STATE OF OTTAWA'S HEALTH 2023 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.

Ottawa | Public Health
Santé publique

MESSAGE FROM OTTAWA PUBLIC HEALTH'S MEDICAL OFFICER OF HEALTH

Monitoring the health status of the growing population in Ottawa provides valuable information to Ottawa Public Health (OPH), community members and our partners. Population-level data allows us to see where we were and where we are heading, and to set priorities for improvement, drawing on the strengths in our community to promote and protect people's health in Ottawa.

This report provides a high-level overview of the health of the population in Ottawa, considering demographic health indicators, social determinants of health, and disease. This report will help:

- Guide the Ottawa Board of Health's strategic priorities,
- Provide evidence for current public health funding and accountability agreements, and
- Inform programming and services for OPH and our community partners.

The last three years have exposed health inequities in our community. The COVID-19 pandemic has highlighted the importance of addressing health inequities, as certain population groups have been disproportionately affected by the virus due to underlying health conditions, occupational exposures, and social determinants of health. Throughout the pandemic response, we have shown that we can make an impact by working in partnership with community leaders, engaging with community members, and collaborating with multi-sectoral partners.

Based on the evidence presented in this report, there is an ongoing need to continue to work towards improving overall population health while collectively working to narrow the health equity gap for equity-deserving groups. The health priorities that stand out continue to be mental health and substance use health, chronic and infectious diseases.

Working collaboratively with partners and community members creates opportunities to establish common goals, increase the consistency of existing efforts, and intensify innovation for greater collective impact on the health of people living in Ottawa.

The findings of this report are intended to be used by the many community organizations and partners that work to keep people in Ottawa healthy by preventing disease and promoting well-being. I am grateful to the OPH team for their hard work, collaboration, and dedication to basing their work on the latest data of health needs. We are committed to ongoing work with communities facing greater barriers to health to address gaps in current available data and to understand peoples' experiences beyond what is reflected in the numbers.

Sincerely,

Dr. Vera Etches
Medical Officer of Health, Ottawa Public Health

ACKNOWLEDGEMENTS

Producing this report has been a collaborative effort by staff from many programs and services at Ottawa Public Health. Special thanks go to all staff who contributed to the successful production of this report.

The analysis and written interpretation of the indicators profiled in the report were carried out by team members of the Epidemiology and Evidence team at Ottawa Public Health:

Amanda Bergeron (Epidemiologist), Melanie Fournier (Program Planning and Evaluation Officer), Dara Spatz Friedman (Epidemiologist), Shannon Harding (Epidemiologist), Ann Jolly (Epidemiologist), Cameron McDermaid (Senior Epidemiologist), Catherine Millar (Health Information Analyst), Katherine Russell (Epidemiologist), Sarah Wallingford (Epidemiologist), and Jacqueline Willmore (Epidemiologist).

Report formatting and graphics design: Guylaine Chartier (Health Graphics Designer)

Several individuals contributed to their expertise to this report. For their support and expert contribution, we would like to thank the following:

Amira Ali (Public Health Program Manager), Dr. Laura Bourns (Associate Medical Officer of Health), Dr. Vera Etches (Medical Officer of Health), Dr. Michelle Foote (Associate Medical Office of Health), Cameron Keyes (Director, Knowledge Exchange, Planning and Quality), Dr. Brent Moloughney (Deputy Medical Officer of Health), Aideen Reynolds (Public Health Supervisor), Dr. Monir Taha (Associate Medical Officer of Health), Dr. Robin Taylor (Associate Medical Officer of Health), Julie Turnbull (Public Health Nurse).

Please use the following citation when referencing this document:
Ottawa Public Health. State of Ottawa's Health: 2023 Report. Ottawa (ON): Ottawa Public Health; 2023.

For additional copies of the report, please visit
https://www.ottawapublichealth.ca/en/reports-research-and-statistics/general-population-health.aspx

GLOSSARY, ABBREVIATIONS AND ACRONYMS

2SLGBTQQIA+: Two-spirit, lesbian, gay, bisexual, trans, queer, questioning, intersex and asexual. The plus sign acknowledges the many sexual and gender minority people who don't see themselves in the umbrella acronym and prefer other identity terms such as pansexual or gender-free.

BMI: Body Mass Index

BORN: Better Outcomes Registry & Network

CCHS: Canadian Community Health Survey

CHEO: Children's Hospital of Eastern Ontario

COVID-19: coronavirus disease of 2019

CPE: Carbapenamase-producing Enterobacteriaceae

DTaP: diphtheria, tetanus and acellular pertussis vaccine (for infants)

GBOMSM: gay, bisexual and other men who have sex with men

ED: Emergency Department

EDI: Early Development Indicator

HPV: Human Papilloma Virus

iGAS: invasive group A Streptococcal disease

IMD: invasive meningococcal disease

IPD: invasive pneumococcal disease

iPHIS: integrated Public Health Information System

IPV: inactivated poliovirus vaccine

ISPA: Immunization of School Pupils Act

LTBI: latent tuberculosis infection

LIM-AT: after-tax low income measure

MBM: Market Basket Measure

Men-C-C: meningococcal conjugate type C vaccine

MCV4: quadrivalent meningococcal conjugate vaccine

MMR: measles, mumps and rubella vaccine

MOH: Ministry of Health

mpox: the disease previously referred to as monkeypox

ONS: Ottawa Neighbourhood Study

OPH: Ottawa Public Health

OPHS: Ontario Public Health Standards

OSDUHS: Ontario Student Drug Use and Health Survey

PHAC: Public Health Agency of Canada

PHO: Public Health Ontario

Pneu-C-13: pneumococcal conjugate 13 vaccine

RPEP: rabies post-exposure prophylaxis

RSV: respiratory syncytial virus

SES: socioeconomic status

STBBI: sexually transmitted and blood-borne infections

TB: tuberculosis

Tdap: tetanus, diphtheria and acellular pertussis vaccine (for adolescents and adults)

Var: varicella virus vaccine

VTEC: verotoxin-producing E. Coli

WNV: West Nile virus

TABLE OF CONTENTS

TABLE OF CONTENTS (CONTINUED)

EXECUTIVE SUMMARY

This report examines the demographic profile of Ottawa residents and evaluates measures of overall population-level health and factors that can contribute to disease prevention. It offers insight into various indicators that impact health, including social determinants of health, immunization, infant and child health and development, as well as individual behaviours. The report also provides an overview of the challenges posed by chronic and infectious diseases in the community.

The report serves as a valuable resource for Ottawa Public Health (OPH) and community partners to help plan or enhance programs and services, identify strategic priorities, identify gaps, and monitor changes in the health of people living in Ottawa.

Highlights of the report include the following:

Changes in demographics and population health implications

Ottawa is a growing city with changing demographics that will play a critical role in shaping population health planning.

- The population of Ottawa has increased by approximately 17% since the 2016 Census. The largest proportion of residents are 25 to 29 years old. In the coming decades, the greatest growth will occur among those 20 to 49 and those 65 and over. By 2030, it is estimated that older adults, aged 65 and over, will account for 20% of the population. This shift in demographics has significant implications for health resource planning to support an aging population.
- Ottawa is becoming more diverse with a 7% increase in people who identify as being from a racialized group in 2021 (35%) compared to 2016 (28%). This underscores the importance of continuing ongoing work to support and address the unique health needs of racialized groups within Ottawa.

Social determinants of health and their impact on health equity

The health of people is influenced by a range of factors beyond just health care and behaviours. Social determinants of health like income, systemic racism, the lack of adequate housing and stable employment, to name a few, shape the health inequities in society. These factors are often outside the realm of personal choice and are imposed or reinforced societally. In this report, the effects of social determinants of health include:

- **The disproportionate effects of COVID-19:** In the first year of the pandemic, the rate of COVID-19 was more than double in the least advantaged neighbourhoods. COVID-19-related hospitalization and death rates were almost 3 times higher in the least advantaged neighbourhoods compared to those with the most advantage throughout the pandemic.
- **The challenges to equitable vaccination against COVID-19:** neighbourhoods that are more socioeconomically advantaged generally had higher levels of COVID-19 vaccination compared to those with lower socioeconomic advantage.
- **The effect of income on many measures of health:** self-rated health and mental health is approximately 20% lower in neighbourhoods with the lowest socioeconomic advantage compared to those with the most advantage.
- **The impact of neighbourhood socioeconomic status on measures of school readiness in children:** the percentage of children vulnerable in at least one Early Development Instrument (EDI)[i] domain ranged from 4% to 52% across Ottawa neighbourhoods, with the prevalence of vulnerability generally increasing in neighbourhoods with lower socioeconomic status. For example, approximately half of children in the neighbourhoods of Carlington, Sandy Hill and Greenboro East are vulnerable in at least one EDI domain.

i The EDI is a population-based measure of children's developmental health at school entry across five domains, which in turn are divided into 16 sub-domains

- **The lack of access to regular medical providers:** 14% of the people living in Ottawa, or approximately 122,000 people, do not have access to a regular health care provider. This proportion is higher among people who have immigrated in the past 10 years with 38% not having access to a regular health care provider.
- **The inequitable impact of chronic disease:** while leading causes of hospitalizations are similar across neighbourhoods regardless of socioeconomic advantage, hospitalization rates are between 15 to 30% higher in the neighbourhoods with lowest socioeconomic advantage compared to those with the highest advantage.

Ottawa Public Health has continued to build relationships with key partners and community members, making inroads to better support communities' COVID-19 response and prevention. OPH is also advocating for better collection of social determinants of health data to improve system transparency, to reduce inequities, and better monitor population health outcomes.

Mental health and substance use health

The COVID-19 pandemic has amplified the pre-existing mental health and substance use health challenges experienced by many people in Ottawa:

- An estimated 60% of people living in Ottawa rated their mental health as very good or excellent in 2019/2020, an approximate 8 to 10% decrease from previous years. 12%, or approximately 100,600 people, rated their mental health as fair to poor.
- Self-rated mental health tends to be lowest among females, people aged 20 to 44, those in the two lowest income quintiles, those who rent their home and those living alone.
- The COVID-19 pandemic created additional strains on mental health and substance use health. In October of 2020, only 28% of people who responded to a population survey rated their mental health as very good or excellent. This improved to 43% by November of 2021 but was still lower than the estimates prior to the pandemic. Also in November of 2021, about a quarter (24%) also reported that in the past two weeks they wanted to reach out for mental health support but did not know where to turn.
- Self-harm is among the leading causes of injury-related hospitalizations among those aged 15 to 44. This is similar to what has been seen in previous reports.
- Emergency department visits for opioid-related overdoses among residents of Ottawa more than doubled from 443 in 2019 to 982 in 2021 highlighting the impact of COVID-19 on opioid use. Similarly, deaths more than doubled from 65 in 2019 to 148 in 2021, exacerbating an increase in opioid-related harms that began in 2017.

Chronic disease, injury and health-related behaviours

The health of Ottawa residents is influenced by chronic conditions/diseases and associated risk factors, which are shaped by social determinants of health, as well as individual circumstances and behaviours:

- Residents of Ottawa aged 18 and older identify arthritis (16%), high blood pressure (16%), anxiety (10%) and mood disorders (10%) as their most common chronic conditions. By age 65 and older, arthritis (43%), high blood pressure (41%), heart disease (20%) and diabetes (16%) are most common.
- Cardiovascular disease, endocrine, nutritional and metabolic diseases, genitourinary disease and digestive diseases are the most common causes of hospitalizations for chronic diseases.
- Injuries are the leading cause of emergency department (ED) visits and the fifth most common cause of hospitalizations.
- Smoking rates continue to decline. An estimated 9% of residents of Ottawa aged 19 and older reported they are current smokers, down from 15% in 2017/2018. An estimated 3% of students in

grades 7 through 12 reported smoking a cigarette in the past year.

- Using the new alcohol use risk guidelines developed by the Canadian Centre on Substance Use and Addiction, 69% of the people in Ottawa aged 19 and older are at no or low risk of alcohol related harms, 15% are at moderate risk and 16% are at high risk. Among those in grades 7 to 12, 32% had consumed alcohol in the past year.
- In the most recent estimates from 2017/2018, 67% of adults over the age of 18 identified that they met the Canadian Physical Activity Guidelines. In 2019, 21% of children aged 5 to 11had an active day on one or two days in the past week; 19% were active 3 or 4 days; and 21% were active at least 5 days in the past week. In 2021, 29% of students in grades 7 to 12 reported having between one and three active days in the past week, 37% were active 5 or 6 days, and 18% were active every day in the past week.
- In Ottawa, 58% of people aged 18 and older report a height and weight that would classify them as being overweight or obese. This is relatively unchanged over the past 5 years but the percent of the population who is overweight and obese has increased over the past 15 years. This percentage is higher among men and those aged 45 and older.
- In 2020, the proportion of people in Ottawa who were screened for breast and cervical cancer has decreased and there is an increasing proportion of those overdue for colorectal cancer screening.

Infectious diseases

Ottawa Public Health reports on diseases of public health significance to help identify disease trends, and track and manage disease outbreaks. Infectious disease, particularly new and re-emerging disease, is an important health risk for the people living in Ottawa and can impact health systems and society. Early detection and mitigation is a critical part of the public health response to infectious diseases.

- COVID-19 has been the most significant infectious disease challenge in recent history, with respect to both the direct effects of the disease including hospitalizations and deaths, and indirect impacts on mental health, well-being and society at large. Through the end of 2022, 88,012 people were confirmed positive for COVID-19 infection; 3,464 people were hospitalized, and 1,001 died, due to their infection. COVID-19 also challenged existing population health and health services like childhood immunization, access to primary care services, routine vaccinations and health related screenings.
- A global outbreak of mpox (pronounced "em-pox" and formerly known as "monkeypox") occurred in 2022 which included countries that have not historically reported mpox cases. The first person with mpox was reported in Ottawa in May 2022 and a total of 42 people in Ottawa were diagnosed between May and September 2022. The incidence of mpox in Ottawa was lower than the average of Ontario-less-Ottawa in 2022, which was driven by a high number of cases in Toronto.
- The rate of tuberculosis in Ottawa has increased slightly over the last six years from 4.6 to 5.5 per 100,000 people and is higher than the average for Ontario-less-Ottawa (4.6 per 100,000).
- Influenza activity was very low during the pandemic, then increased during fall 2022 for a shorter but more intense season that disproportionately impacted children and youth compared to pre-pandemic years. As of mid-March 2023, 870 people in Ottawa tested positive for influenza, slightly above the pre-pandemic average of 833, and 40% were under age 20 years.
- The incidence of sexually transmitted and blood-borne infections decreased during the pandemic, which could be attributed to factors such as reduced testing, as well as fewer sexual contacts due to public health measures. Recently, rates have begun to rebound to pre-pandemic levels.
- OPH is actively preparing for the possible re-emergence of measles due to outbreaks occurring worldwide and a pandemic-related decrease in population vaccine coverage in young people in Ottawa. OPH is drawing on expertise gained from its experiences with COVID-19 as well as past responses to inform its preparations for measles prevention and control.

INTRODUCTION

A detailed understanding of the population of Ottawa creates the foundation upon which the work of Ottawa Public Health (OPH) is built. Understanding not only the health of the people living in Ottawa, but also individual behaviours, living conditions, and life experiences is essential for improving the health of the people who live here. The City of Ottawa combines the diversity that comes from a population of over a million people, with a large area that varies from rural farmland to a downtown urban core. This report both celebrates that diversity, and highlights where there are differences in health among different populations in Ottawa.

This report is a resource for OPH and health partners to help plan or enhance programs and services, identify strategic priorities, identify gaps, and monitor changes in the health of people living in Ottawa. This report also fulfills the requirement for public health units to assess and report on population health, as stipulated in the Ontario Public Health Standards.[ii]

The report is intended to be interpreted at the City of Ottawa level. While it provides information about specific groups, such as those living in low income or who identify as racialized, many data sources do not include information on social determinants of health or not all indicators can be estimated for all groups of interest. Similarly, many estimates cannot be reported for neighbourhoods or other small geographical areas because they become unreliable due to survey coverage or small sample size. OPH works with our partners at the Ottawa Neighbourhood Study to provide robust health measures estimates by neighbourhood. This is important to note because health inequities in Ottawa exist and are closely tied to social determinants of health such as economic advantage and racialization.[1] The COVID-19 pandemic underscored the importance of these factors as areas in Ottawa with low economic advantage or greater populations of people who are racialized bore a higher health burden of disease from COVID-19.[2] OPH has been working to collect social determinants of health data for people who tested positive for COVID-19 or were immunized with a COVID-19 vaccine and building this framework into our data systems. OPH has also been advocating for the inclusion of social determinants of health data in other data systems used by health units across Ontario. OPH also works with community members and partners to collaboratively advance efforts to address the population health concerns of equity-deserving groups.

COVID-19 has directly affected indicators and measures of health status. For example, in Canada, emergency department visits dropped to about half the usual number in the spring of 2020, rebounding by summer but still lower than pre-pandemic levels.[3] This is likely due to public health directives at the time or people's willingness to seek care at an emergency department. Similarly, indicators such as self-rated mental health have been influenced by the pandemic, as will be shown in this report. This may include effects like increased worry, a disruption in social connectedness and social networks, as well as decreased access to mental health care or support. Survey data from the Canadian Community Health Survey (CCHS) is from the 2019/2020 calendar years so includes some data pre-dating COVID-19 and some in the early parts of the pandemic. While some effects of COVID-19 on indicators like mental health may be temporary, it is important to acknowledge the effects of the pandemic beyond disease incidence and to keep this effect in mind when interpreting the findings in this report.

The health conditions and indicators mentioned in this report include those that provide insight into the health of people living in Ottawa and have recent and robust data sources. Missing from this report are the most recent estimates of leading causes of death or other details of mortality for the population in Ottawa. At the time this report was prepared, vital statistics data was only available to 2015 and did not present a contemporary view of mortality in Ottawa, nor did it provide an update beyond what is available on the OPH website.[iii] More recent mortality data will be analysed and published at a future date.

ii The Ontario Public Health Standards identify the minimum expectations for public health programs and services to be delivered by Ontario's 34 boards of health and are available at https://www.health.gov.on.ca/en/pro/programs/publichealth/oph_standards/

iii Ottawa public health Morbidity and mortality data can be found at https://www.ottawapublichealth.ca/en/reports-research-and-statistics/morbidity-mortality-quality-of-life.aspx#Leading-Causes-of-Emergency-Department-Visits-Hospitalizations-and-Death-Overall-and-by-Sex

DATA NOTES

Data were analyzed using Stata v17 or PowerBI (ver Feb 2023).

Footnotes are shown with Arabic numerals (1, 20, 45) and References are shown with Roman numerals (*i, xx, xlv*).

In this document, percentages (proportions) are rounded to the nearest whole number e.g. 11.7% is rounded to 12%. Rates are expressed with 1 decimal point e.g. 12.1 per 100,000.

The symbol * denotes that the estimate should be interpreted with caution due to high variability in responses. Some results are suppressed due to unreliability.

Where comparisons by subgroup are made, only statistically significant differences (differences that are unlikely due to chance) are shown 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. E.g. If the point estimate for the percentage of youth using alcohol is 58% (95%CI: 44%, 70%), then the range from 44% to 70% will contain the true population value 95% of the time. The narrower the confidence interval is, the more precise the estimate.

A single number for the confidence interval in graphs and tables is the difference between the upper or lower limit of the confidence interval and the point estimate. For example a confidence interval of 1.2% means the lower limit is 1.2% below the point estimate and the upper limit is 1.2% above the point estimate. If two numbers appear, these represent the lower and upper limits of the confidence interval.

Estimates for "Ontario-less-Ottawa" do not include Ottawa counts/responses in the numerator or denominator. 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.

Estimates may vary from other sources. Analysis in this report includes a category for "Don't know or refused" if the estimate for this group is 5% or higher. Other sources may not report on this group regardless of its estimated size.

Income data from the Canadian Community Health Survey is described by income quintiles. This is based on the derived variable in a distribution of people in each health region in deciles (ten categories including approximately the same percentage of people for each province) based on the adjusted ratio of their total household income to the low income cut-off corresponding to their household and community size. It provides, for each respondent, a relative measure of their household income to the household incomes of all other respondents in the same health region. In this report, quintile 1 is the highest income and quintile 5, the lowest.

The neighbourhood socioeconomic status (SES) index is based on neighbourhood-level measures from the 2016 Census including the prevalence of lone-parent families, unemployment rate, education levels, and income.[4] Based on this SES index, the neighbourhoods have been divided into five groups or "quintiles." Quintile 5 indicates that a neighbourhood is among those with the lowest socioeconomic advantage and Quintile 1 represents the most socioeconomically advantaged neighbourhoods.

The language in this report is rooted in the original data source. Some language may not be representative of OPH's preferred language and was used for consistency with its original data source. The terminology "male" and "female," for example, are associated with sex assigned at birth whereas gender identity is related to how individuals define and experience their gender, how they move through the world, and how others perceive them as gendered people. Ottawa Public Health recognizes that individuals can identify their gender identity in a multitude of ways, however, this report at times uses terminology that does not align with this as many data sources continue to use sex assigned at birth and biological traits. The terms "racialized population" or "racialized groups" in 2021 Census products are

used in this report but are still defined by the concept of "visible minority" from the Employment Equity Act. This definition uses specific groups and does not include Indigenous peoples as a "visible minority."[5] Statistics Canada is currently reviewing this concept.[iv]

Cancer incidence estimates in this report are based on data and information provided by Ontario Health. The analysis, conclusions, opinions and statements expressed herein are those of the author(s) and not necessarily those of Ontario Health.

Data from the Ontario Student Drug Use and Health Survey data in this report from the Ontario Student Drug Use and Health Survey, conducted by the Centre for Addiction and Mental Health and administered by the Institute for Social Research, and York University are solely the responsibility of the authors and do not necessarily represent the official view of the Centre for Addiction and Mental Health.

iv Statistics Canada visible minority concept consultative engagement. https://www.statcan.gc.ca/en/consultation/2022/visible-minority-concept

Chapter 1

Describing the people who live in Ottawa

POPULATION

In 2023, an estimated 1,095,575 people live in Ottawa,[6] a 17% increase from the 2016 Census.[7] The median age of Ottawa residents is 39 years.[8] The largest proportion of residents are 25 to 29 years old (Figure 1). In the coming decades, the greatest growth will occur among those 20 to 49 and those 65 and over, and by 2030, it is estimated that older adults, aged 65 and over, will account for 20% of the population. The increasing proportion of older adults means individuals in Ottawa will have higher health service needs into the future. It also increases the dependency ratio, the proportion of the non-working population that needs to be supported by the working age population. The City of Ottawa growth projections for the Official Plan estimate that the dependency ratio will increase from 46.2 in 2018 to 58.6 in 2046.[9]

Slightly more than half (51%) of Ottawa residents are women+; and the remaining 49% are men+.[10] Statistics Canada categorizes women+ as women and girls, as well as some persons who are non-binary persons and men+ as men and boys, as well as some persons who are non-binary.

LIFE EXPECTANCY AT BIRTH

Life expectancy at birth for someone living in Ottawa who was born during 2015 to 2017 is estimated to be 83.7 years overall, 81.9 years for men and 85.3 years for women. These estimates have not changed substantively since 2011.[11] It is not yet known to what extent Ottawa life expectancy estimates may become influenced by the excess mortality seen in Canada during the pandemic.[12]

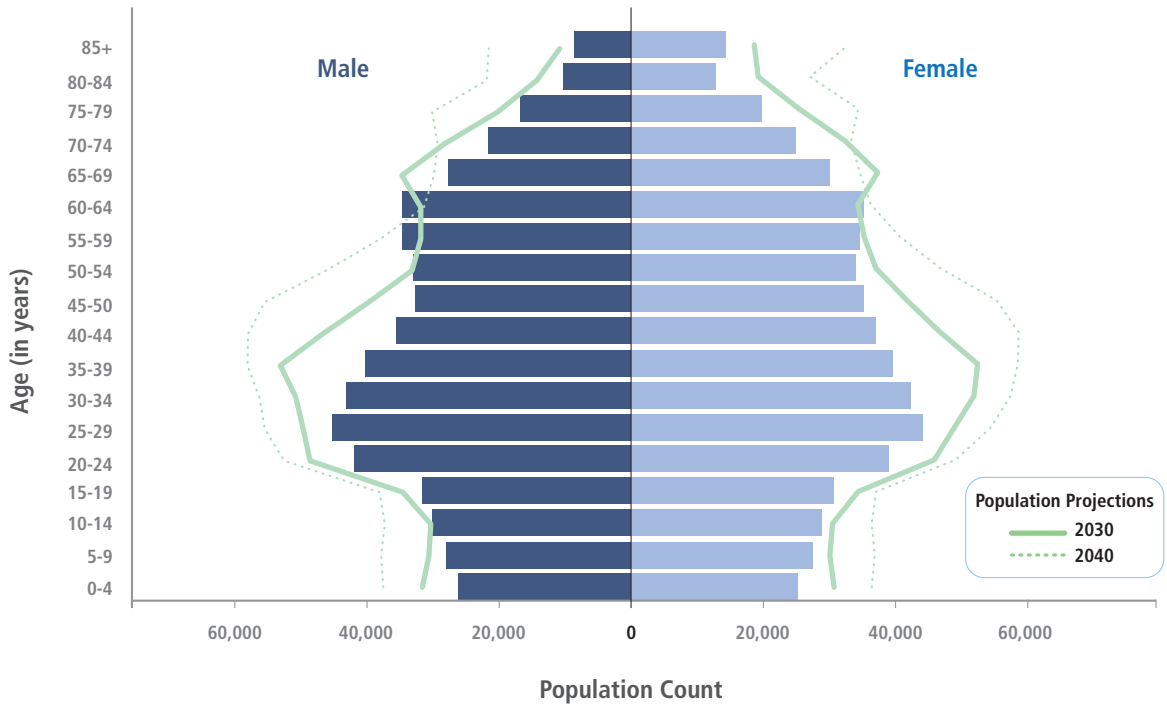

Figure 1. Population distribution as counts, for males and females, City of Ottawa, 2023, 2030 and 2040

Source: Population Projections. Ottawa. Ontario Ministry of Health, IntelliHEALTH Ontario. Extracted January 27, 2023.
**Note: The Ministry of Health enumerates population estimates for "males" and "females," not men and women.*

BIRTH RATES

In 2021, there were 9,865 live births to females living in Ottawa. The fertility rate (number of live births per 1,000 females aged 15 to 49 years) has declined over the past 10 years from 42.9 births per 1,000 females in 2013 to 38.5 births per 1,000 females in 2021, and preliminary 2022 birth data show another decline to 36.5 births per 1,000 females (Figure 2).

Fertility rates were highest among women aged 30 to 34 years, followed by women aged 35 to 39 years and women aged 25 to 29 years. The number and rate of live births among teenagers dropped 60% from 158 births in 2013 to 64 births in 2020. This was similar in 2021 with 57 live births and 2022 with 60 live births (2022 data is preliminary). In 2021, 97% of births were singletons and 3% were multiples (Figure 3).

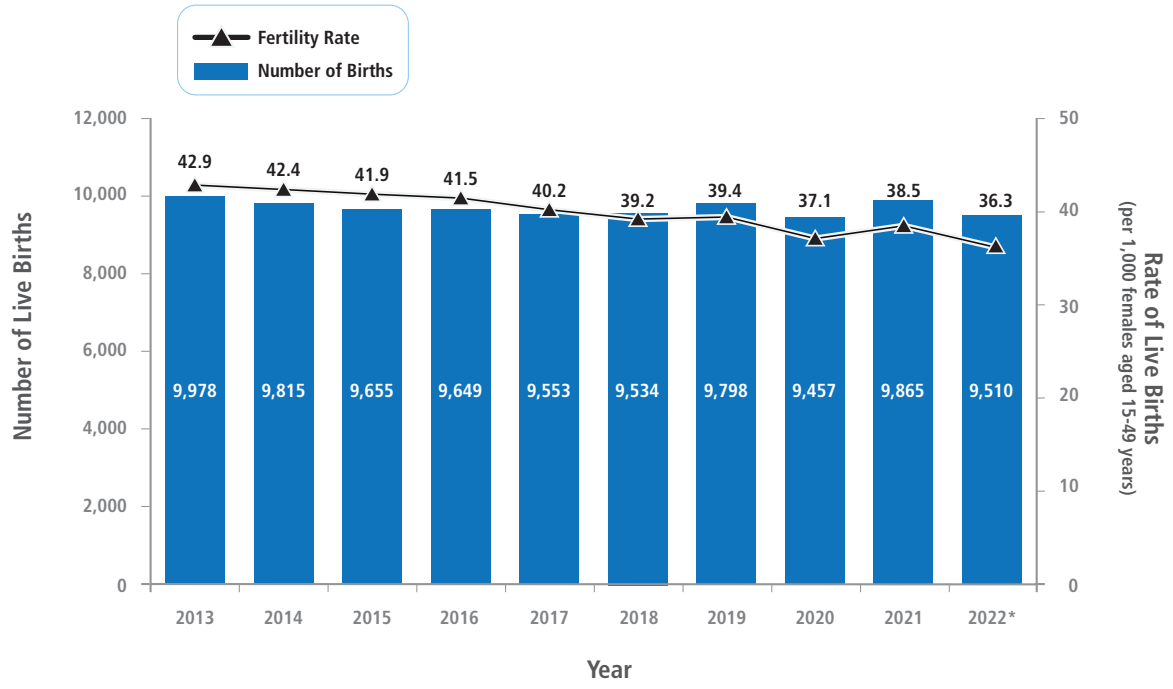

Figure 2. Number of live births and fertility rates in Ottawa from 2013 to 2022

Sources: Births – Better Outcomes Registry & Network (BORN) Ontario. Extracted March 14, 2023;
Population Projections. Ottawa. Ontario Ministry of Health, IntelliHEALTH Ontario. Extracted January 27, 2023
**Note: 2022 data are preliminary and are likely incomplete.*

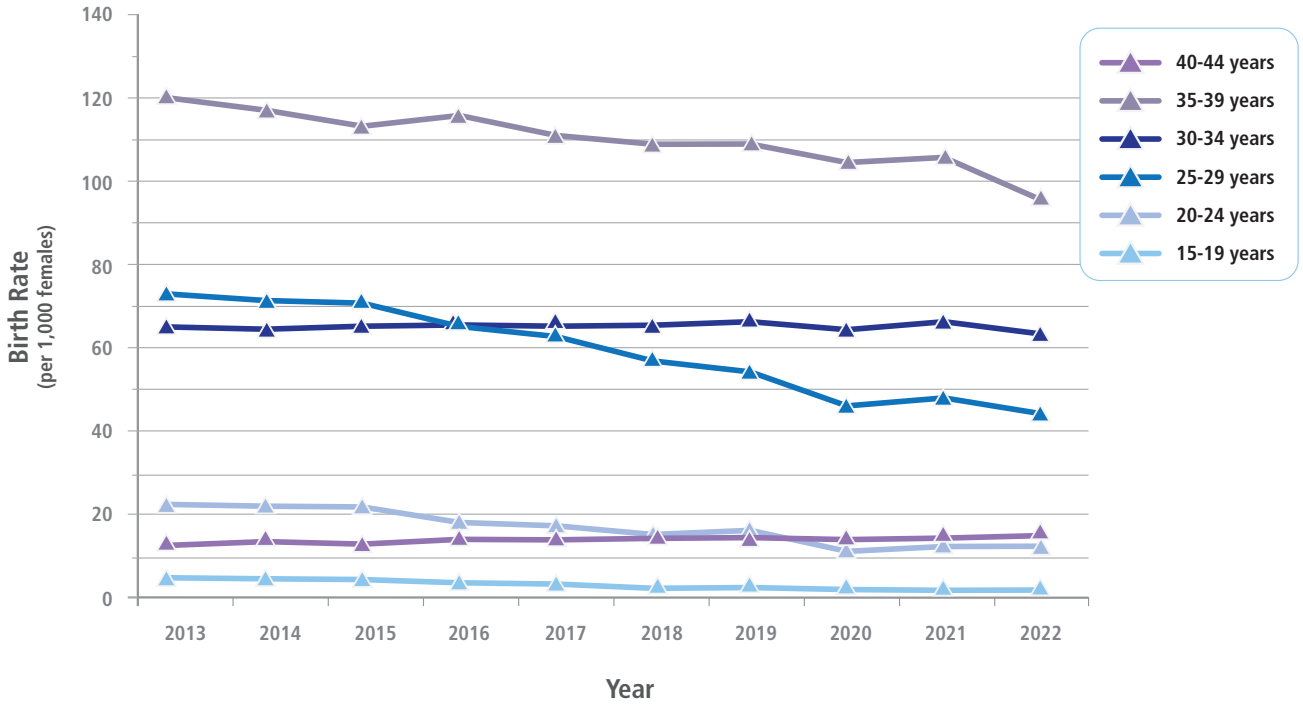

Figure 3. Age-specific fertility rates in Ottawa from 2013 to 2022

Source: Better Outcomes Registry & Network (BORN) Ontario. Extracted March 14, 2023.
Note: 2022 data are preliminary and are likely incomplete.

OFFICIAL AND NON-OFFICIAL LANGUAGES SPOKEN

In 2021, 61% of people living in Ottawa spoke English only, 1% spoke French only, 36% spoke English and French, and 2% spoke neither English nor French.[13] This is not substantively different from the previous two censuses.

Nearly one quarter (23%) of people's mother tongue is a language other than English or French. The top three mother tongue languages for people whose mother tongue is a language other than English or French are Arabic (16%), Chinese (12%), and Spanish (5%).

ORIGIN AND IDENTITY

Indigenous

According to the 2021 Census, 3% of the population in Ottawa identified as Indigenous, including First Nations (North American Indian), Inuk (Inuit) and Métis.[14] This estimate is similar to what was observed in 2016, although likely an underestimate of the actual Indigenous population living in Ottawa. Of note, OPH has implemented a Reconcili-ACTION plan and continues to actively work with Indigenous partners and community members to support actions that foster and promote Indigenous rights and reconciliation. This includes a commitment to data governance principles that support the safe and respectful collection, use, and disclosure of data.

Racialized Groups

In 2021, 35% of the population living in Ottawa identified as racialized, a 7% increase compared to 2016 (28%). Black, Middle Eastern, and South Asian were the most frequently reported racialized groups.

Immigration Status and Country of Origin

About a quarter (26%) of the 2021 population living in Ottawa were born outside of Canada[15] and is relatively unchanged from the 2016 Census (24%).[16] Among Canadian immigrants living in Ottawa, half immigrated within the last 20 years, with 5% immigrating within the last five years. At time of immigration, the majority of people were between 25 and 44 years old. Most recent newcomers came from Asia, Africa, the Americas, and Europe (Table 1 / Figure 4).

Table 1. Top continents and countries of origin of recent (i.e. within the last 5 years) newcomers to Ottawa, 2021.[17]

Origin	2016-21 (Count)	2016-21 (Percentage)
Asia	25,825	54%
India	5,645	12%
Africa	12,725	27%
Nigeria	1,790	4%
The Americas	5,050	11%
United States	1,565	3%
Europe	3,380	8%
United Kingdom	710	1%

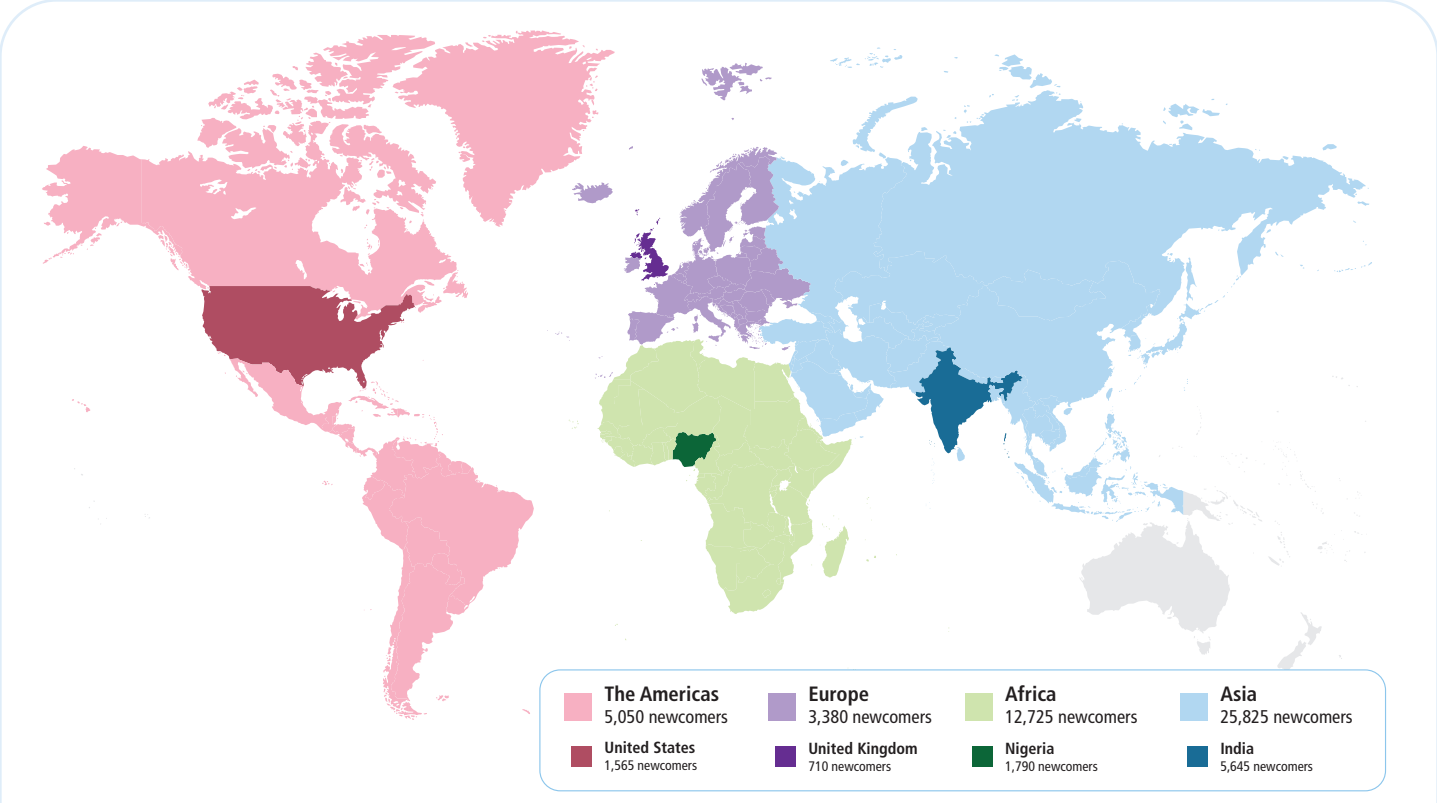

Figure 4. Infographic based on data extracted from Statistics Canada

Source: Statistics Canada. 2023. (table). Census Profile. 2021 Census of Population. Statistics Canada Catalogue no. 98-316-X2021001. Ottawa. Released February 8, 2023. https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/index.cfm?Lang=E (accessed March 8, 2023)

Chapter 2

What is influencing our health?

The following section describes many factors and behaviours that affect health. This includes social determinants of health like income, education, employment, and housing, as well as behaviours that have an impact on health like physical activity, smoking and alcohol use. Some of these factors are often outside the realm of personal choice and are imposed or reinforced societally. Often behaviours may be influenced or constrained by these social determinants of health.

INDIVIDUAL AND HOUSEHOLD INCOME

The median after-tax individual income for people living in Ottawa over 15 years of age was $44,000 in 2020,[18] up 18% from $37,136 in 2015. This increase exceeded cumulative inflation over the same time period (10%).[19] The median after-tax household income was $88,000 in 2020, up only 2% from $85,981 in 2015. This increase was less than the rate of inflation.

The estimated cost of living for a family of two adults and two children was $50,355 in Ottawa in 2021, a 9% increase over five years from 2017 ($46,123). This estimate, called the Market Basket Measure (MBM), considers the cost of clothing, food, footwear, transportation, shelter, and other expenses.[20]

Individuals living in low income

Close to 89,000 individuals, or 9% of people in Ottawa, lived in low income in 2020, adjusting for household size using the after-tax low income measure (LIM-AT[v]). This is a decrease from 13% in 2015.[21] Because this low income estimate is determined after tax, to better represent the income available to a household, part of the decrease in the prevalence of low income may be a result of pandemic relief benefits and changes in child-benefit payments in 2021.[22] Those aged 18- to 64-year-olds were less likely to live in low income in 2020 (8%) than those aged 17 and under (11%) or individuals 65 years and older (9%).

EDUCATION

People in Ottawa are well-educated with three quarters (77%) of adults (aged 25 to 64 years) holding a postsecondary education certificate, diploma or degree, 18% hold a high school diploma or equivalent, and only 5% not having completed high school. This is a higher proportion that hold a postsecondary education (77% vs 75%) compared to 2016.[23, 24]

EMPLOYMENT

Unemployment has improved since the earliest years of the pandemic. In 2022, monthly unemployment ranged from 3% to 6%, which is lower compared to the first two years of the COVID-19 pandemic (2020 monthly range: 4% to 10%; 2021 monthly range: 5% to 13%).[25]

HOUSING

Housing is an absolute necessity for living a healthy life. Living in unsafe, unaffordable, or insecure housing increases the risk of many health issues.[26] A home is more than simply shelter; it can also be a source of security, dignity and identity. Canada's residential housing accounts for over one-fifth of our national wealth.[27] While the share of renters is growing at over twice the pace as owners, the difference in net worth growth between homeowners and renters continues to increase. The net worth of homeowners more than doubled from $323,700 in 1999 to $685,400 in 2019, while the net worth of renters of all ages rose from $14,600 to $24,000 in the same time period.

v The Low-income measure, after tax, refers to a fixed percentage (50%) of median-adjusted after-tax income of private households. The household after-tax income is adjusted by an equivalence scale to take economies of scale into account. This adjustment for different household sizes reflects the fact that a household's needs increase, but at a decreasing rate, as the number of members increases.

Affordable Housing

In 2021, 42% of renter households paid 30% or more of their household income on shelter costs compared to 14% of owner households.[28]

In October of 2022, Ottawa had a vacancy rate of 2% in apartment structures of three units or more. Average rent of a 2-bedroom unit was $1,625 per month, a 5% increase from the previous year.[29] Rent increases were highest among turnover rentals, with 2-bedroom units having a 17% increase as of October 2022 compared to 2021.

COMMUNITY BELONGING

A sense of community belonging and social connectedness is associated with both physical and mental health. People with a strong sense of community belonging tend to rate their self-perceived general and mental health higher than the people who do not.[30] In Ottawa, 69% of people had a somewhat to very strong sense of community belonging in 2019 to 2020 which is similar to past years. This sense of belonging tends to be highest in those over 19 years of age and somewhat lower in renters versus owners (63% versus 72%) and single people versus families with children (59% versus 74%).[31]

In terms of school connectedness and belonging, in 2021, three quarters (74%) of grade 7 to 12 students reported they liked school, 71% reported they felt part of their school, and 88% reported feeling safe at their school (all similar to the rest of Ontario and to 2019) (Figure 5). However, only two-thirds (65%) of Ottawa students reported feeling close to people at their school in 2021, which was lower than in the rest of Ontario and in 2019 (74% and 80%, respectively). Not all students reported feeling close to people at their school. A higher percentage of students said they did not feel close to people in their school among those in grades 9 to 12 compared to grades 7 and 8 (37% vs. 25%), or were of socioeconomic disadvantage compared to socio-economic advantage (54% vs. 27%) or identified with another gender identity (78%) compared to men/boys (28%) and women/girls (36%).[32, 33]

FOOD SECURITY

Food insecurity is the insufficient or unreliable access to food due to financial constraints and ranges from marginal to severe food insecurity.[34] Food insecurity continues to persist in Ottawa. Three-year estimates from the 2018, 2019, and 2020 Canadian Income Survey indicate that 13% of Ottawa households face food insecurity, with approximately 4% being marginally food insecure, 6% being moderately food insecure and 3% being severely food insecure.[35] In Ottawa, the monthly cost of a nutritious food basket[vi] for a family of four in 2022 is $1,088.[36]

In 2019, 10%* of Ottawa students in grade 7 to 12 reported always or often going to bed or to school hungry because there was not enough food at home. This estimate was significantly higher than the rest of Ontario (6%). Most recent estimates for Ottawa are not reportable; however, in Ontario 3%* of grade 7 to 12 students reported always or often going to bed or school hungry in 2021.[37, 38]

Approximately one fifth (22%) of students reported eating fruits and vegetables four or more times per day in 2021, while 52% reported eating them two to three times and 17% reported eating them less than twice daily. This was similar to the rest of Ontario and to 2019. Students of socioeconomic disadvantage were significantly less likely to report consuming fruits and vegetables four or more times daily than were those of socioeconomic advantage (13%* vs. 25%).

vi For more information on the calculation of the nutritious food basket, see https://www.ottawapublichealth.ca/en/public-health-topics/food-insecurity.aspx#2022-Nutritious-Food-Basket

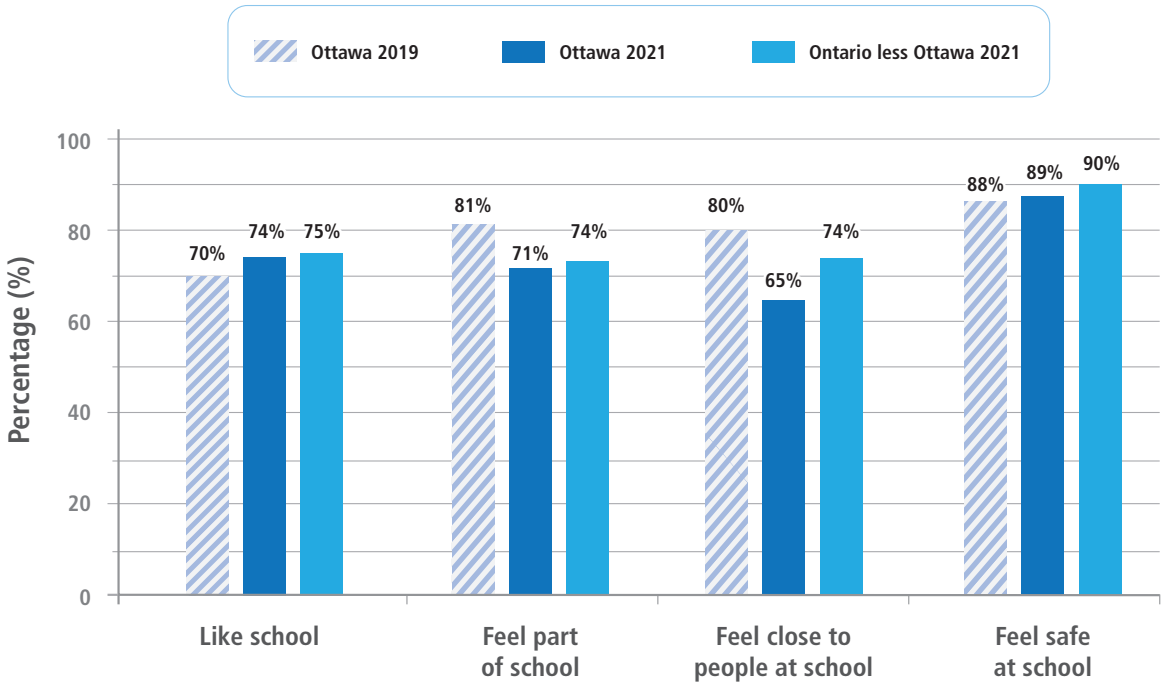

Figure 5. Percentage of students in grades 7 to 12 who reported school connectedness in the past year in Ottawa, 2019 and 2021, and Ontario-less-Ottawa, 2021.

Sources: Ottawa Public Health. Public Health Monitoring of Risk Factors in Ontario –Ontario Student Drug Use and Health Survey (2021), Centre for Addiction and Mental Health; Ottawa Public Health. Public Health Monitoring of Risk Factors in Ontario –Ontario Student Drug Use and Health Survey (2019), Centre for Addiction and Mental Health.

ACCESS TO A HEALTH CARE PROVIDER

Access to a high-quality health care system is a social determinant of health and a basic human right.[39] In Ottawa, 86% of residents aged 12 and older stated they had a regular health care provider they could visit or talk to when they needed care or advice about their health.[40] This was lower than the rest of Ontario where 90% said they had access to a regular health care provider. This means that in Ottawa about 14% of the population (approximately 122,000) did not have access to a regular health care provider. Access to a regular health provider was highest among older age groups, those in highest income quintiles, those living rurally and home-owners (Figure 6). It was lowest among people who had immigrated within the past 10 years (62%).

In Ottawa, 65% of residents with a regular health care provider thought they could get immediate care for a minor problem within three days. However, an estimated 189,000 thought they would wait between 4 days to two weeks and a further 59,800 thought they'd wait two weeks or more. Approximately 2 out of 3 (64%) rated the coordination between levels of care as very good to excellent where such care was required. Thirteen percent of those with a regular health care provider and where coordinated care was required (approximately 39,800) thought coordination was fair to poor.

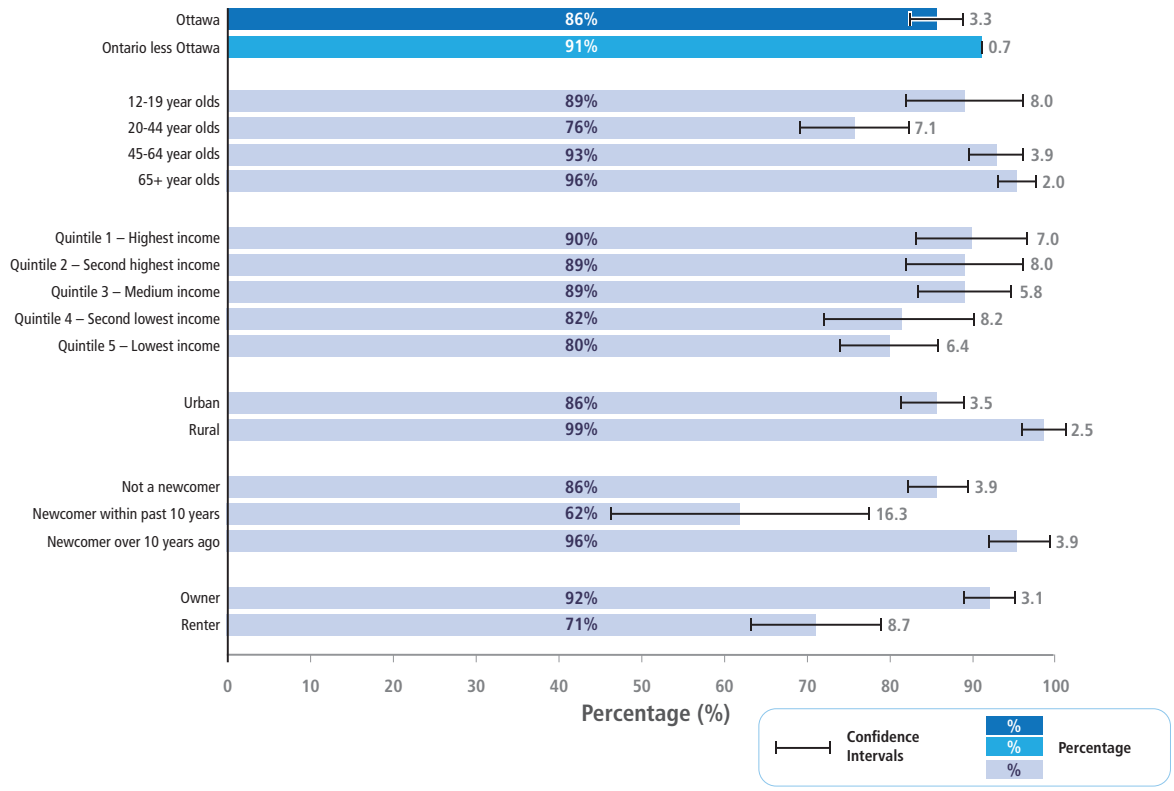

Figure 6. Percent of population aged 12 and older who stated they had access to a regular health care provider by subgroup, 2019-2020.

Source: Canadian Community Health Survey 2019-2020, Statistics Canada, Share File, Ontario Ministry of Health

CHILDHOOD IMMUNIZATION

Immunization through vaccination is a key public health and primary care initiative to prevent illness, disability, and death from vaccine preventable diseases. As part of the National Immunization Strategy, vaccination coverage goals for vaccine preventable diseases have been set according to international standards and best practices to minimize the harms associated with these diseases.[41] High immunization coverage is essential for the effective prevention and control of vaccine preventable diseases.

For children and youth there are nine diseases (diphtheria, tetanus, polio, pertussis, meningococcal disease, measles, mumps, rubella, and varicella[vii]) for which vaccination coverage is required to attend school in Ontario under the Immunization of School Pupils Act (ISPA). ISPA-required immunizations are primarily given by community health care providers except for ones given by the public health unit as part of the school-based immunization program (see School-based Immunization section on page 18).

Under ISPA, immunizations administered by community providers are to be reported to Ottawa Public Health by families. OPH sends personalized letters to parents and caregivers, on an annual basis, to remind them to report their children's immunizations to OPH.

vii Varicella is an ISPA required vaccine for children born in 2010 or later.

Routine Childhood Immunizations

Pre-pandemic Routine Childhood Immunization Coverage

Immunization coverage rates in the 2018-19 school year for all immunizations required under ISPA among 7-year-olds and 17-year-olds living in Ottawa were 80% and 71%, respectively.[42] Rates among 7-year-olds surpassed national coverage goals of 95% for rubella and meningococcal C conjugate (MenCC) and were below the goals for diphtheria, tetanus, polio, pertussis, measles, mumps, Haemophilius influenza type B (Hib),[viii] pneumococcal disease,[ix] and varicella (Figure 7). Among 17-year-olds living in Ottawa, pre-pandemic coverage rates were below national goals of 90% for diphtheria, tetanus, and pertussis. These coverage estimates are limited to immunizations reported to public health.

COVID-19 Pandemic Impacts on Immunization Coverage

Decreases in vaccine coverage rates can increase the risk of vaccine preventable diseases like measles, particularly as travel to countries experiencing outbreaks increases. Coverage for measles vaccination, for both first and second doses, has steadily declined globally since the beginning of the COVID-19 pandemic, putting many children at risk of this serious and highly contagious disease. Both the World Health Organization and the Pan-American Health Organization have issued statements regarding the increased risk of measles globally.[43, 44]

In Ottawa, the COVID-19 pandemic has substantially disrupted access to routine childhood and school-based immunizations. The closure of primary care offices and schools, the shift to virtual care, stay-at-home orders, early retirement of health care providers, and the diversion of public health resources to COVID-19 activities, like case management and mass immunization, have all impacted vaccination rates.

The pandemic has also impacted the reporting of immunizations to OPH. OPH's typical ISPA surveillance activities to remind families to report childhood immunizations were paused from March 2020 until the current school year (2022-23). As a result, the primary source for immunization information for children and youth in Ontario is incomplete and underestimates current coverage rates. ISPA surveillance activities are currently underway for students born in 2015 (~7-years-old) and 2005 (~17-years-old) and as a result both immunization and reporting rates are improving. Coverage rates for these birth cohorts will be explored once ISPA surveillance is complete at the end of the current school year.

Assessing the Gap in Routine Childhood Immunizations due to the Pandemic

Given the current limitations of the immunization records system for estimating vaccination coverage, we conducted an analysis of vaccine distribution data to estimate the impact of the pandemic on routine childhood immunization rates.

OPH is the sole distributor of routine childhood vaccines to immunizers in the health unit's catchment area. The trends in vaccine distribution over time were used to make inferences about vaccination coverage. Overall, we found that the volume of routine childhood vaccine doses distributed by OPH was at an all-time low in March 2020. Although distribution volumes are gradually recovering, they have not yet reached pre-pandemic levels.

Distribution volumes varied by vaccine product. Based on the relative differences in distributed vaccines over time (Figure 8) and the estimated population of children and youth due for specific vaccines (based on a routine schedule), the estimated total number of doses of routine immunizations missed between 2020 and 2022 among children and youth in Ottawa was over 40,000. Of these, approximately 15,000 were missed doses of vaccines which protect against measles.

viii Not an ISPA-designated disease.

ix Not an ISPA-designated disease.

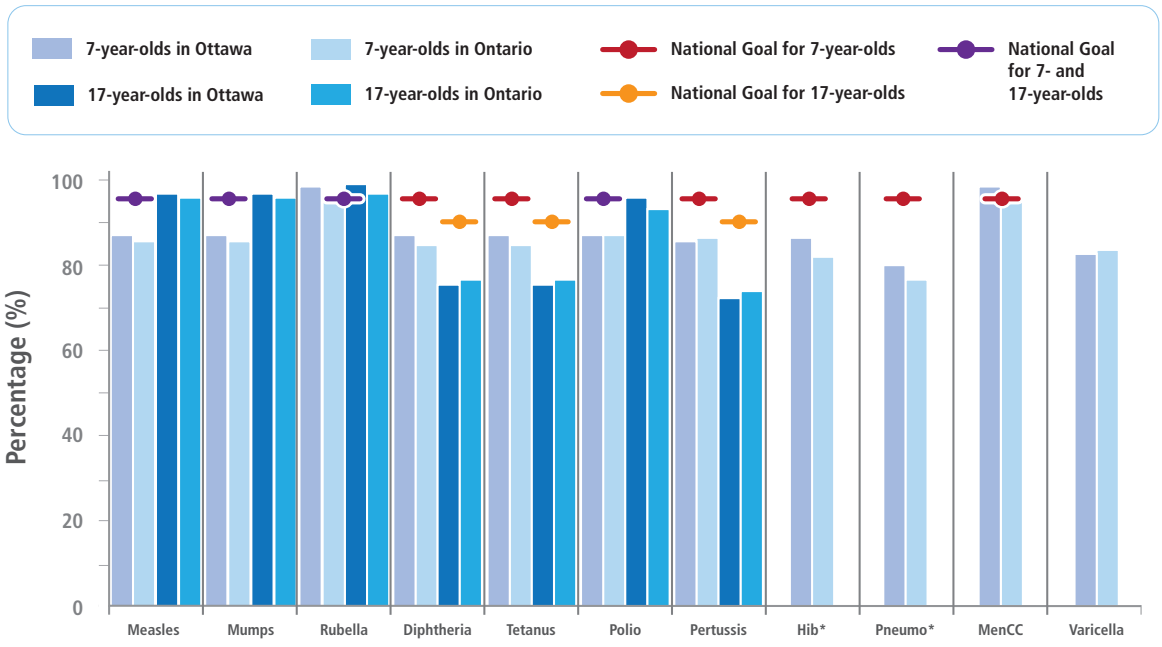

Figure 7. Immunization coverage rates for school year 2018-19 among 7- and 17-year-olds in Ottawa, and national coverage goals, by disease.

Source: Ontario Agency for Health Protection and Promotion (Public Health Ontario). Immunization coverage report for school pupils in Ontario: 2018–19 school year. Toronto, ON: Queen's Printer for Ontario; 2020.
** Note: Hib and pneumococcal disease are not ISPA-designated diseases. Coverage estimates reflect the proportion of students who received all recommended doses for their age by August 31, 2019.*

Childhood vaccines typically administered up to age 1, such as DTaP-IPV-Hib,[x] saw little to no change in the total annual number of doses distributed during 2020-22 compared to pre-pandemic, while other vaccines had lower distribution (Figure 8). Distribution volumes of MMR (given at 1 year), MMR-Var (4 to 6 years), Tdap-IPV (4 to 6 years), and Tdap (14 to16 years) dropped by 27% to 47% in 2020 compared to pre-pandemic, with only Tdap-IPV returning to pre-pandemic volumes in 2022. MMR, MMR-Var, and Tdap still trail pre-pandemic volumes, not unsubstantially (by 23%, 9%, and 20%, respectively in 2022) (Table 2). As a result, not only is there a backlog of children and youth needing these immunizations due to initial pandemic closures, but the number who are not covered for measles, mumps, rubella, varicella, tetanus, diphtheria, and pertussis, continues to grow. To clear the backlog, above average rates of vaccine distribution and administration are needed. OPH has informed primary care providers, caregivers and parents of the importance of childhood vaccines and is attempting to reduce barriers. Enhanced access to vaccination through neighbourhood hubs, community clinics and organized catch-up school-based clinics for some vaccinations have been prioritized to address this issue.

School-based Immunizations (Hepatitis B, HPV and Meningococcal Vaccines)

There are three vaccines which are part of Ontario's publicly funded school-based immunization program, typically delivered by public health to grade 7 students (~12-year-olds): hepatitis B, human papilloma virus (HPV), and quadrivalent meningococcal conjugate C (MCV4). Only MCV4 is required under ISPA.

x For a description of which diseases are covered by which vaccine product, refer to Table 2

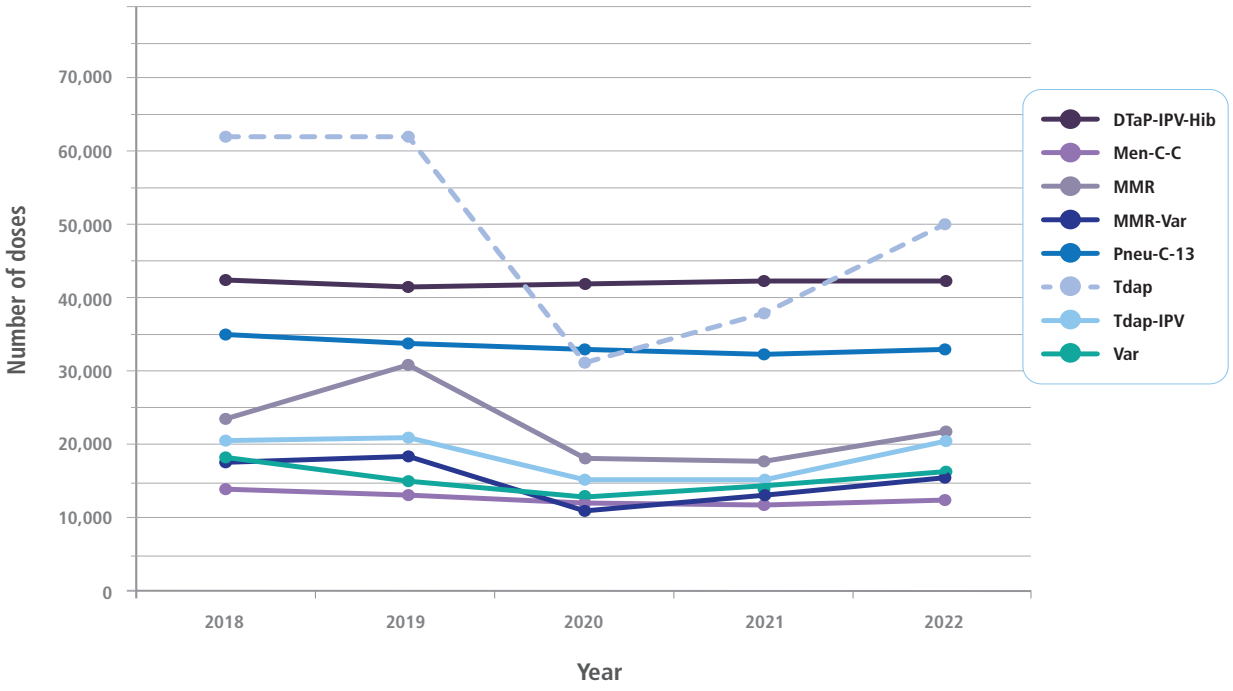

Figure 8. Total annual volume of vaccine doses distributed by OPH by vaccine product, 2018-2022.

Source: Panorama, Ontario Ministry of Health. Extracted on January 31, 2023.

Table 2. Percentage difference in annual volume of doses distributed compared to the pre-pandemic 2-year average (2018-19), by vaccine product and year.

Vaccine Product	Diseases Covered by Vaccine	2020	2021	2022
DTap-IPV-Hib	Diphtheria, tetanus, pertussis, polio, Haemophilus influenza B	-1%	-1%	-1%
Men-C-C	Meningococcal disease	-12%	-18%	-8%
MMR	Measles, mumps, rubella	-34%	-36%	-23%
MMR-Var	Measles, mumps, rubella, varicella	-31%	-20%	-9%
Pneu-C-13	Pneumococcal disease	-4%	-5%	-3%
Tdap	Diphtheria, tetanus, pertussis	-47%	-39%	-20%
Tdap-IPV	Diphtheria, tetanus, pertussis, polio	-27%	-27%	-1%
Var	Varicella	-18%	-12%	-1%

Source: Panorama, Ontario Ministry of Health. Extracted on January 31, 2023

Note: For the percentage difference in doses, the distribution volumes for each pandemic year (2020, 2021 and 2022) were compared to the average distributions from the two most recent pre-pandemic years (2018 and 2019) to account for year-to-year variability in distributions.

Pre-pandemic rates for school-based immunization coverage for school year 2018-19, among 12-year-old students in Ottawa, were 75% for hepatitis B, 67% for HPV, and 88% for MCV4.[45] In the following two school years (2019-20, 2020-21), when the COVID-19 pandemic altered or altogether halted the delivery of the school-based immunizations program, coverage rates fell dramatically. OPH returned to providing these vaccines at school clinics in the 2021-22 school year. However, vaccination uptake continued to be impacted by the isolation requirements for COVID-19 cases and contacts, which kept students out of school when vaccines were being offered. The expansion of COVID-19 immunization eligibility to 12 to 17 year-olds (May 2021), also limited the administration of other vaccines due to the recommendation not to co-administer vaccines within two weeks of each other.[46] As a result, coverage rates among 12-year-olds remained lower in 2021-22 compared to pre-pandemic (Figure 9).[47]

To help students catch up on missed school-based vaccinations throughout the pandemic the student eligibility for HPV and hepatitis B vaccines was expanded provincially up to age 18. OPH began offering these vaccines to both grade 7 and 8 students at school-based clinics, as well as running targeted high school catch-up clinics for grade 9 to 12 students who may have missed them. These catch-up efforts are improving coverage in impacted cohorts, but rates remain lower than pre-pandemic.[48]

EARLY CHILD DEVELOPMENT

From birth to six years there are critical periods during which particular physical, emotional, social, language, and communication skills are developed. The Early Development Instrument (EDI) is a population-based measure of children's developmental health at school entry across five domains, which in turn are divided into 16 sub-domains. Five EDI cycles have been completed in Ottawa, starting in 2005/06. For more information on previous cycles of the EDI in Ottawa, please refer to the Our Kids, Their Story...Snapshot of Developmental Health at School Entry in Ottawa 2005-2015 report published by the Parent Resource Centre (PRC). More recent data is based on correspondence with the PRC and analysis by Ottawa Public Health.

In the most recent cycle (Cycle 5 – 2017/18), 28% of senior kindergarten (SK) children in Ottawa were found to be vulnerable in at least one of the five EDI domains.[49] This percentage has increased significantly since the previous EDI cycle (26%) but is lower than the provincial average (30%). In all five EDI domains, the percentage of vulnerable SK children in Ottawa was lower than the Ontario average.

When looking at specific domains, the percentage of vulnerable SK children in the Physical Health and Well-Being and the Language and Cognitive Development domains has increased since the previous cycle in Ottawa. However, there were improvements with a lower percentage of vulnerable SK children in the Communication Skills and General Knowledge domain (Table 3).

The percentage of children vulnerable in at least one EDI domain ranged from 4% to 52% across Ottawa neighbourhoods.[50] The percentage of children vulnerable in at least one EDI domain generally increases with decreasing neighbourhood socioeconomic status.[51] Neighbourhoods with a high proportion of children vulnerable in at least one EDI domain include: Carlington (52%), Sandy Hill (51%), Greenboro East (49.5%), Hunt Club East (46%), Bells Corners West (46%), Carleton Heights – Rideauview (44%).[52]

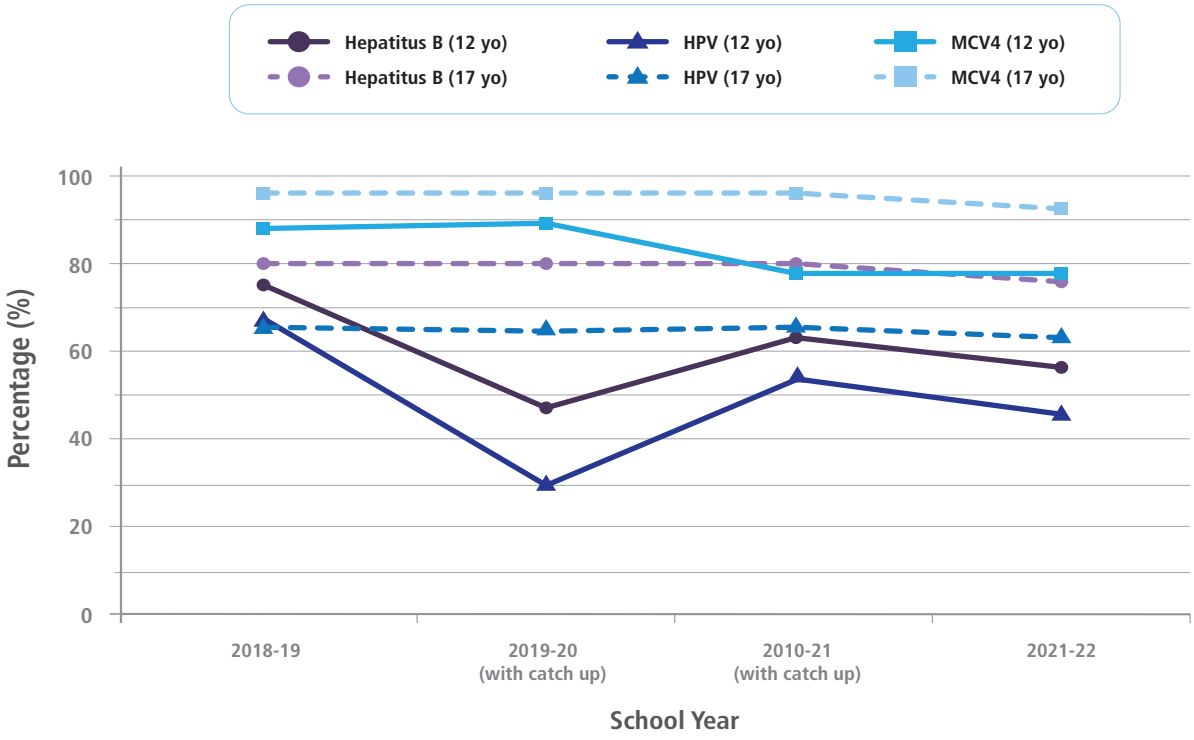

Figure 9. Immunization coverage rates for hepatitis B, HPV, and MCV4, among 12- and 17-year-olds in Ottawa by school year, 2018-19 to 2021-22.

Source: Ontario Agency for Health Protection and Promotion (Public Health Ontario). Immunization coverage for school-based programs in Ontario: 2019-20, 2020-21 and 2021-2022 school years with impact of catch-up programs. Toronto, ON: King's Printer for Ontario; 2023.

Note: Coverage estimates reflect the proportion of students who completed a series and received all recommended doses for their age by August 31 of the school year. For 2019-20 and 2020-21, estimates include immunizations received up to August 31, 2022, as part of immunization catch-up efforts.

Table 3. Percentage of senior kindergarten (SK) children vulnerable by Early Development Instrument (EDI) domain, in at least 1 EDI domain, and change from cycle 4 to 5 in Ottawa.

EDI Domain	Cycle 4 (2014/15)	Cycle 5 (2017/18)	Change from Previous Cycle
Vulnerable in Physical Health and Well-being	12.6%	13.9%	Increase ▲
Vulnerable in Social Competence	9.0%	8.6%	No change —
Vulnerable in Emotional Maturity	11.6%	10.9%	No change —
Vulnerable in Language and Cognitive Development	6.6%	7.8%	Increase ▲
Vulnerable in Communication Skills and General Knowledge	9.7%	8.6%	Decrease ▼
Vulnerable in at Least One EDI Domain	26.1%	27.9%	Increase ▲

Source: Parent Resource Centre. (2021). EDI by ONS Gen2 C1 to C5 Vuln by Domain (Parent Resource Centre) [Data File Prepared by PRC and Analysed by OPH in February 2023]. PRC.

PHYSICAL ACTIVITY, SEDENTARY BEHAVIOUR AND SLEEP

Physical Activity and Sedentary Behaviour

Regular physical activity is an important component of health. In addition to decreasing stress, and building or maintaining strength, balance, flexibility and coordination for healthy aging, physical activity helps prevent many chronic diseases including cancer, obesity, hypertension, heart disease and type 2 diabetes.

In 2017-2018, 67%[53] of Ottawa adults stated that they met the Canadian Physical Activity Guidelines for adults aged 18 to 64 years of having at least 150 minutes of moderate to vigorous-intensity aerobic physical activity per week, in bouts of 10 minutes or more.[xi] This was higher than the rest of Ontario (55%). Activity levels were higher among males, those under the age of 65, those with an English mother-tongue and those with post-secondary education (Figure 10).

The Canadian 24-Hour Movement Guidelines for Children and Youth recommend that children and youth accumulate at least 60 minutes per day of moderate to vigorous physical activity, defined as activity that causes a person to sweat at least a little or to breathe harder. An "active day" is referred to as a day during which this goal is met.

Children who use physically active forms of transportation such as walking or biking, may accumulate more active days per week compared to those who use motorized transport (inactive transportation). In addition to health benefits, active transportation is beneficial to the environment and to increasing social ties around the community.[54, 55]

In 2019, 13% of children in Ottawa aged 5 to 11 years used active forms of transportation to travel to school, 12% used a mix of active and inactive transportation and 75% used inactive forms of transportation to get to school. Among youth aged 12 to 17 years, 11%* used active transportation to get to school, 15% used a mix of active and inactive transportation and 74% used inactive forms of transportation.[56]

Twenty-three percent of children in Ottawa aged 5 to 11 years were reported by their parent/caregiver as not having an active day on any day in a previous week; 21% had an active day on one or two days in the past week; 19% were active 3 or 4 days; and 21% were active least 5 days in the past week.[57]

Of Ottawa students in grades 7 to 12 in 2021, 7% reported not having any active day in the previous week; 29% reported having between one and three active days in the past week, 37% were active 5 or 6 days, and 18% were active every day in the past week. These estimates were not different from the rest of Ontario nor from 2019. Male students (22%) were significantly more likely to meet the movement guidelines than were females (15%).[58, 59]

Screen Time

In 2021, approximately three quarters (73%) of Ottawa students (grades 7 to 12) reported spending more than two hours per day engaging in recreational screen time (e.g., watching tv, playing video games, texting, surfing the Internet, etc.). This was similar to students from the rest of Ontario (79%) and in 2019 (77%). Students in grade 9 to 12 compared to those in grade 7 and 8 (74% vs. 63%), as well as those with socioeconomic disadvantage compared to those with socioeconomic advantage (84% vs. 72%) were significantly more likely to engage in two or more hours of daily recreational screen time.[60, 61]

xi This is one criteria of the Canadian 24-Hour Movement Guidelines, but does not include light physical activity and muscle strengthening activities. https://csepguidelines.ca/guidelines/adults-18-64/

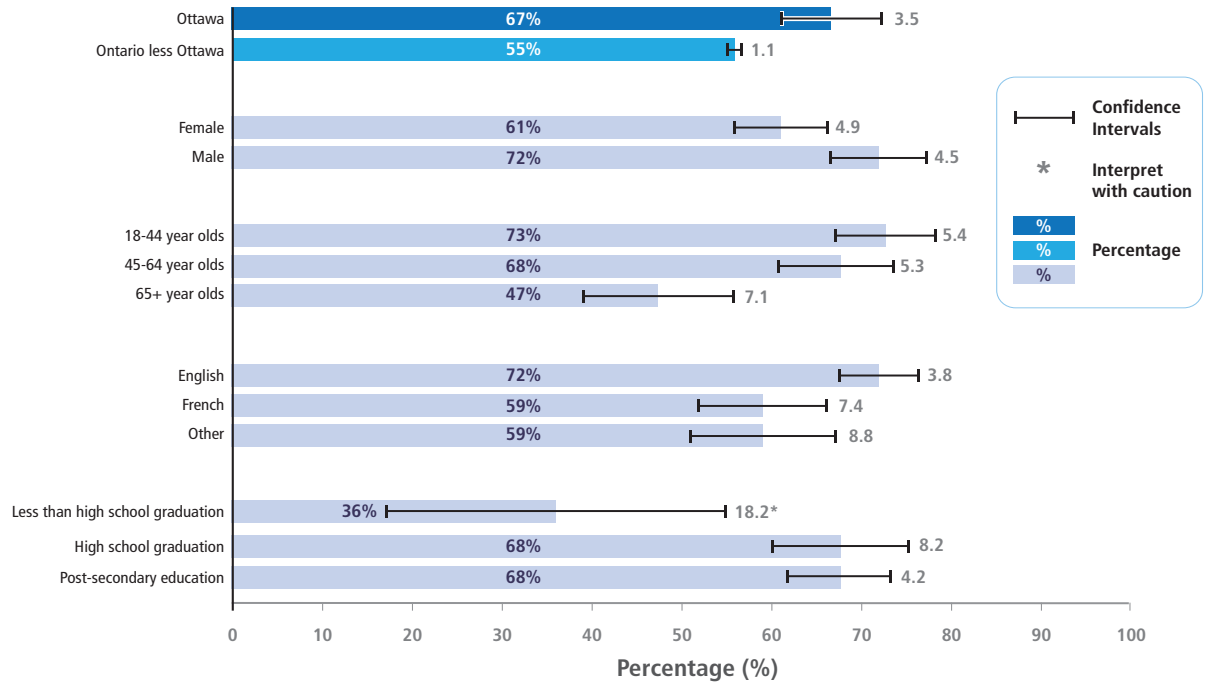

Figure 10. Percent of the population aged 18 years and older that met the Canadian Physical Activities guidelines by subgroup, 2017-2018.

Source: Canadian Community Health Survey 2017-2018, Statistics Canada, Share File, Ontario Ministry of Health

Sleep

Sleep is an integral part of the Canadian 24-Hour Movement Guidelines, which recommend that preschoolers aged 3 to 4 years get between 10 and 13 hours of sleep including naps, children aged 5 to13 years get between 9 and 11 hours of uninterrupted sleep per night, while youth aged 14 to 17 years should get 8 to 10 hours of sleep per night.

The majority of preschoolers in Ottawa, aged 3 to 4 years (88%) and of school-aged children aged 5 to 11 years (84%), met the recommended sleep guidelines in 2019.[62] Estimates from 2021 are not reportable. Only half (50%) of Ottawa students in grades 7 to 12 met the recommended sleep guidelines in 2021, which was similar to the rest of Ontario but significantly lower than in Ottawa in 2019 (60%). Students with socioeconomic advantage were significantly more likely to meet the guidelines than those without socioeconomic advantage (47% vs. 29%*).[63, 64]

CANCER SCREENING

Screening for cancer helps find pre-cancerous changes or cancer may be detected earlier which can help treatments be more successful. In Ottawa in 2020, rates of breast cancer[xii] and cervical screening[xiii] participation decreased (Figure 11) and more people were overdue for colorectal cancer screening (Figure 12),[xiv] most probably due to the COVID-19 pandemic.

xii Percentage of Ontario screen-eligible people, aged 50-74, who completed at least one mammogram within a 30-month period as of December 31, of the report year.

xiii Percentage of Ontario screen-eligible people, 21-69 years old, who completed at least one Pap test in a 42-month period as of December 31, of the report year.

xiv Percentage of Ontario screen-eligible people, 50-74 years old, who were overdue for colorectal screening as of December 31, of the report year

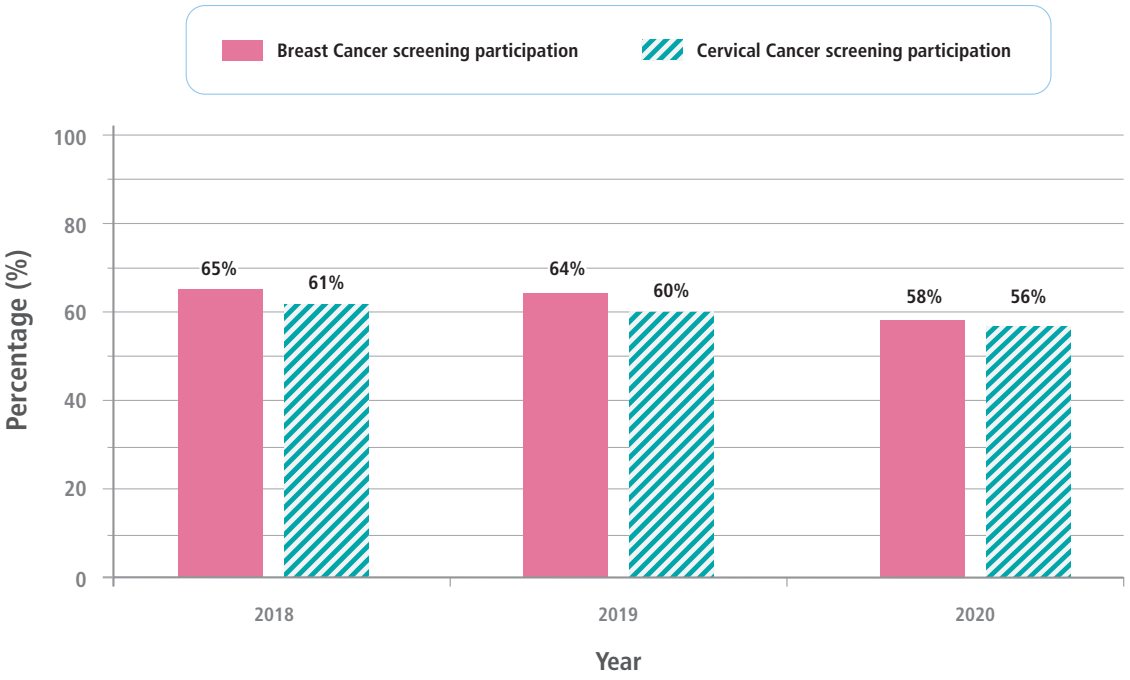

Figure 11. Breast cancer and cervical screening participation as a percent of screen-eligible residents of Ottawa 2018-2020.

Source: Ontario Health (Cancer Care Ontario). Ontario Cancer Profiles [Internet]. 2021 March 30, 2023. Available from: https://cancercareontario.ca/ontariocancerprofiles.

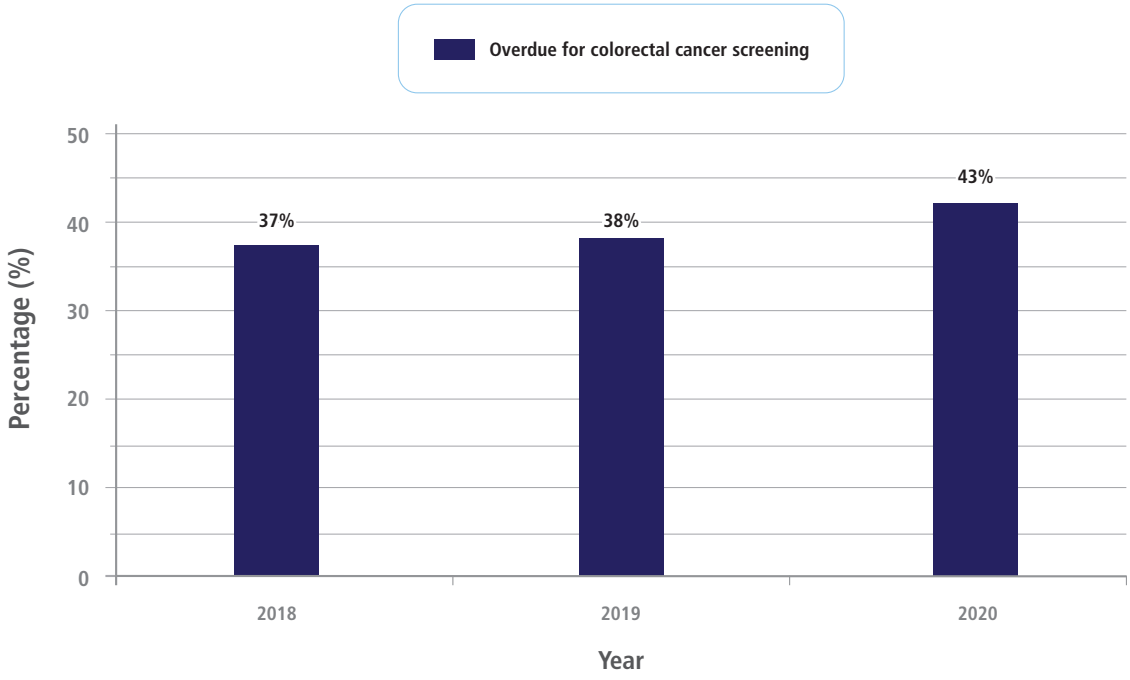

Figure 12. Percent of those screen-eligible people in Ottawa overdue for colorectal cancer screening 2018-2020.

Source: Ontario Health (Cancer Care Ontario). Ontario Cancer Profiles [Internet]. 2021 March 30, 2023. Available from: https://cancercareontario.ca/ontariocancerprofiles.

OVERWEIGHT AND OBESITY

Obesity is a complex health issue with a multitude of causes and contributors that are multifaceted. At a population level, the prevalence of obesity is measured using Body Mass Index (BMI). BMI is a common tool used to classify individuals according to the health risks associated to a weight status to measure the risk of health outcomes in populations.[65] BMI is calculated by dividing body weight by the square root of the person's height.

In Ottawa, 58% of residents aged 18 and older report a height and weight that would classify them as being overweight or obese. This percentage is higher among men and those aged 45 and older (Figure 13). The percent of the population who is classified as overweight or obese has been increasing over the past 15 years, but there has been little change in the past 5 years (Figure 14).

In 2019/2020, over half (54%) of children in Ottawa (ages 5 to 11 years) were reported by their parent/caregiver to have a height and weight that would classify them as not being overweight or obese and at least one-fifth (22%) as being overweight or obese in 2019. A further 24% parents/caregivers of children ages 5 to 11 did not provide enough information to determine their child's BMI.[66]

In 2021, three in five (59%) grade 7 to 12 students reported a healthy weight (BMI = 18.5-24.9), while 14%* were overweight (BMI = 25.0-29.9) and 11%* were obese (BMI ≥ 30.0). Just 3%* of students reported a BMI that put them at risk of being underweight (BMI <18.5). These estimates were similar to the rest of Ontario and to 2019. Students of socioeconomic disadvantage were significantly less likely to report being a healthy weight than those of socioeconomic advantage (51% vs. 64%).[67, 68]

Sugar Sweetened Beverages

Consumption of sugar-sweetened beverages (SSBs) such as soft drinks, fruit drinks, sports and energy drinks, and sweetened milks is one of the dietary factors contributing to excess weight, obesity and the onset of chronic disease in both children and adults.[69]

In 2021, 70% of Ottawa students in grades 7 to 12 reported drinking at least one SSB in the past 7 days, which was not different from the rest of Ontario but significantly lower than in 2019 (78%). In addition, 11% of students reported drinking at least one SSB daily, which again was not different to the rest of Ontario or from 2019.[70, 71]

SUBSTANCE USE HEALTH

Substance use health refers to health associated with the consumption of alcohol, cannabis, opioids or other substances. Improving substance use health reduces the harms associated with substance use which can prevent injury, illness or death. Like physical and mental health, substance use health can fluctuate on a day-to-day basis, as circumstances change. Individuals deal with stressors and challenges differently. Some people may find themselves consuming more substances or experiencing challenges with their substance use during times of increased stress. The context of substance use health has also changed, as evidenced by the worsening opioid crisis and the increased toxicity of the unregulated drug supply due to fentanyl.

Opioids

Although the harms from substances such as opioids are not new; their impact has reached crisis proportions in many countries, including Canada. This section uses emergency department visits, hospitalizations and deaths as a proxy for opioid-related overdoses. However, it is important to note that not all people who experience an overdose seek care or have a fatal outcome; meaning that this data underestimates the true health burden of opioids and the overdose crisis.

The overdose crisis is present in Ottawa; while hospitalization rates for residents of Ottawa have remained relatively unchanged between 2016 and 2021, rates of emergency department visits more than tripled from 25 per 100,000 population (243 visits) in 2016 to 92 per 100,000 population (982 visits) in 2021. Death rates increased similarly from 4 deaths per 100,000 (41 deaths) in 2016 to 14 per 100,000

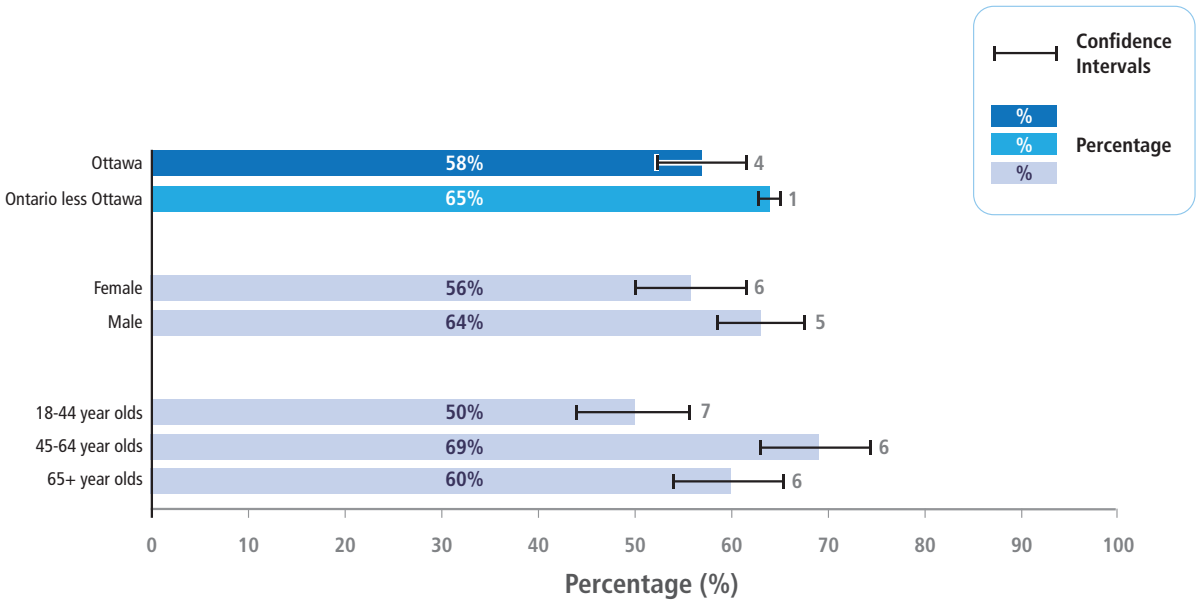

Figure 13. Percent of population aged 18 and older with a BMI estimate of overweight or obese in 2019-2020 by region, sex and age.

Source: Canadian Community Health Survey 2019-2020, Statistics Canada, Share File, Ontario Ministry of Health

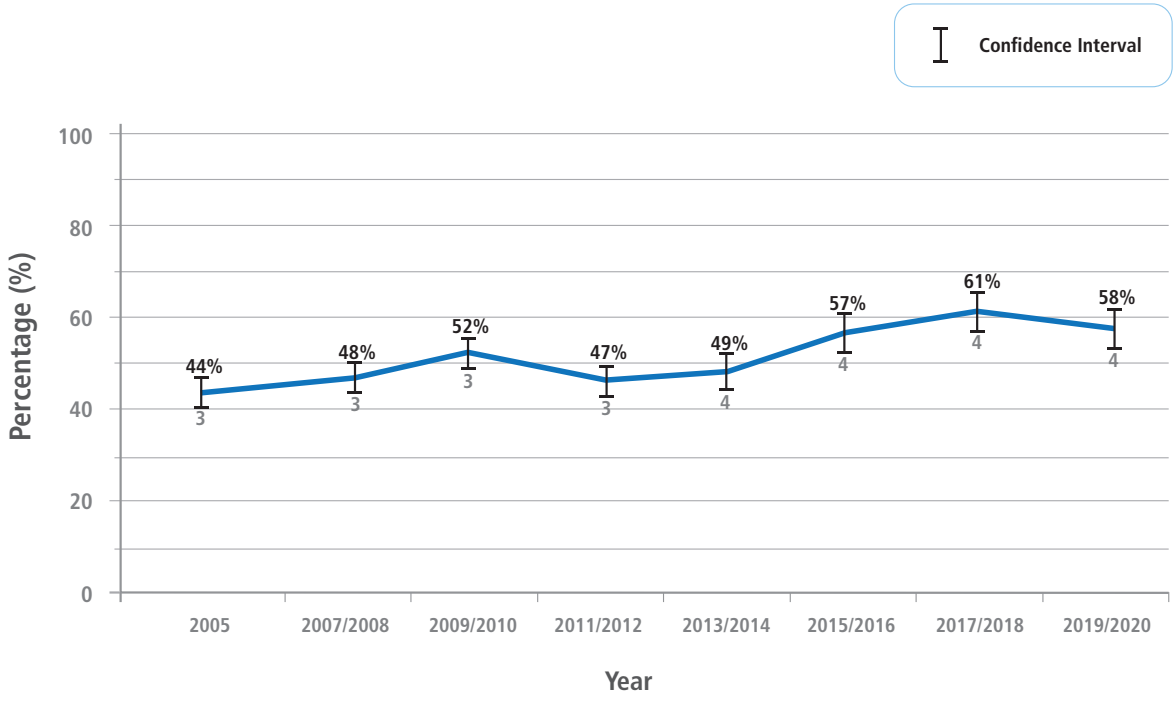

Figure 14. Percent of the adult population aged 18 and older who are classified as overweight or obese. 2005 to 2019/2020.

Source: Canadian Community Health Survey 2005-2019/2020, Statistics Canada, Share File, Ontario Ministry of Health

(148 deaths) in 2021. Preliminary data from 2022 (Q1-Q2) indicate that opioid-related morbidity and mortality remain higher than what was observed pre-pandemic (Figure 15)[72]

Rates of opioid-related emergency department (ED) visits in Ottawa from 2003 until 2016 were similar for males and females but increased markedly among males after 2017. Rates of opioid-related deaths were higher in males, with more than twice the rate of deaths compared to females in 2021. Hospitalization rates have fluctuated over time (2003-2021) ranging from 3.2 per 100,000 to 12.8 per 100,000 and averaged higher in females. However, the average hospitalization rate since 2016 has been highest for males.

Across age groups, from 2003 to 2021, opioid-related mortality rates were highest among residents of Ottawa aged 25 to 44 and 45 to 65 years. Hospitalization rates in 2020 and 2021 have also been highest among those aged 25 to 44 years old. Prior to the pandemic, rates had been highest among those 65 years and older. Rates for ED visits by age have fluctuated over time but were highest among younger residents (15 to 24 and 25 to 44 years old) from 2014 to 2021.

The impact of the pandemic on opioids has been seen in Ottawa. Supervised consumption and treatment services treated more than twice as many non-fatal overdoses in 2021 compared to 2020 (1707 vs. 505).[73] Needle and syringe program sites also had more than five times as many visits for harm reduction supplies and/or services in 2021 compared to 2017 (147,144 vs. 29,441).[74]

In Ottawa, the most common type of opioid found at death continues to be fentanyl in 83% of deaths and deaths were predominately accidental in nature.[75] This is not different than what is seen in Ontario. In Ottawa, 72% of opioid overdose deaths from January 2018 to June of 2021 involved a stimulant like cocaine as a direct contributor to the death.[76]

Alcohol

In 2022, new alcohol use risk guidelines were developed by the Canadian Centre on Substance Use and Addiction.[77] These guidelines changed to a continuum of risk (no/low, moderate and high) rather than the 2011 guideline which was a threshold of exceeding or not exceeding the guidelines. The 2022 guidelines attribute no or low risk to two drinks or less per week, moderate risk to more than two to six drinks per week and high risk to more than six drinks per week.

Using the new threshold, an estimated 69% of the population aged 19 and older in Ottawa are at no or low risk of alcohol related harms, 15% are at moderate risk and 16% are at high risk.[78] Figure 16 shows the percent of the population aged 19 and older in Ottawa who are at no or low risk. Those most likely to be at no or low risk include females, those with neither French or English as a mother tongue, those in lowest income, those with less than a high school education, and those from racialized communities (Figure 17).

Binge drinking, defined as more than 5 drinks on one occasion for males or more than 4 on one occasion for females, has health and safety risks including alcohol poisoning, risk of injury or violence, unplanned sex, worsening of mental health conditions, and suicide.[79] This is in addition to the risk to physical and substance use health. An estimated 35% of people living in Ottawa aged 12 and older said they engaged in binge drinking at least once in the past year and 15% said they binge drank at least once a month in the past year. Further, 5% said they engaged in binge drinking 2 to 3 times per month, with an additional 4%* stating they did so once a week or more.[80]

In Ottawa, 5% of drivers said they had operated a motor vehicle within 2 hours of ingesting alcohol and 5% of those aged 12 and older said they were a passenger in a vehicle where the operator had consumed alcohol in the past 2 hours.[81]

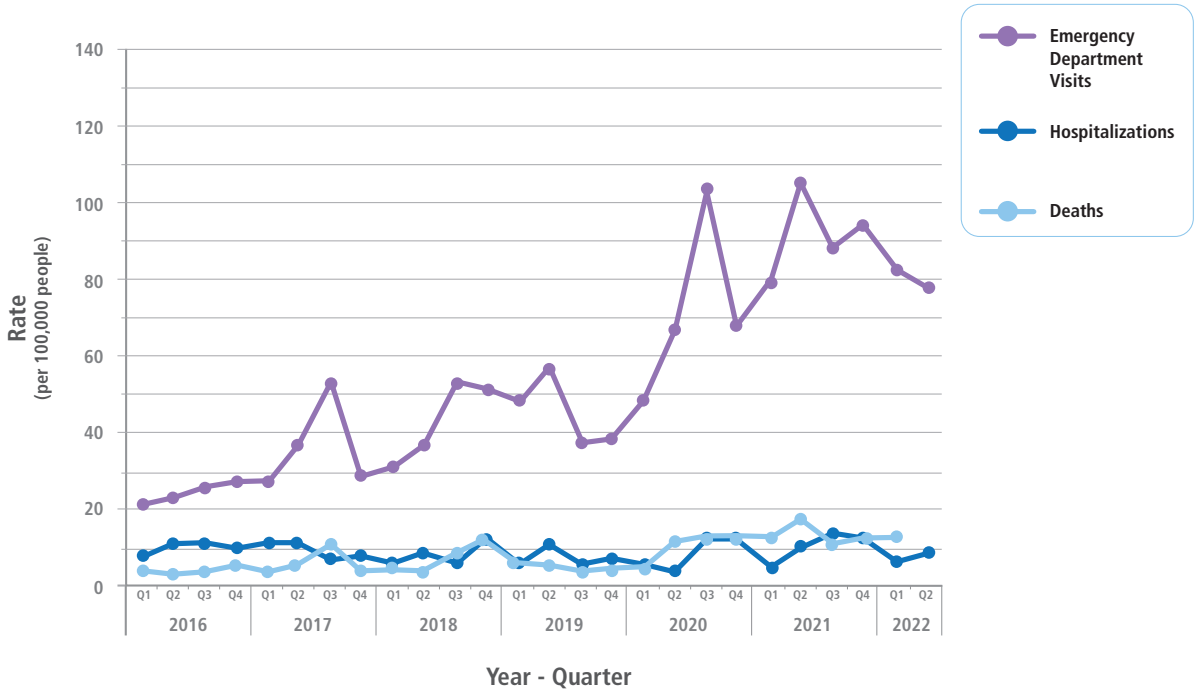

Figure 15. Opioid-related Morbidity and Mortality Rates in Ottawa by Year and Quarter, 2017 to 2022.

Source: PHO Interactive Opioid Tool, data extracted March 9, 2023
Note: Rates by quarter are adjusted to an annual rate to allow comparison between different time periods. Death data for 2021 and 2022 are preliminary and subject to change.

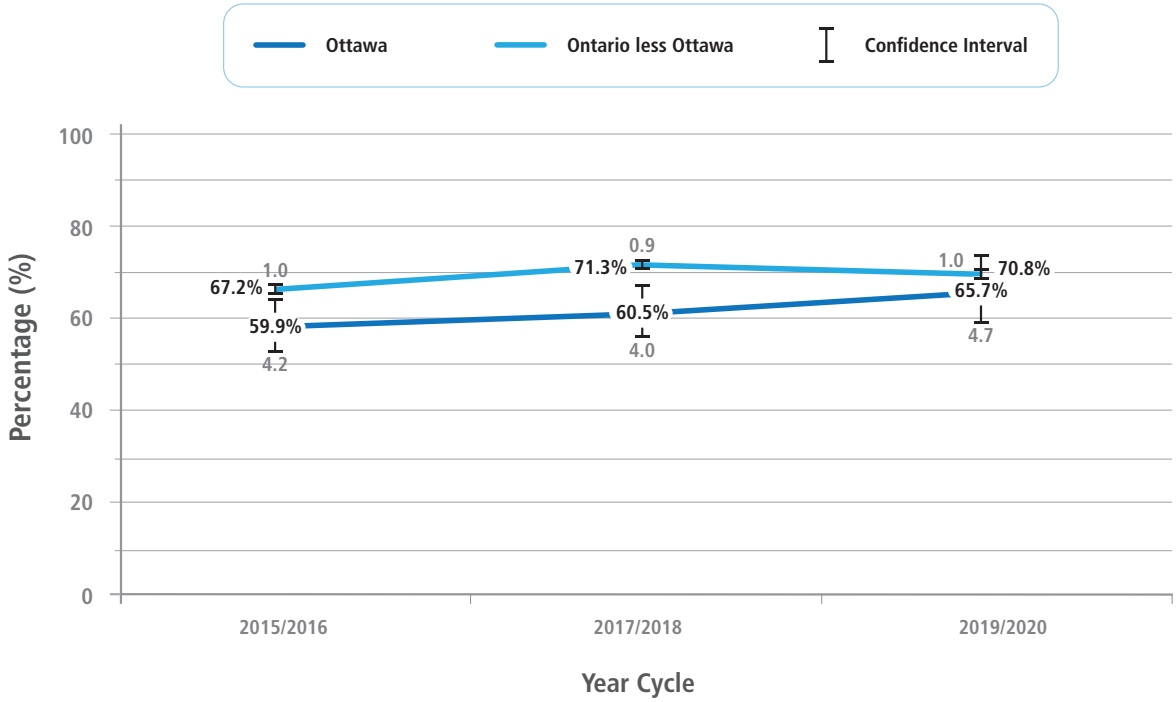

Figure 16. Percent of population aged 19 and older who are at low or no risk from alcohol related harms in Ottawa and Ontario-less-Ottawa by year, 2015-2020.

Source: Canadian Community Health Survey 2019-2020, Statistics Canada, Share File, Ontario Ministry of Health

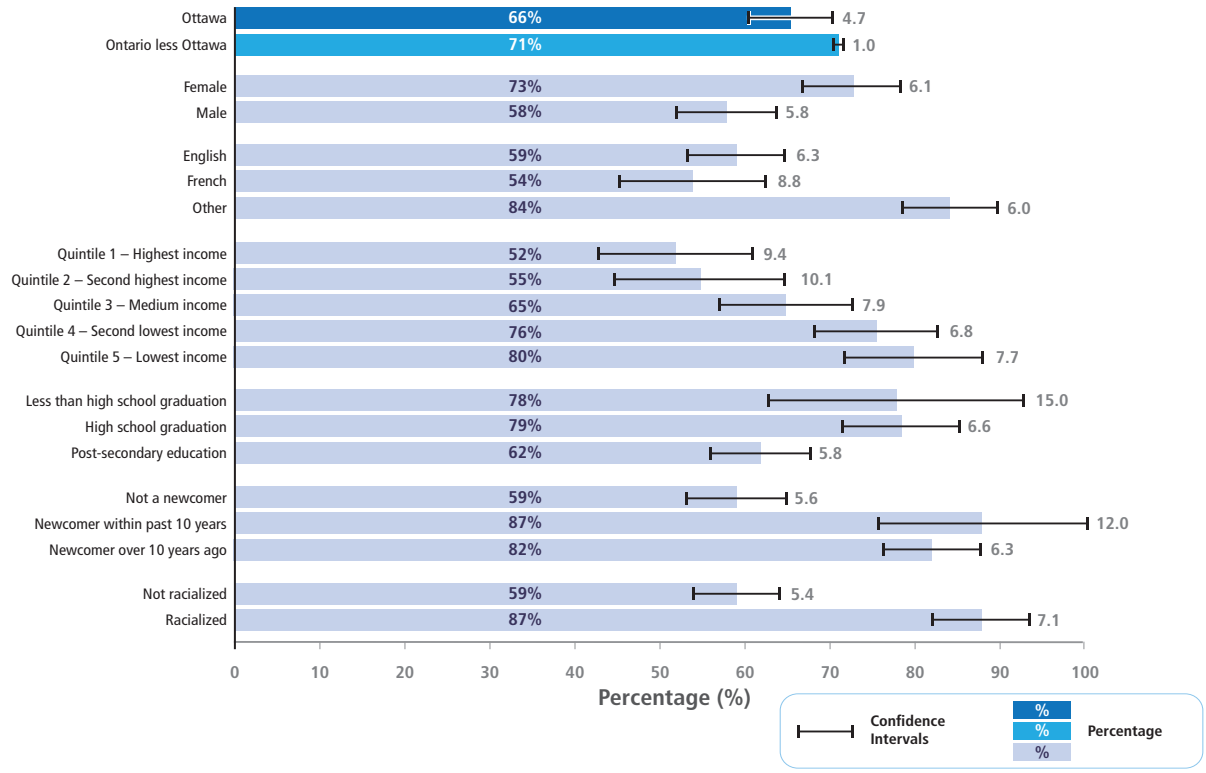

Figure 17. Percent of population aged 19 years and older who are at low or no risk from alcohol by subgroup, 2019-2020.

Source: Canadian Community Health Survey 2019-2020, Statistics Canada, Share File, Ontario Ministry of Health

Cannabis

In October of 2018, cannabis became legal to consume and possess for Canadians of legal age. In 2019/2020, an estimated 22% of people living in Ottawa aged 19 and older used cannabis more than once in the past year.[82] This is not different than the estimate for the rest of Ontario (21%). In Ottawa, such use is higher among males, people aged 19 to 44, people with English as a mother tongue and people who are not immigrants (Figure 18). In terms of frequency of use, 7% of residents of Ottawa used cannabis more than once per week. Of those who have used cannabis in the past 12 months, an estimated 7%* were considered "dependent" using the Severity of Dependence Scale for cannabis. This is not different compared to the rest of Ontario.

Smoking

In 2019/2020, 9% of Ottawa residents aged 19 and older identified as a current smoker,[xv] either smoking daily or occasionally, down from 15% in 2017/2018.[83] [84] This continues the decreasing trend in smoking over time and is significantly less than the estimate of 13% for Ontario-less-Ottawa (Figure 19). Smoking rates tend to be higher in males, those living alone, those with lowest educational achievement, those living in low income, and people who are renters versus owners (Figure 20).

Daily smoking continued to decrease in 2019/2020 with an estimated 7% of people living in Ottawa reporting they were daily smokers, lower than 10% in the rest of Ontario (Figure 21). These rates have declined consistently since 2013/2014 in Ottawa. Daily smoking rates are highest among males, those living in lowest income, those living alone and those who are renting (Figure 22).

xv People who have smoked less than 100 cigarettes in their lifetime are excluded.

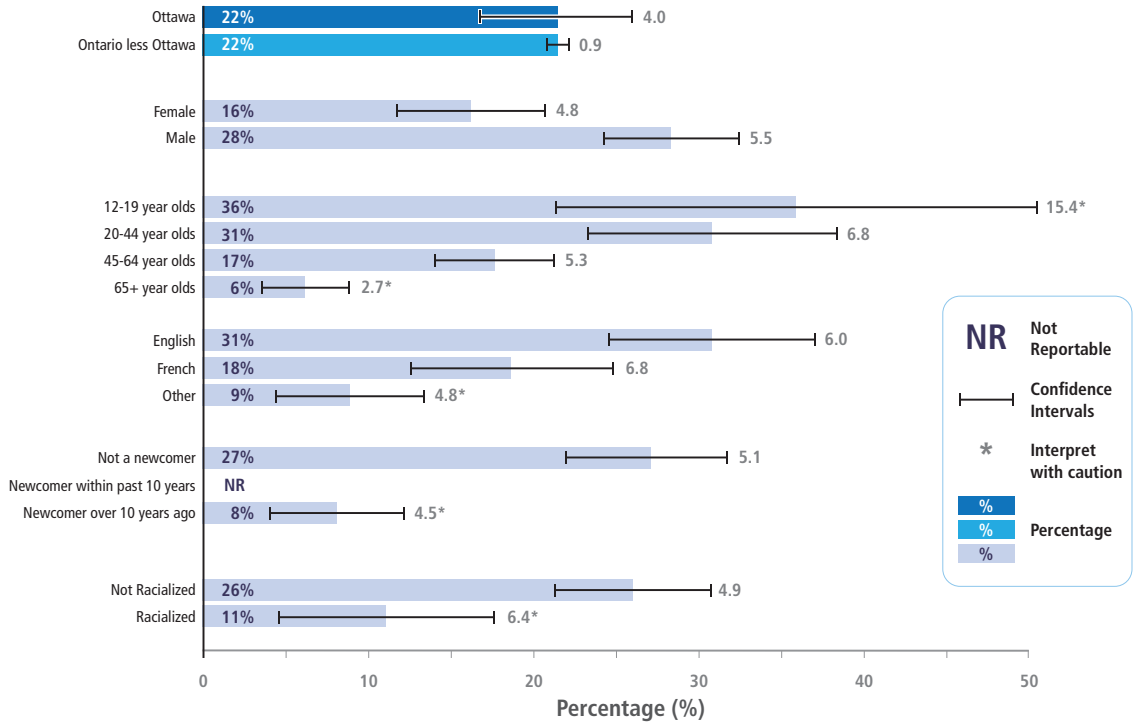

Figure 18. Percent of population aged 19 years and older who have used cannabis more than once in the past year by subgroup, 2019-2020.

Source: Canadian Community Health Survey 2019-2020, Statistics Canada, Share File, Ontario Ministry of Health
NR: Not reportable due to high sampling variability

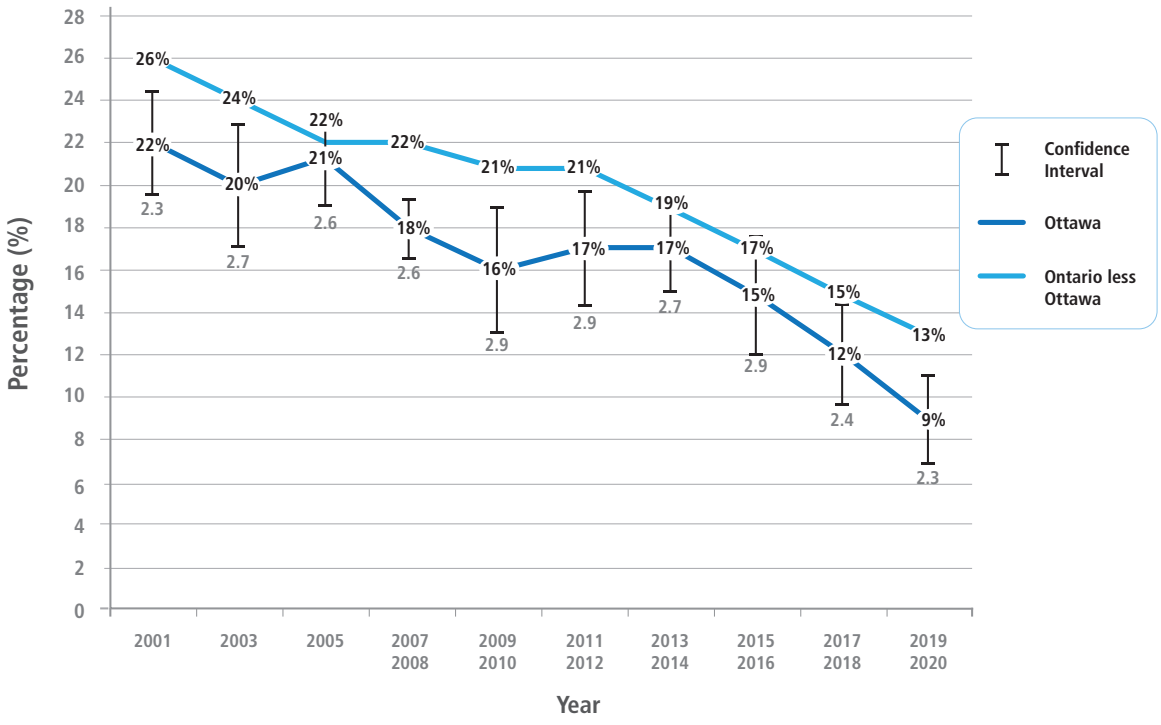

Figure 19. Percent of the population aged 19 and older who reported currently smoking by year, 2001-2020.

Source: Canadian Community Health Survey 2019-2020, Statistics Canada, Share File, Ontario Ministry of Health

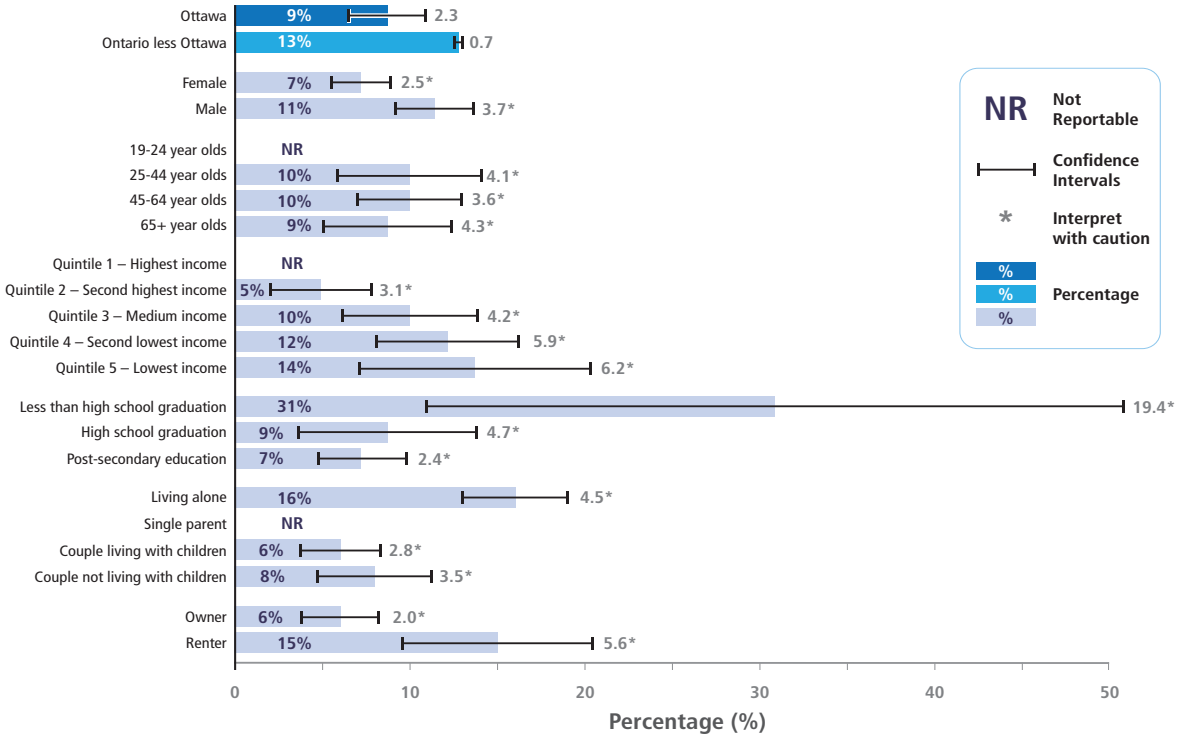

Figure 20. Percent of the population aged 19 and older who reported currently smoking by subgroup, 2019-2020.

Source: Canadian Community Health Survey 2019-2020, Statistics Canada, Share File, Ontario Ministry of Health
NR: Not reportable due to high sampling variability

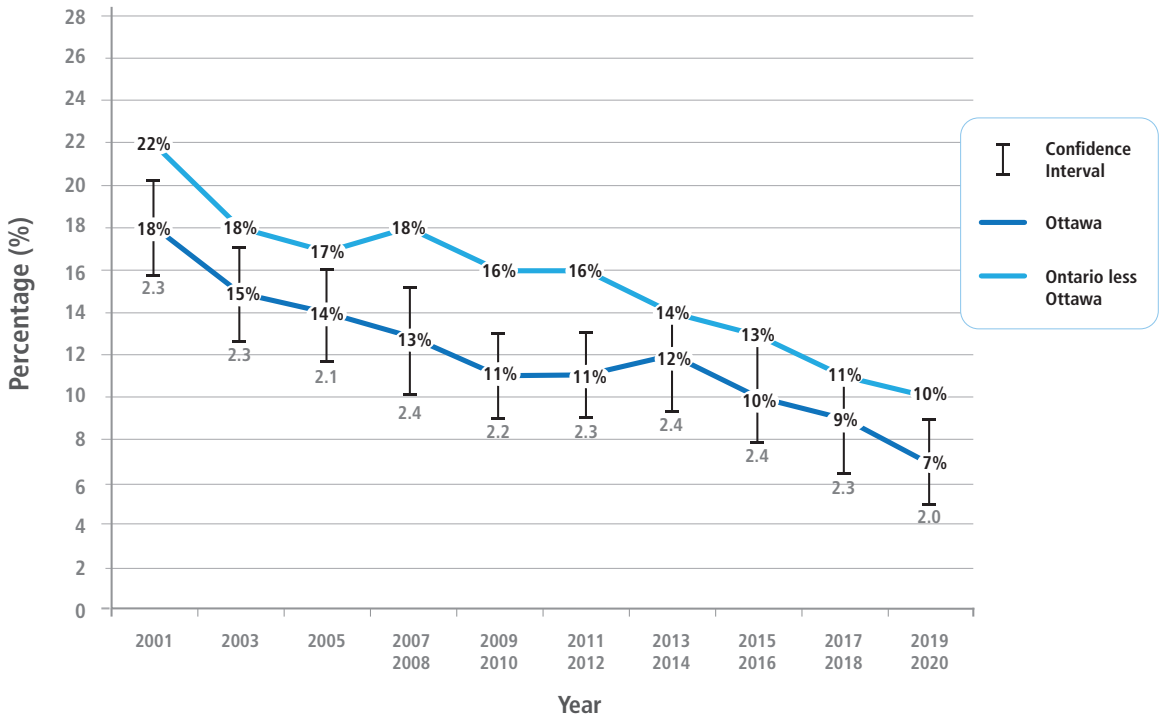

Figure 21. Percent of the population aged 19 and older who reported smoking daily by year, 2001-2020.

Source: Canadian Community Health Survey 2019-2020, Statistics Canada, Share File, Ontario Ministry of Health

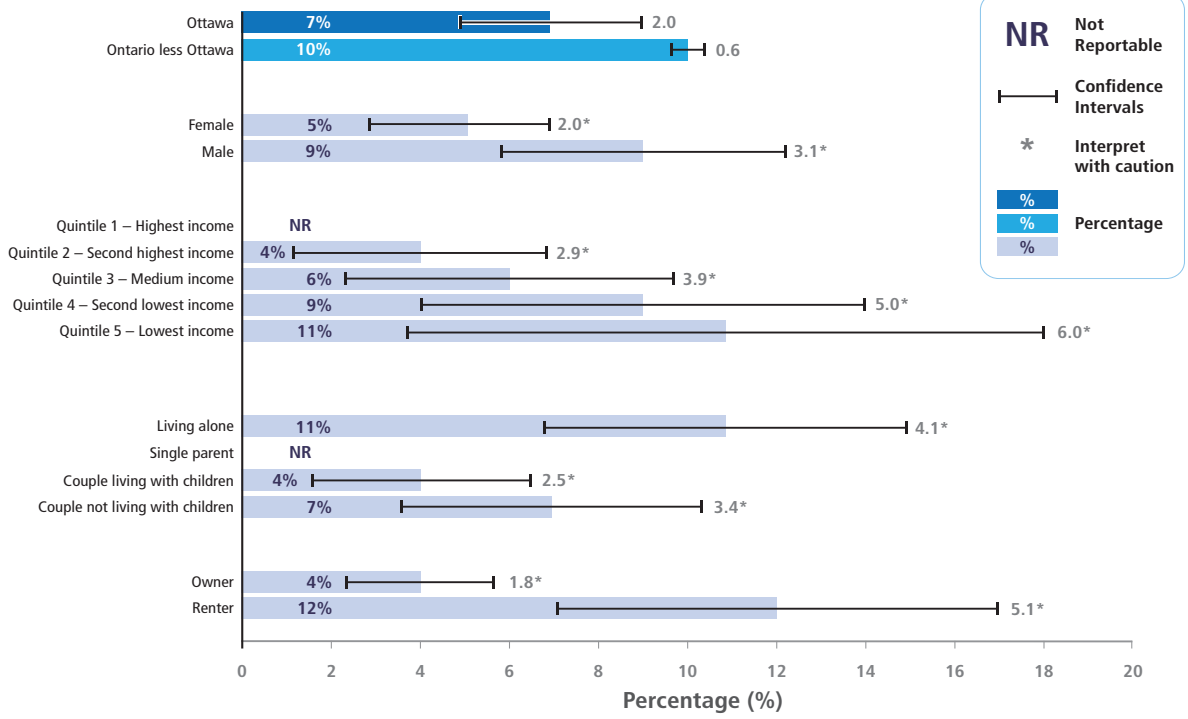

Figure 22. Daily smoking rates among those aged 19 and older, by subgroup, by subgroup, 2019-2020.

Source: Canadian Community Health Survey 2019-2020, Statistics Canada, Share File, Ontario Ministry of Health
NR: Not reportable due to high sampling variability

Despite the promise of reduced rates of smoking from these estimates, the effects of tobacco use continue to result in an important health burden. There are an estimated 1,004 deaths, 3,573 hospitalizations and 6,234 emergency department visits in residents of Ottawa residents annually due to tobacco use in those aged 35 and older.[85]

Substance Use Among Students

Past Year Substance Use

In 2021, past year use of alcohol (32%), cannabis (15%), opioids (non-medical) (10%), vapes/e-cigarettes (9%*) and tobacco cigarettes (3%*) by Ottawa students in grades 7 to 12 was similar both to the rest of Ontario, as well as to 2019, with the exception of vape/e-cigarette use which was significantly lower for Ottawa students relative to those in the rest of Ontario (16%) (Figure 23).[86, 87]

Overall, use of these substances in the past year was significantly higher among grade 9 to 12 students compared to those in grades 7 and 8; except for non-medical opioid use, which was reported equally between these grade categories. Other subgroups also showed significant differences in substance use, for example, the use of vapes/e-cigarettes was higher among males (12%) compared to females (7%), and both alcohol and vape/e-cigarette use was reported by more students who identified as non-racialized (37% and 11%,* respectively) compared to people who identified as racialized (18% vs. 5%*).

In 2021, only 6%* of Ottawa students in grades 9 to 12 reported binge drinking[xvi] in the past month, which was a significant decrease compared to 2019 (19%*). However, this difference may likely be a result of restrictions to social gatherings due to the COVID-19 pandemic throughout much of 2021.

xvi Binge drinking is defined as consuming 4+ drinks on one occasion for females or 5+ drinks on one occasion for males.

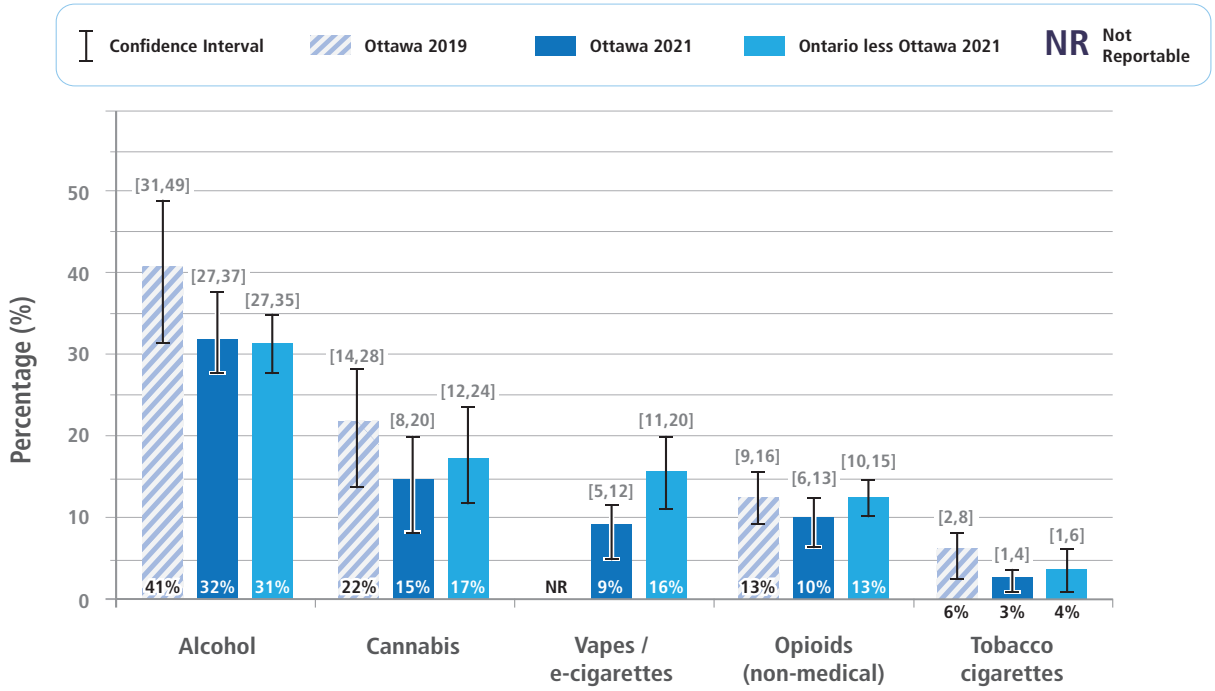

Figure 23. Percentage of students in grades 7 to 12 who reported using substances in the past year in Ottawa, 2019 and 2021, and Ontario-less-Ottawa, 2021.

Sources: Ottawa Public Health. Public Health Monitoring of Risk Factors in Ontario – Ontario Student Drug Use and Health Survey (2021), Centre for Addiction and Mental Health; Ottawa Public Health. Public Health Monitoring of Risk Factors in Ontario –Ontario Student Drug Use and Health Survey (2019), Centre for Addiction and Mental Health.

For further details on substance use health among Ottawa students, please see OPH's OSDUHS 2021 report.[88]

Perceived Availability of Substances

Perceived availability of substances in 2021, were relatively unchanged from 2019 and not different from students in the rest of Ontario. About half (52%) of students in grades 7 to 12 reported that it would be fairly or very easy to obtain a vaping device if they wanted one (Figure 24).[89, 90]

Impaired Driving

In 2021, 7% of Ottawa students in grades 7 to 12 reported that in the past year they had been a passenger in a vehicle driven by someone who had consumed alcohol, which was a significant decrease from 2019 (21%). About one in 10 (12%) of students reported they had been a passenger with someone who had consumed drugs (excluding alcohol) in 2019 (estimate not reportable for 2021).[91, 92]

Estimates for the proportion of Ottawa students who drove a vehicle within an hour of consuming either alcohol or cannabis were not reportable for 2021 or 2019. In 2019, 2% and 3% of Ontario students reported driving after consuming alcohol and cannabis, respectively.

Alcohol, Smoking and Cannabis Use During Pregnancy

One in forty (2.5%, 242) residents of Ottawa who gave birth in 2021 reported drinking alcohol during their pregnancy, representing a small decline in consumption compared to recent years (e.g., 4.6% in 2014; 4.6% in 2017; 3.7% in 2019).[93]

Approximately one in thirty (3.5%, 329) residents of Ottawa women who gave birth in 2018 reported smoking close to the time of their child's birth.[94]

Approximately one in forty (2.7%, 260) residents of Ottawa women who gave birth in 2021 reported exposure to cannabis (e.g., consuming and/or smoking cannabis) during their pregnancy.[95]

Stigma

Stigma is defined as a set of negative beliefs and prejudices about a group of people, as well as negative behaviors towards groups of people. Many people face stigma because of their race, religion, gender, sexuality, economic situation, and a variety of other factors including their substance use health or mental health.[96] Unfortunately, stigma is one of the biggest barriers preventing people experiencing challenges with mental health, addictions and substance use health from seeking and receiving appropriate health care and support.

In November 2021, the results of an OPH survey to gain a better understanding of the stigma that exists in the community around mental health and substance use health indicated that 90% or more of residents understood that mental health conditions and substance use health conditions can affect anyone, and that people living with these conditions need the right treatment and support and are deserving of health care.[97] However, there were some indications that stigma continues to be a barrier. For example, less than half (46%) of residents reported they would hire someone with a substance use disorder, and one in six (17%) reported they would not feel comfortable working with someone with a substance use disorder. For more detailed results, please see the Status of Mental Health, Addictions, and Substance Use Health in Ottawa During the COVID-19 Pandemic, Fall of 2021 report.

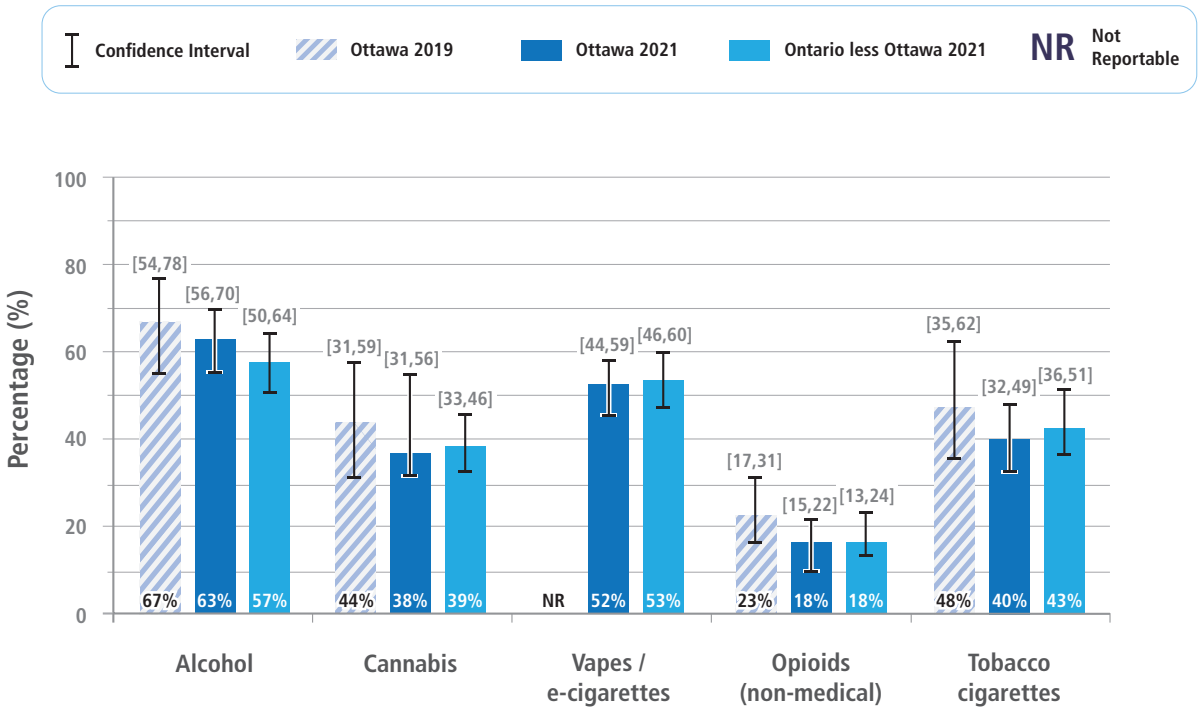

Figure 24. Percentage of students in grades 7 to 12 who reported that it would be fairly or very easy to obtain substances in Ottawa, 2019 and 2021, and Ontario-less-Ottawa, 2021.

Sources: Ottawa Public Health. Public Health Monitoring of Risk Factors in Ontario – Ontario Student Drug Use and Health Survey (2021), Centre for Addiction and Mental Health; Ottawa Public Health. Public Health Monitoring of Risk Factors in Ontario –Ontario Student Drug Use and Health Survey (2019), Centre for Addiction and Mental Health.
**Notes: Interpret with caution, high sampling variability; Data not available for 2019 as question was not asked.*

Chapter 3

What is the health status of residents of Ottawa?

This section of the report highlights the different measures available including measures of general health, and mental health, leading causes of emergency department visits and hospitalizations and provides a summary of infectious diseases in Ottawa.

PERCEIVED HEALTH

Approximately 65% of Ottawa residents aged 12 and older rated their general health as very good to excellent, similarly to the rest of Ontario.[98] An estimated 9% or (78,000 people) rate their health as fair to poor. Self-rated general health tends to be lower among those aged 65 and older, those living alone, and those living in the lowest income quintile (Figure 25).

In 2019, 93% of parents/caregivers of children aged 2 to 5 years living in Ottawa reported their child's health as excellent or very good and 93% of parents/caregivers of children aged 5 to 11 yearsreported their child's health as excellent or very good.[99]

In 2021, less than half (48%) of Ottawa students in grades 7 to 12 reported their physical health as very good or excellent; this was similar to the rest of Ontario, but significantly lower than in 2019 (61%) prior to the pandemic.[100, 101]

CHRONIC CONDITIONS

Self-reported chronic conditions for people in Ottawa aged 18 and older and aged 65 and older are shown in Table 4. Chronic disease prevalence tends to be higher in those aged 65 and older, which is not surprising, however for both age groups, arthritis and high blood pressure are the most prevalent chronic condition. Of note, anxiety and mood disorders are reported at similar proportions as asthma or diabetes in those aged 18 and older.

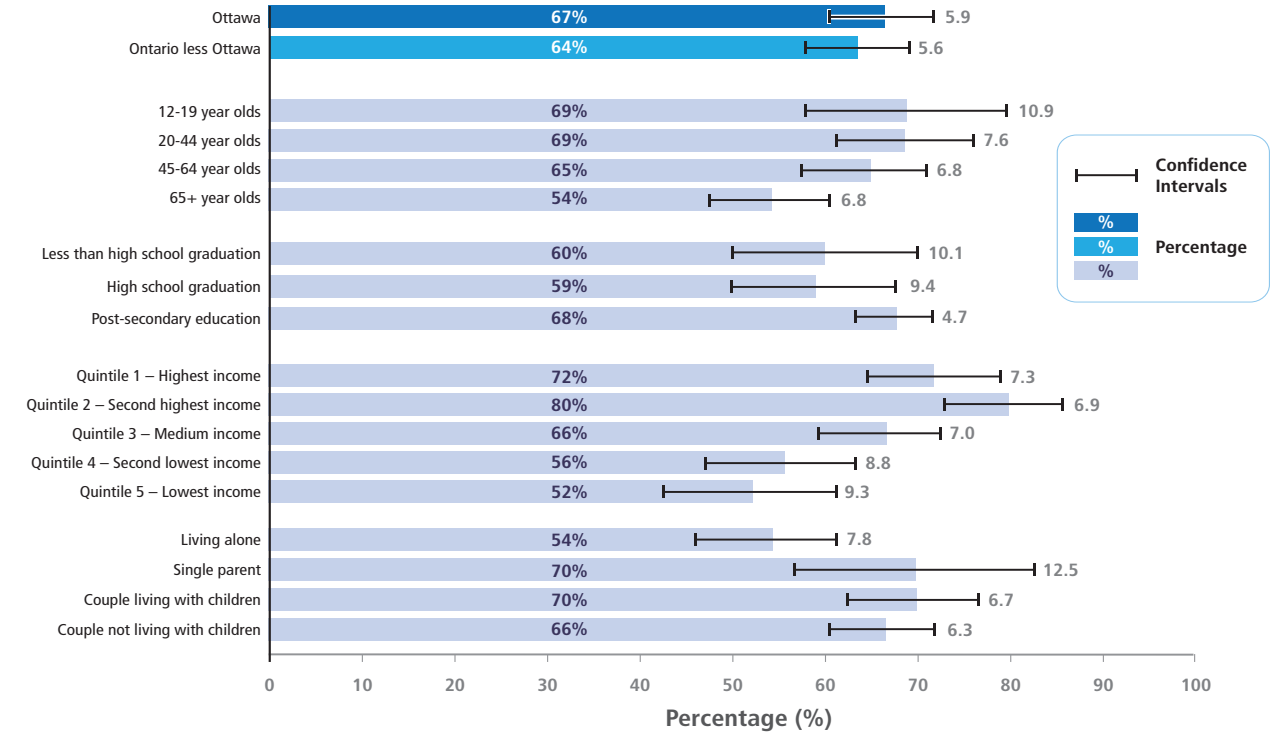

Figure 25. Percent of Ottawa residents aged 12 years and older who rated their general health as very good or excellent, 2019-2020..

Source: Canadian Community Health Survey 2019-2020, Statistics Canada, Share File, Ontario Ministry of Health.

Table 4. Percent and count of Ottawa residents self-reporting chronic condition by adult age group,2019-2020. Estimates are rounded to the nearest percent or 100 people.

Chronic Condition	Percent Aged 18 and older	Count aged 18 and older	Percent Aged 65 and older	Count aged 65 and older
Arthritis	16%	135,300	43%	67,900
High blood pressure	16%	135,200	41%	65,500
Anxiety disorders	10%	84,000	*8%	*12,100
Mood disorders	10%	80,900	*6%	*8,700
Asthma	8%	62,800	*8%	*12,000
Diabetes	6%	51,700	16%	25,400
Heart disease	5%	43,900	20%	31,500
COPD	*2%	*16,200	*6%	*8,900
Cancer	*2%	*14,400	*5%	*7,700
Stroke	*1%	*8,200	*4%	*6,700

Source: source: Canadian Community Health Survey 2019-2020, Statistics Canada, Share File, Ontario Ministry of Health

**Note: Interpret with caution due to high sampling variability.*

Cancer Incidence

Table 5 presents a summary of the leading types of cancer in Ottawa in 2018, including counts of diagnoses of cancer by cancer type, sex, and comparison to Ontario-less-Ottawa. Cancer rates estimates are adjusted for differences in age structure between Ottawa and the rest of Ontario. The incidence rate due to all cancers combined was similar in Ottawa compared to the rest of Ontario (499.5 per 100,000 vs. 506.4 per 100,000). The top five cancers with the highest incidence rates in Ottawa were prostate, breast, lung, colorectal, and uterine cancer.

Incidence of melanoma was significantly higher in Ottawa compared to the rest of Ontario (27.1 per 100,000 vs. 22.7 per 100,000). Incidence was significantly lower in Ottawa compared to the rest of Ontario for cancers of the thyroid (14.7 per 100,000 vs. 21.7 per 100,000) and kidney (12.5 per 100,000 vs. 16.4 per 100,000).

Cancer Mortality

Table 6 presents a summary of the leading cancer deaths in Ottawa in 2018, including counts of deaths by cancer type, sex and comparison to Ontario-less-Ottawa. The cancer mortality rates are adjusted for differences in age structure between Ottawa and the rest of Ontario. The mortality rate from all cancers combined was similar in Ottawa compared to Ontario-less-Ottawa in 2018 (180 per 100,000 vs. 185.4 per 100,000). The most common cancer deaths were attributable to lung, colorectal, breast, pancreatic, and prostate cancer.

Mortality rates for breast cancer were significantly higher in Ottawa compared to the rest of Ontario (16.0 per 100,000 vs. 12.6 per 100,000).

LEADING CAUSES OF EMERGENCY DEPARTMENT VISITS

In 2021, Ottawa residents made 327,086 visits to the emergency department (ED).[102] The top ten leading causes of these visits are shown in Figure 26. Injuries (e.g., falls, self-harm, collisions, overdose and poisoning, burns, cuts, overexertion) were the leading cause of ED visits in all age groups.

Table 5. Summary of leading cancer diagnoses in Ottawa, 2018.

Cancer type	Ottawa males (count)	Ottawa females (count	Ottawa age-standardized rate	Ottawa 95% confidence interval	Ontario-less-Ottawa age-standardized rate	Ontario-less-Ottawa 95% confidence interval
All cancers, combined	2591	2570	499.5	485.9, 513.4	506.4	502.8, 510.1
Prostate*	659	NA	134.0	123.9, 144.7	124.9	122.2, 127.6
Breast**	NA	714	133.5	123.8, 143.8	130.8	128.2, 133.5
Lung	306	334	60.6	56.0, 65.5	32.1	60.9, 63.4
Colorectal	276	246	51.0	46.7, 55.6	51.9	50.8, 53.1
Body of uterus**	NA	193	36.1	31.1, 41.6	36.5	35.1, 37.9
Melanoma	161	116	§27.1	24.0, 30.5	22.7	21.9, 23.5
Non-Hodgkin lymphoma	148	114	25.1	22.1, 28.3	26.7	25.9, 27.6
Ovary**	NA	90	16.7	13.4, 20.6	15.7	14.8, 16.6
Leukemia	83	73	15.2	12.9, 17.8	15.5	14.9, 16.2
Thyroid	54	94	§14.7	12.4, 17.3	21.7	20.9, 22.5
Oral cavity	102	47	14.7	12.4, 17.2	13.5	12.9, 14.1
Pancreas	77	75	14.5	12.2, 17.0	12.6	12.1, 13.2
Bladder	109	37	13.9	11.7, 16.4	13.2	12.7, 13.8
Kidney	82	46	§12.5	10.5, 14.9	16.4	15.8, 17.1

*Source: Ontario Cancer Registry SEER*Stat Package - Release 12 - OCR (Mar. 2021). Pop Est Summary [Ministry of Health and Long-Term Care: IntelliHEALTH ONTARIO, extracted March 2012 (1986-2000); Statistics Canada. Table 17-10-0086-01 Estimates of population (2011 Census and administrative data), by age group and sex for July 1st, Canada, provinces, territories, health regions (2017 boundaries) and peer groups, inactive (2001-2005); Statistics Canada. Table 17-10-0134-01 Estimates of population (2016 Census and administrative data), by age group and sex for July 1st, Canada, provinces, territories, health regions (2018 boundaries) and peer groups (2006-2018).]*

*Notes: * Includes males only. ** Includes females only. § Statistically significantly different from the Ontario-less-Ottawa rate at a 95% confidence interval. NA = not applicable. Rates are per 100,000 population.*

Table 6. Summary of leading cancer deaths in Ottawa, 2018.

Cancer type	Ottawa males (count)	Ottawa females (count	Ottawa age-standardized rate	Ottawa 95% confidence interval	Ontario-less-Ottawa age-standardized rate	Ontario-less-Ottawa 95% confidence interval
All cancers, combined	980	905	180.0	171.9, 188.3	185.4	183.2, 187.6
Lung	226	202	40.6	36.8, 44.6	43.3	42.2, 44.4
Colorectal	113	87	19.2	16.7, 22.1	19.6	18.9, 20.3
Breast**	NA	165	§16.0	13.7, 18.7	12.6	12.1, 13.2
Pancreas	72	56	12.2	10.2, 14.6	11.7	11.2, 12.3
Prostate*	100	NA	9.4	7.6, 11.4	10.1	9.6, 10.6
Miscellaneous malignant	36	46	7.7	6.1, 9.6	9.9	9.4, 10.4
Non-Hodgkin lymphoma	49	23	6.8	5.3, 8.6	7.1	6.7, 7.5
Leukemia	31	28	5.6	4.3, 7.2	6.8	6.4, 7.2
Brain	33	23	5.4	4.1, 7.0	5.4	5.1, 5.8
Oral cavity	32	16	4.7	3.5, 6.3	3.9	3.6, 4.2
Bladder	29	21	4.7	3.5, 6.2	5.3	4.9, 5.6
Myeloma	27	18	4.3	3.2, 5.8	3.6	3.3, 3.9
Liver	36	8	4.2	3.0, 5.6	4.2	3.9, 4.6
Ovary**	NA	42	4.1	2.9, 5.5	4.3	4.0, 4.6
Body of uterus**	NA	37	3.5	2.5, 4.9	3.0	2.8, 3.3

*Source: Ontario Cancer Registry SEER*Stat Package - Release 12 - OCR (Mar. 2021). Pop Est Summary [Ministry of Health and Long-Term Care: IntelliHEALTH ONTARIO, extracted March 2012 (1986-2000); Statistics Canada. Table 17-10-0086-01 Estimates of population (2011 Census and administrative data), by age group and sex for July 1st, Canada, provinces, territories, health regions (2017 boundaries) and peer groups, inactive (2001-2005); Statistics Canada. Table 17-10-0134-01 Estimates of population (2016 Census and administrative data), by age group and sex for July 1st, Canada, provinces, territories, health regions (2018 boundaries) and peer groups (2006-2018).]*

*Notes: * Includes males only. ** Includes females only. § Statistically significantly different from the Ontario-less-Ottawa rate at a 95% confidence interval. NA = not applicable. Rates are per 100,000 population.*

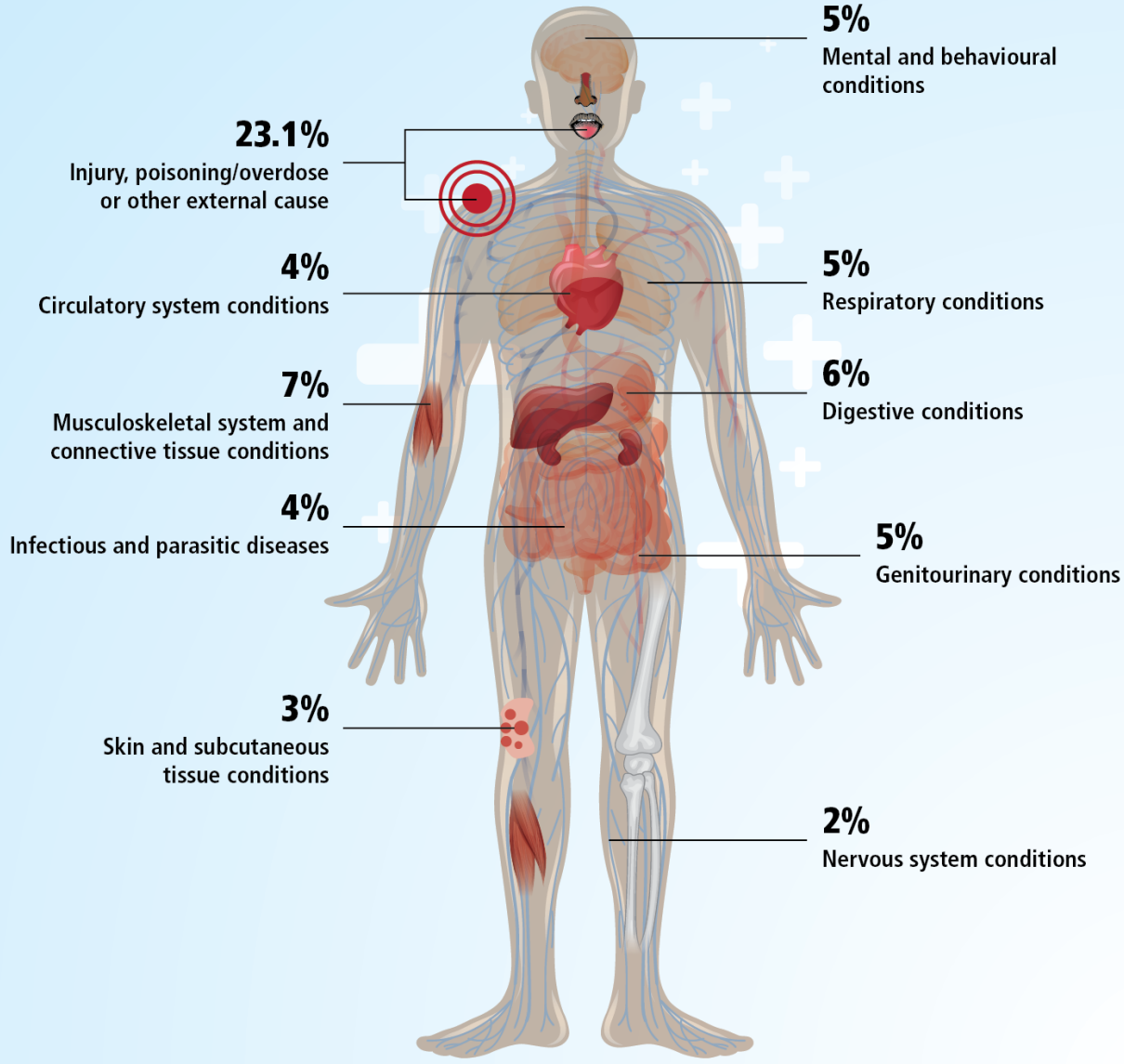

Figure 26. Top ten leading causes of emergency department (ED) visits by Ottawa residents, 2021.

Sources: Ottawa Public Health. Emergency Department Visits. National Ambulatory Care Reporting System 2021. Ontario Ministry of Health, IntelliHEALTH Ontario. Extracted December 16, 2022.

LEADING CAUSES OF HOSPITALIZATIONS

Leading causes of hospitalizations are from diseases of the circulatory system such as hypertension, heart disease or stroke; endocrine, nutritional, and metabolic disease such as diabetes; genitourinary disease such as renal failure or pelvic inflammatory disease; digestive system disease such as noninfecitive enteritis or appendicitis and injuries.[103] While these conditions are leading causes of disease regardless of socioeconomic advantage, the rates of hospitalization vary. Neighbourhoods with the lowest socioeconomic advantage have the highest rates of hospitalization for all five causes when compared to the most advantaged neighbourhoods (Figure 27).

LEADING CAUSES OF DEATHS

At the time this report was prepared, data on deaths beyond 2015 was not available. Information beyond what is already published on the OPH website is not currently available. More recent mortality data will be analysed and published at a future date. For more information about deaths in Ottawa, please refer to the Morbidity, Mortality, and Quality of Life – Ottawa Public Health section of the Ottawa Public Health website.

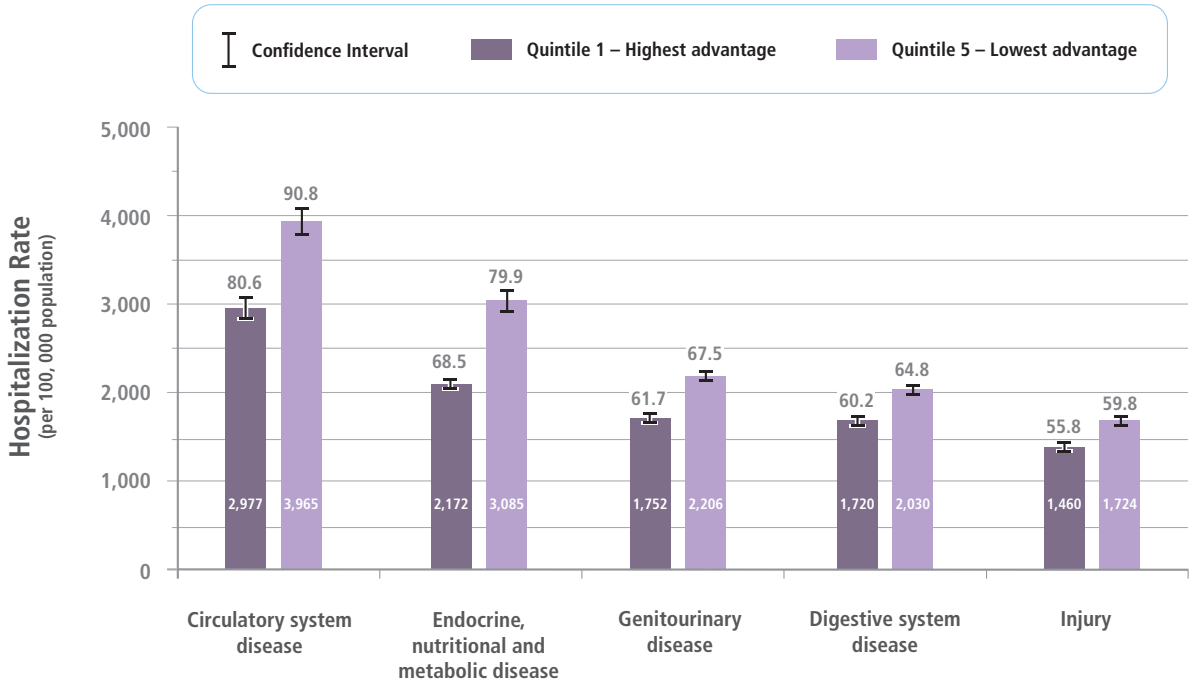

Figure 27. Age standardized hospitalization rates by cause and Ottawa Neighbourhood Study socioeconomic quintiles 1 and 5, 2021

Source: Unscheduled hospitalizations, Discharge Abstract Database (2021). IntelliHealth Ontario, Ontario Ministry of Health. Extracted Dec 2022

LEADING CAUSES OF INJURIES

Injuries are the leading cause of emergency department (ED) visits and are among the leading cause of hospitalizations for residents of Ottawa. Figure 28 shows the causes of injury by percent of injury-related ED visits and hospitalizations as a percent of injuries in 2021.[104] Only causes that represent 5% or more of either ED visits or hospitalizations are shown. Falls contributed most to the burden of injury for both injury-related ED visits (39%) and hospitalizations (70%). Sport and recreation injuries contributed the second highest burden of injury-related ED visits (12%) and self-harm contributing the second highest burden of injury-related hospitalizations (13%). This is similar to patterns seen in previous reports.

Across the lifespan, falls were the leading cause of injury-related ED visits. For those aged under 25 years, sport and recreation related injuries were the second highest contributor. Among those aged 25 to 64, cuts were the second most common, and for those 65 and older, being struck against or by something was second most common reason for injury-related ED visits.

Falls were the leading cause of injury-related hospitalizations in all age groups except in those aged 15 to 44 where self-harm is the leading cause. Both leading cause and second most common cause of hospitalization by age group is shown in Table 7. These rankings are similar to those reported in previous health status reports.

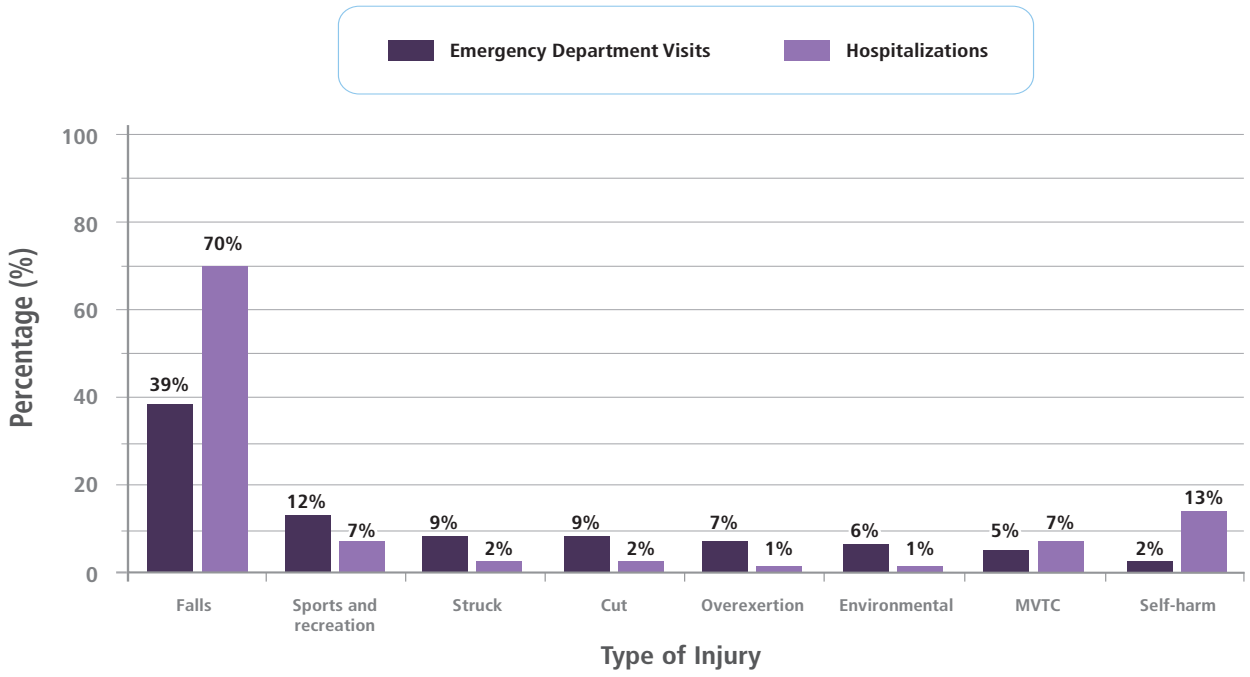

Figure 28. Percentage of injury related emergency department visit and hospitalizations by cause in Ottawa, 2021.

Source: External cause. National Ambulatory Care Reporting System 2021, IntelliHEALTH ONTARIO,Ontario Ministry of Health. Date Extracted: March 2023.
Notes: MVTC = Motor vehicle traffic collision. Data is filtered by patient disposition to create estimates of hospitalization resulting from injuries. Categories are not mutually exclusive.

Table 7. Leading cause of hospitalization among resident of Ottawa by age group 2021.

	Less than 15 years	15 to 24 years	25 to 44 years	45 to 64 years	65 years and older
Leading cause of hospitalizations	Falls	Self-harm	Self-harm and falls	Falls	Falls
Second most common cause of hospitalizations	Sport injuries	Motor vehicle traffic collisions	Motor vehicle traffic collisions	Self-harm	Suffocation or choking

Source: External cause. National Ambulatory Care Reporting System 2021, IntelliHEALTH ONTARIO,Ontario Ministry of Health. Date Extracted: March 2023.

Notes: Data is filtered by patient disposition to create estimates of hospitalization resulting from injuries.

MENTAL HEALTH

Mental health is the ability to feel, think and act in ways that help us enjoy life and cope with challenges. As life experiences and circumstances change, so can moods, thoughts, and sense of well-being, both positive and negative.

Mental Health in the Community

Sixty percent of residents of Ottawa aged 12 and older rated their mental health as very good or excellent in 2019/2020, an approximate 8 to 10% decrease from previous years.[105] An estimated 12% (100,600 people) rated their mental health as fair to poor. Self-rated mental health tends to be lowest among females, those aged 20 to 44, those in the lowest two income quintiles, those living in an urban setting, renters and those living alone (Figure 29).

The COVID-19 pandemic has had a significant and negative impact on mental health, disruption of social networks, decreasing access to much-needed services or support as well as the effects of worry or fear associated with the pandemic. To assess the impact of the pandemic on mental health, OPH undertook a series of population surveys in June and October 2020, and November 2021.[106] [107] [108] In June and October of 2020, only 28% of Ottawa residents rated their mental health as excellent or very good. While this improved to 43% in November of 2021, it is still well below the 2019/2020 population estimate of 60%. This latter estimate would include data from prior to the pandemic. During the pandemic, people living in Ottawa who tended to fair worse with regards to their mental health included people with disabilities, young adults, people who identify as racialized, those with lower household income and people who identify as 2SLGBTQQIA+. About a quarter (24%) of people living in Ottawa also reported that in the past two weeks they wanted to reach out for mental health support but did not know where to turn (Figure 30) highlighting an ongoing need for mental health resource promotion exists.

Mental Health Among Students

Ottawa students in grades 7 to 12 reported significantly poorer mental health and emotional wellness in 2021 compared to 2019 (pre-pandemic)[109, 110] (see the OSDUHS 2021 report for detailed results). Almost half (44%) of students reported fair or poor mental health, 42% reported wanting to talk to someone in the past year but not knowing where to turn, and 33% reported that their ability to handle an unexpected crisis or difficult family or friend problem was fair or poor (Figure 31). Further, 16%* of Ottawa students reported seriously considering suicide in the past year (not different from the rest of Ontario or from 2019). In particular, high school students (grades 9 to 12), students of socioeconomic disadvantage, or those identifying as 2SLGBTQQIA+ reported poorer mental and emotional well-being compared to their counterparts.[111]

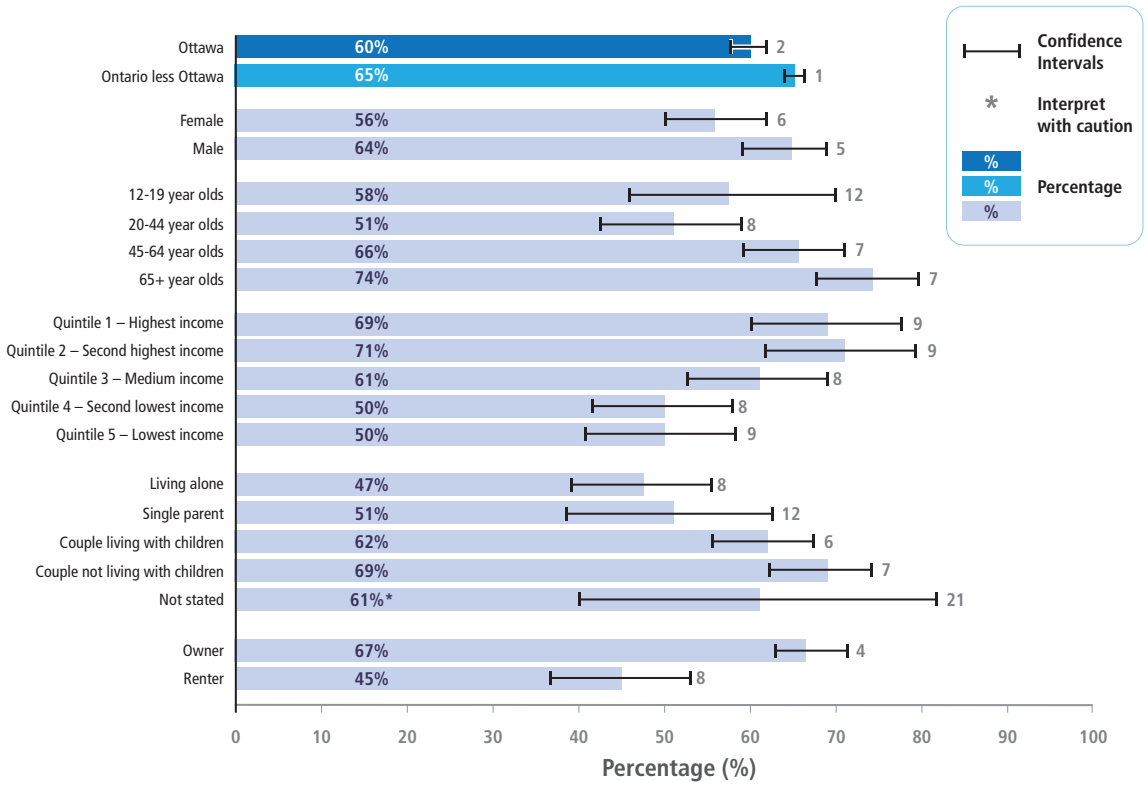

Figure 29. Self-rated mental health among Ottawa residents aged 12 years and older by subgroup, 2019-2020.

Source: Canadian Community Health Survey 2019-2020, Statistics Canada, Share File, Ontario Ministry of Health.
** Note: Interpret with caution due to high sampling variability.*

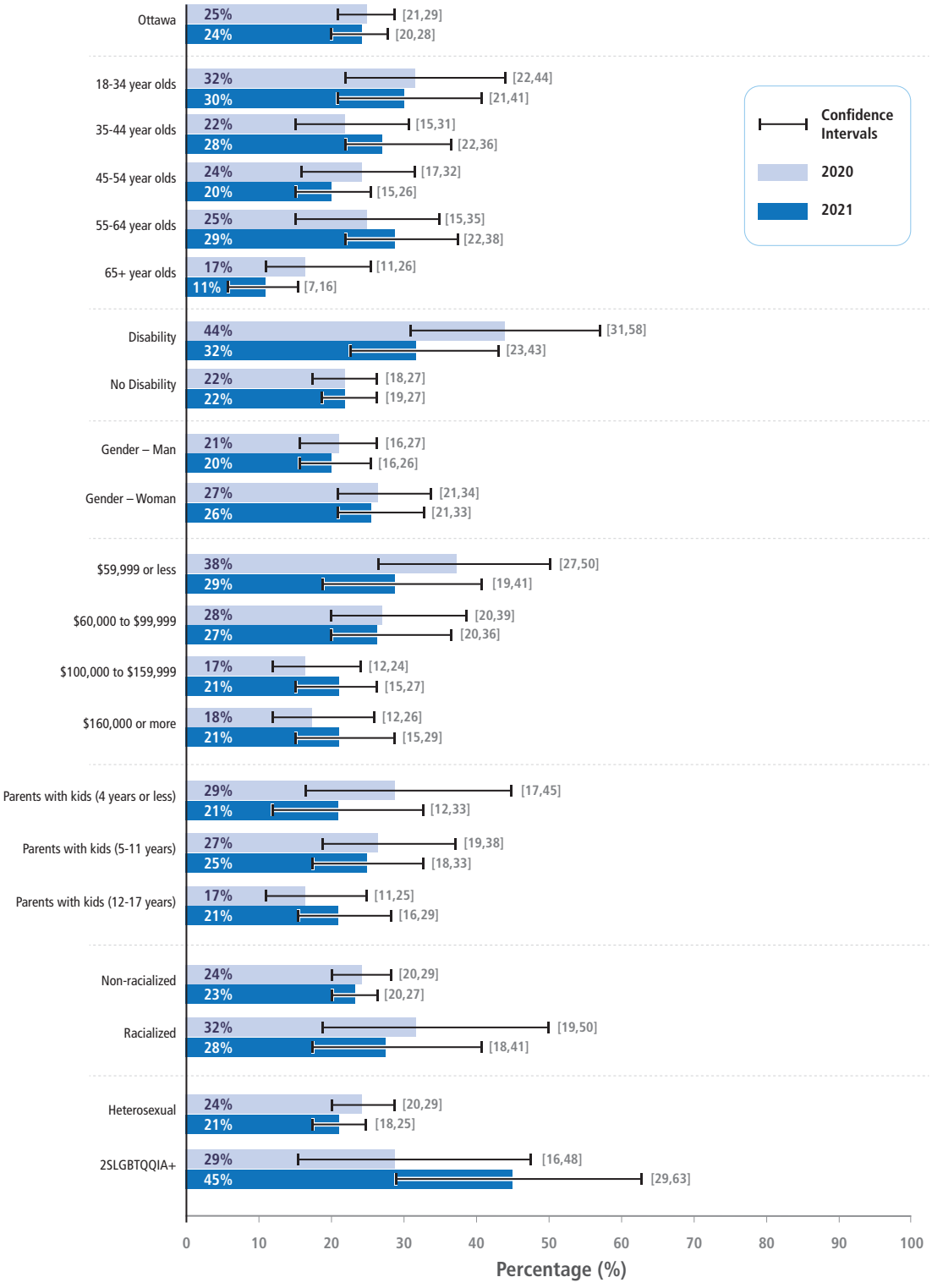

Figure 30. Percentage of Ottawa residents (18+ years) who wanted to reach out for mental health support but did not know where to turn.

Source: Ottawa Public Health. Impact of COVID-19 online survey of Ottawa adults. June, October 2020, November 2021, 2020, 2021.

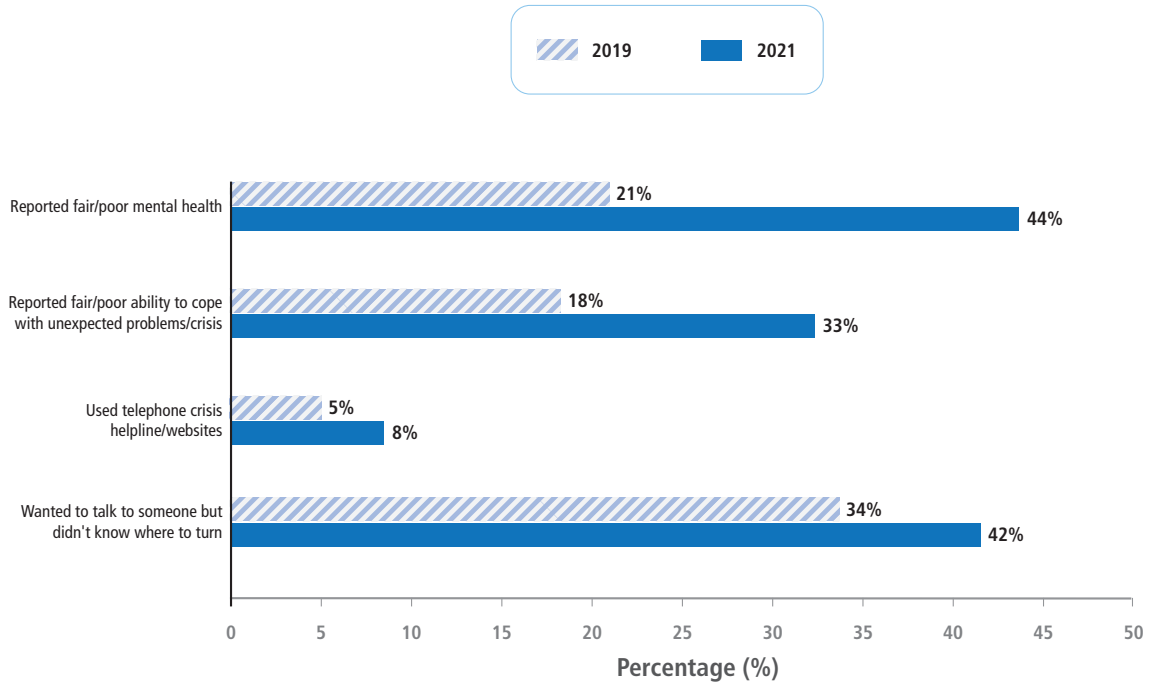

Figure 31. Percentage of Ottawa students in grades 7 to 12 reporting mental health and emotional well-being, in 2021 compared to 2019.

Source: Better Outcomes Registry & Network (BORN) Ontario, 2013-2022. Extracted March 13, 2023.

Mental Health Among Pregnant Individuals

During pregnancy or after childbirth, some parents develop mental health concerns such as anxiety and depression, and these conditions can cause additional challenges for parents and their families. Among Ottawa residents who gave birth in 2022, close to a quarter (23%) reported a mental health concern during their pregnancy, up from 14% in 2014, and increasing year over year (Figure 32).[112]

INFECTIOUS DISEASES

The *Ontario Health Protection and Promotion Act*[xvii] requires that certain diseases of public health significance be reported when they are diagnosed, to help public health officials identify disease trends, and track and manage disease outbreaks.

These communicable diseases are generally underreported. This can be due to people being diagnosed based on symptoms rather than a laboratory test. People may not be severely ill and, as a result, do not seek testing or health care or that the disease agent can't be detected in the laboratory specimen.

xvii A list of reportable diseases can be found at: https://www.ontario.ca/laws/regulation/180135

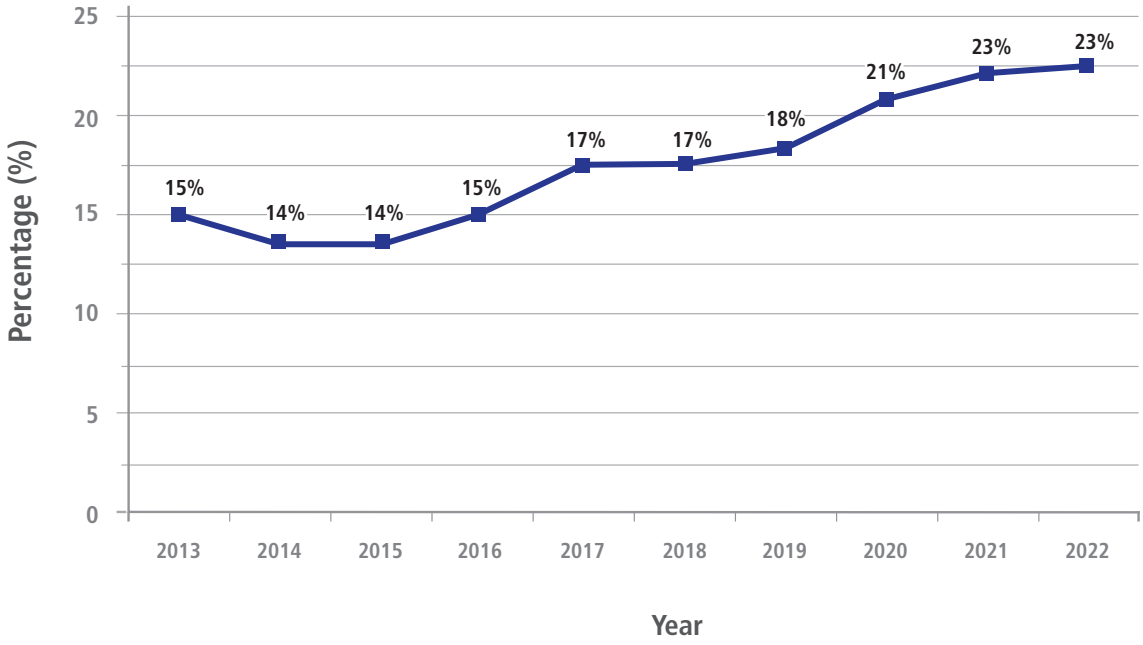

Figure 32. Percentage of Ottawa residents with a mental health concern during their pregnancy, 2013 to 2022.

Source: Better Outcomes Registry & Network (BORN) Ontario, 2013-2022. Extracted March 13, 2023.

Reportable infectious diseases in Ottawa are organized into five major groups: 1) direct contact and respiratory infections including tuberculosis, 2) sexually transmitted and blood-borne infections, 3) vaccine preventable diseases, 4) enteric, food and water-borne infections and 5) vector-borne and other zoonotic infections.

Direct Contact and Respiratory Infections, Including Tuberculosis

Respiratory infections and diseases transmitted by direct contact are spread from person to person through droplets in the air (e.g., from a person coughing or sneezing) or through direct contact with an infected person. The epidemiology and symptoms of each disease vary depending on the infectious agent.

Ontario has an annual universal influenza immunization program to offer vaccination against seasonal influenza. In addition, vaccines against common serogroups of invasive meningococcal disease, invasive Streptococcus pneumoniae and Haemophilis influenza are part of the publicly funded immunization schedule.

Overall Trends

There was a decrease in incidence of some direct contact and respiratory diseases reported to OPH during the COVID-19 pandemic that persisted into 2022 (e.g. invasive group A streptococcal disease), while others increased (e.g. tuberculosis, carbapenemase-producing enterobacteriaceae, legionellosis, blastomycosis) compared to the pre-pandemic average (Figure 33).

Legionellosis[xviii] appears to have increased over time, likely due to the increased use of less invasive diagnostic methods. Incidence of legionellosis was lower in Ottawa (1.6 per 100,000) than the average of Ontario-less-Ottawa (2.2 per 100,000). Blastomycosis[xix] has increased from 4 people

xviii Legionellosis is a disease caused by the Legionella bacteria that can result in serious pneumonia (Legionnaires' disease).

xix Blastomycosis is caused by the inhalation of Blastomyces fungal spores. It primarily affects the lungs but can be systemic. Symptoms can include fever and cough, and can be serious if not treated.

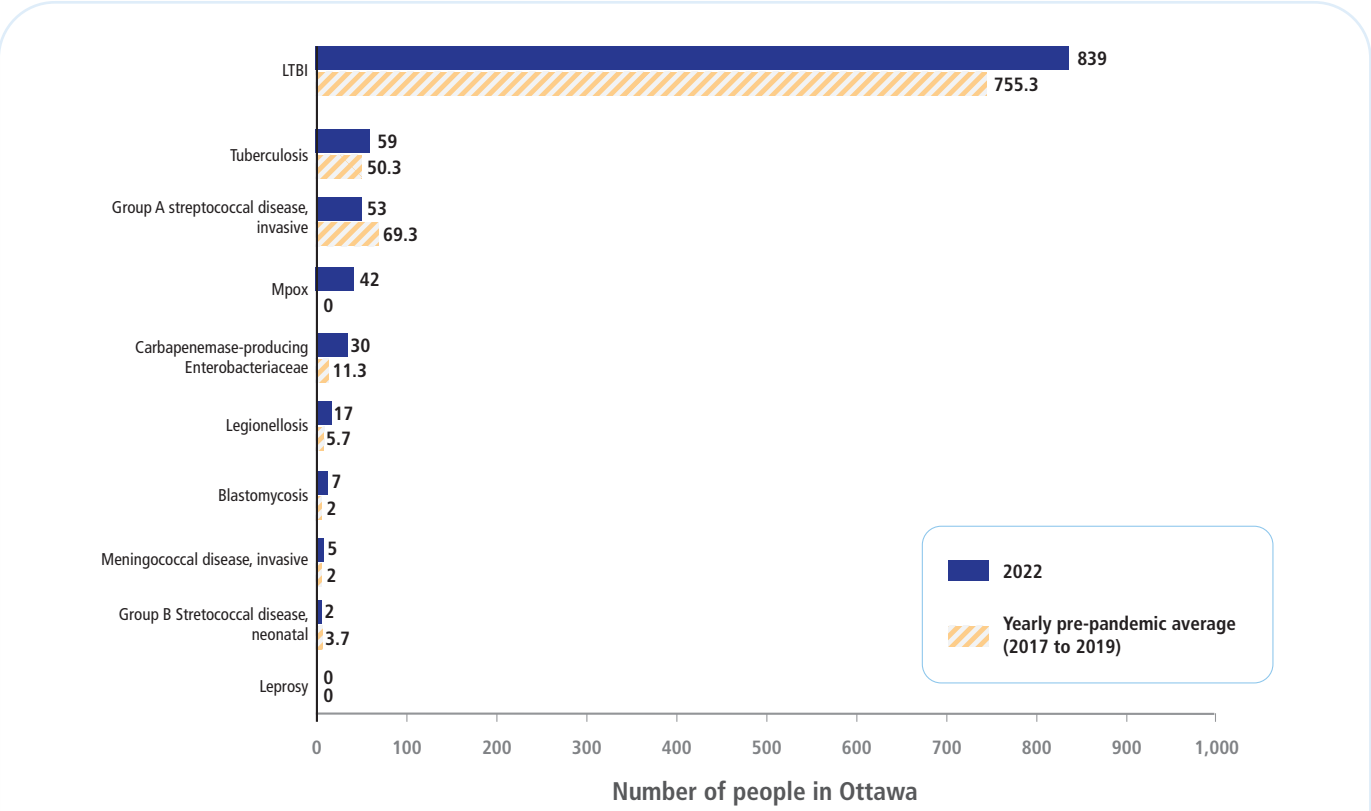

Figure 33. Number of Ottawa residents with an infection from a direct contact or respiratory disease of public health significance, 2022 vs pre-pandemic (2017 to 2019) average.

Source: Ottawa Public Health. Integrated Public Health Information System (iPHIS), Ontario Ministry of Health. Extracted March 13, 2023.
Notes: Three (3) additional people reported with confirmed blastomycosis from 2022 were pending confirmation in iPHIS and are not represented above. Blastomycosis counts may include people meeting the probable case definition in addition to people meeting the laboratory confirmed case definition.

reported with infections a year in each of 2019 to 2021 to 10 people reported in 2022. Incidence of blastomycosis was higher in Ottawa (0.93 per 100,000) than the average of Ontario-less-Ottawa (0.69 per 100,000), although still many times lower than hyperendemic areas in North-western Ontario (50 per 100,000). The incidences of Carbapenamase-producing enterobacteriaceae (CPE)[xx] and group B streptococcal disease[xxi] were similar to the average incidences in Ontario-less-Ottawa during 2022.

In June 2022, mpox (formerly known as monkeypox) became reportable as a Disease of Public Health Significance. The disease was not previously circulating in Canada. Please refer to the mpox section for more details.

Invasive group A streptococcus (iGAS)

The incidence of invasive group A streptococcus (iGAS),[xxii] caused by Streptococcus pyogenes, reported to OPH was

xx CPE are a group of bacteria that have become resistant to many antibiotics. Infections caused by CPE can be difficult to treat.

xxi Group B streptococcus bacteria are usually harmless in healthy adults but can cause serious disease in newborns.

xxii Most Group A strep infections are mild illnesses like strep throat or impetigo. Sometimes the bacteria can invade the lungs, blood or tissues around the muscle causing very serious, sometimes life-threatening disease.

stable from 2017 through to 2019 (Figure 34). The rates of iGAS dropped in 2020, likely due to COVID-19-related public health measures such as handwashing and the absence of seasonal respiratory viruses which make people more susceptible to secondary bacterial infections. Rates rose in 2021 and 2022 following the decrease in COVID-19 prevention measures together with increases in respiratory viral infections.

The incidence of iGAS in Ottawa (4.9 per 100,000) was lower than the average of Ontario-less-Ottawa (which had 5.7 cases diagnosed per 100,000) in 2022. People diagnosed with iGAS in 2022 were predominantly male (66%) and were over age 40 years (75%). Chronic skin conditions, and drug and alcohol use were the most common risk factors identified, but those most at risk for severe infections and fatalities were those with immune deficiencies. The proportion of people with iGAS who were underhoused more than doubled from 18% in 2017 to 45% in 2022.

Invasive Meningococcal Disease (IMD)

In the past 10 years, there have been five or fewer annual cases of invasive meningococcal disease (IMD)[xxiii] reported in Ottawa due to routine immunization in Ontario during infancy and at 12 years of age beginning in 2009. In the school year 2020-21, approximately 96% of 17-year-olds in Ottawa had been vaccinated against meningococcal disease (see Childhood Immunization).[113]

In 2022, the incidence of IMD (0.5 per 100,000) was the highest it has been in the last ten years and higher than the average of Ontario-less-Ottawa (0.1 per 100,000).[114] This increase was likely due to loosening of COVID-19 public health measures that resulted in close, unmasked contact with a larger number of people and higher rates of viral respiratory disease which makes people susceptible to secondary bacterial infections.[115]

Tuberculosis

Tuberculosis (TB) is an infection caused by a group of Mycobacterium bacteria species, which primarily infects the lungs but can also infect other parts of the body. In 2022, 59 cases of active TB, or 5.5 per 100,000, were reported among Ottawa residents.[xxiv] The rate of activeTB in Ottawa has increased over the last six years (Figure 35) and it is higher than the average for Ontario-less-Ottawa (4.6 per 100,000).[116] Indigenous peoples in Canada are disproportionally affected by TB due to ongoing impacts of colonization and health inequities.[117]

The average age at diagnosis was 46 years. Roughly half (52%) of people diagnosed with TB had pulmonary disease. The major risk factor for TB was living in or travelling to an endemic area.[118] Of residents of Ottawa diagnosed with TB in 2022, most (73%) were born outside Canada, similar to previous years. Among Canadian-born individuals in Ottawa, Inuit are disproportionately affected by TB. In 2022, 8% of the cases of TB in Ottawa were in individuals who identify as Inuk. This disproportionate burden of TB illness is also seen elsewhere in Canada. Among Inuit living within Inuit Nunangat, the rate of TB was 40 times the rate for Canada as a whole (189/100,00 vs. 4.7/100,000) and more than 400 times the rate for the Canadian-born, non-Indigenous population (189/100,000 vs. 0.4/100,000) in 2019.[119]

Case fatality rates, the proportion of people infected who die from TB, have fluctuated slightly over the last 10 years, with an average of 6%, compared with the Canadian case fatality rate of 5% from 2010 – 2019. At the time of this report, no deaths from TB have been recorded for people diagnosed in 2022.[120] Ottawa Public Health works closely with individuals as they are treated for TB and were able to support 93% through successful treatment according to the Canadian guidelines.

xxiii A serious illness that results when *Neisseria meningitidis* bacteria invade the blood or tissues around the brain and cause serious disease like meningitis or septicemia.

xxiv Reports of active TB and LTBI are all recorded by date of diagnosis. For example, if a person was diagnosed in 2020 and successfully treated the successful treatment date would be 2020, rather than in year in which treatment was actually completed. The same applies to all other outcomes including fatalities.

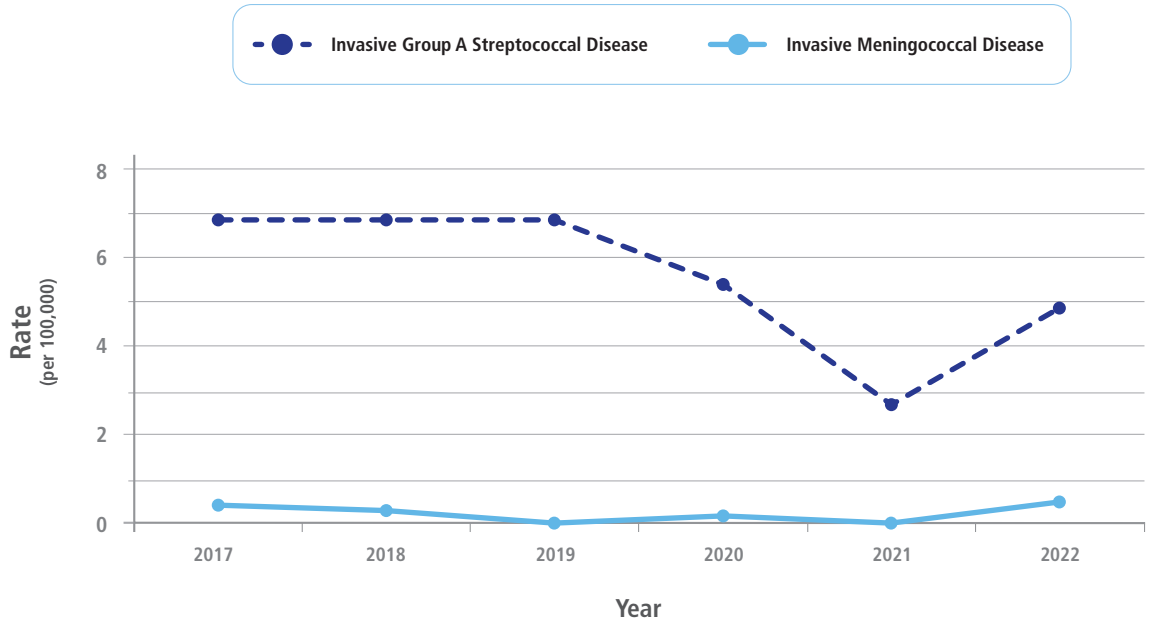

Figure 34. Incidence of invasive group A streptococcal disease and invasive meningococcal disease, Ottawa, 2017 to 2022.

Source: Ottawa Public Health. Integrated Public Health Information System (iPHIS), Ontario Ministry of Health. Extracted March 13, 2023.

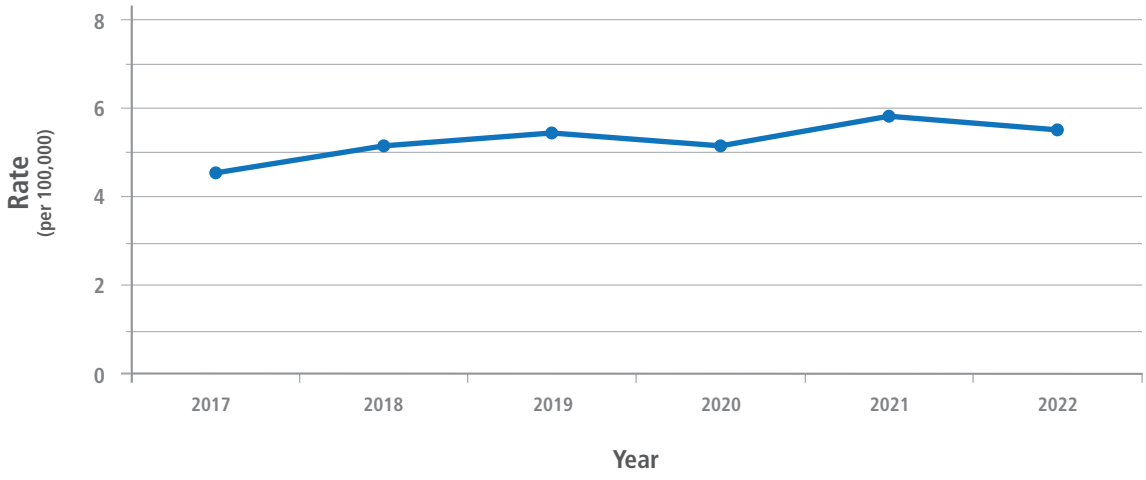

Figure 35. Incidence of active tuberculosis, Ottawa, 2017 to 2022.

Source: Ottawa Public Health. Integrated Public Health Information System (iPHIS), Ontario Ministry of Health. Extracted March 13, 2023.

Latent Tuberculosis Infection

Latent tuberculosis infection (LTBI) occurs when the TB bacteria is dormant in a person for months to years with no symptoms. It is estimated that about 5 to 10% of people with LTBI will have an active TB infection over their lifetime. The primary prevention strategy is screening for LTBI in people born outside of Canada, Indigenous people, and others who may be at high risk (e.g., immune compromised, unstable housing). The rates of LTBI in Ottawa dropped to 39 per 100,000 in 2020, likely due to decreased screening during the COVID-19 pandemic. By 2022, rates returned to 78 per 100,000, which is similar to what was observed pre-pandemic.[121] The rates of LTBI in Ottawa have been higher than the Ontario-less-Ottawa rates for the last 10 years.[122] Of the people diagnosed in 2022,[xxv] 55% were in females, and the average age at diagnoses was 39 years.[123]

Influenza

Influenza, commonly known as the "flu", is a respiratory infection caused by the influenza virus. Influenza can easily spread from person to person and influenza virus circulation follows a seasonal pattern with most infections reported between fall and spring. Annual influenza immunization is the most effective way to protect against influenza.

Please refer to the OPH Respiratory and Enteric Surveillance Report dashboard for up-to-date influenza data presented alongside data on COVID-19, respiratory syncytial virus (RSV), outbreaks and all-cause and respiratory-related emergency department visits to Ottawa hospitals.[xxvi]

Influenza activity in spring of 2020 declined suddenly and dramatically due to the introduction of COVID-19-related public health measures. Activity remained very low for two years until a slight increase was noted in the spring of 2022 (31 lab-confirmed cases in April and May) associated with the lifting of public health measures.

Influenza activity during the 2022-2023 influenza season (the period from September 2022 to August 2023) began[xxvii] the week of October 30, 2022, five weeks earlier than the pre-COVID-19 average (Figure 36).[124] The influenza season rapidly peaked in early December and declined to levels typically seen in late spring or summer by mid-January, resulting in a shorter season. As of mid-March 2023, 870 Ottawa residents tested positive for influenza (99% influenza A and 1% influenza B), slightly above the pre-pandemic average of 833. Children and youth were disproportionately impacted with 40% of people who tested positive being under the age of 20 years, resulting in a median age of 34 years, which is significantly younger than pre-pandemic seasons where the median age was typically 60 years or older. The influenza rate among children aged 1 to 4 years this season (322 per 100,000) was more than triple the pre-pandemic average (105 per 100,000). Co-circulation of influenza, RSV, COVID-19 and other respiratory viruses in fall 2022 resulted in an unprecedented surge in emergency department visits and admissions to CHEO.[xxviii]

xxv As of March 13, 2023, there were still 478 cases requiring entry into the provincial case reporting system, iPHIS. Counts, averages, and rates for 2022 have been manually adjusted to include these missing cases for the purposes of the report. However, sex and age information are not reflective of the 478 cases pending entry into iPHIS. Please interpret with caution.

xxvi Testing for influenza and RSV is limited to patients hospitalized due to respiratory illness and symptomatic individuals in health care institutions (i.e. long-term care homes, retirement homes, public hospitals), while COVID-19 testing is currently more widely available additionally to health care workers and high risk individuals. Testing does not capture the majority of people who become ill with reportable diseases in Ottawa. Prior to November 14, 2022, testing for influenza and RSV in health care institutions was limited to the first four symptomatic individuals in a suspect outbreak.

xxvii Based on the influenza percent positivity for Eastern Ontario exceeding 5%.

xxviii CHEO. Viral season and you: How you can help. Updated December 12, 2022 at https://www.cheo.on.ca/en/news/viral-season-and-you-how-you-can-help.aspx. Accessed March 14, 2023

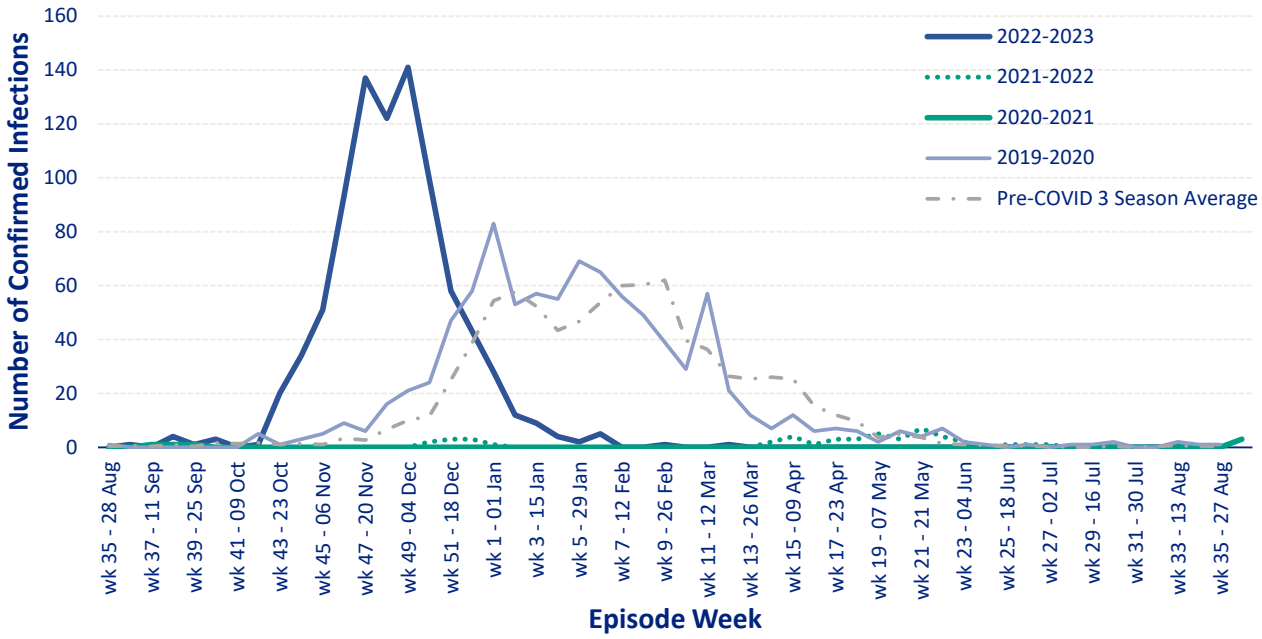

Figure 36. Number of reported laboratory-confirmed influenza cases by type and reported week in Ottawa, September 2022 (week 35) to March 2023 (week 11), and historical trends.

Source: Ottawa Public Health. Integrated Public Health Information System (iPHIS), Ontario Ministry of Health. Extracted March 23, 2023.
Note: Pre-COVID 3 season average includes 2016-2017, 2017-2018, and 2018-2019 seasons.

Influenza Vaccination

Each fall, the Universal Influenza Immunization Program makes influenza vaccination available to all residents 6 months of age or older. During the 2020-21 influenza season, half (50%) of Ottawa residents aged 18 years and older reported receiving an influenza vaccination while 74% of residents aged 65 years and older received an influenza vaccination. Influenza vaccination was lower for older adults in the 2020-21 season than in previous seasons (Figure 37).[125]

COVID-19

Cases, hospitalizations, and deaths

COVID-19 is caused by a novel coronavirus, SARS-CoV-2. SARS-CoV-2 spreads from an infected person to others through respiratory droplets of varying size, including aerosols, and through contact with contaminated surfaces or objects without proper hand hygiene.

The first laboratory confirmation COVID-19 infection was reported to Ottawa Public Health on March 9, 2020. Since the beginning of the pandemic through December 2022, there have been 88,012 confirmed cases of COVID-19 infection among the people living in Ottawa, 3,464 hospitalizations, and 1,001 deaths due to COVID-19 or as a contributing cause of death.[126] In 2022, there were 39,671 cases of COVID-19 infections, 1,702 hospitalizations, and 381 deaths. However, the number of COVID-19 infections reported after December 2021 are significantly underestimated due to restrictions placed on testing eligibility.

There were six distinct waves of infection between March 2020 and April 2022. The first wave saw the highest rates among those 65 years of age and older, with many outbreaks in long-term care and retirement homes. Further community spread led to the implementation of public health restrictions to control the rising number of cases. These included the closing of schools and non-essential businesses, limited

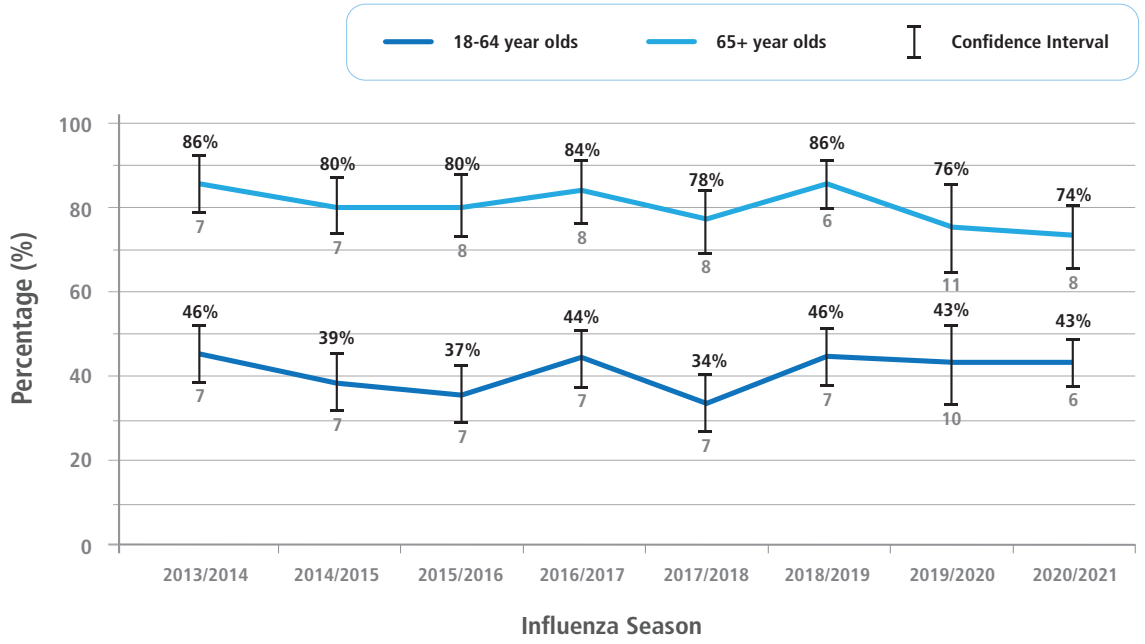

Figure 37. Percentage of Ottawa adults reporting influenza immunization by age group and influenza season, 2013/14 to 2020/21.

Source: Ottawa Public Health. Rapid Risk Factor Surveillance System, 2013-2021.

social gatherings, travel restrictions, capacity limits, closure of indoor dining, and the requirement to wear masks in indoor public spaces. The provincial measures introduced over the course of the pandemic are shown in Figure 38.

COVID-19 Vaccination

A COVID-19 vaccine became available in December 2020. When the vaccine was first introduced, eligibility was limited to populations at highest risk, including long-term care home and retirement home residents, and health-care workers required for the pandemic response. Within 3 months, 90% of retirement and long-term care home residents were fully vaccinated (with two doses), and within 9 months and as eligibility expended, 80% of all eligible residents of Ottawa were fully vaccinated.[127]

As of March 2023, 85% of the Ottawa population has had at least one dose of COVID-19 vaccine, 82% at least two doses, 56% at least three doses and 31% at least four doses. Vaccination rates increase with age and have been very low among those age 6 months to 4 years and 5 to 11 years. Ottawa has the third highest COVID-19 vaccination coverage in the province. For more up-to-date statistics on COVID-19 vaccination coverage, please visit Ottawa Public Health's COVID-19 Vaccination Dashboard.

Health disparities in COVID-19 epidemiology and vaccination

The structural and systemic inequities and barriers that pre-existed the COVID-19 pandemic influenced its epidemiology and vaccine uptake. The rate of COVID-19 infection was higher among residents of less-advantaged communities (Figure 39). These communities are not inherently more susceptible to COVID-19, but underlying social realities, such as systemic racism, barriers to health information and services, and/or participation in occupations without access to paid sick leave, contributed to people's exposure to COVID-19. COVID-19 case rates are shown in three different time periods throughout the pandemic:

(A) pre COVID-19 vaccination;

(B) when 60% of Ottawa residents are protected by COVID-19 and before the arrival of Omicron; and

(C) after the arrival of Omicron.

Disparities are less evident during the latter two time periods.

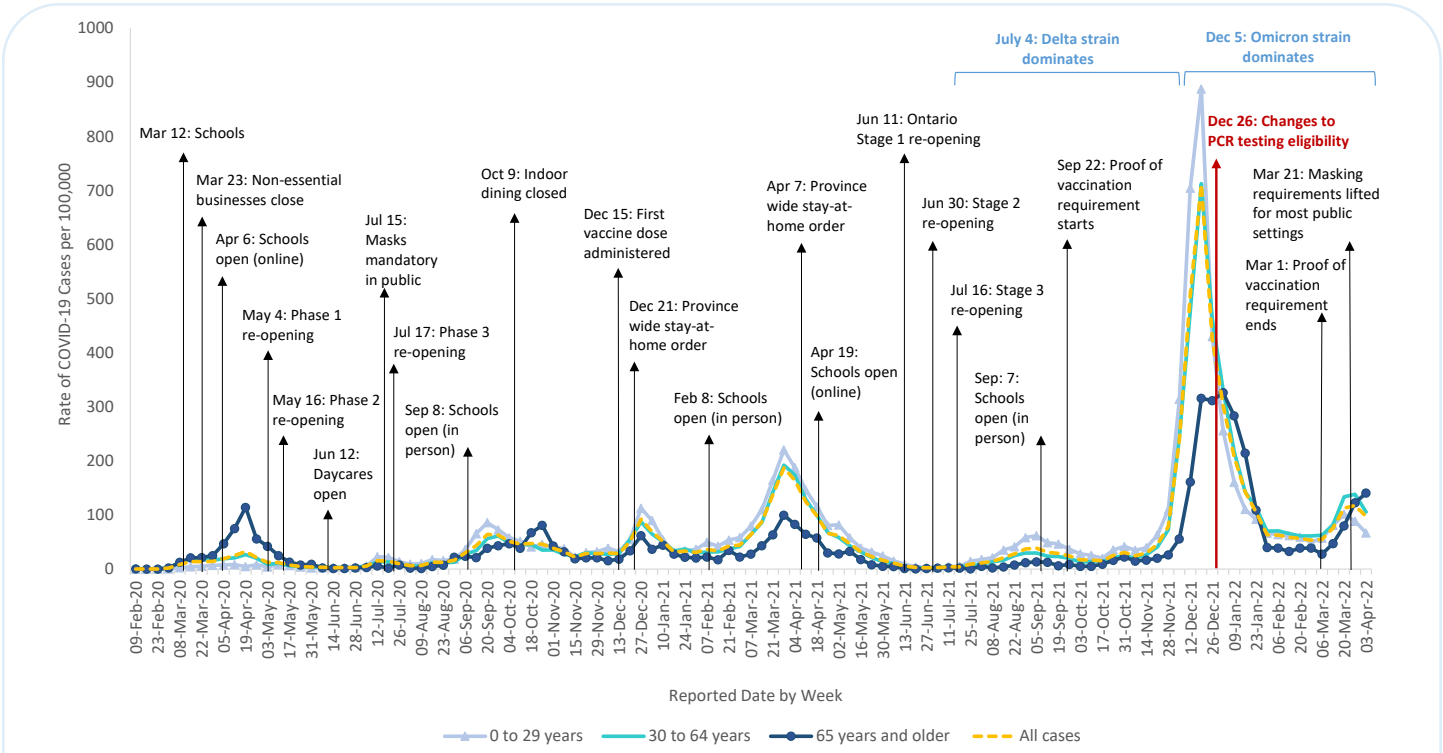

Figure 38. Timeline of the rate of COVID-19 cases among Ottawa residents by reported week and age group (years). The figure includes labels for select pandemic milestones (e.g., school closures, stages of re-opening).

Source: Data extracted April 21, 2022, from the Case and Contact Management Solution (CCM) by the Epidemiology team at Ottawa Public Health, Ottawa, ON. Population data provided by ICES.

The population rate of COVID-19 hospitalizations and deaths was also higher in communities with less socioeconomic advantage as described by the Ottawa Neighbourhood Study SES index. Population hospitalization and death rates were almost three times higher in quintile 5 neighborhoods (lowest socioeconomic status) compared to those in quintile 1 neighbourhoods (highest socioeconomic status). While the latter two time periods showed less disparity in infection rates (Figure 40),[128] hospitalization and death rates remained higher in less advantaged neighborhoods compared to most advantaged neighborhoods across all time periods (Figure 41). Similar findings have been seen across Ontario.

Despite efforts to prioritize lower income neighbourhoods, COVID-19 vaccination was also unevenly distributed across socioeconomic levels in Ottawa. Neighbourhoods that are more socioeconomically advantaged generally experienced higher levels of vaccination compared with neighbourhoods with lower socioeconomic advantage The disparity is greater among younger populations. For more information on socioeconomic disparities in COVID-19 vaccination in Ottawa, refer to the COVID-19 Vaccination Coverage in Ottawa Neighbourhoods dashboard, developed in partnership with the ONS.

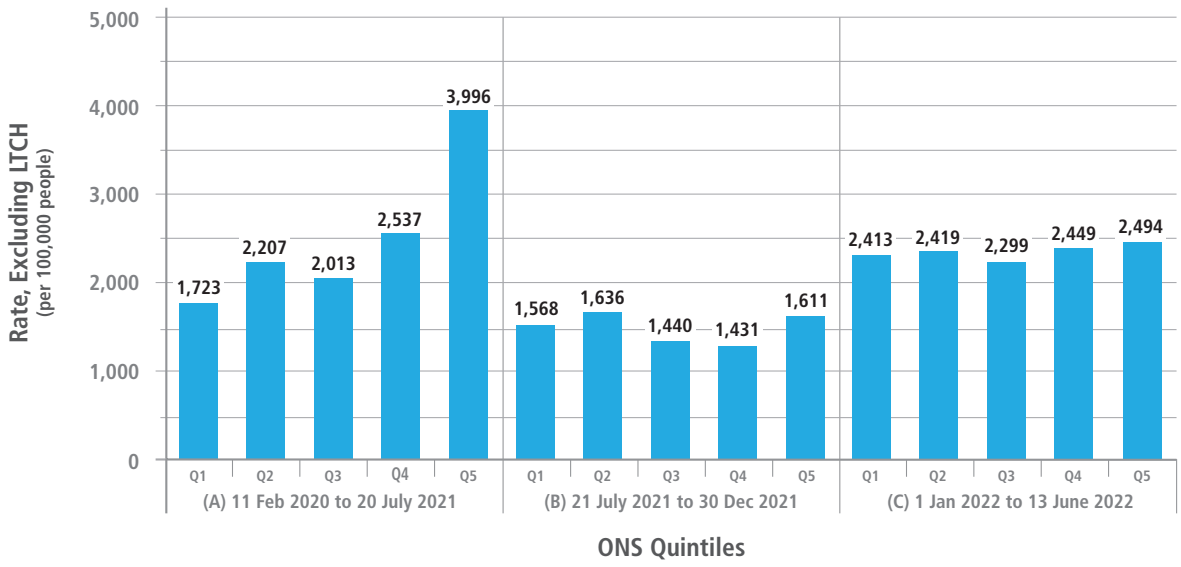

Figure 39. COVID-19 infection rates, per 100,000 population excluding LTCH residents, across quintiles in Ottawa based on case reported date by neighbourhood SES quintile: (A) prior to most Ottawa residents being protected by COVID-19 vaccination, (B) more than 60% of Ottawa residents protected by COVID-19 vaccination and before the arrival of the Omicron variant, and (C) after the arrival of the Omicron variant in Ottawa.

Source: Data extracted June 13, 2022, from the Case and Contact Management Solution (CCM) by the Epidemiology team at Ottawa Public Health, Ottawa, ON. Population data provided by ICES.
Note: Neighbourhood socioeconomic status (SES) quintiles are as defined by the Ottawa Neighbourhood Study (ONS) Quintile 1 has the most SES advantage, Quintile 5, the least.

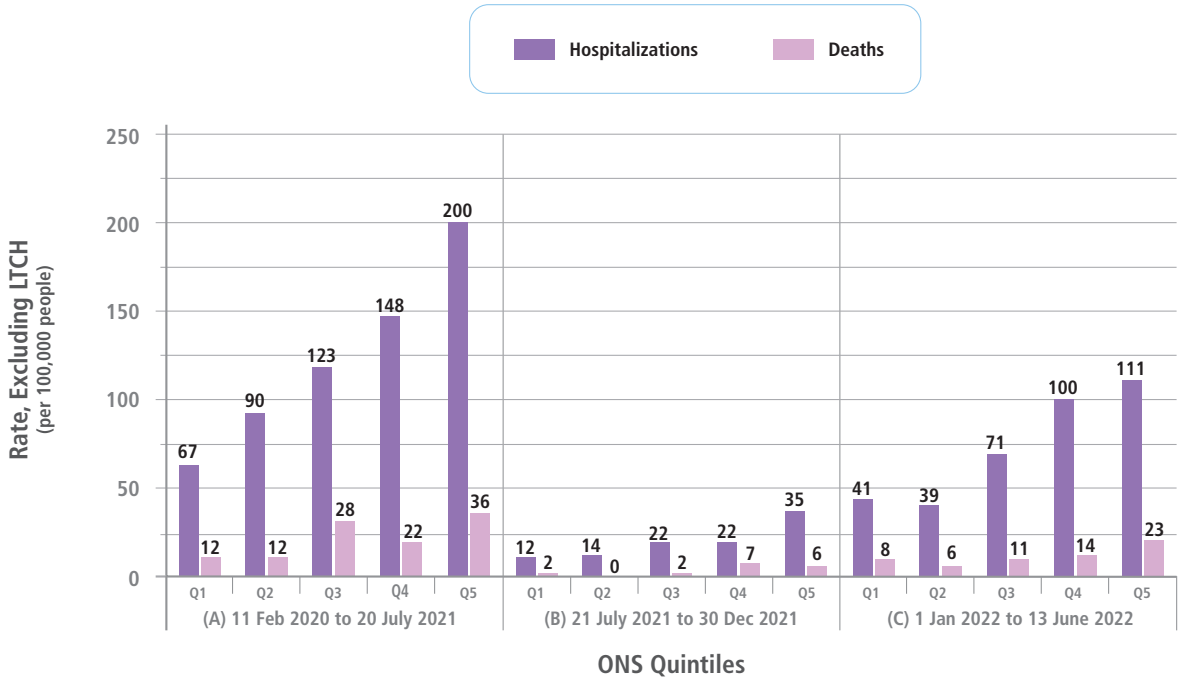

Figure 40. Population COVID-19 hospitalization and death rates, per 100,000 population excluding LTCH, based on case reported date by neighbourhood SES quintile: (A) prior to most Ottawa residents being protected by COVID-19 vaccination, (B) more than 60% of Ottawa residents protected by COVID-19 vaccination and before the arrival of the Omicron variant, and (C) after the arrival of the Omicron variant in Ottawa.

Source: Data extracted June 13, 2022, from the Case and Contact Management Solution (CCM) by the Epidemiology team at Ottawa Public Health, Ottawa, ON. Population data provided by ICES.
Note: Neighbourhood socioeconomic status (SES) quintiles as defined by the Ottawa Neighbourhood Study (ONS)[122]

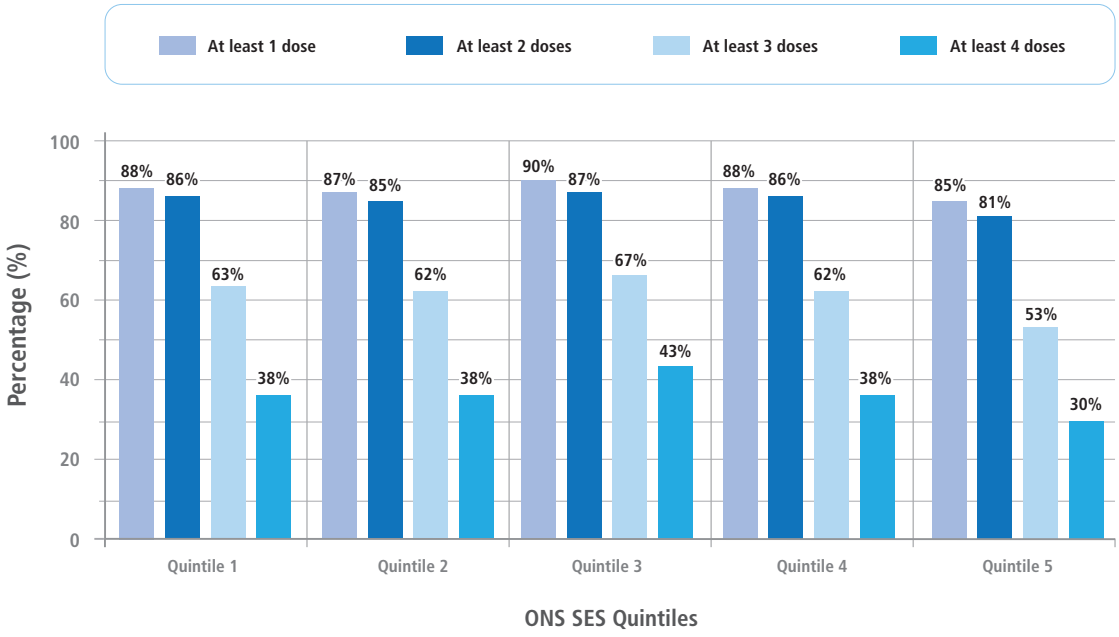

Figure 41. COVID-19 vaccination coverage in Ottawa neighbourhoods by SES quintile.

Source: Ontario Ministry of Health's COVaxON application, through intellihealth Ontario. Extracted March 22, 2023.

Mpox

During 2022, a global outbreak of mpox[xxix] (pronounced "em-pox" and formerly known as "monkeypox") occurred and included countries that have not historically reported mpox cases. The first person with of mpox was reported in Ottawa in May 2022. In total, 42 cases were diagnosed in Ottawa residents between May and September 2022 (Figure 42).The incidence of mpox in Ottawa was lower than the average of Ontario-less-Ottawa in 2022, which was driven by a high percentage of cases in Toronto.

Almost all cases of mpox were in gay, bisexual and other men who reported sex with other men (GBOMSM), most of whom recently had a new sexual partner, more than one sexual partner, or anonymous sex.

Imvamune, a two-dose vaccine approved for the prevention of mpox, became available in June 2022. Over 4,600 Ottawa residents were vaccinated with one dose of Imvamune between June 2022 and February 2023; a little over a third (37%) of those receiving a first dose, have also received a second dose. A second dose of the mpox vaccine is recommended to provide the best protection.

Sexually Transmitted and Blood-Borne Infections (STBBIs)

Sexually transmitted and blood-borne infections (STBBIs) are spread through body fluids (e.g., blood, vaginal fluid, semen) or skin-to-skin contact during sexual contact, while others are spread through non-sexual activities such as sharing needles used for injecting drugs. Certain infections can be transmitted both through blood and sexual contact, such as hepatitis B, HIV, and rarely, hepatitis C. Reportable sexually transmitted infections include chlamydia, gonorrhea, hepatitis B, human immunodeficiency virus (HIV), syphilis, and rarely, hepatitis C. Reportable blood-borne infections include hepatitis B, hepatitis C, and HIV.

Overall Trends

Trends in sexually transmitted and blood-borne infections are associated with factors such as age, ethnicity, income, gender, and sexual orientation. Populations most affected by STBBIs in Ottawa include: youth; gay, bisexual, and other men who have sex with men (GBOMSM); people who use drugs; and people who come from a country where infection is common.

The incidence of STBBIs decreased during the pandemic, most likely due to decreased testing and/or decreased sexual contacts (Figure 43). Recently, rates have begun to rebound to pre-pandemic (2017-19) levels (Figures 44 and 45).

Chlamydia

Chlamydia[xxx] was the most frequently reported of all reportable infections, after COVID-19. The incidence in 2022 was 284 infections per 100,000 population, corresponding to 3,084 cases (Figure 43). The rate of chlamydia in Ottawa was higher than the average of Ontario-less-Ottawa, which had 237 cases diagnosed per 100,000 in 2022.[129] Most cases were in young adults ages 20 to 24 years who recently had, condomless sex with a partner of the opposite sex, a new sexual partner, or more than one sexual partner.

Gonorrhea

The incidence of gonorrhea[xxxi] in 2022 was 76 infections per 100,000 population, corresponding to 819 cases (Figure 43). The rate of gonorrhea in Ottawa was slightly higher than the average of Ontario-less-Ottawa, which had 72 cases diagnosed per 100,000 in 2022.[130] Most cases are in people who recently had condomless sex, a new sexual partner, or more than one sexual partner.

Almost half of cases are among GBOMSM.

xxix Mpox is viral disease that cause a variety of symptoms including a rash, skin lesions, and flu-like symptoms including fever, headache, swollen lymph nodes and fatigue.

xxx Chlamydia is a bacterial sexually transmitted infection that can occur in both men and women. Infections can be symptomatic or asymptomatic. Infertility can be a complication of infection in women.

xxxi Gonorrhea is a bacterial infection caused by Neisseria gonorrhoeae bacterium, which can be symptomatic or asymptomatic. If untreated, it can cause serious health problems.

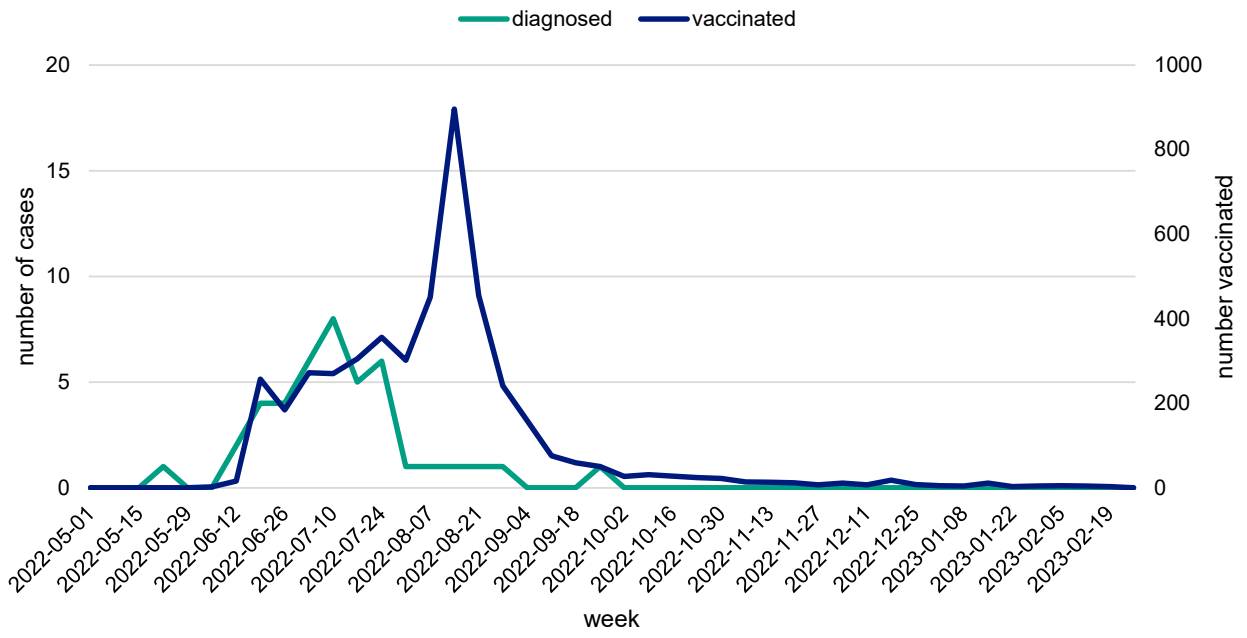

Figure 42. Ottawa residents diagnosed with, or vaccinated with at least one dose against, mpox by week, May 1, 2022 to Feb 19, 2023.

Sources: Ottawa Public Health. Integrated Public Health Information System (iPHIS), Ontario Ministry of Health. Extracted March 6, 2023; Ottawa Public Health. Panorama, Ontario Ministry of Health. Extracted March 3, 2023.

Syphilis

The incidence of syphilis[xxxii] in 2022 was 23 infections per 100,000 population, corresponding to 248 cases (Figure 43). Syphilis has an infectious (earlier infection) and a late latent (later infection) stage. Approximately 40% of 2022 cases were infectious; most of the remainder were latent infections. The rate of infectious syphilis in males was 22 per 100,000 population and 2 per 100,000 in females. The rate of syphilis in Ottawa was lower than the average of Ontario-less-Ottawa, which had 33 cases diagnosed per 100,000 in 2022.[131] Approximately three-quarters of infectious cases were in adult GBOMSM. The most common risk factor was recent anonymous sex. Among those diagnosed with a late latent infection for whom origin is known, 85% were born outside Canada. Congenital syphilis, which can occur if a woman is infected during pregnancy, has not been reported in Ottawa since 1992.

Hepatitis C

The incidence of hepatitis C[xxxiii] in 2022 was 22 infections per 100,000 population, corresponding to 240 cases (Figure 43). Many people with a hepatitis C infection are diagnosed later in their infection since someone can live with hepatitis C for many years (20-30 years) before developing symptoms. Approximately 60% of infections diagnosed in 2022 were older infections, a quarter were new infections, and timing for the remainder could not be determined. The rate of hepatitis C in Ottawa was higher than the average of Ontario-less-Ottawa, which had 16 cases diagnosed per 100,000 in 2022.[132] Approximately one-quarter of people diagnosed in 2022 reported being homeless or underhoused.

xxxii Syphilis is a bacterial sexually transmitted infection (STI) that can present with a number of different symptoms, depending on stage of illness and cause serious health problems without treatment.

xxxiii Hepatitis C is an infection by the hepatitis C virus that can result in liver inflammation and damage. For some it's a short-term illness but it can become a chronic infection that can result in serious, even life threatening health problems like cirrhosis or liver cancer.

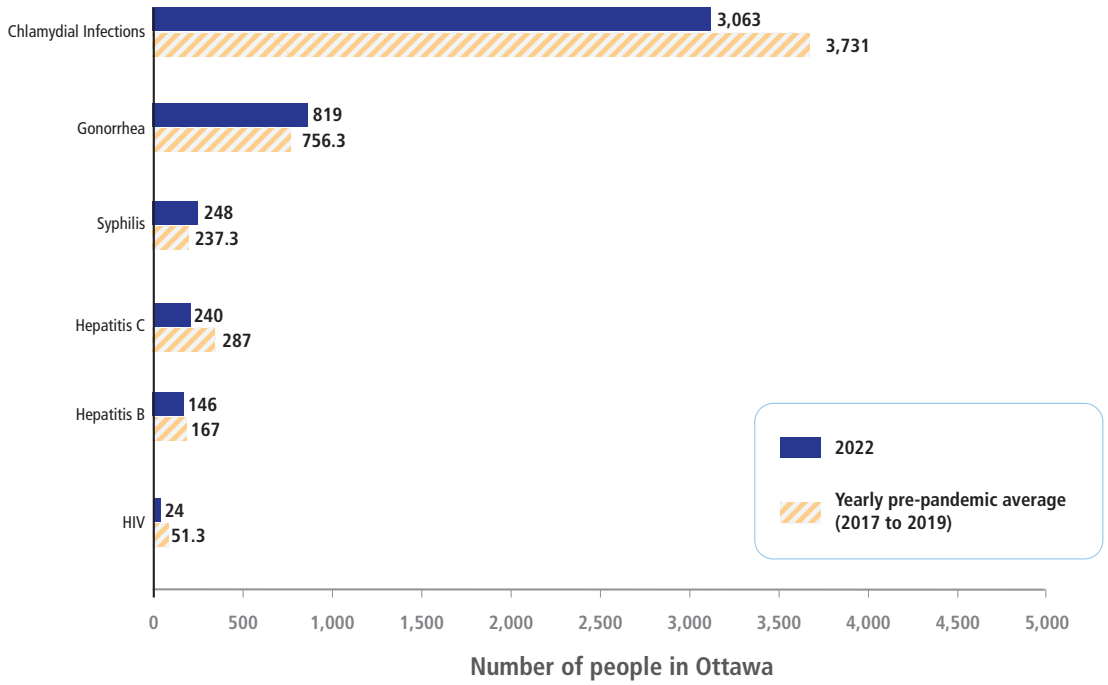

Figure 43. Number of residents of Ottawa with a laboratory-confirmed infection from a sexually transmitted or blood-borne disease of public health significance, 2022 vs pre-pandemic (2017 to 2019) average.

Source: Ottawa Public Health. Integrated Public Health Information System (iPHIS), Ontario Ministry of Health. Extracted March 6, 2023.

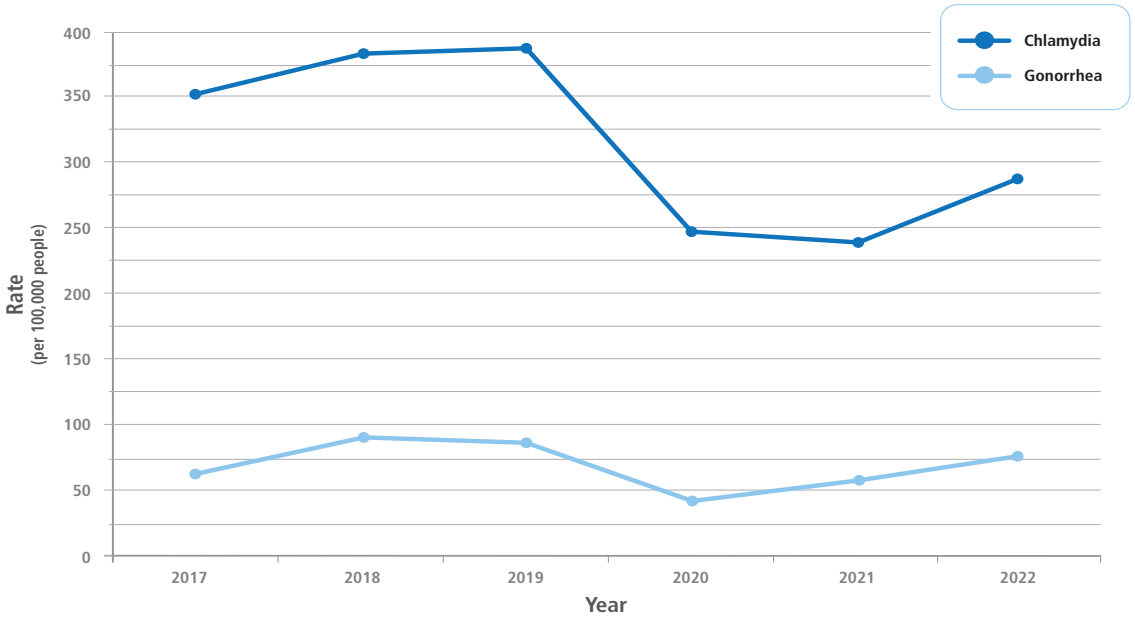

Figure 44. Incidence rate of chlamydia and gonorrhea by year in Ottawa, 2017 to 2022

Source: Ottawa Public Health. Integrated Public Health Information System (iPHIS), Ontario Ministry of Health. Extracted March 6, 2023.

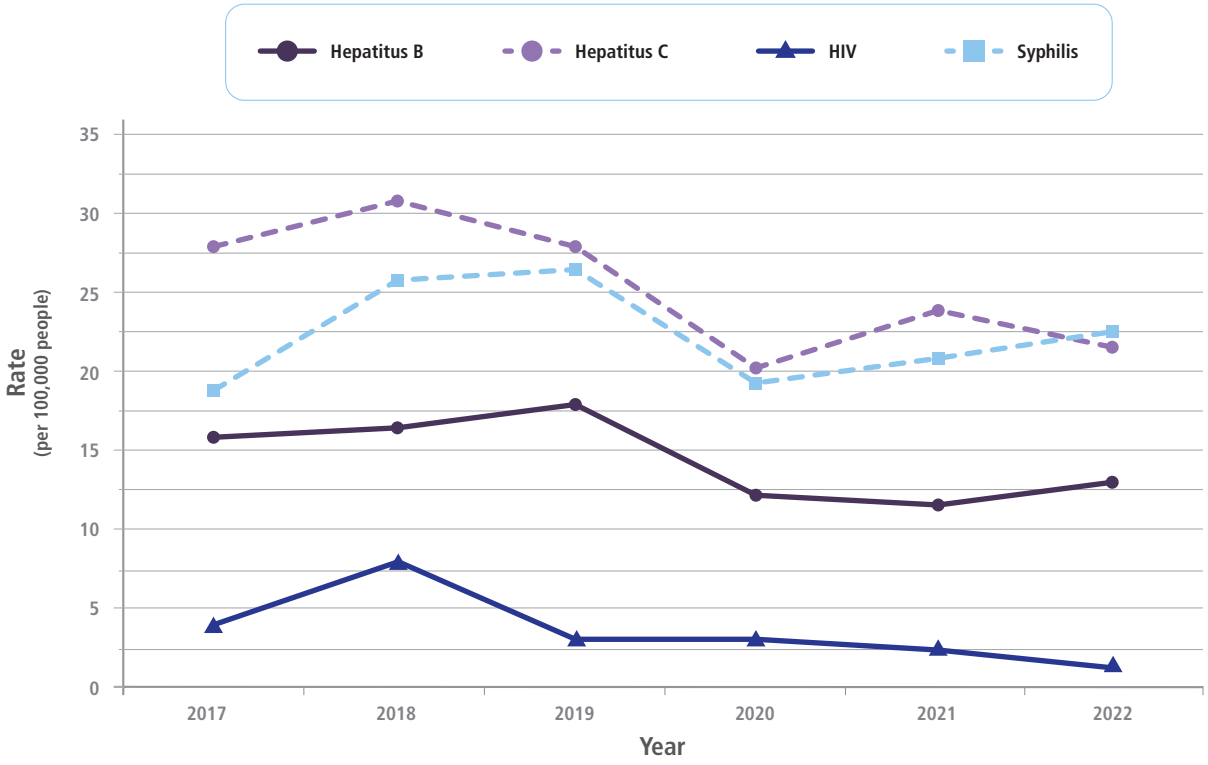

Figure 45. Incidence of hepatitis B, hepatitis C, HIV, syphilis by year in Ottawa, 2017 to 2022.

Source: Ottawa Public Health. Integrated Public Health Information System (iPHIS), Ontario Ministry of Health. Extracted March 6, 2023.

Injection and non-injection drug use and sharing of equipment were among the top reported risk factors by people diagnosed with hepatitis C. Approximately 10% of cases were born in a country where hepatitis C is more common.

Hepatitis B

The incidence of hepatitis B[xxxiv] in 2022 was 14 infections per 100,000 population, corresponding to 146 cases (Figure 43). Like hepatitis C, many people with a hepatitis B infection are diagnosed later in their infection since someone can live with hepatitis B for many years (20 to 30 years) before developing symptoms. Ninety-eight percent of hepatitis B infections were not recently acquired; approximately 70% of these diagnoses were among people born in a country where hepatitis B is more common.[133] The rate of hepatitis B in Ottawa was more than twice the average of Ontario-less-Ottawa (which had 6 cases diagnosed per 100,000 in 2022).[134] There were only two cases of recently acquired infection in 2022, owing in large part to a provincial school-based vaccination program that began in 1994. In 2020-2021, approximately 80% of 17-year-olds in Ottawa had been vaccinated against hepatitis B.[135]

xxxiv Hepatitis B is a vaccine-preventable disease caused by the hepatitis B virus. For many it is a short term illness but can become a chronic infection that can lead to serious, even life-threatening issues like cirrhosis or liver cancer.

HIV

The incidence of HIV[xxxv] in 2022 was 2 infections per 100,000 population, corresponding to 24 cases (Figure 43). Many people with an HIV infection are diagnosed later in their infection, as someone can live with HIV for a long time before developing symptoms. Approximately 50% of infections diagnosed in 2022 were older infections, approximately 12% were new infections, and timing for the remainder could not be determined. The rate of HIV in Ottawa was lower than the average of Ontario-less-Ottawa, which had 5 cases diagnosed per 100,000 in 2022.[136] Populations most represented among people with HIV infection were those born in, or with a sexual partner from, a country where HIV is common; and GBOMSM.

Vaccine Preventable Diseases

Vaccine preventable diseases (e.g., measles, mumps, rubella, diphtheria, tetanus, polio) are an area of considerable focus for public health programs because they are highly contagious and can cause severe disease, particularly in un-vaccinated or under-vaccinated infants and young children. In general, reports of vaccine-preventable diseases to OPH have been uncommon because of effective immunization programs and high immunization coverage. Ensuring vaccination rates remain high is important in preventing the spread of vaccine preventable diseases.

Overall Trends

The most frequently reported routine vaccine-preventable diseases in 2022 were invasive pneumococcal disease (77 cases), chickenpox (varicella) (21 cases) and invasive Haemophilus influenzae disease (11 cases). There were more people reported with invasive pneumococcal disease (IPD) and chickenpox in 2022 than the average during pre-pandemic years (2017 to 2019). For the first time in over 10 years, a person in Ottawa was diagnosed with tetanus in 2022. Finally, there were no people reported with the other vaccine-preventable diseases of public health significance, including measles, pertussis, polio, rubella, and smallpox, in Ottawa in 2022.

The Ottawa rate of IPD (7.1 per 100,000) and invasive Haemophilus influenza disease (1.0 per 100,000) are slightly lower than Ontario-less-Ottawa, but provincial data for chickenpox are not available for comparison (Figure 46).[137]

Pneumococcal Disease

Invasive pneumococcal disease (IPD) is caused by the bacteria Streptococcus pneumoniae, of which there are 90 known serotypes. Invasive disease often presents as pneumonia, sepsis (blood poisoning) or meningitis, and a recent influenza infection can increase the risk of IPD.[138]

Reports of Ottawa residents with IPD declined during 2020 and 2021 due to the COVID-19 related public health measures. The rates fully rebounded to pre-pandemic levels in 2022. The Ottawa incidence rate (7.1 per 100,000) was slightly lower than the average of Ontario-less-Ottawa (7.9 per 100,000) in 2022.[139] In 2022, 18% of people reported with IPD were infants and children aged 9 years and under and 42% were adults older than 60 years.

Pneumococcal vaccines are offered, as part of Ontario's publicly funded schedule, to infants, older adults, and high-risk groups. These vaccines protect against some serotypes of Streptococcus pneumoniae. The volume of Pneumococcal Conjugate 13 (Pneu-C-13) vaccines, routinely administered to infants, distributed to health care providers in OPH's catchment was relatively stable over the course of the pandemic. Distribution volumes in 2020-2022 were 3% to 5% lower than the pre-pandemic 2-year average doses distributed (2018-2019), indicating some backlog in children requiring immunization. The volume of Pneumococcal Polysaccharide 23 (Pneu-P-23) vaccines, typically administered to older adults 65 years and older and those with certain immunosuppressive conditions, dropped dramatically in 2020 and 2021 (by 27% and 35%, respectively) compared to pre-pandemic. These volumes made a marked recovery in 2022, back to within 5% of pre-pandemic volumes; however, it is likely that many who became eligible during the pandemic have not yet been vaccinated.

xxxv HIV is a virus that attacks the body's immune system. There is no cure for HIV, but medication can control infection and prevent progression to acquired immunodeficiency syndrome (AIDS).

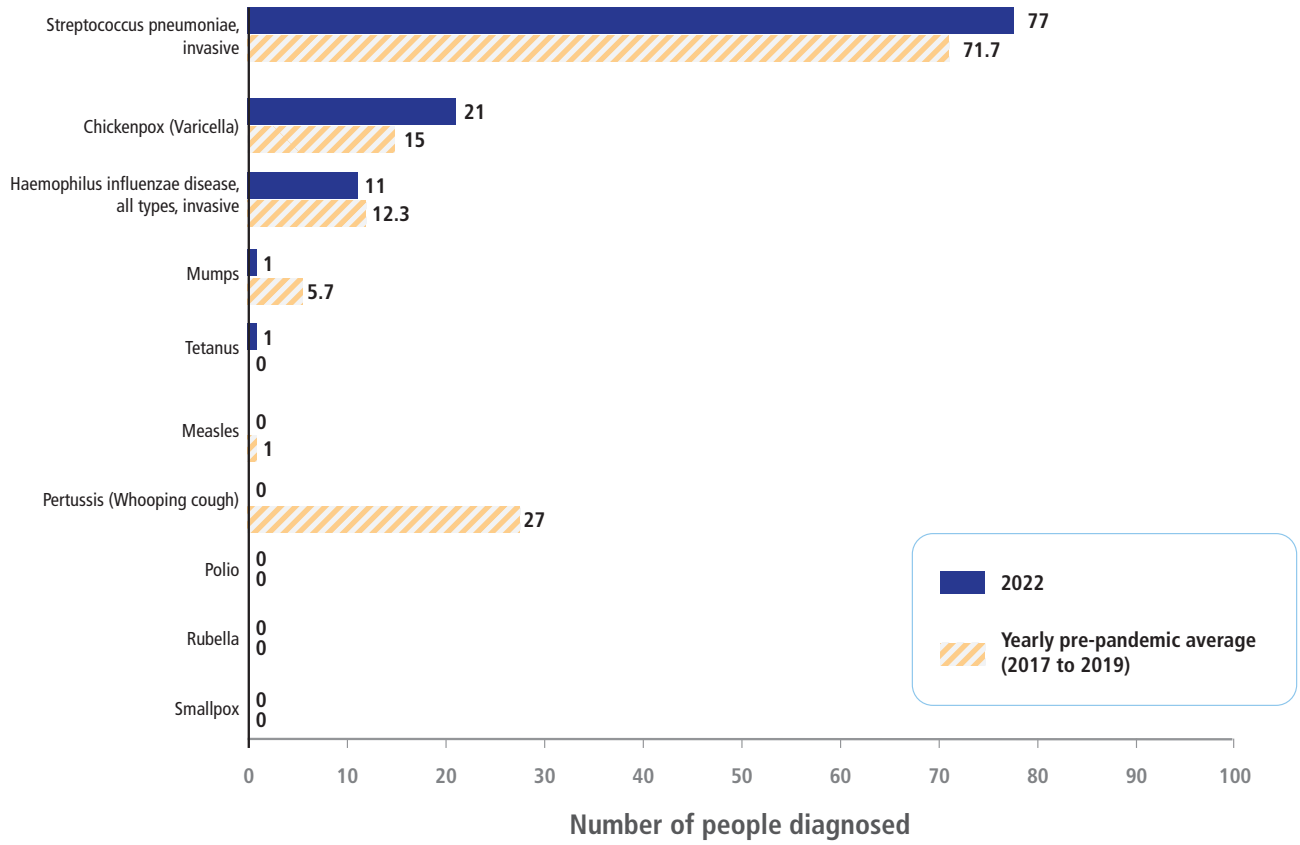

Figure 46. Number of Ottawa residents reported with an infection from a vaccine preventable disease of public health significance, 2022 vs pre-pandemic (2017 to 2019) average.

Source: Ottawa Public Health. Integrated Public Health Information System (iPHIS), Ontario Ministry of Health. Extracted March 13, 2023.
Note: Mumps and pertussis counts include people meeting the probable case definition in addition to people meeting the laboratory confirmed case definition.

Measles

Outbreaks of measles[xxxvi] are occurring in every region of the world.[140] As a result of successful vaccination programs, measles has been eliminated in Canada since 1998.[xxxvii] In Ottawa, almost all cases of measles are in visitors or returning travelers from countries where measles is more common. While there were no cases of measles in Ottawa in 2020 through 2022, likely due to reduced travel during the COVID-19 pandemic, the risk of local outbreaks has increased due to COVID-19 related delays in routine immunization (see Childhood Immunization). Other jurisdictions in Ontario have reported cases of measles related to international travel by under-immunized residents in 2023. OPH is monitoring measles activity, preparing for potential measles cases, and encouraging routine vaccinations.

xxxvi Measles is a highly contagious viral disease that can result in mild disease with fever, runny nose, red eyes cough, and rash, to much more serious disease or death.

xxxvii Measles in Canada. Government of Canada. Updated April 1, 2019. Accessed March 21, 2023. https://www.canada.ca/en/public-health/services/diseases/measles/measles-in-canada.html

Enteric, Food and Water-borne Infections

Enteric or gastrointestinal (GI) illnesses are often acquired through the ingestion of contaminated food or water. They can also be transmitted from person-to-person through fecal-oral contact, and transmission among sexual partners is being increasingly recognized.

Overall Trends

Enteric illnesses most frequently reported in Ottawa in 2022, which make up 65% of all enteric illnesses reported, were salmonellosis (99 cases), campylobacter enteritis (96 cases), and giardiasis (87 cases) (Figure 47). While there were fewer people reported with most enteric infections in 2022 than the average during pre-pandemic years, there were more people reported with infections with listeriosis and typhoid fever. The increase in listeriosis and typhoid fever is partially owing to a listeriosis outbreak in a long-term care home (4 residents confirmed infected) and a locally-acquired typhoid fever outbreak (3 people confirmed infected in 2022) in the community. For the first time since 2017, one person was reported with cholera, related to travel outside Canada.

The rates of salmonellosis (9.2 per 100,000) and Campylobacter enteritis (8.9 per 100,000) in Ottawa were lower than the equivalent averages of Ontario-less-Ottawa in 2022.[141] The incidences of cryptosporidiosis (1.4 per 100,000), paratyphoid fever (0.2 per 100,000), and yersiniosis (0.7 per 100,000) were slightly lower than in the rest of Ontario in 2022.

The incidences of giardiasis (8.1 per 100,000) and amebiasis (2.5 per 100,000) in Ottawa were higher than in the rest of Ontario in 2022.

The incidence of hepatitis A (0.6 per 100,000) was similar to the rest of Ontario in 2022.

Salmonellosis, campylobacter enteritis and giardiasis[xxxviii] decreased during the COVID-19 pandemic and continued to remain lower in 2022 than pre-pandemic years (Figure 48). This is most likely due to fewer social gatherings involving food, decreased travel and/or decreased testing, and rates are expected to rise in 2023.

The most common risk factor for salmonella and Campylobacter enteritis was consumption of poultry in a private home (52% of cases) and travel outside of Canada during the incubation period (36% of cases). Recreational water (e.g., swimming in a lake or river) is typically the most common cause of giardiasis.[142]

Although enteric illnesses are reported throughout the year, a higher number of cases are reported during summer months (Figure 49). Seasonal patterns in enteric illnesses are often linked to increases in travel, warmer temperatures, outdoor activities, and social gatherings.

Cyclosporiasis

An increase in people reported with locally acquired cyclosporiasis[xxxix] has been noted across Canada in recent years, associated with consumption of imported produce. In 2022, 54 cases of cyclosporiasis were reported in Ottawa, compared with 32 cases in 2018.[143] Reports of people infected in 2022 increased in May, peaked in June, and declined by August. The incidence of cyclosporiasis in Ottawa (5.0 per 100,000) was higher than the average of Ontario-less-Ottawa (2.9 per 100,000) in 2022.[144]

Shigellosis

Shigellosis is a bacterial infection transmitted via the fecal-oral route from contaminated food or water and, increasingly, through sexual contact.[xl] Risk of spread increases for individuals engaging in anal-oral sex, and in settings where personal hygiene is limited such as in childcare centres. The incidence of shigellosis in Ottawa (1.8 per 100,000) was slightly higher than the average

xxxviii These diseases cause gastrointestinal/diarrheal illness and can cause severe dehydration or more serious complications.

xxxix Cyclosporiasis is a parasitic disease that can cause diarrhea and other symptoms and may last weeks to a month or more if not treated.

xl Shigellosis can result in watery or bloody diarrhoea and can cause serious complications like severe dehydration or septicemia in those with weakened immune systems.

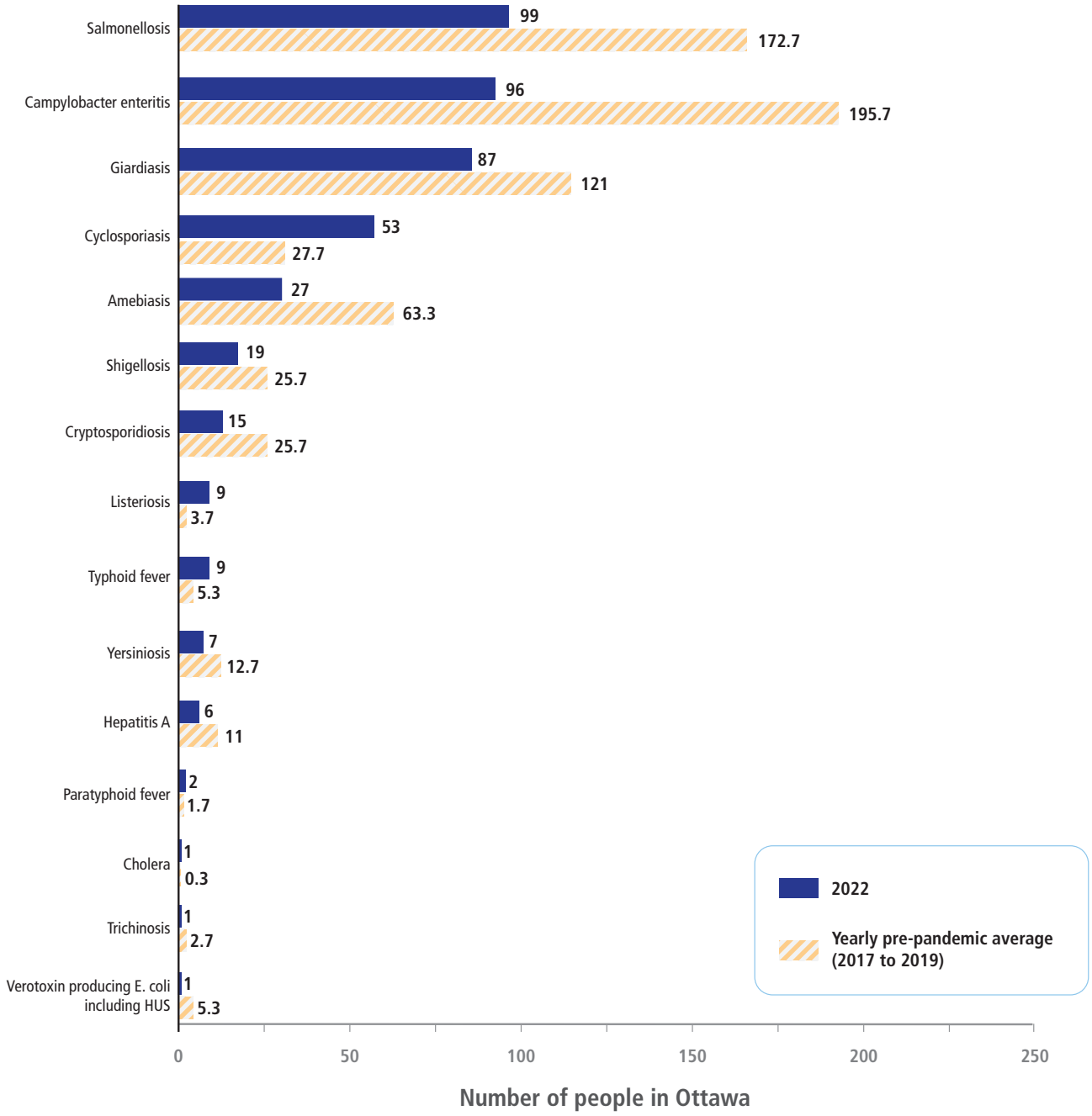

Figure 47. Number of Ottawa residents reported with an enteric disease of public health significance, 2022 vs pre-pandemic (2017 to 2019) average.

Source: Ottawa Public Health. Integrated Public Health Information System (iPHIS), Ontario Ministry of Health. Extracted March 13, 2023.
Note: For Amebiasis and Giardiasis, probable as well as confirmed infections in Ottawa residents are included.

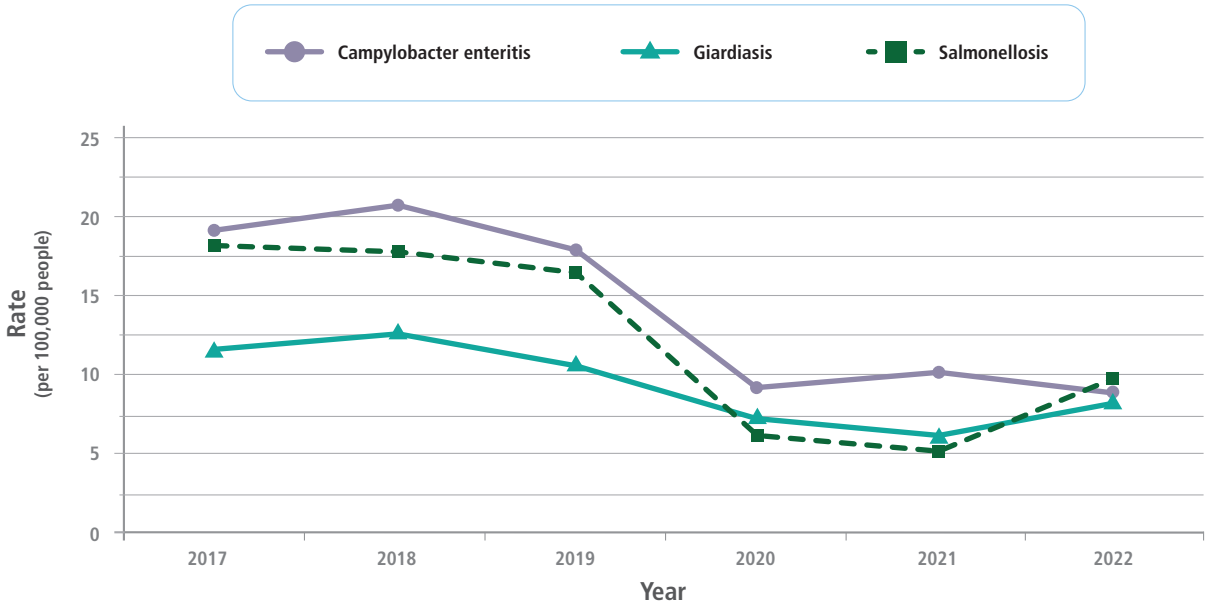

Figure 48. Incidence rate of campylobacter enteritis, giardiasis and salmonellosis by year in Ottawa, 2017 to 2022.

Source: Ottawa Public Health. Integrated Public Health Information System (iPHIS), Ontario Ministry of Health. Extracted March 13, 2023.

Note: For Giardiasis, probable as well as confirmed infections in Ottawa residents are included.

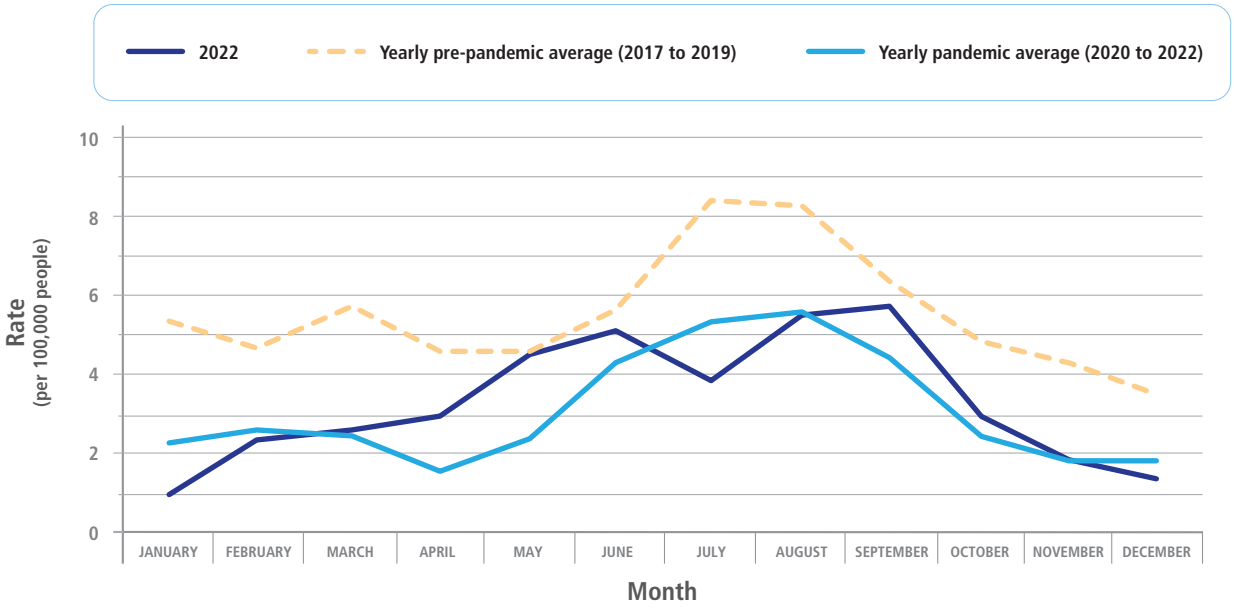

Figure 49. Incidence rate of all enteric diseases of public health significance combined by month, Ottawa, pre-pandemic average (2017 to 2019) vs pandemic average (2020 to 2022) vs 2022.

Source: Ottawa Public Health. Integrated Public Health Information System (iPHIS), Ontario Ministry of Health. Extracted March 13, 2023.

Note: For Amebiasis and Giardiasis, probable as well as confirmed infections in Ottawa residents are included.

of Ontario-less-Ottawa (1.5 per 100,000) in 2022.[151] Of the 19 Ottawa residents with confirmed shigellosis reported in 2022, 58% reported travel outside the province during the incubation period, 16% reported anal-oral sexual contact, and 11% were part of an outbreak related to a restaurant in Québec.[152]

Extensively drug resistant (XDR) Shigella strains (i.e. strains that are resistant to all commonly recommended antibiotics) emerged in Ontario in 2022 and antibiotic resistance is being monitored locally. To date, no people in Ottawa have been diagnosed with XDR shigellosis.

Vector-borne and Other Zoonotic Infections

Vector-borne diseases are transmitted by an insect or other living organisms carrying a pathogen that can infect a person who comes into contact with the vector. Examples include Lyme disease, the bacterial agent of which is carried by the blacklegged tick, and West Nile virus (WNV), which is carried by certain mosquito species. Due to climate change, the presence of blacklegged ticks continues to increase in Ottawa.

Overall Trends

Lyme disease, WNV infection and Q fever were the only vector-borne diseases of public health significance reported among Ottawa residents in 2022 (Figure 50), with only one person with Q fever and WNV each reported in 2022.

There were no people reported with the other vector-borne diseases of public health significance in Ottawa in 2022. These include anthrax, brucellosis, hantavirus pulmonary syndrome, plague, rabies, and tularemia.

Lyme Disease

The City of Ottawa is an established Lyme disease[i] risk area. Tick surveillance work conducted by the University of Ottawa estimated that 32% of black-legged ticks in 2019 tested positive for the disease-causing bacterium, Borrelia burgdorferi. Adult ticks were more likely than nymphal ticks to test positive, and ticks collected from the sites located within the Greenbelt zone, in the sub-urban/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.[ii]

In 2022, 215 people infected with Lyme disease were reported in Ottawa, compared with 50 reported in 2013 (Figure 51). Of the people reported in 2022 with Lyme disease, 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 in neighbouring regions.

When comparing the incidence rate of Lyme disease in 2022 to the three health units neighbouring Ottawa, the rate in Ottawa was the lowest (range of 20.2/100,000 to 163.3/100,000). However, the incidence of Lyme disease in Ottawa (20.2 per 100,000) was higher than the average of Ontario-less-Ottawa (8.2 per 100,000) in 2022.[153]

Rabies

Although there have been no human cases of rabies in Ontario since 1967, the risk continues to exist. Bats have been found to be infected with rabies in Ottawa. Elsewhere in Ontario, raccoons, foxes, and skunks have been found to be infected with rabies. Importation of infected animals can be a source of rabies for local pet and domestic animals. Foreign travel also presents risk scenarios for Ottawa residents.

All potential rabies exposures are risk assessed by OPH and rabies post-exposure prophylaxis (RPEP) is provided when indicated for the prevention of rabies in humans. In 2022, OPH, working alongside local health care providers, coordinated the distribution of RPEP doses to 195 individuals.

i Early symptoms of Lyme disease symptoms can include fever, headache, fatigue, and a characteristic skin rash called erythema migrans. If left untreated, infection can spread to joints, the heart, and the nervous system.

ii Burrows H, Talbot B, McKay R, Slatculescu A, Logan J, et al. (2021) A multi-year assessment of blacklegged tick (Ixodes scapularis) population establishment and Lyme disease risk areas in Ottawa, Canada, 2017-2019. PLOS ONE 16(2): e0246484. https://doi.org/10.1371/journal.pone.0246484

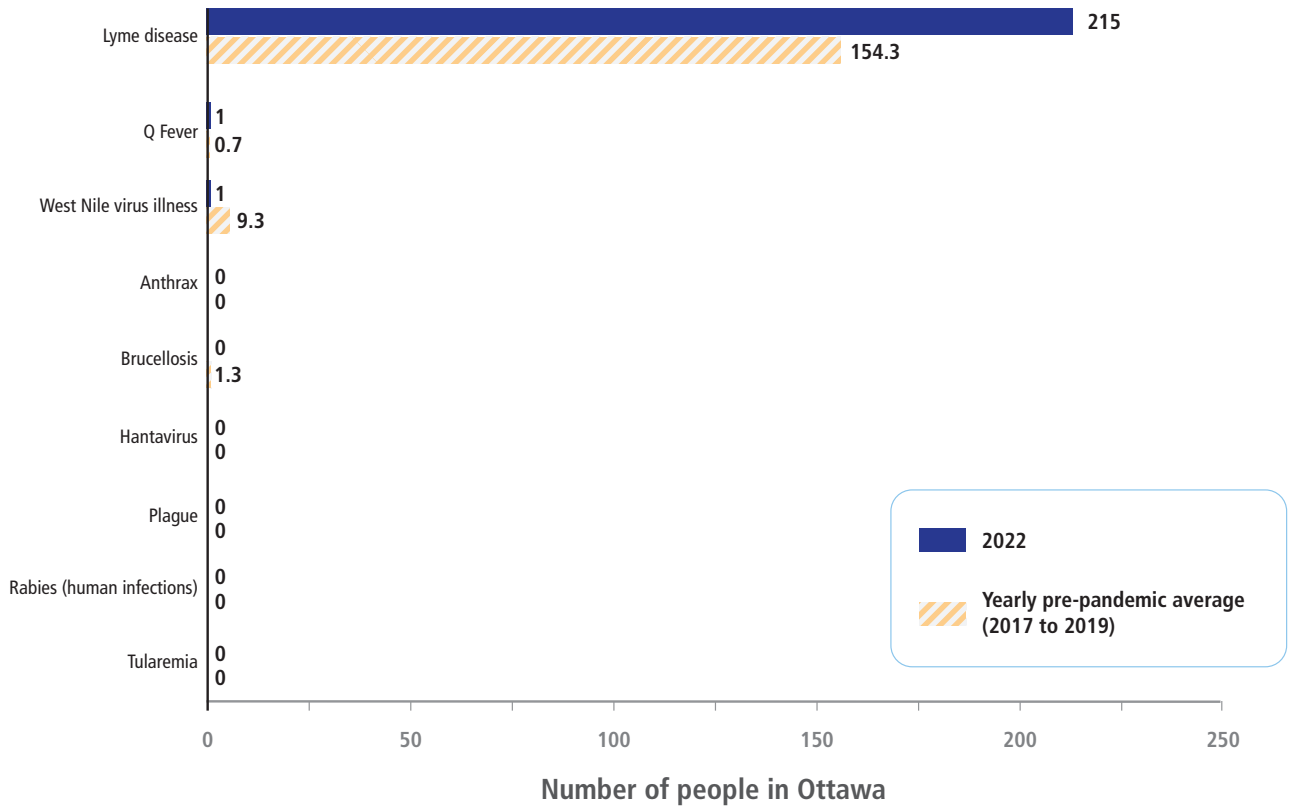

Figure 50. Number of Ottawa residents reported with an infection from a vector-borne or zoonotic disease of public health significance, 2022 vs pre-pandemic (2017 to 2019) average.

Source: Ottawa Public Health. Integrated Public Health Information System (iPHIS), Ontario Ministry of Health. Extracted March 13, 2023.
Note: For Brucellosis, Lyme disease, and West Nile virus, probable as well as confirmed infections in Ottawa residents are included.

of Ontario-less-Ottawa (1.5 per 100,000) in 2022.[145] Of the 19 Ottawa residents with confirmed shigellosis reported in 2022, 58% reported travel outside the province during the incubation period, 16% reported anal-oral sexual contact, and 11% were part of an outbreak related to a restaurant in Québec.[146]

Extensively drug resistant (XDR) Shigella strains (i.e. strains that are resistant to all commonly recommended antibiotics) emerged in Ontario in 2022 and antibiotic resistance is being monitored locally. To date, no people in Ottawa have been diagnosed with XDR shigellosis.

Vector-borne and Other Zoonotic Infections

Vector-borne diseases are transmitted by an insect or other living organisms carrying a pathogen that can infect a person who comes into contact with the vector. Examples include Lyme disease, the bacterial agent of which is carried by the blacklegged tick, and West Nile virus (WNV), which is carried by certain mosquito species. Due to climate change, the presence of blacklegged ticks continues to increase in Ottawa.

Overall Trends

Lyme disease, WNV infection and Q fever were the only vector-borne diseases of public health significance reported among Ottawa residents in 2022 (Figure 50), with only one person with Q fever and WNV each reported in 2022.

There were no people reported with the other vector-borne diseases of public health significance in Ottawa in 2022. These include anthrax, brucellosis, hantavirus pulmonary syndrome, plague, rabies, and tularemia.

Lyme Disease

The City of Ottawa is an established Lyme disease[xli] risk area. Tick surveillance work conducted by the University of Ottawa estimated that 32% of black-legged ticks in 2019 tested positive for the disease-causing bacterium, Borrelia burgdorferi. Adult ticks were more likely than nymphal ticks to test positive, and ticks collected from the sites located within the Greenbelt zone, in the sub-urban/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.[xlii]

In 2022, 215 people infected with Lyme disease were reported in Ottawa, compared with 50 reported in 2013 (Figure 51). Of the people reported in 2022 with Lyme disease, 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 in neighbouring regions.

When comparing the incidence rate of Lyme disease in 2022 to the three health units neighbouring Ottawa, the rate in Ottawa was the lowest (range of 20.2/100,000 to 163.3/100,000). However, the incidence of Lyme disease in Ottawa (20.2 per 100,000) was higher than the average of Ontario-less-Ottawa (8.2 per 100,000) in 2022.[147]

Rabies

Although there have been no human cases of rabies in Ontario since 1967, the risk continues to exist. Bats have been found to be infected with rabies in Ottawa. Elsewhere in Ontario, raccoons, foxes, and skunks have been found to be infected with rabies. Importation of infected animals can be a source of rabies for local pet and domestic animals. Foreign travel also presents risk scenarios for Ottawa residents.

All potential rabies exposures are risk assessed by OPH and rabies post-exposure prophylaxis (RPEP) is provided when indicated for the prevention of rabies in humans. In 2022, OPH, working alongside local health care providers, coordinated the distribution of RPEP doses to 195 individuals.

xli Early symptoms of Lyme disease symptoms can include fever, headache, fatigue, and a characteristic skin rash called erythema migrans. If left untreated, infection can spread to joints, the heart, and the nervous system.

xlii Burrows H, Talbot B, McKay R, Slatculescu A, Logan J, et al. (2021) A multi-year assessment of blacklegged tick (Ixodes scapularis) population establishment and Lyme disease risk areas in Ottawa, Canada, 2017-2019. PLOS ONE 16(2): e0246484. https://doi.org/10.1371/journal.pone.0246484

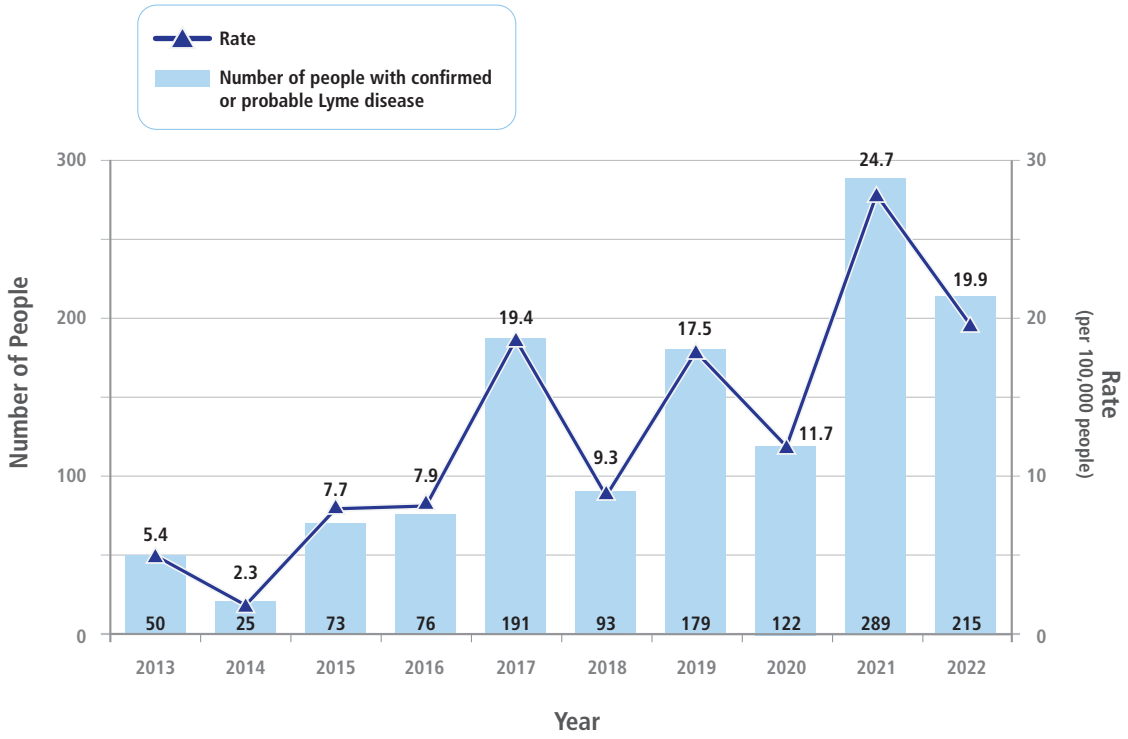

Figure 51 Incidence and number of Ottawa residents with confirmed or probable Lyme disease by episode year, 2013 to 2022.

Source: Ottawa Public Health. Integrated Public Health Information System (iPHIS), Ontario Ministry of Health. Extracted March 13, 2023.

Long-Term Care, Retirement Home, and Hospital Outbreaks

Respiratory and gastroenteritis infection outbreaks in institutions are reportable to local public health authorities. This report summarizes outbreaks in hospitals, retirement homes and long term care homes: institutions where outbreak reporting is most reliable. As of March 20, 2023, the 2022-2023 outbreak season (the period from September 2022 to August 2023) has been predominated by COVID-19 outbreaks, while influenza, other respiratory outbreaks and enteric outbreaks partially rebounded after dropping during the previous two seasons.

There have been 284 COVID-19 outbreaks in institutions since September 1st of 2022, the start of the current respiratory season, which is a greater number of outbreaks than were reported in the entire first respiratory season of the pandemic (231 outbreaks between September 2020 and August 2021) and more than season-to-date in the second season of the pandemic (187 outbreaks between September 2021 and March 2022).[148]

There have been 19 influenza A outbreaks and 46 other non-COVID respiratory outbreaks in Ottawa institutions (i.e., hospitals, long-term care homes, and retirement homes) during the 2022-2023 season-to-date. This is lower than the average of 100 respiratory outbreaks (including 46 influenza and 54 other respiratory outbreaks) seen in pre-pandemic seasons (2016-2017 through 2018-2019 weeks 35 through 11).[149]

Finally, there have been 14 gastroenteritis outbreaks in institutions for the season-to-date, which is lower than the average of 42 gastroenteritis outbreaks seen in pre-pandemic seasons (2016-2017 through 2018-2019 weeks 35 through 11).[150]

Please refer to the OPH Respiratory and Enteric Surveillance Report Dashboard for additional up-to-date summaries, to the OPH Outbreak Status Dashboard for a list of ongoing and recently closed confirmed respiratory and enteric outbreaks, and to the OPH COVID-19 Dashboard for details on COVID-19 outbreaks.

Appendix and References

APPENDIX

Data Tables

Data table for Figure 1. Population distribution as counts, for males and females, City of Ottawa, 2023, 2030 and 2040

Age	2023 Males	2023 Females	2030 Males	2030 Females	2040 Males	2040 Females
0-4	26,094	25,237	31,167	29,602	36,575	34,742
5-9	27,893	27,503	30,267	29,039	36,855	35,176
10-14	29,585	28,919	30,009	29,394	36,375	34,748
15-19	31,506	30,736	33,846	32,901	37,101	35,383
20-24	41,941	39,111	46,689	43,333	50,238	46,240
25-29	45,132	44,251	47,645	46,068	52,933	51,027
30-34	43,081	42,395	48,646	48,785	53,679	53,813
35-39	40,126	39,689	50,808	49,276	55,309	54,801
40-44	35,460	37,005	44,953	44,139	55,261	54,914
45-49	32,537	35,253	38,572	39,587	52,950	51,857
50-54	32,705	34,014	32,586	35,336	44,446	44,195
55-59	34,553	34,668	31,389	33,695	36,983	38,615
60-64	34,289	35,332	31,394	32,866	30,946	34,648
65-69	27,641	30,075	34,020	35,598	29,570	33,126
70-74	21,582	24,926	28,143	31,082	29,069	31,915
75-79	16,656	19,861	20,799	24,785	29,857	32,899
80-84	9,966	12,846	15,386	19,210	22,309	26,310
85+	8,619	14,388	12,219	18,653	22,003	31,559
Total	**539,366**	**556,209**	**608,538**	**623,349**	**712,459**	**725,968**

Data table for Figure 2. Number of live births and fertility rates in Ottawa from 2013 to 2022

Year	# of Live Births	Female Population Age 15-49y	Fertility Rate (per 1,000 females)
2013	9,978	232,765	42.9
2014	9,815	231,407	42.4
2015	9,655	230,487	41.9
2016	9,649	232,638	41.5
2017	9,553	237,524	40.2
2018	9,534	243,064	39.2
2019	9,798	248,414	39.4
2020	9,457	254,655	37.1
2021	9,865	256,184	38.5
*2022	9,510	262,155	36.3

Data table for Figure 3. Age-specific fertility rates in Ottawa from 2013 to 2022

Year	Birth Rate Age 15-19 (per 1,000 females)	Birth Rate Age 20-24 (per 1,000 females)	Birth Rate Age 25-29 (per 1,000 females)	Birth Rate Age 30-34 (per 1,000 females)	Birth Rate Age 35-39 (per 1,000 females)	Birth Rate Age 40-44 (per 1,000 females)
2013	5.4	22.6	72.4	120.4	66.5	12.8
2014	5.1	22.1	71.3	117.0	65.8	13.8
2015	4.9	21.9	70.8	112.6	66.6	13.1
2016	4.0	19.4	66.8	115.6	67.0	14.4
2017	3.6	18.2	62.5	110.7	66.6	14.3
2018	2.4	15.5	57.9	109.5	66.9	14.7
2019	2.7	16.3	54.6	109.6	67.9	15.0
2020	2.1	12.4	47.7	105.1	65.7	14.4
2021	1.9	12.8	49.2	106.1	67.9	14.8
*2022	2.0	12.9	44.9	96.0	64.5	15.5

Data table for Figure 5. Percentage of students in grades 7 to 12 who reported school connectedness in the past year in Ottawa, 2019 and 2021, and Ontario-less-Ottawa, 2021. CI = Confidence Interval

School Connectedness	Ottawa 2019	Ottawa 2021	Ontario–less–Ottawa 2021	Upper CI Ottawa 2019	Lower CI Ottawa 2019	Upper CI Ottawa 2021	Lower CI Ottawa 2021	Upper CI Ontario–less–Ottawa 2021	Lower CI Ontario–less–Ottawa 2021
Like school	70%	74%	75%	6%	5%	5%	4%	6%	5%
Feel part of school	81%	71%	73%	4%	4%	4%	4%	5%	4%
Feel close to people at school	80%	65%	74%	3%	3%	6%	5%	6%	5%
Feel safe at school	87%	88%	90%	2%	2%	6%	4%	4%	3%

Data table for Figure 6. Percent of population aged 12 and older who stated they had access to a regular health care provider by subgroup, 2019-2020.

Category	Percentage of population aged 12 and over (%)	Confidence Interval (%)
Ottawa	86%	3%
Ontario less Ottawa	91%	1%
12-19	89%	8%
20-44	76%	7%
45-64	93%	4%
65+	96%	2%
Q1 - Highest income	90%	7%
Q2	89%	8%
Q3	89%	6%
Q4	82%	8%
Q5 - Lowest income	80%	6%
Urban	86%	3%
Rural	99%	2%
Not an immigrant	86%	4%
Immigrant within past 10 years	62%	16%
Immigrant over 10 years ago	96%	4%
Owner	92%	3%
Renter	71%	9%

Data table for Figure 7. Immunization coverage rates for school year 2018-19 among 7- and 17-year-olds in Ottawa, and national coverage goals, by disease.

Diseases	7-year- olds	17-year-olds	National Coverage Goal 7-year-olds	National Coverage Goal 17-year-olds
Measles	87%	97%	95%	95%
Mumps	87%	97%	95%	95%
Rubella	99%	99%	95%	95%
Diphtheria	86%	76%	95%	90%
Tetanus	86%	76%	95%	90%
Polio	86%	95%	95%	95%
Pertussis	85%	72%	95%	90%
Haemophilus influenza B	86%	N/A	95%	N/A
Pneumococcal disease	80%	N/A	95%	N/A
Meningococcal disease	98%	N/A	95%	N/A
Varicella	83%	N/A	N/A	N/A

Data table for Figure 8: Total annual volume of vaccine doses distributed by OPH by vaccine product, 2018-2022.

Vaccine Product	Diseases Covered by Vaccine	2018	2019	2020	2021	2022
DTap-IPV-Hib	Diphtheria, tetanus, pertussis, polio, Haemophilus influenza B	43,440	41,825	42,060	42,245	42,275
Men-C-C	Meningococcal disease	14,991	14,230	12,800	11,950	13,418
MMR	Measles, mumps, rubella	24,426	31,910	18,482	17,890	21,707
MMR-Var	Measles, mumps, rubella, varicella	17,210	18,000	12,150	14,080	15,962
Pneu-C-13	Pneumococcal disease	35,300	34,610	33,430	33,070	33,881
Tdap	Diphtheria, tetanus, pertussis	62,450	62,445	33,126	38,395	50,080
Tdap-IPV	Diphtheria, tetanus, pertussis, polio	20,916	21,885	15,615	15,635	21,147
Var	Varicella	18,072	15,830	13,910	14,850	16,781

Data table for Figure 9: Immunization coverage rates for hepatitis B, HPV, and MCV4, among 12- and 17-year-olds in Ottawa by school year, 2018-19 to 2021-22.

School Year	Population	Hepatitis B	HPV	MCV4
2018-19	12-year-olds	75%	67%	88%
2019-20 (with catch-up)	12-year-olds	48%	30%	89%
2020-21 (with catch-up)	12-year-olds	63%	54%	78%
2021-22	12-year-olds	58%	47%	78%
2018-19	17-year-olds	80%	67%	96%
2019-20 (with catch-up)	17-year-olds	80%	66%	96%
2020-21 (with catch-up)	17-year-olds	80%	67%	96%
2021-22	17-year-olds	76%	63%	93%

Data table for Figure 10: Percent of the population aged 18 years and older that met the Canadian Physical Activities guidelines by subgroup, 2017-2018.

Category	Percentage of the population aged 18 and older (%)	Confidence Interval (%)
Ottawa	67%	3%
Ontario less Ottawa	55%	1%
Female	61%	5%
Male	72%	5%
18-44	73%	5%
45-64	68%	5%
65+	47%	7%
English	72%	4%
French	59%	7%
Other	59%	9%
Less than high school graduation	36%*	18%
High school graduation	68%	8%
Post-secondary education	68%	4%

Data table for Figure 11: Breast cancer and cervical screening participation as a percent of screen-eligible residents of Ottawa 2018-2020

Cancer Screening	Year	Percent of screen-eligible people
Breast cancer screening participation	2018	65%
Breast cancer screening participation	2019	64%
Breast cancer screening participation	2020	58%
Cervical screening participation	2018	61%
Cervical screening participation	2019	60%
Cervical screening participation	2020	56%

Data table for Figure 12: Percent of those screen-eligible people in Ottawa overdue for colorectal cancer screening 2018-2020

Cancer Screening	Year	Percent of screen-eligible people
Overdue for colorrectal cancer screening	2018	37%
Overdue for colorrectal cancer screening	2019	38%
Overdue for colorrectal cancer screening	2020	43%

Data table for Figure 13: Percent of the adult population aged 18 and older who are classified as overweight or obese. 2005 to 2019/2020

Category	Percent of population aged 18 and older (%)	Confidence Interval (%)
Ottawa	58%	4%
Ontario less Ottawa	65%	1%
Male	64%	5%
Female	56%	6%
18-44	50%	7%
45-64	69%	6%
65 and older	60%	6%

Data table for Figure 14. Percent of population aged 18 and older with a BMI estimate of overweight or obese in 2019-2020 by region, sex and age.

Year	Percent of population aged 18 and older (%)	Confidence Interval (%)
2005	44%	3%
2007/2008	48%	3%
2009/2010	52%	3%
2011/2012	47%	3%
2013/2014	49%	4%
2015-2016	57%	4%
2017-2018	61%	4%
2019/2020	58%	4%

Data table for Figure 15: Opioid-related Morbidity and Mortality Rates in Ottawa by Year and Quarter, 2017 to 2022.

Year	Quarter	Population	ED visits	Hospitalizations	Deaths
2016	Q1	966,584	21.5	9.5	4.6
2016	Q2	970,722	23.5	11.1	2.9
2016	Q3	975,412	26.2	11.9	3.3
2016	Q4	981,204	28.5	10.6	6.1
2017	Q1	986,997	28.8	11.8	3.6
2017	Q2	992,789	37.5	11.7	6.4
2017	Q3	998,267	52.9	8.4	11.2
2017	Q4	1,003,114	29.5	9.2	5.2
2018	Q1	1,007,961	32.9	6	5.6
2018	Q2	1,012,808	37.9	9.9	5.5
2018	Q3	1,017,509	52.7	7.5	9
2018	Q4	1,021,919	51.3	11.7	12.1

Year	Quarter	Population	ED visits	Hospitalizations	Deaths
2019	Q1	1,026,329	38.2	7	7.8
2019	Q2	1,030,739	58.6	10.9	7.4
2019	Q3	1,034,996	37.5	7	4.3
2019	Q4	1,038,948	39.3	8.5	5.8
2020	Q1	1,042,900	49.9	7.3	6.9
2020	Q2	1,046,852	68	4.2	12.2
2020	Q3	1,050,647	103.6	12.6	14.5
2020	Q4	1,054,131	68.3	12.5	14.4
2021	Q1	1,057,615	80.6	6.4	14
2021	Q2	1,061,099	105.2	10.6	17
2021	Q3	1,064,587	89	13.2	11.6
2021	Q4	1,068,083	94.7	12	13.1
2022	Q1	1,071,578	72	7.8	13.8
2022	Q2	1,075,074	69.6	9.3	N/A

Data table for Figure 16: Percent of population aged 19 and older who are at low or no risk from alcohol related harms in Ottawa and Ontario-less-Ottawa by year, 2015-2020.

Cycle	Percent Ottawa	Confidence Interval Ottawa	Percent Ontario–less–Ottawa	Confidence Interval Ontario–less–Ottawa
2015/2016	59.9%	4.2%	67.2%	1.0%
2017/2018	60.5%	4.0%	71.3%	0.9%
2019/2020	65.7%	4.7%	70.8%	1.0%

Data table for Figure 17: Percent of population aged 19 years and older who are at low or no risk from alcohol by subgroup, 2019-2020.

Category	Percent of population aged 19 and older (%)	Confidence Interval (%)
Ottawa	66%	4.7%
Ontario less Ottawa	71%	1.0%
Male	58%	5.8%
Female	73%	6.1%
English	59%	6.3%
French	54%	8.8%
Other	84%	6.0%
Quintile 1 – Highest income	52%	9.4%
Quintile 2 – Second highest income	55%	10.1%
Quintile 3 – Medium income	65%	7.9%
Quintile 4 – Second lowest income	76%	6.8%

Category	Percent of population aged 19 and older (%)	Confidence Interval (%)
Quintile 5 – Lowest income	80%	7.7%
Less than high school	78%	15.0%
High school	79%	6.6%
Post secondary	62%	5.8%
Not an immigrant	59%	5.6%
Immigrated past 10 years	87%	12.0%
Immigrated more than 10 years	82%	6.3%
Not racialized	59%	5.4%
Racialized	87%	7.1%

Data table for Figure 18: Percent of population aged 19 years and older who have used cannabis more than once in the past year by subgroup, 2019-2020. NR = Not Reportable

Category	Percentage of population aged 19 and older (%)	Confidence Interval (%)
Ottawa	22%	4.0%
Ontario less Ottawa	22%	0.9%
Men	28%	5.5%
Women	16%	4.8%
12 to 19	36%	15.4%
20 to 44	31%	6.8%
45 to 64	17%	5.3%
65 and older	6%	2.7%
English	31%	6.0%
French	18%	6.8%
Other	9%	4.8%
Not an immigrant	27%	5.1%
Immigrated in past 10 years	NR	NR
Immigrated over 10 years ago	8%	4.5%
Not racialized	26%	4.9%
Racialized	11%	6.4%

Data table for Figure 19: Percent of the population aged 19 and older who reported currently smoking by year, 2001-2020.

Years	Ottawa Percentage (%)	Ottawa Confidence Interval (%)	Ontario-less-Ottawa Percentage (%)	Ontario-less-Ottawa Confidence Interval (%)
2001	22%	2.3%	26%	0.8%
2003	20%	2.7%	24%	0.7%
2005	21%	2.6%	22%	0.7%
2007/2008	18%	2.6%	22%	0.7%
2009/2010	16%	2.9%	21%	0.8%
2011/2012	17%	2.9%	21%	0.8%
2013/2014	17%	2.7%	19%	0.7%
2015/2016	15%	2.9%	17%	0.8%
2017/2018	12%	2.4%	15%	0.8%
2019/2020	9%	2.3%	13%	0.7%

Data table for Figure 20: Percent of the population aged 19 and older who reported currently smoking by subgroup, 2019-2020.
NR = Not Reportable

Category	Percentage of population aged 19 and older (%)	Confidence Interval (%)
Ottawa	9%	2.3%
Ontario-less-Ottawa	13%	0.7%
Male	11%*	3.7%
Female	7%*	2.5%
19-24	NR	NR%
25-44	10%*	4.1%
45-64	10%*	3.6%
65+	9%*	4.3%
Quintile 1 – Highest income	NR	NR
Quintile 2 – Second highest income	5%*	3.1%
Quintile 3 – Medium income	10%*	4.2%
Quintile 4 – Second lowest income	12%*	5.9%
Quintile 5 – Lowest income	14%*	6.2%
Less than high school	31%*	19.4%
High school	9%*	4.7%
Post secondary	7%*	2.4%
Living alone	16%*	4.5%
Single parent	NR	NR
Parents and children	6%*	2.8%
Couple	8%*	3.5%
Owner	6%*	2.0%
Renter	15%*	5.6%

Data table for Figure 21: Daily smoking rates among the population 19 and older in Ottawa and Ontario less Ottawa by year, 2001-2020.

Year	Percent Ottawa	Confidence Interval Ottawa	Percent Ontario–less–Ottawa	Confidence Interval Ontario–less–Ottawa
2001	18%	2.3%	22%	0.7%
2003	15%	2.3%	18%	0.6%
2005	14%	2.1%	17%	0.6%
2007/2008	13%	2.4%	18%	0.7%
2009/2010	11%	2.2%	16%	0.6%
2011/2012	11%	2.3%	16%	0.7%
2013/2014	12%	2.4%	14%	0.7%
2015/2016	10%	2.4%	13%	0.6%
2017/2018	9%	2.3%	11%	0.6%
2019/2020	7%	2.0%	10%	0.6%

Data table for Figure 22: Daily smoking rates among those aged 19 and older, by subgroup, by subgroup, 2019-2020.
NR = Not Reportable

Category	Percentage of population aged 19 and older (%)	Confidence Interval (%)
Ottawa	7%	2.0%
Ontario less Ottawa	10%	0.6%
Male	9%*	3.1%
Female	5%*	2.0%
Quintile 1 – Highest income	NR	NR
Quintile 2 – Second highest income	4%*	2.9%
Quintile 3 – Medium income	6%*	3.9%
Quintile 4 – Second lowest income	9%*	5.0%
Quintile 5 – Lowest income	11%*	6.0%
Living alone	11%*	4.1%
Single parent	NR	NR
Couple living with children	4%*	2.5%
Couple not living with children	7%*	3.4%
Owner	4%*	1.8%
Renter	12%*	5.1%

Data table for Figure 23: Percentage of students in grades 7 to 12 who reported using substances in the past year in Ottawa, 2019 and 2021, and Ontario-less-Ottawa, 2021. NR = Not Reportable

Indicator	Population	Percent	Lower Confidence Interval	Upper Confidence Interval
Alcohol	Ottawa 2019	41%	10%	9%
Cannabis	Ottawa 2019	22%*	8%	6%
Vapes/e-cigarettes	Ottawa 2019	NR	NR	NR
Opioids (non-medical)	Ottawa 2019	13%	4%	3%
Tobacco cigarettes	Ottawa 2019	6%*	4%	2%
Alcohol	Ottawa 2021	32%	5%	5%
Cannabis	Ottawa 2021	15%*	7%	5%
Vapes/e-cigarettes	Ottawa 2021	9%*	4%	3%
Opioid (non-medical)	Ottawa 2021	10%	4%	3%
Tobacco cigarettes	Ottawa 2021	3%*	2%	1%
Alcohol	Ontario-less-Ottawa 2021	31%	4%	4%
Cannabis	Ontario-less-Ottawa 2021	17%	5%	4%
Vapes/e-cigarettes	Ontario-less-Ottawa 2021	16%	5%	4%
Opioid (non-medical)	Ontario-less-Ottawa 2021	13%	3%	2%
Tobacco cigarettes	Ontario-less-Ottawa 2021	4%*	3%	2%

Data table for Figure 24: Percentage of students in grades 7 to 12 who reported that it would be fairly or very easy to obtain substances in Ottawa, 2019 and 2021, and Ontario-less-Ottawa, 2021. CI = Confidence Interval; NR = Not Reportable

Substance	Percent Ottawa 2021	Lower CI Ottawa 2021	Upper CI Ottawa 2021	Percent Ottawa 2019	Lower CI Ottawa 2019	Upper CI Ottawa 2019	Percent Ontario–less–Ottawa 2021	Lower CI Ontario–less–Ottawa 2021	Upper CI Ontario–less–Ottawa 2021
Alcohol	63%	7%	7%	67%	13%	11%	57%	7%	7%
Cannabis	38%	7%	8%	44%	13%	15%	39%	6%	7%
Tobacco cigarettes	40%	8%	9%	48%	13%	14%	43%	7%	8%
Vaping device	52%	8%	7%	NR	NR	NR	53%	7%	7%
Opioids (non-medical)	18%	3%	4%	23%	6%	7%	18%	5%	6%

Data table for Figure 25: Percent of Ottawa residents aged 12 years and older who rated their general health as very good or excellent, 2019-2020.

Category	Percent of population 12 years and older (%)	Confidence Interval (%)
Ottawa	67%	5.9%
Ontario less Ottawa	64%	5.6%
12-19	69%	10.9%
20-44	69%	7.6%
45-64	65%	6.8%
65+	54%	6.8%
Less than high school graduation	60%	10.1%
High school graduation	59%	9.4%
Post-secondary education	68%	4.7%
Quintile 1 - highest income	72%	7.3%
Quintile 2	80%	6.9%
Quintile 3	66%	7.0%
Quintile 4	56%	8.8%
Quintile 5 - lowest income	52%	9.3%
Living alone	54%	7.8%
Single parent	70%	12.5%
Couple living with children	70%	6.7%
Couple not living with children	66%	6.3%
Not stated	56%*	22.0%

Data table for Figure 26: Top ten leading causes of Emergency Department (ED) visits by Ottawa residents, 2021.

Leading Causes of ED Visit	Number of Visits	Percent of Total Visits
Injury, poisoning/overdose or other external cause	75,652	23%
Musculoskeletal system and connective tissue conditions	21,310	7%
Digestive conditions	19,482	6%
Genitourinary conditions	16,964	5%
Mental and behavioural conditions	16,418	5%
Respiratory conditions	15,122	5%
Circulatory system conditions	12,771	4%
Infectious and parasitic diseases	11,799	4%
Skin and subcutaneous tissue conditions	10,863	3%
Nervous system conditions	6,120	2%

Data table for Figure 27: Age standardized hospitalization rates by cause and Ottawa Neighbourhood Study socioeconomic quintiles 1 and 5, 2021.

Hospitalizations	Quintile 1 – Highest advantage	Quintile 1 – Confidence Interval	Quintile 5 – Lowest Advantage	Quintile 5 – Confidence Interval
Circulatory system disease	2977	80.6	3965	90.8
Endocrine, nutritional and metabolic disease	2172	68.5	3085	79.9
Genitourinary disease	1752	61.7	2206	67.5
Digestive system disease	1720	60.2	2030	64.8
Injury	1460	55.8	1724	59.8

Data table for Figure 28: Percentage of injury related emergency department visit and hospitalizations by cause in Ottawa, 2021.

Injury type	Emergency department visits	Hospitalizations
Falls	39%	70%
Sport and recreation	12%	7%
Struck	9%	2%
Cut	9%	2%
Overexertion	7%	1%
Environmental	6%	1%
MVTC	5%	7%
Selfharm	2%	13%

Data table for Figure 29: Self-rated mental health among Ottawa residents aged 12 years and older by subgroup, 2019-2020.

Category	Percent of population aged 12 and older (%)	Confidence Interval (%)
Ottawa	60%	2%
Ontario less Ottawa	65%	1%
Male	64%	5%
Female	56%	6%
12-19	58%	12%
20-44	51%	8%
45-64	66%	7%
65+	74%	7%

Category	Percent of population aged 12 and older (%)	Confidence Interval (%)
Quintile 1 – Highest income	69%	9%
Quintile 2 – Second highest income	71%	9%
Quintile 3 – Medium income	61%	8%
Quintile 4 – Second lowest income	50%	8%
Quintile 5 – Lowest income	50%	9%
Own	67%	4%
Rent	45%	8%
Living alone	47%	8%
Single parent	51%	12%
Couple living with children	62%	6%
Couple not living with children	69%	7%
Not stated	61%*	21%

Data table for Figure 30: Percentage of Ottawa residents (18+ years) who wanted to reach out for mental health support but did not know where to turn.

Category	Precent	Year	Lower Confidence Limit	Upper Confidence Limit
Ottawa	25%	2020	21%	29%
Ottawa	24%	2021	20%	28%
18-34 years	32%	2020	22%	44%
18-34 years	30%	2021	21%	41%
35-44 years	22%	2020	15%	31%
35-44 years	28%	2021	22%	36%
45-54 years	24%	2020	17%	32%
45-54 years	20%	2021	15%	26%
55-64 years	25%	2020	17%	35%
55-64 years	29%	2021	22%	38%
65 years or older	17%	2020	11%	26%
65 years or older	11%	2021	7%	16%
Disability	44%	2020	31%	58%
Disability	32%	2021	23%	43%
No disability	22%	2020	18%	27%
No disability	22%	2021	19%	27%
Gender - Man	21%	2020	16%	27%
Gender - Man	20%	2021	16%	26%

Category	Precent	Year	Lower Confidence Limit	Upper Confidence Limit
Gender - Woman	27%	2020	21%	34%
Gender - Woman	26%	2021	21%	33%
$59,999 or less	38%	2020	27%	50%
$59,999 or less	29%	2021	19%	41%
$60,000 to $99,999	28%	2020	20%	39%
$60,000 to $99,999	27%	2021	20%	36%
$100,000 to $159,999	17%	2020	12%	24%
$100,000 to $159,999	21%	2021	15%	27%
$160,000 or more	18%	2020	12%	26%
$160,000 or more	21%	2021	15%	29%
Parents with kids (4 years or less)	29%	2020	17%	45%
Parents with kids (4 years or less)	21%	2021	12%	33%
Parents with kids (5-11 years)	27%	2020	19%	38%
Parents with kids (5-11 years)	25%	2021	18%	33%
Parents with kids (12-17 years)	17%	2020	11%	25%
Parents with kids (12-17 years)	21%	2021	16%	29%
Non-racialized	24%	2020	20%	29%
Non-racialized	23%	2021	20%	27%
Racialized	32%	2020	19%	50%
Racialized	28%	2021	18%	41%
Heterosexual	24%	2020	20%	29%
Heterosexual	21%	2021	18%	25%
2SLGBTQQIA+	29%	2020	16%	48%
2SLGBTQQIA+	45%	2021	29%	63%

Data table for Figure 31: Percentage of Ottawa students in grades 7 to 12 reporting mental health and emotional well-being, in 2021 compared to 2019.

Indicator	2019	2021
Reported fair/poor mental health	21%	44%
Reported fair/poor ability to cope with unexpected problems/crisis	18%	33%
Used telephone crisis helpline / websites	5%	8%
Wanted to talk to someone but didn't know where to turn	34%	42%

Data table for Figure 32: Percentage of Ottawa residents with a mental health concern during their pregnancy, 2013 to 2022.

Year	Percentage of women with a mental health concern
2013	15%
2014	14%
2015	14%
2016	15%
2017	17%
2018	17%
2019	18%
2020	21%
2021	23%
2022	23%

Data table for Figure 33. Number of Ottawa residents with an infection from a direct contact or respiratory disease of public health significance, 2022 vs pre-pandemic (2017 to 2019) average.

Disease	Ottawa residents with laboratory-confirmed infections in 2022	Yearly pre-pandemic average of Ottawa residents with laboratory-confirmed infections (2017 to 2019)
LTBI	839	755.3
Tuberculosis	59	50.3
Group A Streptococcal Disease, Invasive	53	69.3
Mpox	42	0
Carbapenemase-Producing Enterobacteriaceae	30	11.3
Legionellosis	17	5.7

Disease	Ottawa residents with laboratory-confirmed infections in 2022	Yearly pre-pandemic average of Ottawa residents with laboratory-confirmed infections (2017 to 2019)
Blastomycosis	7	2
Meningococcal Disease, Invasive	5	2
Group B Streptococcal Disease, Neonatal	2	3.7
Leprosy	0	0

Data table for Figure 34: Incidence of invasive group A streptococcal disease and invasive meningococcal disease, Ottawa, 2017 to 2022.

Disease	Year	Rate per 100,000 population
Group A Streptococcal Disease, Invasive	2019	6.9
Group A Streptococcal Disease, Invasive	2017	6.9
Group A Streptococcal Disease, Invasive	2018	6.9
Group A Streptococcal Disease, Invasive	2020	5.4
Group A Streptococcal Disease, Invasive	2022	4.9
Group A Streptococcal Disease, Invasive	2021	2.8
Meningococcal Disease, Invasive	2022	0.5
Meningococcal Disease, Invasive	2017	0.4
Meningococcal Disease, Invasive	2018	0.2
Meningococcal Disease, Invasive	2020	0.1
Meningococcal Disease, Invasive	2019	0
Meningococcal Disease, Invasive	2021	0

Data table for Figure 35: Incidence of active tuberculosis, Ottawa, 2017 to 2022.

Diagnosis Year	Incidence Rate
2017	4.6
2018	5.1
2019	5.4
2020	5.1
2021	5.9
2022	5.5

Data table for Figure 36: Number of reported laboratory-confirmed influenza cases by type and reported week in Ottawa, September 2022 (week 35) to March 2023 (week 11), and historical trends.

Episode Week	2022-2023	2021-2022	2020-2021	2019-2020	Pre-COVID 3 Season Average
wk 35 - 28 Aug	0	0	0	1	0.3
wk 36 - 04 Sep	1	0	0	0	0.7
wk 37 - 11 Sep	0	1	1	0	0.3
wk 38 - 18 Sep	4	0	1	0	1.0
wk 39 - 25 Sep	1	0	1	0	0.3
wk 40 - 02 Oct	3	0	0	0	1.7
wk 41 - 09 Oct	0	0	0	0	1.3
wk 42 - 16 Oct	1	0	0	5	1.7
wk 43 - 23 Oct	20	0	0	1	1.0
wk 44 - 30 Oct	34	0	0	3	1.3
wk 45 - 06 Nov	51	0	0	5	1.0
wk 46 - 13 Nov	93	0	0	9	3.3
wk 47 - 20 Nov	137	0	0	6	2.7
wk 48 - 27 Nov	122	0	0	16	6.7
wk 49 - 04 Dec	141	0	0	21	10.0
wk 50 - 11 Dec	99	2	0	24	11.7
wk 51 - 18 Dec	58	3	0	47	25.0
wk 52 - 25 Dec	43	3	0	58	38.7
wk 1 - 01 Jan	28	1	0	83	54.3

Episode Week	2022-2023	2021-2022	2020-2021	2019-2020	Pre-COVID 3 Season Average
wk 2 - 08 Jan	12	0	0	53	57.7
wk 3 - 15 Jan	9	0	0	57	52.3
wk 4 - 22 Jan	4	0	0	55	43.3
wk 5 - 29 Jan	2	0	0	69	46.7
wk 6 - 05 Feb	5	0	0	65	53.7
wk 7 - 12 Feb	0	0	0	56	60.0
wk 8 - 19 Feb	0	0	0	49	60.3
wk 9 - 26 Feb	1	0	0	39	62.0
wk 10 - 05 Mar	0	0	0	29	39.7
wk 11 - 12 Mar	0	0	0	57	36.3
wk 12 - 19 Mar	1	0	0	21	26.3
wk 13 - 26 Mar	0	0	0	12	25.3
wk 14 - 02 Apr	0	2	0	7	26.0
wk 15 - 09 Apr	0	4	0	12	25.3
wk 16 - 16 Apr	0	1	0	6	15.3
wk 17 - 23 Apr	0	3	0	7	12.0
wk 18 - 30 Apr	0	3	0	6	9.7
wk 19 - 07 May	0	5	0	2	3.7
wk 20 - 14 May	0	3	0	6	5.0
wk 21 - 21 May	0	7	0	4	3.7
wk 22 - 28 May	0	4	0	7	1.3
wk 23 - 04 Jun	0	2	0	2	1.0
wk 24 - 11 Jun	0	0	0	1	0.7
wk 25 - 18 Jun	0	1	0	0	0.7
wk 26 - 25 Jun	0	1	0	1	0.3
wk 27 - 02 Jul	0	1	0	0	0.3
wk 28 - 09 Jul	0	0	0	1	0.0
wk 29 - 16 Jul	0	0	0	1	0.0
wk 30 - 23 Jul	0	0	0	2	0.3
wk 31 - 30 Jul	0	0	0	0	0.0
wk 32 - 06 Aug	0	0	0	0	0.3
wk 33 - 13 Aug	0	1	0	2	0.7
wk 34 - 20 Aug	0	0	0	1	0.3
wk 35 - 27 Aug	0	0	0	1	0.3

Data table for Figure 37: Percentage of Ottawa adults reporting influenza immunization by age group and influenza season, 2013/14 to 2020/21.

Influenza Season	Age 18 to 64 Years (%)	Age 18 to 64 Years (95% Confidence Intervals)	Age 65+ Years (%)	Age 65+ Years (95% Confidence Intervals)
2013/14	45.8%	38.8% – 52.8%	86%	78.5% – 93.4%
2014/15	38.6%	32.2% – 45.1%	79.9%	72.8% – 87.0%
2015/16	36.6%	30.0% – 43.1%	79.6%	71.7% – 87.6%
2016/17	43.7%	36.9% – 50.4%	83.7%	75.7% – 91.7%
2017/18	33.5%	27.0% – 40.0%	77.9%	70.0% – 85.8%
2018/19	45.8%	39.0% – 52.6%	85.8%	78.4% – 91.0%
2019/20	43.0%	33.4% – 53.3%	76.1%	63.1% – 85.6%
2020/21	43.2%	37.8% – 48.9%	73.9%	65.3% – 81.0%

Data Table for Figure 38: Timeline of the rate of COVID-19 cases among Ottawa residents by reported week and age group (years).

Week Start	Count				Rate			
	0 to 29 years	30 to 64 years	65 years and older	All cases	0 to 29 years	30 to 64 years	65 years and older	All cases
09-Feb-20			1	1	0.0	0.0	0.6	0.1
16-Feb-20		2		2	0.0	0.4	0.0	0.2
23-Feb-20		2		2	0.0	0.4	0.0	0.2
01-Mar-20	2	16	4	22	0.5	3.3	2.4	2.1
08-Mar-20	10	57	21	88	2.6	11.6	12.5	8.4
15-Mar-20	17	95	35	147	4.4	19.3	20.8	14.1
22-Mar-20	21	88	36	145	5.4	17.9	21.4	13.9
29-Mar-20	27	80	42	149	7.0	16.3	25.0	14.2
05-Apr-20	29	94	79	202	7.5	19.1	47.0	19.3
12-Apr-20	33	102	126	261	8.5	20.8	74.9	24.9
19-Apr-20	18	132	192	342	4.7	26.9	114.2	32.7
26-Apr-20	31	98	94	223	8.0	20.0	55.9	21.3
03-May-20	16	44	71	131	4.1	9.0	42.2	12.5
10-May-20	32	52	42	126	8.3	10.6	25.0	12.0
17-May-20	25	30	22	77	6.5	6.1	13.1	7.4
24-May-20	16	21	13	50	4.1	4.3	7.7	4.8

Week Start	Count				Rate			
	0 to 29 years	30 to 64 years	65 years and older	All cases	0 to 29 years	30 to 64 years	65 years and older	All cases
31-May-20	9	18	15	42	2.3	3.7	8.9	4.0
07-Jun-20	10	24	4	38	2.6	4.9	2.4	3.6
14-Jun-20	12	12	2	26	3.1	2.4	1.2	2.5
21-Jun-20	13	17	2	32	3.4	3.5	1.2	3.1
28-Jun-20	12	13	4	29	3.1	2.6	2.4	2.8
05-Jul-20	22	32	5	59	5.7	6.5	3.0	5.6
12-Jul-20	89	65	10	164	23.0	13.2	5.9	15.7
19-Jul-20	84	66	3	153	21.7	13.4	1.8	14.6
26-Jul-20	53	40	13	106	13.7	8.1	7.7	10.1
02-Aug-20	36	27	3	66	9.3	5.5	1.8	6.3
09-Aug-20	40	29	2	71	10.3	5.9	1.2	6.8
16-Aug-20	68	59	8	135	17.6	12.0	4.8	12.9
23-Aug-20	62	56	12	130	16.0	11.4	7.1	12.4
30-Aug-20	71	63	37	171	18.3	12.8	22.0	16.3
06-Sep-20	139	136	40	315	35.9	27.7	23.8	30.1
13-Sep-20	254	169	36	459	65.6	34.4	21.4	43.9
20-Sep-20	333	276	65	674	86.0	56.2	38.7	64.4
27-Sep-20	282	301	73	656	72.9	61.3	43.4	62.7
04-Oct-20	225	234	79	538	58.1	47.6	47.0	51.4
11-Oct-20	200	220	65	485	51.7	44.8	38.7	46.4
18-Oct-20	159	224	113	496	41.1	45.6	67.2	47.4
25-Oct-20	178	172	136	486	46.0	35.0	80.9	46.5
01-Nov-20	160	174	72	406	41.3	35.4	42.8	38.8
08-Nov-20	146	133	54	333	37.7	27.1	32.1	31.8
15-Nov-20	85	114	32	231	22.0	23.2	19.0	22.1
22-Nov-20	119	148	35	302	30.7	30.1	20.8	28.9
29-Nov-20	125	140	35	300	32.3	28.5	20.8	28.7
06-Dec-20	151	133	26	310	39.0	27.1	15.5	29.6
13-Dec-20	124	145	31	300	32.0	29.5	18.4	28.7
20-Dec-20	211	269	57	537	54.5	54.8	33.9	51.3
27-Dec-20	436	428	104	968	112.7	87.2	61.9	92.5
03-Jan-21	346	322	64	732	89.9	64.9	36.9	69.4
10-Jan-21	209	250	77	536	54.3	50.4	44.4	50.8
17-Jan-21	122	167	48	337	31.7	33.6	27.7	31.9
24-Jan-21	130	185	38	353	33.8	37.3	21.9	33.5

Week Start	Count				Rate			
	0 to 29 years	30 to 64 years	65 years and older	All cases	0 to 29 years	30 to 64 years	65 years and older	All cases
31-Jan-21	141	150	36	327	36.6	30.2	20.7	31.0
07-Feb-21	191	156	39	386	49.6	31.4	22.5	36.6
14-Feb-21	163	159	30	352	42.3	32.0	17.3	33.4
21-Feb-21	207	183	60	450	53.8	36.9	34.6	42.7
28-Feb-21	224	208	39	471	58.2	41.9	22.5	44.7
07-Mar-21	306	317	48	671	79.5	63.9	27.7	63.6
14-Mar-21	423	428	75	926	109.9	86.2	43.2	87.8
21-Mar-21	633	706	110	1449	164.5	142.2	63.4	137.4
28-Mar-21	849	954	173	1976	220.6	192.2	99.7	187.3
04-Apr-21	723	865	144	1732	187.8	174.3	83.0	164.2
11-Apr-21	562	639	112	1313	146.0	128.7	64.5	124.5
18-Apr-21	445	496	100	1041	115.6	99.9	57.6	98.7
25-Apr-21	311	335	52	698	80.8	67.5	30.0	66.2
02-May-21	315	291	49	655	81.8	58.6	28.2	62.1
09-May-21	223	213	57	493	57.9	42.9	32.8	46.7
16-May-21	150	158	31	339	39.0	31.8	17.9	32.1
23-May-21	122	105	14	241	31.7	21.2	8.1	22.8
30-May-21	94	70	9	173	24.4	14.1	5.2	16.4
06-Jun-21	59	51	8	118	15.3	10.3	4.6	11.2
13-Jun-21	35	22	2	59	9.1	4.4	1.2	5.6
20-Jun-21	16	15	1	32	4.2	3.0	0.6	3.0
27-Jun-21	13	9	2	24	3.4	1.8	1.2	2.3
04-Jul-21	11	17	3	31	2.9	3.4	1.7	2.9
11-Jul-21	18	24	4	46	4.7	4.8	2.3	4.4
18-Jul-21	21	20	3	44	5.5	4.0	1.7	4.2
25-Jul-21	56	39	1	96	14.5	7.9	0.6	9.1
01-Aug-21	69	44	9	122	17.9	8.9	5.2	11.6
08-Aug-21	81	67	4	152	21.0	13.5	2.3	14.4
15-Aug-21	136	81	7	224	35.3	16.3	4.0	21.2
22-Aug-21	159	125	13	297	41.3	25.2	7.5	28.2
29-Aug-21	225	147	21	393	58.5	29.6	12.1	37.3
05-Sep-21	238	147	23	408	61.8	29.6	13.3	38.7
12-Sep-21	188	119	22	329	48.8	24.0	12.7	31.2
19-Sep-21	179	116	11	306	46.5	23.4	6.3	29.0
26-Sep-21	141	100	15	256	36.6	20.1	8.6	24.3
03-Oct-21	109	64	9	182	28.3	12.9	5.2	17.3

Week Start	Count				Rate			
	0 to 29 years	30 to 64 years	65 years and older	All cases	0 to 29 years	30 to 64 years	65 years and older	All cases
10-Oct-21	98	70	9	177	25.5	14.1	5.2	16.8
17-Oct-21	77	70	16	163	20.0	14.1	9.2	15.5
24-Oct-21	137	105	28	270	35.6	21.2	16.1	25.6
31-Oct-21	161	127	39	327	41.8	25.6	22.5	31.0
07-Nov-21	134	99	26	259	34.8	19.9	15.0	24.6
14-Nov-21	152	131	29	312	39.5	26.4	16.7	29.6
21-Nov-21	242	203	35	480	62.9	40.9	20.2	45.5
28-Nov-21	422	362	46	830	109.6	72.9	26.5	78.7
05-Dec-21	1209	1210	97	2516	314.1	243.8	55.9	238.5
12-Dec-21	2711	2367	280	5358	704.3	476.9	161.4	508.0
19-Dec-21	3417	3539	548	7504	887.7	713.0	315.8	711.4
26-Dec-21	1655	2301	541	4497	430.0	463.6	311.8	426.3
02-Jan-22	1001	1666	587	3254	255.8	330.9	326.3	302.8
09-Jan-22	628	1093	510	2231	160.5	217.1	283.5	207.6
16-Jan-22	432	721	386	1539	110.4	143.2	214.6	143.2
23-Jan-22	360	572	196	1128	92.0	113.6	108.9	105.0
30-Jan-22	260	353	72	685	66.4	70.1	40.0	63.7
06-Feb-22	249	357	70	676	63.6	70.9	38.9	62.9
13-Feb-22	242	330	59	631	61.8	65.5	32.8	58.7
20-Feb-22	231	310	70	611	59.0	61.6	38.9	56.9
27-Feb-22	195	310	70	575	49.8	61.6	38.9	53.5
06-Mar-22	224	317	50	591	57.2	63.0	27.8	55.0
13-Mar-22	317	415	85	817	81.0	82.4	47.2	76.0
20-Mar-22	397	673	144	1214	101.4	133.7	80.0	113.0
27-Mar-22	347	696	221	1264	88.7	138.2	122.8	117.6
03-Apr-22	262	532	253	1047	66.9	105.7	140.6	97.4

Data Table for Figure 39: COVID-19 infection rates, per 100,000 population excluding LTCH residents, across quintiles in Ottawa based on case reported date: (A) prior to most Ottawa residents being protected by COVID-19 vaccination, (B) more than 60% of Ottawa residents protected by COVID-19 vaccination and before the arrival of the Omicron variant, and (C) after the arrival of the Omicron variant in Ottawa.

Reported Date	ONS SES Quintile	Rate per 100,000 (Excl. LTCH)
(A) 11 Feb 2020 to 20 July 2021	1	1723
(A) 11 Feb 2020 to 20 July 2021	2	2207
(A) 11 Feb 2020 to 20 July 2021	3	2013
(A) 11 Feb 2020 to 20 July 2021	4	2537

Reported Date	ONS SES Quintile	Rate per 100,000 (Excl. LTCH)
(A) 11 Feb 2020 to 20 July 2021	5	3996
(B) 21 July 2021 to 30 Dec 2021	1	1568
(B) 21 July 2021 to 30 Dec 2021	2	1636
(B) 21 July 2021 to 30 Dec 2021	3	1440
(B) 21 July 2021 to 30 Dec 2021	4	1431
(B) 21 July 2021 to 30 Dec 2021	5	1611
(C) 1 Jan 2022 to 13 June 2022	1	2413
(C) 1 Jan 2022 to 13 June 2022	2	2419
(C) 1 Jan 2022 to 13 June 2022	3	2299
(C) 1 Jan 2022 to 13 June 2022	4	2449
(C) 1 Jan 2022 to 13 June 2022	5	2494

Data table for Figure 40: Population COVID-19 hospitalization and death rates, per 100,000 population excluding LTCH, based on case reported date: (A) prior to most Ottawa residents being protected by COVID-19 vaccination, (B) more than 60% of Ottawa residents protected by COVID-19 vaccination and before the arrival of the Omicron variant, and (C) after the arrival of the Omicron variant in Ottawa.

Reported Date	ONS SES Quintile	Hospitalizations (Excl. LTCH)	Deaths (Excl. LTCH)
(A) 11 Feb 2020 to 20 July 2021	1	67	12
(A) 11 Feb 2020 to 20 July 2021	2	90	12
(A) 11 Feb 2020 to 20 July 2021	3	123	28
(A) 11 Feb 2020 to 20 July 2021	4	148	22
(A) 11 Feb 2020 to 20 July 2021	5	200	36
(B) 21 July 2021 to 30 Dec 2021	1	12	2
(B) 21 July 2021 to 30 Dec 2021	2	14	0
(B) 21 July 2021 to 30 Dec 2021	3	22	2
(B) 21 July 2021 to 30 Dec 2021	4	22	7
(B) 21 July 2021 to 30 Dec 2021	5	35	6
(C) 1 Jan 2022 to 13 June 2022	1	41	8
(C) 1 Jan 2022 to 13 June 2022	2	39	6
(C) 1 Jan 2022 to 13 June 2022	3	71	11
(C) 1 Jan 2022 to 13 June 2022	4	100	14
(C) 1 Jan 2022 to 13 June 2022	5	111	23

Data table for Figure 41: COVID-19 vaccination coverage in Ottawa neighbourhoods by SES quintile.

SES Quintile	Percent Coverage – At Least 1 Dose	Percent Coverage – At Least 2 Doses	Percent Coverage – At Least 3 Doses	Percent Coverage – At Least 4 Doses
1	88%	86%	63%	38%
2	87%	85%	62%	37%
3	90%	87%	67%	43%
4	88%	86%	62%	38%
5	85%	81%	53%	30%

Data table for Figure 42: Ottawa residents diagnosed with, or vaccinated against, mpox by week, May 1, 2022 to Feb 19, 2023.

Start of week	Number diagnosed with mpox	Number vaccinated with at least one dose of Imvamune
2022-05-01	0	0
2022-05-08	0	0
2022-05-15	0	0
2022-05-22	1	0
2022-05-29	0	0
2022-06-05	0	2
2022-06-12	2	16
2022-06-19	4	257
2022-06-26	4	184
2022-07-03	6	272
2022-07-10	8	270
2022-07-17	5	305
2022-07-24	6	356
2022-07-31	1	302
2022-08-07	1	451
2022-08-14	1	896
2022-08-21	1	455
2022-08-28	1	241
2022-09-04	0	159
2022-09-11	0	76
2022-09-18	0	59
2022-09-25	1	50
2022-10-02	0	27
2022-10-09	0	31
2022-10-16	0	28

Start of week	Number diagnosed with mpox	Number vaccinated with at least one dose of Imvamune
2022-10-23	0	24
2022-10-30	0	22
2022-11-06	0	14
2022-11-13	0	13
2022-11-20	0	12
2022-11-27	0	7
2022-12-04	0	11
2022-12-11	0	7
2022-12-18	0	18
2022-12-25	0	8
2023-01-01	0	5
2023-01-08	0	4
2023-01-15	0	11
2023-01-22	0	3
2023-01-29	0	4
2023-02-05	0	5
2023-02-12	0	4
2023-02-19	0	3
2023-02-26	0	0

Data table for Figure 43: Number of residents of Ottawa with a laboratory-confirmed infection from a sexually transmitted or blood-borne disease of public health significance, 2022 vs pre-pandemic (2017 to 2019) average.

Disease	Ottawa Residents with a confirmed infection in 2022 (Previous Year)	Yearly pre-pandemic average of Ottawa residents with a confirmed infection (2017 to 2019)
Chlamydial Infections	3063	3731.0
Gonorrhea	819	756.3
Syphilis	248	237.3
Hepatitis C	240	287.0
Hepatitis B	146	167.0
HIV	24	51.3

Data table for Figure 44: Incidence rate of chlamydia and gonorrhea by year in Ottawa, 2017 to 2022

Disease	Year	Rate per 100,000 population
Chlamydial Infections	2017	350.9
Chlamydial Infections	2018	378.9
Chlamydial Infections	2019	383.6
Chlamydial Infections	2020	249.8
Chlamydial Infections	2021	239.4
Chlamydial Infections	2022	284.1
Gonorrhea	2017	65.0
Gonorrhea	2018	89.5
Gonorrhea	2019	71.3
Gonorrhea	2020	46.9
Gonorrhea	2021	56.5
Gonorrhea	2022	76.0

Data table for Figure 45: Incidence of hepatitis B, hepatitis C, HIV, syphilis by year in Ottawa, 2017 to 2022.

Disease	Year	Rate per 100,000 population
Hepatitis B	2017	15.5
Hepatitis B	2018	16.4
Hepatitis B	2019	17.9
Hepatitis B	2020	12.9
Hepatitis B	2021	12.2
Hepatitis B	2022	13.5
Hepatitis C	2017	27.4
Hepatitis C	2018	31.2
Hepatitis C	2019	27.1
Hepatitis C	2020	20.3
Hepatitis C	2021	24.2
Hepatitis C	2022	22.3
HIV	2017	4.4
HIV	2018	7.5
HIV	2019	3.5
HIV	2020	3.5
HIV	2021	3.0
HIV	2022	2.2
Syphilis	2017	18.3
Syphilis	2018	25.7
Syphilis	2019	26.7

Disease	Year	Rate per 100,000 population
Syphilis	2020	19.7
Syphilis	2021	21.0
Syphilis	2022	23.0

Data table for Figure 46: Number of Ottawa residents reported with an infection from a vaccine preventable disease of public health significance, 2022 vs pre-pandemic (2017 to 2019) average.

Disease	Ottawa residents with a reported infection in 2022	Yearly pre-pandemic average of Ottawa residents with a reported infection (2017 to 2019)
Streptococcus Pneumoniae, Invasive	77	71.7
Chickenpox (Varicella)	21	15
Haemophilus Influenzae Disease, All Types, Invasive	11	12.3
Mumps	1	5.7
Tetanus	1	0
Measles	0	1
Pertussis (Whooping Cough)	0	27
Polio	0	0
Rubella	0	0
Smallpox	0	0

Data table for Figure 47: Number of Ottawa residents reported with an enteric disease of public health significance, 2022 vs pre-pandemic (2017 to 2019) average.

Disease	Ottawa residents with a reported infection in 2022	Yearly pre-pandemic average of Ottawa residents with a reported infection (2017 to 2019)
Salmonellosis	99	172.7
Campylobacter Enteritis	96	195.7
Giardiasis	87	121
Cyclosporiasis	53s	27.7
Amebiasis	27	63.3
Shigellosis	19	25.7
Cryptosporidiosis	15	25.7
Listeriosis	9	3.7
Typhoid Fever	9	5.3
Yersiniosis	7	12.7
Hepatitis A	6	11

Disease	Ottawa residents with a reported infection in 2022	Yearly pre-pandemic average of Ottawa residents with a reported infection (2017 to 2019)
Paratyphoid Fever	2	1.7
Cholera	1	0.3
Trichinosis	1	2.7
Verotoxin Producing E. Coli	1	5.3

Data table for Figure 48: Incidence rate of campylobacter enteritis, giardiasis and salmonellosis by year in Ottawa, 2017 to 2022.

Year	Disease	Rate per 100,000 population
2017	Campylobacter Enteritis	19.4
2018	Campylobacter Enteritis	21.3
2019	Campylobacter Enteritis	17.7
2020	Campylobacter Enteritis	9.4
2021	Campylobacter Enteritis	10.2
2022	Campylobacter Enteritis	8.9
2017	Giardiasis	12.2
2018	Giardiasis	13.1
2019	Giardiasis	10.8
2020	Giardiasis	7.1
2021	Giardiasis	6.4
2022	Giardiasis	8.1
2017	Salmonellosis	17.6
2018	Salmonellosis	17.8
2019	Salmonellosis	16.2
2020	Salmonellosis	6.3
2021	Salmonellosis	5.5
2022	Salmonellosis	9.2

Data table for Figure 49: Incidence rate of all enteric diseases of public health significance combined by month, Ottawa, pre-pandemic average (2017 to 2019) vs pandemic average (2020 to 2022) vs 2022.

Month	Rate in 2022	Average Yearly Rate from 2017 to 2019 (Prior to COVID)	Average Yearly Rate from 2020 to 2022 (During COVID)
January	1	5.4	2.2
February	2.4	4.8	2.8
March	2.8	5.9	2.5
April	3	4.7	1.6
May	4.5	4.7	2.4
June	5	5.8	4.2
July	3.9	8.4	5.2
August	5.4	8.2	5.7
September	5.8	6.4	4.4
October	3	4.9	2.7
November	1.9	4.2	1.9
December	1.5	3.7	1.9

Data table for Figure 50: Number of Ottawa residents reported with an infection from a vector-borne or zoonotic disease of public health significance, 2022 vs pre-pandemic (2017 to 2019) average.

Disease	Ottawa residents with a reported infection in 2022	Yearly pre-pandemic average of Ottawa residents with a reported infection (2017 to 2019)
Lyme Disease	215	154.3
Q Fever	1	0.7
West Nile Virus Illness	1	9.3
Anthrax	0	0
Brucellosis	0	1.3
Hantavirus	0	0
Plague	0	0
Rabies (Human Cases)	0	0
Tularemia	0	0

Data table for Figure 51: Incidence and number of Ottawa residents with confirmed or probable Lyme disease by episode year, 2013 to 2022.

Year	Ottawa residents reported with probable or confirmed Lyme disease	Rate per 100,000 population
2013	50	5.4
2014	22	2.3
2015	73	7.7
2016	76	7.9
2017	191	19.4
2018	93	9.3
2019	179	17.5
2020	122	11.7
2021	289	27.4
2022	215	19.9

REFERENCES

1 Ottawa Public Health. Health Equity and Social Determinants of Health in Ottawa 2016. Ottawa ON. Available from: https://www.ottawapublichealth.ca/en/reports-research-and-statistics/resources/Documents/health_equity_social_determinants_2016_en.pdf

2 Ottawa Public Health. COVID-19 in Ottawa: The relation to racialized communities and deprivation. Ottawa ON. Available from: https://www.ottawapublichealth.ca/en/reports-research-and-statistics/resources/Documents/covid-19/onmarg/COVID_report_final_Aug7.pdf

3 Canadian Institute for Health Information (CIHI). COVID-19's impact on emergency departments. CIHI website. Available from: https://www.cihi.ca/en/covid-19-resources/impact-of-covid-19-on-canadas-health-care-systems/emergency-departments

4 Ottawa Neighbourhood Study (ONS). An area-based socioeconomic index for Ottawa neighbourhoods. Available from: https://drive.google.com/file/d/1UfMS6uMA_PCpCSZ7VaSaOoB8W-eHYSNs/view

5 Statistics Canada. Visible Minority and Population Group Reference Guide, Census of Population, 2021. Statistics Canada website. Available from https://www12.statcan.gc.ca/census-recensement/2021/ref/98-500/006/98-500-x2021006-eng.cfm

6 Population Estimates 2023, Ontario Ministry of Health, IntelliHEALTH Ontario, Date Extracted: Jan 27, 2023.

7 Statistics Canada. 2017. Ottawa, CV [Census subdivision], Ontario and Ottawa, CDR [Census division], Ontario (table). Census Profile. 2016 Census. Statistics Canada Catalogue no. 98-316-X2016001. Ottawa. Released November 29, 2017. https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/index.cfm?Lang=E (accessed March 14, 2023).

8 Population Estimates 2023, Ontario Ministry of Health, IntelliHEALTH Ontario, Date Extracted: Jan 27, 2023.

9 City of Ottawa. Growth Projections for the New Official Plan: Methods and Assumptions for Population, Housing and Employment 2018 to 2046. Available from: https://documents.ottawa.ca/sites/documents/files/growth_projections_2018_2046_en.pdf

10 Statistics Canada. 2023. (table). Census Profile. 2021 Census of Population. Statistics Canada Catalogue no. 98-316-X2021001. Ottawa. Released February 8, 2023. https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/index.cfm?Lang=E (accessed March 8, 2023).

11 Statistics Canada. Table 13-10-0389-01 Life expectancy, at birth and at age 65, by sex, three-year average, Canada, provinces, territories, health regions and peer groups. Accessed: March 14, 2023.

12 Statistics Canada. Provisional deaths and excess mortality in Canada dashboard. Available from: https://www150.statcan.gc.ca/n1/pub/71-607-x/71-607-x2021028-eng.htm. Accessed March 21, 2023.

13 Statistics Canada. 2023. (table). Census Profile. 2021 Census of Population. Statistics Canada Catalogue no. 98-316-X2021001. Ottawa. Released February 8, 2023. https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/index.cfm?Lang=E (accessed March 8, 2023).

REFERENCES (CONTINUED)

14 Statistics Canada. 2023. (table). Census Profile. 2021 Census of Population. Statistics Canada Catalogue no. 98-316-X2021001. Ottawa. Released February 8, 2023. https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/index.cfm?Lang=E (accessed March 8, 2023).

15 Statistics Canada. 2023. (table). Census Profile. 2021 Census of Population. Statistics Canada Catalogue no. 98-316-X2021001. Ottawa. Released February 8, 2023.

16 Statistics Canada. 2017. Ottawa, CV [Census subdivision], Ontario and Ottawa, CDR [Census division], Ontario (table). Census Profile. 2016 Census. Statistics Canada Catalogue no. 98-316-X2016001. Ottawa. Released November 29, 2017.

17 Source: Statistics Canada. 2023. (table). Census Profile. 2021 Census of Population. Statistics Canada Catalogue no. 98-316-X2021001. Ottawa. Released February 8, 2023. https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/index.cfm?Lang=E (accessed March 8, 2023).

18 Statistics Canada. 2023. (table). Census Profile. 2021 Census of Population. Statistics Canada Catalogue no. 98-316-X2021001. Ottawa. Released February 8, 2023. https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/index.cfm?Lang=E (accessed March 9, 2023).

19 Statistics Canada, Consumer Price Indexes for Canada, Monthly (V41690973 series).

20 Statistics Canada. 2023. Ottawa [CMA]. Table 11-10-0066-01 Market Basket Measure (MBM) thresholds for the reference family by Market Basket Measure region, component and base year. https://www150.statcan.gc.ca/t1/tbl1/en/cv.action?pid=1110006601 Released January 17, 2023. (accessed February 1, 2023).

21 Statistics Canada. 2017. Ottawa, CV [Census subdivision], Ontario and Ottawa, CDR [Census division], Ontario (table). Census Profile. 2016 Census. Statistics Canada Catalogue no. 98-316-X2016001. Ottawa. Released November 29, 2017. https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/index.cfm?Lang=E (accessed March 9, 2023).

22 Statistics Canada. Pandemic benefits cushion losses for low income earners and narrow income inequality – after-tax income grows across Canada except in Alberta and Newfoundland and Labrador. Available from: https://www150.statcan.gc.ca/n1/daily-quotidien/220713/dq220713d-eng.htm. Accessed March 14, 2023.

23 Statistics Canada. 2022. Ottawa, CV [Census subdivision] (table). Table 98-10-0387-01 Highest level of education by geography: Census divisions. (accessed February 1, 2023).

24 Statistics Canada. 2017. Ottawa, CV [Census subdivision], Ontario and Canada [Country] (table). Census Profile. 2016 Census. Statistics Canada Catalogue no. 98-316- X2016001. Ottawa. Released November 29, 2017. http://www12.statcan.gc.ca/censusrecensement/2016/dp-pd/prof/index.cfm?Lang=E (accessed February 1, 2023).

25 Statistics Canada. 2023. Ottawa. Table 14-10-0354-01 Regional unemployment rates used by the Employment Insurance program, three-month moving average, seasonally adjusted. https://www150.statcan.gc.ca/t1/tbl1/en/cv.action?pid=1410035401 Released Jan 6, 2023. (accessed February 2, 2023).

REFERENCES (CONTINUED)

26 Raphael, D., Bryant, T., Mikkonen, J. and Raphael, A. (2020). Social Determinants of Health: The Canadian Facts. Oshawa: Ontario Tech University Faculty of Health Sciences and Toronto: York University School of Health Policy and Management. Available from: https://thecanadianfacts.org/

27 Statistics Canada. National Housing Day: A look at homeowners and renters. Statistics Canada website Nov 2022. Available from: https://www.statcan.gc.ca/o1/en/plus/2357-national-housing-day-look-homeowners-and-renters. Accessed March 23, 2023.

28 Statistics Canada. 2023. (table). Census Profile. 2021 Census of Population. Statistics Canada Catalogue no. 98-316-X2021001. Ottawa. Released February 8, 2023.

29 CMHC housing market information. Rental Market Survey 2022. Published Jan 26, 2023. Accessed March 14, 2023. Available from: https://www.cmhc-schl.gc.ca/en/professionals/housing-markets-data-and-research/housing-data/data-tables/rental-market/rental-market-report-data-tables

30 Statistics Canada. Community belonging and self-perceived health. Shields M. Health Reports 19(2) June 2008. Statistics Canada catalogue number 82-003-XPE. Available from: https://publications.gc.ca/collections/collection_2008/statcan/82-003-X/82-003-XIE2008002.pdf

31 Canadian Community Health Survey 2019-2020, Statistics Canada, Share File, Ontario Ministry of Health.

32 Ottawa Public Health. Public Health Monitoring of Risk Factors in Ontario –Ontario Student Drug Use and Health Survey (2019), Centre for Addiction and Mental Health.

33 Ottawa Public Health. Public Health Monitoring of Risk Factors in Ontario –Ontario Student Drug Use and Health Survey (2021), Centre for Addiction and Mental Health.

34 Tarasuk V, Li T, Farfard St-Germain A-A. (2022). Household Food Insecurity in Canada 2021. PROOF Food Insecurity Policy Research. Available from https://proof.utoronto.ca/wp-content/uploads/2022/08/Household-Food-Insecurity-in-Canada-2021-PROOF.pdf

35 Public Health Ontario. Household Food Insecurity Estimates from the Canadian Income Survey: Ontario 2018-2020. Released February 1, 2023 Available from https://www.publichealthontario.ca/en/Data-and-Analysis/Health-Equity/Household-Food-Insecurity.

36 Ottawa Public Health. Monitoring food affordability in Ottawa. Ottawa Public Health website. Available at: https://www.ottawapublichealth.ca/en/public-health-topics/food-insecurity.aspx#2022-Nutritious-Food-Basket. Accessed March 15, 2023.

37 Ottawa Public Health. Public Health Monitoring of Risk Factors in Ontario – Ontario Student Drug Use and Health Survey (2019), Centre for Addiction and Mental Health.

38 Ottawa Public Health. Public Health Monitoring of Risk Factors in Ontario – Ontario Student Drug Use and Health Survey (2021), Centre for Addiction and Mental Health.

REFERENCES (CONTINUED)

39 Raphael, D., Bryant, T., Mikkonen, J. and Raphael, A. (2020). Social Determinants of Health: The Canadian Facts. Oshawa: Ontario Tech University Faculty of Health Sciences and Toronto: York University School of Health Policy and Management. Available from: https://thecanadianfacts.org/

40 Canadian Community Health Survey 2019-2020, Statistics Canada, Share File, Ontario Ministry of Health.

41 Government of Canada. Vaccination Coverage Goals and Vaccine Preventable Disease Reduction Targets by 2025. National Immunization Strategy website. Available from: https://www.canada.ca/en/public-health/services/immunization-vaccine-priorities/national-immunization-strategy/vaccination-coverage-goals-vaccine-preventable-diseases-reduction-targets-2025.html Accessed: March 14, 2023.

42 Ontario Agency for Health Protection and Promotion (Public Health Ontario). Immunization coverage report for school pupils in Ontario: 2018–19 school year. Toronto, ON: Queen's Printer for Ontario; 2020.

43 World Health Organization (WHO). Nearly 40 million children are dangerously susceptible to growing measles threat. WHO website. Available from: https://www.who.int/news/item/23-11-2022-nearly-40-million-children-are-dangerously-susceptible-to-growing-measles-threat. Accessed March 14, 2023.

44 Pan American Health Organization (PAHO). Epidemiological Alert - Measles - 8 February 2023. PAHO website. Available from: https://www.paho.org/en/documents/epidemiological-alert-measles-8-february-2023. Accessed March 14, 2023.

45 Ontario Agency for Health Protection and Promotion (Public Health Ontario). Immunization coverage report for school-based programs in Ontario: 2018-19 school year. Toronto, ON: Queen's Printer for Ontario; 2020.

46 Government of Canada. Recommendations on the use of COVID-19 vaccine(s). 2020-12-12 [Archived]. National Advisory Committee on Immunization (NACI): Statements and publications website. Available from: https://www.canada.ca/en/public-health/services/immunization/national-advisory-committee-on-immunization-naci/recommendations-use-covid-19-vaccines/december-12-2020.html Accessed March 14, 2023.

47 Ontario Agency for Health Protection and Promotion (Public Health Ontario). Immunization coverage for school-based programs in Ontario: 2019-20, 2020-21 and 2021-2022 school years with impact of catch-up programs. Toronto, ON: King's Printer for Ontario; 2023.

48 Ontario Agency for Health Protection and Promotion (Public Health Ontario). Immunization coverage for school-based programs in Ontario: 2019-20, 2020-21 and 2021-2022 school years with impact of catch-up programs. Toronto, ON: King's Printer for Ontario; 2023.

49 Parent Resource Centre. (2021). EDI by ONS Gen2 C1 to C5 Vuln by Domain (Parent Resource Centre) [Data File Prepared by PRC and Analysed by OPH in February 2023]. PRC.

50 Parent Resource Centre. (2021). EDI by ONS Gen2 C1 to C5 Vuln by Domain (Parent Resource Centre) [Data File Prepared by PRC and Analysed by OPH in February 2023]. PRC.

REFERENCES (CONTINUED)

51 Millar, C., Lafrenière, A., Lebreton, J., de Quimper, C. (2016). Our Kids, Their Story...Snapshot of Developmental Health at School Entry in Ottawa 2005-2015. Data Analysis Coordinators, Parent Resource Centre, Ottawa, ON. 49pp + 4pp (Appendices)

52 Parent Resource Centre. (2021). EDI by ONS Gen2 C1 to C5 Vuln by Domain (Parent Resource Centre) [Data File Prepared by PRC and Analysed by OPH in February 2023]. PRC.

53 Canadian Community Health Survey 2017-2018, Statistics Canada, Share File, Ontario Ministry of Health.

54 Hong A. Environmental Benefits of Active Transportation. Children's Active Transportation. 2018. p. 21–38.

55 Tranter P, Tolley R. Conclusion: re-imagining the city for a healthier future. Slow Cities 2020. p. 355–87.

56 Statistics Canada. Canadian Health Survey of Children and Youth (CHSCY) 2019. Ontario Share File.

57 Statistics Canada. Canadian Health Survey of Children and Youth (CHSCY) 2019. Ontario Share File.

58 Ottawa Public Health. Public Health Monitoring of Risk Factors in Ontario – Ontario Student Drug Use and Health Survey (2019), Centre for Addiction and Mental Health.

59 Ottawa Public Health. Public Health Monitoring of Risk Factors in Ontario –Ontario Student Drug Use and Health Survey (2021), Centre for Addiction and Mental Health.

60 Ottawa Public Health. Public Health Monitoring of Risk Factors in Ontario – Ontario Student Drug Use and Health Survey (2019), Centre for Addiction and Mental Health.

61 Ottawa Public Health. Public Health Monitoring of Risk Factors in Ontario –Ontario Student Drug Use and Health Survey (2021), Centre for Addiction and Mental Health.

62 Statistics Canada. Canadian Health Survey of Children and Youth (CHSCY) 2019. Ontario Share File.

63 Ottawa Public Health. Public Health Monitoring of Risk Factors in Ontario – Ontario Student Drug Use and Health Survey (2019), Centre for Addiction and Mental Health.

64 Ottawa Public Health. Public Health Monitoring of Risk Factors in Ontario – Ontario Student Drug Use and Health Survey (2021), Centre for Addiction and Mental Health.

65 Green MA. Do we need to think beyond BMI for estimating population-level health risks? J Public Health (Oxf) 2016 Mar; 38(1): 192-3.

66 Statistics Canada. Canadian Health Survey of Children and Youth (CHSCY) 2019. Ontario Share File.

67 Ottawa Public Health. Public Health Monitoring of Risk Factors in Ontario – Ontario Student Drug Use and Health Survey (2019), Centre for Addiction and Mental Health.

68 Ottawa Public Health. Public Health Monitoring of Risk Factors in Ontario – Ontario Student Drug Use and Health Survey (2021), Centre for Addiction and Mental Health.

REFERENCES (CONTINUED)

69 Dieticians of Canada. Taxation and Sugar-Sweetened Beverages: Position of Dietitians of Canada 2016. Can J Diet Pract Res 77(2). Available from: https://dcjournal.ca/doi/10.3148/cjdpr-2016-008

70 Ottawa Public Health. Public Health Monitoring of Risk Factors in Ontario – Ontario Student Drug Use and Health Survey (2019), Centre for Addiction and Mental Health.

71 Ottawa Public Health. Public Health Monitoring of Risk Factors in Ontario – Ontario Student Drug Use and Health Survey (2021), Centre for Addiction and Mental Health.

72 Public Health Ontario. Opioid interactive tool. Available from: https://www.publichealthontario.ca/en/data-and-analysis/substance-use/interactive-opioid-tool. Access Mar 9, 2023.

73 Supervised Consumption Site Monthly Reports, 2020-2022.

74 Needle Exchange/Syringe Program Annual Report, 2017-2022. Ottawa Public Health, extracted.

75 Coroner's Opioid Investigative Aid, May 2017 to September 2022, Office of the Chief Coroner for Ontario, extracted February 22, 2023.

76 Ontario Drug Policy Research Network (ODPRN). Contributions of stimulants and varying modes of drug use to opioid toxicity deaths across public health units in Ontario, Canada. November 2022. Available from: https://odprn.ca/wp-content/uploads/2022/11/Data-Brief-Stimulants-and-mode-of-use-in-opioid-toxicity-deaths.pdf

77 Canadian Centre on Substance Use and Addiction. Update of Canada's low-risk alcohol drinking guidelines: Final report for public consultation. Available from: https://ccsa.ca/sites/default/files/2022-08/CCSA-LRDG-Update-of-Canada%27s-LRDG-Final-report-for-public-consultation-en.pdf. Accessed March 15, 2023.

78 Canadian Community Health Survey 2019-2020, Statistics Canada, Share File, Ontario Ministry of Health.

79 Centre for Addiction and Mental Health (CAMH). Partying and getting drunk. CAMH website. Available from: https://www.camh.ca/en/health-info/guides-and-publications/partying-and-getting-drunk. Accessed March 15, 2023.

80 Canadian Community Health Survey 2019-2020, Statistics Canada, Share File, Ontario Ministry of Health.

81 Canadian Community Health Survey 2019-2020, Statistics Canada, Share File, Ontario Ministry of Health.

82 Canadian Community Health Survey 2019-2020, Statistics Canada, Share File, Ontario Ministry of Health.

83 Canadian Community Health Survey 2019-2020, Statistics Canada, Share File, Ontario Ministry of Health.

84 Canadian Community Health Survey 2017-2018, Statistics Canada, Share File, Ontario Ministry of Health.

85 Public Health Ontario. Burden of Health Conditions Attributable to Smoking and Alcohol by Public Health Unit in Ontario. Feb 2023. Available from: https://www.publichealthontario.ca/-/media/Documents/B/2023/burden-health-smoking-alcohol-report.pdf?rev=2bbb255245404a3599a1e11e0f34709c&sc_lang=en Accessed: March 15, 2023.

REFERENCES (CONTINUED)

86 Ottawa Public Health. Public Health Monitoring of Risk Factors in Ontario – Ontario Student Drug Use and Health Survey (2021), Centre for Addiction and Mental Health.

87 Ottawa Public Health. Public Health Monitoring of Risk Factors in Ontario – Ontario Student Drug Use and Health Survey (2019), Centre for Addiction and Mental Health.

88 Ottawa Public Health. Status of Mental Health, Addictions and Substance Use Health among Ottawa Students During the COVID-19 Pandemic. Results from the Ontario Students Drug Use and Health Survey, 2021. February 2023. Ottawa (ON): Ottawa Public Health 2023.

89 Ottawa Public Health. Public Health Monitoring of Risk Factors in Ontario – Ontario Student Drug Use and Health Survey (2021), Centre for Addiction and Mental Health.

90 Ottawa Public Health. Public Health Monitoring of Risk Factors in Ontario – Ontario Student Drug Use and Health Survey (2019), Centre for Addiction and Mental Health.

91 Ottawa Public Health. Public Health Monitoring of Risk Factors in Ontario – Ontario Student Drug Use and Health Survey (2021), Centre for Addiction and Mental Health.

92 Ottawa Public Health. Public Health Monitoring of Risk Factors in Ontario – Ontario Student Drug Use and Health Survey (2019), Centre for Addiction and Mental Health.

93 Ottawa Public Health. Ottawa births, Better Outcomes Registry & Network (BORN) Ontario 2013 to 2022. Extracted January 24, 2023.

94 Ottawa Public Health. Ottawa births, Better Outcomes Registry & Network (BORN) Ontario 2013 to 2022. Extracted January 24, 2023.

95 Ottawa Public Health. Ottawa births, Better Outcomes Registry & Network (BORN) Ontario 2013 to 2022. Extracted January 24, 2023.

96 Canadian Mental Health Association. Stigma and discrimination. CMHA website. Available from: https://ontario.cmha.ca/documents/stigma-and-discrimination. Accessed Mar 7, 2023.

97 Ottawa Public Health. Status of Mental Health, Addictions and Substance Use Health in Ottawa During the COVID-19 Pandemic, Fall of 2021. Results of a population survey November 5 to 18, 2021. June 16, 2022. Ottawa (ON): Ottawa Public Health 2022.

98 Canadian Community Health Survey 2019-2020, Statistics Canada, Share File, Ontario Ministry of Health.

99 Statistics Canada. Canadian Health Survey of Children and Youth (CHSCY) 2019. Ontario Share File.

100 Ottawa Public Health. Public Health Monitoring of Risk Factors in Ontario – Ontario Student Drug Use and Health Survey (2021), Centre for Addiction and Mental Health.

101 Ottawa Public Health. Public Health Monitoring of Risk Factors in Ontario – Ontario Student Drug Use and Health Survey (2019), Centre for Addiction and Mental Health.

REFERENCES (CONTINUED)

102 Ottawa Public Health. Emergency Department Visits. National Ambulatory Care Reporting System 2021. Ontario Ministry of Health, IntelliHEALTH Ontario. Extracted December 16, 2022.

103 Unscheduled hospitalizations, Discharge Abstract Database (2021). IntelliHealth Ontario, Ontario Ministry of Health. Extracted Dec 2022.

104 Ottawa Public Health. Emergency Department Visits. National Ambulatory Care Reporting System 2021. Ontario Ministry of Health, IntelliHEALTH Ontario. Extracted December 16, 2022.

105 Canadian Community Health Survey 2019-2020, Statistics Canada, Share File, Ontario Ministry of Health.

106 Ottawa Public Health. Status of Mental Health in Ottawa During the COVID-19 Pandemic. Results of a population survey June 3 to 8, 2020. Ottawa Public Health website.
Available from: https://www.ottawapublichealth.ca/en/reports-research-and-statistics/resources/Documents/covid-19/societal_impacts/OPH-Status-of-Mental-Health-in-Ottawa-During-the-COVID-19-Pandemic_June2020_EN_Final.pdf

107 Ottawa Public Health. Status of Mental Health in Ottawa During the COVID-19 Pandemic, Fall of 2020. Results of a population survey October 8 to 20. Ottawa Public Health website.
Available from: https://www.ottawapublichealth.ca/en/reports-research-and-statistics/resources/Documents/covid-19/societal_impacts/Status-of-Mental-Health-in-Ottawa-During-the-COVID-19-Pandemic_Oct2020.pdf

108 Ottawa Public Health. T: Status of Mental Health, Addictions and Substance Use Health in Ottawa During the COVID-19 Pandemic, Fall of 2021. Results of a population survey November 5 to 18, 2021. Ottawa Public Health website. https://www.ottawapublichealth.ca/en/reports-research-and-statistics/resources/Documents/covid-19/Status-of-Mental-Health-Addictions-and-Substance-Use-Health-in-Ottawa---Fall-2021.pdf

109 Ottawa Public Health. Public Health Monitoring of Risk Factors in Ontario – Ontario Student Drug Use and Health Survey (2021), Centre for Addiction and Mental Health.

110 Ottawa Public Health. Public Health Monitoring of Risk Factors in Ontario – Ontario Student Drug Use and Health Survey (2019), Centre for Addiction and Mental Health.

111 Ottawa Public Health. Status of Mental Health, Addictions and Substance Use Health among Ottawa Students During the COVID-19 Pandemic. Results from the Ontario Students Drug Use and Health Survey, 2021. February 2023. Ottawa (ON): Ottawa Public Health 2023

112 Better Outcomes Registry & Network (BORN) Ontario, 2013-2022. Extracted March 13, 2023.

113 Ontario Agency for Health Protection and Promotion (Public Health Ontario). Immunization coverage for school-based programs in Ontario: 2019-20, 2020-21 and 2021-2022 school years with impact of catch-up programs. Toronto, ON: King's Printer for Ontario; 2023.

114 Public Health Ontario. Query: Ottawa Public Health Unit: Historical Comparisons. Toronto, ON: Ontario Agency for Health Protection and Promotion. Extracted March 6, 2023.

REFERENCES (CONTINUED)

115 Tuite AR, Kinlin LM, Kuster SP, Jamieson F, Kwong JC, et al.(2010) Respiratory Virus Infection and Risk of Invasive Meningococcal Disease in Central Ontario, Canada. PLoSONE5(11): e15493.doi:10.1371/journal.pone.0015493. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2984510/pdf/pone.0015493.pdf

116 Public Health Ontario. Infectious Disease Query. Accessed: March 4, 2023.

117 Public Health Agency of Canada. Tuberculosis in Canada: Infographic (2021). Available from: https://www.canada.ca/en/public-health/services/publications/diseases-conditions/tuberculosis-canada-2021-infographic.html. Accessed March 28, 2023.

118 Ottawa Public Health. Integrated Public Health Information System (iPHIS), Ontario Ministry of Health. Extracted March 9, 2023.

119 Full article: Chapter 12: An introductory guide to tuberculosis care to improve cultural competence for health care workers and public health professionals serving Indigenous Peoples of Canada. https://www.tandfonline.com/doi/full/10.1080/24745332.2022.2041328. Accessed March 23, 2023

120 Ottawa Public Health. Integrated Public Health Information System (iPHIS), Ontario Ministry of Health. Extracted March 9, 2023.

121 Ottawa Public Health. Integrated Public Health Information System (iPHIS), Ontario Ministry of Health. Extracted March 9, 2023.

122 Public Health Ontario. Infectious Disease Query. Accessed: March 9, 2023.

123 Ottawa Public Health. Integrated Public Health Information System (iPHIS), Ontario Ministry of Health. Extracted March 9, 2023.

124 Ottawa Public Health. Integrated Public Health Information System (iPHIS), Ontario Ministry of Health. Extracted March 23, 2023.

125 Ottawa Public Health. Rapid Risk Factor Surveillance System 2021.

126 Ministry of Health. Case and Contact Management System. Accessed Mar 2023.

127 Ontario Ministry of Health's COVaxON application, through intellihealth Ontario. Extracted March 6, 2023.

128 Ottawa Neighbourhood Study (ONS). An area-based socioeconomic index for Ottawa neighbourhoods. Available from: https://drive.google.com/file/d/1UfMS6uMA_PCpCSZ7VaSaOoB8W-eHYSNs/view

129 Public Health Ontario. Query: Ottawa Public Health Unit: Historical Comparisons. Toronto, ON: Ontario Agency for Health Protection and Promotion. Extracted March 6, 2023.

130 Public Health Ontario. Query: Ottawa Public Health Unit: Historical Comparisons. Toronto, ON: Ontario Agency for Health Protection and Promotion. Extracted March 6, 2023.

REFERENCES (CONTINUED)

131 Public Health Ontario. Query: Ottawa Public Health Unit: Historical Comparisons. Toronto, ON: Ontario Agency for Health Protection and Promotion. Extracted March 6, 2023.

132 Public Health Ontario. Query: Ottawa Public Health Unit: Historical Comparisons. Toronto, ON: Ontario Agency for Health Protection and Promotion. Extracted March 6, 2023.

133 Ottawa Public Health. Integrated Public Health Information System (iPHIS), Ontario Ministry of Health. Extracted March 6, 2023.

134 Public Health Ontario. Query: Ottawa Public Health Unit: Historical Comparisons. Toronto, ON: Ontario Agency for Health Protection and Promotion. Extracted March 6, 2023.

135 Ontario Agency for Health Protection and Promotion (Public Health Ontario). Immunization coverage for school-based programs in Ontario: 2019-20, 2020-21 and 2021-2022 school years with impact of catch-up programs. Toronto, ON: King's Printer for Ontario; 2023.

136 Public Health Ontario. Query: Ottawa Public Health Unit: Historical Comparisons. Toronto, ON: Ontario Agency for Health Protection and Promotion. Extracted March 6, 2023.

137 Ottawa Public Health. Integrated Public Health Information System (iPHIS), Ontario Ministry of Health. Extracted March 13, 2023.

138 Kuster SP, Tuite AR, Kwong JC, McGeer A, Toronto Invasive Bacterial Diseases Network, Fisman DN. Evaluation of coseasonality of influenza and invasive pneumococcal disease: results from prospective surveillance. PLoS medicine. 2011 Jun 7;8(6):e1001042.

139 Public Health Ontario. Query: Ottawa Public Health Unit: Historical Comparisons. Toronto, ON: Ontario Agency for Health Protection and Promotion. Extracted March 6, 2023.

140 Centres for Disease Control and Prevention. Global Measles Outbreaks. Updated February 14, 2023. https://www.cdc.gov/globalhealth/measles/data/global-measles-outbreaks.html (accessed March 10, 2023).

141 Ottawa Public Health. Integrated Public Health Information System (iPHIS), Ontario Ministry of Health. Extracted March 13, 2023.

142 Ottawa Public Health. Integrated Public Health Information System (iPHIS), Ontario Ministry of Health. Extracted March 13, 2023.

143 Ottawa Public Health. Integrated Public Health Information System (iPHIS), Ontario Ministry of Health. Extracted March 13, 2023.

144 Public Health Ontario. Query: Ottawa Public Health Unit: Historical Comparisons. Toronto, ON: Ontario Agency for Health Protection and Promotion. Extracted March 6, 2023.

145 Public Health Ontario. Query: Ottawa Public Health Unit: Historical Comparisons. Toronto, ON: Ontario Agency for Health Protection and Promotion. Extracted March 6, 2023.

REFERENCES (CONTINUED)

146 Ottawa Public Health. Integrated Public Health Information System (iPHIS), Ontario Ministry of Health. Extracted March 13, 2023.

147 Public Health Ontario. Query: Ottawa Public Health Unit: Historical Comparisons. Toronto, ON: Ontario Agency for Health Protection and Promotion. Extracted March 6, 2023.

148 Confirmed institutional COVID-19 outbreaks September 1, 2020 to March 18, 2023. Ottawa Public Health. Case and Contact Management Solution (CCM), Ontario Ministry of Health. Extracted March 20, 2023.

149 Confirmed institutional non-COVID respiratory outbreaks September 1, 2016 to March 18, 2023. Ottawa Public Health. Integrated Public Health Information System (iPHIS), Ontario Ministry of Health. Extracted March 20, 2023.

150 Confirmed institutional enteric outbreaks September 1, 2016 to March 18, 2023. Ottawa Public Health. Integrated Public Health Information System (iPHIS), Ontario Ministry of Health. Extracted March 20, 2023.

151 Public Health Ontario. Query: Ottawa Public Health Unit: Historical Comparisons. Toronto, ON: Ontario Agency for Health Protection and Promotion. Extracted March 6, 2023.

152 Ottawa Public Health. Integrated Public Health Information System (iPHIS), Ontario Ministry of Health. Extracted March 13, 2023.

153 Public Health Ontario. Query: Ottawa Public Health Unit: Historical Comparisons. Toronto, ON: Ontario Agency for Health Protection and Promotion. Extracted March 6, 2023.