

Population health in the townships of Waterloo Region

A summary report

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Introduction

Where we live affects our health in many ways, how we live, work and play and our access to health care and other services. The health status of people living in rural areas tends to differ from people living in urban centres. The 2015 Annual Report by the Chief Medical Officer of Health of Ontario, entitled Mapping Wellness: Ontario's Route to Healthier Communities (1), highlights the importance of understanding health status at community levels. It also emphasizes using local data to target programs, services and resources where they are needed most and issues recommendations on how to use local data to improve the health of Ontario's communities. The Ontario Public Health Standards, which outline the mandate for local public health, similarly emphasize the importance of using local data to ensure programs and services meet the needs of the local community (2).

The purpose of this report is to describe the health status of township residents of Waterloo Region, relative to the region and Ontario overall. To accomplish this purpose, a broad range of data sources were used to assess key demographic and health indicators, focusing on socio-demographics, overall measures of population health, morbidity and mortality, health behaviours and reproductive health. The most recent data were used wherever possible for each data source. A summary of the findings are provided here.

Key findings

Table 1. Key health trends in the townships compared to Waterloo Region overall

Category	Trend compared to Waterloo Region	Townships with trends
Population	Faster population growth (especially in past 10 years)	Wilmot, Woolwich
	Younger population, higher proportions of children and youth (19 years and under)	Wellesley
Socio-demographics	More couples and families with children	Wellesley
	Lower proportions of lone-parent families and single-person households	All
	Lower rates of formal education	Wellesley, Woolwich
	Lower proportions of immigrants and recent immigrants	All
	Higher prevalence of non-English languages spoken most often at home (German)	Wellesley, Woolwich
	Vast majority speaking English most often at home (>96%)	North Dumfries, Wilmot
	Higher median household incomes	All
	Lower prevalence of low income status	All
	Higher rates of commuting via walking or cycling	Wellesley, Woolwich
	Higher rates of commuting by private vehicle	All
Overall health	Similar leading causes of death (i.e., ischaemic heart disease and dementia)	All
	Similar top reasons for hospitalization (pregnancy and birth)	All
	Higher levels of sense of belonging to local community	Wilmot, Woolwich
	More likely to have a regular medical doctor	All
Chronic diseases	Similar prevalence for most common chronic conditions (e.g., blood pressure, arthritis)	All
Health-related behaviours	Similar smoking and alcohol-related behaviours	All
	Similar levels of leisure time physical activity	All
	Similar rates of overweight/obese body weight	All
	Higher proportion consuming vegetables or fruit five or more times per day	All
	Slightly lower hepatitis B and HPV immunization coverage rates in school-aged children	North Dumfries, Wellesley
Pregnancies and births	Lower total pregnancy rates	North Dumfries
	Teen pregnancy rates less than half the regional rate	All
	Lower rates of substance exposures (smoking, alcohol or drugs) during pregnancy	All
	Lower birth rate	North Dumfries, Wellesley
	Higher birth rate	Woolwich
	Higher average maternal age	Wilmot
	Lower average maternal age	Wellesley
	Higher large-for-gestational age rate	Wellesley, Wilmot, Woolwich
	Higher any and exclusive breastfeeding rates	Wellesley, Wilmot, Woolwich
	Lower exclusive breastfeeding rates	North Dumfries
	Higher home birth rates	Wellesley, Woolwich
Higher rates of midwifery care	Wellesley, Woolwich	

Population

The four townships of Waterloo Region — North Dumfries, Wellesley, Wilmot and Woolwich— represent approximately 67,500 people and about 12 per cent of the total population (3).

Overall, Waterloo Region grew 31.5 per cent from 1996 to 2016 (Table 2).

- Growth was slower in North Dumfries and Wellesley and higher in Wilmot and Woolwich, compared to the regional rate.
- Population growth in Wilmot and Woolwich has been especially high in the past 10 years (17.7 and 23.0 per cent) compared to the region overall (10.1 per cent).

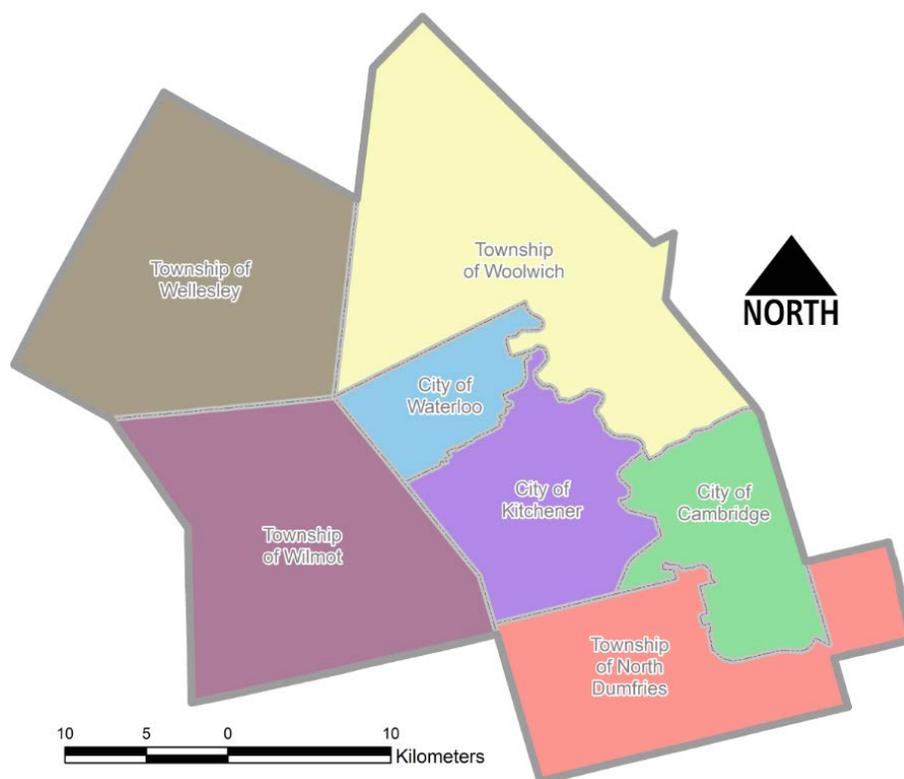


Table 2. Selected population characteristics, by township, Waterloo Region and Ontario, 2016

Place of residence	Population	Per cent of region	20-year growth rate (1996-2016)	Average age	Median age
North Dumfries	10,055	1.8	25.2	39.9	41.7
Wellesley	11,451	2.1	28.7	35.0	33.7
Wilmot	20,913	3.8	47.3	40.7	41.4
Woolwich	25,157	4.6	41.6	39.3	39.4
Waterloo Region	548,936	100.0	31.5	39.1	38.5
Ontario	13,983,984	-	26.2	41.0	41.3

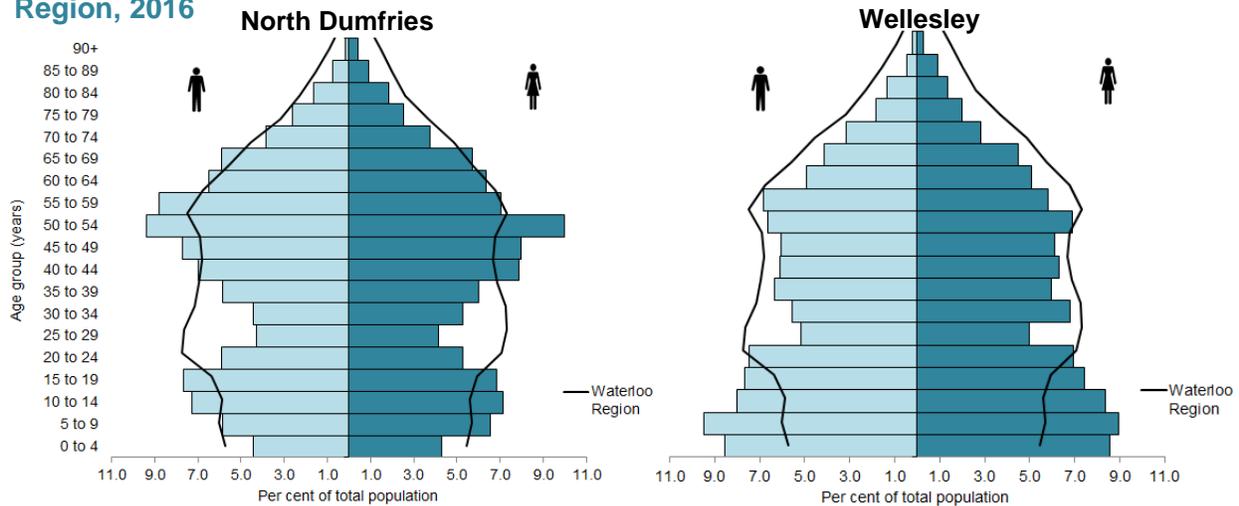
Source: Population Estimates (1996-2016). MOHLTC, IntelliHealth Ontario, Extracted January 24, 2019, and Canadian Census (2016). Census community profiles. Statistics Canada.

Waterloo Region as a whole has a younger population compared to the province.

- The age distribution of the Wilmot and Woolwich township populations similar, though on average slightly older, than the region overall (data not shown).

- Wellesley township has a much younger population compared to the region overall. There are higher proportions of children aged 19 years and under in Wellesley (bottom bars in figure), compared to the region (black line in Figure 1).
- North Dumfries, has slightly higher proportions of youth aged 5 to 19 years and adults 40 to 59 years, compared to Waterloo Region (Figure 1).

Figure 1. Per cent of population, by age and sex, North Dumfries, Wellesley and Waterloo Region, 2016



Source: Population Estimates (1996-2016). MOHLTC, IntelliHealth Ontario, Extracted January 24, 2019.

Family composition

The prevalence of different family compositions varied by municipality (4). In 2016, the four townships had:

- Fewer lone-parent families (4.3 to 6.3 per cent) compared to the region overall (9.1 per cent).
- More couple families, both with and without children. Wellesley township in particular had high proportions of couple families with children (44.9 per cent) compared to Waterloo Region overall (30.6 per cent).
- Lower proportions of one-person households (14.1 to 18.0 per cent) compared to the region overall (24.4 per cent).
- A higher proportion of married or common-law couples (ranging from 66.2 to 69.3 per cent) compared to the region and Ontario overall (58.4 and 57.3 per cent, respectively).
- Fewer single, never married individuals aged 15 years and older (20.1 to 26.6 per cent) compared to the region overall (28.1 per cent).

Education

The level of formal education completed for the population aged 15 years and older also varied by municipality (4).

- In Waterloo Region overall, 52.5 per cent of the population aged 15 and older had completed a post-secondary degree or diploma and 18.7 per cent had less than high school education, similar to the province overall (55.1 and 17.5 per cent).
- North Dumfries and Wilmot had rates similar to the region for formal education.
- Wellesley had a lower proportion with formal education than the region; 35.5 per cent of those aged 15 years or older had completed a post-secondary degree or diploma and 44.4 per cent had less than high school education.
- Meanwhile, in Woolwich the proportions were slightly lower than the region; 50.1 with a post-secondary degree and 25.4 per cent with less than high school.

Immigration

For Waterloo Region overall, 22.6 per cent of the population were immigrants (versus 29.1 per cent for all of Ontario) (4).

- The proportion of the population who were immigrants was much lower in the townships, from 6.2 per cent in Wellesley to 12.0 per cent in North Dumfries.
- The proportion of the immigrant population in Waterloo Region who had recently immigrated to Canada in Waterloo Region was similar to that for all of Ontario (11.8 and 12.3 per cent, respectively).
- Of those immigrants who resided in the townships of Waterloo Region, very few were recent immigrants (ranging from 1.2 per cent in North Dumfries to 9.7 per cent in Wellesley).

Indigenous identity

The proportion of the population who identified as Indigenous—that is, First Nations, Métis or Inuit—was relatively low in Waterloo Region overall (1.7 per cent), compared to Ontario (2.8 per cent) (4).

- The proportion that identified as Indigenous was similarly low in the townships of Waterloo Region (0.8 per cent in both Wellesley and Woolwich, 1.7 per cent in both North Dumfries and Wilmot).

Languages

For the majority of households in Waterloo Region and Ontario, the language spoken most often at home is predominantly English (4).

- For the townships, most non-English languages were spoken most often at home by less than two per cent of the population per language.
- North Dumfries and Wilmot township residents in particular were overwhelmingly English-speaking (Table 3).

- Wellesley stands out as unique, in that only 70 per cent of the population speaks English most often at home and the top non-English language, German, was spoken most often at home by more than a quarter of individuals (26.6 per cent).
- In Woolwich, 8.2 per cent of the population spoke German most often at home.

Table 3. Top languages other than English spoken most often at home, by township, Waterloo Region and Ontario, 2016

Rank	North Dumfries	Wellesley	Wilmot	Woolwich	Waterloo Region	Ontario
1	Portuguese	German	German	German	Mandarin	French
2	Punjabi/Serbian	Dutch	French/Polish	Dutch	German	Mandarin
3	Serbian	Romanian	Polish/Romanian	Punjabi	Spanish	Cantonese
4	French/Dutch	Polish	Romanian	Serbian	Arabic	Punjabi
5	Dutch/Polish	French	Serbian/Polish	Romanian	Portuguese	Spanish
% English	96.3	69.4	96.8	86.3	83.1	77.6

Source: Canadian Census (2016). Census community profiles. Statistics Canada.

Income and food insecurity

The 2015 median after-tax income for households for Waterloo Region was slightly higher than the province overall (4). The four townships each had a higher median after-tax household income than the region overall, with the highest median income in North Dumfries, 38 per cent higher than the regional value.

The Market Basket Measure (MBM) is one of three measures commonly used to describe the prevalence of low income status and has been recently adopted as Canada's official poverty line (5). In the 2015 tax year:

- The prevalence of low income status in Waterloo Region overall was lower than for Ontario (10.7 versus 13.9 per cent).
- The prevalence of low income status in the townships was about half that for the region overall.

Although MBM data were not available for analysis prior to 2015, the prevalence of low income status using another common measure (the Low Income Cut-Offs, or LICOs) demonstrated that low income status decreased in Waterloo Region and Ontario from 2005 to 2015 (data not shown) (6).

Table 4. Median after-tax household income and per cent of population with low income (Market Basket Measure), by township, Waterloo Region and Ontario, 2015

Place of residence	Median after-tax income	Per cent with low income
North Dumfries	\$93,978	3.5
Wellesley	\$85,308	6.9
Wilmot	\$83,270	4.1
Woolwich	\$84,269	5.6
Waterloo Region	\$67,887	10.7
Ontario	\$65,285	13.9

Source: Canadian Census (2016). Census community profiles. Statistics Canada.

A lack of adequate income can sometimes make it difficult for families to afford healthy food. In 2011-2014, the prevalence of food insecurity¹ for households in Waterloo Region overall was 8.3 per cent, compared to 8.4 per cent for all of Ontario (7). The proportion of households that were food insecure for the four townships combined was 6.7 per cent, although this difference was not statistically different from the Region overall.

Unemployment

The unemployment rate in Waterloo Region was 6.3 per cent in 2016, compared to 7.4 per cent for all of Ontario (4). The unemployment rates for the four townships were all lower than the regional rate, ranging from 2.3 per cent in Wellesley to 5.1 per cent in North Dumfries.

Mode of transportation to work

The most common mode of transportation to work for employed population aged 15 years and older in Waterloo Region was by private vehicle (e.g., car, truck or van; 87.7 per cent), followed by public transportation (5.9 per cent) and active transportation (e.g., walking, cycling; 5.5 per cent). Public transportation as mode of transportation to work was more common for Ontario overall (14.6 per cent) compared to Waterloo Region, though private vehicle was still most common (71.8 per cent).

Commuting by private vehicle was more common in the townships (ranging from 88.1 to 95.4 per cent) than the region overall. Wellesley and Woolwich residents were more likely to use active transportation to get to work (8.6 and 8.1 per cent, respectively) while North Dumfries and Wilmot residents were less likely (3.4 and 4.1 per cent). Less than one per cent of employed township residents used public transportation to get to work.

¹ Food insecurity refers to households that compromised on quality or quantity of food consumed, including severe disruption of eating patterns, for income-related reasons.

Mortality

An assessment of mortality trends gives insights into the most severe health problems affecting the population. With small populations, such as those in the townships, natural variation in the mortality rates are expected over time, so trends over time by township were not assessed in detail, though mortality trends for Waterloo Region and Ontario showed a slow general decline over the past 10 years (Table 5) (8).

Table 5. Leading causes of death and all-cause age-standardized mortality rate per 100,000 population, by rank order and township, Waterloo Region and Ontario, 2011-2015

Cause of death	North Dumfries	Wellesley	Wilmot	Woolwich	Waterloo Region	Ontario
Ischaemic heart disease	1	1	1	1	1	1
Alzheimer and dementia	3	2	2	2	2	2
Lung cancer	2	4	4		3	3
Cerebrovascular disease	5	3	3	3	4	4
COPD*				5	5	5
Colorectal cancer	4			4	6	6
Blood and lymph cancers			5		7	8
Falls		5			9	9
All-cause (total) mortality rate	606.9	656.9	594.8	660.6	687.0	660.1

Source: Vital Statistics Deaths (2011-2015). MOHLTC, IntelliHealth Ontario, Extracted February 7, 2019 and Population Estimates (2011-2015). MOHLTC, IntelliHealth Ontario, Extracted January 24, 2019. COPD = chronic obstructive pulmonary disease, which includes emphysema and chronic bronchitis. All-cause mortality rates are age-standardized to the 2011 Canadian population.

In general, the all-cause age-standardized mortality rates for the townships were similar to or slightly lower than the regional and provincial rates; Wilmot had the lowest mortality rate.

The top five leading causes of death in Waterloo Region and Ontario were the same for 2011 to 2015.

- Ischaemic heart disease was the leading cause of death for all four townships, Waterloo Region and Ontario.
- Alzheimer disease and dementia combined were the second leading cause of death for Waterloo Region and Ontario, as well as most of the townships.
- The remaining leading causes of death in the townships varied slightly, but were within the top 10 causes of death for Waterloo Region and Ontario (Table 5).

Premature mortality

Premature mortality provides an indication of the causes of early death—that is, death prior to age 75—and is measured in potential years of life lost, an international standard

of measure. Over the ten-year period from 2006 to 2015, the leading causes of premature mortality in Waterloo and Ontario varied (8).

- Ischaemic heart disease was the leading cause of premature death in Waterloo Region, whereas in Ontario the leading cause of premature death was suicide, which was second in Waterloo Region.
- Ischaemic heart disease and suicide were in the top five causes of premature mortality for all of the townships, except Wellesley, where suicide ranked number 10² (Table 6).

Table 6. Leading causes of premature death, by rank order and township, Waterloo Region and Ontario, 2006-2015

Cause of premature death	North Dumfries	Wellesley	Wilmot	Woolwich	Waterloo Region	Ontario
Ischaemic heart disease	3	5	1	3	1	2
Suicide	1		2	4	2	1
Lung cancer	4	4	3	5	3	3
Perinatal conditions*		1	4	1	4	
Transport collisions		3		2	5	4
Accidental poisoning					6	5
Blood and lymph cancers			5		7	6
Breast cancer					8	
Congenital anomalies		2			9	8
Colorectal cancer	5				10	7
Liver cirrhosis	2					9

Source: Vital Statistics Deaths (2006-2015). MOHLTC, IntelliHealth Ontario, Extracted February 7, 2019 and Population Estimates (2006-2015). MOHLTC, IntelliHealth Ontario, Extracted January 24, 2019.

*Perinatal conditions includes disorders, infections or traumatic injury to mothers or newborns related to pregnancy, labour and delivery.

Overall health and sense of belonging

From 2009 to 2014, 60.6 per cent of Waterloo Region residents aged 12 years and older reported their general health as very good or excellent, a similar proportion to Ontario at 60.3 per cent (7).

- A similar proportion rated their general health as very good or excellent in the townships combined (59.6 per cent).

²Relatively low suicide prevalence in Wellesley could be due to several possible explanations, including a protective community factor, greater misclassification of cause of death, or simply variation due to relatively small numbers. Similarly, the high ranking of perinatal conditions for Wellesley could be due to several possible reasons including variation due to small numbers. More research is needed to determine the cause of such trends in premature mortality.

- In Waterloo Region, women were slightly more likely to rate their health as very good or excellent compared to men (62.9 versus 58.3 per cent), though the difference was not statistically significant. The differences by sex were similar for the townships (data not shown).
- By age, the proportion of the Waterloo Region population who rated their health as very good or excellent was highest in 18 to 24 year olds (71.9 per cent) and declined significantly with age (43.9 per cent for adults 65 years and older). The trend by age was similar for the townships (data not shown).

From 2009 to 2014, a similar proportion of residents in the townships, Waterloo Region and Ontario rated their mental health as very good or excellent (72.9, 71.8 and 72.4 per cent, respectively) (7).

- In Waterloo Region, women were less likely than men to rate their mental health as very good or excellent (69.9 versus 73.6 per cent), though the difference was not statistically significant.
- The proportion rating their mental health as very good or excellent declined significantly with age (80.3 per cent for 12 to 17 year olds, down to 67.2 per cent in adults aged 65 years and older).
- The proportion of residents who rated their mental health as very good or excellent varied between the townships (62.0 per cent in North Dumfries to 80.5 per cent in Wilmot), though the differences were not statistically significant.

From 2009 to 2014, 66.9 per cent of Waterloo Region residents aged 12 years and older reported feeling a strong or very strong sense of belonging to their local community, a similar proportion to that for all of Ontario (67.8 per cent).

- The proportion of the population reporting a strong or very strong sense of belonging in the townships was significantly higher in Wilmot and Woolwich (86.1 and 82.9 per cent, respectively) than the region overall.
- The proportions for North Dumfries and Wellesley (65.2 and 79.0 per cent, respectively) were not significantly different than that for Waterloo Region overall.

Hospitalizations

Examining common reasons for hospitalizations provides insight into trends for the most severe morbidity in a population. The following results exclude hospital stays with mental disorder diagnosis, as these cases are reported from a separate database.

From 2008 to 2017, hospitalization rates remained fairly steady over time for Waterloo Region, Ontario and all four townships (9).

- In 2017, the total age-standardized hospitalization rate for Waterloo Region was lower than that for Ontario and the rates for each of the townships were lower than that for Waterloo Region (Table 7).

- From 2013 to 2017, the top reasons for hospitalization were similar for Waterloo Region and Ontario.
- By far, the most common reasons for hospitalization in Waterloo Region, Ontario and the townships were pregnancy and birth-related hospitalizations for women. The next most common reasons were similar across locations (Table 7).

Table 7. Top reasons for hospitalization and total age-standardized hospitalization rate per 100,000, by rank order and township, Waterloo Region and Ontario, 2013-2017

Reason for hospitalization	North Dumfries	Wellesley	Wilmot	Woolwich	Waterloo Region	Ontario
Labour and delivery	1	1	1	1	1	1
Pregnancy-related complications	2	2	2	2	2	2
Other cancer [†]	5	4	4	4	3	3
Knee arthrosis	3	3	3	3	4	6
Acute heart attack	4				5	4
COPD [*]					6	5
Hip arthrosis		5				
Other circulatory disease			5			10
Pneumonia				5	8	8
Total hospitalization rate (2017)	4,492.9	4,626.9	4,759.4	4,289.2	5,573.7	5,801.9

Inpatient discharges (2013-2017). MOHLTC, IntelliHealth Ontario, Extracted January 24, 2019 and Population Estimates (2013-2017). MOHLTC, IntelliHealth Ontario, Extracted January 24, 2019.

[†]I.e., malignant neoplasm other than colorectal, lung, skin, breast, uterine, ovarian, prostate, or bladder.

^{*}COPD = chronic obstructive pulmonary disease, which includes emphysema and chronic bronchitis.

Total hospitalization rates are age-standardized to the 2011 Canadian population.

Looking specifically at injury-related reasons for hospitalization from 2013 to 2017, the top four, in order, for both Waterloo Region and Ontario were the same: falls, intentional self-harm, motor vehicle collisions and accidental poisoning (9). In the townships, the top two injury-related reasons for hospitalization were similar, with falls first and motor vehicle collisions second, except in Woolwich with intentional self-harm in second. Falls were by far the leading injury-related reason for hospitalizations for Waterloo Region, Ontario and the townships, with rates for falls often two to four times higher than the next leading injury type.

Health service use and unmet health needs

From 2009 to 2014, the vast majority of the population aged 12 years and older in both Waterloo Region and Ontario reported having a regular medical doctor (92.7 and 91.2 per cent, respectively) (7).

- Township residents were significantly more likely to report having a regular medical doctor compared to Waterloo Region (100.0, 97.0 and 97.8 per cent in North Dumfries, Wellesley and Wilmot), except Woolwich (95.6 per cent).

- Women in Waterloo Region were more likely to report having a regular medical doctor than men, although the difference was not statistically significant (data not shown).

From 2013 to 2014, three-quarters of the population aged 12 years and older reported visiting a dentist at least one in the past 12 months in both Waterloo Region and Ontario (75.4 and 72.7 per cent, respectively) (7).

- A similar proportion for the townships overall reported having visited a dentist within the past 12 months. The proportion varied slightly by township, although the differences were not statistically significantly different; 79.4, 62.1, 80.2 and 75.5 per cent in North Dumfries, Wellesley, Wilmot and Woolwich, respectively).

From 2013 to 2014, approximately one in ten residents of Waterloo Region and Ontario aged 12 years and older reported having one or more unmet health need (9.5 and 10.6 per cent, respectively) (7).

- In Waterloo Region and Ontario, females were significantly more likely to report having an unmet health need compared to males (in Waterloo Region, 13.0 versus 6.0 per cent in Waterloo Region; data not shown).
- The proportion of residents with unmet health needs for the townships was not statistically reliable enough to report.

Chronic conditions

- From 2009 to 2014, approximately half (54.7 per cent) of the population aged 12 years and older in Waterloo Region reported having at least one chronic condition, a similar proportion to that for all of Ontario (53.9 per cent) and the townships (52.5 per cent; Table 8) (7).
- Overall, the most common chronic conditions reported in Waterloo Region were back problems (18.9 per cent), high blood pressure (15.5 per cent), arthritis (15.0 per cent) and migraines (12.3 per cent).
- The most prevalent chronic conditions were similar for township residents: arthritis (18.8 per cent), back problems at 16.9 per cent, high blood pressure at 15.3 per cent and migraines at 10.4 per cent).

Table 8. Proportion of the population aged 12 years and older with a chronic condition, Waterloo Region and townships (combined), 2009-2014

Chronic Condition	Waterloo Region		Townships (combined)	
Back problems	18.9	(CI: 17.0-20.9)	16.9	(CI: 13.1-20.6)
High blood pressure	15.5	(CI: 14.2-16.8)	15.3	(CI: 10.6-20.0)
Arthritis	15.0	(CI: 13.5-16.4)	18.8	(CI: 14.7-23.0)
Migraines	12.3	(CI: 10.6-13.9)	10.4	(CI: 7.0-13.9) ^E
Mood disorder	8.3	(CI: 7.2-9.5)	6.4	(CI: 2.7-10.0) ^E
Asthma	8.1	(CI: 6.9-9.2)	8.7	(CI: 5.3-12.1) ^E
Anxiety disorder	7.8	(CI: 6.4-9.3)	3.4	(CI: 1.3-5.6) ^E
Diabetes	7.7	(CI: 6.2-9.3)	4.6	(CI: 2.6-6.6) ^E
COPD	4.7	(CI: 3.7-5.6)	3.8	NR
Urinary incontinence	4.3	(CI: 3.5-5.1)	4.0	(CI: 1.7-6.3) ^E
Heart disease	4.2	(CI: 3.5-5.0)	6.7	(CI: 3.3-10.0) ^E
Bowel disorder	4.0	(CI: 3.2-4.7)	3.1	(CI: 1.7-4.6) ^E
Ulcers	2.0	(CI: 1.4-2.5)	1.2	NR
Cancer	1.7	(CI: 1.2-2.1)	1.2	(CI: 0.6-1.9) ^E
Effects of stroke	1.2	(CI: 0.8-1.6)	1.0	NR
Dementia	0.9	(CI: 0.4-1.4) ^E	0.8	NR
Total with one or more	54.7	(CI: 52.6-56.8)	52.5	(CI: 46.2-58.7)

Source: Canadian Community Health Survey (CCHS) (2009-2014). Statistics Canada, Ontario Share File, MOHLTC.

CI = 95 per cent confidence intervals.

^E = high sampling variability, interpret estimates with caution; NR = not reportable.

Smoking and second-hand smoke exposure

Table 9 shows selected smoking-related indicators for the townships, Waterloo Region and Ontario for 2009 to 2014 (7).

From 2009 to 2014, there were similar proportions of adults aged 19 and older who currently smoked or smoked daily, in Waterloo Region and Ontario.

- The proportion of adult current smoking was similar in the townships to Waterloo Region and Ontario, but the proportion of daily smoking was significantly lower in the townships compared to the region and the province.
- In all locations, males were more likely to currently smoke or smoke daily compared to females, although the differences were not statistically significant for Waterloo Region or the townships (data not shown).

Table 9. Per cent of population with selected smoking-related behaviours or exposures, by townships, Waterloo Region and Ontario, 2009-2014

Indicator	Townships (combined)		Waterloo Region		Ontario	
Adult (age 19+) current smoking	15.2	(CI: 10.1-20.3) ^E	19.8	(CI: 17.7-21.8)	19.8	(CI: 19.4-20.3)
Adult (age 19+) daily smoking	9.2	(CI: 5.3-13.1) ^E	14.9	(CI: 13.2-16.7)	15.1	(CI: 14.7-15.4)
Youth (age 12-18) who never smoked a whole cigarette	89.2	(CI: 79.2-99.1)	89.2	(CI: 85.9-92.5)	87.7	(CI: 86.8-88.5)
Any second hand smoke exposure (age 12+)	15.2	(CI: 10.6-19.8)	17.2	(CI: 15.4-19.0)	19.0	(CI: 18.5-19.5)

Source: CCHS (2009-2014). Statistics Canada, Ontario Share File, MOHLTC.

CI = 95 per cent confidence intervals; ^E = high sampling variability, interpret estimates with caution.

From 2009 to 2014, the majority of youth aged 12 to 18 years in the townships Waterloo Region and Ontario had never smoked a whole cigarette.

- Girls were more likely to have never smoked a whole cigarette compared to boys at the provincial level; there were no significant differences by sex for the townships or Waterloo Region (data not shown).

From 2009 to 2014, the proportion of the population aged 12 years and older in Waterloo Region who reported any second hand smoke exposure was similar in the townships, Waterloo Region and Ontario.

- In Waterloo Region, exposure in public places was most common (11.9 per cent), followed by in a private vehicle and at home (5.7 and 3.5 per cent). There were similar proportions by venue for the townships and province (data not shown).
- Adults aged 18 to 24 years in Waterloo Region were significantly more likely to report any exposure to second hand smoke (32.5 per cent) compared to all older age groups (ranging from 10.0 to 18.8 per cent). There was a similar statistically significant trend by age in the townships (data not shown).

Alcohol behaviours

Table 10 shows the prevalence of selected alcohol behaviours in the townships, Waterloo Region and Ontario (7).

Table 10. Proportion of population aged 12 years and older with selected alcohol behaviours, by township, Waterloo Region and Ontario, 2013-2014

Indicator	Townships (combined)		Waterloo Region		Ontario	
Regular drinking	57.3	(CI: 42.4-72.1)	63.4	(CI: 59.5-67.3)	56.0	(CI: 55.2-56.9)
Average weekly consumption	4.1	(CI : 2.7-5.4) ^E	4.3	(CI : 3.7-4.8)	4.3	(CI: 4.2-4.5)
Exceeding low-risk drinking guidelines*	52.2	(CI: 41.1-63.3)	52.3	(CI: 47.8-56.8)	43.0	(CI: 42.1-44.0)
Heavy drinking	21.1	(CI: 13.2-29.1) ^E	18.2	(CI: 14.9-21.4)	16.6	(CI: 16.0-17.3)
Underage drinking	31.3	(CI: 12.6-50.0) ^E	29.4	(CI: 19.8-39.1) ^E	31.0	(CI: 28.8-33.3)

Source: CCHS (2013-2014). Statistics Canada, Ontario Share File, MOHLTC.

CI = 95 per cent confidence intervals; ^E = high sampling variability, interpret estimates with caution.

Regular drinking = at least one drink per month in the past 12 months.

Average weekly consumption is measured among those who drank any alcohol in the past 12 months.

Underage drinking = youth 12 to 18 years consuming any alcohol in the past 12 months.

*See Canada's low-risk alcohol drinking guidelines: <http://www.ccsa.ca/Resource%20Library/CCSA-Canada-Low-Risk-Alcohol-Drinking-Communications-Toolkit-2018-en.pdf>.

Heavy drinking = at least one binge drinking episode per month in the past 12 months; binge drinking = 5 or more drinks (males) or 4 or more drinks (females) on one occasion.

From 2013 to 2014, about two-thirds of the population aged 12 years and older in Waterloo Region reported regularly drinking alcohol, a significantly higher proportion than Ontario.

- The proportion for the townships was not significantly different than those for Waterloo Region or Ontario.
- In Waterloo Region, the proportion who drank regularly decreased significantly over the lifespan after age 19 (72.4 per cent in 19 to 24 year olds to 54.3 per cent in 65 years and older). Those aged 12 to 18 years were significantly less likely to report regular drinking (11.7 per cent) than adults 19 and older (data not shown).

From 2013 to 2014, average weekly alcohol consumption was similar in the townships, Waterloo Region and Ontario (about four drinks).

- Males in Waterloo Region had a significantly higher weekly average number of drinks compared to females (5.4 versus 3.1 per cent, respectively; data not shown).

For 2013 to 2014, the proportion of the population aged 19 years and older who drank in excess of Canada's Low-Risk Alcohol Drinking Guidelines (15) was higher in Waterloo Region than Ontario.

- The proportion for the townships was not significantly different than those for Waterloo Region or Ontario.
- Men in Waterloo Region were significantly more likely to drink in excess of the guidelines than women (57.0 versus 47.5 per cent, respectively; data not shown).

For 2013 to 2014, the proportion of the population aged 12 years and older in Waterloo Region who engaged in heavy drinking³ was similar to that for all of Ontario.

- The proportion for the townships was not significantly different than those for Waterloo Region or Ontario.
- Men in Waterloo Region were significantly more likely to engage in heavy drinking than women (23.3 versus 13.2 per cent, respectively; data not shown).
- The prevalence of heavy drinking in Waterloo Region declined over the lifespan (32.4 per cent for 19 to 24 years to 16.1 per cent in 50 to 64 years; data not shown).

The prevalence of underage drinking in youth aged 12 to 18 years was similar in the townships, Waterloo Region and Ontario.

Physical activity, healthy eating and body weight

Table 11 shows the prevalence of selected indicators related to physical activity, healthy eating and body weight (7).

Table 11. Proportion of population aged 12 years and older by selected indicators, townships (combined), Waterloo Region and Ontario, 2013-2014

Indicator	Townships (combined)	Waterloo Region	Ontario
Moderately active/ active	67.9 (CI: 56.4-79.3)	58.4 (CI: 54.3-62.4)	53.7 (CI: 52.7-54.6)
Vegetables or fruit 5+ times/day	52.1 (CI: 42.2-62.0)	41.2 (CI: 37.4-44.9)	38.9 (CI: 38.0-39.7)
Overweight/obese adult (18+) BMI	57.2 (CI: 45.7-68.6)	55.4 (CI: 51.6-59.1)	54.3 (CI: 53.5-55.2)

Source: CCHS (2009-2014). Statistics Canada, Ontario Share File, MOHLTC.

CI = 95 per cent confidence intervals.

Physical activity level refers to activity during leisure time (outside time spent at school or work).

BMI = Body Mass Index.

From 2013 to 2014, a majority of the population aged 12 years and older in the townships, Waterloo Region and Ontario reported being physically active or moderately active during their leisure time.

- The proportion in the townships who were active or moderately active decreased significantly over the lifespan (69.6 per cent for 12 to 17 years to 43.8 per cent in

³ Heavy drinking refers to cases where individuals binge drink at least once a month in the past 12 months; binge drinking is 5 or more drinks on one occasion for men or 4 or more drinks on one occasion for women.

65 years and older), a trend similar to that seen in Waterloo Region overall (data not shown).

From 2013 to 2014, about 40 per cent of the population aged 12 years and older in Waterloo Region and Ontario reported consuming vegetables or fruit, five or more times per day.

- The proportion in the townships was significantly higher than that for Ontario.
- Men in Waterloo Region were significantly less likely than women to consume vegetables or fruit five or more times per day (31.6 versus 46.1 per cent; data not shown).
- A similar trend was seen in the townships (41.2 and 53.9 per cent for males versus females), although the difference was not statistically significant (data not shown).

For 2013 to 2014, just over half of adults in the townships, Waterloo Region and Ontario had overweight or obese body weight (as measured using body mass index or BMI).

- Men in the townships were significantly more likely than women to report an overweight or obese body weight (68.0 versus 41.0 per cent, respectively), mirroring a similar trend in Waterloo Region (data not shown).
- The proportion of adults in the townships with overweight or obese body weight increased significantly with age (25.1 per cent for 18 to 24 years to 75.1 per cent for 65 years and older), mirroring a similar statistically significant trend in Waterloo Region (data not shown).

Immunization compliance for school-age children

Table 12 shows the proportion of school-age children, specifically, elementary and secondary students in publicly funded English-speaking schools, who are compliant with the requirements of the Immunization of School Pupils Act (ISPA), by township and for Waterloo Region (16). A detailed explanation of the ISPA and Public Health's role in enforcing the Act can be found elsewhere (17).

In general, immunization compliance rates in Waterloo Region for school-age children in the 2017-18 school year were very high (above 95 per cent).

- It is worth noting that the rate of valid exemptions, which are part of the compliance rates, were around 3.5 to 4 per cent; immunization rates of school-age children were thus slightly lower than compliance rates.
- Regional coverage rates for hepatitis B and human papillomavirus (HPV), neither of which are mandatory vaccinations, were between 60 to 70 per cent.
- By township, the immunization compliance rates were generally similar to the regional rates. The hepatitis B and HPV immunization coverage rates were somewhat lower in North Dumfries and Wellesley compared to the region.

Table 12. Immunization of School Pupils Act compliance and coverage rates, by vaccine type and by township, Waterloo Region, 2017-2018 school year

Place of residence	Compliance rate				Coverage rate	
	DPTP	MMR	Varicella	Men C	Hep B	HPV
	2000-13	2000-13	2010-13	2000-13	2005	2005
North Dumfries	98.6	98.6	95.1	99.9	60.8	53.2
Wellesley	98.7	99.0	96.4	99.8	64.8	43.0
Wilmot	98.3	99.2	96.2	99.9	66.7	61.7
Woolwich	97.9	99.0	96.3	99.9	68.0	60.1
Waterloo Region	97.4	98.9	96.0	99.7	69.8	62.5
Region exemption rate	3.6	3.7	3.8	3.8	3.0	<0.1

Source: Region of Waterloo Public Health and Emergency Services (2017-2018). Panorama, MOHLTC. Extracted July 7-21, 2018.

The data represent elementary and secondary students in English public and Catholic schools. Years with each vaccination represent the student birth cohorts for which the rates are presented. Compliance means students not overdue to receive a vaccine dose or who have a valid exemption. DPTP = Diphtheria, Pertussis, Tetanus, Poliomyelitis; MMR = Measles, Mumps, Rubella. Men C = Meningococcal disease; Hep B = Hepatitis B; HPV = Human papillomavirus. Coverage (Hep B and HPV only) represents Grade 7 students with completed immunization series.

Pregnancies

Total pregnancy rates for Waterloo Region and Ontario overall were steady over time from 2013 to 2016, though trends shifted by age, with rates increasing in mothers aged 30 or older and decreasing in mothers aged 25 and younger (10).

Table 13. Three-year average total (15-49) and teen (15-19) pregnancy rates per 1,000 females, by township, Waterloo Region and Ontario, 2014-2016

Place of residence	Total pregnancy rate	Teen pregnancy rate
North Dumfries	43.2	6.8
Wellesley	51.8	5.5
Wilmot	58.7	8.0
Woolwich	59.6	6.1
Waterloo Region	55.9	16.0
Ontario	54.6	15.9

Source: Medical Services Data (2013-2016). Therapeutic Abortions Report v3. MOHLTC, IntelliHealth Ontario, Extracted January 25, 2019 and BORN Information System (2013-2016). Better Outcomes Registry and Network (BORN) Ontario, Extracted January 31, 2019 and Population Estimates (2013-2016). MOHLTC, IntelliHealth Ontario, Extracted January 24, 2019.

- Three-year total pregnancy rates for 2014 to 2016 for Waterloo Region and Ontario were similar.
- Total pregnancy rates for Wellesley, Wilmot and Woolwich townships were fairly similar to the regional rate, but the rate for North Dumfries was lower.
- Teen pregnancy rates in the townships were less than half the regional rate.

- About one-fifth of pregnancies were represented by therapeutic abortions while the remaining pregnancies resulted in live or stillbirths; by contrast, in teens, therapeutic abortions represented roughly half of all pregnancies, a trend for all the townships as well as Waterloo Region and Ontario overall.

Health during pregnancy

Table 14 shows selected indicators related to health during pregnancy for Waterloo Region, Ontario and the townships (11,12). The proportion of women who smoked during pregnancy was less in each of the townships compared to Waterloo Region or Ontario.

- From 2013 to 2017, the proportion of women in Waterloo Region who smoked during pregnancy decreased from 2013 to 2017 (8.9 to 7.2 per cent; data not shown).
- The majority (60.8 per cent) of women who did smoke during pregnancy smoked less than 10 cigarettes per day (data not shown).

From 2013 to 2017, the proportion of women who consumed alcohol during pregnancy was small and fairly stable over time in the townships, Waterloo Region and Ontario.

- Half of women who consumed alcohol during pregnancy did so prior to knowing they were pregnant; about another third of women consumed less than one drink per month during pregnancy (data not shown).

Table 14. Per cent of women who gave birth, by selected indicators on health during pregnancy and township, Waterloo Region and Ontario, 2013 to 2017

Indicator	North Dumfries	Wellesley	Wilmot	Woolwich	Waterloo Region	Ontario
Any smoking	4.2	1.0	5.4	2.4	8.0	7.5
Any alcohol exposure	2.5	2.1	2.5	1.8	2.4	2.1
Any drug or substance exposure	NR	NR	0.8	0.4	1.7	2.0
Any mental health concerns	20.4	15.5	15.8	13.3	18.9	15.9
Overweight/ obese pre-pregnancy body mass index (BMI)	46.0	51.8	45.1	43.8	44.0	42.0
Excess weight gain during pregnancy	50.4	45.7	50.9	50.7	49.6	46.9*

Source: BORN Information System (2013-2017). BORN Ontario, Extracted January 31 and February 27, 2019; BORN custom data request (2013-2017). BORN Ontario, Extracted March 27, 2019.

NR = Not reportable due to small counts (i.e., less than 6).

*Caution should be used with this estimate, due to missing data prevalence between 10 to 30 per cent – proportion excludes missing data from the denominator.

From 2013 to 2017, the proportion of women exposed to drugs or substances⁴ during pregnancy was slightly lower in Waterloo Region compared to Ontario.

- The proportion of women who used substances during pregnancy was lower in townships than the region overall, with rates so low that they were not reportable in North Dumfries or Wellesley.
- Overall, for Waterloo Region, the majority of women who used substances during pregnancy reported cannabis use (70 per cent); 17.6 per cent used opioids and about 11.8 per cent used cocaine (data not shown).

The proportion of women with any mental health concerns during pregnancy was 18.9 per cent for the Region and varied slightly in the townships, with the rate in North Dumfries slightly higher than the regional rate and the rate in Wellesley, Wilmot and Woolwich slightly lower.

- Over half of the women in the region with at least one mental health concern during pregnancy had anxiety and about half had depression. About 12 per cent of those with a mental health concern had a history of postpartum depression from a previous birth (data not shown).

The proportion of women with overweight or obese body pre-pregnancy body weight was fairly stable in Waterloo Region and Ontario from 2013 to 2017.

- Overall, just under half of women in the region had overweight or obese pre-pregnancy body weight and about half of women gained more weight during their pregnancy than recommended (13).
- Most of the townships had similar proportions of overweight or obese body weight to Waterloo Region and Ontario, except Wellesley, with a slightly higher proportion of women with overweight or obese body pre-pregnancy mass index.
- Women with underweight pre-pregnancy body weight were most likely to gain weight during pregnancy within recommended ranges (31.2 per cent); women with overweight/obese body weight were most likely to gain more than recommended (63.0 per cent; data not shown).

Live births and maternal age at birth

The live birth rates for Waterloo Region and Ontario were fairly consistent over time from 2013 to 2017, with a slightly higher rate in the region compared to the province (Table 15) (11).

- Overall, births in the townships represent about one-tenth (11.3 per cent) of all live births in the region.

⁴ Drug and substance exposure refers to use of illicit drugs or other substances excluding alcohol, tobacco and appropriate use of prescription and non-prescription drugs.

- North Dumfries had a consistently lower birth rate than for all of Waterloo Region.
- The live birth rates for Wilmot and Wellesley were similar to the region and the rate for Woolwich was higher than the regional rate.

Table 15. Number and rate of live births per 1,000 population, by township, Waterloo Region and Ontario, 2013-2017

Indicator	Year	North Dumfries	Wellesley	Wilmot	Woolwich	Waterloo Region	Ontario
Number of live births	2013	95	119	217	306	5,860	139,244
	2014	70	117	221	305	5,976	128,998
	2015	88	131	236	279	5,979	138,910
	2016	84	109	227	295	5,972	140,128
	2017	74	137	204	273	6,115	139,427
Live birth rate (per 1,000 population)	2013	9.7	10.6	10.7	12.5	11.0	10.3
	2014	7.2	10.4	10.9	12.5	11.2	9.5
	2015	8.9	11.6	11.4	11.2	11.0	10.1
	2016	8.4	9.5	10.9	11.7	10.9	10.0
	2017	7.2	11.8	9.6	10.7	11.0	9.8

Source: BORN Information System (2013-2017). BORN Ontario, Extracted January 31, 2019.

Overall, the average age of mothers at the time of their infant's birth has been increasing slowly over time in both Waterloo Region and Ontario (11).

- The average maternal age in Waterloo Region has been consistently about 0.5 years younger than that for all of Ontario (data not shown) (13).
- From 2013 to 2017, the average maternal age increased over time in Wilmot and Wellesley, but remained steady over time in North Dumfries and Woolwich.

Table 16. Per cent of women who gave birth and average age at infant's birth, by age group and by township, Waterloo Region, 2013-2017

Age (years)	North Dumfries	Wellesley	Wilmot	Woolwich	Waterloo Region	Ontario
Less than 20	NR	NR	0.8	0.7	2.1	2.1
20 to 24	9.9	19.8	6.4	10.9	11.7	10.7
25 to 29	31.0	30.2	34.6	31.3	30.4	27.1
30 to 34	41.6	30.2	43.9	38.8	36.7	41.1
35 to 39	15.0	15.5	13.0	16.1	16.2	19.1
40 and older	1.5	3.8	1.3	2.2	3.0	4.3
Average age (all)	30.3	29.5	30.3	30.3	30.1	NA
Average age (first birth)	28.5	27.3	29.0	28.6	28.5	NA

Source: BORN Information System (2013-2017). BORN Ontario, Extracted January 31 and March 5, 2019.

NA = Not available; NR = Not reportable due to small counts (i.e., less than 6).

- Over time, North Dumfries and Wellesley tended to have a younger average maternal age compared to Waterloo Region overall, while Wilmot and Woolwich were similar or older than the regional average.

Birth outcomes

Table 17 shows selected birth-related indicators for Waterloo Region and Ontario for 2013 to 2017 (11,12).

Table 17. Selected birth-related indicators, by township, Waterloo Region and Ontario, 2013-2017

Indicator	North Dumfries	Wellesley	Wilmot	Woolwich	Waterloo Region	Ontario
Preterm (<37 weeks) birth rate	7.3	7.0	6.8	7.4	7.3	7.9
Small for gestational age rate (<10 th percentile)	4.0	6.1	6.8	6.8	8.6	9.5
Large for gestational age rate (>90 th percentile)	10.1	12.6	12.9	14.2	10.7	9.8
Any breastfeeding rate*	95.1	94.9	95.8	96.1	93.3	91.3
Exclusive breastfeeding rate*	73.8	80.4	83.8	83.9	75.9	62.7
Per cent with midwifery care (prenatal)	25.4	36.7	21.5	30.9	19.4	16.6
Home birth rate	5.4	10.6	4.2	7.9	4.3	2.7

Source: BORN Information System (2013-2017). BORN Ontario, Extracted January 31 and February 27, 2019; BORN custom data request (2013-2017). BORN Ontario, Extracted March 27, 2019.

*Breastfeeding rates as of time of hospital discharge, or three days postpartum for midwifery clients. Any breastfeeding refers to feeding breastmilk, either alone or in combination with artificial baby milk; exclusive breastfeeding refers to feeding breastmilk only.

Preterm birth, any and exclusive breastfeeding rates are reported as per cent of live births.

Small and large for gestational age rates are reported as per cent of singleton live births.

Per cent with midwifery care and home birth rate are reported as per cent of women who gave birth.

From 2013 to 2017, the preterm birth rate – the proportion of infants born prior to 37 weeks' gestation – was steady over time in Waterloo Region (7.3 per cent) and consistently lower than that for all of Ontario (7.9 per cent).

- North Dumfries and Woolwich had preterm birth rates similar to the regional rate, while Wellesley and Wilmot had slightly lower rates.

From 2013 to 2017, the proportion of singleton infants born small for gestational age (SGA; i.e., below the 10th percentile) was fairly consistent over time for Waterloo Region (8.6 per cent) and was lower than for the province overall (9.5 per cent).

- The SGA rate was consistently lower in the townships compared to the region.

From 2013 to 2017, the proportion of singleton infants born large for gestational age (LGA; i.e., above the 90th percentile) in Waterloo Region (10.7 per cent) was higher than that for the province overall (9.8 per cent).

- The LGA rate in Waterloo Region decreased slightly over time (11.6 to 9.7 per cent), similar to the decrease for the province overall (10.1 to 9.5 per cent).
- From 2013 to 2017, three of the townships (Wellesley, Wilmot and Woolwich) had higher LGA rates compared to the region overall, while the rate in North Dumfries was lower.

From 2013 to 2017, any and exclusive breastfeeding⁵ rates increased slightly over time in Waterloo Region, while provincially, any breastfeeding rates increased and exclusive breastfeeding rates decreased slightly over the same five-year period.

- Any breastfeeding rates were higher in Waterloo Region than Ontario and were higher for all of the townships than for the region overall.
- Exclusive breastfeeding rates were higher in Waterloo Region than Ontario overall and were higher for all of the townships than the region overall, with the exception of North Dumfries where the rate was lower than the region.

The proportion of women who gave birth who had midwifery prenatal care in Ontario was slightly lower than that for all of Ontario (12). About one in five women who give birth in Waterloo Region have midwifery prenatal care.

- The proportion of women with midwifery prenatal care in the townships were all higher than for the region overall and were highest in Wellesley and Woolwich with about one-third of women having midwifery prenatal care.
- Similarly, the home birth rate in Waterloo Region is considerably higher than the provincial rate. The home birth rates for all townships except Wilmot were higher than the regional rate, with the highest home birth rate in Wellesley (twice that of the region overall).

⁵ Any breastfeeding refers to any infants fed breastmilk by time of hospital discharge or three days postpartum (for midwifery clients), either alone or in combination with artificial baby milk; Exclusive breastfeeding refers to infants fed breastmilk only.

Data notes and limitations

This report uses a range of data sources each with different strengths and limitations. Key notes and limitations are listed here; more detailed methodological notes will be available in the technical appendix.

- Values for each indicator are provided for each township where possible, or for the townships combined. Regional and provincial values are provided for comparative purposes. Given the relatively small population size, the influence of township values on the regional values was not deemed problematic.
- This report does not report an exhaustive list of indicators of health status. Rather, the indicators presented in this report were selected to provide a picture of a cross-section of health topics, based on availability of data, as well as relevance to population health.
- Age-standardized rates allow comparisons between populations with different age distributions; rates are standardized to the 2011 Canadian population.
- The CCHS is based on self-reported data collected in telephone and in-person interviews and as such indicators are subject to such sources of bias as social desirability bias and recall bias.
- The term 'significantly different' refers to statistically significant differences as determined using non-overlapping 95 per cent confidence intervals.

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