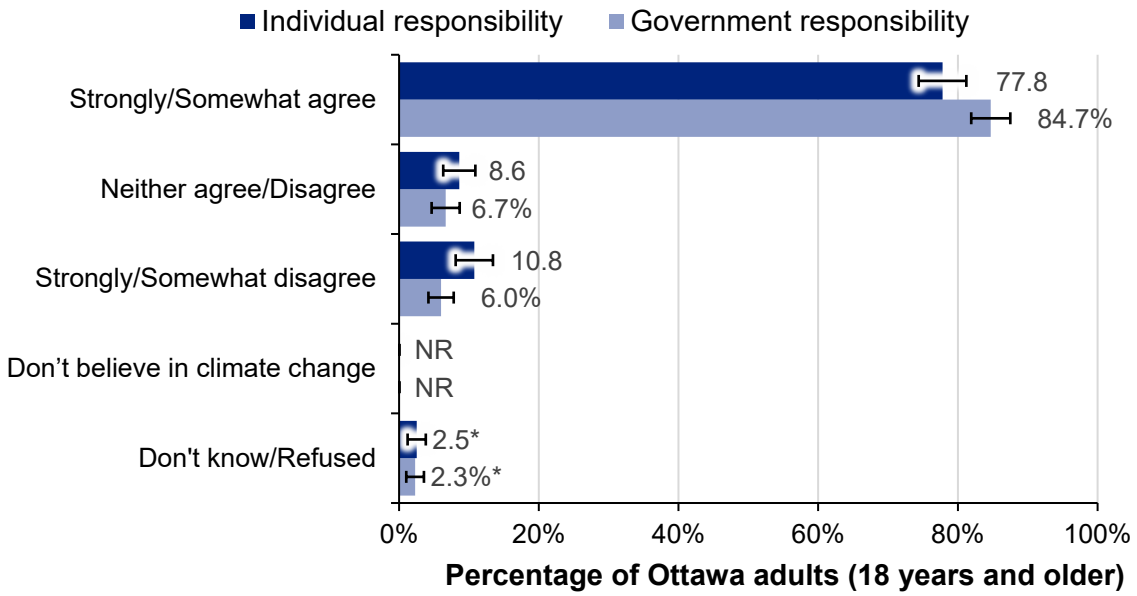

Figure 7. Perceptions of Ottawa adults aged 18 years and older regarding individual and government responsibility for climate action, 2023

Data source for Figure 7: RRFSS 2023, OPH

Notes: *=Interpret with caution. NR=Data are not reportable.

Mitigating the mental health and wellness impacts of climate change

The mental health and wellness effects of climate change can be mitigated through strategies at the individual, community, and government and systems levels. The most effective approaches address the underlying determinants of mental health and range from improving personal coping skills and social connections to improving environmental conditions and policy frameworks. Recognizing that different segments of the population may be disproportionately affected by negative impacts of climate change on mental health offers opportunities to tailor communications and interventions.

Strengthening coping skills, fostering social connections, and creating safe spaces to process emotions, particularly for children and youth, can build resilience and help manage stress. Balanced messages and education that builds both climate knowledge and coping skills can foster hope as well as awareness.[23] Importantly, evidence suggests that taking action, whether through individual behaviour change, community engagement, advocacy, or connecting with nature, can help to buffer the impacts by fostering a sense of control, purpose, and social connection, all of which are protective for mental health.[23,37,38]

Below are some examples of what can be done to help reduce the negative impacts of climate change on mental health and wellness:

- Individuals can build resilience by taking actions to protect the environment, practice healthy coping strategies, connect with others, and seek support when needed.
- Communities can foster mental health and resilience through programs that build connection and collective problem-solving, helping them adapt to extreme weather and protect cultural identity.
- Governments and systems can reduce psychological harm by providing early warning systems, basic needs, and accessible mental health and substance use health supports during times of need.
- Additionally, governments and systems can integrate mental health and wellness into climate plans, and address root causes of climate-related challenges with an equity lens to ensure solutions reach those most affected.[23,39]

For more information on how to address the mental health impacts of climate change, please visit a trusted source of information like the Climate Change and Mental Health FAQ from the Centre for Addiction and Mental Health (CAMH).

Extreme Temperatures

Recent climate change models indicate that Ottawa will become warmer, wetter and more variable.[9] By the 2030s, Ottawa is expected to have 2.5 times more "very hot" days (air temperature above 30°C; 25-28 days) and by the 2050s, four times more (32-43 days) compared to years 1981-2010 (11 days).[9] By the 2030s, Ottawa is expected to have 20% less "very cold days" (air temperature below -10°C; 57-59 days) and by the 2050s, 35% less (46-53 days) compared to years 1981-2010 (71 days).[9] While the number of extreme cold weather events is expected to decrease, they are still predicted to occur. Some research suggests that warming of the Arctic related to climate change has been linked to cold snaps (i.e., periods of unusually extreme cold) observed across parts of North America in recent years.[10,11]

This section of the report focuses on the impact of extreme heat and cold days on the health of Ottawa residents. It is important to note that specific segments of the population are more vulnerable to extreme temperature events and may experience disproportionate impacts due to intersecting social, economic, and structural factors that influence their ability to prepare for, respond to, and recover from climate-related events and hazards (i.e., adaptive capacity).[3] These include older adults, pregnant individuals, infants and young children, members of racialized groups, Indigenous peoples, people living with chronic illnesses, persons with disabilities, and people experiencing homelessness.[3]

Each year during the extreme heat surveillance season (usually from May to September) and the extreme cold surveillance season (usually from October or November to April), OPH monitors ED visits to Ottawa hospitals using real-time ED visit data extracted from South East Health Unit's Acute Care Enhanced Surveillance (ACES) application.[40] OPH categorizes ED visits as heat-, exacerbation-, or cold-related based on the words for symptoms or complaints recorded in the chief complaint section of a patient's triage record (**Appendix 1**). The chief complaint at triage may not be the same as the final or confirmed diagnosis recorded when the patient is seen by a doctor. As a result, ED visits identified from ACES are "suspected" to be related to heat and cold but allow near real-time monitoring of the impact of extreme hot and cold days on the health of Ottawa residents.

Historical trends in heat- and cold-related ED visits and hospitalizations are based on the final diagnoses (i.e. ICD-10 diagnostic codes) assigned to each ED visit and hospitalization in the National Ambulatory Care Reporting System (NACRS) and the Discharge Abstract Database (DAD) (**Appendix 2**).

Extreme heat

In Canada, extreme heat events have well documented health impacts.[12] Heat events are associated with a high burden on health services and an increased risk of death.[41–43] A Heat Warning in Ottawa is issued by Environment and Climate Change Canada (ECCC)[44] when

- two or more consecutive days of daytime maximum temperatures are expected to reach 31°C or warmer **and** nighttime minimum temperatures are expected to fall to 20°C or warmer, **or**
- two or more consecutive days of humidex values are expected to reach 40 or higher.

Extreme heat events can cause heat-related illnesses that range from mild (e.g., heat exhaustion, heat syncope, heat edema, heat cramps, heat rash) to life-threatening (e.g., heat stroke).[45,46] Heat-related illnesses occur when the core body temperature rises due to heat but the body is unable to respond effectively.[47,48] Higher temperatures can also worsen underlying health conditions especially cardiovascular, pulmonary, renal, and psychiatric illnesses and may cause ED visits related to exacerbation of these conditions.[41]

Monitoring the 2024 extreme heat season

ECCC found that heat waves in Eastern Ontario in June and August 2024 were likely because of human influence on the climate.[10,49] In the summer of 2024 (May to September), ED visits at Ottawa hospitals that were suspected to be due to heat peaked during and immediately following days for which heat warnings were issued by ECCC (**Figure 8**).

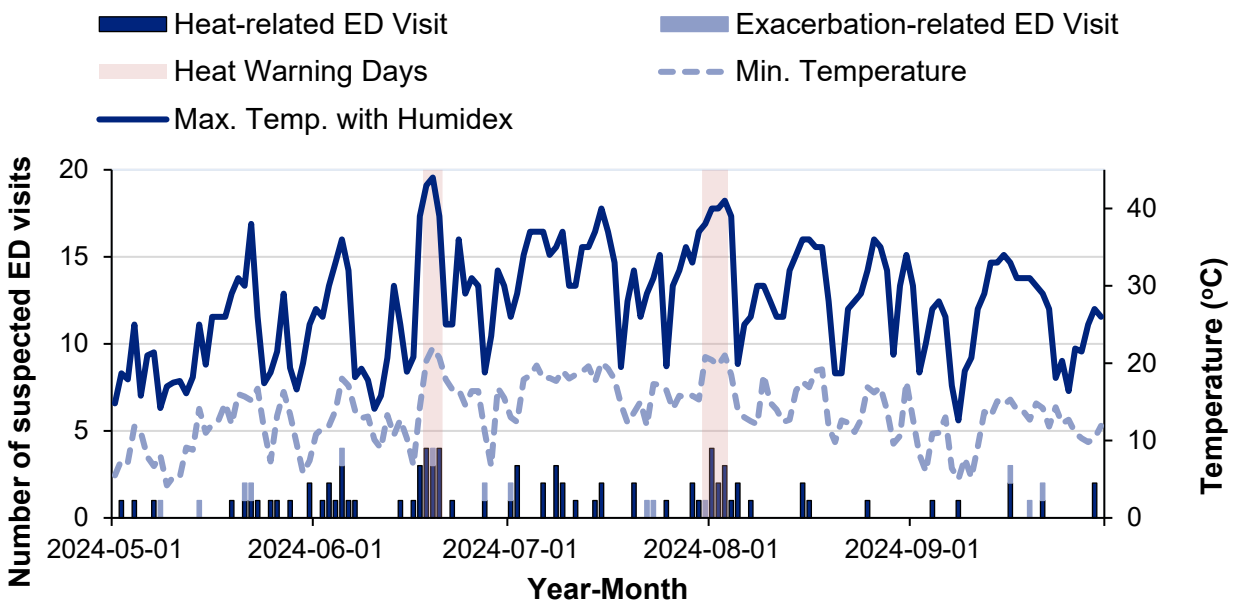

Figure 8. Suspected heat- and exacerbation-related ED visits in Ottawa hospitals, daily minimum and maximum temperatures with humidex, and number of extreme heat warning days in Ottawa, 1 May to 30 September 2024

Data sources for Figure 8: ACES, South East Health Unit. Extracted 30 April 2025. Hourly Climate Data by Year and Station, Meteorological Service of Canada (MSC) Datamart. Extracted 30 April 2025.

Trends in heat-related emergency department visits and hospitalizations

From 2016 to 2024 during the extreme heat surveillance season (May to September), there was an average of 112 heat-related ED visits (range: 75 to 169) yearly and an average of 9 heat-related hospitalizations (range: 5 to 14) yearly in Ottawa hospitals. Peaks in heat-related ED visits and hospitalizations were observed in 2018 and 2020, which were also years with high annual maximum temperatures (with humidex) and higher number of days with a Heat Warning (**Figure 9**).

When looking at heat-related ED visits, at any Ontario hospital, among Ottawa residents from 2016 to 2024, age-standardized rates peaked at 15 visits per 100,000 population in 2018, then gradually declined to 7-8 visits per 100,000 population in 2022 to 2024 (**Figure 10**).

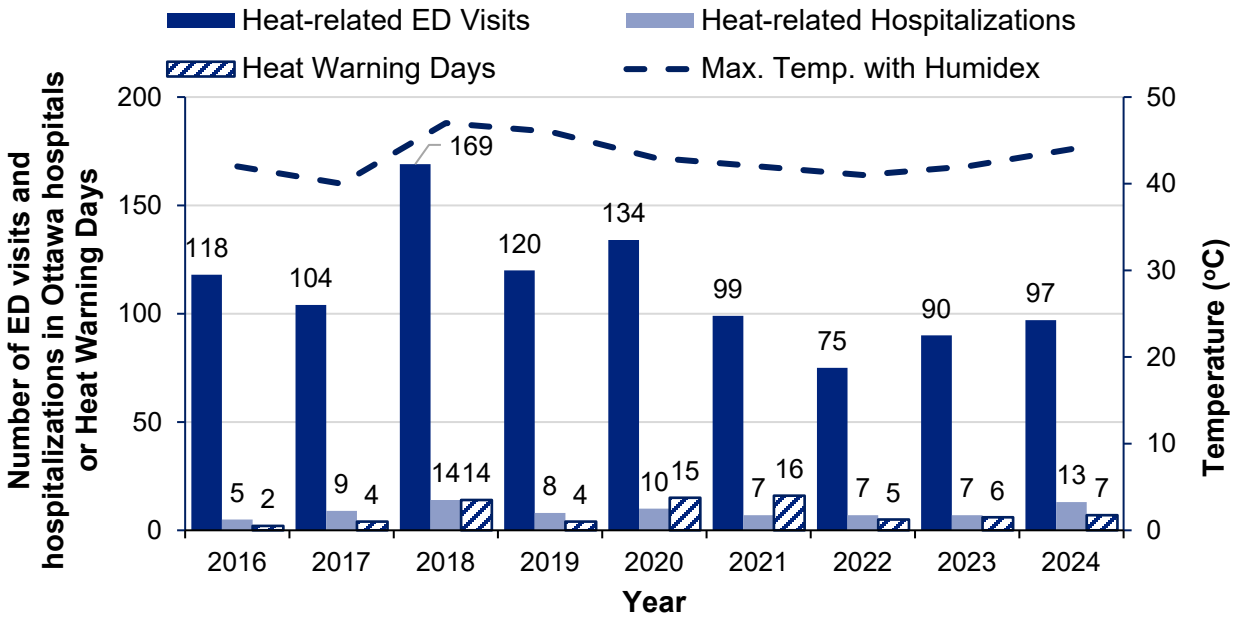

Figure 9. Heat-related ED visits and hospitalizations in Ottawa hospitals, maximum air temperature with humidex, and number of heat warning days by year, May to September 2016 to 2024

Data sources for Figure 9: NACRS, Ontario Ministry of Health, IntelliHealth Ontario. Extracted 30 April 2025. DAD, Ontario Ministry of Health, IntelliHealth Ontario. Extracted 30 April 2025. Hourly Climate Data by Year and Station, MSC Datamart. Extracted 4 April 2025.

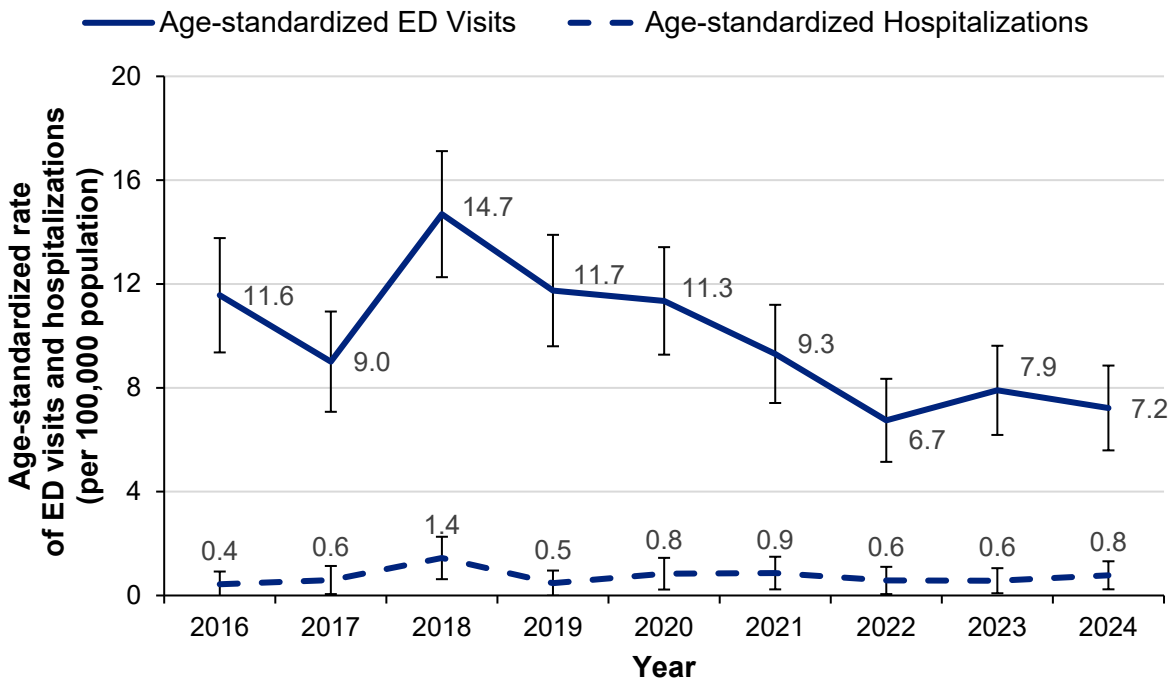

Figure 10. Age-standardized rates of heat-related ED visits and hospitalizations among Ottawa residents in any hospital by year, 2016-2024

Data source for Figure 10: NACRS, Ontario Ministry of Health, IntelliHealth Ontario. Extracted 30 April 2025. DAD, Ontario Ministry of Health, IntelliHealth Ontario. Extracted 30 April 2025. Ottawa population estimates (2016-2022) and projections (2023-2024), Ontario Ministry of Health, IntelliHealth Ontario. Extracted 30 April 2025.

Extreme cold

An Extreme Cold Warning in Ottawa is issued by ECCC when the temperature or wind chill is expected to reach minus 35°C for at least two hours.[44] Cold temperatures can increase the risk of injuries including hypothermia and frostbite.[50]

Monitoring the 2024-2025 extreme cold season

From November 1st, 2024, to April 7th, 2025, suspected cold-related ED visits in Ottawa hospitals peaked during and immediately following large drops in environmental temperatures, specifically around -20ºC or lower (**Figure 10**).

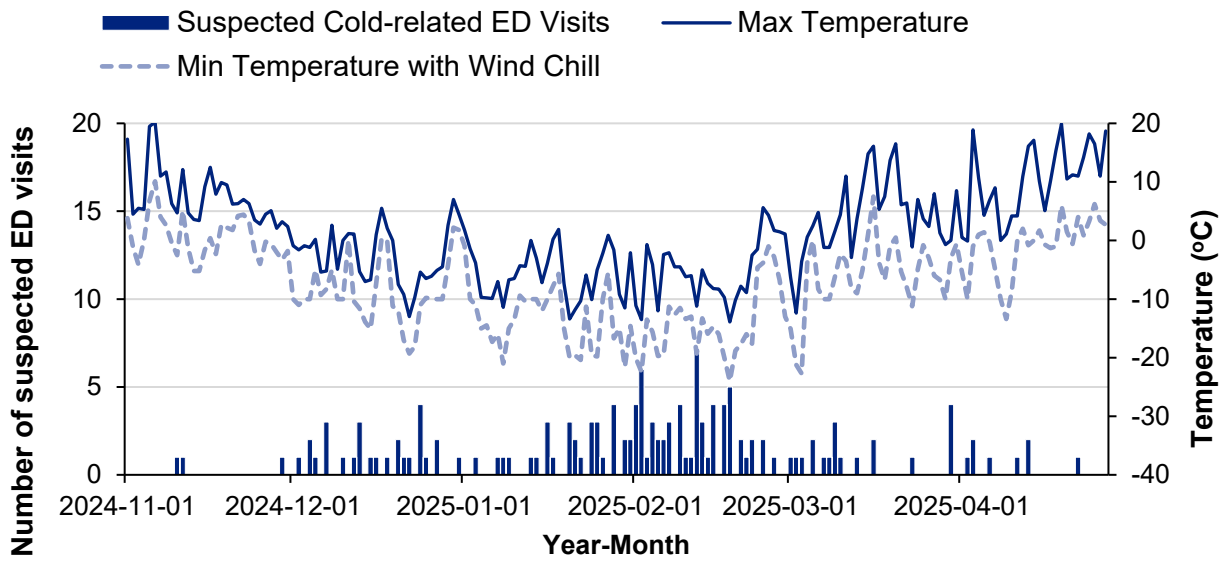

Figure 11. Suspected cold-related ED visits in Ottawa hospitals, daily minimum and maximum temperatures with wind chill in Ottawa, 1 November 2024 to 30 April 2025

Data sources for Figure 11: ACES, South East Health Unit. Extracted 30 April 2025. Hourly Climate Data by Year and Station, MSC Datamart. Extracted 30 April 2025.

Trends in cold-related emergency department visits and hospitalizations

In Ottawa hospitals, during the months of October to May from 2016 to 2024, there was an average of 151 (range: 87 to 268) confirmed cold-related ED visits yearly and 27 (range: 19 to 41) confirmed cold-related hospitalizations yearly. Peaks in cold-related ED visits and hospitalizations were observed in 2022 and 2023 which corresponded with some of the lowest minimum temperatures (with wind chill) recorded in recent years (**Figure 13**). In the last decade, there have been four Extreme Cold Warning days in Ottawa (i.e., one in 2017, two in 2018, and one in 2023).

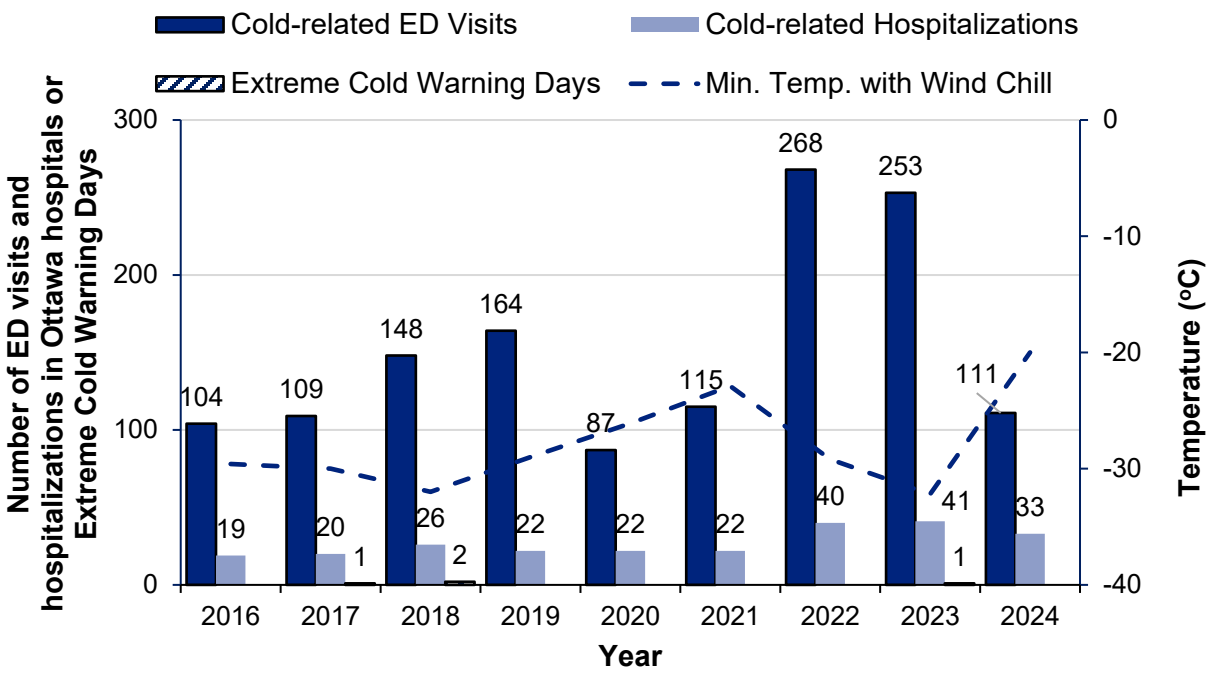

Figure 12. Cold-related ED visits and hospitalizations in Ottawa hospitals and minimum air temperature with wind chill by year, October to May 2016 to 2024

Data sources for Figure 12: NACRS, Ontario Ministry of Health, IntelliHealth Ontario, Extracted 4 April 2025. DAD, Ontario Ministry of Health, IntelliHealth Ontario. Extracted 4 April 2025. Hourly Climate Data by Year and Station, MSC Datamart. Extracted 4 April 2025.

From 2016 to 2024, age-standardized rates of cold-related ED visits among Ottawa residents fluctuated between 8 and 15 per 100,000 population (**Figure 13**). In 2022 and 2023, rates jumped to 23 and 22 per 100,000 population, respectively. Over the same period, age-standardized rates for cold-related hospitalizations among Ottawa residents remained relatively stable, ranging from 2 to 4 visits per 100,000 population.

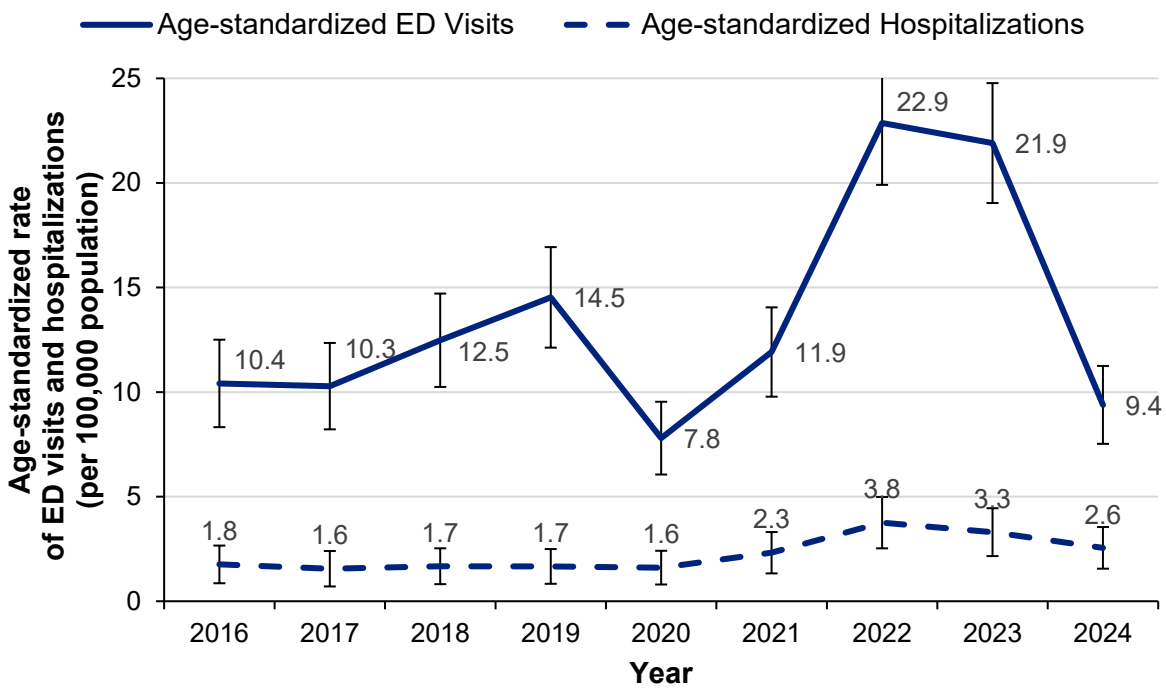

Figure 13. Age-standardized rates of cold-related ED visits and hospitalizations among Ottawa residents in any hospital by year, 2016-2024

Data sources for Figure 13: NACRS, Ontario Ministry of Health, IntelliHealth Ontario. Extracted 4 April 2025. DAD, Ontario Ministry of Health, IntelliHealth Ontario. Extracted 4 April 2025. Ottawa population estimates (2016-2022) and projections (2023-2024), Ontario Ministry of Health, IntelliHealth Ontario. Extracted 30 April 2025.

Deaths related to extreme heat and cold

Extreme temperature and mortality can be related through many direct and indirect pathways.[43,51] For example, extreme heat and cold can worsen an individual's chronic health condition such as cardiovascular or respiratory disease, which may in turn lead to death. As a result, deaths caused by exposure to extreme temperatures, particularly extreme heat, are difficult to count and may be underreported. Since extreme temperature is not always captured as the main cause of death,[51,52] mortality due to heat and cold has been estimated by researchers.

According to research from Public Health Ontario (PHO) and the Institute for Clinical Evaluative Sciences, each 5°C change to daily mean temperature was associated with a 2.5-3.0% increase in non-accidental deaths in both cold and warm seasons in Ontario between 1996 and 2010.[52] Cold weather had a greater effect on the risk of death, especially cardiovascular-related deaths and in people under 65 years of age.[52] A 2024 Statistics Canada study estimated that in Ottawa, daily mortality risks for non-accidental and cardiovascular causes for people aged 65 and older were higher on extreme heat

event days, although these differences in risk were not statistically significant.[43] From 2000 to 2020, the cumulative number of excess deaths attributable to extreme heat events in Ottawa was 32 for non-accidental causes, 19 for cardiovascular causes, and 2 for respiratory causes.[43]

Preventing heat- and cold-related illness

The risk of heat- and cold-related illness can be lowered through actions at the individual, community, and system levels. OPH and the City of Ottawa coordinate response to extreme heat and cold through communications, outreach, and support to most at-risk populations. For individuals, OPH's website includes strategies to reduce the risk of heat-related illness during hot weather and cold-related illness during cold weather.[53] It also includes a Places to Cool map and a Places to Warm Up map to help residents identify places near them where they can cool off or warm up.

In 2023, Ottawa residents aged 18 years and older were asked as part of the RRFSS if they had appliances to cool down or places to go for heat relief and how they applied these strategies. Overall, 93% of Ottawa adults reported having a working air conditioner at home and among them, 93% were likely to report using it during hot weather (**Figure 14**). The reasons for not using air conditioning were also asked but estimates were not reportable. In addition, data from Statistics Canada's 2021 Households and the Environment Survey estimated that 86% of Ottawa households had air conditioners.[54] Direct comparisons between data sources should be interpreted with caution, as differences may reflect variations in data collection year, sampling frame, question structure, and other factors.

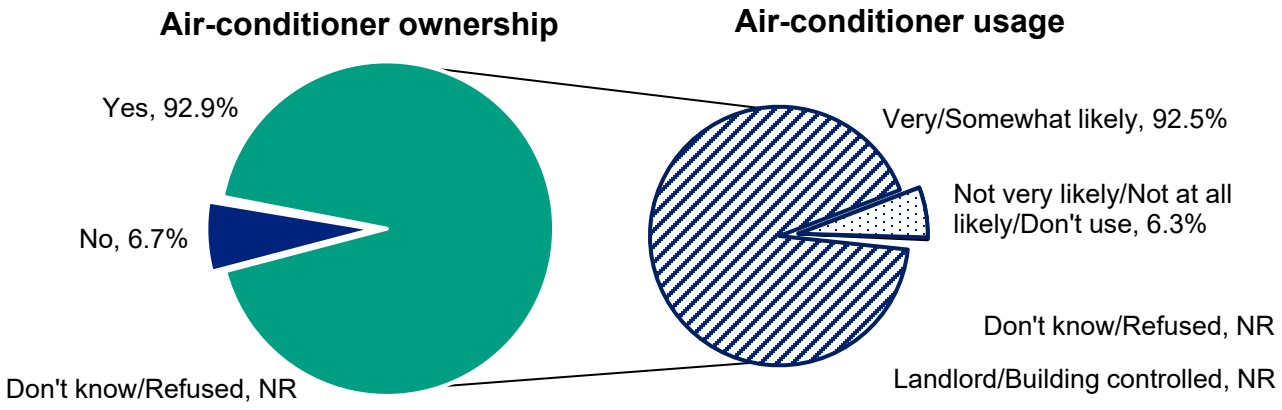

Figure 14. Percentage of Ottawa adults reporting having a working air-conditioner and the likelihood of using it during hot weather, 2023

Data source for Figure 14: RRFSS 2023, OPH

Notes: *=Interpret with caution. NR=Data are not reportable.

Also, 71% of Ottawa adults reported having a working portable or ceiling fan, and of those people, 72% were likely to use it during hot weather (**Figure 15**). The main reason for not using fans was that their homes were well-shaded by trees (87%). It is also important to note that fans do not directly cool the air. Fans are best used to circulate or move air, specifically to bring cold air into a warmer area where people are located. During extreme heat events, where indoor and outdoor air temperatures exceed 35ºC, electric fans provide minimal body cooling and are not considered an effective standalone cooling intervention. [55,56]

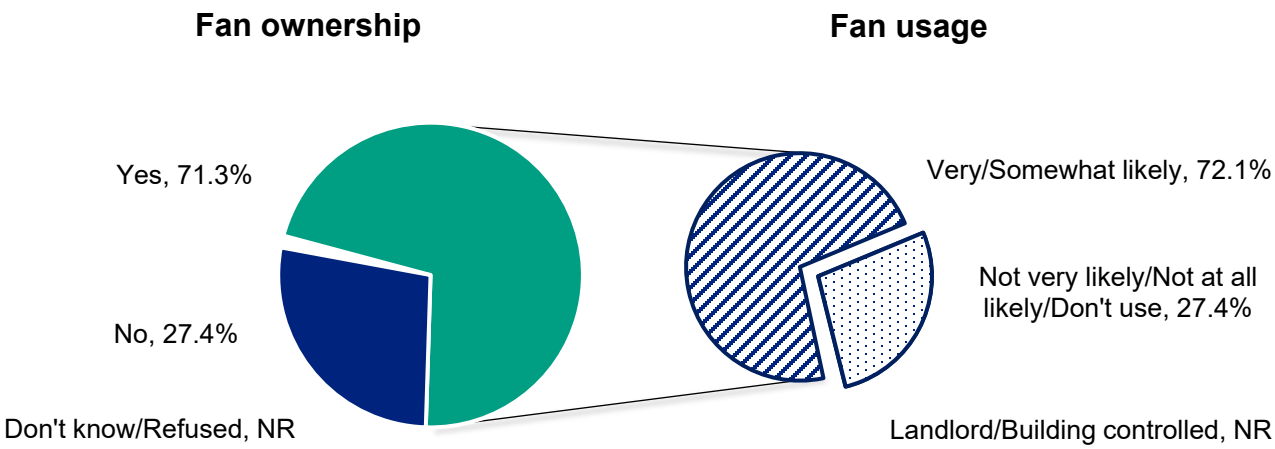

Figure 15. Percentage of Ottawa adults reporting having a working portable fan or ceiling fan and the likelihood of using it during hot weather, 2023

Data source for Figure 15: RRFSS 2023, OPH

Notes: *=Interpret with caution. NR=Data are not reportable.

While these findings suggest that a large proportion of Ottawa residents have access to and use air conditioners, it is important to recognize that not all populations are equitably protected from extreme heat. The CCHVAs report highlights that certain groups, such as people with low incomes and those living in inadequate housing, face barriers to accessing cooling appliances and are disproportionately impacted by heat-related health risks.[2] These broader contextual factors should be considered when interpreting air conditioning access and use in relation to extreme heat vulnerability.

Results from the RRFSS in 2023 also reveal that 69% of Ottawa adults knew of nearby places where they could go to cool down, and 67% could name at least one such location: malls (53%), libraries or community centers (44%), recreation complexes or public pools (28%), movie theatres or restaurants (11%), shaded parks or beaches (6.7%*), family or friend's home (5.1%*), and cooling station (4.9%*). However, 72% reported they had never gone to these places for relief from heat in the past year, while 20%* had done so at least once.

Solar Ultraviolet Radiation

One factor influencing the intensity of the sun's UV radiation that reaches Earth is the thickness of the stratospheric ozone layer, found in the upper layers of the atmosphere. Stratospheric ozone acts as Earth's sunscreen and absorbs most of the harmful UV radiation.[57,58] However, increased levels of greenhouse gases and human-made ozone-depleting substances have led to thinning of the ozone layer.[57] It is difficult to link the thinning of the ozone layer specifically to climate change, as several other factors influence the amount of UV radiation reaching the Earth's surface.[12] The intensity of UV radiation also depends on time of day, season, cloud cover, and reflective surfaces like snow and ice, which complicate and introduce uncertainties into UV radiation projection models.[9,12,59]

In cloud-free conditions, climate models largely project an increase in UV radiation across Ontario.[9] With climate projections indicating warmer seasons in Ottawa, people may spend more time outdoors, increasing their exposure to the sun's UV radiation.[12] It is estimated that a 2°C increase in temperature would lead to a 10% increase in skin cancers annually.[12] While some exposure to solar UV radiation can provide some health benefits such as vitamin D production, excessive UV exposure is linked with health harms including sunburns and skin cancers[12] which are discussed in this section of the report. Artificial sources of UV radiation such as tanning beds are out of scope.

Trends in the incidence of malignant melanoma

Skin cancers can be categorized into three main types:

- basal cell carcinoma;
- squamous cell carcinoma;
- and melanoma.[60]

Non-melanoma cancers (i.e., basal cell and squamous cell carcinoma) statistics are not well documented in Canada as most are successfully treated in doctor's offices and are not reported.[60] This section will focus on malignant melanoma, the deadliest type of skin cancer. Rates of melanoma are expressed per 100,000 "person-years", which can be roughly interpreted as per 100,000 "population". Person-years is often used in cancer statistics as a more exact measurement of how often cancer occurs in a population over a certain period of time.

In Ottawa, the number of new cases (incidence) of melanoma increased from 2010 to 2020 (**Figure 16**). During this time, melanoma rates increased from 17.6 cases to 28.3 cases per 100,000 person-years. In more recent years (2019 and 2020), rates of melanoma were higher in Ottawa than all of Ontario. In 2030, the rate of melanoma in Ottawa is projected to increase to 31.2 cases per 100,000 person-years.[61]

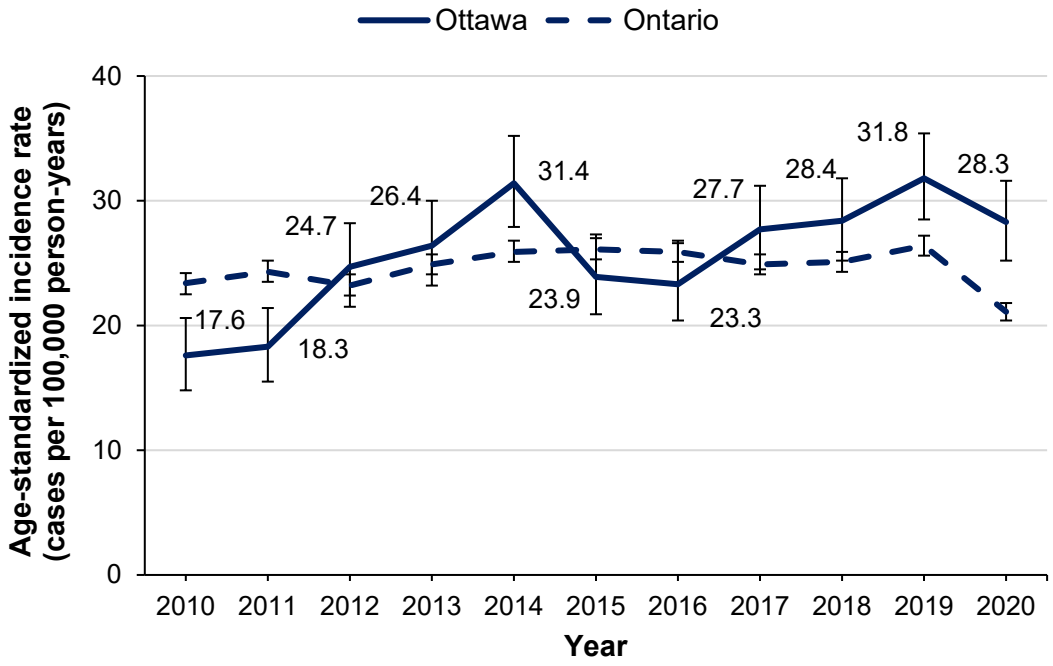

Figure 16. Age-standardized incidence of melanoma in Ottawa and Ontario by year, 2010-2020

Data sources for Figure 16: Ontario Cancer Registry SEER*Stat Package - Release 13 - OCR (December 2022). Statistics Canada. Table 17-10-0005-01 Population estimates on July 1st, by age and sex [Internet]. Ottawa (CA): Government of Canada; 2024 Feb 21 [cited 2024-06-07]. Available from: https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1710000501.

In both Ottawa and Ontario, rates of melanoma were consistently higher in males compared to females between 2010 and 2020 (**Figure 17**).

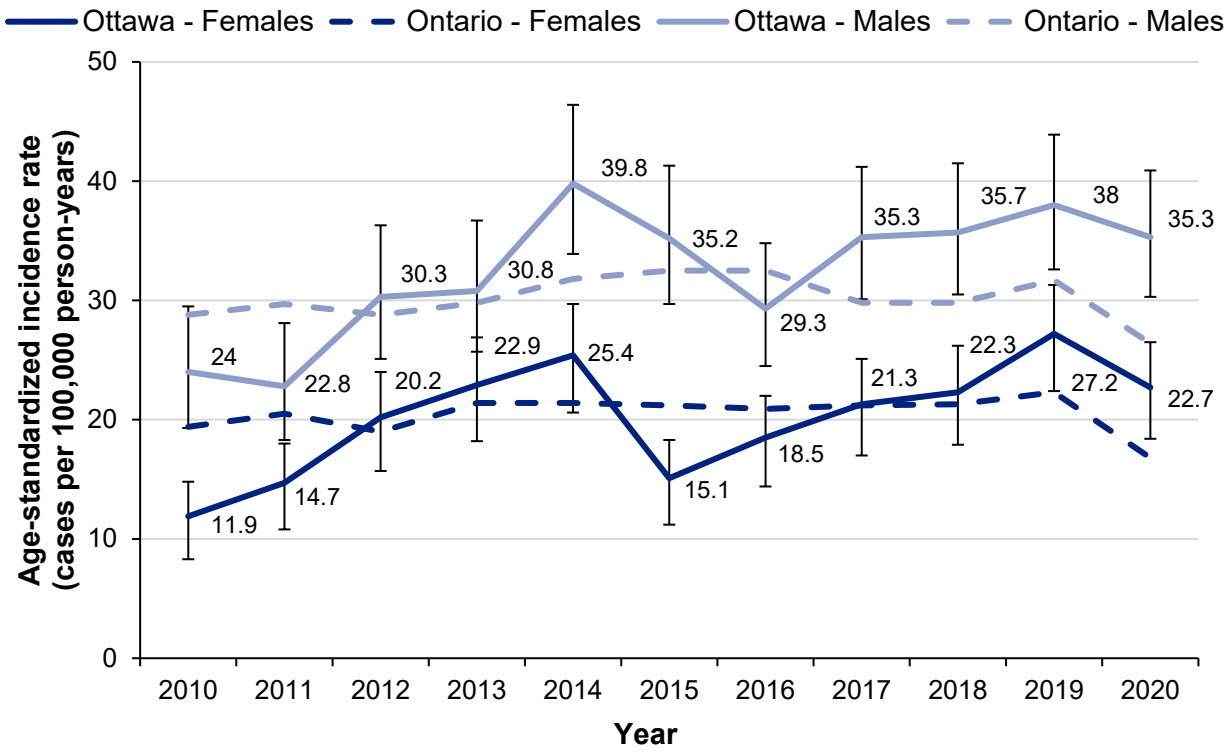

Figure 17. Age-standardized incidence of melanoma in Ottawa and Ontario, by year and sex, 2010-2020

Data sources for Figure 17: Ontario Cancer Registry SEER*Stat Package - Release 13 - OCR (December 2022). Statistics Canada. Table 17-10-0005-01 Population estimates on July 1st, by age and sex [Internet]. Ottawa (CA): Government of Canada; 2024 Feb 21 [cited 2024-06-07]. Available from: https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1710000501.

Melanoma rates increased with age. Between 2016 and 2020 in Ottawa, rates were as high as 130 cases per 100,000 person-years among individuals aged 80 years and older, compared with 2 cases per 100,000 person-years in individuals aged 15 to 29 (**Figure 18**). Researchers have found that the risk of developing melanoma increases with the number of sunburns experienced over a lifetime.[15,62,63]

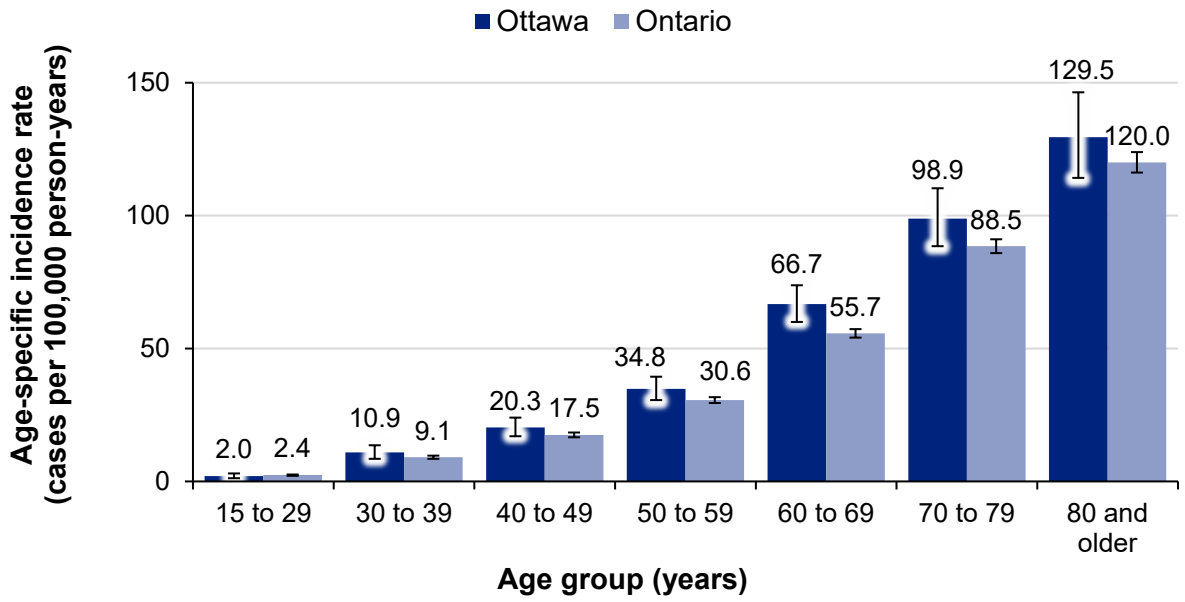

Figure 18. Age-specific incidence of melanoma in Ottawa and Ontario, 2016-2020

Data sources for Figure 18: Age-specific incidence rates of melanoma in Ottawa and Ontario, 2016-2020**:** Ontario Cancer Registry SEER*Stat Package - Release 13 - OCR (December 2022). Statistics Canada. Table 17-10-0005-01 Population estimates on July 1st, by age and sex [Internet]. Ottawa (CA): Government of Canada; 2024 Feb 21 [cited 2024-06-07]. Available from: https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1710000501.

Trends in sunburns and UV-related emergency department visits

Self-reported sunburns

Data on sunburns are primarily obtained through self-reported surveys.[13,14] The CCHS conducted every year by Statistics Canada, introduced an optional section on sun exposure and sun safety that provinces could choose to participate in between 2007 and 2018.[64,65] Data for Ottawa residents aged 12 and older were available for the 2015-2016 CCHS cycle.

The CCHS survey found that over one-third (35%) of Ottawa residents aged 12 years and older reported having a sunburn in the past year (**Figure 19**), which was higher than the rest of Ontario (30%). Getting sunburned varied by age: 43% of residents aged 12 to 19 years compared to 10% of residents aged 65 years and older reported a sunburn in the past year. Ottawa residents with higher household income were more likely to report having a sunburn compared to those with lower household income, which is consistent across Canada.[64]

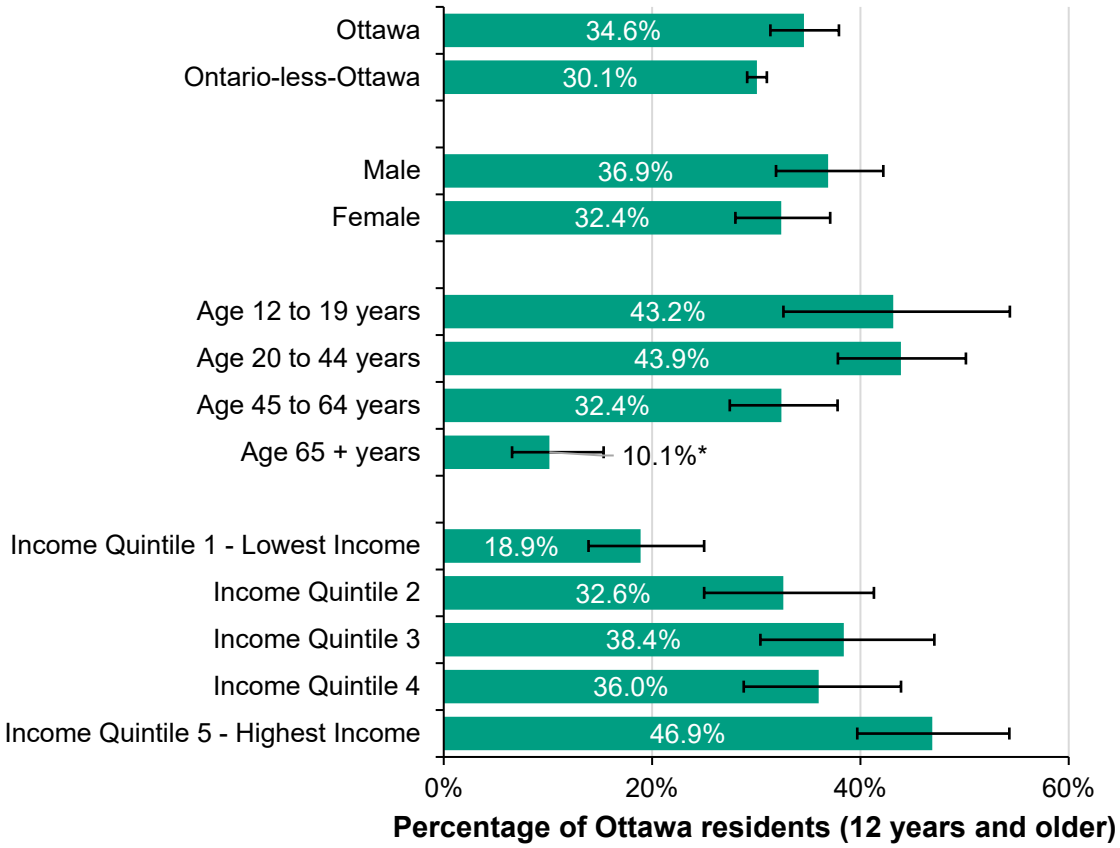

Figure 19. Percentage of Ottawa residents aged 12 years and older that reported having a sunburn in the past year by subgroup, 2015-2016

Data source for Figure 19: CCHS 2015-2016, Statistics Canada, Share File, Ontario Ministry of Health.

Note: *=Interpret with caution.

UV-related emergency department visits

Some sunburns can be severe, causing blistering and intense pain, and may result in ED visits.[13–15] A history of severe sunburn is also an important risk factor for melanoma and non-melanoma skin cancers.[66,67] Individuals may also visit the ED for other UV-related skin reactions such as sun allergies (e.g., solar urticaria, polymorphic light eruption) (**Appendix 2**).

Over the last 10 years, there was an average of 47 sunburn and other UV-related ED visits to Ottawa hospitals each year from May to September. With the exception of 2020, yearly UV-related ED visits generally increased as the number of very high UV index days (i.e., maximum daily UV index of 8 or above) increased in Ottawa (**Figure 20**). In 2020, there was a decrease in UV-related ED visits despite a high number of days with daily maximum UV index values of 8 or above. Restrictions to social

gatherings and activities during the first year of the COVID-19 pandemic (i.e., 2020) and changes in healthcare-seeking behaviours may have contributed to the decrease in the number of UV-related ED visits.[68]

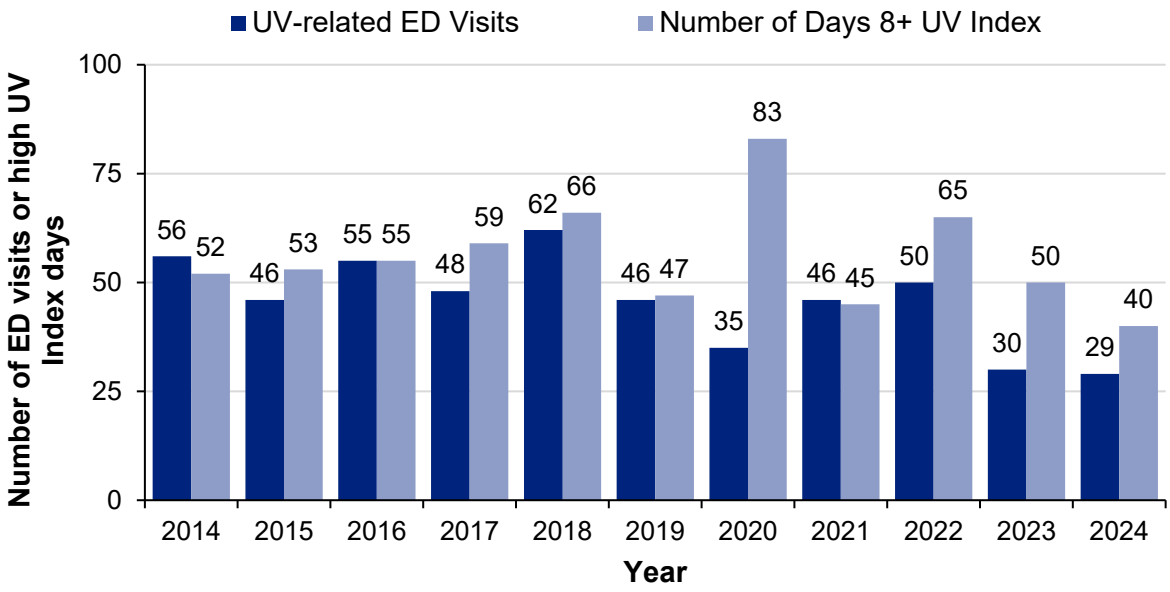

Figure 20. UV-related ED visits in Ottawa hospitals and number of days where the maximum UV index was very high (8 and above) by year, May to September 2014-2024

Data sources for Figure 20: NACRS, Ontario Ministry of Health, IntelliHealth Ontario. Extracted 30 April 2025. Hourly forecast for Ottawa, Environment and natural resources, Government of Canada. Extracted daily and archived by OPH: https://weather.gc.ca/en/forecast/hourly/index.html?coords=45.403,-75.687

When looking at age-standardized rates of UV-related ED visits among Ottawa residents specifically from 2016 to 2024, the rates decreased by almost half from 7.5 per 100,000 in 2016 to 4 per 100,000 in 2024 (**Figure 21**).

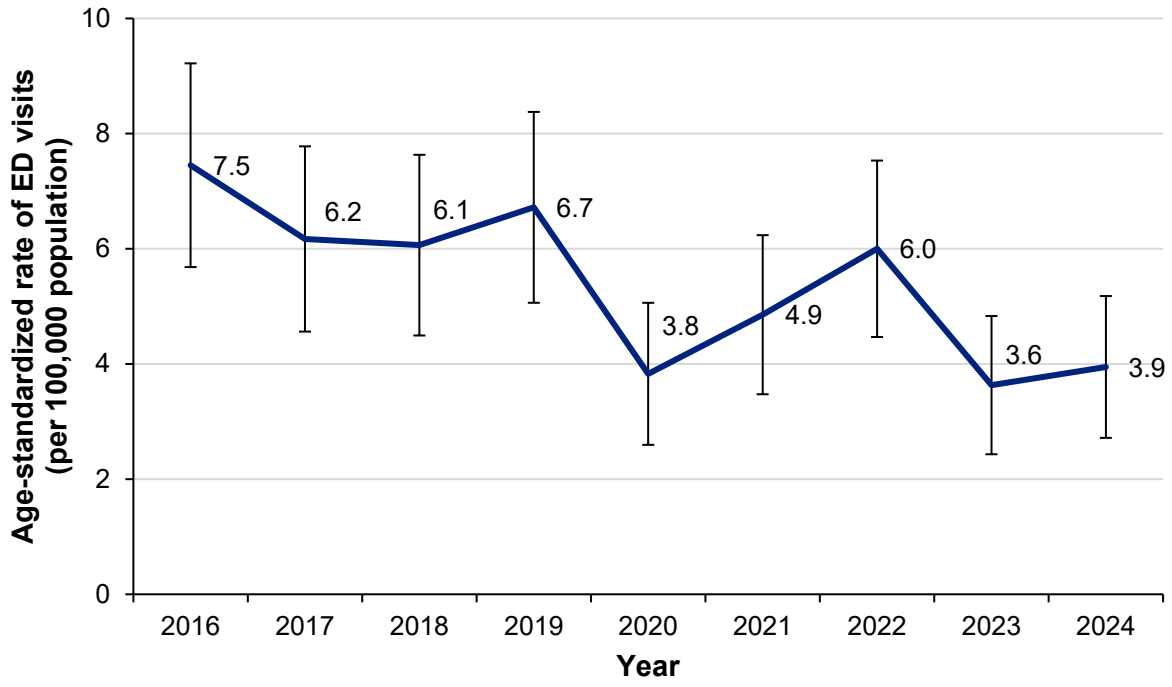

Figure 21. Age-standardized rates of UV-related ED visits among Ottawa residents in any hospital by year, 2016-2024

Data sources for Figure 21: NACRS, Ontario Ministry of Health, IntelliHealth Ontario. Extracted 30 April 2025. Ottawa population estimates (2016-2022) and projections (2023-2024), Ontario Ministry of Health, IntelliHealth Ontario. Extracted 30 April 2025.

In Ottawa, solar UV-related ED visits increase in the summer months – when residents are more likely to be exposed to UV as they partake in outdoor activities. From 2014 to 2024, the average number of confirmed UV-related ED visits in Ottawa hospitals peaked in June and July, the months with the highest average days with 8+ UV index readings (**Figure 22**).

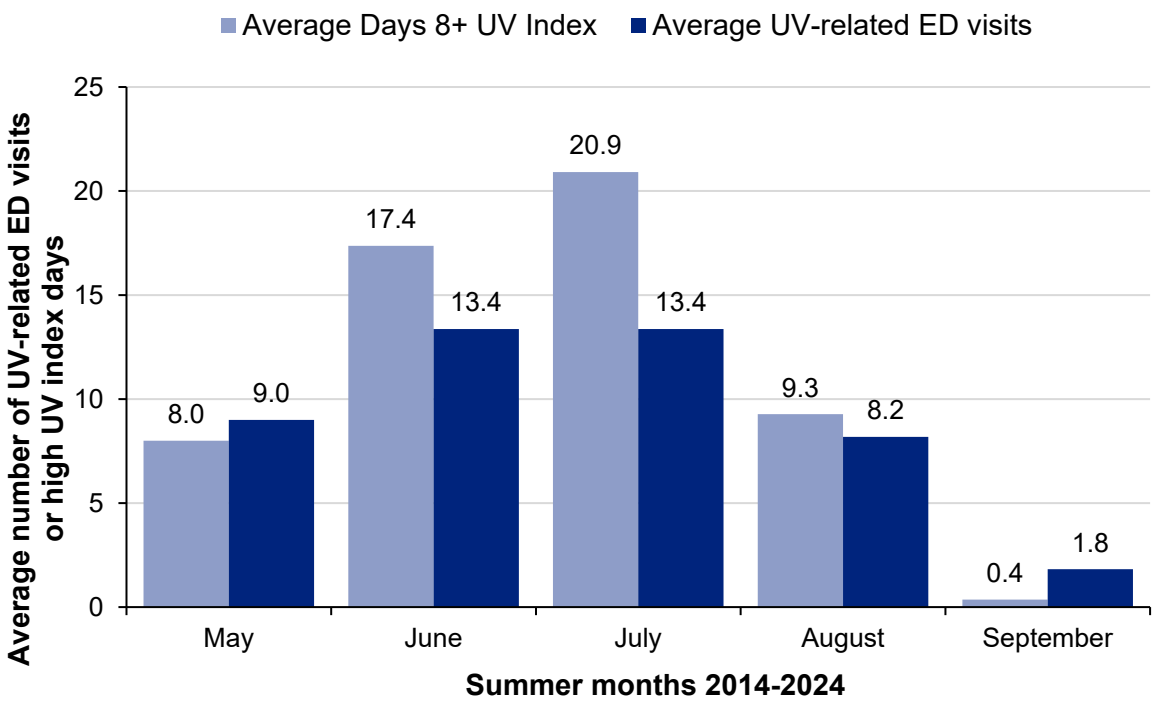

Figure 22. Average number of confirmed UV-related ED visits in Ottawa hospitals and average number of days where the maximum UV index was very high (8 and above) by month, from May to September 2014-2024

Data source for Figure 22: NACRS, Ontario Ministry of Health, IntelliHealth Ontario. Extracted 30 April 2025. Hourly forecast for Ottawa, Environment and natural resources, Government of Canada. Extracted daily and archived by OPH: https://weather.gc.ca/en/forecast/hourly/index.html?coords=45.403,-75.687

Almost 50% of UV-related ED visits in Ottawa hospitals over the last 10 years were of high triage acuity (i.e. level 3 or less) (**Figure 23**). Many of these (40%) were urgent/ potentially serious (level 3), indicating that health effects would have to be severe before people present to the ED for sunburns and other UV-related illnesses.

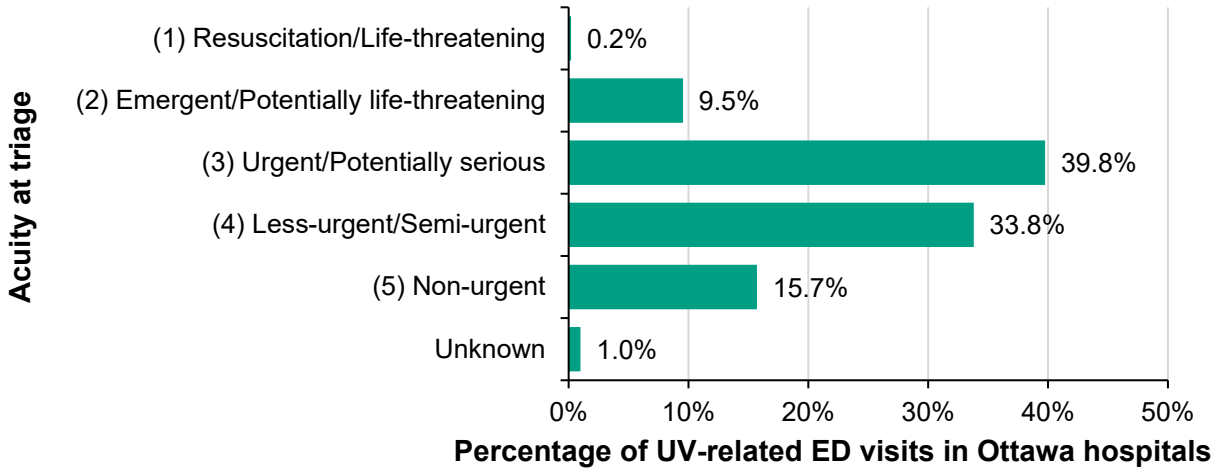

Figure 23. UV-related ED visits in Ottawa hospitals by acuity at triage, October to May 2014-2024

Data source for Figure 23: NACRS, Ontario Ministry of Health, IntelliHealth Ontario. Extracted 30 April 2025.

Although individuals of all ages visited Ottawa hospital EDs for UV-related illnesses, half were between the ages of 10 and 29 (**Figure 16**). An increasing number of severe sunburns leading to blistering during adolescence has been linked with higher chances of developing melanoma.[63,69]

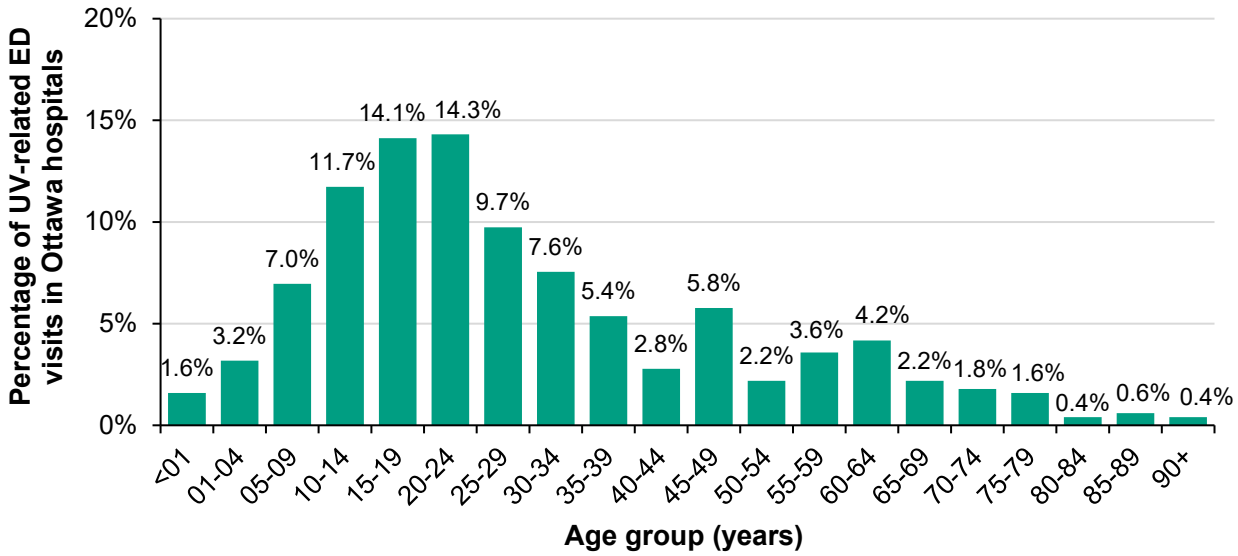

Figure 24. UV-related ED visits in Ottawa hospitals by age group, October to May 2014-2024

Data source for Figure 24: NACRS, Ontario Ministry of Health, IntelliHealth Ontario. Extracted 30 April 2025.

Preventing sunburns

Skin cancers are some of the most preventable cancers.[70] Increasing sun safety behaviours has been shown to reduce the risk of skin cancers.[64] Protecting one's eyes and skin are crucial in limiting exposure to solar UV radiation. ECCC developed the UV index to help Canadians understand when they need to protect themselves from the sun (**Table 1**).[71] The UV index is available in the local weather forecast. Canada's UV index ranges from 0 (low intensity) to 11+ (extreme intensity). The higher the number, the stronger the sun's rays, and the greater the need to take precautions. The Canadian Sun Safety Guidelines recommend protecting one's skin and eyes as much as possible when the UV index is 3 (moderate) or higher.[72]

Table 1. ECCC's UV Index[73]

UV Index	Exposure Category	Sun protection actions
0-2	Low	**Minimal sun protection required** – for normal activity. Wear sunglasses on bright days. If outside for more than one hour, cover up and use sunscreen. Reflection off snow can nearly double UV strength. Wear sunglasses and apply sunscreen.
3-5	Moderate	**Take precautions** – cover up, wear a hat, sunglasses and sunscreen – especially if you will be outside for 30 minutes or more. Look for shade near midday when the sun is strongest.
6-7	High	**Protection required** – UV damages the skin and can cause sunburn. Reduce time in the sun between 11 a.m. and 3 p.m., and take full precautions – seek shade, cover up, wear a hat, sunglasses and sunscreen.
8-10	Very High	**Extra precautions required** – unprotected skin will be damaged and can burn quickly. Avoid the sun between 11 a.m. and 3 p.m., and take full precautions – seek shade, cover up, wear a hat, sunglasses and sunscreen.
11+	Extreme	**Take full precautions** – unprotected skin will be damaged and can burn in minutes. Avoid the sun between 11 a.m. and 3 p.m., cover up, wear a hat, sunglasses and sunscreen. Values of 11 or more are very rare in Canada. However, the UV Index can reach 14 or more in the tropics and southern U.S. White sand and other bright surfaces reflect UV and increase UV exposure.

OPH's website has tips to enjoy the sun safely: it is generally recommended to seek shade, wear appropriate clothing (e.g. wide brim hats, long clothing), wear sunglasses, and use sunscreen with a sun protection factor (SPF) of at least 30.[74,75] Of these behaviours, those reportedly most practiced among Ottawa residents were wearing sunglasses, using sunscreen with a sun protection factor of at least 30 on the face, and seeking shade (**Figure 25**).

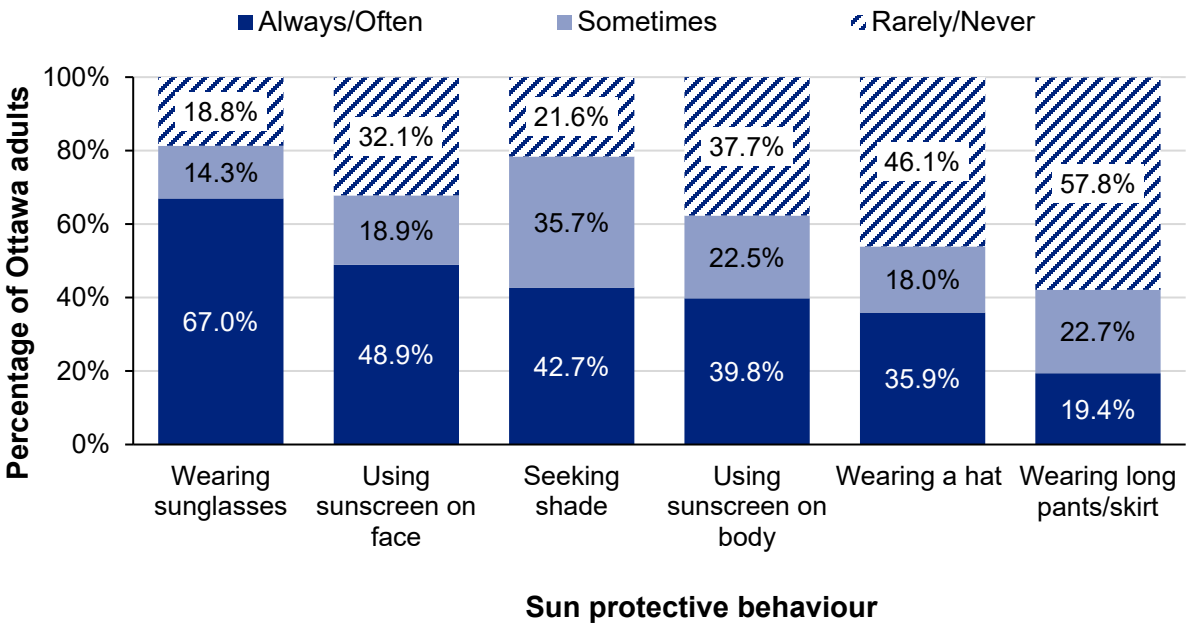

Figure 25. Individual sun protective behaviours practised by Ottawa residents aged 12 years and older on their time off in summer months by frequency of behaviour, 2015-2016

Data source for Figure 25: CCHS 2015-2016, Statistics Canada, Share File, Ontario Ministry of Health.

According to the CCHS 2015-2016, the proportion of residents practicing sun safety behaviours in Ottawa was higher than the rest of Ontario (i.e., Ontario-less-Ottawa) (**Figure 26, Figure 27**). A total of 57% of Ottawa residents compared to 53% of Ontario-less-Ottawa residents reported protecting their eyes from the sun by often or always wearing sunglasses or a wide-brimmed hat (**Figure 26**). A greater proportion of Ottawa residents (65%) compared to Ontario-less-Ottawa residents (61%) reported that they protect their skin from the sun by often or always seeking shade; wearing a hat that shades the face, ears, and neck; wearing long pants or skirts; and using sunscreen with a sun protection factor of at least 30 on the face and body (**Figure 27**).

Sun safety behaviours varied by age and household income among Ottawa residents. A higher proportion of adults aged 20 to 64 years protected their eyes (> 60%), compared with youth and older adults (12 to 19 years: 41%; 65 years and older: 45%) (**Figure 26**).

Youth were more likely to protect their skin than older adults (71% of 12- to 19-year-olds vs. 51% 65-year-old and older) (**Figure 27**). Ottawa residents with higher household income (in quintiles 4 and 5) were more likely to protect their skin and eyes from the sun compared to those with lower household income (quintile 1) (**Figure 26, Figure 27**).

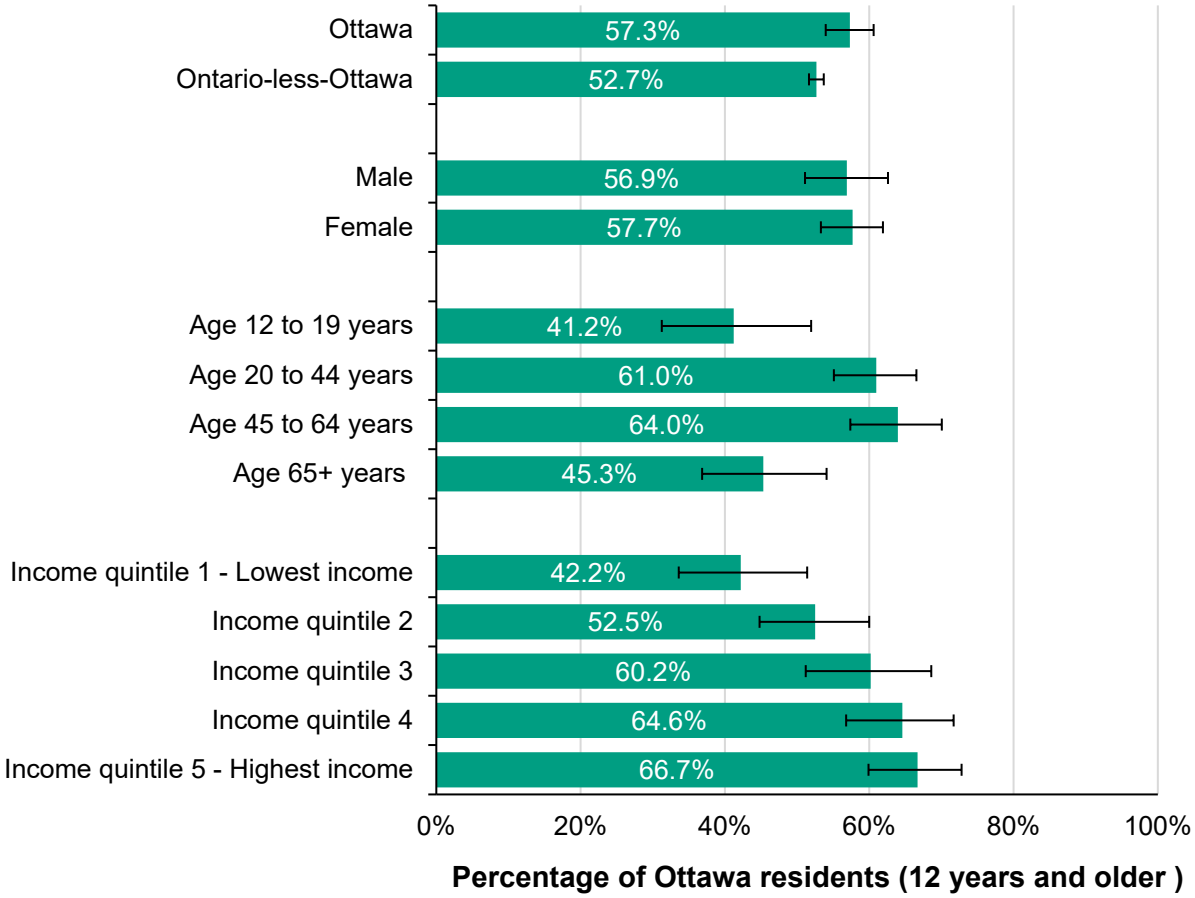

Figure 26. Percentage of Ottawa residents aged 12 years and older reporting that they always or sometimes protected their eyes from the sun in the past year by subgroup, 2015-2016.

Data source for Figure 26 : CCHS 2015-2016, Statistics Canada, Share File, Ontario Ministry of Health.

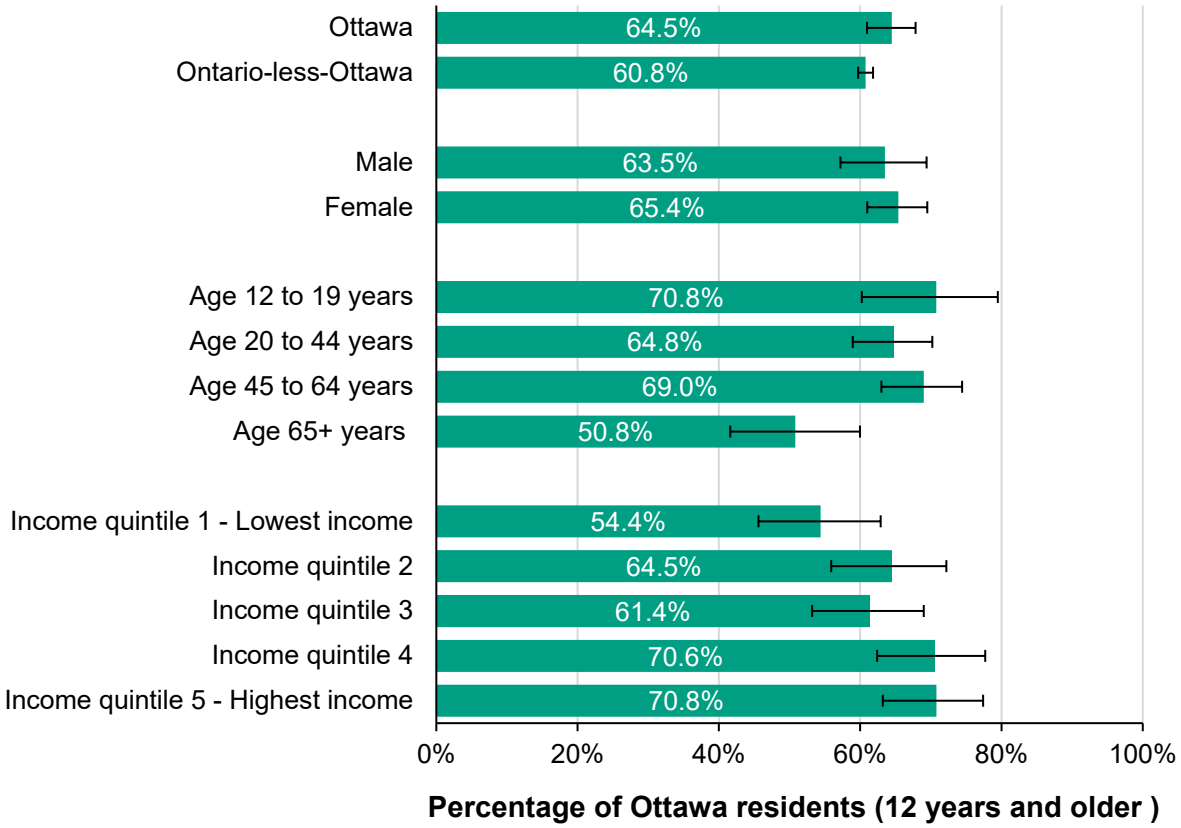

Figure 27. Percentage of Ottawa residents aged 12 years and older reporting that they always or sometimes protected their skin from the sun in the past year by subgroup, 2015-2016

Data source for Figure 27: CCHS 2015-2016, Statistics Canada, Share File, Ontario Ministry of Health.

Outdoor Air Quality

Climate change and outdoor air quality are interrelated in multiple ways.[17] Burning of fossil fuels and other activities that emit carbon dioxide, the main driver of climate change, also emit air pollutants. Warmer temperatures can lead to higher levels of air pollutants like ozone, which can worsen health impacts, especially during extreme heat events.[17] Climate projections indicate that wildfire frequency, severity, and distribution will change as a result of a warming climate.[17] Climate change-related increases in wildfires are one of the most significant risks to air quality in Canada.[17]

Scientific studies have consistently linked exposure to outdoor air pollution and the risk of premature death and chronic diseases.[17,76] In 2018, Health Canada estimated that exposure to air pollution contributed to 46 premature deaths per 100,000 people across Ontario. In the same year, the estimated rate for Ottawa was lower at 38 premature deaths per 100,000 people.[76] Nationally, exposure to air pollution has been linked with millions of asthma symptom days as well as thousands of cardiac and respiratory ED visits.[76]

Evidence suggests that three air pollutants account for most of the population health impacts of air pollution: fine particulate matter ($PM_{2.5}$), ground-level ozone (O_3), and nitrogen dioxide (NO_2).[76] These air pollutants are emitted from both human-made and natural sources. Fine particulate matter is emitted from a large variety of sources including wildfires, motor vehicle exhaust, and coal combustion.[17] Ground-level ozone is a "secondary" pollutant and created when two air pollutants (nitrogen oxides and volatile organic compounds) react in the presence of sunlight. Nitrogen dioxide, along with other nitrogen oxides, contribute to the formation of ozone and are emitted from the burning of fossil fuels during transportation, energy production, and industrial processes.[77]

There is no defined safe level of exposure from air pollutants. Air quality monitoring is informative to measure levels of pollutants in an environment and to understand the impact of air pollution on health. Canada's Air Quality Health Index (AQHI) reports on health risks due to outdoor levels of three air pollutants that are harmful to health: $PM_{2.5}$, O_3, and NO_2.[78] The AQHI translates health risks due to these pollutants into a numerical scale from 1 to 10 to help individuals make informed decisions to protect their health, especially for people who are more sensitive to air pollution (**Table 2**).[79] The higher the number, the greater the health risk associated with the air quality.

Table 2. Canada's AQHI health risk categories and associated health messages

Health Risk	AQHI	Health Messages for At Risk Population†	Health Messages for General Population
Low	1-3	Enjoy your usual outdoor activities.	Ideal air quality for outdoor activities.
Moderate	4-6	Consider reducing or rescheduling strenuous activities outdoors if you are experiencing symptoms.	No need to modify your usual outdoor activities unless you experience symptoms such as coughing and throat irritation.
High	7-10	Reduce or reschedule strenuous activities outdoors. Children and older adults should also take it easy.	Consider reducing or rescheduling strenuous activities outdoors if you experience symptoms such as coughing and throat irritation.
Very High	Above 10	Avoid strenuous activities outdoors. Children and older adults should also avoid outdoor physical exertion.	Reduce or reschedule strenuous activities outdoors, especially if you experience symptoms such as coughing and throat irritation.

Note: †=People with heart or breathing problems are at greater risk.

Outdoor air quality in Ottawa

Over the last decade, Ottawa's outdoor air quality has been good. The AQHI, on most days (96%), ranged between 1 and 3 (i.e., low risk) (**Figure 28**). A small percentage of days (3.7%) had AQHI values in the moderate risk range (4 to 6) and 0.1% of days had AQHI values in the high to very high risk range (7+) (**Figure 28**). Two main sources of outdoor air pollution for the air zone which includes Ottawa are home firewood burning and on-road transportation.[80,81] These sources emit mainly $PM_{2.5}$ and NO_2.

A risk to Ottawa's good air quality is transboundary contributions of air pollutants, or in other words, long-range transport of air pollutants from sources in other regions of Ontario, Canada, and the United States.[82] Certain weather patterns, including winds blowing from the southwest, are associated with long-range transport of pollutants into Ontario from industrial and urbanized areas in the United States.[82] Transboundary sources of $PM_{2.5}$ contribute to 30-40% of Ottawa's annual $PM_{2.5}$ concentrations.

Another significant transboundary source of air pollution is wildfire smoke. Effects of wildfires have already been seen and felt in Ottawa. In June 2023, Ottawa's air quality was impacted by wildfire smoke from Northern Ontario and Québec.[83] More recently in June 2025, the AQHI rose to high risk levels in Ottawa due to drifting wildfire smoke from Western Canada.[84] The next section of the report focuses on the impact of wildfire smoke on air quality and the health of Ottawa residents. Indoor air pollution and the effects of aeroallergens such as pollen are out of scope for this report.

Figure 28. Daily AQHI values at 4pm in downtown Ottawa by month and year, 1 January 2015 to 17 June 2025

Data source for Figure 28: Daily (4 pm) Air Quality Health Index readings by date for Ottawa Downtown, Air Quality Ontario, Ministry of the Environment, Conservation, and Parks. Extracted 17 June 2025 [Available online: https://www.airqualityontario.com/aqhi/search.php?stationid=51001&show_day=365&start_day=1&start_month=5&start_year=2025&submit_search=Get+AQHI+Readings]

Note: The total AQHI values for some months may not equal the number of days in the month due to missing values.

A study in 2019 by Meng *et al.* estimated that wildfires are the leading contributors to $PM_{2.5}$ concentrations in Canada, accounting for 17.1% of total $PM_{2.5}$ concentrations.[85] When wildfires burn, there is a mix of material being burned depending on the region, which can create varying emissions. Components of wildfire smoke generally consist of gases (carbon monoxide, nitrogen oxides, ozone, sulfur dioxide), volatile organic compounds, polycyclic aromatic hydrocarbons, mercury, $PM_{2.5}$, and PM_{10}.[17,86] $PM_{2.5}$ makes up approximately 90% of wildfire smoke mass.[87] The numbers denote the size of the particles; $PM_{2.5}$ are particles that are 2.5 micrometers in diameter or smaller. Their small size means they can travel great distances in smoke plumes. This, in combination with their ability to enter deep into the lungs, with the smallest particles even entering the blood stream, has led to a focus on $PM_{2.5}$ in health research and its links to a wide range of health effects.[86]

Even at low levels, wildfire smoke can impact human health. Mild symptoms from wildfire smoke exposure include headache, mild cough, production of mucous, and irritation of the nose, throat, eyes and sinuses.[86] More serious effects from wildfire smoke include dizziness, chest pains, heart palpitations, severe cough, wheezing, and shortness of breath.[86] Research indicates a strong link between exposure to wildfire smoke and respiratory illness, specifically worsening of asthma and chronic obstructive pulmonary disorder as well as increased respiratory infections.[17] Studies have reported links between wildfire smoke events and significant increases in utilization of health care services, including hospital admissions, emergency room visits, physician visits, and dispensing of asthma medications.[86]

Monitoring RAAQ-related ED visits during the 2023 wildfire season

In 2023, Canadians experienced the most destructive wildfire season ever recorded in the country.[83] Wildfires burned across several provinces, including Ontario and Quebec.[88] The largest wildfire ever recorded in southern Quebec consumed 1.2 million acres.[83] Wildfires in northeastern Ontario and Quebec released smoke containing $PM_{2.5}$ and other pollutants that blanketed Ottawa and most of northeastern Ontario in June 2023. Ottawa experienced two periods of elevated AQHI in early and late June where $PM_{2.5}$ concentrations exceeded 75 microgram per cubic metre ($\mu g/m^3$), including 3 days in the 200-300 $\mu g/m^3$ range (June 6, 7, and 25) (**Figure 29**).

Each year during the wildfire season (usually from April to September), OPH monitors ED visits to Ottawa hospitals using real-time ED visit data extracted from South East Health Unit's Acute Care Enhanced Surveillance (ACES) application.[40] OPH categorizes ED visits as respiratory, asthma, and air-quality-related (RAAQ-related) based on the words for symptoms or complaints recorded in the chief complaint section of a patient's triage record (**Appendix 1**). The chief complaint at triage may not be the

same as the final or confirmed diagnosis recorded when the patient is seen by a doctor. As a result, ED visits identified from ACES are “suspected” to be related to RAAQ but allow near real-time monitoring of the impact of poor air quality on the health of Ottawa residents.

The first wildfire smoke event in early June was accompanied by a large and sustained increase in suspected respiratory, asthma, and air-quality related (RAAQ-related) ED visits in Ottawa hospitals, outside of the respiratory virus season. For this first smoke event, Ottawa residents might have been unaware, unprepared, and or unable to adopt protective behaviours during the event, possibly contributing to the observed increase in suspected RAAQ-related ED visits in Ottawa hospitals.

With the second wave of heavy smoke there was no parallel increase in suspected RAAQ-related ED visits in Ottawa hospitals, despite higher AQHI values. These findings for Ottawa are consistent with what was found across Ontario.[83] It is possible individuals were better prepared for the second event: preventive medications may have been prescribed during the first event, and more protective behaviours including medication use, monitoring the AQHI, and staying indoors may have been practiced during the second event to minimize smoke exposures. Research from Toronto supports the idea that increased awareness of poor air quality through air-quality alerts can reduce asthma-related ED visits.[89]

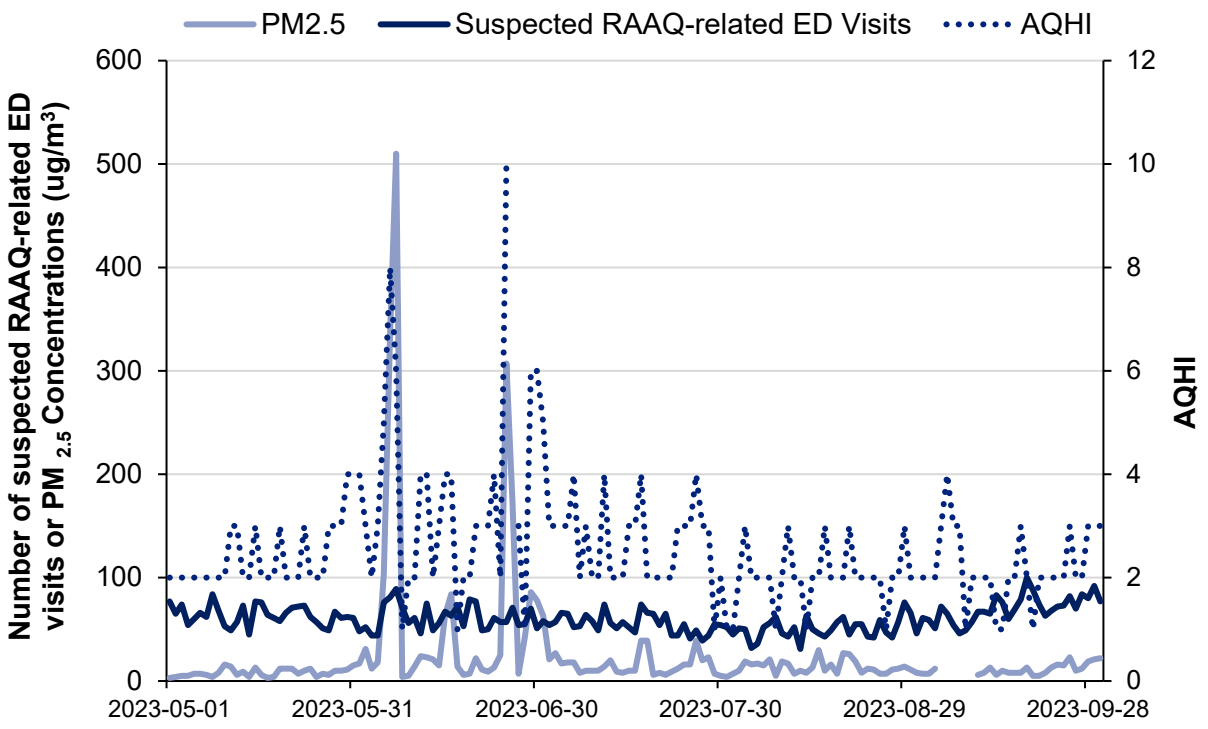

Figure 29. Daily suspected RAAQ-related ED visits in Ottawa hospitals, maximum daily $PM_{2.5}$ concentrations, and daily AQHI values at 4pm in downtown Ottawa, 1 May to 30 September 2023

Data sources for Figure 29: ACES, South East Health Unit. Extracted 30 April 2025. Hourly air pollutant data by year and station, Air Quality Ontario, Ministry of the Environment, Conservation, and Parks. Extracted 30 April 2025 [Available online: https://www.airqualityontario.com/history/index.php]. Daily (4 pm) Air Quality Health Index readings by date for Ottawa Downtown, Air Quality Ontario, Ministry of the Environment, Conservation, and Parks. Extracted 30 April 2025 [Available online: https://www.airqualityontario.com/aqhi/search.php?stationid=51001&show_day=365&start_day=1&start_month=5&start_year=2025&submit_search=Get+AQHI+Readings]

Note: Values of $PM_{2.5}$ were missing for a few days between 1 May to 30 September 2023.

Preventing exposure to air pollution

Awareness of the AQHI and protective behaviours

The AQHI is an important tool to help Ottawa residents understand and prevent poor health impacts of air pollution. In 2024, adults in Ottawa were asked, as part of the RRFSS, about their familiarity with the AQHI, how often they check the index, and how often they would adjust their outdoor activities when AQHI is high enough to affect their health.

In 2024, the majority of Ottawa adults (77%) were very or somewhat familiar with the AQHI; almost a quarter (22%) were not very familiar or not at all familiar with the index (**Figure 30**). Individuals with post-secondary education (79%) were more likely to report awareness of the AQHI than those with less education (59%). Over 80% of adults aged 45 years and older knew about the AQHI; awareness was comparatively lower among adults aged 25 to 44 years (73%) and 18 to 24 years (55%) (**Figure 30**). People who were born in Canada (81%) were more likely to be familiar with the AQHI than those born outside of Canada (64%) (**Figure 30**).

Among Ottawa adults that were aware of the AQHI, over half checked the AQHI daily or weekly during the summer (56%) (**Figure 31**).

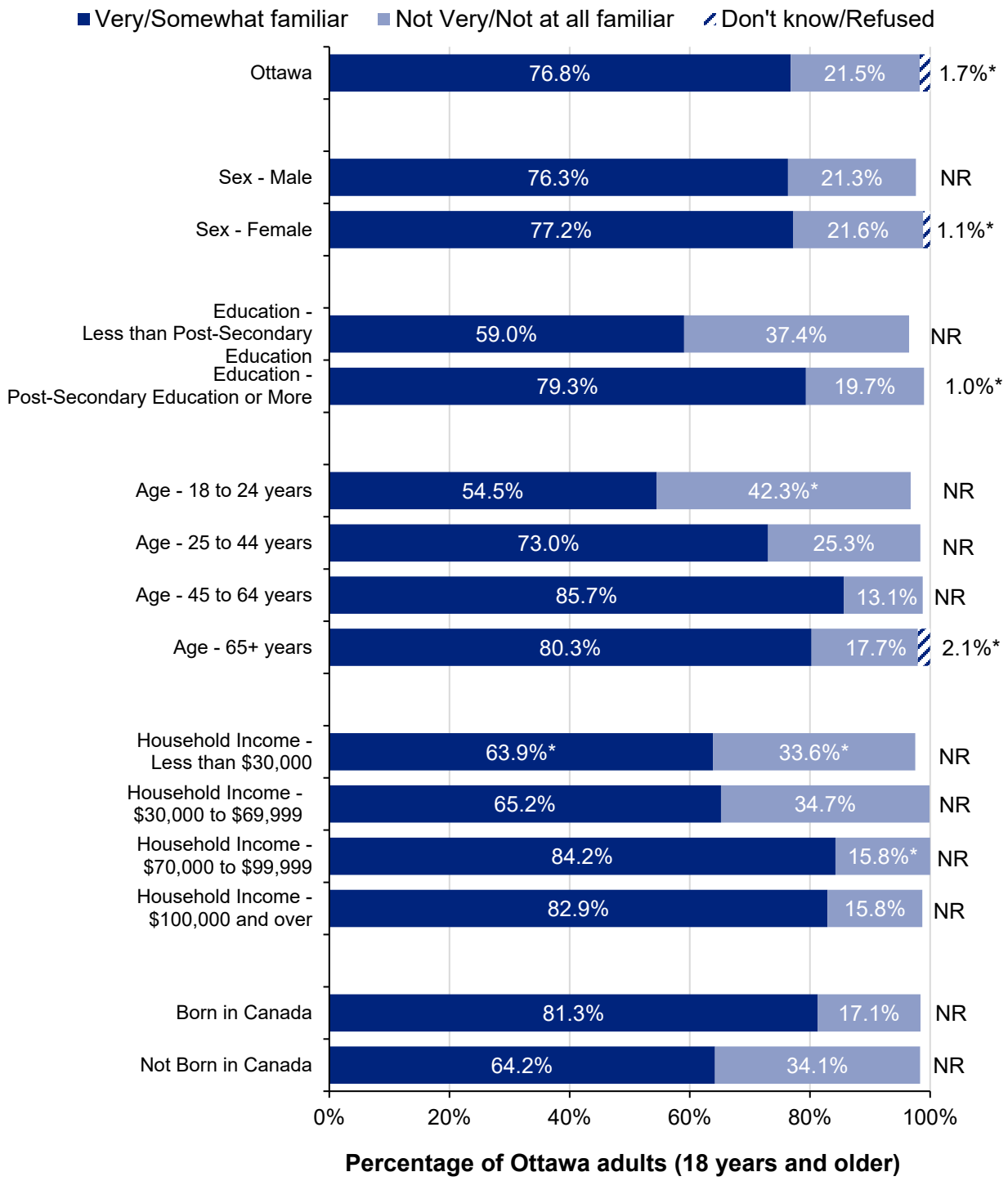

Figure 30. Familiarity of Ottawa adults aged 18 years and older with the AQHI by subgroup, 2024

Data source for Figure 30: RRFSS 2024, OPH

Notes: *=Interpret with caution. NR=Data are not reportable.

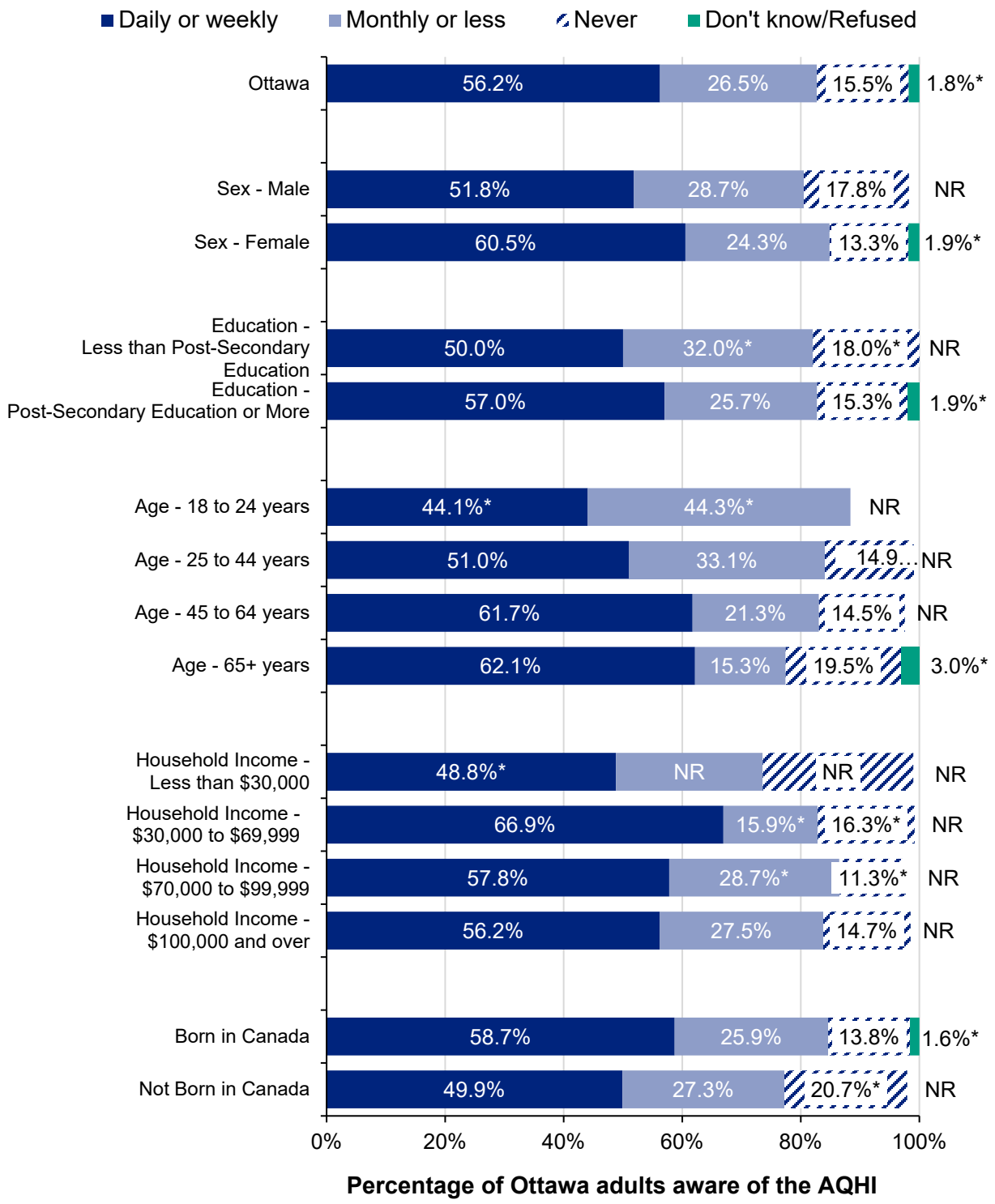

Figure 31. Frequency of AQHI checks during the summer among Ottawa adults, aged 18 years and older, aware of the AQHI by subgroup, 2024

Data source for Figure 31: RRFSS 2024, OPH

Notes: *=Interpret with caution. NR=Data are not reportable.

When the AQHI was high enough to affect an individual's health, 75% of Ottawa adults who check the AQHI reported that they would make changes to their outdoor activities all the time, most of the time, or about half of the time (**Figure 32**). Females who check the AQHI (82%) were more likely than males (68%) to adjust their activities when the AQHI was high enough to affect their health (**Figure 32**).

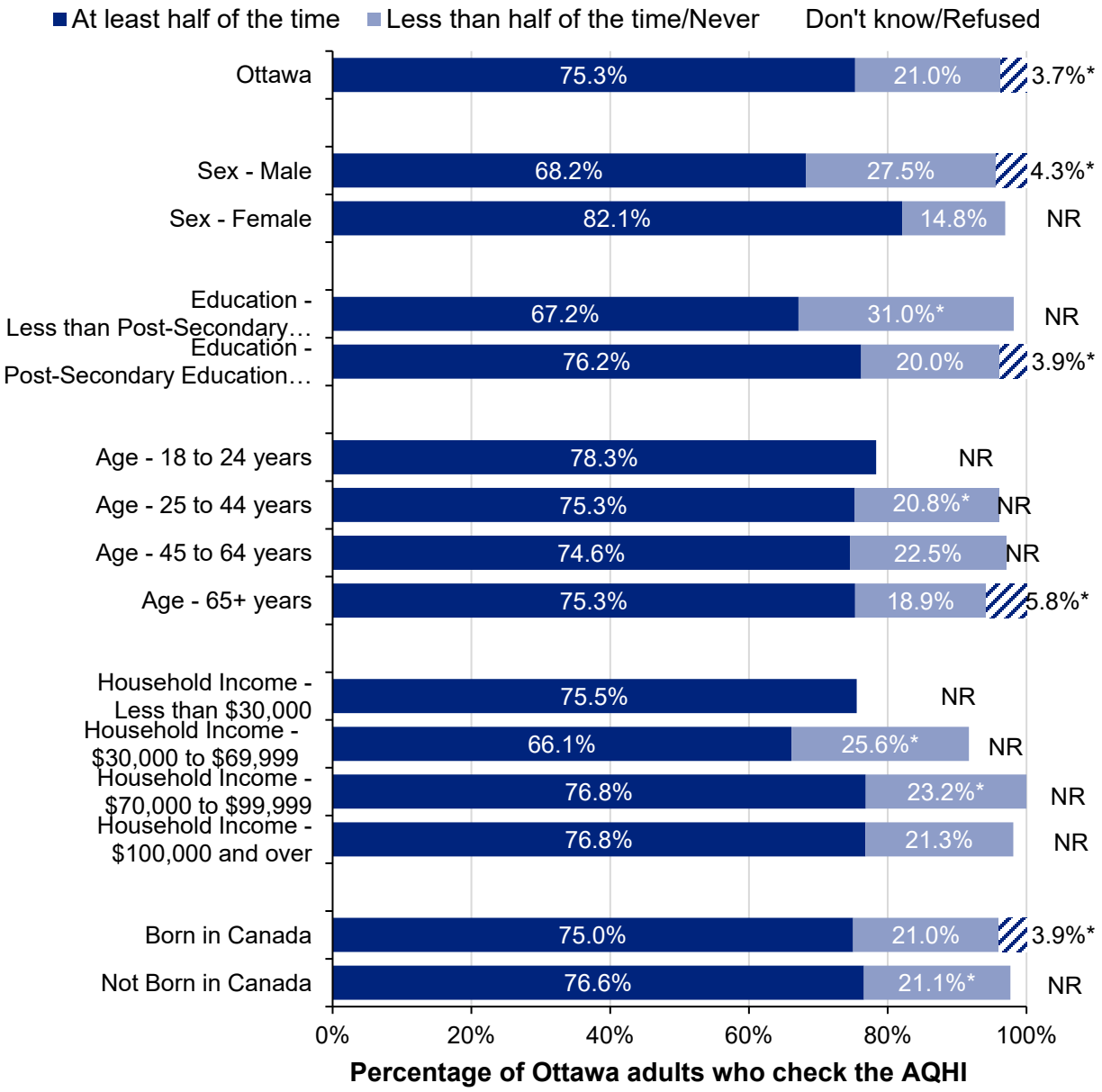

Figure 32. Frequency of changes in behaviour when AQHI readings are high enough to affect individual health among Ottawa adults, aged 18 years and older, who check the AQHI by subgroup, 2024

Data source for Figure 32: RRFSS 2024, OPH

Notes: *=Interpret with caution. NR=Data are not reportable.

Vector-borne Diseases

Vectors such as mosquitoes and ticks carry viruses, bacteria, or parasites and spread diseases to other animals and humans, usually by biting.[90] Diseases spread by vectors are called vector-borne diseases (VBDs). For example, black-legged ticks infected with the bacterium *Borrelia burgdorferi* transmit the bacterium to humans through bites and can cause Lyme disease. Mosquitoes infected with West Nile virus (WNV) transmit the virus to humans by bites and can cause fevers and neurological illness.[18]

The incidence of VBDs is sensitive to climate change, which affects human behaviours and the survival of pathogens and vectors.[18] VBD transmission in Canada typically occurs from May to October, but climate change is extending this season.[91] By 2050, Ottawa residents will experience warmer and shorter winters and earlier springs due to climate change.[9] People may spend more time outdoors without protective clothing and have more frequent contact with vectors, increasing their risk of acquiring VBDs. Precipitation in the fall, winter, and spring is also expected to increase.[9] Warmer and wetter seasons create favourable conditions for vectors and pathogens, lengthen vector breeding and transmission seasons, and expand the geographic range of vectors.[18] Heatwaves, droughts, heavy rainfall, and extreme weather events can further influence mosquito breeding and amplify WNV transmission. Such conditions also increase the possibility for the emergence and re-emergence of infectious diseases.[18]

Incidence of vector-borne diseases in Ottawa

VBDs reportable to PHUs as Diseases of Public Health Significance (DPHS) in Ontario are listed in **Table 3**. In 2024, the top reportable VBD among Ottawa residents was Lyme disease followed by anaplasmosis (**Table 3**). Weekly and up-to-date surveillance data on reportable VBDs across the province and by PHU are available through PHO's Vector-Borne Disease Tool. [92] Additional local data are available on the OPH DPHS Dashboard. Symptoms of VBD overlap and vary from person to person (**Table 4**).

Table 3. Number of Ottawa residents reported with a vector-borne DPHS in 2024

Vector-borne disease	Disease caused by (pathogen)	Pathogen transmitted to humans by (vector)	Number of cases
Lyme disease	*Borrelia burgdorferi* bacteria	Black-legged tick	417
Anaplasmosis	*Anaplasma phagocytophilum* bacteria	Black-legged tick	23

Vector-borne disease	Disease caused by (pathogen)	Pathogen transmitted to humans by (vector)	Number of cases
West Nile virus	West Nile virus	Mosquito	13
Babesiosis	*Babesia microti* parasite	Black-legged tick	1
Eastern equine encephalitis†	Eastern equine encephalitis virus	Mosquito	1
Powassan virus disease	Powassan virus	Black-legged tick	0

Data source for Table 3: Integrated Public Health Information System (iPHIS), Ontario Ministry of Health. Extracted 30 June 2025

Notes: Includes confirmed and probable cases. †=Eastern equine encephalitis is only reportable under viral encephalitis or meningitis in Ontario and will not be discussed further in this report.

Table 4. Common symptoms of reportable vector-borne diseases

Vector-borne disease	Symptoms
Anaplasmosis	Fever, chills, severe headache, myalgia, and abdominal pain.[93]
Babesiosis	Most infections are asymptomatic; infected individuals may develop symptoms such as fever, chills, headache, body ache and, rarely, hemolytic anemia causing jaundice.[94]
Lyme disease	Fever, headache, fatigue, and a characteristic skin rash that looks like a target or bull's eye called erythema migrans.[95] If left untreated, infection can spread to joints, the heart, and the nervous system.
Powassan virus disease	Normally causes an asymptomatic infection, but some individuals may develop fever, headache and nausea; severe infection can cause meningitis or encephalitis resulting in death in approximately 1 in 10 people with severe disease.[96]
West Nile virus illness	Most people will not develop any symptoms if infected with WNV. One in five people may experience flu-like symptoms called "West Nile fever" and less than one in 100 people may develop severe neurologic illness.[18] People over the age of 50 and those with chronic disease or weakened immune systems are at higher risk for serious illness.[97]

Trends in the incidence of Lyme disease

Rates of Lyme disease among Ottawa residents have increased steadily over the last decade, from 8 cases per 100,000 population in 2015 to 37 cases per 100,000 population in 2024 (**Figure 33**). In the same time span, rates of Lyme disease in Ottawa have remained consistently higher than in Ontario-less-Ottawa.

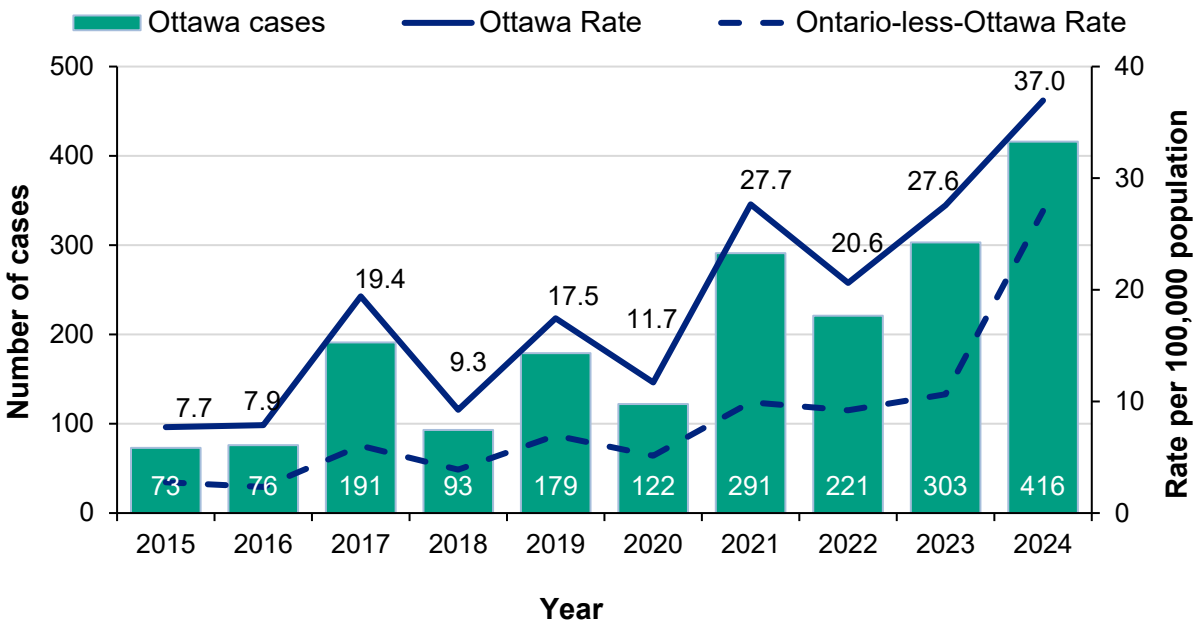

Figure 33. Number of confirmed or probable cases of Lyme disease and rate per 100,000 population in Ottawa and Ontario-less-Ottawa, by year, 2015-2024

Data source for Figure 33: iPHIS, Ontario Ministry of Health. Extracted 26 May 2025. Ottawa and Ontario population estimates (2016-2022) and projections (2023-2024), Ontario Ministry of Health, IntelliHealth Ontario. Extracted 30 April 2025.

Among people reported with Lyme disease in 2022, 31% reported exposure within Ottawa and 61% reported exposure outside of Ottawa within Ontario. Exposure was commonly associated with spending time outdoors at a private home or camping/cottaging in neighbouring regions. Between 2022 and 2023, the most common risk factors reported by people with Lyme disease were activities in wooded or tall grass areas (e.g., gardening, clearing brush) (**Figure 34**). Detailed data on exposure to Lyme disease are unavailable beyond 2022 and risk factor data are unavailable beyond spring 2023.

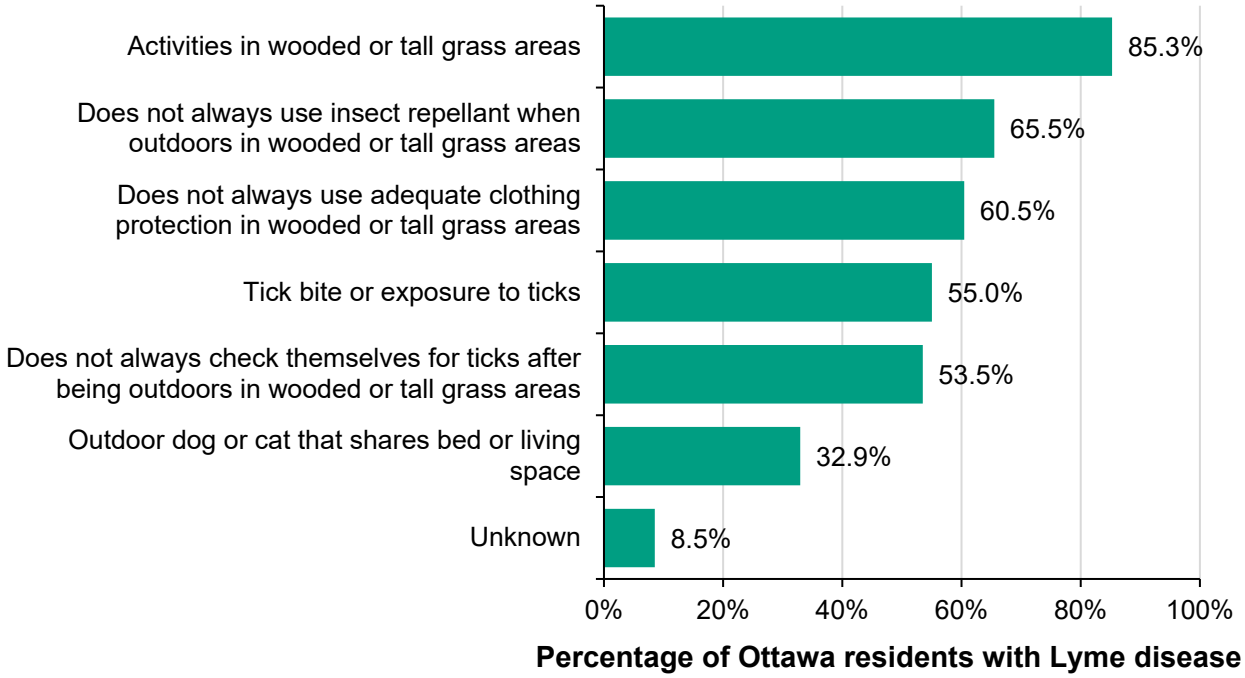

Figure 34. Behavioural risk factors reported by Ottawa residents with Lyme disease, 2022-2023

Data source for Figure 34: iPHIS, Ontario Ministry of Health. Extracted 2 August 2023.

Note: Based on data from 258 cases with available risk factor information. Categories are not mutually exclusive as one individual may have multiple behavioural risk factors.

Trends in the incidence of anaplasmosis, babesiosis, and Powassan virus disease

In July 2023, in response to emerging reports of illness and increasing black-legged tick populations across Ontario, three new tick-borne diseases became reportable to Ontario PHUs as DPHS: anaplasmosis, babesiosis and Powassan virus disease. In 2023, 15 Ottawa residents were reported with confirmed or probable infections with anaplasmosis; no confirmed or probable infections with babesiosis or Powassan virus disease were reported. In 2024, 23 Ottawa residents were reported with confirmed or probable infections with anaplasmosis, one with babesiosis, and none with Powassan virus. Among Ottawa residents reported with anaplasmosis between 2023 and 2024, the most common risk factors were activities in wooded or tall grass areas (**Figure 35**).

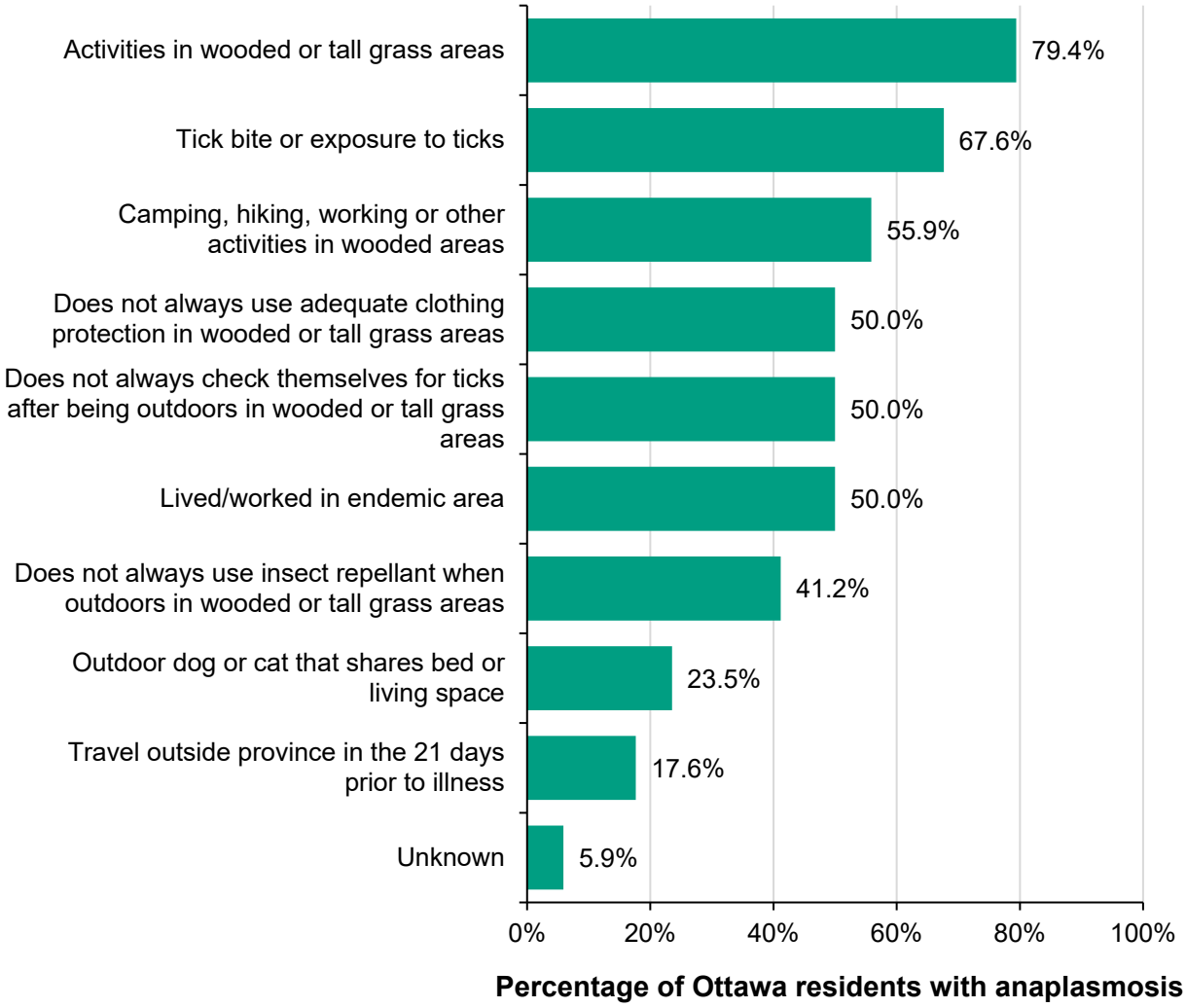

Figure 35. Behavioural risk factors reported by Ottawa residents with anaplasmosis, 2023-2024

Data source for Figure 35: iPHIS, Ontario Ministry of Health. Extracted 9 June 2025.

Note: Based on data from 34 cases with available risk factor information. Categories are not mutually exclusive; one individual may have multiple behavioural risk factors.

Trends in the incidence of West Nile virus

Rates of WNV among Ottawa residents have varied considerably over the last decade, with peaks observed every 3-4 years (20 cases in 2017; 12 cases in 2020; and 13 cases in 2024) (**Figure 36**), though WNV is not known as a cyclic disease. Rates of WNV in Ottawa were double those observed in Ontario-less-Ottawa in 2024, despite generally remaining lower or similar to the rest of the province from 2015 to 2023 (**Figure 36**). The most common risk factor reported by people with WNV illness was a mosquito bite or exposure to mosquitoes (**Figure 37**).

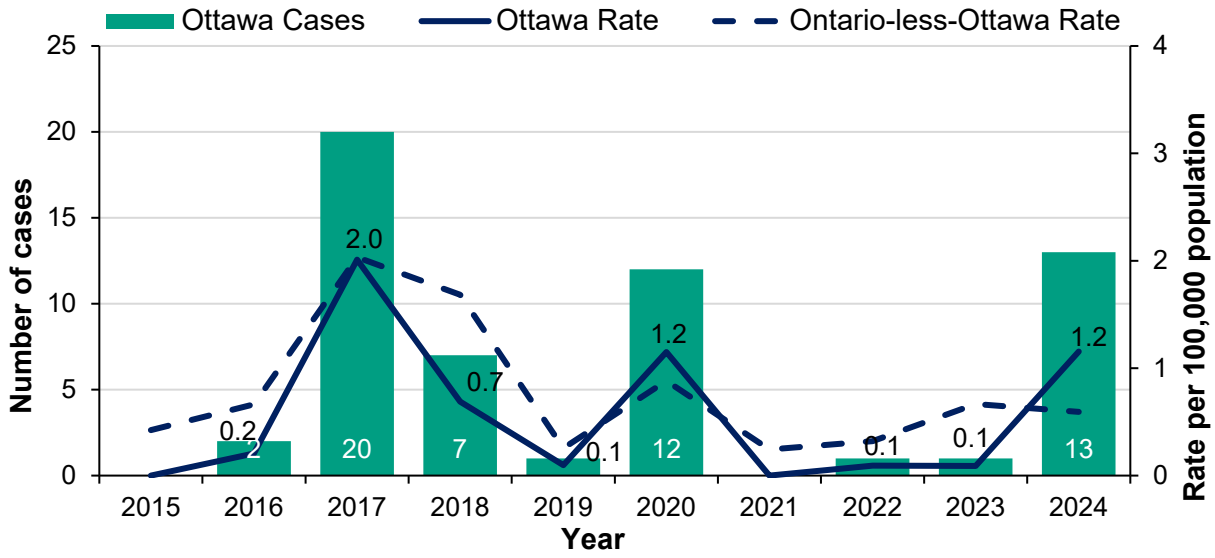

Figure 36. Number of confirmed or probable cases of WNV illness and rate, per 100,000 population, in Ottawa and Ontario-less-Ottawa by year, 2015-2024

Data source for Figure 36: iPHIS, Ontario Ministry of Health. Extracted 9 June 2025. Ottawa population estimates (2016-2022) and projections (2023-2024), Ontario Ministry of Health, IntelliHealth Ontario. Extracted 30 April 2025.

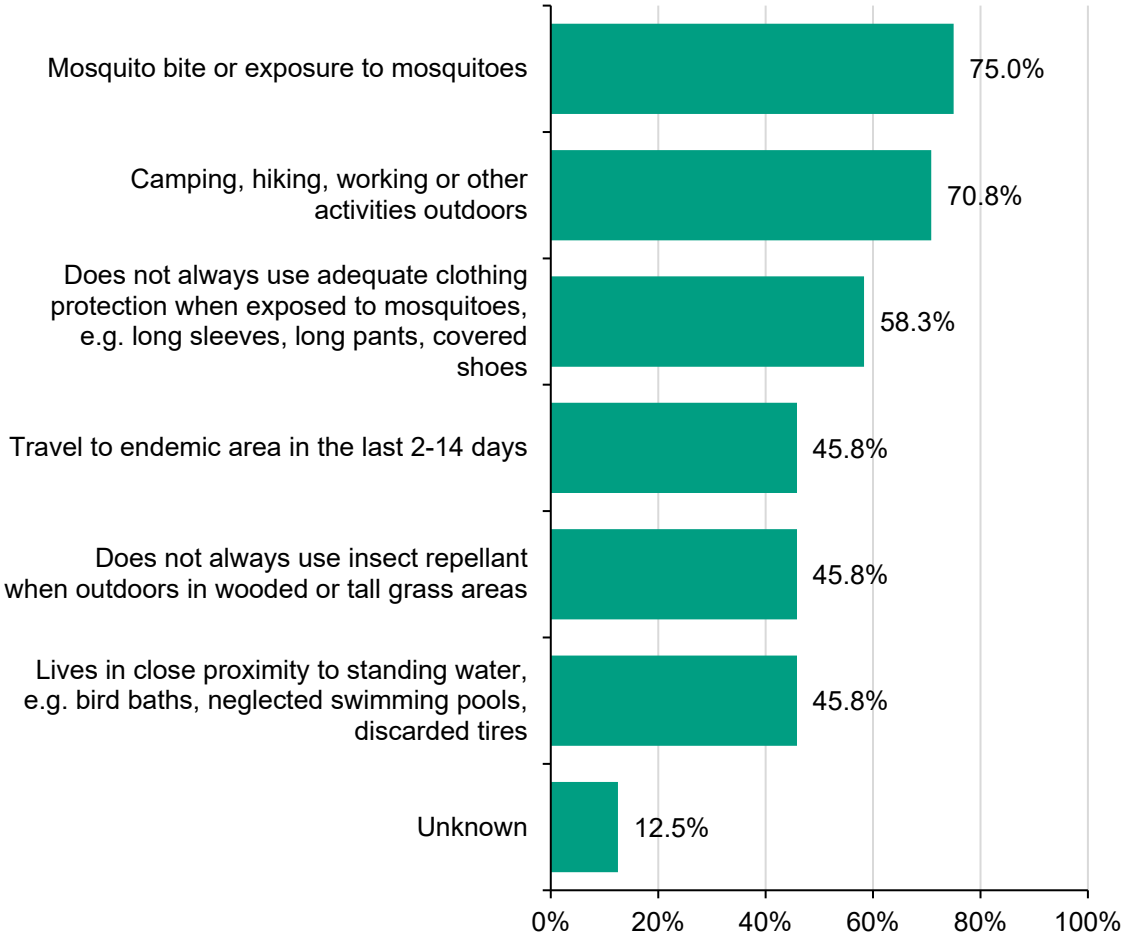

Figure 37. Behavioural risk factors reported by Ottawa residents with WNV illness, 2020-2024

Data source for Figure 37: iPHIS, Ontario Ministry of Health. Extracted 9 June 2025.

Note: Based on data from 24 cases with available risk factor information. Categories are not mutually exclusive; one individual may have multiple behavioural risk factors.

Monitoring vectors

Tick surveillance

The University of Ottawa conducts local active tick surveillance with three projects through the INSIGHT Research Lab: UPTick, Canadian Lyme Sentinel Network, and Greenbelt Tick Surveillance. Researchers found that 28% (182/642) of black-legged ticks tested in 2024 were positive for the Lyme disease-causing bacterium, *Borrelia burgdorferi*.[98] Adult ticks were more likely than nymphal ticks to test positive, and ticks collected from the sites located within the Greenbelt zone, in the suburban/rural areas of

the western portion of Ottawa and along the Ottawa river were more likely to test positive than ticks in the suburban/urban core.[99] While there may be differences across Ottawa, all of Ottawa is considered a risk area for Lyme disease.[100,101]

Anaplasma phagocytophilum was found in less than 1% of ticks in Ottawa in 2018, but this increased to 4.6% (24/521) in 2024. However, infection rates remain higher in other parts of Ontario frequented by Ottawa residents. For example, *Anaplasma* was detected in 12% of ticks tested from Murphy's Point Provincial Park south of Perth between 2017-2019.[84]

As of 2024, Ottawa researchers had not detected *Babesia microti* parasites or Powassan virus in any local ticks.[98]

Mosquito surveillance

OPH hires a third-party vendor to place mosquito traps around Ottawa from June through September to determine species and densities of mosquitoes. Weekly tests for WNV and Eastern equine encephalitis virus are carried out on the trapped mosquitoes in the mosquito pools, with over 1,000 mosquito pools tested for WNV each season. In 2024, 20 mosquito pools tested positive for WNV and one tested positive for Eastern equine encephalitis virus. Between 2015 and 2024, between 1 and 35 mosquito pools tested positive for WNV each year.

Dense, urbanized areas with the additive impact of urban heat island effects offer favourable conditions for WNV transmission. By exploring data on infected mosquitos with WNV and human cases of WNV, a study in 2019 by Talbot *et al.* found areas of high WNV risk in a densely populated area in downtown Ottawa and a suburban area southwest of downtown.[102] Population density and proportion of aged housing units (built 50 or more years ago) in these areas were linked to the risk of WNV.

Preventing vector-borne diseases

Preventing vector-borne diseases requires a multi-faceted approach that includes personal protection, environmental management, and public health interventions.[103,104,105,106]

To reduce the risk of tick bites and tick-borne disease, OPH recommends:

- Using a Health Canada-approved insect repellent with DEET or icaridin;
- Wearing protective clothing, staying on trails in natural areas, and performing full body tick checks on yourself, your children, and pets, focusing on common hiding spots like the scalp, groin, and armpits;
- Consulting with a local pharmacist or other healthcare provider to determine if antibiotics to prevent Lyme disease are appropriate in the event a person believes a black-legged tick has been attached to them for 24 or more hours;

- Reducing ticks around the house by mowing yard grass; clearing brush and leaves; adding a gravel or stone border to separate shrubs from lawn; and, discouraging wildlife like deer and rodents from yards; and
- Checking pets daily for ticks and consulting your veterinarian about repellents or vaccines to help protect them.

To reduce the risk of mosquito bites and WNV, OPH recommends:

- Using Health Canada-approved mosquito repellent;
- Wearing protective light-coloured clothing;
- Avoiding outdoor activity during peak mosquito times (dusk to dawn) and in shaded/wooded areas;
- Ensuring windows and doors have well-fitting, intact screens;
- Reducing or eliminating areas or objects that retain water to prevent mosquito breeding, including emptying containers that might collect water around your house, cleaning clogged roof gutters, ensuring all openings to rain barrels are covered tightly with mesh, removing standing water from pool covers, keeping pools properly chlorinated, and turning wading pools and wheelbarrows over when not in use, among others.[105] Since mosquito larvae grow in still water and the time from egg to adult can be as short as seven to ten days in hot weather, even very small quantities of standing water can be problematic.

OPH operates a mosquito control program that uses biological (Bti) larvicide in surface waters (e.g. storm water management ponds) as needed, and chemical (methoprene) larvicides in catch basins a minimum of three times per season; and conducts source reduction of mosquito breeding sites on City-owned property.

Public health recommendations combined with traditional Indigenous knowledge about how to avoid West Nile virus and Lyme disease are also available through the children's book "Grandpa's Wisdom — An Algonquin Reflection on West Nile Virus and Lyme Disease", available on the OPH website.[105]

Awareness and protection against tick-borne diseases

In 2021, data collected using the RRFSS found that 88% of Ottawa adults were aware of Lyme disease. Among Ottawa adults aware of Lyme disease, 85% knew that Lyme disease is transmitted by ticks or tick bites. Adults born in Canada (93%) were more aware of Lyme disease compared to those born outside Canada (74%). Among those that were aware of Lyme disease, 57% correctly identified at least one early symptom and 27% identified two or more early symptoms of Lyme disease.

In 2024, Ottawa adults were asked via the RRFSS about their risk behaviours and how they protect themselves against ticks. Nearly three out of four Ottawa adults (71%) reported spending time in outdoor grassy fields or wooded areas where black-legged ticks are more likely to be present.

When asked about how often they protect themselves against ticks, 64% of Ottawa adults responded that they would take steps every time or most of the time to protect themselves from tick bites, while 35% would sometimes, rarely or never take steps to protect themselves. Among those who reported protective behaviours against tick bites when in grassy fields or wooded areas, the most frequently reported behaviours were wearing long pants, long sleeves or covering up (67%), using insect repellant (45%) or DEET (12%), taping or tucking in their pants (28%), and wearing socks or closed footwear (24%) (**Figure 38**).

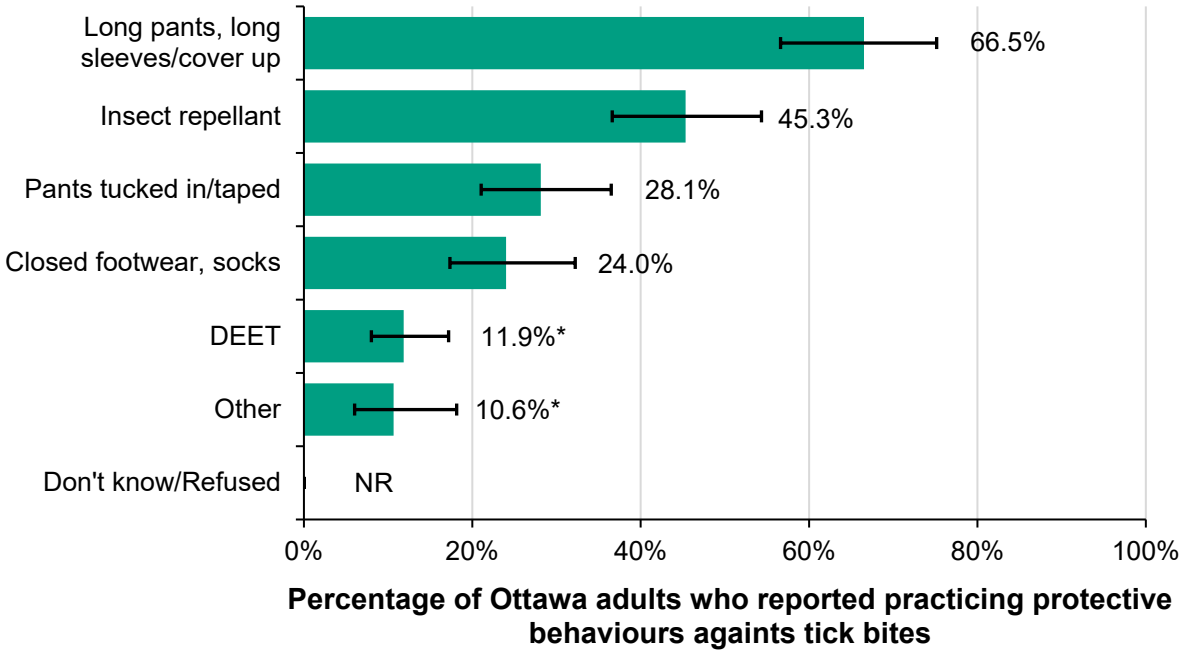

Figure 38. Types of protective behaviours against tick bites among Ottawa adults aged 18 years and older who reported practicing protective behaviours, 2024

Data source for Figure 38: RRFSS 2024, OPH

Notes: *=Interpret with caution. NR=Data are not reportable.

After visiting grassy fields or wooded areas, 52% of Ottawa adults reported checking for ticks every time or most of the time and 42% sometimes, rarely or never checked for ticks. Country of birth was also associated with greater frequency of tick checks: 57% of Ottawa adults born in Canada would check for ticks every time or most of the time, while 35%* of those born outside of Canada would check for ticks as frequently.

If they found a tick attached to the skin, 67% of Ottawa adults reported they would remove it with tweezers, forceps, or other tools while 12% percent reported they would go to a hospital, clinic, doctor, or other health professional. The remaining proportion of would remove the tick by means that are not recommended by public health: pulling the tick off manually (14%); applying heat, salt, or alcohol (4%*); or, some other means (8%*).[107] Photos of removed ticks can be submitted to an image-based identification platform like eTick[107,108] to help identify the type of tick and participate in the monitoring of ticks in Canada. It is also recommended that individuals record the date of bite, body part bitten, and geographical location where the bite likely occurred.

The RRFSS results outlined above show a gap between awareness and protective behaviours, which has also been found in a recent study in 2024 by Logan *et al.*[104] Similar to the RRFSS results, the study found that 66% of Ottawa residents wear long clothing and 60% perform tick checks after stays in wooded areas.[104] This study also revealed that greater adoption of protective behaviors was associated with being part of a non-Indigenous racialized group, living on a property with a yard, having personal or occupational exposure to ticks, or having had Lyme disease or a tick bite.

Awareness and protection against West Nile virus illness

According to data collected via the RRFSS, in 2024, 83% of Ottawa adults reported that they were aware of WNV. Among sociodemographic factors, household income was significantly associated with WNV awareness. Over 90% of Ottawa adults with household income of $100,000 or more knew about WNV compared with 61%* of those with household income of $30,000 to $69,999.

Among Ottawa adults who reported they are aware of WNV, 86% knew the virus can be transmitted to humans by mosquito bites. Knowledge of WNV mode of transmission was higher among 25 to 64-years-olds (92%) compared with younger adults aged 18 to 24 (34%).

In 2019, Ottawa adults were asked via the RRFSS about how they protect themselves against mosquito bites. Approximately one-quarter (27%) of Ottawa adults reported covering up with long sleeves, long pants, and socks all or most of the time during outdoor activities and 61% did so less than half the time or never (**Figure 39**). Commonly cited reasons why adults in Ottawa did not cover up during outdoor activities were: not enough mosquitoes out (46%); not being worried about being bitten by

mosquitoes (19%); being too hot to cover up (13%); and/or not going to places where mosquitoes are found (11%*).

Another strategy to protect against mosquito bites is insect repellant with DEET – only 12% of Ottawa adults used it most or all of the time during outdoor activities, and 78% used it half the time or never (**Figure 39**). As with covering up during outdoor activities, similar reasons and percentages were reported for why they did not use insect repellant with DEET: not enough mosquitoes out (47%); not liking using chemicals like DEET on skin (19%); not being worried about being bitten by mosquitoes (14%); or, not going to places where mosquitoes are found (11%). For the past six decades, research has found DEET to be the most effective insect repellent with a strong safety record.[109]

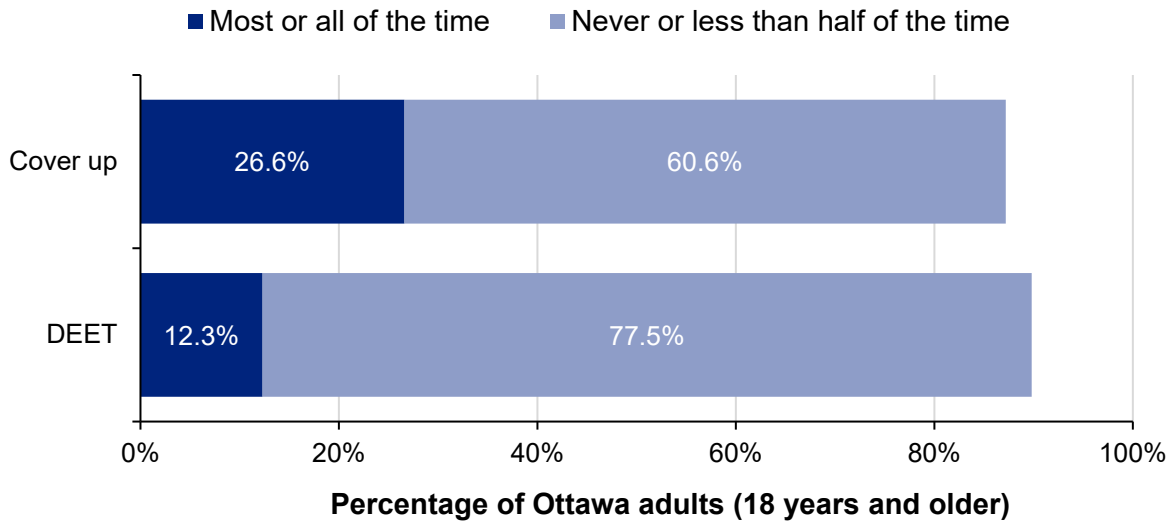

Figure 39. Type and frequency of protective behaviours against mosquito bites among Ottawa adults aged 18 years and older, 2019

Data source for Figure 39: RRFSS 2019, OPH

In addition to personal protective behaviours, the 2019 RRFSS also asked about household protective behaviours including screen coverings and reducing containers with stagnant water. Results show that 81% of Ottawa households left their windows or doors open for ventilation in the summer. Among these households, 98% had screen-covered windows and doors but of the households with screens, 18% had screens that needed to be repaired so that there are no tears or holes where mosquitoes could get through. Furthermore, results showed that 31% of Ottawa households had containers that collected water outside where mosquitoes could breed. Among these households, over half (57%) left the water collected for more than seven days at a time.

Food- and Water-borne Illness

Climate change is impacting food and water safety. Warming temperatures, more intense precipitation patterns, and an increasing number of extreme weather events are creating more favourable conditions for the growth and survival of viruses, bacteria, fungi, and parasites in food and water.[19,20,110] Extreme weather events such as floods can increase the risk of contaminated food and water from sewage overflows and power outages.[111]

Most food- and water-borne illnesses are caused by eating food or drinking water contaminated with a pathogen. These illnesses are characterized by symptoms like stomach cramps, vomiting, and diarrhea.[112] While most cases are mild, some may result in hospitalization, serious chronic conditions, or death.[113,114] In contrast, *Legionella* is a naturally occurring water-borne bacteria that can be aerosolized over a large area via mists or sprays. Infection occurs by breathing in contaminated water droplets.[18] Exposure to *Legionella* can cause legionellosis, which includes a flu-like condition known as Pontiac fever and the much more serious Legionnaires' disease.

With longer summers due to climate change, human behaviours linked to increased risk of food- and water-borne illness such as travel, outdoor activities, and social gatherings will likely increase. For example, outdoor food preparation (e.g., at barbeques and picnics), where food safety practices might be compromised, is expected to be more common .[20] In these settings, there is increased risk of cross-contamination and improper food storage, leading to the growth of bacteria.

Recreational water activities (e.g., swimming, water sports) at public beaches are also associated with risk of gastrointestinal illnesses if contaminated water is ingested.[115] Recreational water is affected by climate change related factors, such as increased temperature, precipitation, and algal blooms, potentially increasing the concentration of pathogens.[115] Warmer weather also means more people will engage in recreational water activities, increasing their risk of exposure to these pathogens.[115]

Climate change and increasing demand for cooling appliances (e.g., cooling towers, fountains and water misters) could increase exposure to *Legionella*.[116,117] Increasing hot days may favour the survival of *Legionella* bacteria in human-made water systems like plumbing and air conditioning cooling towers.[116,118]

This section of the report discusses trends in food- and water-borne illnesses reported to OPH. Recreational water and private drinking water systems are also discussed.

Food and water security and recreational water safety are also important and carry their own impacts on health but are not within the scope of this report.

Incidence of food- and water-borne illnesses in Ottawa

Several climate-sensitive, food- and water-borne illnesses are reportable to PHUs (**Table 5**), which allow the monitoring of trends in these illnesses over time. These food- and water-borne diseases are generally underdiagnosed and underreported to OPH because of several factors: mild symptoms and low incentive for testing; not seeking health care; diagnoses made clinically rather than by testing samples; and, the inability to identify a disease-causing pathogen from a laboratory specimen.[113,114,119]

Although food- and water-borne illnesses are reported throughout the year, a higher number of cases are reported during summer months. There is a strong link between rising temperatures and infections with *Campylobacter* and *Salmonella* bacteria.[120,121]

Table 5. Food- and water-borne illnesses reportable to Ontario PHUs

Pathogen	Food- and water-borne illness
Salmonella bacteria	Salmonellosis
Campylobacter bacteria	Campylobacteriosis or Campylobacter enteritis
Giardia parasite	Giardiasis
Entamoeba histolytica parasite	Amebiasis
Cryptosporidium parasite	Cryptosporidiosis
Cyclospora parasite	Cyclosporiasis
Shigella bacteria	Shigellosis
Hepatitis A virus	Hepatitis A
Yersinia bacteria	Yersinosis
Listeria bacteria	Listeriosis
Verotoxin producing *Escherichia coli*	Complications include hemolytic uremic syndrome (HUS)
*Salmonell*a typhi bacteria	Typhoid fever
Salmonella enterica serovars Paratyphi A, B and C	Paratyphoid fever
Clostridium botulinum bacterium	Botulism
Vibrio cholerae bacteria	Cholera
Trichinella nematodes	Trichinosis/Trichinellosis
Legionella bacteria	Legionellosis/Legionnaires' disease and Pontiac fever

Trends in the incidence of food- and water-borne illnesses

Interventions and health system changes implemented as part of the response to COVID-19 have impacted the incidence, diagnosis, and reporting of other infectious diseases, including food- and water-borne illnesses.[122,123] For this reason, historical comparators for disease incidence were broken down into two groups: pre-pandemic (2017-2019) and pandemic (2020-2021).

In 2024, the two most frequently reported food-borne illnesses among Ottawa residents were salmonellosis (15 cases per 100,000 population; 167 cases) and *Campylobacter* enteritis (13 cases per 100,000 population; 45 cases) (**Figure 40**).

Among people with salmonellosis or *Campylobacter* enteritis who knew how they became ill, top sources of exposure were travel outside of the province (32% of cases) or consuming poultry or undercooked eggs in a private home or at a restaurant (22% of cases). As demonstrated by the high proportion of travel-related cases, Ottawa residents will be impacted by increases in food- and water-borne illnesses in Canada and internationally.

Most water-borne illnesses among Ottawa residents were those transmitted by parasites (i.e., cryptosporidiosis, giardiasis, cyclosporiasis, amebiasis) and peaked in the summer months. While the level of most food- and water-borne illnesses in 2024 remained below pre-pandemic levels, the rate of cryptosporidiosis among Ottawa residents in 2024 (3.7 cases per 100,000 population; 43 cases) was slightly above the pre-pandemic average rate (2.5 cases per 100,000 population; avg. 26 cases per year) (**Figure 40**). Giardiasis was the most frequently reported water-borne illness among Ottawa residents in 2024, with 10 cases per 100,000 population (114 cases) (**Figure 40**). The two most common sources of exposures among Ottawa residents reported with any of these four illnesses were travel outside the province (26% of cases) and recreational water (14% of cases). Sixteen percent of all cases reported swimming in pools in Ontario and 16% reported swimming in natural water in Ontario (e.g., lakes, rivers).

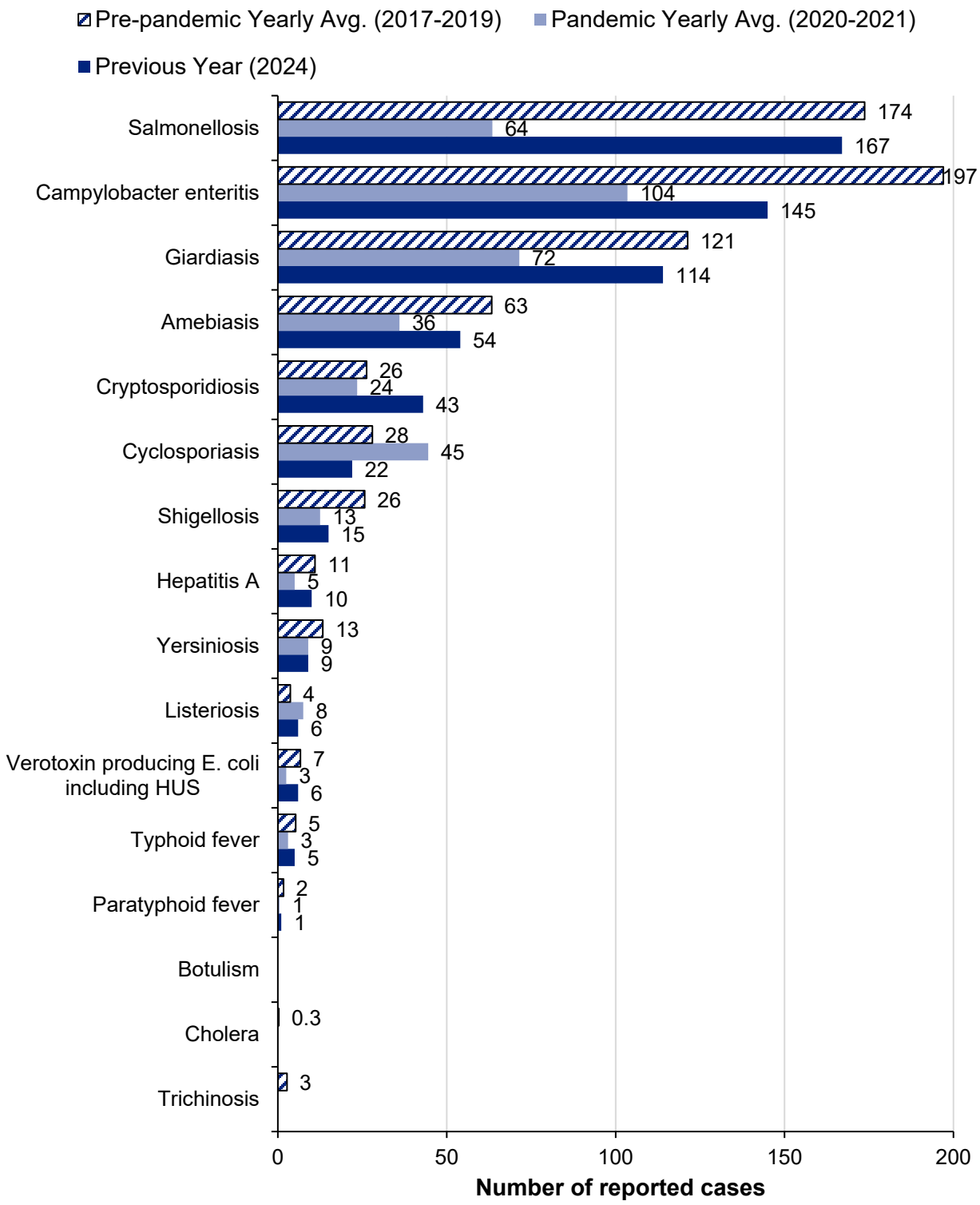

Figure 40. Number of Ottawa residents reported with a gastrointestinal DPHS, 2024 versus the pandemic average (2020-2021) and pre-pandemic average (2017-2019)

Data source for Figure 40: iPHIS, Ontario Ministry of Health. Extracted 14 July 2025.

Trends in the incidence of legionellosis

From 2015 to 2023, rates of legionellosis steadily increased in Ottawa but remained lower than rates in Ontario-less-Ottawa (Figure 41). In 2024, rates of legionellosis decreased to 1.1 cases per 100,000 population from a high of 1.7 cases per 100,000 population in 2023.

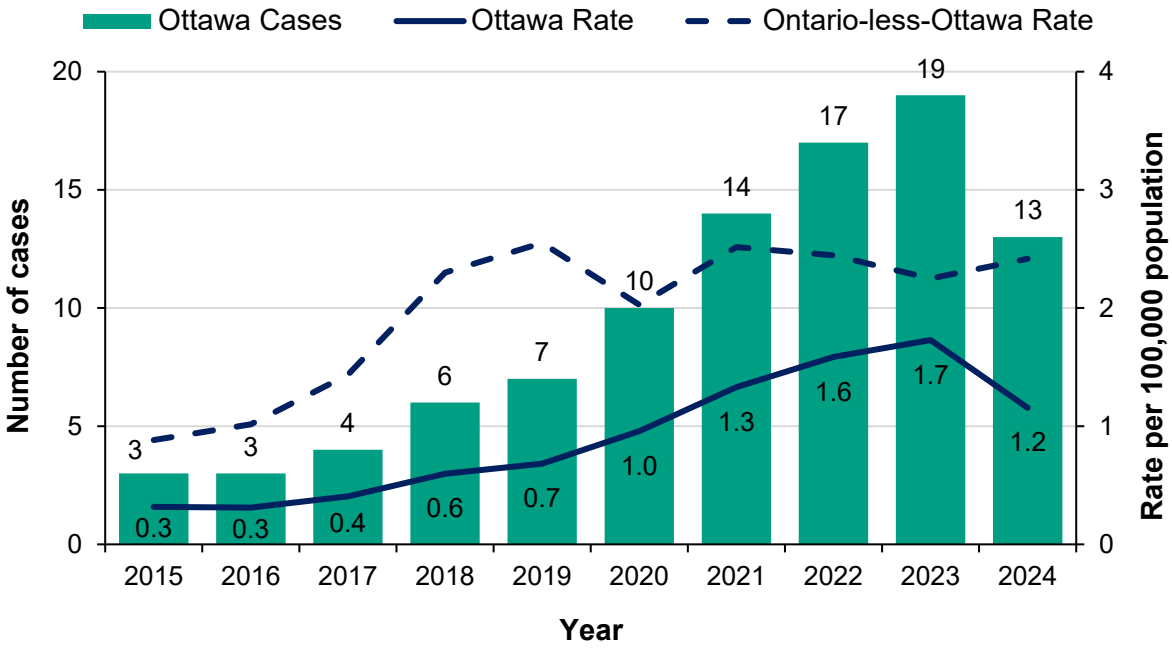

Figure 41. Number of legionellosis cases and rate per 100,000 population reported in Ottawa and Ontario-less-Ottawa, by year, 2015-2024

Data source for Figure 41: iPHIS, Ontario Ministry of Health. Extracted 14 July 2025. Ottawa population estimates (2016-2022) and projections (2023-2024), Ontario Ministry of Health, IntelliHealth Ontario. Extracted 30 April 2025.

Monitoring water quality

Household water sources and frequency of bacterial testing

In 2024, Ottawa adults were asked as part of the RRFSS about the water sources for their households. The results reveal that 85% of Ottawa households reported receiving their tap water from the municipal system and 10% from private or communal wells (**Figure 42**). Among households reporting using private or communal wells, 57% get their water from deep-drilled wells. Small and private drinking water systems are at higher risk of contamination than larger municipal drinking water systems.[19,124] Extreme weather events like heavy rain and flooding can contaminate drinking water.[111] A review of reported water-borne disease outbreaks in Canada showed that more than half were associated with semi-public and private small drinking water systems.[19,125–127]

Bacterial testing for private wells is performed free of charge by the Ontario Ministry of Health Public Health Laboratory and is recommended every spring, summer and fall.[128] However, among Ottawa households that get their water from a private well, communal well, natural non-well non-municipal system or cistern, 43% had their water tested for bacteria in the past 12 months while 52% did not. Among Ottawa households that had their water tested for bacteria in the past 12 months, 55% tested their water once in the past year and 42%* did so two to twelve times in the past year.

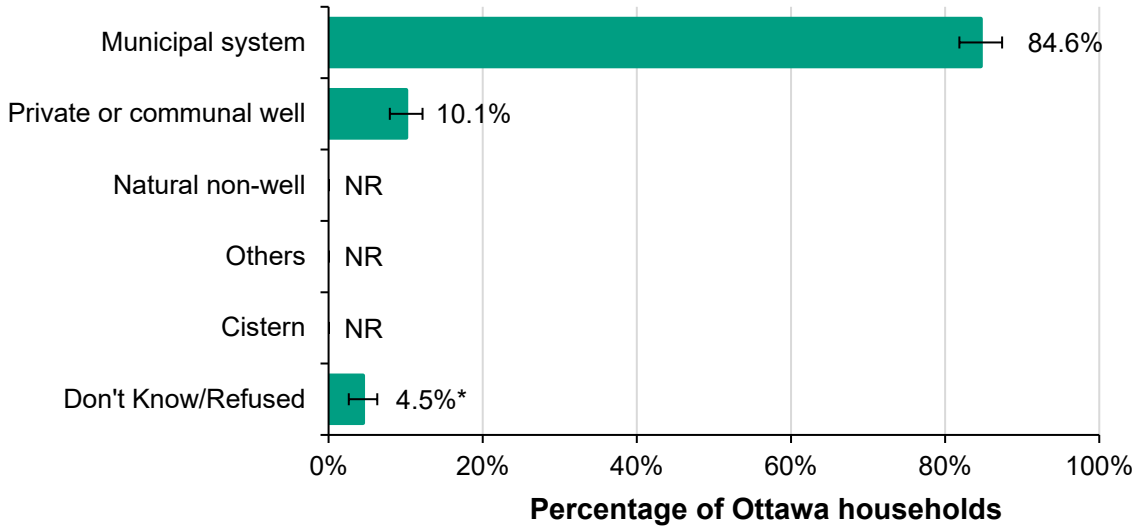

Figure 42. Sources of tap water among Ottawa households, 2024
Data source for Figure 42: RRFSS 2024, OPH

Notes: *=Interpret with caution. NR=Data are not reportable.

Trends in beach water quality

Recreational water illnesses are underreported and underdiagnosed in Canada.[115] Each year between June 15 and August 25, OPH monitors the water quality at the City of Ottawa's five supervised beaches (Britannia, Mooney's Bay, Petrie East Bay, Petrie River and Westboro) in accordance with the Ontario Public Health Standards.[129] From 2016 to 2024, beach water quality was tested daily. OPH tests beach water for the presence of *Escherichia coli (E. coli)* bacteria because it is an indicator of fecal contamination in water. When elevated levels of *E. coli* are detected in the water, it is more likely that other disease-causing organisms are also present, increasing the risk of enteric illness.[129,130] If the average of the samples has more than 200 *E. coli* per 100mL of water, the sample does not meet the Ontario Water Quality Standard for beach water quality.

Over a 9-year period (2016-2024), 86% of the Ottawa beach assessments met the Ontario Water Quality Standard. There was variation by beach and by year from a low

of 48% of assessments meeting the standard at Petrie East Bay in 2020 to a high of 100% at Britannia beach in 2016 (Figure 43). In 2024, 78% of the beach assessments met the standard.

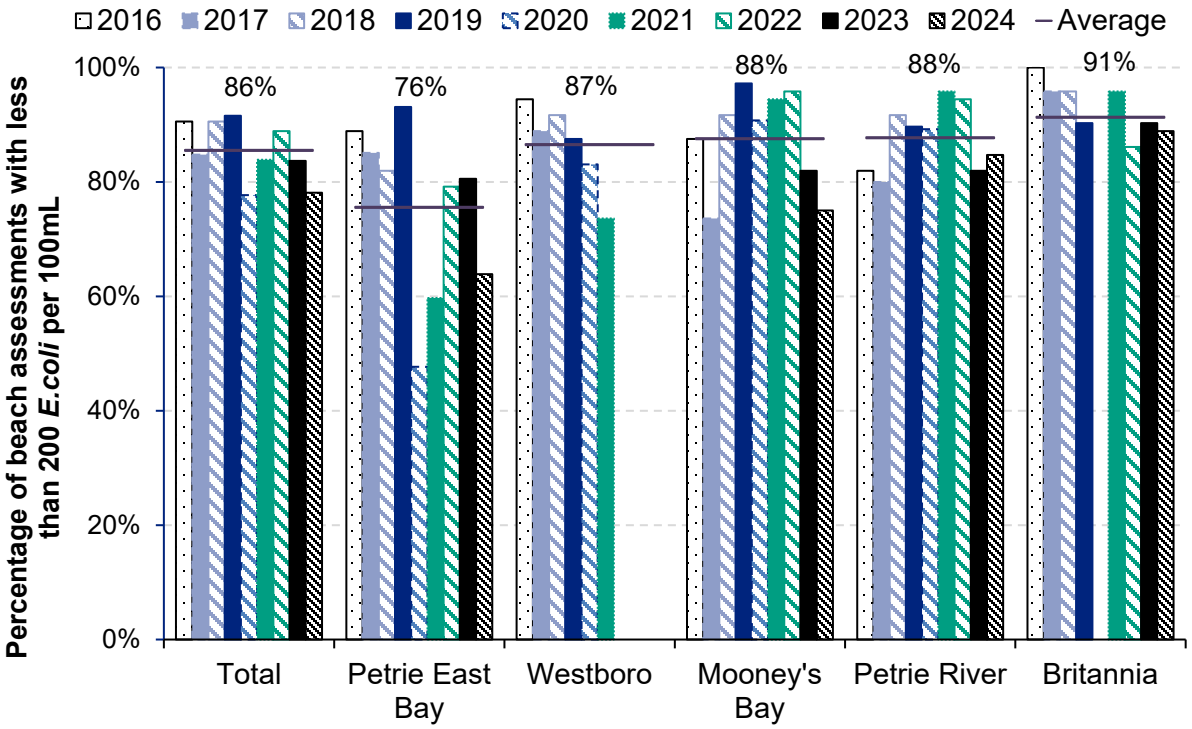

Figure 43. Percentage of beach assessments that met the standard of less than 200 *E. coli* per 100mL at the five City of Ottawa supervised beaches, 2016-2024

Data source for Figure 43: Beach Water Sampling, City of Ottawa Open Data. Extracted 15 September 2025 [Available online: https://open.ottawa.ca/documents/beach-water-sampling/about]

Note: Britannia beach was temporarily closed in 2020, and Westboro beach was closed from 2022 to 2024.

Preventing food and water-borne illnesses

To reduce the risk of food and water-borne illnesses, OPH:

- Routinely inspects food establishments and special events
- Makes food handler training available
- Investigates complaints and reports of suspected food poisoning in food premises in Ottawa
- Provides information on home food safety
- Provides information on private well water testing

Please visit www.ottawapublichealth.ca for more information.

Limitations and Future Directions

The data presented in this report represent a specific moment in time when the data were extracted or available, providing a snapshot of climate change and public health in Ottawa. Longitudinal data on climate change and health impacts in Ottawa are limited. This report highlights the public health impacts from some of the top climate change hazards in Ottawa. Climate change impacts on human health can be direct and indirect, and measuring these relationships is difficult. Climate change is among many factors impacting health outcomes.

The Epidemiology & Evidence Team at OPH is working to develop a robust climate change surveillance framework to better monitor climate change related health impacts. PHO recently released an evidence synthesis report to contribute to the development of practical and standardized surveillance approaches for the human health effects of climate change in Ontario.[131] Epidemiologists across Ontario PHUs are meeting regularly to collaboratively build standardized climate change related health indicators.[131]

OPH programs are using these data to inform climate change adaptations to their programming. For example, the Supportive Health Environments Program at OPH is working on a project called *Equity-based climate change communications and engagement* with funding from Health Canada. The City of Ottawa has recently published the Climate Ready Ottawa Strategy to address the top climate risks in Ottawa, including risks to public health and safety.[132] This strategy includes measuring the capacity of the community to prepare for and protect themselves from the health impacts of climate change including extreme heat and VBDs.

Data Sources and Methodology

This report uses different types of data sources including population health surveys, national and provincial administrative health datasets, and climate information. A short description of each data source is described below.

Rapid Risk Factor Surveillance System

The Rapid Risk Factor Surveillance System (RRFSS) is an ongoing series of telephone surveys led by Ontario PHUs.[133] The purpose of the RRFSS is to learn more about the opinions and health behaviours of local residents to help inform public health programs and services.[134] The RRFSS is the longest running local risk factor surveillance system in Canada. OPH has employed the RRFSS since 2001 to collect information on local public health issues, including climate change. The RRFSS survey is conducted throughout the year through a short interview with Ottawa residents 18 years of age and older.

Canadian Community Health Survey

The Canadian Community Health Survey (CCHS) is an annual national population health survey conducted since 2000 through a partnership between the Canadian Institute for Health Information (CIHI), Statistics Canada, and Health Canada.[135,136] Estimates at the health region or combined health region level are available every 2 years. A survey module on general health is conducted annually, while focused modules related to data needs of provinces and territories as well as emerging or specific health topics such as sun safety are included occasionally.

Data contents and interpretations in this report from the CCHS, conducted by Statistics Canada and provided to OPH via the Ontario Ministry of Health, are solely the responsibility of the authors and do not necessarily represent the official views of Statistics Canada or the Ontario Ministry of Health.

Ontario Student Drug Use and Health Survey

The Ontario Student Drug Use and Health Survey (OSDUHS) has been conducted since 1977 by the CAMH. The survey is administered every 2 years to Ontario students in grades 7 to 12 with the purpose of identifying trends in student substance use, mental, and physical health.[137] An Ottawa-specific sample of about 1,000 youth has been collected every cycle since 2009, with the exception of 2015 to understand health and related behaviours of local Ottawa youth and inform public health programming and community services.

Data contents and interpretations in this report from the OSDUHS, conducted by the CAMH and administered by the Institute for Social Research at York University, are

solely the responsibility of the authors and do not necessarily represent the official view of the CAMH.

Acute Care Enhanced Surveillance

The Acute Care Enhanced Surveillance (ACES) application, operated by the South East Health Unit (formerly Kingston, Frontenac, Lennox & Addington Public Health), provides real-time data on ED visits. The ACES provides data for more than 95% of Ontario's acute care hospitals, including those in Ottawa.[40] Triage notes from all ED visits include a description of the chief complaint (i.e., the main reason for a visit to the ED). OPH categorizes ED visits as heat-; exacerbation-, cold-; UV-; and respiratory, asthma, and air-quality (RAAQ)-related based on the words recorded in the triage notes (**Appendix 1**). The chief complaint at triage may not be the same as the final diagnosis. OPH includes French terminology in the categorization.

National Ambulatory Care Reporting System and Discharge Abstract Database

Data on ED visits and hospitalizations in Ottawa hospitals are extracted from the National Ambulatory Care Reporting System (NACRS) and Discharge Abstract Database (DAD) maintained by the CIHI, accessed through the Ontario Ministry of Health's IntelliHealth system. NACRS captures data primarily for ED visits, while DAD captures data on hospitalizations.[138,139] Data are provided for all patients in Ottawa hospitals and are not limited to Ottawa residents. Data are only available three to six months after the ED visit and hospital discharge occur, and as such, are not as timely as the real-time Acute Care Enhanced Surveillance data described above.

Extreme heat, cold, and UV radiation-related illnesses are defined in this report as patients with an ED visit or hospitalization with at least one heat-, cold-, or UV radiation-related International Classification of Diseases (ICD) version 10 code assigned to their ED or hospitalization record (**Appendix 2**).

Integrated Public Health Information System

The integrated Public Health Information System (iPHIS) is the electronic reporting system used by all local PHUs in Ontario. It is a dynamic reporting system that captures information on diseases of public health significance reported to OPH,[140] and allows for ongoing updates to previously entered data. As such, data extracted from iPHIS provides a snapshot of information at the time of data extraction and can vary from previous and subsequent data extractions.

Ontario Cancer Registry

Skin cancer incidence estimates in this report are based on data and information from the Ontario Cancer Registry, provided by Cancer Care Ontario, now part of Ontario

Health.[141] The analysis, conclusions, opinions, and statements expressed herein are those of the author(s) and not necessarily those of Ontario Health.

Air Quality Ontario

Daily values of the Air Quality Health Index (AQHI) and real-time concentrations of pollutants for this report were extracted from data provided by Air Quality Ontario. The Ontario Ministry of the Environment, Conservation, and Parks has a network of 38 outside air monitoring stations across the province, including one in downtown Ottawa.[142]

Meteorological Service of Canada

Climate data used in this report were extracted via the Meteorological Service of Canada (MSC) Datamart, which is publicly accessible.[143,144] The MSC maintains and publishes data related to the weather, water, climate, and environment. The MSC, part of ECCC, is Canada's authoritative source for weather, water, ice, and climate information and Canada's official source for severe weather warnings.

Data analysis and interpretation

Data were analyzed using StataSE 17 (64-bit), PowerBI (Version: 2.145.1105.0 64-bit), and Microsoft Excel.

In the tables and figures of this report, rates are expressed with one decimal point (e.g., 12.1 cases per 100,000 population). In the text, percentages (proportions) and rates are rounded to the nearest whole number (e.g., 11.7% is rounded to 12%; 5.1 cases per 100,000 is rounded to 5 cases per 100,000).

The symbol * added to the data in figures, tables, and text of this report, denotes that the estimate should be interpreted with caution due to moderate variability in responses (i.e., coefficient of variation between 16.5 and 33.3). Some results are suppressed due to high variability (i.e., coefficient of variation above 33.3) and marked as not reportable (NR).

Subgroups are compared whenever possible. All subgroup results are presented in data tables in **Appendix 3**. Only statistically significant differences (i.e., differences that are unlikely due to chance (α=0.05)) are described in the text, unless an explicit comparison (e.g. Ottawa to the rest of Ontario) is intended.

Point estimates are provided with 95% confidence intervals. The 95% confidence interval includes the true value 95 times out of 100. For example, if the estimate for the percentage of Ottawa students depressed about the future due to climate change is 49% (95%CI: 43%, 55%), then the range from 43% to 55% will contain the true population value 95% of the time. The narrower the confidence interval is, the more precise the estimate.

In this report, estimates labelled “Ontario-less-Ottawa” refer to counts/responses for Ontario excluding Ottawa, while those labelled “Ontario” include Ottawa in the provincial totals. Any differences between Ottawa and Ontario-less-Ottawa should be interpreted as Ottawa being different from the average of individuals across Ontario excluding those individuals from the Ottawa area.

Wherever age-standardized rates are presented, these have been standardized to the 2011 Canadian population using the direct method. This method uses the 2011 Canadian population as a common age-standard population to account for differences in the age distribution within groups being compared. Standardizing in this way removes the effect of age on the difference between groups with respect to the health measure of interest (e.g., heat- or cold- related ED visits).

Rates of melanoma are expressed per 100,000 “person-years”, which can be roughly interpreted as per 100,000 population. Person-years is often used in cancer statistics as a more exact measurement of how often cancer occurs in a population over a certain period.

References

1. Ministry of Health and Long-Term Care. Healthy Environments and Climate Change Guideline, 2018 [Internet]. Ministry of Health and Long-Term Care; 2018. Available from: https://files.ontario.ca/moh-guidelines-healthy-environments-climate-change-en-2018.pdf

2. Ottawa Public Health. Report to the Ottawa Board of Health [Internet]. Ottawa, ON: Ottawa Public Health; 2024 Nov. Report No.: ACS2024-OPH-EHI-0004. Available from: https://pub-ottawa.escribemeetings.com/filestream.ashx?DocumentId=209530

3. Planning, Real Estate and Economic Development Department, City of Ottawa. City of Ottawa Climate Change Vulnerability & Risk Assessment [Internet]. Ottawa, ON: City of Ottawa; 2022 May [cited 2025 Oct 16] p. 114. Available from: https://ehq-production-canada.s3.ca-central-1.amazonaws.com/622d38e4cd0fd7ccf95afb04ef7ccde1e684bb45/original/1655413919/e7cab5fb98dd668be0392ffc6b2a048f_Document_1_Ottawa_CVRA_V5_20220530-v2-AODA.pdf?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=AKIA4KKNQAKIFWFOUYFI%2F20251016%2Fca-central-1%2Fs3%2Faws4_request&X-Amz-Date=20251016T140932Z&X-Amz-Expires=300&X-Amz-SignedHeaders=host&X-Amz-Signature=b0b734ef1e923dd345f41637c93655056b6bc962a7fac19314568f2892b09877

4. Hayes K, Cunsolo A, Augustinavicius J, Stranberg R, Clayton S, Malik M, et al. Mental Health and Well-Being. Ottawa, ON: Government of Canada; 2022. (Berry P, Schnitter R, editors. Health of Canadians in a changing climate: advancing our knowledge for action).

5. Brandt L, Adorjan K, Catthoor K, Chkonia E, Falkai P, Fiorillo A, et al. Climate change and mental health: Position paper of the European Psychiatric Association. Eur Psychiatry J Assoc Eur Psychiatr. 2024;67:e41.

6. Clayton S, Manning C, Speiser M, Hill ANH. Mental health and our changing climate: impacts, inequities, responses [Internet]. Washington, DC: American Psychological Association, and ecoAmerica; 2021 [cited 2025 June 27]. Available from: https://doi.apa.org/doi/10.1037/e503122017-001

7. Hwong AR, Wang M, Khan H, Chagwedera DN, Grzenda A, Doty B, et al. Climate change and mental health research methods, gaps, and priorities: a scoping review. Lancet Planet Health. 2022;6:e281–91.

8. Zhang S, Braithwaite I, Bhavsar V, Das-Munshi J. Unequal effects of climate change and pre-existing inequalities on the mental health of global populations. BJPsych Bull. 2021;45:230–4.

9. City of Ottawa, National Capital Commission. Climate Projections for the National Capital Region Report Volume 1: Results and Interpretation for Key Climate Indices [Internet]. 2020 June [cited 2025 Mar 18]. Available from: https://ouvert.canada.ca/data/info/ecffe357-d8bc-4712-b8d9-11b7ccaffa71/resource/f3be9713-58e2-42a0-ab8a-5d6a87b0d286

10. Environment and Climate Change Canada. Climate scientists calculate role human-caused climate change plays in shifting weather extremes [Internet]. 2025 [cited 2025 July 19]. Available from:

https://www.canada.ca/en/environment-climate-change/news/2025/07/climate-scientists-calculate-role-human-caused-climate-change-plays-in-shifting-weather-extremes.html

11. Cohen J, Agel L, Barlow M, Garfinkel CI, White I. Linking Arctic variability and change with extreme winter weather in the United States. Science. 2021;373:1116–21.

12. Gosselin P, Campagna C, Demers-Bouffard D, Qutob S, Flannigan M. Natural hazards [Internet]. Ottawa, ON: Government of Canada; 2022 [cited 2025 Mar 18]. (Berry P, Schnitter R, editors. Health of Canadians in a changing climate: advancing our knowledge for action). Available from: https://ostrnrcan-dostrncan.canada.ca/handle/1845/134215

13. Nowakowska MK, Li Y, Garner DC, Stender CF, Hinkston CL, Giordano SH, et al. Clinical settings and demographic characteristics of patients with sunburn. JAMA Dermatol. 2021;157:1122–5.

14. Guy GP, Berkowitz Z, Watson M. Estimated cost of sunburn-associated visits to US hospital emergency departments. JAMA Dermatol. 2017;153:90–2.

15. Tripathi R, Mazmudar RS, Knusel KD, Ezaldein HH, Bordeaux JS, Scott JF. Trends in emergency department visits due to sunburn and factors associated with severe sunburns in the United States. Arch Dermatol Res. 2021;313:79–88.

16. Berry P, Schnitter R. Health of Canadians in a changing climate: advancing our knowledge for action [Internet]. 2022 [cited 2025 Oct 16]. Available from: https://ostrnrcan-dostrncan.canada.ca/handle/1845/134215

17. Egyed M, Blagden P, Plummer D, Makar P, Matz C, Flannigan M, et al. Air quality [Internet]. Ottawa, ON: Government of Canada; 2022 [cited 2025 Mar 18]. (Berry P, Schnitter R, editors. Health of Canadians in a changing climate: advancing our knowledge for action). Available from: https://ostrnrcan-dostrncan.canada.ca/handle/1845/134215

18. Ogden NH, Bouchard C, Brankston G, Brown EM, Corrin T, Dibernardo A, et al. Infectious Diseases [Internet]. Ottawa, ON: Government of Canada; 2022 [cited 2025 Mar 18]. (Berry P, Schnitter R, editors. Health of Canadians in a changing climate: advancing our knowledge for action). Available from: https://ostrnrcan-dostrncan.canada.ca/handle/1845/134215

19. Takaro T, Enright P, Waters S, Galway L, Brubacher J, Galanis E, et al. Water Quality, Quantity, and Security [Internet]. Ottawa, ON: Government of Canada; 2022 [cited 2025 Mar 18]. (Berry P, Schnitter R, editors. Health of Canadians in a changing climate: advancing our knowledge for action). Available from: https://ostrnrcan-dostrncan.canada.ca/handle/1845/134215

20. Harper SL, Schnitter R, Fazil A, Fleury M, Ford J, King N, et al. Food Security and Food Safety [Internet]. Ottawa, ON: Government of Canada; 2022 [cited 2025 Mar 18]. (Berry P, Schnitter R, editors. Health of Canadians in a changing climate: advancing our knowledge for action). Available from: https://ostrnrcan-dostrncan.canada.ca/handle/1845/134215

21. Cosh SM, Ryan R, Fallander K, Robinson K, Tognela J, Tully PJ, et al. The relationship between climate change and mental health: a systematic review of the association between eco-anxiety, psychological distress, and symptoms of major affective disorders. BMC Psychiatry. 2024;24:833.

22. Hayes K, Blashki G, Wiseman J, Burke S, Reifels L. Climate change and mental health: risks, impacts and priority actions. Int J Ment Health Syst. 2018;12:28.

23. Lawrance EL, Thompson R, Newberry Le Vay J, Page L, Jennings N. The impact of climate change on mental health and emotional wellbeing: a narrative review of current evidence, and its implications. Int Rev Psychiatry Abingdon Engl. 2022;34:443–98.

24. Hayes K, Poland B. Addressing mental health in a changing climate: incorporating mental health indicators into climate change and health vulnerability and adaptation assessments. Int J Environ Res Public Health. 2018;15:1806.

25. Gago T, Sargisson RJ, Milfont TL. A meta-analysis on the relationship between climate anxiety and wellbeing. J Environ Psychol. 2024;94:102230.

26. Vergunst F, Berry HL, Minor K, Chadi N. Climate change and substance-use behaviors: a risk-pathways framework. Perspect Psychol Sci J Assoc Psychol Sci. 2023;18:936–54.

27. Berg D. Substance use and the climate emergency [Policy brief]. Canadian Centre on Substance Use and Addiction.; 2023.

28. Heinz A, Brandt L. Climate change and mental health: direct, indirect, and intersectional effects. Lancet Reg Health – Eur [Internet]. 2024 [cited 2025 June 21];43. Available from: https://www.thelancet.com/journals/lanepe/article/PIIS2666-7762(24)00136-4/fulltext

29. Whitlock J. Climate change anxiety in young people. Nat Ment Health. 2023;1:297–8.

30. Galway LP, Field E. Climate emotions and anxiety among young people in Canada: A national survey and call to action. J Clim Change Health. 2023;9:100204.

31. Centre for Addiction and Mental Health. 2023 OSDUHS Mental Health & Well-Being Report [Internet]. Centre for Addiction and Mental Health; Available from: https://www.camh.ca/-/media/research-files/osduhs-summary_mental-health-and-wellbeing-report_2023.pdf

32. Center for Climate Change Communication. Global warming's six Americas 2009: An audience segmentation analysis [Internet]. George Mason University; Available from: https://climatecommunication.yale.edu/wp-content/uploads/2016/02/2009_05_Global-Warmings-Six-Americas.pdf

33. Clayton S, Karazsia BT. Development and validation of a measure of climate change anxiety. J Environ Psychol. 2020;69:101434.

34. Shao L, Yu G. Media coverage of climate change, eco-anxiety and pro-environmental behavior: Experimental evidence and the resilience paradox. J Environ Psychol. 2023;91:102130.

35. Cunsolo A, Ellis NR. Ecological grief as a mental health response to climate change-related loss. Nat Clim Change. 2018;8:275–81.

36. Thomson EE, Roach SP. The relationships among nature connectedness, climate anxiety, climate action, climate knowledge, and mental health. Front Psychol. 2023;14:1241400.

37. Ogunbode CA, Doran R, Hanss D, Ojala M, Salmela-Aro K, van den Broek KL, et al. Climate anxiety, wellbeing and pro-environmental action: correlates of negative emotional responses to climate change in 32 countries. J Environ Psychol. 2022;84:101887.

38. Mishra J, Han H, Ramanathan V. A mental health focus to amplify climate resilience actions. Npj Clim Action. 2025;4:55.

39. Centre for Addiction and Mental Health. Climate change and mental health [Internet]. [cited 2025 Sept 29]. Available from: https://www.camh.ca/en/professionals/professionals--projects/climate-change-and-mental-health

40. KFL&A Public Health. Acute Care Enhanced Surveillance: ACES User Manual, v01.03.20. Kingston, ON: KFL&A Public Health; 2020 Mar.

41. Kegel F, Luo OD, Richer S. The impact of extreme heat events on emergency departments in Canadian hospitals. Wilderness Environ Med. 2021;32:433–40.

42. Boudreault J, Lavigne É, Campagna C, Chebana F. Estimating the heat-related mortality and morbidity burden in the province of Quebec, Canada. Environ Res. 2024;257:119347.

43. Quick M. The impacts of extreme heat events on non-accidental, cardiovascular, and respiratory mortality: An analysis of 12 Canadian cities from 2000 to 2020 [Internet]. 2024 [cited 2025 Mar 18]. Available from: https://www150.statcan.gc.ca/n1/pub/82-003-x/2024006/article/00001-eng.htm

44. Environment and Climate Change Canada. Criteria for public weather alerts [Internet]. 2010 [cited 2025 Mar 18]. Available from: https://www.canada.ca/en/environment-climate-change/services/types-weather-forecasts-use/public/criteria-alerts.html

45. Sorensen C, Hess J. Treatment and prevention of heat-related illness. N Engl J Med. 2022;387:1404–13.

46. Public Health Agency of Canada. Heat-related illnesses and sunburns - Canadian Hospitals Injury Reporting and Prevention Program (CHIRPP): data blog [Internet]. 2023 [cited 2025 July 22]. Available from: https://health-infobase.canada.ca/datalab/heat-related-injuries-blog.html

47. Ebi KL, Capon A, Berry P, Broderick C, Dear R de, Havenith G, et al. Hot weather and heat extremes: health risks. The Lancet. 2021;398:698–708.

48. Health Canada. Heat-related morbidity and mortality in Canada [Internet]. 2025 [cited 2025 July 15]. Available from: https://www.canada.ca/en/health-canada/services/publications/healthy-living/heat-related-morbidity-mortality.html

49. Environment and Climate Change Canada. Extreme weather event attribution [Internet]. 2024 [cited 2025 July 20]. Available from: https://www.canada.ca/en/environment-climate-change/services/climate-change/science-research-data/extreme-weather-event-attribution.html

50. Public Health Agency of Canada. Cold-related injuries in Canada [Internet]. 2025 [cited 2025 July 19]. Available from: https://health-infobase.canada.ca/injuries/cold-related/

51. Berko J, Ingram DD, Saha S, Parker JD. Deaths attributed to heat, cold, and other weather events in the United States, 2006–2010. National Health Statistics Reports. 2014;

52. Chen H, Wang J, Li Q, Yagouti A, Lavigne E, Foty R, et al. Assessment of the effect of cold and hot temperatures on mortality in Ontario, Canada: a population-based study. CMAJ Open. 2016;4:E48–58.

53. Ottawa Public Health. Extreme heat and humidity [Internet]. [cited 2025 July 17]. Available from: https://www.ottawapublichealth.ca/en/public-health-topics/extreme-heat-and-humidity.aspx

54. Statistics Canada. Air conditioners [Internet]. 2023 [cited 2025 Aug 8]. Available from: https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3810001901&pickMembers%5B0%5D=1.24&cubeTimeFrame.startYear=2019&cubeTimeFrame.endYear=2021&referencePeriods=20190101%2C20210101

55. Meade RD, Notley SR, Kirby NV, Kenny GP. A critical review of the effectiveness of electric fans as a personal cooling intervention in hot weather and heatwaves. Lancet Planet Health. 2024;8:e256–69.

56. O'Connor FK, Meade RD, Wagar KE, Harris-Mostert RC, Tetzlaff EJ, McCormick JJ, et al. Effect of Electric Fans on Body Core Temperature in Older Adults Exposed to Extreme Indoor Heat. JAMA. 2024;332:1752–4.

57. Environment and Climate Change Canada. Depletion of the ozone layer: causes, status and recovery [Internet]. 2010 [cited 2025 Apr 29]. Available from: https://www.canada.ca/en/environment-climate-change/services/air-pollution/issues/ozone-layer/depletion-impacts/causes-status-recovery.html

58. National Aeronautics and Space Administration. NASA Ozone Watch [Internet]. 2024 [cited 2025 Apr 29]. Available from: https://ozonewatch.gsfc.nasa.gov/facts/

59. European Climate and Health Observatory. Ultraviolet (UV) radiation [Internet]. 2025 [cited 2025 Apr 29]. Available from: https://climate-adapt.eea.europa.eu/en/observatory/evidence/health-effects/uv-radiation

60. Canadian Skin Patient Alliance. Cancer [Internet]. [cited 2025 Oct 3]. Available from: https://canadianskin.ca/en/cancer

61. Cancer Care Ontario. Cancer incidence projections [Internet]. [cited 2025 June 13]. Available from: https://profiles.cancercare.on.ca/projections/

62. Dennis LK, Vanbeek MJ, Beane Freeman LE, Smith BJ, Dawson DV, Coughlin JA. Sunburns and risk of cutaneous melanoma: does age matter? A comprehensive meta-analysis. Ann Epidemiol. 2008;18:614–27.

63. Wu S, Han J, Laden F, Qureshi AA. Long-term ultraviolet flux, other potential risk factors, and skin cancer risk: a cohort study. Cancer Epidemiol Biomarkers Prev. 2014;23:1080–9.

64. Moustaqim-Barrette A, Rijal H, Conte S, Maazi M, Hanna J, Kelly ASV, et al. Evaluating UV exposure and skin cancer prevention behaviours in Canada: a national population-based cross-sectional

study. BMJ Public Health [Internet]. 2025 [cited 2025 May 31];3. Available from: https://bmjpublichealth.bmj.com/content/3/1/e001983

65. Statistics Canada. Canadian Community Health Survey (CCHS) - 2016 [Internet]. 2015 [cited 2025 Apr 29]. Available from: https://www23.statcan.gc.ca/imdb/p3Instr.pl?Function=assembleInstr&Item_Id=260675#qb269849

66. Wu S, Cho E, Li WQ, Weinstock MA, Han J, Qureshi AA. History of severe sunburn and risk of skin cancer among women and men in 2 prospective cohort studies. Am J Epidemiol. 2016;183:824–33.

67. Walter SD, King WD, Marrett LD. Association of cutaneous malignant melanoma with intermittent exposure to ultraviolet radiation: results of a case-control study in Ontario, Canada. Int J Epidemiol. 1999;28:418–27.

68. Canadian Institute for Health Information. Covid-19's impact on emergency departments [Internet]. 2021 [cited 2025 June 10]. Available from: https://www.cihi.ca/en/covid-19-resources/impact-of-covid-19-on-canadas-health-care-systems/emergency-departments

69. Youl P, Aitken J, Hayward N, Hogg D, Liu L, Lassam N, et al. Melanoma in adolescents: A case-control study of risk factors in Queensland, Australia. Int J Cancer. 2002;98:92–8.

70. Cancer Care Ontario. Skin cancers increasing among adults [Internet]. Ontario Cancer Facts. [cited 2025 Apr 29]. Available from: https://www.cancercareontario.ca/en/cancer-facts/skin-cancers-increasing-among-adults

71. Environment and Climate Change Canada. The UV Index [Internet]. 2023. Available from: https://www.canada.ca/content/dam/eccc/migration/main/meteo-weather/80b0f2af-9697-4bee-ab17-d401ebba5b4b/21139.01_UV_Poster_11X17_EN%20(003).pdf

72. Cancer Care Ontario. Sun protection policies, programs and practices are effective in reducing the incidence of skin cancer [Internet]. 2019 [cited 2025 June 1]. Available from: https://www.cancercareontario.ca/en/cancer-facts/sun-protection-policies-programs-and-practices-are-effective-reducing-incidence-skin-cancer

73. Environment and Climate Change Canada. UV index, heat and wind chill products [Internet]. 2014 [cited 2025 June 16]. Available from: https://www.canada.ca/en/environment-climate-change/services/weather-health/uv-index-heat-wind-chill-products.html

74. Ottawa Public Health. Sun safety and tanning [Internet]. 2024 [cited 2025 July 18]. Available from: https://www.ottawapublichealth.ca/en/public-health-topics/sun-safety-and-tanning.aspx

75. Health Canada. Sun safety basics [Internet]. 2011 [cited 2025 July 18]. Available from: https://www.canada.ca/en/health-canada/services/sun-safety/sun-safety-basics.html

76. Health Canada. Health impacts of air pollution in Canada in 2018 [Internet]. 2024 [cited 2025 June 16]. Available from: https://www.canada.ca/en/health-canada/services/publications/healthy-living/health-impacts-air-pollution-2018.html

77. Environment and Climate Change Canada. Air quality [Internet]. 2012 [cited 2025 June 17]. Available from: https://www.canada.ca/en/environment-climate-change/services/environmental-indicators/air-quality.html

78. Environment and Climate Change Canada. About the Air Quality Health Index [Internet]. 2007 [cited 2025 June 15]. Available from: https://www.canada.ca/en/environment-climate-change/services/air-quality-health-index/about.html

79. Ministry of the Environment, Conservation and Parks. Air quality: frequently asked questions [Internet]. Government of Ontario, Ministry of the Environment; [cited 2025 June 16]. Available from: https://www.airqualityontario.com/press/faq.php#pm25how

80. Health Canada. Health impacts of air pollution from transportation, industry, and residential sources in Canada: estimates of premature mortality and morbidity outcomes at national, provincial, territorial, and air zone levels. Ottawa, ON: Health Canada = Santé Canada; 2023 Feb.

81. Ministry of the Environment, Conservation and Parks. National Air Quality Management System [Internet]. 2022 [cited 2025 June 16]. Available from: http://www.ontario.ca/document/air-quality-ontario-2020-report/national-air-quality-management-system

82. Ministry of the Environment, Conservation and Parks. Canadian Ambient Air Quality Standards [Internet]. 2024 [cited 2025 June 16]. Available from: http://www.ontario.ca/document/air-quality-ontario-2017-report/canadian-ambient-air-quality-standards

83. Chen H, Kaufman JS, Chen C, Wang J, Maier A, van Dijk A, et al. Impact of the 2023 wildfire smoke episodes in Ontario, Canada, on asthma and other health outcomes: an interrupted time-series analysis.

84. Ministry of the Environment, Conservation and Parks. Air quality health index (AQHI) [Internet]. Government of Ontario, Ministry of the Environment; [cited 2025 June 18]. Available from: https://www.airqualityontario.com/aqhi/index.php

85. Meng J, Martin RV, Li C, van Donkelaar A, Tzompa-Sosa ZA, Yue X, et al. Source contributions to ambient fine particulate matter for Canada. Environ Sci Technol. 2019;53:10269–78.

86. Government of Canada. Wildfire smoke, air quality and your health: Health effects of wildfire smoke exposure [Internet]. 2024 [cited 2025 June 10]. Available from: https://www.canada.ca/en/services/health/healthy-living/environment/air-quality/wildfire-smoke/health-effects-exposure.html

87. Environmental Protection Agency. Particulate matter (PM) basics [Internet]. 2016 [cited 2025 June 10]. Available from: https://www.epa.gov/pm-pollution/particulate-matter-pm-basics

88. Canadian Interagency Forest Fire Centre. Canada Report 2023 Fire Season [Internet]. 2024 Mar. Available from: https://ciffc.ca/sites/default/files/2024-03/03.07.24_CIFFC_2023CanadaReport%20%281%29.pdf

89. Chen H, Li Q, Kaufman JS, Wang J, Copes R, Su Y, et al. Effect of air quality alerts on human health: a regression discontinuity analysis in Toronto, Canada. Lancet Planet Health. 2018;2:e19–26.

90. Public Health Agency of Canada. Mosquito-borne disease surveillance: explore the data [Internet]. 2025 [cited 2025 July 6]. Available from: https://health-infobase.canada.ca/zoonoses/mosquito/maps.html

91. Rosenkrantz L, National Collaborating Centre for Environmental Health. Impacts of Canada's changing climate on West Nile Virus vectors [Internet]. 2022 [cited 2025 July 6]. Available from: https://ncceh.ca/resources/evidence-reviews/impacts-canadas-changing-climate-west-nile-virus-vectors

92. Public Health Ontario. Public Health Ontario launches new Ontario Vector-Borne Disease Tool [Internet]. [cited 2025 July 8]. Available from: http://www.publichealthontario.ca/en/About/News/2025/06/VBD-Tool-Launch

93. Public Health Agency of Canada. Anaplasmosis: symptoms and treatment [Internet]. 2024 [cited 2025 July 21]. Available from: https://www.canada.ca/en/public-health/services/diseases/ticks-tick-borne-diseases/anaplasmosis.html

94. Public Health Agency of Canada. Babesiosis: symptoms and treatment [Internet]. 2025 [cited 2025 July 21]. Available from: https://www.canada.ca/en/public-health/services/diseases/ticks-tick-borne-diseases/babesiosis.html

95. Public Health Agency of Canada. Lyme disease: symptoms and treatment [Internet]. 2015 [cited 2025 July 21]. Available from: https://www.canada.ca/en/public-health/services/diseases/lyme-disease.html

96. Public Health Agency of Canada. Powassan virus disease: symptoms and treatment [Internet]. 2021 [cited 2025 July 21]. Available from: https://www.canada.ca/en/public-health/services/diseases/powassan-virus.html

97. Public Health Agency of Canada. Risks of West Nile virus [Internet]. 2015 [cited 2025 July 8]. Available from: https://www.canada.ca/en/public-health/services/diseases/west-nile-virus/risks-west-nile-virus.html

98. Kulkarni MA. Unpublished data. INSIGHT Research Lab, School of Epidemiology & Public Health, University of Ottawa; 2024.

99. Burrows H, Talbot B, McKay R, Slatculescu A, Logan J, Thickstun C, et al. A multi-year assessment of blacklegged tick (Ixodes scapularis) population establishment and Lyme disease risk areas in Ottawa, Canada, 2017-2019. PLoS One. 2021;16:e0246484.

100. Public Health Ontario. Ontario Vector-Borne Disease Tool [Internet]. [cited 2025 July 20]. Available from: https://oahpp.maps.arcgis.com/apps/dashboards/bb2f1ae3ae754de5801142e3569f11bb

101. Public Health Agency of Canada. Lyme disease: monitoring [Internet]. 2015 [cited 2025 July 20]. Available from: https://www.canada.ca/en/public-health/services/diseases/lyme-disease/surveillance-lyme-disease.html

102. Talbot B, Ardis M, Kulkarni MA. Influence of demography, land use, and urban form on West Nile virus risk and human West Nile virus incidence in Ottawa, Canada. Vector Borne Zoonotic Dis Larchmt N. 2019;19:533–9.

103. Ottawa Public Health. Lyme disease [Internet]. 2025 [cited 2025 July 17]. Available from: https://www.ottawapublichealth.ca/en/public-health-topics/lyme-disease.aspx

104. Logan JJ, Sawada M, Knudby A, Ramsay T, Blanford JI, Ogden NH, et al. Knowledge, protective behaviours, and perception of Lyme disease in an area of emerging risk: results from a cross-sectional survey of adults in Ottawa, Ontario. BMC Public Health. 2024;24:867.

105. Ottawa Public Health. West Nile virus and eastern equine encephalitis virus [Internet]. 2024 [cited 2025 July 17]. Available from: https://www.ottawapublichealth.ca/en/public-health-topics/west-nile.aspx

106. Health Canada. Mosquitoes [Internet]. 2012 [cited 2025 July 17]. Available from: https://www.canada.ca/en/health-canada/services/pest-control-tips/mosquitoes.html

107. Public Health Agency of Canada. How to remove a tick [Internet]. 2024 [cited 2025 July 21]. Available from: https://www.canada.ca/en/public-health/services/diseases/ticks-tick-borne-diseases/remove-tick.html

108. eTick [Internet]. [cited 2025 July 21]. Available from: https://www.etick.ca/

109. Katz TM, Miller JH, Hebert AA. Insect repellents: historical perspectives and new developments. J Am Acad Dermatol. 2008;58:865–71.

110. Smith B, Fazil A. How will climate change impact microbial foodborne disease in Canada? Can Commun Dis Rep. 2019;45:108–13.

111. Public Health Agency of Canada. Climate change, floods and your health [Internet]. 2013 [cited 2025 July 17]. Available from: https://www.canada.ca/en/public-health/services/health-promotion/environmental-public-health-climate-change/climate-change-public-health-factsheets-floods.html

112. Health Canada. Food-related illnesses [Internet]. 2004 [cited 2025 July 20]. Available from: https://www.canada.ca/en/health-canada/services/food-nutrition/food-safety/food-related-illnesses.html

113. Thomas MK, Murray R, Flockhart L, Pintar K, Pollari F, Fazil A, et al. Estimates of the burden of foodborne illness in Canada for 30 specified pathogens and unspecified agents, circa 2006. Foodborne Pathog Dis. 2013;10:639–48.

114. Public Health Agency of Canada. Enteric disease: a major health concern in Canada [Internet]. 2006 [cited 2025 July 20]. Available from: https://www.canada.ca/en/public-health/services/surveillance/foodnet-canada/enteric-disease-a-major-health-concern-canada.html

115. Young I, Sanchez JJ, Tustin J. Recreational water illness in Canada: a changing risk landscape in the context of climate change. Can J Public Health Rev Can Santé Publique. 2022;113:940–3.

116. National Collaborating Centre for Environmental Health. Legionella [Internet]. [cited 2025 July 20]. Available from: https://ncceh.ca/resources/subject-guides/legionella

117. Ogden NH, Bouchard C, Brankston G, Brown EM, Corrin T, Dibernardo A, et al. Infectious Diseases [Internet]. Ottawa, ON: Government of Canada; 2022 [cited 2025 Mar 18]. (Berry P, Schnitter R, editors. Health of Canadians in a changing climate: advancing our knowledge for action). Available from: https://ostrnrcan-dostrncan.canada.ca/handle/1845/134215

118. Public Health Ontario. Legionellosis (Legionella, Legionnaires Disease) [Internet]. [cited 2025 July 20]. Available from: https://www.publichealthontario.ca/en/Diseases-and-Conditions/Infectious-Diseases/Respiratory-Diseases/Legionellosis

119. Public Health Agency of Canada. How Canada estimates food-borne illness [Internet]. 2015 [cited 2025 July 20]. Available from: https://www.canada.ca/en/public-health/services/food-borne-illness-canada/how-canada-estimates-food-borne-illness.html

120. Manchal N, Young MK, Castellanos ME, Leggat P, Adegboye O. A systematic review and meta-analysis of ambient temperature and precipitation with infections from five food-borne bacterial pathogens. Epidemiol Infect. 2024;152:e98.

121. Damtew YT, Tong M, Varghese BM, Anikeeva O, Hansen A, Dear K, et al. The impact of temperature on non-typhoidal Salmonella and Campylobacter infections: an updated systematic review and meta-analysis of epidemiological evidence. eBioMedicine. 2024;109.

122. Love NK, Douglas A, Gharbia S, Hughes H, Morbey R, Oliver I, et al. Understanding the impact of the Covid-19 pandemic response on GI infection surveillance trends in England, January 2020–April 2022. Epidemiol Infect. 2023;151:e147.

123. Ottawa Public Health. State of Ottawa's Health: 2023 Report [Internet]. Ottawa Public Health; 2023. Available from: https://pub-ottawa.escribemeetings.com/filestream.ashx?DocumentId=130931

124. National Collaborating Centre for Environmental Health. Small drinking water systems and private wells [Internet]. [cited 2025 July 17]. Available from: https://ncceh.ca/resources/subject-guides/small-drinking-water-systems-and-private-wells

125. Struck S. Water-borne disease outbreaks in Canadian small drinking water systems. 2012.

126. Schuster CJ, Ellis AG, Robertson WJ, Charron DF, Aramini JJ, Marshall BJ, et al. Infectious disease outbreaks related to drinking water in Canada, 1974-2001. Can J Public Health Rev Can Sante Publique. 2005;96:254–8.

127. Pons W, Young I, Truong J, Jones-Bitton A, McEwen S, Pintar K, et al. A systematic review of waterborne disease outbreaks associated with small non-community drinking water systems in Canada and the United States. PLoS One. 2015;10:e0141646.

128. Ottawa Public Health. Free well water testing [Internet]. 2025 [cited 2025 July 20]. Available from: https://www.ottawapublichealth.ca/en/public-health-services/free-well-water-testing.aspx

129. Ministry of Health and Long-Term Care. Operational Approaches for Recreational Water Guideline, 2018. Queen's Printer of Ontario; 2018.

130. Ottawa Public Health. Beach water quality [Internet]. 2025 [cited 2025 July 20]. Available from: https://www.ottawapublichealth.ca/en/public-health-services/beach-water-quality-results.aspx

131. Ontario Agency for Health Protection and Promotion (Public Health Ontario). Moving towards surveillance of climate change health impacts. Toronto, ON: King's Printer for Ontario; 2024.

132. Climate Resiliency Strategy [Internet]. Engage Ottawa. [cited 2025 July 25]. Available from: https://engage.ottawa.ca/climate-resiliency

133. Institute for Social Research. Rapid Risk Factor Surveillance System (RRFSS) [Internet]. [cited 2025 July 3]. Available from: https://www.rrfss.ca

134. Institute for Social Research. For the public: frequently asked questions [Internet]. RRFSS. [cited 2025 July 3]. Available from: https://www.rrfss.ca/publicfaq

135. Health Canada. Canadian Community Health Survey [Internet]. 2005 [cited 2025 July 3]. Available from: https://www.canada.ca/en/health-canada/services/food-nutrition/food-nutrition-surveillance/health-nutrition-surveys/canadian-community-health-survey-cchs.html

136. Statistics Canada. Canadian Community Health Survey - Annual Component (CCHS) [Internet]. 2023 [cited 2025 July 3]. Available from: https://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&SDDS=3226

137. Centre for Addiction and Mental Health. The Ontario Student Drug Use and Mental Health Survey (OSDUHS) [Internet]. [cited 2025 July 4]. Available from: https://www.camh.ca/en/science-and-research/institutes-and-centres/institute-for-mental-health-policy-research/ontario-student-drug-use-and-health-survey---osduhs

138. Canadian Institute for Health Information. National Ambulatory Care Reporting System (NACRS) metadata [Internet]. [cited 2025 July 4]. Available from: https://www.cihi.ca/en/national-ambulatory-care-reporting-system-nacrs-metadata

139. Canadian Institute for Health Information. Discharge Abstract Database (DAD) metadata [Internet]. [cited 2025 July 4]. Available from: https://www.cihi.ca/en/discharge-abstract-database-dad-metadata

140. Public Health Ontario. iPHIS Resources [Internet]. [cited 2025 July 4]. Available from: https://www.publichealthontario.ca/en/Diseases-and-Conditions/Infectious-Diseases/CCM/iPHIS

141. Cancer Care Ontario. How we collect cancer registry data [Internet]. [cited 2025 July 4]. Available from: https://www.cancercareontario.ca/en/data-research/accessing-data/technical-information/cancer-registry-data-collection

142. Ministry of the Environment, Conservation and Parks. Air Quality Ontario [Internet]. Government of Ontario, Ministry of the Environment; [cited 2025 June 18]. Available from: https://www.airqualityontario.com/

143. Environment and Climate Change Canada. Free weather data service [Internet]. 2010 [cited 2025 July 4]. Available from: https://www.canada.ca/en/environment-climate-

change/services/weather-general-tools-resources/weather-tools-specialized-data/free-service.html

144. Environment and Climate Change Canada. Meteorological Service of Canada open data [Internet]. [cited 2025 July 4]. Available from: https://eccc-msc.github.io/open-data/msc-data/readme_en/

Appendix 1: Methodology for identifying suspected heat-, exacerbation-, cold-, and respiratory, asthma, and air quality (RAAQ)-related ED visits in ACES

Suspected heat- and exacerbation-related ED visits

Data are first cleaned for common typos in the triage notes that would impact our heat-related flag (**Appendix 1 – Table 1**).

Appendix 1 – Table 1. Data cleaning of free text in triage notes for suspected heat-related ED visits in ACES.

Original text	Corrected text
CHEAT PAIN	CHEST PAIN
HEAT BEAT, HEATBEAT, HEART HEAT	HEART BEAT
HEAT SKIPPING BEAT	HEART SKIPPING BEAT
HEAT FAILURE	HEART FAILURE
HEAT ATTACK	HEART ATTACK
CHEAT PRESSURE	CHEST PRESSURE
CHEAT TIGHTNESS	CHEST TIGHTNESS
MENTAL HEATLH, MENTAL HEATH, MENTALSL HEATH	MENTAL HEALTH
SEXUAL HEATH	SEXUAL HEALTH
HEAT RATE	HEART RATE
HEAT HER HEAD,	HIT HER HEAD
HIT HEAT AND	HIT HEAD AND
TELEHEATH	TELEHEALTH

Then the **heat-related flag** is created using the logic described below. The coding attempts to exclude ED visits possibly related to heat pad burns, gastrointestinal illnesses, and uses of the word “HEAT” unrelated to environmental extreme heat conditions.

```
each if [Syndrome]="BITE" then 0
  else if Text.Contains([Complaint], "NO HEAT IN RESIDENCE") then 0
  else if Text.Contains([Complaint], "HEATING PAD") then 0
  else if Text.Contains([Complaint], "HEAT PAD") then 0
  else if Text.Contains([Complaint], " GI ") then 0
  else if Text.Contains([Complaint], " GASTRO") then 0
  else if Text.Contains([Complaint], " DIAR") then 0
  else if (Text.Contains([Complaint], " HEAT")
        or Text.Contains([Complaint], "HEAT ")
        or Text.Contains([Complaint], "HEAT-")) then 1
  else if Text.Contains([Complaint], "OVERHEATED") then 1
  else if Text.Contains([Complaint], "HYPERTHERM") then 1
  else if Text.Contains([Complaint], "INSOLATION") then 1
  else if Text.Contains([Complaint], "SURCHAUFF") then 1
  else if Text.Contains([Complaint], "CHALEUR") then 1
  else 0
```

And finally, the **exacerbation-related flag** is created using the following logic:

```
each if Text.Contains([Complaint], "EXACER") then 1
   else 0
```

Suspected cold-related ED visits

The **cold-related flag** is created using the following logic:

```
each if Text.Contains([Complaint], "FROST") then 1
  else if Text.Contains([Complaint], "COLD EXPOSURE") then 1
  else if Text.Contains([Complaint], "GELURE") then 1
  else if Text.Contains([Complaint], "HYPOTHERM") then 1
  else if Text.Contains([Complaint], "FROID") then 1
  else 0
```

Suspected RAAQ-related ED visits

The **respiratory, asthma, and air quality (RAAQ)-related flag** is created using the logic outlined below. The coding attempts to exclude ED visits possibly related to infectious diseases, smoking and vaping, drug use, and fires in residential and commercial buildings.

```
each if Text.Contains([Complaint], "FEVER")
        or Text.Contains([Complaint], "FIEVRE")
        or Text.Contains([Complaint], "FEBRILE")
        or Text.Contains([Complaint], "HIGH TEMP") then 0
  else if Text.Contains([Complaint], "CANAB")
```

```
        or Text.Contains([Complaint], "CANNAB")
        or Text.Contains([Complaint], "CIG")
        or Text.Contains([Complaint], "CRACK")
        or Text.Contains([Complaint], "HEROIN")
        or Text.Contains([Complaint], "HERION")
        or Text.Contains([Complaint], "MARIJ")
        or Text.Contains([Complaint], "TOBAC")
        or Text.Contains([Complaint], "TABAC")
        or Text.Contains([Complaint], "WEED") then 0
else if Text.Contains([Complaint], " ON FIRE")
        or Text.Contains([Complaint], "KITCHEN")
        or Text.Contains([Complaint], " STOVE")
        or Text.Contains([Complaint], " OVEN ")
        or Text.Contains([Complaint], "MOTOR ")
        or Text.Contains([Complaint], " EN FEU")
        or Text.Contains([Complaint], "CUISINE")
        or Text.Contains([Complaint], " FOUR ")
        or Text.Contains([Complaint], "MOTEUR") then 0
else if [Syndrome] = "Asthma" then 1
else if [Syndrome] = "COPD" then 1
else if (Text.Contains([Complaint], "COUGH")
        and not Text.Contains([Complaint], "BLOOD")) then 1
else if (Text.Contains([Complaint], "TOUX")
        and not Text.Contains([Complaint], "SANG")) then 1
else if Text.Contains([Complaint], "WILDFIRE")
        or Text.Contains([Complaint], "WILD FIRE") then 1
else if Text.Contains([Complaint], "INCENDIE DE FOR") then 1
else if Text.Contains([Complaint], "DID SMOKE")
        or Text.Contains([Complaint], "DOES SMOKE")
        or Text.Contains([Complaint], "DOES NOT SMOKE")
        or Text.Contains([Complaint], "GO SMOKE")
        or Text.Contains([Complaint], "DOES SMOKE")
        or Text.Contains([Complaint], "WIFE SMOKE")
        or Text.Contains([Complaint], "HUSBAND SMOKE")
        or Text.Contains([Complaint], "WITHOUT SMOKE") then 0
else if Text.Contains([Complaint], "FUMAIT")
        or Text.Contains([Complaint], "NE FUME PAS")
        or Text.Contains([Complaint], "ALLEZ FUME")
        or Text.Contains([Complaint], "FEMME FUME")
        or Text.Contains([Complaint], "MARI FUME")
        or Text.Contains([Complaint], "SANS FUME")
        or Text.Contains([Complaint], "ALARME DE FEU") then 0
else if Text.Contains([Complaint], "SMOKE")
        and not (Text.Contains([Complaint], "ALARM")
                or Text.Contains([Complaint], " DETECTOR")
                or Text.Contains([Complaint], "SECONDHAND ")
                or Text.Contains([Complaint], "SECOND HAND ")
                or Text.Contains([Complaint], " BOMB")
```

```
                or Text.Contains([Complaint], " BLUNT")
                or Text.Contains([Complaint], " JOINT")) then 1
else if Text.Contains([Complaint], "FUME")
        and not (Text.Contains([Complaint], "ALARM")
                or Text.Contains([Complaint], "TECTEUR DE ")
                or Text.Contains([Complaint], " SECONDAIRE")
                or Text.Contains([Complaint], " BOMB")
                or Text.Contains([Complaint], " BLUNT")
                or Text.Contains([Complaint], " JOIN")) then 1
else if Text.Contains([Complaint], "ACUTE BRONCHITIS") then 1
else if Text.Contains([Complaint], "BRONCHITE AIGU") then 1
else if Text.Contains([Complaint], "EMPHYSEMA") then 1
else if Text.Contains([Complaint], "EMPHYSEME") then 1
else if Text.Contains([Complaint], "ASTHM") then 1
else if Text.Contains([Complaint], " RAD ") then 1
else if Text.Contains([Complaint], "REACTIVE AIRWAY DISEASE") then 1
else if Text.Contains([Complaint], " MRVR ") then 1
else if Text.Contains([Complaint], "DYSPN") then 1
else if Text.Contains([Complaint], "INHALATION FUM") then 1
else if Text.Contains([Complaint], "INHALATION DE FUM") then 1
else 0
```

Appendix 2: Methodology for identifying confirmed heat-, cold-, and UV-related ED visits and hospitalizations in NACRS and DAD

Heat-, cold-, and UV-related illnesses were defined as any emergency department visit in the NACRS or hospitalization in the DAD with at least one heat-, cold-, or UV-related ICD version 10 (ICD-10) diagnostic code assigned to the patient record. A patient may have up to 10 diagnostic codes entered in the "All Dx" field in NACRS dataset and up to 25 diagnostic codes entered in the "All Dx" field in DAD dataset. Each patient's ED visit or hospitalization was only counted once, even if they had multiple relevant ICD-10 codes attached to their encounter.

To focus on heat and cold-related illnesses caused by natural hazards (i.e., hot and cold ambient temperatures, solar UV radiation), ED visits and hospitalizations are limited to the hot-weather and cold-weather months in Ottawa, May to September and November to April, respectively.

The ICD-10 codes included in the definition of heat-related illness are listed in **Appendix 2 – Table 1**.

Appendix 2 – Table 1. ICD-10 codes for heat-related illness

ICD-10 code	Diagnosis
T67	Effects of heat and light
T67.0	Heat stroke and sunstroke
T67.1	Heat syncope
T67.2	Heat cramps
T67.3	Heat exhaustion, anhidrotic
T67.4	Heat exhaustion, due to salt depletion
T67.5	Heat exhaustion, unspecified
T67.6	Heat fatigue, transient
T67.7	Heat edema
T67.8	Other specified heat effects

ICD-10 code	Diagnosis
T67.9	Unspecified effects of heat and light
V93.2	Heat exposure onboard watercraft
X30	Exposure to excessive natural heat
X32	Exposure to sunlight

The ICD-10 codes included in the definition of cold-related illness are listed in **Appendix 2 – Table 2.**

Appendix 2 – Table 2. ICD-10 codes for cold-related illness

ICD-10 code	Diagnosis
T68	Hypothermia
T69	Other effects of reduced temperature
T69.0	Immersion hand and foot
T69.1	Chilblains
T69.8	Other specified effects of reduced temperature
T69.9	Effect of reduced temperature, unspecified
X31	Exposure to excessive natural cold

The ICD-10 codes included in the definition of UV-related illness are listed in **Appendix 2 – Table 3**.

Appendix 2 – Table 3. ICD-10 codes for UV-related illness

ICD-10 code	Diagnosis
L55	Sunburn
L56	Other acute skin changes due to ultraviolet radiation
X32	Exposure to sunlight

Appendix 3: Data tables for report figures

Data table for Figure 1. Percentage of grade 7 to 12 students in Ottawa depressed about the future because of climate change by subgroup, 2023

Population	Percentage of Ottawa students depressed about the future because of climate change	Lower 95% CI	Upper 95% CI
Ottawa	48.8%	42.6%	54.9%
Ontario-less-Ottawa	41.4%	38.9%	44.0%
Female	56.6%	49.2%	63.6%
Male	42.0%	33.8%	50.6%
Grade 7-8	51.8%	43.0%	60.5%
Grade 9-12	47.2%	38.8%	55.8%
Born in Canada	51.3%	43.4%	59.2%
Not born in Canada	40.7%	31.3%	50.9%
SE disadvantaged	50.0%	37.9%	62.2%
SE advantaged	49.1%	41.9%	56.3%
No parent born in Canada	43.4%	35.8%	51.4%
1+ parent born in Canada	51.9%	45.0%	58.7%
Non-racialized	53.3%	45.6%	60.8%
Racialized	41.9%	33.6%	50.8%

Note: SE= Socio-economic.

Data table for Figure 2. Percentage of grade 7 to 12 students in Ottawa worried about the future because of climate change by subgroup, 2023

Population	Percentage of Ottawa students worried about the future because of climate change	Lower 95% CI	Upper 95% CI
Ottawa	47.2%	41.3%	53.1%
Ontario-less-Ottawa	42.1%	39.5%	44.8%
Female	53.1%	46.0%	60.1%
Male	42.1%	34.5%	50.1%
Grade 7-8	43.3%	35.3%	51.6%
Grade 9-12	49.1%	40.9%	57.3%
Born in Canada	48.9%	42.2%	55.6%
Not born in Canada	42.2%	32.6%	52.5%
SE disadvantaged	45.2%	34.8%	56.0%
SE advantaged	49.0%	42.6%	55.5%
No parent born in Canada	43.4%	33.2%	54.2%
1+ parent born in Canada	49.9%	43.7%	56.1%
Non-racialized	50.0%	42.5%	57.4%
Racialized	43.3%	33.8%	53.3%

Note: SE=Socio-economic.

Data table for Figure 3. Beliefs and attitudes of Ottawa adults aged 18 years and older towards climate change by SASSY profile and subgroup, 2024

Population	Percentage of Ottawa adults alarmed about climate change	Percentage of Ottawa adults concerned about climate change	Percentage of Ottawa adults cautious/ disengaged/ doubtful about climate change	Percentage of Ottawa adults dismissive about climate change
Ottawa	44.2%	31.6%	22.2%	2.0%*
Male	38.4%	29.8%	28.8%	3.0%*
Female	49.7%	33.3%	16.0%	NR
Less than post-secondary education	31.8%*	26.3%*	38.4%	NR
Post-secondary education or more	45.6%	32.2%	20.3%	1.9%*
18 to 24 years old	39.7%*	29.3%*	27.4%*	NR
25 to 44 years old	44.2%	31.8%	22.3%	NR
45 to 64 years old	46.2%	32.5%	19.7%	NR
65 and older	43.1%	30.6%	23.7%	NR
Less than $30,000 household income	55.2%*	NR	NR	NR
$30,000 to $69,999 household income	46.0%	31.4%*	21.5%*	NR
$70,000 to $99,999 household income	54.7%	26.1%*	19.1%*	NR
$100,000 and over household income	44.9%	31.0%	22.3%	NR
Canadian born	44.5%	30.7%	22.9%	1.8%*
Other birth country	42.8%	33.9%	20.5%	NR

Notes: *=Interpret with caution. NR=Data are not reportable.

Data table for Figure 4. Perceptions of Ottawa adults aged 18 years and older regarding the causes of climate change, 2019

Statement	Percentage of Ottawa adults that agree with the statement	Lower 95% CI	Upper 95% CI
World's climate is changing	95.3%	93.6%	96.6%
Climate change is caused mainly by human activity	37.4%	33.3%	41.8%
Climate change is caused mainly by natural changes	4.5%*	3.0%	6.8%
Both human activity and natural changes cause climate change	57.2%	52.8%	61.5%
Exhaust from vehicles contribute to climate change	96.0%	94.4%	97.1%
Energy and electricity use contribute to climate change	81.5%	78.2%	84.4%

Note: *=Interpret with caution.

Data tables for Figure 5. Perceptions of Ottawa adults aged 18 years and older on the impacts of climate change in Ottawa by type of impact, 2019

Question	Percentage of Ottawa adults answering Very/Somewhat likely (Lower 95% CI – Upper 95% CI)	Percentage of Ottawa adults answering Not very/Not at all likely (Lower 95% CI – Upper 95% CI)	Percentage of Ottawa adults answering Not sure/Don't know/Depend (Lower 95% CI – Upper 95% CI)
Do you think that climate change is likely to cause more extreme weather?	87.4% (85.0%-89.4%)	8.4% (6.8%-10.4%)	4.1%* (2.9%-5.7%)
How likely is climate change to cause more frequent and severe heat waves?	86.7% (83.8%-89.2%)	6.8% (5.1%-8.9%)	6.5% (4.7-8.9%)

Question	Percentage of Ottawa adults answering Very/Somewhat likely (Lower 95% CI – Upper 95% CI)	Percentage of Ottawa adults answering Not very/Not at all likely (Lower 95% CI – Upper 95% CI)	Percentage of Ottawa adults answering Not sure/Don't know/Depend (Lower 95% CI – Upper 95% CI)
How likely do you think it is that climate change will cause more days with poor air quality, or smog?	79.4% (75.9%-82.6%)	14.9% (12.2%-18.0%)	5.7% (4.0-7.9%)
How likely is climate change to result in more insects carrying diseases	73.6% (69.7%-77.2%)	10.2% (8.0%-13.1%)	16.1% (13.2%-19.4%)

Note: *=Interpret with caution.

Data table for Figure 6. Perceptions of Ottawa adults aged 18 years and older on the effect of climate change on human health, 2019

Opinion	Percentage of Ottawa adults	Lower 95% CI	Upper 95% CI
Very/somewhat positive	10.3%	8.1%	13.2%
Both positive and negative	14.6%	12.0%	17.5%
Very/somewhat negative	69.6%	65.7%	73.1%
Don't think climate change is happening or will happen	NR	NR	NR
Not sure/don't know/depends	5.1%*	3.6%*	7.2%*

Notes: *=Interpret with caution. NR=Data are not reportable.

Data table for Figure 7. Perceptions of Ottawa adults aged 18 years and older regarding individual and government responsibility for climate action, 2023

Response	Percentage of Ottawa adults - Government responsibility (Lower 95% CI – Upper 95% CI)	Percentage of Ottawa adults - Individual responsibility (Lower 95% CI – Upper 95% CI)
Strongly/Somewhat agree	84.7% (81.7%-87.4%)	77.8% (74.2%-81.0%)

Response	Percentage of Ottawa adults - Government responsibility (Lower 95% CI – Upper 95% CI)	Percentage of Ottawa adults - Individual responsibility (Lower 95% CI – Upper 95% CI)
Neither agree/Disagree	6.7% (4.9%-8.9%)	8.6% (6.6%-11.2%)
Strongly/Somewhat disagree	6.0% (4.5%-8.1%)	10.8% (8.4%-13.7%)
Don't believe in climate change	NR	NR
Don't know/Refused	2.3%* (1.4%-3.9%)	2.5%* (1.5%-4.1%)

Notes: *=Interpret with caution. NR=Data are not reportable.

Data table for Figure 8. Suspected heat- and exacerbation-related ED visits in Ottawa hospitals, daily minimum and maximum temperatures with humidex, and number of extreme heat warning days in Ottawa, 1 May to 30 September 2024

Date	Suspected exacerbation-related ED visits in Ottawa hospitals	Suspected heat-related ED visits in Ottawa hospitals	Minimum temperature (ºC)	Maximum temperature with humidex (ºC)	Extreme heat warning
2024-05-01	0	0	5.5	14.8	
2024-05-02	0	1	7.5	18.7	
2024-05-03	0	0	7.2	17.9	
2024-05-04	0	1	11.8	25	
2024-05-05	0	0	11.1	15.8	
2024-05-06	0	0	7.9	21	
2024-05-07	0	1	6.7	21.4	
2024-05-08	1	0	8.1	14.2	
2024-05-09	0	0	4.2	17	
2024-05-10	0	0	5.3	17.5	
2024-05-11	0	0	5.3	17.7	
2024-05-12	0	0	9.1	16.1	
2024-05-13	0	0	8.8	18.2	
2024-05-14	1	0	14.1	25	
2024-05-15	0	0	11	19.8	
2024-05-16	0	0	12.1	26	
2024-05-17	0	0	12.7	26	

Date	Suspected exacerbation-related ED visits in Ottawa hospitals	Suspected heat-related ED visits in Ottawa hospitals	Minimum temperature (ºC)	Maximum temperature with humidex (ºC)	Extreme heat warning
2024-05-18	0	0	14.8	26	
2024-05-19	0	1	12.1	29	
2024-05-20	0	0	16	31	
2024-05-21	1	1	15.7	30	
2024-05-22	1	1	15.2	38	
2024-05-23	0	1	16.7	26	
2024-05-24	0	0	11.4	17.4	
2024-05-25	0	1	7.3	18.8	
2024-05-26	0	1	13.2	21.5	
2024-05-27	0	0	16.3	29	
2024-05-28	0	1	13.4	19.4	
2024-05-29	0	0	9.6	16.6	
2024-05-30	0	0	5.8	20	
2024-05-31	0	2	7.4	25	
2024-06-01	0	0	10.8	27	
2024-06-02	0	1	11.6	26	
2024-06-03	0	2	11.9	30	
2024-06-04	0	1	13.9	33	
2024-06-05	1	3	18	36	
2024-06-06	0	1	17.1	32	
2024-06-07	0	1	13.9	18.2	
2024-06-08	0	0	12.9	19.3	
2024-06-09	0	0	13.1	17.8	
2024-06-10	0	0	10.1	14.1	
2024-06-11	0	0	9	15.8	
2024-06-12	0	0	13.3	20.7	
2024-06-13	0	0	10.7	30	
2024-06-14	0	1	12.7	25	
2024-06-15	0	0	10.3	18.9	
2024-06-16	0	1	6.8	20.8	
2024-06-17	0	3	14.3	39	
2024-06-18	0	4	20.3	43	Yes
2024-06-19	1	3	22	44	Yes
2024-06-20	0	4	20.7	39	Yes
2024-06-21	0	0	17.9	25	

Date	Suspected exacerbation-related ED visits in Ottawa hospitals	Suspected heat-related ED visits in Ottawa hospitals	Minimum temperature (°C)	Maximum temperature with humidex (°C)	Extreme heat warning
2024-06-22	0	1	16.6	25	
2024-06-23	0	0	16.6	36	
2024-06-24	0	0	14.6	29	
2024-06-25	0	0	16.4	31	
2024-06-26	0	0	16.4	30	
2024-06-27	1	1	11.1	18.8	
2024-06-28	0	0	6.7	23.5	
2024-06-29	0	0	16.8	32	
2024-06-30	0	0	15.5	30	
2024-07-01	1	1	13	26	
2024-07-02	0	3	12.4	29	
2024-07-03	0	0	17.9	34	
2024-07-04	0	0	18.4	37	
2024-07-05	0	0	19.7	37	
2024-07-06	0	2	18	37	
2024-07-07	0	0	18.1	34	
2024-07-08	0	3	17.7	35	
2024-07-09	0	2	19	37	
2024-07-10	0	0	18	30	
2024-07-11	0	1	18.5	30	
2024-07-12	0	0	18.9	35	
2024-07-13	0	0	19.6	35	
2024-07-14	0	1	17.6	37	
2024-07-15	0	2	20.1	40	
2024-07-16	0	0	19.3	37	
2024-07-17	0	0	17.9	33	
2024-07-18	0	0	14.7	19.5	
2024-07-19	0	0	12.3	28	
2024-07-20	0	2	13.6	32	
2024-07-21	0	0	15	26	
2024-07-22	1	0	11.9	29	
2024-07-23	1	0	17.3	31	
2024-07-24	0	0	17.2	34	
2024-07-25	0	1	16.5	19.6	
2024-07-26	0	0	14.1	30	

Date	Suspected exacerbation-related ED visits in Ottawa hospitals	Suspected heat-related ED visits in Ottawa hospitals	Minimum temperature (°C)	Maximum temperature with humidex (°C)	Extreme heat warning
2024-07-27	0	0	15.8	32	
2024-07-28	0	0	15.5	35	
2024-07-29	0	2	15.8	33	
2024-07-30	0	1	15.3	37	
2024-07-31	1	0	20.8	38	Yes
2024-08-01	0	4	20.4	40	Yes
2024-08-02	0	2	19.7	40	Yes
2024-08-03	0	3	21	41	Yes
2024-08-04	0	1	18.5	39	
2024-08-05	0	2	14	19.9	
2024-08-06	0	0	13	25	
2024-08-07	0	1	12.5	26	
2024-08-08	0	0	12.1	30	
2024-08-09	0	0	18.5	30	
2024-08-10	0	0	14.9	28	
2024-08-11	0	0	14	26	
2024-08-12	0	0	12.4	26	
2024-08-13	0	0	12.7	32	
2024-08-14	0	0	16.5	34	
2024-08-15	0	2	17.6	36	
2024-08-16	0	1	16.9	36	
2024-08-17	0	0	19	35	
2024-08-18	0	0	19.2	35	
2024-08-19	0	0	11.8	28	
2024-08-20	0	0	9.8	18.7	
2024-08-21	0	0	12.6	18.7	
2024-08-22	0	0	12.3	27	
2024-08-23	0	0	11.1	28	
2024-08-24	0	0	12.7	29	
2024-08-25	0	1	16.9	32	
2024-08-26	0	0	16.2	36	
2024-08-27	0	0	16.9	35	
2024-08-28	0	0	13.9	32	
2024-08-29	0	0	9.6	21.1	
2024-08-30	0	0	10.6	30	

Date	Suspected exacerbation-related ED visits in Ottawa hospitals	Suspected heat-related ED visits in Ottawa hospitals	Minimum temperature (ºC)	Maximum temperature with humidex (ºC)	Extreme heat warning
2024-08-31	0	0	17.6	34	
2024-09-01	0	0	12.8	30	
2024-09-02	0	0	8.2	18.8	
2024-09-03	0	0	6	22.6	
2024-09-04	0	1	10.9	27	
2024-09-05	0	0	11	28	
2024-09-06	0	0	13	26	
2024-09-07	0	0	6.4	17.1	
2024-09-08	0	1	5	12.6	
2024-09-09	0	0	7.7	19	
2024-09-10	0	0	5.2	20.7	
2024-09-11	0	0	9.2	27	
2024-09-12	0	0	13.7	29	
2024-09-13	0	0	13.1	33	
2024-09-14	0	0	15.1	33	
2024-09-15	0	0	14.6	34	
2024-09-16	1	2	15.3	33	
2024-09-17	0	0	14	31	
2024-09-18	0	0	13.8	31	
2024-09-19	1	0	12.7	31	
2024-09-20	0	0	14.8	30	
2024-09-21	1	1	14.2	29	
2024-09-22	0	0	11.8	27	
2024-09-23	0	0	14.3	18.1	
2024-09-24	0	0	12.2	20.3	
2024-09-25	0	0	12.7	16.4	
2024-09-26	0	0	11	21.9	
2024-09-27	0	0	10.3	21.5	
2024-09-28	0	0	9.8	25	
2024-09-29	0	2	10.3	27	
2024-09-30	0	0	11.9	26	

Data table for Figure 9. Heat-related ED visits and hospitalizations in Ottawa hospitals, maximum air temperature with humidex, and number of heat warning days by year, May to September 2016 to 2024

Year	Heat-related ED visits	Heat-related hospitalizations	Maximum temperature with humidex	Number of extreme heat warning days
2016	118	5	42	2
2017	104	9	40	4
2018	169	14	47	14
2019	120	8	46	4
2020	134	10	43	15
2021	99	7	42	16
2022	75	7	41	5
2023	90	7	42	6
2024	97	13	44	7

Data table for Figure 10. Age-standardized rates of heat-related ED visits and hospitalizations among Ottawa residents in any hospital by year, 2016-2024

Year	Age-standardized rate of heat-related ED visits per 100,000 Ottawa residents (Lower 95% CI – Upper 95% CI)	Age-standardized rate of heat-related hospitalizations per 100,000 Ottawa residents (Lower 95% CI – Upper 95% CI)
2016	11.6 (9.5-13.9)	0.4 (0.1-1.1)
2017	9.0 (7.2-11.1)	0.6 (0.2-1.3)
2018	14.7 (12.4-17.3)	1.4 (0.8-2.4)
2019	11.7 (9.7-14.0)	0.5 (0.2-1.1)
2020	11.3 (9.4-13.6)	0.8 (0.4-1.6)
2021	9.3 (7.6-11.3)	0.9 (0.4-1.6)
2022	6.7 (5.3-8.5)	0.6 (0.2-1.3)
2023	7.9 (6.3-9.8)	0.6 (0.2-1.2)
2024	7.2 (5.7-9.0)	0.8 (0.4-1.5)

Data table for Figure 11. Suspected cold-related ED visits in Ottawa hospitals, daily minimum and maximum temperatures with wind chill in Ottawa, 1 November 2024 to 30 April 2025

Date	Maximum temperature (ºC)	Minimum temperature with wind chill (ºC)	Suspected cold-related ED visits in Ottawa hospitals
2024-11-01	17.3	3.8	0
2024-11-02	4.5	-1.1	0
2024-11-03	5.5	-4.1	0
2024-11-04	5.3	0.1	0
2024-11-05	19.5	6.8	0
2024-11-06	20.2	10.1	0
2024-11-07	11	4	0
2024-11-08	11.7	2.6	0
2024-11-09	6.3	-0.4	0
2024-11-10	4.7	-2.5	1
2024-11-11	12.1	5.1	1
2024-11-12	4.7	-1.3	0
2024-11-13	3.6	-5.2	0
2024-11-14	3.4	-5.2	0
2024-11-15	9.2	-1.6	0
2024-11-16	12.5	0.4	0
2024-11-17	7.9	-2.3	0
2024-11-18	9.9	2.7	0
2024-11-19	9.5	2.2	0
2024-11-20	6.2	1.8	0
2024-11-21	6.3	4.2	0
2024-11-22	7	4.4	0
2024-11-23	6.3	3.3	0
2024-11-24	3.5	-1.7	0
2024-11-25	2.8	-4	0
2024-11-26	4.5	-0.2	0
2024-11-27	5.1	-0.6	0

Date	Maximum temperature (°C)	Minimum temperature with wind chill (°C)	Suspected cold-related ED visits in Ottawa hospitals
2024-11-28	2.1	-2	0
2024-11-29	3.2	-3.3	1
2024-11-30	2.4	-1.8	0
2024-12-01	-0.9	-10	0
2024-12-02	-1.6	-11	1
2024-12-03	-0.9	-10	0
2024-12-04	-1.2	-10	2
2024-12-05	0.2	-5	1
2024-12-06	-5.4	-9.3	0
2024-12-07	-5.2	-8.3	3
2024-12-08	2.6	-5	0
2024-12-09	-4.9	-10	0
2024-12-10	0	-10	1
2024-12-11	1.2	0.1	0
2024-12-12	1.1	-10.4	1
2024-12-13	-5.3	-11.6	3
2024-12-14	-7	-13.9	0
2024-12-15	-6.7	-15.1	1
2024-12-16	1	-7.3	1
2024-12-17	5.5	0.4	0
2024-12-18	2.1	-0.1	1
2024-12-19	0	-11.2	0
2024-12-20	-7.5	-12	2
2024-12-21	-9.2	-17	1
2024-12-22	-13	-19.3	1
2024-12-23	-9.7	-18.1	0
2024-12-24	-5.4	-11	4
2024-12-25	-6.5	-9.8	1
2024-12-26	-6.1	-9.9	0
2024-12-27	-5.1	-10	2
2024-12-28	-4.5	-10	0
2024-12-29	2.6	-4.2	0

Date	Maximum temperature (°C)	Minimum temperature with wind chill (°C)	Suspected cold-related ED visits in Ottawa hospitals
2024-12-30	7	2.2	0
2024-12-31	4.4	1.8	1
2025-01-01	1.8	-0.9	0
2025-01-02	-1.4	-10	0
2025-01-03	-3.8	-11	1
2025-01-04	-9.7	-15	0
2025-01-05	-9.8	-14.5	0
2025-01-06	-9.9	-17.3	0
2025-01-07	-7	-16	1
2025-01-08	-11.4	-21	1
2025-01-09	-6.7	-15	1
2025-01-10	-6.5	-13.5	0
2025-01-11	-4.3	-9.4	0
2025-01-12	-4.4	-10.4	0
2025-01-13	0	-10	1
2025-01-14	-3	-10	1
2025-01-15	-7.2	-12	0
2025-01-16	-3.9	-10	3
2025-01-17	0.2	-7.8	1
2025-01-18	1.9	-5.7	0
2025-01-19	-7.4	-15	0
2025-01-20	-13.4	-20	3
2025-01-21	-11.8	-19.6	2
2025-01-22	-10.3	-20.4	1
2025-01-23	-5.9	-11.3	0
2025-01-24	-10.1	-19.6	3
2025-01-25	-5	-19.8	3
2025-01-26	-2.2	-10	1
2025-01-27	0.9	-5.5	0
2025-01-28	-1.6	-16.7	4
2025-01-29	-9.2	-15	0
2025-01-30	-11.5	-21.6	2

Date	Maximum temperature (°C)	Minimum temperature with wind chill (°C)	Suspected cold-related ED visits in Ottawa hospitals
2025-01-31	-2.1	-14.6	2
2025-02-01	-11.1	-20.1	4
2025-02-02	-13.5	-22.4	6
2025-02-03	-0.7	-13.5	1
2025-02-04	-4.1	-15.6	3
2025-02-05	-12	-19.7	2
2025-02-06	-2.4	-19.6	2
2025-02-07	-2.1	-11.3	3
2025-02-08	-4.5	-12.7	0
2025-02-09	-4.5	-11.5	4
2025-02-10	-6.2	-13.4	1
2025-02-11	-6	-13	1
2025-02-12	-11.2	-19.3	7
2025-02-13	-5	-13.3	3
2025-02-14	-7.3	-15.9	1
2025-02-15	-8.2	-14.7	4
2025-02-16	-8.3	-16	0
2025-02-17	-9.7	-20	4
2025-02-18	-13.9	-24	5
2025-02-19	-10.2	-18.8	0
2025-02-20	-7.8	-17.7	2
2025-02-21	-8.9	-16	1
2025-02-22	-2.5	-17.6	2
2025-02-23	-1.5	-4.6	0
2025-02-24	5.6	-3.8	2
2025-02-25	4.3	-1	0
2025-02-26	1.7	-2.8	1
2025-02-27	1.5	-6.7	0
2025-02-28	1.1	-13	0
2025-03-01	-6.3	-15.1	1
2025-03-02	-12.4	-21.2	1
2025-03-03	-3.6	-22.7	1

Date	Maximum temperature (°C)	Minimum temperature with wind chill (°C)	Suspected cold-related ED visits in Ottawa hospitals
2025-03-04	0.6	-3.8	0
2025-03-05	2.5	0	2
2025-03-06	4.8	-8.3	0
2025-03-07	-1.2	-10	1
2025-03-08	-1.2	-10	1
2025-03-09	1.6	-6.2	3
2025-03-10	4.4	-2.3	1
2025-03-11	11	-3.5	0
2025-03-12	-2.9	-8.2	0
2025-03-13	3.7	-9	1
2025-03-14	8.9	-5.1	0
2025-03-15	14.8	1	0
2025-03-16	16.1	7.5	2
2025-03-17	5.3	-3.8	0
2025-03-18	7.5	-6.7	0
2025-03-19	13.7	-1	0
2025-03-20	16.5	0.5	0
2025-03-21	6.1	-5.3	0
2025-03-22	6.4	-8	0
2025-03-23	-1.1	-11.2	1
2025-03-24	7	-4.9	0
2025-03-25	3.7	-0.8	0
2025-03-26	2.4	-3	0
2025-03-27	8	-6	0
2025-03-28	1.3	-6.7	0
2025-03-29	-0.7	-10	0
2025-03-30	0	-3	4
2025-03-31	8.5	-0.6	0
2025-04-01	0.5	-5.4	0
2025-04-02	-0.1	-10	1
2025-04-03	18.9	-1	2
2025-04-04	10.7	1	0

Date	Maximum temperature (°C)	Minimum temperature with wind chill (°C)	Suspected cold-related ED visits in Ottawa hospitals
2025-04-05	4.3	1.4	0
2025-04-06	6.9	-0.3	1
2025-04-07	9	-4.9	0
2025-04-08	0	-10	0
2025-04-09	1.1	-13.4	0
2025-04-10	4.2	-8.7	0
2025-04-11	4.2	0	1
2025-04-12	10.9	2	0
2025-04-13	16.1	-0.8	2
2025-04-14	17.1	0	0
2025-04-15	10.1	1.7	0
2025-04-16	5.1	-0.7	0
2025-04-17	10.1	-1.3	0
2025-04-18	15.3	-1	0
2025-04-19	19.9	6	0
2025-04-20	10.5	1.5	0
2025-04-21	11.2	-0.6	0
2025-04-22	11	4	1
2025-04-23	14.2	0.9	0
2025-04-24	18.2	3.3	0
2025-04-25	16.5	6.2	0
2025-04-26	11	3.4	0
2025-04-27	18.7	2.7	0

Data table for Figure 12. Cold-related ED visits and hospitalizations in Ottawa hospitals and minimum air temperature with wind chill by year, October to May 2016 to 2024

Year	Cold-related ED visits	Cold-related hospitalizations	Minimum temperature with wind chill (°C)	Number of Extreme Cold Warning days
2016	104	19	-29.6	0

Year	Cold-related ED visits	Cold-related hospitalizations	Minimum temperature with wind chill (°C)	Number of Extreme Cold Warning days
2017	109	20	-30	1
2018	148	26	-32	2
2019	164	22	-29	0
2020	87	22	-26.1	0
2021	115	22	-22.9	0
2022	268	40	-29.2	0
2023	253	41	-32.2	1
2024	111	33	-20	0

Data table for Figure 13. Age-standardized rates of cold-related ED visits and hospitalizations among Ottawa residents in any hospital by year, 2016-2024

Year	Age-standardized rate of cold-related ED visits per 100,000 Ottawa residents (Lower 95% CI – Upper 95% CI)	Age-standardized rate of cold-related hospitalizations per 100,000 Ottawa residents (Lower 95% CI – Upper 95% CI)
2016	10.4 (8.5-12.7)	1.8 (1.0-2.8)
2017	10.3 (8.4-12.5)	1.6 (0.9-2.6)
2018	12.5 (10.4-14.9)	1.7 (1.0-2.7)
2019	14.5 (12.3-17.1)	1.7 (1.0-2.6)
2020	7.8 (6.2-9.7)	1.6 (0.9-2.6)
2021	11.9 (9.9-14.2)	2.3 (1.5-3.5)
2022	22.9 (20.0-26.0)	3.8 (2.7-5.1)
2023	21.9 (19.2-24.9)	3.3 (2.3-4.6)
2024	9.4 (7.7-11.4)	2.6 (1.7-3.7)

Data table A for Figure 14. Percentage of Ottawa adults reporting having a working air-conditioner and the likelihood of using it during hot weather, 2023

Response	Percentage of Ottawa adults reporting having a working air conditioner at home	Lower 95% CI	Upper 95% CI
Yes	92.9%	90.0%	5.0%
No	6.7%*	4.7%	9.6%
Don't know / Refused	NR	NR	NR

Note: NR=Data are not reportable.

Data table B for Figure 14. Percentage of Ottawa adults reporting having a working air-conditioner and the likelihood of using it during hot weather, 2023

Response	Percentage of Ottawa adults with a working air conditioner at home who report using it during hot weather	Lower 95% CI	Upper 95% CI
Very/Somewhat likely	92.5%	89.8%	94.6%
Not very likely/Not at all likely/Don't use	6.3%*	4.4%	8.9%
Landlord/Building controlled	NR	NR	NR
Don't know/ Refused	NR	NR	NR

Note: NR=Data are not reportable.

Data table A for Figure 15. Percentage of Ottawa adults reporting having a working portable fan or ceiling fan and the likelihood of using it during hot weather, 2023

Response	Percentage of Ottawa adults reporting having a working portable fan or ceiling fan at home	Lower 95% CI	Upper 95% CI
Yes	71.3%	58.9%	81.2%
No	27.4%*	17.7%*	39.9%*
Don't know/ Refused	NR	NR	NR

Notes: *=Interpret with caution. NR=Data are not reportable.

Data table B for Figure 15. Percentage of Ottawa adults reporting having a working portable fan or ceiling fan and the likelihood of using it during hot weather, 2023

Response	Percentage of Ottawa adults with a portable fan or ceiling fan at home who report using it during hot weather	Lower 95% CI	Upper 95% CI
Very/somewhat likely	72.1%	56.7%	83.6%
Not very likely/not at all likely/Don't use	27.4%*	15.9%*	42.9%*
Don't know/Refused	NR	NR	NR

Note: NR=Data are not reportable.

Data table for Figure 16. Age-standardized incidence of melanoma in Ottawa and Ontario by year, 2010-2020

Year	Region	Melanoma cases per 100,000 person-years	Lower 95%CI	Upper 95%CI
2010	Ottawa	17.6	14.8	20.6
2011	Ottawa	18.3	15.5	21.4
2012	Ottawa	24.7	21.5	28.2
2013	Ottawa	26.4	23.2	30
2014	Ottawa	31.4	27.9	35.2
2015	Ottawa	23.9	20.9	27.3
2016	Ottawa	23.3	20.4	26.6
2017	Ottawa	27.7	24.5	31.2
2018	Ottawa	28.4	25.2	31.8
2019	Ottawa	31.8	28.5	35.4
2020	Ottawa	28.3	25.2	31.6
2010	Ontario	23.4	22.5	24.2
2011	Ontario	24.3	23.5	25.2
2012	Ontario	23.2	22.4	24.1
2013	Ontario	24.9	24.1	25.7
2014	Ontario	25.9	25.1	26.8
2015	Ontario	26.1	25.3	27
2016	Ontario	25.9	25.1	26.8
2017	Ontario	24.9	24.1	25.7
2018	Ontario	25.1	24.3	25.9
2019	Ontario	26.4	25.6	27.2
2020	Ontario	21.1	20.4	21.8

Data table for Figure 17. Age-standardized incidence of melanoma in Ottawa and Ontario, by year and sex, 2010-2020

Year	Region	Sex	Melanoma cases per 100,000 person-years	Lower 95%CI	Upper 95%CI
2010	Ottawa	Females	11.9	9	15.5

Year	Region	Sex	Melanoma cases per 100,000 person-years	Lower 95%CI	Upper 95%CI
2011	Ottawa	Females	14.7	11.4	18.6
2012	Ottawa	Females	20.2	16.4	24.7
2013	Ottawa	Females	22.9	18.9	27.6
2014	Ottawa	Females	25.4	21.1	30.2
2015	Ottawa	Females	15.1	11.9	19
2016	Ottawa	Females	18.5	15	22.6
2017	Ottawa	Females	21.3	17.5	25.6
2018	Ottawa	Females	22.3	18.4	26.7
2019	Ottawa	Females	27.2	23.1	32
2020	Ottawa	Females	22.7	18.9	27
2010	Ontario	Females	19.4	18.4	20.5
2011	Ontario	Females	20.5	19.4	21.6
2012	Ontario	Females	19	18	20
2013	Ontario	Females	21.4	20.3	22.5
2014	Ontario	Females	21.4	20.4	22.5
2015	Ontario	Females	21.2	20.2	22.3
2016	Ontario	Females	20.9	19.9	22
2017	Ontario	Females	21.2	20.2	22.3
2018	Ontario	Females	21.3	20.3	22.3
2019	Ontario	Females	22.3	21.3	23.3
2020	Ontario	Females	16.8	15.9	17.7
2010	Ottawa	Males	24	19.3	29.5
2011	Ottawa	Males	22.8	18.3	28.1
2012	Ottawa	Males	30.3	25.1	36.3
2013	Ottawa	Males	30.8	25.7	36.7
2014	Ottawa	Males	39.8	33.9	46.4
2015	Ottawa	Males	35.2	29.7	41.3
2016	Ottawa	Males	29.3	24.5	34.8
2017	Ottawa	Males	35.3	30.1	41.2
2018	Ottawa	Males	35.7	30.5	41.5
2019	Ottawa	Males	38	32.6	43.9
2020	Ottawa	Males	35.3	30.3	40.9
2010	Ontario	Males	28.8	27.4	30.2

Year	Region	Sex	Melanoma cases per 100,000 person-years	Lower 95%CI	Upper 95%CI
2011	Ontario	Males	29.7	28.3	31.2
2012	Ontario	Males	28.8	27.4	30.1
2013	Ontario	Males	29.8	28.4	31.2
2014	Ontario	Males	31.8	30.4	33.2
2015	Ontario	Males	32.5	31.2	34
2016	Ontario	Males	32.5	31.2	33.9
2017	Ontario	Males	29.8	28.6	31.2
2018	Ontario	Males	29.8	28.6	31.1
2019	Ontario	Males	31.7	30.4	33
2020	Ontario	Males	26.4	25.3	27.6

Data table for Figure 18. Age-specific incidence of melanoma in Ottawa and Ontario, 2016-2020

Age	Region	Melanoma cases per 100,000 person-years	Lower 95% CI	Upper 95% CI
15 to 29	Ottawa	2	1.2	3
30 to 39	Ottawa	10.9	8.5	13.6
40 to 49	Ottawa	20.3	17	24
50 to 59	Ottawa	34.8	30.6	39.4
60 to 69	Ottawa	66.7	60	73.8
70 to 79	Ottawa	98.9	88.5	110.3
80 and older	Ottawa	129.5	114.2	146.4
15 to 29	Ontario	2.4	2.1	2.6
30 to 39	Ontario	9.1	8.5	9.7
40 to 49	Ontario	17.5	16.6	18.4
50 to 59	Ontario	30.6	29.5	31.7
60 to 69	Ontario	55.7	54.1	57.3
70 to 79	Ontario	88.5	85.9	91.1
80 and older	Ontario	120	116.2	123.9

Data table for Figure 19. Percentage of Ottawa residents aged 12 years and older that reported having a sunburn in the past year by subgroup, 2015-2016

Population	Percentage of Ottawa residents that reported having a sunburn in the past year	Lower 95%CI	Upper 95%CI
Ottawa	34.6%	31.4%	37.9%
Ontario-less-Ottawa	30.1%	29.1%	31.0%
Male	36.9%	31.9%	42.2%
Female	32.4%	28.0%	37.1%
Age 12 to 19 years	43.2%	32.6%	54.4%
Age 20 to 44 years	43.9%	37.8%	50.1%

Population	Percentage of Ottawa residents that reported having a sunburn in the past year	Lower 95%CI	Upper 95%CI
Age 45 to 64 years	32.4%	27.5%	37.8%
Age 65 + years	10.1*%	6.6%	15.4%
Income Quintile 1 - Lowest Income	18.9%	13.9%	25.0%
Income Quintile 2	32.6%	25.0%	41.3%
Income Quintile 3	38.4%	30.4%	47.1%
Income Quintile 4	36.0%	28.8%	43.9%
Income Quintile 5 - Highest Income	46.9%	39.7%	54.3%

Data table for Figure 20. UV-related ED visits in Ottawa hospitals and number of days where the maximum UV index was very high (8 and above) by year, May to September 2014-2024

Year	UV-related ED visits in Ottawa hospitals	Number of days with a maximum UV Index of 8 or above in Ottawa
2014	56	52
2015	46	53
2016	55	55
2017	48	59
2018	62	66
2019	46	47
2020	35	83
2021	46	45
2022	50	65
2023	30	50
2024	29	40

Data table for Figure 21. Age-standardized rates of UV-related ED visits among Ottawa residents in any hospital by year, 2016-2024

Year	Age-standardized rate of UV-related ED Visits per 100,000 Ottawa residents	Lower 95% CI	Upper 95% CI
2016	7.5	5.8	9.4
2017	6.2	4.7	7.9
2018	6.1	4.6	7.8
2019	6.7	5.2	8.5
2020	3.8	2.7	5.2
2021	4.9	3.6	6.4
2022	6.0	4.6	7.7
2023	3.6	2.6	5.0
2024	3.9	2.9	5.3

Data table for Figure 22. Average number of confirmed UV-related ED visits in Ottawa hospitals and average number of days where the maximum UV index was very high (8 and above) by month, from May to September 2014-2024

Month	Average days where the maximum UV index was 8 and above	Average number of UV-related emergency department visits
May	8.0	9.0
June	17.4	13.4
July	20.9	13.4
August	9.3	8.2
September	0.4	1.8

Data table for Figure 23. UV-related ED visits in Ottawa hospitals by acuity at triage, October to May 2014-2024

Triage Level	Percentage of all UV-related emergency department visits in Ottawa hospitals
(1) Resuscitation/ life-threatening	0.20%
(2) Emergent/ potentially life-threatening	9.5%
(3) Urgent/ potentially serious	39.8%
(4) Less-urgent/ semi-urgent	33.8%
(5) Non-urgent	15.7%
Unknown	0.99%

Data table for Figure 24. UV-related ED visits in Ottawa hospitals by age group, October to May 2014-2024

Age	Percentage of all UV-related emergency department visits in Ottawa hospitals
<01	1.6%
01-04	3.2%
05-09	7.0%
10-14	11.7%
15-19	14.1%
20-24	14.3%
25-29	9.7%
30-34	7.6%
35-39	5.4%
40-44	2.8%
45-49	5.8%
50-54	2.2%
55-59	3.6%
60-64	4.2%
65-69	2.2%
70-74	1.8%
75-79	1.6%
80-84	0.4%
85-89	0.6%
90+	0.4%

Data table for Figure 25. Individual sun protective behaviours practised by Ottawa residents aged 12 years and older on their time off in summer months by frequency of behaviour, 2015-2016

Sun protective behaviour	Percentage of Ottawa residents reporting always or often	Percentage of Ottawa residents reporting sometimes	Percentage of Ottawa residents reporting rarely/never
Wearing sunglasses	67.0%	14.3%	18.8%
Using sunscreen on face	48.9%	18.9%	32.1%
Seeking shade	42.7%	35.7%	21.6%
Using sunscreen on body	39.8%	22.5%	37.7%
Wearing a hat	35.9%	18.0%	46.1%
Wearing long pants/skirt	19.4%	22.7%	57.8%

Data table for Figure 26. Percentage of Ottawa residents aged 12 years and older reporting that they always or sometimes protected their eyes from the sun in the past year by subgroup, 2015-2016.

Population	Percentage of Ottawa residents reporting that they always or sometimes protected their eyes from the sun	Lower 95% CI	Upper 95% CI
Ottawa	57.3%	54.0%	60.6%
Ontario-less-Ottawa	52.7%	51.7%	53.7%
Male	56.9%	51.1%	62.6%
Female	57.7%	53.3%	61.9%
Age 12 to 19 years	41.2%	31.3%	52.0%
Age 20 to 44 years	61.0%	55.1%	66.5%
Age 45 to 64 years	64.0%	57.4%	70.1%
Age 65 + years	45.3%	36.8%	54.1%
Income Quintile 1 - Lowest Income	42.2%	33.6%	51.4%

Population	Percentage of Ottawa residents reporting that they always or sometimes protected their eyes from the sun	Lower 95% CI	Upper 95% CI
Income Quintile 2	52.5%	44.8%	60.0%
Income Quintile 3	60.2%	51.2%	68.6%
Income Quintile 4	64.6%	56.8%	71.7%
Income Quintile 5 - Highest Income	66.7%	59.9%	72.8%

Data table for Figure 27. Percentage of Ottawa residents aged 12 years and older reporting that they always or sometimes protected their skin from the sun in the past year by subgroup, 2015-2016

Population	Percentage of Ottawa residents reporting that they always or sometimes protected their skin from the sun	Lower 95% CI	Upper 95% CI
Ottawa	64.5%	61.0%	67.8%
Ontario-less-Ottawa	60.8%	59.7%	61.8%
Male	63.5%	57.2%	69.4%
Female	65.4%	61.0%	69.5%
Age 12 to 19 years	70.8%	60.2%	79.5%
Age 20 to 44 years	64.8%	59.0%	70.2%
Age 45 to 64 years	69.0%	63.0%	74.4%
Age 65 + years	50.8%	41.6%	60.0%
Income Quintile 1 - Lowest Income	54.4%	45.6%	62.9%
Income Quintile 2	64.5%	55.9%	72.2%
Income Quintile 3	61.4%	53.2%	69.0%
Income Quintile 4	70.6%	62.4%	77.7%
Income Quintile 5 - Highest Income	70.8%	63.2%	77.4%

Data table for Figure 28. Daily AQHI values at 4pm in downtown Ottawa by month and year, 1 January 2015 to 17 June 2025

Year	Month	Air Quality Health Index value	Number of days
2015	January	1-3 (Low Risk)	27
2015	January	4-6 (Moderate Risk)	3
2016	January	1-3 (Low Risk)	29
2016	January	4-6 (Moderate Risk)	2
2017	January	1-3 (Low Risk)	31
2018	January	1-3 (Low Risk)	29
2018	January	4-6 (Moderate Risk)	2
2019	January	1-3 (Low Risk)	30
2020	January	1-3 (Low Risk)	29
2020	January	4-6 (Moderate Risk)	1
2021	January	1-3 (Low Risk)	31
2022	January	1-3 (Low Risk)	31
2023	January	1-3 (Low Risk)	30
2023	January	4-6 (Moderate Risk)	1
2024	January	1-3 (Low Risk)	31
2025	January	1-3 (Low Risk)	31
2015	February	1-3 (Low Risk)	25
2015	February	4-6 (Moderate Risk)	3
2016	February	1-3 (Low Risk)	29
2017	February	1-3 (Low Risk)	24
2017	February	4-6 (Moderate Risk)	3
2018	February	1-3 (Low Risk)	26
2018	February	4-6 (Moderate Risk)	2
2019	February	1-3 (Low Risk)	26
2019	February	4-6 (Moderate Risk)	2
2020	February	1-3 (Low Risk)	27
2020	February	4-6 (Moderate Risk)	2
2021	February	1-3 (Low Risk)	26
2021	February	4-6 (Moderate Risk)	2
2022	February	1-3 (Low Risk)	26

Year	Month	Air Quality Health Index value	Number of days
2022	February	4-6 (Moderate Risk)	2
2023	February	1-3 (Low Risk)	27
2023	February	4-6 (Moderate Risk)	1
2024	February	1-3 (Low Risk)	27
2024	February	4-6 (Moderate Risk)	2
2025	February	1-3 (Low Risk)	28
2015	March	1-3 (Low Risk)	27
2015	March	4-6 (Moderate Risk)	4
2016	March	1-3 (Low Risk)	29
2016	March	4-6 (Moderate Risk)	2
2017	March	1-3 (Low Risk)	29
2017	March	4-6 (Moderate Risk)	2
2018	March	1-3 (Low Risk)	31
2019	March	1-3 (Low Risk)	26
2019	March	4-6 (Moderate Risk)	4
2020	March	1-3 (Low Risk)	31
2021	March	1-3 (Low Risk)	28
2021	March	4-6 (Moderate Risk)	3
2022	March	1-3 (Low Risk)	26
2022	March	4-6 (Moderate Risk)	1
2023	March	1-3 (Low Risk)	31
2024	March	1-3 (Low Risk)	31
2025	March	1-3 (Low Risk)	29
2025	March	4-6 (Moderate Risk)	2
2015	April	1-3 (Low Risk)	28
2015	April	4-6 (Moderate Risk)	2
2016	April	1-3 (Low Risk)	30
2017	April	1-3 (Low Risk)	24
2017	April	4-6 (Moderate Risk)	2
2018	April	1-3 (Low Risk)	28
2018	April	4-6 (Moderate Risk)	2
2019	April	1-3 (Low Risk)	30
2020	April	1-3 (Low Risk)	30
2021	April	1-3 (Low Risk)	29

Year	Month	Air Quality Health Index value	Number of days
2021	April	4-6 (Moderate Risk)	1
2022	April	1-3 (Low Risk)	30
2023	April	1-3 (Low Risk)	26
2023	April	4-6 (Moderate Risk)	3
2024	April	1-3 (Low Risk)	30
2025	April	1-3 (Low Risk)	30
2015	May	1-3 (Low Risk)	26
2015	May	4-6 (Moderate Risk)	4
2016	May	1-3 (Low Risk)	28
2016	May	4-6 (Moderate Risk)	3
2017	May	1-3 (Low Risk)	28
2017	May	4-6 (Moderate Risk)	2
2018	May	1-3 (Low Risk)	29
2018	May	4-6 (Moderate Risk)	2
2019	May	1-3 (Low Risk)	29
2020	May	1-3 (Low Risk)	31
2021	May	1-3 (Low Risk)	23
2021	May	4-6 (Moderate Risk)	1
2022	May	1-3 (Low Risk)	29
2022	May	4-6 (Moderate Risk)	2
2023	May	1-3 (Low Risk)	29
2023	May	4-6 (Moderate Risk)	2
2024	May	1-3 (Low Risk)	31
2025	May	1-3 (Low Risk)	31
2015	June	1-3 (Low Risk)	29
2015	June	4-6 (Moderate Risk)	1
2016	June	1-3 (Low Risk)	26
2016	June	4-6 (Moderate Risk)	2
2017	June	1-3 (Low Risk)	27
2017	June	4-6 (Moderate Risk)	2
2018	June	1-3 (Low Risk)	28
2018	June	4-6 (Moderate Risk)	1
2019	June	1-3 (Low Risk)	29
2020	June	1-3 (Low Risk)	28

Year	Month	Air Quality Health Index value	Number of days
2020	June	4-6 (Moderate Risk)	2
2021	June	1-3 (Low Risk)	26
2021	June	4-6 (Moderate Risk)	4
2022	June	1-3 (Low Risk)	28
2022	June	4-6 (Moderate Risk)	2
2023	June	1-3 (Low Risk)	17
2023	June	4-6 (Moderate Risk)	10
2023	June	7-10 (High Risk)	2
2024	June	1-3 (Low Risk)	26
2024	June	4-6 (Moderate Risk)	4
2025	June	1-3 (Low Risk)	11
2025	June	4-6 (Moderate Risk)	2
2025	June	7-10 (High Risk)	1
2015	July	1-3 (Low Risk)	28
2015	July	4-6 (Moderate Risk)	3
2016	July	1-3 (Low Risk)	29
2016	July	4-6 (Moderate Risk)	2
2017	July	1-3 (Low Risk)	31
2018	July	1-3 (Low Risk)	27
2018	July	4-6 (Moderate Risk)	3
2019	July	1-3 (Low Risk)	23
2019	July	4-6 (Moderate Risk)	1
2020	July	1-3 (Low Risk)	29
2020	July	4-6 (Moderate Risk)	1
2021	July	1-3 (Low Risk)	27
2021	July	4-6 (Moderate Risk)	3
2022	July	1-3 (Low Risk)	30
2023	July	1-3 (Low Risk)	26
2023	July	4-6 (Moderate Risk)	5
2024	July	1-3 (Low Risk)	29
2024	July	4-6 (Moderate Risk)	1
2015	August	1-3 (Low Risk)	31
2016	August	1-3 (Low Risk)	28
2016	August	4-6 (Moderate Risk)	3

Year	Month	Air Quality Health Index value	Number of days
2017	August	1-3 (Low Risk)	30
2018	August	1-3 (Low Risk)	31
2019	August	1-3 (Low Risk)	30
2020	August	1-3 (Low Risk)	31
2021	August	1-3 (Low Risk)	28
2021	August	4-6 (Moderate Risk)	1
2022	August	1-3 (Low Risk)	28
2023	August	1-3 (Low Risk)	31
2024	August	1-3 (Low Risk)	31
2015	September	1-3 (Low Risk)	24
2015	September	4-6 (Moderate Risk)	4
2016	September	1-3 (Low Risk)	29
2016	September	4-6 (Moderate Risk)	1
2017	September	1-3 (Low Risk)	26
2017	September	4-6 (Moderate Risk)	4
2018	September	1-3 (Low Risk)	30
2019	September	1-3 (Low Risk)	30
2020	September	1-3 (Low Risk)	30
2021	September	1-3 (Low Risk)	30
2022	September	1-3 (Low Risk)	30
2023	September	1-3 (Low Risk)	29
2023	September	4-6 (Moderate Risk)	1
2024	September	1-3 (Low Risk)	30
2015	October	1-3 (Low Risk)	31
2016	October	1-3 (Low Risk)	30
2017	October	1-3 (Low Risk)	31
2018	October	1-3 (Low Risk)	30
2019	October	1-3 (Low Risk)	31
2020	October	1-3 (Low Risk)	31
2021	October	1-3 (Low Risk)	31
2022	October	1-3 (Low Risk)	31
2023	October	1-3 (Low Risk)	30
2023	October	4-6 (Moderate Risk)	1
2024	October	1-3 (Low Risk)	25

Year	Month	Air Quality Health Index value	Number of days
2015	November	1-3 (Low Risk)	30
2016	November	1-3 (Low Risk)	8
2017	November	1-3 (Low Risk)	30
2018	November	1-3 (Low Risk)	30
2019	November	1-3 (Low Risk)	29
2020	November	1-3 (Low Risk)	29
2021	November	1-3 (Low Risk)	30
2022	November	1-3 (Low Risk)	30
2023	November	1-3 (Low Risk)	30
2024	November	1-3 (Low Risk)	30
2015	December	1-3 (Low Risk)	30
2016	December	1-3 (Low Risk)	11
2017	December	1-3 (Low Risk)	31
2018	December	1-3 (Low Risk)	29
2018	December	4-6 (Moderate Risk)	1
2019	December	1-3 (Low Risk)	30
2019	December	4-6 (Moderate Risk)	1
2020	December	1-3 (Low Risk)	31
2021	December	1-3 (Low Risk)	31
2022	December	1-3 (Low Risk)	31
2023	December	1-3 (Low Risk)	30
2023	December	4-6 (Moderate Risk)	1
2024	December	1-3 (Low Risk)	30

Data table for Figure 29. Daily suspected RAAQ-related ED visits in Ottawa hospitals, maximum daily $PM_{2.5}$ concentrations, and daily AQHI values at 4pm in downtown Ottawa, 1 May to 30 September 2023

Date	Air Quality Health Index value	Fine particulate matter $PM_{2.5}$ concentrations ($\mu g/m^3$)	Suspected respiratory, asthma, and air-quality related emergency department visits
2023-05-01	2	3	77
2023-05-02	2	4	65
2023-05-03	2	5	74
2023-05-04	2	5	54
2023-05-05	2	7	60
2023-05-06	2	7	66
2023-05-07	2	6	62
2023-05-08	2	4	84
2023-05-09	2	8	68
2023-05-10	2	16	53
2023-05-11	3	14	49
2023-05-12	3	6	57
2023-05-13	2	9	73
2023-05-14	2	4	45
2023-05-15	3	13	77
2023-05-16	2	6	76
2023-05-17	2	3	64
2023-05-18	2	4	61
2023-05-19	3	12	58
2023-05-20	2	12	66
2023-05-21	2	12	71
2023-05-22	2	7	72
2023-05-23	3	10	73
2023-05-24	2	12	62
2023-05-25	2	4	57
2023-05-26	2	7	51

Date	Air Quality Health Index value	Fine particulate matter $PM_{2.5}$ concentrations ($\mu g/m^3$)	Suspected respiratory, asthma, and air-quality related emergency department visits
2023-05-27	3	6	49
2023-05-28	3	10	67
2023-05-29	3	10	61
2023-05-30	4	11	62
2023-05-31	4	15	61
2023-06-01	4	17	48
2023-06-02	3	31	52
2023-06-03	2	12	44
2023-06-04	3	18	44
2023-06-05	5	104	76
2023-06-06	8	335	81
2023-06-07	6	510	89
2023-06-08	1	4	71
2023-06-09	2	5	56
2023-06-10	2	14	61
2023-06-11	4	24	46
2023-06-12	4	23	75
2023-06-13	2	21	49
2023-06-14	3	15	56
2023-06-15	4	64	67
2023-06-16	4	84	63
2023-06-17	1	14	72
2023-06-18	2	6	53
2023-06-19	2	7	79
2023-06-20	3	22	77
2023-06-21	3	11	49
2023-06-22	3	9	50
2023-06-23	4	13	61
2023-06-24	2	25	57
2023-06-25	10	307	57
2023-06-26		173	71

Date	Air Quality Health Index value	Fine particulate matter $PM_{2.5}$ concentrations ($\mu g/m^3$)	Suspected respiratory, asthma, and air-quality related emergency department visits
2023-06-27	3	7	54
2023-06-28	1	42	55
2023-06-29	6	86	70
2023-06-30	6	78	51
2023-07-01	5	63	58
2023-07-02	3	21	54
2023-07-03	3	27	57
2023-07-04	3	17	66
2023-07-05	3	18	65
2023-07-06	4	18	52
2023-07-07	2	8	53
2023-07-08	3	10	64
2023-07-09	2	10	58
2023-07-10	2	10	49
2023-07-11	4	14	74
2023-07-12	2	20	56
2023-07-13	2	9	51
2023-07-14	2	8	57
2023-07-15	3	10	52
2023-07-16	3	10	47
2023-07-17	4	39	74
2023-07-18	2	39	66
2023-07-19	2	6	65
2023-07-20	2	8	54
2023-07-21	2	6	65
2023-07-22	2	9	44
2023-07-23	3	12	44
2023-07-24	3	16	55
2023-07-25	3	16	41
2023-07-26	4	39	49
2023-07-27	3	20	39

Date	Air Quality Health Index value	Fine particulate matter $PM_{2.5}$ concentrations ($\mu g/m^3$)	Suspected respiratory, asthma, and air-quality related emergency department visits
2023-07-28	3	23	44
2023-07-29	1	7	55
2023-07-30	2	5	54
2023-07-31	1	4	52
2023-08-01	1	7	45
2023-08-02	2	10	51
2023-08-03	3	19	50
2023-08-04	2	16	32
2023-08-05	2	17	36
2023-08-06	2	15	52
2023-08-07	2	21	56
2023-08-08	1	5	62
2023-08-09	2	19	46
2023-08-10	3	17	43
2023-08-11	2	7	52
2023-08-12	2	10	31
2023-08-13	1	8	63
2023-08-14	2	13	50
2023-08-15	2	30	46
2023-08-16	3	10	43
2023-08-17	2	16	49
2023-08-18	2	7	57
2023-08-19	2	27	62
2023-08-20	3	26	45
2023-08-21	2	19	55
2023-08-22	2	8	55
2023-08-23	2	12	43
2023-08-24	2	11	42
2023-08-25	2	7	59
2023-08-26	1	7	47
2023-08-27	2	11	42

Date	Air Quality Health Index value	Fine particulate matter $PM_{2.5}$ concentrations ($\mu g/m^3$)	Suspected respiratory, asthma, and air-quality related emergency department visits
2023-08-28	2	12	57
2023-08-29	3	14	76
2023-08-30	2	11	66
2023-08-31	2	8	46
2023-09-01	2	7	61
2023-09-02	2	7	59
2023-09-03	2	12	51
2023-09-04	3		72
2023-09-05	4		65
2023-09-06	3		54
2023-09-07	3		46
2023-09-08	1		49
2023-09-09	2		57
2023-09-10	2	6	67
2023-09-11	2	8	67
2023-09-12	2	13	65
2023-09-13	1	6	83
2023-09-14	1	10	76
2023-09-15	2	8	60
2023-09-16	2	8	69
2023-09-17	3	8	79
2023-09-18	2	13	100
2023-09-19	1	5	88
2023-09-20	2	5	74
2023-09-21	2	8	63
2023-09-22	2	13	68
2023-09-23	2	16	72
2023-09-24	2	15	73
2023-09-25	3	23	82
2023-09-26	2	10	70
2023-09-27	2	12	84

Date	Air Quality Health Index value	Fine particulate matter $PM_{2.5}$ concentrations ($\mu g/m^3$)	Suspected respiratory, asthma, and air-quality related emergency department visits
2023-09-28	3	19	80
2023-09-29	3	21	92
2023-09-30	3	22	77

Data table for Figure 30. Familiarity of Ottawa adults aged 18 years and older with the AQHI by subgroup

Population	Percentage of Ottawa adults reporting very/somewhat familiar	Percentage of Ottawa adults reporting not very/not at all familiar	Percentage of Ottawa adults reporting don't know/refused
Ottawa	76.8%	21.5%	1.7%*
Male	76.3%	21.3%	NR
Female	77.2%	21.6%	1.1%*
Less than post-secondary education	59%	37.4%	NR
Post-secondary education or more	79.3%	19.7%	1.0%*
18 to 24 years old	54.5%	42.3%*	NR
25 to 44 years old	73%	25.3%	NR
45 to 64 years old	85.7%	13.1%	NR
65 and older	80.3%	17.7%	2.1%*
Less than $30,000 household income	63.9%*	33.6%*	NR
$30,000 to $69,999 household income	65.2%	34.7%	NR
$70,000 to $99,999 household income	84.2%	15.8%*	NR
$100,000 and over household income	82.9%	15.8%	NR
Canadian born	81.3%	17.1%	NR
Other birth country	64.2%	34.1%	NR

Notes: *=Interpret with caution. NR=Data are not reportable.

Data table for Figure 31. Frequency of AQHI checks during the summer among Ottawa adults, aged 18 years and older, aware of the AQHI by subgroup

Population	Percentage reporting daily or weekly	Percentage reporting monthly or less	Percentage reporting never	Percentage reporting don't know/ refused
Ottawa	56.2%	26.5%	15.5%	1.8%*
Male	51.8%	28.7%	17.8%	NR
Female	60.5%	24.3%	13.3%	1.9%*
Less than post-secondary education	50.0%	32.0%*	18.0%*	NR
Post-secondary education or more	57.0%	25.7%	15.3%	1.9%*
18 to 24 years old	44.1%*	44.3%*	NR	NR
25 to 44 years old	51.0%	33.1%	14.9%*	NR
45 to 64 years old	61.7%	21.3%	14.5%	NR
65 and older	62.1%	15.3%	19.5%	3.0%*
Less than $30,000 household income	48.8%*	NR	NR	NR
$30,000 to $69,999 household income	66.9%	15.9%*	16.3%*	NR
$70,000 to $99,999 household income	57.8%	28.7%*	11.3%*	NR
$100,000 and over household income	56.2%	27.5%	14.7%	NR
Canadian born	58.7%	25.9%	13.8%	1.6%*
Other birth country	49.9%	27.3%	20.7%*	NR

Notes: *=Interpret with caution. NR=Data are not reportable.

Data table for Figure 32. Frequency of changes in behaviour when AQHI readings are high enough to affect individual health among Ottawa adults, aged 18 years and older, who check the AQHI by subgroup, 2024

Population	Percentage reporting at least half of the time	Percentage reporting less than half of the time/never	Percentage reporting don't know/refused
Ottawa	75.3%	21.0%	3.7%*
Male	68.2%	27.5%	4.3%*
Female	82.1%	14.8%	NR
Less than post-secondary education	67.2%	31.0%*	NR
Post-secondary education or more	76.2%	20.0%	3.9%*
18 to 24 years old	78.3%	NR	NR
25 to 44 years old	75.3%	20.8%*	NR
45 to 64 years old	74.6%	22.5%	NR
65 and older	75.3%	18.9%	5.8%*
Less than $30,000 household income	75.5%	NR	NR
$30,000 to $69,999 household income	66.1%	25.6%*	NR
$70,000 to $99,999 household income	76.8%	23.2%*	NR
$100,000 and over household income	76.8%	21.3%	NR
Canadian born	75.0%	21.0%	3.9%*
Other birth country	76.6%	21.1%*	NR

Notes: *=Interpret with caution. NR=Data are not reportable.

Data table for Figure 33. Number of confirmed or probable cases of Lyme disease and rate per 100,000 population in Ottawa and Ontario-less-Ottawa, by year, 2015-2024

Year	Ottawa residents with confirmed or probable Lyme disease	Rate of Lyme disease in Ottawa (per 100,000 population)	Rate of Lyme disease in Ontario-less-Ottawa (per 100,000 population)
2015	73	7.7	2.8
2016	76	7.9	2.3
2017	191	19.4	6.0
2018	93	9.3	3. 9
2019	179	17.5	6.9
2020	122	11.7	5.1
2021	291	27.7	9.9
2022	221	20.6	9.2
2023	303	27.6	10.6
2024	416	40.0	27.1

Data table for Figure 34. Behavioural risk factors reported by Ottawa residents with Lyme disease, 2022-2023

Behavioural risk factor	Percentage of Ottawa residents with Lyme disease and available risk factor information
Activities in wooded or tall grass areas	85%
Does not always use insect repellant when outdoors in wooded or tall grass areas	66%
Does not always use adequate clothing protection in wooded or tall grass areas	60%
Tick bite or exposure to ticks	55%
Does not always check themselves for ticks after being outdoors in wooded or tall grass areas	53%
Outdoor dog or cat that shares bed or living space	33%
Unknown	9%
Other	2%

Data table for Figure 35. Behavioural risk factors reported by Ottawa residents with anaplasmosis, 2023-2024

Behavioural risk factor	Percentage of Ottawa residents with anaplasmosis and available risk factor information
Activities in wooded or tall grass areas	79%
Tick bite or exposure to ticks	68%
Camping, hiking, working or other activities in wooded areas	56%
Does not always use adequate clothing protection in wooded or tall grass areas	50%
Does not always check themselves for ticks after being outdoors in wooded or tall grass areas	50%
Lived/worked in endemic area	50%
Does not always use insect repellant when outdoors in wooded or tall grass areas	41%
Outdoor dog or cat that shares bed or living space	24%
Travel outside province in the 21 days prior to illness	18%
Unknown	6%

Data table for Figure 36. Number of confirmed or probable cases of WNV illness and rate, per 100,000 population, in Ottawa and Ontario-less-Ottawa by year, 2015-2024

Year	Ottawa residents with confirmed or probable WNV illness	Rate of WNV illness in Ottawa (per 100,000 population)	Rate of WNV illness in Ontario-less-Ottawa (per 100,000 population)
2015	0	0.0	0.4
2016	2	0.2	0.7
2017	20	2.0	2.0
2018	7	0.7	1.7
2019	1	0.1	0.3
2020	12	1.2	0.9
2021	0	0.0	0.2
2022	1	0.1	0.3
2023	1	0.1	0.7
2024	13	1.2	0.6

Data table for Figure 37. Behavioural risk factors reported by Ottawa residents with WNV illness, 2020-2024

Behavioural risk factor	Percentage of Ottawa residents with West Nile Virus illness and available risk factor information
Mosquito bite or exposure to mosquitoes	75%
Camping, hiking, working or other activities outdoors	71%
Does not always use adequate clothing protection when exposed to mosquitoes, e.g. long sleeves, long pants, covered shoes	58%
Travel to endemic area in the last 2-14 days	46%
Does not always use insect repellant when outdoors in wooded or tall grass areas	46%
Lives in close proximity to standing water, e.g. bird baths, neglected swimming pools, discarded tires	46%
Unknown	13%

Data table for Figure 38. Types of protective behaviours against tick bites among Ottawa adults aged 18 years and older who reported practicing protective behaviours, 2024

What did you do to protect yourself from tick bites?	Percentage of Ottawa adults	Lower 95% CI	Upper 95% CI
Long pants, long sleeves/ cover up	66.5%	56.6%	75.2%
Insect repellant	45.3%	36.6%	54.3%
Pants tucked in/taped	28.1%	21.1%	36.5%
Closed footwear, socks	24.0%	17.3%	32.2%
DEET	11.9%	8.0%	17.2%
Other	10.6%	6.0%	18.1%
Don't know/Refused	2.0%	0.8%	4.7%

Data table for Figure 39. Type and frequency of protective behaviours against mosquito bites among Ottawa adults aged 18 years and older, 2019

Protective behaviour	Percentage of Ottawa adults	Lower 95% CI	Upper 95% CI
Cover up "most or all of the time"	26.6%	23.1%	30.5%
DEET "most or all of the time"	12.3%	9.7%	15.4%
Cover up "never or less than half of the time"	60.6%	56.4%	64.7%
DEET "never or less than half of the time"	77.5%	73.7%	80.8%

Data table for Figure 40. Number of Ottawa residents reported with a gastrointestinal DPHS, 2024 versus the pandemic average (2020-2021) and pre-pandemic average (2017-2019)

Food and water-borne illness of public health significance	Previous year (2024)	Pandemic yearly average (2020-2021)	Pre-pandemic yearly average (2017-2019)
Salmonellosis	167	63.5	173.7
Campylobacter enteritis	145	103.5	197
Giardiasis	114	71.5	121.3
Amebiasis	54	36	63.3
Cryptosporidiosis	43	23.5	26.3
Cyclosporiasis	22	44.5	28
Shigellosis	15	12.5	25.7
Hepatitis A	10	5	11
Yersiniosis	9	9	13.3
Listeriosis	6	7.5	3.7
Verotoxin producing *E. coli* including HUS	6	2.5	6.7
Typhoid fever	5	3	5.3

Food and water-borne illness of public health significance	Previous year (2024)	Pandemic yearly average (2020-2021)	Pre-pandemic yearly average (2017-2019)
Paratyphoid fever	1	0.5	1.7
Botulism	0	0	0
Cholera	0	0	0.3
Trichinosis	0	0	2.7

Data table for Figure 41. Number of legionellosis cases and rate per 100,000 population reported in Ottawa and Ontario-less-Ottawa, by year, 2015-2024

Year	Number of legionellosis cases reported in Ottawa	Rate of legionellosis per 100,000 population in Ottawa	Rate of legionellosis per 100,000 population in Ontario-less-Ottawa
2015	3	0.3	0.9
2016	3	0.3	1.0
2017	4	0.4	1.4
2018	6	0.6	2.3
2019	7	0.7	2.6
2020	10	1.0	2.0
2021	14	1.3	2.5
2022	17	1.6	2.4
2023	19	1.7	2.2
2024	13	1.2	2.4

Data table for Figure 42. Sources of tap water among Ottawa households, 2024

Source of tap water	Percentage of Ottawa households	Lower 95% CI	Upper 95% CI
Municipal system	84.6%	81.6%	87.2%
Private or communal well	10.1%	8.1%	12.4%
Natural non-well	NR	NR	NR
Others	NR	NR	NR
Cistern	NR	NR	NR
Don't know/refused	4.5%*	3.0%	6.7%

Notes: *=Interpret with caution. NR=Data are not reportable.

Data table for Figure 43. Percentage of beach assessments that met the standard of less than 200 *E. coli* per 100mL at the five City of Ottawa supervised beaches, 2016-2024

Year	Total	Britannia	Mooney's Bay	Petrie East Bay	Petrie River	Westboro
2016	90.6%	100.0%	87.5%	88.9%	81.9%	94.4%
2017	84.8%	95.8%	73.6%	85.1%	80.0%	88.9%
2018	90.6%	95.8%	91.7%	81.9%	91.7%	91.7%
2019	91.6%	90.3%	97.2%	93.1%	89.7%	87.5%
2020	77.7%	NA	90.8%	47.7%	89.2%	83.1%
2021	83.9%	95.8%	94.4%	59.7%	95.8%	73.6%
2022	88.9%	86.1%	95.8%	79.2%	94.4%	NA
2023	83.7%	90.3%	81.9%	80.6%	81.9%	NA
2024	78.1%	88.9%	75.0%	63.9%	84.7%	NA
Average	85.5%	75.6%	86.5%	87.6%	87.7%	92.9%

Note: NA=Data are not available. Britannia beach was temporarily closed in 2020 and Westboro beach was closed from 2022 to 2024.