

WINDSOR-ESSEX COUNTY HEALTH UNIT

COMMUNITY NEEDS ASSESSMENT **2019 UPDATE**

Authors:

Mathew Roy, Epidemiologist

Saamir Pasha, Epidemiologist

Stephanie Lu, Program Evaluation Specialist

Ramsey D'Souza, Manager, Epidemiology & Evaluation

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Windsor-Essex County Health Unit

1005 Ouellette Avenue

Windsor, Ontario N9A 4J8

www.wechu.org

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Glossary

Age-standardized rate: A rate that has been adjusted to account for differences in the age-distribution of the population. This is particularly useful when two populations being compared have different age-structures and the rate of the characteristic of interest varies with age. Here, estimates for Windsor and Essex County and Ontario were age-standardized to have the same age structure as the 2011 Canadian population.

Emergency department (ED) visits: Ambulatory visits for unscheduled (health emergencies) care. One individual may account for multiple ED visits.

Epidemiology: The study of the patterns and occurrence of disease and health in populations.

Incidence: The total number of new health events in a population during a specific period (e.g., incidence of cancer).

Indicator: A defined measure of a population's health which may include statistics for determinants of health and health outcomes of interest.

Prevalence: The total number of new and existing health events in a population as a proportion (%) of a particular population.

Proportion: A type of ratio in which the numerator is included in the denominator, often expressed as a percentage (per 100). For example, the number of individuals with a health outcome as a subset of everyone assessed for that health outcome (e.g., 64.5% of the Windsor and Essex County population is overweight or obese).

Rate: A measure of the frequency of occurrence of a phenomenon or event in a defined population in a specified period of time. Here, rates are usually calculated by dividing the numerator (usually the number of events) by the denominator (usually the average population within a period), and multiplied by a multiplier such that the resulting number can be expressed per 100,000 residents (typically).

Relative Index of Inequality (RII): A measure that indicates the level of inequality in a population. It indicates the occurrence of a health outcome with changes in socioeconomic status. When reported as a ratio, a value greater than 1.0 indicates the presence of inequality, with higher ratios indicating higher levels of inequality with respect to a health outcome.

Significant difference: Statistical testing indicates that there is high enough confidence to conclude that there is a significant difference between two values.

Abbreviations

APHEO	Association of Public Health Epidemiologists in Ontario
AIDS	Acquired Immunodeficiency Syndrome
AQHI	Air Quality Health Index
BORN	Better Outcome Registry & Network
CCHS	Canadian Community Health Survey
CDI	<i>Clostridium difficile</i> infection
CIHI	Canadian Institute for Health Information
CNA	Community Needs Assessment
CPAG	Canadian Physical Activity Guidelines
CV	Coefficient of variation
DOPHS	Diseases of Public Health Significance
ED	Emergency Department
HIV	Human Immunodeficiency Viruses
iPHIS	Integrated Public Health information System
ISPA	Immunization of School Pupils Act
JK/SK	Junior Kindergarten/Senior Kindergarten
MHC-SF	Mental Health Continuum Short Form
MMR/MMRV	Measles, mumps, rubella/measles, mumps, rubella, varicella vaccine
MOHLTC	Ministry of Health and Long-Term Care
NACRS	National Ambulatory Care Reporting System
OHISS	Oral Health Information Support System
ON-Marg	Ontario Marginalization Index
PHO	Public Health Ontario
RII	Relative Index of Inequality
SAHA	Smog and Air Health Advisory
SAQS	Special Air Quality Statements
SES	Socioeconomic status
STBBIs	Sexually transmitted and blood-borne infections
VBDs	Vector borne diseases
VPDs	Vaccine preventable diseases
WECHU	Windsor-Essex County Health Unit Unit
WEC	Windsor and Essex County
WNV	West Nile virus

Executive Summary

The Community Needs Assessment 2019 Update provides a general overview of health related determinants and outcomes pertaining to Windsor and Essex County residents, using primary and secondary sources of data. The data in this 2019 Update highlights continuing trends from the 2016 Community Needs Assessment, but also points to new trends in the health of Windsor and Essex County residents. These highlights include:

Population Demographics

- Windsor and Essex County has a population of 398,953 people (2016 Census). The latest population projections (based on the 2011 Census), show that the local population is expected to grow to approximately 421,000 people by 2019 and 450,000 people by 2029.
- As of 2016, 17.7% of the local population are seniors (65 years of age or older). The proportion of seniors in Windsor and Essex County is projected to grow steadily - by 2029, seniors are projected to account for approximately 24% of the local population.
- Windsor and Essex County's rate of unemployment in 2016 (7.3%) was comparable to the rest of the province (7.3%); however, Windsor and Essex County residents have a lower before-tax income for all types of income (i.e., individual full-time worker, household, etc.) compared to Ontario.
- Poverty remains a significant issue in Windsor and Essex County. One in four children under five years (26.0%), one in five children under 17 years (22.6%), and one in ten seniors (11.4%) in Windsor and Essex County live in poverty.

General Health

- The rate of preventable deaths among Windsor and Essex County residents (140.1 deaths per 100,000 residents) remains significantly higher than Ontario's rate (121.8 deaths per 100,000 residents). Preventable deaths contribute to a shorter life expectancy and a higher likelihood of premature death among Windsor and Essex County residents.

Health Care Access

- The rate of general/family physicians in Windsor and Essex County is 98.5 per 100,000 residents, which is similar to the rate in Ontario. The rate of specialist physicians in WEC (69.4 specialists per 100,000 residents), however, was significantly lower than the rate in Ontario (110.7 specialists per 100,000 residents).
- In the past year, approximately seven-percent of Windsor and Essex County residents (7.2%) reported not being able to receive health care when they needed it, which is similar to Ontario (7.3%).

Chronic Disease

- Approximately two out of every three (64.5%) residents in Windsor and Essex County are overweight or obese, making it the most common chronic health problem locally.

The proportion of residents who are overweight or obese is significantly higher in Windsor and Essex County compared to Ontario (58.3%).

- Cardiovascular disease is the leading cause of chronic disease death in Windsor and Essex County and the rate of these deaths (215.2 deaths per 100,000 residents) is significantly higher to what is observed in Ontario (170.0 deaths per 100,000 residents).
- The number of new cases of lung cancer every year among residents in Windsor and Essex County is significantly higher compared to Ontario (80.7 new cases in Windsor and Essex County versus 67.8 new cases in Ontario per 100,000 residents).

Mental Health

- Approximately 14% of residents in Windsor and Essex County reported that they consulted with a mental health professional in the past 12 months, which is similar to Ontario; these professionals include family doctors, social workers, psychiatrists, and psychologists.
- The rate of mental health-related emergency department visits for Windsor and Essex County residents (2,499.6 visits per 100,000 residents in 2017) was significantly higher than Ontario (2,181.9 visits per 100,000 residents in 2017). The rate was significantly higher in 10 of the 11 years from 2007 to 2017.
- The rate of Windsor and Essex County residents visiting the emergency department for mental health-related outcomes was seven-times higher for residents of low socioeconomic status compared to residents of high socioeconomic status.

Environmental Health

- The annual average temperature and the annual precipitation in Windsor and Essex County is steadily increasing every 10 years. These trends have contributed to an increase in the number of heat-related emergency department visits and the impact of flooding in Windsor and Essex County.
- Annually, between 2003 and 2014, there were 13 days (median) with smog advisories in Windsor and Essex County.
- In 2016, Windsor and Essex County became the first region in Canada to find an established population of *Ae. Albopictus* mosquitoes, a mosquito species that has the potential to carry the Zika Virus.
- The number of ticks reported to the Windsor-Essex County Health Unit (including blacklegged species which are potential carriers of Lyme disease) has increased from 2013 to 2018 (93 ticks reported in 2013 compared to 338 ticks reported in 2018).
- The Windsor-Essex County Health Unit conducted a three-year study on indoor radon levels locally. Radon levels were above the Canadian guideline of 200 Bq/m³ for 11% of homes in Windsor and Essex County. Essex County had a significantly greater proportion of homes with radon levels above the guideline (18%) compared to the City of Windsor (6%). Homes with two levels were found to have higher radon concentrations than three and four-level homes. Moreover, homes built in 2011 or later were found to have higher radon concentrations than older builds.

Maternal and Child Health

- 7.0% of pregnant women in Windsor and Essex County reported smoking during pregnancy. Folic acid prior to and during pregnancy is significantly lower in Windsor and Essex County (7.0%) compared to Ontario (31.3%), even though folic acid is strongly recommended for optimum fetal development.
- The pregnancy rate among females of reproductive age (15 to 49 years of age) is significantly lower in Windsor and Essex County (48.8 pregnancies per 1,000 residents) than Ontario (53.1 pregnancies per 1,000 residents). The birth rate in Windsor and Essex County (9.3 births per 1,000 residents) is also significantly lower than Ontario (9.6 births per 1,000 residents).
- The proportion of Windsor and Essex County mothers who reported an intention to breastfeed (exclusively or in combination with breast-milk substitute) is significantly lower (89.6%) than mothers in Ontario (94.0%). At 6-months postpartum, only 60.1% of mothers reported that they were breastfeeding, and only 15.5% reported that they were exclusively breastfeeding.
- In Windsor and Essex County, a significantly higher proportion of infant mothers are single parents (6.2%) compared to Ontario (4.7%). Additionally, 6.6% of parents or parenting partners in Windsor and Essex County are involved with child protection services, a significantly higher proportion compared to Ontario (3.9%).

Oral Health

- Inadequate access and cost remain barriers to dental care for Windsor and Essex County residents; 23.7% reported that they lack dental insurance that covered all or part of the cost of seeing a dental professional.
- Coverage for dental care was especially low for seniors (65+ years) in Windsor and Essex County, as 47.7% reported that they have no coverage.
- Indicators show an overall trend of declining oral health status among children in Windsor and Essex County compared to Ontario.

Immunization

- Immunization coverage for children (at age 7, 12, and 17 years) in Windsor and Essex County is similar to Ontario.
- Coverage estimates in 7-year olds only met the national average of 95% for two diseases (meningococcal disease and rubella).
- Coverage estimates in 12-year olds did not meet the national goal of 90% for meningococcal disease, hepatitis B, and human papilloma virus.
- Coverage estimates in 17-year olds only met the national goal for measles, mumps, and rubella.

Infectious and Communicable Diseases

- Sexually transmitted and blood-borne infections (i.e., chlamydia, hepatitis C, and gonorrhoea, etc.) account for the largest proportion (59.3%) of diseases of public health significance (reportable diseases) in Windsor and Essex County.
- The top five diseases of public health significance in Windsor and Essex County, as determined by rankings and percent changes in incidence, are gonorrhoea, pertussis (whooping cough), chickenpox, West Nile virus illness, and invasive group A streptococcal disease.

Substance Use and Injury

- Alcohol-related health outcomes were the cause of 2,271 emergency department visits in Windsor and Essex County in 2017; the rate has increased two-fold between 2007 and 2017 and is the leading cause of all substance-related emergency department visits.
- The rate of visits to the emergency department for an alcohol-related health outcome was almost five-times higher for residents of low socioeconomic status compared to residents of high socioeconomic status.
- Rates of methamphetamine, cocaine, cannabis, and opioid-related emergency department visits are *all* significantly higher in Windsor and Essex County when compared to Ontario.
- Falls are the leading cause of injury and injury-related deaths in Windsor and Essex County. After falls, unintentional poisoning and intentional self-harm are the most common causes of injury-related mortality.

Introduction

What is a Community Needs Assessment?

A Community Needs Assessment (CNA) provides a snapshot of a population to identify needs and areas of improvement. The data presented allows a community and its leaders to develop a plan to improve the health needs of its residents through strategies that will have a positive long-term impact (CDC, 2013). A CNA also describes some of the determinants of health (e.g., income and social status, education and literacy) that should be addressed in order to improve the overall health and well-being of a community.

The Windsor-Essex County Health Unit (WECHU) conducted a CNA in 2016. In addition to using secondary data sources to describe the health status of our community, Windsor and Essex County (WEC) residents were surveyed to learn their opinions on what and how public health services should be provided in the community. Data collected were used to support the planning and delivery of public health related programs and services. The findings were also shared with community partners to highlight key priorities and support collaborative efforts.

The CNA 2019 Update provides a picture of the health needs of WEC residents, using the most recent data available, in accordance with the Ontario Public Health Standards (OPHS) (MOHLTC, 2018)—guidelines for providing public health programs and services in Ontario. The 2019 CNA Update will be used to direct and support the WECHU's planning, allocation of resources, and delivery of services. In doing so, programs and services offered by the WECHU and community organizations will be based on the needs and priorities of the community identified in this report, and aimed towards more positive health outcomes for the community in the long-term. Community partners and agencies in WEC can utilize the information in this 2019 Update and highlight areas of focus for targeted program and service delivery.

Methodology

The CNA 2019 Update used the most recent available data sources previously identified in the CNA 2016 as well as newly available data sources highlighting emerging needs and priorities. These data sources are presented in **Table 1**. When determining the data elements and other considerations required to be included in the Update, a prioritization process was undertaken that included a review of the 2016 CNA and the identification of any trends that were statistically significant (higher or lower) when compared to the province. Additionally, a review of the modernized OPHS (2018) verifying topics of interest consistent in the previous OPHS (2008) and identified new topics (e.g., mental health, self harm, etc.) now requiring a public health focus. As a result, the structure of this 2019 Update is loosely based on the modernized OPHS (2018) where the priority sections identified broadly represent the program standards.

Epidemiologists from the WECHU reported on health indicators (i.e., defined measures of population health) that can be used to monitor the health of WEC residents over time and to support the planning and delivery of public health programs and services. The indicators highlighted in this report are a combination of the core public health indicators defined by the

Association of Public Health Epidemiologists in Ontario (APHEO) and other indicators of interest in public health. The indicators developed by APHEO, through a collaborative process, provide standardized measures for assessing population health in Ontario. Each indicator from APHEO has a clear methodology for measuring the intricate concepts of individual health and the health of communities. The data presented in this report consist of information that is the most up-to-date and reportable from the sources identified in **Table 1**. When feasible, comparisons to Ontario estimates were highlighted alongside the WEC estimate. Statistical testing was completed to determine if there were significant differences. Please see **Appendix A: Supporting notes on data analysis** for more methodological details.

Data Sources

Table 1. Data sources used in the Community Needs Assessment 2019 Update.

Organization	Data Source(s)
Canadian Institute for Health information	Health Indicators Interactive Tool
City of Windsor	Climate Change Adaptation Plan
	Future Climatic Projections
Children’s Hospital of Eastern Ontario	Better Outcomes Registry & Network
Ipsos Public Affairs Canada	Windsor and Essex County Mental Health Survey
Offord Centre for Child Studies	Early Development Instrument (via City of Windsor)
Ontario Ministry of Finance	Population Growth
Ontario Ministry of the Environment, Conservation and Parks	Smog and Air Health Advisory Statistics
Ontario Ministry of Health and Long-Term Care	Integrated Public Health Information System
	IntelliHEALTH Ontario
	Oral Health Information Support System
Public Health Ontario	Infectious Diseases Query
	Immunization Coverage Report
	Ontario Marginalization Index
	Snapshots (various)
Public Safety Canada	Canadian Disaster Database
Statistics Canada	Census Profile
	Canadian Community Health Survey (via Ontario Ministry of Health and Long-Term Care)
	Life expectancy and premature and potentially-avoidable mortality statistics
Windsor-Essex County Health Unit	Baby Friendly Initiative Tool
	Radon: Know Your Level awareness campaign
	Mosquito and tick surveillance statistics

Limitations

There are limitations to the results presented in this report. The purpose of this report was to provide an overview of the health status of WEC residents. As a result, the information presented in this report is not comprehensive and the indicators and topics highlighted were not always broken by sociodemographic factors (e.g., age, gender, income, etc.). Additionally, as stated above, the 2019 Update is not meant to be comprehensive in nature but rather highlight generally community trends on important health indicators. The WECHU has covered specific topics in detail (e.g., self-harm, injuries, infectious disease, oral health, etc.), found on its website, and will continue to provide detailed reports that require further attention (e.g., maternal and child health).

Likewise, there are limitations to the data sources utilized in this 2019 Update. The report presents findings from data sources readily accessible in public health within Ontario. As a result, the findings may not be comprehensive in nature and may include data gaps (e.g., health status of school aged children, breakdown by age and gender, etc.). Additional analysis of the data by sociodemographic factors can be found in topic specific reports from the WECHU, for example, Mental Health Profile, Injury Profile of Windsor and Essex County, etc. Limitations within the data sources are also discussed in Appendix A - for example, a change in methodology (e.g., CCHS), (re)introduction of new data processes (e.g., 2016 Long-Form Census), or data sources that may not be up to date due to availability (e.g., lag in reporting of mortality data).

Trends and Statistical Highlights

This report is organized to reflect the priorities identified in the modernized OPHS (2018):

- Population Demographics
- General Health
- Health Care Access
- Chronic Disease
- Mental Health
- Environmental Health
- Maternal and Child Health
- Oral Health
- Immunization
- Infectious and Communicable Diseases
- Substance Use and Injury

Population Demographics

Population Growth and Age

Demographics of individuals in WEC are summarized in **Table 2**. In 2016, WEC's population was 398,953. From 2011 to 2016, the local population grew by 2.6%. During this period, the senior population experienced the greatest growth – almost 20% increase from 2011 (19.1%). The population pyramid in **Figure 1** shows the WEC population by age and sex. As of 2016, 23.0% of the local population are 19 years of age or younger and 17.7% of the population are seniors (65 years of age or older).

The local population is expected to grow to approximately 419,000 people by 2019 and 450,000 people by 2029 (**Figure 2**). **Figure 3** shows that the proportion of seniors in WEC is projected to grow steadily; by 2029, seniors are projected to account for approximately 24% of the local population. By 2041, seniors will make up close to three in ten residents (27.6%) of the local population.

Immigration

Immigrants account for 21.9% of the population in WEC (**Table 2**). From 2011 to 2016, the local immigrant population share grew by 0.4%. The most common countries of birth for immigrants in WEC are the United States (8.1%), Italy (7.7%), Iraq (7.4%), the United Kingdom (6.0%), and Lebanon (5.3%).

New immigrants (2011 onwards) account for 2.8% of the WEC population. The share of recent immigrants in the local population has remained relatively stable between 2011 and 2016. The most common countries of birth for new immigrants are Iraq (19.4%), Syria (9.8%), the United States (8.8%), India (7.5%), and China (7.4%).

Language and Education

The top five mother tongue languages in WEC are English (87.6%), Arabic (2.3%), French (0.8%), Italian (0.7%) and German (0.7%). For education, the percentage of WEC adults without a certificate, diploma, or degree increased from 12.3% in 2011 to 19.1% in 2016. The percentage of WEC adults with a post-secondary education (University, College, or equivalent) decreased from 58.2% in 2011 to 49.8% in 2016.

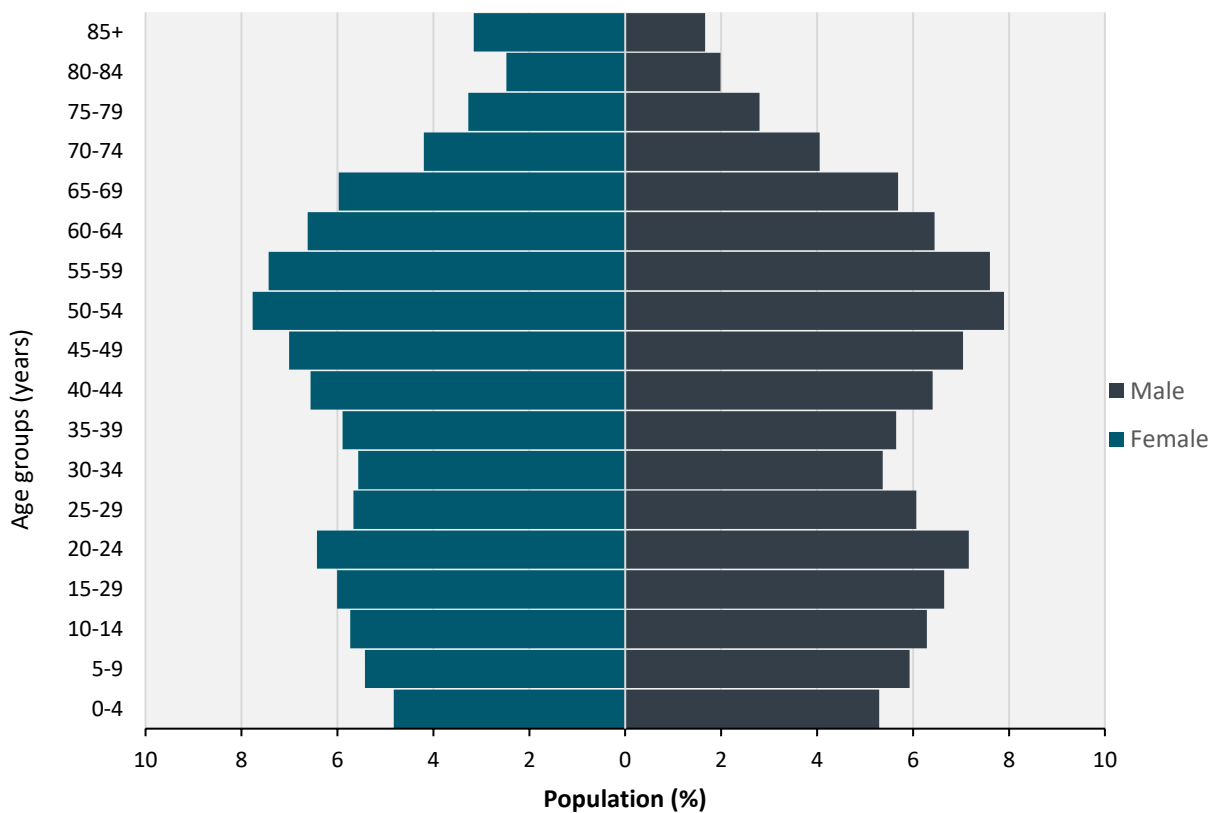
Employment and Income

Manufacturing remains the most common industry to work in for WEC residents. Approximately 20% of WEC residents are in manufacturing, compared to 9.6% in Ontario. The rate of unemployment, based on the 2016 Census, is 7.3%, which is consistent with the rest of Ontario. However, WEC residents had lower before-tax incomes for all types of income (i.e., individual full-time worker, household, etc.) compared to the rest of Ontario.

Poverty and Housing Affordability

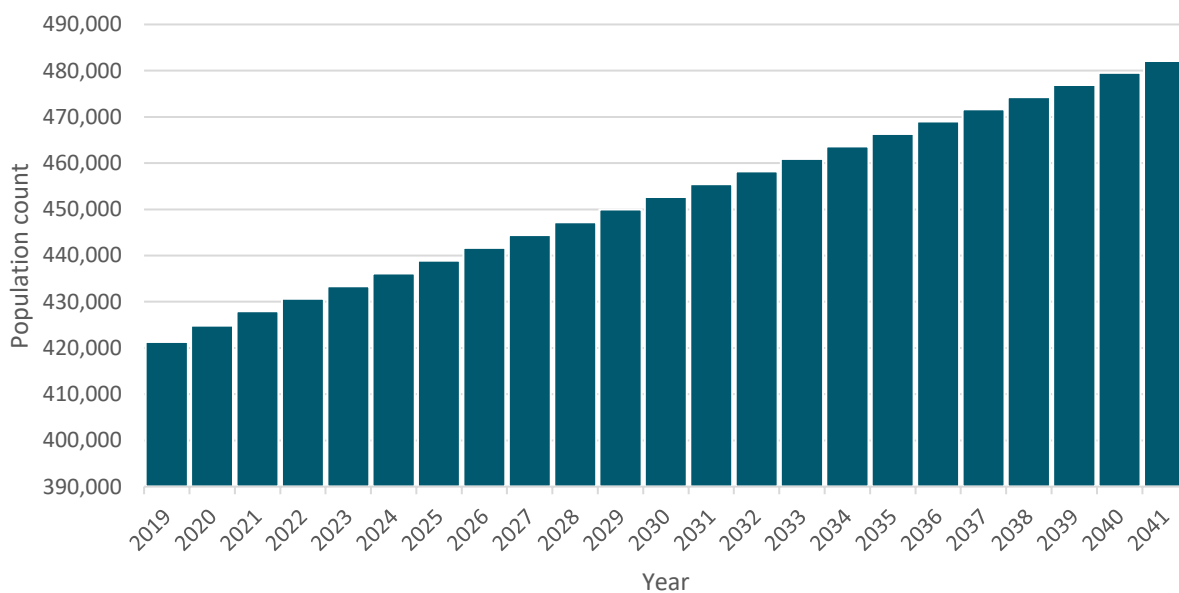
Poverty remains a significant issue in WEC. Approximately 26% of children (0-5 years old) live in low-income households, compared to 19.8% in Ontario. In 2016, a greater proportion of children and youth (0-17 years old) (22.6%) and adults (18-64 years old) (15.9%) in WEC are also living in low-income households compared to Ontario. The Canada Mortgage and Housing Corporation and Canadian provinces assess housing affordability in Canada. Overall, a 30% minimum spending threshold is the level set to determine affordability. In WEC, based on this threshold, housing was unaffordable for 44% of households that rent. Within these households, spending includes, where applicable, the costs of electricity, heat, water and other municipal services on top of rent.

Figure 1. Population Pyramid of Windsor and Essex County residents, 2016.



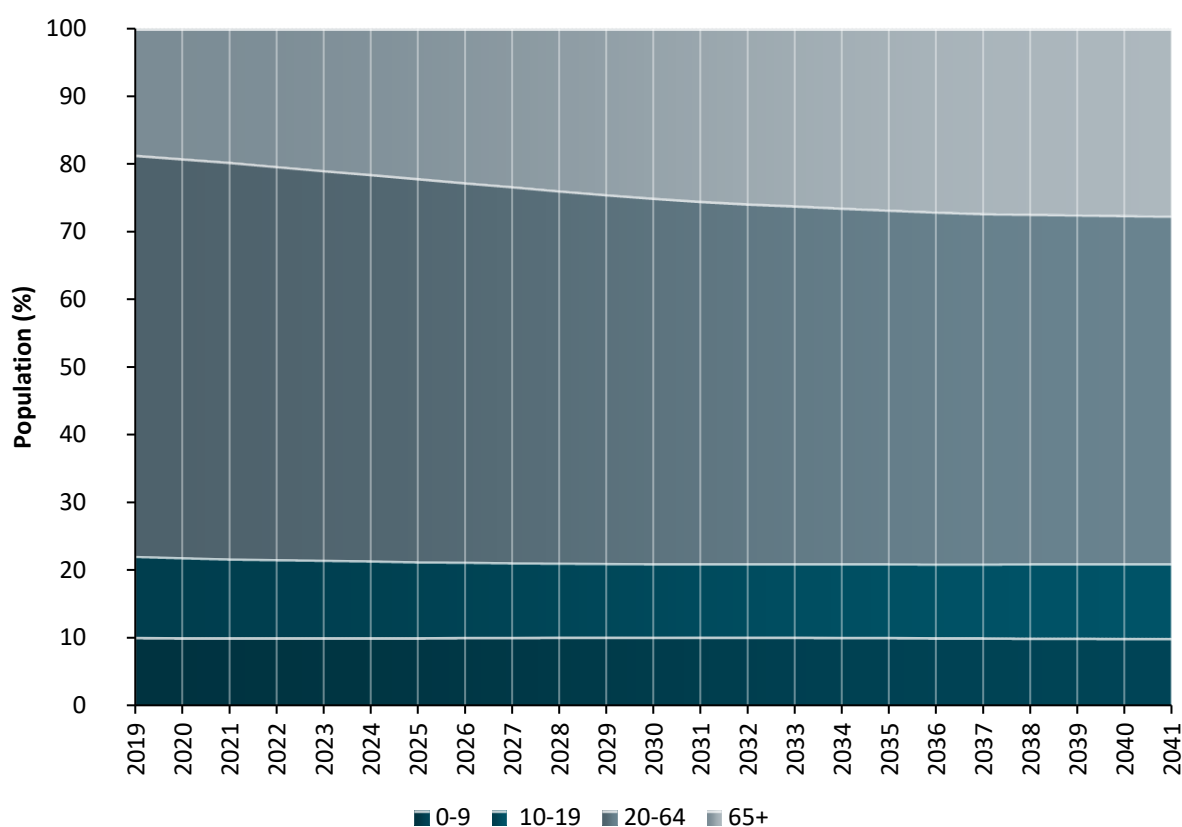
Source: Statistics Canada, Census of Population [2016].

Figure 2. Projected population change in Windsor and Essex County, 2019-2041.



Source: Ontario Ministry of Finance. Ontario Population Projections Update [2017–2041].

Figure 3. Projected change in population structure in Windsor and Essex County, 2019-2041.



Source: Ontario Ministry of Finance. Ontario Population Projections Update [2017–2041].

Table 2. Summary of population demographics in Windsor and Essex County and Ontario.

Characteristic	WEC 2011	WEC 2016	ON 2011	ON 2016
Age				
0 – 9 years old (%)	11.3	10.7	11.0	10.8
10 – 19 years old (%)	13.2	12.3	12.7	11.6
20 – 64 years old (%)	60.3	59.3	61.7	60.8
65 years old and over (%)	15.2	17.7	14.6	16.7
Median age of the population (years)	40.8	42.4	40.4	41.3
Population Growth and Migration				
Total population	388,782	398,953	12,851,821	13,448,494
Population growth (2011 to 2016)				
Children, 0-9 years old (% change)	NA	-2.8	NA	2.6
Youth, 10-19 years old (% change)	NA	-4.2	NA	-3.8
Adults, 20-64 years old (% change)	NA	1.0	NA	3.1
Seniors, ≥65 years old (% change)	NA	19.1	NA	19.9
Total (% change)	NA	2.6	NA	4.6
Total immigrant population (%)	21.4	21.9	28.5	29.1
Top five immigrant populations in WEC by country of birth				

Characteristic	WEC 2011	WEC 2016	ON 2011	ON 2016
(% of immigrants) (2016)				
United States	9.6	8.1	3.2	2.8
Italy	8.9	7.7	4.7	4.1
Iraq	4.7	7.3	1.0	1.3
United Kingdom	6.8	6.0	8.1	6.9
Lebanon	4.9	5.3	0.8	0.9
New immigrant population (%)	2.7	2.8	4.0	3.6
Top five new immigrant populations in WEC by country of birth (% of new immigrants) (2016)				
Iraq	12.2	19.4	2.4	3.1
Syria	1.1	9.8	0.4	2.7
United States	16.3	8.8	4.1	3.1
India	5.0	7.5	13.4	14.7
China	5.9	7.4	10.8	12.5
Rural area population (%)	14.1	12.4	14.1	13.8
Language and Culture				
Top five mother tongue languages in WEC (first language learned and spoken) (%) (2016)				
English	74.8	73.0	69.8	66.9
Arabic	3.1	3.7	1.1	1.3
French	3.1	2.7	4.0	3.7
Italian	2.9	2.4	2.0	1.7
German	2.4	2.1	1.1	1.0
Top five languages spoken most often at home in WEC (%) (2016)				
English	87.6	87.6	82.6	82.5
Arabic	1.9	2.3	0.6	0.8
Spanish	0.9	0.9	0.9	0.8
French	0.9	0.8	2.3	2.2
Mandarin	0.2	0.8	0.8	1.8
No knowledge of English or French (%)	1.8	2.1	2.3	2.5
Ethnic Origin (%)				
European	72.7	69.7	65.1	61.6
North American (non-Aboriginal)	28.3	29.1	24.2	24.3
Asian	13.4	15.7	20.6	23.4
African	2.3	2.7	2.6	3.1
Latin, Central, or South American	1.3	1.8	2.1	2.4
Caribbean	0.3	1.1	3.1	3.5
Oceania	0.1	0.1	0.2	0.2
Aboriginal Identity (%)	2.0	2.5	2.4	2.8

Characteristic	WEC 2011	WEC 2016	ON 2011	ON 2016
Education				
No certificate, diploma, or degree (adults) (%)	12.3	19.1	10.9	17.5
High school diploma or equivalent (adults) (%)	29.5	31.0	24.3	27.4
Post-secondary education (adults) (%)	58.2	49.8	64.8	55.1
Family and Household Characteristics				
Marital status (%)				
Married	50.8	49.1	50.3	49.2
Common-law	6.3	7.1	7.4	8.1
Single (never married)	27.2	27.9	28.0	28.3
Separated	3.0	3.1	3.0	2.9
Divorced	6.3	6.6	5.6	5.8
Widowed	6.3	6.3	5.8	5.7
Average number of persons per household	2.5	2.5	2.6	2.6
Households with families (%)	70.0	66.7	71.1	67.4
Average number of persons per family	3.0	2.9	3.0	2.9
Lone-parent families (%)	18.4	18.4	16.7	17.1
Employment, Income, and Poverty				
Most common industries of the WEC labour force (%) (2016)				
Manufacturing	18.2	19.7	10.2	9.6
Health care and social assistance	11.5	12.0	10.1	10.6
Retail trade	10.7	10.4	10.9	11.0
Educational services	7.9	7.1	7.3	7.4
Accommodation and food services	6.4	7.3	6.1	6.7
Unemployment rate, 2016 (%)	9.7	7.3	8.3	7.3
Workers who are part-time (%)	23.5	29.8	20.4	31.7
Workers who are self-employed (%)	8.5	8.9	7.8	11.5
Workers who work outside of Canada (%)	3.6	3.7	0.5	0.6
Average number of weeks worked (weeks)	44.9	43.2	44.8	42.9
Median before-tax income (\$)				
Individual full-time worker	48,702	52,515	50,116	55,121
Household	58,482	66,658	66,358	74,287
Couple-only family	66,791	76,658	71,670	81,459
Couple-with-children family	96,481	112,711	101,715	115,381
Lone-parent family	39,989	49,742	47,237	54,363
Individuals living in low-income households based on the after-tax low-income measure (%)				
Children, 0-5 years old	24.9	26.0	18.4	19.8

Characteristic	WEC 2011	WEC 2016	ON 2011	ON 2016
Children and youth, 0-17 years old	22.9	22.6	17.3	18.4
Adults, 18-64 years old	17.5	15.9	13.9	13.7
Seniors, 65 years and over	9.0	11.4	8.3	12.0
Overall	17.5	16.5	13.9	14.4
Housing Affordability				
Households spending 30% or more of household total income on shelter costs (%)				
Owner households	16.8	12.7	20.9	19.8
Tenant households	42.8	44.0	42.3	45.7

Sources:

- 1 - Statistics Canada, Census of Population [2016].
- 2 - Statistics Canada, Census of Population [2011].
- 3 - Statistics Canada, National Household Survey [2011].

Notes: Statistical significance testing was not completed for estimates presented in this table. See section in Appendix A on Census for details on comparability of 2011 and 2016 Census estimates.

NA – Statistic was not available.

General Health

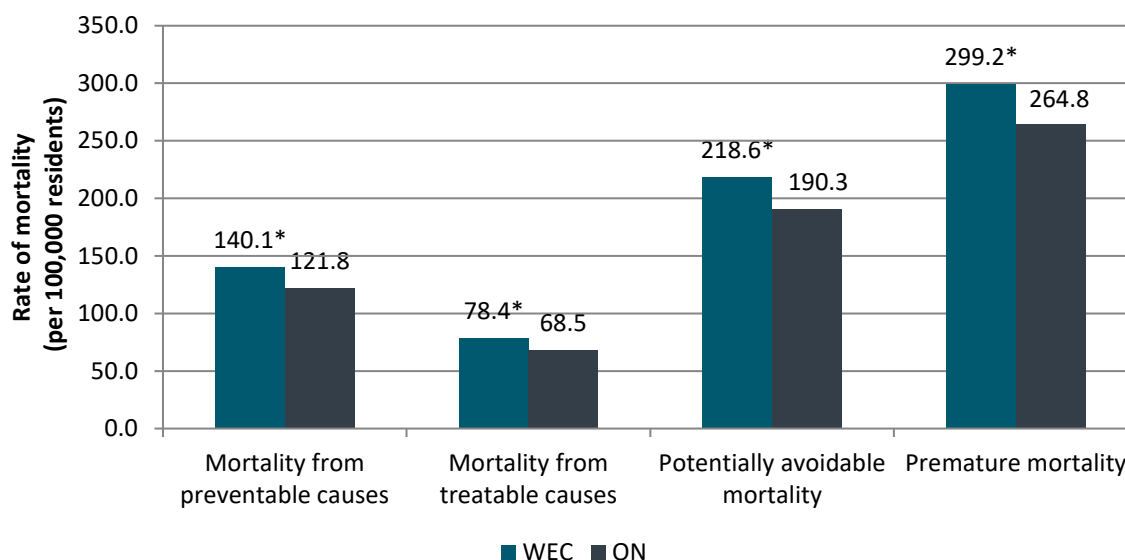
One of the goals of public health is to reduce the number of preventable deaths in the population. Preventable deaths are defined as premature deaths (death before 75 years of age) that potentially could have been avoided by preventing a disease or condition from occurring, typically by modifying risk factors (such as physical activity, healthy eating, sedentary behaviour, etc.).

Figure 4 shows the rate of preventable deaths and other forms of premature deaths. Death from treatable causes are premature deaths that could have been prevented (potentially) through secondary or tertiary prevention. Deaths from preventable and treatable causes are classified as “potentially avoidable deaths”. The rates of potentially avoidable deaths (preventable and treatable) and premature deaths in WEC continues to be significantly higher than Ontario’s (**Figure 4**).

The overall rate of preventable deaths in WEC and Ontario decreased between 2006 and 2015. While the rate of preventable deaths has declined significantly in men during this period, it continues to be almost double that of the rate of preventable deaths in women (**Figure 5**). Based on current data, there are approximately 567 preventable deaths per year resulting in 7,792 potential years of life lost per year in WEC. The life expectancy of WEC residents (81.7 years) is also shorter than life expectancy in Ontario (82.4 years) overall (**Figure 6**). In summary, WEC residents are more likely to have a shorter life expectancy and to die prematurely when compared to Ontario.

Figure 7 shows an assessment of health inequity in potentially avoidable deaths on a measure of poverty (material deprivation) in WEC and Ontario. The relative index of inequality (RII) is a commonly used measure of the extent to which the occurrence of an outcome changes with socioeconomic status. In other words, it is a summary measure that indicates the level of inequality in a population. An RII ratio greater than 1 indicates a higher occurrence of the health outcome in the most impoverished. The findings show that a high level of inequality (statistically significant) was present with respect to this health outcome - the occurrence of potentially avoidable deaths was significantly higher in those who were from impoverished areas. In 2014-2015, the RII ratio indicated that the occurrence of potentially avoidable deaths among WEC residents was 3.6 times greater in those from the least advantaged communities, compared to those from the most advantaged communities.

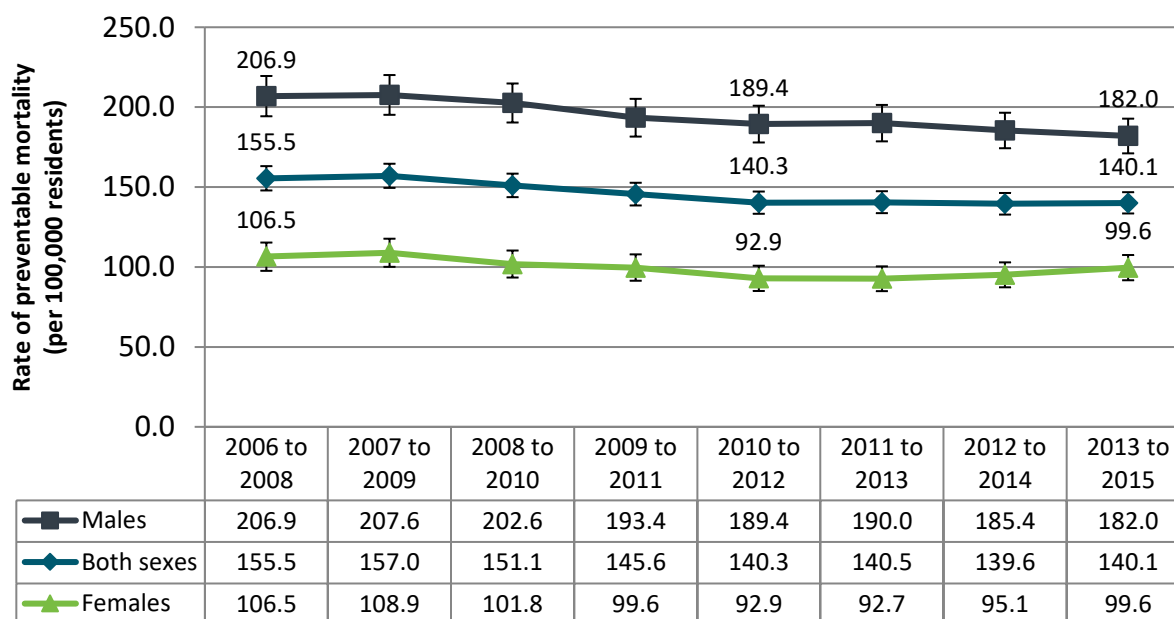
Figure 4. Rate of premature and potentially avoidable mortality in Windsor and Essex County and Ontario, 2013-2015.



Source: Statistics Canada. Premature and potentially avoidable mortality, three-year period [2013-2015].

Note: * Statistically significant difference compared to Ontario.

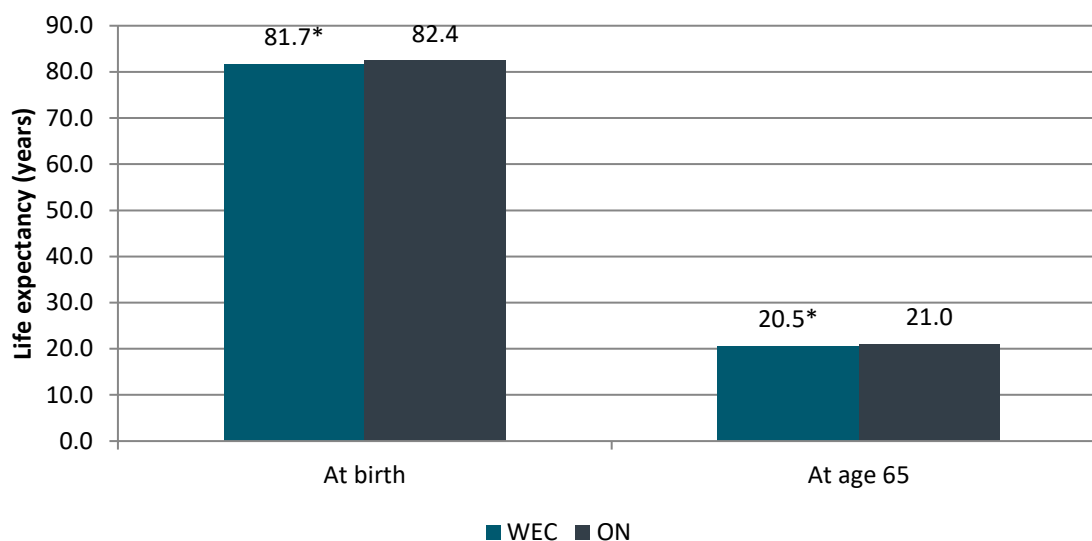
Figure 5. Rate of preventable mortality in Windsor and Essex County, 2006-2008 to 2013-2015



Source: Statistics Canada. Premature and potentially avoidable mortality, three-year period [2006-2008 to 2013-2015].

Note: The rate in males was significantly higher than females across this time period.

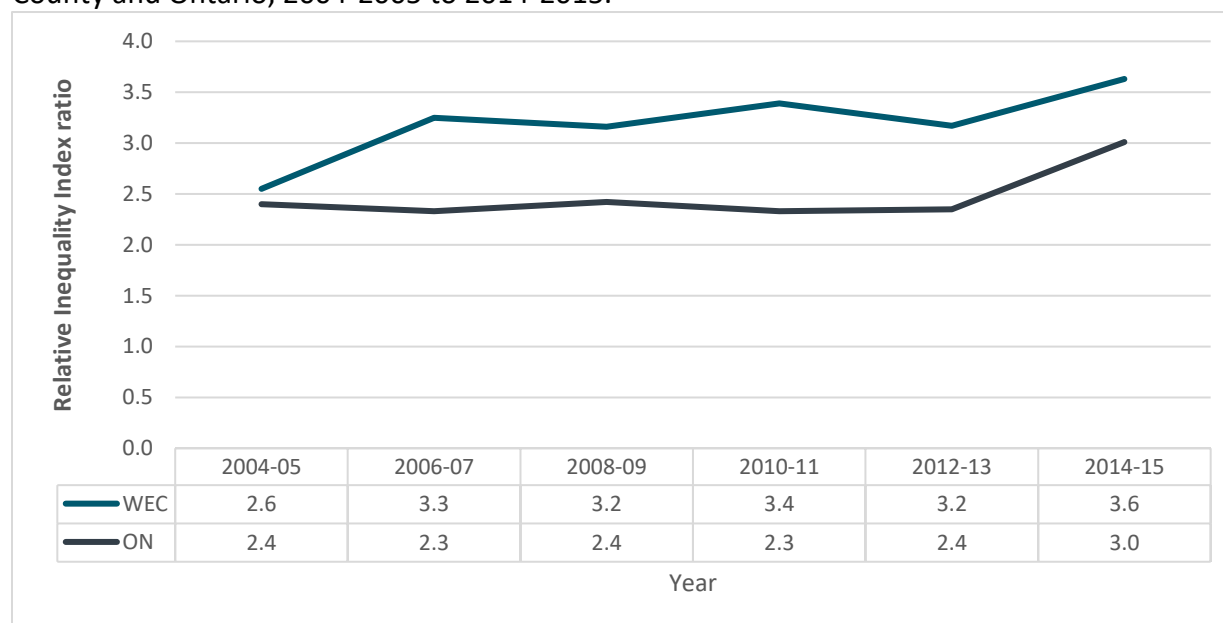
Figure 6. Life expectancy at birth and at age 65 years in Windsor and Essex County and Ontario, 2013-2015.



Source: Statistics Canada. Life expectancy, at birth and at age 65, by sex, three-year average [2013-2015].

Note: * Statistically significant difference compared to Ontario.

Figure 7. Relative index of inequality of potentially-avoidable death in Windsor and Essex County and Ontario, 2004-2005 to 2014-2015.



Source: Public Health Ontario. Snapshots: Health Inequities in Potentially Avoidable Mortality [2004-15]

Note: Inequality was assessed on the material deprivation dimension (a poverty measure). The lower bound of the 95% confidence interval (not shown) was greater than 1 for all years for WEC and Ontario, indicating that the inequality that is statistically significant.

Health Care Access

Adequate access to health care is an important determinant of population health. As shown in **Table 3**, nearly seven-percent of WEC residents 12 years of age and older reported not receiving health care when they needed it in the past year. In WEC, 88.4% of the population have a regular health care provider (no different than Ontario). There is an estimated 99 general/family physicians per 100,000 WEC residents (or approximately 1 for every 1,000 WEC residents) which is similar to the Ontario rate of 109 general/family physicians per 100,000 Ontario residents. This rate is an improvement from prior years, when there was a statistically significant difference between WEC and Ontario in the rate of general/family physicians. The rate of specialist physicians in WEC (69.4 specialist physicians per 100,000 residents), however, is significantly lower than the Ontario (110.7 specialist physicians per 100,000 residents) rate.

Regarding WEC residents, in the past 12 months, 71.2% have consulted with a general/family physician, 77.2% have visited a dental professional, 51.3% have consulted with an optometrist or ophthalmologist (statistically significant difference from Ontario), and 8.1% have consulted with a nurse.

Almost 14% of WEC residents reported that they sought support from a mental health professional in the past 12 months. Mental health professionals who were consulted included family doctors (56.4%), social workers (26.8%), psychiatrists (20.7%), and psychologists (10.6%).

Table 3. Health care access in Windsor and Essex County and Ontario, 2015/16 and 2017.

Characteristic	WEC	ON
Health Care Access	2015/16	2015/16
Has a regular health care provider ¹	88.4	89.9
In the past 12 months, has consulted with...		
Family/general doctor (%) ¹	71.2	69.2
(Visited) Dental professional (%) ²	77.2 (2017)	77.6 (2017)
Nurse (%) ¹	8.1	8.9
Optometrist/Ophthalmologist (%) ¹	<u>51.3*</u>	45.0
Other medical doctor or specialist (%) ¹	31.7	31.0
Mental health professional (%) ¹	13.7	14.8
Family doctor (%)	56.4	60.1
Nurse (%)	NR	4.7
Psychiatrist (%)	20.7 ^c	19.1
Psychologist (%)	10.6 ^c	14.6
Social worker (%)	26.8 ^c	24.4
Other (%)	NR	7.5
Received homecare in past 12 months (≥18 years old) (%) ¹	7.2	6.5
In the past 12 months, there was a time when health care was needed but not received (%) ²	7.2 ^c (2017)	7.3 (2017)
Rate of general/family physicians (per 100,000 residents) ³	98.5 (2016)	109.4 (2016)
Rate of specialist physicians (per 100,000 residents) ³	<u>69.4*</u> (2016)	110.7 (2016)

Sources:

1 – Statistics Canada. Canadian Community Health Survey [2015/2016].

2 – Statistics Canada. Canadian Community Health Survey [2017].

3 – Canadian Institute for Health Information. Health indicators Interactive Tool [2016].

Notes: C – Estimate should be interpreted with caution due to high sampling variability.

NR – Not reportable due to too few observations.

* Statistically significant difference between Windsor and Essex County and Ontario estimates.

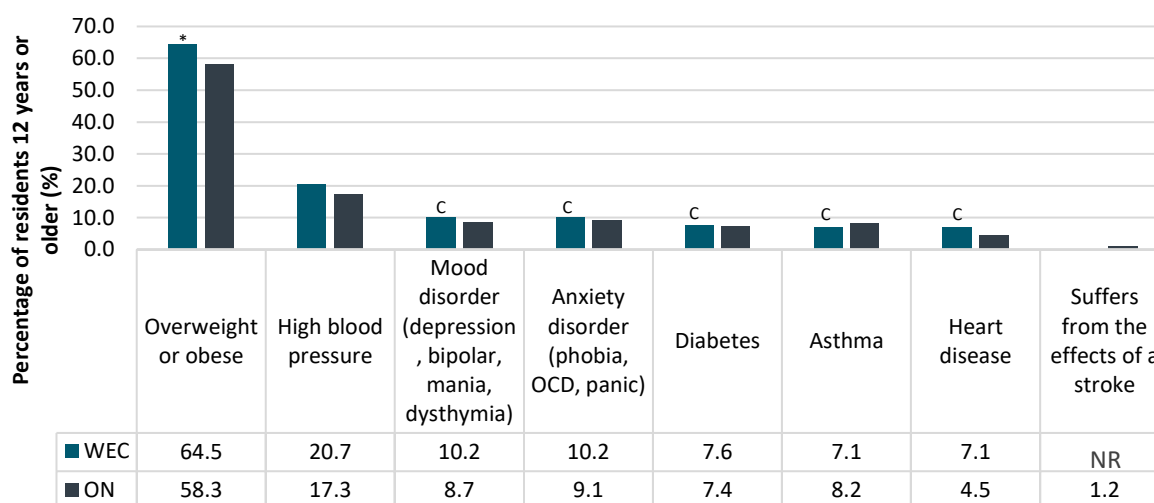
Chronic Disease

The following section includes indicators describing the rates of chronic disease of public health importance (i.e., obesity, cardiovascular disease, cancer, diabetes, hypertension, etc.) along with an overview of common modifiable risk factors.

Chronic Disease Prevalence and Incidence

The most prevalent chronic health problems among WEC and Ontario residents 12 years of age and older are presented in **Figure 8**. Excessive weight continues to be one of the most common chronic conditions, with 64.5% of WEC residents identified as either overweight or obese (**Table 4**). This is significantly higher than the prevalence in Ontario. High blood pressure was another frequently reported chronic condition; one in five WEC residents reported having high blood pressure. Mood disorders (such as depression, bipolar, mania, dysthymia) were reported by one in ten WEC residents. In 2014, WEC cancer incidence was higher compared to the province with 2,451 new cancer cases, leading to a rate of 564.4 cases per 100,000 residents in WEC and 531.2 cases per 100,000 residents in Ontario (**Figure 9**). This is a significant increase, in WEC, from the 2009 rate of 432.3 cases per 100,000 residents. The most common types of newly diagnosed cancers in 2014 were breast (female), prostate, and lung cancer. The rate of lung cancer incidence was significantly higher among WEC residents compared to Ontario (80.7 vs. 67.8 new cases per 100,000 residents). The significant increase in all cancer rates is important to note and will require further investigation.

Figure 8. Self-reported chronic disease prevalence in Windsor and Essex County and Ontario, 2015/16 & 2017.



Sources:

1 – Overweight and obesity: Statistics Canada. Canadian Community Health Survey [2015/2016].

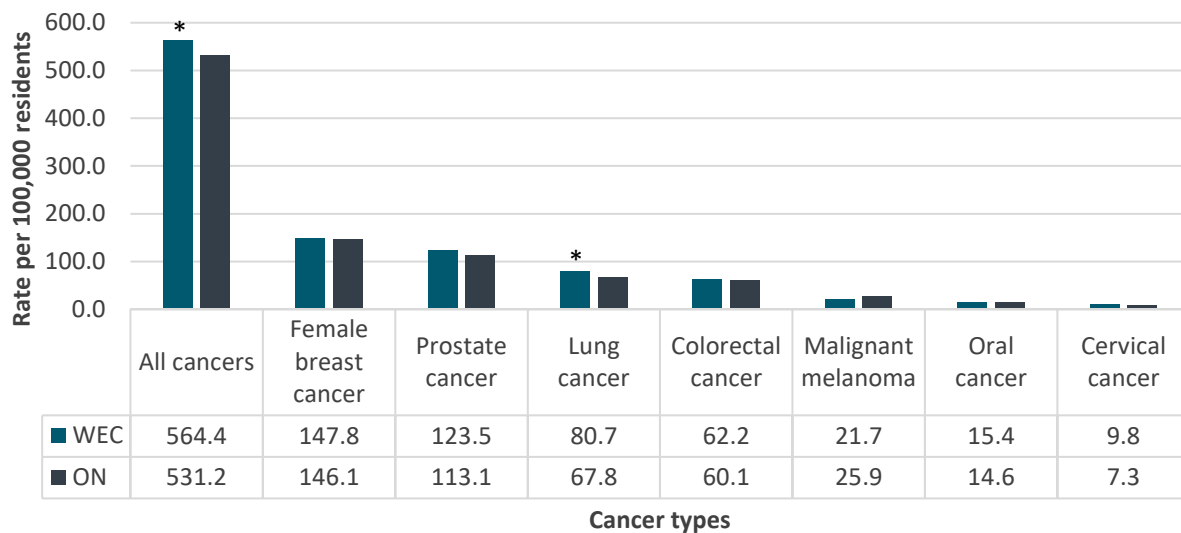
2 – All other conditions: Statistics Canada. Canadian Community Health Survey [2017].

Note: C – Estimate should be used with caution due to high sampling variability.

NR – Not reportable due to too few observations.

* Statistically significant difference compared to Ontario.

Figure 9. Rate of cancer incidence in Windsor and Essex County and Ontario, 2014.



Source: Public Health Ontario. Snapshots: Cancer incidence [2014].

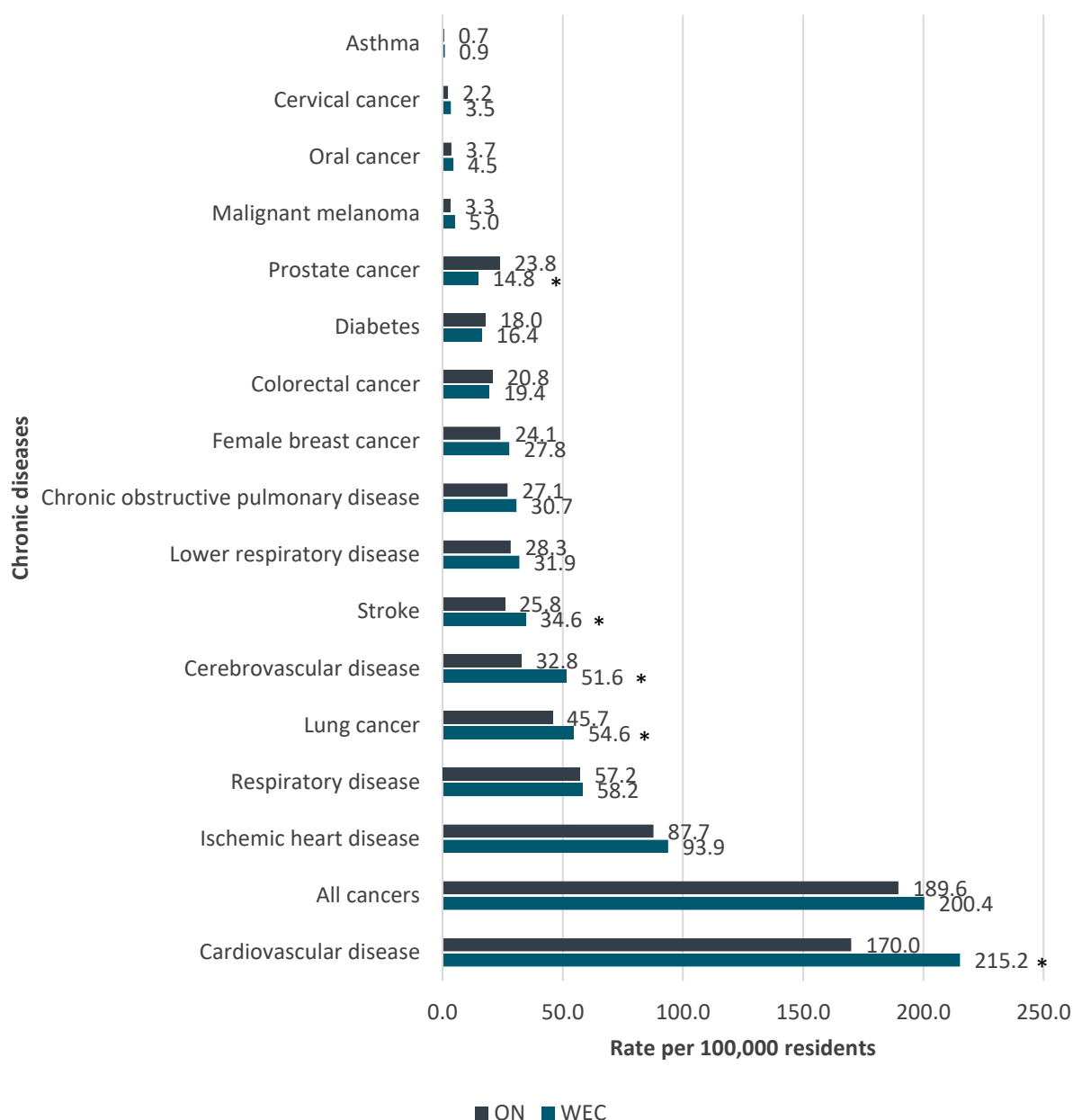
Note: * Statistically significant difference compared to Ontario.

Chronic Disease Mortality

The age-standardized mortality rate (per 100,000 residents) for chronic diseases in WEC and Ontario in 2015 are displayed in **Figure 10**. Cardiovascular disease was the leading cause of chronic disease mortality in WEC in 2015 with 1,034 deaths; this corresponded to a rate of 215.2 deaths per 100,000 residents and was significantly higher than the rate in Ontario (170.0 deaths per 100,000 residents). Deaths due to cardiovascular disease increased by 54.7% between 2011 and 2015. Cardiovascular disease mortality includes deaths specifically caused by ischemic heart disease, cerebrovascular disease, and stroke. Although ischemic heart disease was the most common type of cardiovascular disease mortality, the rates among WEC residents for both cerebrovascular disease (51.6 deaths per 100,000 residents) and stroke (34.6 deaths per 100,000 residents) were significantly higher than the rates for Ontario.

Malignant cancers were the second leading cause of chronic disease mortality, with 915 deaths in 2015, corresponding to a rate of 200.4 deaths per 100,000 residents. Lung, breast (females), and colorectal cancer were the most common forms of cancer mortality. All cancer mortality increased by almost 25% in 2015 when compared to 2011. Moreover, lung cancer mortality rates were significantly higher in WEC compared to Ontario (54.6 vs. 45.7 deaths per 100,000 residents).

Figure 10. Rate of chronic disease mortality in Windsor and Essex County and Ontario, 2015.



Source: Public Health Ontario. Snapshots: Chronic disease mortality [2015].

Note: * Statistically significant difference compared to Ontario.

Modifiable Risk Factors

Healthy eating, healthy weights, sleep, and physical activity are important factors to consider when assessing the complex distribution of chronic diseases in a population (**Table 4**). The self-reported consumption of five or more fruits and vegetables per day was similar across adult age groups (20-44 to 65+ years) in both WEC and Ontario, with roughly 1 in 3 residents consuming this amount. However, only 1 in 5 (18.8%) WEC residents aged 12 to 19 years reported

consuming fruits and vegetables five or more times per day. In 2015, almost 30% of adults reported consuming sugar sweetened beverages (i.e., pop, juice, etc.) everyday.

As mentioned above, excessive weight continues to be higher in WEC compared to the rest of Ontario. Although 84.9% of youth (12-17 years) reported being “moderately active” or “active” as defined in the Canadian Physical Activity Guidelines (CPAG), physical activity levels were lower in the adult age groups where, for example, only 52.9% of seniors (65+ years) in WEC met these guidelines. Overall reported levels of inactivity were similar in WEC when compared to Ontario. Overall, only half of WEC residents are getting the recommended number of hours of sleep (7 to 10 hours). Adults (18 to 64 years) were more likely to report that they were not getting 7 to 10 hours of sleep than youth (12 to 17 years) and seniors (65+ years) (**Table 4**).

There were also local differences observed when considering food security in WEC. Over 1 in 10 households (10.8%) in WEC are moderately or severely food insecure while nearly 1 in 10 children (9.7%) in WEC are moderately or severely food insecure. Similarly, over 1 in 4 low-income households (27.4%) in WEC are moderately or severely food insecure. Low income households that were food secure was significantly lower compared to households that were middle and high income.

Table 4. Summary of chronic disease indicators in Windsor and Essex County and Ontario, 2015/16.

Characteristic	WEC	ON
Healthy Eating and Healthy Weights	2015/16	2015/16
Self-reported consumption of vegetables and fruits five or more times per day (%) ¹		
Youth (12-19)	18.8 ^c	23.4
Young Adults (20-44)	31.2	28.6
Older Adults (45-64)	24.0	27.8
Seniors (65+)	27.1	28.1
Overall	26.8	27.7
Self-reported as overweight or obese (%) ¹		
Youth (12-17)	32.8 ^c	23.6
Young Adults (18-44)	63.3	53.4
Older Adults (45-64)	71.8	68.6
Seniors (65+)	69.2	66.4
Overall	<u>64.5*</u>	58.3
Sugar sweetened beverage consumption in past week (adults) (%) ²		
Every day	28.7 (2015)	NA
Some days, but not every day	40.0 (2015)	NA
Moderately or severely food insecure (%) ³		
All Households	10.8 (2013/14)	NA

Characteristic	WEC	ON
Youth (12-17)	9.7 ^c (2013/14)	NA
Adults (18+)	10.8 (2013/14)	NA
Households by income that are food secure (%) ³		
Low Income (<\$30,000)	72.6* (2013/14)	NA
Middle Income (\$30,000-\$99,999)	94.5 (2013/14)	NA
High Income (≥\$100,000)	96.1 (2013/14)	NA
Physical Activity	2015/16	2015/16
Self-reported physical activity level classified as moderately active or active based on Canadian Physical Activity Guidelines (%) ¹		
Youth (12-17)	84.9	93.2
Young Adults (18-44)	77.1	77.2
Older Adults (45-64)	63.9	67.5
Seniors (65+)	52.9	50.9
Overall	68.7	70.3
Self-reported rate of being inactive (10 or more hours weekly during leisure time) (%) ¹		
Youth (12-17)	75.1	78.5
Young Adults (18-44)	73.7	77.2
Older Adults (45-64)	78.1	74.7
Seniors (65+)	83.3	82.0
Overall	76.9	77.3
Sleep	2015/16	2015/16
Seven to less than 10 hours per night usually spent sleeping (%) ¹		
Youth (12-17)	73.4	72.7
Young Adults (18-34)	48.5	54.9
Older Adults (35-64)	46.0	46.7
Seniors (65+)	55.1	52.0
Overall	50.6	51.9
Trouble going to sleep or staying asleep most or all of the time (%) ¹	20.2	16.1
Refreshing sleep most or all of the time (%) ¹	57.0	58.8
Difficulty staying awake most or all of the time (%) ¹	8.4	7.2

Source:

1 - Statistics Canada. Canadian Community Health Survey [2015/16].

2 - Institute for Social Research (York University). Rapid Risk Factor Surveillance System [2015].

3 – Statistics Canada. Canadian Community Health Survey [2013/14].

Notes: C – Estimate should be used with caution due to high sampling variability.

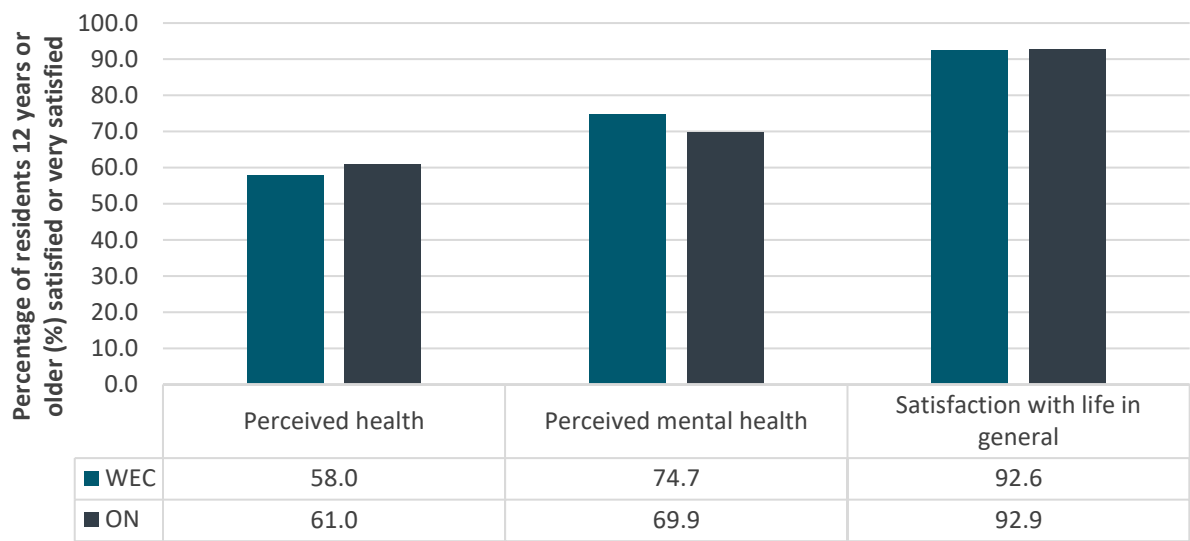
* Statistically significant difference when compared to Ontario.

Mental Health

General Mental Health and Well-being

The self-reported general mental health and well-being indicators are displayed in **Figure 11**. In 2017, the proportion of WEC residents who reported themselves as having “very good” or “excellent” health was 58.0%. Self-perceived mental health was reported as “very good” or “excellent” among 74.7% of the WEC population. Life satisfaction was generally high with 92.6% of WEC residents reporting being “satisfied” or “very satisfied” with their life. Flourishing mental health (high positive emotions and high positive functioning) was reported by 74.0% of WEC residents (Ipsos, 2017). Compared to residents from higher income households (\$65,000/year), residents from low-income households (less than \$30,000/year) were less likely to have flourishing mental health. Only 68.0% of residents in low-income households had flourishing mental health compared to 81.0% of residents in higher income households. Furthermore, residents from urban areas (Windsor, Tecumseh) (70.0%) were less likely to have flourishing mental health than residents from rural areas (Kingsville, Essex, Leamington, Pelee Island) (82.0%).

Figure 11. General mental health and well-being indicators in Windsor and Essex County and Ontario, 2017.

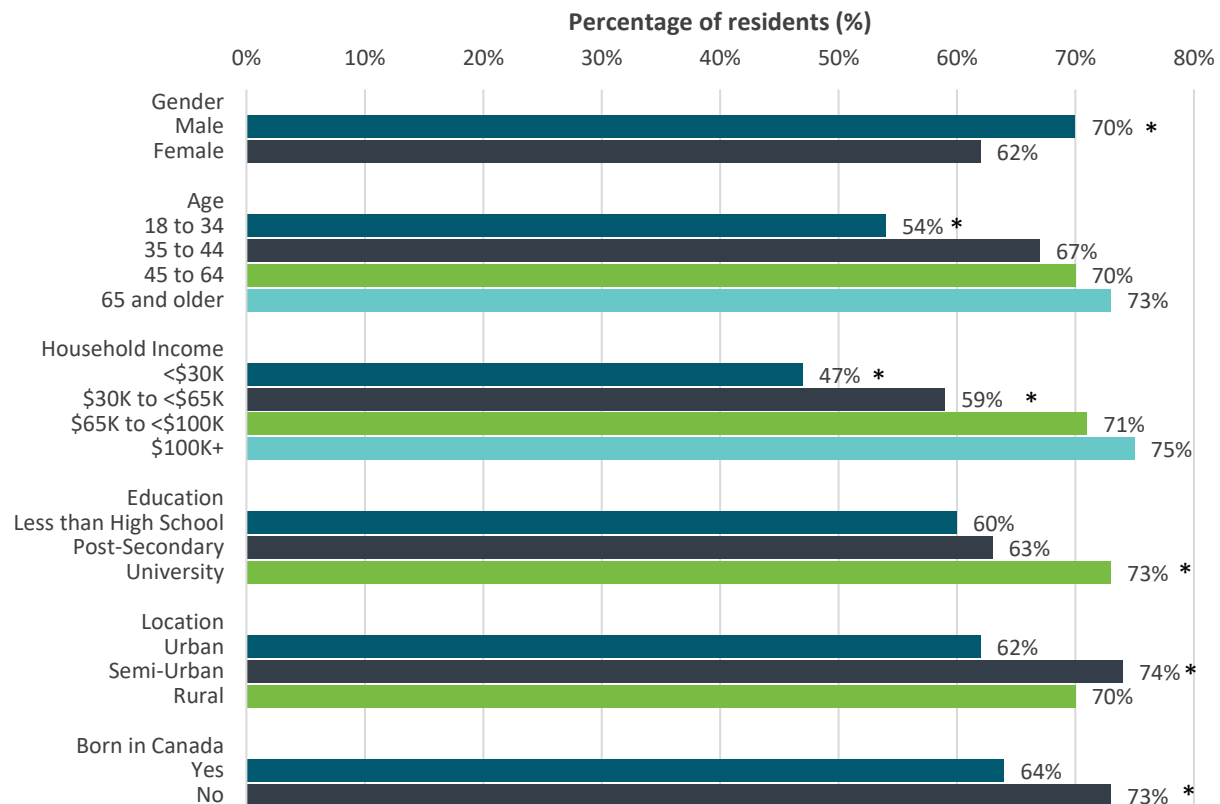


Source: Statistics Canada. Canadian Community Health Survey [2017].

Perceived Positive Mental Health

When self-perceived mental health status was assessed, the majority of residents (67%) in WEC indicated that their perceived mental health status was either “very good” or “excellent” (Ipsos, 2017). When perceived mental health status of WEC residents was assessed by demographic factors, the following results were found. Compared to men (70%) in WEC, self-perceived positive mental health was lower in women (62%) (**Figure 12**). Residents 18 to 34 years of age had significantly lower self-perceived positive mental health than the older age groups. Only 54% of residents 18 to 34 years of age had high self-perceived positive mental health. Residents from households with <\$65,000 had significantly lower self-perceived positive mental health than those residents from higher household income (\geq \$65,000). The proportion of residents reporting positive mental health was lowest in the lowest income category – less than half of the residents with a household-income of <\$30,000 reported having high positive self-perceived mental health. University education was associated with significantly higher perceived positive mental health compared to residents with a high school education or less. Residents from semi-urban municipalities (LaSalle, Lakeshore and Amherstburg) (74%) reported higher positive mental health perceptions than those residents living in rural (Essex, Kingsville, Leamington, Pelee Island) (62%) and urban (Windsor, Tecumseh) (70%) neighbourhoods. Immigrants (73%) were more likely to report higher levels of perceived positive mental health than non-immigrants (64%).

Figure 12. Perceived positive (very good and excellent) mental health by demographics in Windsor and Essex County, 2017.



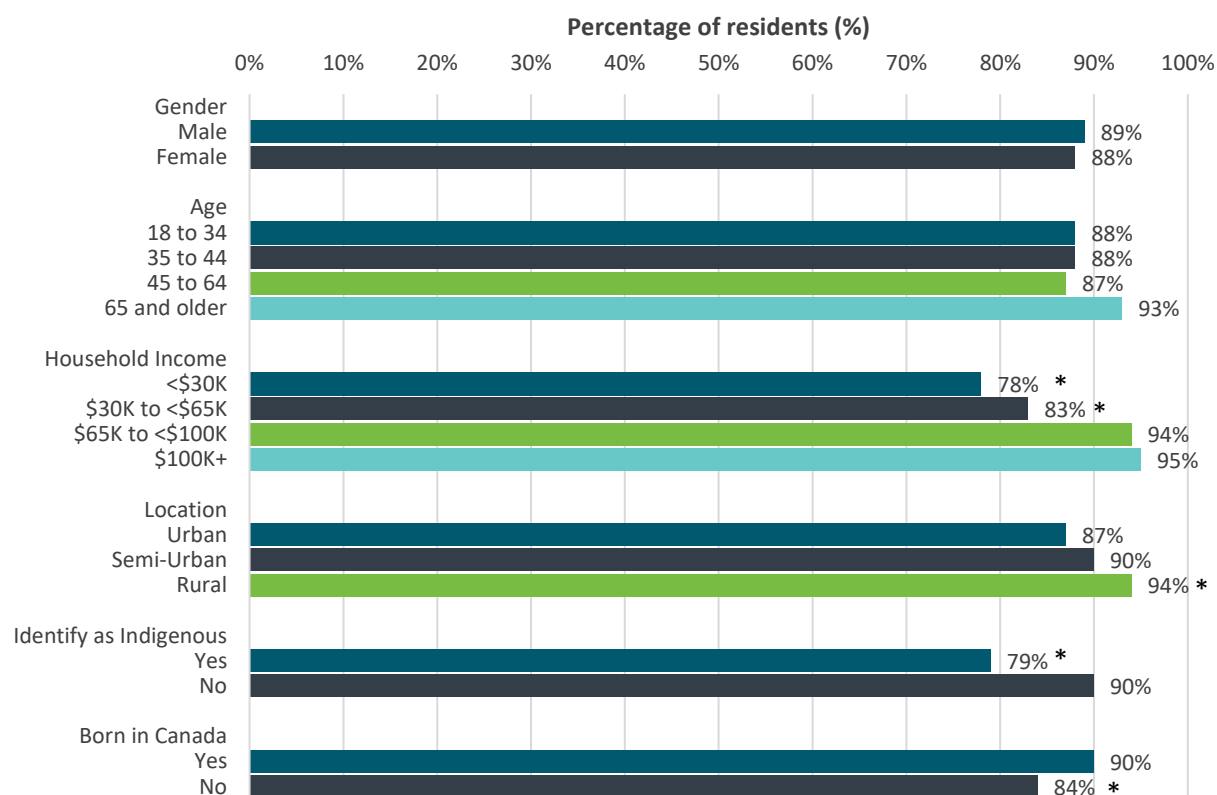
Source: Ipsos, Windsor-Essex Community Mental Health Survey [2017].

Note: * Statistically significant difference compared to other categories in demographic group.

Resiliency

The Connor-Davidson Resilience Scale was used to assess resiliency, which is the ability of people to adapt when faced with hardships and changes. The scale identified that 89% of residents in WEC have high resiliency, while nine percent of residents indicated moderate resiliency and two percent reported low resiliency. Likewise, the majority of residents (84%) reported the ability to demonstrate resiliency “often” or “nearly all of the time” when faced with adversity. **Figure 13** provides a breakdown of the scale by demographics. The proportion of residents with high resiliency was lower in those from households with an income <\$65,000 compared to residents from higher household incomes. Moreover, residents living in urban neighbourhoods (87%) were less resilient compared to those from rural (94%) communities. Resiliency was lower in WEC residents who identified as Indigenous than those who did not identify as Indigenous (79% vs 90%). Furthermore, WEC residents who were not born in Canada had lower resiliency (84%) compared to residents who were born in Canada (90%).

Figure 13. Proportion of residents in Windsor and Essex County with high resiliency by demographics, 2017.



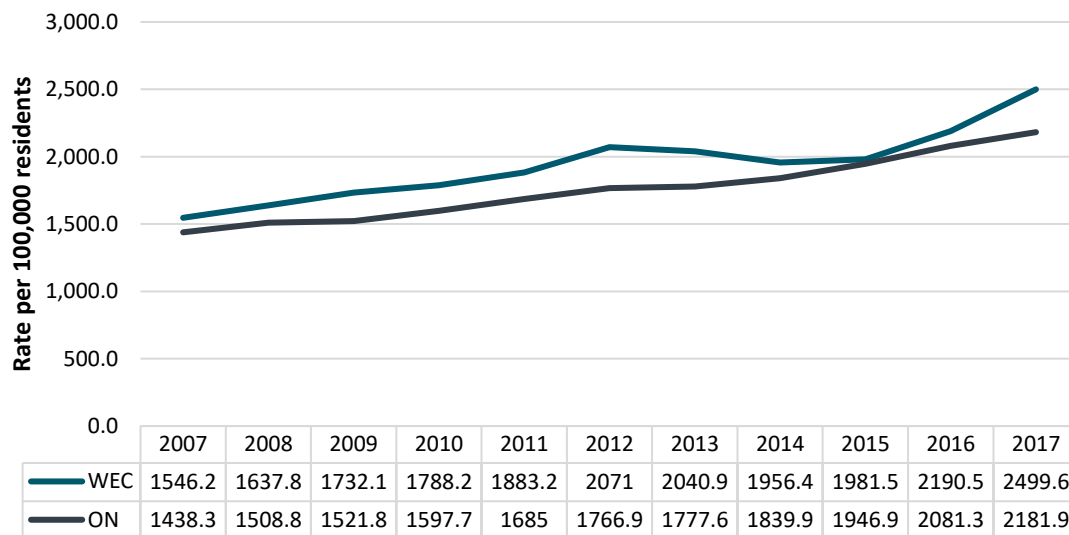
Source: Ipsos, Windsor-Essex Community Mental Health Survey [2017].

Note: * Statistically significant difference compared to other categories in demographic group.

Mental Health-Related ED Visits

The rate of ED visits for mental health-related events between 2007 and 2017 are reported in **Figure 14** for WEC and Ontario. Since 2007, the rate of mental health-related ED visits has increased by 62% in WEC, with 6,271 ED visits in 2007 compared to 9,956 ED visits in 2017. With the exception of 2015, WEC residents experienced a higher rate of mental health-related ED visits compared to Ontario from 2007 to 2017.

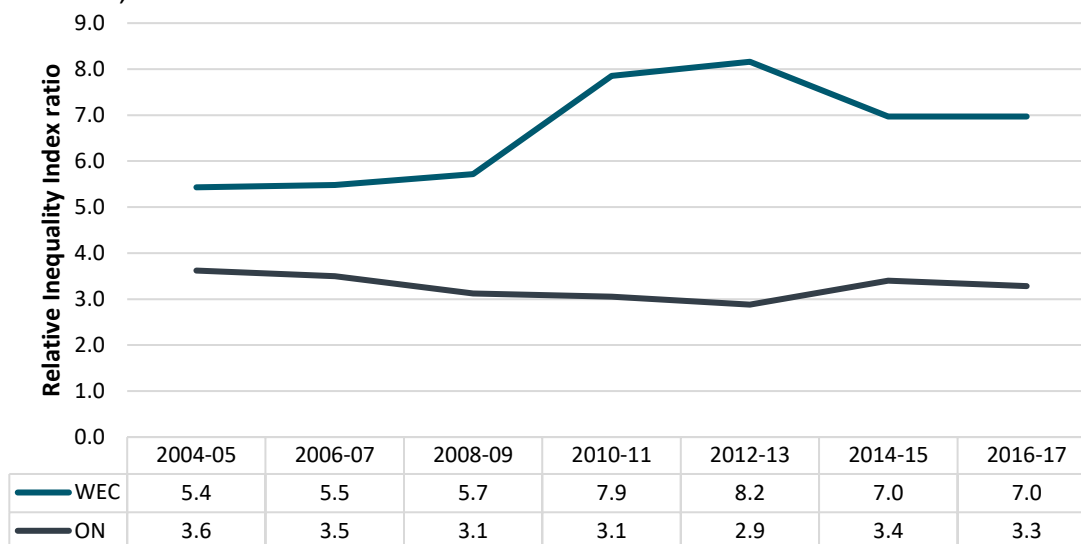
Figure 14. Rate of mental health-related ED visits in Windsor and Essex County and Ontario, 2007-2017.



Source: Canadian Institute of Health Information. Ambulatory Emergency External Cause [2007-2017].

Figure 15 shows an assessment of health inequality on a measure of poverty (material deprivation) with respect to mental health ED visits in WEC and Ontario. The relative index of inequality (RII) is a commonly used measure of the extent to which the occurrence of an outcome changes with socioeconomic status. In other words, it is a summary measure that indicates the level of inequality in a population. An RII ratio greater than 1 indicates a higher occurrence of the health outcome in the most impoverished. The findings show that a high level of inequality (statistically significant) was present with respect to this health outcome - the occurrence of mental health ED visits was significantly higher in those who were from the impoverished areas. In 2017, the RII ratio indicated the rate of mental health-related ED visits was seven-times greater among WEC residents who were from the least advantaged communities. This level of inequality was significantly higher in WEC compared to Ontario since 2008/2009.

Figure 15. Relative index of inequality of mental health ED visits in Windsor and Essex County and Ontario, 2004-2005 to 2016-2017.



Source: Public Health Ontario. Snapshots: Health Inequities in Mental Health ED Visits [2004-2017]

Note: Inequality was assessed on the material deprivation dimension (a poverty measure). The lower bound of the 95% confidence interval (not shown) was greater than 1 for all years for WEC and Ontario, indicating that the inequality is statistically significant.

Intentional Self-Harm ED Visits

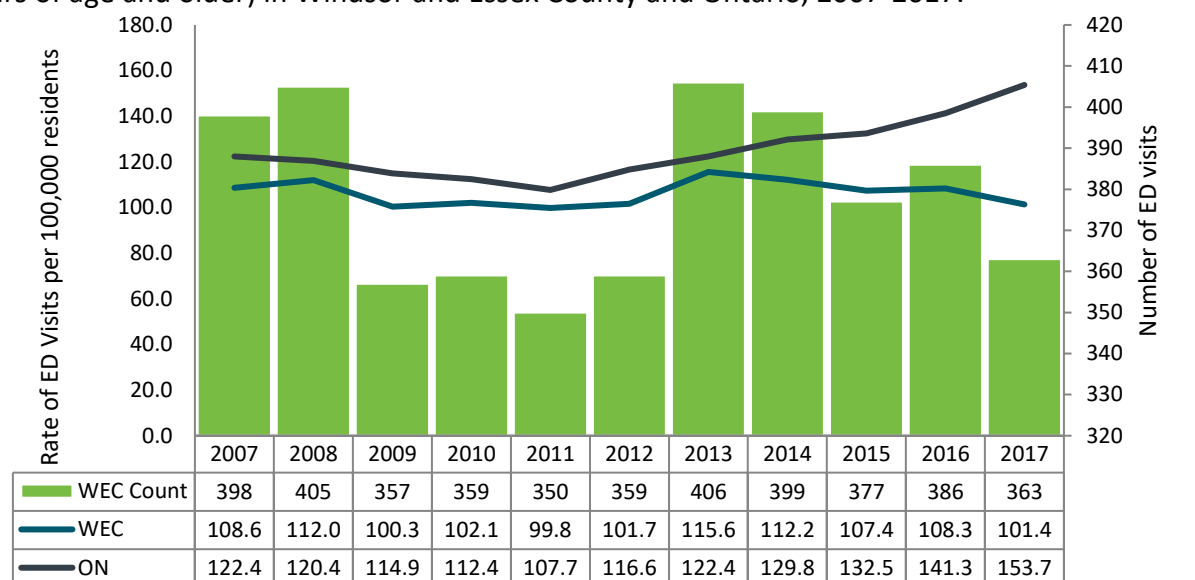
The total number and the rate of ED visits for intentional-self harm injuries between 2007 and 2017 are reported in **Figure 16** for WEC and Ontario. Intentional self-harm is the direct injury of one's body. From 2007 to 2011, the rate of self-harm ED visits declined by 8.1% in WEC and 12.0% in Ontario. In 2013, the rate of self-harm ED visits was at a 6-year high in WEC, although the local rate returned to levels comparable to the years prior to 2013. However, in Ontario, from 2011 to 2017 the rate of self-harm ED visits rebounded with a 31.8% increase. There were differences in ED visits for self-harm according to gender and age groups (WECHU, 2018e). When examining the average number of ED visits for intentional self-harm injuries in WEC between 2007 and 2017, 60.2% of visits were women and 39.8% were men. Self-harm ED visit rates in WEC were on average 53.1% higher among women than men annually. The age-specific rates of ED visits for intentional-self harm in WEC has increased by 29.0% among youth (10 to 19 years) between 2012 and 2017. That is, the rate was 1.3-times greater in 2017 compared to 2012 (For more information on the age and gender please see the *Intentional Self-Harm 2007-2017 Report* from the WECHU).

The top three causes of intentional self-harm ED visits in WEC were:

- 1) self-poisoning by and exposure to antiepileptic, sedative-hypnotic, anti-parkinsonism, and psychotropic drugs (e.g. benzodiazepines);
- 2) self-harm by sharp object (e.g. cutting); and

- 3) intentional self-poisoning by and exposure to non-opioid analgesics, antipyretics, and antirheumatics (e.g. acetaminophen).

Figure 16. Rate and counts of ED visits for intentional self-harm injuries in the population (10 years of age and older) in Windsor and Essex County and Ontario, 2007-2017.



Source: Canadian Institute of Health Information. Ambulatory Emergency External Cause [2007-2017].

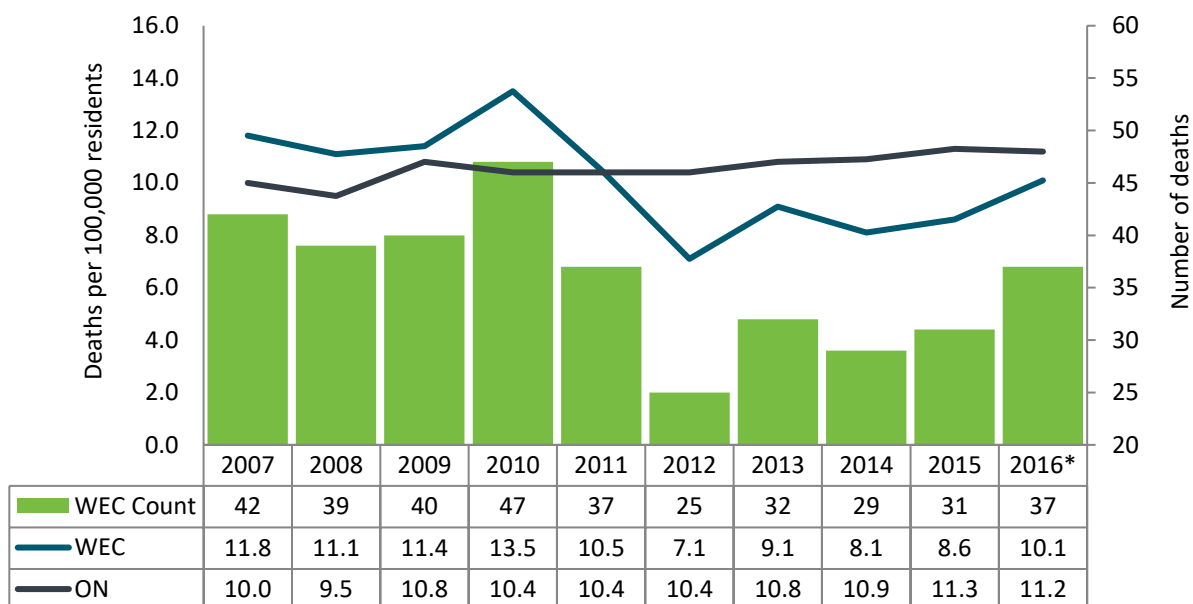
Intentional Self-Harm Mortality

The rate and counts of intentional self-harm injury deaths are reported in **Figure 17** for Windsor-Essex County and Ontario (2007-2016). The rate of intentional self-harm deaths has remained relatively unchanged in Ontario during this period. In 2010, WEC experienced a 4-year high in self-harm deaths with 47 cases. Although there was a decrease in self-harm deaths from 2011 to 2012 in WEC, the number of cases increased from 2013 to 2016. Preliminary data from the Coroner's Office show that in 2016 there were 37 deaths caused by intentional self-harm in WEC. Residents who died due to self-harm between 2007 and 2016 were predominantly men with the mortality rate being, on average, 3.3-times greater in men compared to women (WECHU, 2018e). In 2017, residents aged 45 to 64 years old had the greatest age-specific rate of intentional self-harm mortalities (For more information on the age and gender please see the *Intentional Self-Harm 2007-2017 Report* from the WECHU).

The top three causes of intentional self-harm deaths in WEC were:

- 1) self-harm by hanging, strangulation, and suffocation;
- 2) self-poisoning by and exposure to other gases and vapours; and
- 3) self-harm by rifle, shotgun, and larger firearm discharge.

Figure 17. Rate and counts of intentional self-harm injury mortality in Windsor and Essex County and Ontario, 2007-2016.



Source: Office of the Chief Coroner & Ontario Forensic Pathology Service [2007-2016].

Note: * Preliminary data

Environmental Health

The environmental health-related indicators for the WEC population are discussed below. They include health impacts related to climate change (extreme temperature, weather and UV exposure), air quality, vector-borne diseases, and indoor radon.

Extreme Temperature

Between 1941 and 2012, the annual average temperature for the City of Windsor increased by almost 1°C (City of Windsor, 2012). The annual baseline (1981 to 2010) mean temperature was 9.9°C with seasonal mean temperatures ranging from -2.5°C in the winter to 21.8°C in the summer. The average number of heat waves (three consecutive days with temperatures exceeding 32°C) per year between 1971 and 2000 in WEC was 0.66 heat wave events, which was the highest in Ontario (Gough et al., 2016). In 2017 and 2018, WEC experienced 4 days and 13 days with maximum temperatures at or above 32°C, respectively.

Extreme Temperature-Related Illness

From 2007 to 2017, the rate of heat-related ED visits in WEC ranged from 6.8 to 13.8 cases per 100,000 residents (**Figure 19**) (CIHI, 2018). Between 2011 and 2016, notably, the rise in heat-related ED visits correlates with the record heat days experienced during these years. This indicates that it is possible to expect an increase in heat-related ED visits as the number of record heat days increases in WEC. Additionally, heat-related ED visits consistently affected males between the ages of 25 to 44 years with a rate of 25.2 ED visits per 100,000 residents in 2016. In comparison, cold-related illnesses have remained generally low between 2007 and 2017.

Extreme Weather

The WEC region experienced a consistent increase in annual precipitation, with a 1% to 3% increase per decade from 1970 to 2000 (City of Windsor, 2012). In WEC, annual mean precipitation is currently 918.1 mm (City of Windsor, 2018). Heavy rainfall lasting for approximately 30 minutes increased by 5% per decade from 1971 to 2000 in Windsor. The number of days where rainfall has exceeded expected amounts has especially increased during the months of May, June, and July by 7% per decade since 1970. WEC has experienced more intense rainfall events over the past several years. Recently in 2016 and 2017, events of extreme precipitation occurring in WEC have led to widespread flooding in the region (Public Safety Canada, 2016). These storm events were classified as 100-year storms resulting in thousands of flooded homes and abandoned vehicles on roadways.

Sun Safety and UV

In 2017, approximately two in five adults (40.2%) (18+) reported a sunburn in the last 12 months (RRFSS, 2017). Similarly, only 39.3% reported wearing protective clothing from the sun and only 35.4% reported using sunscreen regularly.

Outdoor Air Quality

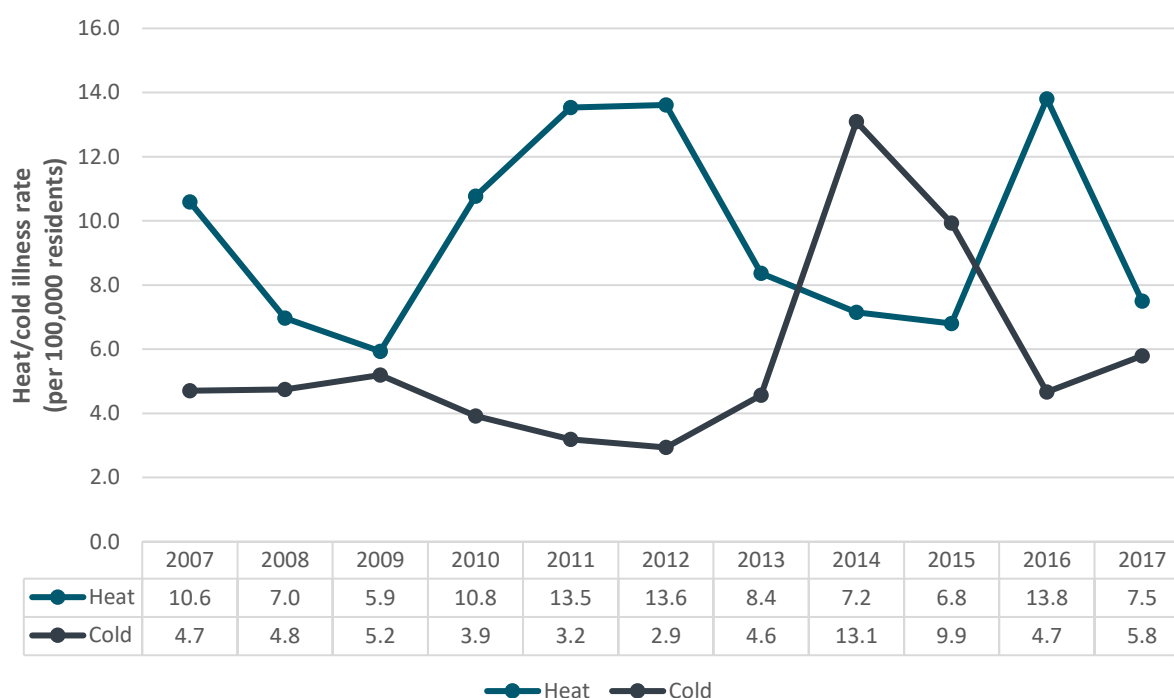
The Air Quality Health Index (AQHI) is a measure of adverse health event risk in the population due to air pollutant concentrations. A high-risk AQHI alert is issued to inform residents of the elevated health risk with exposure to air pollution levels. WEC received five Special Air Quality Statements (SAQS) in 2018 indicating that a high-risk AQHI alert was expected to last for one to two hours. Additionally, a Smog and Air Health Advisory (SAHA) was issued in 2018 when the high-risk AQHI alert was expected to persist for at least three hours (**Figure 18**). The annual median number of days with smog advisories issued between 2003 and 2014 in WEC was 13 (range: 0 to 46 advisories) (MOECP, 2016).

Figure 18. Number of days under a smog advisory in Windsor and Essex County, 2003-2014.



Source: Ministry of the Environment, Conservation and Parks [2003-2014].

Figure 19. Rate of ED visits for heat and cold illness in Windsor and Essex County, 2007-2017.

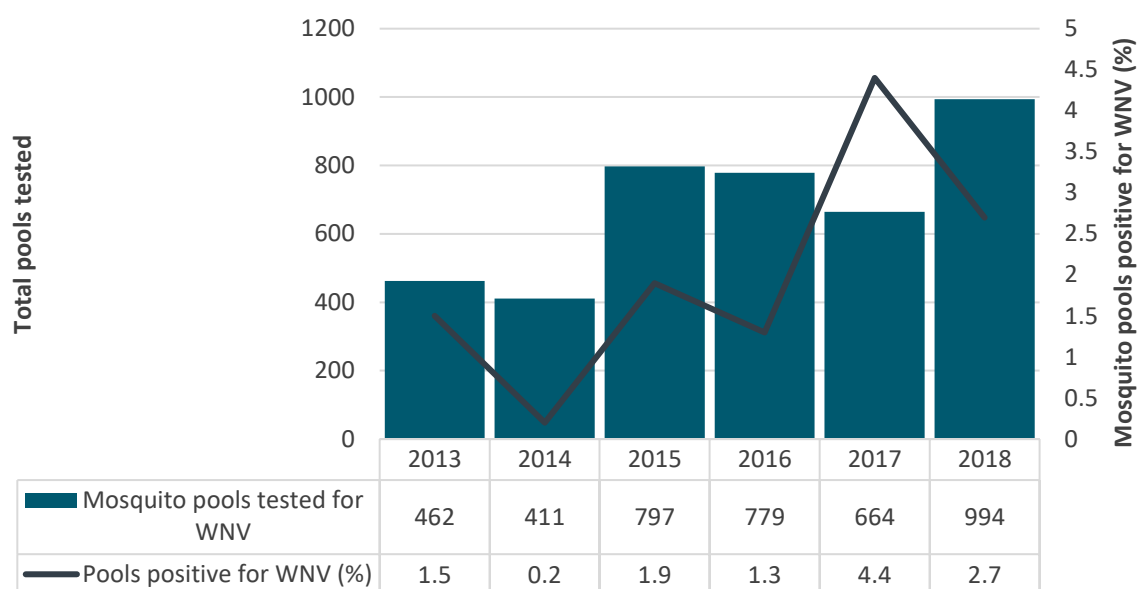


Source: Canadian Institute of Health Information. Ambulatory Emergency External Cause Database [2007-2017].

Mosquito Surveillance

During surveillance weeks 21 to 41 of 2018 (May to September), 26 mosquito pools tested positive for West Nile virus (WNV) (**Figure 20**). Since 2016, invasive species such as *Ae. aegypti* and *Ae. albopictus* mosquitoes, vectors of the Zika virus, have been discovered in the region. In 2017, the WECHU responded to the emergence of invasive mosquito species with annual enhanced mosquito surveillance. This process includes the deployment of traps across the City of Windsor. The traps deployed in 2018 first identified *Ae. albopictus* mosquitoes in the month of May and eventually captured a total of 1,129 adult mosquitoes and 314 eggs of this invasive species during the season (WECHU, 2018a). Please refer to the Infectious and Communicable Diseases section for details regarding human cases of WNV.

Figure 20. Mosquitoes tested for West Nile virus in Windsor and Essex County, 2013-2018.

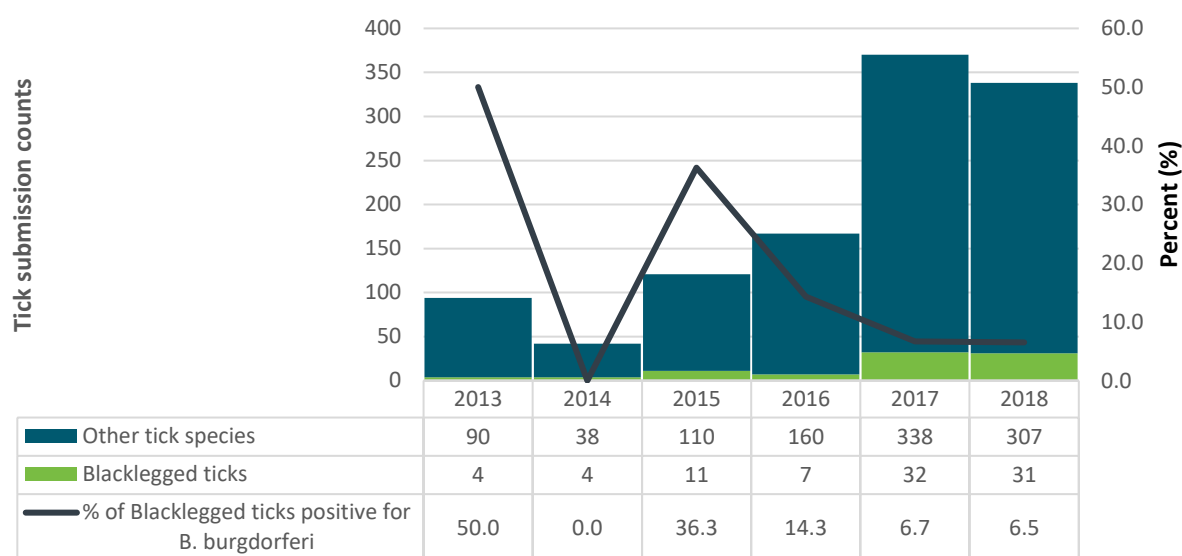


Source: Windsor-Essex County Health Unit. Internal database. Provided by Entomogen Inc. [2013-2018].

Tick surveillance

In 2018, the total number of ticks reported to the WECHU from the public, via passive surveillance, was 338, with 31 ticks identified as the blacklegged species (**Figure 21**). Two of these blacklegged ticks tested positive for the bacteria (*Borellia burgdorferi*) that causes Lyme disease. From 2013 to 2017, the total number of ticks reported to the WECHU from the public increased from 94 to 370 ticks. Active surveillance (tick dragging) performed by the WECHU on May 17, 2018 identified two blacklegged ticks at Chrysler Greenway and Ojibway Prairie Nature Reserve each. On October 30, 2018, the WECHU identified eight adult blacklegged ticks. This finding was alarming since no blacklegged ticks had been captured in previous years. Additionally, no ticks had been captured after the month of May in previous years. Lone star ticks, whose bite can lead to alpha-gal allergy (or meat allergy), are another species identified in the WEC area, with 14 such ticks submitted to the WECHU by the public between 2015 and 2018. Please refer to the Infectious and Communicable Diseases section for details regarding human cases of Lyme disease.

Figure 21. Ticks reported to the Windsor-Essex County Health Unit, 2013-2018.

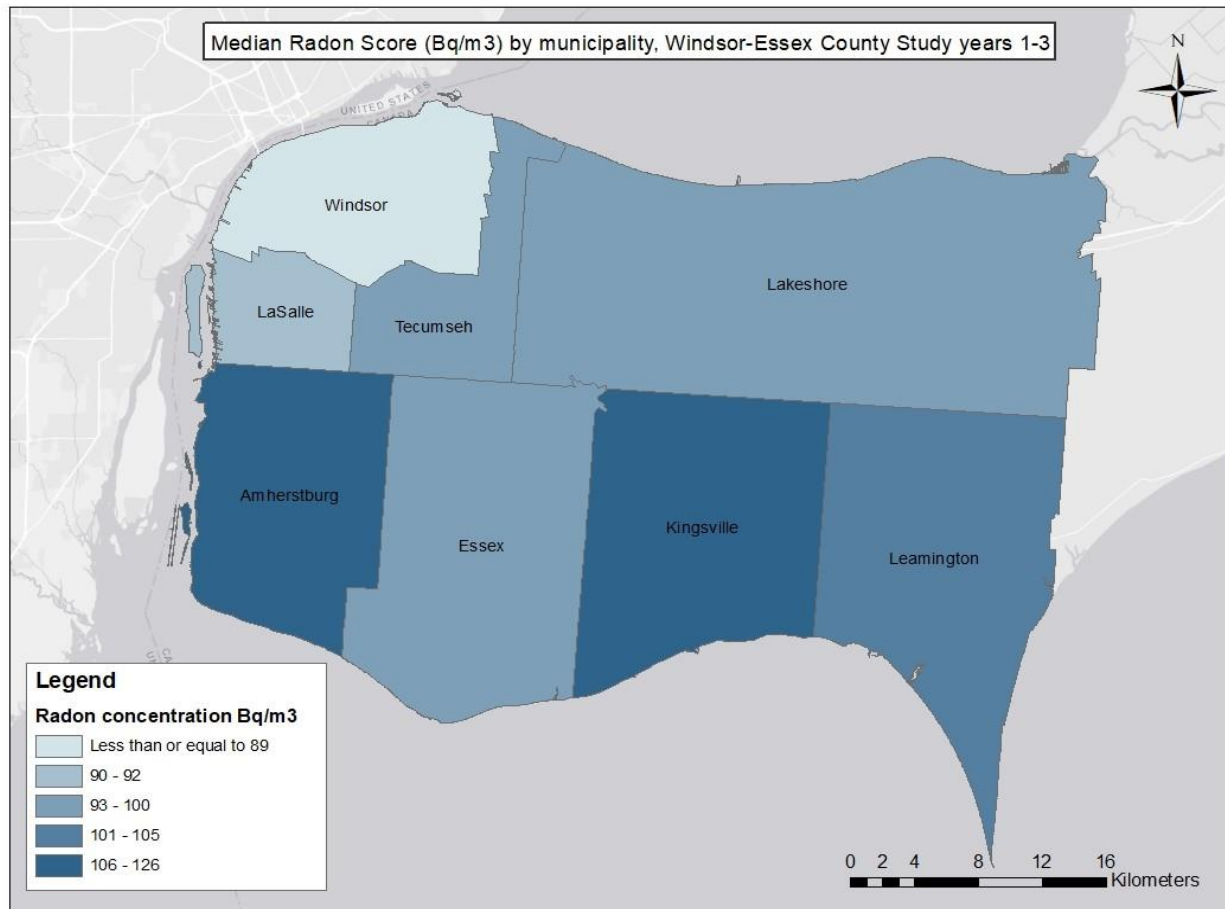


Source: Windsor-Essex County Health Unit. Internal database [2013-2018].

Indoor Air Quality

While there are many factors that can affect indoor air quality (i.e., gases, microbial, particulates, etc.) this section will focus on radon. The WECHU completed a three-year study and awareness campaign in 2018 called *Radon: Know Your Level* (WECHU, 2018d). The study found that 11% of participating homes in WEC had indoor radon levels above the Canadian guideline of 200 Bq/m³. Essex County had a significantly greater proportion of homes with levels above 200 Bq/m³ (18%) compared to the City of Windsor (6%). The average indoor radon level for WEC, when all 3 years of study data were combined, was 94.1 Bq/m³ (**Figure 22**). Amherstburg, Kingsville, Leamington, and Tecumseh had average radon concentrations 12 to 26 Bq/m³ higher than average radon concentrations in WEC. Newer builds (2011 or after) had the highest average indoor radon concentrations in this study. Homes with two levels (i.e., basement and main floor) had 24% and 19% higher average radon levels compared to three and four-level homes, respectively.

Figure 22. Median radon levels (Bq/m³) in Windsor and Essex County, 2015-2018.



Source: Windsor-Essex County Health Unit. Radon: Know Your Level Report [2015-2018].

Maternal and Child Health

Maternal and child health indicators for the WEC population are summarized in **Table 5**. These indicators highlight how a mother's health and health behaviours at the preconception and pregnancy stages play an important role in the healthy growth and development of newborns, children, and the health of families overall. A detailed report from the WECHU will be released in the upcoming months that will further highlight the health and well-being of mothers and their infants.

Maternal Health

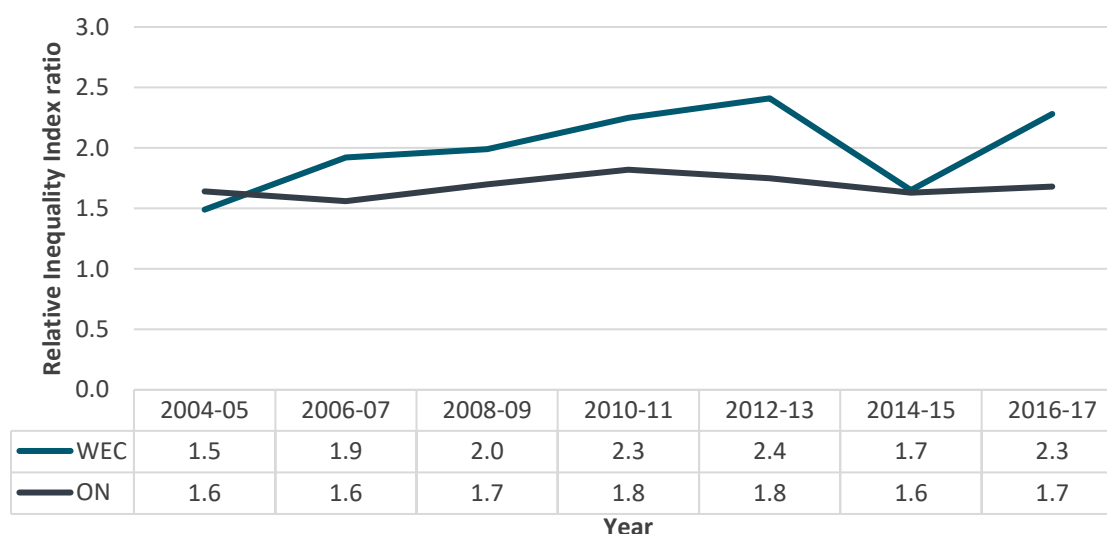
The data show that seven percent of WEC mothers smoke during pregnancy. The proportion of women who were exposed to alcohol during pregnancy (1.4%) in 2018 was significantly lower in WEC compared to Ontario (2.5%). Exposure to alcohol during pregnancy increases the baby's risk of Fetal Alcohol Spectrum Disorder. Additionally, even though adequate folic acid intake is needed for optimal fetal development, only 7.7% of WEC mothers took folic acid prior to pregnancy and seven percent took folic acid prior to and during pregnancy. When it comes to substance use during pregnancy, WEC rates are significantly lower than the Ontario average. With regards to the mental health of new moms in WEC, 1 in 5 had anxiety, depression or postpartum depression. This is consistent with the Ontario average.

Reproductive Health Outcomes

The pregnancy rate (in women of reproductive age – 15 to 49 years of age) and the birth rate in WEC are significantly lower compared to the rates for Ontario. The rate of teenage pregnancies in WEC has decreased significantly between 2006 and 2016. The teenage pregnancy rate in 2016 was comparable to that of Ontario. When compared to Ontario, women in WEC were younger when they had their first infant (27.9 years). The rate of other health outcomes such as the rate of babies born small for gestational age (8.7%) and those that are full-term low birth weight are significantly lower in WEC compared to Ontario. In 2018, there were 7.5 preterm births per 100 live births in WEC which is similar to the rate of Ontario (8.1 preterm births per 100 live births). In 2012, the infant mortality rate in WEC (4.7 deaths per 1,000 live births) was similar to the rate of Ontario (4.8 deaths per 1,000 live births).

The relative index of inequality (RII) is a commonly used measure of the extent to which the occurrence of an outcome changes with socioeconomic status. In other words, it is a summary measure that indicates the level of inequality in a population. An RII ratio greater than 1 indicates a higher occurrence of the health outcome in the most impoverished. **Figure 23** shows the impact of RII on low birth weight in WEC. The findings highlight that the occurrence of low-birth weight was significantly higher in women living in the impoverished areas.

Figure 23. Relative index of inequality of low birth weight in Windsor and Essex County and Ontario, 2004-2005 to 2016-2017.



Source: Public Health Ontario. Snapshots: Low Birth Weight Health Equity [2004-2005 to 2016-2017].

Note: Inequality was assessed on the material deprivation dimension (a poverty measure). The lower bound of the 95% confidence interval (not shown) was greater than 1 for all years for WEC and Ontario, indicating that the inequality that is statistically significant.

Breastfeeding

The proportion of mothers that reported an intention to breastfeed (exclusively or in combination with breast-milk substitute) was significantly lower in WEC (89.6%) than in Ontario (94.0%). Based on a 6-month retrospective survey of mothers in WEC with babies born in 2017, 93.4% of mothers said they had initiated breastfeeding. However, the proportion of mothers that were breastfeeding declined markedly within the first 6-months. At 6-months postpartum, only 60.1% of mothers were breastfeeding (any form), and only 15.5% were exclusively breastfeeding.

Risk Factors for Healthy Child Development

Risk factors for healthy child development in families with infants less than seven weeks of age were assessed as part of the Healthy Babies Healthy Children screening conducted by the WECHU. The results from these screenings show that the mothers in WEC are at a significantly higher risk for healthy child development on almost all measures. For example, there is a significantly greater proportion of infant mothers who are single parents in WEC (6.2%) than in Ontario (4.7%). In WEC, there is also a significantly higher number of parents involved with child protection services compared to Ontario. There were significantly more mothers and/or infants who had no designated primary care provider in WEC (3.9%) compared to Ontario (3.0%). Lastly, with respect to school readiness, one in four kindergarten students were vulnerable in at least one of the five early development domains (i.e., physical health and well-being,

communication skills and general knowledge, emotional maturity, social competence, and language and cognitive development). The proportion of students who are vulnerable by each domain is displayed in **Table 5**.

Table 5. Summary of family health indicators in Windsor and Essex County and Ontario, 2014-2018.

Characteristic	WEC	ON
Maternal Health	2018	2018
Smoking during pregnancy (%) ¹	7.0	6.4
Folic acid use prior to pregnancy (%) ^{1,2,N}	7.7	33.5 (2016)
Folic acid use prior to and during pregnancy (%) ^{1,2,N}	7.0	31.3 (2016)
Alcohol use during pregnancy (%) ¹	<u>1.4*</u>	2.5
Drug use (illicit drugs or inappropriate medications) during pregnancy (%) ¹	<u>2.0*</u>	2.6
New moms with mental health concerns including anxiety, depression or a history of postpartum depression ¹	19.3	19.3
Reproductive Health Outcomes	2017	2017
Crude birth rate (per 1,000 residents) ²	<u>9.3*</u>	9.6
Pregnancy rate among females aged 15 to 19 years old (per 1,000 residents) ²	15.4 (2016)	14.6 (2016)
Pregnancy rate among females aged 15 to 49 years old (per 1,000 residents) ²	<u>48.8*</u> (2016)	53.1 (2016)
Average age of mother at birth of first infant (years) ²	<u>27.9*</u>	29.5
Sex ratio of live births (males per 100 females) ²	105.0	105.3
Preterm births (per 100 live births) ²	7.5	8.1
Small for gestational age (per 100 live births) ²	<u>8.7*</u>	9.7
Large for gestational age (per 100 live births) ²	10.1	9.5
Low birth weight (<2.5 kg) (per 100 live births) ²	6.3	7.0
Full-term low birth weight (per 100 live births) ²	<u>1.6*</u>	2.1
High birth weight (≥4.5 kg) (per 100 live births) ²	1.4	1.4
Multiple live births (per 100 live births) ²	3.3	3.2
Stillbirths (per 1,000 live births) ²	9.8	8.9
Therapeutic abortions among females aged 15 to 49 years old (per 1,000 residents) ^{3,N}	5.3	11.9 (2016)
Infant mortality (per 1,000 live births) ⁷	4.7 (2012)	4.8 (2012)
Breastfeeding^N	2017	2017
Mothers who had an intention to breastfeed at birth (%) ¹	<u>89.6*</u> (2018)	94.0 (2018)
Breastfeeding initiation rate (per 100 births) ⁴	93.4	NA
Any breastfeeding duration (%) ⁴		
2 months postpartum	77.0	NA
6 months postpartum	60.1	NA

Characteristic	WEC	ON
Exclusive breastfeeding duration (%) ⁴		
2 months postpartum	37.0	NA
6 months postpartum	15.5	NA
Risk Factors for Healthy Child Development	2017	2017
Infant's mother is a single parent (%) ⁵	<u>6.2*</u>	4.7
Infants with families in need of newcomer support (%) ⁵	<u>1.8*</u>	4.1
Infants with families who have concerns about money (%) ⁵	<u>1.8*</u>	3.5
Involvement with child protection services (%) ⁵	<u>6.6*</u>	3.9
No designated primary care provider for mother and/or infant (%) ⁵	<u>3.9*</u>	3.0
No OHIP number for mother (%) ⁵	2.3	2.8
Parent or partner with disability (%) ⁵	1.2	1.0
Parent or partner with mental illness (%) ⁵	<u>16.3*</u>	17.9
Child Health	2014/15	2014/15
School readiness: kindergarten students (2014/15) who had vulnerabilities in the following domains: ^{6,N}		
Physical health and well-being (%)	12.6	16.1
Communication skills and general knowledge (%)	7.4	10.2
Emotional maturity (%)	10.7	12.3
Social competence (%)	8.3	10.7
Language and cognitive development (%)	7.0	6.7
Have at least one vulnerability (%)	24.9	29.4

Sources:

- 1 – Better Outcomes Registry and Network (BORN) Information System [2018].
- 2 – Public Health Ontario. Snapshots: Reproductive Health [2016-2017].
- 3 – Ontario Ministry of Health and Long-Term Care. Therapeutic Abortion Summary Report. Distributed to IntelliHEALTH Ontario [2016-2017].
- 4 – Windsor-Essex County Health Unit. Baby Friendly Initiative (BFI) Online Tool [2017].
- 5 – Public Health Ontario. Snapshots: Risk factors for healthy child development [2017].
- 6 – Offord Centre for Child Studies. Early Development Instrument (EDI): Results for Windsor and Essex County [2014/2015].
- 7 – Ontario Ministry of Health and Long-Term Care. Vital Statistics Birth and Death Cube Reports [2007-2012].

Notes: Comparisons to the most recent year with data were considered when recent provincial was not available.

* Statistically significant difference between Windsor and Essex County and Ontario estimates.

N – Statistical significance testing was not performed.

NA – Not available.

Oral Health

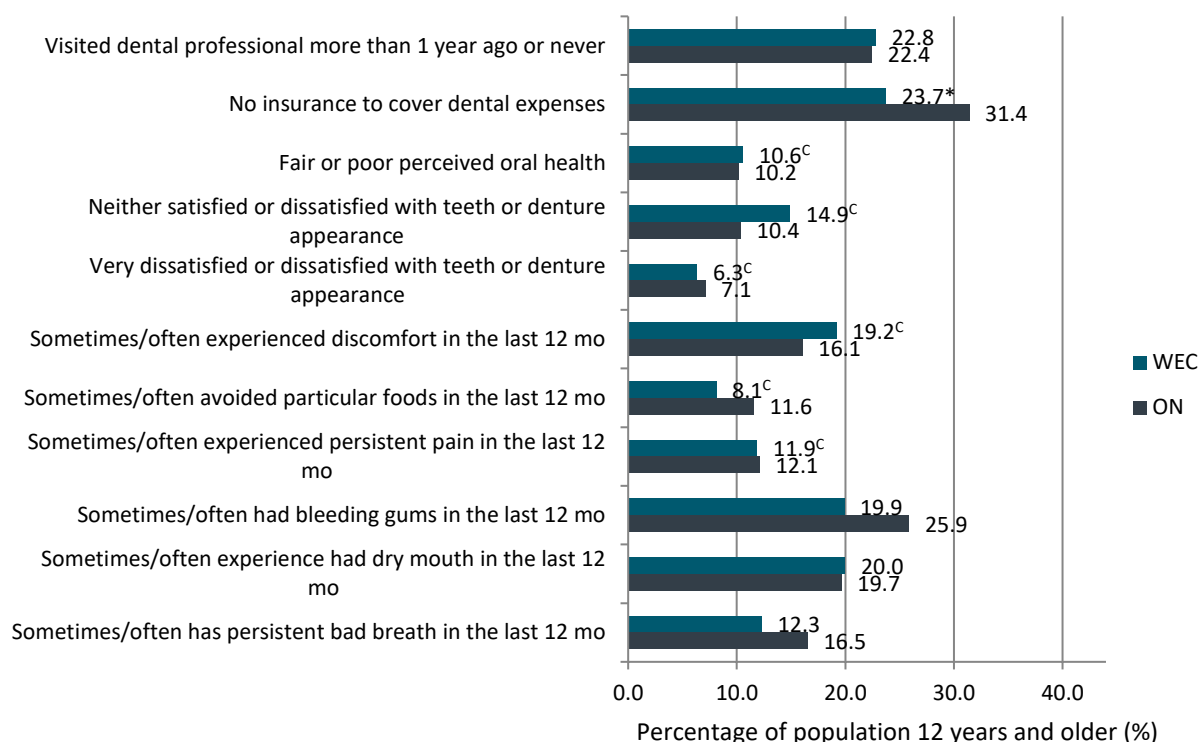
According to results from the CCHS (2017), one in ten residents 12 years of age and older reported that their perceived overall oral health was either “fair” or “poor” (**Figure 24**). Approximately 79% of residents reported that they are either “satisfied” or “very satisfied” with the appearance of their teeth/dentures.

Regarding problems with the mouth, 19.2% of residents stated that they “sometimes” or “often” experience some discomfort when eating food. Moreover, approximately one in five residents stated that they “sometimes” or “often” had bleeding gums in the past year. A similar proportion of residents reported experiencing dry mouth “sometimes” or “often” in the past year (19.8%), and 12.3% stated that they experience persistent bad breath “sometimes” or “often” in the past year.

Approximately one in five residents (22.8%) stated that they had either never visited a dental professional, or that the last time they did visit one was more than a year ago. In seniors, this proportion was 32.1% which was higher than all other age groups.

Cost was a barrier to access to a dental professional in the past year for 17.8% of residents in WEC. The proportion of seniors reporting the same outcome was higher, with approximately one in five seniors reporting cost as a barrier (21.5%). Overall, 23.7% of WEC residents lacked dental insurance that covered all or part of the cost of seeing a dental professional. As expected, coverage was especially low in the 65+ year age group with almost half of seniors in WEC (47.7%) reporting that they have no dental coverage.

Figure 24. Oral health status of residents in Windsor and Essex County and Ontario, 2017.



Source: Statistics Canada. Canadian Community Health Survey [2017].

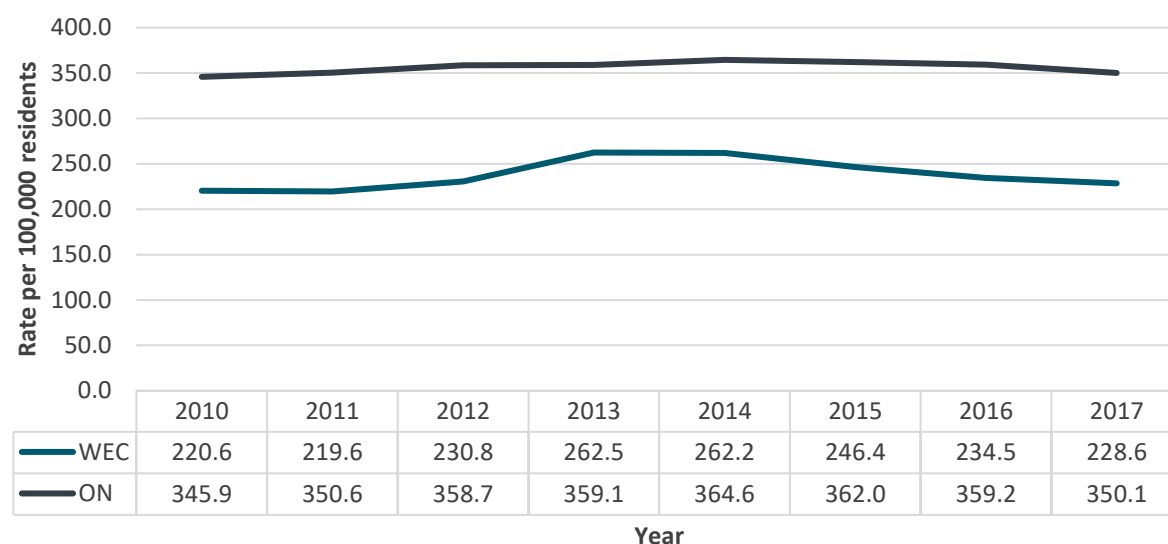
Notes: C – Estimate should be interpreted with caution due to high sampling variability.

*Statistically significant difference between Windsor and Essex County and Ontario estimates.

ED Visits for Oral Health Issues

The rate of visits to the ED for oral health-related conditions per 100,000 residents is presented in **Figure 25**. In 2017, there were 899 visits to the ED for such issues, corresponding to a rate of 228.6 visits per 100,000 residents.

Figure 25. Rate of ED visits for oral health-related conditions in Windsor and Essex County and Ontario, 2010-2017.



Source: Canadian Institute of Health Information. Ambulatory Emergency External Cause Database [2010-2017].

School Screenings

The following school screening results for WEC use information extracted from the Oral Health Information Support System (OHISS) (2011/2012 to 2016/2017 school years) to describe the oral health status of children in JR Kindergarten to Grade 8. Of the JR Kindergarten, SR Kindergarten, and Grade 2 children in publicly funded schools in WEC, approximately 91% were screened through a school screening program offered by the WECHU. The remaining nine-percent were either absent or were excluded during the day of the screening.

A summary of the core indicators for oral health prescribed by APHEO are reported in **Table 6** along with the observed trend of these measures from 2011/2012 to 2016/2017. Each oral health indicator listed below shows a negative trend for children in WEC with the exception of moderate or severe fluorosis, which remained unchanged.

Overall, the school screening results demonstrate that children in WEC have greater oral health needs compared to the rest of the province and that the oral health of children in WEC has worsened over the time period examined by this report. Please see the *Oral Health Report 2018 Update* (WECHU, 2018c) for more information.

Table 6. Trends of the core indicators for oral health as identified by APHEO, Windsor and Essex County, 2011-2012 to 2016-2017.

Indicator	2011 2012	2012 2013	2013 2014	2014 2015	2015 2016	2016 2017	Overall Trend
deft/DMFT index*	1.02	1.09	1.13	1.10	1.38	1.52	49% ↑
Caries-free children (%)*	77%	75%	73%	73%	69%	67%	13% ↓
Children with urgent dental needs (%)	7.6%	7.3%	8.7%	11.5%	10.8%	11.9%	57% ↑
Children with decay and/or urgent dental needs (%)	9.9%	9.7%	11.8%	15.1%	14.1%	14.9%	51% ↑
Children eligible for topical fluorides (%)	14.9%	26.5%	36.5%	38.1%	40.3%	49.9%	235% ↑
Children eligible for fissure sealants (%)	2.3%	2.6%	3.3%	4.4%	6.0%	10.8%	370% ↑
Fluorosis Index – moderate or severe fluorosis (%)**	0	0	0	0	0	0	0% -

Source: Ministry of Health and Long-Term Care. Oral Health Information Support System (OHISS) [2011-2012 to 2016-2017].

Notes:

*At school entry (kindergarten).

**This indicator refers to children with a score of 3 (moderate) or 4 (severe) on the 0-4 score (Dean's) fluorosis index. It is a modified version of the APHEO indicator.

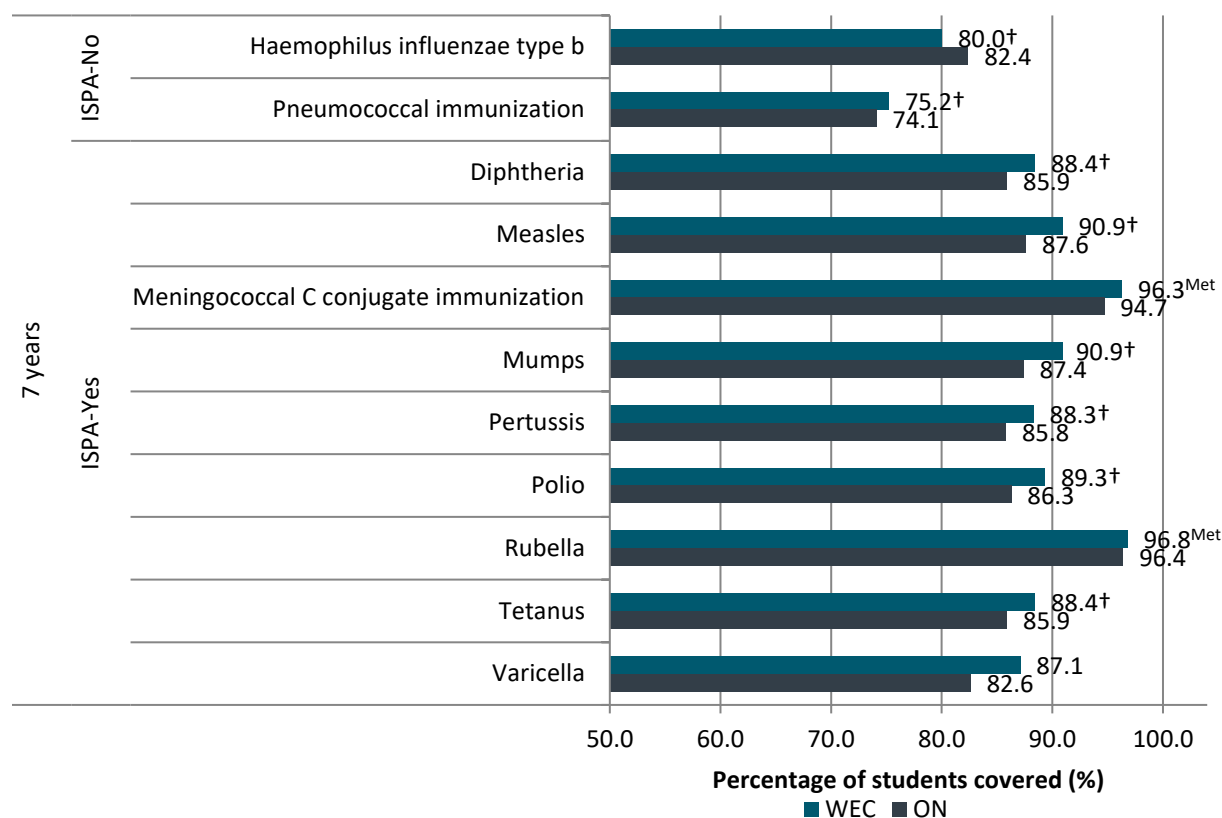
Immunization

For the 2018-2019 school year, immunization coverage rates for the nine infectious diseases identified under the Immunization of School Pupils Act (ISPA) were similar to or higher in WEC compared to Ontario for the 2017/18 school year (**Figures 26-27**).

Coverage estimates in 7-year olds only met the national goal of 95% for two diseases: meningococcal disease and rubella (**Figure 26**). There is no national goal for varicella. Coverage estimates in 12-year olds for diseases covered by the school-based immunization program (meningococcal disease, hepatitis B, and human papilloma virus) did not meet the national goal of 90%. Coverage estimates in 17-year olds met the national goal for measles, mumps, and rubella (**Figure 27**). The national goal is 95% for measles, mumps, rubella, and polio, and 90% for diphtheria, tetanus, and pertussis.

The proportion of students with medical and non-medical exemptions was relatively low (**Figure 28**). Only 0.3% of 7-year olds and 0.2% of 17-year olds had a medical exemption for at least one ISPA antigen. These proportions were similar to the rest of Ontario. However, the proportion of students with a non-medical exemption was slightly higher in WEC compared to the rest of Ontario. For 7-year olds, 3.4% had a non-medical exemption for at least one ISPA antigen, 0.6% higher than the proportion for Ontario. For 17-year olds, 2.6% had a non-medical exemption for at least one ISPA antigen.

Figure 26. Immunization coverage estimates for 7-year olds in Windsor and Essex County and Ontario, 2017-2018 school year.



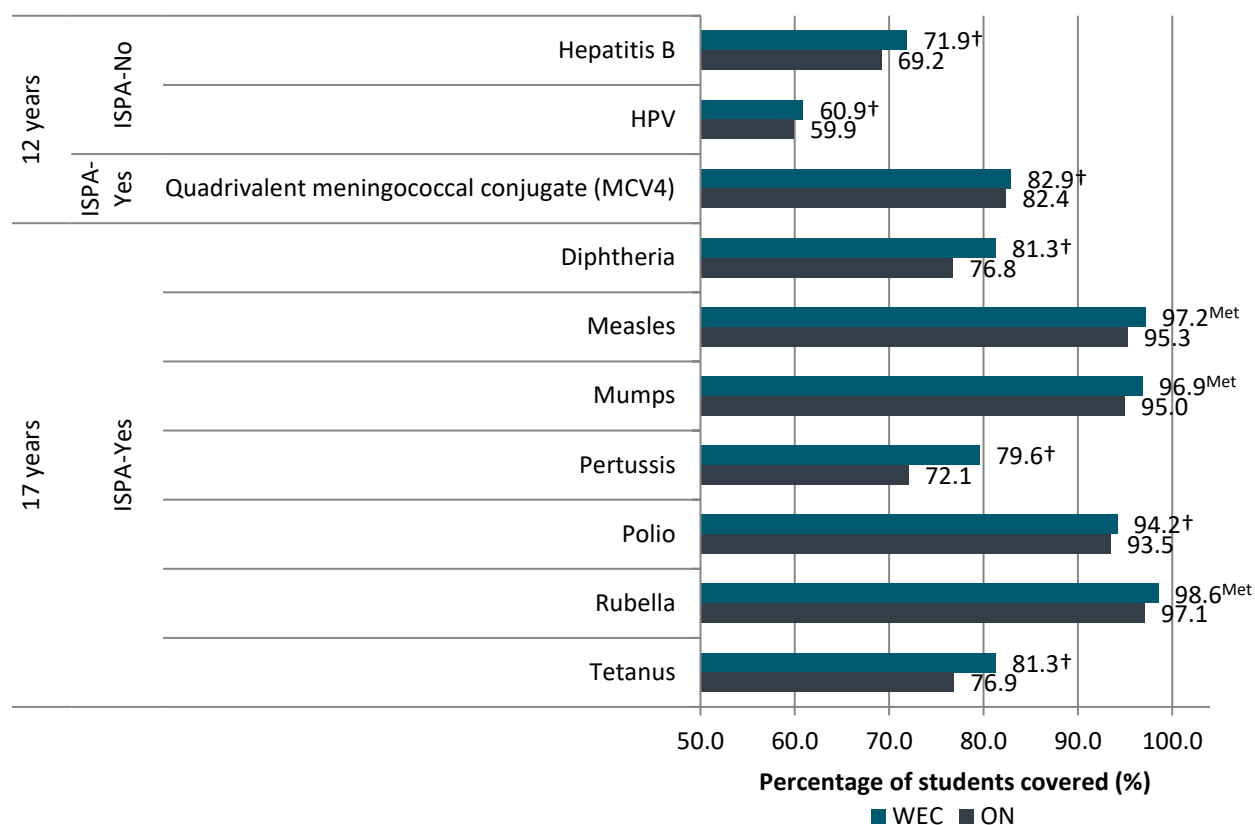
Source: Public Health Ontario. Immunization Coverage Report for School Pupils in Ontario [2017-2018].

Notes: For 7-year olds, the national goal is 95% for all diseases listed except varicella. There is no national goal for varicella.

† National goal was not met.

^{Met} National goal was met.

Figure 27. Immunization coverage estimates for 12 and 17-year olds in Windsor and Essex County and Ontario, 2017-2018 school year.



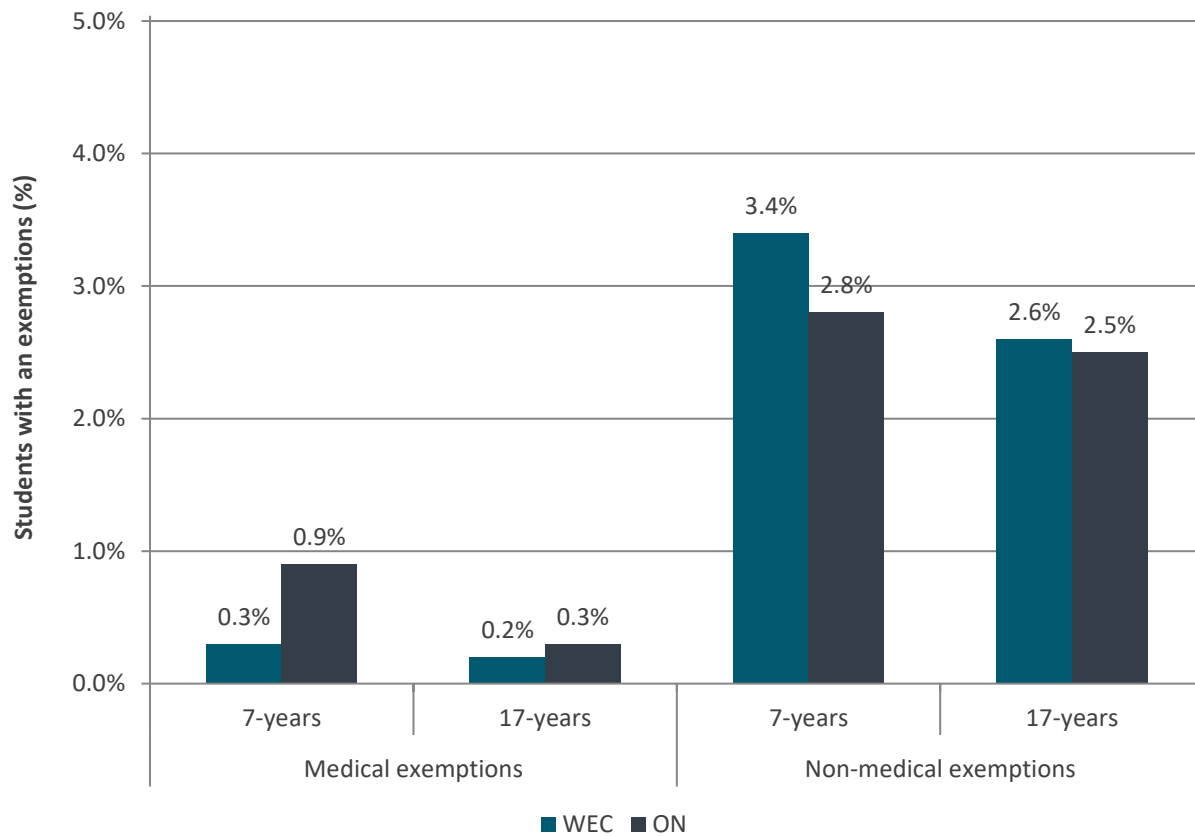
Source: Public Health Ontario. Immunization Coverage Report for School Pupils in Ontario [2017-2018].

Notes: For 12-year olds, the national goal is 90% for all diseases listed. For 17-year olds, the national goal for measles, mumps, rubella, and polio is 95%. The national goal for diphtheria, pertussis, and tetanus is 90%.

† National goal was not met.

^{Met} National goal was met.

Figure 28. Exemption for at least one ISPA antigen in Windsor and Essex County and Ontario, 2017-2018 school year.

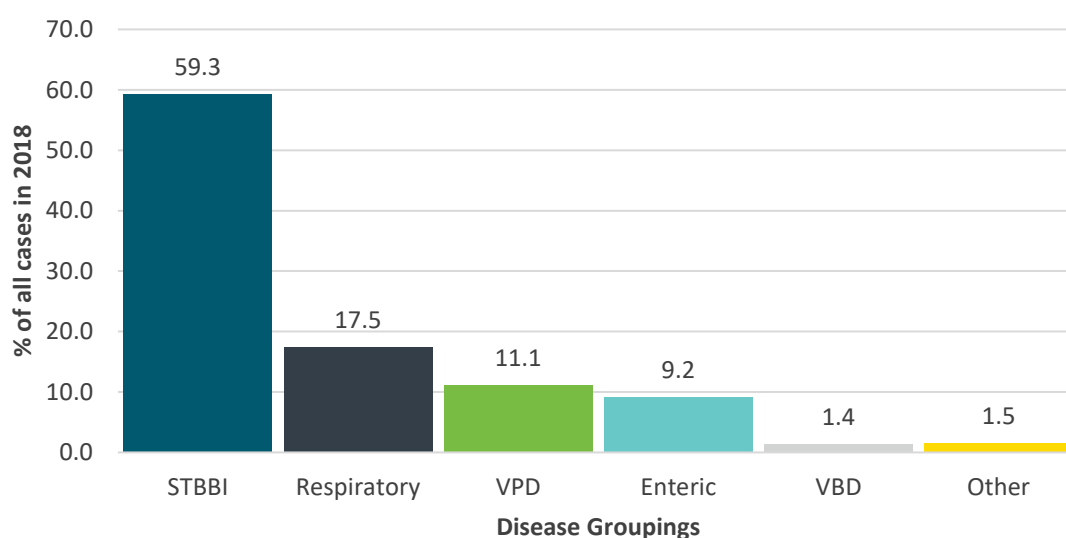


Source: Public Health Ontario. Immunization Coverage Report for School Pupils in Ontario [2017-2018].

Infectious and Communicable Diseases

The proportion of all cases of Diseases of Public Health Significance (DOPHS) in WEC are presented in **Figure 29** according to their disease group. In 2018, there were 2,194 cases of DOPHS in WEC. The largest disease burden was due to sexually transmitted and blood-borne infections (STBBIs). In 2018, cases of STBBIs accounted for almost 60% of all cases in WEC. Respiratory diseases were the second most common type of disease, which accounted for 18% of all the reported cases, followed by vaccine preventable diseases (VPDs), which accounted for 11% of all cases. Case counts of DOPHS are likely underestimates due to factors such as disease awareness (many infections do not result in symptoms), medical care seeking behaviours, clinical practice, changes in laboratory testing, and reporting behaviours.

Figure 29. Disease of public health significance in Windsor and Essex County by disease grouping, 2018.

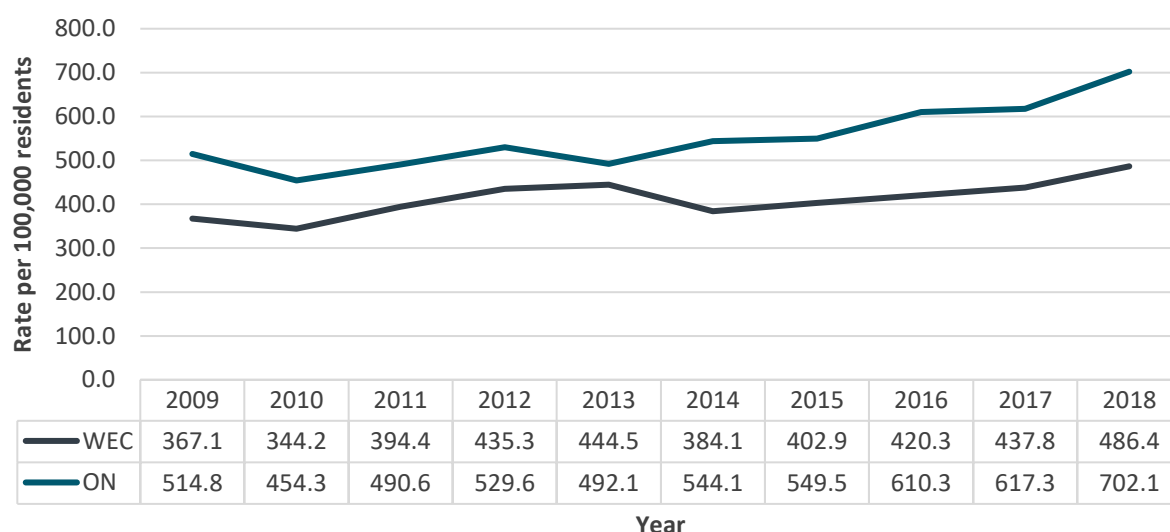


Source: Ontario Ministry of Health and Long-Term Care. Integrated Public Health Information System (iPHIS) [2018].

Note: To capture the true burden of varicella, aggregate counts of varicella were used here instead of strictly lab-confirmed cases.

From 2009 to 2018, the rate of DOPHS has steadily increased in WEC and in Ontario (**Figure 30**). In Ontario, the rate of new cases increased by 36.4% during the past 10 years. The rate of new cases also increased in WEC, but not to the same extent. During the same period, the rate of new cases was consistently lower than Ontario's. The rate of new cases of DOPHS in WEC increased by 32.5% (367.1 cases per 100,000 residents in 2009 to 486.4 cases per 100,000 residents in 2018). Increased rates in both WEC and Ontario may be partially due to changes in the list of diseases considered reportable to public health, changes to case definitions, and improved awareness, testing, and reporting to public health.

Figure 30. Rate of new cases of disease of public health significance in Windsor and Essex County and Ontario, 2009-2018.



Sources:

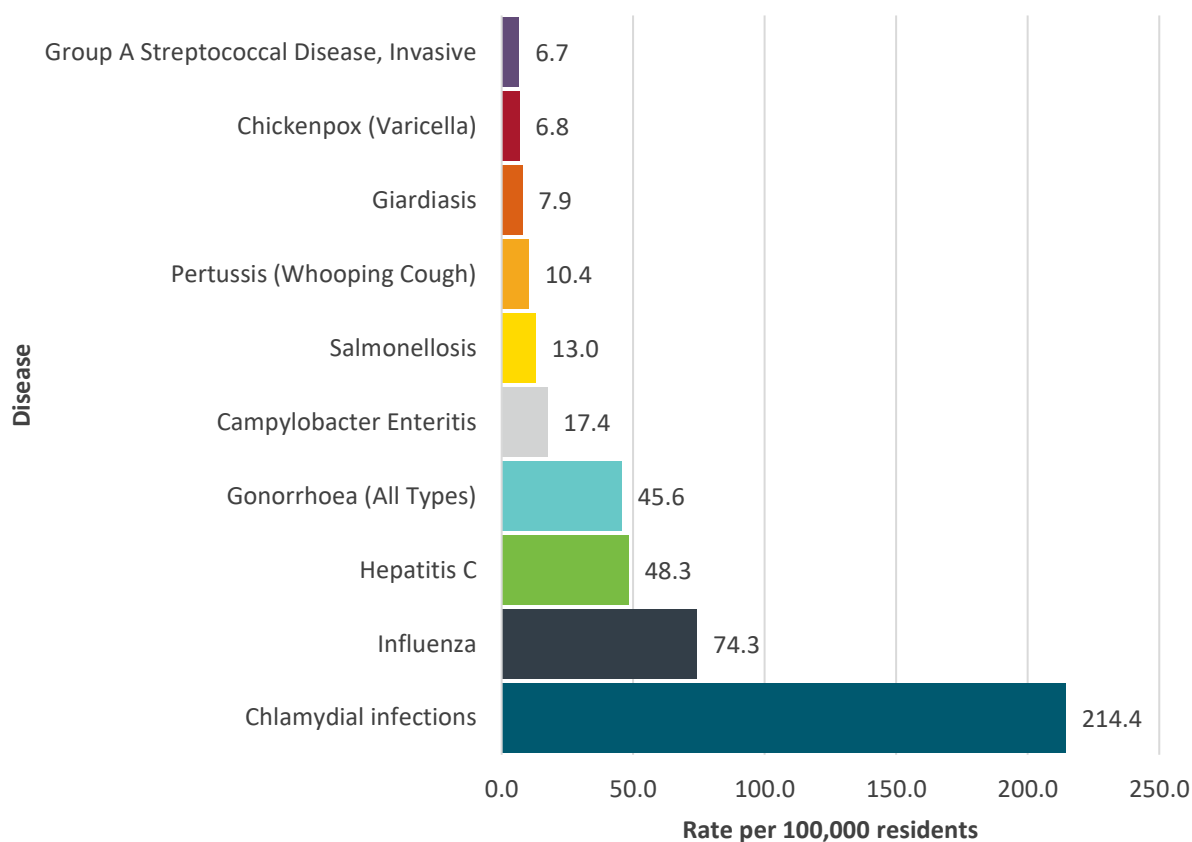
1 - Ontario Ministry of Health and Long-Term Care. Integrated Public Health Information System (iPHIS) [2009-2018].

2 – Public Health Ontario. Infectious Disease (ID) Query Tool [2009-2018].

Note: See DOPHS section in Appendix A for more details.

The 2018 incidence rates for the ten most common reportable diseases in WEC are presented in **Figure 31**. Three of the top five diseases are sexually transmitted and blood-borne infections: chlamydia, hepatitis C, and gonorrhoea. The most common reportable disease was chlamydia, which accounted for 40% of all diseases in 2018 (869 cases). Influenza was the second most common reportable disease. In 2018 there were 336 lab-confirmed cases of influenza reported to the WECHU. Hepatitis C was the third most common disease with 197 cases in 2018. However, it should be noted that confirmed cases reported to public health may represent identification of infections from years prior. For example, 49% of the hepatitis C cases in 2018 were identified as previously acquired infections.

Figure 31. Top 10 diseases of public health significance in Windsor and Essex County according to incidence rates, 2018.

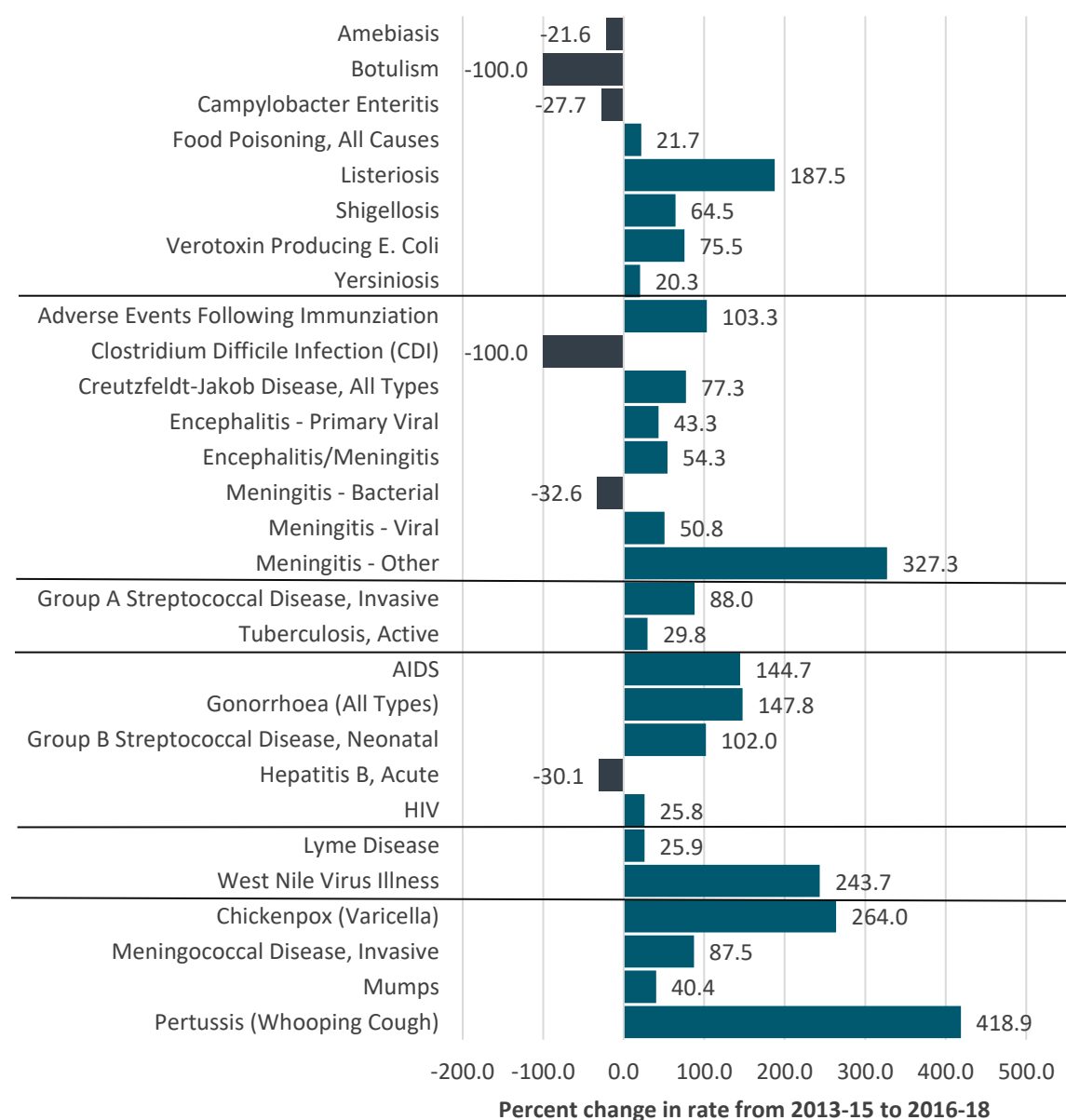


Source: Ontario Ministry of Health and Long-Term Care. Integrated Public Health Information System (iPHIS) [2009-2018].

Note: The rate for chickenpox refers to lab-confirmed cases (not cases reported in aggregate).

The percent change in the rate of all DOPHS was also investigated. The 3-year average rate for 2013-2015 was compared to the 3-year average rate for 2016-2018 (**Figure 32**). To interpret **Figure 32**, note that a negative change indicates a decrease in cases (favourable outcome) while a positive change indicates an increase in cases (unfavourable outcome). Changes in the mean rate may indicate a true increase or decrease in disease incidence, an increased awareness, changes in laboratory testing/reporting protocols, or other factors that cause artificial changes in reported disease incidence. Some extreme changes may be due to outbreaks (i.e., pertussis) or high variability due to small counts.

Figure 32. Percent change in the rate of disease of public health significance in Windsor and Essex County, 2013-2015 and 2016-2018.



Source: Ontario Ministry of Health and Long-Term Care. Integrated Public Health Information System (iPHIS) [2013-2015 to 2016-2018].

Note: The following diseases had an undefined change as they had a mean rate of zero in 2013-2015, and a mean rate greater than zero (less than 0.4) in 2016-2018: acute flaccid paralysis, encephalitis - unspecified, q fever, tetanus, trichinosis, typhoid fever. Diseases that became reportable as of 2018 are not shown (i.e., blastomycosis, carbapenemase-producing *enterobacteriaceae* colonization/infection, and *echinococcus multilocularis* infection). Only changes above 20% in either direction are shown.

Rankings of the incidence rate in 2018 and percent change in the incidence rate for 2013-2015 to 2016-2018 were used to determine the priority of DOPHS in WEC (**Table 7**). Gonorrhoea, pertussis (whooping cough), chickenpox, WNV illness, and invasive group A streptococcal disease were the five top ranked diseases that require the greatest priority. These diseases had high incidence rates in 2018, and their rates have increased substantially from the 2013-2015 to 2016-2018 time periods. Other priority diseases include: hepatitis C, influenza, human immunodeficiency viruses (HIV), listeriosis, and chlamydial infections (**Table 7**).

Table 7. Prioritization of disease of public health significance in Windsor and Essex County (top 10 diseases) based on the incidence rate and change in incidence rate, 2013-2015 to 2016-2018.

Disease	Incidence rank	% Change in incidence	Rank of % change in incidence	Sum of ranks	Overall priority rank
Gonorrhoea (all types)	4	147.8	6	10	1
Pertussis (whooping cough)	10	418.9	1	11	2
Chickenpox (varicella)	13	264.0	3	16	3
West Nile virus illness	15	243.7	4	19	4
Group A streptococcal disease, invasive	12	88.0	9	21	5
Hepatitis C	3	19.1	23	26	6
Influenza	2	13.2	25	27	7
HIV	9	25.8	20	29	8
Listeriosis	27	187.5	5	32	9
Chlamydial infections	1	-3.9	32	33	10

Source: Ontario Ministry of Health and Long-Term Care. Integrated Public Health Information System (iPHIS) [2013-2015 to 2016-2018].

Note: Adverse-events following immunization was excluded from this list of diseases. If included, it would place fifth in the priority rank.

Table 8. Summary of case counts and rate (per 100,000 residents) of new cases of disease of public health significance in Windsor and Essex County and Ontario, 2018.

Disease	WEC		ON	
	Cases	Rate	Cases	Rate
Enteric				
Amebiasis	18	4.5	484	3.4
Botulism	0	0.0	3	0.0
Campylobacter enteritis	73	<u>17.4*</u>	3,424	23.5
Cholera	0	0.0	0	0.0
Cryptosporidiosis	7	<u>1.8*</u>	749	5.3
Cyclosporiasis	4	0.9	269	1.8
Food poisoning, all causes	0	0.0	48	0.3
Giardiasis	31	7.9	1,507	10.4
Hepatitis A	2	0.4	220	1.6
Listeriosis	3	0.6	78	0.5
Paralytic shellfish poisoning	0	0.0	NA	NA
Paratyphoid fever	0	0.0	27	0.2
Salmonellosis	54	<u>12.9*</u>	2,661	18.4
Shigellosis	3	0.7	314	2.2
Typhoid fever	1	0.2	107	0.8
Verotoxin producing <i>E. coli</i> including HUS	2	0.5	173	1.2
Yersiniosis	3	0.7	299	2.1
Other Diseases				
Adverse events following immunization	14	3.3	NA	NA
Blastomycosis	1	0.3	60	0.4
Carbapenemase-prod <i>enterobacteriaceae</i> (CPE)-colonization	0	0.0	118	0.7
Carbapenemase-prod <i>enterobacteriaceae</i> (CPE)-infection	4	0.8	68	0.4
Carbapenemase-prod <i>enterobacteriaceae</i> (CPE)-unspecified	0	0.0	13	0.1
<i>Clostridium difficile</i> infection (CDI)	0	0.0	NA	NA
Creutzfeldt-jakob disease, all type	2	0.4	11	0.1
<i>Echinococcus multilocularis</i> infection	0	0.0	1	0.0
Encephalitis - primary viral	1	0.2	36	0.2
Encephalitis - unspecified	0	0.0	1	0.0
Encephalitis/meningitis	4	1.0	159	1.1
Hemorrhagic fevers	0	0.0	0	0.0
Lassa fever	0	0.0	NA	NA
Meningitis - bacterial	3	0.7	77	0.5
Meningitis - other	0	0.0	13	0.1

Disease	WEC		ON	
	Cases	Rate	Cases	Rate
Meningitis - viral	5	1.3	144	1.0
Unknown	0	0.0	NA	NA
Respiratory Diseases				
Group A streptococcal disease, invasive	29	6.7	1,139	7.7
Influenza	336	<u>74.3*</u>	19,111	122.8
Legionellosis	6	1.2	334	2.2
Leprosy	0	0.0	4	0.0
Severe acute respiratory syndrome (SARS)	0	0.0	NA	NA
Tuberculosis, active	12	2.9	659	4.4
Tuberculosis, latent	252	60.6	NA	NA
Sexually Transmitted and Bloodborne Infections				
AIDS	3	0.8	75	0.5
Chancroid	0	0.0	0	0.0
Chlamydial infections	869	<u>214.4*</u>	47,878	334.1
Gonorrhoea (all types)	182	<u>45.6*</u>	10,428	72.8
Group B streptococcal disease, neonatal	0	0.0	59	0.4
Hepatitis B, acute	6	1.5	90	0.6
Hepatitis B, chronic	21	5.4	NA	NA
Hepatitis C	197	<u>48.3*</u>	5,220	35.9
Herpes, neonatal	0	0.0	NA	NA
HIV	26	6.7	894	6.3
Ophthalmia neonatorum	0	0.0	1	0.0
Syphilis, early congenital	0	0.0	2	0.0
Syphilis, infectious	22	<u>5.6*</u>	1,875	13.2
Syphilis, other	0	0.0	900	6.1
Vectorborne Disease				
Anthrax	0	0.0	NA	NA
Brucellosis	0	0.0	9	0.1
Hantavirus pulmonary syndrome	0	0.0	NA	NA
Lyme disease	9	2.2	620	4.2
Psittacosis/ornithosis	0	0.0	0	0.0
Q fever	0	0.0	7	0.0
Rabies	0	0.0	0	0.0
Trichinosis	4	<u>1.1*</u>	8	0.1
Tularemia	0	0.0	0	0.0
West Nile virus illness	13	<u>2.7*</u>	139	0.9
Vaccine Preventable Disease				
Acute flaccid paralysis	2	0.5	15	0.1
Chickenpox (varicella)	27	6.8	NA	NA

Disease	WEC		ON	
	Cases	Rate	Cases	Rate
Chickenpox (varicella), aggregate	166	39.9	NA	NA
Diphtheria	0	0.0	NA	NA
<i>Haemophilus influenzae</i> disease, all types, invasive	5	1.2	198	1.3
Measles	0	0.0	9	0.1
Meningococcal disease, invasive	0	0.0	32	0.2
Mumps	0	0.0	92	0.7
Pertussis (whooping cough)	41	<u>10.4*</u>	387	2.8
Rubella	0	0.0	0	0.0
Rubella, congenital syndrome	0	0.0	0	0.0
<i>Streptococcus pneumoniae</i> , invasive	30	6.4	1,291	8.5
Tetanus	0	0.0	0	0.0

Sources:

1- Ontario Ministry of Health and Long-Term Care. integrated Public Health Information System (iPHIS) [2018].

2 – Public Health Ontario. Infectious Disease (ID) Query Tool [2009-2018].

Notes: * Statistically significant difference in the rate compared to Ontario.

NA – No available data at the provincial level.

Substance Use and Injury

The self-reported prevalence of substance use and injury related behaviours are reported in **Table 9** for WEC and Ontario. Additionally, this section also contains statistics related to the emergency department visits for substance use and injury.

Substance Use Prevalence

The use of legal substances, mainly tobacco and alcohol, are well-documented contributors to chronic diseases and injuries. One in five adults (19.6%) in WEC reported being a current smoker and 27.4% of adults in WEC reported being a former smoker; both of these smoking statuses were similar to Ontario. Two in five WEC residents (42.0%) reported never smoking a whole cigarette in their lifetime. Also, use of alternative tobacco (including vaping) products was similar between adult in WEC (7.5%) and Ontario (7.0%). For alcohol consumption, nearly half (44.8%) of WEC residents reported exceeding the low-risk alcohol drinking guidelines for injury. Prior to the legalization of marijuana in October 2018 in Ontario, one-third (31.5%) of WEC residents reported using marijuana/hashish in the last 12 months during 2015-2016, which was similar to Ontario. Illicit drug use (excluding “one time only” marijuana/hashish prior to legalization) was reported by 12.2% of WEC residents.

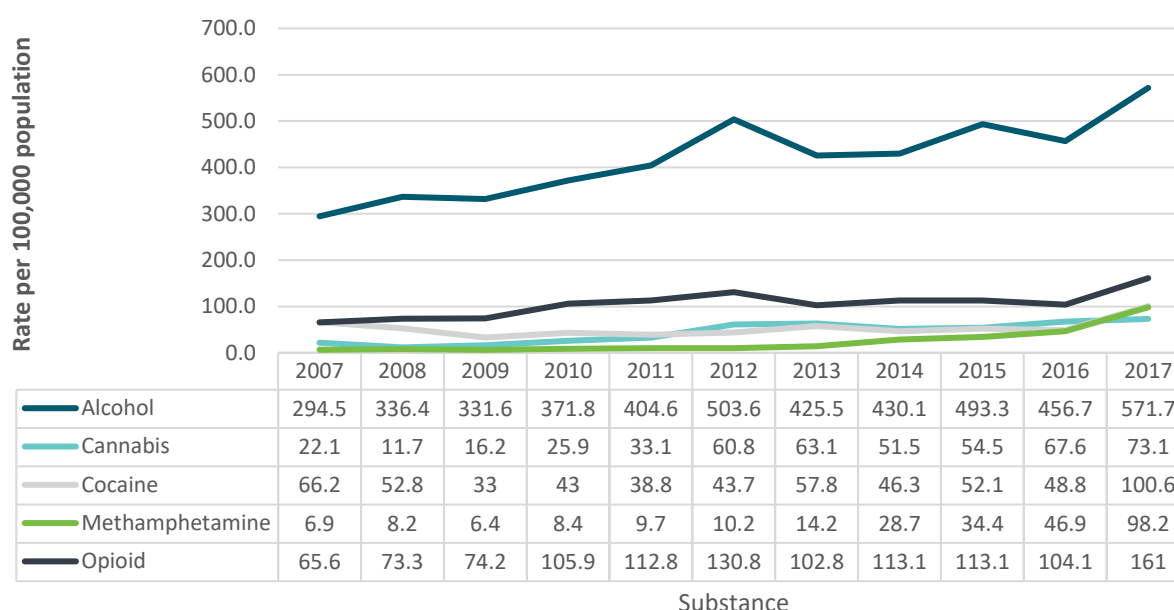
Substance Use-Related ED Visits

The new landscape for accessing substances due to changes in regulations (legalization of cannabis and alcohol vendor expansion), pain medication prescribing practices, and the types of illicit drugs available, may have contributed to the growing negative impact of substance use in WEC and Ontario.

As shown in **Figure 33**, alcohol-related health outcomes were the most common cause of substance-use related ED visits in WEC amounting to 2,271 visits in 2017. The rate of alcohol-use related ED visits has increased by almost two-fold between 2007 and 2017, which is consistent with the ED visits in Ontario.

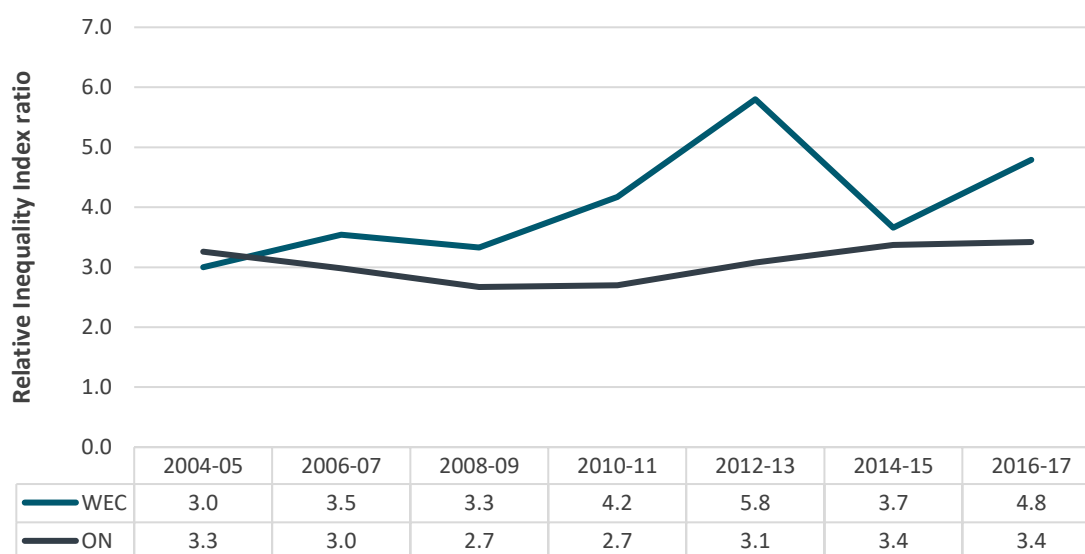
Figure 34 shows an assessment of health inequality on a measure of poverty (material deprivation) with respect to alcohol-related ED visits in WEC and Ontario. The relative index of inequality (RII) is a commonly used measure of the extent to which the occurrence of an outcome changes with socioeconomic status. In other words, it is a summary measure that indicates the level of inequality in a population. An RII ratio greater than 1 indicates a higher occurrence of the health outcome in the most impoverished. The findings show that a high level of inequality (statistically significant) was present with respect to this health outcome—the occurrence of alcohol-related ED visits was significantly higher in those who were from the impoverished areas. In 2017, the rate of alcohol-related ED visits was 4.8-times greater among WEC residents from the least advantaged communities.

Figure 33. Rate of substance-use related ED visits in Windsor and Essex County, 2007-2017.



Source: Canadian Institute of Health Information. Ambulatory Emergency External Cause Database [2007-2017].

Figure 34. Relative index of inequality of alcohol-related emergency department visits in Windsor and Essex County and Ontario, 2004-2017.

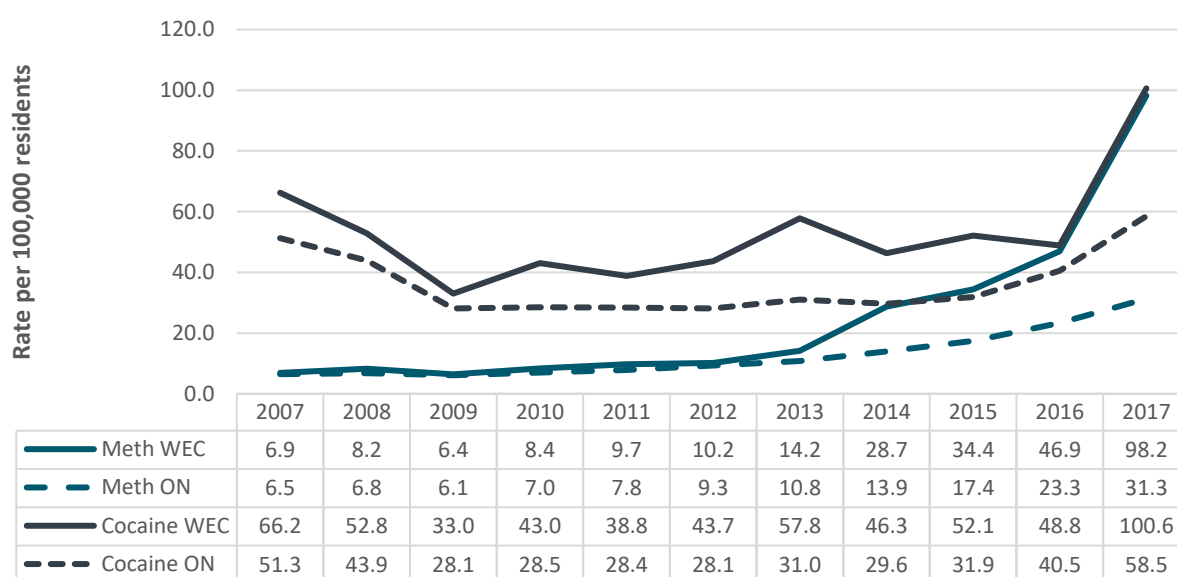


Source: Canadian Institute of Health Information. Ambulatory Emergency External Cause Database [2007-2017].

Note: Inequality was assessed on the material deprivation dimension (a poverty measure). The lower bound of the 95% confidence interval (not shown) was greater than 1 for all years for WEC and Ontario, indicating that the inequality is statistically significant.

The recent trend (2007-2017) of the rates of ED visits for illicit drug use (cocaine or methamphetamine) is reported in **Figure 35** for WEC and Ontario. Since 2007, the rate of methamphetamine-related ED visits has increased over 14-fold in WEC with 20 ED visits for methamphetamine-related health events in 2007 compared to 311 in 2017. Since 2014, methamphetamine has been identified during ED visits at a significantly higher rate than Ontario; in 2017, this rate was over three-times greater in WEC compared to the province (98.2 vs. 31.3 ED visits per 100,000 residents). Similarly, the rate of cocaine-related ED visits increased by 1.5 times between 2007 and 2017 in WEC, with rates significantly higher than the province during most of this time period.

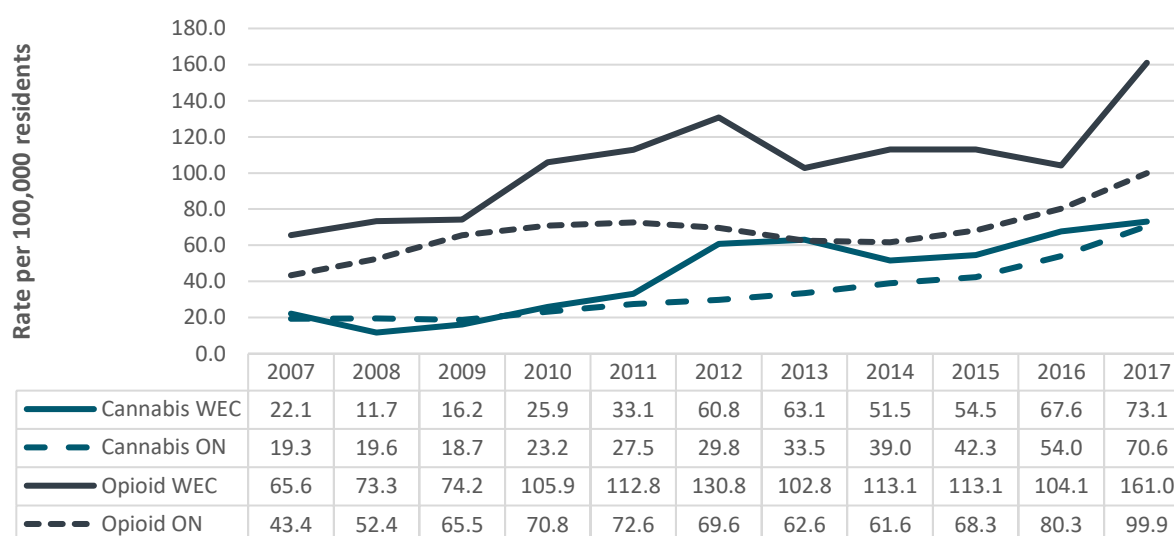
Figure 35. Rate of methamphetamine and cocaine-related ED visits in Windsor and Essex County and Ontario, 2007-2017.



Source: Canadian Institute of Health Information. Ambulatory Emergency External Cause Database [2007-2017].

The recent trend (2007-2017) of the rate of ED visits for legally available drug use (cannabis or opioids) is reported in **Figure 36** for the WEC and Ontario populations. Between 2007 and 2017, cannabis-related ED visits among WEC residents increased from 51 to 291 ED visits. This corresponds to a more than three-fold increase in the rate (from 22.1 to 73.1 ED visits per 100,000 residents). The WEC rate was significantly higher than the province from 2012 to 2016. Opioid-related ED visits (overdoses and associated mental health issues) continued to increase between 2007 and 2017 with the WEC rates being significantly higher than Ontario's during every year, except in 2009, by on average 55%. WEC encountered 557 opioid-related ED visits in 2017 compared to 271 ED visits in 2007, amounting to a 2.5-time increase.

Figure 36. Rate of opioid and cannabis-related ED visits in Windsor and Essex County and Ontario, 2007-2017.



Source: Canadian Institute of Health Information. Ambulatory Emergency External Cause Database [2007-2017].

Injury-Related Behaviours

Safety measures can be taken to reduce the impact of injury, such as limiting cell phone use while driving a vehicle or wearing a helmet while biking. In 2017, over 1 in 10 WEC residents (16 years or older) reported using their cellphones to talk or text “sometimes” or “often” while driving (**Table 9**). In WEC, only 33.9% of residents reported that they “always” or “most of the time” wear a helmet when bicycling, which is significantly lower than the Ontario estimate of 53.4%.

Injury-Related ED Visits

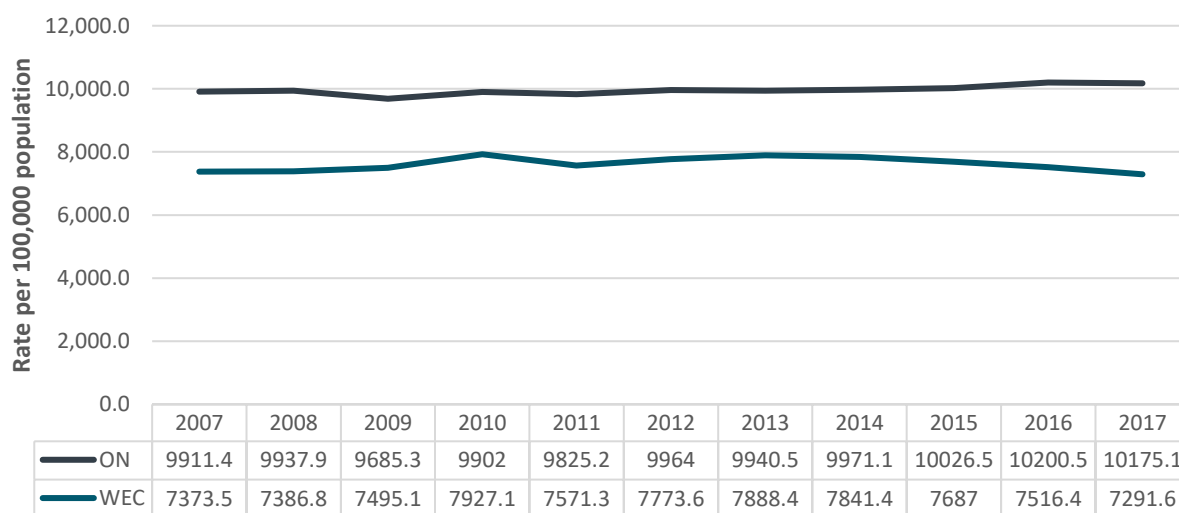
ED visits are used as an indicator of the incidence of injury in the community. ED visits for injuries in WEC continue to decline with 30,196 ED visits for injuries occurring in 2017, which was equivalent to the lowest rate locally over the previous five-years (**Figure 37**). The rate of ED visits for all injuries was consistently significantly lower than the Ontario rate between 2007 and 2017. Additionally, the rate of ED visits in WEC was higher among males (8,347.8 visits per 100,000 residents) compared to females (6,207.3 visits per 100,000 residents), and rates were highest among seniors (75+ years) (11,946.4 visits per 100,000 residents) followed by children (0 to 19 years) (7,987.7 visits per 100,000 population). Among all the age and gender categories, the rates in WEC were significantly lower compared to Ontario.

The top three causes of injury-related ED visits in WEC were:

- 1) falls;
- 2) struck by or against an object; and
- 3) cut or pierced by an object.

Falls continues to represent the most burdensome cause of injuries in WEC by a wide margin. It accounted for 33% of all injury-related ED visits in WEC and this trend has continued as identified in the WECHU's 2015 *Injury Profile of Windsor and Essex County* report. In comparison, the next two causes of injury-related ED visits combined represented 19% of all injury-related ED visits in 2017.

Figure 37. Rate of all injury-related emergency department visits in Windsor and Essex County and Ontario, 2007-2017.



Source: Public Health Ontario. Snapshots: ED visits for injuries [2007-2017].

Injury-Related Mortality

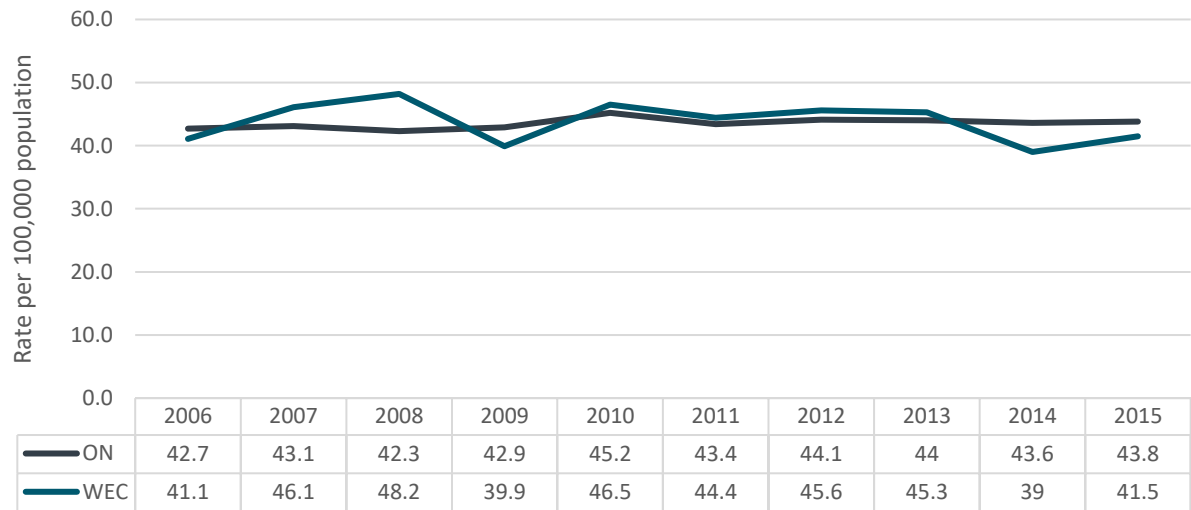
In total, there were 181 deaths caused by all injuries in WEC in 2015 although the rates were consistently between 39.0 and 48.2 deaths per 100,000 residents from 2006 to 2015 and similar to the Ontario rate (**Figure 38**). Falls were the leading cause of injury-related deaths in WEC with 76 deaths. The second leading cause of injury-related deaths in 2015 in WEC was unintentional poisoning with 34 deaths. Mortality rates for injury-related reasons were highest among males (56.7 deaths per 100,000 residents) in WEC compared to females (27.3 deaths per 100,000 residents). Additionally, the rate of injury-related deaths increased with age with older seniors (75+ years) experiencing the highest rates (257.1 deaths per 100,000 residents) compared to children (0 to 19 years) (4.3 deaths per 100,000 residents).

The top three causes of injury-related deaths were similar between WEC and Ontario. These were:

- 1) falls;
- 2) unintentional poisoning; and
- 3) intentional self-harm.

Although the order of the second and third leading causes were different in WEC and Ontario, overall falls has continued to be the leading cause of injury-related mortality, as identified in the WECHU’s 2015 *Injury Profile of Windsor and Essex County* report. In comparison, the rates of the other top two causes of injury related mortality (intentional self-harm and unintentional poisoning) each were approximately half in comparison to the mortality rate of falls.

Figure 38. Rate of all injury-related deaths in Windsor and Essex County and Ontario, 2006-2015.



Source: Public Health Ontario. Snapshots: Injury mortality [2006-2015].

Table 9. Substance use and injury-related indicators in Windsor and Essex County and Ontario, 2015/16 and 2017.

Characteristic	WEC	ON
Substance Use	2015/16	2015/16
Self-reported smoking status (%) ¹		
Current smoker (>19 years old)	19.6	18.0
Daily or occasional smoker (>19 years old)	15.4	12.9
Former smoker (>19 years old)	27.4	24.0
Underage smoker (≤19 years old)	NR	6.5
Never smoked a whole cigarette (≥12 years old)	42.0	46.3
Self-reported use of tobacco products other than cigarettes (cigars, e-cigarettes, pipes, chewing tobacco, water-pipes) ¹	7.5 ^c	7.0
Self-reported rate of exceeding the low-risk alcohol drinking guidelines for injury (%) ¹	44.8	42.2
Self-reported prevalence of heavy drinking (%) ¹		
Females	14.1	13.7
Males	24.6	23.5
Overall	19.3	18.5
Self-reported prevalence of rate of exceeding either low-risk alcohol drinking guidelines (%) ¹		
Females	39.3	38.6
Males	53.6	50.4
Overall	46.3	44.4
Self-reported prevalence of underage drinking (%) ¹		
Females	NR	27.4
Males	48.5 ^c	32.8
Overall	35.6 ^c	30.2
Self-reported drug use in last 12 months ¹		
Marijuana or hashish	31.5	31.2
Illicit drug use (excluding “one time only” marijuana/hashish)	12.2	11.7
Injury	2017	2017
Drivers (≥16 years old) who talked on a cell phone while driving (%) ²	11.4 ^c	7.4
Drivers (≥16 years old) who often or sometimes texted on a cell phone while driving (%) ²	11.7 ^c	6.5
In the past 12 months, has driven a motor vehicle within an hour of consuming ≥2 alcoholic drinks (%) ²	12.4 ^c	6.3
In the past 12 months, was a passenger in a motor vehicle where the driver consumed ≥2 alcoholic drinks within an hour of driving (%) ²	12.6 ^c	6.7

Characteristic	WEC	ON
Always wears a helmet when driving or riding an all-terrain vehicle (ATV) (%) ²	89.6	81.2
Always wears a helmet when bicycling (%) ²	<u>33.9*</u>	53.4
Injury ED visit rate (age-standardized per 100,000 residents) ⁴		
Males	<u>8,347.8*</u>	11,114.1
Females	<u>6,207.3*</u>	9,206.6
Children (0-19)	<u>7,987.7*</u>	13,491.7
Young Adults (20-44)	<u>7,779.9*</u>	9,725.4
Middle Aged Adults (45-64)	<u>5,701.4*</u>	8,054.3
Seniors (65-74)	<u>5,391.6*</u>	7,554.0
Older Seniors (75+)	<u>11,946.4*</u>	13,545.8
Overall	<u>7,291.6*</u>	10,175.1
Top 3 causes of injury ED visits ⁴		
First (per 100,000 residents)	Falls (2,275.1)	Falls (3,150.4)
Second (per 100,000 residents)	Struck by or against an object (772.6)	Struck by or against an object (1520.3)
Third (per 100,000 residents)	Cut or pierced by an object (670.5)	Cut or pierced by an object (856.7)
Injury mortality rate (age-standardized per 100,000 residents) (2015) ³		
Males	56.7 (2015)	58.4 (2015)
Females	27.3 (2015)	30.6 (2015)
Children (0-19)	4.3 (2015)	6.3 (2015)
Young Adults (20-44)	24.4 (2015)	29.4 (2015)
Middle Aged Adults (45-64)	44.2 (2015)	40.6 (2015)
Seniors (65-74)	44.3 (2015)	45.7 (2015)
Older Seniors (75+)	257.1 (2015)	272.1 (2015)
Overall	41.5 (2015)	43.8 (2015)
Top 3 causes of injury mortality (2015) ³		
First (per 100,000 residents)	Falls (15.7)	Falls (16.1)
Second (per 100,000 residents)	Unintentional poisoning (8.9)	Intentional self-harm (10.1)
Third (per 100,000 residents)	Intentional self-harm (8.0)	Unintentional poisoning (6.8)

Sources:

- 1 - Statistics Canada. Canadian Community Health Survey [2015/2016].
- 2 - Statistics Canada. Canadian Community Health Survey [2017].
- 3 - Public Health Ontario. Snapshots: Injury mortality [2015].
- 4 - Public Health Ontario. Snapshots: ED visits for injuries [2017].

Notes:

C – Estimate should be interpreted with caution due to high sampling variability.

NR – Estimate is too unreliable to report or there were too few observations.

* Statistically significant difference between WEC and Ontario

Recommendations

Findings in this report provide an update on the health status of WEC residents. The report also presents challenges and opportunities for the delivery of programs and services offered by the WECHU and community organizations to address the health needs of our residents. The following recommendations were developed as a result of the findings found in this report alongside a review of the 2016 CNA. The recommendations described below may already be in place or in the development phase but could be enhanced with the findings from this 2019 Update. The recommendations are as follows:

- Continued approach towards a comprehensive, community-based initiative for healthy living programs and services.
 - This recommendation is aimed at increasing support and resources to promote healthy lifestyles among individuals, families and the community. This includes, but is not limited to, areas such as healthy eating, active living, family health, immunizations, substance misuse, injury prevention and oral health.
 - Ongoing collaboration amongst community partners to support enhanced health promotion and advocacy efforts to support residents in making healthy choices throughout the lifespan and across the community where they live, work, and attend school.
- Sustained focus on improving mental health and substance misuse in the community.
 - Continued approach by the WECHU and its partners to improve the overall mental well being of our community.
 - Continue to build on the successes and improve mental health services in the community, and strategies that will address the needs at the individual and community level.
 - Continued focus on the community and its partners in identifying solutions in reducing the impact of substances leveraging partnerships and developing collaborations.
- Aligning programs and services offered in the community to reduce health inequities.
 - The projected demographic changes in the upcoming years (i.e., increase in seniors), poverty levels in the community, and the impact of other social determinants of health in our community, require access to programs and services that reduce health inequities in our community.
 - WECHU and community partners need to review and evaluate the delivery of programs and services to reduce identified barriers such as language, physical limitations, geographical distances and other issues that hinder residents from receiving needed services to live a healthy lifestyle.

Conclusion

This 2019 Update provides a broad assessment of local health statistics and emerging trends within WEC. The findings highlight opportunities for the WECHU and its community partners in addressing and prioritizing the health needs of our community. Furthermore, this report also provides information on some of the disparities and health inequities found within WEC. Lastly, there are data gaps that limited this report's ability to provide a well-rounded synopsis of the health status of all residents (e.g., limited information on the health needs of school-aged children from 5 to 18 years).

The 2019 Update primarily utilized data available from secondary sources and did not collect any information directly from the residents in WEC. A comprehensive CNA, such as the 2016 CNA, collected information from residents through community surveys and focus groups. The purpose of this 2019 Update was to provide a report on the status of key health areas of concern and identify any new or emerging trends previously unidentified. Additionally, the 2019 Update will assist the WECHU and the community partners to review their programs and services, help to identify priorities and continue to build on the successful partnership and collaboration in addressing the health needs of the residents of Windsor and Essex County.

Next Steps

The WECHU will aim to share the findings and the report widely throughout the community such that attention could be brought towards addressing gaps that require a continued focus and/or emerging trends that necessitate further attention. A comprehensive CNA will be completed in 2021 based on current data gaps, emerging trends and other population health indicators. This will also include community consultation and data collection directly from residents through a host of strategies. These include, but are not limited to:

- Focus groups with priority populations;
- Key informant interviews with community stakeholders and/or leaders;
- Community wide survey to collect information that will address data gaps; and a targeted approach to engage priority population to identify their needs.
- A quantitative profile consisting of secondary data sources available to the WECHU and from community partners.

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Appendix. Supporting Notes on Data Analysis

The following is a high-level overview of the methodology used to produce the estimates in this report and any associated data caveats. For topic areas not described here, please refer to the documentation of the reference cited for the estimate.

Canadian Community Health Survey (CCHS)

The CCHS is a national cross-sectional survey of the population 12 years of age and older. The survey provides information on the health status, health care utilization, and health determinants of the Canadian population. The survey excludes individuals living on Indian Reserves and on Crown Lands, institutional residents, full-time members of the Canadian Forces, youth 12 to 17 living in foster homes, and residents of remote regions. Nonetheless, the survey is representative of 98% of the Canadian population 12 years of age and older.

Statistics Canada provides one-year and two-year combined data files of the CCHS. The latest one-year data file (CCHS 2017) and two-year data files (CCHS 2015/16) available to public health were used in this report. The two-year data file provides more reliable estimates as there is a larger sample of respondents. Thus, the two-year data file is better for examining smaller populations or rare characteristics. The decision to use which data file was dependent upon the topic area of interest – while there is some overlap in the topics covered in between survey cycles, some topics are only covered in certain cycles.

In order to produce estimates that are representative of the population, survey weights were used as part of the analysis (weights indicate the number of people in the population that each respondent represents). Bootstrap weights were also used to produce more precise results. In most cases (unless age-group specific proportions are presented), the estimates reported are age-standardized to the 2011 Canadian population (standard population). Self-reported overweight and obesity prevalence were corrected using the methods recommended by Statistics Canada (Gorber et al., 2008).

When estimates were calculated for a characteristic, respondents who refused to answer, said “don’t know,” or were marked as “valid skip” or “not stated” were not included in the denominator. Estimates were suppressed if the numerator and denominator had less than 10 and 20 respondents, respectively. Estimates were also suppressed if the coefficient of variation (CV), a measure of the estimate’s reliability was greater than 35%. Any estimate with a CV more than 15% and less than or equal to 35% are denoted with a “C” to indicate that the estimate should be interpreted with caution due to high variability. Estimates that are not reportable due to suppression are denoted with “NR.” When comparisons of estimates were made between WEC and Ontario, statistically significant differences were identified by using the 95% confidence interval. If there was no overlap in the intervals, then estimates were noted with an asterisk to denote a statistically significant difference. It should be noted that due to a redesign of the CCHS in 2015, results from 2015 and onwards are not comparable to prior years. When possible, indicators were calculated in accordance with the core indicators created by the APHEO.

Census of Population

When comparing estimates between the 2011 Census and 2016 Census, caution must be used as they differ significantly in methodology, quality and target population. In 2011, the long-form component questionnaire (administered as the 2011 National Household Survey) was not mandatory. Thus, the survey had a response rate of only 68.6%. Comparatively, the long-form component administered as part of the 2016 Census (a mandatory census questionnaire) had a response rate of 96.9%. When there is a high level of non-response, there is a greater risk of non-response bias (when characteristics of non-respondents are different from respondents). This may lead to issues of quality with estimates not describing the population as intended. See the *Guide to the Census of Population, 2016 (2018)* for more details on Census methodology.

Diseases of Public Health Significance (DOPHS)

DOPHS data were extracted from two sources: iPHIS (for local data) and Public Health Ontario's (PHO) Infectious Disease Query Tool (for provincial data). The data for the latter is also extracted from iPHIS by PHO. iPHIS is a disease reporting system that allows ongoing updates to data previously entered. As a result, data extracted from iPHIS represent a snapshot at the time of extraction and may differ from previous or subsequent reports. Lists of local cases of DOPHS were extracted as per the ID Query Metadata documentation (v1.5). Case definitions for diseases analyzed were consistent with the case definitions in Appendix B of the Ontario Public Health Standards. Disease case classifications used were congruent with the methodology reported in the Technical Notes documentation of the Reportable Disease Trends in Ontario (2017) report published by Public Health Ontario. Cases were classified by their date of episode (the best estimate of the date of illness onset), with the exception of HIV (date of encounter with public health unit), AIDS (date of diagnosis), active tuberculosis (date of diagnosis). It should be noted that while influenza case counts are reported by the season (September to August) in other public health surveillance reports, here the case counts are presented by calendar year.

Cases were determined as being from WEC if the case's public health unit of residence at the time of illness onset was determined as WEC. Cases who were not residents of Ontario at the time of diagnosis, had a missing outbreak number in iPHIS, classified as "entered in error", "does not meet" case definition, and "duplicate entry" were excluded.

On May 2018, the list of DOPHS was expanded to include blastomycosis, CPE infection or colonization, *echinococcus multiocularis* infection, and invasive *Haemophilus influenzae* (Hi) all types. At the same time, malaria and yellow-fever were removed and became no longer reportable to public health. For invasive Hi, prior to May 2018 only type B cases were reportable. Since all types have been made reportable to public health, case counts for the period after May 2018 are not comparable to past years. While outbreaks of respiratory infection and gastroenteritis (in institutions and hospitals), and *clostridium difficile* infection (CDI) (in hospitals) are covered under the list of DOPHS, they are not described in this report.

Rates of DOPHS presented are age-standardized to the 2011 Canadian population. When age-standardized rates were presented, cases of DOPHS with an unknown age were excluded. The denominator population data for on or before 2016 come from population estimates, and population data for 2017 and 2018 come from population projections, extracted from IntelliHEALTH Ontario. Additionally, when rates are presented by group (e.g. region, or disease grouping), some diseases were excluded to avoid double-counting of cases. For such instances, cases of AIDS, chronic hepatitis b, latent tuberculosis, and lab-confirmed varicella (chickenpox) were not included, as such cases may also be reflected as cases of HIV, acute hepatitis b, active tuberculosis, and cases of chickenpox reported in aggregate, respectively. When overall rates of DOPHS by year in WEC were compared to the province, diseases for which there were no comparable provincial data (those not included in PHO's ID Query Tool) were not considered. These diseases include: adverse events following immunization (AEFI); anthrax; chickenpox (varicella); CDI; hantavirus pulmonary syndrome; lassa fever; paralytic shellfish poisoning; acute poliomyelitis; severe acute respiratory syndrome (SARS); smallpox; latent tuberculosis infection (LTBI); diseases listed as "unknown".

Since iPHIS is a passive surveillance system, the data only represent cases reported to public health and recorded in iPHIS. As a result, all counts will be subject to varying degrees of underreporting due to a variety of factors, such as disease awareness and medical care seeking behaviours which may depend on severity of illness, clinical practice, changes in laboratory testing, and reporting behaviours. Cases of recently reported diseases that are rare should be interpreted with caution, as follow-up and verification by the health unit may still be in progress and may result in updates to the iPHIS records. Along with the previously mentioned PHO reports relating to DOPHS and the technical report, the ID Query Tool's metadata documentation, the *Factors affecting Reportable Diseases in Ontario (2018)* report and its attached appendix are great resources for interpreting the disease specific trends described in this report.

National Ambulatory Care Reporting System (NACRS)

The NACRS is an administrative health database from the Canadian Institute for Health Information and distributed by MOHLTC through the repository IntelliHEALTH Ontario. It contains data for all hospital-based and community-based ambulatory care such as day surgeries, outpatient and community-based clinics, and ED visits. In addition to service data, it also collects patient demographic information. The NACRS database was used to extract information regarding ED visits in WEC and Ontario. Mental-health and injury related ED visits were analyzed according to the methodology described in the technical documentation of the ED Visits for Injuries and Mental Health ED Visits Health Inequities snapshots. For oral-health related ED visits, the methodology in the *Oral Health Report Update (2018)* was followed to extract the data. For ED visits resulting from the below described conditions, patients records were included in the analyses if the records had the following 'all-problem' International Classification of Disease (ICD10-CA) diagnosis codes.

For ED visits resulting from substance use-related injuries, the following criteria were used to extract the data. Alcohol-related visits were defined with codes F100-119 (mental and behavioural disorders due to the use of alcohol), X65 (intentional self-poisoning by and exposure to alcohol) and T510-9 (toxic effects of alcohol). Opioid-related ED visits were identified with codes F110-119 (mental and behavioural disorders due to the use of opioids) and T400, T402-4 (poisoning by other opioids, methadone and other synthetic narcotics). Methamphetamine-related visits were classified with codes F151 (mental and behavioural disorders due to use of other stimulants, including caffeine). MDMA-related ED visits were determined using code T436 (psychostimulants with abuse potential). Cannabis-related ED visits were identified with codes F120-9 (mental and behavioural disorders due to the use of cannabinoids) and T407 (poisoning by cannabis (derivatives)). Cocaine-related hospitalizations were determined with codes F140-9 (mental and behavioural disorders due to the use of cocaine) and T405 (poisoning by cocaine).

Heat-related illness ED visits were defined with codes T67 (effects of heat and light) and X30 (exposure to excessive natural heat). Cold-related illness ED visits were defined with codes T33-T35 (frostbites), T68 (hypothermia), T69 (other effects of reduced temperature), and X31 (exposure to excessive natural cold). Respiratory illness were defined as codes J00-J99 (diseases of the respiratory system).

Public Health Ontario Snapshots

The following Snapshots (dashboards) from Public Health Ontario were used as a source of data for their respective topics: Alcohol-Attributable Hospitalizations Health Inequities; Cancer Incidence; Chronic Disease Mortality; ED Visits for Injuries; Low Birth Weight Health Inequities; Mental Health ED Visits Health Inequities; Ontario Marginalization index (ON-Marg); Potentially Avoidable Mortality Health Inequities; Reproductive Health; Risk Factors for Healthy Child Development. Please refer to their respective technical notes for more information on how indicators for these topic areas were calculated. See references.

Relative Index of Inequality (RII)

The relative index of inequality (RII) is a measure that indicates the level of inequality in a population. It indicates the occurrence of a health outcome with changes in socioeconomic status. When reported as a ratio, a value greater than 1.0 indicates the presence of inequality, with higher ratios indicating higher levels of inequality with respect to a health outcome. Data for RII were extracted through PHO's Snapshots: Alcohol-Attributable Hospitalizations Health Inequities; Potentially Avoidable Mortality Health Inequities; Low Birth Weight Health Inequities; Mental Health Emergency Department Visits Health Inequities. More information on the calculation and interpretation of the RII can be found with the technical documentation associated with each snapshot and also the following technical report from PHO: Summary Measures of Socioeconomic Inequalities in Health (2013).



WINDSOR-ESSEX COUNTY
HEALTH UNIT

Department of
Epidemiology and Evaluation

1005 Ouellette Avenue
Windsor, Ontario N9A 4J8
www.wechu.org
519-258-2146