Cancer Risk Factors Atlas of Ontario

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Foreword

Cancer statistics show that the burden of cancer in Ontario continues to be high, even though many of the cancers experienced by Ontarians are preventable. *Cancer Risk Factors Atlas of Ontario* addresses this burden by focusing on modifiable risk factors for cancer and other chronic diseases, and providing community-level information that can assist in efforts to reduce the burden of cancer.

The atlas is unique because it includes detailed maps that show the prevalence of selected modifiable risk factors related to cancer at a local level for the entire province. These maps aim to improve the understanding of the geographic distribution of these risk factors across Ontario, and will enable public health professionals to identify priorities for prevention in their local areas.

It is our hope that *Cancer Risk Factors Atlas of Ontario* will help Cancer Care Ontario and its partners make better-informed decisions in their work to reduce the burden of cancer and chronic disease.

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About this Publication

Ontario cancer prevention and surveillance

CCO is the Ontario government's principal advisor on the cancer and kidney care systems, as well as access to care for key health services. Our mission is to work with our partners to improve the performance of Ontario's health systems by driving quality, accountability, innovation and value. As part of this mission, we aim to achieve continuous improvement in disease prevention and screening, the delivery of care and the patient experience for chronic diseases. CCO is governed by The Cancer Act[1] and is accountable to the Ministry of Health and Long-Term Care.

CCO has two divisions: Cancer Care Ontario and the Ontario Renal Network. Cancer Care Ontario plays an important role in equipping health professionals, organizations and policy-makers with the most up-to-date cancer knowledge and tools to prevent cancer, inform cancer control policies and deliver high-quality patient care. Cancer surveillance is a cornerstone of this work. Cancer Care Ontario's researchers investigate notable anomalies and trends in cancer-related data to better understand cancer risk. This information, along with surveillance of risk factors, contributes to informing evidence-based public health priorities and policies, with the ultimate goal of improving the well-being of Ontarians.

Purpose of this publication

This publication examines the geographic distribution of modifiable risk factors at the community level that contribute to cancer and chronic disease. By providing detailed, local information on key risk factors, this atlas offers data that fills a knowledge gap by helping public health workers and Local Health Integration Networks (LHINs) understand the health of their communities, including identifying priority populations. This information can shape the development of community-tailored interventions that improve health and reduce health disparities. For example, understanding where current smokers are living can identify priority areas and populations for smoking cessation programs and reduce future cancer burden (e.g., lung and bladder cancers).

Data and format

Based on health survey data gathered by Statistics Canada, this atlas provides maps of the population prevalence of six modifiable factors (alcohol, body weight, vegetable and fruit consumption, physical activity, sedentary behaviour and smoking) related to cancer risk by small geographic areas (census Dissemination areas), sex and age groups. The risk factors in this report are considered modifiable because they can be changed to reduce their effect on cancer risk and other chronic diseases. The atlas includes:

- background information;
- overview of the data and methods;
- interpretive guide;
- summary results;
- results organized by LHIN; and
- technical appendices.

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[1] Government of Ontario. Cancer Act, R.S.O. 1990, c. C.1 [Internet]. Toronto: Queen's Printer for Ontario; 2006 [cited 2015 Oct 15]. Available from: http://www.ontario.ca/laws/statute/90c01

The atlas is intended to be a reference document and therefore the introductions are repeated in the LHIN sections, which are numbered by the identifier assigned to each region. In each LHIN section, a summary of key findings, maps for each risk factor and descriptions are provided whenever results were considered meaningful (see Interpretation). The report web page (cancercareontario.ca/riskfactoratlas) provides the data for download in a format that meets the requirements of the Accessibility for Ontarians with Disabilities Act. This web page also allows users to view the data tables by public health unit.

A. Introduction

Worldwide, chronic diseases are responsible for 70% of deaths[1]. Four chronic diseases have been the leading cause of more than 80% of these deaths: cardiovascular, cancer, respiratory and diabetes.[2] Similarly, nearly 80% of deaths in Ontario were from chronic diseases in 2011, with cancer and cardiovascular diseases accounting for the majority of these.[3] Chronic diseases also adversely affect quality of life, the economy, communities, and society in general.[4]

Many chronic diseases share risk factors.[5] For example, obesity is associated with increased risk of type 2 diabetes, cardiovascular disease and colorectal cancer.[6, 7] Chronic diseases are often associated with long periods of time between exposure to a risk factor and the onset of disease, and between disease occurrence and the detection or onset of symptoms. These factors combined with a growing and aging population means that chronic diseases are expected to be a burden for many years to come in Ontario.

A large body of evidence, however, suggests that a substantial proportion of chronic diseases are preventable by addressing known risk factors. For example, it is estimated that more than 50 percent of all cancers could be prevented by eliminating smoking, overweight and obesity, poor diet, excess alcohol consumption, lack of physical activity, and harmful environmental and occupational exposures.[8-10]

Population-level interventions that include developing community partnerships, design and evaluation of interventions, and policies and programs that seek to influence the social, economic and physical components that influence health-related behaviours have been shown to be more effective than individual-level interventions.[11, 12] Knowing where risk factors are most common in a population aids in the allocation of health promotion and planning resources

Cancer Care Ontario has produced the *Cancer Risk Factors in Ontario* series of reports, which focus on modifiable risk factors for cancer. The first report in that series summarized the epidemiologic evidence for a wide range of cancer risk factors.[13] Subsequent reports described the distribution of modifiable cancer risk factors (tobacco; alcohol; body weight, diet, physical activity; environmental carcinogens; and occupational carcinogens) in the Ontario population, by Local Health Integration Network or public health unit, and estimated the number of new cancer cases in Ontario attributable to each.

Cancer Risk Factor Atlas of Ontario continues Cancer Care Ontario's population-level focus on modifiable risk factors. It extends previous work by estimating and graphically presenting the prevalence of selected modifiable risk factors at the small area or community level. To our knowledge, the atlas is among the first Canadian reports to provide detailed, local information on the prevalence of cancer risk factors

As an atlas (a collection of maps) the aim of this work is to improve understanding of the geographic distribution of modifiable risk factors relevant to cancer across Ontario's communities and enable public health professionals (e.g., epidemiologists, health promoters, and planners) to identify priority areas in their local areas.The risk factors analyzed and mapped in this atlas are:

- alcohol—current consumption;
- alcohol—consumption in excess of cancer prevention recommendations;
- excess body weight (overweight and obese);
- inadequate vegetable and fruit consumption;
- physical activity (reduces risk);
- sedentary behaviour;
- smoking—current status; and
- smoking—ever-smoked status.

Where possible, these risk factors are displayed separately for adolescents (people ages 12 to 18), except for ever-smoking and alcohol consumption in excess of cancer prevention recommendations. Given the long lag between risk factors and the onset of chronic disease, these latter two indicators are less useful for adolescents. Understanding the population-level prevalence of the other risk factors

in younger people will help guide interventions to reduce the future burden of chronic disease.

The survey data used to derive these estimates were sampled for the purpose of estimating the prevalence of these health indicators by administrative health regions (i.e., coarse levels of geography) or administrative areas (e.g., provinces). This sampling framework seeks to provide an accurate estimate of the prevalence for those areas.

To provide insights into how the prevalence of these risk factors varied within these large administration areas, statistical techniques were employed to create small area estimates using an approach that took into consideration the complex survey design. This approach is summarized in the Methods section (page 4) and is detailed in Appendix B (page 514).

First Nations, Inuit and Métis Populations

For information on risk factors among First Nations, Inuit and Métis populations, please refer to a focused series of risk factor reports produced by Cancer Care Ontario's Aboriginal Cancer Control Unit. The reports are available through the following links:

- Cancer in First Nations in Ontario: Risk Factors and Screening
- Cancer Risk Factors and Screening Among Inuit in Ontario and Other Canadian Regions
- Cancer in the Métis People of Ontario: Risk Factors and Screening Behaviours

B. Data and Methods

Described below are the data and methods used to estimate the prevalence of community-level risk factors across Ontario.

Data

Two primary data sources were used to facilitate this work: the Census of Population and the Canadian Community Health Survey (CCHS).

Census of Population

The census is conducted every five years by Statistics Canada and is designed to provide demographic, social and economic information on Canada's people and housing.[14] It collects information at the individual and household levels, and is then aggregated by various geographic units and disseminated in deidentified form. This atlas used the 2006 census populations by five-year age groups and sex to derive the prevalence estimates for each risk factor. For example, data are readily available for males, by age groups zero to four, five to nine, 10 to 14, and up to age 85 and above. The same age groups are available for females.

In conjunction with the tabular census data, Statistics Canada creates boundary files to display the data geographically. The cartographic boundary files for the 2006 census dissemination areas (DAs) were used as the geographic framework for the methods and mapping of this atlas. DAs are small area statistical units from the census with populations of 400 to 700 people, on average, and are the most granular or detailed level of geography that Statistics Canada releases data for.[15, 16] For this atlas, the DA geographical units were linked to population-level data to estimate and depict the geographic variation in risk factor prevalence. This linkage is accomplished using the unique identifier codes that Statistics Canada assigns to DAs.

Prior to the 2011 census, a large proportion of DA boundaries changed from census to census; therefore, using recent census populations (e.g., 2016) with prior census boundaries is problematic. To

work around this limitation, the 2006 census populations were used to estimate the population associated with each risk factor by LHIN section. These estimates are referred to as the "priority populations" within each LHIN section and are fully described within those sections to avoid misinterpretation.

CCHS

The CCHS is a population based cross-sectional survey conducted by Statistics Canada to collect information regarding population health status, health determinants and healthcare use.[17] The CCHS collects data on non-institutionalized household residents age 12 and older from all provinces and territories; people not sampled include those living on Indian reserves, on Crown Lands, in certain remote areas or in health institutions, as well as full-time members of the Canadian Forces.[17] The data are collected through computer assisted interviewing—in person, using computer assisted a personal interviewing system, and over the phone using a computer assisted telephone interviewing system. The CCHS oversamples the population in health regions to achieve accurate indicators of population health. This oversampling introduces the necessity of survey weights because the probability of being sampled varied by region (i.e., respondents in different health regions represent different proportions of the population). Together, the survey weights, and multi-stage and clustered data collected provide a way to evaluate the status of the Canadian population.

It is estimated that the CCHS covers approximately 98% of the Canadian population age 12 and older, with the goals of providing support for surveillance programs, a data source for health research on small populations and rare characteristics, access to information for different communities, and an ongoing instrument to address emerging issues on the population's health.[17] This atlas used Ontario share files, which contain the data of all respondents who agreed to the sharing of their data with their province. This typically represents over

90% of the original CCHS respondents.[17] All modifiable risk factor information used to produce this atlas was derived from the CCHS.

Each version of the CCHS is called a "cycle." Before 2007, the CCHS had a two-year collection cycle for datasets. The suffixes ".1" and ".2" were used to indicate the first year or second year of a survey cycle. The first year surveyed general population health for reliable estimates by health region, while the second year surveyed a smaller sample to target specific health topics for reliable estimates by province.[17] Since 2007, ongoing collection of data was introduced with release of a completed sample biennially. A total of seven complete cycles of the CCHS were used to estimate the prevalence of modifiable risk factors:

- Cycle 1.1/1.2 (2000/2001)
- Cycle 2.1/2.2 (2003)
- Cycle 3.1/3.2 (2005)
- Cycle 2007–2008
- Cycle 2009–2010
- Cycle 2011–2012
- Cycle 2013–2014

The CCHS aims to have 130,000 respondents over each collection period and the Ontario sample is comprised of approximately 40,000 respondents.[17] The reader is referred to the CCHS documentation for further details on the sampling design and data.

Methods

Pooling CCHS cycles

To increase the sample size and therefore improve statistical power, seven cycles (representing 10 data collections) of the CCHS were combined prior to statistical analyses. For this data pooling to be valid, the variables must be consistently captured (asked in the same manner) and have similar coverage (be asked of the same respondent groups, e.g., ages) across the cycles. The risk factors used for this report were consistently captured and had the same coverage across the cycles used. The indicator definitions and variables used across the cycles are provided in Appendix A (page 510). Not all cycles could be used for

each risk factor provided in the atlas and their availability is detailed in Appendix B (page 514).

Geographically locating CCHS respondents

The share file version of the CCHS provided the six-digit postal code for the residential address of participants. Using the postal code, the Postal Code Conversion File Plus (PCCF+) macro software was used to assign respondents' locations to census areas. PCCF+ provides an unbiased, population-weighted assignment to census areas.[18] Several versions of PCCF+ were used to ensure that the population weighted assignment was relevant to the CCHS cycle (Table B.1).

Table B.1 Postal Code Conversion File Plus (PCCF+) software used to assign CCHS respondent residential address to census areas

PCCF+ version	CCHS cycles
4J	1.1, 1.2, 2.1, 2.2
5K	3.1, 3.2, 2007–2008, 2009–2010, 2011–2012*
6C	2013–2014

* Version 6C unavailable at the time frame when this cycle was geocoded

Each PCCF+ version provided the 2006 census DA identifier assigned to a respondent. Since the 2006 census represented a median time point for the CCHS cycles used, and because it was the latest census that the long form census data were available for[19], it was used as the geographic framework for this atlas.

Statistical analyses

By design, the CCHS typically provides accurate health-related estimates for large area geographic units (e.g., health units) based on the sampling framework. For this purpose, sampling weights are provided and guidelines regarding the variability of the estimates, based upon the coefficient of variation, are provided. These estimates are herein called "design-based." The CCHS was not designed to provide accurate small area estimates of health information; therefore, sampling weights are not available for individuals or small areas. This means that it is not appropriate to use the data with simple fractions.

For example, it is not appropriate to take the number of respondents in an area who currently smoke and then divide by the total sampled population to estimate the proportion of people who smoke in an area. These calculations would be inaccurate and fluctuate widely.

One approach to the problem of few respondents per small area is to implement appropriate modelling methods that use observations from adjacent areas to create stable estimates by smoothing-out the fluctuations that can occur using the CCHS responses. Setting aside the issue of survey weights for a moment, if area "A" had a very high percentage of male smokers, but this estimate was based on few observations, there would be substantial imprecision to that estimate. If area "A" were surrounded by areas with moderate prevalence of male smokers based on many more observations, these estimates could be used to inform the estimate for area "A" and adjust it downwards. The amount of adjustment or smoothing that occurs can be based on the sample size in each area: when data are sparse, the smoothing effect is greater. To implement this approach, a Bayesian hierarchical model— the Besag, York and Mollié (BYM) model[20]—was employed. This model has been shown to be robust and is used widely in disease mapping studies.[21] This model was implemented in a statistical paradigm (Bayesian inference) that provides "credibility intervals" for the estimates. These intervals provide a method for assessing the statistical evidence related to whether an estimate is higher or lower than a comparative value. The all Ontario design-based estimates were used as the comparator. This aspect is discussed further in the Interpretation section. For this atlas, all of Ontario was modelled together so that false boundaries between provincial administrative health units were not introduced.

For the analyses, CCHS responses to relevant modifiable risk factor questions were coded as binary variables (e.g., yes/no responses). In using these types of responses, appropriate models provide an estimate of the odds of having a factor compared to some baseline or referent group. For the estimates across all ages surveyed by the CCHS, the following age groups were used for each sex: 12 to 19, 20 to 29, 30 to 39, 40 to 49, 50 to 59, 60 to 69, 70 to 79 and 80 plus. People ages 50 to

59 and cycle 2007–2008 were used as the referent groups. For adolescents, age groups 12 to 14 and 15 to 18 were used, with ages 15 to 18 and cycle 2007–2008 as the referent group. No other variables were included in the models because descriptive estimates were of interest. As one of its parameters, the BYM model employed provides the estimated area-based (log) odds of the risk factor not explained by a respondent's age and sex.

Next, in consideration of the complex survey design (the survey weights), census-based population estimates were used as a proxy to weight the survey respondents. To derive the overall prevalence estimates for each DA, the model estimates (on the log odds scale) for each age group, survey cycle and small area (stratum) were obtained (called "linear combinations") over samples generated for each area, applied to the relevant population age groups from the census for each small area and then transformed to probabilities. This process is referred to as a "post-stratification." Based on the statistical evidence yielded from the modelling approach, the estimates were then categorized for map display, which is detailed in the Interpretation section. For this categorization, the level of statistical evidence was used rather than the point prevalence estimate because it provided a surrogate for potential sampling-related variability in the estimates. Please refer the Interpretation section for important information regarding this method.

In addition to examining the sensitivity of the statistical model (using different input specifications, see Appendix B [page 519]), the validity of the resulting estimates was assessed by aggregating the small area estimates up to the province and then comparing the results to the design-based estimates for all seven CCHS cycles pooled together with the appropriate sampling weights applied.[22]

These methods were implemented during a research study funded by the Cancer Research Society of Canada and demonstrated in a recent journal article that authors of this atlas published in 2016.[23] The methods from that paper were extended using a newer approach (Integrated Nested Laplace Approximation, see Appendix B [page 518]) to the statistical paradigm (Bayesian inference). This approach allowed

for the modelling to be accomplished provincially (rather than having to separate Ontario into geographical regions to run the models). Again, this minimized boundary issues that may occur from having to separate a study area.

Limitations

Estimating small area prevalence of the modifiable risk factors involved several limitations. First, as mentioned above, multiple survey years were combined to increase sample size and by merging respondents, a fictitious population was created—a strong assumption is that the modelling results are representative of the true population. Second, the survey design (survey weights, see Statistical analyses, page 4) aspects were accounted for using census populations in a post-stratification approach. This approach is a surrogate for the unavailable survey weights and was considered to be an appropriate adjustment for the household-level sampling framework in the CCHS design. However, the appropriateness of this adjustment could not be validated.

The resulting risk factor prevalence estimates are not transferable to individuals living in the areas, but represent the overall prevalence based on survey responses adjusted for factors that include age, sex and the prevalence in the adjacent areas. While these factors have been adjusted for, and restrictions have been used to minimize incorrectly classifying the area-based prevalence (use of credibility intervals, see the Interpretation section, page 7), there remains a small possibility that the estimated prevalence is due to chance.

Population mobility is an additional limitation, which is closely tied to the population created by combining multiple cycles. An inherent assumption is that people who had been surveyed in 2001 did not move, or had responses that were generally representative of people in their age group, sex and area (DA). Additionally, changes in modifiable risk factor exposures have occurred over the time period in which the CCHS data are collected (e.g. childhood obesity). To account for these factors, the respondent sex, age and CCHS survey cycle were included in the models.

Another limitation is related to the presentation of the maps, which display information by geographic area. The larger areas dominate the appearance of the maps. These larger areas may be sparsely populated: there is typically an inverse relationship between the geographic size of the areas (DAs) and population density. This is a limitation of the type of mapping (i.e., choropleth) used in this atlas. To mitigate this limitation, inset maps are used to display urbanized areas; these inset maps present smaller, zoomed-in areas of the main map and provide details in these more densely populated areas that may be difficult to discern on the main map.

Further details and considerations of the limitations and the modeling (e.g., societal changes such as decreasing smoking) are provided in Appendix B (page 514).

C. Interpretation

The maps within this atlas display small area prevalence estimates of the selected modifiable risk factors compared to the Ontario design-based estimates. By comparing the estimates to Ontario, areas with estimates that are higher or lower than average can be identified. To facilitate this comparison, the modelling approach used provides statistical distributions for each area-based estimate of the risk factor prevalence and therefore credibility intervals were calculated. These credibility intervals indicate the probability that the true mean value lies within the estimated intervals. These are akin to confidence intervals in the frequentist statistical paradigm (but have a different interpretation). In the Bayesian approach, previous work has shown that credibility intervals of 70% to 80% provide adequate coverage for an estimated value to be within its true value.[24]

Using these statistical distributions, posterior probabilities, also known as exceedance probabilities—the probability that an estimate exceeded a specified value—for each area (DA) were calculated using the Ontario design-based estimates of risk factor prevalence displayed in Table D.1 for people age 12 and older and Table D.2 for adolescents (ages 12 to 18). Based on the evidence for adequate coverage of the credibility intervals, these posterior probabilities for each area were then categorized to improve readability and accessibility of the maps. Therefore, "compared to Ontario" directly refers to the level of statistical uncertainty for an area's risk factor prevalence estimate, which is used as an indicator of the sampling variability underlying the estimate because coefficients of variation are not directly applicable (see Appendix B, page 514). The categories and the equivalent posterior probabilities are displayed in Table C.1 and Table C.2. The number of areas within these categories varied greatly by sex and risk factor, and was influenced by the overall prevalence of a risk factor.

Table C.1 Risk factor prevalence categories and level of statistical evidence for all risk factors, except physical activity

Symbol	Category	Relation to posterior probability
	Higher than Ontario	At least 80% chance that the prevalence estimate was higher than the Ontario average
	Marginally higher than Ontario	70.0%–79.9% chance that the prevalence estimate was higher than the Ontario average
	Similar to Ontario	30.1%–69.9% chance that the prevalence estimate was not higher than the Ontario average
	Marginally lower than Ontario	70.0%–79.9% chance that the prevalence estimate was lower than the Ontario average
	Lower than Ontario	80% or higher chance that the prevalence estimate was lower than the Ontario average

Table C.2 Risk factor prevalence categories and level of statistical evidence for physical activity

Symbol	Category	Relation to posterior probability
	Lower than Ontario	At least 80% chance that the prevalence estimate was lower than the Ontario average
	Marginally lower than Ontario	70.0%–79.9% chance that the prevalence estimate was lower than the Ontario average
	Similar to Ontario	30.1%–69.9% chance that the prevalence estimate was not lower than the Ontario average
	Marginally higher than Ontario	70.0%–79.9% chance that the prevalence estimate was higher than the Ontario average
	Higher than Ontario	80% or higher chance that the prevalence estimate was higher than the Ontario average

Note: Evidence shows that physical activity reduces the risk of several types of cancer (e.g., colorectal) and therefore the categories are inverted compared to the other risk factors.

Due to the variability in the small area (DA) estimates, the results presented in this atlas include only risk factors that had prevalence estimates in the "higher than Ontario" category (or "lower than Ontario" for physical activity). This was done to provide only meaningful results (i.e., results with strong statistical evidence of dissimilarity from the Ontario average) and in consideration of disclosure guidelines from Statistics Canada. This level of statistical evidence is highly correlated with the estimated prevalence (see Appendix B, page 521), but takes into account the underlying precision of the estimate and was therefore favoured over displaying the (continuous) prevalence estimates. All areas displayed in red hues on the maps represent significant divergence from the Ontario average in the direction of increased cancer risk.

It is important to note that the geographic size of the areas (DAs) reflect the underlying population density, as noted in the limitations. Therefore, large areas that dominate the look of the map may be sparsely populated. This means that urban areas have many areas (hundreds or thousands). To display more urbanized areas, inset maps were used. These inset maps are labelled by town or city and can therefore be located on the main map. Compared to the main maps, these insets are close-up or zoomed-in. Differences between the maps and insets can be measured by comparing their scale bars.

D. Results

This section presents an overview of the results (LHIN-specific small area estimates follow this section). There were approximately 19,000 small areas (as defined by DAs, see the Data section, page 3) across Ontario. Therefore, it was not feasible to display the entire province on one map. For this reason, the Local Health Integration Network (LHIN) regions were used to organize and display the maps for each risk factor. There are 14 LHINs in Ontario and the results are presented in order of their unique identifier— generally, these identifiers increment counter-clockwise, see Figure D.1 (page 10).

For each modifiable risk factor, the small area estimates aggregated to Ontario were comparable to estimates obtained using the Canadian Community Health Survey weights, as displayed in Table D.1 (page 11) and Table D.2 (page 11).

The subsequent tables (D.3 to D.16) below provide additional modifiable risk factor information, including the mean prevalence of the small area estimates by LHIN, category and sex for each risk factor. Note that when the estimated risk factor prevalence for a LHIN had no areas within the "higher" (or "lower" for physical activity) category, the maps were not included to ensure that only meaningful maps were provided.

As described in the Interpretation section (page 7), the prevalence estimates were categorized according to their level of statistical evidence (95% credible intervals). Therefore, in the tables below, overlap across the categories in the range of the numerical prevalence is possible.

The tables below show that within-LHIN variation for the prevalence of the modifiable risk factors may be similar to the between-LHIN variation. For example, for current alcohol consumption among females (Table D.3), the overall LHIN mean prevalence estimates ranged from 63% to 77%, and in the North West LHIN, prevalence estimates ranged from 60% to 78%. Note that no areas with a higher prevalence of sedentary activity among adolescent males were identified across

Ontario (Table D.13, page 22). This result is likely due to insufficient data as the model-based estimates were similar from the sensitivity analyses (i.e., specification of different priors, see Appendix B).

These summary tables are followed by the presentation of the risk factor prevalence for each LHIN, which include key findings, descriptive text and maps for each risk factor (page 26 onwards).

Local Health Integration Networks (LHINs)

(# 2006 DAs)

1. Erie St. Clair (1,111)
2. South West (1,501)
3. Waterloo Wellington (1,080)
4. Hamilton Niagara Haldimand Brant (2,242)
5. Central West (954)
6. Mississauga Halton (1,365)
7. Toronto Central (1,682)
8. Central (2,000)
9. Central East (2,121)
10. South East (821)
11. Champlain (1,899)
12. North Simcoe Muskoka (798)
13. North East (1,056)
14. North West (547)

Note: DAs were assigned to LHINs using Statistics Canada representative points for the 2006 Dissemination Areas provided in the GeoSuite software.

Map Created: 16-Oct-17

Table D.1 Modifiable risk factor prevalence estimates comparison for people age 12 and older, Ontario, 2000–2014

Modifiable risk factor	Female, design-based estimate % (95% CI)	Female, model-based estimate % (95% CI*)	Male, design-based estimate % (95% CI)	Male, model-based estimate % (95% CI*)
Alcohol—current consumption	70.0 (69.3, 70.8)	72.2 (60.0, 82.4)	79.2 (78.6, 79.7)	79.5 (70.4, 86.8)
Alcohol—consumption exceeding cancer prevention recommendations	6.7 (6.4, 7.0)	7.4 (3.6, 14.6)	8.5 (8.2, 8.9)	9.5 (5.7, 14.8)
Excess body weight	41.4 (40.7, 42.1)	42.0 (32.6, 51.9)	55.9 (55.2, 56.7)	55.5 (47.2, 63.5)
Inadequate vegetable and fruit consumption	63.1 (62.6, 63.6)	63.4 (53.3, 72.6)	76.6 (76.1, 77.0)	76.9 (68.8, 83.7)
Physical activity	22.8 (22.2, 23.4)	24.1 (16.1, 33.6)	29.7 (29.2, 30.3)	31.2 (22.3, 41.2)
Sedentary behaviour	49.0 (48.4, 49.7)	48.0 (37.9, 58.2)	55.7 (55.0, 56.4)	54.6 (41.8, 67.1)
Smoking—current status	17.0 (16.6, 17.4)	19.0 (10.7, 29.9)	23.8 (23.1, 24.5)	24.3 (14.8, 36.0)
Smoking—ever-smoked status	47.4 (46.6, 48.1)	51.2 (39.8, 62.3)	61.4 (60.7, 62.0)	62.9 (53.8, 71.3)

Abbreviations: CI = confidence interval; CI* = credibility interval

Note: credibility intervals estimated from small area (dissemination area) estimates across all Ontario

Table D.2 Modifiable risk factor prevalence estimates comparison for adolescents ages 12 to 18, Ontario, 2000–2014

Modifiable risk factor	Female, design-based estimate % (95% CI)	Female, model-based estimate % (95% CI*)	Male, design-based estimate % (95% CI)	Male, model-based estimate % (95% CI*)
Alcohol—current consumption	39.5 (37.5, 41.5)	39.8 (28.4, 51.3)	41.1 (39.5, 42.8)	41.7 (30.5, 53.0)
Excess body weight	15.1 (13.6, 16.7)	15.9 (8.8, 25.7)	24.9 (23.4, 26.5)	22.2 (12.7, 34.2)
Inadequate vegetable and fruit consumption	67.9 (66.8, 69.1)	67.0 (53.4, 78.8)	74.0 (73.0, 75.0)	73.0 (61.9, 82.3)
Physical activity	39.8 (38.1, 41.6)	41.8 (29.2, 55.3)	56.8 (55.1, 58.4)	57.8 (45.1, 69.8)
Sedentary behaviour	54.6 (52.7, 56.4)	52.6 (40.6, 64.4)	60.2 (58.5, 61.9)	57.5 (45.1, 69.3)
Smoking—current status	8.1 (7.3, 8.9)	9.4 (4.0, 17.8)	8.3 (7.4, 9.2)	9.2 (4.0, 17.0)

Abbreviations: CI = confidence interval; CI* = credibility interval

Note: credibility intervals estimated from small area (dissemination area) estimates across all Ontario

Table D.3 Alcohol—current consumption, mean prevalence (range) by Local Health Integration Network (LHIN), prevalence category and sex, people age 12 and older, 2000–2014

Sex	Category	Erie St. Clair (1)	South West (2)	Waterloo Wellington (3)	Hamilton Haldimand Niagara Brant (4)	Central West (5)	Mississauga Halton (6)	Toronto Central (7)	Central (8)	Central East (9)	South East (10)	Champlain (11)	North Simcoe Muskoka (12)	North East (13)	North West (14)
Female	Overall	72.0	73.3	74.9	74.3	63.2	70.6	74.5	66.3	67.5	74.4	77.3	76.6	75.0	75.7
Female	Higher	76.9 (73.7, 83.6)	77.4 (72.9, 87.9)	78.0 (73.3, 86.2)	78.0 (73.5, 86.4)	77.0 (73.9, 83.1)	78.7 (73.4, 85.0)	79.7 (73.9, 89.6)	77.3 (73.8, 83.9)	77.1 (73.4, 84.5)	77.8 (73.7, 87.8)	79.0 (73.3, 88.4)	78.2 (73.9, 84.3)	77.7 (73.6, 86.2)	78.0 (73.1, 87.3)
Female	Marginally Higher	73.7 (72.3, 76.8)	73.6 (72.3, 76.1)	73.9 (72.4, 76.2)	73.7 (72.0, 75.8)	74.0 (72.7, 76.4)	73.8 (72.3, 75.8)	74.0 (72.4, 75.9)	74.0 (72.1, 76.4)	73.8 (72.2, 76.3)	73.6 (72.3, 78.7)	74.0 (72.3, 76.5)	73.9 (72.3, 75.7)	73.6 (71.9, 75.7)	73.7 (72.1, 75.6)
Female	Similar	70.2 (65.7, 73.8)	70.2 (65.6, 74.0)	70.5 (65.6, 73.5)	70.4 (64.9, 73.5)	68.6 (64.9, 73.5)	69.7 (64.9, 73.6)	70.3 (64.4, 73.5)	69.1 (64.3, 73.6)	69.7 (63.2, 73.8)	70.5 (65.5, 73.1)	70.6 (66.1, 73.2)	70.8 (66.5, 73.1)	70.7 (66.0, 73.9)	70.9 (65.4, 73.4)
Female	Marginally Lower	65.8 (63.5, 67.4)	65.8 (64.1, 67.6)	65.6 (62.3, 67.3)	65.7 (63.9, 67.2)	65.1 (59.5, 67.0)	65.1 (60.3, 67.7)	64.8 (61.9, 66.8)	65.0 (61.0, 67.6)	64.9 (59.5, 67.4)	66.1 (65.2, 67.5)	65.6 (63.5, 67.2)	65.8 (64.8, 66.2)	65.8 (63.2, 67.0)	66.4 (64.3, 67.6)
Female	Lower	61.4 (48.4, 65.5)	62.0 (50.0, 66.6)	60.0 (52.0, 64.8)	61.6 (47.5, 65.1)	56.2 (40.0, 65.8)	60.3 (49.4, 65.6)	60.4 (52.1, 65.3)	58.9 (39.3, 65.5)	54.6 (37.4, 65.3)	61.6 (53.9, 65.1)	61.8 (56.7, 65.1)	62.4 (56.6, 65.0)	61.6 (50.4, 65.5)	59.8 (53.6, 62.4)
Male	Overall	79.3	80.1	80.5	80.8	74.5	79.8	81.0	77.9	76.4	79.6	81.2	81.4	80.6	80.1
Male	Higher	83.8 (81.3, 87.8)	83.6 (81.6, 89.2)	83.9 (81.4, 88.5)	83.9 (81.7, 89.3)	84.0 (81.7, 87.6)	84.5 (81.8, 88.7)	84.8 (82.1, 90.3)	83.3 (81.8, 86.3)	83.3 (81.3, 86.5)	83.9 (81.7, 90.0)	84.1 (81.5, 89.4)	83.7 (81.6, 88.2)	83.7 (81.0, 88.6)	83.4 (81.9, 87.7)
Male	Marginally Higher	81.6 (80.8, 82.9)	81.6 (80.6, 82.9)	81.6 (80.6, 82.8)	81.7 (80.7, 83.2)	81.7 (80.8, 82.7)	81.8 (80.6, 83.2)	81.8 (80.7, 83.0)	81.6 (80.5, 83.1)	81.6 (80.6, 83.9)	81.6 (80.6, 83.4)	81.7 (80.7, 83.7)	81.7 (80.7, 83.1)	81.6 (80.4, 83.1)	81.6 (80.7, 83.2)
Male	Similar	78.8 (75.1, 81.4)	79.2 (76.1, 81.8)	79.2 (75.2, 81.3)	79.2 (75.9, 81.9)	78.8 (74.5, 81.3)	79.0 (74.2, 81.5)	79.1 (75.4, 81.6)	78.7 (73.8, 81.7)	79.0 (73.7, 81.4)	79.0 (75.9, 82.5)	79.2 (75.3, 81.6)	79.5 (76.2, 81.4)	79.3 (75.9, 81.9)	79.1 (76.2, 81.4)
Male	Marginally Lower	75.9 (74.5, 77.2)	76.0 (74.5, 77.2)	75.9 (73.7, 76.8)	75.8 (72.1, 77.1)	75.3 (71.6, 76.9)	75.9 (73.1, 77.1)	75.6 (72.2, 77.2)	75.7 (71.9, 77.1)	75.5 (72.2, 77.3)	75.9 (74.4, 77.1)	75.9 (73.9, 77.4)	76.0 (74.0, 77.0)	75.7 (71.9, 77.3)	75.7 (73.8, 76.7)
Male	Lower	73.3 (65.9, 76.3)	73.6 (65.0, 76.1)	71.2 (58.1, 75.8)	73.1 (62.8, 76.2)	70.6 (49.4, 76.1)	73.0 (62.3, 76.6)	70.6 (59.9, 75.6)	72.4 (61.8, 76.3)	70.2 (58.1, 76.5)	73.0 (62.1, 75.5)	73.1 (64.5, 75.8)	74.1 (73.0, 75.2)	73.3 (67.6, 76.5)	72.7 (62.8, 76.3)

Table D.4 Alcohol—current consumption, mean prevalence (range) by Local Health Integration Network (LHIN), prevalence category and sex, adolescents ages 12 to 18, 2000–2014

Sex	Category	Erie St. Clair (1)	South West (2)	Waterloo Wellington (3)	Hamilton Haldimand Niagara Brant (4)	Central West (5)	Mississauga Halton (6)	Toronto Central (7)	Central (8)	Central East (9)	South East (10)	Champlain (11)	North Simcoe Muskoka (12)	North East (13)	North West (14)
Female	Overall	38.6	43.8	43.0	40.8	33.2	34.6	35.1	35.6	36.1	42.2	43.9	44.4	49.3	49.9
Female	Higher	49.1 (44.0, 67.3)	48.7 (43.4, 66.2)	48.8 (43.0, 65.2)	48.6 (43.7, 67.5)	47.7 (44.4, 52.8)	47.9 (44.1, 59.3)	51.1 (44.8, 55.6)	48.2 (43.8, 60.2)	48.4 (43.9, 65.6)	49.1 (44.3, 63.6)	49.7 (43.5, 65.9)	49.3 (43.6, 69.4)	51.9 (43.8, 73.8)	52.1 (43.9, 73.7)
Female	Marginally Higher	43.8 (42.3, 46.1)	43.6 (42.1, 48.0)	43.4 (41.9, 45.9)	43.7 (42.0, 46.3)	43.5 (42.3, 45.1)	43.9 (42.1, 45.7)	44.0 (42.5, 45.7)	43.8 (42.4, 46.9)	43.7 (42.0, 47.0)	43.8 (42.1, 45.8)	43.7 (42.0, 46.3)	43.5 (42.1, 45.2)	43.9 (42.1, 45.9)	44.0 (42.3, 48.1)
Female	Similar	39.5 (35.5, 43.3)	40.0 (36.4, 43.9)	40.2 (36.1, 43.5)	39.7 (36.1, 44.4)	39.1 (35.3, 42.9)	39.1 (35.7, 43.8)	39.6 (36.0, 44.0)	39.2 (35.7, 43.6)	39.4 (35.0, 43.3)	39.9 (36.0, 43.7)	40.4 (36.0, 43.6)	39.9 (36.5, 43.5)	40.1 (36.6, 44.1)	40.3 (36.3, 43.2)
Female	Marginally Lower	35.4 (33.5, 37.1)	35.9 (33.6, 37.4)	36.1 (34.4, 36.9)	35.8 (33.0, 37.1)	35.3 (33.1, 37.0)	35.5 (31.9, 37.0)	35.5 (34.0, 36.7)	35.5 (32.4, 37.3)	35.6 (33.0, 36.9)	35.8 (34.1, 37.0)	35.8 (34.5, 36.9)	35.9 (34.7, 36.9)	35.6 (32.4, 36.9)	35.6 (35.5, 35.7)
Female	Lower	31.2 (16.8, 35.6)	32.2 (14.7, 35.6)	31.7 (13.7, 35.5)	31.6 (10.5, 35.7)	30.2 (8.4, 35.4)	30.4 (8.5, 35.6)	29.7 (8.4, 35.5)	30.5 (7.3, 35.4)	29.4 (7.6, 35.7)	32.2 (12.5, 35.5)	31.1 (13.3, 36.0)	30.1 (14.2, 35.5)	29.9 (12.5, 35.5)	31.5 (23.3, 34.6)
Male	Overall	40.4	44.2	43.7	43.9	34.6	38.2	37.5	37.7	38.8	46.4	44.0	46.4	51.1	47.0
Male	Higher	49.7 (45.6, 61.4)	50.6 (44.9, 70.0)	50.4 (44.8, 65.6)	50.1 (45.1, 68.8)	49.6 (45.6, 57.8)	50.1 (45.6, 64.5)	52.0 (45.7, 59.7)	48.9 (45.5, 58.7)	50.2 (45.5, 66.9)	51.2 (45.6, 73.0)	51.2 (45.1, 72.0)	50.8 (44.8, 71.0)	53.4 (45.2, 75.7)	51.5 (45.2, 69.9)
Male	Marginally Higher	45.4 (43.9, 48.1)	45.2 (43.7, 47.6)	45.0 (43.6, 47.5)	45.2 (43.6, 48.0)	45.2 (43.5, 47.0)	45.4 (43.7, 51.1)	45.5 (44.2, 47.9)	45.2 (43.7, 48.5)	45.1 (43.8, 49.8)	45.1 (43.9, 47.4)	45.3 (43.7, 48.4)	45.4 (43.8, 47.4)	45.4 (43.4, 50.6)	45.2 (43.8, 49.0)
Male	Similar	41.1 (37.4, 45.7)	41.2 (37.9, 46.7)	41.6 (37.8, 44.9)	41.7 (37.8, 45.3)	40.8 (37.3, 44.8)	41.0 (37.4, 44.8)	40.8 (37.3, 44.9)	41.0 (36.8, 45.5)	41.1 (36.1, 45.1)	41.6 (38.1, 45.5)	41.6 (38.0, 45.2)	41.6 (37.9, 45.2)	41.9 (37.1, 46.8)	41.9 (37.8, 46.4)
Male	Marginally Lower	37.5 (35.8, 38.6)	37.5 (35.4, 39.1)	37.6 (36.3, 38.9)	37.4 (34.0, 38.8)	37.1 (33.9, 38.3)	37.3 (33.8, 38.6)	37.3 (35.4, 38.5)	37.2 (34.7, 38.7)	37.1 (35.1, 38.9)	37.2 (35.1, 38.5)	37.5 (35.8, 38.8)	37.7 (36.6, 38.9)	37.3 (36.1, 38.4)	37.6 (36.7, 38.3)
Male	Lower	32.8 (10.8, 37.0)	34.0 (15.6, 37.1)	33.4 (13.9, 37.7)	32.6 (12.2, 37.3)	31.3 (10.5, 37.0)	32.8 (13.4, 37.4)	31.4 (8.5, 37.4)	32.3 (9.9, 37.4)	31.5 (7.6, 37.6)	33.6 (13.3, 37.2)	31.9 (12.2, 37.5)	32.3 (15.8, 37.3)	31.4 (18.4, 36.1)	33.7 (19.6, 37.2)

Table D.5 Alcohol—consumption exceeding cancer prevention recommendations, mean prevalence (range) by Local Health Integration Network (LHIN), prevalence category and sex, people age 12 and older, 2000–2014

Sex	Category	Erie St. Clair (1)	South West (2)	Waterloo Wellington (3)	Hamilton Haldimand Niagara Brant (4)	Central West (5)	Mississauga Halton (6)	Toronto Central (7)	Central (8)	Central East (9)	South East (10)	Champlain (11)	North Simcoe Muskoka (12)	North East (13)	North West (14)
Female	Overall	6.7	7.3	7.4	7.9	5.0	6.9	9.8	5.3	6.6	8.8	8.3	9.1	7.3	8.3
Female	Higher	10.4 (9.1, 14.1)	10.5 (8.7, 16.7)	10.0 (8.6, 12.8)	10.1 (8.6, 13.0)	9.7 (8.8, 11.9)	10.5 (9.0, 14.3)	11.5 (8.8, 17.1)	10.0 (8.8, 12.4)	10.3 (8.7, 14.9)	10.5 (8.6, 17.8)	11.3 (8.7, 19.5)	10.1 (8.6, 13.2)	10.4 (8.8, 14.6)	10.0 (8.8, 18.3)
Female	Marginally Higher	8.8 (8.0, 10.0)	8.7 (8.0, 10.3)	8.7 (8.0, 9.9)	8.8 (7.9, 10.6)	8.8 (8.2, 9.5)	8.9 (8.0, 10.2)	8.9 (8.1, 10.3)	8.8 (8.2, 9.8)	8.8 (7.9, 10.2)	8.8 (8.1, 11.5)	8.8 (8.0, 10.8)	8.9 (8.1, 10.9)	8.6 (7.9, 9.7)	8.7 (7.9, 9.7)
Female	Similar	7.0 (5.9, 9.1)	7.1 (5.8, 8.7)	7.3 (5.7, 9.1)	7.4 (5.9, 9.2)	7.1 (5.9, 8.6)	7.3 (5.9, 9.0)	7.3 (5.8, 9.0)	7.2 (5.9, 8.8)	7.1 (5.8, 10.5)	7.6 (5.9, 8.8)	7.4 (6.0, 9.3)	7.8 (6.3, 9.1)	7.2 (5.8, 9.5)	7.4 (5.9, 9.6)
Female	Marginally Lower	5.7 (5.2, 6.2)	5.8 (5.1, 6.2)	5.7 (5.2, 6.1)	5.8 (5.3, 6.2)	5.6 (5.0, 6.1)	5.7 (4.7, 6.2)	5.7 (5.2, 6.1)	5.6 (4.9, 6.2)	5.8 (5.2, 6.1)	5.8 (5.6, 6.0)	5.8 (5.3, 6.2)	5.8 (5.7, 5.9)	5.8 (5.2, 6.2)	5.8 (5.4, 6.0)
Female	Lower	5.1 (3.3, 5.5)	5.1 (4.0, 5.7)	5.1 (4.4, 5.5)	5.0 (3.9, 5.6)	4.2 (2.6, 5.6)	4.6 (3.3, 5.7)	5.1 (3.8, 5.5)	4.2 (2.4, 5.6)	3.9 (2.5, 5.5)	4.7 (4.2, 5.4)	5.0 (3.5, 5.5)	5.3 (5.0, 5.6)	5.2 (4.4, 5.8)	4.4 (4.4, 4.4)
Male	Overall	10.5	10.8	10.3	10.9	6.8	8.2	8.8	6.4	8.6	11.5	9.6	12.6	11.6	11.1
Male	Higher	12.2 (10.2, 16.3)	12.2 (10.1, 17.5)	11.7 (10.2, 14.8)	11.7 (10.0, 18.8)	11.7 (10.3, 13.9)	11.3 (10.2, 13.2)	11.2 (10.3, 14.0)	13.1 (10.4, 16.3)	11.8 (10.3, 15.8)	12.3 (10.3, 17.0)	11.9 (9.9, 16.3)	12.8 (10.4, 18.8)	12.3 (10.3, 18.2)	11.9 (10.2, 16.7)
Male	Marginally Higher	10.5 (9.5, 11.6)	10.3 (9.6, 12.8)	10.3 (9.5, 12.1)	10.4 (9.6, 12.1)	10.5 (9.9, 11.7)	10.4 (9.6, 11.4)	10.4 (9.7, 11.4)	10.4 (9.7, 11.7)	10.5 (9.6, 11.6)	10.4 (9.6, 12.3)	10.4 (9.6, 12.2)	10.8 (9.9, 11.7)	10.6 (9.7, 11.7)	10.4 (9.6, 11.8)
Male	Similar	8.9 (7.7, 10.7)	9.2 (7.8, 10.8)	9.1 (7.7, 10.6)	9.5 (7.9, 10.7)	8.4 (7.6, 9.9)	9.0 (7.5, 10.4)	8.8 (7.6, 10.4)	9.0 (7.6, 10.7)	8.8 (7.4, 10.9)	9.3 (7.7, 10.5)	8.9 (7.5, 10.9)	9.4 (8.0, 10.4)	9.1 (7.6, 10.5)	9.6 (8.5, 11.5)
Male	Marginally Lower	7.5 (7.2, 7.8)	7.6 (7.5, 7.8)	7.5 (7.2, 7.8)	7.1 (7.0, 7.2)	7.3 (6.6, 7.8)	7.3 (6.7, 7.8)	7.4 (6.9, 7.7)	7.3 (6.9, 7.8)	7.3 (6.5, 7.8)	N/A	7.4 (6.9, 7.8)	N/A	7.6 (7.3, 7.7)	6.7 (6.2, 7.1)
Male	Lower	6.6 (6.3, 7.0)	6.7 (5.7, 7.2)	6.8 (6.6, 7.0)	4.8 (4.8, 4.8)	5.9 (3.8, 7.5)	6.4 (4.8, 7.3)	6.4 (4.0, 7.3)	4.9 (3.0, 7.3)	5.4 (3.4, 7.2)	5.8 (5.8, 5.8)	6.8 (5.7, 7.3)	N/A	7.0 (7.0, 7.0)	6.2 (6.2, 6.2)

N/A = no estimates in the category

Table D.6 Excess body weight, mean prevalence (range) by Local Health Integration Network (LHIN), prevalence category and sex, people age 12 and older, 2000–2014

Sex	Category	Erie St. Clair (1)	South West (2)	Waterloo Wellington (3)	Hamilton Haldimand Niagara Brant (4)	Central West (5)	Mississauga Halton (6)	Toronto Central (7)	Central (8)	Central East (9)	South East (10)	Champlain (11)	North Simcoe Muskoka (12)	North East (13)	North West (14)
Female	Overall	46.4	45.4	43.2	44.7	42.2	38.0	33.6	36.2	41.4	46.6	41.9	43.6	49.9	49.3
Female	Higher	48.7 (44.7, 59.5)	48.8 (44.5, 59.5)	48.4 (44.8, 57.1)	49.1 (44.7, 61.6)	47.0 (44.9, 51.7)	46.3 (44.8, 49.1)	46.7 (46.2, 47.2)	47.2 (44.7, 53.4)	48.4 (44.9, 58.5)	49.0 (44.6, 57.7)	49.2 (44.9, 58.7)	48.2 (44.6, 55.8)	50.8 (44.5, 65.5)	50.4 (45.2, 62.5)
Female	Marginally Higher	45.0 (43.5, 46.8)	44.9 (43.3, 47.2)	44.9 (43.5, 47.4)	44.9 (43.3, 47.1)	44.9 (43.5, 47.7)	44.8 (43.6, 47.3)	45.6 (44.5, 47.0)	45.1 (43.6, 46.9)	44.8 (43.4, 46.4)	44.7 (43.4, 46.6)	44.9 (43.6, 47.3)	44.8 (43.7, 46.2)	45.2 (43.5, 48.3)	44.9 (43.4, 46.2)
Female	Similar	42.3 (38.7, 45.2)	41.8 (38.2, 44.7)	41.6 (37.7, 44.6)	41.8 (37.9, 44.7)	41.5 (38.0, 45.0)	41.0 (37.1, 44.5)	40.4 (37.1, 44.3)	41.3 (38.1, 45.0)	41.2 (37.1, 44.8)	42.0 (39.1, 44.8)	41.2 (37.8, 45.1)	41.6 (38.7, 44.7)	42.4 (38.1, 44.7)	42.3 (38.3, 44.0)
Female	Marginally Lower	38.1 (36.9, 39.0)	38.1 (36.2, 39.5)	38.2 (36.3, 39.5)	38.2 (36.3, 39.6)	38.0 (36.5, 39.3)	38.0 (34.4, 39.5)	37.9 (35.6, 39.2)	37.9 (34.4, 39.4)	38.1 (35.9, 39.4)	38.2 (37.9, 38.6)	38.0 (36.0, 39.3)	38.0 (35.4, 39.2)	38.9 (38.8, 39.1)	38.8 (38.8, 38.8)
Female	Lower	35.9 (34.8, 37.5)	35.7 (30.9, 38.2)	35.4 (27.4, 38.3)	35.6 (28.8, 38.4)	35.8 (29.7, 38.1)	35.2 (30.1, 38.2)	32.0 (22.9, 37.6)	31.9 (22.4, 38.1)	33.1 (25.4, 37.8)	34.0 (29.5, 36.6)	34.6 (25.3, 38.2)	36.3 (33.6, 38.3)	N/A	N/A
Male	Overall	60.7	58.4	56.1	58.5	54.9	53.1	47.0	50.6	53.1	59.2	55.3	58.5	62.0	63.9
Male	Higher	62.8 (59.0, 73.3)	61.7 (58.9, 70.7)	60.6 (58.7, 65.5)	61.7 (58.5, 69.0)	60.3 (58.5, 65.6)	60.4 (58.9, 64.1)	N/A	60.4 (58.6, 65.7)	61.3 (58.7, 66.3)	62.0 (59.0, 68.9)	61.3 (58.4, 67.2)	60.7 (58.5, 66.4)	63.0 (58.9, 69.5)	64.2 (59.2, 70.2)
Male	Marginally Higher	58.8 (57.4, 60.0)	58.7 (57.7, 60.1)	58.6 (57.6, 60.0)	58.8 (57.7, 60.7)	58.8 (57.8, 61.4)	58.6 (57.8, 59.6)	58.2 (58.2, 58.2)	58.6 (57.6, 59.9)	58.7 (57.8, 62.3)	58.9 (57.9, 60.3)	58.8 (57.6, 61.3)	58.7 (57.7, 60.7)	58.8 (57.6, 60.2)	58.8 (58.2, 59.6)
Male	Similar	56.7 (53.6, 58.9)	56.1 (53.2, 58.6)	55.9 (53.3, 58.5)	56.2 (53.3, 58.9)	55.7 (53.0, 59.4)	55.3 (52.1, 58.5)	54.7 (53.1, 57.0)	55.7 (51.9, 58.8)	56.0 (52.2, 59.1)	56.3 (53.4, 58.3)	55.7 (53.0, 58.8)	56.5 (53.5, 58.7)	57.0 (53.1, 59.0)	56.7 (55.2, 58.0)
Male	Marginally Lower	53.0 (51.8, 53.9)	53.1 (51.1, 54.1)	53.1 (50.2, 54.2)	53.1 (50.8, 54.3)	53.0 (51.0, 54.3)	52.9 (50.4, 54.1)	52.7 (51.1, 53.9)	52.8 (50.2, 54.2)	52.9 (51.2, 54.0)	53.0 (51.9, 54.2)	52.8 (51.2, 54.0)	53.2 (52.9, 53.7)	53.2 (52.8, 53.7)	N/A
Male	Lower	50.1 (47.6, 52.2)	51.2 (47.9, 52.8)	50.3 (42.4, 53.3)	50.8 (44.4, 52.9)	50.7 (36.9, 53.7)	50.8 (40.4, 53.4)	46.3 (28.7, 52.9)	47.3 (37.8, 52.9)	46.7 (35.6, 53.0)	49.5 (42.8, 52.4)	49.1 (38.7, 53.7)	49.1 (47.1, 52.2)	51.7 (51.7, 51.7)	N/A

N/A = no estimates in the category

Table D.7 Excess body weight, mean prevalence (range) by Local Health Integration Network (LHIN), prevalence category and sex, adolescents ages 12 to 18, 2000–2014

Sex	Category	Erie St. Clair (1)	South West (2)	Waterloo Wellington (3)	Hamilton Haldimand Niagara Brant (4)	Central West (5)	Mississauga Halton (6)	Toronto Central (7)	Central (8)	Central East (9)	South East (10)	Champlain (11)	North Simcoe Muskoka (12)	North East (13)	North West (14)
Female	Overall	17.6	17.1	15.2	17.4	14.0	12.8	12.5	12.7	15.7	19.4	17.3	17.3	20.0	19.8
Female	Higher	20.3 (18.8, 22.8)	20.6 (18.9, 24.4)	N/A	20.8 (18.8, 24.5)	N/A	N/A	N/A	N/A	19.9 (18.7, 21.4)	21.0 (18.7, 24.3)	22.6 (18.7, 31.6)	20.7 (18.8, 23.3)	20.6 (18.8, 25.8)	22.3 (18.8, 27.7)
Female	Marginally Higher	18.6 (17.4, 21.3)	18.4 (17.5, 20.2)	18.6 (17.7, 19.2)	18.5 (17.1, 21.8)	N/A	N/A	N/A	N/A	18.5 (17.4, 20.4)	18.7 (17.6, 20.7)	18.6 (17.4, 20.3)	18.8 (17.6, 20.6)	19.1 (17.6, 21.9)	18.6 (17.6, 22.8)
Female	Similar	16.7 (13.3, 18.5)	16.7 (14.9, 19.2)	15.2 (13.4, 17.9)	16.7 (13.3, 18.8)	14.2 (13.3, 16.7)	14.1 (13.3, 15.8)	13.9 (13.1, 15.0)	14.6 (13.1, 17.5)	15.5 (13.4, 19.2)	16.9 (15.4, 18.4)	15.3 (13.4, 19.1)	16.1 (14.4, 18.8)	18.2 (15.9, 20.4)	17.6 (16.7, 18.8)
Female	Marginally Lower	13.6 (13.5, 13.8)	N/A	13.5 (13.1, 13.8)	13.2 (12.5, 13.8)	13.3 (12.6, 13.9)	13.0 (11.8, 13.8)	12.8 (12.1, 13.7)	12.9 (11.9, 13.8)	13.1 (12.2, 13.8)	N/A	13.4 (13.0, 13.7)	N/A	N/A	N/A
Female	Lower	N/A	N/A	N/A	12.6 (12.6, 12.6)	12.7 (12.7, 12.7)	12.2 (11.5, 13.0)	12.1 (11.4, 12.8)	11.9 (11.1, 12.9)	12.3 (11.8, 12.8)	N/A	N/A	N/A	N/A	N/A
Male	Overall	24.1	21.9	21.4	23.7	21.1	20.9	20.5	19.7	21.4	25.0	22.4	22.0	26.6	26.0
Male	Higher	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	31.4 (29.5, 34.2)	31.3 (30.6, 32.1)
Male	Marginally Higher	29.4 (28.3, 30.6)	N/A	N/A	29.3 (28.5, 30.1)	N/A	N/A	N/A	N/A	N/A	29.1 (28.4, 29.5)	30.5 (30.5, 30.5)	28.9 (28.9, 28.9)	29.3 (28.3, 31.0)	29.2 (28.7, 30.0)
Male	Similar	25.6 (22.1, 28.8)	24.0 (21.6, 28.8)	23.3 (22.2, 25.9)	24.6 (22.3, 28.6)	23.1 (22.2, 26.2)	23.1 (21.9, 26.0)	22.8 (22.0, 24.2)	22.9 (22.3, 24.2)	23.5 (22.0, 27.3)	25.0 (22.4, 28.9)	23.6 (21.9, 28.3)	23.5 (22.1, 27.4)	26.3 (22.6, 29.4)	25.9 (23.1, 28.9)
Male	Marginally Lower	21.4 (20.0, 22.7)	21.6 (20.0, 22.7)	21.5 (20.4, 22.7)	21.7 (20.5, 22.7)	21.3 (20.4, 22.8)	21.4 (20.1, 22.6)	21.3 (20.4, 22.7)	21.3 (20.0, 22.6)	21.6 (20.1, 22.7)	21.8 (20.7, 22.4)	21.6 (20.4, 22.6)	21.5 (20.3, 22.5)	N/A	22.0 (21.7, 22.2)
Male	Lower	20.1 (18.8, 21.0)	20.0 (17.6, 21.2)	20.3 (18.9, 21.3)	19.9 (18.6, 21.1)	20.4 (18.9, 21.1)	20.1 (17.9, 21.2)	20.0 (18.2, 21.2)	19.4 (16.2, 21.2)	19.7 (17.9, 21.1)	N/A	20.4 (18.6, 21.2)	20.3 (18.8, 21.2)	N/A	N/A

N/A = no estimates in the category

Table D.8 Inadequate vegetable and fruit consumption, mean prevalence (range) by Local Health Integration Network (LHIN), prevalence category and sex, people age 12 and older, 2000–2014

Sex	Category	Erie St. Clair (1)	South West (2)	Waterloo Wellington (3)	Hamilton Haldimand Niagara Brant (4)	Central West (5)	Mississauga Halton (6)	Toronto Central (7)	Central (8)	Central East (9)	South East (10)	Champlain (11)	North Simcoe Muskoka (12)	North East (13)	North West (14)
Female	Overall	68.9	63.7	61.3	63.4	62.4	60.1	61.2	63.0	65.5	63.4	61.0	63.7	66.5	67.6
Female	Higher	71.2 (66.5, 81.0)	68.9 (66.1, 74.6)	67.9 (66.3, 69.3)	68.8 (66.5, 73.6)	67.4 (66.6, 69.0)	N/A	66.3 (66.3, 66.3)	68.5 (66.3, 72.0)	69.5 (65.5, 77.4)	68.0 (66.5, 71.9)	68.7 (66.2, 74.1)	68.2 (66.5, 70.8)	69.4 (66.3, 75.0)	69.9 (66.5, 74.7)
Female	Marginally Higher	66.4 (65.0, 69.9)	66.2 (65.0, 68.1)	66.2 (65.0, 67.5)	66.4 (64.9, 68.5)	66.1 (64.9, 67.8)	65.7 (65.3, 66.4)	66.1 (65.3, 67.0)	66.3 (64.9, 68.7)	66.4 (65.3, 68.7)	66.2 (65.2, 68.2)	66.2 (65.2, 67.7)	66.3 (65.2, 67.6)	66.4 (65.1, 68.6)	66.3 (65.2, 69.4)
Female	Similar	63.5 (59.7, 66.7)	63.1 (60.1, 66.3)	63.1 (59.5, 66.4)	63.2 (59.4, 66.2)	63.4 (58.7, 66.3)	62.0 (59.3, 65.9)	62.1 (59.2, 66.2)	62.8 (58.7, 66.6)	63.2 (59.3, 67.4)	63.1 (59.8, 66.0)	62.4 (59.0, 66.0)	63.2 (59.3, 66.6)	63.8 (59.3, 66.0)	64.0 (60.3, 66.0)
Female	Marginally Lower	59.5 (58.5, 60.3)	59.6 (55.7, 60.9)	59.5 (55.1, 61.0)	59.5 (57.4, 61.1)	59.5 (57.8, 61.0)	59.6 (56.5, 61.0)	59.6 (57.6, 61.0)	59.6 (57.1, 61.1)	59.7 (58.1, 60.7)	59.8 (57.5, 61.2)	59.3 (55.3, 60.9)	59.6 (57.9, 60.9)	59.8 (55.6, 60.8)	59.6 (59.6, 59.6)
Female	Lower	56.8 (54.7, 59.0)	56.5 (48.9, 59.7)	56.7 (51.8, 60.1)	57.2 (52.5, 59.9)	57.6 (51.1, 59.5)	57.2 (51.7, 59.6)	57.8 (54.4, 59.7)	57.6 (52.8, 59.8)	58.3 (54.2, 59.8)	57.2 (52.6, 59.5)	56.9 (50.7, 59.9)	57.2 (54.0, 59.7)	57.0 (51.3, 59.5)	58.1 (57.2, 58.6)
Male	Overall	81.0	78.4	76.6	76.0	74.3	74.4	74.1	74.4	78.3	78.4	76.4	79.2	80.1	82.0
Male	Higher	82.6 (78.9, 89.9)	80.7 (79.0, 83.8)	80.3 (78.9, 82.1)	80.0 (79.0, 82.6)	N/A	79.2 (79.2, 79.2)	N/A	80.3 (79.2, 82.0)	81.1 (78.9, 84.6)	81.1 (79.0, 83.9)	81.4 (79.1, 85.0)	80.8 (78.8, 84.1)	81.2 (79.0, 87.3)	82.4 (78.8, 87.7)
Male	Marginally Higher	78.9 (78.0, 79.9)	78.8 (77.9, 80.3)	78.8 (78.0, 80.0)	78.8 (77.8, 80.3)	78.5 (78.0, 79.0)	78.4 (78.0, 79.5)	N/A	78.8 (78.1, 79.8)	79.0 (78.1, 80.5)	78.8 (78.1, 79.9)	78.9 (78.0, 80.5)	78.9 (78.0, 80.1)	79.0 (78.1, 80.4)	79.1 (78.3, 81.6)
Male	Similar	76.9 (73.7, 78.7)	76.8 (74.1, 78.6)	76.7 (73.6, 78.7)	76.5 (73.2, 78.6)	75.9 (72.2, 78.8)	75.7 (72.5, 78.2)	75.1 (73.5, 77.9)	76.2 (72.9, 78.9)	76.3 (73.4, 78.9)	76.6 (73.7, 78.4)	75.8 (73.3, 78.6)	77.2 (74.4, 78.9)	77.1 (74.5, 78.8)	77.4 (75.7, 78.8)
Male	Marginally Lower	73.8 (72.2, 74.2)	73.8 (72.7, 74.7)	73.7 (71.9, 74.8)	73.6 (71.3, 74.8)	73.6 (71.6, 74.7)	73.7 (71.8, 74.8)	73.7 (71.7, 74.6)	73.4 (70.4, 74.7)	73.9 (72.9, 74.7)	73.5 (72.1, 74.5)	73.7 (71.8, 75.0)	73.7 (72.9, 74.5)	73.3 (73.0, 73.7)	N/A
Male	Lower	72.8 (72.4, 73.1)	72.0 (70.3, 73.8)	71.6 (66.6, 73.5)	71.9 (67.7, 73.9)	71.1 (62.3, 73.7)	72.0 (67.6, 73.9)	72.4 (68.4, 73.5)	71.6 (63.8, 73.7)	72.1 (70.5, 73.2)	71.6 (64.3, 73.2)	71.9 (68.4, 73.6)	71.3 (71.3, 71.3)	72.0 (72.0, 72.0)	N/A

N/A = no estimates in the category

Table D.9 Inadequate vegetable and fruit consumption, mean prevalence (range) by Local Health Integration Network (LHIN), prevalence category and sex, adolescents ages 12 to 18, 2000–2014

Sex	Category	Erie St. Clair (1)	South West (2)	Waterloo Wellington (3)	Hamilton Haldimand Niagara Brant (4)	Central West (5)	Mississauga Halton (6)	Toronto Central (7)	Central (8)	Central East (9)	South East (10)	Champlain (11)	North Simcoe Muskoka (12)	North East (13)	North West (14)
Female	Overall	71.9	67.7	65.2	66.9	67.9	64.3	65.4	66.0	68.7	67.0	65.5	66.6	69.3	69.5
Female	Higher	73.4 (72.1, 75.3)	73.2 (72.2, 74.9)	N/A	N/A	73.0 (73.0, 73.0)	N/A	N/A	N/A	73.0 (72.0, 74.0)	N/A	N/A	N/A	73.2 (72.0, 75.0)	75.7 (72.6, 77.1)
Female	Marginally Higher	72.0 (70.5, 73.3)	71.8 (70.5, 74.1)	N/A	71.4 (70.6, 72.5)	70.9 (70.6, 71.2)	N/A	N/A	71.0 (70.6, 71.4)	71.8 (70.6, 73.1)	71.1 (70.7, 71.6)	71.3 (71.0, 72.7)	N/A	71.5 (70.3, 73.1)	71.7 (70.4, 75.3)
Female	Similar	69.9 (64.9, 72.0)	67.3 (63.2, 71.3)	65.9 (63.4, 69.9)	67.4 (63.6, 71.4)	68.3 (63.6, 71.1)	65.8 (63.4, 69.4)	65.9 (63.8, 69.0)	66.1 (63.1, 70.5)	67.7 (64.0, 71.5)	67.0 (64.1, 70.8)	66.6 (63.1, 70.9)	66.7 (63.3, 70.1)	68.6 (64.9, 71.5)	69.0 (65.3, 71.2)
Female	Marginally Lower	N/A	63.3 (61.1, 64.7)	63.7 (62.0, 65.1)	63.4 (60.1, 65.0)	63.6 (61.7, 65.1)	63.3 (61.0, 64.9)	63.6 (62.1, 64.9)	64.0 (61.8, 65.0)	63.8 (63.4, 64.6)	63.7 (62.4, 64.6)	63.3 (60.5, 65.0)	63.8 (62.1, 64.7)	64.3 (64.3, 64.3)	63.8 (63.2, 64.4)
Female	Lower	N/A	61.1 (60.0, 62.0)	62.0 (59.9, 63.0)	61.9 (59.5, 63.1)	62.0 (61.5, 62.6)	61.7 (58.0, 63.3)	62.0 (59.6, 63.2)	62.2 (60.5, 62.8)	62.2 (62.2, 62.2)	N/A	61.3 (58.1, 63.2)	N/A	N/A	N/A
Male	Overall	77.8	75.0	71.6	71.8	72.8	71.4	70.3	72.6	75.1	72.5	71.3	73.0	74.1	76.0
Male	Higher	78.8 (77.3, 81.7)	78.3 (77.5, 79.7)	N/A	N/A	N/A	N/A	N/A	N/A	78.8 (77.3, 80.5)	N/A	N/A	N/A	N/A	78.1 (77.1, 78.8)
Male	Marginally Higher	77.1 (76.1, 78.7)	76.7 (75.8, 78.1)	N/A	76.4 (76.2, 77.1)	N/A	N/A	N/A	76.5 (76.1, 77.6)	76.9 (75.8, 78.2)	76.6 (76.3, 77.0)	N/A	N/A	76.5 (75.9, 77.4)	77.1 (75.9, 78.9)
Male	Similar	75.6 (73.6, 76.6)	74.1 (69.8, 76.7)	72.2 (70.4, 74.6)	73.0 (70.4, 76.5)	73.0 (70.8, 75.2)	72.1 (69.9, 75.5)	71.5 (70.7, 73.7)	73.0 (69.6, 76.3)	74.0 (70.8, 76.8)	72.7 (70.0, 76.5)	71.9 (70.2, 75.0)	73.1 (70.4, 75.8)	74.0 (70.7, 76.3)	75.1 (72.9, 77.0)
Male	Marginally Lower	N/A	70.4 (68.4, 71.2)	70.5 (68.2, 71.4)	70.3 (68.4, 71.7)	70.7 (69.2, 71.5)	70.5 (68.8, 71.8)	70.3 (68.4, 71.4)	70.7 (69.3, 71.6)	70.4 (69.5, 71.0)	70.5 (69.0, 71.3)	70.5 (68.7, 71.6)	70.4 (69.3, 71.2)	70.7 (70.4, 71.2)	N/A
Male	Lower	N/A	68.6 (67.9, 69.2)	69.0 (67.3, 69.9)	68.8 (65.1, 70.0)	68.9 (68.3, 69.5)	69.1 (68.0, 69.9)	68.8 (66.2, 70.0)	69.1 (68.0, 70.1)	69.2 (69.2, 69.2)	68.3 (66.8, 69.5)	68.8 (67.7, 69.9)	69.0 (68.4, 69.3)	N/A	N/A

N/A = no estimates in the category

Table D.10 Physical activity, mean prevalence (range) by Local Health Integration Network (LHIN), prevalence category and sex, people age 12 and older, 2000–2014

Sex	Category	Erie St. Clair (1)	South West (2)	Waterloo Wellington (3)	Hamilton Haldimand Niagara Brant (4)	Central West (5)	Mississauga Halton (6)	Toronto Central (7)	Central (8)	Central East (9)	South East (10)	Champlain (11)	North Simcoe Muskoka (12)	North East (13)	North West (14)
Female	Overall	23.1	24.2	24.4	24.5	19.6	24.4	23.9	21.1	22.8	26.7	25.9	29.3	25.7	28.7
Female	Lower	17.4 (10.0, 19.9)	18.1 (12.0, 20.0)	17.9 (12.3, 19.9)	18.1 (12.3, 20.1)	17.3 (9.4, 20.1)	18.4 (13.9, 20.4)	18.2 (12.9, 20.2)	17.9 (11.9, 20.4)	17.0 (9.5, 20.1)	18.0 (12.2, 19.8)	17.7 (11.5, 20.0)	18.2 (15.7, 19.6)	18.3 (12.5, 20.3)	18.1 (16.7, 19.0)
Female	Marginally Lower	20.3 (19.4, 21.2)	20.3 (19.2, 21.1)	20.3 (19.2, 21.1)	20.4 (19.2, 21.3)	20.0 (18.7, 21.0)	20.3 (19.1, 21.0)	20.3 (19.3, 21.1)	20.1 (18.8, 21.1)	20.1 (18.5, 21.2)	20.5 (19.8, 20.9)	20.2 (18.9, 21.0)	20.7 (20.3, 20.9)	20.5 (19.6, 21.0)	20.6 (19.9, 21.0)
Female	Similar	23.1 (20.6, 26.0)	23.3 (20.6, 26.4)	23.5 (20.7, 26.3)	23.4 (20.6, 26.3)	22.7 (20.2, 25.7)	23.4 (20.4, 26.9)	23.4 (20.6, 25.9)	22.7 (20.2, 26.5)	23.2 (20.5, 27.7)	23.8 (20.5, 26.1)	23.5 (20.6, 27.2)	23.7 (21.1, 25.8)	23.4 (20.4, 26.2)	24.1 (21.3, 27.0)
Female	Marginally Higher	26.2 (25.0, 28.5)	26.1 (24.9, 28.7)	26.1 (24.8, 28.3)	26.2 (24.9, 28.8)	26.2 (25.2, 27.8)	26.3 (25.2, 28.2)	26.2 (25.1, 27.9)	26.3 (24.6, 28.4)	26.2 (25.1, 28.9)	26.1 (25.2, 27.7)	26.3 (24.7, 28.7)	26.4 (25.2, 29.2)	26.1 (24.7, 29.3)	26.2 (25.1, 28.5)
Female	Higher	29.6 (26.0, 37.6)	28.6 (26.2, 36.5)	28.7 (26.4, 34.5)	28.9 (26.2, 37.5)	29.3 (26.2, 34.5)	28.7 (26.4, 33.5)	28.4 (26.5, 34.9)	28.8 (26.5, 36.3)	29.8 (26.1, 36.9)	29.2 (26.2, 38.2)	29.4 (26.3, 40.1)	30.5 (26.4, 37.5)	28.9 (25.8, 36.6)	30.4 (26.3, 37.7)
Male	Overall	31.1	29.3	29.2	32.9	28.2	32.2	29.6	29.1	30.1	32.1	33.4	36.0	32.9	36.2
Male	Lower	23.9 (16.9, 26.4)	24.0 (16.6, 26.8)	24.6 (19.1, 26.7)	24.8 (20.4, 26.5)	24.4 (19.0, 26.7)	25.1 (20.6, 26.5)	24.9 (21.9, 26.4)	24.9 (19.8, 26.6)	23.6 (16.6, 26.6)	24.9 (20.9, 26.7)	25.2 (21.3, 26.5)	24.6 (24.6, 24.6)	24.9 (21.5, 26.4)	N/A
Male	Marginally Lower	26.9 (25.9, 27.9)	27.0 (25.9, 28.1)	26.8 (25.4, 27.8)	26.9 (26.0, 27.7)	26.8 (25.3, 27.8)	26.9 (26.2, 27.6)	26.9 (25.5, 27.8)	26.7 (24.6, 27.8)	26.6 (25.2, 27.7)	27.1 (26.3, 27.8)	27.0 (25.5, 27.9)	27.0 (26.3, 27.5)	26.8 (25.8, 27.5)	N/A
Male	Similar	30.3 (27.2, 33.8)	29.9 (27.2, 33.4)	29.7 (26.9, 33.3)	30.4 (27.1, 33.7)	29.5 (26.7, 33.6)	30.7 (27.1, 33.4)	29.9 (27.2, 33.8)	29.8 (26.5, 33.4)	30.5 (26.9, 34.9)	30.3 (27.1, 33.2)	30.6 (27.4, 33.7)	31.1 (27.6, 33.6)	30.6 (26.5, 33.9)	31.1 (28.5, 34.0)
Male	Marginally Higher	33.3 (31.8, 36.3)	33.2 (31.9, 35.4)	33.2 (32.2, 35.1)	33.4 (32.0, 35.6)	33.3 (32.2, 34.9)	33.3 (31.9, 35.7)	33.3 (32.2, 35.6)	33.3 (32.0, 35.2)	33.4 (31.7, 36.5)	33.2 (31.9, 35.5)	33.4 (32.0, 35.9)	33.5 (32.2, 35.8)	33.2 (31.6, 35.7)	33.4 (32.3, 35.3)
Male	Higher	36.0 (33.4, 43.0)	35.5 (33.3, 40.8)	36.1 (33.3, 40.9)	36.5 (33.4, 46.8)	35.6 (33.6, 38.6)	35.7 (33.2, 42.4)	35.8 (33.8, 45.5)	35.2 (33.6, 38.3)	36.4 (33.2, 46.5)	35.7 (33.1, 43.8)	36.4 (33.0, 46.9)	37.2 (33.4, 45.7)	36.1 (33.4, 46.7)	37.3 (33.3, 44.0)

N/A = no estimates in the category

Table D.11 Physical activity, mean prevalence (range) by Local Health Integration Network (LHIN), prevalence category and sex, adolescents ages 12 to 18, 2000–2014

Sex	Category	Erie St. Clair (1)	South West (2)	Waterloo Wellington (3)	Hamilton Haldimand Niagara Brant (4)	Central West (5)	Mississauga Halton (6)	Toronto Central (7)	Central (8)	Central East (9)	South East (10)	Champlain (11)	North Simcoe Muskoka (12)	North East (13)	North West (14)
Female	Overall	45.1	42.3	41.8	42.6	36.8	39.8	35.6	37.6	39.9	45.6	44.8	48.9	49.2	50.0
Female	Lower	N/A	N/A	N/A	N/A	34.3 (31.7, 35.7)	N/A	33.7 (30.6, 35.4)	34.3 (31.3, 35.7)	34.0 (30.6, 35.5)	N/A	N/A	N/A	N/A	N/A
Female	Marginally Lower	N/A	36.2 (35.4, 36.8)	36.7 (36.7, 36.8)	36.0 (35.9, 36.1)	35.7 (34.0, 37.1)	36.6 (35.6, 37.1)	35.6 (33.1, 37.0)	35.8 (34.0, 37.3)	35.3 (33.9, 37.0)	N/A	N/A	N/A	N/A	N/A
Female	Similar	42.0 (38.7, 44.5)	41.0 (36.6, 44.6)	41.1 (36.8, 44.4)	41.5 (36.2, 44.7)	38.7 (35.7, 43.7)	39.8 (36.5, 43.6)	38.0 (36.3, 42.4)	39.3 (35.9, 44.0)	39.9 (35.8, 44.5)	41.8 (38.3, 44.6)	41.8 (37.7, 44.1)	43.6 (43.4, 43.9)	42.8 (41.7, 43.6)	43.9 (43.9, 43.9)
Female	Marginally Higher	44.7 (43.0, 46.6)	44.5 (42.8, 47.5)	44.2 (42.9, 46.1)	44.5 (42.8, 47.8)	44.2 (43.0, 45.2)	43.8 (43.1, 44.4)	N/A	44.3 (43.0, 46.0)	44.6 (43.0, 46.7)	44.8 (42.9, 47.2)	44.7 (42.9, 46.8)	45.5 (44.0, 47.2)	44.9 (43.4, 50.0)	45.3 (43.7, 47.6)
Female	Higher	47.9 (44.7, 54.1)	46.5 (44.9, 52.2)	46.1 (45.3, 48.1)	46.5 (44.9, 49.1)	45.5 (44.9, 46.1)	N/A	N/A	46.7 (44.8, 50.2)	47.6 (45.0, 52.2)	47.3 (44.6, 51.1)	47.6 (44.7, 52.7)	49.2 (45.3, 56.1)	49.6 (45.1, 56.3)	50.2 (44.9, 59.9)
Male	Overall	59.5	54.6	54.1	61.6	55.9	58.3	55.6	56.0	55.7	59.1	58.2	60.4	62.0	64.8
Male	Lower	N/A	50.4 (48.2, 52.1)	51.0 (48.9, 52.1)	N/A	51.6 (51.6, 51.6)	51.6 (51.3, 51.9)	N/A	51.1 (49.2, 51.9)	50.5 (48.1, 52.2)	N/A	N/A	N/A	N/A	N/A
Male	Marginally Lower	N/A	52.7 (50.0, 53.8)	52.5 (50.6, 53.9)	53.0 (51.7, 53.6)	53.1 (51.5, 53.9)	53.0 (51.6, 53.8)	53.2 (51.9, 53.9)	52.6 (50.7, 53.9)	52.1 (50.0, 53.7)	N/A	N/A	52.0 (52.0, 52.0)	N/A	N/A
Male	Similar	58.5 (53.3, 60.8)	55.4 (52.6, 60.3)	55.5 (52.8, 59.4)	57.3 (52.9, 60.8)	56.0 (53.0, 60.2)	58.1 (52.8, 60.5)	55.6 (53.3, 59.9)	56.3 (52.5, 60.2)	57.3 (52.5, 60.3)	57.6 (53.7, 60.5)	57.8 (53.8, 60.4)	58.6 (55.2, 60.9)	58.2 (52.6, 61.1)	60.8 (59.8, 61.8)
Male	Marginally Higher	60.7 (59.4, 62.7)	60.3 (59.6, 62.0)	60.5 (60.1, 60.9)	61.1 (59.4, 64.3)	60.2 (59.3, 61.3)	60.2 (59.4, 62.1)	N/A	60.3 (59.9, 61.0)	60.6 (59.6, 62.8)	61.0 (59.5, 62.6)	60.8 (59.5, 62.4)	60.9 (59.4, 62.9)	61.3 (59.6, 64.9)	62.0 (60.5, 64.0)
Male	Higher	62.5 (61.4, 65.4)	62.6 (62.6, 62.6)	N/A	63.8 (60.9, 68.0)	61.6 (61.6, 61.6)	61.8 (60.9, 62.6)	N/A	N/A	63.7 (61.5, 66.9)	62.3 (60.9, 63.5)	62.6 (61.3, 63.8)	62.7 (61.3, 65.7)	63.2 (61.0, 69.2)	65.0 (61.8, 68.5)

N/A = no estimates in the category

| Table D.12 | Sedentary behaviour, mean prevalence (range) by Local Health Integration Network (LHIN), prevalence category and sex, people age 12 and older, 2000–2014 |

Sex	Category	Erie St. Clair (1)	South West (2)	Waterloo Wellington (3)	Hamilton Haldimand Niagara Brant (4)	Central West (5)	Mississauga Halton (6)	Toronto Central (7)	Central (8)	Central East (9)	South East (10)	Champlain (11)	North Simcoe Muskoka (12)	North East (13)	North West (14)
Female	Overall	51.7	47.9	46.7	49.9	45.0	46.5	45.0	46.5	48.3	51.0	47.2	49.8	51.6	48.5
Female	Higher	56.6 (52.4, 65.0)	54.6 (52.3, 59.5)	54.8 (52.8, 60.9)	55.9 (52.9, 65.2)	54.0 (53.9, 54.1)	53.9 (53.3, 54.7)	54.0 (52.7, 54.7)	55.3 (53.5, 62.0)	54.6 (52.9, 59.2)	56.2 (52.6, 64.2)	58.9 (52.6, 69.2)	55.4 (52.9, 64.0)	55.8 (52.7, 67.3)	55.1 (53.0, 58.6)
Female	Marginally Higher	52.5 (51.2, 54.8)	52.3 (51.3, 53.9)	52.4 (51.4, 54.1)	52.5 (51.3, 54.5)	52.1 (51.8, 52.7)	52.1 (51.2, 53.2)	52.1 (51.3, 52.9)	52.3 (51.3, 54.4)	52.5 (51.2, 54.4)	52.4 (51.3, 54.0)	52.4 (51.4, 54.5)	52.5 (51.5, 53.8)	52.7 (51.3, 55.3)	52.8 (51.3, 55.7)
Female	Similar	49.6 (46.1, 52.8)	48.8 (45.6, 52.4)	48.7 (45.5, 52.0)	49.4 (44.9, 52.9)	47.6 (45.4, 52.4)	47.8 (45.4, 52.2)	47.9 (45.4, 52.6)	48.5 (44.0, 52.1)	48.7 (44.8, 52.7)	49.6 (46.0, 52.3)	48.2 (45.4, 52.2)	49.0 (45.7, 52.3)	49.8 (46.2, 53.4)	49.1 (45.1, 52.8)
Female	Marginally Lower	45.6 (44.5, 46.7)	45.8 (43.6, 47.0)	45.4 (43.1, 46.7)	45.6 (43.1, 47.0)	45.4 (41.4, 46.7)	45.6 (43.9, 46.9)	45.5 (43.3, 46.7)	45.5 (41.8, 46.8)	45.5 (43.3, 46.9)	46.0 (44.9, 46.9)	45.5 (42.7, 47.0)	45.6 (43.6, 46.6)	46.0 (45.7, 46.3)	45.6 (42.3, 46.5)
Female	Lower	44.2 (43.1, 45.0)	43.4 (37.4, 45.6)	42.6 (37.4, 45.7)	43.6 (38.5, 45.6)	42.9 (37.2, 45.5)	43.5 (39.6, 45.7)	42.8 (39.2, 45.6)	43.0 (37.3, 45.4)	43.4 (37.9, 45.6)	43.3 (41.5, 45.2)	43.2 (37.4, 46.1)	44.1 (42.7, 45.4)	N/A	42.4 (38.1, 46.0)
Male	Overall	56.3	53.6	52.7	56.2	51.3	54.0	54.4	54.6	54.0	57.3	55.5	55.6	55.1	55.0
Male	Higher	61.7 (59.4, 68.2)	61.1 (59.6, 64.1)	N/A	61.3 (59.5, 65.8)	N/A	N/A	60.8 (60.8, 60.8)	60.8 (60.0, 61.8)	61.3 (60.8, 61.9)	62.0 (59.9, 65.1)	61.8 (59.6, 66.3)	63.0 (59.6, 65.9)	61.3 (60.1, 63.1)	60.8 (59.7, 62.1)
Male	Marginally Higher	59.3 (57.8, 60.8)	59.4 (58.1, 61.0)	59.2 (58.5, 60.7)	59.4 (57.7, 62.1)	N/A	59.2 (58.5, 60.1)	59.6 (58.7, 62.5)	59.3 (57.9, 62.4)	59.3 (58.2, 60.3)	59.4 (58.2, 61.5)	59.4 (58.1, 61.0)	59.8 (58.5, 61.2)	59.7 (58.4, 61.2)	59.3 (58.1, 60.8)
Male	Similar	55.8 (52.1, 59.5)	55.9 (52.1, 59.5)	55.1 (51.7, 58.6)	55.9 (51.7, 60.1)	53.8 (50.7, 58.7)	54.7 (50.0, 58.3)	54.7 (52.0, 59.6)	55.2 (51.3, 59.4)	55.1 (51.3, 59.0)	55.8 (52.1, 59.0)	55.9 (50.7, 59.2)	55.2 (51.3, 59.1)	55.1 (51.2, 59.5)	55.6 (49.3, 59.2)
Male	Marginally Lower	51.7 (50.2, 53.2)	51.7 (49.6, 53.1)	51.7 (48.7, 53.0)	51.7 (49.7, 53.1)	51.4 (48.8, 52.9)	51.8 (49.8, 53.2)	51.9 (50.2, 53.2)	51.8 (49.4, 53.1)	51.6 (48.6, 53.2)	52.1 (50.4, 53.1)	51.8 (48.7, 53.2)	51.8 (50.2, 53.0)	51.6 (49.5, 52.9)	51.3 (46.5, 52.7)
Male	Lower	49.7 (47.0, 51.3)	47.4 (32.6, 51.5)	46.7 (40.5, 51.7)	49.3 (45.5, 51.4)	48.9 (41.0, 52.0)	49.6 (46.0, 51.5)	49.8 (45.4, 51.5)	49.7 (46.7, 52.2)	49.3 (45.6, 51.8)	50.5 (49.7, 51.0)	49.1 (42.5, 51.5)	49.9 (47.6, 51.7)	49.5 (48.0, 51.0)	49.3 (45.2, 51.5)

N/A = no estimates in the category

Table D.13 Sedentary behaviour, mean prevalence (range) by Local Health Integration Network (LHIN), prevalence category and sex, adolescents ages 12 to 18, 2000–2014

Sex	Category	Erie St. Clair (1)	South West (2)	Waterloo Wellington (3)	Hamilton Haldimand Niagara Brant (4)	Central West (5)	Mississauga Halton (6)	Toronto Central (7)	Central (8)	Central East (9)	South East (10)	Champlain (11)	North Simcoe Muskoka (12)	North East (13)	North West (14)
Female	Overall	53.2	51.3	51.9	52.9	53.6	54.0	54.7	54.0	52.3	49.9	51.3	51.3	51.1	51.6
Female	Higher	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Female	Marginally Higher	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Female	Similar	53.3 (51.0, 56.4)	52.1 (51.0, 53.7)	52.3 (51.3, 54.5)	53.0 (51.0, 55.8)	53.7 (51.4, 56.1)	54.0 (51.6, 56.3)	54.7 (51.7, 56.9)	54.1 (51.5, 56.8)	53.1 (51.0, 56.0)	51.9 (50.7, 53.4)	52.3 (51.0, 55.0)	52.2 (51.2, 54.4)	52.1 (50.9, 54.7)	52.0 (50.8, 53.8)
Female	Marginally Lower	51.1 (50.1, 51.8)	51.0 (49.5, 52.1)	51.2 (49.6, 51.9)	51.2 (49.6, 52.1)	51.3 (50.6, 51.9)	51.5 (51.2, 51.8)	51.7 (51.4, 51.9)	51.2 (50.0, 52.0)	50.8 (48.9, 51.9)	50.3 (48.8, 51.7)	50.8 (49.1, 52.1)	50.9 (49.3, 52.0)	50.6 (49.2, 51.8)	50.9 (49.4, 51.7)
Female	Lower	49.5 (49.5, 49.5)	49.5 (48.4, 50.3)	49.6 (49.1, 49.9)	N/A	N/A	N/A	N/A	49.5 (49.5, 49.5)	49.3 (48.0, 50.2)	49.1 (46.3, 50.2)	49.2 (46.9, 50.1)	49.4 (47.5, 50.2)	49.5 (48.0, 50.0)	48.7 (48.5, 48.9)
Male	Overall	58.8	56.9	56.3	57.0	59.6	58.7	59.0	59.8	57.8	57.3	57.0	55.3	53.5	52.8
Male	Higher	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Male	Marginally Higher	N/A	63.3 (63.3, 63.3)	N/A	N/A	63.4 (63.2, 63.7)	63.4 (63.4, 63.4)	N/A	63.4 (62.8, 64.3)	N/A	N/A	N/A	N/A	N/A	N/A
Male	Similar	58.9 (56.5, 62.7)	58.6 (56.5, 62.4)	57.8 (56.1, 60.5)	58.3 (55.7, 62.2)	59.7 (56.7, 62.3)	59.0 (56.7, 63.3)	59.2 (56.6, 63.0)	60.0 (56.6, 63.0)	59.1 (56.3, 62.8)	58.0 (56.4, 61.5)	57.9 (56.1, 61.6)	57.7 (56.3, 60.3)	57.4 (56.9, 58.6)	56.9 (56.3, 57.5)
Male	Marginally Lower	56.3 (54.3, 57.3)	56.1 (54.1, 57.4)	56.2 (54.6, 57.4)	55.9 (53.7, 57.5)	56.5 (55.3, 57.3)	56.4 (55.2, 57.4)	56.6 (54.9, 57.2)	56.4 (54.9, 57.4)	56.1 (54.4, 57.6)	56.2 (54.4, 57.3)	56.2 (54.5, 57.4)	55.8 (54.1, 57.3)	55.4 (52.1, 56.8)	54.7 (52.9, 56.2)
Male	Lower	54.5 (53.8, 55.2)	53.8 (49.8, 56.0)	54.6 (51.7, 55.7)	54.1 (50.2, 55.6)	54.8 (54.4, 55.1)	54.6 (53.0, 55.5)	54.1 (53.5, 54.7)	54.8 (54.3, 55.1)	54.5 (49.9, 55.6)	54.7 (53.5, 55.7)	54.2 (50.5, 55.5)	54.2 (49.0, 55.8)	53.1 (48.8, 55.6)	52.6 (47.8, 55.0)

N/A = no estimates in the category

Table D.14 Smoking—current status, mean prevalence (range) by Local Health Integration Network (LHIN), prevalence category and sex, people age 12 and older, 2000–2014

Sex	Category	Erie St. Clair (1)	South West (2)	Waterloo Wellington (3)	Hamilton Haldimand Niagara Brant (4)	Central West (5)	Mississauga Halton (6)	Toronto Central (7)	Central (8)	Central East (9)	South East (10)	Champlain (11)	North Simcoe Muskoka (12)	North East (13)	North West (14)
Female	Overall	21.8	19.9	18.6	21.3	15.6	15.3	17.6	14.0	18.1	22.5	18.6	23.5	24.9	24.6
Female	Higher	26.6 (20.2, 41.1)	25.2 (19.8, 38.6)	24.3 (20.7, 34.9)	27.3 (20.3, 50.8)	24.4 (20.3, 31.6)	23.0 (21.2, 27.3)	23.6 (20.5, 29.1)	26.1 (20.8, 36.1)	26.0 (19.8, 43.6)	26.1 (20.6, 40.6)	25.8 (20.8, 44.4)	25.9 (20.2, 41.8)	26.6 (20.1, 45.1)	27.6 (20.9, 45.1)
Female	Marginally Higher	20.7 (18.5, 23.9)	20.7 (19.4, 23.4)	20.9 (19.2, 23.8)	21.0 (18.8, 25.8)	21.1 (19.1, 24.5)	20.9 (19.3, 23.1)	21.2 (19.2, 25.3)	21.4 (19.4, 24.8)	21.0 (19.4, 24.4)	20.9 (19.4, 23.2)	20.9 (19.0, 23.0)	21.1 (19.1, 25.3)	21.1 (18.9, 25.1)	20.7 (18.9, 23.7)
Female	Similar	17.8 (14.9, 21.7)	17.8 (14.9, 21.3)	17.7 (14.8, 21.5)	17.6 (14.9, 21.9)	17.4 (14.4, 22.9)	17.0 (14.3, 22.0)	17.8 (14.8, 22.1)	17.1 (14.6, 21.6)	17.6 (14.5, 25.1)	18.0 (15.2, 21.2)	17.4 (14.6, 21.3)	18.5 (15.0, 22.3)	18.5 (15.1, 22.9)	18.3 (15.5, 22.1)
Female	Marginally Lower	14.7 (13.6, 15.5)	14.5 (12.7, 15.6)	14.5 (13.4, 15.5)	14.6 (12.6, 15.5)	14.1 (12.1, 15.3)	14.4 (12.1, 15.5)	14.5 (13.3, 15.2)	14.2 (12.5, 15.5)	14.3 (12.4, 15.5)	14.6 (14.0, 15.5)	14.4 (12.3, 15.5)	14.6 (13.7, 15.3)	14.5 (13.8, 15.5)	14.5 (13.9, 14.9)
Female	Lower	12.7 (10.0, 14.6)	12.3 (8.5, 14.5)	12.3 (5.8, 14.4)	12.7 (6.4, 14.6)	12.2 (6.1, 14.3)	12.2 (8.9, 14.8)	12.1 (7.1, 14.4)	11.1 (4.7, 14.7)	10.6 (5.4, 14.4)	12.6 (7.1, 14.4)	11.4 (6.2, 14.4)	11.8 (9.0, 14.1)	13.2 (12.4, 14.0)	12.5 (10.1, 14.1)
Male	Overall	26.5	25.3	24.6	25.6	22.3	21.5	24.4	20.9	23.5	27.2	23.2	25.6	29.5	27.0
Male	Higher	33.7 (27.8, 48.9)	32.9 (27.9, 50.6)	31.9 (26.9, 39.9)	35.1 (27.9, 52.5)	30.1 (28.0, 33.3)	31.1 (27.5, 39.1)	31.0 (27.9, 37.9)	31.6 (27.9, 39.0)	33.3 (27.9, 45.9)	32.6 (27.6, 45.5)	33.2 (27.9, 52.3)	32.3 (28.2, 41.7)	33.1 (27.4, 47.7)	32.7 (26.7, 44.1)
Male	Marginally Higher	28.0 (26.5, 31.6)	27.9 (26.1, 31.0)	28.2 (26.5, 31.1)	28.1 (26.4, 33.7)	28.2 (25.9, 31.2)	28.2 (26.4, 30.4)	28.4 (26.2, 31.1)	28.4 (26.6, 30.4)	28.1 (26.5, 31.0)	28.0 (26.5, 30.9)	28.1 (26.2, 31.0)	28.0 (26.0, 32.4)	28.1 (26.0, 31.9)	28.0 (26.4, 31.3)
Male	Similar	24.4 (20.8, 28.2)	24.5 (20.9, 29.5)	24.3 (20.9, 28.6)	24.0 (20.7, 28.0)	23.7 (20.8, 28.4)	23.6 (20.7, 28.2)	25.0 (20.4, 29.0)	23.8 (20.3, 28.2)	23.9 (20.6, 29.2)	24.6 (21.5, 29.8)	24.2 (20.8, 28.8)	24.3 (21.1, 28.5)	24.7 (20.8, 27.8)	24.4 (21.0, 28.1)
Male	Marginally Lower	20.6 (18.3, 21.8)	20.8 (18.5, 21.9)	20.6 (18.6, 21.8)	20.6 (18.9, 21.9)	20.6 (18.5, 22.0)	20.6 (18.2, 22.0)	20.5 (19.3, 21.8)	20.5 (18.1, 21.9)	20.5 (18.0, 21.8)	20.7 (18.3, 21.8)	20.4 (18.4, 22.0)	20.8 (19.2, 21.8)	20.8 (19.4, 21.6)	20.8 (19.5, 21.8)
Male	Lower	18.2 (13.4, 21.0)	16.9 (10.5, 20.7)	18.1 (7.0, 20.6)	18.1 (6.9, 20.8)	18.3 (12.8, 21.0)	18.0 (12.1, 20.9)	16.8 (9.3, 20.9)	17.4 (6.9, 20.8)	17.6 (8.9, 20.9)	18.2 (11.8, 20.4)	17.4 (10.3, 20.5)	18.5 (12.1, 20.5)	18.9 (15.7, 20.4)	19.1 (16.8, 20.5)

Table D.15 Smoking—current status, mean prevalence (range) by Local Health Integration Network (LHIN), prevalence category and sex, adolescents ages 12 to 18, 2000–2014

Sex	Category	Erie St. Clair (1)	South West (2)	Waterloo Wellington (3)	Hamilton Haldimand Niagara Brant (4)	Central West (5)	Mississauga Halton (6)	Toronto Central (7)	Central (8)	Central East (9)	South East (10)	Champlain (11)	North Simcoe Muskoka (12)	North East (13)	North West (14)
Female	Overall	10.1	9.0	10.3	10.8	6.6	8.2	7.9	7.0	8.4	9.7	9.6	11.6	14.4	13.4
Female	Higher	14.2 (11.1, 23.9)	12.6 (10.8, 17.8)	13.4 (11.0, 22.0)	13.5 (11.0, 22.0)	N/A	12.7 (11.1, 16.3)	12.7 (11.8, 13.8)	12.2 (10.7, 13.7)	13.0 (10.9, 19.9)	13.0 (11.3, 17.5)	14.0 (11.2, 23.4)	13.4 (10.9, 21.7)	15.1 (10.8, 27.7)	14.3 (11.1, 22.9)
Female	Marginally Higher	11.2 (10.1, 13.4)	11.0 (10.0, 12.7)	11.0 (9.8, 14.5)	11.2 (9.6, 14.4)	10.8 (10.6, 11.2)	11.1 (9.9, 13.0)	11.4 (10.1, 14.1)	11.0 (10.2, 12.5)	11.0 (9.8, 13.6)	11.2 (10.0, 13.2)	11.2 (9.8, 13.2)	11.2 (9.8, 13.2)	11.6 (10.0, 16.6)	11.5 (10.3, 14.0)
Female	Similar	8.7 (6.9, 11.4)	8.8 (6.9, 11.1)	9.1 (7.1, 11.5)	9.2 (7.0, 12.6)	8.0 (6.9, 10.9)	8.5 (7.0, 11.4)	8.5 (6.9, 11.0)	8.2 (6.9, 11.0)	8.7 (6.9, 11.8)	9.0 (7.0, 11.8)	8.8 (7.0, 11.5)	9.4 (7.2, 11.8)	10.0 (8.0, 13.2)	9.4 (7.2, 11.3)
Female	Marginally Lower	6.7 (6.0, 7.2)	6.7 (6.2, 7.2)	6.8 (6.1, 7.2)	6.7 (6.2, 7.1)	6.6 (5.8, 7.1)	6.7 (6.1, 7.2)	6.7 (6.1, 7.2)	6.6 (6.0, 7.3)	6.6 (5.9, 7.2)	6.6 (5.9, 7.1)	6.7 (6.0, 7.2)	6.7 (6.4, 6.9)	6.7 (6.7, 6.7)	N/A
Female	Lower	5.7 (4.3, 6.3)	5.6 (1.8, 6.4)	4.9 (2.1, 6.3)	4.6 (2.1, 6.3)	5.6 (1.5, 6.4)	5.6 (1.7, 6.5)	5.2 (1.6, 6.4)	5.6 (1.3, 6.4)	5.3 (1.5, 6.5)	5.5 (1.4, 6.4)	5.2 (1.8, 6.4)	4.0 (3.0, 6.2)	3.4 (2.3, 4.2)	4.3 (4.3, 4.3)
Male	Overall	8.5	10.8	9.1	9.9	7.4	7.5	8.0	7.2	8.3	11.9	9.6	8.7	13.2	12.7
Male	Higher	13.2 (11.1, 20.6)	13.1 (11.1, 19.4)	12.9 (11.3, 15.7)	13.0 (11.0, 21.9)	12.6 (12.3, 13.0)	12.7 (11.6, 13.7)	12.8 (11.8, 14.1)	12.6 (12.6, 12.7)	13.1 (11.2, 18.5)	13.7 (11.2, 23.0)	13.9 (11.3, 24.0)	12.6 (11.4, 14.5)	14.5 (11.1, 25.5)	13.9 (11.3, 25.0)
Male	Marginally Higher	11.2 (10.1, 13.2)	11.1 (10.0, 12.5)	11.1 (10.1, 13.0)	11.1 (10.0, 13.1)	11.0 (10.4, 12.0)	11.1 (10.4, 12.6)	11.2 (10.4, 14.0)	10.8 (10.4, 11.4)	11.1 (10.1, 13.8)	11.2 (10.2, 13.3)	11.1 (10.1, 13.0)	11.2 (10.2, 12.7)	11.2 (10.3, 13.3)	11.4 (10.3, 14.3)
Male	Similar	8.9 (7.1, 11.5)	9.3 (7.2, 11.9)	8.9 (7.2, 11.1)	9.0 (7.1, 11.2)	8.2 (7.1, 10.6)	8.4 (7.1, 10.8)	8.5 (7.2, 11.0)	8.2 (7.0, 10.8)	8.8 (7.1, 11.2)	9.4 (7.4, 11.1)	8.9 (7.1, 11.2)	8.8 (7.1, 11.3)	9.5 (7.1, 12.8)	9.6 (7.8, 13.1)
Male	Marginally Lower	6.8 (6.2, 7.3)	7.1 (6.9, 7.3)	6.9 (6.3, 7.3)	6.9 (6.2, 7.4)	6.9 (6.0, 7.4)	6.9 (6.1, 7.4)	6.9 (6.3, 7.4)	6.9 (6.2, 7.4)	6.8 (6.2, 7.3)	7.0 (6.9, 7.3)	6.9 (6.3, 7.4)	6.9 (6.4, 7.4)	6.8 (6.4, 7.2)	6.9 (6.9, 6.9)
Male	Lower	5.5 (0.9, 6.6)	5.6 (1.4, 6.4)	5.6 (1.3, 6.7)	5.4 (1.2, 6.5)	5.9 (1.2, 6.7)	5.7 (1.1, 6.6)	5.5 (1.0, 6.6)	5.7 (1.0, 6.8)	5.6 (0.9, 6.7)	5.5 (1.9, 6.5)	5.2 (1.2, 6.7)	5.5 (1.2, 6.6)	4.3 (1.7, 6.1)	4.1 (2.2, 6.0)

N/A = no estimates in the category

Table D.16 Smoking—ever-smoked status, mean prevalence (range) by Local Health Integration Network (LHIN), prevalence category and sex, people age 12 and older, 2000–2014

Sex	Category	Erie St. Clair (1)	South West (2)	Waterloo Wellington (3)	Hamilton Haldimand Niagara Brant (4)	Central West (5)	Mississauga Halton (6)	Toronto Central (7)	Central (8)	Central East (9)	South East (10)	Champlain (11)	North Simcoe Muskoka (12)	North East (13)	North West (14)
Female	Overall	52.7	53.9	51.8	54.9	40.0	45.3	50.8	40.4	47.7	58.4	55.0	59.7	60.5	62.3
Female	Higher	56.1 (50.2, 67.8)	56.7 (50.4, 69.0)	55.9 (50.8, 69.2)	57.2 (50.6, 73.8)	56.9 (51.5, 64.5)	54.7 (50.6, 61.0)	56.1 (51.5, 64.7)	57.6 (50.9, 70.7)	58.6 (51.0, 69.5)	59.2 (51.4, 72.2)	58.0 (50.8, 68.8)	60.0 (52.0, 72.0)	60.8 (51.8, 71.0)	62.8 (52.3, 74.4)
Female	Marginally Higher	51.3 (49.7, 53.5)	51.4 (49.5, 53.8)	51.6 (49.7, 54.1)	51.6 (49.9, 55.8)	51.6 (49.7, 53.3)	51.5 (49.8, 53.5)	51.8 (50.0, 54.6)	51.6 (49.8, 55.0)	51.8 (49.6, 56.0)	51.5 (50.1, 52.6)	51.8 (49.3, 54.2)	52.2 (50.9, 54.0)	51.7 (49.8, 53.6)	51.5 (50.5, 52.5)
Female	Similar	47.9 (43.6, 51.6)	48.0 (43.8, 52.2)	47.9 (43.7, 51.3)	48.5 (43.8, 52.0)	46.8 (42.4, 51.5)	47.4 (42.4, 51.4)	47.7 (43.2, 53.7)	46.9 (41.1, 53.7)	47.4 (42.2, 51.7)	48.4 (43.7, 50.7)	48.0 (43.0, 52.2)	49.7 (47.7, 51.3)	48.5 (44.0, 51.3)	49.6 (46.8, 51.7)
Female	Marginally Lower	43.7 (41.8, 44.8)	43.9 (42.4, 45.1)	43.4 (40.6, 45.1)	43.5 (41.4, 44.7)	43.1 (39.6, 45.2)	43.2 (39.8, 45.1)	43.1 (40.3, 45.0)	42.7 (37.8, 44.8)	42.6 (38.7, 45.2)	N/A	43.1 (41.1, 44.2)	N/A	N/A	N/A
Female	Lower	41.1 (38.1, 42.6)	40.5 (35.8, 43.4)	40.2 (34.3, 43.1)	40.6 (36.8, 42.9)	34.3 (21.7, 43.7)	37.3 (27.4, 44.1)	40.1 (34.1, 43.7)	34.8 (20.0, 43.6)	32.3 (18.0, 43.3)	N/A	40.5 (38.0, 42.2)	N/A	36.8 (36.8, 36.8)	N/A
Male	Overall	63.9	65.8	64.1	65.1	54.3	59.1	62.4	57.4	60.3	67.1	63.9	67.4	70.9	70.1
Male	Higher	68.4 (64.4, 80.1)	68.5 (64.1, 82.3)	67.7 (64.3, 77.1)	68.4 (64.0, 80.3)	67.0 (64.4, 73.3)	66.9 (64.3, 73.7)	66.9 (64.7, 73.3)	67.4 (64.7, 79.7)	68.9 (64.3, 83.4)	68.7 (64.2, 80.5)	68.6 (64.2, 81.4)	69.2 (64.3, 80.2)	71.4 (64.4, 83.1)	70.5 (64.7, 78.6)
Male	Marginally Higher	64.3 (63.1, 65.8)	64.3 (62.9, 66.9)	64.3 (63.0, 65.6)	64.3 (63.2, 65.9)	64.2 (63.6, 65.3)	64.4 (63.4, 66.6)	64.5 (63.4, 66.7)	64.4 (63.4, 65.8)	64.4 (63.2, 65.8)	64.4 (63.2, 66.0)	64.4 (63.2, 66.2)	64.5 (63.1, 66.7)	64.7 (63.4, 66.2)	64.5 (63.6, 65.7)
Male	Similar	61.5 (57.7, 64.4)	61.6 (58.0, 64.3)	61.5 (57.6, 64.3)	61.6 (58.0, 64.6)	61.2 (57.3, 63.7)	61.1 (58.0, 64.1)	61.6 (57.4, 64.2)	61.0 (57.4, 64.1)	61.4 (57.9, 64.3)	61.9 (58.3, 64.1)	61.5 (57.3, 64.5)	61.9 (58.4, 64.3)	62.0 (59.1, 63.7)	62.2 (59.0, 63.8)
Male	Marginally Lower	58.0 (55.3, 59.0)	58.3 (56.8, 59.5)	58.1 (56.3, 59.6)	58.1 (56.1, 59.7)	57.9 (54.4, 59.1)	58.1 (53.9, 59.6)	58.1 (54.4, 59.3)	57.8 (54.4, 59.6)	57.8 (53.2, 59.3)	58.0 (56.9, 58.8)	57.9 (55.3, 59.2)	58.2 (56.9, 58.9)	55.9 (54.6, 57.2)	N/A
Male	Lower	54.5 (46.8, 58.0)	55.4 (49.7, 58.0)	55.5 (52.1, 58.8)	55.5 (48.3, 58.4)	51.1 (33.7, 58.3)	54.2 (45.2, 58.0)	54.7 (44.2, 58.0)	53.1 (40.4, 58.3)	52.0 (38.8, 58.1)	56.6 (56.0, 57.1)	55.2 (45.9, 58.3)	56.6 (55.5, 57.0)	56.8 (56.8, 56.8)	N/A

N/A = no estimates in the category

LHIN 1
Erie St. Clair

1. Erie St. Clair LHIN

Key Findings

Top three priority risk factor population estimates, by sex (see Table 1.1 below):

Females
    Inadequate fruit and vegetable consumption
    Smoking—ever-smoked status
    Excess body weight
Males
    Inadequate fruit and vegetable consumption
    Excess body weight
    Smoking—ever-smoked status

Risk factor summary

Alcohol—current consumption
    Priority areas:
- Females: areas towards the northern and southern tip of the LHIN
- Males: areas towards the southwest tip of the LHIN
- Adolescent females: areas towards the northern tip of the LHIN
- Adolescent males: areas in the northern end of the LHIN and dispersed throughout the southern half of the LHIN

Alcohol—consumption exceeding cancer prevention recommendations
    Priority areas:
- Females: areas in Sarnia
- Males: many areas across the LHIN

Excess body weight
    Priority areas:
- Females: most areas throughout the LHIN
- Males: most areas throughout the LHIN
- Adolescent females: areas near Wallaceburg, Chatham, Tilbury, Merlin and Bothwell

Inadequate vegetable and fruit consumption

Priority areas:
- Females: areas throughout the central and southern part of the LHIN, near Sarnia, Wallaceburg, Bothwell, Chatham, Tilbury, Leamington, Windsor, LaSalle and Amherstburg
- Males: areas throughout most of the LHIN, with the exception of the southwestern boundary
- Adolescent females: areas throughout the central part of the LHIN, near Wallaceburg, Chatham, Tilbury, Merlin and throughout parts of Sarnia and Windsor
- Adolescent males: many areas throughout the LHIN

Physical activity

Priority areas:
- Females: areas throughout Windsor and Chatham, and near Leamington and Wallaceburg
- Males: areas throughout Windsor and Chatham, and many areas surrounding Wallaceburg

Sedentary behaviour

Priority areas:
- Females: areas through Sarnia and Windsor, and many areas in the central part of the LHIN surrounding Chatham
- Males: very few areas in Chatham and Sarnia

Smoking—current status

Priority areas:
- Females: many areas throughout Chatham, Sarnia and Windsor, and near Corunna, Wallaceburg, Tilbury, Merlin and Blenheim
- Males: many areas throughout Chatham, Sarnia and Windsor, and near Wallaceburg, Blenheim and Leamington
- Adolescent females: many areas throughout the central parts of the LHIN, and many areas in and around Sarnia and Chatham
- Adolescent males: areas dispersed throughout the central and northern parts of the LHIN, and areas in and around Chatham and Sarnia

Smoking—ever-smoked status

Priority areas:
- Females: many areas in the northern end of the LHIN around Sarnia and Forest, and many areas around Chatham and Blenheim, Belle River, Kingsville and throughout Windsor
  Males: many areas throughout the central and northern parts of the LHIN, as well as in Chatham, Sarnia and some areas throughout Windsor

Introduction

This section describes the estimated local prevalence of risk factors across the LHIN compared to the Ontario prevalence estimates from 2000 to 2014. These comparisons are always relative to Ontario with respect to the level of statistical evidence for the underlying prevalence estimate and often the number of areas meeting specific criteria are presented in parentheses (e.g., n=40). Risk factor maps are presented for females and males age 12 and older, and for adolescent females and adolescent males ages 12 to 18 inclusive. Throughout the text, the terms "area(s)" and "local" refer to the 2006 census dissemination areas (see the Data and Methods section, page 3).

Exclusions

As discussed in the Interpretation section (page 7), maps are shown only for risk factor estimates in the LHIN where one or more local estimates were higher than Ontario (or lower than Ontario for physical activity). Therefore, the risk factor maps not displayed for Erie St. Clair LHIN include:

- excess body weight (overweight/obese) among adolescent males;
- physical activity among adolescent females and adolescent males; and
- sedentary behaviour among adolescent females and adolescent males.

Notes

Risk factor prevalence could not be estimated for several areas in the Erie St. Clair LHIN (e.g., suppressed census populations or institutionalized populations), which are shown as "insufficient data" on the maps. These areas include Aamjiwnaang First Nation, Walpole Island (west of Wallaceburg), Moraviantown (south of Bothwell), and Kettle and Stony Point First Nations. Additionally, areas with unavailable population data are shown as "insufficient data." See Appendix C for a complete list of areas in the insufficient data category.

Priority population estimates

Priority population estimates may be helpful in prioritizing health promotion and planning efforts for potential populations affected by certain modifiable risk factors. Table 1.1 (page 30) presents the estimated priority populations for each risk factor by sex and age group in the Erie St. Clair LHIN. Priority populations are defined as those living in areas with a higher risk factor prevalence (or lower prevalence for physical activity) than Ontario. These estimates were produced by summing the population from all higher (or lower for physical activity) prevalence small areas (2006 dissemination areas) after taking into account the risk factor prevalence of each area. For example, if among females 100 areas had a higher prevalence of current alcohol consumption than Ontario, the female 2006 census populations in each of these areas were multiplied by the prevalence of current alcohol consumption for each area and then summed across the 100 areas to produce an estimate of the female "priority population." These calculations are intended to provide a measure to prioritize the risk factors rather than a population estimate.

According to the Methods (page 4) and Interpretation (page 7) sections, these higher prevalence areas had strong statistical evidence of elevated prevalence compared to Ontario (posterior probabilities ≥ 80%). An exception is physical activity, which had strong statistical evidence of lower prevalence estimates than Ontario (posterior probabilities ≤ 20%). Therefore, the population estimates for each risk factor are likely undercounted because areas with less statistical certainty (posterior probabilities < 80% and physical activity posterior probabilities > 20%) are not included in the priority population estimates.

Table 1.1 Estimated priority populations among higher prevalence** dissemination areas compared to Ontario by risk factor, sex and age group, Erie St. Clair Local Health Integration Network (LHIN), using 2006 census populations

Risk factor	Female priority population*†	% of female population in the LHIN† (n=274,030)	Male priority population*†	% of male population in the LHIN† (n=260,070)	Adolescent female priority population*‡	% of adolescent female population in the LHIN‡ (n=29,610)	Adolescent male priority population*‡	% of adolescent male population in the LHIN‡ (n=30,780)
Alcohol: current consumption	73,660	27%	50,220	19%	2,380	8%	1,530	5%
Alcohol: consumption exceeding cancer prevention recommendations	1,100	0%	13,190	5%	NM	—	NM	—
Excess body weight	77,520	28%	110,470	42%	720	2%	NE	—
Inadequate vegetable and fruit consumption	129,680	47%	138,880	53%	5,130	17%	11,270	37%
Physical activity**	10,290	4%	4,900	2%	NE	—	NE	—
Sedentary behaviour	43,200	16%	1,320	1%	NE	—	NE	—
Smoking: current status	30,900	11%	23,680	9%	990	3%	400	2%
Smoking: ever-smoked status	81,510	30%	68,930	27%	NM	—	NM	—

NE = no estimates within the "higher" prevalence categories**; NM = not modelled
* Estimates rounded to multiples of 10
** For physical activity, priority populations are those living in areas with a lower risk factor prevalence compared to Ontario
† Population age 12 and older
‡ Population ages 12 to 18
— Value not applicable

Alcohol: current consumption

People age 12 and older

An estimated 70% of females and 79% of males in Ontario reported current alcohol consumption.

Higher prevalence than Ontario

There were more areas that had a higher prevalence of current alcohol consumption than the Ontario average among females (n=366; Figure 1.1), compared to males (n=215; Figure 1.2). For females, higher prevalence areas were located northeast of Sarnia and in the northern part of the LHIN around Brights Grove. Other higher prevalence areas included east of Sarnia, the central part of the LHIN surrounding Chatham, Blenheim and Merlin, and in the southwest part of the LHIN near LaSalle, Amherstburg, Essex and Kingsville. For males, higher prevalence areas were located mostly in the central and southwestern parts of the LHIN west of Chatham, and surrounding Belle River, Essex, Amherstburg and Kingsville.

Lower prevalence than Ontario

For females, areas with a lower prevalence of current alcohol consumption (n=87; Figure 1.1) were primarily located throughout Windsor and near Wallaceburg. For males, lower prevalence areas (n=114; Figure 1.2) were located throughout Windsor and dispersed throughout the northern half of the LHIN.

Adolescents

Among the adolescent population in Ontario, approximately 40% of females and males reported current alcohol consumption.

Higher prevalence than Ontario

Areas with a higher prevalence of current alcohol consumption than the Ontario average were more common among adolescent females (n=202; Figure 1.3), compared to adolescent males (n=129; Figure 1.4) and their geographic patterns were different. For adolescent females, higher prevalence areas were dispersed throughout the middle and northern parts of the LHIN, particularly throughout Sarnia and in many areas surrounding Chatham. For adolescent males, higher prevalence areas were located northeast of Chatham and dispersed throughout the southern half of the LHIN, with additional areas throughout Sarnia and around Forest.

Lower prevalence than Ontario

For adolescent females (n=342; Figure 1.3), areas with a lower prevalence of current alcohol consumption than the Ontario average were mostly located in the southwest part of the LHIN, including many parts of Windsor. Among adolescent males (n=236; Figure 1.4), areas of lower prevalence were scattered throughout the LHIN and located throughout Sarnia, Chatham and Windsor.

Figure 1.1 Current alcohol consumption among females (age 12 and older), 2000–2014, Erie St. Clair Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
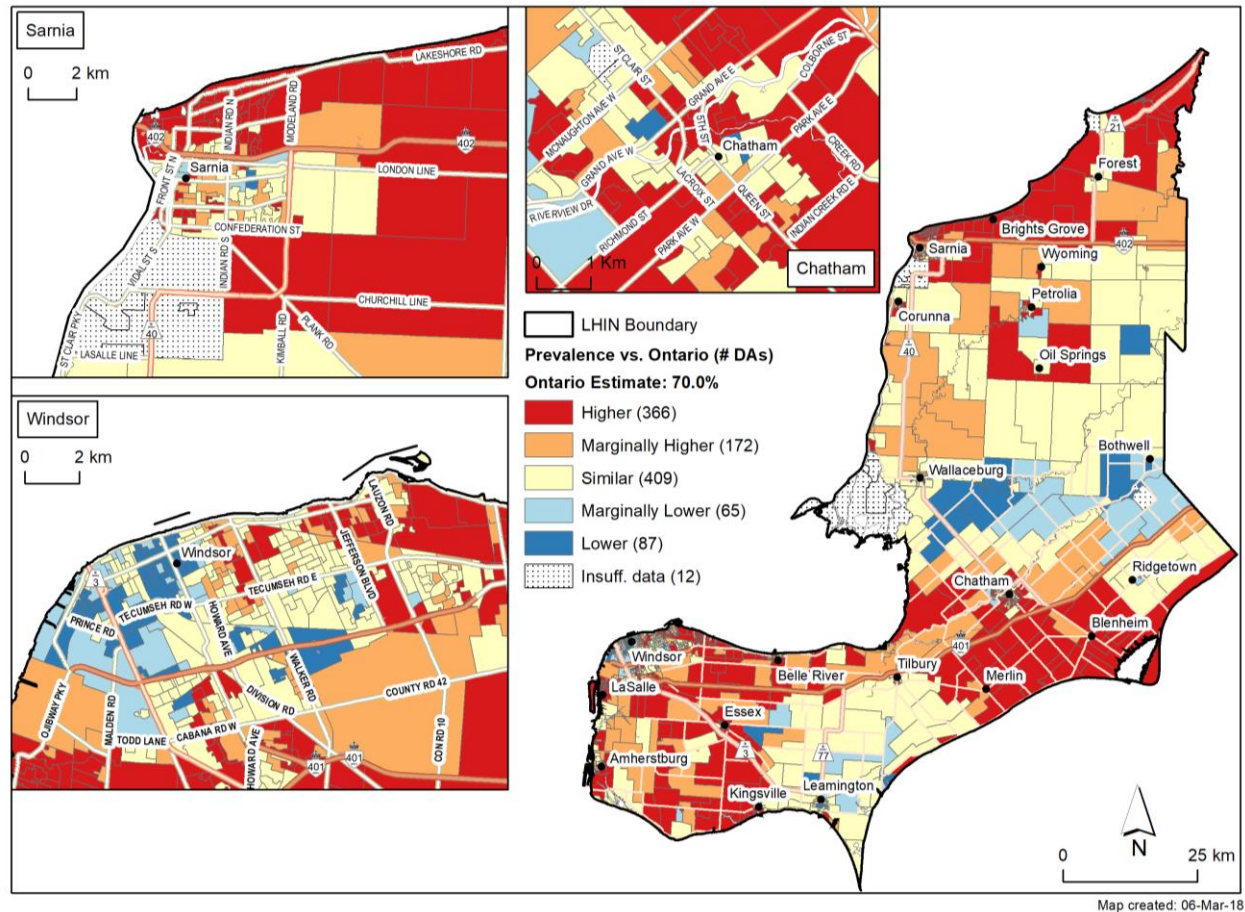
Category	Mean prevalence % (range)
Overall	72.0
Higher	76.9 (73.7, 83.6)
Marginally Higher	73.7 (72.3, 76.8)
Similar	70.2 (65.7, 73.8)
Marginally Lower	65.8 (63.5, 67.4)
Lower	61.4 (48.4, 65.5)

Prevalence by 2006 dissemination area (DA) and 95% credibility intervals
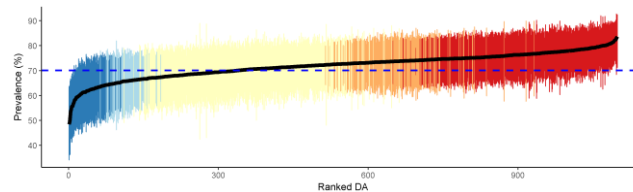
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 1.2 Current alcohol consumption among males (age 12 and older), 2000–2014, Erie St. Clair Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
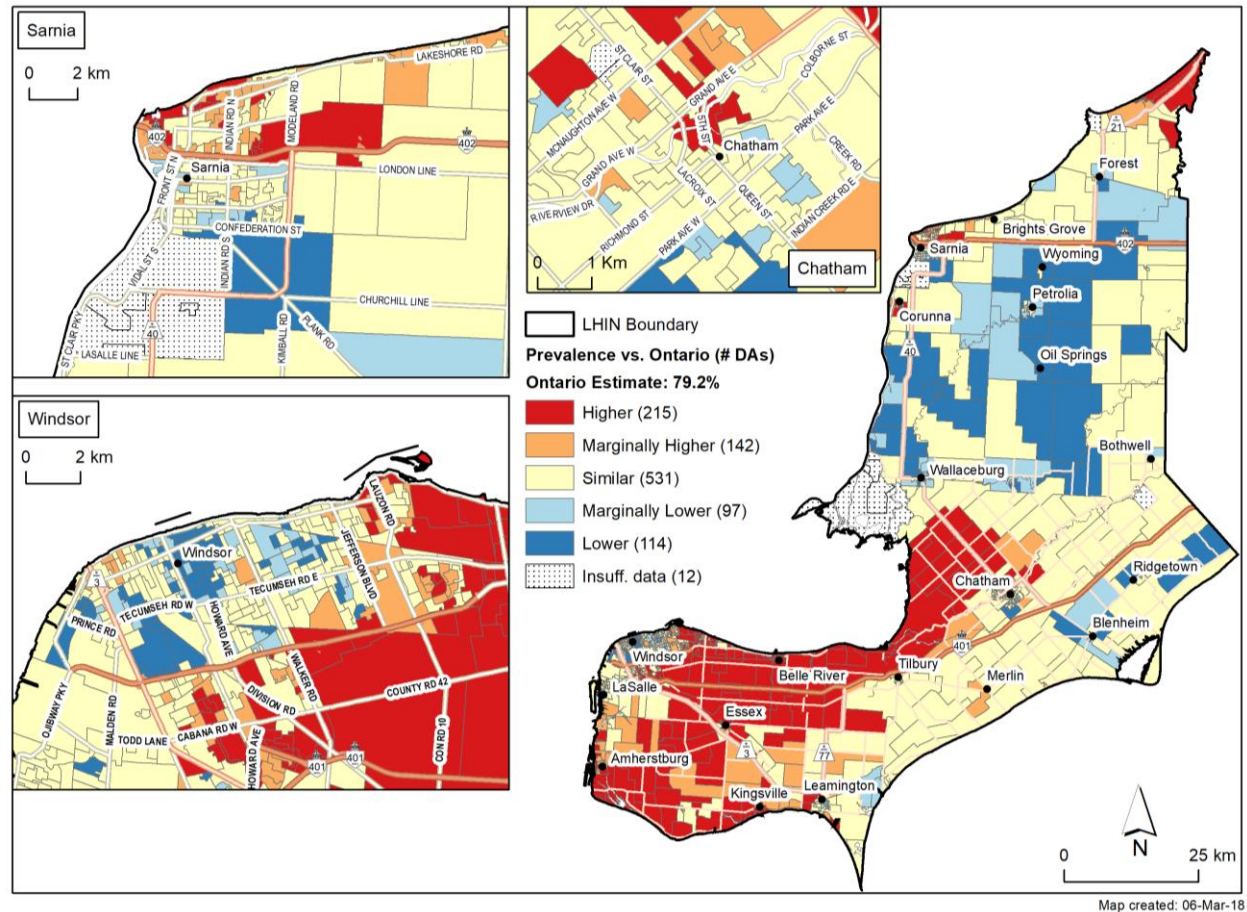
Category	Mean prevalence % (range)
Overall	79.3
Higher	83.8 (81.3, 87.8)
Marginally Higher	81.6 (80.8, 82.9)
Similar	78.8 (75.1, 81.4)
Marginally Lower	75.9 (74.5, 77.2)
Lower	73.3 (65.9, 76.3)

Prevalence by 2006 dissemination area (DA) and 95% credibility intervals
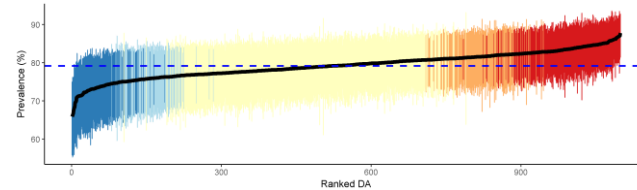
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 1.3 Current alcohol consumption among adolescent females (ages 12 to 18), 2000–2014, Erie St. Clair Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Sarnia

0   2 km

LAKESHORE RD

Windsor

0   2 km

Chatham

0   1 Km

LHIN Boundary

Prevalence vs. Ontario (# DAs)

Ontario Estimate: 39.5%

- Higher (202)
- Marginally Higher (69)
- Similar (376)
- Marginally Lower (108)
- Lower (342)
- Insuff. data (14)

Map created: 06-Mar-18
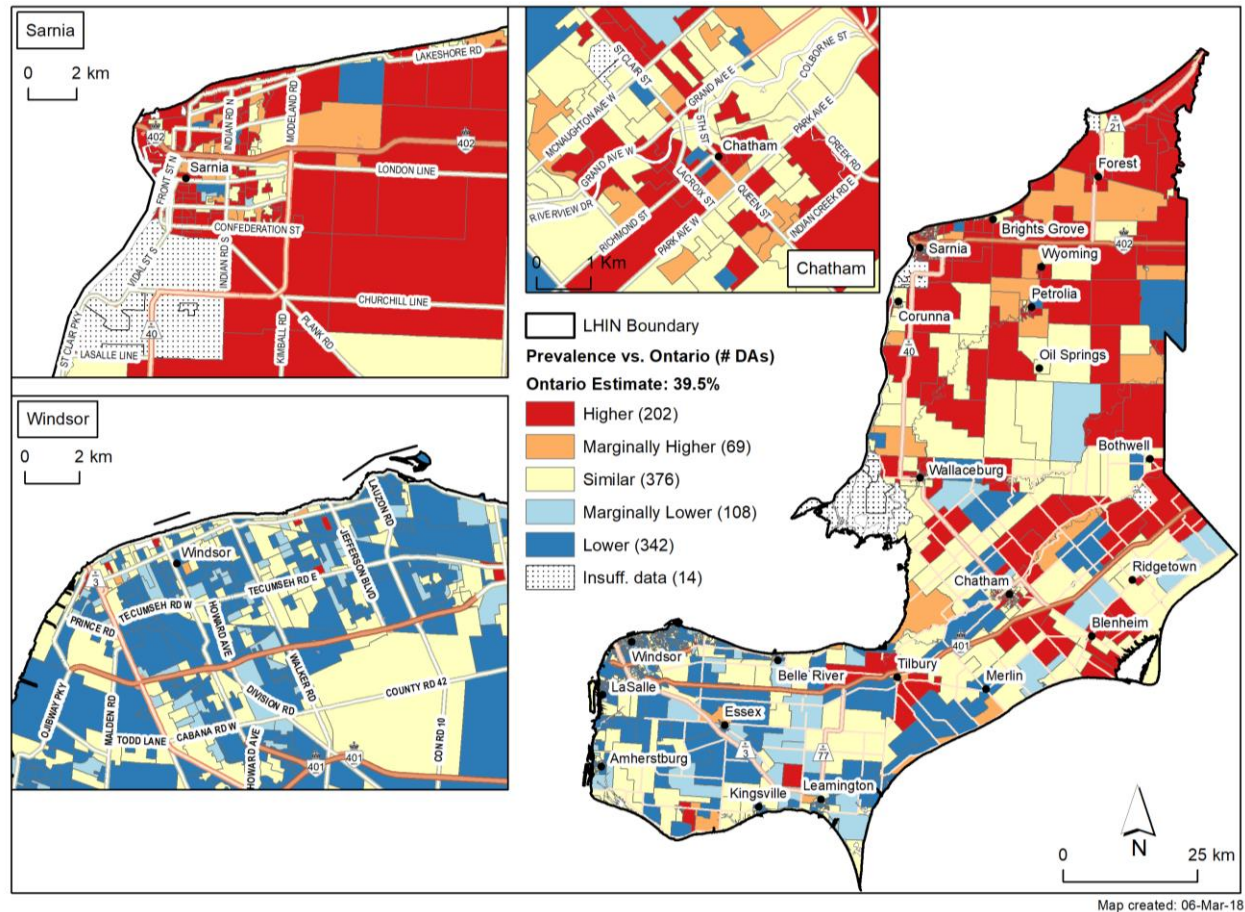
Category	Mean prevalence % (range)
Overall	38.6
Higher	49.1 (44.0, 67.3)
Marginally Higher	43.8 (42.3, 46.1)
Similar	39.5 (35.5, 43.3)
Marginally Lower	35.4 (33.5, 37.1)
Lower	31.2 (16.8, 35.6)

Prevalence by 2006 dissemination area (DA) and 95% credibility intervals
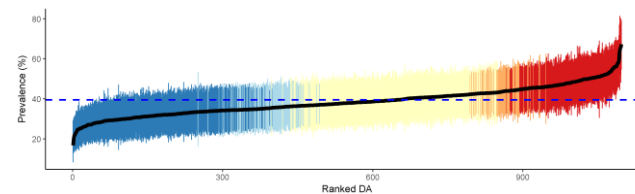
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 1.4 Current alcohol consumption among adolescent males (ages 12 to 18), 2000–2014, Erie St. Clair Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
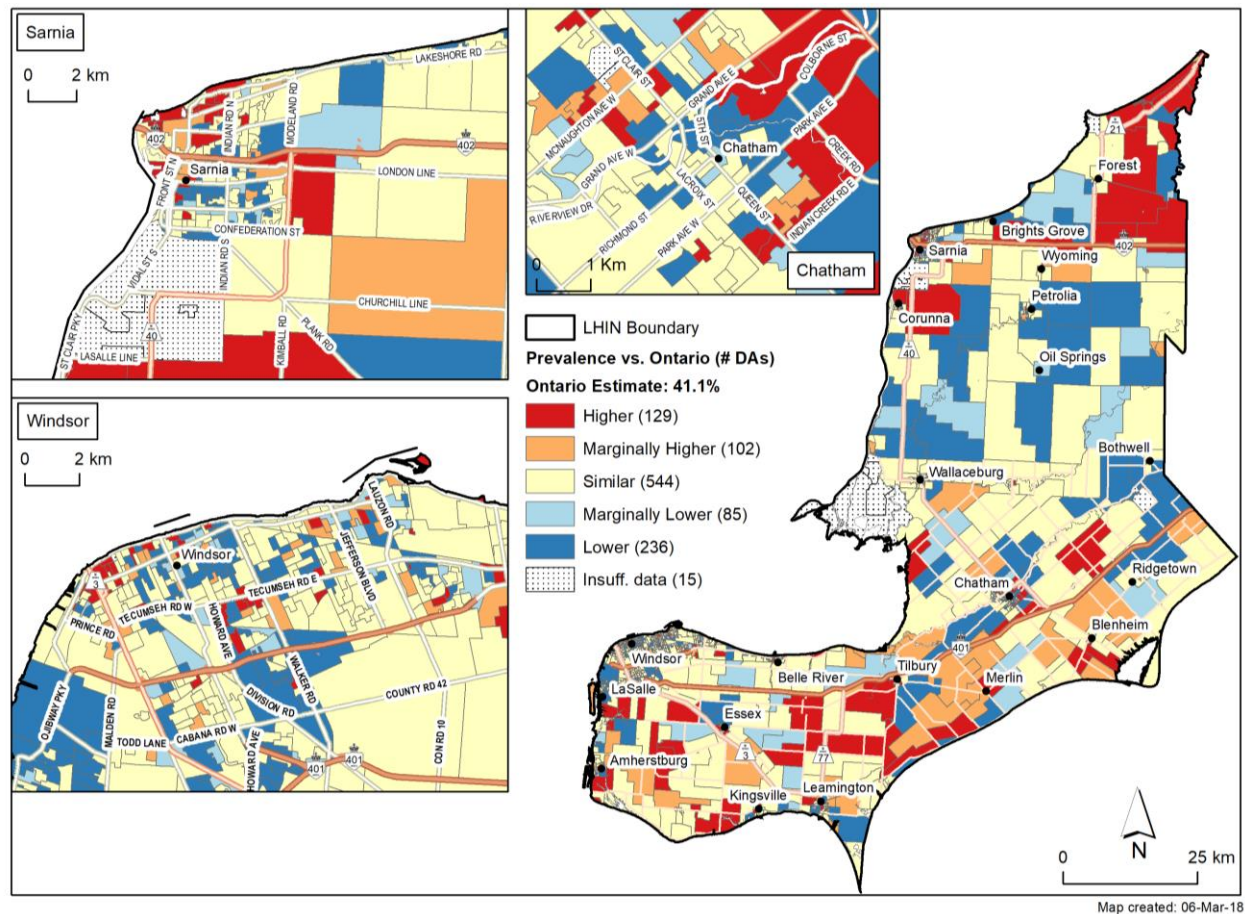
Category	Mean prevalence % (range)
Overall	40.4
Higher	49.7 (45.6, 61.4)
Marginally Higher	45.4 (43.9, 48.1)
Similar	41.1 (37.4, 45.7)
Marginally Lower	37.5 (35.8, 38.6)
Lower	32.8 (10.8, 37.0)

Prevalence by 2006 dissemination area (DA) and 95% credibility intervals
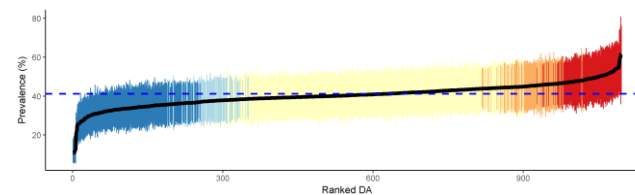
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Alcohol: exceeding cancer prevention recommendations

People age 12 and older

Almost 7% of the female population in Ontario drank alcohol in excess of the recommended limits for cancer prevention. Among males, the Ontario prevalence of exceeding the recommended limits was 8.5%.

Higher prevalence than Ontario

For females (n=45; Figure 1.5) in the Erie St. Clair LHIN, there were very few areas with a higher prevalence of alcohol consumption in excess of the recommended limits for cancer prevention than the Ontario average. Most of these areas were located throughout Sarnia. For males, many areas throughout the LHIN had a higher prevalence (n=462; Figure 1.6), including most of Sarnia and Chatham; Windsor had very few higher prevalence areas.

Lower prevalence than Ontario

For females (n=126; Figure 1.5), many areas with a lower prevalence of alcohol consumption in excess of the recommended limits for cancer prevention were located in and around Windsor, and south of Chatham. There were very few lower prevalence areas for males (n=5; Figure 1.6).

Adolescents

The area-based prevalence of exceeding recommended limits for cancer prevention was not estimated for adolescent populations.

Figure 1.5 Alcohol consumption exceeding cancer prevention recommendations among females (age 12 and older), 2000–2014, Erie St. Clair Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
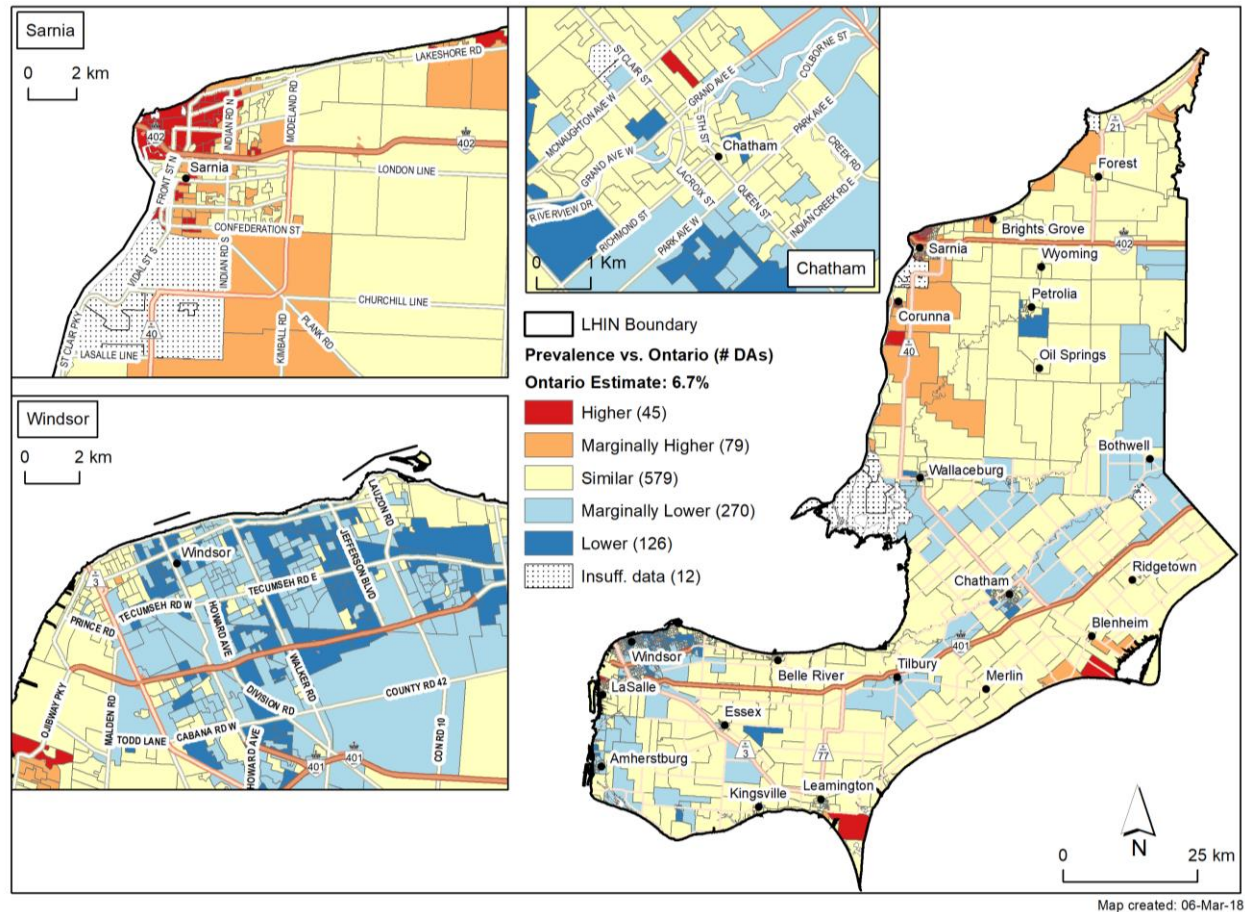
Category	Mean prevalence % (range)
Overall	6.7
Higher	10.4 (9.1, 14.1)
Marginally Higher	8.8 (8.0, 10.0)
Similar	7.0 (5.9, 9.1)
Marginally Lower	5.7 (5.2, 6.2)
Lower	5.1 (3.3, 5.5)

Prevalence by 2006 dissemination area (DA) and 95% credibility intervals
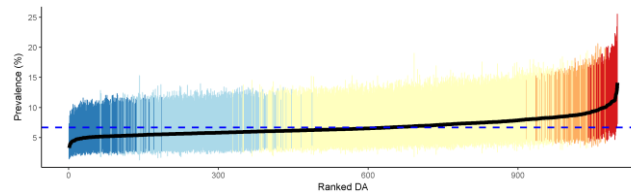
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 1.6 Alcohol consumption exceeding cancer prevention recommendations among males (age 12 and older), 2000–2014, Erie St. Clair Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
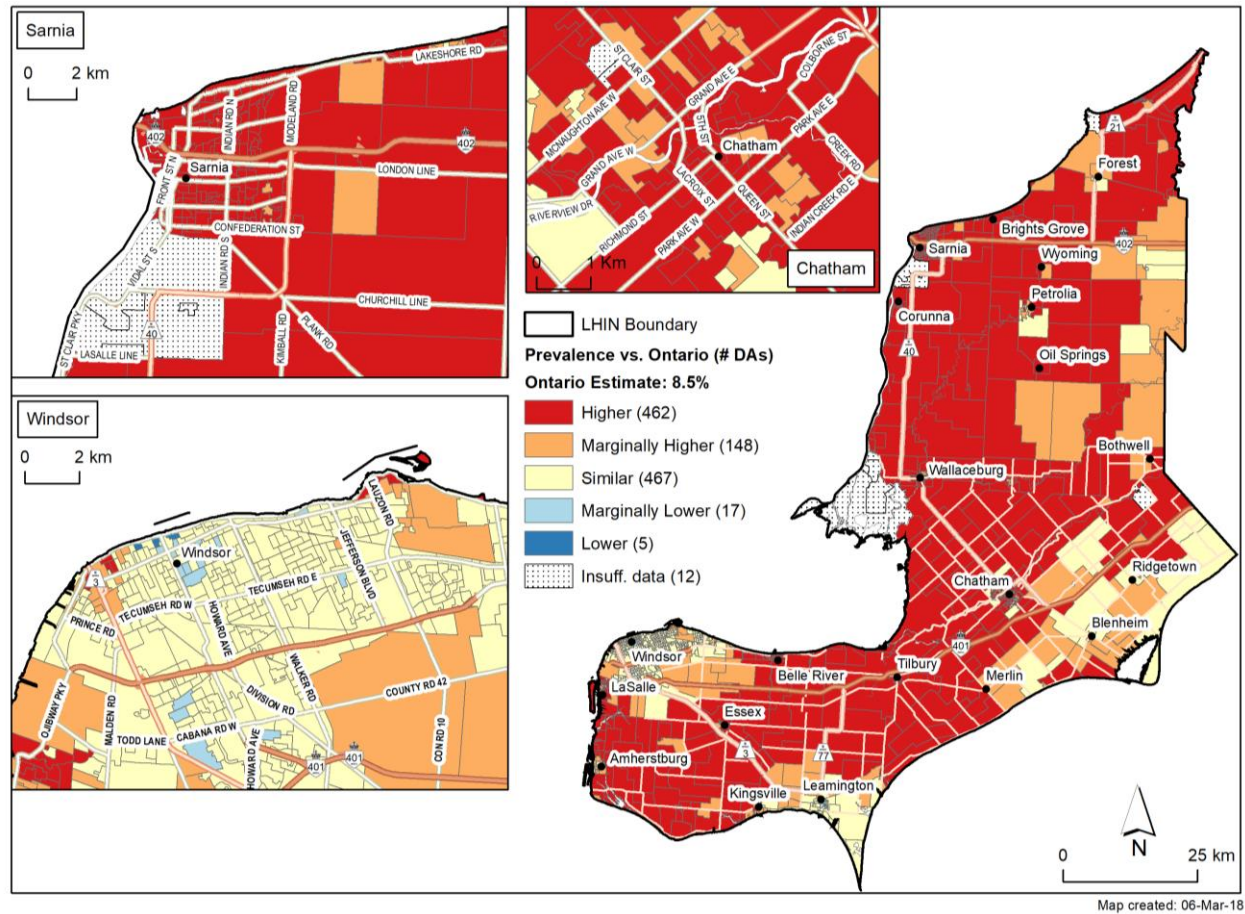
Category	Mean prevalence % (range)
Overall	10.5
Higher	12.2 (10.2, 16.3)
Marginally Higher	10.5 (9.5, 11.6)
Similar	8.9 (7.7, 10.7)
Marginally Lower	7.5 (7.2, 7.8)
Lower	6.6 (6.3, 7.0)

Prevalence by 2006 dissemination area (DA) and 95% credibility intervals
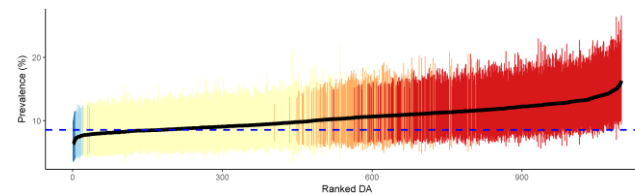
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Excess body weight

People age 12 and older

The estimated Ontario prevalence of excess body weight (overweight or obese) among females was 41% and among males was 56%.

Higher prevalence than Ontario

For females (n=644; Figure 1.7) and males (n=712; Figure 1.8), most areas across the LHIN had a higher prevalence of excess body weight than the Ontario average. For both sexes, many higher prevalence areas were located throughout Sarnia, Chatham and Windsor; however, Sarnia and Chatham had a greater concentration of higher prevalence areas for females than males.

Among females, higher prevalence areas occurred consistently throughout the LHIN, whereas among males, areas of higher prevalence were not detected around Oil Springs, Petrolia, Wyoming and Forest.

Lower prevalence than Ontario

There were very few areas with a lower prevalence of excess body weight than the Ontario average for either females (n=9; Figure 1.7) or males (n=13; Figure 1.8). For males, the areas tended to be located west of Windsor.

Adolescents

Among Ontario adolescents, an estimated 15% of females and 25% of males were overweight or obese.

Higher prevalence than Ontario

For adolescent females (n=137; Figure 1.9), higher prevalence areas were located in the central part of the LHIN south of Oil Springs, including most areas throughout Chatham. There were no areas with a higher prevalence of excess body weight for adolescent males, which is why that map is not shown.

Lower prevalence than Ontario

Across the LHIN, there were no areas with lower prevalence estimates among adolescents.

Figure 1.7 Excess body weight (overweight/obese) among females (age 12 and older), 2000–2014, Erie St. Clair Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
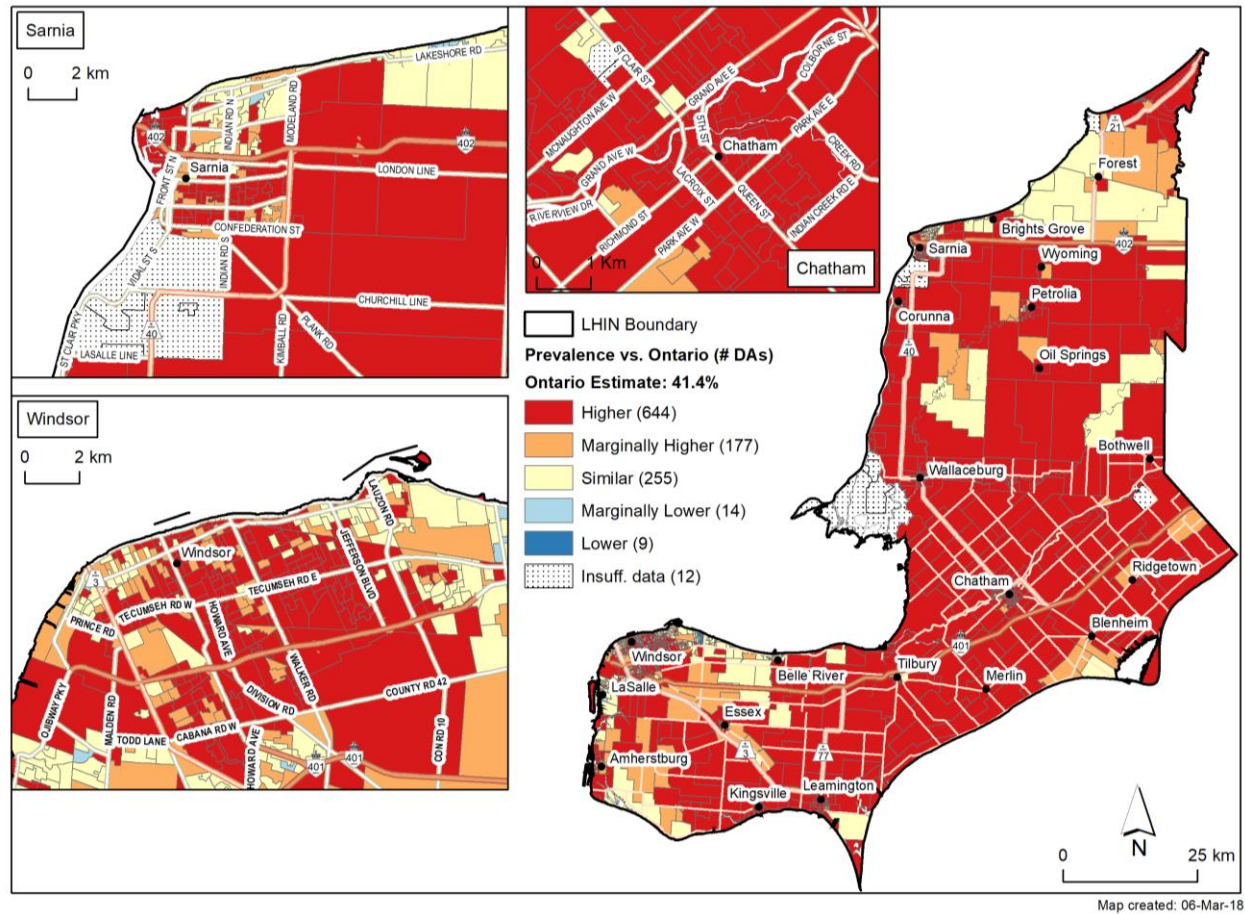
Category	Mean prevalence % (range)
Overall	46.4
Higher	48.7 (44.7, 59.5)
Marginally Higher	45.0 (43.5, 46.8)
Similar	42.3 (38.7, 45.2)
Marginally Lower	38.1 (36.9, 39.0)
Lower	35.9 (34.8, 37.5)

Prevalence by 2006 dissemination area (DA) and 95% credibility intervals
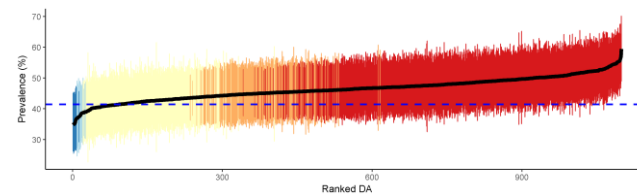
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Category	Mean prevalence % (range)
Overall	60.7
Higher	62.8 (59.0, 73.3)
Marginally Higher	58.8 (57.4, 60.0)
Similar	56.7 (53.6, 58.9)
Marginally Lower	53.0 (51.8, 53.9)
Lower	50.1 (47.6, 52.2)

Prevalence by 2006 dissemination area (DA) and 95% credibility intervals
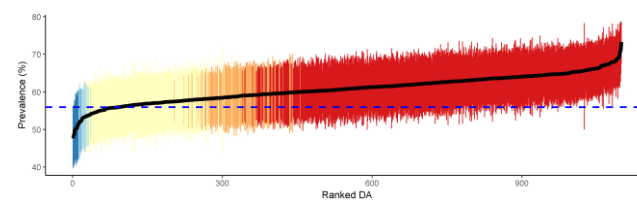
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 1.9 Excess body weight (overweight/obese) among adolescent females (ages 12 to 18), 2000–2014, Erie St. Clair Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
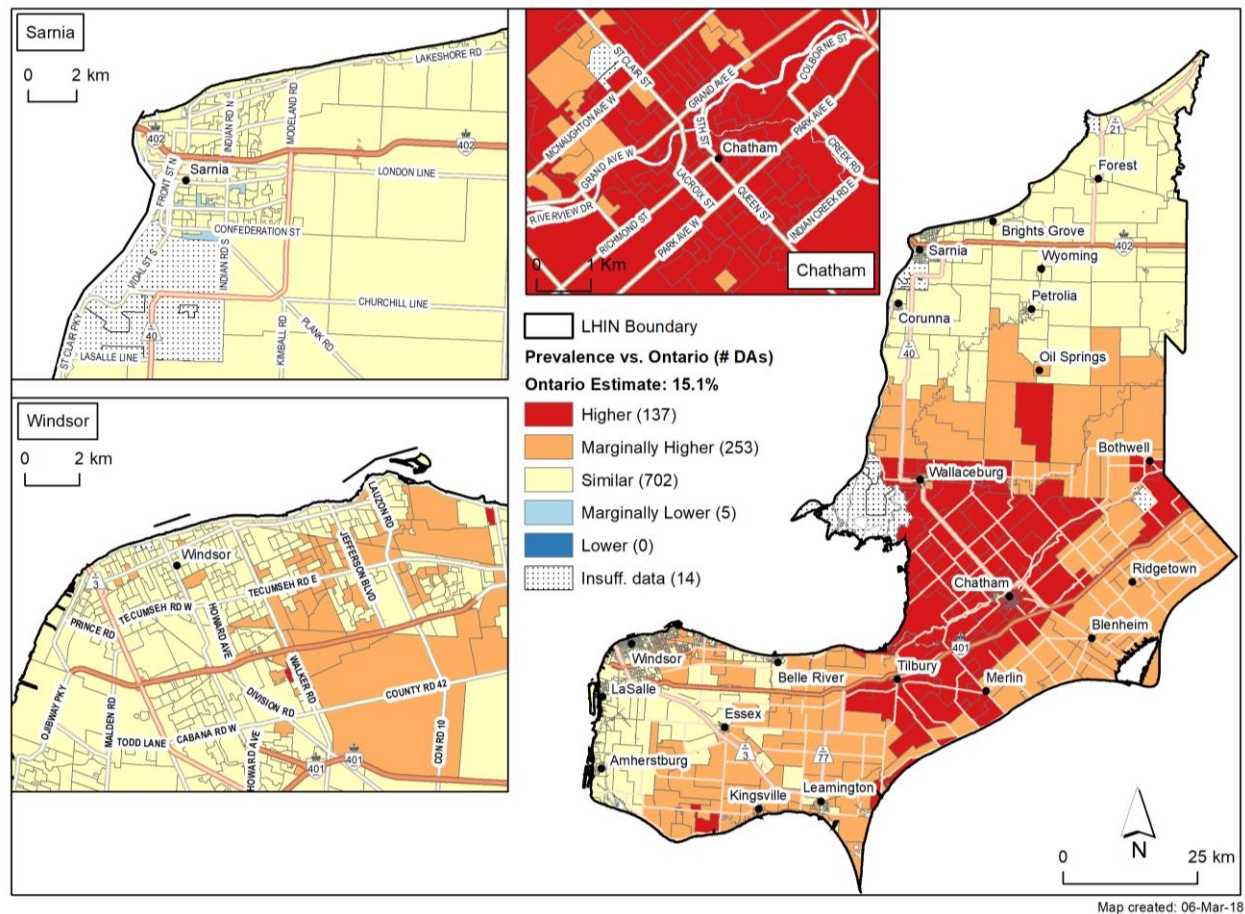
Category	Mean prevalence % (range)
Overall	17.6
Higher	20.3 (18.8, 22.8)
Marginally Higher	18.6 (17.4, 21.3)
Similar	16.7 (13.3, 18.5)
Marginally Lower	13.6 (13.5, 13.8)
Lower	N/A

N/A = no estimates in the category

Prevalence by 2006 dissemination area (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Inadequate vegetable and fruit consumption

People age 12 and older

Inadequate consumption of vegetables and fruits was common across Ontario, with approximately 63% of females and 77% of males reporting inadequate consumption.

Higher prevalence than Ontario

Across the LHIN, most areas had a higher prevalence of inadequate vegetable and fruit consumption than the Ontario average among females (n=750; Figure 1.10) and males (n=742; Figure 1.11). Generally, the pattern of higher prevalence areas was similar for females and males, with many located throughout most of Sarnia, Chatham and Windsor. Higher prevalence areas for females were less prominent along the eastern boundary of the LHIN.

Lower prevalence than Ontario

Areas of adequate consumption (low prevalence) were uncommon for females (n=17; Figure 1.10) and males (n=3; Figure 1.11).

Adolescents

More than two-thirds of the adolescent Ontario population had inadequate vegetable and fruit consumption, at approximately 68% for females and 74% for males.

Higher prevalence than Ontario

There were fewer areas with a higher prevalence of inadequate vegetable and fruit consumption than the Ontario average among adolescent females (n=272; Figure 1.12) compared to adolescent males (n=542; Figure 1.13). For adolescent females, many higher prevalence areas were located around Chatham, in parts of Sarnia and Windsor, and towards the southern part of the LHIN. For adolescent males, many of these areas were located throughout Sarnia and Windsor, and throughout the central part of the LHIN.

Lower prevalence than Ontario

Similar to the findings for people age 12 and older, there were no areas of adequate consumption among adolescents in the Erie St. Clair LHIN (Figure 1.12 and Figure 1.13).

Figure 1.10 Inadequate vegetable and fruit consumption among females (age 12 and older), 2000–2014, Erie St. Clair Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
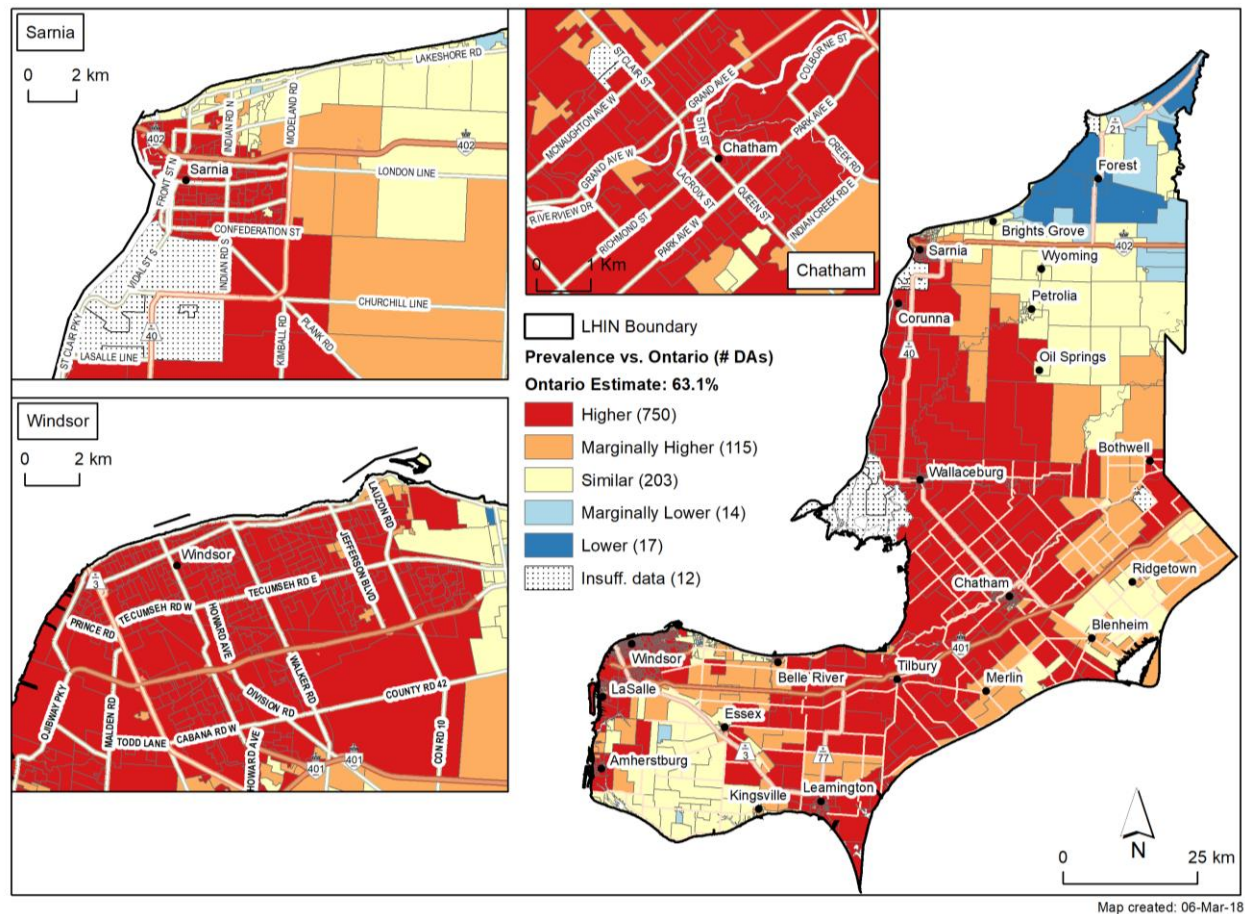
Category	Mean prevalence % (range)
Overall	68.9
Higher	71.2 (66.5, 81.0)
Marginally Higher	66.4 (65.0, 69.9)
Similar	63.5 (59.7, 66.7)
Marginally Lower	59.5 (58.5, 60.3)
Lower	56.8 (54.7, 59.0)

Prevalence by 2006 dissemination area (DA) and 95% credibility intervals
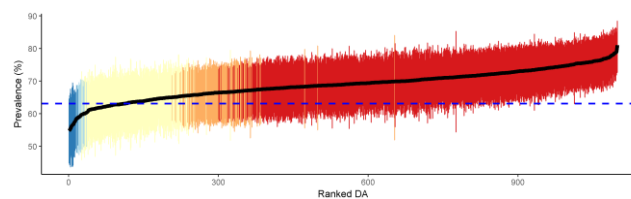
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 1.11 Inadequate vegetable and fruit consumption among males (age 12 and older), 2000–2014, Erie St. Clair Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	81.0
Higher	82.6 (78.9, 89.9)
Marginally Higher	78.9 (78.0, 79.9)
Similar	76.9 (73.7, 78.7)
Marginally Lower	73.8 (72.2, 74.2)
Lower	72.8 (72.4, 73.1)

Prevalence by 2006 dissemination area (DA) and 95% credibility intervals
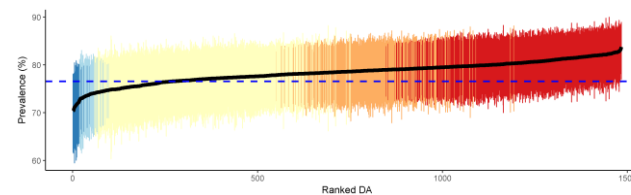
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 1.12 Inadequate vegetable and fruit consumption among adolescent females (ages 12 to 18), 2000–2014, Erie St. Clair Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

LHIN Boundary	
Prevalence vs. Ontario (# DAs)	
Ontario Estimate: 67.9%	
Higher (272)	
Marginally Higher (606)	
Similar (219)	
Marginally Lower (0)	
Lower (0)	
Insuff. data (14)	

Map created: 06-Mar-18

Category	Mean prevalence % (range)
Overall	71.9
Higher	73.4 (72.1, 75.3)
Marginally Higher	72.0 (70.5, 73.3)
Similar	69.9 (64.9, 72.0)
Marginally Lower	N/A
Lower	N/A

N/A = no estimates in the category

Prevalence by 2006 dissemination area (DA) and 95% credibility intervals
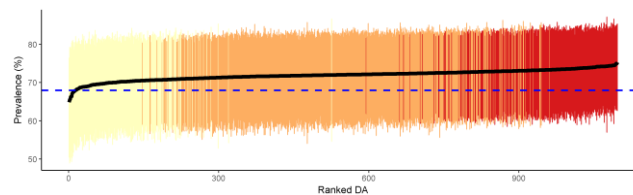
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 1.13 Inadequate vegetable and fruit consumption among adolescent males (ages 12 to 18), 2000–2014, Erie St. Clair Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
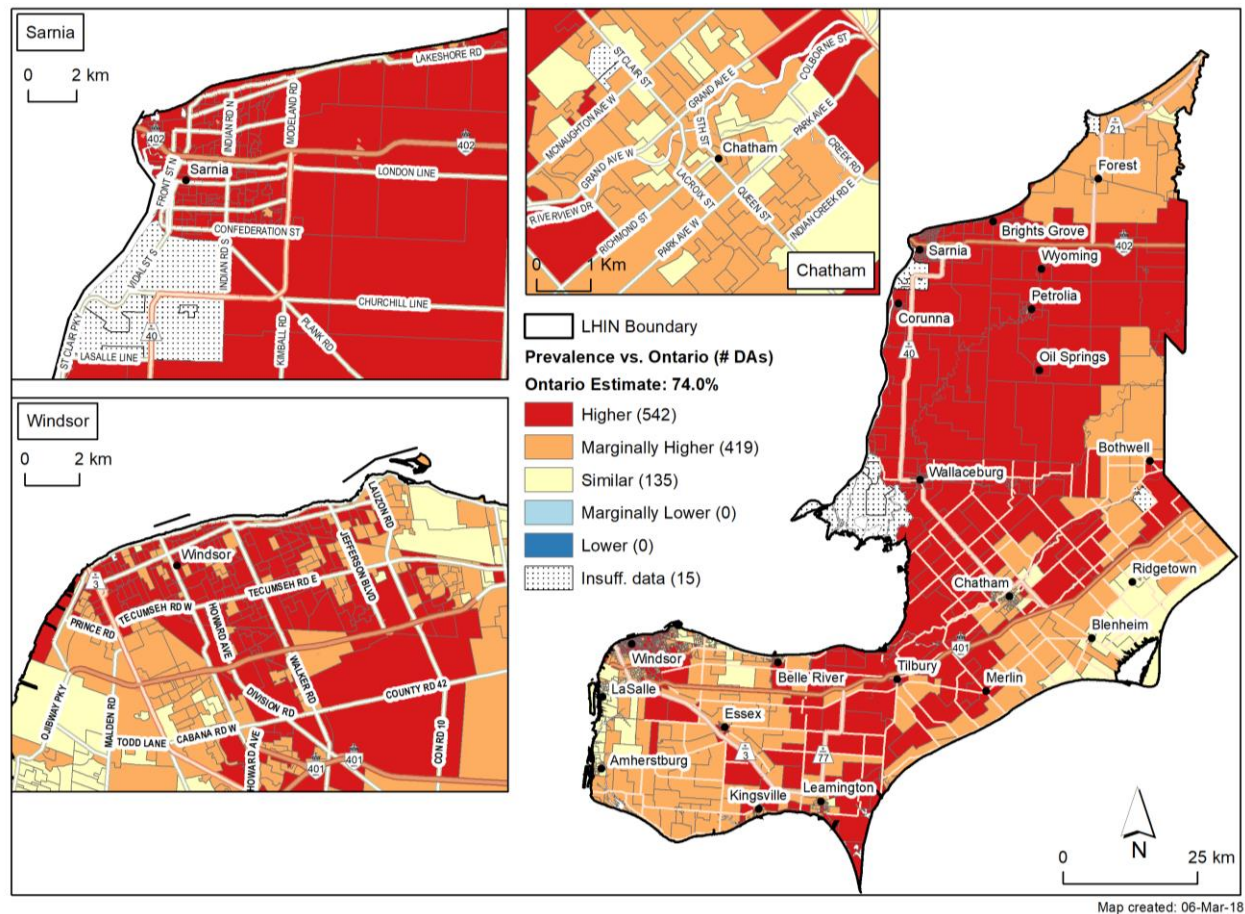
Category	Mean prevalence % (range)
Overall	77.8
Higher	78.8 (77.3, 81.7)
Marginally Higher	77.1 (76.1, 78.7)
Similar	75.6 (73.6, 76.6)
Marginally Lower	N/A
Lower	N/A

N/A = no estimates in the category

Prevalence by 2006 dissemination area (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Physical activity

Because physical activity reduces cancer risk, lower prevalence estimates of this risk factor are of interest. The colour scheme of the maps was inverted so that the "lower than Ontario" estimates are displayed in red.

People age 12 and older

Most of the Ontario population was not physically active, with approximately one in five (23%) females and one in three (30%) males being physically active.

Lower prevalence than Ontario

There were many more areas with a lower prevalence of physical activity than the Ontario average among females (n=238; Figure 1.14), compared to males (n=94; Figure 1.15). For females, these areas tended to occur throughout Windsor, parts of Sarnia and Chatham, and around Leamington and Wallaceburg. For males, there were many areas located around Wallaceburg, and throughout parts of Windsor and Chatham.

Higher prevalence than Ontario

For females (n=203; Figure 1.14), areas with a higher prevalence of physical activity were typically located in the northern half of the LHIN, including many areas throughout Sarnia and along the eastern boundary of the LHIN. For males (n=225; Figure 1.15), these areas were located at the northern and southwestern tips of the LHIN, with many areas throughout Sarnia. Fewer higher prevalence areas were detected throughout Windsor or Chatham for females and males.

Adolescents

Adolescents were more physically active than adults, with approximately 40% of adolescent females and 57% of adolescent males being active. In the Erie St. Clair LHIN, there were no areas of lower physical activity prevalence in the adolescent population, which is why those maps are not shown.

Figure 1.14 Physical activity among females (age 12 and older), 2000–2014, Erie St. Clair Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
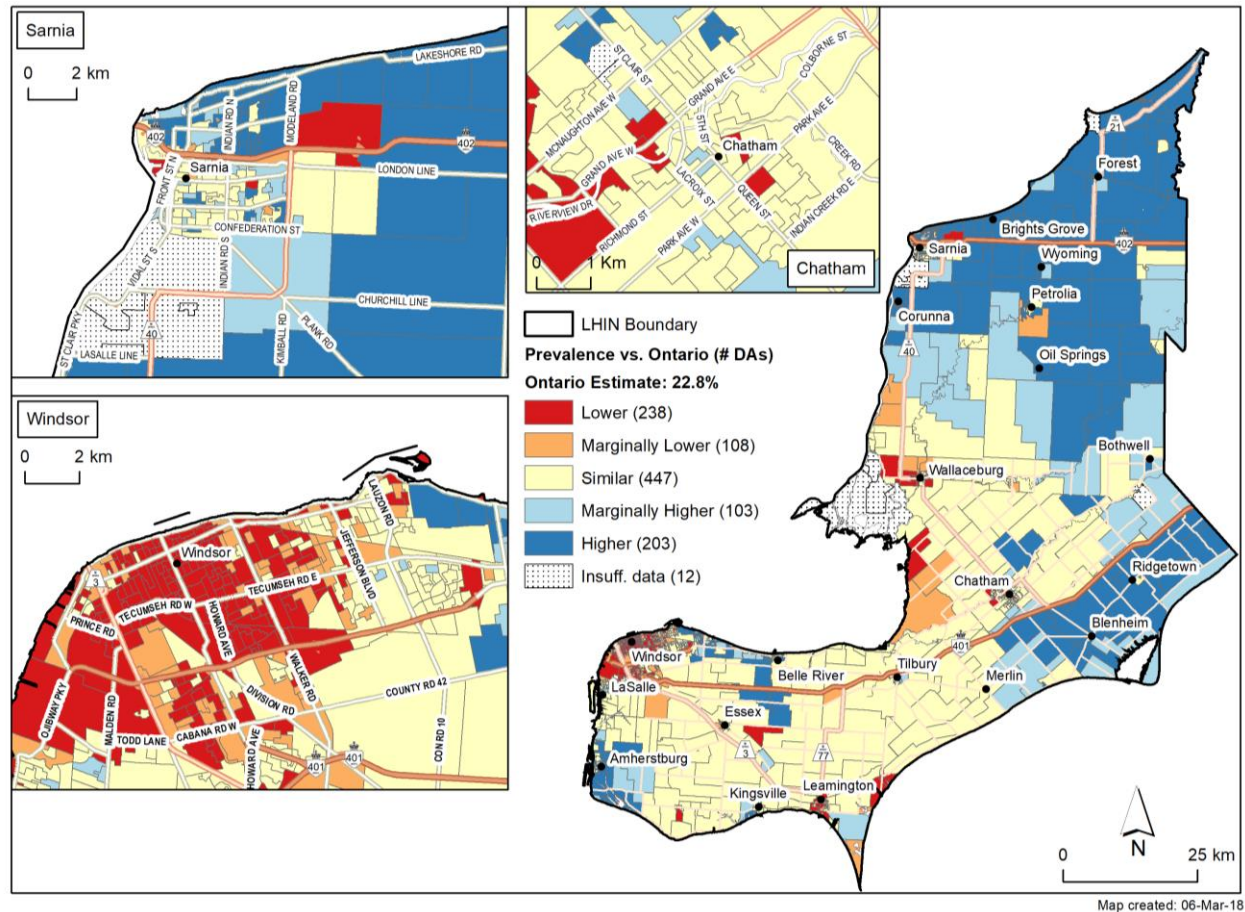
Category	Mean prevalence % (range)
Overall	23.1
Lower	17.4 (10.0, 19.9)
Marginally Lower	20.3 (19.4, 21.2)
Similar	23.1 (20.6, 26.0)
Marginally Higher	26.2 (25.0, 28.5)
Higher	29.6 (26.0, 37.6)

Prevalence by 2006 dissemination area (DA) and 95% credibility intervals
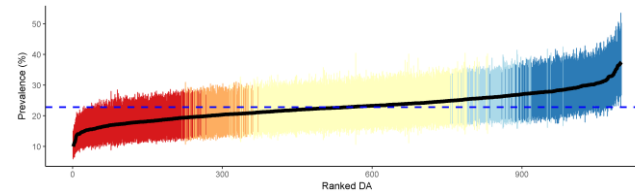
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 1.15 Physical activity among males (age 12 and older), 2000–2014, Erie St. Clair Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	31.1
Lower	23.9 (16.9, 26.4)
Marginally Lower	26.9 (25.9, 27.9)
Similar	30.3 (27.2, 33.8)
Marginally Higher	33.3 (31.8, 36.3)
Higher	36.0 (33.4, 43.0)

Prevalence by 2006 dissemination area (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Sedentary behaviour

People age 12 and older

Approximately half of the Ontario population reported sedentary behaviour during leisure time (females, 49%; males, 56%).

Higher prevalence than Ontario

Many areas with a higher prevalence of sedentary behaviour than the Ontario average among females (n=300; Figure 1.16) were detected, but few were detected among males (n=78; Figure 1.17). For females, these areas were located throughout most of Chatham and Sarnia, and throughout parts of Windsor. For males, the few areas with higher prevalence were located in Chatham, Sarnia, parts of Windsor and near Wallaceburg.

Lower prevalence than Ontario

There were few areas with a lower prevalence of sedentary behaviour than the Ontario average among females (n=9; Figure 1.16). For males, there were a few areas with lower prevalence (n=26; Figure 1.17) located in the northeastern part of the LHIN (e.g., Wyoming, Petrolia), and near Chatham and Ridgetown.

Adolescents

More than half of the Ontario adolescent population reported sedentary behaviour during leisure time, at approximately 55% for females and 60% for males. In the Erie St. Clair LHIN, there were no areas that had a higher prevalence than the Ontario average among adolescents, which is why those maps are not shown.

Figure 1.16 Sedentary behaviour among females (age 12 and older), 2000–2014, Erie St. Clair Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
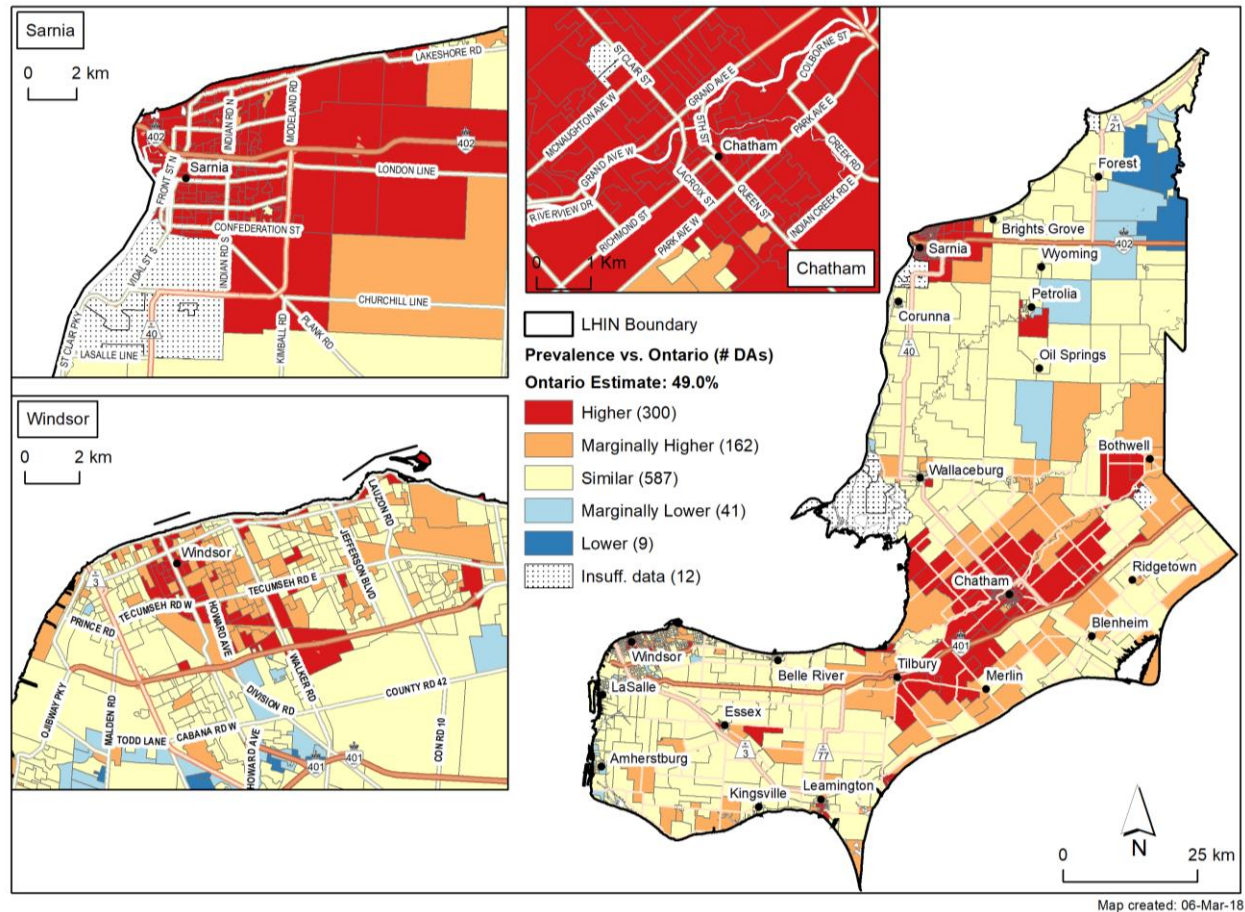
Category	Mean prevalence % (range)
Overall	51.7
Higher	56.6 (52.4, 65.0)
Marginally Higher	52.5 (51.2, 54.8)
Similar	49.6 (46.1, 52.8)
Marginally Lower	45.6 (44.5, 46.7)
Lower	44.2 (43.1, 45.0)

Prevalence by 2006 dissemination area (DA) and 95% credibility intervals
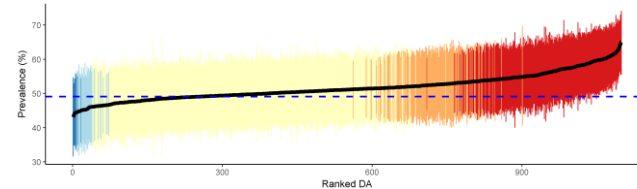
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 1.17 Sedentary behaviour among males (age 12 and older), 2000–2014, Erie St. Clair Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Prevalence vs. Ontario (# DAs)
Ontario Estimate: 55.7%

- Higher (78)
- Marginally Higher (146)
- Similar (779)
- Marginally Lower (70)
- Lower (26)
- Insuff. data (12)

Map Created: 06-Mar-18
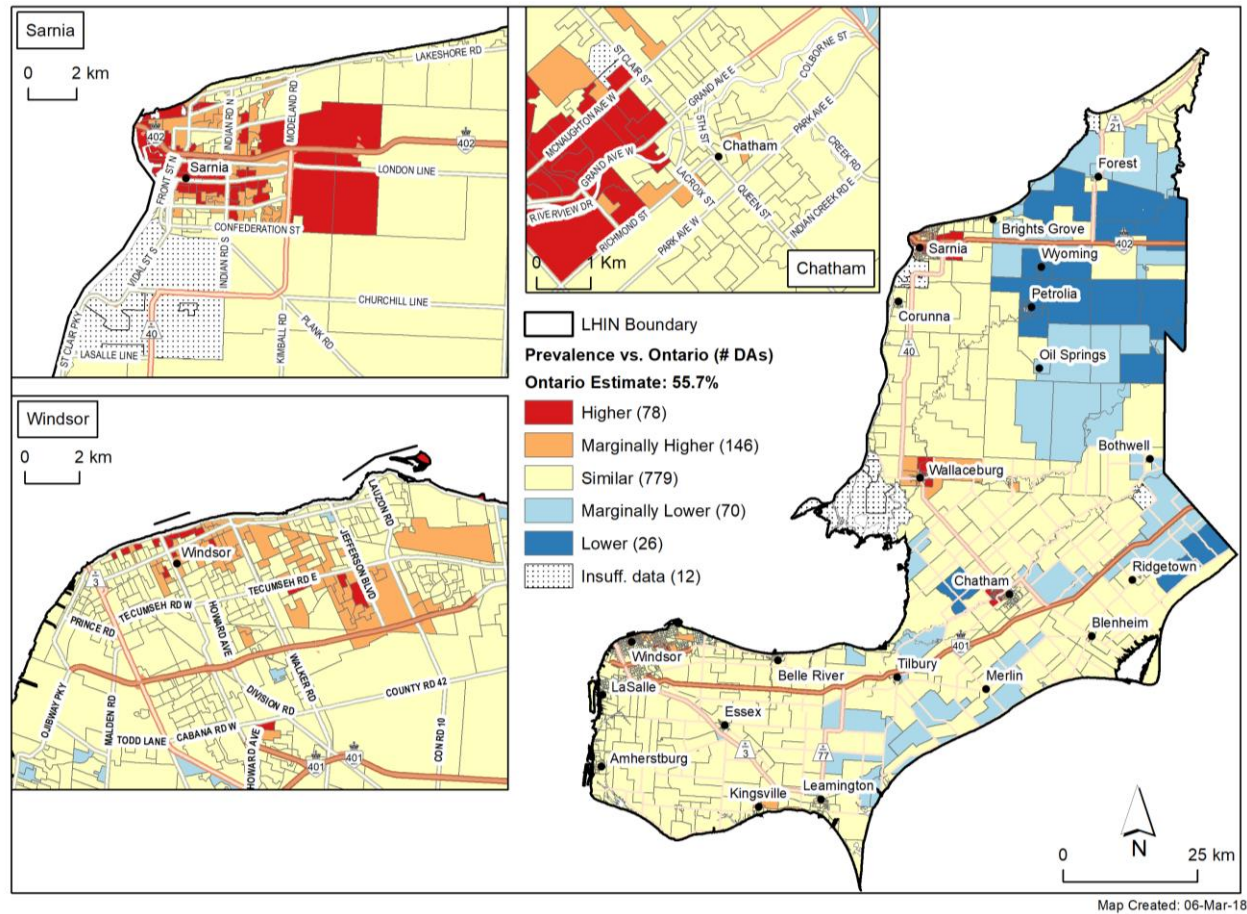
Category	Mean prevalence % (range)
Overall	56.3
Higher	61.7 (59.4, 68.2)
Marginally Higher	59.3 (57.8, 60.8)
Similar	55.8 (52.1, 59.5)
Marginally Lower	51.7 (50.2, 53.2)
Lower	49.7 (47.0, 51.3)

Prevalence by 2006 dissemination area (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Smoking: current status

People age 12 and older

Current tobacco smoking was reported by 17% of Ontario females and 24% of males.

Higher prevalence than Ontario

There were more areas with a higher prevalence of current smoking than the Ontario average among females (n=506; Figure 1.18), compared to males (n=325; Figure 1.19). For both sexes, many of these areas were located throughout Sarnia, Windsor and Chatham, south of Chatham, and near Leamington. For females, additional areas were located south of Sarnia. For males, additional areas were located along the eastern boundary of the LHIN, northeast of Oil Springs.

Lower prevalence than Ontario

Areas of lower prevalence of current smoking among females (n=37; Figure 1.18) and males (n=129; Figure 1.19) tended to be located north of Sarnia, south of Windsor and around Chatham.

Adolescents

Approximately 8% of adolescent females and adolescent males in Ontario reported that they currently smoked tobacco.

Higher prevalence than Ontario

For adolescent females (n=277; Figure 1.20) and adolescent males (n=120; Figure 1.21), many areas with a higher prevalence of current smoking than the Ontario average were located in the central part of the LHIN, in and around Sarnia, and near Chatham. For adolescent females, additional areas were located throughout most of Chatham and surrounding Tilbury, Merlin and Blenheim.

Lower prevalence than Ontario

Areas with a lower prevalence of current smoking among adolescent females (n=65; Figure 1.20) and adolescent males (n=254; Figure 1.21) were primarily located throughout Windsor. For adolescent males, additional areas were located near Amherstburg, Essex and Chatham.

Figure 1.18 Current smoking among females (age 12 and older), 2000–2014, Erie St. Clair Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
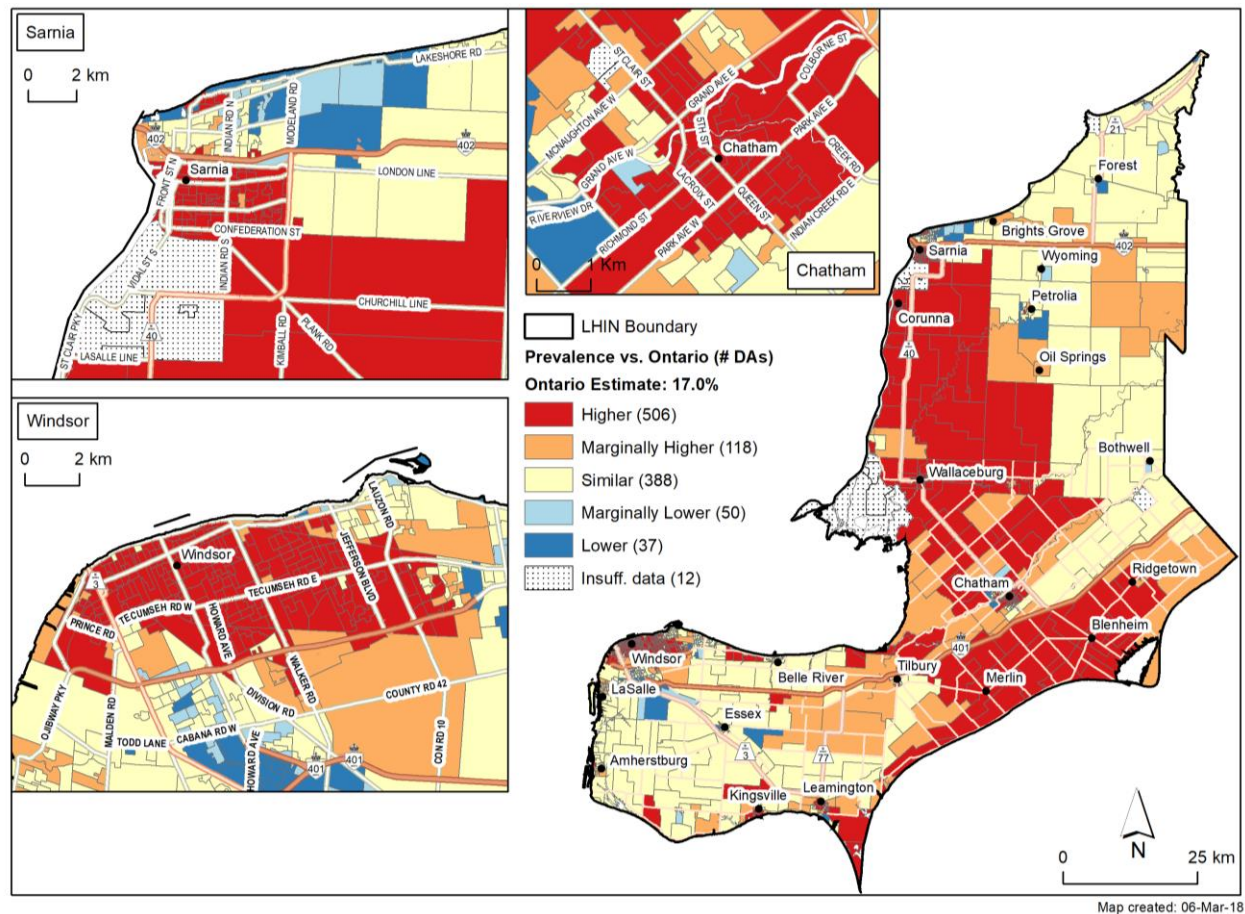
Category	Mean prevalence % (range)
Overall	21.8
Higher	26.6 (20.2, 41.1)
Marginally Higher	20.7 (18.5, 23.9)
Similar	17.8 (14.9, 21.7)
Marginally Lower	14.7 (13.6, 15.5)
Lower	12.7 (10.0, 14.6)

Prevalence by 2006 dissemination area (DA) and 95% credibility intervals
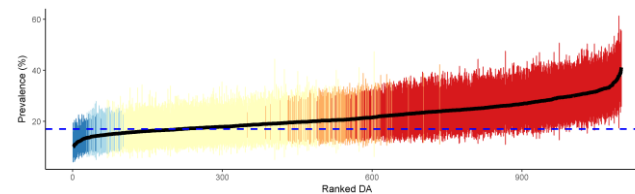
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 1.19 Current smoking among males (age 12 and older), 2000–2014, Erie St. Clair Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
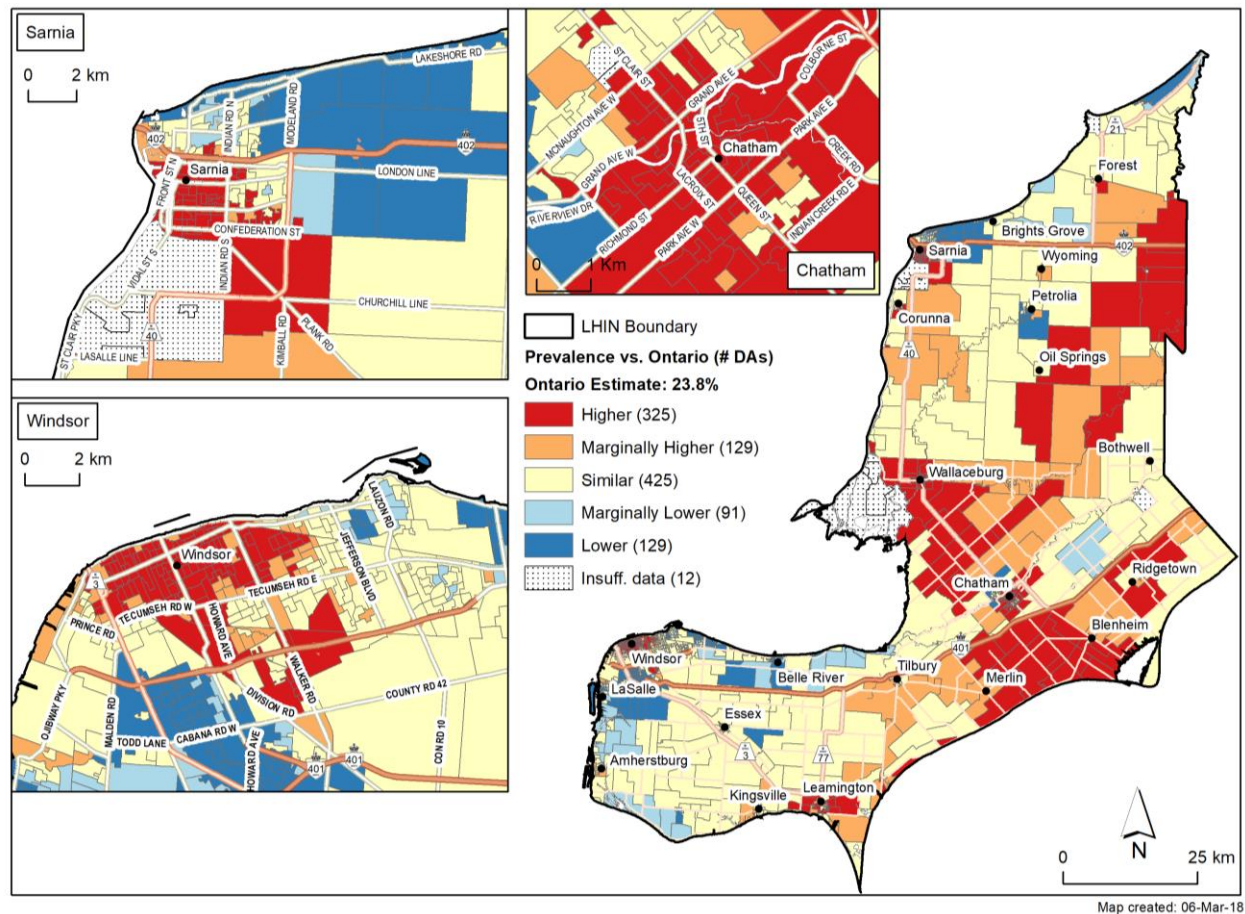
Category	Mean prevalence % (range)
Overall	26.5
Higher	33.7 (27.8, 48.9)
Marginally Higher	28.0 (26.5, 31.6)
Similar	24.4 (20.8, 28.2)
Marginally Lower	20.6 (18.3, 21.8)
Lower	18.2 (13.4, 21.0)

Prevalence by 2006 dissemination area (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

LHIN Boundary

Prevalence vs. Ontario (# DAs)

Ontario Estimate: 8.1%

- Higher (277)
- Marginally Higher (136)
- Similar (539)
- Marginally Lower (80)
- Lower (65)
- Insuff. data (14)

Map created: 06-Mar-18

Category	Mean prevalence % (range)
Overall	10.1
Higher	14.2 (11.1, 23.9)
Marginally Higher	11.2 (10.1, 13.4)
Similar	8.7 (6.9, 11.4)
Marginally Lower	6.7 (6.0, 7.2)
Lower	5.7 (4.3, 6.3)

Prevalence by 2006 dissemination area (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 1.21 Current smoking among adolescent males (ages 12 to 18), 2000–2014, Erie St. Clair Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
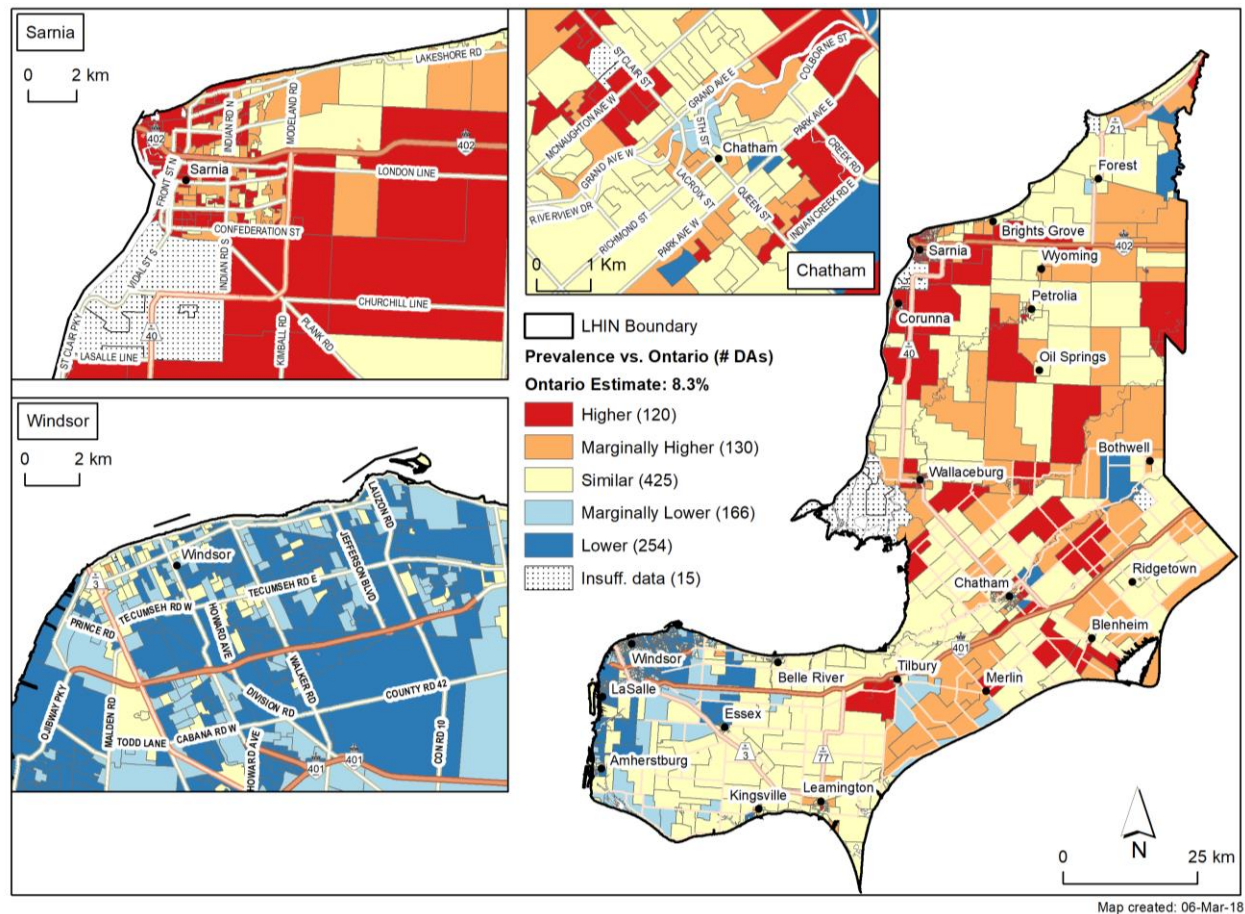
Category	Mean prevalence % (range)
Overall	8.5
Higher	13.2 (11.1, 20.6)
Marginally Higher	11.2 (10.1, 13.2)
Similar	8.9 (7.1, 11.5)
Marginally Lower	6.8 (6.2, 7.3)
Lower	5.5 (0.9, 6.6)

Prevalence by 2006 dissemination area (DA) and 95% credibility intervals
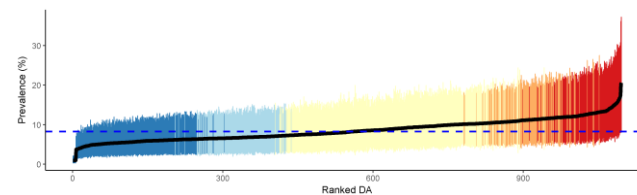
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Smoking: ever-smoked status

People age 12 and older

Approximately one in two Ontario females and three in five Ontario males reported having ever-smoked.

Higher prevalence than Ontario

Among females, areas with higher ever-smoked prevalence than the Ontario average (n=589; Figure 1.22) tended to be located in northern (north of Wallaceburg), southeastern (around Blenheim) and southwestern parts (Kingsville) of the LHIN. Higher prevalence areas among females were common in the three main urban areas of the LHIN (Chatham, Sarnia, and Windsor). The pattern of areas of higher prevalence among males (n=446; Figure 1.23) differed from that of females, with more extensive geographic coverage of the eastern part of the LHIN and in Chatham. However, higher prevalence areas were less extensive in and south of Windsor. In Windsor, groups of higher prevalence are located east of Walker Road or in the downtown core.

Lower prevalence than Ontario

For females and males, areas with lower ever-smoked prevalence than Ontario (n=12; Figure 1.22, and n=83; Figure 1.23, respectively) tended to occur in the southeastern part of the LHIN, generally south of Belle River.

Adolescents

The area-based prevalence of ever-smoked status was not estimated for adolescent populations.

Figure 1.22 Ever-smoked status among females (age 12 and older), 2000–2014, Erie St. Clair Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
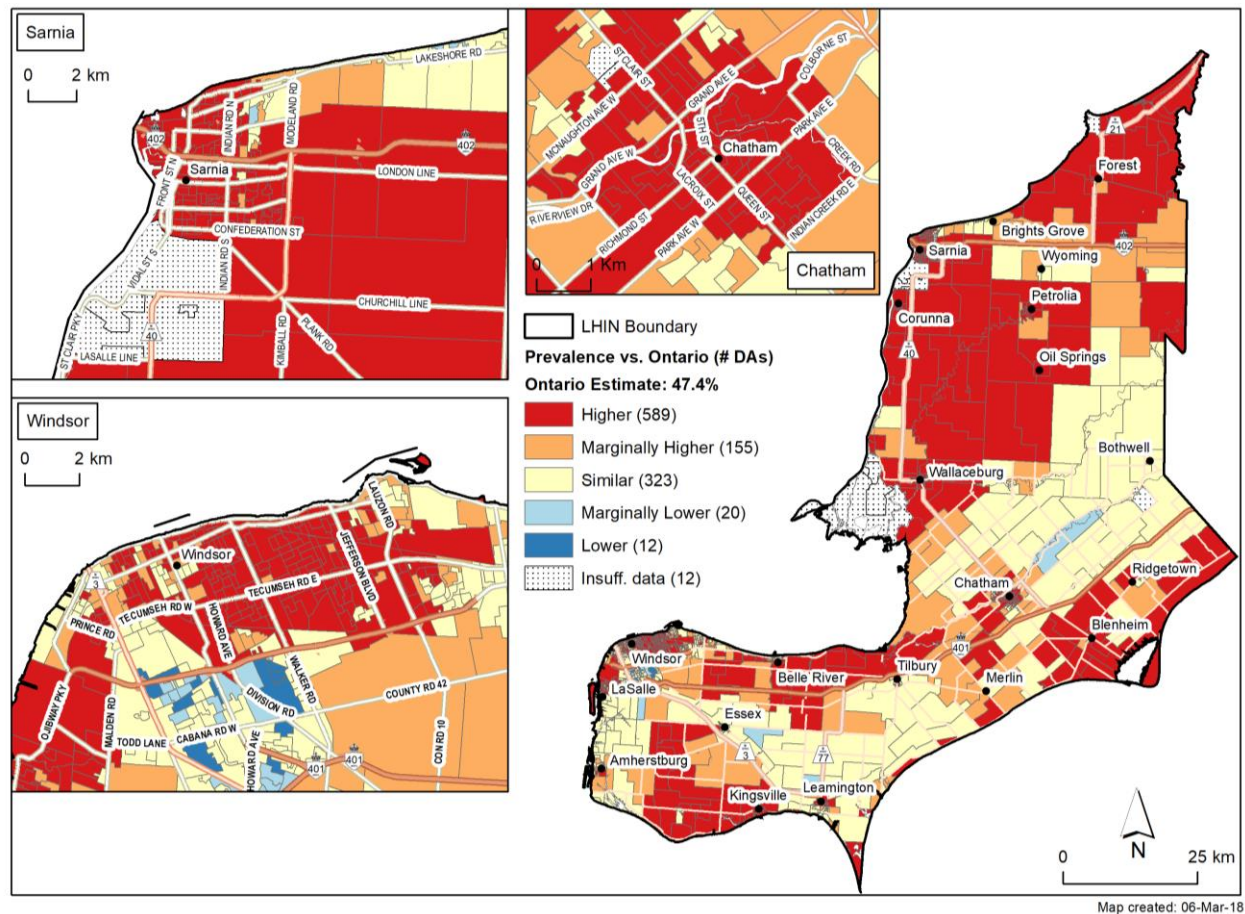
Category	Mean prevalence % (range)
Overall	52.7
Higher	56.1 (50.2, 67.8)
Marginally Higher	51.3 (49.7, 53.5)
Similar	47.9 (43.6, 51.6)
Marginally Lower	43.7 (41.8, 44.8)
Lower	41.1 (38.1, 42.6)

Prevalence by 2006 dissemination area (DA) and 95% credibility intervals
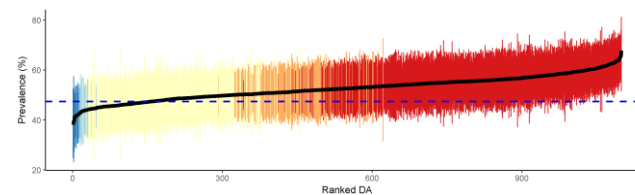
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 1.23 Ever-smoked status among males (age 12 and older), 2000–2014, Erie St. Clair Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	63.9
Higher	68.4 (64.3, 80.1)
Marginally Higher	64.3 (63.1, 65.8)
Similar	61.5 (57.7, 64.4)
Marginally Lower	58.0 (55.3, 59.0)
Lower	54.5 (46.8, 58.0)

Prevalence by 2006 dissemination area (DA) and 95% credibility intervals
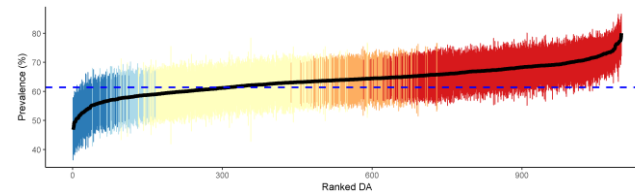
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

LHIN 2
South West
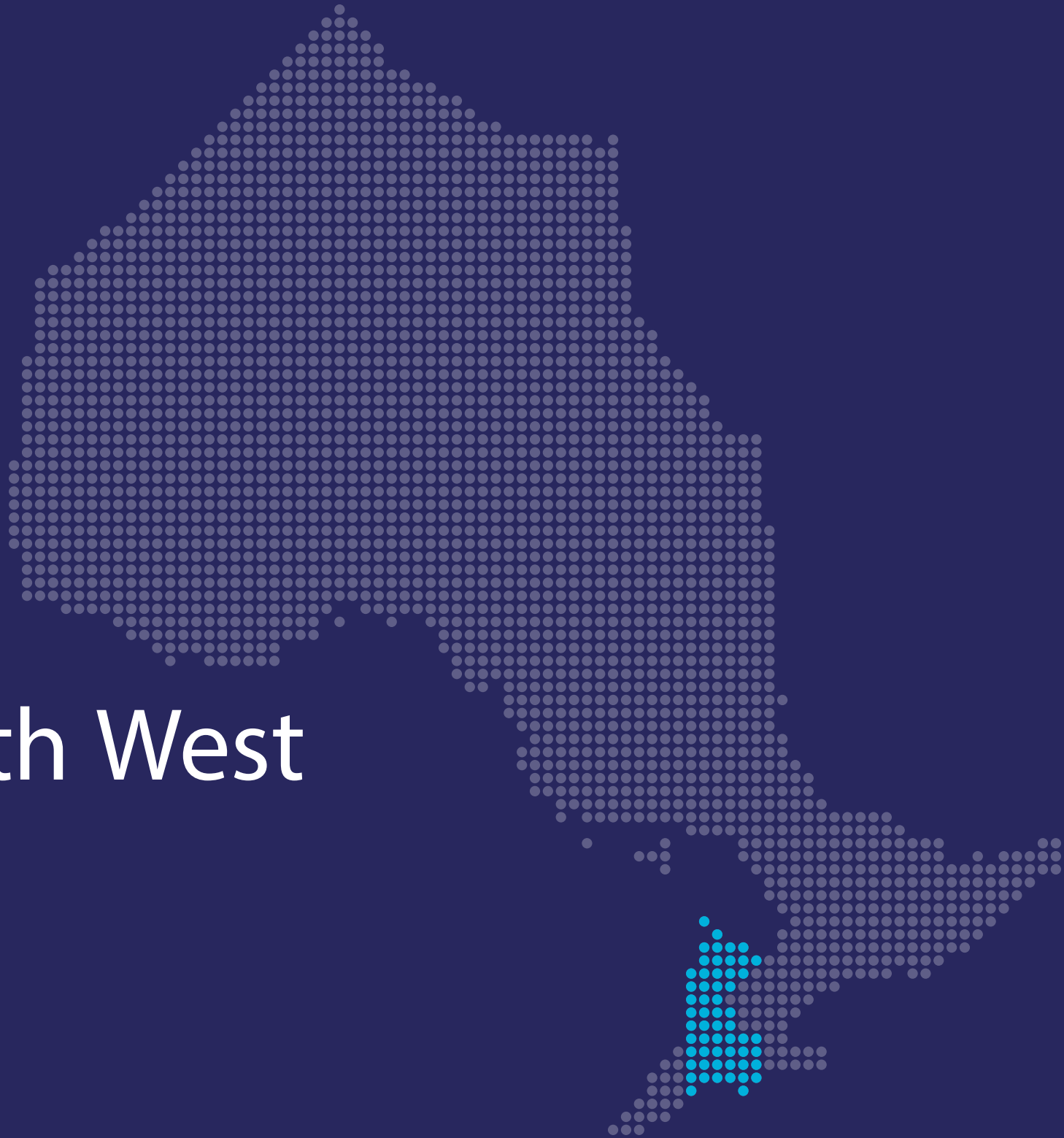
2. South West LHIN

Key Findings

Top three priority risk factor population estimates by sex (see Table 2.1 below):

Females
    Smoking—ever-smoked status
    Alcohol—current consumption
    Excess body weight
Males
    Smoking—ever-smoked status
    Inadequate vegetable and fruit consumption
    Excess body weight

Risk factor summary

Alcohol—current consumption
    Priority areas:
    • Females: areas in the northern half of the LHIN, north of Hanover, and areas in the southern part in London and Woodstock and west of St. Mary's
    • Males: areas throughout London and Woodstock, and additional areas scattered throughout the LHIN
    • Adolescent females: areas across the LHIN, including London, Woodstock and Owen Sound
    • Adolescent males: areas across the LHIN, including most of Owen Sound and some areas in Woodstock and London
Alcohol—consumption exceeding cancer prevention recommendations
    Priority areas:
    • Females: London and many areas south of Owen Sound and Thornbury
    • Males: most of the northern half of the LHIN, including Owen Sound, and many areas of the southern half, including most of Woodstock and some areas in London
Excess body weight
    Priority areas:
    • Females: many areas across the northern and southern halves of the LHIN, including Owen Sound, Woodstock and many parts of London
    • Males: many areas across the northern and southern halves of the LHIN, including Woodstock, and many parts towards the east of London
    • Adolescent females: areas in the northern half of the LHIN, particularly near the northern tip, and a few areas near the southern boundary of the LHIN

[Inadequate vegetable and fruit consumption](#)

Priority areas:
- Females: many areas in and east of London, southeast of London and in Woodstock and Owen Sound
- Males: most areas towards the southern end of the LHIN, many areas in the central part of the LHIN, in London, Owen Sound and Woodstock, and many areas towards the southeast of London
- Adolescent females: areas southeast of London and in Woodstock
- Adolescent males: areas south and west of London

[Physical activity](#)

Priority areas:
- Females: some areas dispersed throughout the LHIN, and some parts of Woodstock and London
- Males: many areas in the central part of the LHIN to the eastern boundary, between Chesley and St. Mary's; many areas in Woodstock and some parts of London
- Adolescent males: many areas in the central part of the LHIN to the eastern boundary, between Hanover and Stratford, and areas throughout Woodstock and surrounding Ingersoll

[Sedentary behaviour](#)

Priority areas:
- Females: some areas in London and areas located in the northern tip of the LHIN (Wiarton to Tobermory)
- Males: very few areas

[Smoking—current status](#)

Priority areas:
- Females: parts of Owen Sound, areas towards the east of Hanover and south of Wingham, eastern London and multiple areas scattered along the southern part of the LHIN
- Males: areas in Owen Sound, Woodstock, London and many areas south of London along the southern boundary of the LHIN
- Adolescent females: areas scattered throughout the LHIN, and a few parts of Woodstock and London
- Adolescent males: many areas scattered across the central and southern parts of the LHIN, with multiple areas throughout London, Owen Sound and Woodstock

[Smoking—ever-smoked status](#)

Priority areas:
- Females: most areas across the LHIN, including most parts of London, Owen Sound and Woodstock
- Males: most areas across the LHIN, including most parts of Owen Sound and Woodstock, and many areas in London

Introduction

This section describes the estimated local prevalence of risk factors across the LHIN compared to the Ontario prevalence estimates from 2000 to 2014. These comparisons are always relative to Ontario with respect to the level of statistical evidence for the underlying prevalence estimate and often the number of areas meeting specific criteria are presented in parentheses (e.g., n=40). Risk factor maps are presented for females and males age 12 and older, and for adolescent females and adolescent males ages 12 to 18 inclusive. Throughout the text, the terms "area(s)" and "local" refer to the 2006 census dissemination areas (see the Data and Methods section, page 3).

Exclusions

As discussed in the Interpretation section (page 7), maps are shown only for risk factor estimates in the LHIN where one or more local estimates were higher than Ontario (or lower than Ontario for physical activity). Therefore, the risk factor maps not displayed for South West LHIN include:

- excess body weight among adolescent males;
- physical activity among adolescent females; and
- sedentary behaviour among adolescent females and adolescent males.

Notes

Risk factor prevalence could not be estimated for several areas in the South West LHIN (e.g., suppressed census populations or institutionalized populations), which are shown as "insufficient data" on the maps. These areas include the Cape Croker (and their hunting grounds), Chief's Point, Chippewa of the Thames, Munsee-Delaware, Neyaashiinigming, Oneida and Saugeen (and their hunting grounds) First Nations. Additionally, areas with unavailable population data are shown as "insufficient data." See Appendix C for a complete list of areas in the insufficient data category.

Priority population estimates

Priority population estimates may be helpful in prioritizing health promotion and planning efforts for potential populations affected by certain modifiable risk factors. Table 2.1 (page 66) presents the estimated priority populations for each risk factor by sex and age group in the South West LHIN. Priority populations are defined as those living in areas with a higher risk factor prevalence (or lower prevalence for physical activity) than Ontario. These estimates were produced by summing the population from all higher (or lower for physical activity) prevalence small areas (2006 dissemination areas) after taking into account the risk factor prevalence of each area. For example, if among females 100 areas had a higher prevalence of current alcohol consumption than Ontario, the female 2006 census populations in each of these areas were multiplied by the prevalence of current alcohol consumption for each area and then summed across the 100 areas to produce an estimate of the female "priority population." These calculations are intended to provide a measure to prioritize the risk factors rather than a population estimate.

According to the Methods (page 4) and Interpretation (page 7) sections, these higher prevalence areas had strong statistical evidence of elevated prevalence compared to Ontario (posterior probabilities ≥ 80%). An exception is physical activity, which had strong statistical evidence of lower prevalence estimates than Ontario (posterior probabilities ≤ 20%). Therefore, the population estimates for each risk factor are likely undercounted because areas with less statistical certainty (posterior probabilities < 80% and physical activity posterior probabilities > 20%) are not included in the priority population estimates.

Table 2.1 Estimated priority populations among higher prevalence** dissemination areas compared to Ontario by risk factor, sex and age group, South West Local Health Integration Network (LHIN), using 2006 census populations

Risk factor	Female priority population*†	% of female population in the LHIN† (n=398,060)	Male priority population*†	% of male population in the LHIN† (n=374,320)	Adolescent female priority population*‡	% of adolescent female population in the LHIN‡ (n=43,310)	Adolescent male priority population*‡	% of adolescent male population in the LHIN‡ (n=45,250)
Alcohol—current consumption	138,820	35%	72,590	19%	8,780	20%	7,750	17%
Alcohol—consumption exceeding cancer prevention recommendations	3,940	1%	20,530	5%	NM	—	NM	—
Excess body weight	96,690	24%	95,450	26%	300	1%	NE	—
Inadequate vegetable and fruit consumption	64,800	16%	106,460	28%	1,470	3%	2,620	6%
Physical activity**	6,470	2%	17,310	5%	NP	—	1,920	4%
Sedentary behaviour	10,730	3%	2,360	1%	NE	—	NE	—
Smoking—current status	33,260	8%	29,180	8%	260	1%	1,670	4%
Smoking—ever-smoked status	153,070	38%	150,820	40%	NM	—	NM	—

NE = no estimates within the "higher" prevalence categories**; NM = not modelled; NP = census population estimates not available
* Estimates rounded to multiples of 10
** For physical activity, priority populations are those living in areas with a lower risk factor prevalence compared to Ontario
† Population age 12 and older
‡ Population ages 12 to 18
— Value not applicable

Alcohol: current consumption

People age 12 and older

An estimated 70% of females and 79% of males in Ontario reported current alcohol consumption.

Higher prevalence than Ontario

There were more areas with a higher prevalence of current alcohol consumption than the Ontario average among females (n=643; Figure 2.1), compared to males (n=318; Figure 2.2). For both sexes, these areas were dispersed throughout the LHIN, as well as in London and Woodstock. For females, additional areas were located throughout most of the northern part of the LHIN, particularly north of Hanover and in the southern part of the LHIN near Ingersoll, Woodstock, St. Mary's Stratford, Exeter, Zurich and Seaforth.

Lower prevalence than Ontario

Areas with a lower prevalence of current alcohol consumption than the Ontario average among females (n=68; Figure 2.1) and males (n=67; Figure 2.2) were relatively uncommon in the South West LHIN. For both sexes, these areas tended to be located south of Listowel and along the southern boundary of the LHIN (i.e., south of Ingersoll).

Adolescents

Among the adolescent population in Ontario, approximately 40% of females and males reported current alcohol consumption.

Higher prevalence than Ontario

For adolescent females (n=648; Figure 2.3) and adolescent males (n=543; Figure 2.4), areas with a higher prevalence of current alcohol consumption than the Ontario average were distributed throughout the LHIN, and including areas throughout Owen Sound, Woodstock and London. For adolescent females, there was a far greater number of higher prevalence areas throughout London, compared to adolescent males, but fewer higher prevalence areas throughout the northern part of the LHIN.

Lower prevalence than Ontario

For adolescent females (n=84; Figure 2.3) and adolescent males (n=153; Figure 2.4), areas with a lower prevalence of current alcohol consumption than the Ontario average were scattered throughout the LHIN. For adolescent females, these areas were located in Owen Sound, Woodstock and London. For adolescent males, there was a far greater number of lower prevalence areas in and around London, compared to adolescent females.

Figure 2.1 Current alcohol consumption among females (age 12 and older), 2000–2014, South West LHIN by 2006 dissemination area (DA)
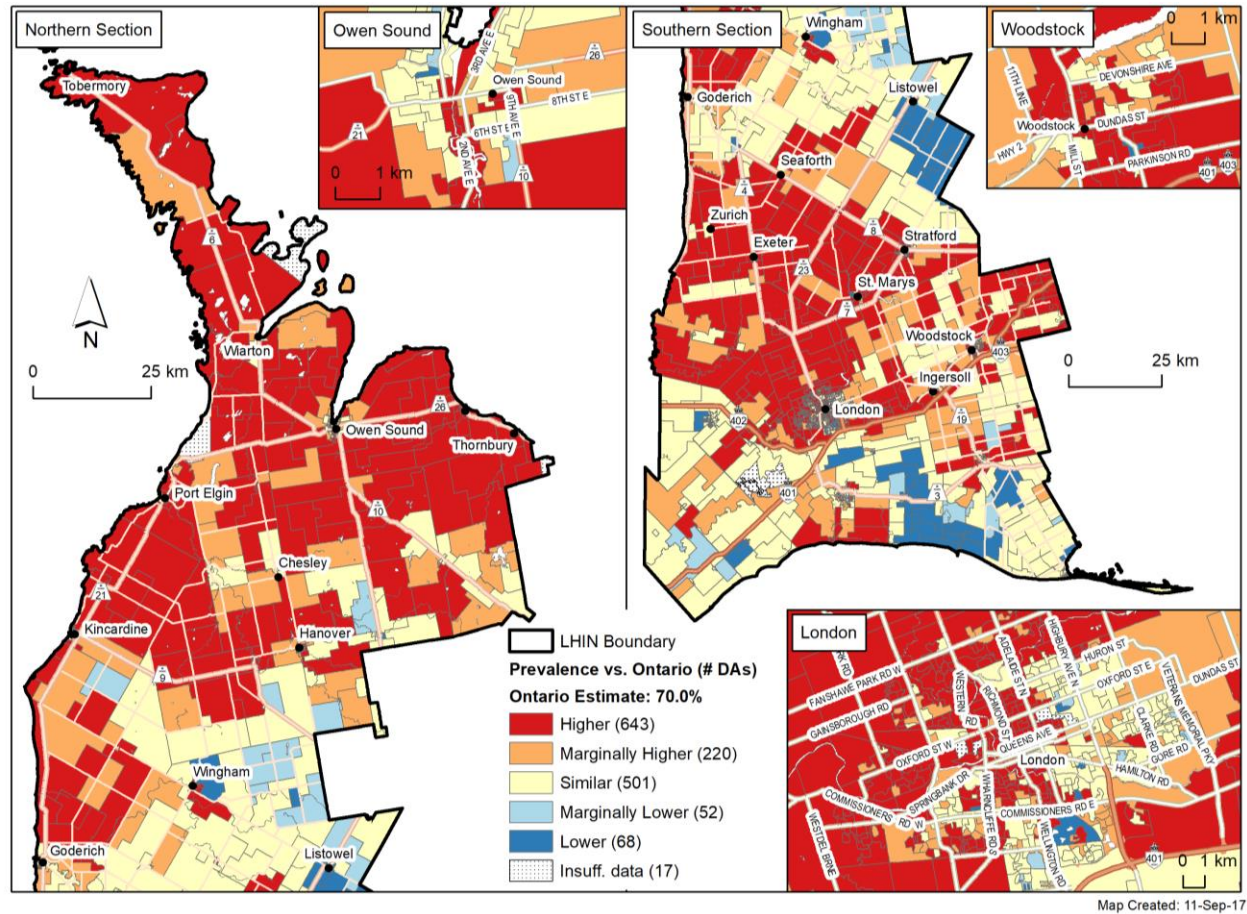
Category	Mean prevalence % (range)
Overall	73.3
Higher	77.4 (72.9, 87.9)
Marginally Higher	73.6 (72.3, 76.1)
Similar	70.2 (65.6, 74.0)
Marginally Lower	65.8 (64.1, 67.6)
Lower	62.0 (50.0, 66.6)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
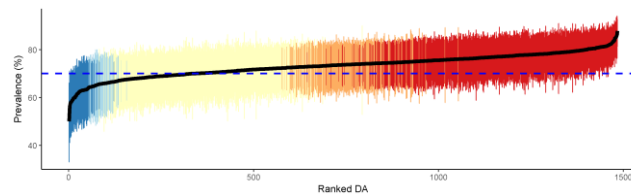
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 2.2 Current alcohol consumption among males (age 12 and older), 2000–2014, South West Local Health Integration Network (LHIN) by 2006 dissemination areas (DA)

Map Created: 12-Sep-17

LHIN Boundary

Prevalence vs. Ontario (# DAs)
Ontario Estimate: 79.2%

- Higher (318)
- Marginally Higher (247)
- Similar (767)
- Marginally Lower (85)
- Lower (67)
- Insuff. data (17)
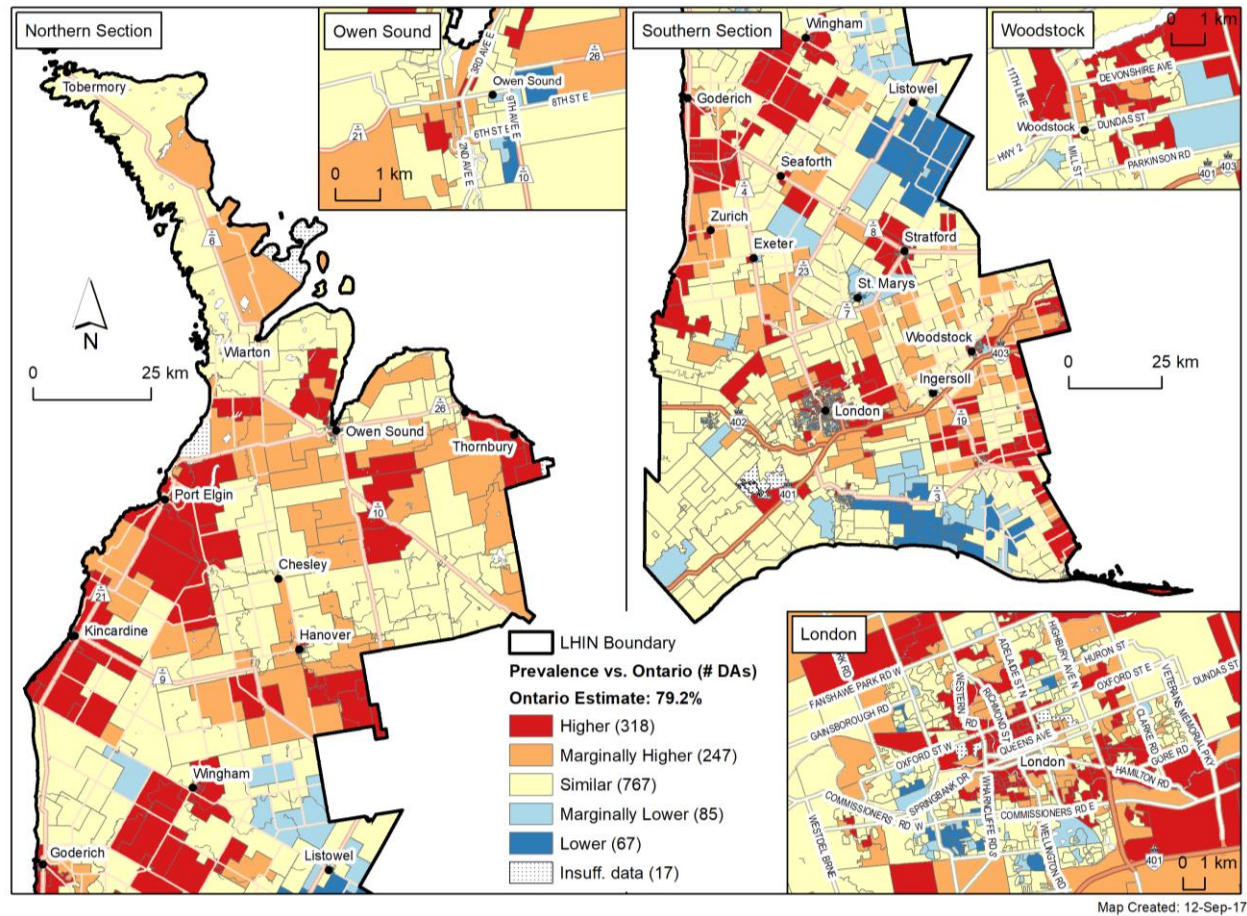
Category	Mean prevalence % (range)
Overall	80.1
Higher	83.6 (81.6, 89.2)
Marginally Higher	81.6 (80.6, 82.9)
Similar	79.2 (76.1, 81.8)
Marginally Lower	76.0 (74.5, 77.2)
Lower	73.6 (65.0, 76.1)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
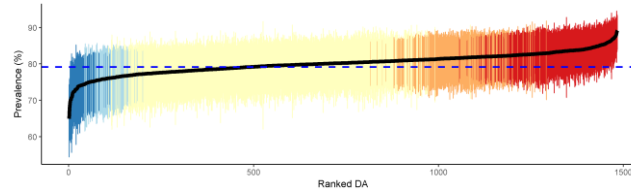
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 2.3 Current alcohol consumption among adolescent females (ages 12 to 18), 2000–2014, South West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
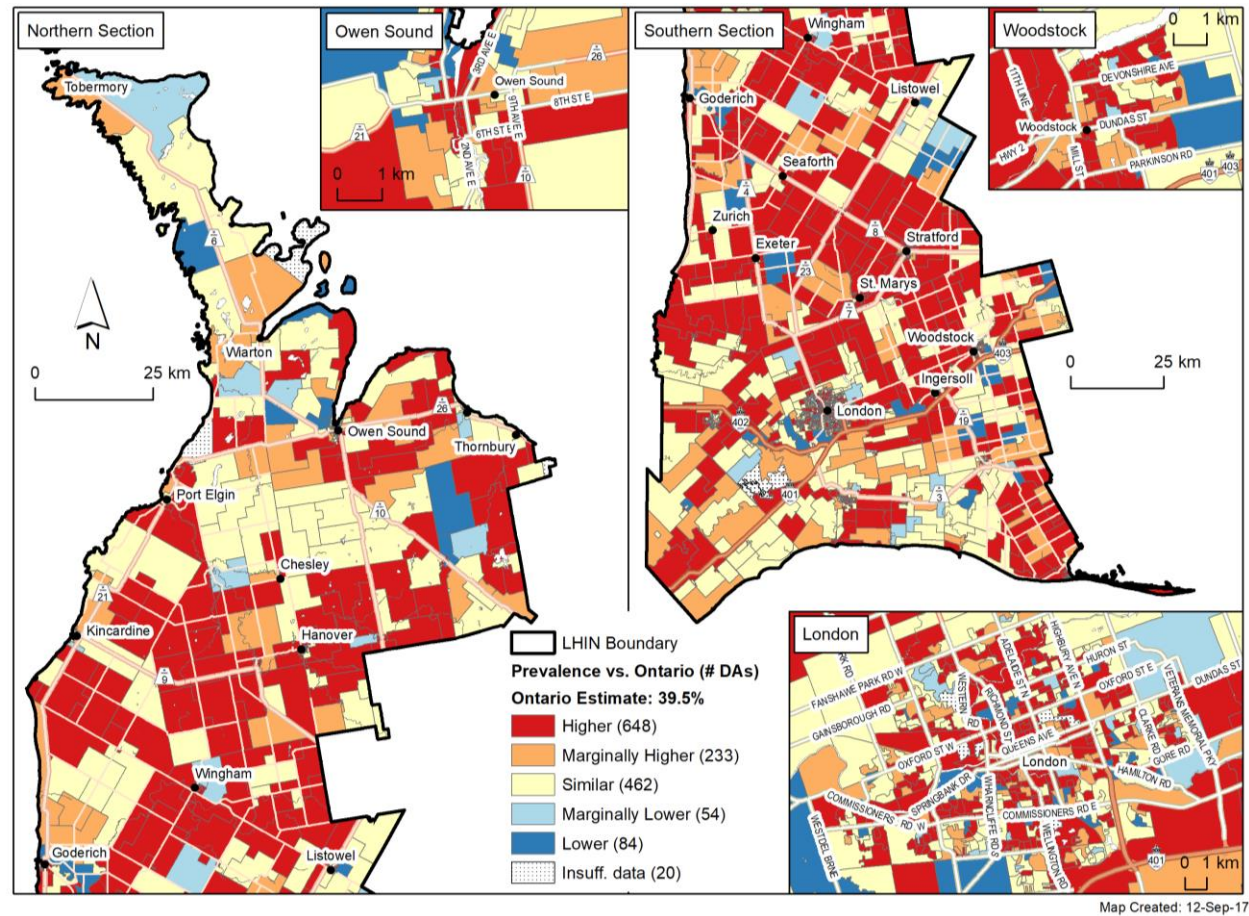
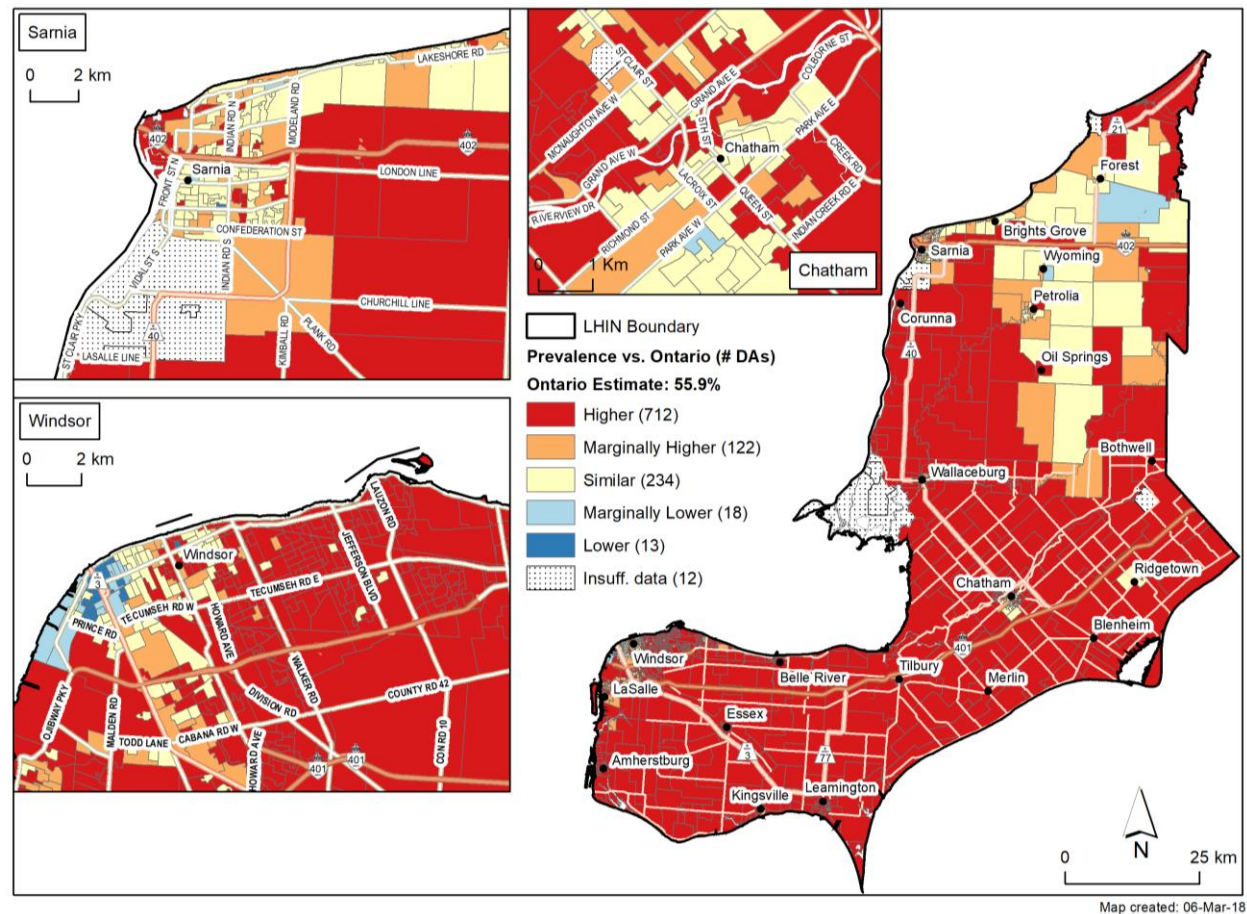| Category	Mean prevalence % (range)
Overall	43.8
Higher	48.7 (43.4, 66.2)
Marginally Higher	43.6 (42.1, 48.0)
Similar	40.0 (36.4, 43.9)
Marginally Lower	35.9 (33.6, 37.4)
Lower	32.2 (14.7, 35.6)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
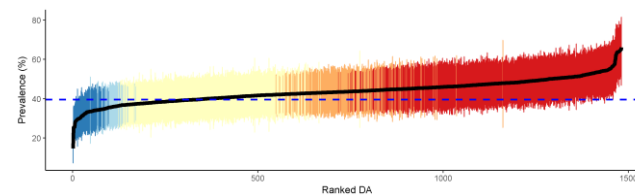
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

LHIN Boundary

Prevalence vs. Ontario (# DAs)
Ontario Estimate: 41.1%

- Higher (543)
- Marginally Higher (178)
- Similar (524)
- Marginally Lower (83)
- Lower (153)
- Insuff. data (20)

Map Created: 12-Sep-17
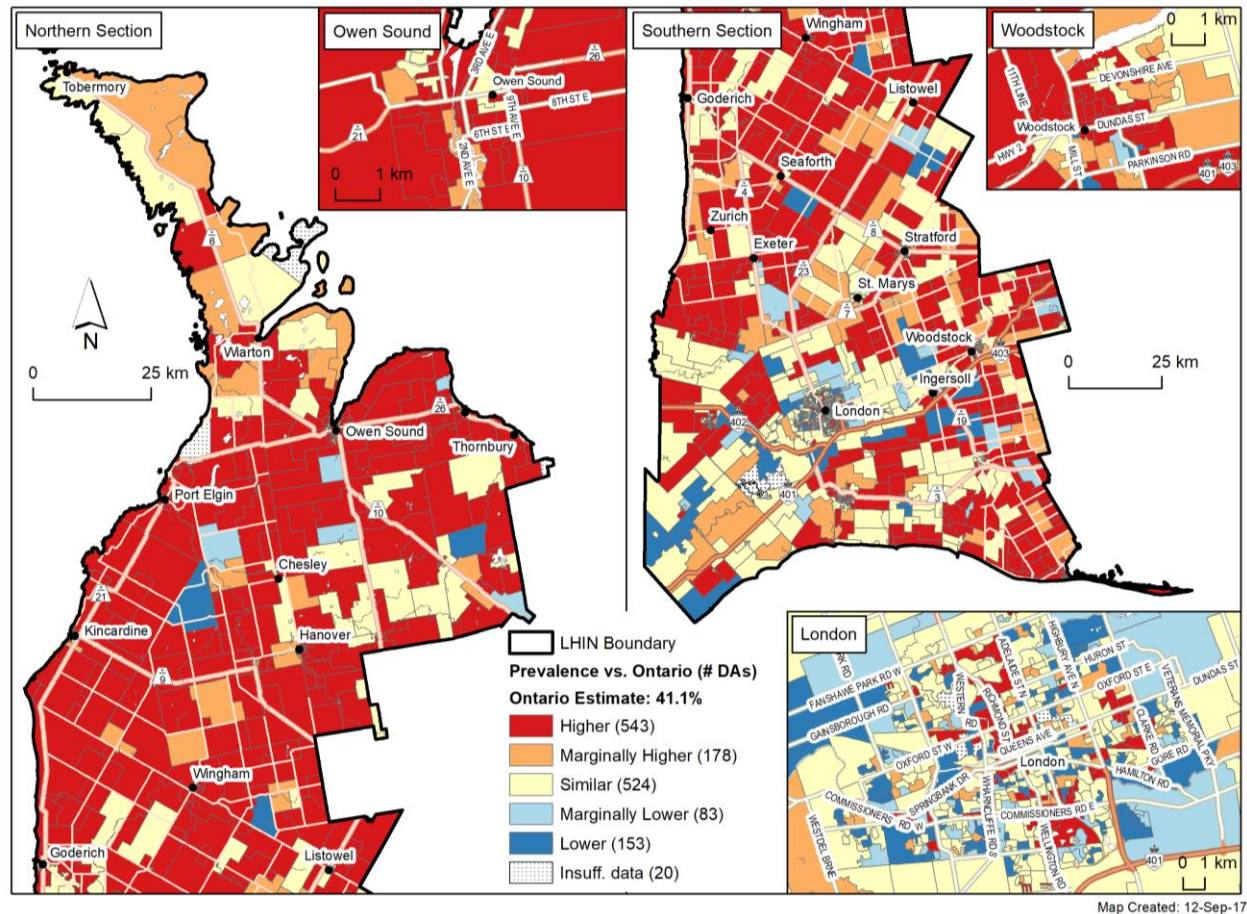
Category	Mean prevalence % (range)
Overall	44.2
Higher	50.6 (44.9, 70.0)
Marginally Higher	45.2 (43.7, 47.6)
Similar	41.2 (37.9, 46.7)
Marginally Lower	37.5 (35.4, 39.1)
Lower	34.0 (15.6, 37.1)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
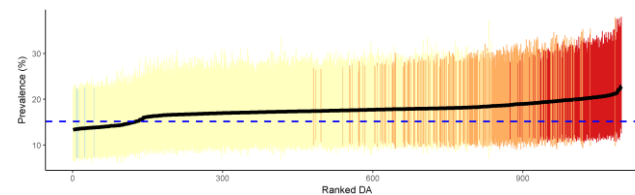
Alcohol: exceeding cancer prevention recommendations

People age 12 and older

Almost 7% of the female population in Ontario drank alcohol in excess of the recommended limits for cancer prevention. Among males, the Ontario prevalence of exceeding the recommended limits was 8.5%.

Higher prevalence than Ontario

Higher prevalence than the Ontario average of alcohol consumption in excess of the recommended limits for cancer prevention was far less common among females (n=146; Figure 2.5) compared to males (n=671; Figure 2.6). For females, these areas were located southeast of Owen Sound, west of Hanover, near Kincardine, near Goderich and throughout parts of London. For males, these areas were located throughout the northern and southern parts of the LHIN, including most areas in Owen Sound and Woodstock, and eastern London.

Lower prevalence than Ontario

There were more areas with a lower prevalence for females (n=59; Figure 2.5) than males (n=7; Figure 2.6). For females, the majority of these areas were located in the southern half of the LHIN (e.g., south of Wingham). Among males, the few areas with a lower prevalence tended to be located in London.

Adolescents

The area-based prevalence of exceeding recommended limits for cancer prevention was not estimated for adolescent populations.

Figure 2.5 Alcohol consumption exceeding cancer prevention recommendations among females (age 12 and older), 2000–2014, South West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
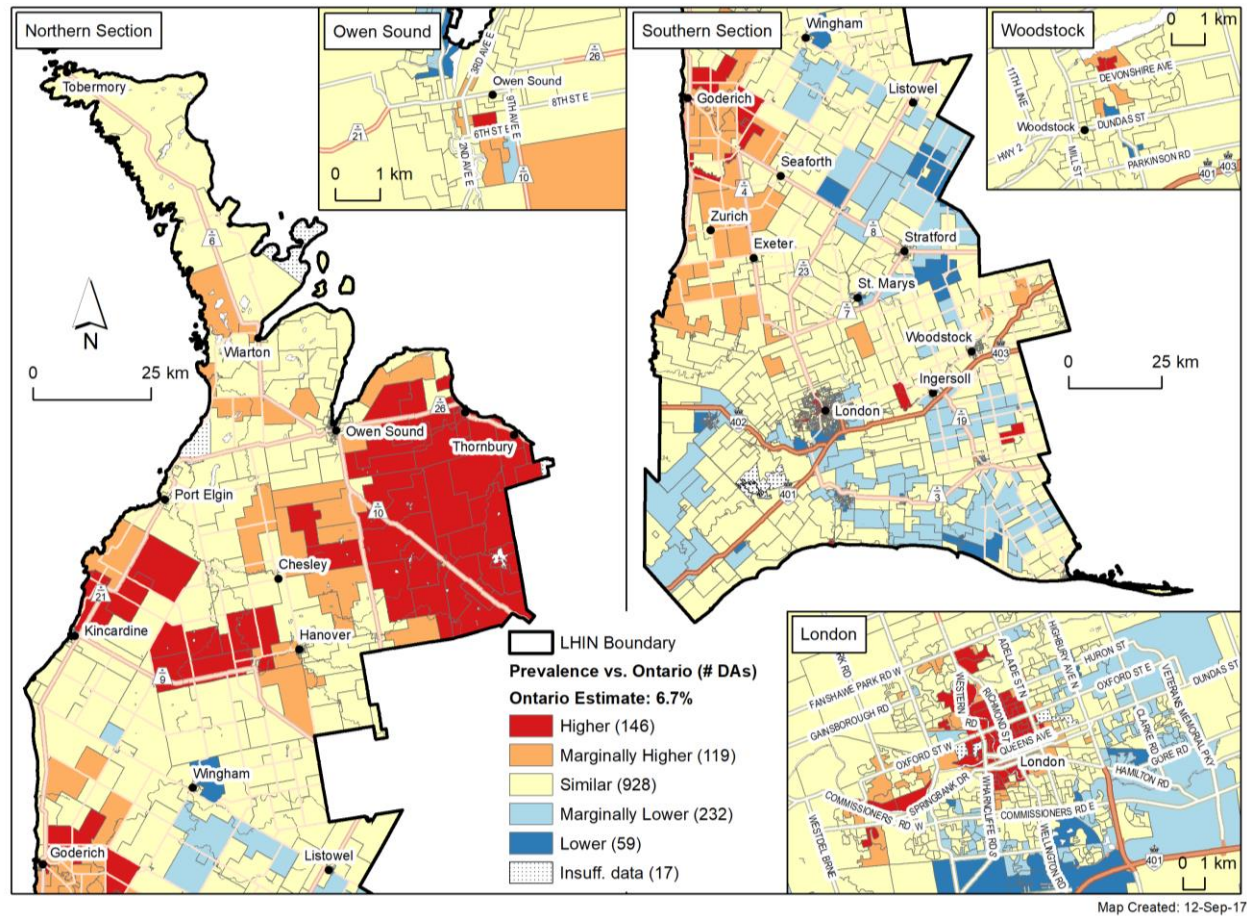
Category	Mean prevalence % (range)
Overall	7.3
Higher	10.5 (8.7, 16.7)
Marginally Higher	8.7 (8.0, 10.3)
Similar	7.1 (5.8, 8.7)
Marginally Lower	5.8 (5.1, 6.2)
Lower	5.1 (4.0, 5.7)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
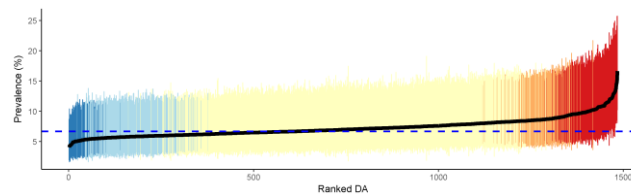
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 2.6 Alcohol consumption exceeding cancer prevention recommendations among males (age 12 and older), 2000–2014, South West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
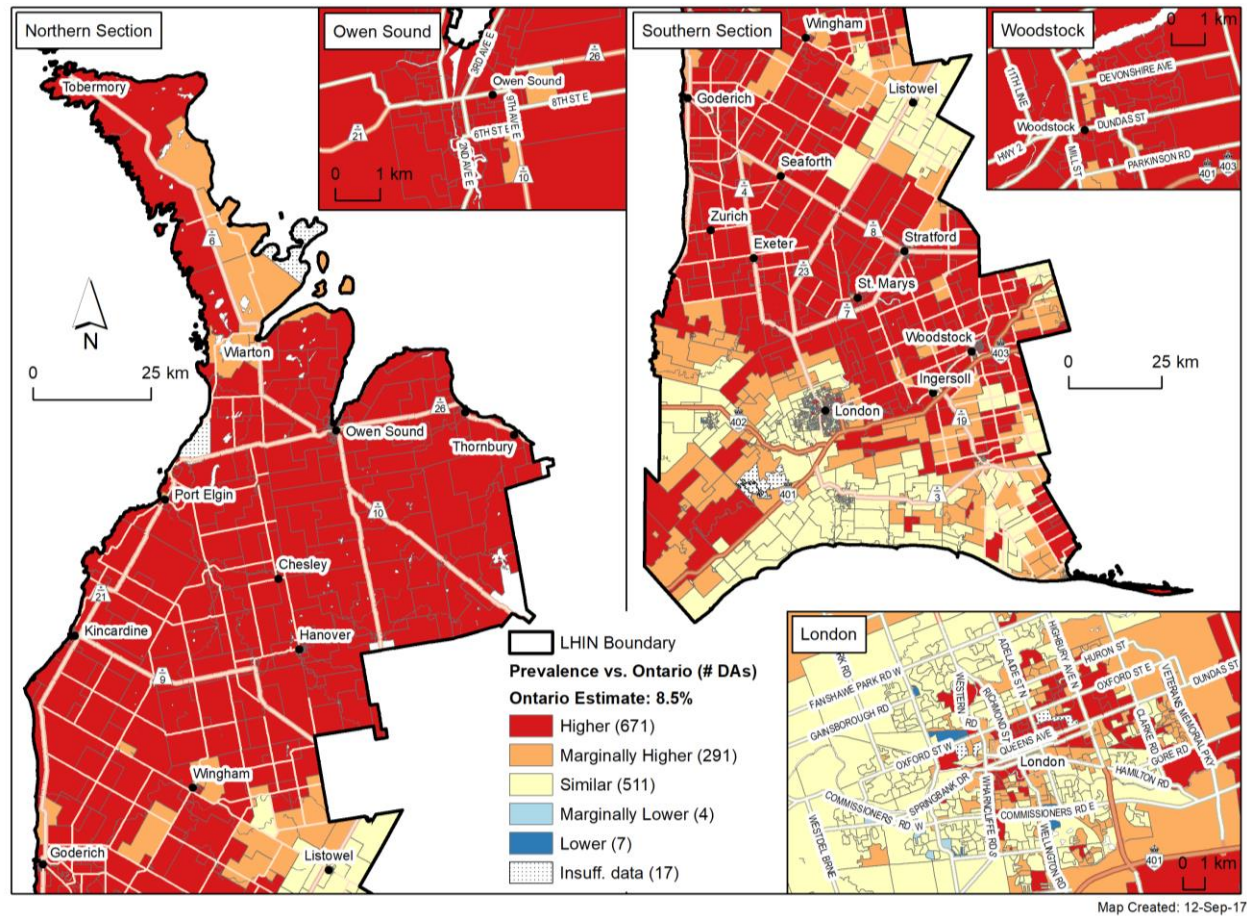
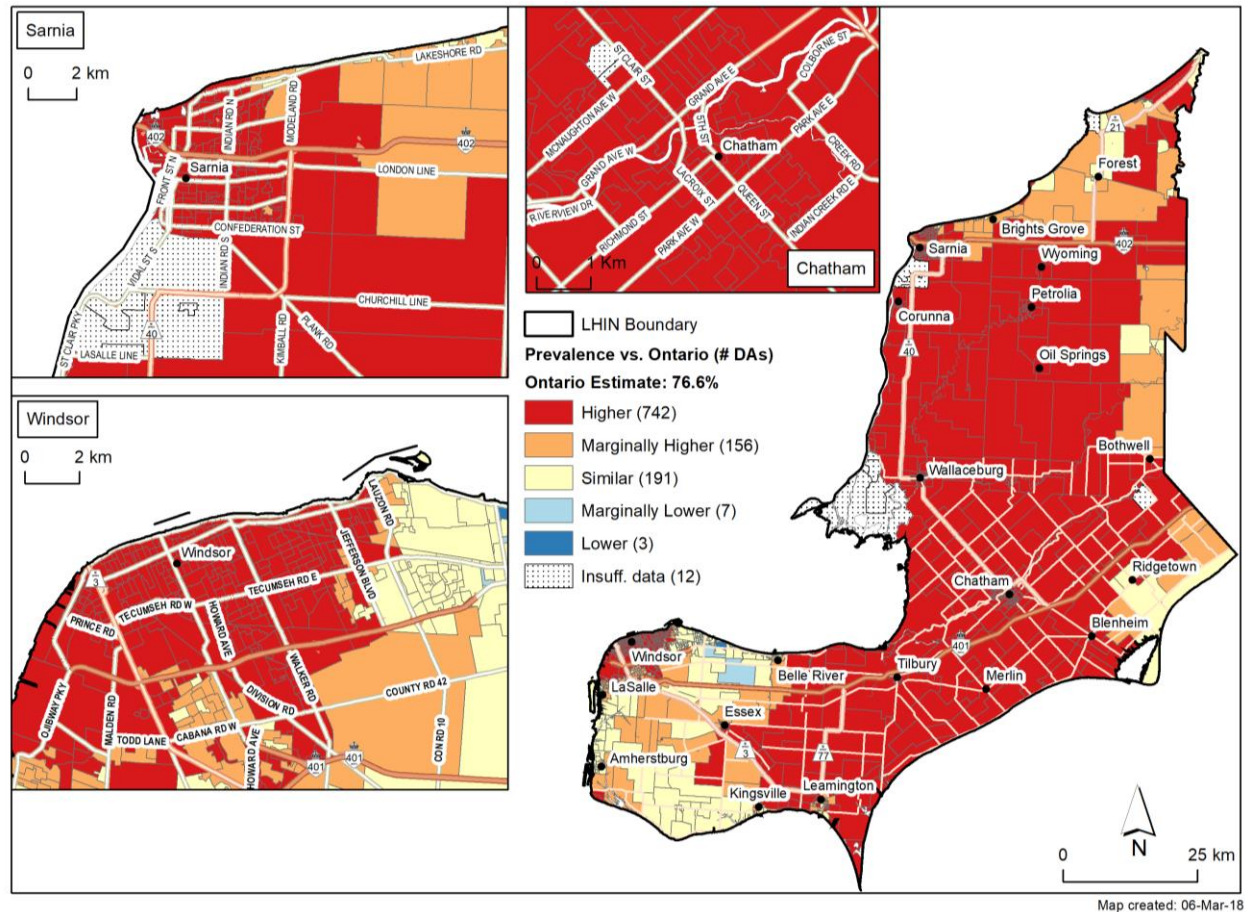| Category	Mean prevalence % (range)
Overall	10.8
Higher	12.2 (10.1, 17.5)
Marginally Higher	10.3 (9.6, 12.8)
Similar	9.2 (7.8, 10.8)
Marginally Lower	7.6 (7.5, 7.8)
Lower	6.7 (5.7, 7.2)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
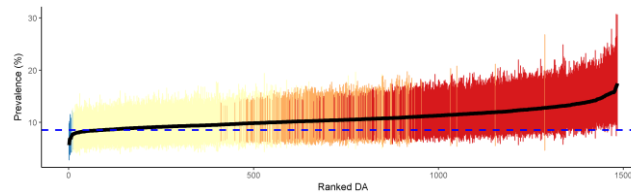
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
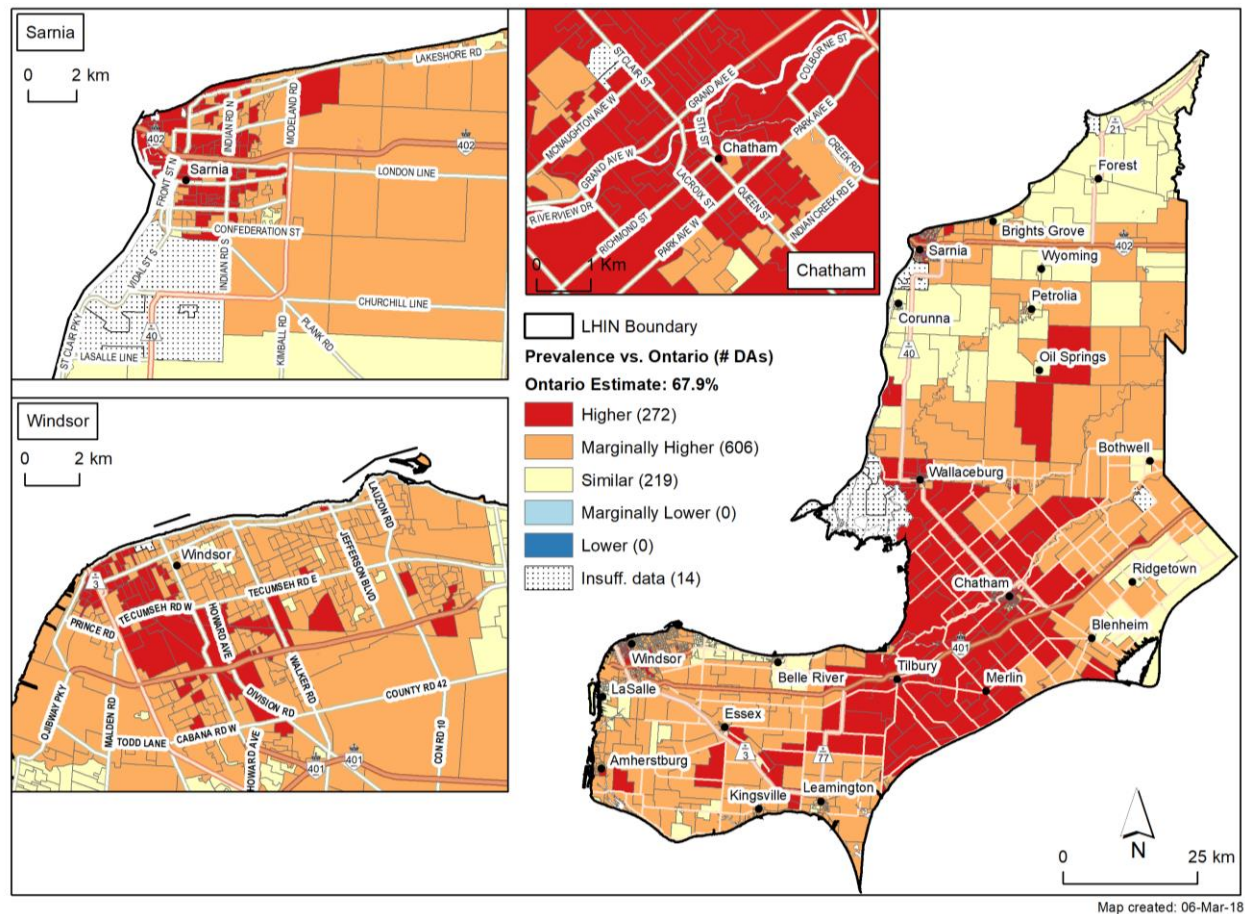
Excess body weight

People age 12 and older

The estimated Ontario prevalence of excess body weight (overweight or obese) was 41% among females and 56% among males.

Higher prevalence than Ontario

For females (n=775; Figure 2.7) and males (n=630; Figure 2.8), there were many areas with a higher prevalence of excess body weight than the Ontario average throughout the LHIN, including areas throughout Woodstock and in the eastern parts of London. There were more areas with a higher prevalence located throughout Owen Sound for females than for males.

Lower prevalence than Ontario

For both sexes, areas with a lower prevalence of excess body weight than the Ontario average (females: n=88; Figure 2.7; males: n=64; Figure 2.8) tended to be located in London (all parts except those in the east).

Adolescents

Among Ontario adolescents, an estimated 15% of females and 25% of males were overweight or obese.

Higher prevalence than Ontario

For adolescent females (n=51; Figure 2.9), areas with a higher prevalence of excess body weight than the Ontario average tended to be located in the northern tip of the LHIN, northwest of Owen Sound. There were no higher prevalence areas detected for adolescent males, which is why that map is not shown.

Lower prevalence than Ontario

There were no areas with a lower prevalence of excess body weight than the Ontario average for adolescent females.

Figure 2.7 Excess body weight (overweight/obese) among females (age 12 and older), 2000–2014, South West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
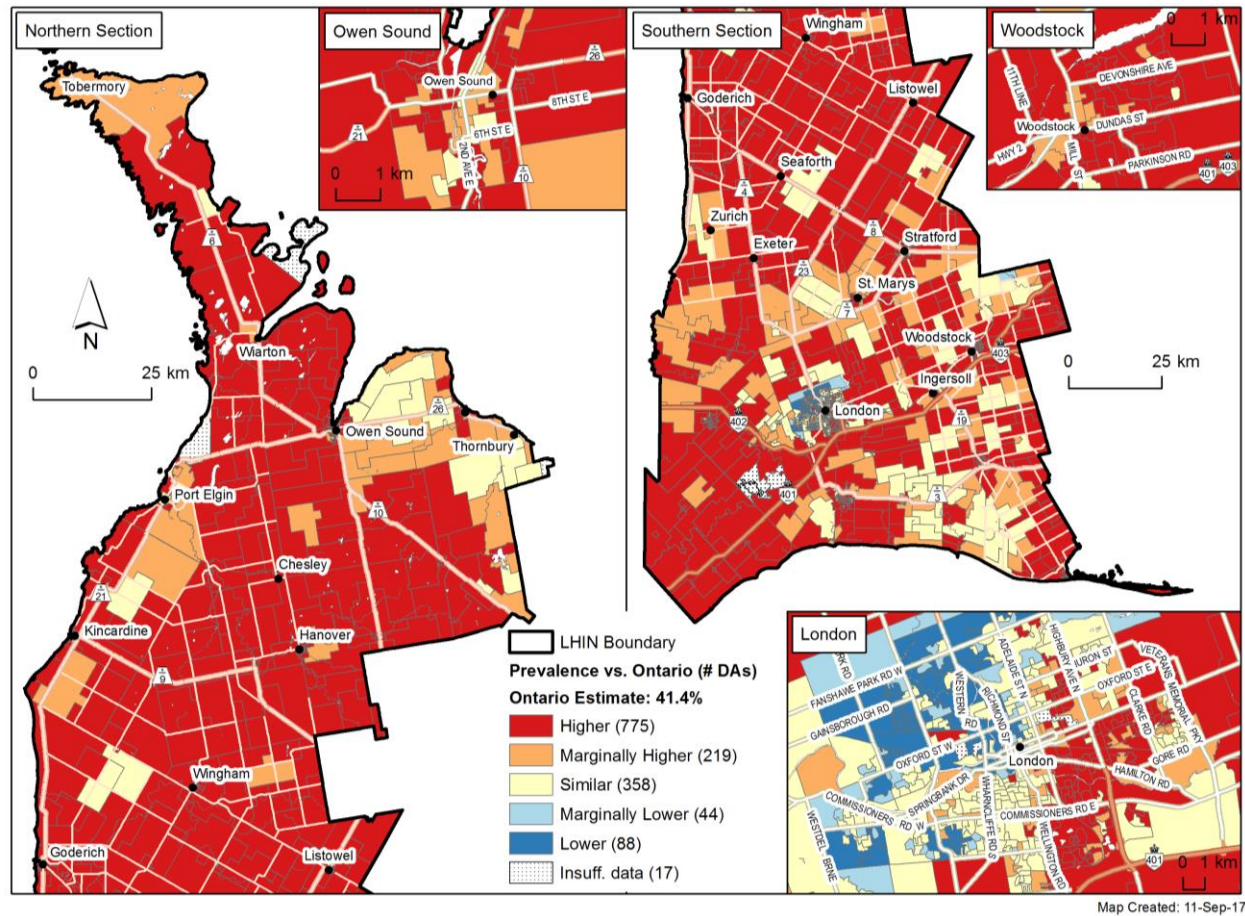
Category	Mean prevalence % (range)
Overall	45.4
Higher	48.8 (44.5, 59.5)
Marginally Higher	44.9 (43.3, 47.2)
Similar	41.8 (38.2, 44.7)
Marginally Lower	38.1 (36.2, 39.5)
Lower	35.7 (30.9, 38.2)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
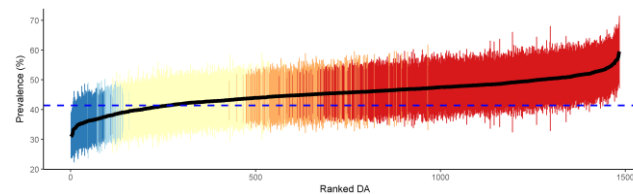
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
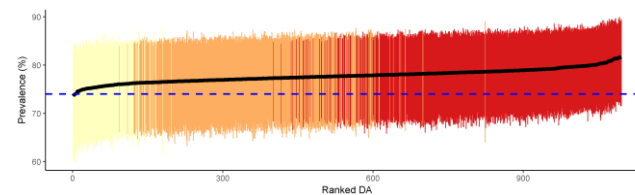
Figure 2.8 Excess body weight (overweight/obese) among males (age 12 and older), 2000–2014, South West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
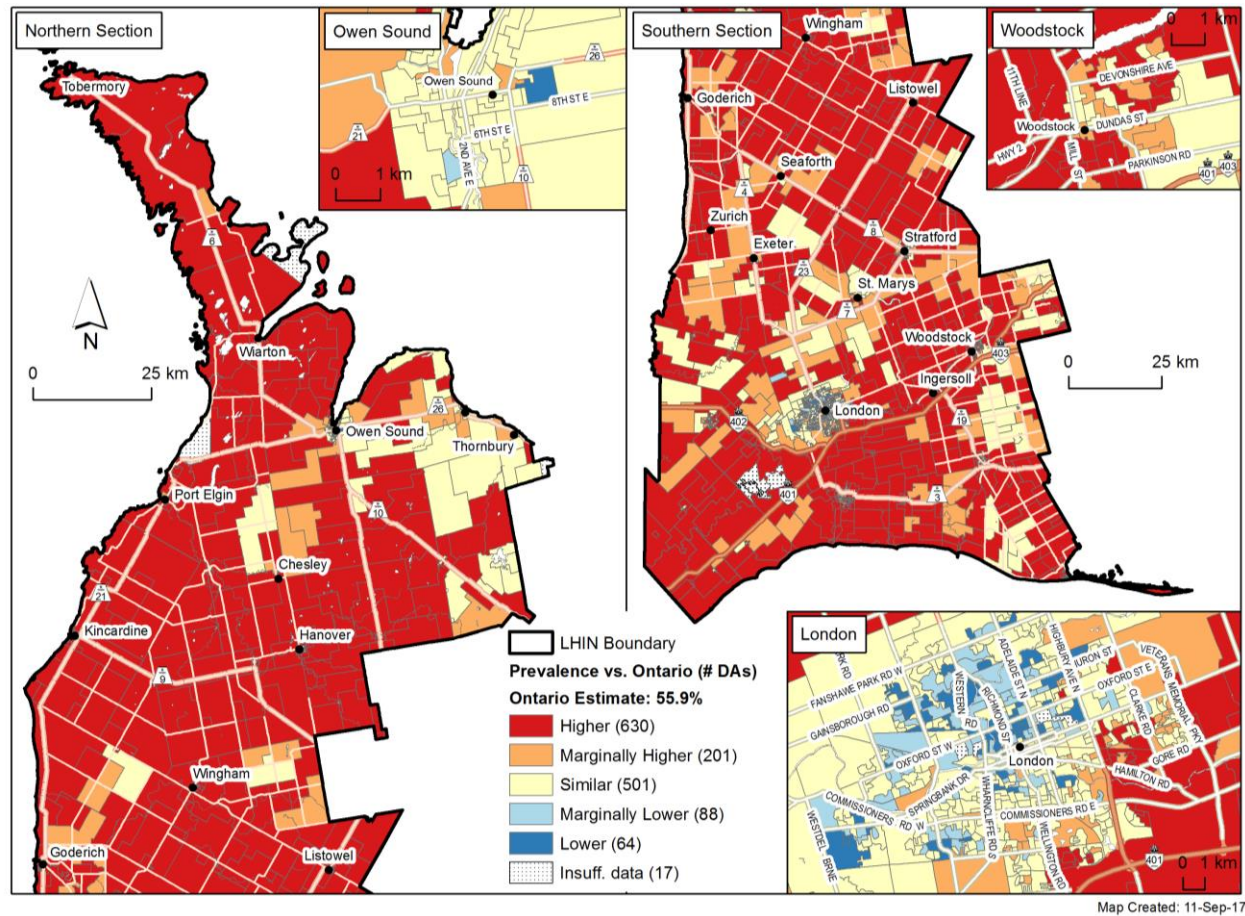
Category	Mean prevalence % (range)
Overall	58.4
Higher	61.7 (58.9, 70.7)
Marginally Higher	58.7 (57.7, 60.1)
Similar	56.1 (53.2, 58.6)
Marginally Lower	53.1 (51.1, 54.1)
Lower	51.2 (47.9, 52.8)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
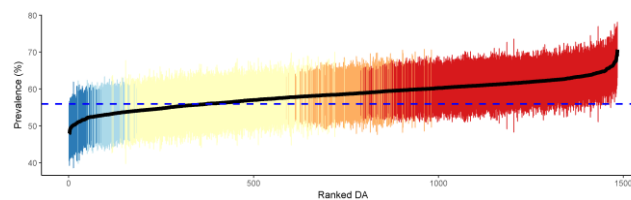
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 2.9 Excess body weight (overweight/obese) among adolescent females (ages 12 to 18), 2000–2014, South West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	17.1
Higher	20.6 (18.9, 24.4)
Marginally Higher	18.4 (17.5, 20.2)
Similar	16.7 (14.9, 19.2)
Marginally Lower	N/A
Lower	N/A

N/A = no estimates in the category

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Inadequate vegetable and fruit consumption

People age 12 and older

Inadequate consumption of vegetables and fruits was common across Ontario, with approximately 63% of females and 77% of males reporting inadequate consumption.

Higher prevalence than Ontario

For females, most areas with a higher prevalence of inadequate vegetable and fruit consumption than the Ontario average (n=333; Figure 2.10) were located in the southern half of the LHIN, in and southeast of London and in Woodstock, but with a few additional areas in Owen Sound and near Hanover. For males, higher prevalence areas (n=531; Figure 2.11) were located in the central part of the LHIN near Hanover, Wingham and Listowel, as well as towards the southern boundary of the LHIN, predominantly in and south of London and Woodstock. A few higher prevalent areas were also detected in Owen Sound.

Lower prevalence than Ontario

Areas with a lower prevalence of inadequate consumption were more common among females (n=181; Figure 2.10) than males (n=24; Figure 2.11). For females, these areas were located in the northern half of the LHIN, particularly near Port Elgin and Kincardine, and in the southern half of the LHIN near Goderich, Seaforth, Exeter, St. Mary's and Stratford. Several lower prevalence areas were also located towards northwestern London. For males, lower prevalence areas were located in northern London, with a few additional areas scattered throughout the northern part of the LHIN.

Adolescents

More than two-thirds of the adolescent Ontario population had inadequate vegetable and fruit consumption, at approximately 68% for females and 74% for males.

Higher prevalence than Ontario

Areas with a higher prevalence of inadequate vegetable and fruit consumption than the Ontario average were relatively uncommon in the South West LHIN for adolescent females (n=61; Figure 2.12) and adolescent males (n=109; Figure 2.13) For adolescent females, these areas were located south of Ingersoll, but for adolescent males these areas were located south and west of London.

Lower prevalence than Ontario

There were very few areas with a lower prevalence of inadequate vegetable and fruit consumption for adolescent females (n=16; Figure 2.12) and adolescent males (n=2; Figure 2.13). For adolescent females, many of these areas were located near Port Elgin.

Figure 2.10 Inadequate vegetable and fruit consumption among females (age 12 and older), 2000–2014, South West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
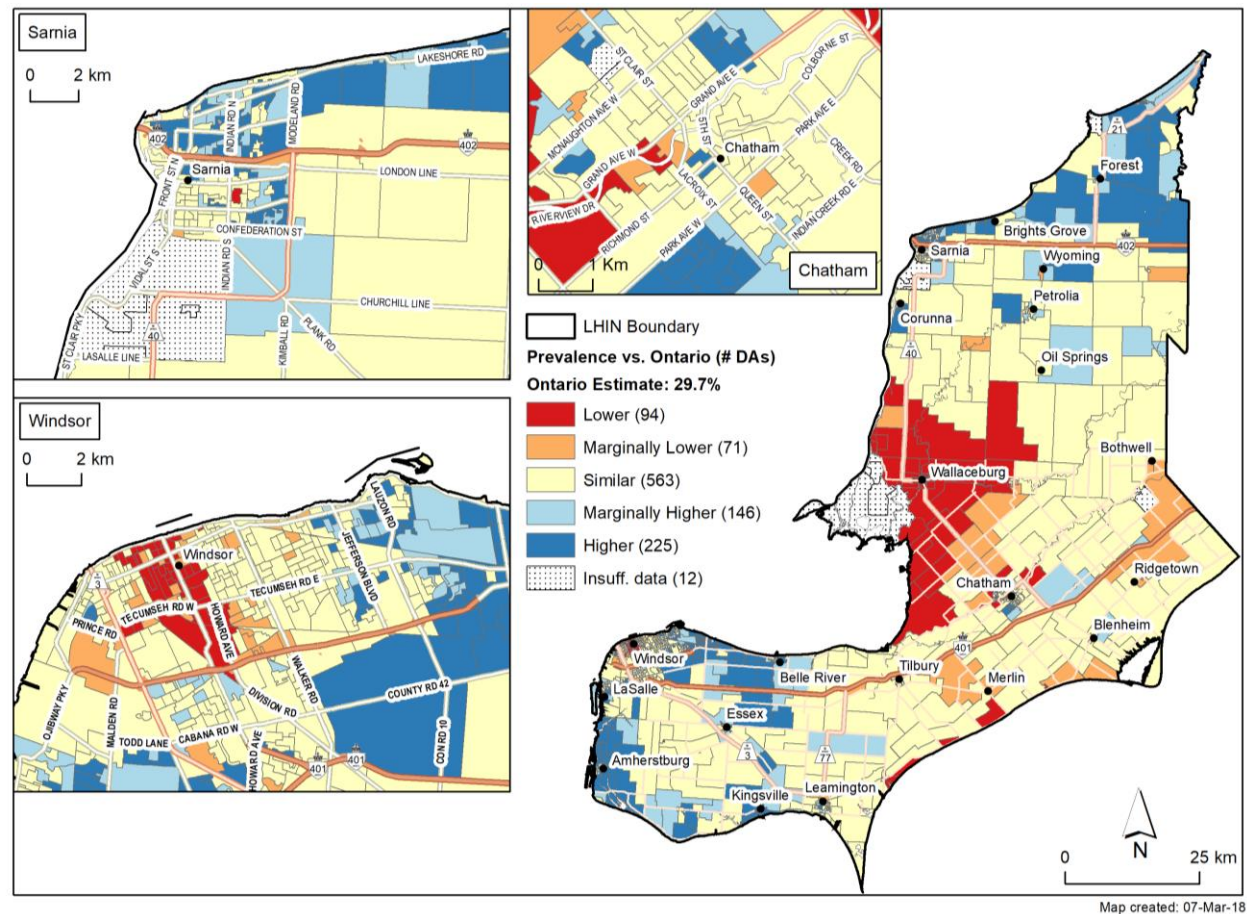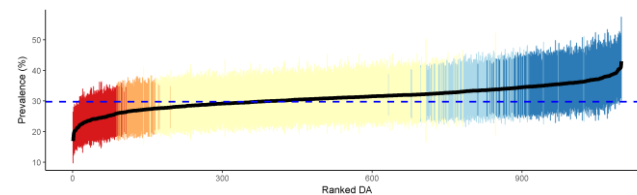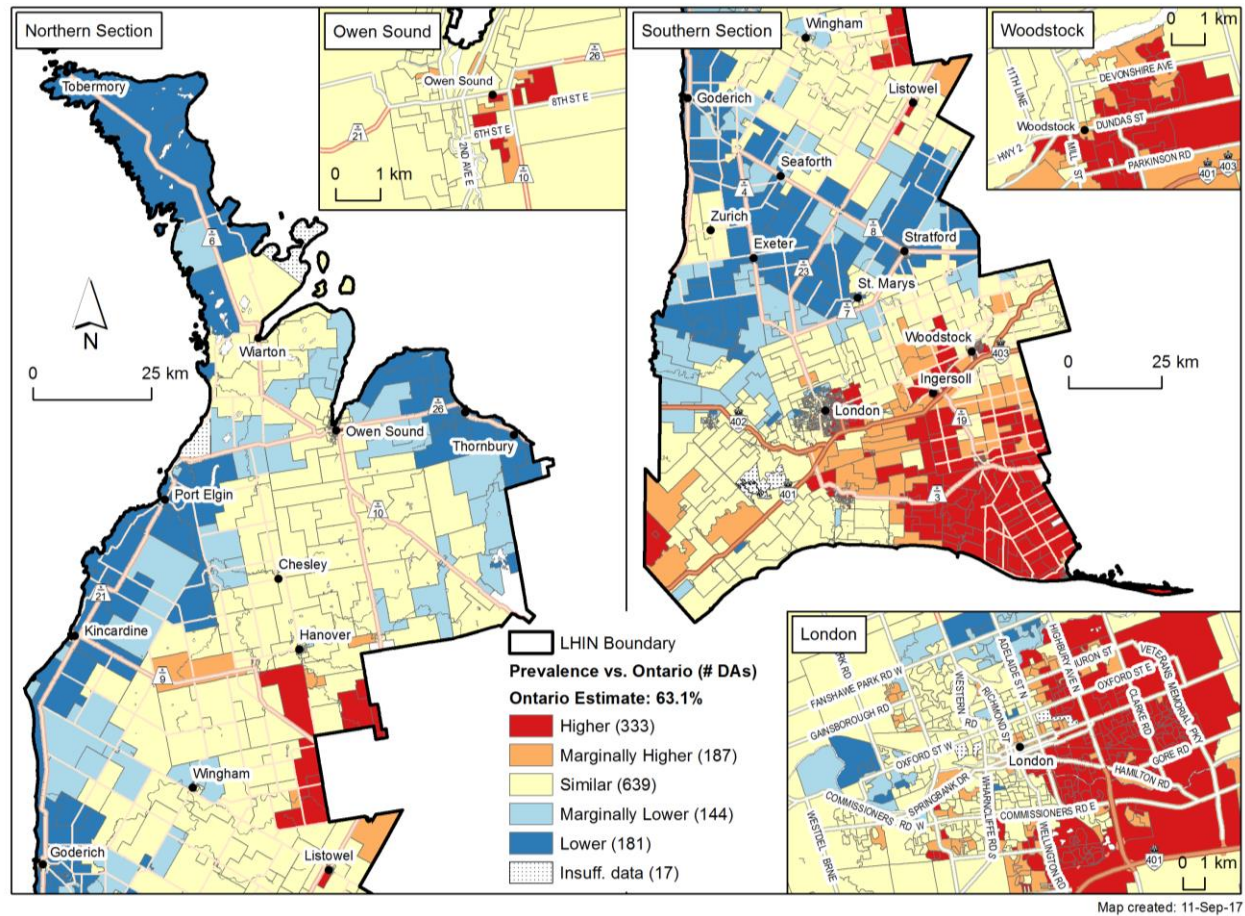

Category	Mean prevalence % (range)
Overall	63.7
Higher	68.9 (66.1, 74.6)
Marginally Higher	66.2 (65.0, 67.6)
Similar	63.1 (60.1, 66.3)
Marginally Lower	59.6 (55.7, 60.9)
Lower	56.5 (48.9, 59.7)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
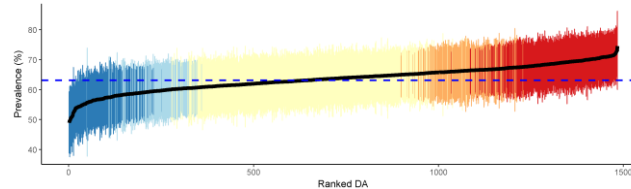
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 2.11 Inadequate vegetable and fruit consumption among males (age 12 and older), 2000–2014, South West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
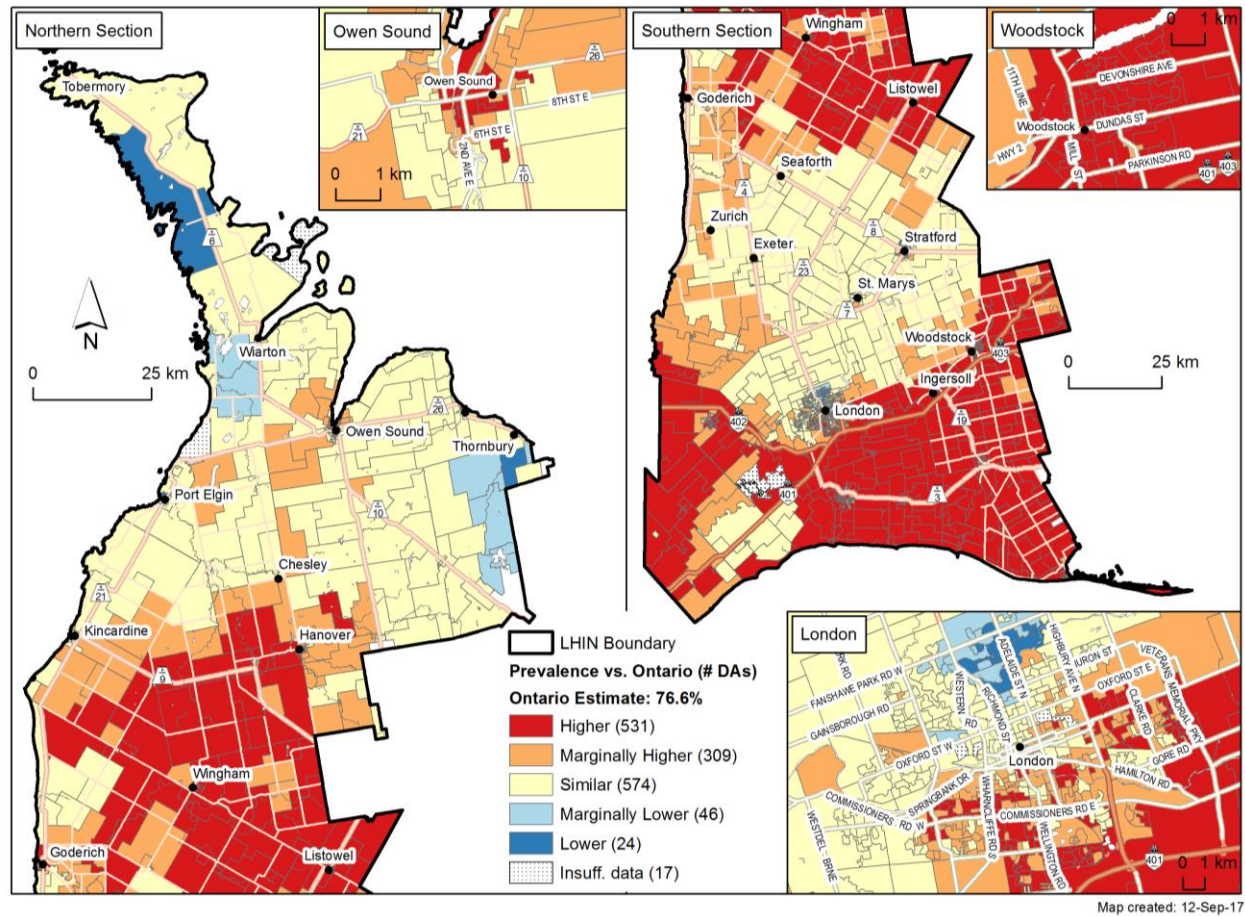
Category	Mean prevalence % (range)
Overall	78.4
Higher	80.7 (79.0, 83.8)
Marginally Higher	78.8 (77.9, 80.3)
Similar	76.8 (74.1, 78.6)
Marginally Lower	73.8 (72.7, 74.7)
Lower	72.0 (70.3, 73.8)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
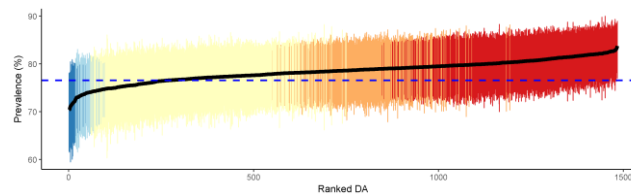
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 2.12 Inadequate vegetable and fruit consumption among adolescent females (ages 12 to 18), 2000–2014, South West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	67.7
Higher	73.2 (72.2, 74.9)
Marginally Higher	71.8 (70.5, 74.1)
Similar	67.3 (63.2, 71.3)
Marginally Lower	63.3 (61.1, 64.7)
Lower	61.1 (60.0, 62.0)

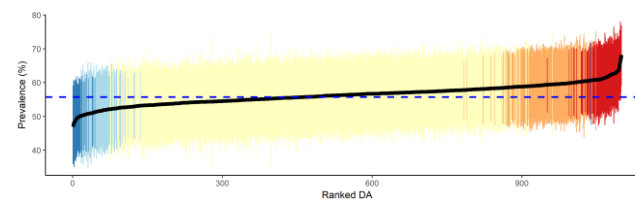Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
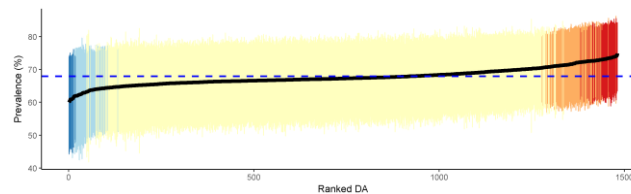
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 2.13 Inadequate vegetable and fruit consumption among adolescent males (ages 12 to 18), 2000–2014, South West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	75.0
Higher	78.3 (77.5, 79.7)
Marginally Higher	76.7 (75.8, 78.1)
Similar	74.1 (69.8, 76.7)
Marginally Lower	70.4 (68.4, 71.2)
Lower	68.6 (67.9, 69.2)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Physical activity

Because physical activity reduces cancer risk, lower prevalence estimates of this risk factor are of interest. The colour scheme of the maps was inverted so that the "lower than Ontario" estimates are displayed in red.

People age 12 and older

Most of the Ontario population was not physically active, with approximately one in five (23%) females and one in three (30%) males being physically active.

Lower prevalence than Ontario

There were fewer areas with a lower prevalence of physical activity than the Ontario average among females (n=106; Figure 2.14), compared to males (n=293; Figure 2.15). For females, these areas were scattered throughout the LHIN, with some clustering in London and Woodstock. For males, most areas were located towards the central part of the LHIN around Hanover, Wingham and Listowel. Additional areas were located in Woodstock and London, and near Ingersoll.

Higher prevalence than Ontario

For females (n=289; Figure 2.14), areas with a higher prevalence of physical activity than the Ontario average were located in the northern and southern halves of the LHIN, particularly around Owen Sound, Port Elgin, Thornbury, Chesley, Kincardine, Exeter and St. Mary's. Additional areas were located in London and southeast of London. For males (n=154; Figure 2.15), these areas were located near Wiarton and Thornbury, in Owen Sound and London, and scattered throughout the most southern half of the LHIN.

Adolescents

Adolescents were more physically active than adults, with approximately 40% of adolescent females and 57% of adolescent males being active.

Lower prevalence than Ontario

Across the South West LHIN, there were no areas with a lower prevalence of physical activity than the Ontario average for adolescent females, which is why that map is not shown. For adolescent males (n=120; Figure 2.16), most of the lower prevalence areas were located in the central part of the LHIN, along its eastern boundary, between Hanover and Stratford. Additional areas were located throughout Woodstock and surrounding Ingersoll.

Higher prevalence than Ontario

Among adolescent males (Figure 2.16), only one area of higher prevalence was detected southwest of London.

Figure 2.14 Physical activity among females (age 12 and older), 2000–2014, South West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
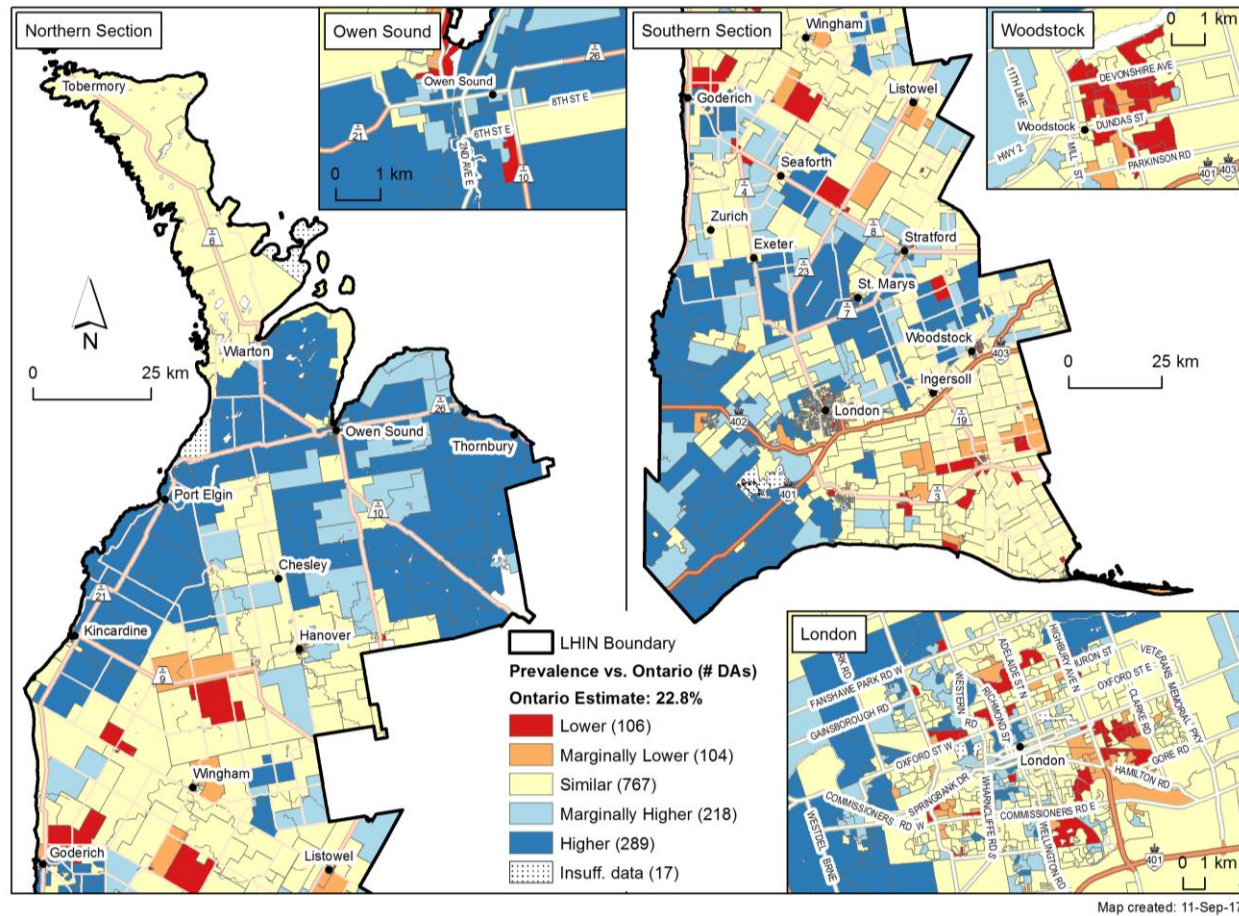
Category	Mean prevalence % (range)
Overall	24.2
Lower	18.1 (12.0, 20.0)
Marginally Lower	20.3 (19.2, 21.1)
Similar	23.3 (20.6, 26.4)
Marginally Higher	26.1 (24.9, 28.7)
Higher	28.6 (26.2, 36.5)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
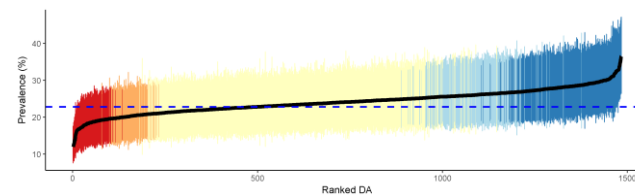
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
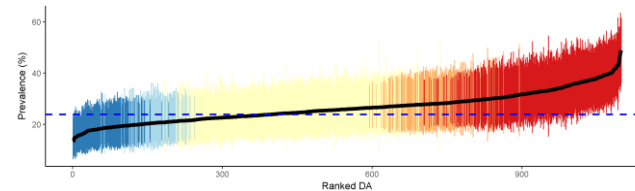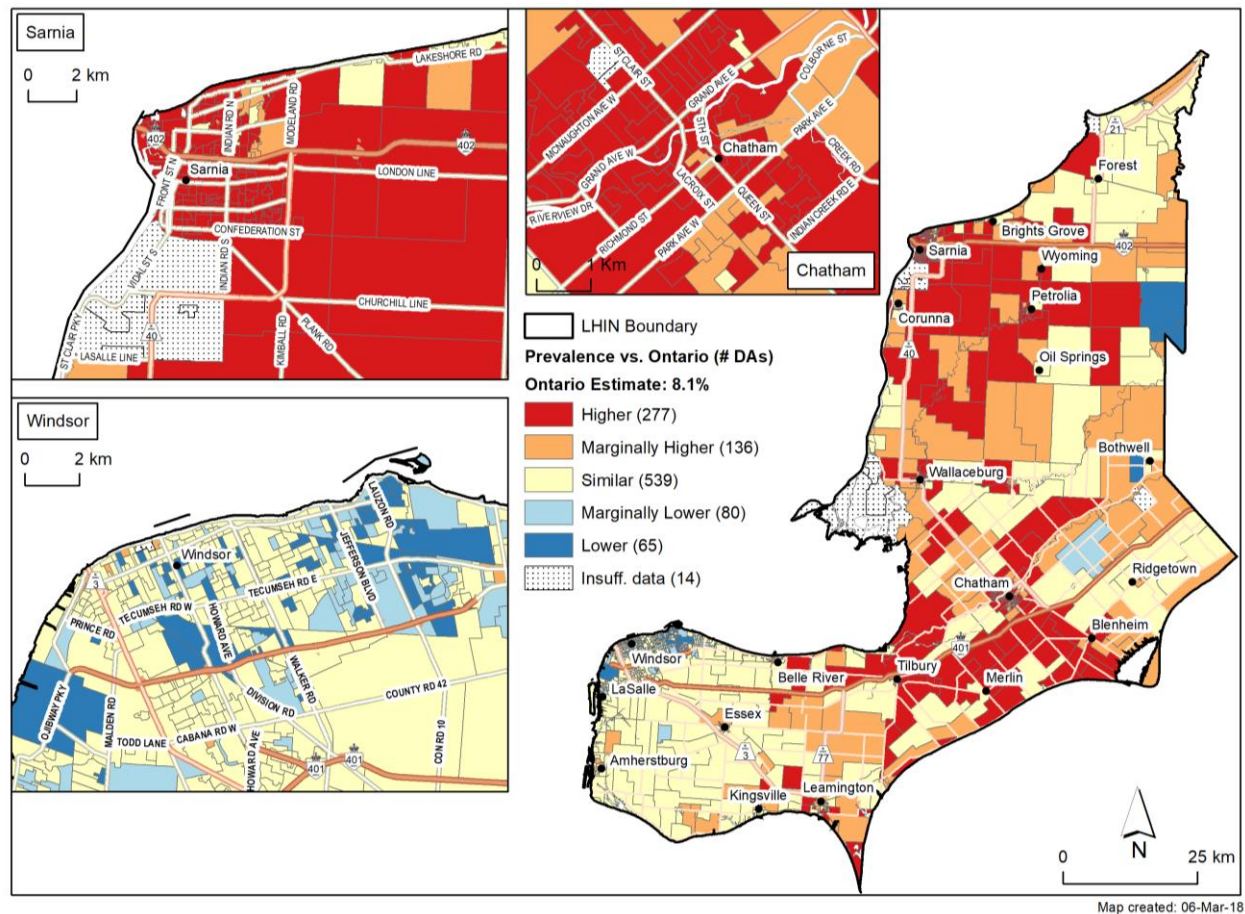
Figure 2.15 Physical activity among males (age 12 and older), 2000–2014, South West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	29.3
Lower	24.0 (16.6, 26.8)
Marginally Lower	27.0 (25.9, 28.1)
Similar	29.9 (27.2, 33.4)
Marginally Higher	33.2 (31.9, 35.4)
Higher	35.5 (33.3, 40.8)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
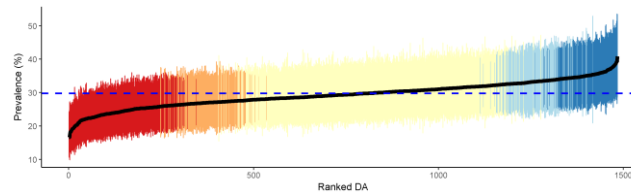
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
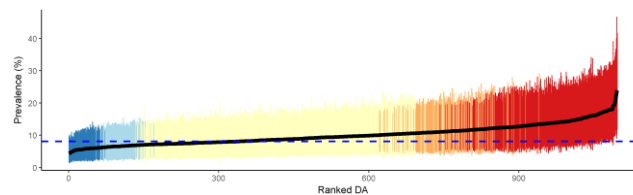
Figure 2.16 Physical activity among adolescent males (ages 12 to 18), 2000–2014, South West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
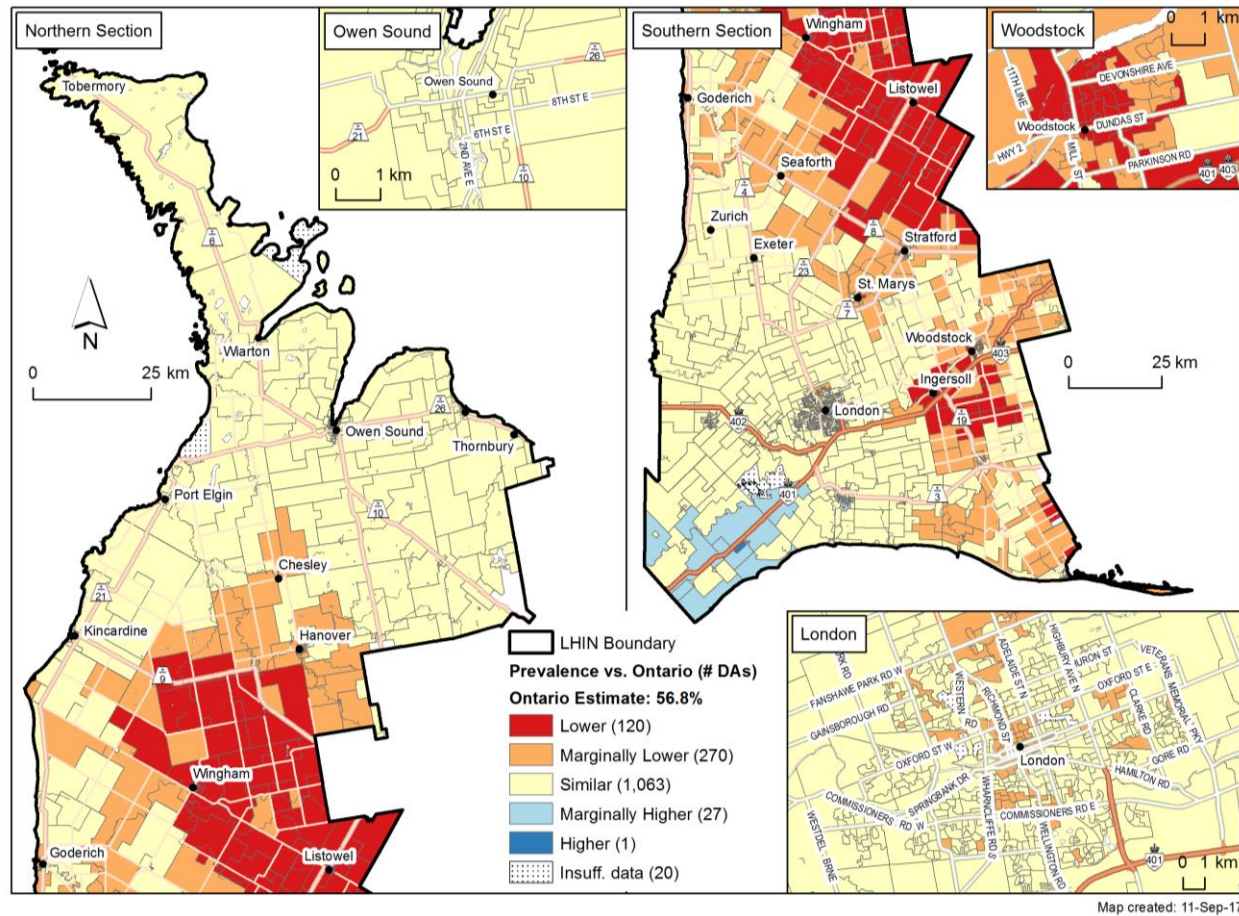
Category	Mean prevalence % (range)
Overall	54.6
Lower	50.4 (48.2, 52.1)
Marginally Lower	52.7 (50.0, 53.8)
Similar	55.4 (52.6, 60.3)
Marginally Higher	60.3 (59.6, 62.0)
Higher	62.6 (62.6, 62.6)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
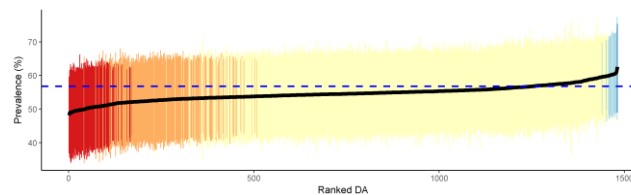
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Sedentary behaviour

People age 12 and older

Approximately half of the Ontario population reported sedentary behaviour during leisure time (females, 49%; males, 56%).

Higher prevalence than Ontario

Across the LHIN, there were relatively few areas with a higher prevalence of sedentary behaviour than the Ontario average for females (n=46; Figure 2.17) and males (n=73; Figure 2.18). For females, these areas were located throughout London, in parts of Owen Sound and Woodstock and near the northern tip of the LHIN. For males, the few areas with higher prevalence were located throughout London and along Devonshire Avenue in Woodstock.

Lower prevalence than Ontario

Areas with a lower prevalence of sedentary behaviour were less common among females (n=221; Figure 2.17) than males (n=449; Figure 2.18). For females, these areas were more common in the central part of the LHIN, ranging from Port Elgin south to St. Mary's. Additional areas were located west and south of London, as well as east of Woodstock. For males, the higher prevalence areas were also located throughout the central part of the LHIN, but were more extensively distributed from Owen Sound south to Ingersoll.

Adolescents

More than half of the Ontario adolescent population reported sedentary behaviour during leisure time, at approximately 55% for females and 60% for males. In the South West LHIN, no areas of higher prevalence than the Ontario average among adolescents were evident, which is why those maps are not shown.

Figure 2.17 Sedentary behaviour among females (age 12 and older), 2000–2014, South West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
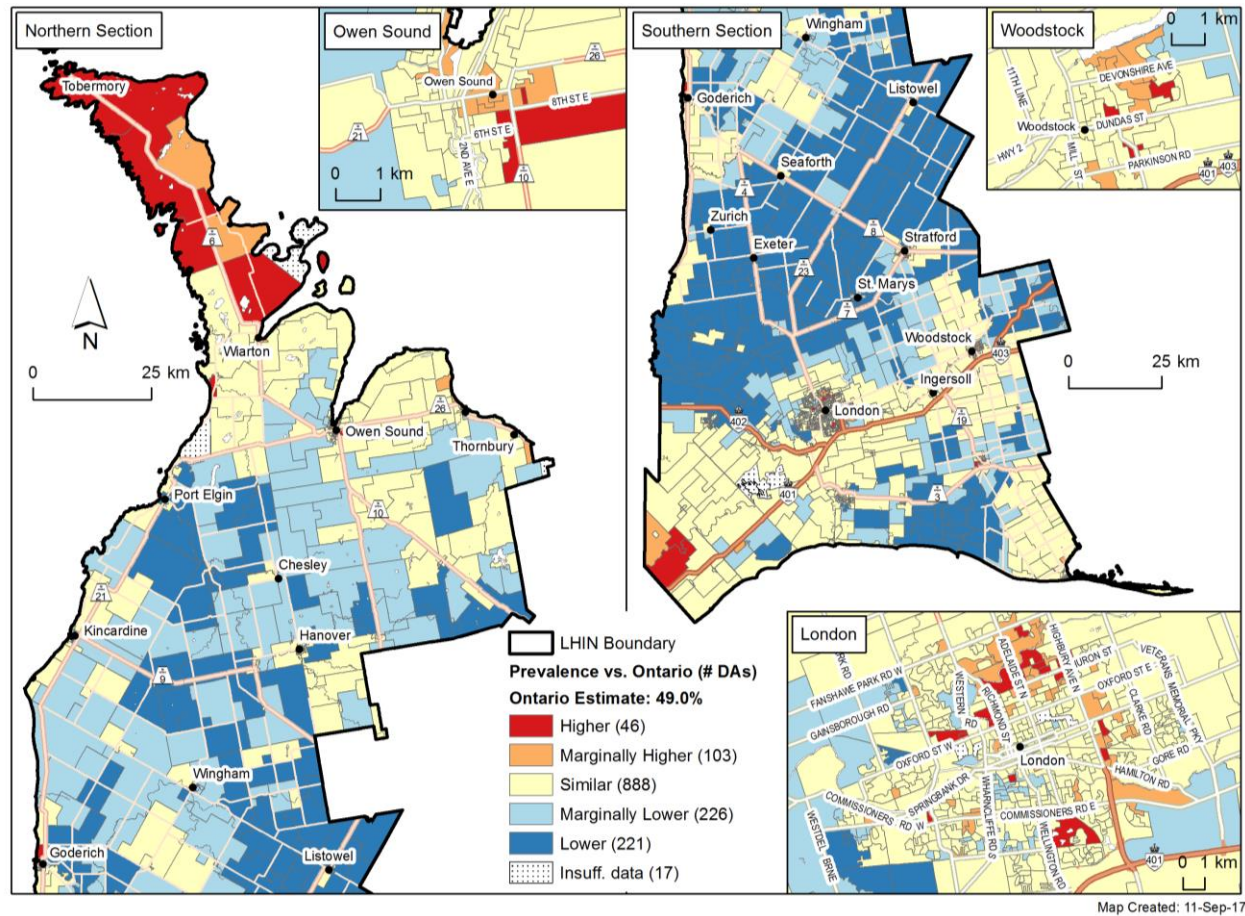
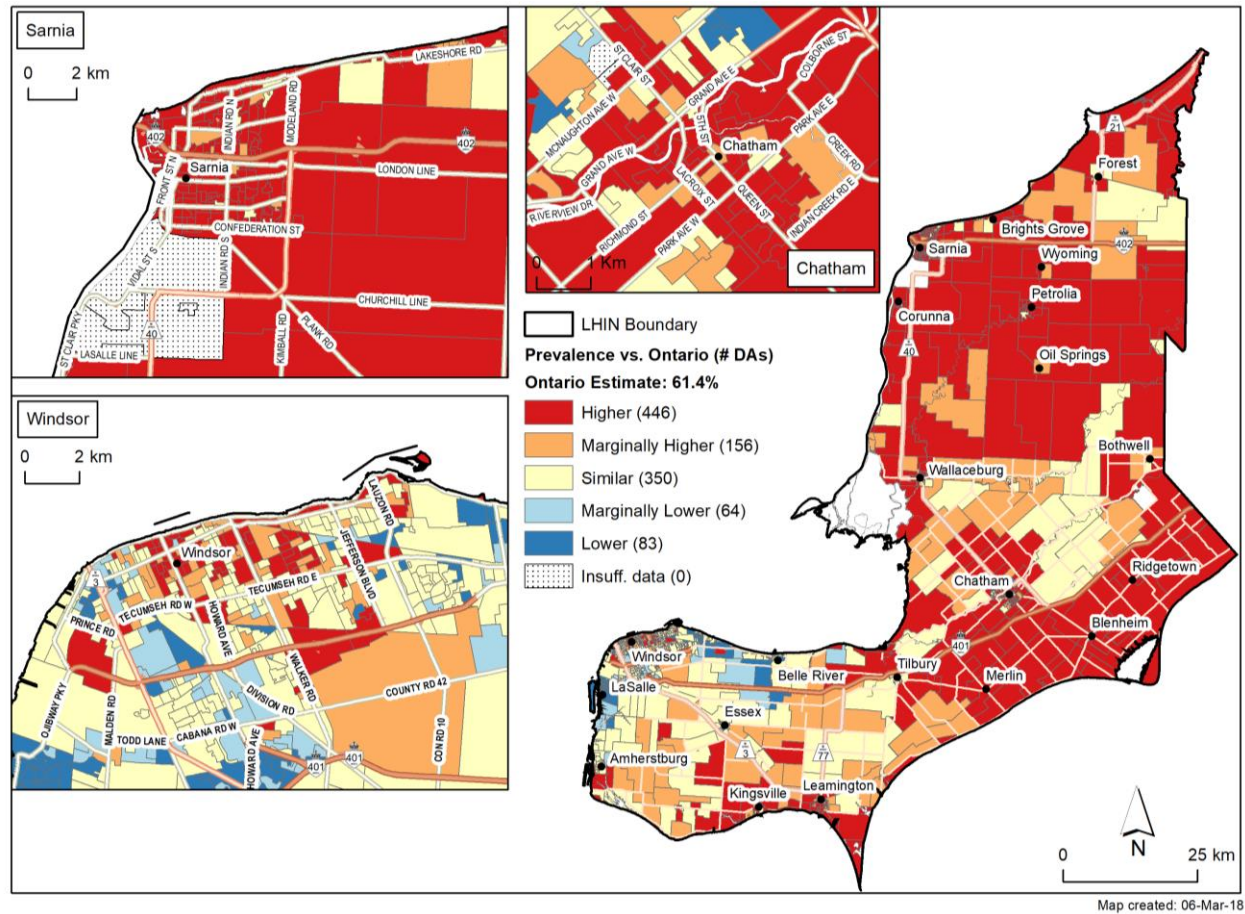| Category	Mean prevalence % (range)
Overall	47.9
Higher	54.6 (52.3, 59.5)
Marginally Higher	52.3 (51.3, 53.9)
Similar	48.8 (45.6, 52.4)
Marginally Lower	45.8 (43.6, 47.0)
Lower	43.4 (37.4, 45.6)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
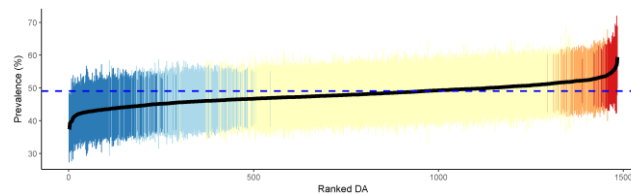
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 2.18 Sedentary behaviour among males (age 12 and older), 2000–2014, South West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
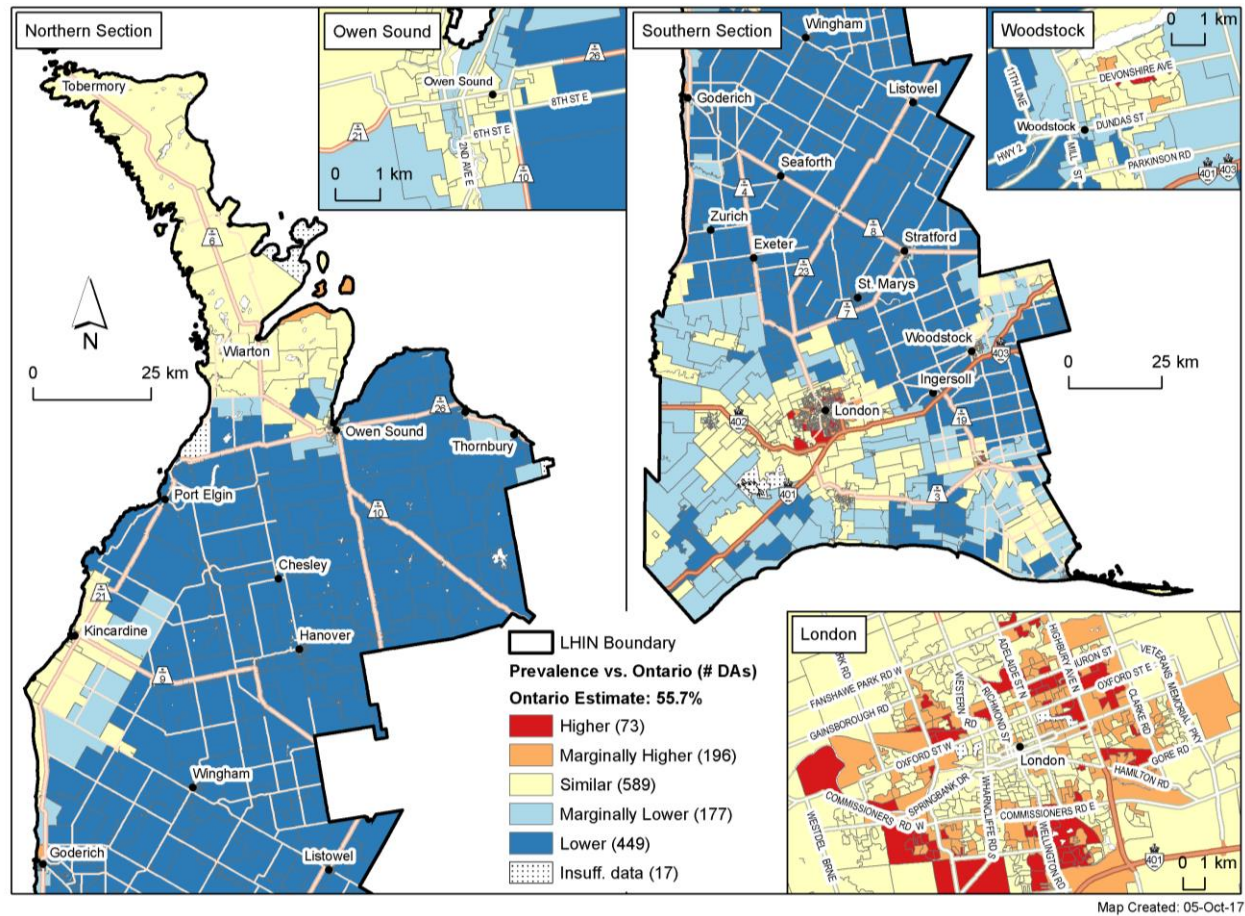
| Category	Mean prevalence % (range)
Overall	53.6
Higher	61.1 (59.6, 64.1)
Marginally Higher	59.4 (58.1, 61.0)
Similar	55.9 (52.1, 59.5)
Marginally Lower	51.7 (49.6, 53.1)
Lower	47.4 (32.6, 51.5)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
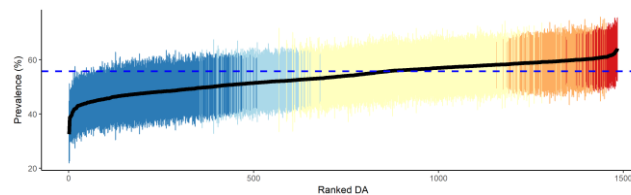
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Smoking: current status

People age 12 and older

Current tobacco smoking was reported by 17% of Ontario females and 24% of males.

Higher prevalence than Ontario

For females (n=501; Figure 2.19) and males (n=357; Figure 2.20), areas with a higher prevalence of current smoking than the Ontario average were located throughout Owen Sound, Woodstock and London, and towards the southern boundary of the LHIN. For females, additional areas were located near Hanover to the eastern boundary of the LHIN, as well as near Wingham and Goderich. For males, higher prevalence areas tended to be located in the southeastern tip of the LHIN. Additional areas for males were located near Seaforth.

Lower prevalence than Ontario

Areas with a lower prevalence of current smoking than the Ontario average were primarily located in the southern half of the LHIN for females (n=147; Figure 2.19), with many areas located west of and in London, and north of Stratford. For males, lower prevalence areas (n=260; Figure 2.20) were also located west of and in London, as well as in the northern part of the LHIN near Kincardine, Port Elgin and Wiarton. Some areas were located in Owen Sound.

Adolescents

Approximately 8% of adolescent females and adolescent males in Ontario reported that they currently smoked tobacco.

Higher prevalence than Ontario

Areas with a higher prevalence of current smoking than the Ontario average were far less common for adolescent females (n=90; Figure 2.21), compared to adolescent males (n=442; Figure 2.22). For adolescent females, these areas were scattered throughout the LHIN, but were more prominent in the southern half of the LHIN. For adolescent males, higher prevalence areas were detected throughout most of the LHIN, with the exception of the northern tip. Many areas for adolescent males were located near Hanover, Wingham, Listowel, Seaforth, Zurich, Stratford, St. Mary's and Ingersoll, and throughout Woodstock and London. A few higher prevalence areas for adolescent males were also located in Owen Sound.

Lower prevalence than Ontario

For adolescent females (n=57; Figure 2.21) and adolescent males (n=11; Figure 2.22), most areas with a lower prevalence of current smoking than the Ontario average were primarily located in London.

Figure 2.19 Current smoking among females (age 12 and older), 2000–2014, South West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
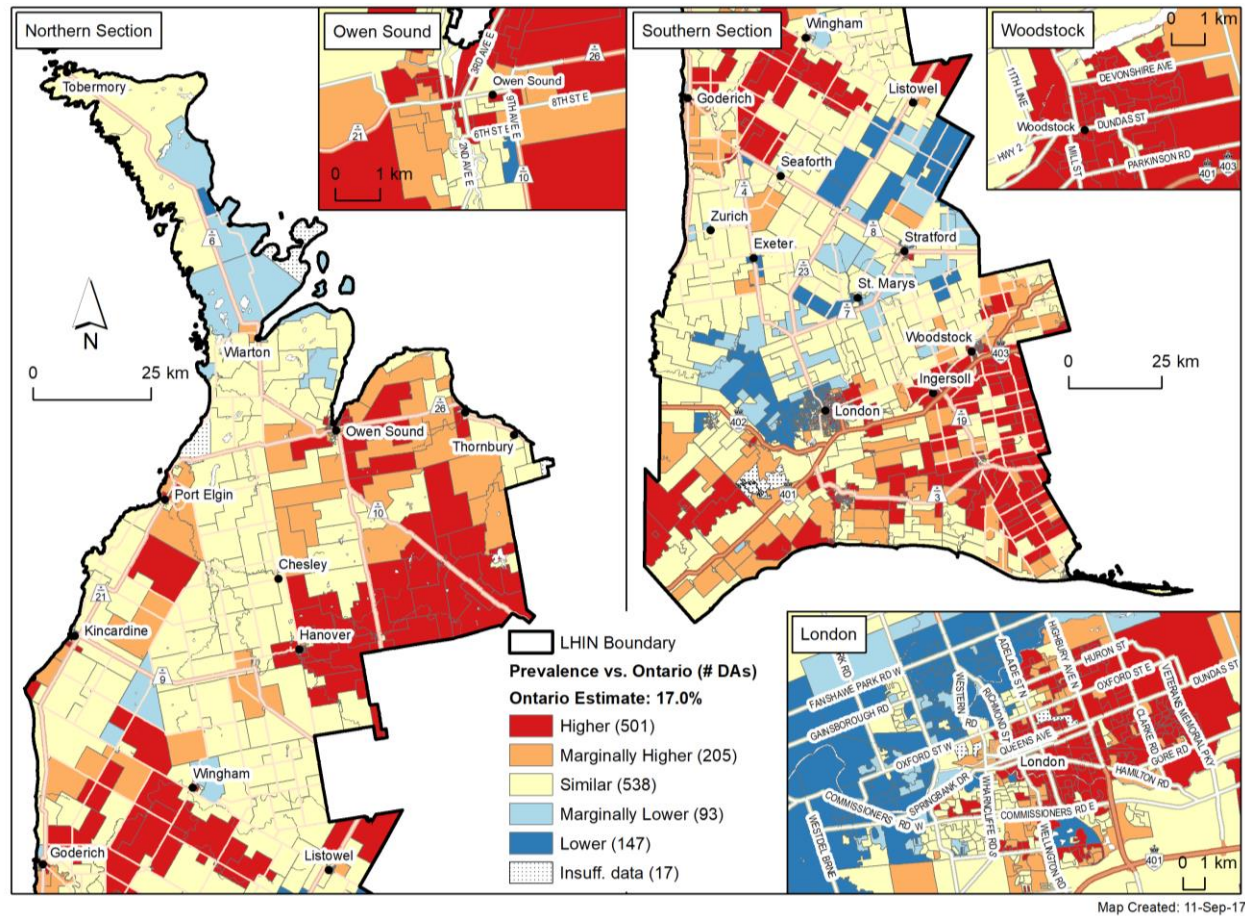
Category	Mean prevalence % (range)
Overall	19.9
Higher	25.2 (19.8, 38.6)
Marginally Higher	20.7 (19.4, 23.4)
Similar	17.8 (14.9, 21.3)
Marginally Lower	14.5 (12.7, 15.6)
Lower	12.3 (8.5, 14.5)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
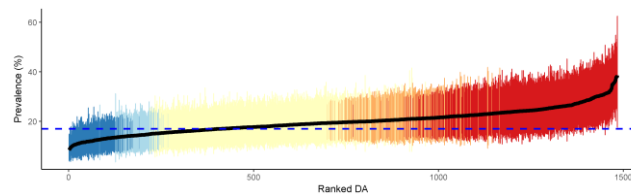
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 2.20 Current smoking among males (age 12 and older), 2000–2014, South West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	25.3
Higher	32.9 (27.9, 50.6)
Marginally Higher	27.9 (26.1, 31.0)
Similar	24.5 (20.9, 29.5)
Marginally Lower	20.8 (18.5, 21.9)
Lower	16.9 (10.5, 20.7)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
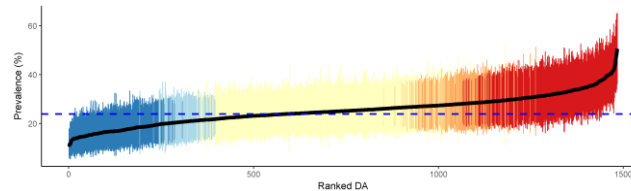
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 2.21 Current smoking among adolescent females (ages 12 to 18), 2000–2014, South West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	9.0
Higher	12.6 (10.8, 17.8)
Marginally Higher	11.0 (10.0, 12.7)
Similar	8.8 (6.9, 11.1)
Marginally Lower	6.7 (6.2, 7.2)
Lower	5.6 (1.8, 6.4)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 2.22 Current smoking among adolescent males (ages 12 to 18), 2000–2014, South West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	10.8
Higher	13.0 (11.1, 19.4)
Marginally Higher	11.1 (10.0, 12.5)
Similar	9.3 (7.2, 11.9)
Marginally Lower	7.1 (6.9, 7.3)
Lower	5.6 (1.4, 6.4)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
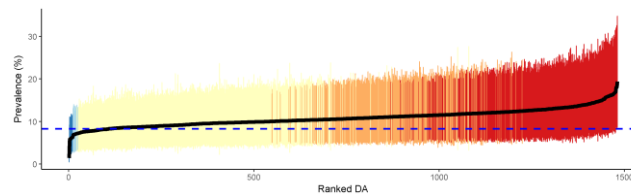
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Smoking: ever-smoked status

People age 12 and older

Approximately one in two Ontario females and three in five Ontario males reported having ever-smoked.

Higher prevalence than Ontario

For females (n=998; Figure 2.23) and males (n=900; Figure 2.24), most areas across the LHIN had a higher prevalence of ever-smoked status than the Ontario average. For both sexes, there were fewer high prevalence areas located along the eastern boundary of the central part of the LHIN. For females, more higher prevalence areas were located in London compared to males.

Lower prevalence than Ontario

For females (n=31; Figure 2.23), areas with a lower prevalence of ever-smoked status than the Ontario average were located east of Wingham, south of Listowel and throughout parts of London. For males (n=60; Figure 2.24), many lower prevalence areas were located in London.

Adolescents

The area-based prevalence of ever-smoked status was not estimated for adolescent populations.

Figure 2.23 Ever-smoked status among females (age 12 and older), 2000–2014, South West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
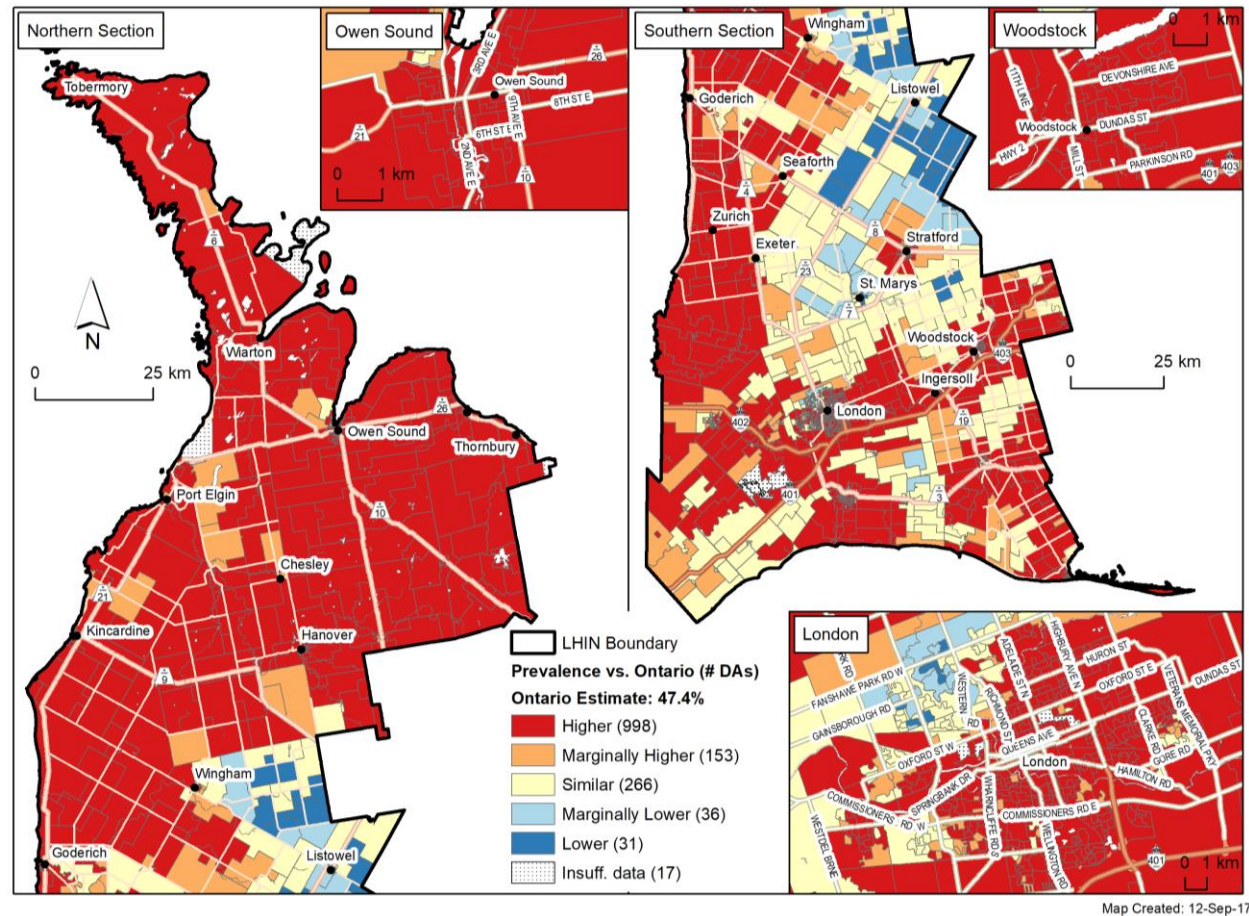
Category	Mean prevalence % (range)
Overall	53.9
Higher	56.7 (50.4, 69.0)
Marginally Higher	51.4 (49.5, 53.8)
Similar	48.0 (43.8, 52.2)
Marginally Lower	43.9 (42.4, 45.1)
Lower	40.5 (35.8, 43.4)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
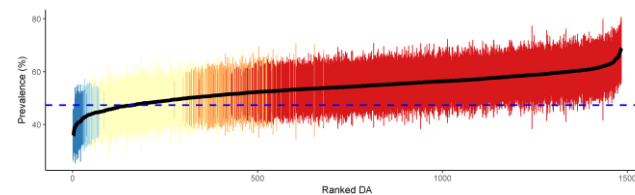
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 2.24 Ever-smoked status among males (age 12 and older), 2000–2014, South West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	65.8
Higher	68.5 (64.1, 82.3)
Marginally Higher	64.3 (62.9, 66.9)
Similar	61.6 (58.0, 64.3)
Marginally Lower	58.3 (56.8, 59.5)
Lower	55.4 (49.7, 58.0)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
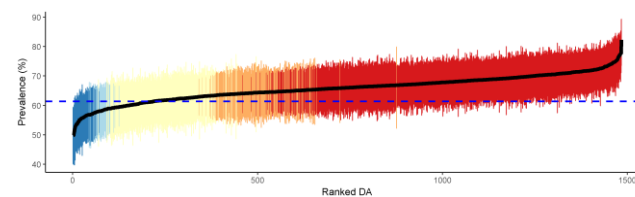
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

LHIN 3
Waterloo
Wellington

3. Waterloo Wellington LHIN

Key Findings

Top three priority risk factor population estimates by sex (see Table 3.1 below):

Females
- Alcohol—current consumption
- Smoking—ever-smoked status
- Excess body weight

Males
- Alcohol—current consumption
- Smoking—ever-smoked status
- Inadequate vegetable and fruit consumption

Risk factor summary

Alcohol—current consumption
- *Priority areas:*
  - Females: most areas in the southeastern part of the LHIN, including most areas in Guelph, Kitchener-Waterloo and Cambridge
  - Males: many areas in the southeastern part of the LHIN, including many areas throughout Guelph and Kitchener-Waterloo and some parts of Cambridge; and areas to the east of Fergus
  - Adolescent females: areas dispersed across the LHIN and many areas throughout Guelph, Kitchener-Waterloo and Cambridge
  - Adolescent males: areas dispersed across the LHIN and many areas throughout Guelph, Kitchener-Waterloo and Cambridge

Alcohol—consumption exceeding cancer prevention recommendations
- *Priority areas:*
  - Females: few areas across the LHIN; some parts of Guelph and Kitchener-Waterloo
  - Males: areas throughout the northern and southern tips of the LHIN, as well as along the eastern boundary of the LHIN., and many parts of Guelph, Kitchener-Waterloo and Cambridge

Excess body weight
- *Priority areas:*
  - Females: many areas in the northern half of the LHIN, areas northwest of Cambridge and south of Kitchener
  - Males: areas in the northern half of the LHIN, some areas southwest of Cambridge and south of Kitchener-Waterloo, and areas surrounding New Hamburg and Fergus

[Inadequate vegetable and fruit consumption](#)
Priority areas:
- Females: clusters of areas in Cambridge and Kitchener-Waterloo, and areas near Palmerston and Mount Forest
- Males: many areas throughout Cambridge towards the south of Kitchener-Waterloo and areas near Palmerston and north of Mount Forest

[Physical activity](#)
Priority areas:
- Females: few areas across the LHIN, with areas throughout Kitchener-Waterloo and northwest of Cambridge
- Males: many areas along the western boundary of the LHIN, Kitchener-Waterloo and Cambridge
- Adolescent males: some areas along the western boundary of the LHIN and southern Kitchener

[Sedentary behaviour](#)
Priority areas:
- Females: some parts of Guelph and Kitchener-Waterloo
- Males: one area near New Hamburg

[Smoking—current](#)
Priority areas:
- Females: many areas throughout Guelph, Cambridge and Kitchener-Waterloo, and areas in the northern tip of the LHIN near Mount Forest and Palmerston
- Males: many areas throughout Kitchener-Waterloo and clusters in Guelph and Cambridge
- Adolescent females: many areas throughout Guelph and surrounding Guelph, and some parts of Cambridge and Kitchener-Waterloo
- Adolescent males: areas dispersed across the LHIN and some parts of Kitchener-Waterloo

[Smoking—ever-smoked status](#)
Priority areas:
- Females: most areas in the eastern half of the LHIN, including most parts of Guelph, Cambridge and Kitchener-Waterloo
- Males: many areas in the northern and southern tips of the LHIN, most areas east of Fergus, and many parts of Guelph, Cambridge and Kitchener-Waterloo

Introduction

This section describes the estimated local prevalence of risk factors across the LHIN compared to the Ontario prevalence estimates from 2000 to 2014. These comparisons are always relative to Ontario with respect to the level of statistical evidence for the underlying prevalence estimate and often the number of areas meeting specific criteria are presented in parentheses (e.g., n=40). Risk factor maps are presented for females and males age 12 and older, and for adolescent females and adolescent males ages 12 to 18 inclusive. Throughout the text, the terms "area(s)" and "local" refer to the 2006 census dissemination areas (see the Data and Methods section, page 3).

Exclusions

As discussed in the Interpretation section (page 7), maps are shown only for risk factor estimates in the LHIN where one or more local estimates were higher than Ontario (or lower than Ontario for physical activity). Therefore, the risk factor maps not displayed for Waterloo-Wellington LHIN include:

- excess body weight among adolescent females and adolescent males;
- inadequate vegetable and fruit consumption among adolescent females and adolescent males;
- physical activity among adolescent females; and
- sedentary behaviour among adolescent females and adolescent males.

Notes

Risk factor prevalence could not be estimated for several areas in the Waterloo Wellington LHIN (e.g., suppressed census populations or institutionalized populations), which are shown as "insufficient data" on the maps. See Appendix C for a full list of areas in the insufficient data category.

Priority population estimates

Priority population estimates may be helpful in prioritizing health promotion and planning efforts for potential populations affected by certain modifiable risk factors. Table 3.1 (page 103) presents the estimated priority populations for each risk factor by sex and age group in the Waterloo Wellington LHIN. Priority populations are defined as those living in areas with a higher risk factor prevalence (or lower prevalence for physical activity) than Ontario. These estimates were produced by summing the population from all higher (or lower for physical activity) prevalence small areas (2006 dissemination areas) after taking into account the risk factor prevalence of each area. For example, if among females 100 areas had a higher prevalence of current alcohol consumption than Ontario, the female 2006 census populations in each of these areas were multiplied by the prevalence of current alcohol consumption for each area and then summed across the 100 areas to produce an estimate of the female "priority population." These calculations are intended to provide a measure to prioritize the risk factors rather than a population estimate.

According to the Methods (page 4) and Interpretation (page 7) sections, these higher prevalence areas had strong statistical evidence of elevated prevalence compared to Ontario (posterior probabilities ≥ 80%). An exception is physical activity, which had strong statistical evidence of lower prevalence estimates than Ontario (posterior probabilities ≤ 20%). Therefore, the population estimates for each risk factor are likely undercounted

because areas with less statistical certainty (posterior probabilities < 80% and physical activity posterior probabilities > 20%) are not included in the priority population estimates.

Table 3.1 Estimated priority populations among higher prevalence** dissemination areas compared to Ontario by risk factor, sex and age group, Waterloo Wellington Local Health Integration Network (LHIN), using 2006 census populations

Risk factor	Female priority population*†	% of Female population in the LHIN† (n=296,200)	Male priority population*†	% of male population in the LHIN† (n=284,410)	Adolescent female priority population*‡	% of adolescent female population in the LHIN‡ (n=32,850)	Adolescent male priority population*‡	% of adolescent male population in the LHIN‡ (n=34,470)
Alcohol—current consumption	140,790	48%	87,580	31%	5,270	16%	4,790	14%
Alcohol—consumption exceeding cancer prevention recommendations	1,190	0%	13,470	5%	NM	—	NM	—
Excess body weight	39,720	13%	23,230	8%	NE	—	NE	—
Inadequate fruit and vegetable consumption	10,680	4%	49,640	17%	NE	—	NE	—
Physical activity**	3,730	1%	14,320	5%	NP	—	1,660	5%
Sedentary behaviour	8,600	3%	160	0%	NE	—	NE	—
Smoking—current status	16,800	6%	19,660	7%	760	2%	220	1%
Smoking—ever-smoked status	80,130	27%	79,570	28%	NM	—	NM	—

NE = no estimates within the "higher" prevalence categories; NM = not modelled; NP = census population estimates not available
* Estimates rounded to multiples of 10
** For physical activity, priority populations are those living in areas with a lower risk factor prevalence compared to Ontario
† Population age 12 and older
‡ Population ages 12 to 18
— Value not applicable

Alcohol: current consumption

People age 12 and older

An estimated 70% of females and 79% of males in Ontario reported current alcohol consumption.

Higher prevalence than Ontario

For females (n=636, Figure 3.1) and males (n=352, Figure 3.2), most areas with a higher prevalence of current alcohol consumption than the Ontario average were located in the southeastern part of the LHIN. For both sexes, there were many higher prevalence areas throughout Guelph, Cambridge and Kitchener-Waterloo; however, higher prevalence areas were more common in these cities for females than males. For females, there were also many higher prevalence areas located north of Guelph and west of Cambridge and Kitchener-Waterloo.

Lower prevalence than Ontario

For females (n=42; Figure 3.1) and males (n=69; Figure 3.2), most lower prevalence areas were clustered in the central part of the LHIN, west and north of Elmira, and southwest of Arthur. For both sexes, there were a few additional lower prevalence areas located in the Kitchener-Waterloo area.

Adolescents

Among the adolescent population in Ontario, approximately 40% of females and males reported current alcohol consumption.

Higher prevalence than Ontario

Areas with a higher prevalence of current alcohol consumption than the Ontario average were scattered across the LHIN for adolescent females (n=398; Figure 3.3) and adolescent males (n=336; Figure 3.4). Many areas were located throughout Guelph, Cambridge and Kitchener-Waterloo for both sexes; however, higher prevalence areas in Guelph were more common for adolescent females than adolescent males. For both sexes, additional areas were located near Elora and Fergus, and in the northern tip of the LHIN around Mount Forest.

Lower prevalence than Ontario

Areas with a lower prevalence of current alcohol consumption than the Ontario average were scattered across the LHIN for adolescent females (n=97; Figure 3.3) and adolescent males (n=118; Figure 3.4). For both sexes, many areas were dispersed throughout the Kitchener-Waterloo area.

Figure 3.1 Current alcohol consumption among females (age 12 and older), 2000–2014, Waterloo Wellington Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
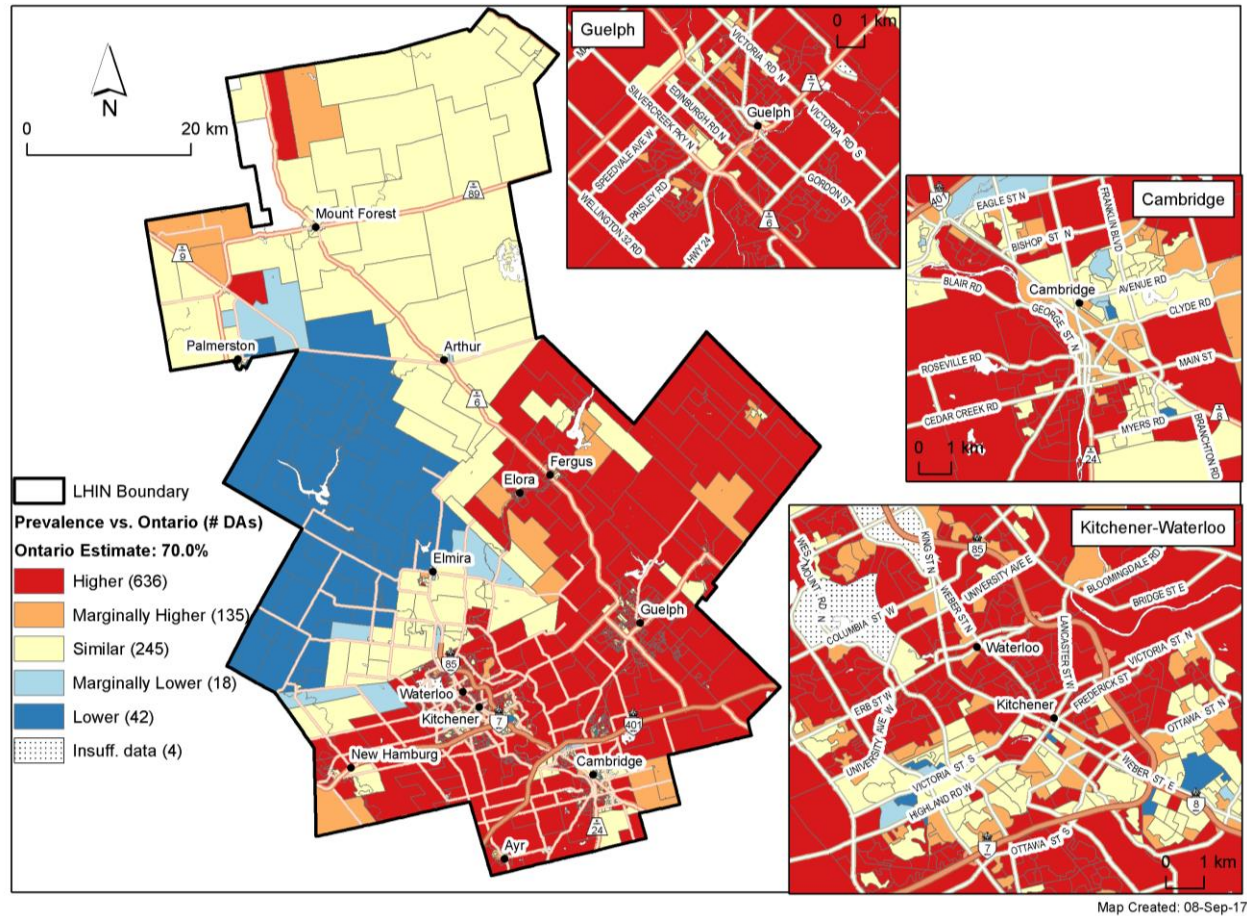
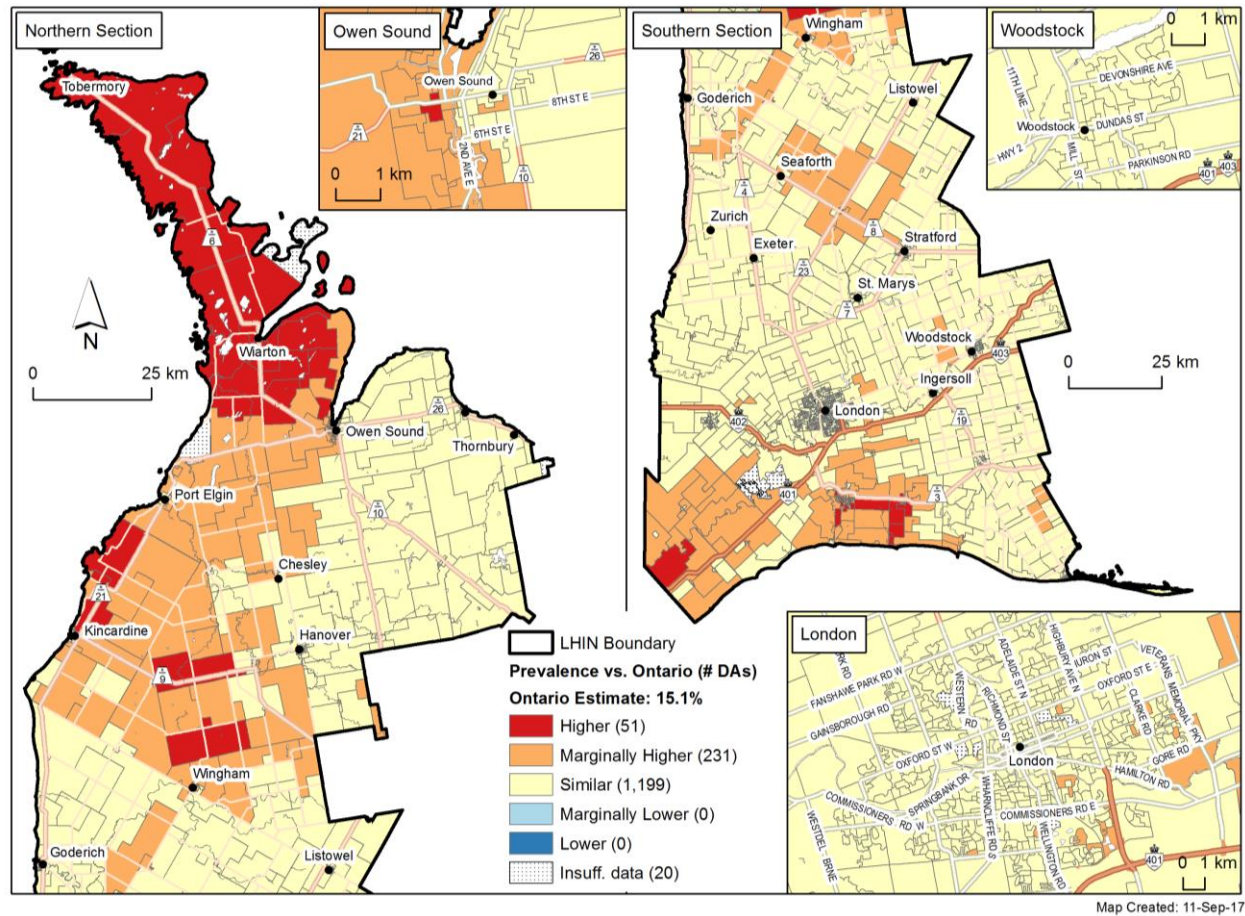| Category	Mean prevalence % (range)
Overall	74.9
Higher	78.0 (73.3, 86.2)
Marginally Higher	73.9 (72.4, 76.2)
Similar	70.5 (65.6, 73.5)
Marginally Lower	65.6 (62.3, 67.3)
Lower	60.0 (52.0, 64.8)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
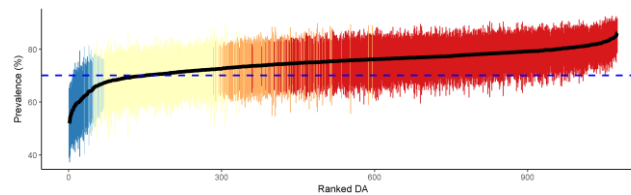
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
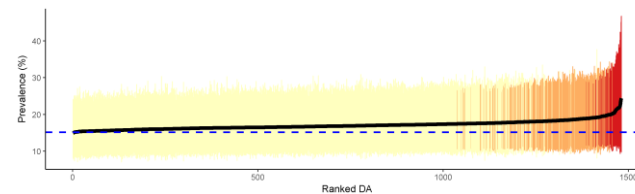
Figure 3.2 Current alcohol consumption among males (age 12 and older), 2000–2014, Waterloo Wellington Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Map Created: 08-Sep-17
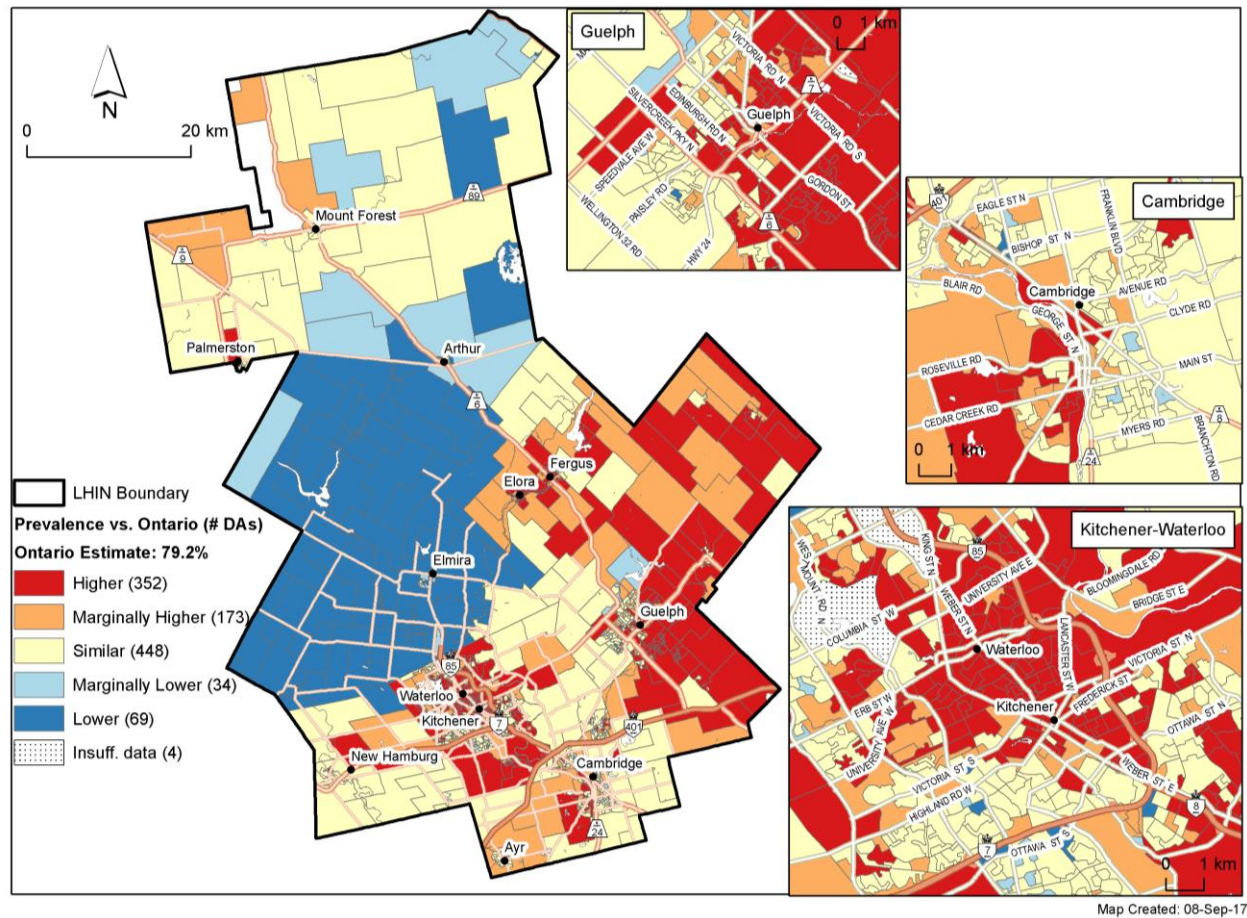
Category	Mean prevalence % (range)
Overall	80.5
Higher	83.9 (81.4, 88.5)
Marginally Higher	81.6 (80.6, 82.8)
Similar	79.2 (75.2, 81.3)
Marginally Lower	75.9 (73.7, 76.8)
Lower	71.2 (58.1, 75.8)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
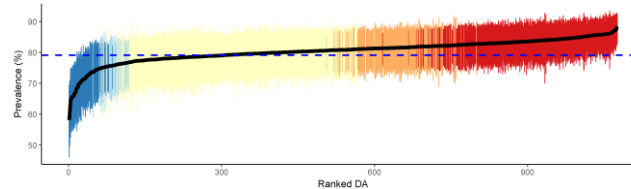
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 3.3 Current alcohol consumption among adolescent females (ages 12 to 18), 2000–2014, Waterloo Wellington Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Map Created: 08-Sep-17
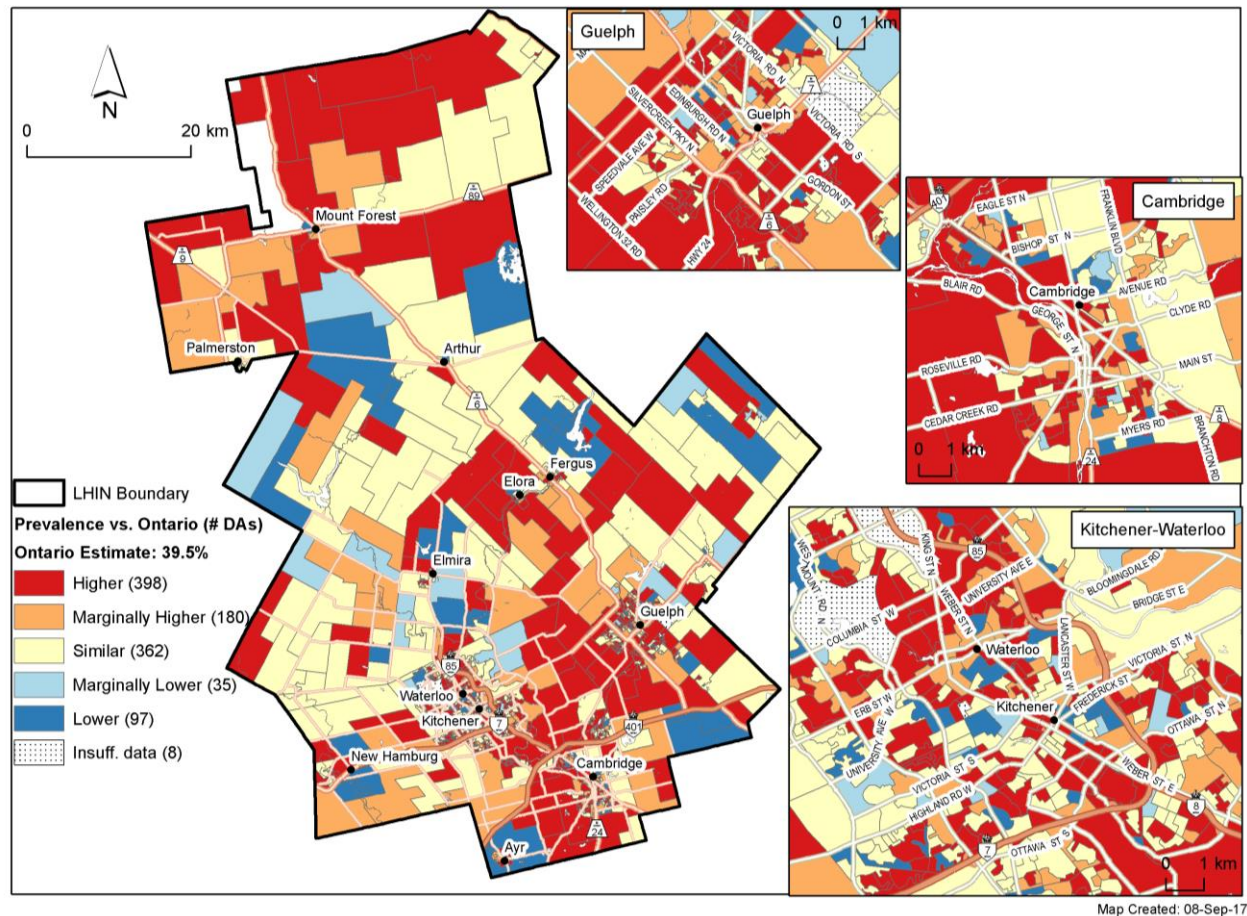
Category	Mean prevalence % (range)
Overall	43.0
Higher	48.8 (43.0, 65.2)
Marginally Higher	43.4 (41.9, 45.9)
Similar	40.2 (36.1, 43.5)
Marginally Lower	36.1 (34.4, 36.9)
Lower	31.7 (13.7, 35.5)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
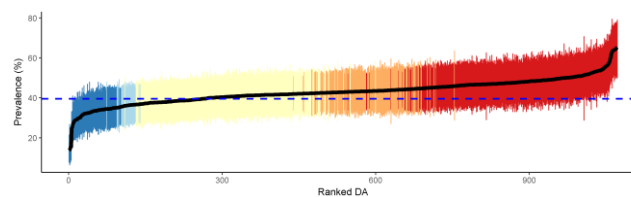
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 3.4 Current alcohol consumption among adolescent males (ages 12 to 18), 2000–2014, Waterloo Wellington Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
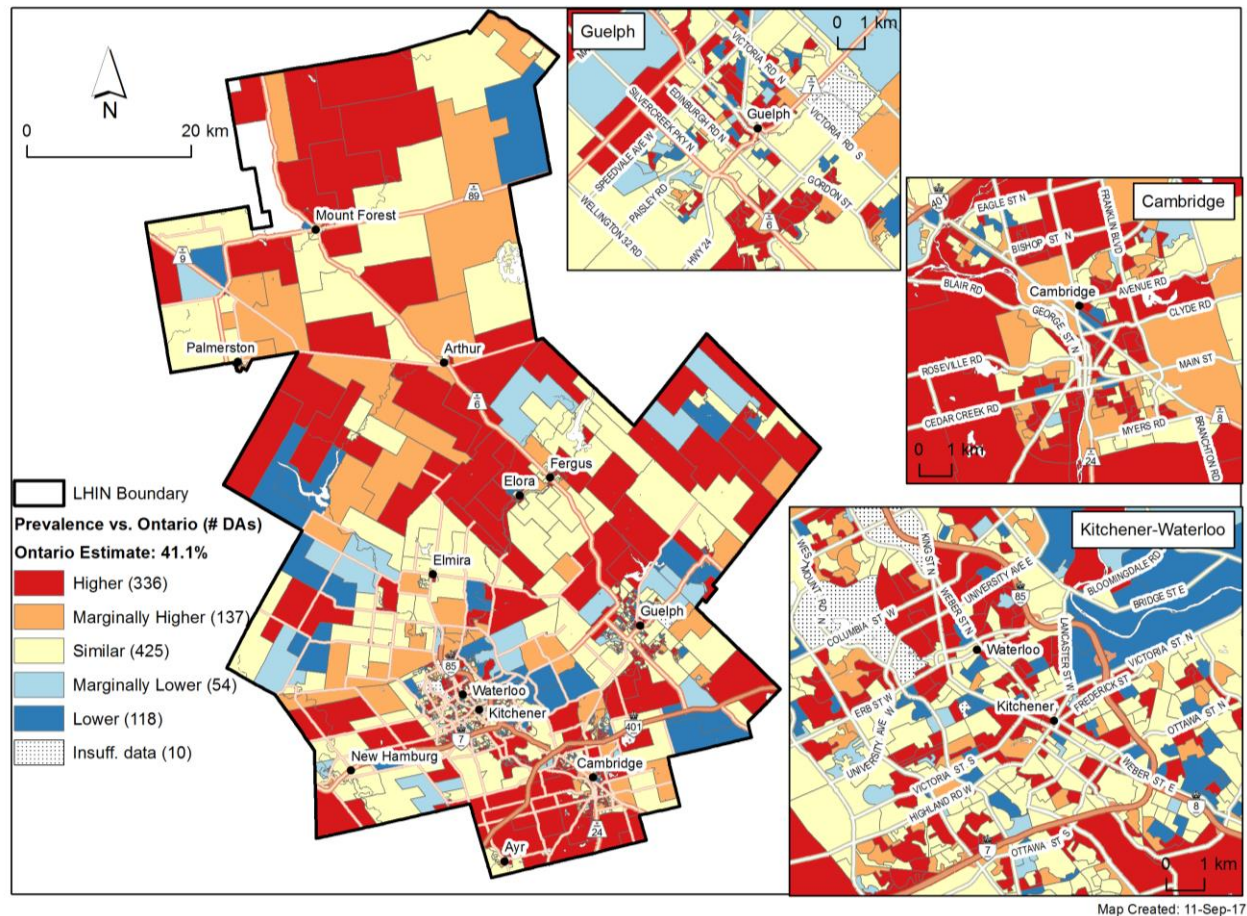
Category	Mean prevalence % (range)
Overall	43.7
Higher	50.4 (44.8, 65.6)
Marginally Higher	45.0 (43.6, 47.5)
Similar	41.6 (37.8, 44.9)
Marginally Lower	37.6 (36.3, 38.9)
Lower	33.4 (13.9, 37.7)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Alcohol: exceeding cancer prevention recommendations

People age 12 and older

Almost 7% of the female population in Ontario drank alcohol in excess of the recommended limits for cancer prevention. Among males, the Ontario prevalence of exceeding the recommended limits was 8.5%.

Higher prevalence than Ontario

There were very few areas with a higher prevalence of alcohol consumption in excess of the recommended limits for cancer prevention than the Ontario average among females (n=51; Figure 3.5), compared to males (n=412; Figure 3.6). For females, these areas were predominantly located in Guelph and Kitchener-Waterloo, with an additional cluster of areas along the eastern boundary of the LHIN. For males, these areas were located throughout the northern, eastern and southern quadrants of the LHIN, including many parts of Guelph, the eastern half of Kitchener-Waterloo, and several parts of Cambridge.

Lower prevalence than Ontario

Among females, most areas with a lower prevalence of alcohol consumption in excess of the recommended daily limits for cancer prevention (n=22; Figure 3.5) were located in the central part of the LHIN northwest of Elmira. For males (n=5; Figure 3.6) there were very few lower prevalence areas throughout the LHIN.

Adolescents

The area-based prevalence of exceeding cancer prevention recommendations was not estimated for adolescent populations.

## Figure 3.5 Alcohol consumption exceeding cancer prevention recommendations among females (age 12 and older), 2000–2014, Waterloo Wellington Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
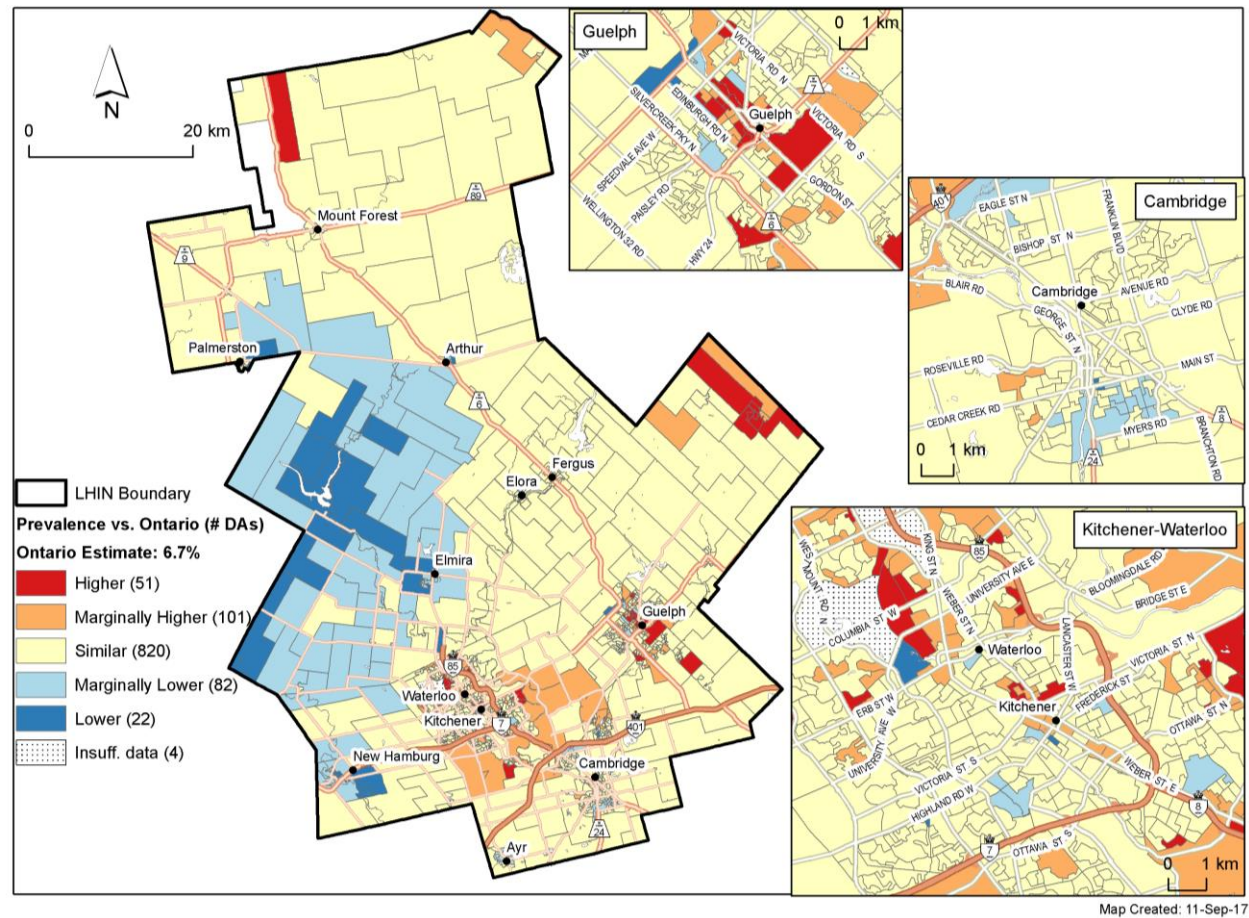
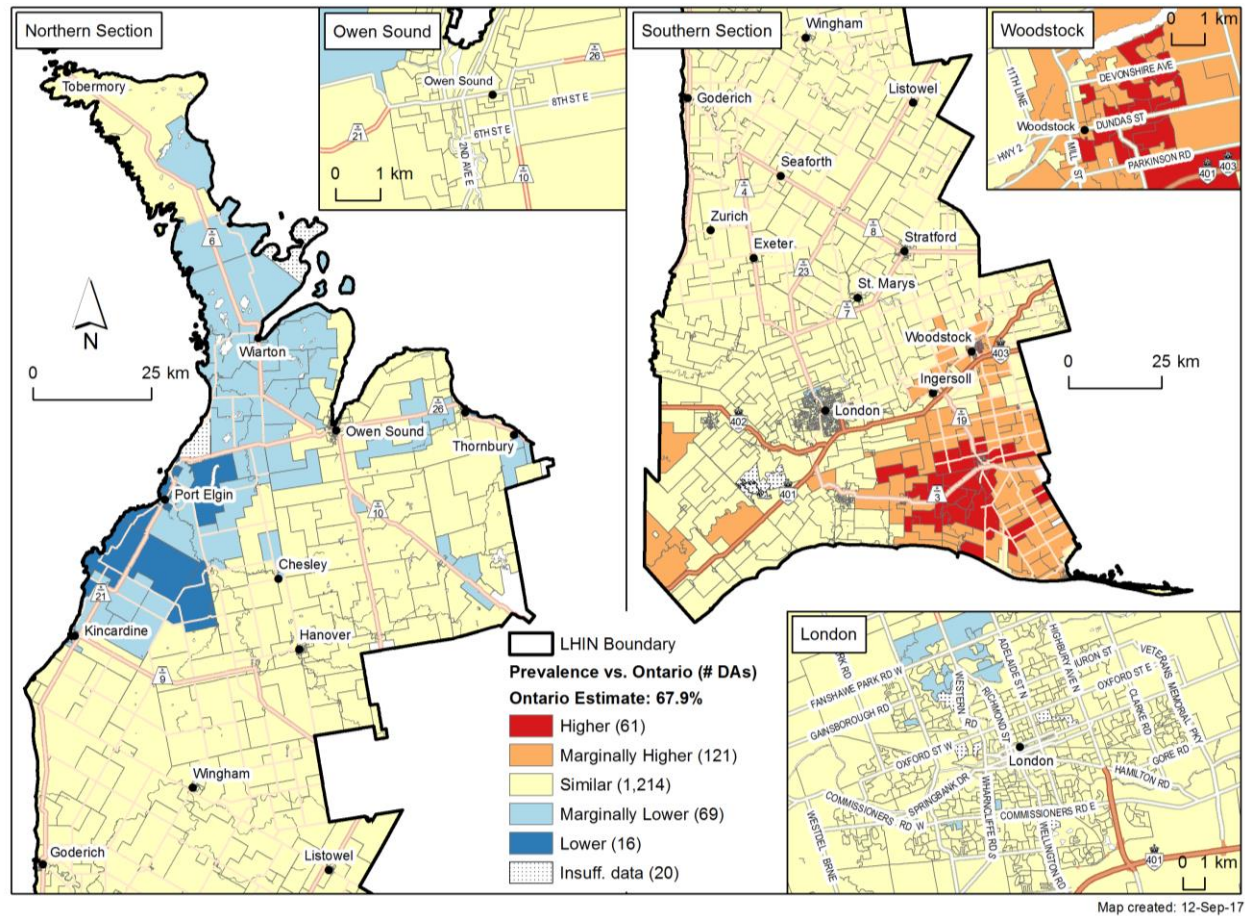| Category	Mean prevalence % (range)
Overall	7.4
Higher	10.0 (8.6, 12.8)
Marginally Higher	8.7 (8.0, 9.9)
Similar	7.3 (5.7, 9.1)
Marginally Lower	5.7 (5.2, 6.1)
Lower	5.1 (4.4, 5.5)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
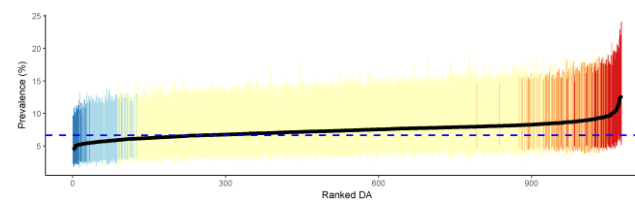
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 3.6 Alcohol consumption exceeding cancer prevention recommendations among males (age 12 and older), 2000–2014, Waterloo Wellington Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Map Created: 11-Sep-17
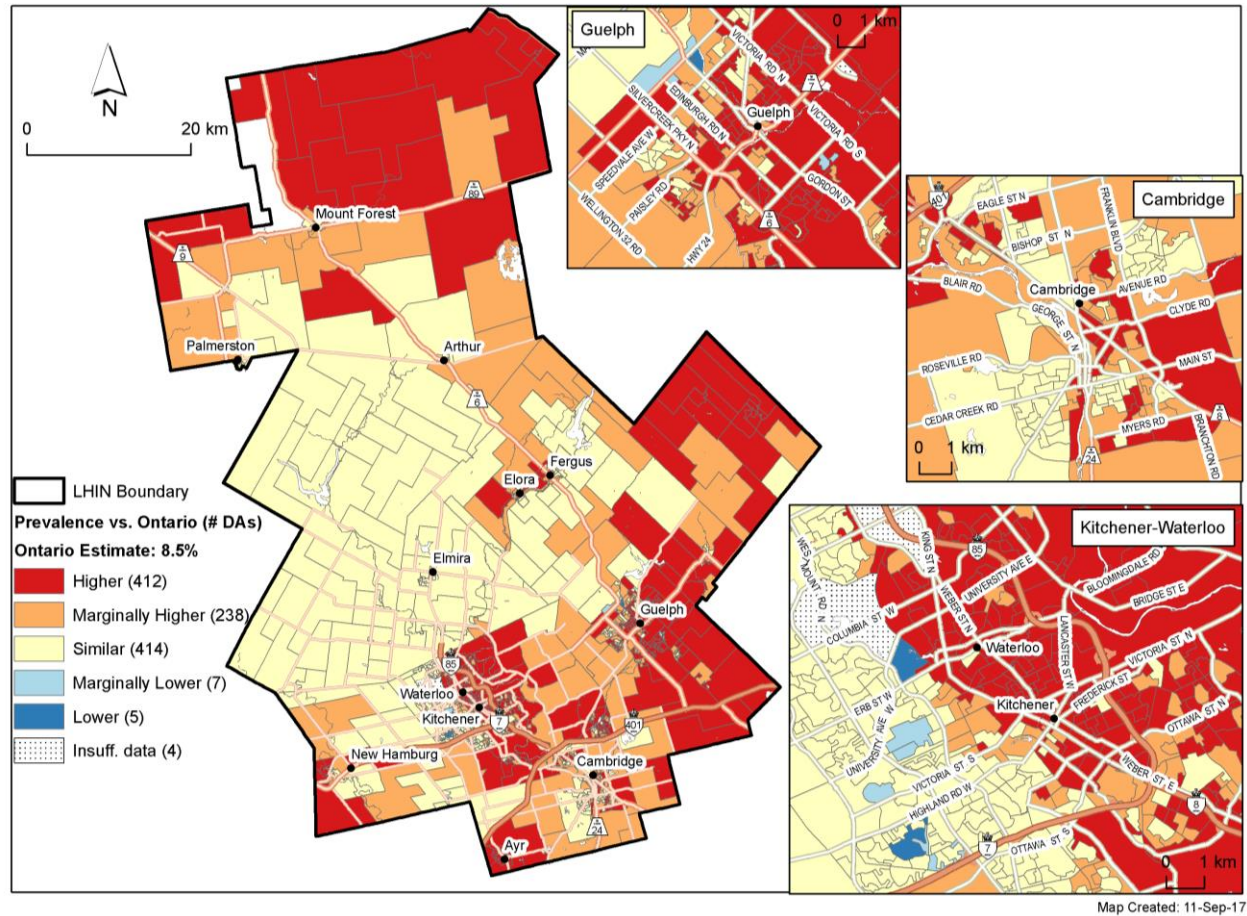
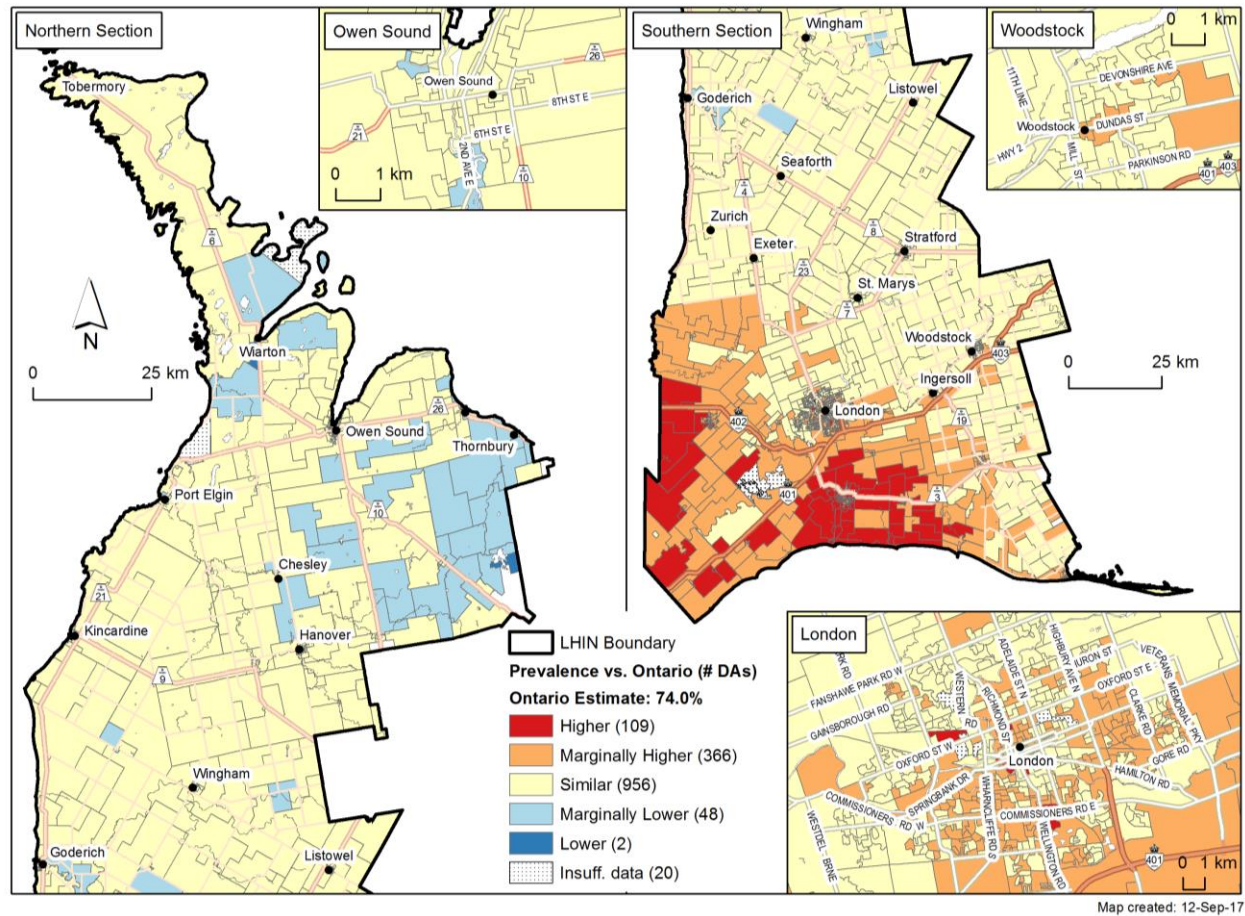| Category	Mean prevalence % (range)
Overall	10.3
Higher	11.7 (10.2, 14.8)
Marginally Higher	10.3 (9.5, 12.1)
Similar	9.1 (7.7, 10.6)
Marginally Lower	7.5 (7.2, 7.8)
Lower	6.8 (6.6, 7.0)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
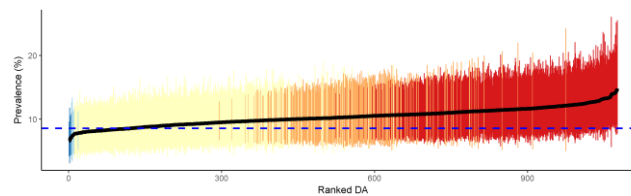
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
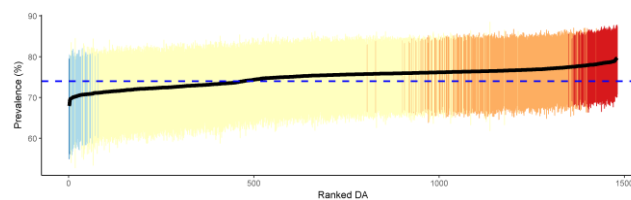
Excess body weight

People age 12 and older

The estimated Ontario prevalence of excess body weight (overweight or obese) was 41% among females and 56% among males.

Higher prevalence than Ontario

There were more areas with a higher prevalence of excess body weight than the Ontario average among females (n=311; Figure 3.7), compared to males (n=157; Figure 3.8). For females, most of the northern half of the LHIN comprised higher prevalence areas, with additional areas located in northwest Cambridge, southeast Kitchener-Waterloo, west of Cambridge and near New Hamburg. There were also some higher prevalence areas located in Guelph for females. For males, many higher prevalence areas were located in the northern half of the LHIN. Additional areas for males were located in Cambridge and Kitchener-Waterloo, southwest of Cambridge, south of Kitchener-Waterloo and around New Hamburg.

Lower prevalence than Ontario

For females (n=109; Figure 3.7) and males (n=125; Figure 3.8), areas with a lower prevalence of excess body weight were located in the southern half of the LHIN, with most areas located in Guelph and Kitchener-Waterloo.

Adolescents

Among Ontario adolescents, an estimated 15% of females and 25% of males were overweight or obese. There were no areas of higher prevalence for adolescent females or adolescent males in the Waterloo Wellington LHIN, which is why those maps are not shown.

Figure 3.7 Excess body weight (overweight/obese) among females (age 12 and older), 2000–2014, Waterloo Wellington Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Map Created: 11-Sep-17
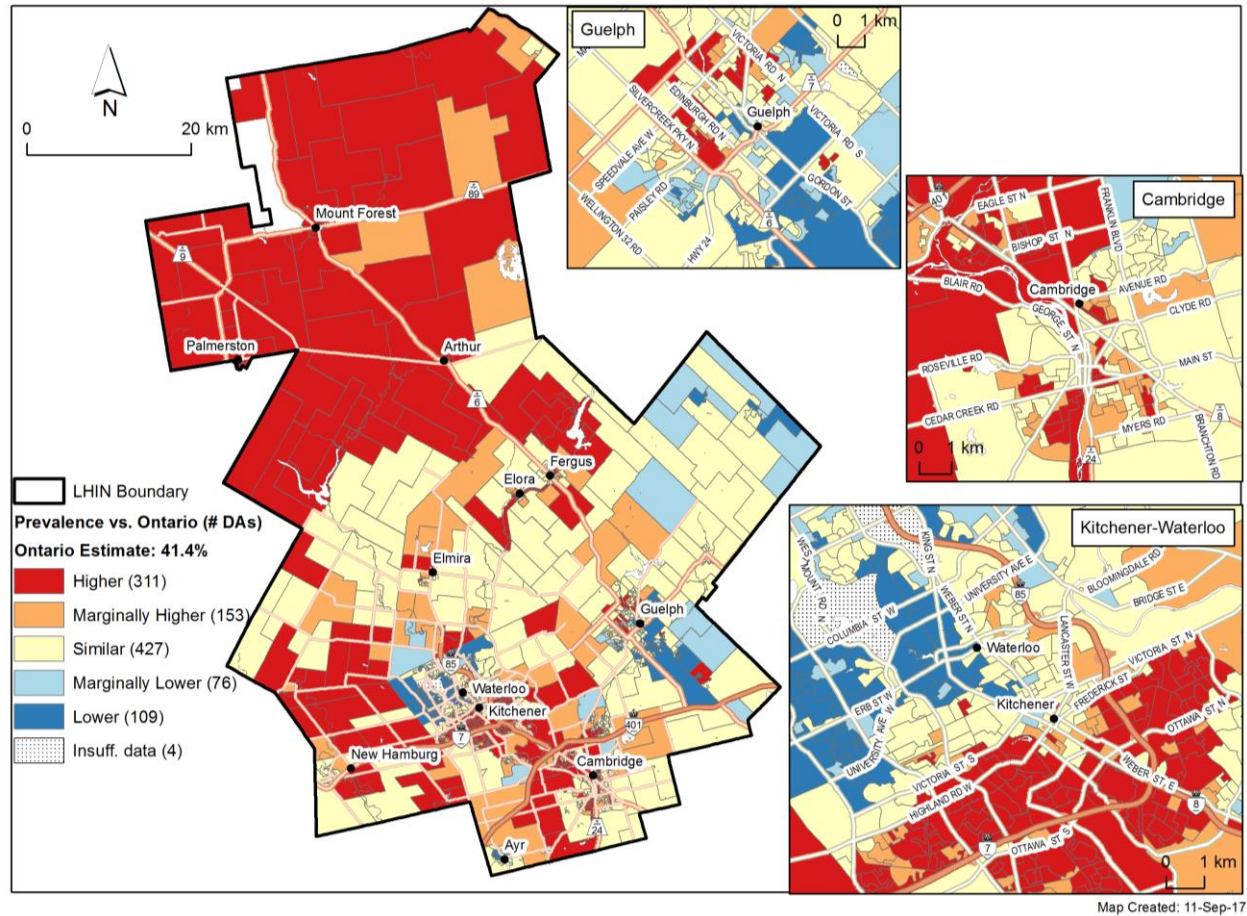
Category	Mean prevalence % (range)
Overall	43.2
Higher	48.4 (44.8, 57.1)
Marginally Higher	44.9 (43.5, 47.4)
Similar	41.6 (37.7, 44.6)
Marginally Lower	38.2 (36.3, 39.5)
Lower	35.4 (27.4, 38.3)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
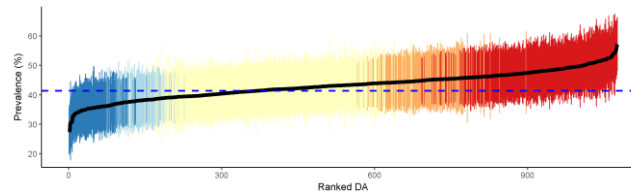
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 3.8 Excess body weight (overweight/obese) among males (age 12 and older), 2000–2014, Waterloo Wellington Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Map Created: 11-Sep-17

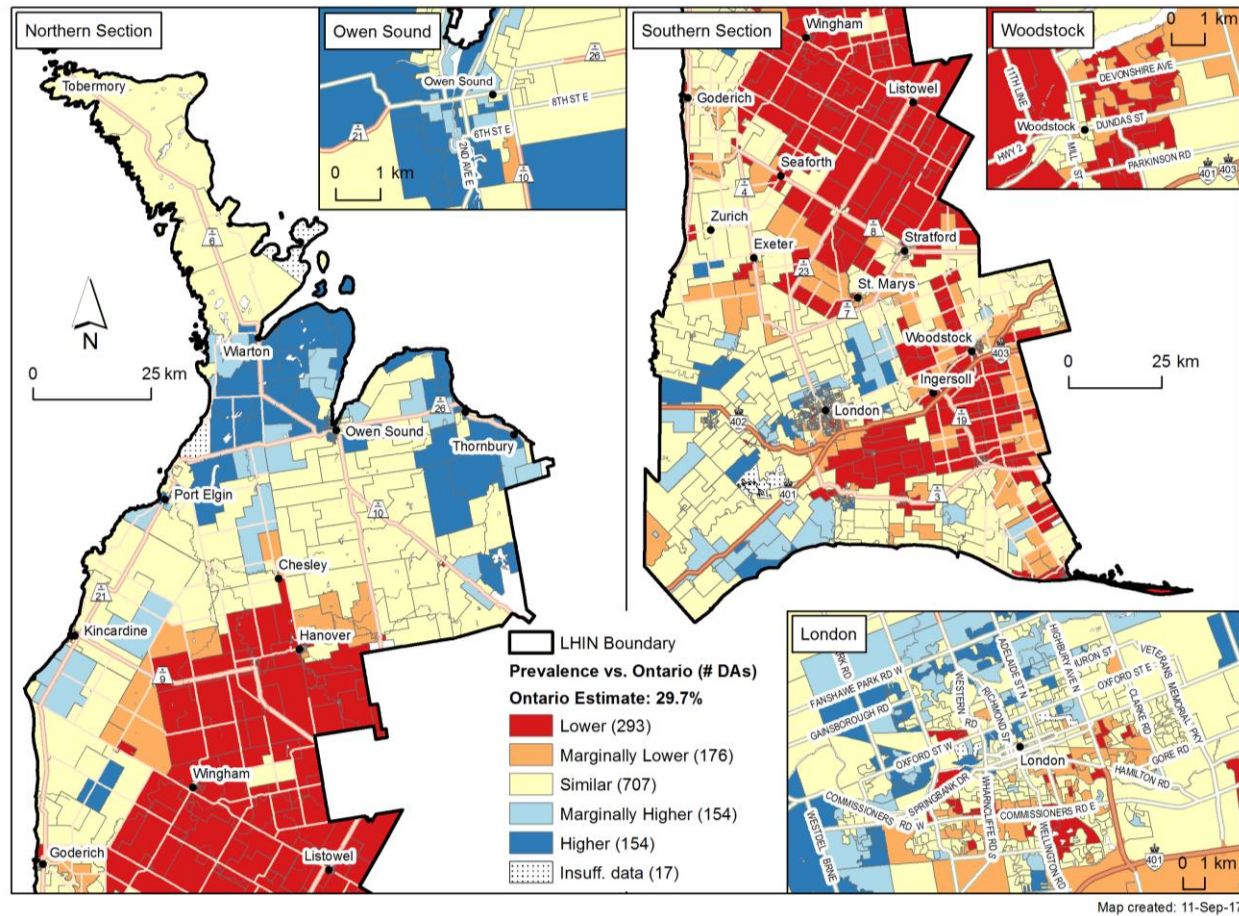| Category	Mean prevalence % (range)
Overall	56.1
Higher	60.6 (58.7, 65.5)
Marginally Higher	58.6 (57.6, 60.0)
Similar	55.9 (53.3, 58.5)
Marginally Lower	53.1 (50.2, 54.2)
Lower	50.3 (42.4, 53.3)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
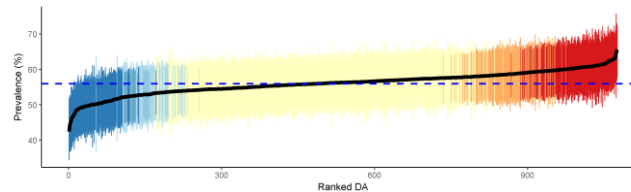
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Inadequate vegetable and fruit consumption

People age 12 and older

Inadequate consumption of vegetables and fruits was common across Ontario, with approximately 63% of females and 77% of males reporting inadequate consumption.

Higher prevalence than Ontario

For females (n=53; Figure 3.9) and males (n=191; Figure 3.10), areas with a higher prevalence of inadequate vegetable and fruit consumption than the Ontario average were located in in the northern tip of the LHIN, near Palmerston and Mount Forest, in Kitchener-Waterloo near Highways 7 and 8, and in Cambridge, near Franklin Boulevard and Avenue Road. For males, additional areas were located in southern Kitchener, south of Kitchener-Waterloo and in Cambridge.

Lower prevalence than Ontario

For females (n=311; Figure 3.9) and males (n=171; Figure 3.10), areas with a lower prevalence of inadequate vegetable and fruit consumption were located in the southern half of the LHIN. For both sexes, these areas were located between Elora and Guelph, and in many parts of Guelph. For females, additional areas were located towards the north of Kitchener-Waterloo, as well as in almost all areas east of Arthur, Fergus and Guelph. Additional areas for females also included those surrounding New Hamburg and northwest of Kitchener-Waterloo.

Adolescents

More than two-thirds of the adolescent Ontario population had inadequate vegetable and fruit consumption, at approximately 68% for females and 74% for males. For adolescent females and adolescent males, there were no areas with a higher prevalence of inadequate fruit and vegetable consumption than the Ontario average in the Waterloo Wellington LHIN, which is why those maps are not shown.

Figure 3.9 Inadequate vegetable and fruit consumption among females (age 12 and older), 2000–2014, Waterloo Wellington Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Map Created: 11-Sep-17
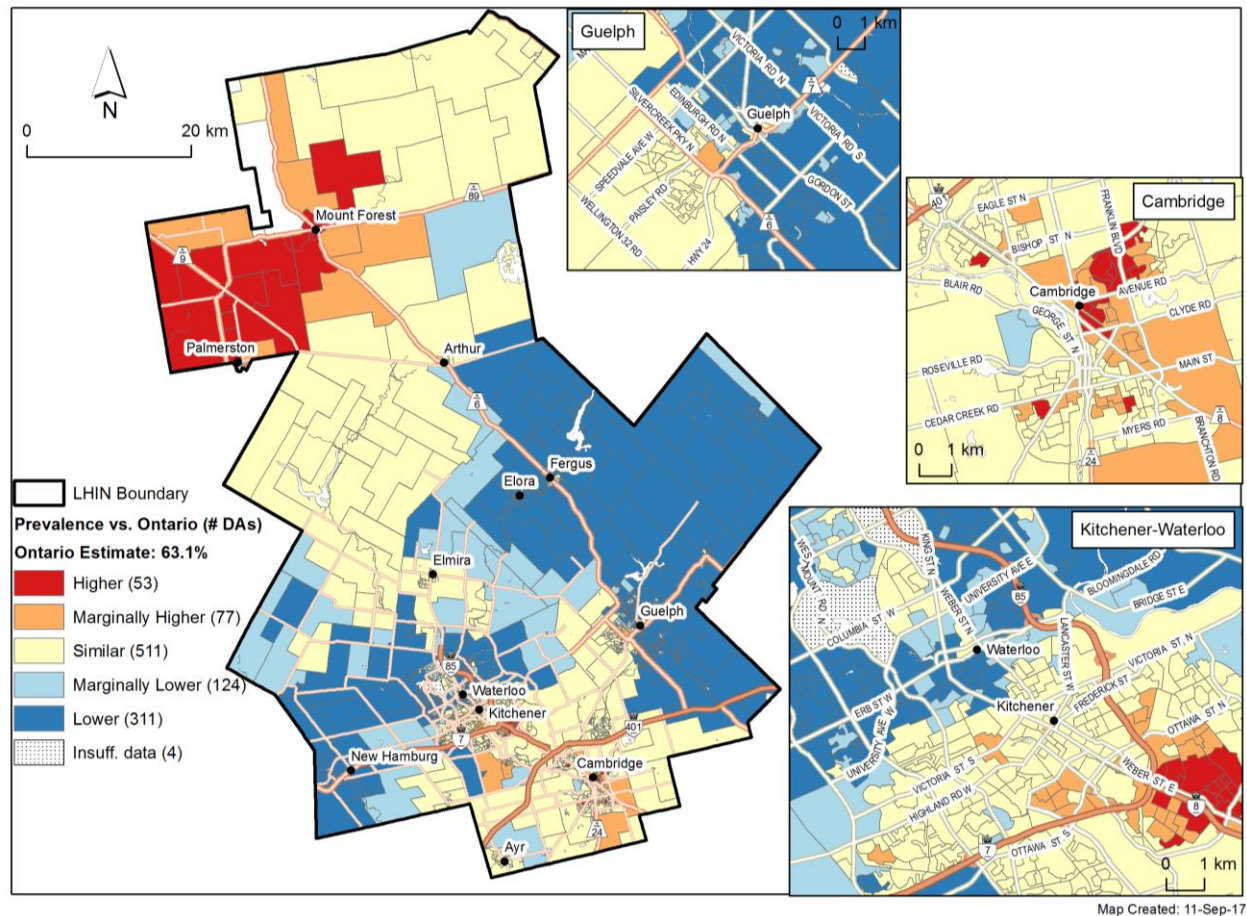
Category	Mean prevalence % (range)
Overall	61.3
Higher	67.9 (66.3, 69.3)
Marginally Higher	66.2 (65.0, 67.5)
Similar	63.1 (59.5, 66.4)
Marginally Lower	59.5 (55.1, 61.0)
Lower	56.7 (51.8, 60.1)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
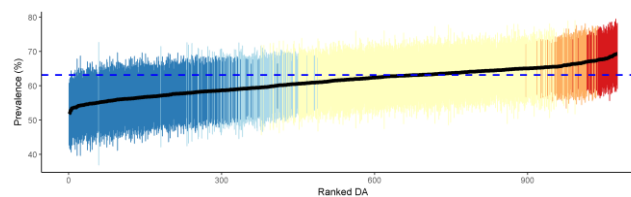
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 3.10 Inadequate vegetable and fruit consumption among males (age 12 and older), 2000–2014, Waterloo Wellington Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Map Created: 12-Sep-17
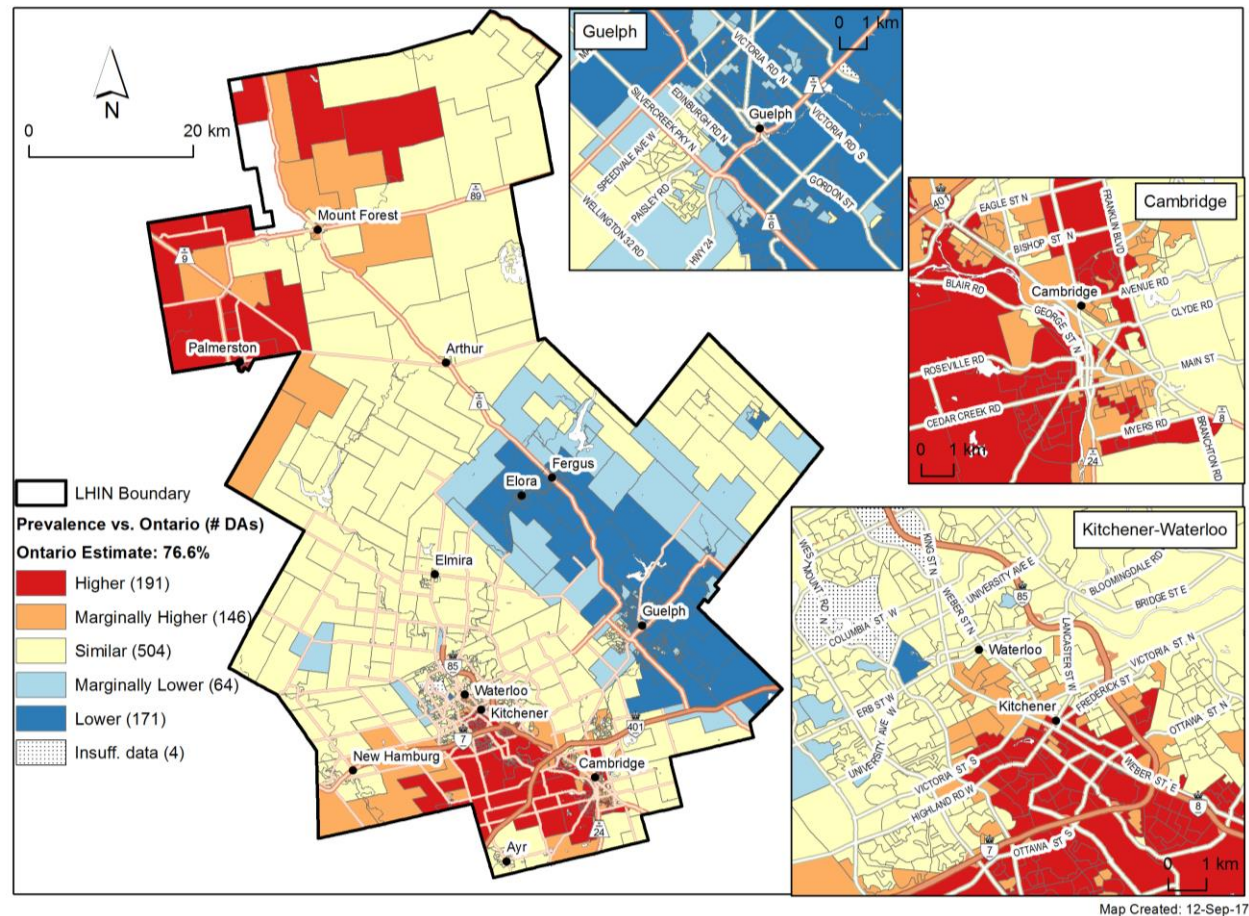
Category	Mean prevalence % (range)
Overall	76.6
Higher	80.3 (78.9, 82.1)
Marginally Higher	78.8 (78.0, 80.0)
Similar	76.7 (73.6, 78.7)
Marginally Lower	73.7 (71.9, 74.8)
Lower	71.6 (66.6, 73.5)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Physical activity

Because physical activity reduces cancer risk, lower prevalence estimates of this risk factor are of interest. The colour scheme of the maps was inverted so that the "lower than Ontario" estimates are displayed in red.

People age 12 and older

Most of the Ontario population was not physically active, with approximately one in five (23%) females and one in three (30%) males being physically active.

Lower prevalence than Ontario

Across the LHIN, there were relatively few areas with a lower prevalence of physical activity than the Ontario average for females (n=56; Figure 3.11), compared to males (n=204; Figure 3.12). For females, these areas were scattered across the LHIN, with some located in Kitchener-Waterloo, as well as Guelph and Cambridge. For males, almost all lower prevalence areas were located in the western half of the LHIN from Mount Forest south to New Hamburg. There were also many lower prevalence areas among males in Kitchener-Waterloo and parts of Cambridge.

Higher prevalence than Ontario

Areas with a higher prevalence of physical activity among females (n=199; Figure 3.11) and males (n=109; Figure 3.12) were typically located in the eastern half of the LHIN. For both sexes, many of these areas were located around Guelph, Elora and Fergus. For females, additional areas were located east of Mount Forest and Arthur, north of Guelph, and in parts of Kitchener-Waterloo and Cambridge.

Adolescents

Adolescents were more physically active than adults, with approximately 40% of adolescent females and 57% of adolescent males being active.

Lower prevalence than Ontario

For adolescent females in the Waterloo Wellington LHIN, there were no areas with a lower prevalence of physical activity than the Ontario average, which is why that map is not shown. For adolescent males (n=106; Figure 3.13), areas with a lower prevalence of physical activity than the Ontario average were typically located in the western half of the LHIN near Palmerston, west of Elmira, and in many areas in southern and south of Kitchener-Waterloo.

Higher prevalence than Ontario

There were no areas with a higher prevalence of physical activity than the Ontario average for adolescent males.

Figure 3.11 Physical activity among females (age 12 and older), 2000–2014, Waterloo Wellington Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Map Created: 11-Sep-17
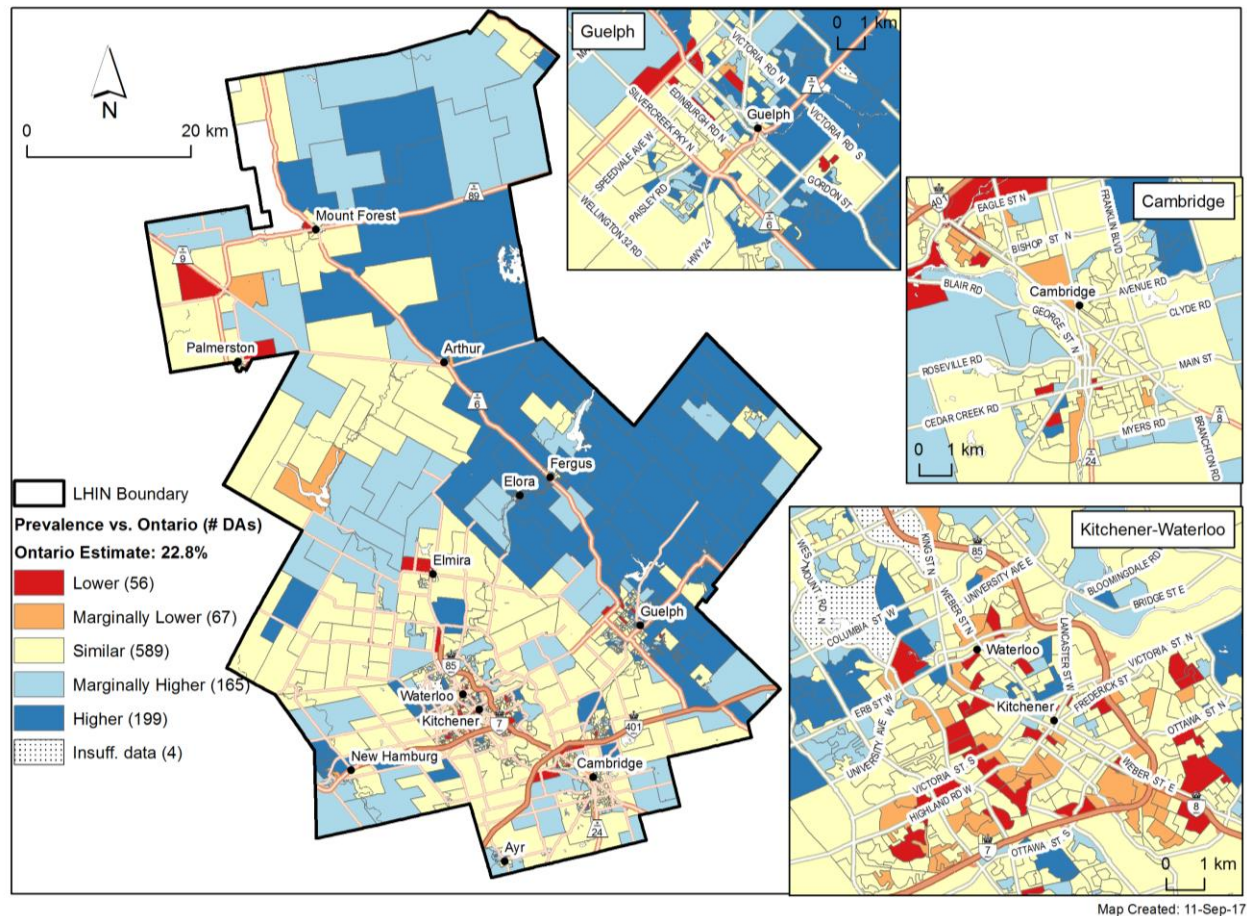
Category	Mean prevalence % (range)
Overall	24.4
Lower	17.9 (12.3, 19.9)
Marginally Lower	20.3 (19.2, 21.1)
Similar	23.5 (20.7, 26.3)
Marginally Higher	26.1 (24.8, 28.3)
Higher	28.7 (26.4, 34.5)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
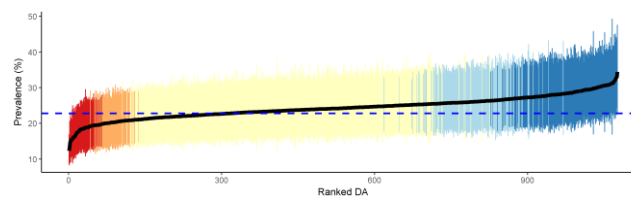
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 3.12 Physical activity among males (age 12 and older), 2000–2014, Waterloo Wellington Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Map Created: 11-Sep-17
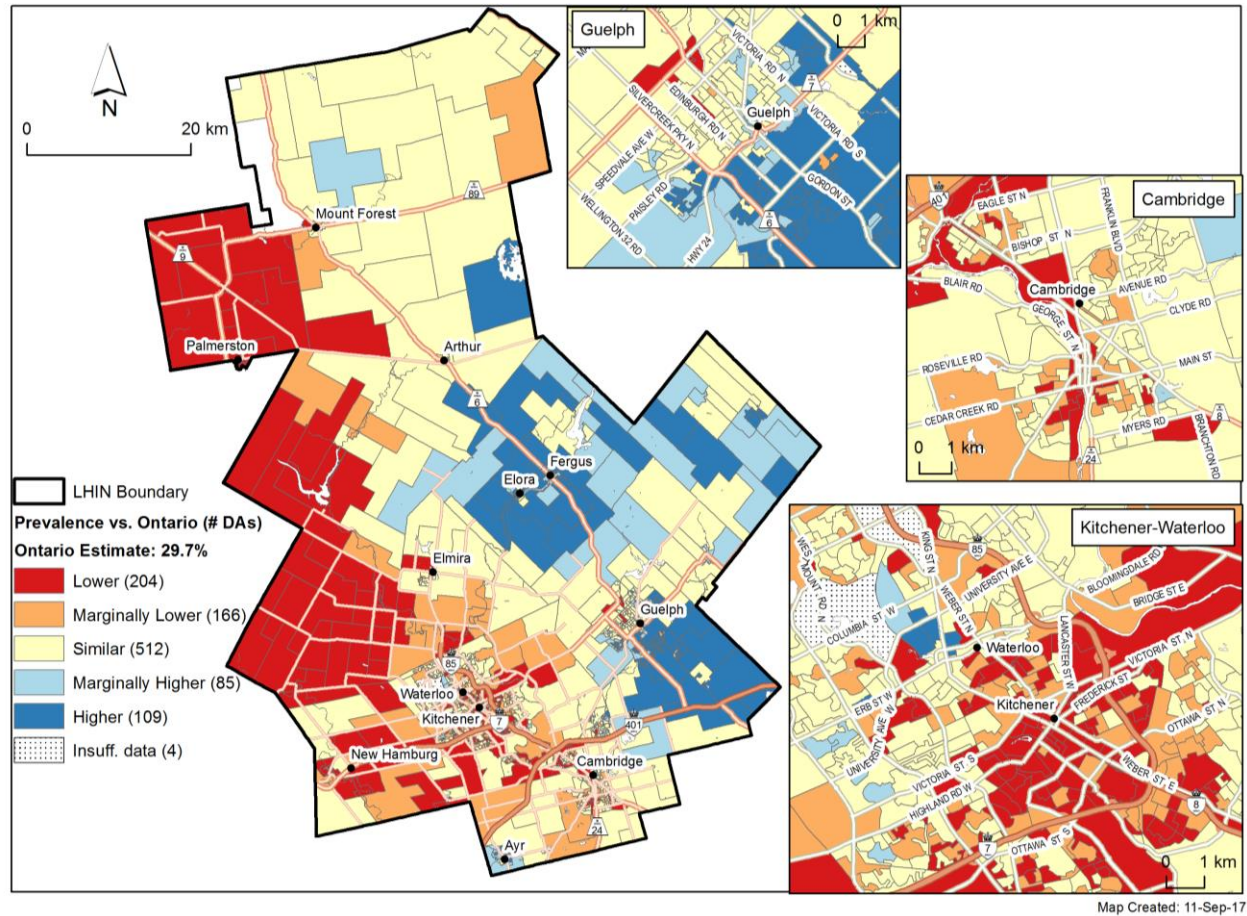
Category	Mean prevalence % (range)
Overall	29.2
Lower	24.6 (19.1, 26.7)
Marginally Lower	26.8 (25.4, 27.8)
Similar	29.7 (26.9, 33.3)
Marginally Higher	33.2 (32.2, 35.1)
Higher	36.1 (33.3, 40.9)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 3.13 Physical activity among adolescent males (ages 12 to 18), 2000–2014, Waterloo Wellington Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Map Created: 11-Sep-17

Category	Mean prevalence % (range)
Overall	54.1
Lower	51.0 (48.9, 52.1)
Marginally Lower	52.5 (50.6, 53.9)
Similar	55.5 (52.8, 59.4)
Marginally Higher	60.5 (60.1, 60.9)
Higher	N/A

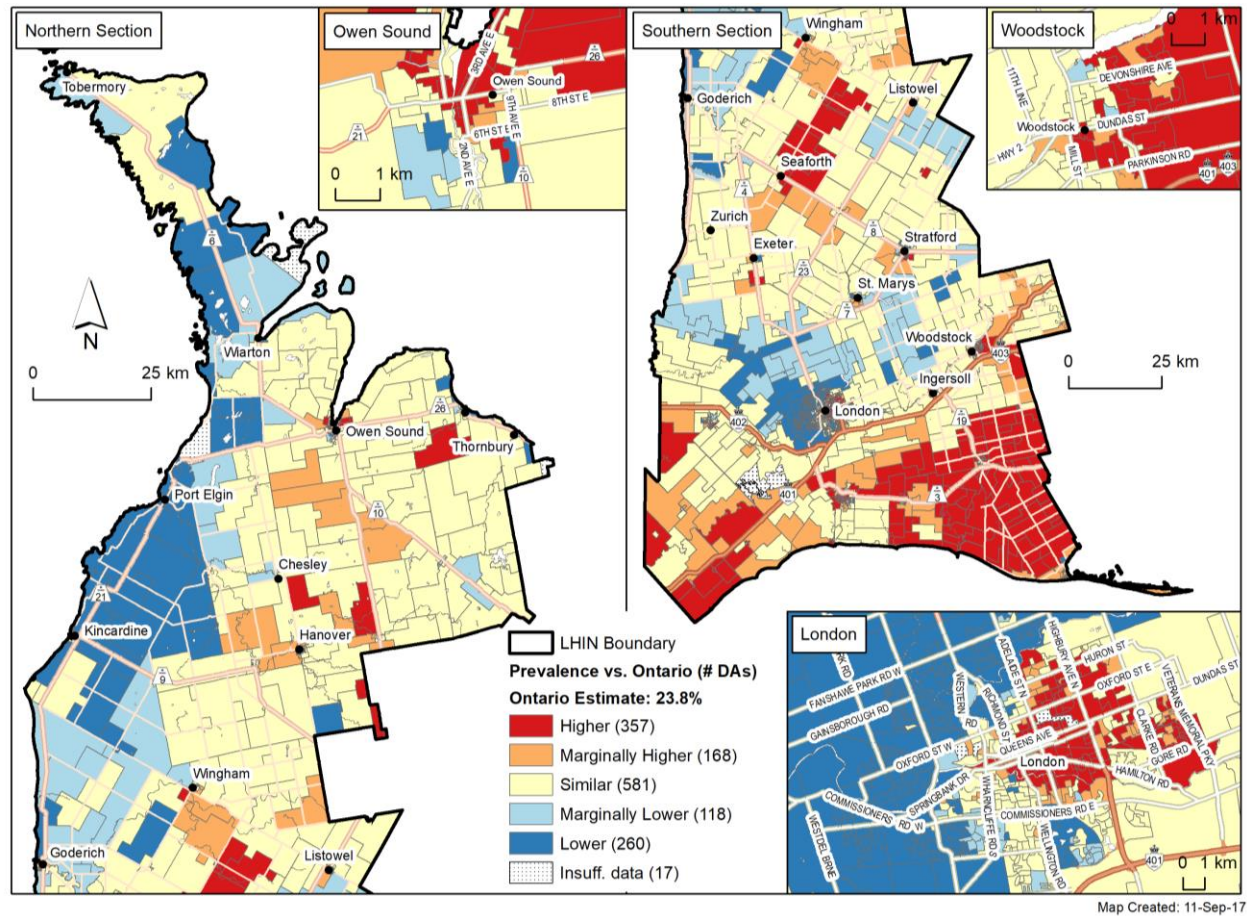N/A = no estimates in the category

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Sedentary behaviour

People age 12 and older

Approximately half of the Ontario population reported sedentary behaviour during leisure time (females, 49%; males, 56%).

Higher prevalence than Ontario

For females (n=45; Figure 3.14), there were very few areas with a higher prevalence of sedentary behaviour than the Ontario average. These areas were almost exclusively located in Guelph and Kitchener-Waterloo. In the Waterloo Wellington LHIN, there was no higher prevalence of sedentary behaviour than the Ontario average for males, which is why that map is not shown.

Lower prevalence than Ontario

Areas with a lower prevalence of sedentary behaviour than the Ontario average were very common among females (n=338; Figure 3.14) and were located across the LHIN, particularly surrounding Palmerston, Arthur, Elora and Elmira, and west of Kitchener-Waterloo.

Adolescents

More than half of the Ontario adolescent population reported sedentary behaviour during leisure time, at approximately 55% for females and 60% for males. There were no areas with a higher prevalence of sedentary behaviour than the Ontario average among adolescents in the Waterloo Wellington LHIN, which is why those maps are not shown.

Figure 3.14 Sedentary behaviour among females (age 12 and older), 2000–2014, Waterloo Wellington Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
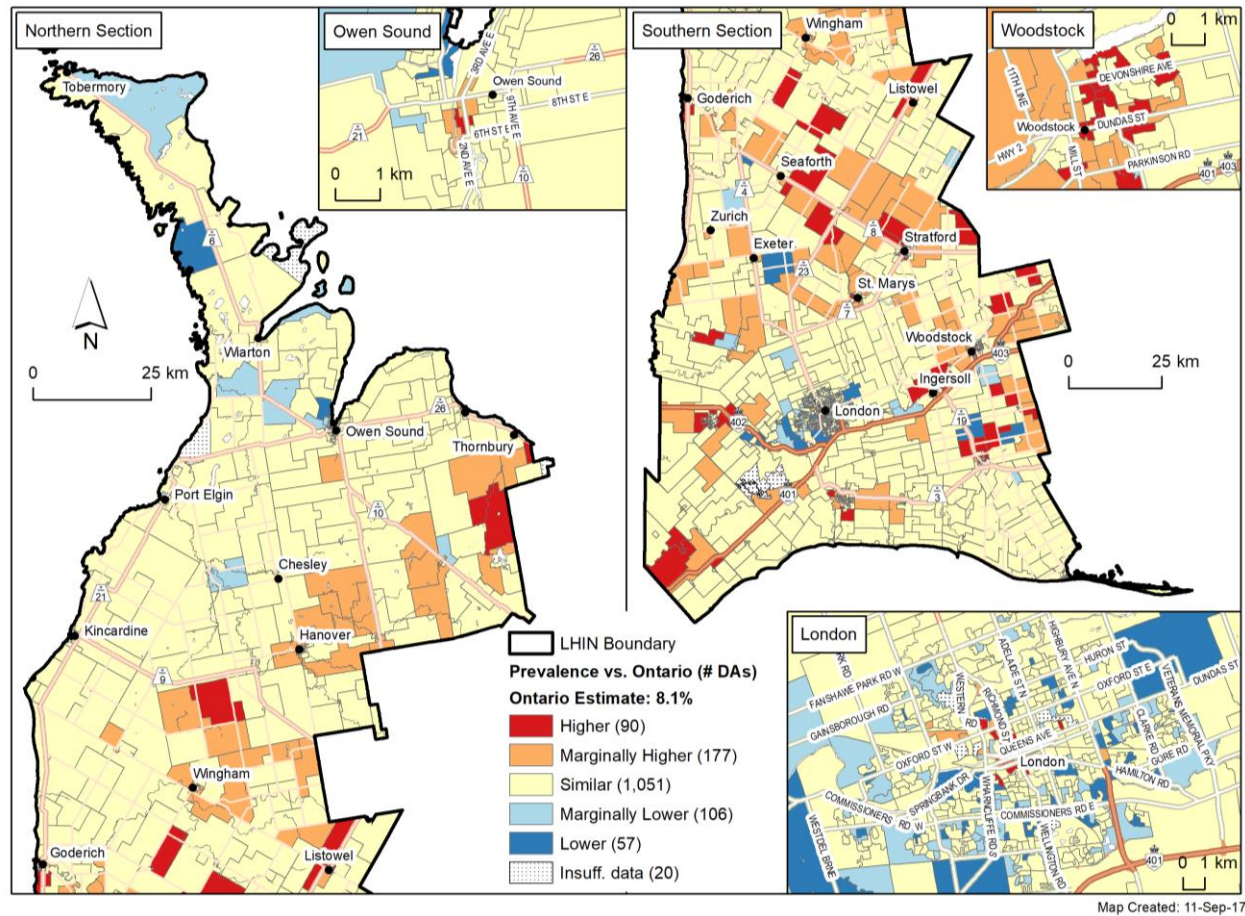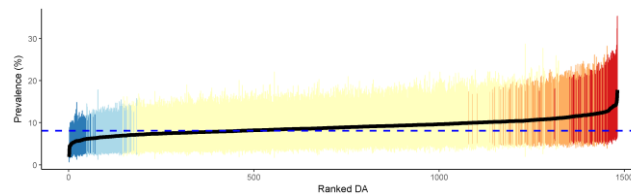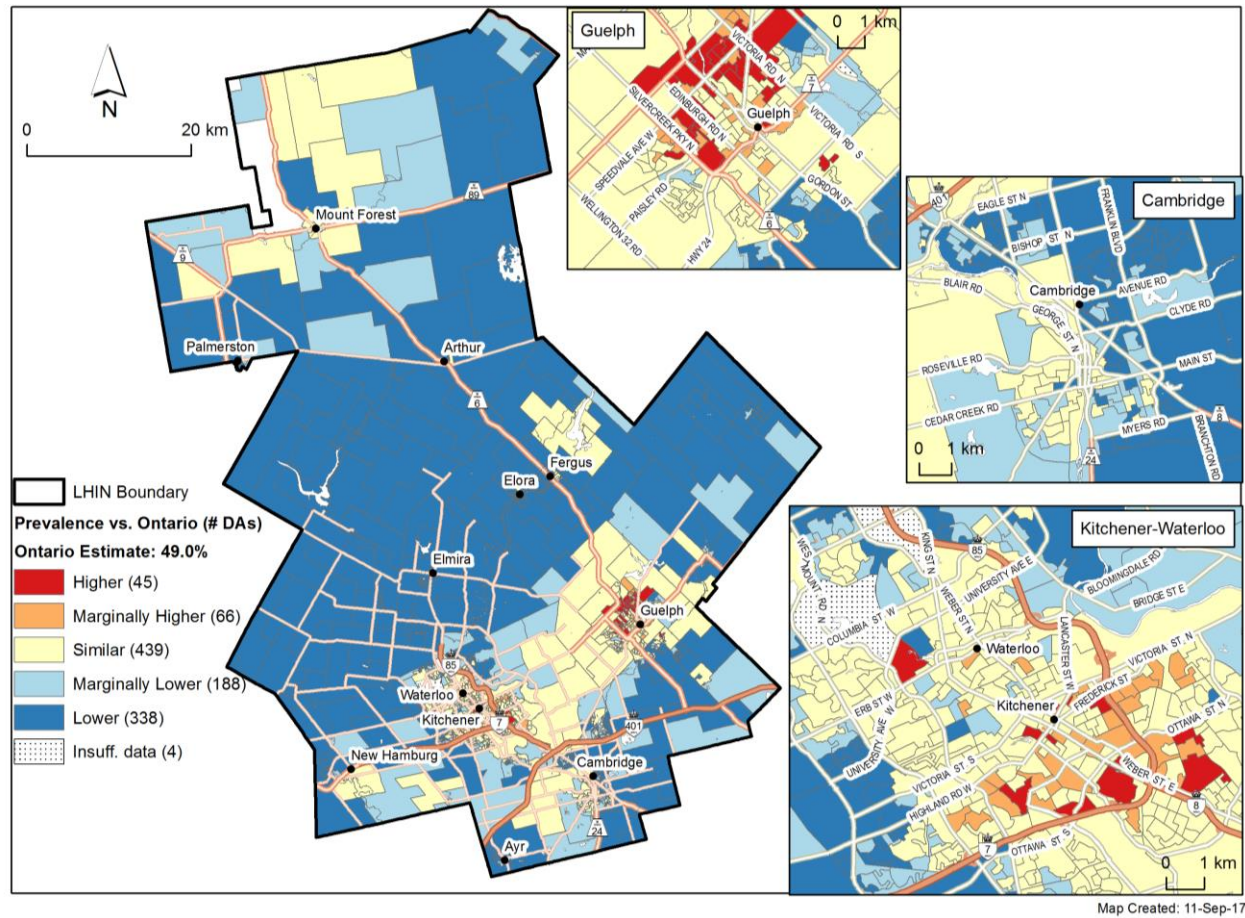

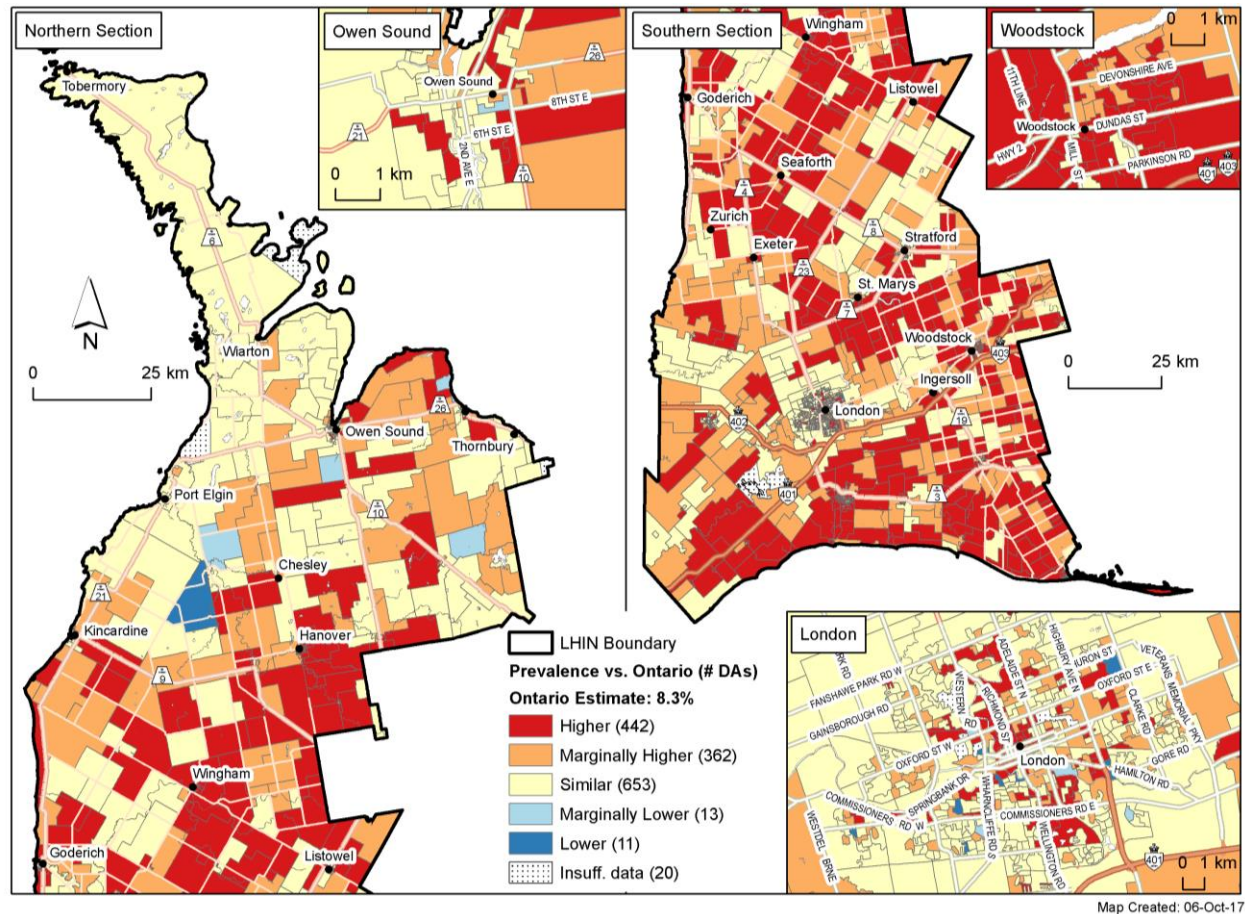| Category	Mean prevalence % (range)
Overall	46.7
Higher	54.8 (52.8, 60.9)
Marginally Higher	52.4 (51.4, 54.1)
Similar	48.7 (45.5, 52.0)
Marginally Lower	45.4 (43.1, 46.7)
Lower	42.6 (37.4, 45.7)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
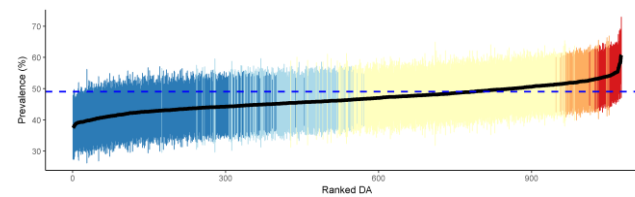
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Smoking: current status

People age 12 and older

Current tobacco smoking was reported by 17% of Ontario females and 24% of males.

Higher prevalence than Ontario

For females (n=260; Figure 3.15) and males (n=217; Figure 3.16), areas with a higher prevalence of current smoking than the Ontario average were more common in the southern half of the LHIN, with the majority of these areas located in Guelph, Cambridge and Kitchener-Waterloo. For females, additional areas were located in the northern part of the LHIN near Mount Forest and Palmerston.

Lower prevalence than Ontario

Areas with a lower prevalence of current smoking among females (n=146; Figure 3.15) and males (n=212; Figure 3.16) were located mainly west of Elmira and northwest of Kitchener-Waterloo, towards the west of Kitchener-Waterloo, and in a few parts of Guelph and Cambridge. For males, additional lower prevalence areas were located throughout the central part of the LHIN around Elora and Fergus.

Adolescents

Approximately 8% of adolescent females and adolescent males in Ontario reported that they currently smoked tobacco.

Higher prevalence than Ontario

There were more areas with a higher prevalence of smoking than the Ontario average for adolescent females (n=231; Figure 3.17), compared to adolescent males (n=69; Figure 3.18). For adolescent females, higher prevalence areas were typically located in the eastern half of the LHIN, in and surrounding Guelph, and scattered throughout Cambridge and Kitchener-Waterloo. Higher prevalence areas for adolescent males tended to be more dispersed throughout the LHIN, but were more prominent in the western half of the LHIN. But many of these areas were located in Kitchener-Waterloo.

Lower prevalence than Ontario

Areas with a lower prevalence of current smoking than the Ontario average were uncommon across the LHIN for adolescent females (n=16; Figure 3.17) and adolescent males (n=57; Figure 3.18). These areas were scattered across the LHIN.

Figure 3.15 Current smoking among females (age 12 and older), 2000–2014, Waterloo Wellington Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
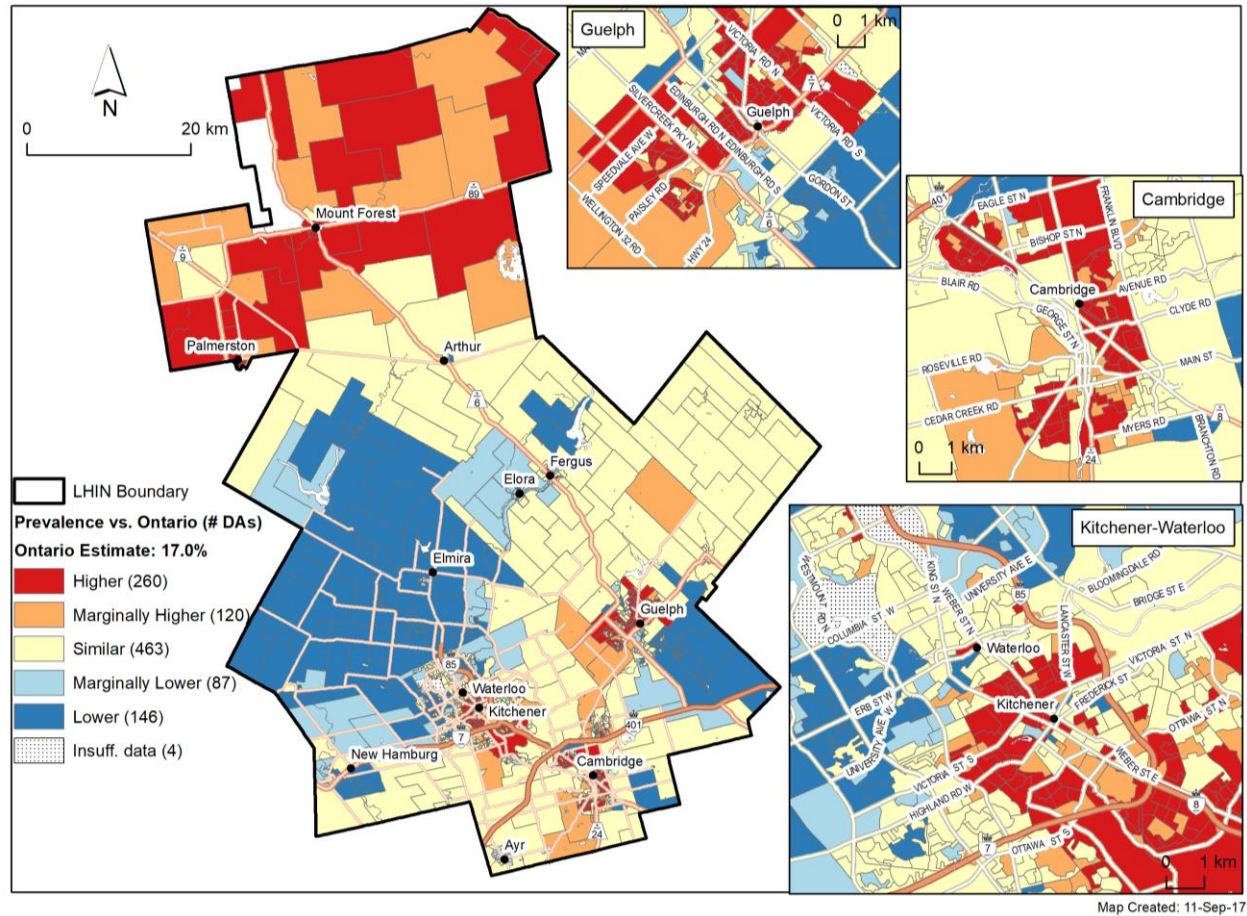
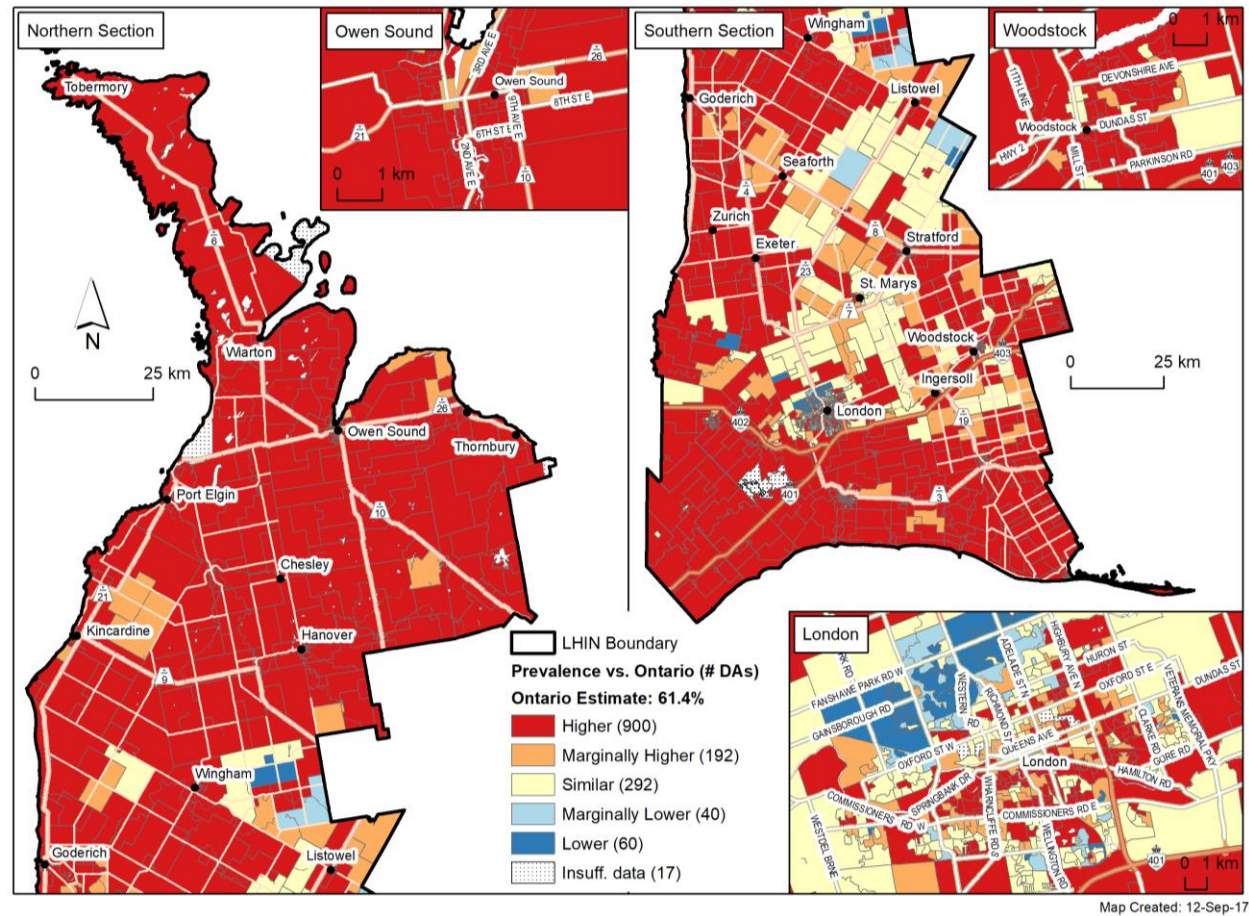| Category	Mean prevalence % (range)
Overall	18.6
Higher	24.3 (20.7, 34.9)
Marginally Higher	20.9 (19.2, 23.8)
Similar	17.7 (14.8, 21.5)
Marginally Lower	14.5 (13.4, 15.5)
Lower	12.3 (5.8, 14.4)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
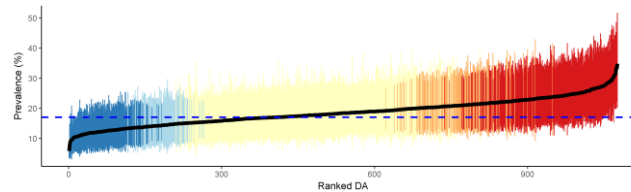
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 3.16 Current smoking among males (age 12 and older), 2000–2014, Waterloo Wellington Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Guelph

0 1 km

Cambridge

Kitchener-Waterloo

0 20 km

N

Mount Forest

Palmerston

Arthur

Fergus

Elora

Elmira

Guelph

Waterloo
Kitchener

New Hamburg

Cambridge

Ayr

LHIN Boundary

Prevalence vs. Ontario (# DAs)
Ontario Estimate: 23.8%

- Higher (217)
- Marginally Higher (108)
- Similar (421)
- Marginally Lower (118)
- Lower (212)
- Insuff. data (4)

Map Created: 11-Sep-17
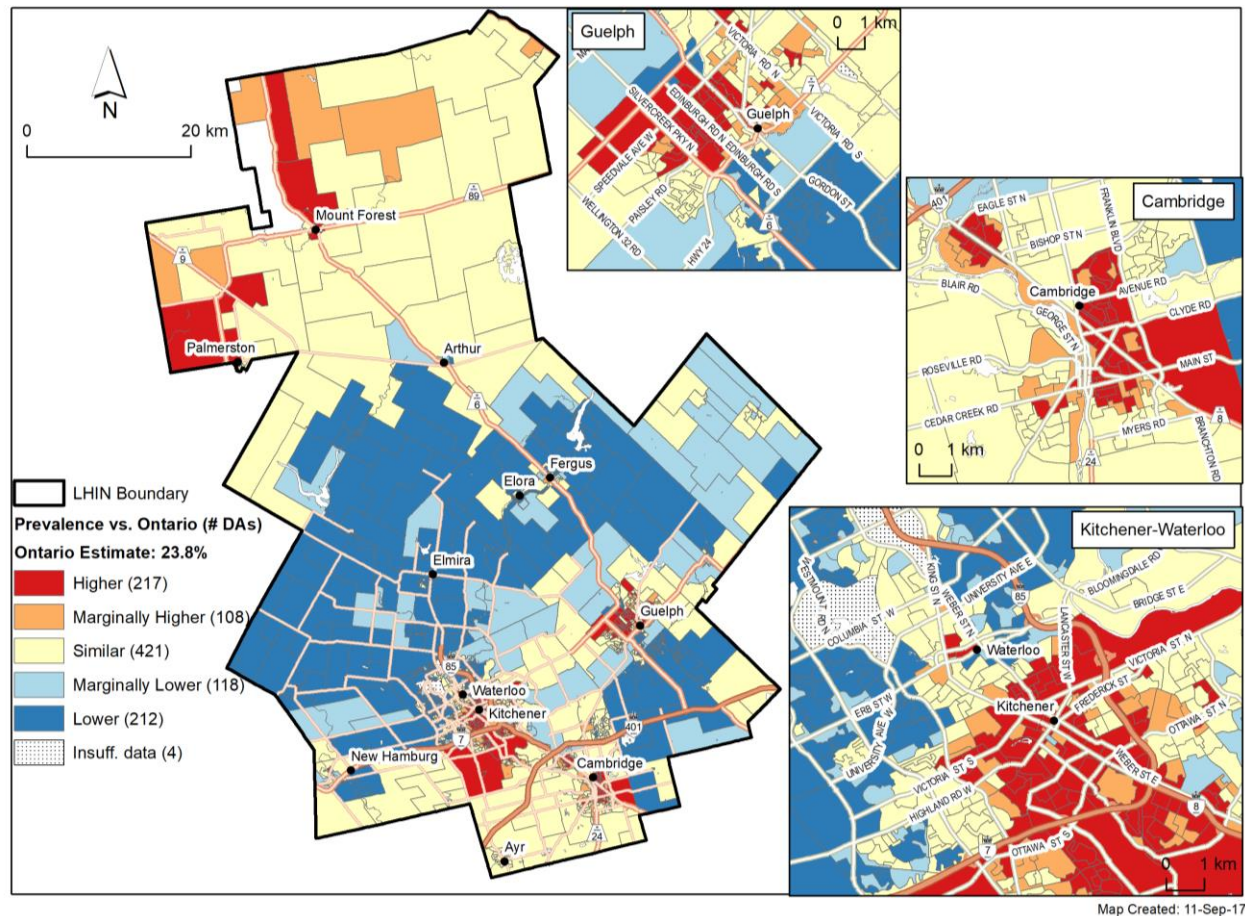
Category	Mean prevalence % (range)
Overall	24.6
Higher	31.9 (26.9, 39.9)
Marginally Higher	28.2 (26.5, 31.1)
Similar	24.3 (20.9, 28.6)
Marginally Lower	20.6 (18.6, 21.8)
Lower	18.1 (7.0, 20.6)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 3.17 Current smoking among adolescent females (ages 12 to 18), 2000–2014, Waterloo Wellington Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	10.3
Higher	13.4 (11.0, 22.0)
Marginally Higher	11.0 (9.8, 14.5)
Similar	9.1 (7.1, 11.5)
Marginally Lower	6.8 (6.1, 7.2)
Lower	4.9 (2.1, 6.3)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
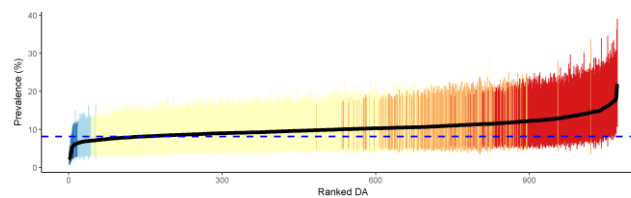
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 3.18 Current smoking among adolescent males (ages 12 to 18), 2000–2014, Waterloo Wellington Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
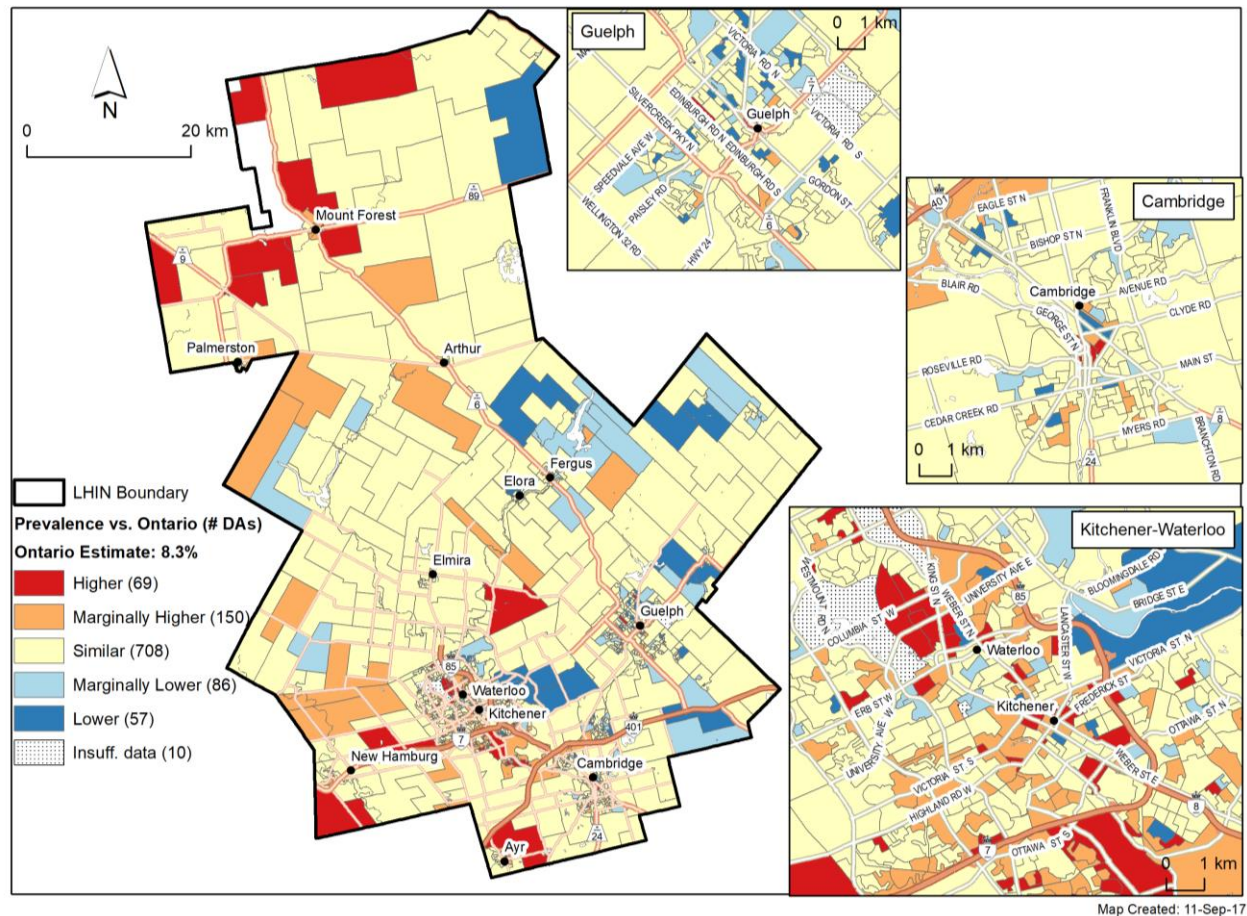
Category	Mean prevalence % (range)
Overall	9.1
Higher	12.9 (11.3, 15.7)
Marginally Higher	11.1 (10.1, 13.0)
Similar	8.9 (7.2, 11.1)
Marginally Lower	6.9 (6.3, 7.3)
Lower	5.6 (1.3, 6.7)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
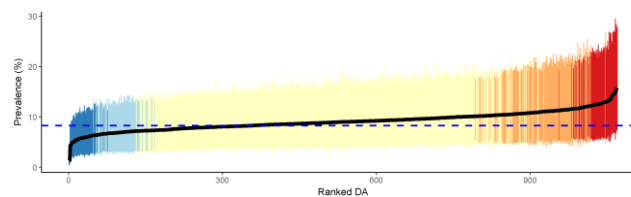
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Smoking: ever-smoked status

People age 12 and older

Approximately one in two Ontario females and three in five Ontario males reported having ever-smoked.

Higher prevalence than Ontario

Across the LHIN, there were many areas with a higher prevalence of ever-smoked status than the Ontario average for females (n=544; Figure 3.19) and males (n=477; Figure 3.20). For both sexes, these areas tended to occur in the eastern half of the LHIN, with very few higher prevalence areas northwest of Kitchener-Waterloo and surrounding Elmira. Higher prevalence areas for females and males occurred in most areas of Guelph, Kitchener-Waterloo and Cambridge, east of Fergus and north of Mount Forest.

Lower prevalence than Ontario

For females (n=67; Figure 3.19) and males (n=69; Figure 3.20), areas of lower prevalence of ever-smoking status were typically located in the western half of the LHIN, northwest of Kitchener-Waterloo, and west of Elmira, with a few additional areas towards the west of Kitchener-Waterloo.

Adolescents

The area-based prevalence of ever-smoked status was not estimated for adolescent populations.

Figure 3.19 Ever-smoked status among females (age 12 and older), 2000–2014, Waterloo Wellington Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
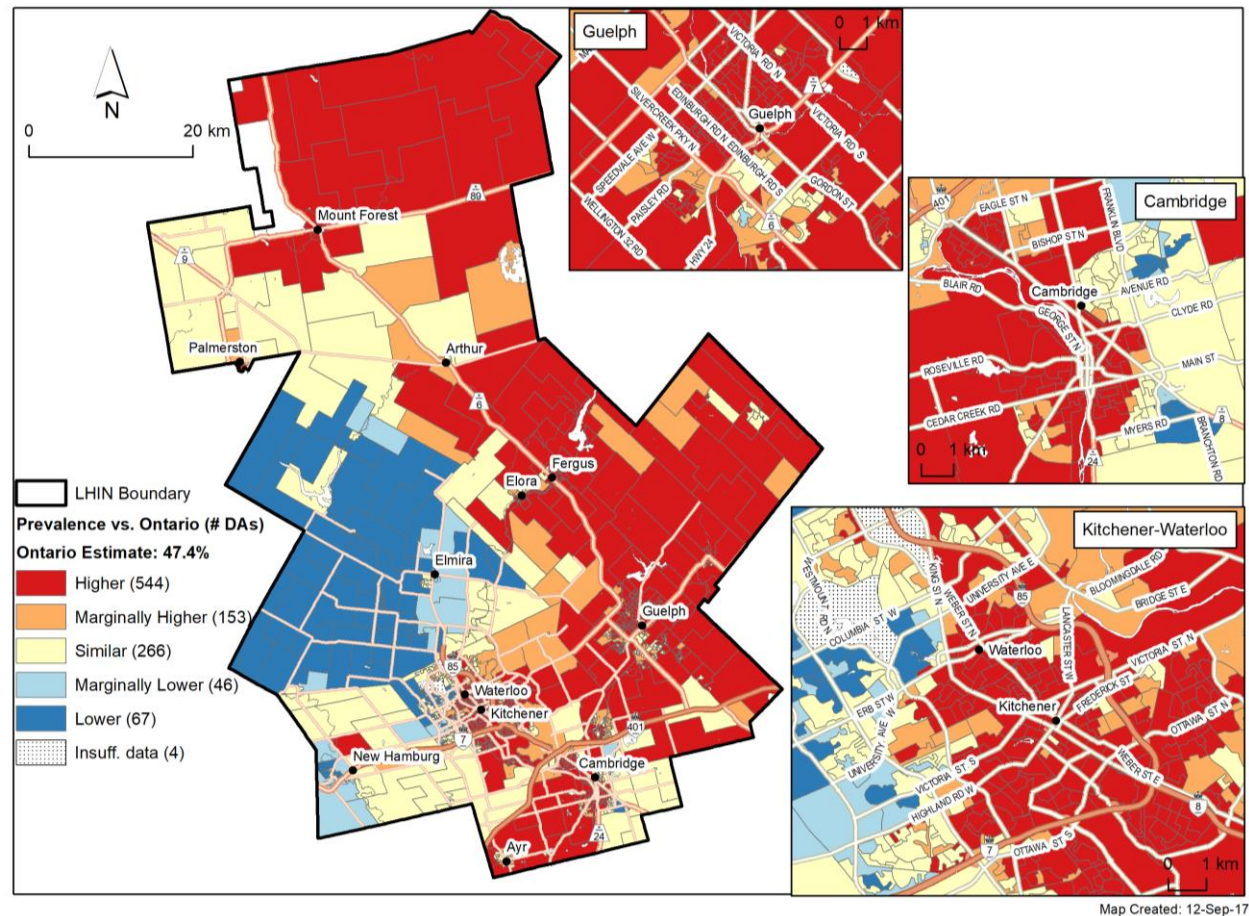
Category	Mean prevalence % (range)
Overall	51.8
Higher	55.9 (50.8, 69.2)
Marginally Higher	51.6 (49.7, 54.1)
Similar	47.9 (43.7, 51.3)
Marginally Lower	43.4 (40.6, 45.1)
Lower	40.2 (34.3, 43.1)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
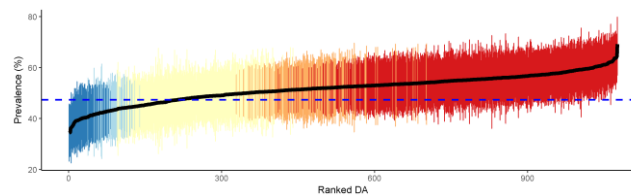
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 3.20 Ever-smoked status among males (age 12 and older), 2000–2014, Waterloo Wellington Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Map Created: 12-Sep-17
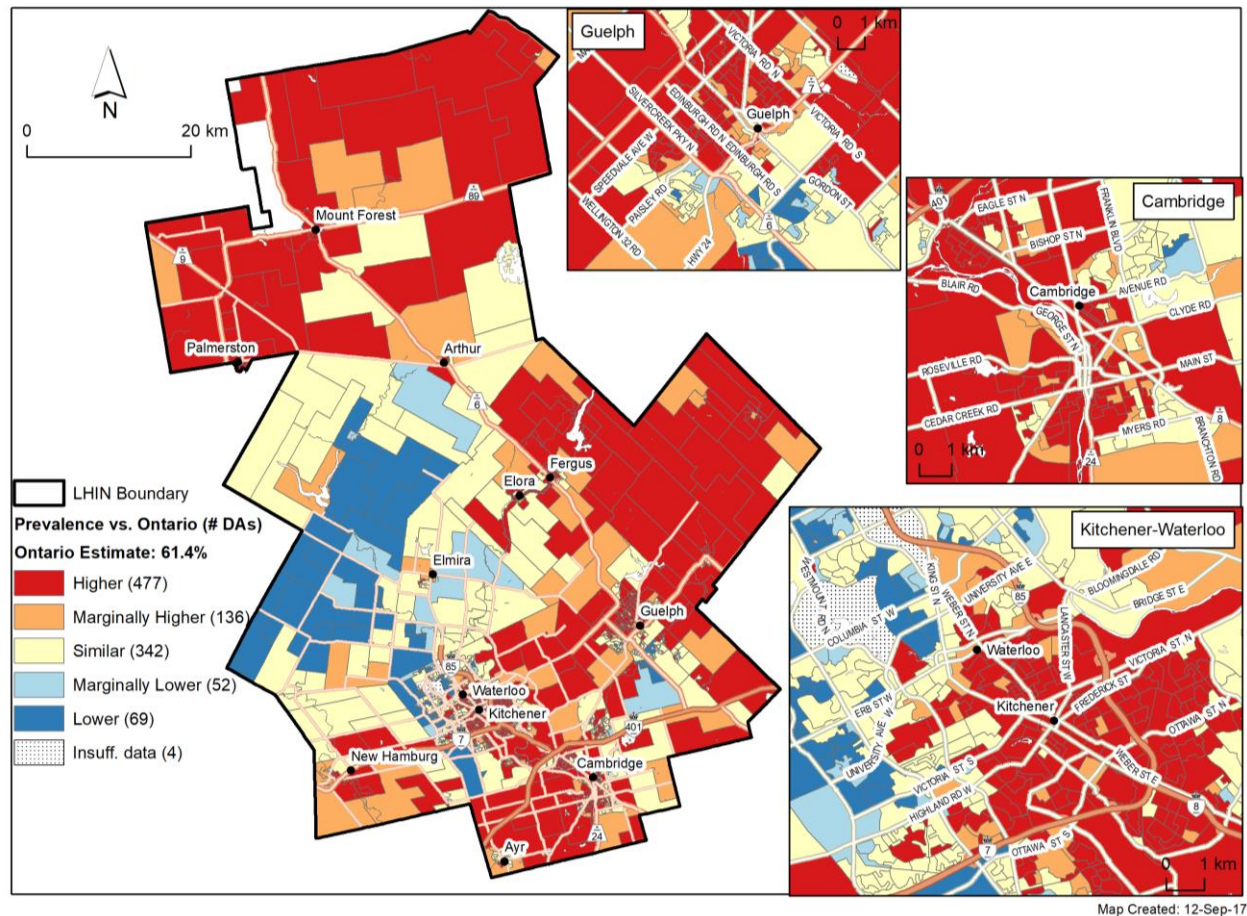
Category	Mean prevalence % (range)
Overall	64.1
Higher	67.7 (64.3, 77.1)
Marginally Higher	64.3 (63.0, 65.6)
Similar	61.5 (57.6, 64.3)
Marginally Lower	58.1 (56.3, 59.6)
Lower	55.5 (52.1, 58.8)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

LHIN 4

Hamilton Niagara
Haldimand Brant

4. Hamilton Niagara Haldimand Brant LHIN

Key Findings

Top three priority risk factor population estimates by sex (see Table 4.1 below):

Females:
   Alcohol—current consumption
   Smoking—ever-smoked status
   Excess body weight
Males:
   Smoking—ever-smoked status
   Alcohol—current consumption
   Excess body weight

Risk factor summary

Alcohol—current consumption
   Priority areas:
   • Females: many areas across the LHIN, including most areas in St. Catharines and Brantford
   • Males: areas scattered across the LHIN, particularly in the northern half of the LHIN; areas in St. Catharines and towards the west of Brantford
   • Adolescent females: areas scattered across the LHIN and many parts of Hamilton, St. Catharines, Brantford and Burlington, as well as areas north of Simcoe
   • Adolescent males: areas were more predominant in the western half of the LHIN and in parts of Hamilton, St. Catharines and Brantford
Alcohol—consumption exceeding cancer prevention recommendations
   Priority areas:
   • Females: areas towards the central part of the LHIN, south of Caledonia, and around Burlington, Grimsby, and clusters in Hamilton, St. Catharines and Brantford
   • Males: many areas across the LHIN, with large concentrations throughout St. Catharines, Brantford, downtown Hamilton, and north to Burlington; most areas around Caledonia, Dunnville, Fort Erie, Niagara Falls and Port Dover
Excess body weight
   Priority areas:
   • Females: most areas in the central and southwestern parts of the LHIN, many parts of Hamilton and Brantford, and many areas around Dunnville and south of Niagara Falls
   • Males: many areas scattered across the LHIN, including many areas in Hamilton and Brantford and south of St. Catharines
   • Adolescent females: areas along the eastern boundary of the LHIN from Niagara Falls to Fort Erie, and many areas in Brantford

Inadequate vegetable and fruit consumption

Priority areas:
- Females: many areas throughout Hamilton, particularly throughout downtown and towards the northeast of the city, some areas in Brantford, St. Catharines, southwest of Niagara Falls, around Dunnville and southwest of Simcoe
- Males: areas in the south of the LHIN: southwest of Port Dover, surrounding Dunnville and northwest of Fort Erie

Physical activity

Priority areas:
- Females: a few areas dispersed across the LHIN and some clusters in Hamilton and Brantford
- Males: several clusters in Hamilton and along the western boundary of the LHIN

Sedentary behaviour

Priority areas:
- Females: many parts of Brantford, areas throughout Hamilton and near Simcoe
- Males: very few areas across the LHIN

Smoking—current

Priority areas:
- Females: many areas across the LHIN, particularly towards the south, as well as in Brantford and Hamilton, near Niagara Falls, Ford Erie, Dunnville and Simcoe; some areas in and around St. Catharines
- Males: areas toward the southwest of the LHIN and in Hamilton and Brantford, as well as several areas around St. Catharines
- Adolescent females: areas scattered across the western and eastern tips of the LHIN, and many areas in Hamilton, St. Catharines and Brantford
- Adolescent males: many areas scattered across the western half of the LHIN, and in Hamilton and Brantford

Smoking—ever-smoked status

Priority areas:
- Females: many areas across the LHIN, including most parts of Hamilton, St. Catharines and Brantford
- Males: many areas across the LHIN, including most parts of Hamilton, St. Catharines and Brantford

Introduction

This section describes the estimated local prevalence of risk factors across the LHIN compared to the Ontario prevalence estimates from 2000 to 2014. These comparisons are always relative to Ontario with respect to the level of statistical evidence for the underlying prevalence estimate and often the number of areas meeting specific criteria are presented in parentheses (e.g., n=40). Risk factor maps are presented for females and males age 12 and older, and for adolescent females and adolescent males ages 12 to 18 inclusive. Throughout the text, the terms "area(s)" and "local" refer to the 2006 census dissemination areas (see the Data and Methods section, page 3).

Exclusions

As discussed in the Interpretation section (page 7), maps are shown only for risk factor estimates in the LHIN where one or more local estimates were higher than Ontario (or lower than Ontario for physical activity). Therefore, the risk factor maps not displayed for Hamilton Niagara Haldimand Brant LHIN include:

- excess body weight for adolescent males;
- inadequate vegetable and fruit consumption for adolescent females and adolescent males;
- physical activity for adolescent females and adolescent males; and
- sedentary behaviour for adolescent females and adolescent males.

Notes

Risk factor prevalence could not be estimated for several areas in the Hamilton Niagara Haldimand Brant LHIN (e.g., suppressed census populations or institutionalized populations), which are shown as "insufficient data" on the maps. These areas include the Six Nations of the Grand River Territory and the Mississaugas of the New Credit First Nations. Additionally, areas with unavailable population data are shown as "insufficient data." See Appendix C for a full list of areas in the insufficient data category.

Priority population estimates

Priority population estimates may be helpful in prioritizing health promotion and planning efforts for potential populations affected by certain modifiable risk factors. Table 4.1 (page 136) presents the estimated priority populations for each risk factor by sex and age group in the Hamilton Niagara Haldimand Brant LHIN. Priority populations are defined as those living in areas with a higher risk factor prevalence (or lower prevalence for physical activity) than Ontario. These estimates were produced by summing the population from all higher (or lower for physical activity) prevalence small areas (2006 dissemination areas) after taking into account the risk factor prevalence of each area. For example, if among females 100 areas had a higher prevalence of current alcohol consumption than Ontario, the female 2006 census populations in each of these areas were multiplied by the prevalence of current alcohol consumption for each area and then summed across the 100 areas to produce an estimate of the female "priority population." These calculations are intended to provide a measure to prioritize the risk factors rather than a population estimate.

According to the Methods (page 4) and Interpretation (page 7) sections, these higher prevalence areas had strong statistical evidence of elevated prevalence compared to Ontario (posterior probabilities ≥ 80%). An exception is physical activity, which had strong statistical evidence of lower prevalence estimates than Ontario (posterior probabilities ≤ 20%). Therefore, the population estimates for each risk factor are likely undercounted

because areas with less statistical certainty (posterior probabilities < 80% and physical activity posterior probabilities > 20%) are not included in the priority population estimates.

Table 4.1 Estimated priority populations among higher prevalence** Dissemination areas compared to Ontario by risk factor, sex and age group, Hamilton Niagara Haldimand Brant Local Health Integration Network (LHIN), using 2006 census populations

Risk factor	Female priority population*†	% of female population in the LHIN† (n=588,270)	Male priority population*†	% of male population in the LHIN† (n=546,240)	Adolescent female priority population*‡	% of adolescent female population in the LHIN‡ (n=60,820)	Adolescent male priority population*‡	% of adolescent male population in the LHIN‡ (n=63,700)
Alcohol—current consumption	244,240	42%	157,240	29%	6,570	11%	10,480	16%
Alcohol—consumption exceeding cancer prevention recommendations	9,980	2%	31,540	6%	NM	—	NM	—
Excess body weight	115,220	20%	139,670	26%	1,260	2%	NE	—
Inadequate fruit and vegetable consumption	79,110	13%	28,020	5%	NE	—	NE	—
Physical activity**	8,560	1%	3,680	1%	NP	—	NP	—
Sedentary behaviour	44,970	8%	35,140	6%	NE	—	NE	—
Smoking—current status	61,900	11%	45,220	8%	2,220	4%	1,460	2%
Smoking—ever-smoked status	235,580	40%	192,430	35%	NM	—	NM	—

NE = no estimates within the "higher" prevalence categories; NM = not modelled; NP = census population estimates not available
* Estimates rounded to multiples of 10
** For physical activity, priority populations are those living in areas with a lower risk factor prevalence compared to Ontario
† Population age 12 and older
‡ Population ages 12 to 18
— Value not applicable

Alcohol—current consumption

People age 12 and older

An estimated 70% of females and 79% of males in Ontario reported current alcohol consumption.

Higher prevalence than Ontario

Across the Hamilton Niagara Haldimand Brant LHIN, there were more areas that had a higher prevalence of current alcohol consumption than the Ontario average among females (n=1,146; Figure 4.1) compared to males (n=709; Figure 4.2). For females, most areas in St. Catharines, Burlington and Brantford had higher prevalence estimates. Many higher prevalence areas were also located in parts of Hamilton and around Grimsby, Fort Erie, Niagara Falls, Dunnville, Caledonia and Simcoe. For males, higher prevalence areas were also located in Hamilton, St. Catharines and Brantford, and around Brantford, Burlington, Grimsby, Caledonia, Niagara Falls and Simcoe.

Lower prevalence than Ontario

For females (n=62; Figure 4.1) and males (n=64; Figure 4.2), most areas with a lower prevalence of current alcohol consumption than the Ontario average were located throughout Hamilton.

Adolescents

Among the adolescent populations in Ontario, approximately 40% of females and males reported current alcohol consumption.

Higher prevalence than Ontario

For adolescent females (n=541; Figure 4.3) and adolescent males (n=778; Figure 4.4), areas with a higher prevalence of current alcohol consumption than their Ontario averages were scattered across the LHIN. For both sexes, many areas were located in Hamilton, St. Catharines and Brantford. For adolescent females, additional areas were located near Fort Erie. For adolescent males, additional areas were located in the southwestern part of the LHIN.

Lower prevalence than Ontario

Among adolescent females (n=353; Figure 4.3), areas with a lower prevalence of current alcohol consumption than the Ontario average were scattered across the LHIN, and in many parts of Hamilton, St. Catharines and Burlington. A few additional areas were located in Brantford. For adolescent males (n=239; Figure 4.4), many lower prevalence areas were located in Hamilton, St. Catharines and Burlington, with a few additional areas in Brantford.

Figure 4.1 Current alcohol consumption among females (age 12 and older), 2000–2014, Hamilton Niagara Haldimand Brant Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
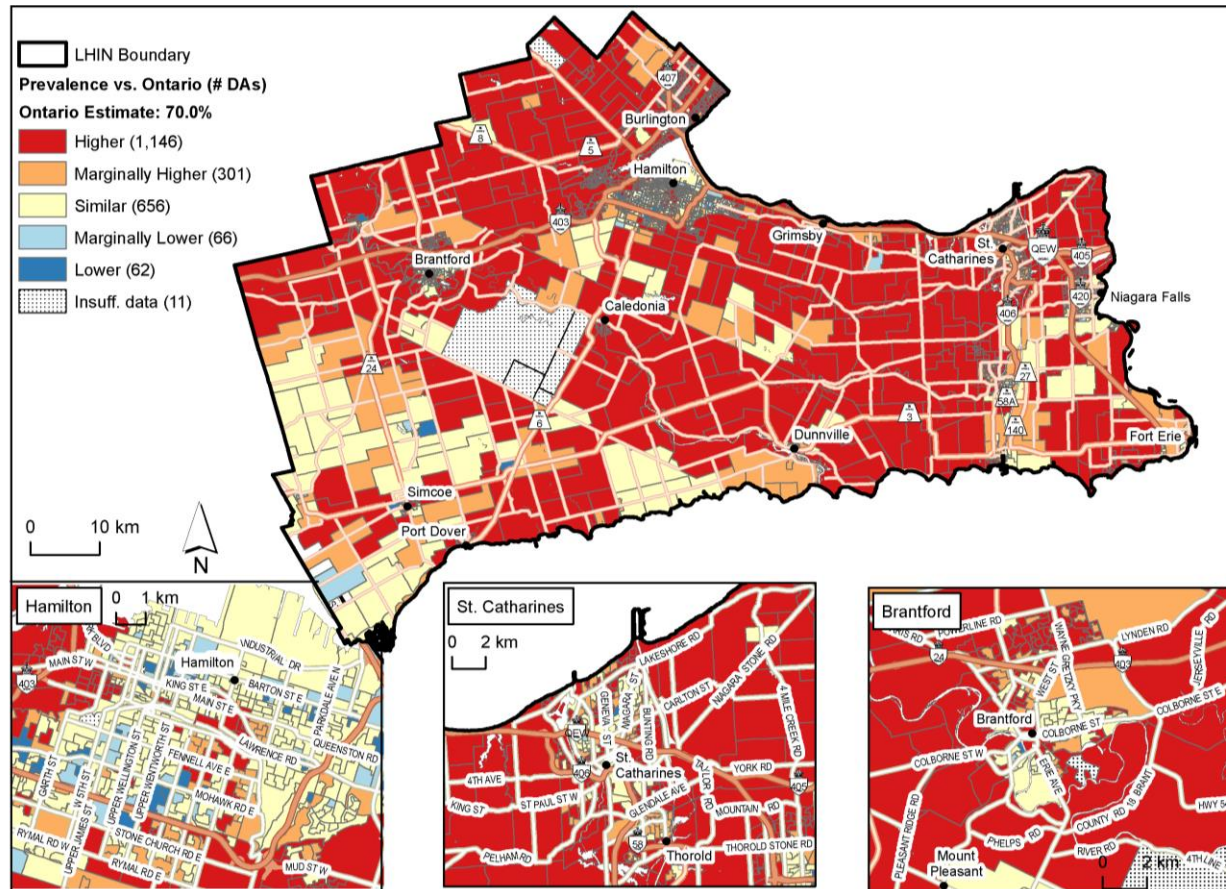
Category	Mean prevalence % (range)
Overall	74.3
Higher	78.0 (73.5, 86.4)
Marginally Higher	73.7 (72.0, 75.8)
Similar	70.4 (64.9, 73.5)
Marginally Lower	65.7 (63.9, 67.2)
Lower	61.6 (47.5, 65.1)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
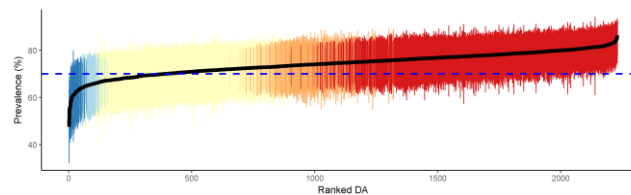
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
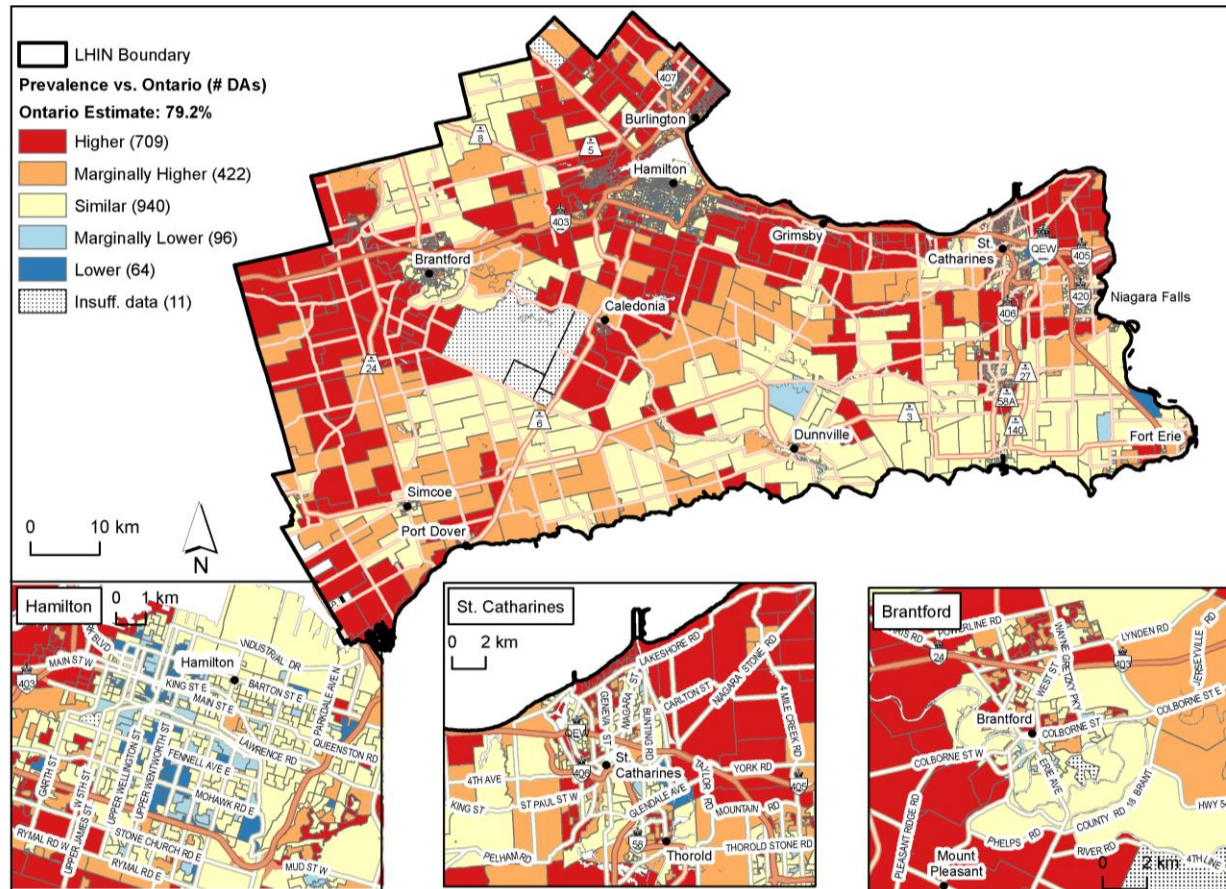
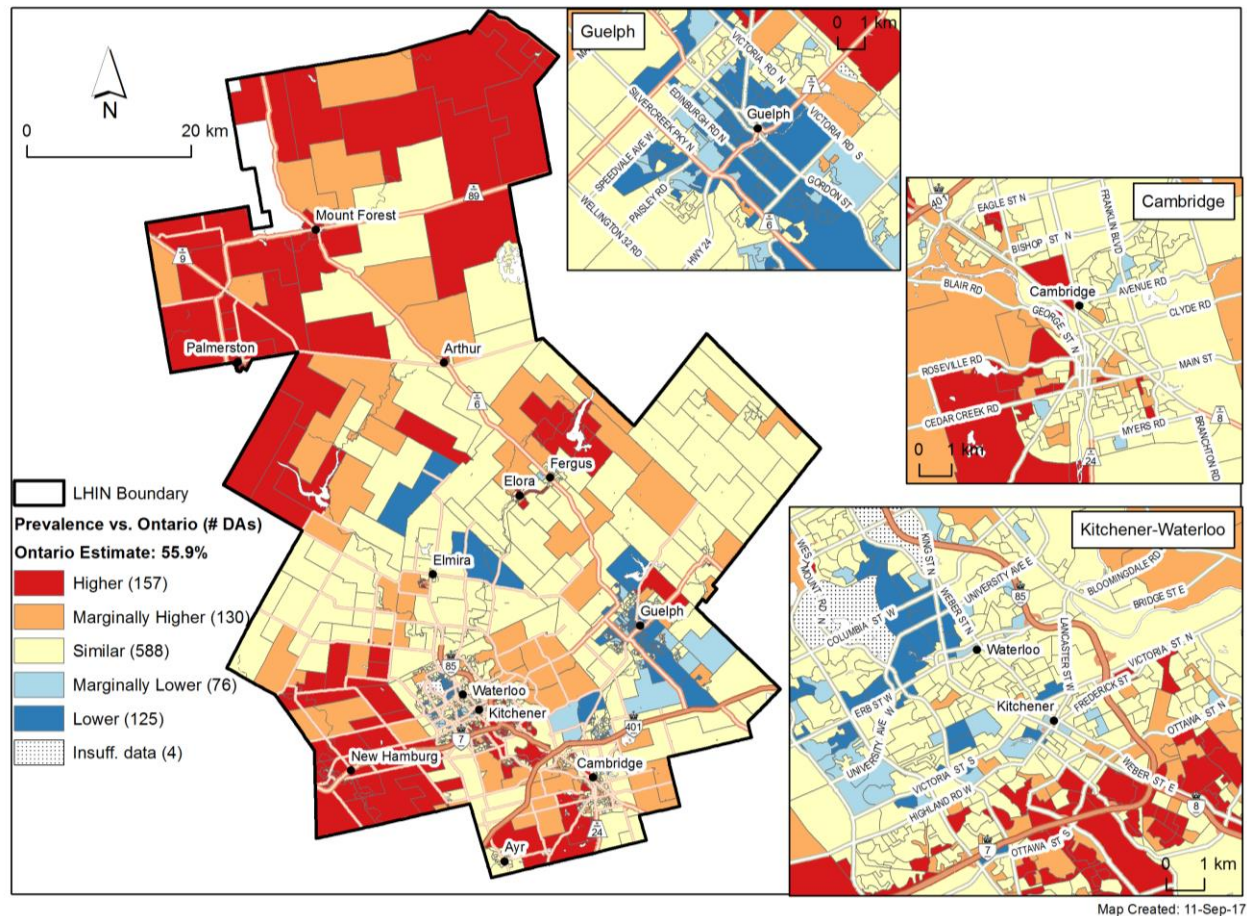| Category	Mean prevalence % (range)
Overall	80.8
Higher	83.9 (81.7, 89.3)
Marginally Higher	81.7 (80.7, 83.2)
Similar	79.2 (75.9, 81.9)
Marginally Lower	75.8 (72.1, 77.1)
Lower	73.1 (62.8, 76.2)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
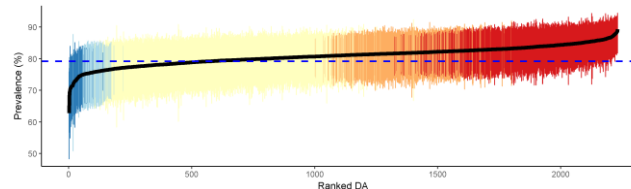
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 4.3 Current alcohol consumption among adolescent females (ages 12 to 18), 2000–2014, Hamilton Niagara Haldimand Brant Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
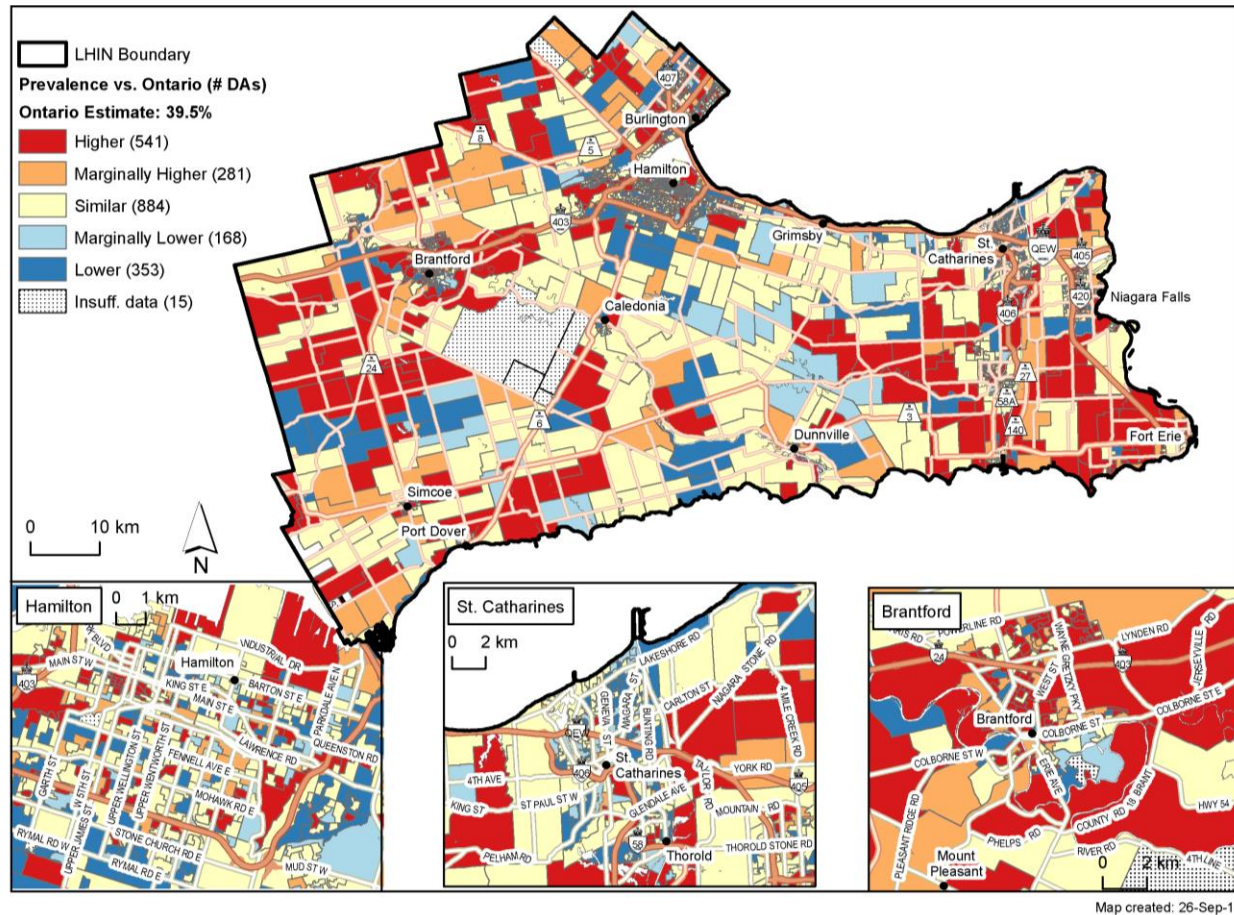
Category	Mean prevalence % (range)
Overall	40.8
Higher	48.6 (43.7, 67.5)
Marginally Higher	43.7 (42.0, 46.3)
Similar	39.7 (36.1, 44.4)
Marginally Lower	35.8 (33.0, 37.1)
Lower	31.6 (10.5, 35.7)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
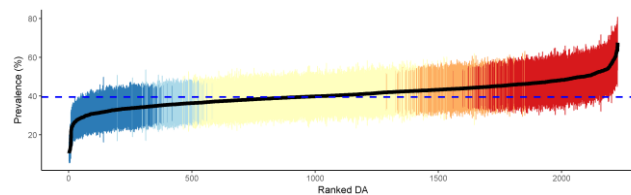
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 4.4 Current alcohol consumption among adolescent males (ages 12 to 18), 2000–2014, Hamilton Niagara Haldimand Brant Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
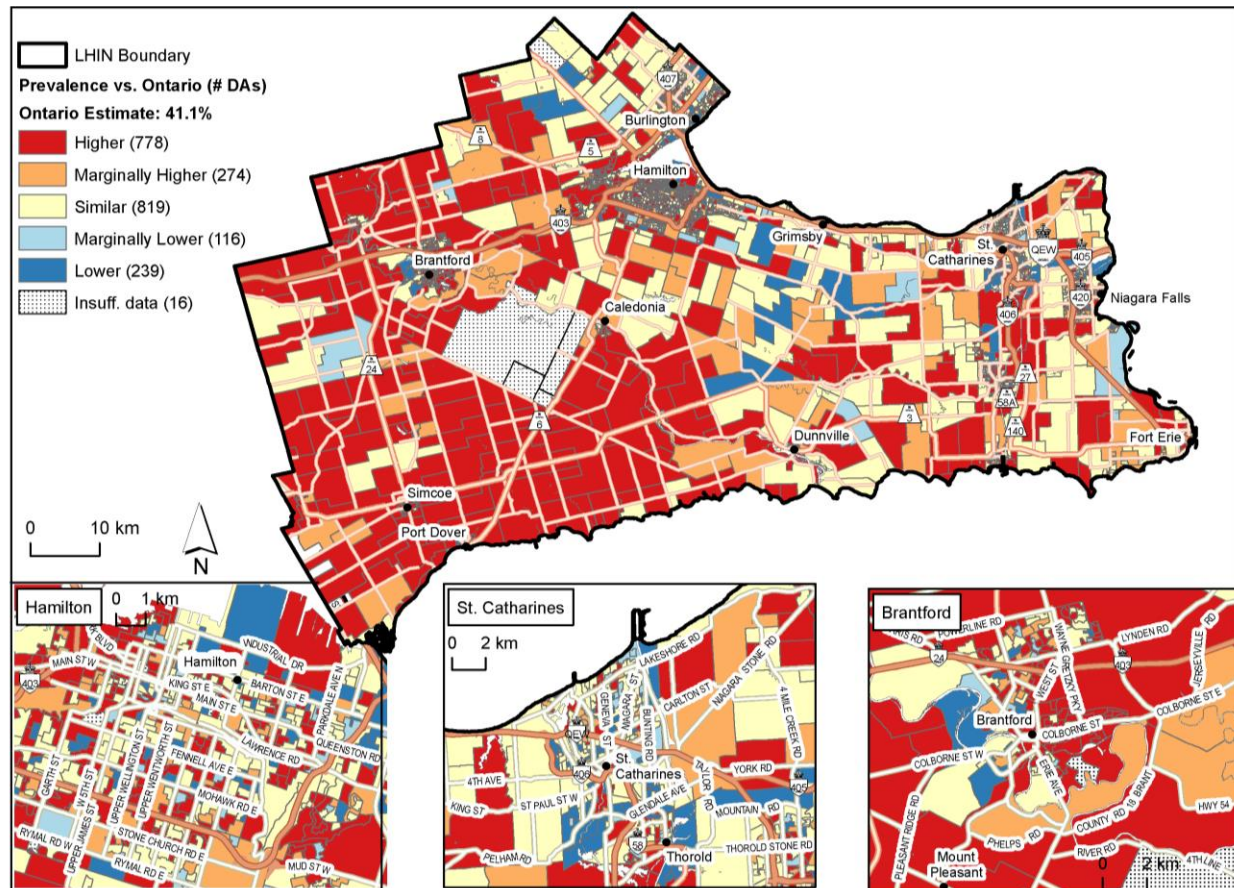
Category	Mean prevalence % (range)
Overall	43.9
Higher	50.1 (45.1, 68.8)
Marginally Higher	45.2 (43.6, 48.0)
Similar	41.7 (37.8, 45.3)
Marginally Lower	37.4 (34.0, 38.8)
Lower	32.6 (12.2, 37.3)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Alcohol—consumption exceeding cancer prevention recommendations

People age 12 and older

Almost 7% of the female population in Ontario drank alcohol in excess of the recommended limits for cancer prevention. Among males, the Ontario prevalence of exceeding the recommended limits was 8.5%.

Higher prevalence than Ontario

Areas with a higher prevalence of alcohol consumption in excess of the recommended daily limits for cancer prevention than the Ontario average were far less common among females (n=362; Figure 4.5) compared to males (n=1,095; Figure 4.6). For both sexes, higher prevalence areas were located in many areas throughout St. Catharines, south of Caledonia and northeast of St. Catharines. For females, higher prevalence areas were located in parts of Hamilton and Brantford. For males, additional areas were located across most of the LHIN, including large parts of Hamilton and Brantford, around Burlington and west of Brantford.

Lower prevalence than Ontario

Among females, areas with a lower prevalence of alcohol consumption in excess of the recommended daily limits for cancer prevention (n=43; Figure 4.5) than the Ontario average were primarily located in Hamilton. For males (n=1; Figure 4.6), there was only one lower prevalence area located in Hamilton.

Adolescents

The area-based prevalence of exceeding cancer prevention recommendations was not estimated for adolescent populations.
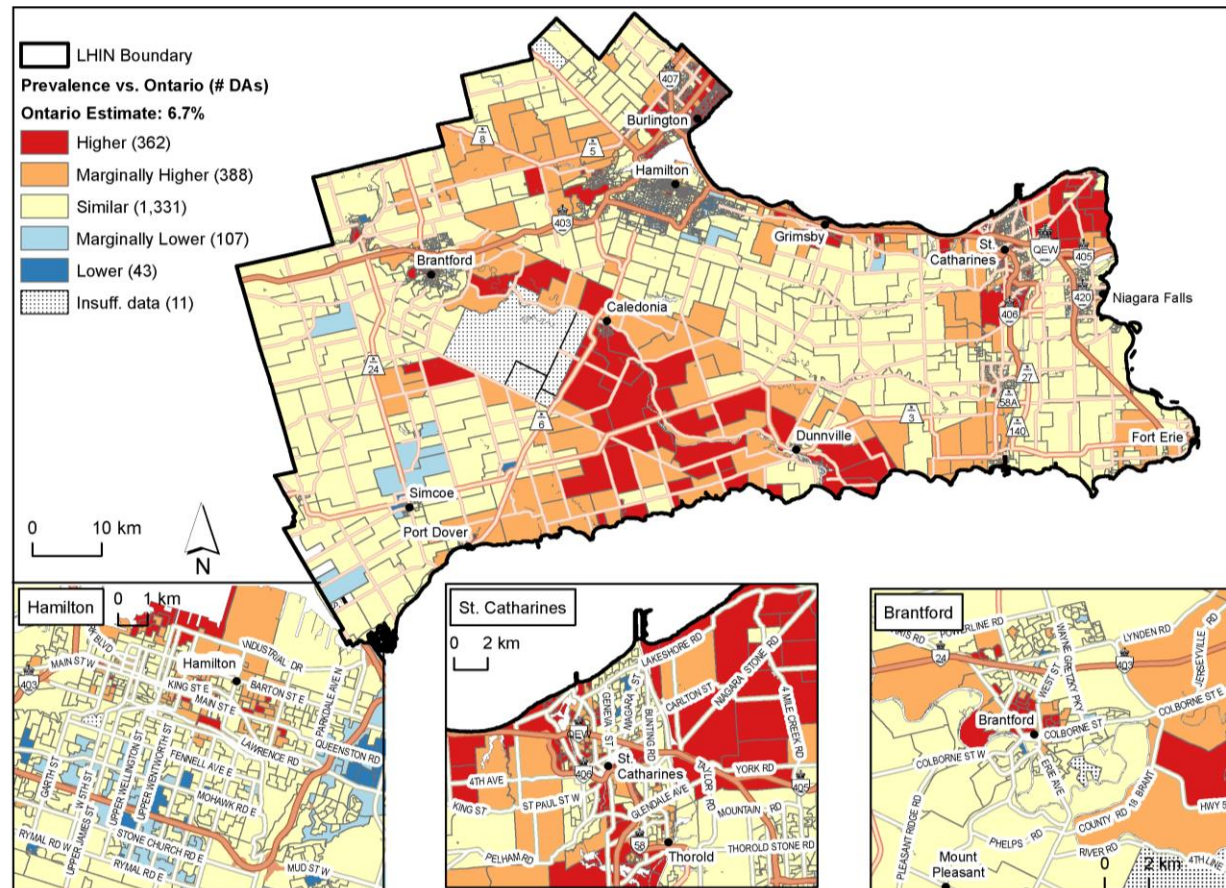
Category	Mean prevalence % (range)
Overall	7.9
Higher	10.1 (8.6, 13.0)
Marginally Higher	8.8 (7.9, 10.6)
Similar	7.4 (5.9, 9.2)
Marginally Lower	5.8 (5.3, 6.2)
Lower	5.0 (3.9, 5.6)

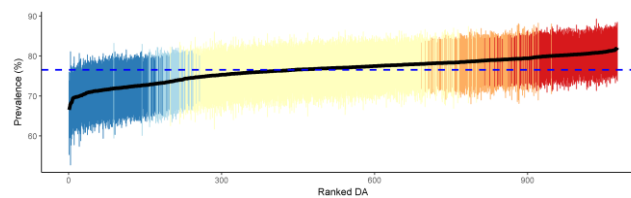Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
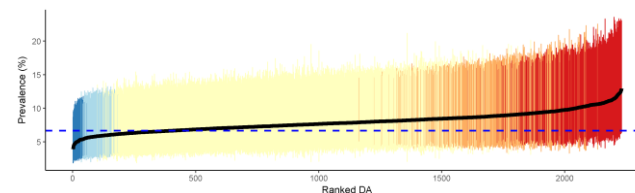
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 4.6 Alcohol consumption exceeding cancer prevention recommendations among males (age 12 and older), 2000–2014, Hamilton Niagara Haldimand Brant Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
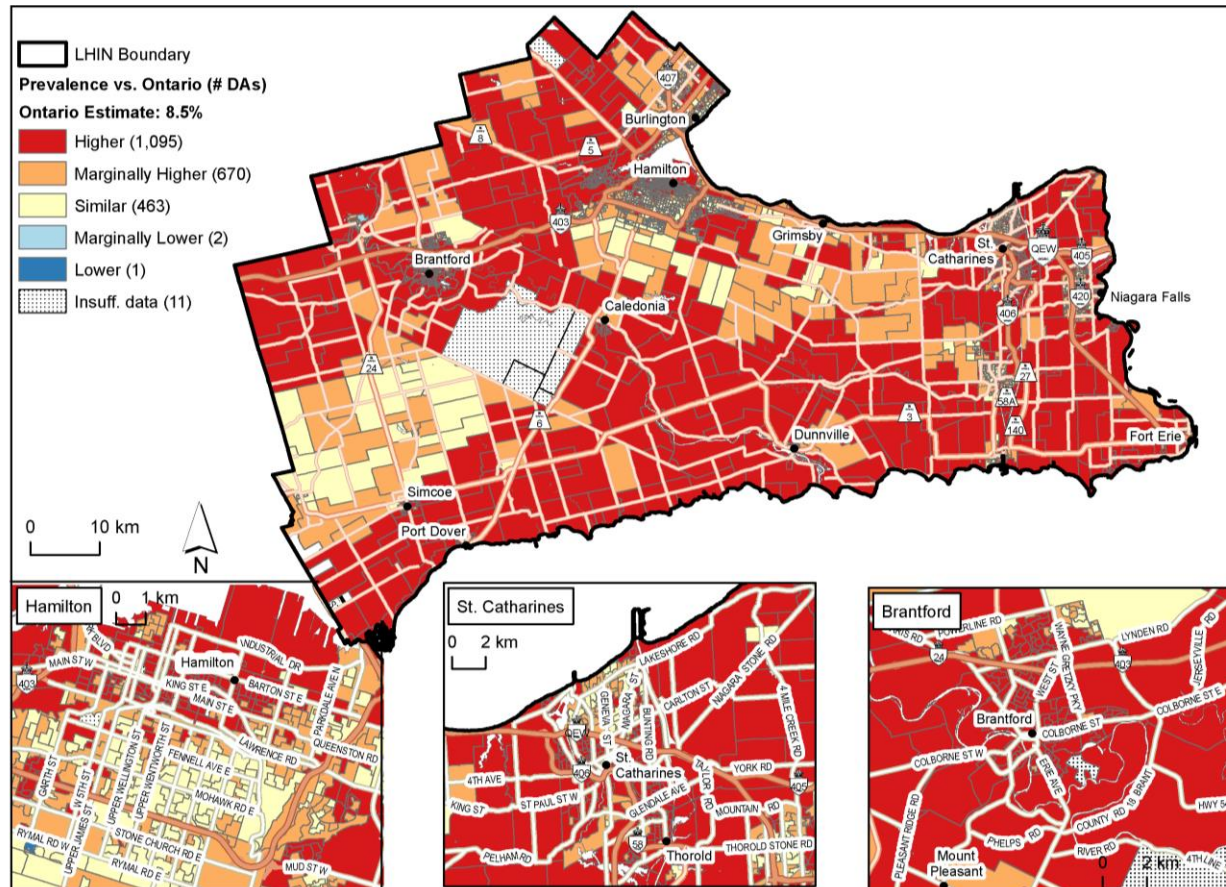
Category	Mean prevalence % (range)
Overall	10.9
Higher	11.7 (10.0, 18.8)
Marginally Higher	10.4 (9.6, 12.1)
Similar	9.5 (7.9, 10.7)
Marginally Lower	7.1 (7.0, 7.2)
Lower	4.8 (4.8, 4.8)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
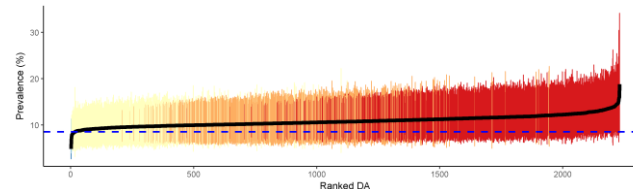
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Excess body weight

People age 12 and older

The estimated Ontario prevalence of excess body weight (overweight or obese) was 41% among females and 56% among males.

<u>Higher prevalence than Ontario</u>

For females, areas with a higher prevalence of excess body weight than the Ontario average (n=925; Figure 4.7) were clustered towards the southwestern part of the LHIN, with many areas surrounding Simcoe, Port Dover, Dunnville Caledonia, Brantford and in Hamilton and Brantford. For males (n=910; Figure 4.8), higher prevalence areas were spread across most of the LHIN, with the exception of the northern tip (north of Hamilton). As well, many areas in parts of Hamilton, St. Catharines and Brantford had higher prevalence estimates.

<u>Lower prevalence than Ontario</u>

For females (n=124; Figure 4.7), areas with a lower prevalence of excess body weight than the Ontario average were located in St. Catharines and Burlington. For males (n=78; Figure 4.8), lower prevalence areas were located in parts of Hamilton with a few additional areas in St. Catharines.

Adolescents

Among Ontario adolescents, an estimated 15% of females and 25% of males were overweight or obese.

<u>Higher prevalence than Ontario</u>

Areas with a higher prevalence of excess body weight, relative to Ontario, for adolescent females (n=227; Figure 4.9), were clustered at the eastern tip of the LHIN, adjacent to Fort Erie and Niagara Falls. Additional areas were clustered in Brantford and in parts of St. Catharines. There were no areas with a higher prevalence for adolescent males in the Hamilton Niagara Haldimand Brant LHIN (map not shown).

<u>Lower prevalence than Ontario</u>

For adolescent females, (n=1; Figure 4.9), there was only one area with a lower prevalence of excess body weight compared to the Ontario average.

Figure 4.7 Excess body weight (overweight/obese) among females (age 12 and older), 2000–2014, Hamilton Niagara Haldimand Brant Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

LHIN Boundary
Prevalence vs. Ontario (# DAs)
Ontario Estimate: 41.4%
- Higher (925)
- Marginally Higher (303)
- Similar (758)
- Marginally Lower (121)
- Lower (124)
- Insuff. data (11)
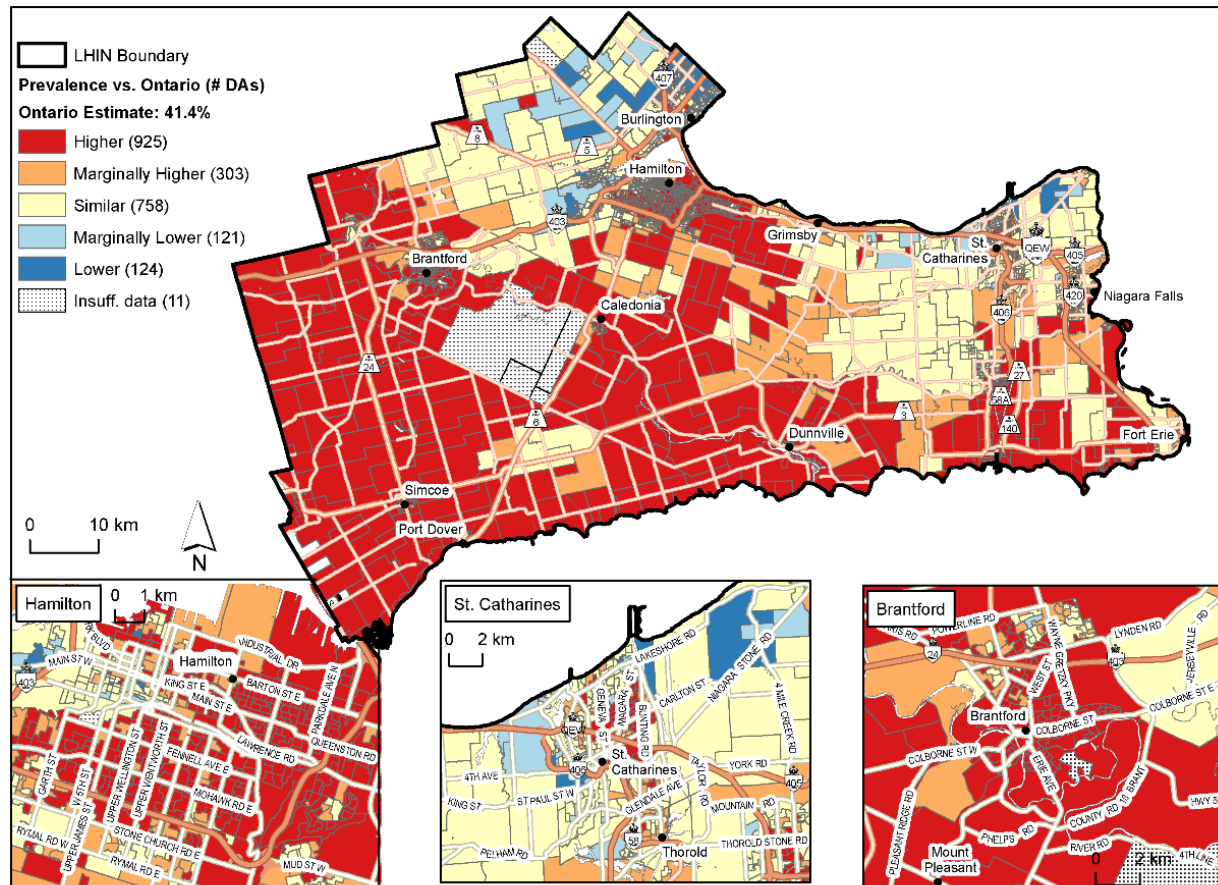
Map created: 26-Sep-17

Category	Mean prevalence % (range)
Overall	44.7
Higher	49.1 (44.7, 61.6)
Marginally Higher	44.9 (43.3, 47.1)
Similar	41.8 (37.9, 44.7)
Marginally Lower	38.2 (36.3, 39.6)
Lower	35.6 (28.8, 38.4)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
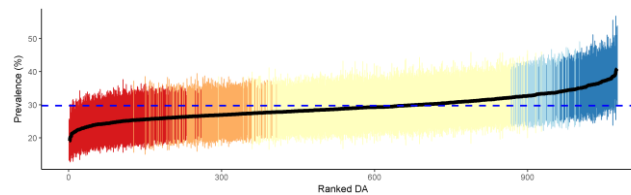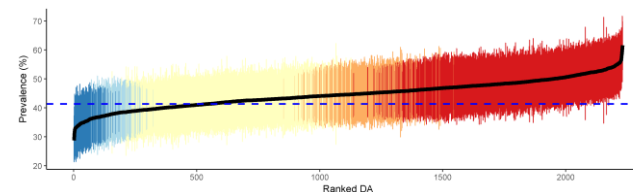

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 4.8 Excess body weight (overweight/obese) among males (age 12 and older), 2000–2014, Hamilton Niagara Haldimand Brant Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

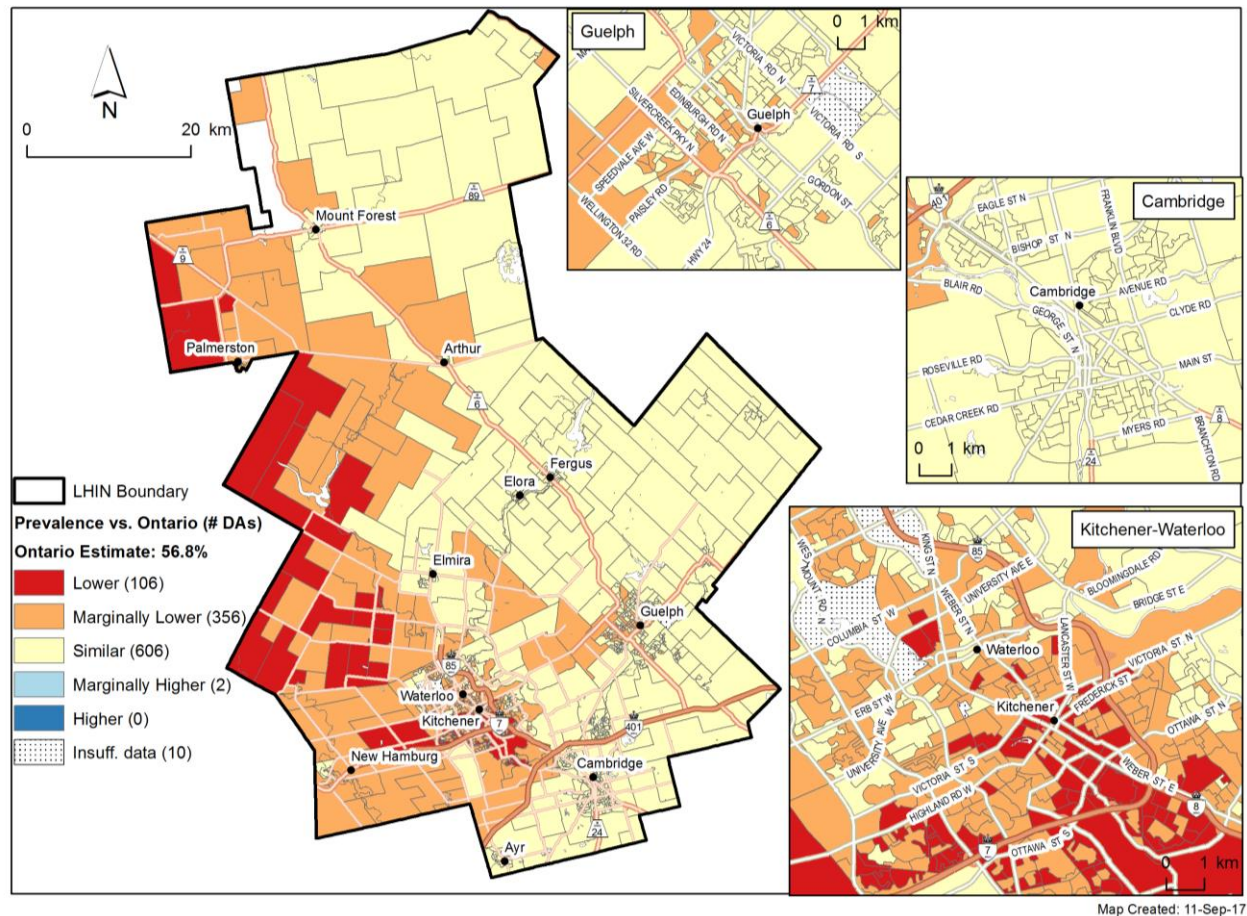| Category	Mean prevalence % (range)
Overall	58.5
Higher	61.7 (58.5, 69.0)
Marginally Higher	58.8 (57.7, 60.7)
Similar	56.2 (53.3, 58.9)
Marginally Lower	53.1 (50.8, 54.3)
Lower	50.8 (44.4, 52.9)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
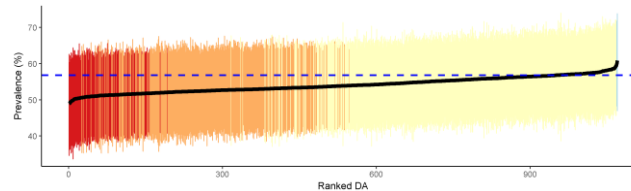
Map created: 26-Sep-17

Category	Mean prevalence % (range)
Overall	17.4
Higher	20.8 (18.8, 24.5)
Marginally Higher	18.5 (17.1, 21.8)
Similar	16.7 (13.3, 18.8)
Marginally Lower	13.2 (12.5, 13.8)
Lower	12.6 (12.6, 12.6)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Inadequate vegetable and fruit consumption

People age 12 and older

Inadequate consumption of vegetables and fruits was common across Ontario, with approximately 63% of females and 77% of males reporting inadequate consumption.

Higher prevalence than Ontario

For females, areas with a higher prevalence of inadequate vegetable and fruit consumption (n=462; Figure 4.10) than the Ontario average were located in parts of Hamilton, Brantford and St. Catharines, as well as southwest of Simcoe and southwest of Niagara Falls. For males (n=152; Figure 4.11), higher prevalence areas were located southwest of Simcoe and Niagara Falls and around Dunnville. Several additional areas were located in Hamilton, St. Catharines and Brantford.

Lower prevalence than Ontario

For females (n=354; Figure 4.10) and males (n=352; Figure 4.11), areas of adequate consumption (lower prevalence) of vegetables and fruits than the Ontario average were typically located towards the northern tip of the LHIN in Burlington and Hamilton.

Adolescents

More than two thirds of the adolescent Ontario population had inadequate vegetable and fruit consumption, at approximately 68% for females and 74% for males. There were no areas with a higher prevalence for adolescent females or adolescent males in the Hamilton Niagara Haldimand Brant LHIN. Therefore, those maps are not shown.

Figure 4.10 Inadequate vegetable and fruit consumption among females (age 12 and older), 2000–2014, Hamilton Niagara Haldimand Brant Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Map created: 26-Sep-17
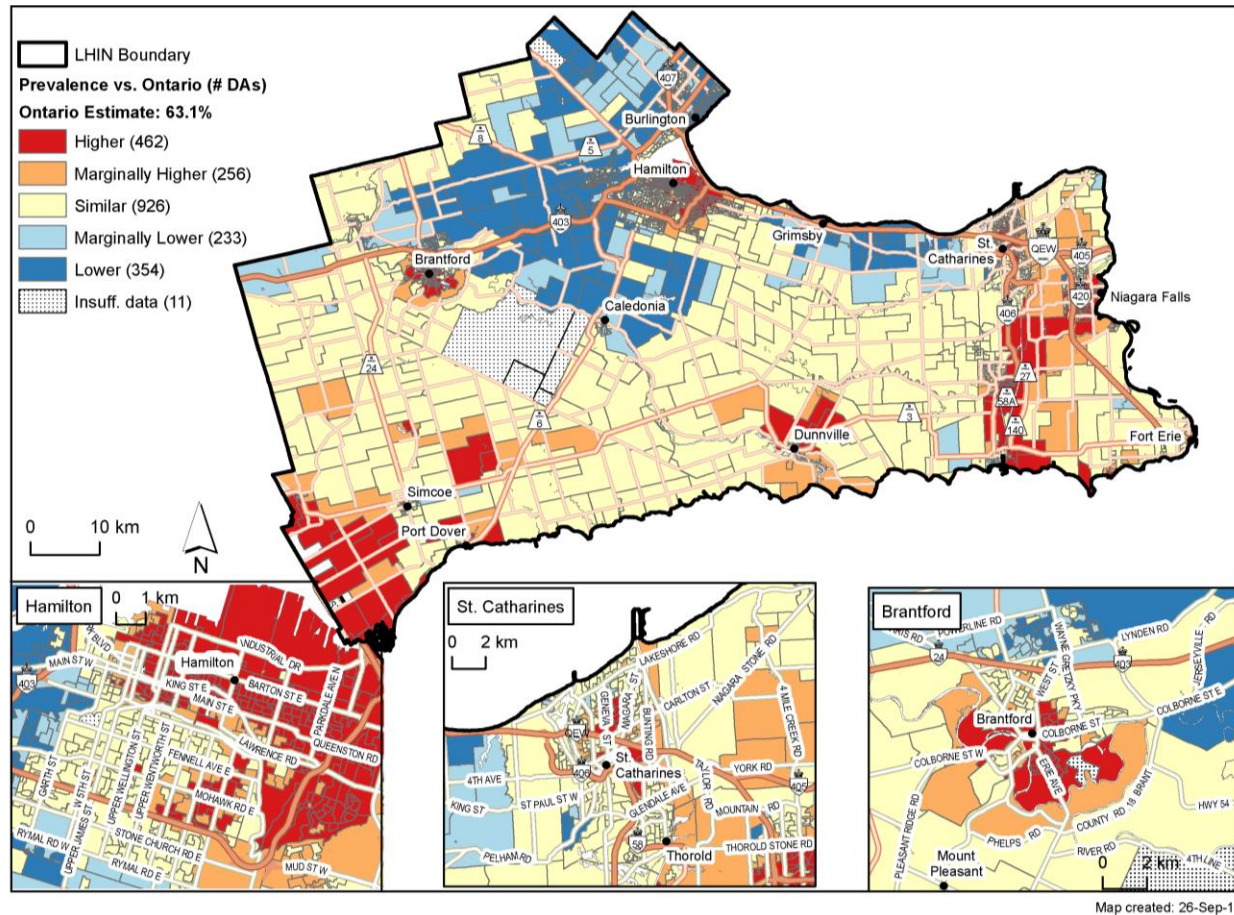
Category	Mean prevalence % (range)
Overall	63.4
Higher	68.8 (66.5, 73.6)
Marginally Higher	66.4 (64.9, 68.5)
Similar	63.2 (59.4, 66.2)
Marginally Lower	59.5 (57.4, 61.1)
Lower	57.2 (52.5, 59.9)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
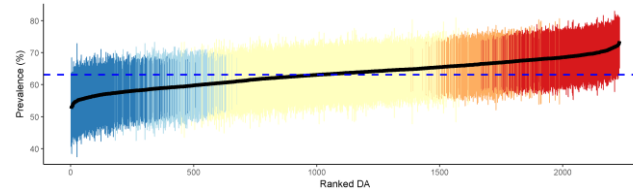
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 4.11 Inadequate vegetable and fruit consumption among males (age 12 and older), 2000–2014, Hamilton Niagara Haldimand Brant Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	76.0
Higher	80.0 (79.0, 82.6)
Marginally Higher	78.8 (77.8, 80.3)
Similar	76.5 (73.2, 78.6)
Marginally Lower	73.6 (71.3, 74.8)
Lower	71.9 (67.7, 73.9)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Physical activity

Because physical activity reduces cancer risk, lower prevalence estimates of this risk factor are of interest. The colour scheme of the maps was inverted so that the "lower than Ontario" estimates are displayed in red.

People age 12 and older

Most of the Ontario population was not physically active, with approximately one in five (23%) females and one in three (30%) males being physically active.

Lower prevalence than Ontario

For females (n=150; Figure 4.12), areas of lower prevalence of physical activity than the Ontario average were located in Hamilton and Burlington. For males, lower prevalence areas (n=58; Figure 4.13) were located in Hamilton and areas along the western boundary of the LHIN.

Higher prevalence than Ontario

Areas with a higher prevalence of physical activity than Ontario among females (n=445; Figure 4.12) were located throughout most of the LHIN, except the southwestern part of the LHIN. Few higher prevalence areas were located in Hamilton, but many were located in St. Catharines and Brantford. For males (Figure 4.13), higher prevalence areas were located throughout the LHIN, particularly in and around Hamilton and St. Catharines, and around Niagara Falls and Fort Erie.

Adolescents

Adolescents were more physically active than adults, with approximately 40% of adolescent females and 57% of adolescent males being active. In the Hamilton Niagara Haldimand Brant LHIN, no areas with a lower prevalence of physical activity than Ontario were detected for adolescent females or adolescent males, which is why those maps are not shown.

Figure 4.12 Physical activity among females (age 12 and older), 2000–2014, Hamilton Niagara Haldimand Brant Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
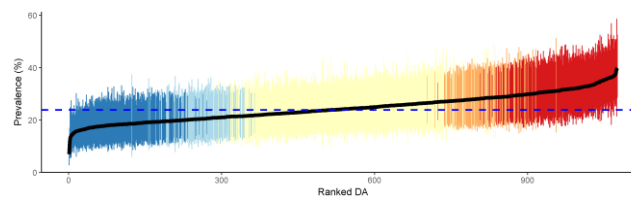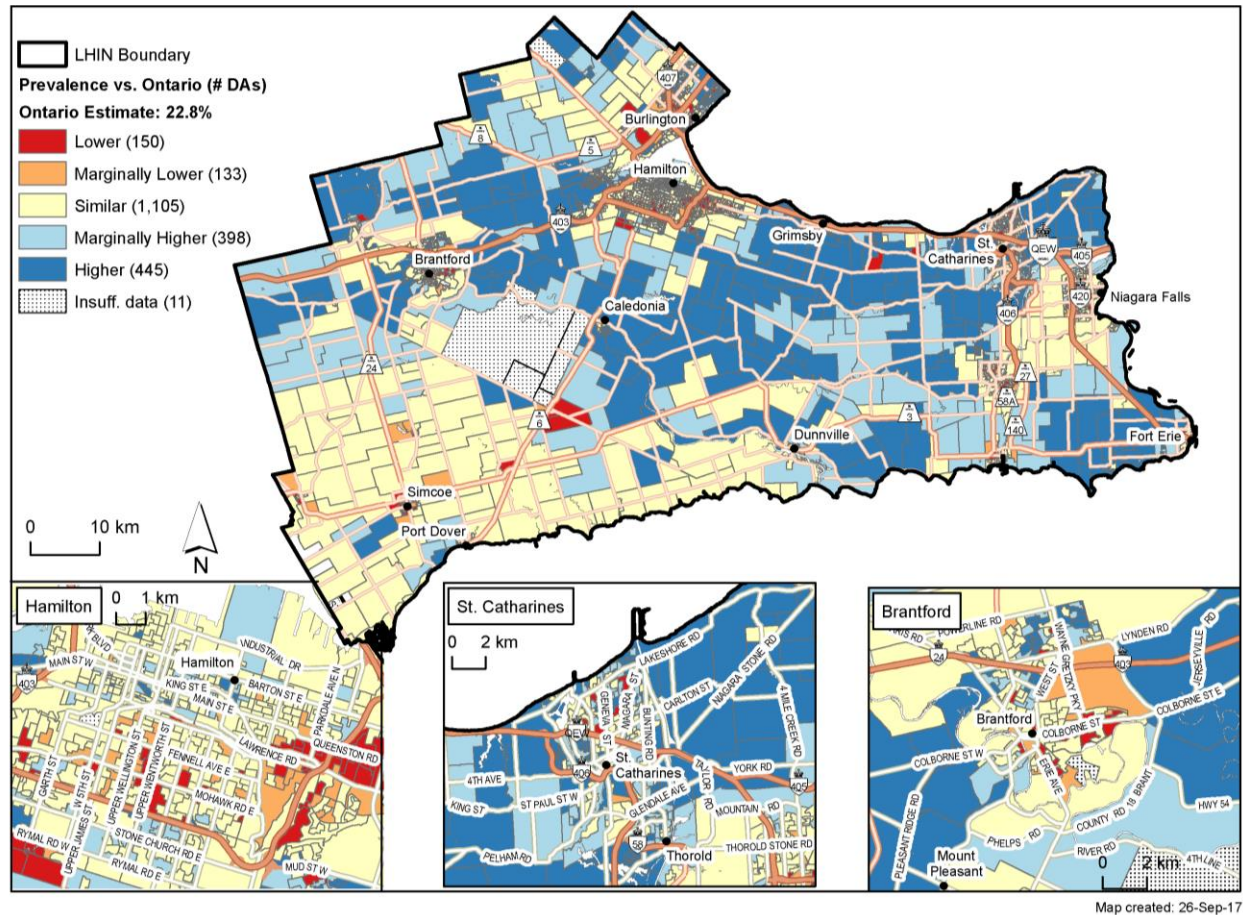

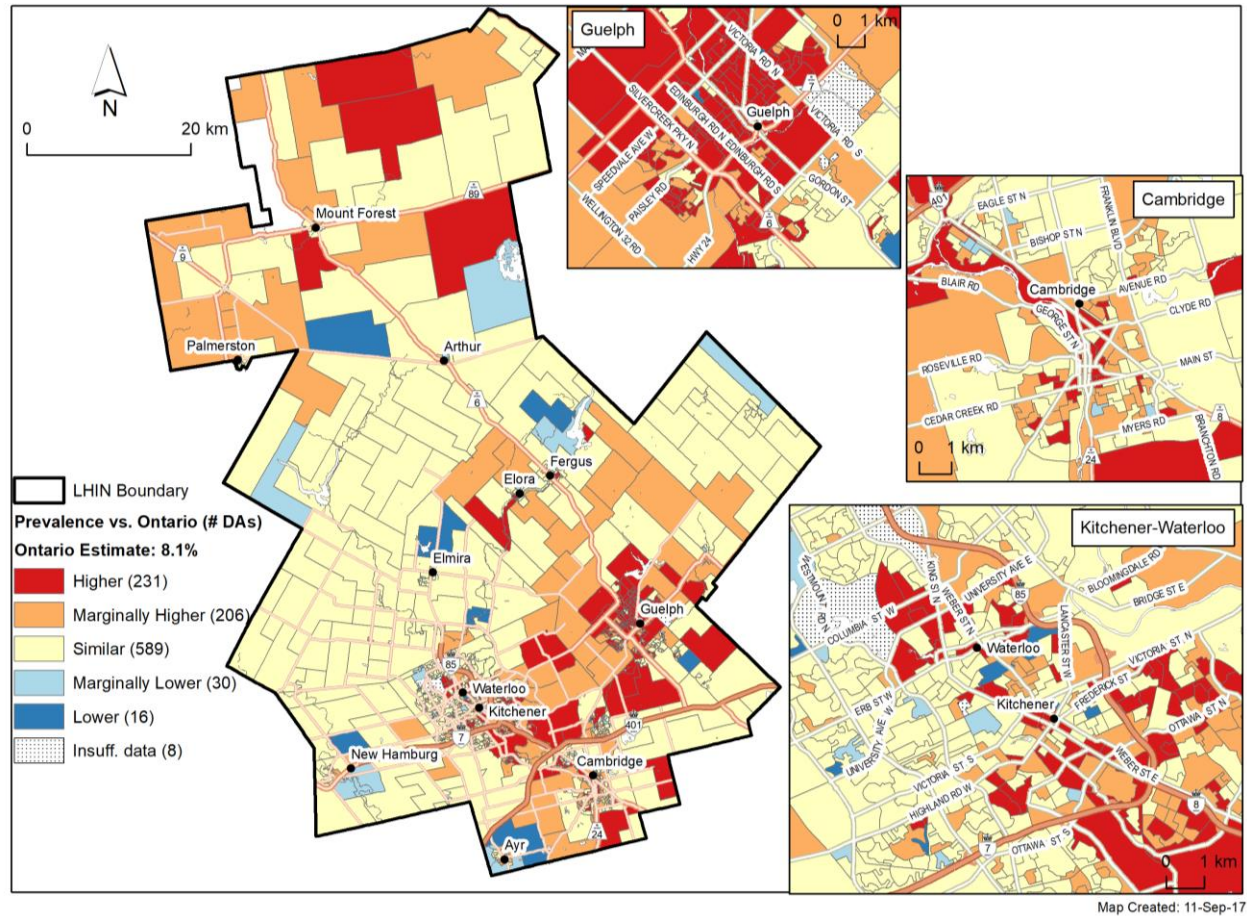| Category	Mean prevalence % (range)
Overall	24.5
Lower	18.1 (12.3, 20.1)
Marginally Lower	20.4 (19.2, 21.3)
Similar	23.4 (20.6, 26.3)
Marginally Higher	26.2 (24.9, 28.8)
Higher	28.9 (26.2, 37.5)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
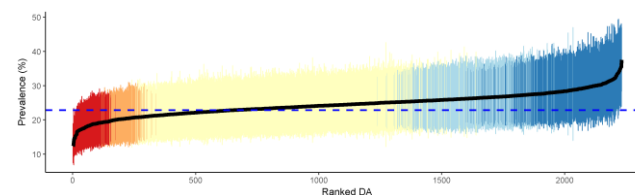
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 4.13 Physical activity among males (age 12 and older), 2000–2014, Hamilton Niagara Haldimand Brant Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	32.9
Lower	24.8 (20.4, 26.5)
Marginally Lower	26.9 (26.0, 27.7)
Similar	30.4 (27.1, 33.7)
Marginally Higher	33.4 (32.0, 35.6)
Higher	36.5 (33.4, 46.8)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
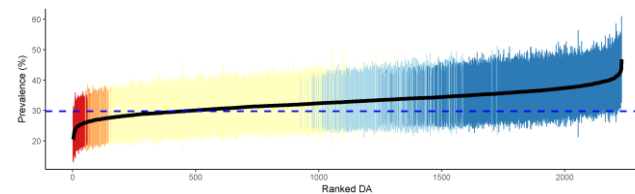
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Sedentary behaviour

People age 12 and older

Approximately half of the Ontario population reported sedentary behaviour during leisure time (females, 49%; males, 56%).

Higher prevalence than Ontario

Throughout the LHIN, there were slightly more areas with a higher prevalence of sedentary behaviours than the Ontario average for females (n=275; Figure 4.14) compared to males (n=224; Figure 4.15). For females, these areas were clustered in Brantford and around Simcoe, or scattered in Hamilton and St. Catharines. Higher prevalence areas among males were predominant in parts of Hamilton and Brantford, but were also located around Burlington and Simcoe.

Lower prevalence than Ontario

For females (n=156; Figure 4.14), most areas with a lower prevalence of sedentary behaviour than Ontario were located in the northern part of the LHIN and in Hamilton and Burlington. For males (n=130; Figure 4.15), lower prevalence areas were located throughout the southern part of the LHIN around Caledonia and Dunnville.

Adolescents

More than half of the Ontario adolescent population reported sedentary behaviour during leisure time, at approximately 55% for females and 60% for males. There were no areas with a higher prevalence of sedentary behaviour than the Ontario average among adolescents in the Hamilton Niagara Haldimand Brant LHIN, which is why those maps are not shown.

Figure 4.14 Sedentary behaviour among females (age 12 and older), 2000–2014, Hamilton Niagara Haldimand Brant Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
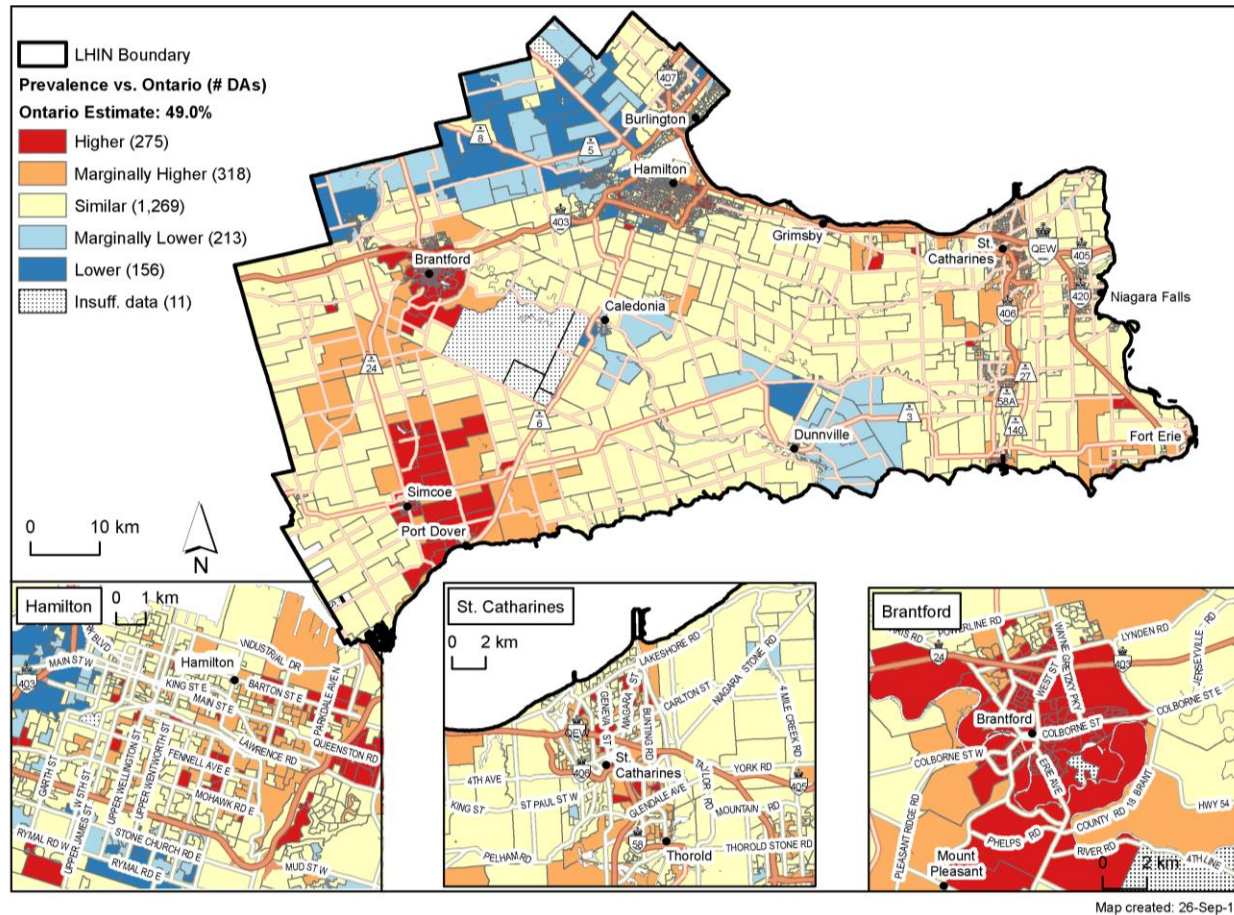
Category	Mean prevalence % (range)
Overall	49.9
Higher	55.9 (52.9, 65.2)
Marginally Higher	52.5 (51.3, 54.5)
Similar	49.4 (44.9, 52.9)
Marginally Lower	45.6 (43.1, 47.0)
Lower	43.6 (38.5, 45.6)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
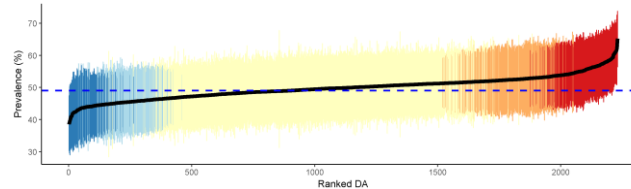
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 4.15 Sedentary behaviour among males (age 12 and older), 2000–2014, Hamilton Niagara Haldimand Brant Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	56.2
Higher	61.3 (59.5, 65.8)
Marginally Higher	59.4 (57.7, 62.1)
Similar	55.9 (51.7, 60.1)
Marginally Lower	51.7 (49.7, 53.1)
Lower	49.3 (45.5, 51.4)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
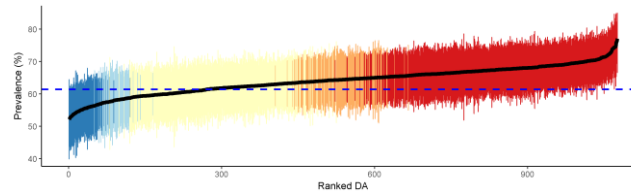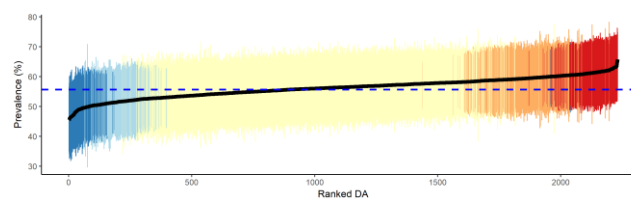
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Smoking—current status

People age 12 and older

Current tobacco smoking was reported by 17% of Ontario females and 24% of males.

Higher prevalence than Ontario

For females (n=905; Figure 4.16), areas with a higher prevalence of current smoking than the Ontario average were common across the LHIN. These areas were located in Hamilton and Brantford, southwest of Brantford, south of Caledonia and around Dunnville, Niagara Falls and Ford Erie. For males (n=564; Figure 4.17), higher prevalence areas were located in Hamilton, Brantford, parts of St. Catharines and in the southwestern part of the LHIN.

Lower prevalence than Ontario

Areas with a lower prevalence of current smoking than Ontario among females (n=150; Figure 4.16) were primarily located in the northern part of the LHIN, in parts of Hamilton, Burlington and St. Catharines. For males (n=428; Figure 4.17), lower prevalence areas were located in Hamilton, St. Catharines, around Burlington, northeast of Brantford and north of Niagara Falls.

Adolescents

Approximately 8% of adolescent females and adolescent males in Ontario reported that they currently smoked tobacco.

Higher prevalence than Ontario

There were more areas with a higher prevalence of smoking than the Ontario average for adolescent females (n=667; Figure 4.18) compared to adolescent males (n=438; Figure 4.19). For both sexes, higher prevalence areas were located in Hamilton and Brantford, and in areas southwest of Brantford. For adolescent females, additional areas were located in St. Catharines and Burlington, and towards the eastern tip of the LHIN, near St. Catharines, Niagara Falls and Fort Erie. For adolescent males, additional areas were located southwest of Caledonia and near Simcoe and Port Dover.

Lower prevalence than Ontario

There were fewer areas with a lower prevalence of smoking than the Ontario average for adolescent females (n=21; Figure 4.18) compared to adolescent males (n=101; Figure 4.19). For females and males, lower prevalence areas were dispersed across the LHIN, with several lower prevalence areas located in Hamilton for adolescent females and in St. Catharines for adolescent males.

Figure 4.16 Current smoking among females (age 12 and older), 2000–2014, Hamilton Niagara Haldimand Brant Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
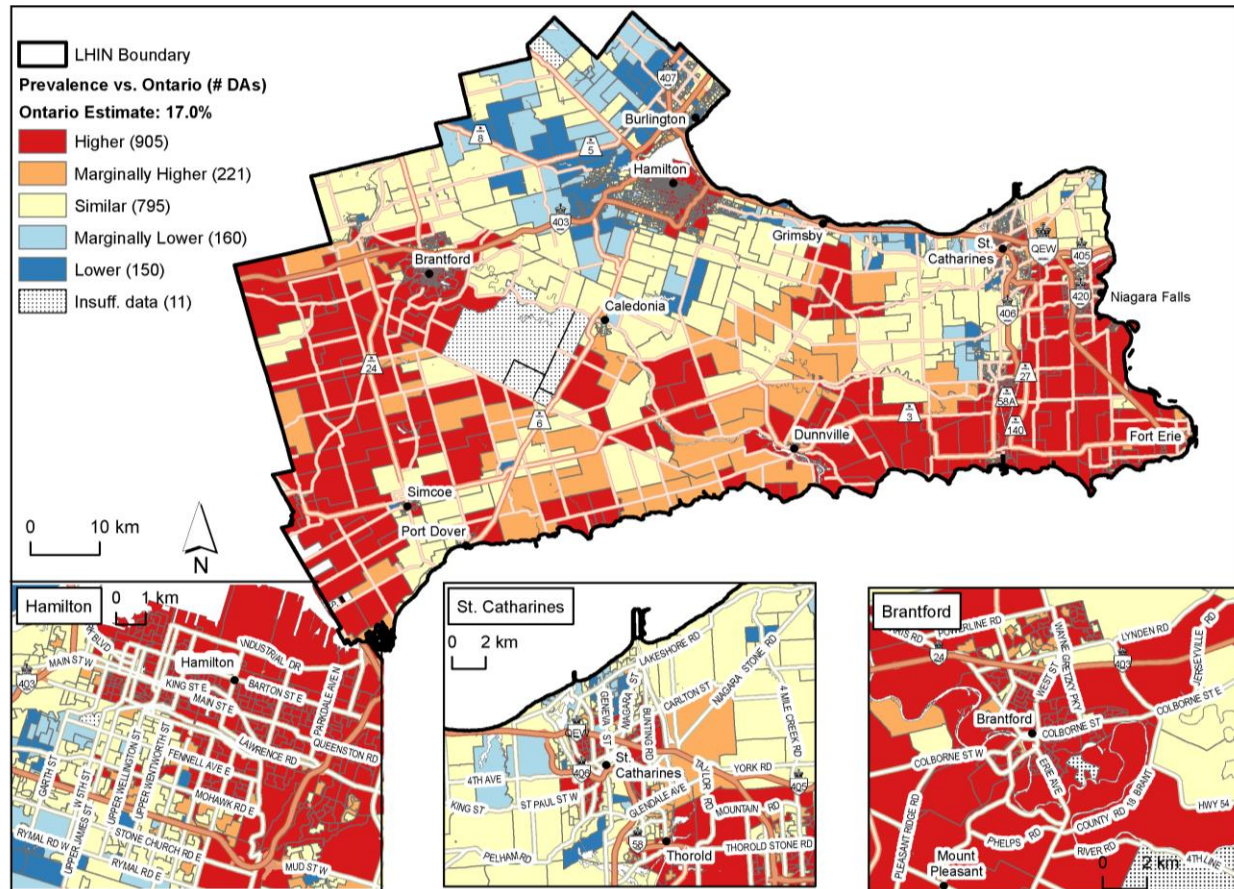
Category	Mean prevalence % (range)
Overall	21.3
Higher	27.3 (20.3, 50.8)
Marginally Higher	21.0 (18.8, 25.8)
Similar	17.6 (14.9, 21.9)
Marginally Lower	14.6 (12.6, 15.5)
Lower	12.7 (6.4, 14.6)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
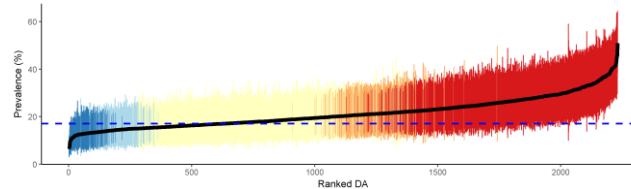
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 4.17 Current smoking among males (age 12 and older), 2000–2014, Hamilton Niagara Haldimand Brant Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	25.6
Higher	35.1 (27.9, 52.5)
Marginally Higher	28.1 (26.4, 33.7)
Similar	24.0 (20.7, 28.0)
Marginally Lower	20.6 (18.9, 21.9)
Lower	18.1 (6.9, 20.8)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 4.18 Current smoking among adolescent females (ages 12 to 18), 2000–2014, Hamilton Niagara Haldimand Brant Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	10.8
Higher	13.5 (11.0, 22.0)
Marginally Higher	11.2 (9.6, 14.4)
Similar	9.2 (7.0, 12.6)
Marginally Lower	6.7 (6.2, 7.1)
Lower	4.6 (2.1, 6.3)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 4.19 Current smoking among adolescent males (ages 12 to 18), 2000–2014, Hamilton Niagara Haldimand Brant Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Map created: 26-Sep-17

Category	Mean prevalence % (range)
Overall	9.9
Higher	13.0 (11.0, 21.9)
Marginally Higher	11.1 (10.0, 13.1)
Similar	9.0 (7.1, 11.2)
Marginally Lower	6.9 (6.2, 7.4)
Lower	5.4 (1.2, 6.5)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
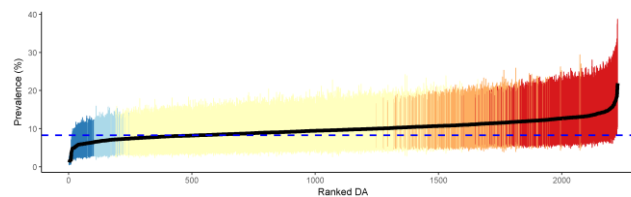
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Smoking—ever-smoked status

People age 12 and older

Approximately one in two Ontario females and three in five Ontario males reported having ever-smoked.

Higher prevalence than Ontario

For females (n=1,579; Figure 4.20) and males (n=1,172; Figure 4.21), most areas across the LHIN had a higher prevalence of ever-smokers than the Ontario average. For males, there were fewer areas in the central part of the LHIN compared to females.

Lower prevalence than Ontario

For females (n=18; Figure 4.20) and males (n=97; Figure 4.21), there were few areas with a lower prevalence of ever-smokers status across the LHIN. For both sexes, areas of lower prevalence were primarily located in southern Hamilton.

Adolescents

The area-based prevalence of ever-smoked status was not estimated for adolescent populations.

Figure 4.20 Ever-smoked status among females (age 12 and older), 2000–2014, Hamilton Niagara Haldimand Brant Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
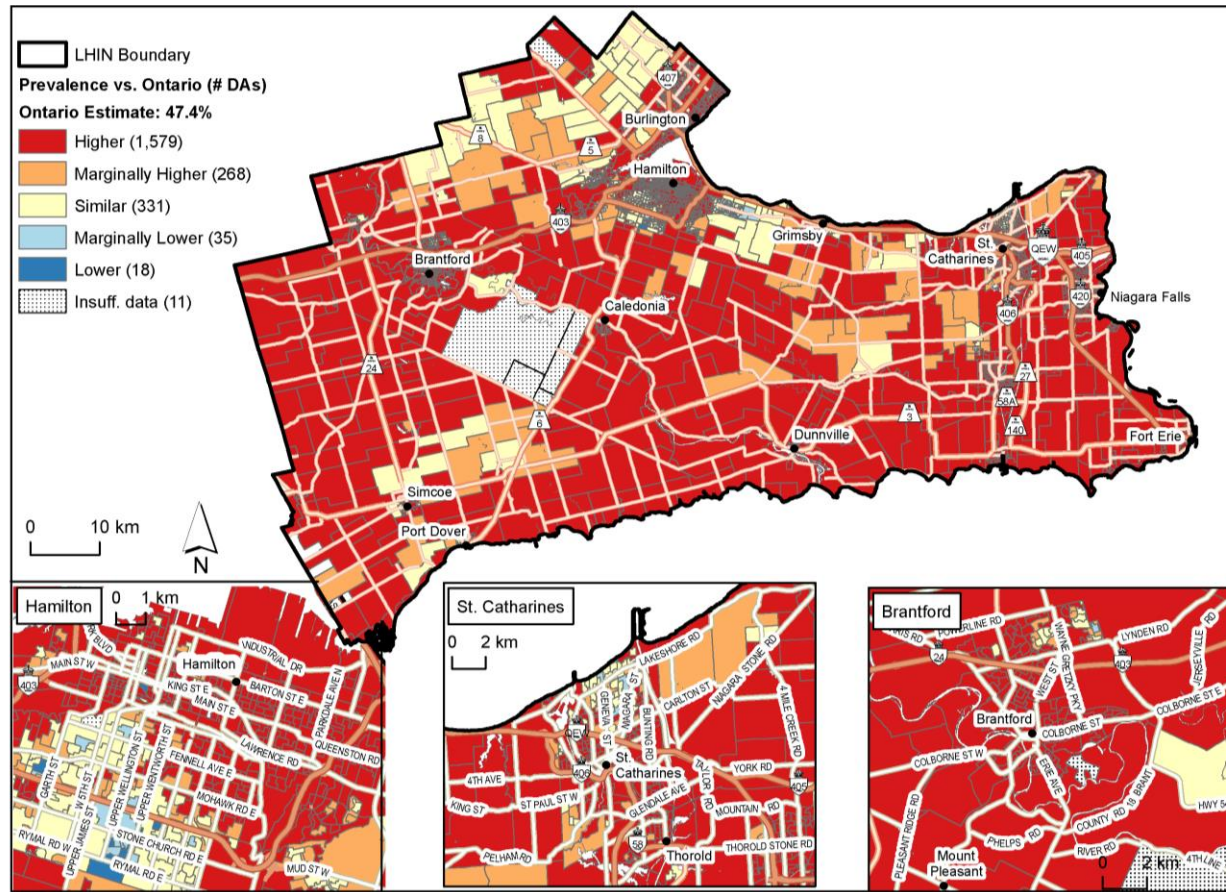
Category	Mean prevalence % (range)
Overall	54.9
Higher	57.2 (50.6, 73.8)
Marginally Higher	51.6 (49.9, 55.8)
Similar	48.5 (43.8, 52.0)
Marginally Lower	43.5 (41.4, 44.7)
Lower	40.6 (36.8, 42.9)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
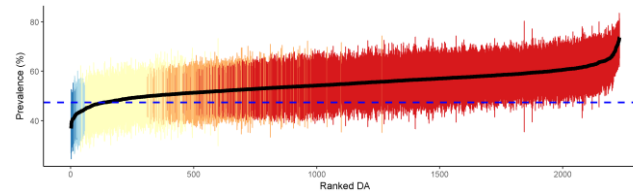
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 4.21 Ever-smoked status among males (age 12 and older), 2000–2014, Hamilton Niagara Haldimand Brant Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	65.1
Higher	68.4 (64.0, 80.3)
Marginally Higher	64.3 (63.2, 65.9)
Similar	61.6 (58.0, 64.6)
Marginally Lower	58.1 (56.1, 59.7)
Lower	55.5 (48.3, 58.4)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
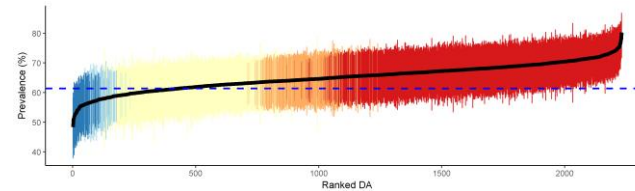
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

LHIN 5
Central West

5. Central West LHIN

<div style="border: 1px solid #ccc; background: #eef3fa; padding: 1em;">

Key Findings

Top three priority risk factor population estimates by sex (see Table 5.1 below):
Females:
    Physical Activity
    Alcohol—current consumption
    Excess body weight
Males:
    Alcohol—current consumption
    Physical Activity
    Excess body weight

Risk factor summary

Alcohol—current consumption
    Priority areas:
- Females: areas northwards of Caledon and Bolton and a few areas in Brampton
- Males: areas in the northwestern part of the LHIN, south and east of Shelburne, surrounding Orangeville and along the eastern boundary of the LHIN, and areas to the south of Rexdale-Etobicoke
- Adolescent females: areas south of Shelburne and around Orangeville, Caledon and Bolton
- Adolescent males: areas northwest of Shelburne, around Orangeville and Caledon, and some areas in Rexdale-Etobicoke

Alcohol—consumption exceeding cancer prevention recommendations
    Priority areas:
- Females: areas in the northern half of the LHIN surrounding Orangeville and north of Shelburne
- Males: most areas in the northern half of the LHIN (northwards of Caledon)

Excess body weight
    Priority areas:
- Females: areas throughout Rexdale-Etobicoke and Brampton, and north of Shelburne
- Males: areas scattered across most of the LHIN, with the exception of the southern tip of the LHIN

Inadequate vegetable and fruit consumption
    Priority areas:
- Females: few areas across the LHIN mostly located in Brampton
- Adolescent females: one area in Rexdale-Etobicoke

</div>

<u>Physical activity</u>

Priority areas:

- Females: most areas south of Bolton, including most parts of Rexdale-Etobicoke and Brampton
- Males: many areas throughout Brampton and some areas towards the northeast of Rexdale-Etobicoke
- Adolescent females: many areas throughout Brampton and some parts of Rexdale-Etobicoke
- Adolescent males: one area in Brampton

<u>Sedentary behaviour</u>

Priority areas:

- Females: two areas in Brampton

<u>Smoking—current status</u>

Priority areas:

- Females: many areas in the northern half of the LHIN and some areas in Brampton
- Males: some areas in Rexdale-Etobicoke and Brampton
- Adolescent males: a few areas towards the south of Rexdale-Etobicoke

<u>Smoking—ever-smoked status</u>

Priority areas:

- Females: most areas in the northern half of the LHIN
- Males: many areas in the northern half of the LHIN

Introduction

This section describes the estimated local prevalence of risk factors across the LHIN compared to the Ontario prevalence estimates from 2000 to 2014. These comparisons are always relative to Ontario with respect to the level of statistical evidence for the underlying prevalence estimate and often the number of areas meeting specific criteria are presented in parentheses (e.g., n=40). Risk factor maps are presented for females and males age 12 and older, and for adolescent females and adolescent males ages 12 to 18 inclusive. Throughout the text, the terms "area(s)" and "local" refer to the 2006 census dissemination areas (see the Data and Methods section, page 3).

Exclusions

As discussed in the Interpretation section (page 7), maps are shown only for risk factor estimates in the LHIN where one or more local estimates were higher than Ontario (or lower than Ontario for physical activity). Therefore, the risk factor maps not displayed for Central West LHIN include:

- excess body weight among adolescents for females and males;
- inadequate vegetable and fruit consumption among males and adolescent males; and
- sedentary behaviour among males, adolescent females and adolescent males.

Notes

Risk factor prevalence could not be estimated for several areas in the Central West LHIN (e.g., suppressed census populations or institutionalized populations), which are shown as "insufficient data" on the maps. See Appendix C for a full list of areas in the insufficient data category.

Priority population estimates

Priority population estimates may be helpful in prioritizing health promotion and planning efforts for potential populations affected by certain modifiable risk factors. Table 5.1 (page 170) presents the estimated priority populations for each risk factor by sex and age group in the Central West LHIN. Priority populations are defined as those living in areas with a higher risk factor prevalence (or lower prevalence for physical activity) than Ontario. These estimates were produced by summing the population from all higher (or lower for physical activity) prevalence small areas (2006 dissemination areas) after taking into account the risk factor prevalence of each area. For example, if among females 100 areas had a higher prevalence of current alcohol consumption than Ontario, the female 2006 census populations in each of these areas were multiplied by the prevalence of current alcohol consumption for each area and then summed across the 100 areas to produce an estimate of the female "priority population." These calculations are intended to provide a measure to prioritize the risk factors rather than a population estimate.

According to the Methods (page 4) and Interpretation (page 7) sections, these higher prevalence areas had strong statistical evidence of elevated prevalence compared to Ontario (posterior probabilities ≥ 80%). An exception is physical activity, which had strong statistical evidence of lower prevalence estimates than Ontario (posterior probabilities ≤ 20%). Therefore, the population estimates for each risk factor are likely undercounted because areas with less statistical certainty (posterior probabilities < 80% and physical activity posterior probabilities > 20%) are not included in the priority population estimates.

Table 5.1 Estimated priority populations among higher prevalence[**] dissemination areas compared to Ontario by risk factor, sex and age group, Central West Local Health Integration Network (LHIN), using 2006 census populations

Risk factor	Female priority population*[†]	% of female population in the LHIN[†] (n=311,300)	Male priority population*[†]	% of male population in the LHIN[†] (n=299,150)	Adolescent female priority population*[‡]	% of adolescent female population in the LHIN[‡] (n=36,660)	Adolescent male priority population*[‡]	% of adolescent male population in the LHIN[‡] (n=39,320)
Alcohol—current consumption	24,620	8%	24,840	8%	370	1%	580	1%
Alcohol—consumption exceeding cancer prevention recommendations	910	0%	2,690	1%	NM	—	NM	—
Excess body weight	18,590	6%	12,400	4%	NE	—	NE	—
Inadequate fruit and vegetable consumption	8,190	3%	NE	—	30	0%	NE	—
Physical activity**	34,170	11%	19,940	7%	2,640	7%	70	0%
Sedentary behaviour	540	0%	NE	—	NE	—	NE	—
Smoking—current status	6,410	2%	3,180	1%	NE	—	0	0%
Smoking—ever-smoked status	14,830	5%	10,110	3%	NM	—	NM	—

NE = no estimates within the "higher" prevalence categories; NM = not modelled
* Estimates rounded to multiples of 10
** For physical activity, priority populations are those living in areas with a lower risk factor prevalence compared to Ontario
[†] Population age 12 and older
[‡] Population ages 12 to 18
— Value not applicable

Alcohol—current consumption

People age 12 and older

An estimated 70% of females and 79% of males in Ontario reported current alcohol consumption.

Higher prevalence than Ontario

For females (n=119; Figure 5.1) and males (n=109; Figure 5.2), most areas with a higher prevalence of current alcohol consumption than the Ontario average were located in the northern half of the LHIN, extensively around Orangeville and Shelburne. For females, additional areas were located near Caledon and Bolton. For males, additional areas were located towards the south of the Rexdale-Etobicoke area.

Lower prevalence than Ontario

For females (n=484; Figure 5.1) and males (n=555; Figure 5.2), areas that had a lower prevalence of current alcohol consumption than Ontario were located in the southern tip of the LHIN, including most areas in Rexdale-Etobicoke and Brampton.

Adolescents

Among the adolescent populations in Ontario, approximately 40% of females and males reported current alcohol consumption.

Higher prevalence than Ontario

For adolescent females (n=31; Figure 5.3), areas with a higher prevalence of current alcohol consumption than the Ontario average tended to be located towards the northwest part of the LHIN, surrounding Shelburne and Orangeville, with some additional areas near Caledon and Bolton. For adolescent males (n=39; Figure 5.4), higher prevalence areas were located in the northern half of the LHIN surrounding Shelburne, in Orangeville and in some areas south of Orangeville. Additional areas for adolescent males were located towards the south of Rexdale-Etobicoke.

Lower prevalence than Ontario

For adolescent females (n=630; Figure 5.3) and adolescent males (n=633; Figure 5.4), most areas across the LHIN had a lower prevalence of current alcohol consumption than Ontario. For both sexes, the majority of lower prevalence areas were located toward the southern tip of the LHIN, including most parts of Rexdale-Etobicoke and Brampton.

Figure 5.1 Current alcohol consumption among females (age 12 and older), 2000–2014, Central West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
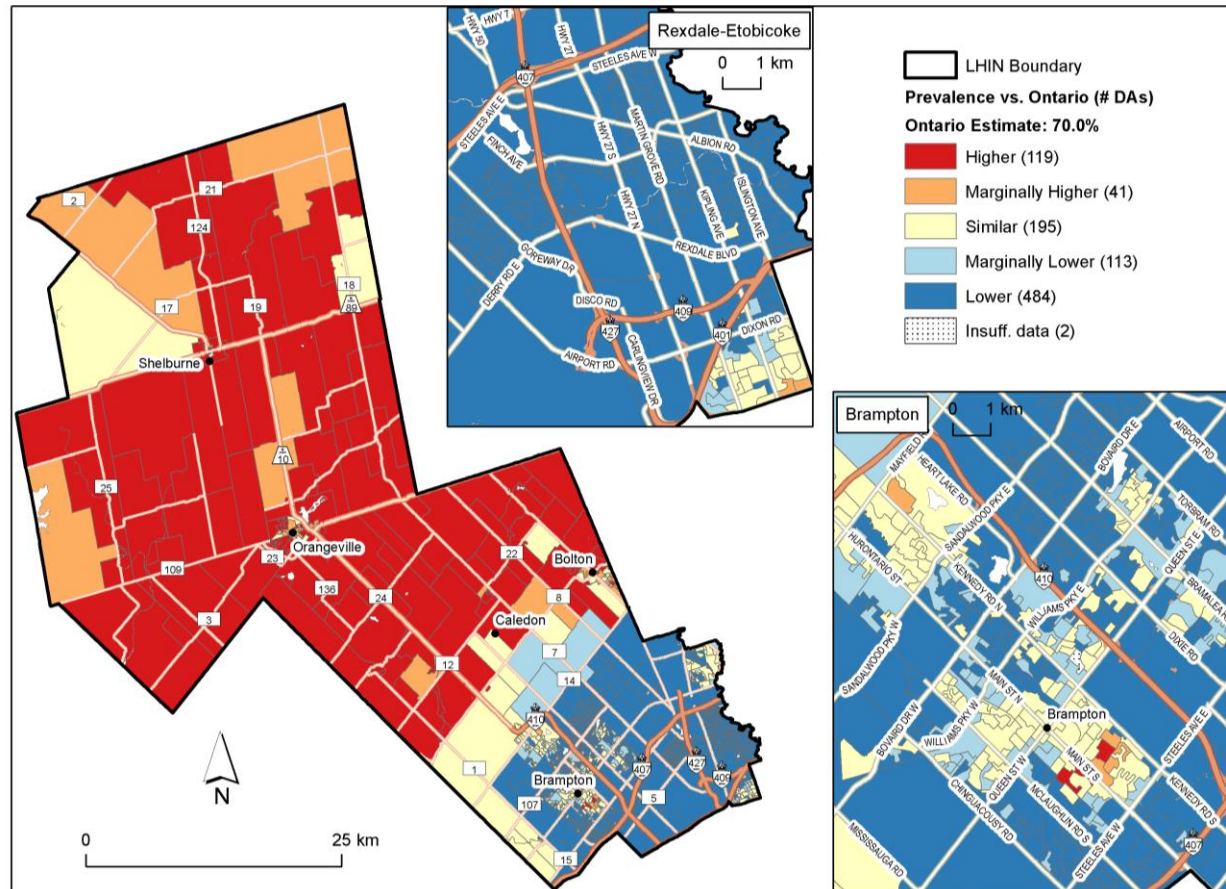
Category	Mean prevalence % (range)
Overall	63.2
Higher	77.0 (73.9, 83.1)
Marginally Higher	74.0 (72.7, 76.4)
Similar	68.6 (64.9, 73.5)
Marginally Lower	65.1 (59.5, 67.0)
Lower	56.2 (40.0, 65.8)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
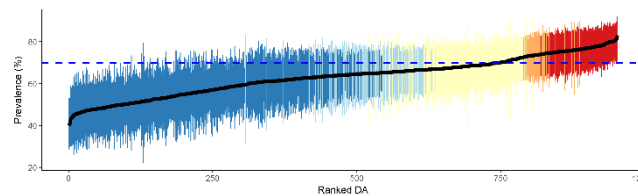
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 5.2 Current alcohol consumption among males (age 12 and older), 2000–2014, Central West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
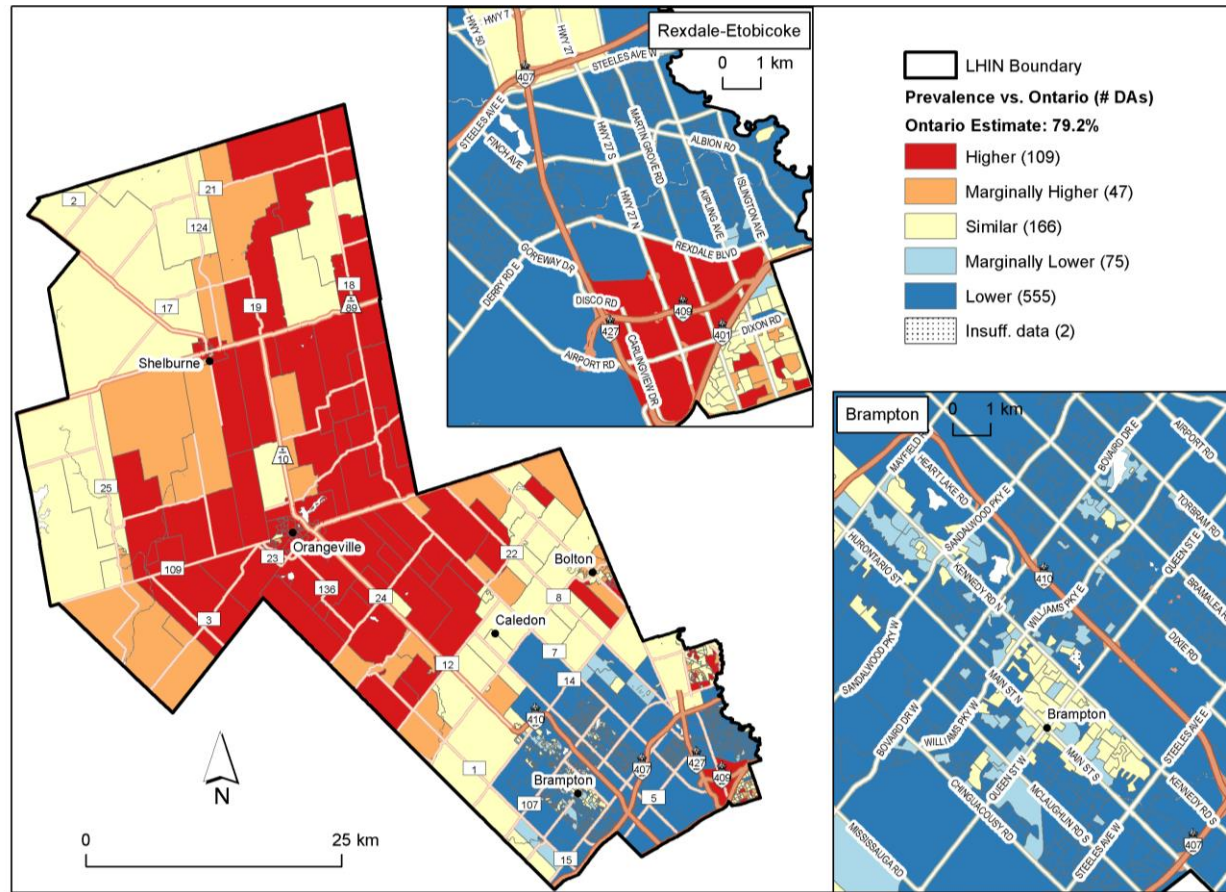
Category	Mean prevalence % (range)
Overall	74.5
Higher	84.0 (81.7, 87.6)
Marginally Higher	81.7 (80.8, 82.7)
Similar	78.8 (74.5, 81.3)
Marginally Lower	75.3 (71.6, 76.9)
Lower	70.6 (49.4, 76.1)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
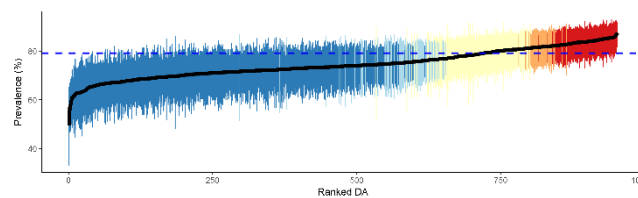
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 5.3 Current alcohol consumption among adolescent females (ages 12 to 18), 2000–2014, Central West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
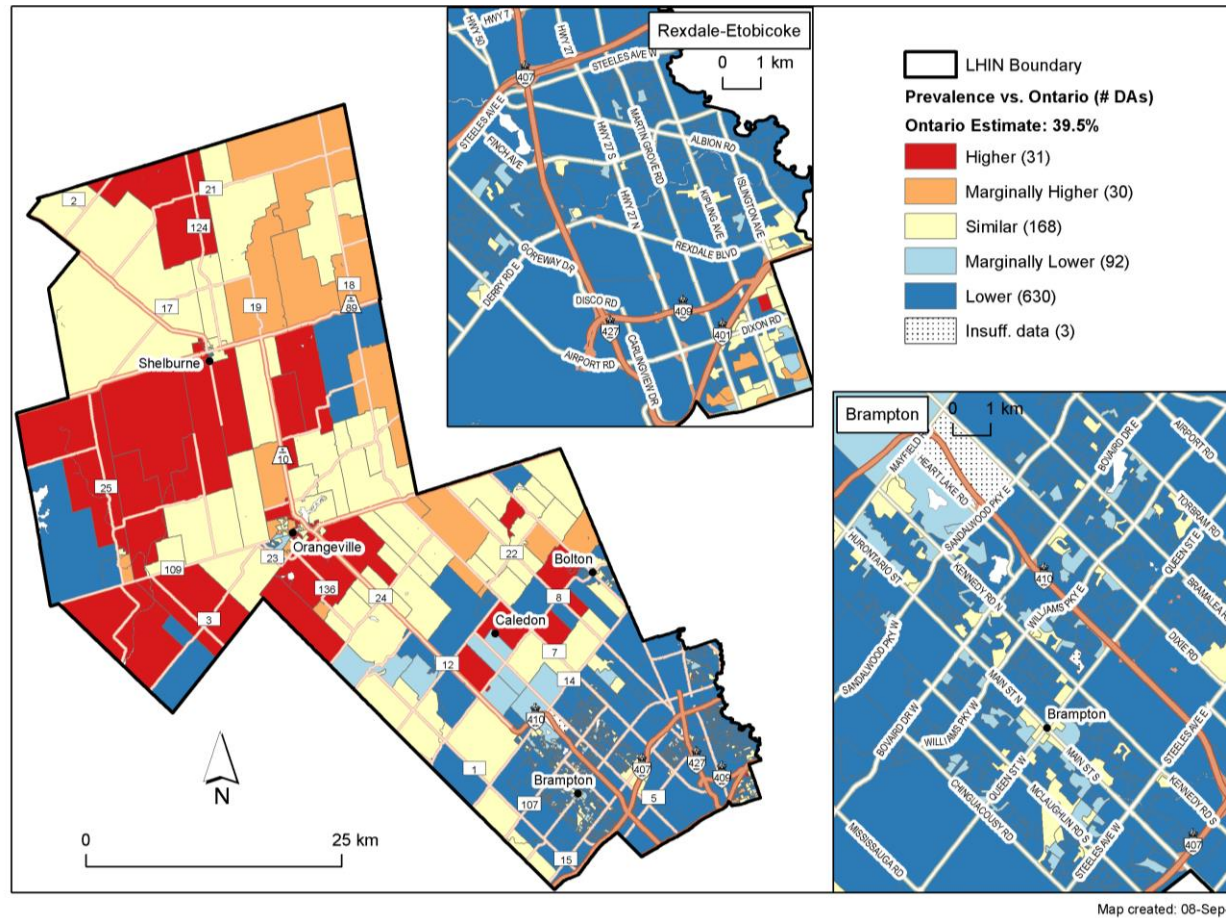
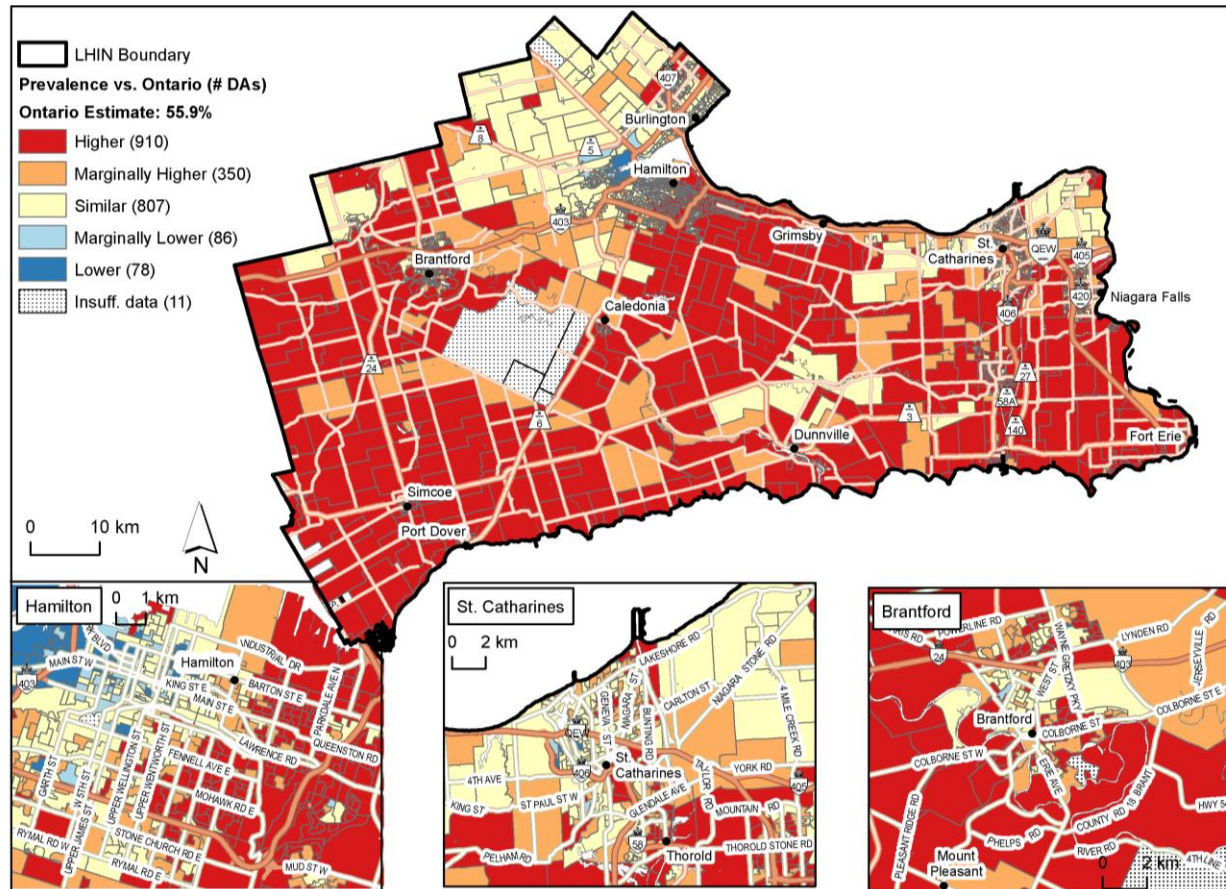| Category	Mean prevalence % (range)
Overall	33.2
Higher	47.7 (44.4, 52.8)
Marginally Higher	43.5 (42.3, 45.1)
Similar	39.1 (35.3, 42.9)
Marginally Lower	35.3 (33.1, 37.0)
Lower	30.2 (8.4, 35.4)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
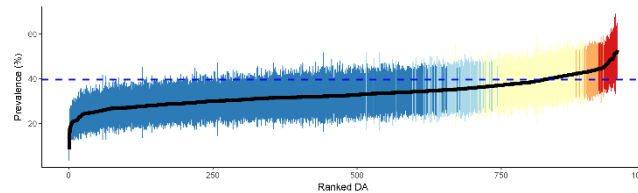
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
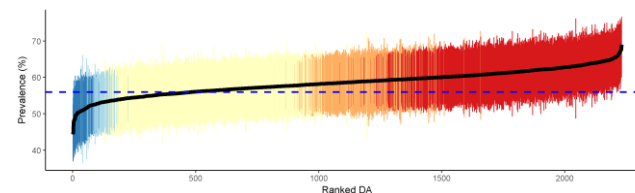
Map created: 11-Sep-17
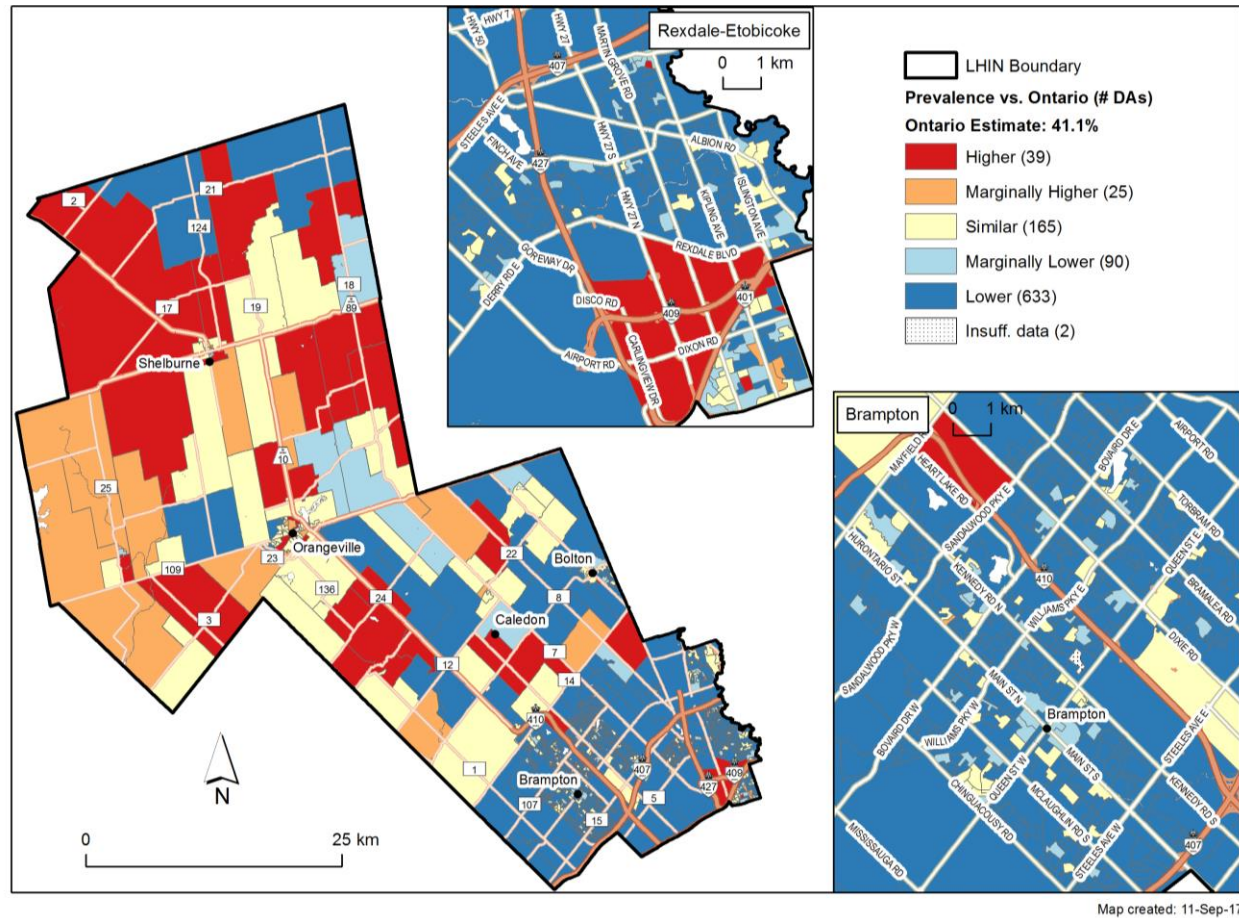
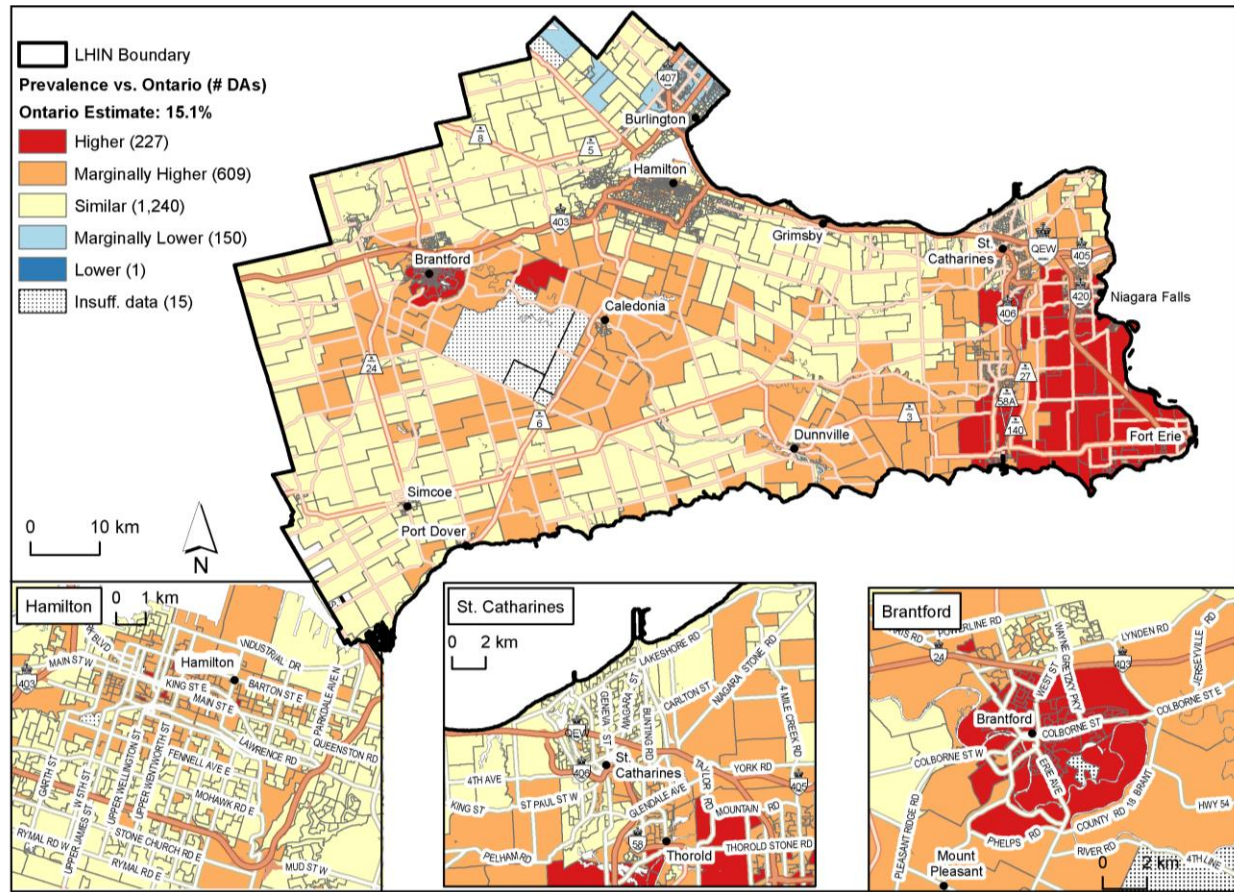| Category	Mean prevalence % (range)
Overall	34.6
Higher	49.6 (45.6, 57.8)
Marginally Higher	45.2 (43.5, 47.0)
Similar	40.8 (37.3, 44.8)
Marginally Lower	37.1 (33.9, 38.3)
Lower	31.3 (10.5, 37.0)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
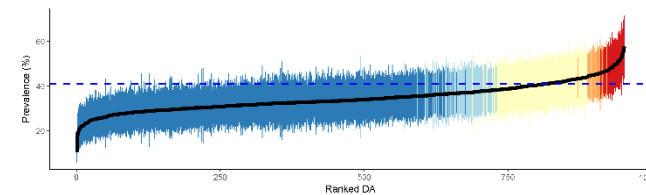
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
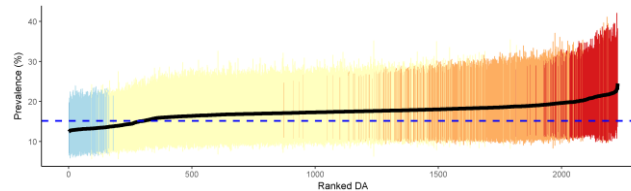
Alcohol—consumption exceeding cancer prevention recommendations

People age 12 and older

Almost 7% of the female population in Ontario drank alcohol in excess of the recommended limits for cancer prevention. Among males, the Ontario prevalence of exceeding the recommended limits was 8.5%.

Higher prevalence than Ontario

For females (n=35; Figure 5.5) and males (n=91; Figure 5.6), areas with a higher prevalence than Ontario of alcohol consumption in excess of the recommended limits for cancer prevention were located in the northern half of the LHIN. For females, many areas were located near Orangeville, northeast of Orangeville and north of Shelburne. For males, almost all areas in the northern half of the LHIN had a higher prevalence.

Lower prevalence than Ontario

For females (n=696; Figure 5.5) and males (n=694; Figure 5.6), areas with a lower prevalence than the Ontario average of alcohol consumption in excess of the recommended limits for cancer prevention were located exclusively in the southern tip of the LHIN, including almost all areas in Rexdale-Etobicoke area and Brampton.

Adolescents

The area-based prevalence of exceeding cancer prevention recommendations was not estimated for adolescent populations.

Figure 5.5 Alcohol consumption exceeding cancer prevention recommendations among females (age 12 and older), 2000–2014, Central West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Rexdale-Etobicoke

0   1 km

Brampton

0   1 km

LHIN Boundary

Prevalence vs. Ontario (# DAs)

Ontario Estimate: 6.7%

▇	Higher (35)
▇	Marginally Higher (31)
▇	Similar (115)
▇	Marginally Lower (75)
▇	Lower (696)
▒	Insuff. data (2)
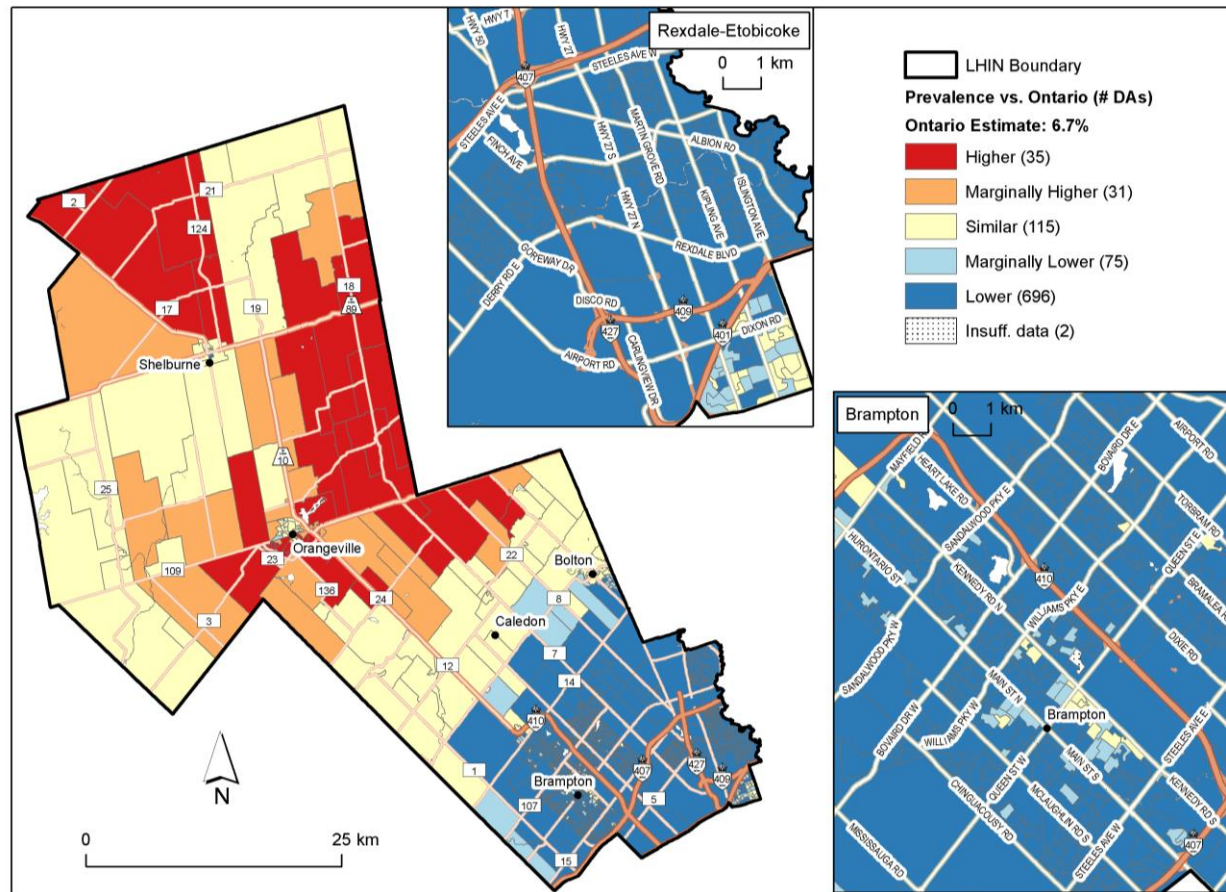
Map created: 11-Sep-17

Category	Mean prevalence % (range)
Overall	5.0
Higher	9.7 (8.8, 11.9)
Marginally Higher	8.8 (8.2, 9.5)
Similar	7.1 (5.9, 8.6)
Marginally Lower	5.6 (5.0, 6.1)
Lower	4.2 (2.6, 5.6)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
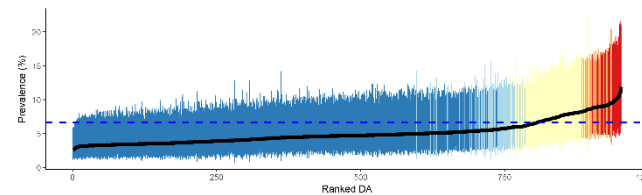
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 5.6 Alcohol consumption exceeding cancer prevention recommendations among males (age 12 and older), 2000–2014, Central West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

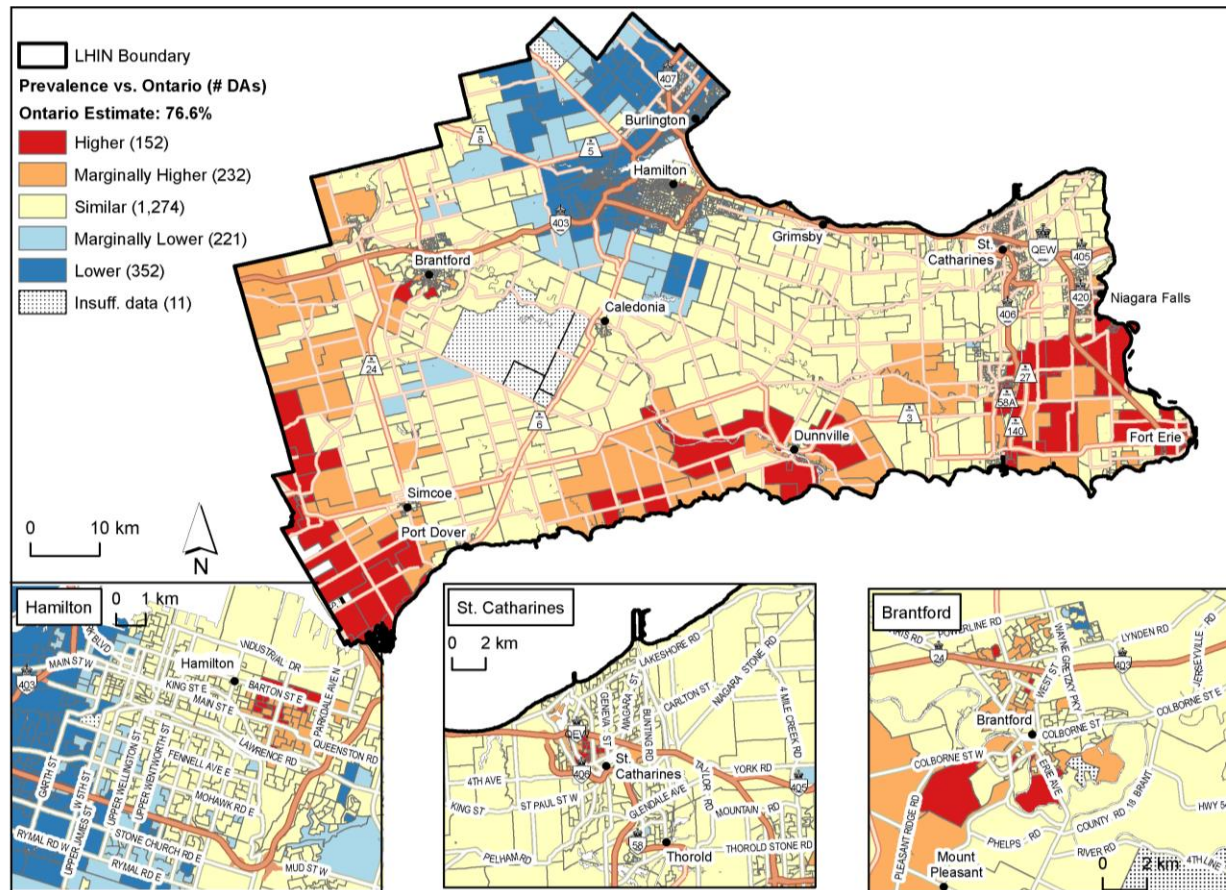| Category	Mean prevalence % (range)
Overall	6.8
Higher	11.7 (10.3, 13.9)
Marginally Higher	10.5 (9.9, 11.7)
Similar	8.4 (7.6, 9.9)
Marginally Lower	7.3 (6.6, 7.8)
Lower	5.9 (3.8, 7.5)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
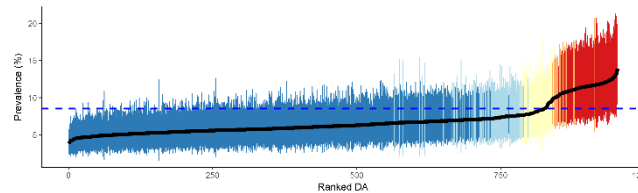
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
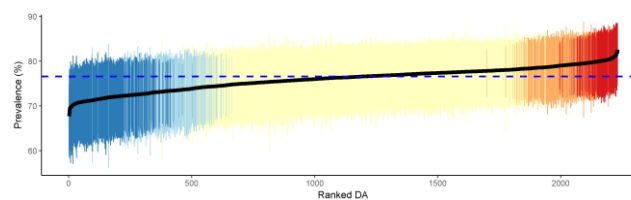
Excess body weight

People age 12 and older

The estimated Ontario prevalence of excess body weight (overweight or obese) was 41% among females and 56% among males.

Higher prevalence than Ontario

For females, most areas with a higher prevalence of excess body weight (n=126; Figure 5.7) than the Ontario average were located in the Rexdale-Etobicoke area and Brampton. For males (n=74; Figure 5.8), higher prevalence areas were dispersed across most of LHIN, but were less common in the southern tip of the LHIN in parts of Rexdale-Etobicoke and Brampton.

Lower prevalence than Ontario

For females (n=48; Figure 5.7) and males (n=199; Figure 5.8), areas with a lower prevalence of excess body weight than the Ontario average were located in the southern part of the LHIN. For females, lower prevalence areas were located southeast and northwest of Brampton, towards the south of Rexdale-Etobicoke and north of Bolton. For males, lower prevalence areas were located throughout most of Rexdale-Etobicoke and many areas of Brampton.

Adolescents

Among Ontario adolescents, an estimated 15% of females and 25% of males were overweight or obese. In the Central West LHIN, there were no areas with a higher prevalence of excess body weight than the Ontario average for adolescents, which is why those maps are not shown.

Figure 5.7 Excess body weight (overweight/obese) among females (age 12 and older), 2000–2014, Central West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Map created: 11-Sep-17
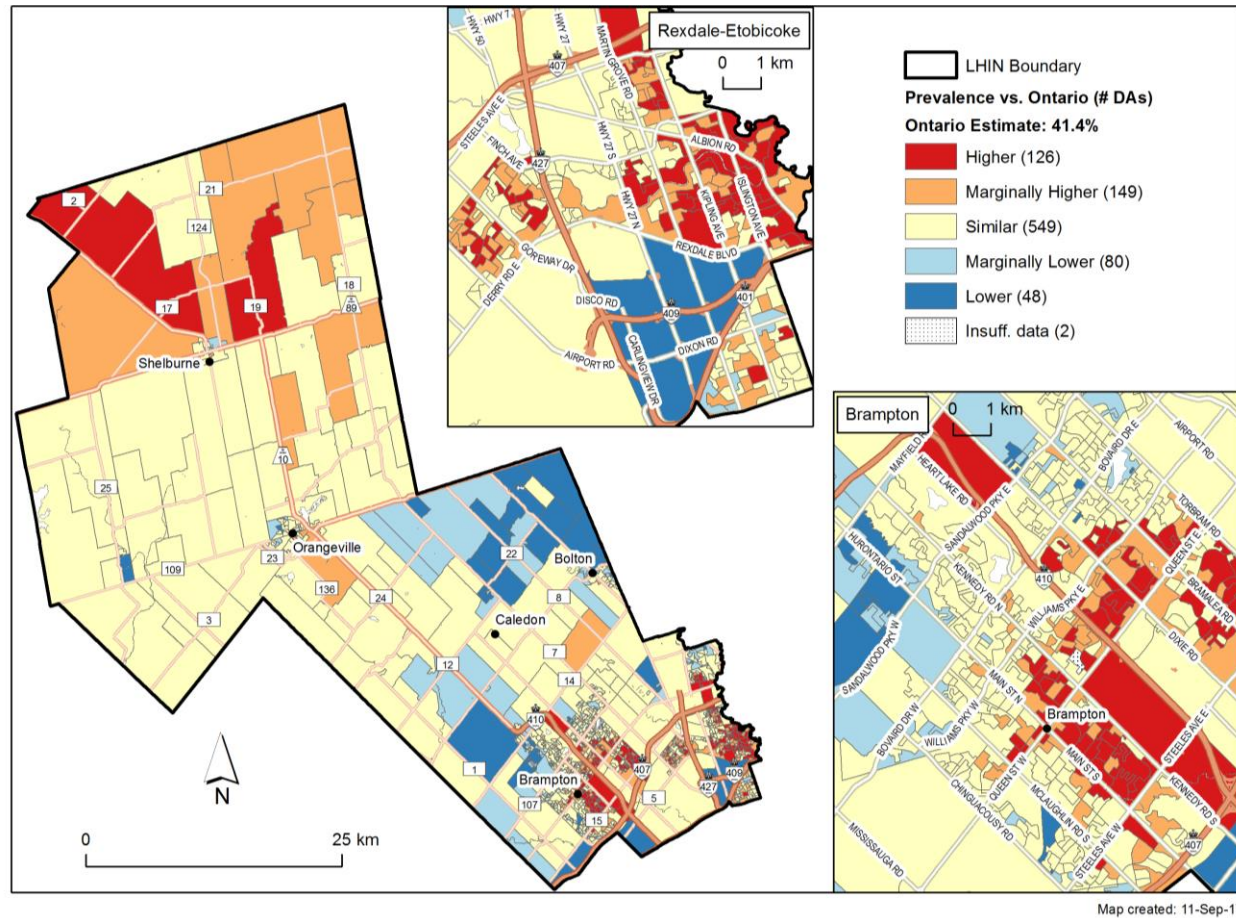
Category	Mean prevalence % (range)
Overall	42.2
Higher	47.0 (44.9, 51.7)
Marginally Higher	44.9 (43.5, 47.7)
Similar	41.5 (38.0, 45.0)
Marginally Lower	38.0 (36.5, 39.3)
Lower	35.8 (29.7, 38.1)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
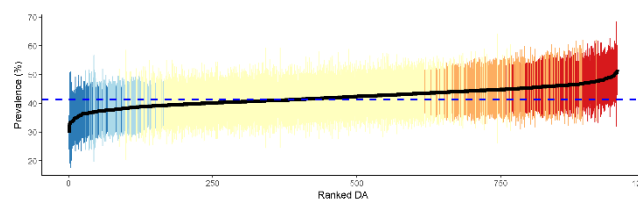
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 5.8 Excess body weight (overweight/obese) among males (age 12 and older), 2000–2014, Hamilton Central West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

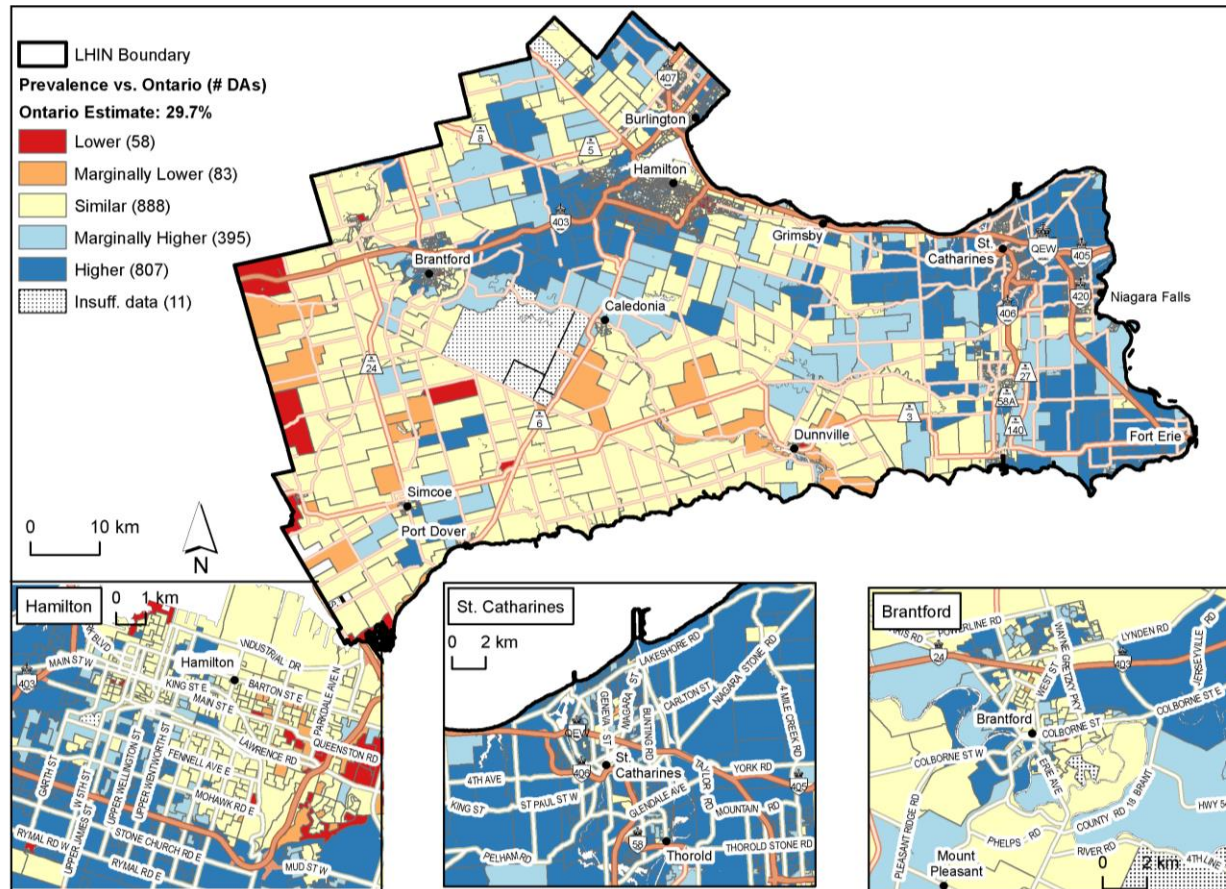| Category	Mean prevalence % (range)
Overall	54.9
Higher	60.3 (58.5, 65.6)
Marginally Higher	58.8 (57.8, 61.4)
Similar	55.7 (53.0, 59.4)
Marginally Lower	53.0 (51.0, 54.3)
Lower	50.7 (36.9, 53.7)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Inadequate vegetable and fruit consumption

People age 12 and older

Inadequate consumption of vegetables and fruits was common across Ontario, with approximately 63% of females and 77% of males reporting inadequate consumption.

Higher prevalence than Ontario

For females, there were few areas with a higher prevalence of inadequate vegetable and fruit consumption (n=20; Figure 5.9) than the Ontario average and these were primarily located throughout Brampton. In the Central West LHIN, there were no higher prevalence areas for males, which is why that map is not shown.

Lower prevalence than Ontario

For females, areas with adequate consumption of vegetables and fruit (i.e., low prevalence) (n=135; Figure 5.9) were located throughout the central part of the LHIN, in many areas south of Shelburne and surrounding Orangeville, and areas north of Caledon and Bolton. Some additional areas were located in northern Brampton.

Adolescents

More than two thirds of the adolescent Ontario population had inadequate vegetable and fruit consumption, at approximately 68% for females and 74% for males.

Higher prevalence than Ontario

For adolescent females (n=1; Figure 5.10), there was one area with a higher prevalence of inadequate vegetable and fruit consumption than Ontario, located in the Rexdale-Etobicoke area. No areas with a higher prevalence than Ontario were detected for adolescent males. Therefore that map is not shown.

Lower prevalence than Ontario

For adolescent females (n=4; Figure 5.10), areas with adequate consumption of vegetables and fruit (i.e., low prevalence), were primarily located southeast of Orangeville.

Figure 5.9 Inadequate vegetable and fruit consumption among females (age 12 and older), 2000–2014, Central West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
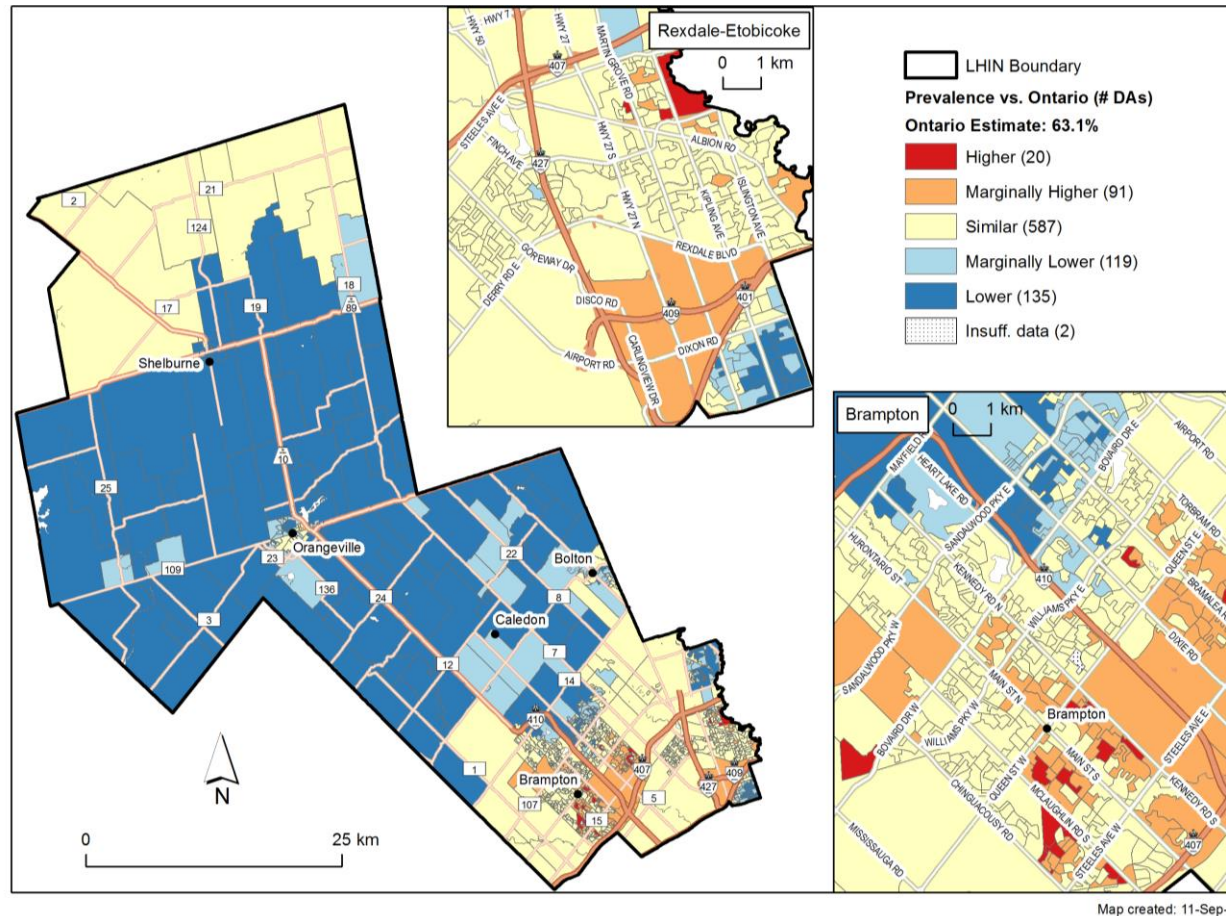
Category	Mean prevalence % (range)
Overall	62.4
Higher	67.4 (66.6, 69.0)
Marginally Higher	66.1 (64.9, 67.8)
Similar	63.4 (58.7, 66.3)
Marginally Lower	59.5 (57.8, 61.0)
Lower	57.6 (51.1, 59.5)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
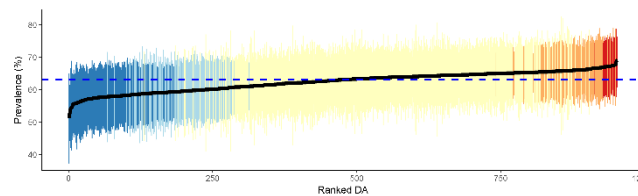
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 5.10 Inadequate vegetable and fruit consumption among adolescent females (ages 12 to 18), 2000–2014, Central West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Map created: 12-Sep-17

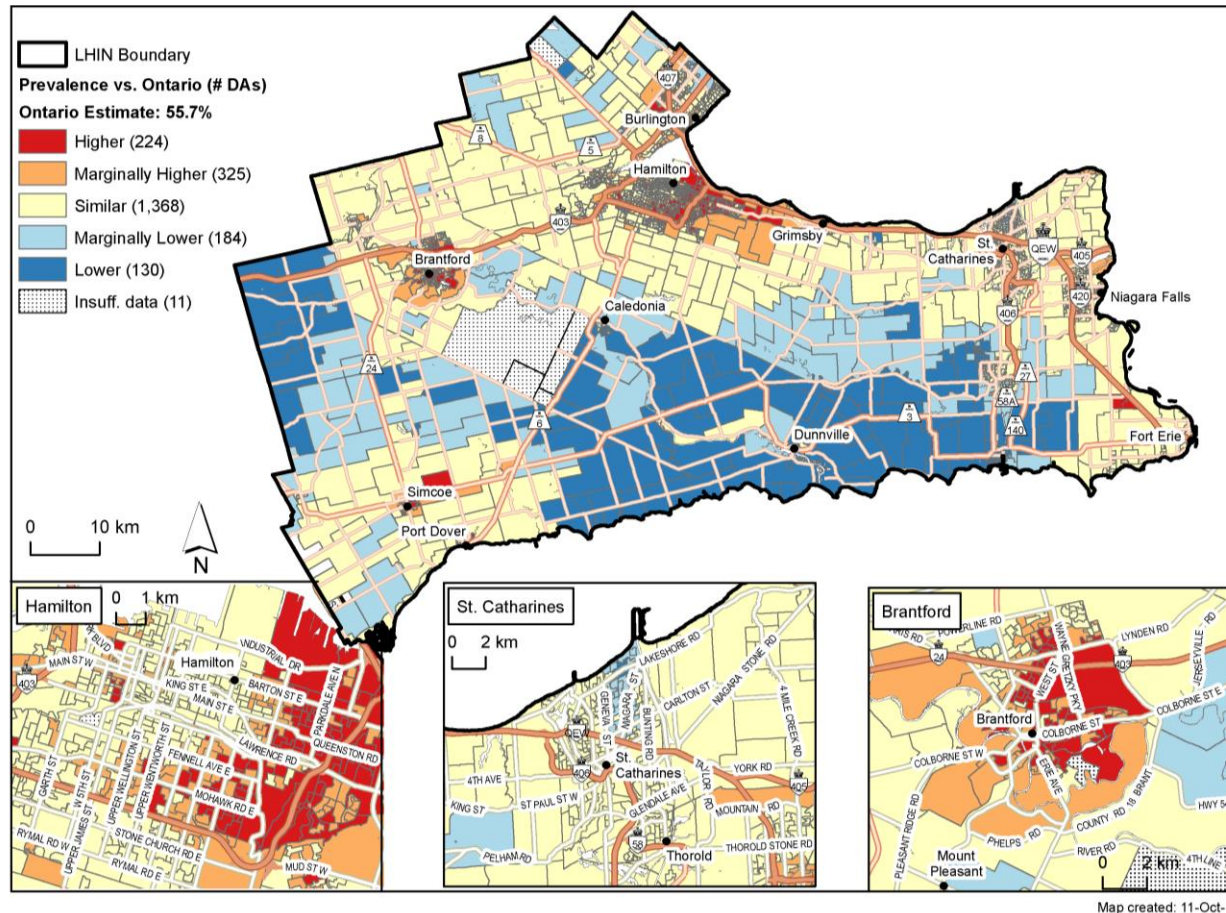| Category	Mean prevalence % (range)
Overall	67.9
Higher	73.0 (73.0, 73.0)
Marginally Higher	70.9 (70.6, 71.2)
Similar	68.3 (63.6, 71.1)
Marginally Lower	63.6 (61.7, 65.1)
Lower	62.0 (61.5, 62.6)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Physical activity

Because physical activity reduces cancer risk, lower prevalence estimates of this risk factor are of interest. The colour scheme of the maps was inverted so that the "lower than Ontario" estimates are displayed in red.

People age 12 and older

Most of the Ontario population was not physically active, with approximately one in five (23%) females and one in three (30%) males being physically active.

Lower prevalence than Ontario

For females (n=586; Figure 5.11) and males (n=253; Figure 5.12) areas with a lower prevalence of physical activity than Ontario were located towards the southern tip of the LHIN. For both sexes, these areas were located throughout most of Brampton, and along the eastern boundary of the LHIN. For males, some additional lower prevalence areas were located in Rexdale-Etobicoke. For females, most areas in Rexdale-Etobicoke and many areas south of Bolton were of lower prevalence.

Higher prevalence than Ontario

For females (n=66; Figure 5.11) and males (n=54; Figure 5.12), most areas with a higher prevalence of physical activity than the Ontario average were located towards the northern tip of the LHIN, north of Caledon. For females, most areas north of Orangeville were of higher prevalence, in addition to a few areas southeast of Orangeville and towards the south of Rexdale-Etobicoke. For males, higher prevalence areas tended to cluster throughout the northern half of the LHIN surrounding Orangeville and east of Shelburne.

Adolescents

Adolescents were more physically active than adults, with approximately 40% of adolescent females and 57% of adolescent males being active.

Lower prevalence than Ontario

For adolescent females (n=158; Figure 5.13), areas with a lower prevalence of physical activity than the Ontario average were located in most areas of Brampton and in some parts of Rexdale-Etobicoke. There was one area with a lower prevalence of physical activity than Ontario for adolescent males, located in Brampton (Figure 5.14).

Higher prevalence than Ontario

There were very few areas with a higher prevalence of physical activity than Ontario for adolescents. For adolescent females (n=7; Figure 5.13), these areas were located in the northern tip of the LHIN. For adolescent males (n=1; Figure 5.14), there was only one area, located in Rexdale-Etobicoke.

Figure 5.11 Physical activity among females (age 12 and older), 2000–2014, Central West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
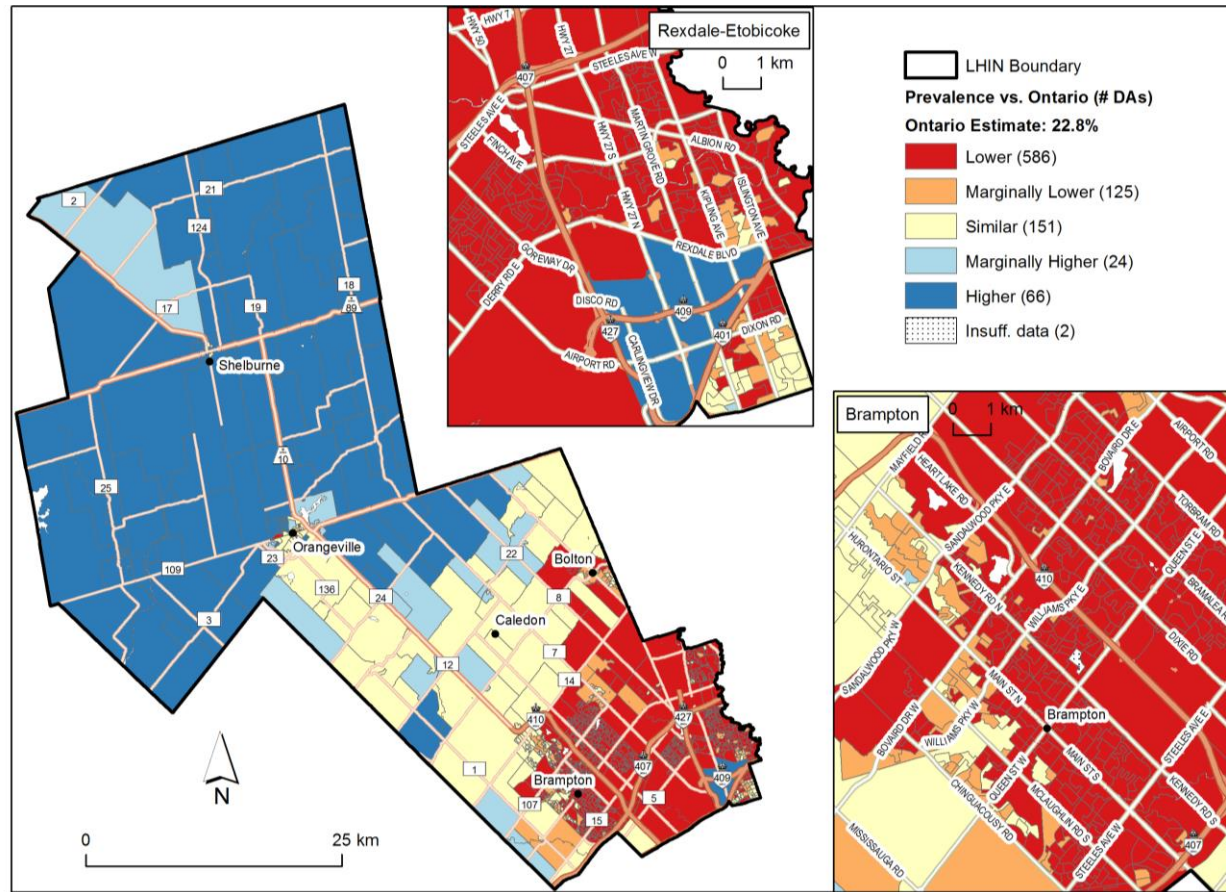
Category	Mean prevalence % (range)
Overall	19.6
Lower	17.3 (9.4, 20.1)
Marginally Lower	20.0 (18.7, 21.0)
Similar	22.7 (20.2, 25.7)
Marginally Higher	26.2 (25.2, 27.8)
Higher	29.3 (26.2, 34.5)
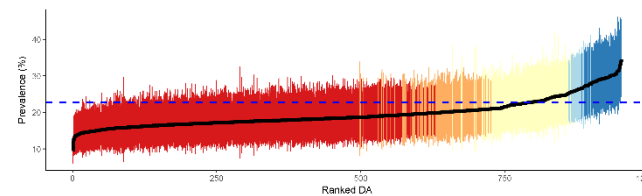
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 5.12 Physical activity among males (age 12 and older), 2000–2014, Central West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

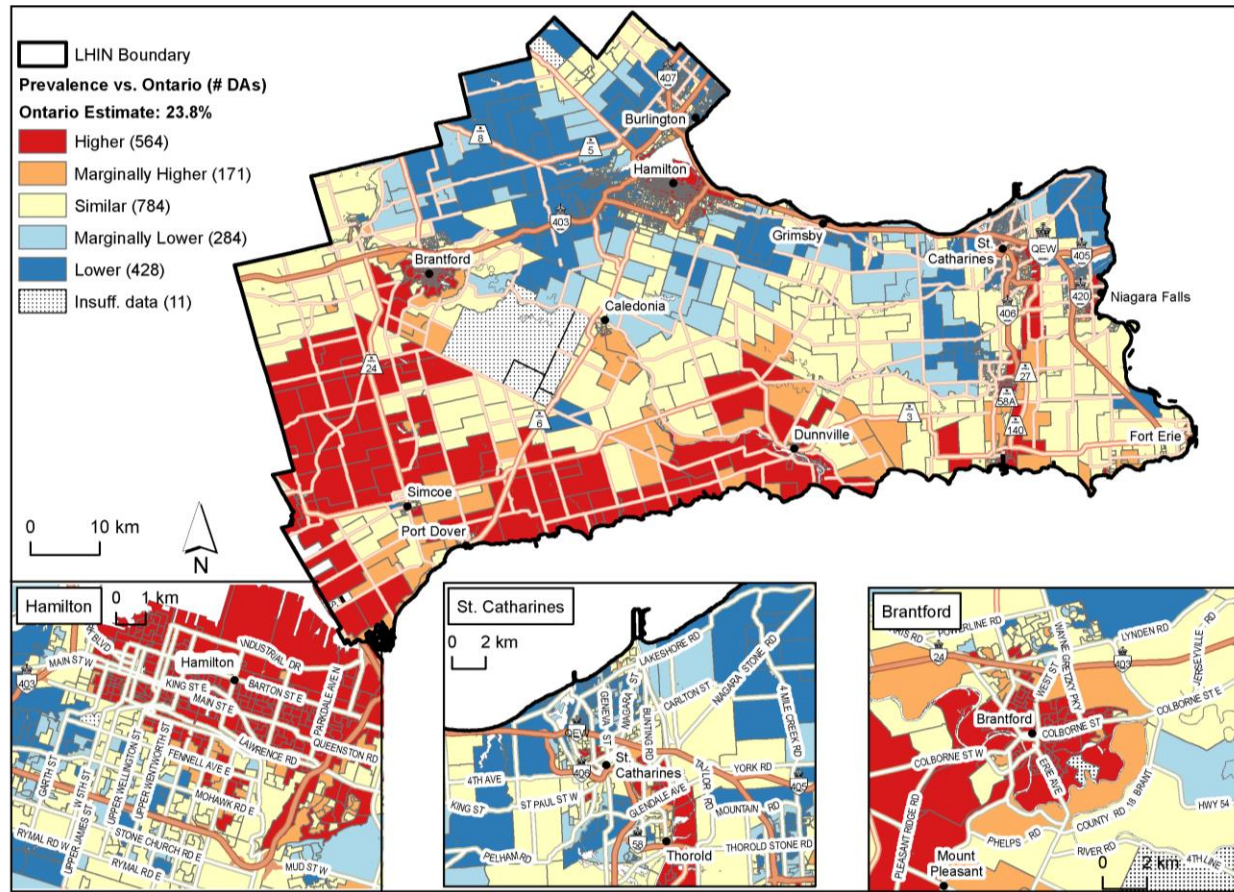| Category	Mean prevalence % (range)
Overall	28.2
Lower	24.4 (19.0, 26.7)
Marginally Lower	26.8 (25.3, 27.8)
Similar	29.5 (26.7, 33.6)
Marginally Higher	33.3 (32.2, 34.9)
Higher	35.6 (33.6, 38.6)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
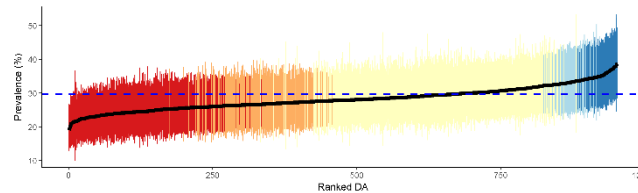
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
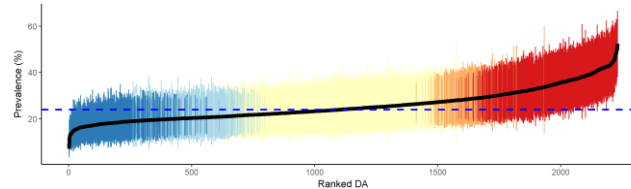
Figure 5.13 Physical activity among adolescent females (ages 12 to 18), 2000–2014, Central West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
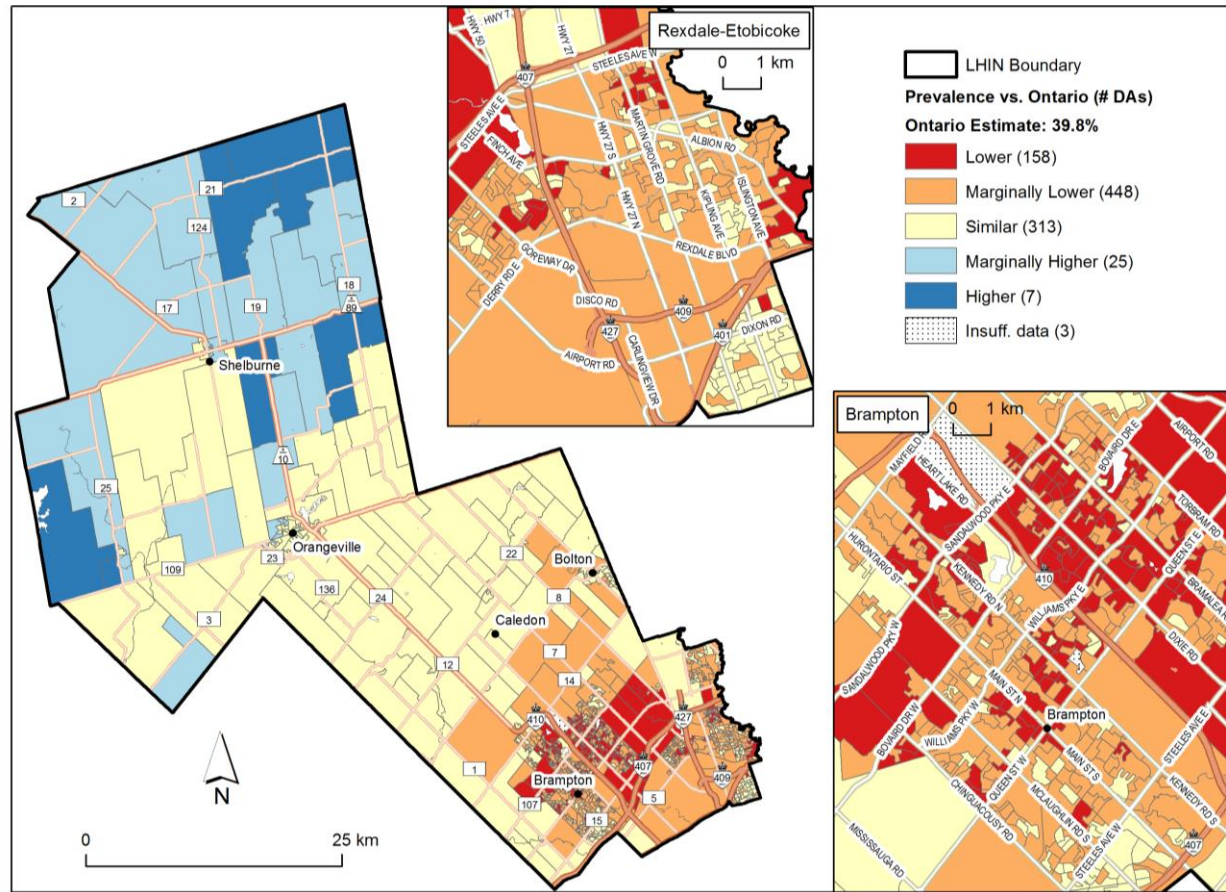
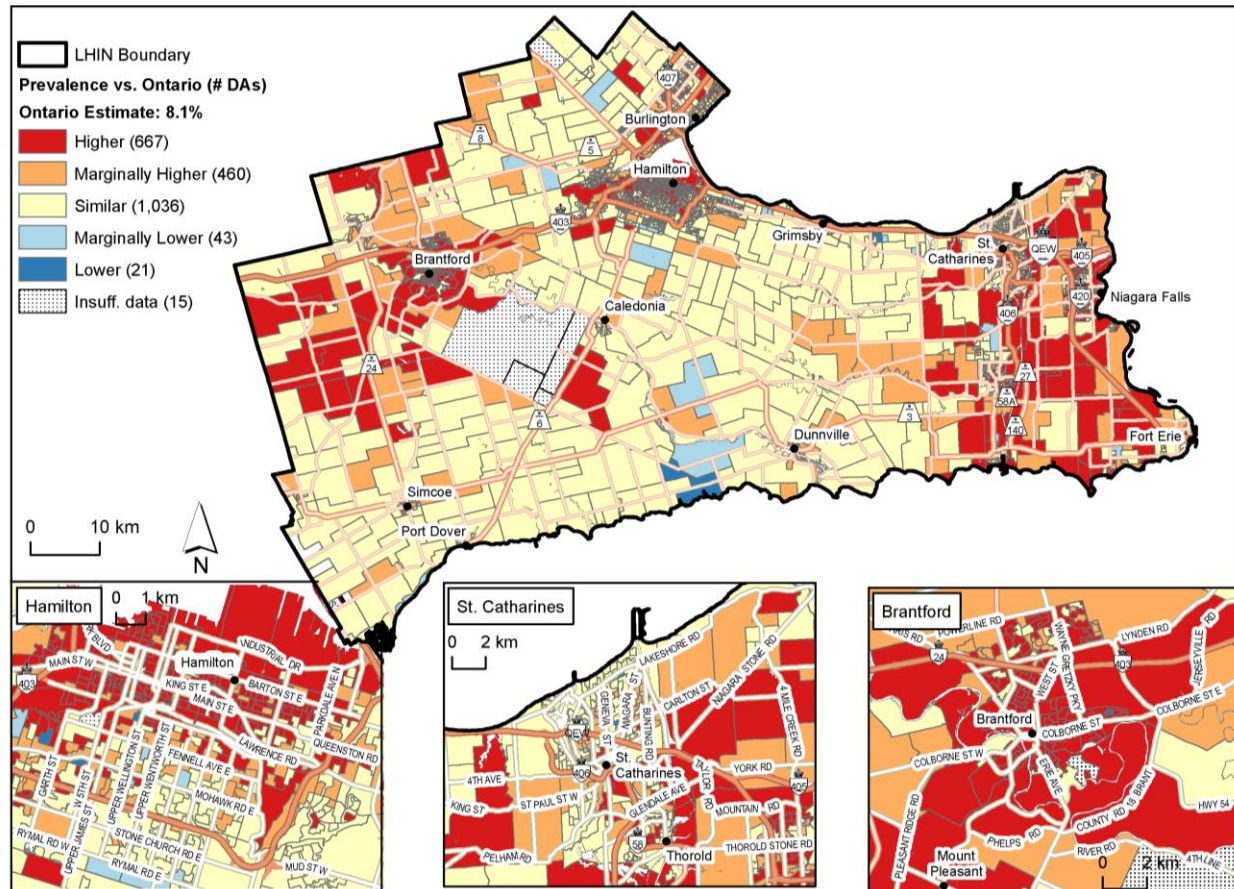| Category	Mean prevalence % (range)
Overall	36.8
Lower	34.3 (31.7, 35.7)
Marginally Lower	35.7 (34.0, 37.1)
Similar	38.7 (35.7, 43.7)
Marginally Higher	44.2 (43.0, 45.2)
Higher	45.5 (44.9, 46.1)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
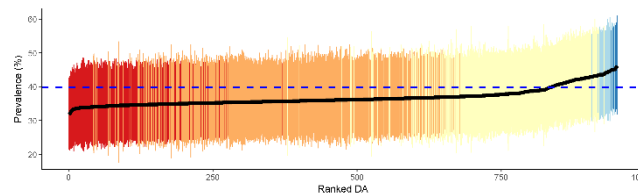
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
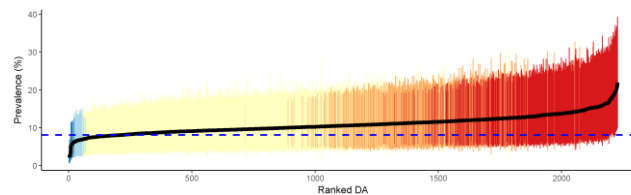
Figure 5.14 Physical activity among adolescent males (ages 12 to 18), 2000–2014, Central West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Map created: 11-Sep-17

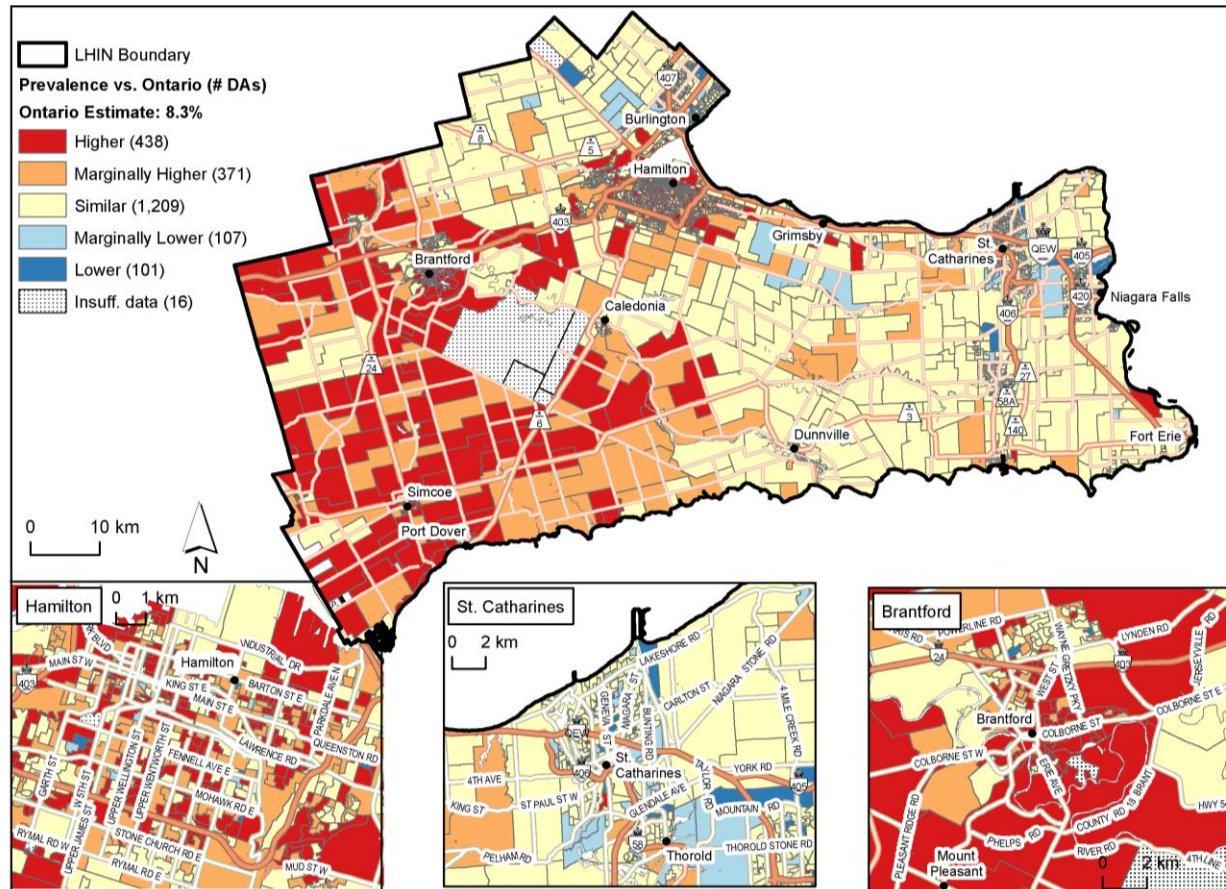| Category	Mean prevalence % (range)
Overall	55.9
Lower	51.6 (51.6, 51.6)
Marginally Lower	53.1 (51.5, 53.9)
Similar	56.0 (53.0, 60.2)
Marginally Higher	60.2 (59.3, 61.3)
Higher	61.6 (61.6, 61.6)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
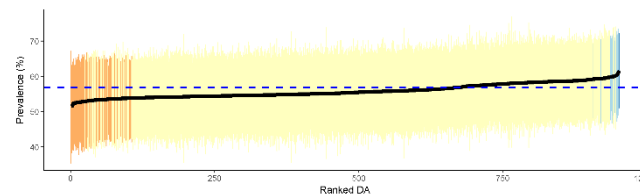
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Sedentary behaviour

People age 12 and older

Approximately half of the Ontario population reported sedentary behaviour during leisure time (females, 49%; males, 56%).

Higher prevalence than Ontario

For females, there were only two areas with a higher prevalence of sedentary behaviour (Figure 5.15) than the Ontario average. These areas were located in Brampton. There were no areas with a higher prevalence of sedentary behaviour than Ontario among males in the Central West LHIN, which is why that map is not shown.

Lower prevalence than Ontario

For females, lower prevalence areas (n=414; Figure 5.15) were located throughout the LHIN, with many areas located in Brampton and Rexdale-Etobicoke, and surrounding Bolton, Caledon, Orangeville and Shelburne.

Adolescents

More than half of the Ontario adolescent population reported sedentary behaviour during leisure time, at approximately 55% for females and 60% for males. No areas with a higher prevalence of sedentary behaviour than the Ontario average were identified among adolescents in the Central West LHIN, which is why those maps are not shown.

Figure 5.15 Sedentary behaviour among females (age 12 and older), 2000–2014, Central West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
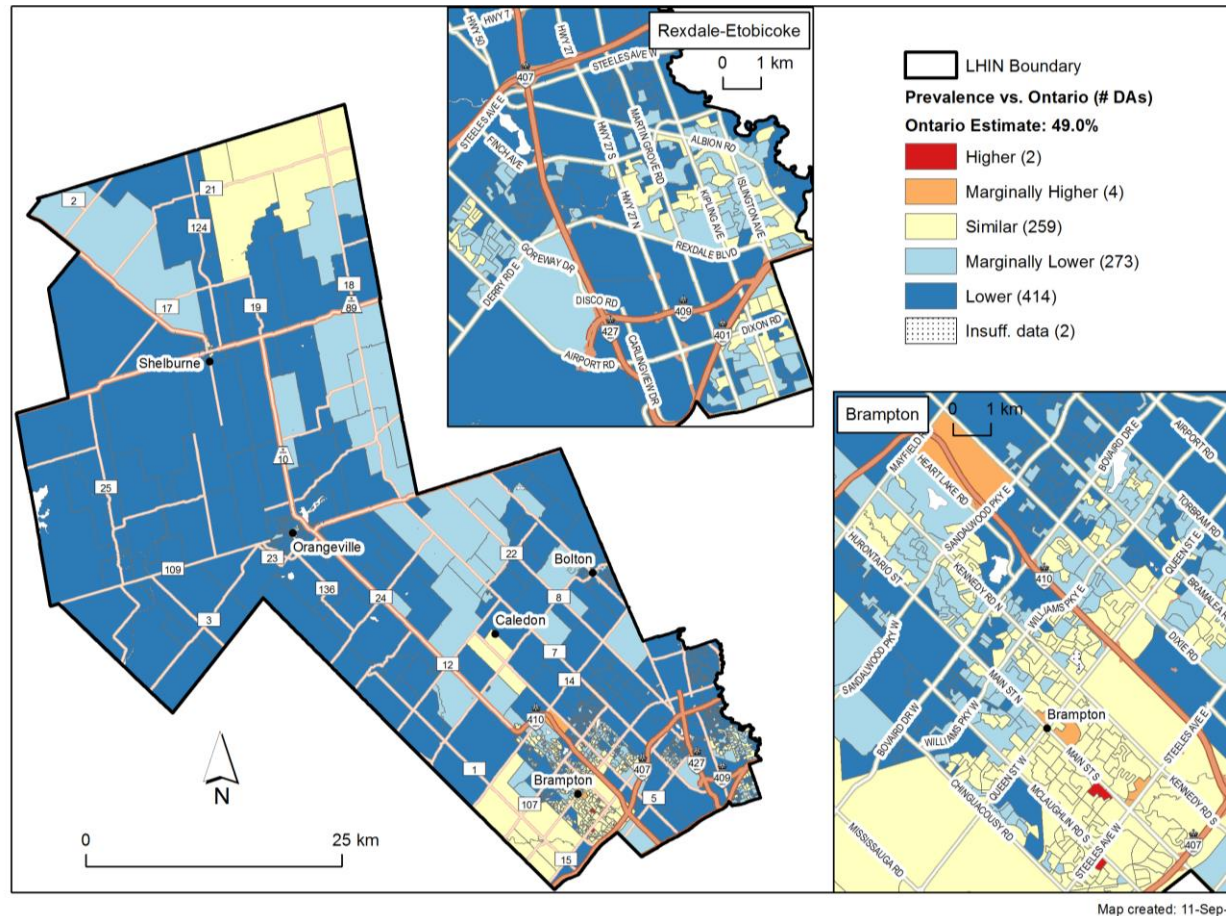
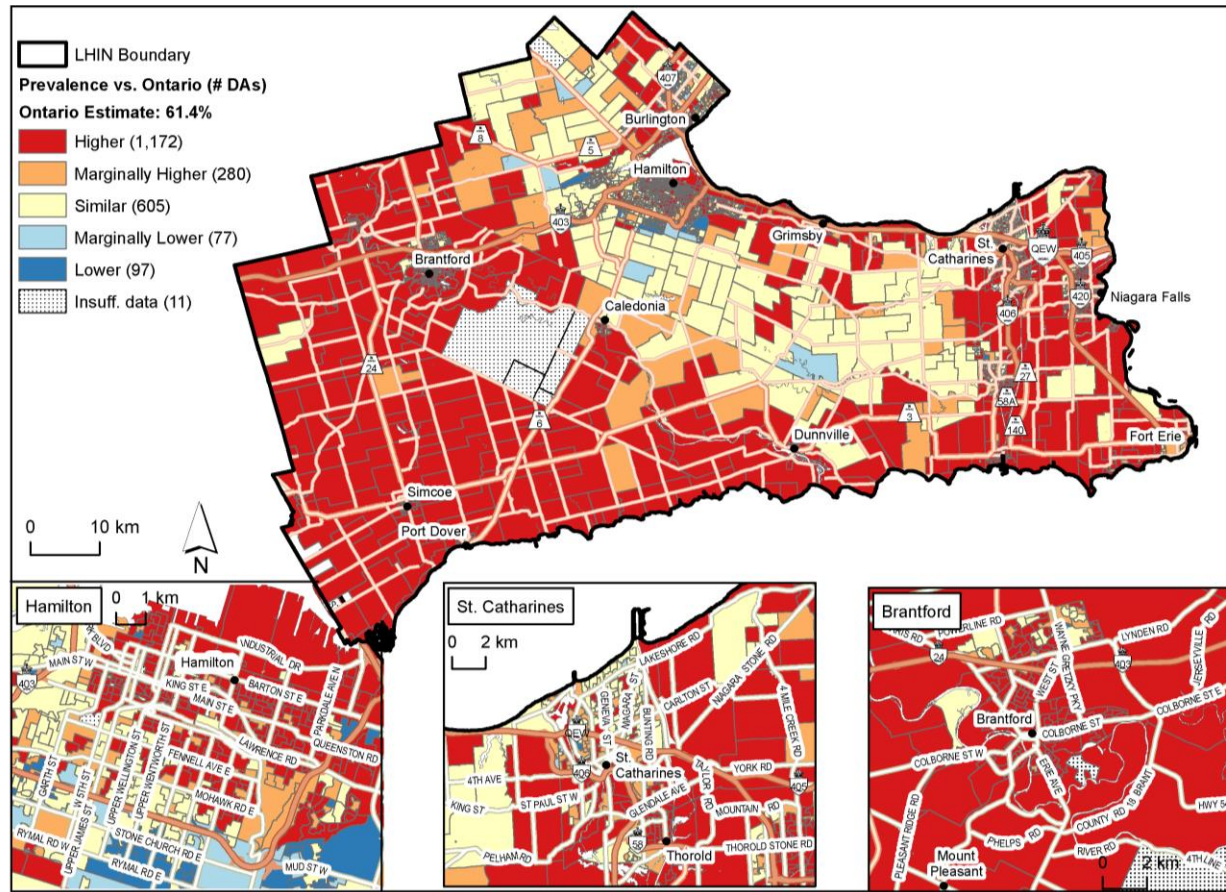| Category	Mean prevalence % (range)
Overall	45.0
Higher	54.0 (53.9, 54.1)
Marginally Higher	52.1 (51.8, 52.7)
Similar	47.6 (45.4, 52.4)
Marginally Lower	45.4 (41.4, 46.7)
Lower	42.9 (37.2, 45.5)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
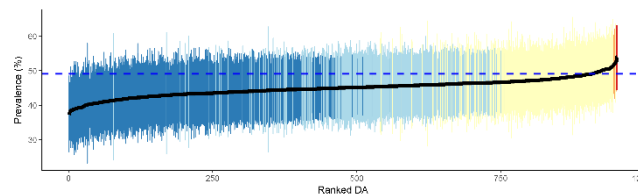
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Smoking—current status

People age 12 and older

Current tobacco smoking was reported by 17% of Ontario females and 24% of males.

Higher prevalence than Ontario

For females (n=93; Figure 5.16), areas with a higher prevalence of current smoking than the Ontario average were located near downtown Brampton, and in many areas in the northern tip of the LHIN, surrounding Orangeville and Shelburne. For males (n=32; Figure 5.17), higher prevalence areas were located near downtown Brampton, towards the south of Rexdale-Etobicoke, and in Orangeville.

Lower prevalence than Ontario

Areas with a lower prevalence of current smoking for females (n=411; Figure 5.16) and males (n=232; Figure 5.17) were located towards the southern tip of the LHIN. As well, many areas were located in Brampton, with the exception of many parts near the downtown area, and, for females, many lower prevalence areas were located near Bramalea Road and Queen Street East. Lower prevalence areas for both sexes were located throughout Rexdale-Etobicoke. For males, additional lower prevalence areas were located near Bolton and Caledon.

Adolescents

Approximately 8% of adolescent females and adolescent males in Ontario reported that they currently smoked tobacco.

Higher prevalence than Ontario

For adolescent females, no areas with a higher prevalence of current smoking than the Ontario average were identified. For adolescent males (Figure 5.18), there were three higher prevalence areas, located in Rexdale-Etobicoke, south of Rexdale Boulevard, and in Brampton by Heart Lake Road and Sandalwood Parkway.

Lower prevalence than Ontario

For adolescent males, areas with a lower prevalence of current smoking (n=213; Figure 5.18) than Ontario were dispersed across the LHIN, with many areas located in parts of Brampton, Rexdale-Etobicoke, near Bolton, Orangeville and along the southern and northern boundaries of the LHIN.

Figure 5.16 Current smoking among females (age 12 and older), 2000–2014, Central West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
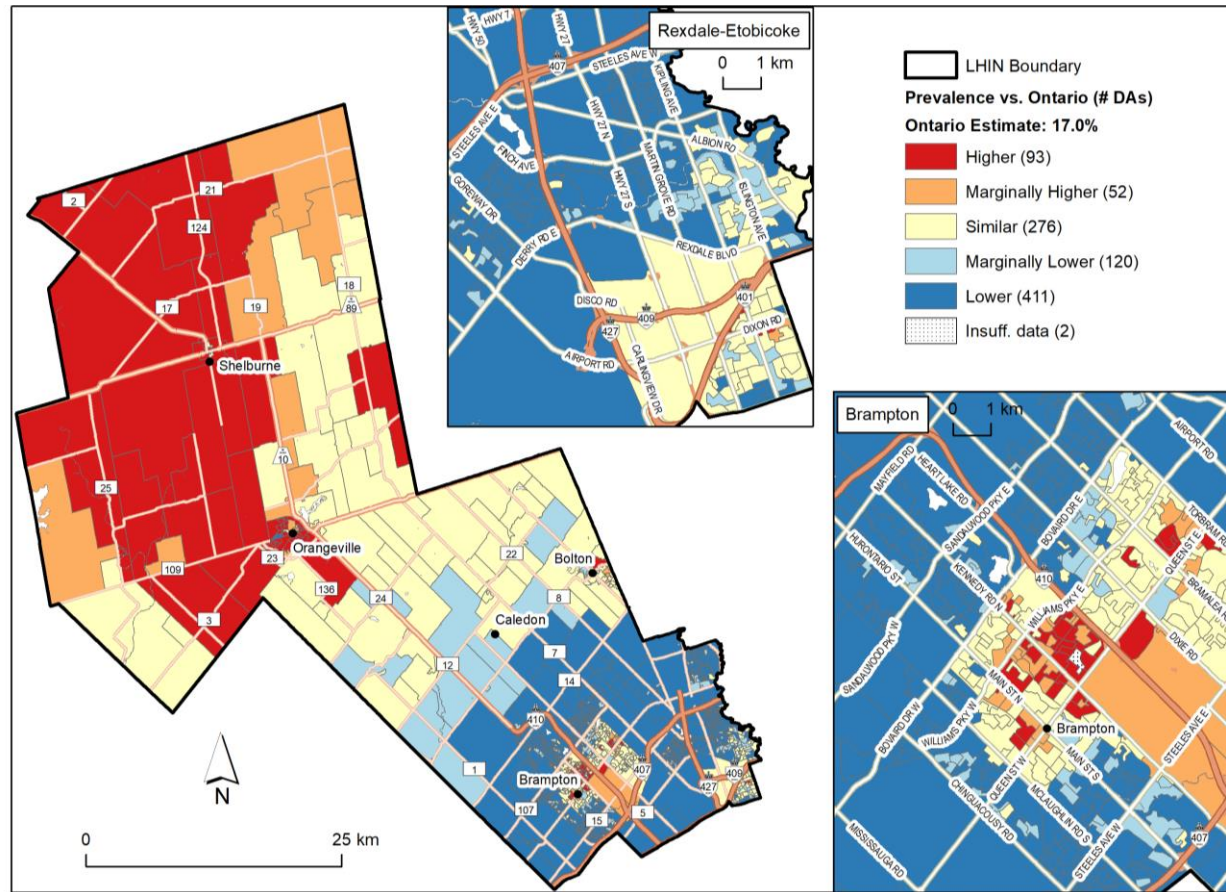
Category	Mean prevalence % (range)
Overall	15.6
Higher	24.4 (20.3, 31.6)
Marginally Higher	21.1 (19.1, 24.5)
Similar	17.4 (14.4, 22.9)
Marginally Lower	14.1 (12.1, 15.3)
Lower	12.2 (6.1, 14.3)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
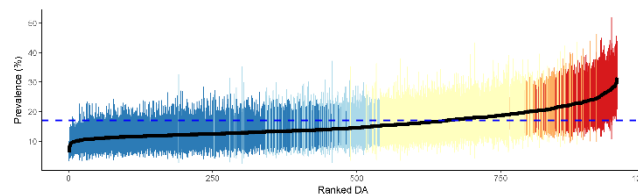
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 5.17 Current smoking among males (age 12 and older), 2000–2014, Central West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	22.3
Higher	30.1 (28.0, 33.3)
Marginally Higher	28.2 (25.9, 31.2)
Similar	23.7 (20.8, 28.4)
Marginally Lower	20.6 (18.5, 22.0)
Lower	18.3 (12.8, 21.0)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
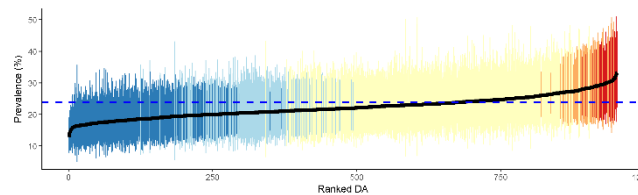
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 5.18 Current smoking among adolescent males (ages 12 to 18), 2000–2014, Central West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	7.4
Higher	12.6 (12.3, 13.0)
Marginally Higher	11.0 (10.4, 12.0)
Similar	8.2 (7.1, 10.6)
Marginally Lower	6.9 (6.0, 7.4)
Lower	5.9 (1.2, 6.7)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
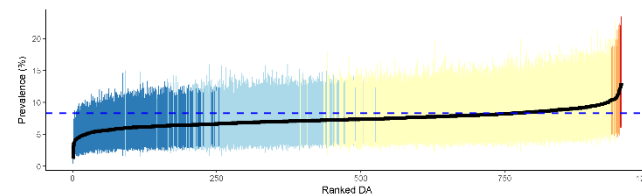
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Smoking—ever-smoked status

People age 12 and older

Approximately one in two Ontario females and three in five Ontario males reported having ever-smoked.

Higher prevalence than Ontario

For females (n=101; Figure 5.19) and males (n=60; Figure 5.20), areas with a higher prevalence of ever-smoked status than the Ontario average, were located in the northern tip of the LHIN (e.g., north of Caledon). For females, additional areas were located in downtown Brampton.

Lower prevalence than Ontario

For females (n=586; Figure 5.19) and males (n=672; Figure 5.20), most areas with a lower prevalence of ever-smoked status than Ontario were located at the southern tip of the LHIN, including most parts of Brampton and Rexdale-Etobicoke, as well as areas north of Brampton. For males, additional areas were located near Bolton.

Adolescents

The area-based prevalence of ever-smoked status was not estimated for adolescent populations.

Figure 5.19 Ever-smoked status among females (age 12 and older), 2000–2014, Central West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
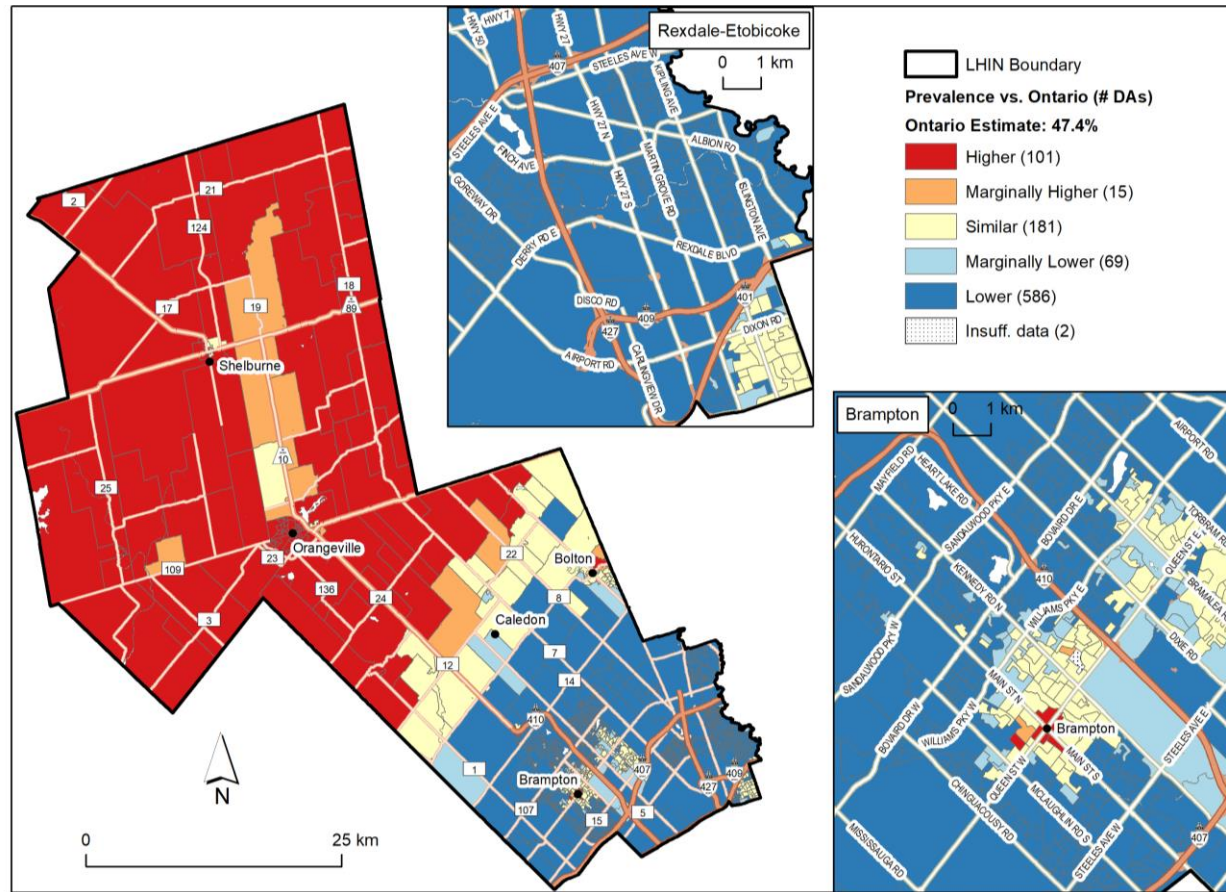
Category	Mean prevalence % (range)
Overall	40.0
Higher	56.9 (51.5, 64.5)
Marginally Higher	51.6 (49.7, 53.3)
Similar	46.8 (42.4, 51.5)
Marginally Lower	43.1 (39.6, 45.2)
Lower	34.3 (21.7, 43.7)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
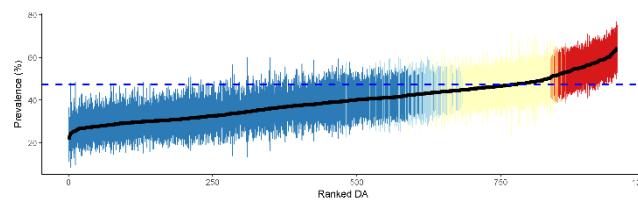
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 5.20 Ever-smoked status among males (age 12 and older), 2000–2014, Central West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	54.3
Higher	67.0 (64.4, 73.3)
Marginally Higher	64.2 (63.6, 65.3)
Similar	61.2 (57.3, 63.7)
Marginally Lower	57.9 (54.4, 59.1)
Lower	51.1 (33.7, 58.3)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
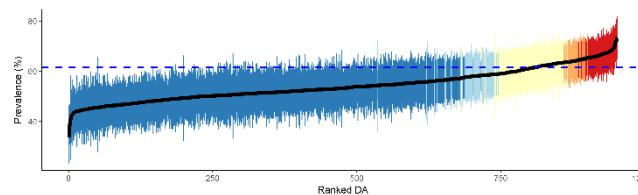
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

LHIN 6
Mississauga
Halton

6. Mississauga Halton LHIN

Key Findings

Top three priority risk factor population estimates by sex (see Table 6.1 below):

Females
Alcohol—current consumption
Smoking—ever-smoked status
Alcohol—consumption exceeding cancer prevention recommendations

Males
Alcohol—current consumption
Smoking—ever-smoked status
Smoking—current status
Physical activity

Risk factor summary

Alcohol—current consumption
    Priority areas:
- Females: most areas throughout the western part of the LHIN, and many areas in the southern part
- Males: most areas throughout the western part of the LHIN, and many areas in the southern part
- Adolescent females: areas scattered throughout the LHIN and throughout Oakville
- Adolescent males: areas scattered throughout most of the LHIN, including many areas southwest of Mississauga and throughout Oakville

Alcohol—consumption exceeding cancer prevention recommendations
    Priority areas:
- Females: areas clustered in Oakville and southwestern Mississauga
- Males: areas in the western part of the LHIN and parts of Oakville

Excess body weight
    Priority areas:
- Females: areas towards eastern Mississauga
- Males: a few areas in the western half of the LHIN, in Milton and east of Georgetown

Inadequate vegetable and fruit consumption
    Priority areas:
- Males: one area in Georgetown

Physical activity
Priority areas:
- Females: some parts of Mississauga
- Males: a few areas dispersed across Mississauga
- Adolescent males: two areas east of Georgetown

Sedentary behaviour
Priority areas:
- Females: very few areas in Mississauga

Smoking—current status
Priority areas:
- Females: a few areas scattered across Mississauga and in Milton
- Males: areas in Mississauga and near Milton and Acton
- Adolescent females: areas in Oakville and dispersed across Mississauga
- Adolescent males: a few areas scattered across Mississauga

Smoking—ever-smoked status
Priority areas:
- Females: areas in Oakville, and towards the western half of the LHIN
- Males: clusters in Mississauga, Oakville and in the western part of the LHIN near Milton and Acton

Introduction

This section describes the estimated local prevalence of risk factors across the LHIN compared to the Ontario prevalence estimates from 2000 to 2014. These comparisons are always relative to Ontario with respect to the level of statistical evidence for the underlying prevalence estimate and often the number of areas meeting specific criteria are presented in parentheses (e.g., n=40). Risk factor maps are presented for females and males age 12 and older, and for adolescent females and adolescent males ages 12 to 18 inclusive. Throughout the text, the terms "area(s)" and "local" refer to the 2006 census dissemination areas (see the Data and Methods section, page 3).

Exclusions

As discussed in the Interpretation section (page 7), maps are shown only for risk factor estimates in the LHIN where one or more local estimates were higher than Ontario (or lower than Ontario for physical activity). Therefore, the risk factor maps not displayed for Mississauga Halton LHIN include:

- excess body weight for adolescent females and adolescent males;
- inadequate vegetable and fruit consumption for females, adolescent females and adolescent males;
- physical activity for adolescent females; and
- sedentary behaviour among males, adolescent females and adolescent males.

Notes

Risk factor prevalence could not be estimated for several areas in the Mississauga Halton LHIN (e.g., suppressed census populations or institutionalized populations), which are shown as "insufficient data" on the maps. See Appendix C for a full list of areas in the insufficient data category.

Priority population estimates

Priority population estimates may be helpful in prioritizing health promotion and planning efforts for potential populations affected by certain modifiable risk factors. Table 6.1 (page 203) presents the estimated priority populations for each risk factor by sex and age group in the Mississauga Halton LHIN. Priority populations are defined as those living in areas with a higher risk factor prevalence (or lower prevalence for physical activity) than Ontario. These estimates were produced by summing the population from all higher (or lower for physical activity) prevalence small areas (2006 dissemination areas) after taking into account the risk factor prevalence of each area. For example, if among females 100 areas had a higher prevalence of current alcohol consumption than Ontario, the female 2006 census populations in each of these areas were multiplied by the prevalence of current alcohol consumption for each area and then summed across the 100 areas to produce an estimate of the female "priority population." These calculations are intended to provide a measure to prioritize the risk factors rather than a population estimate.

According to the Methods (page 4) and Interpretation (page 7) sections, these higher prevalence areas had strong statistical evidence of elevated prevalence compared to Ontario (posterior probabilities ≥ 80%). An exception is physical activity, which had strong statistical evidence of lower prevalence estimates than Ontario (posterior probabilities ≤ 20%). Therefore, the population estimates for each risk factor are likely undercounted because areas with less statistical certainty (posterior probabilities < 80% and physical activity posterior probabilities > 20%) are not included in the priority population estimates.

Table 6.1 Estimated priority populations among higher prevalence** dissemination areas compared to Ontario by risk factor, sex and age group, Mississauga Halton Local Health Integration Network (LHIN), using 2006 census populations

Risk factor	Female priority population*†	% of female population in the LHIN† (n=439,750)	Male priority population*†	% of male population in the LHIN† (n=412,040)	Adolescent female priority population*‡	% of adolescent female population in the LHIN‡ (n=49,150)	Adolescent male priority population*‡	% of adolescent male population in the LHIN‡ (n=52,570)
Alcohol—current consumption	102,530	23%	91,660	22%	610	1%	1,480	3%
Alcohol—consumption exceeding cancer prevention recommendations	6,070	1%	4,170	1%	NM	—	NM	—
Excess body weight	3,320	1%	1,140	0%	NE	—	NE	—
Inadequate vegetable and fruit consumption	NE	—	730	0%	NE	—	NE	—
Physical activity**	4,760	1%	770	0%	NP	—	30	0%
Sedentary behaviour	1,630	0%	NE	—	NE	—	NE	—
Smoking—current status	1,810	0%	4,620	1%	210	0%	20	0%
Smoking—ever-smoked status	34,360	8%	21,580	5%	NM	—	NM	—

NE = no estimates within the "higher" prevalence categories**; NM = not modelled
* Estimates rounded to multiples of 10
** For physical activity, priority populations are those living in areas with a lower risk factor prevalence compared to Ontario
† Population age 12 and older
‡ Population ages 12 to 18
— Value not applicable

Alcohol—current consumption

People age 12 and older

An estimated 70% of females and 79% of males in Ontario reported current alcohol consumption.

Higher prevalence than Ontario

For females (n=442; Figure 6.1), most areas in the western half of the LHIN and in the southern part of the LHIN had a higher prevalence of current alcohol consumption than the Ontario average. For males (n=375; Figure 6.2), there were many higher prevalence areas located in the western and southern parts of the LHIN as well, surrounding Halton Hills, Milton and throughout Oakville.

Lower prevalence than Ontario

For females (n=276; Figure 6.1) and males (n=187; Figure 6.2), areas with a lower prevalence of alcohol consumption than Ontario were typically located from central to northern Mississauga.

Adolescents

Among the adolescent population in Ontario, approximately 40% of females and males reported current alcohol consumption.

Higher prevalence than Ontario

For adolescent females (n=54; Figure 6.3), areas with a higher prevalence of current alcohol consumption than Ontario were located predominantly in Oakville. For adolescent males (n=107; Figure 6.4), higher prevalence areas were scattered throughout the LHIN, with many areas in Oakville and some scattered throughout Mississauga and near Acton, Halton Hills and Milton.

Lower prevalence than Ontario

For adolescent females (n=711; Figure 6.3) and adolescent males (n=553; Figure 6.4), most areas throughout Mississauga had a lower prevalence of current alcohol consumption than the Ontario average. For adolescent females, additional areas were located in the western half of the LHIN, around Georgetown and Action. For adolescent males, additional areas were located around Georgetown and Milton.
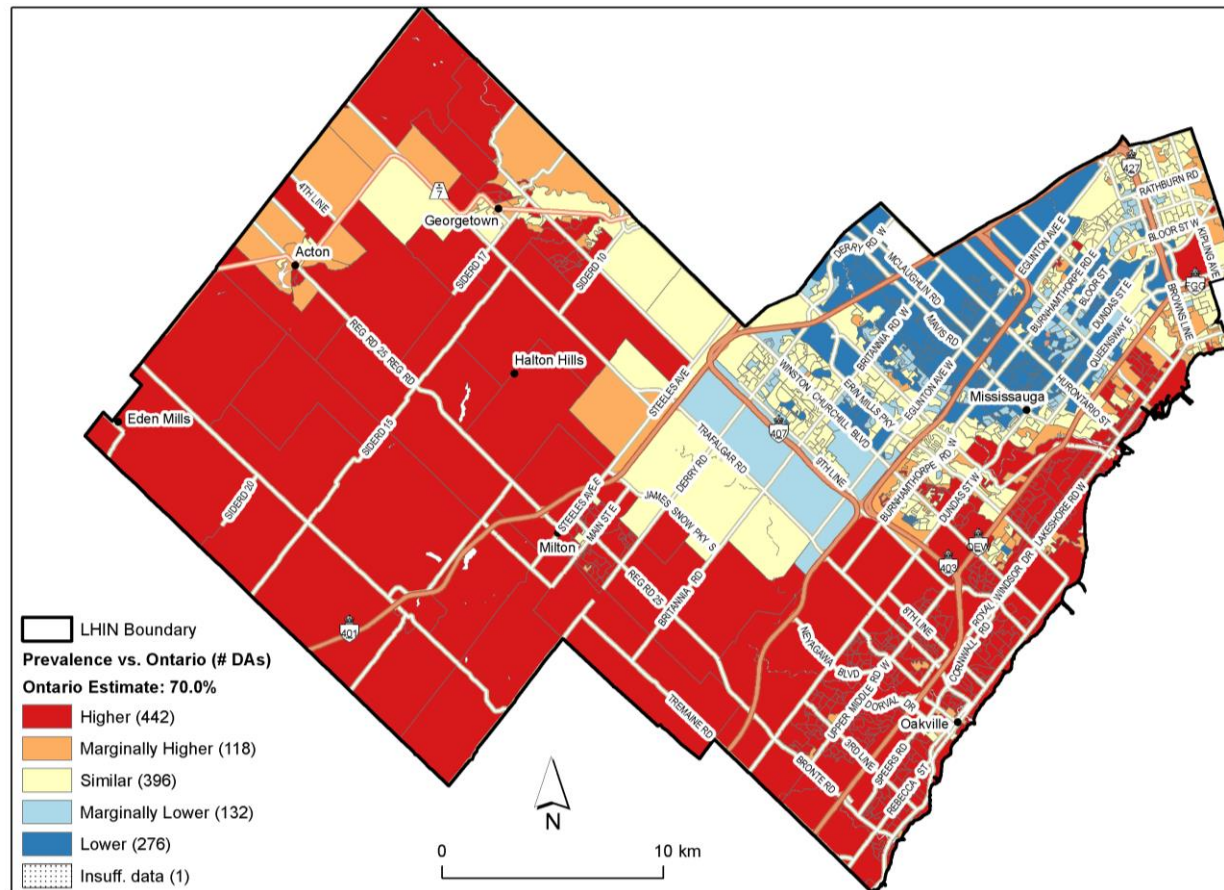
Map created: 08-Sep-17

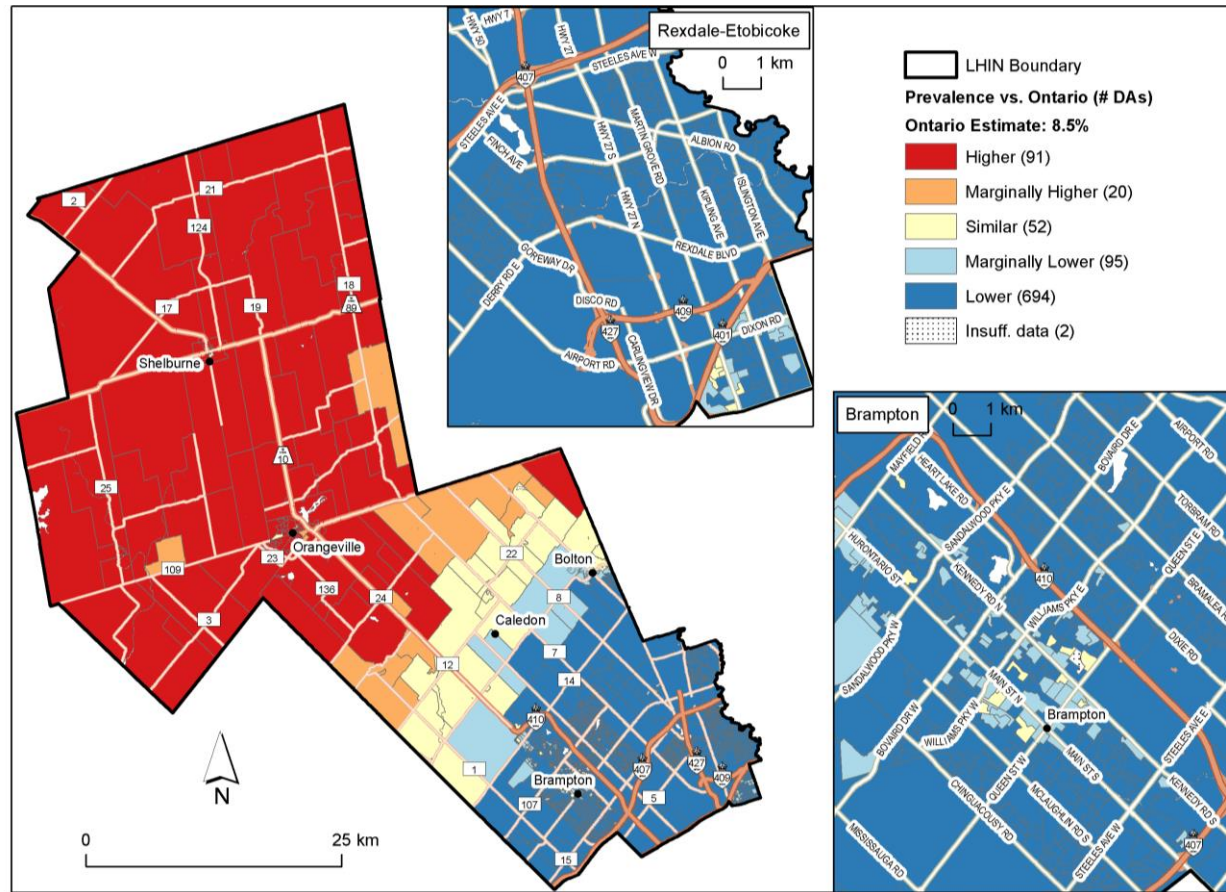| Category	Mean prevalence % (range)
Overall	70.6
Higher	78.7 (73.4, 85.0)
Marginally Higher	73.8 (72.3, 75.8)
Similar	69.7 (64.9, 73.6)
Marginally Lower	65.1 (60.3, 67.7)
Lower	60.3 (49.4, 65.6)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
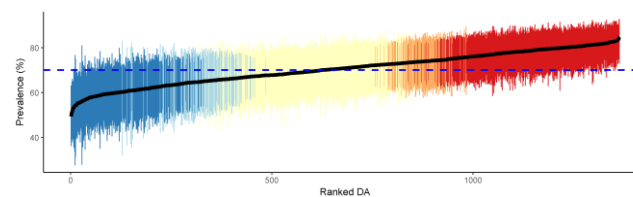
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 6.2 Current alcohol consumption among males (age 12 and older), 2000–2014, Mississauga Halton Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

LHIN Boundary
Prevalence vs. Ontario (# DAs)
Ontario Estimate: 79.2%

- Higher (375)
- Marginally Higher (153)
- Similar (564)
- Marginally Lower (85)
- Lower (187)
- Insuff. data (1)
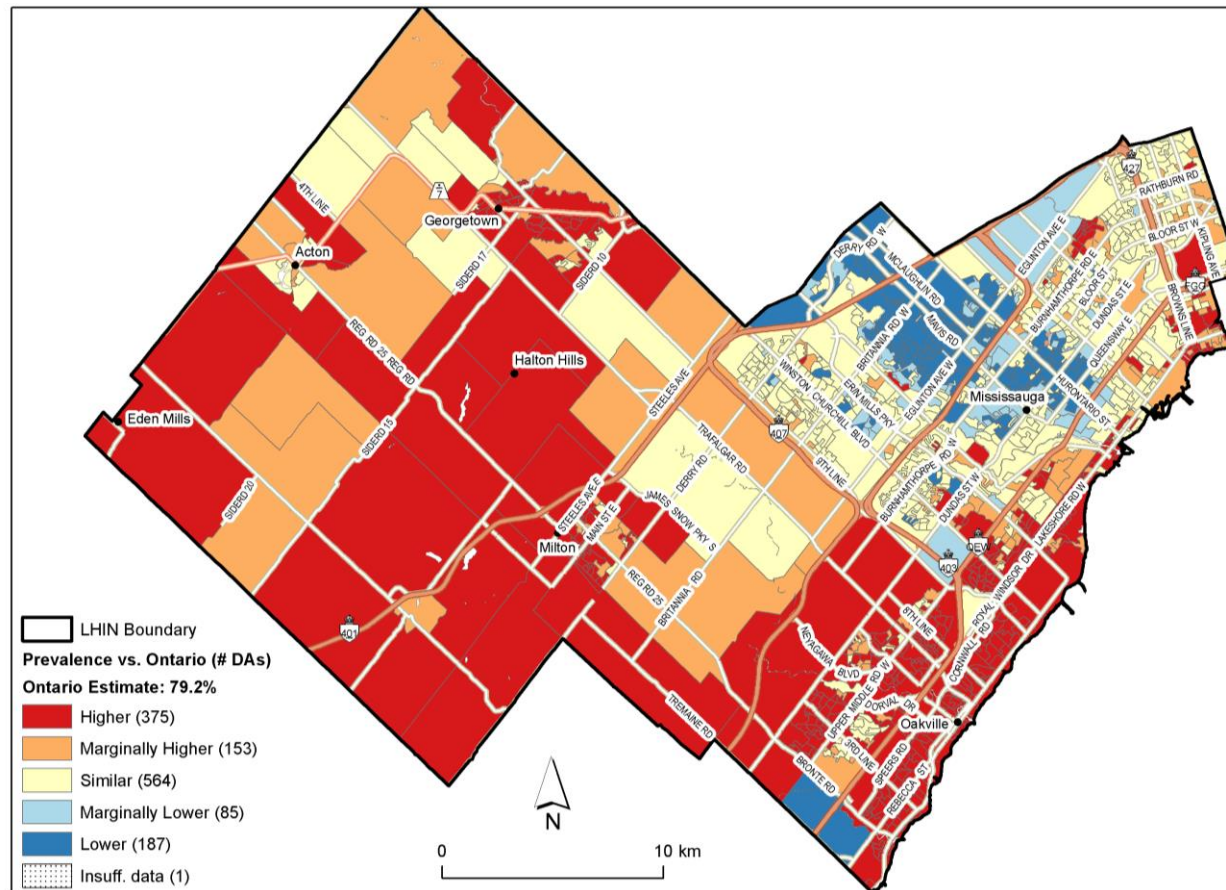
Map created: 08-Sep-17

Category	Mean prevalence % (range)
Overall	79.8
Higher	84.5 (81.8, 88.7)
Marginally Higher	81.8 (80.6, 83.2)
Similar	79.0 (74.2, 81.5)
Marginally Lower	75.9 (73.1, 77.1)
Lower	73.0 (62.3, 76.6)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
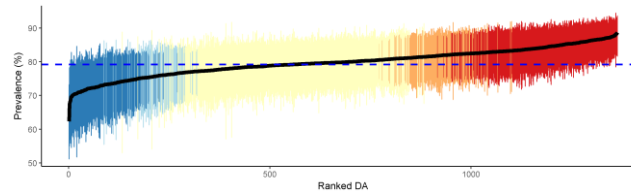
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 6.3 Current alcohol consumption among adolescent females (ages 12 to 18), 2000–2014, Mississauga Halton Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Legend on map:

LHIN Boundary
Prevalence vs. Ontario (# DAs)
Ontario Estimate: 39.5%
Higher (54)
Marginally Higher (57)
Similar (340)
Marginally Lower (200)
Lower (711)
Insuff. data (3)
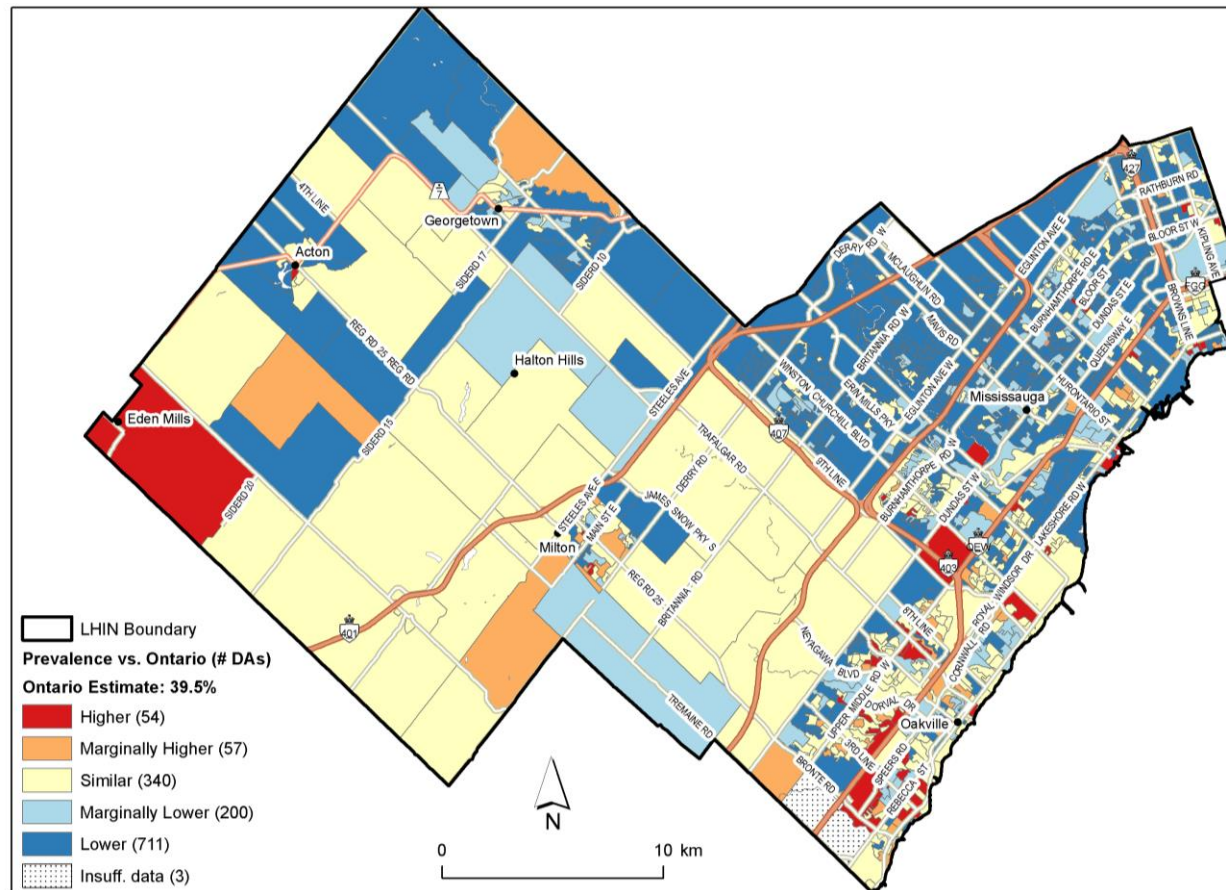
Map created: 08-Sep-17

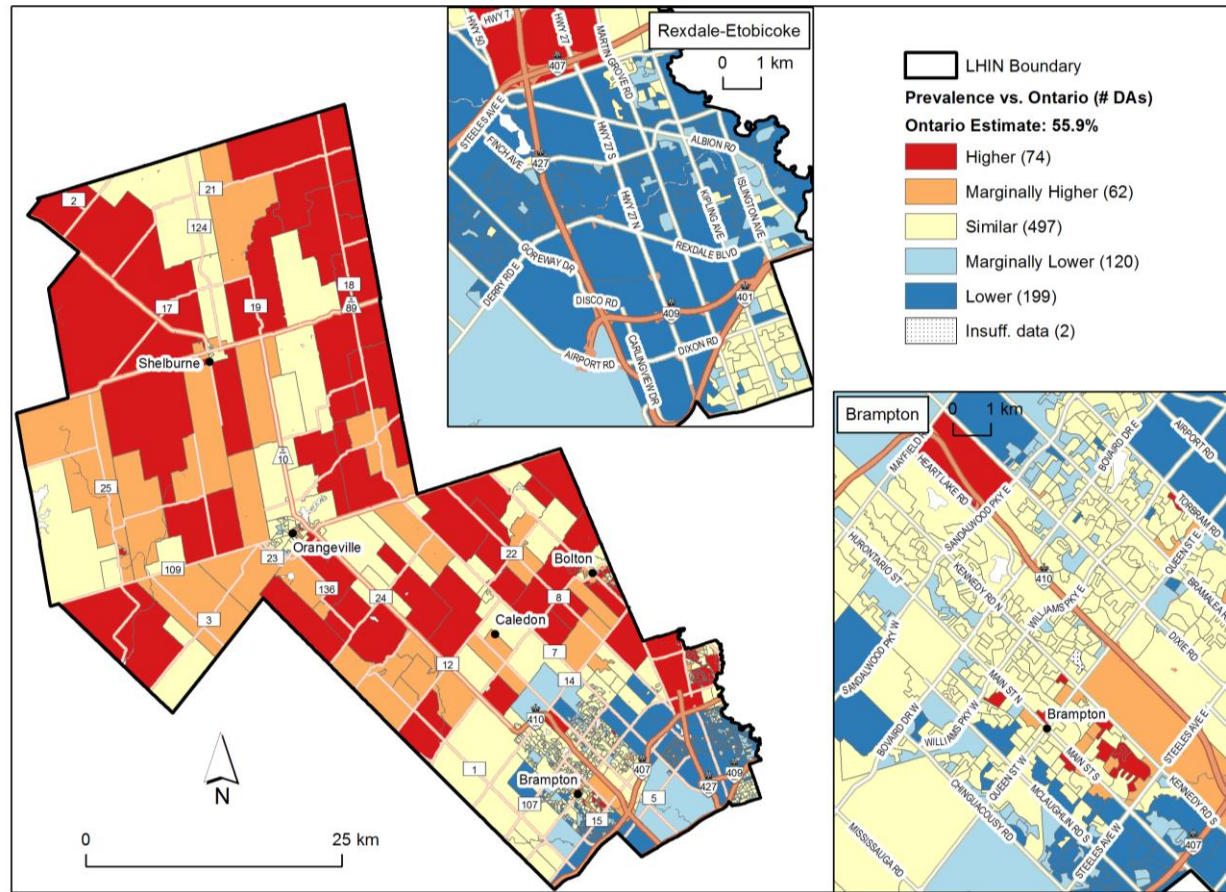| Category	Mean prevalence % (range)
Overall	34.6
Higher	47.9 (44.1, 59.3)
Marginally Higher	43.9 (42.1, 45.7)
Similar	39.1 (35.7, 43.8)
Marginally Lower	35.5 (31.9, 37.0)
Lower	30.4 (8.5, 35.6)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
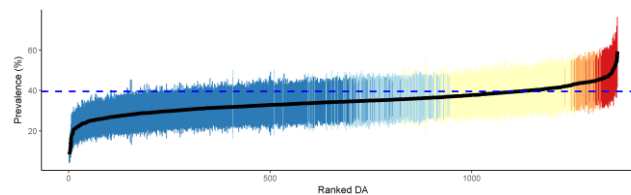
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
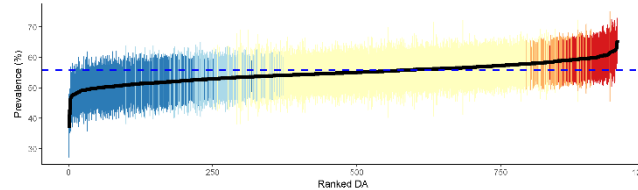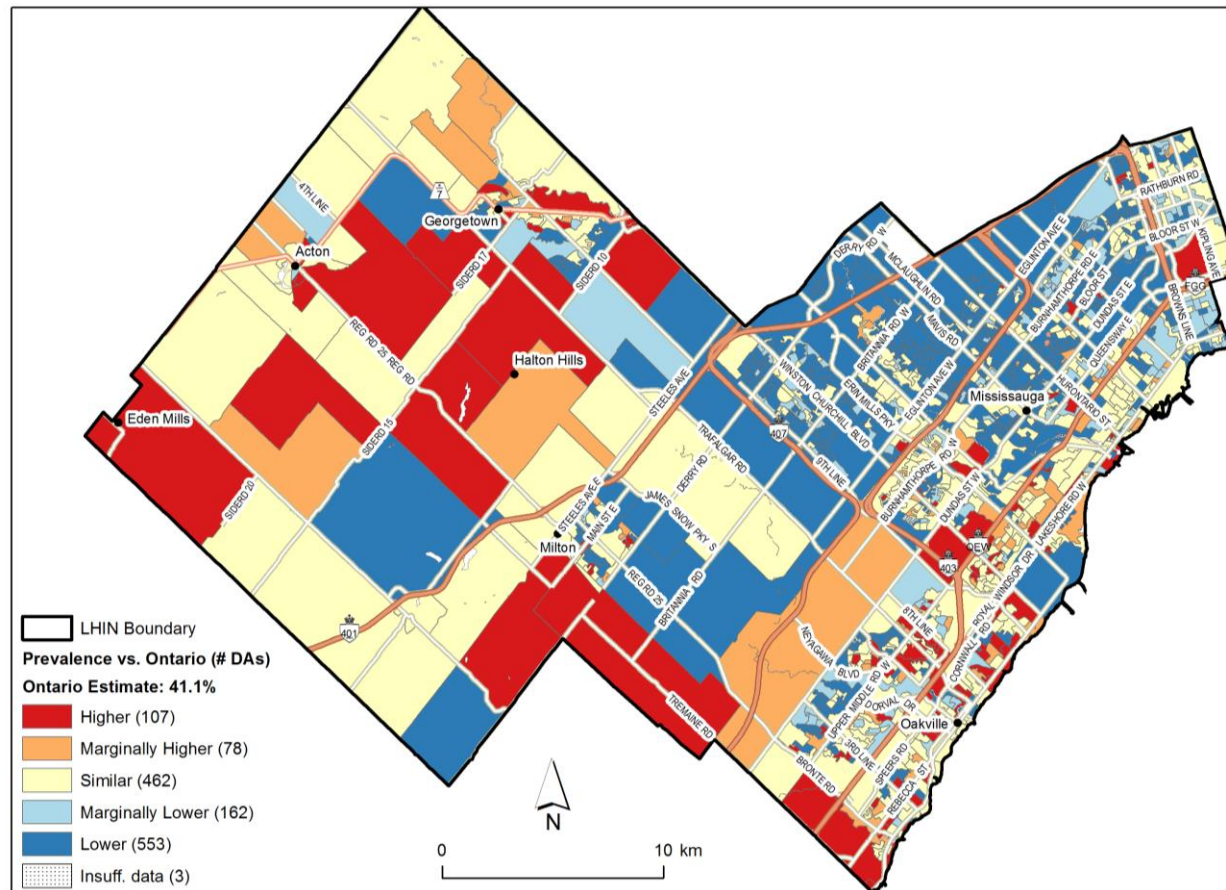
Map created: 11-Sep-17

Category	Mean prevalence % (range)
Overall	38.2
Higher	50.1 (45.6, 64.5)
Marginally Higher	45.4 (43.7, 51.1)
Similar	41.0 (37.4, 44.8)
Marginally Lower	37.3 (33.8, 38.6)
Lower	32.8 (13.4, 37.4)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Alcohol—consumption exceeding cancer prevention recommendations

People age 12 and older

Almost 7% of the female population in Ontario drank alcohol in excess of the recommended limits for cancer prevention. Among males, the Ontario prevalence of exceeding the recommended limits was 8.5%.

Higher prevalence than Ontario

For females, areas with a higher prevalence of alcohol consumption in excess of the recommended limits for cancer prevention than the Ontario average (n=213; Figure 6.5) were located in the southeastern part of the LHIN, in most parts of Oakville and a few parts of Mississauga. For males (n=119; Figure 6.6), higher prevalence areas were located in many parts of Oakville and in the western half of the LHIN, near Acton, Milton and Eden Mills.

Lower prevalence than Ontario

Areas with a lower prevalence of alcohol consumption in excess of the recommended limits were found in central and northern Mississauga for both sexes (females, n=407; Figure 6.5; males, n=504; Figure 6.6).

Adolescents

The area-based prevalence of exceeding cancer prevention recommendations was not estimated for adolescent populations.

Figure 6.5 Alcohol consumption exceeding cancer prevention recommendations among females (age 12 and older), 2000–2014, Mississauga Halton Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

LHIN Boundary

Prevalence vs. Ontario (# DAs)

Ontario Estimate: 6.7%

Higher (213)
Marginally Higher (113)
Similar (477)
Marginally Lower (154)
Lower (407)
Insuff. data (1)

Map created: 11-Sep-17
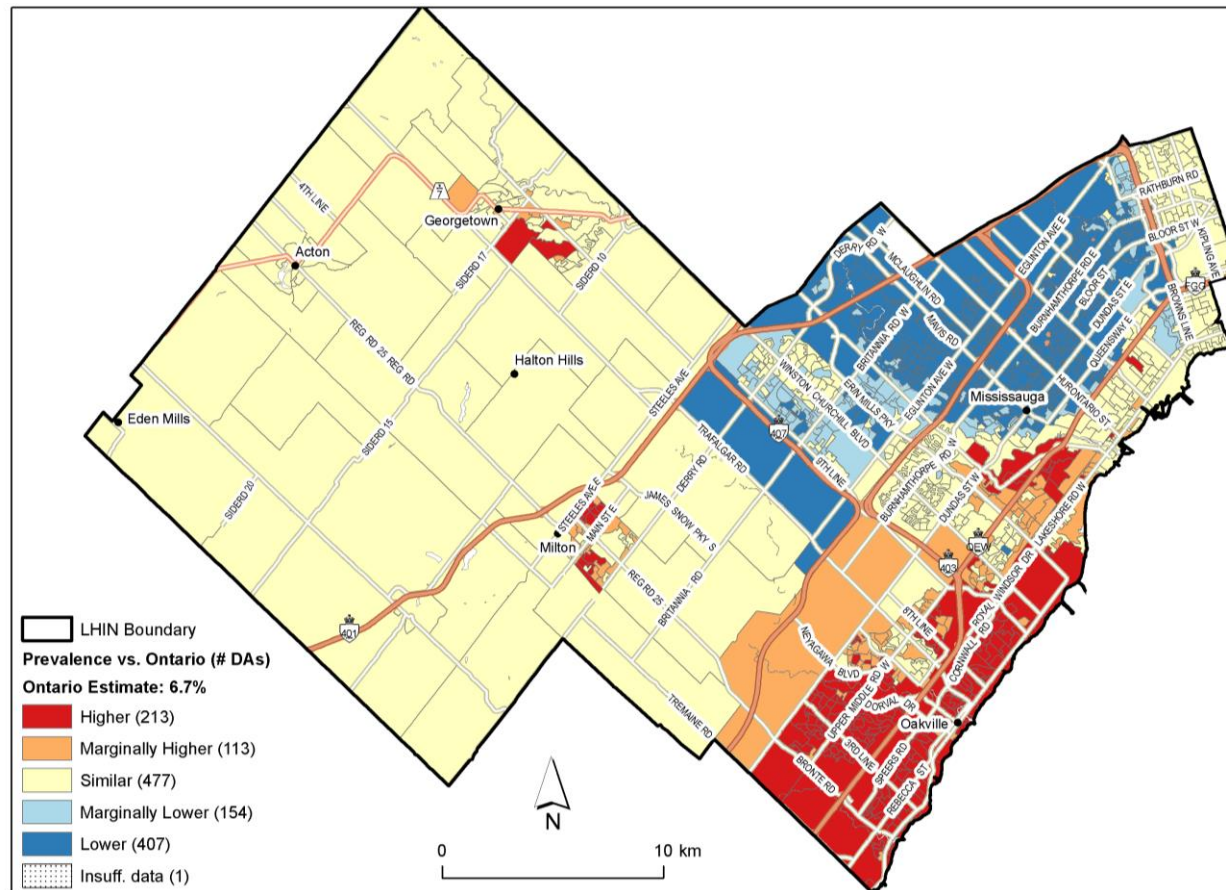
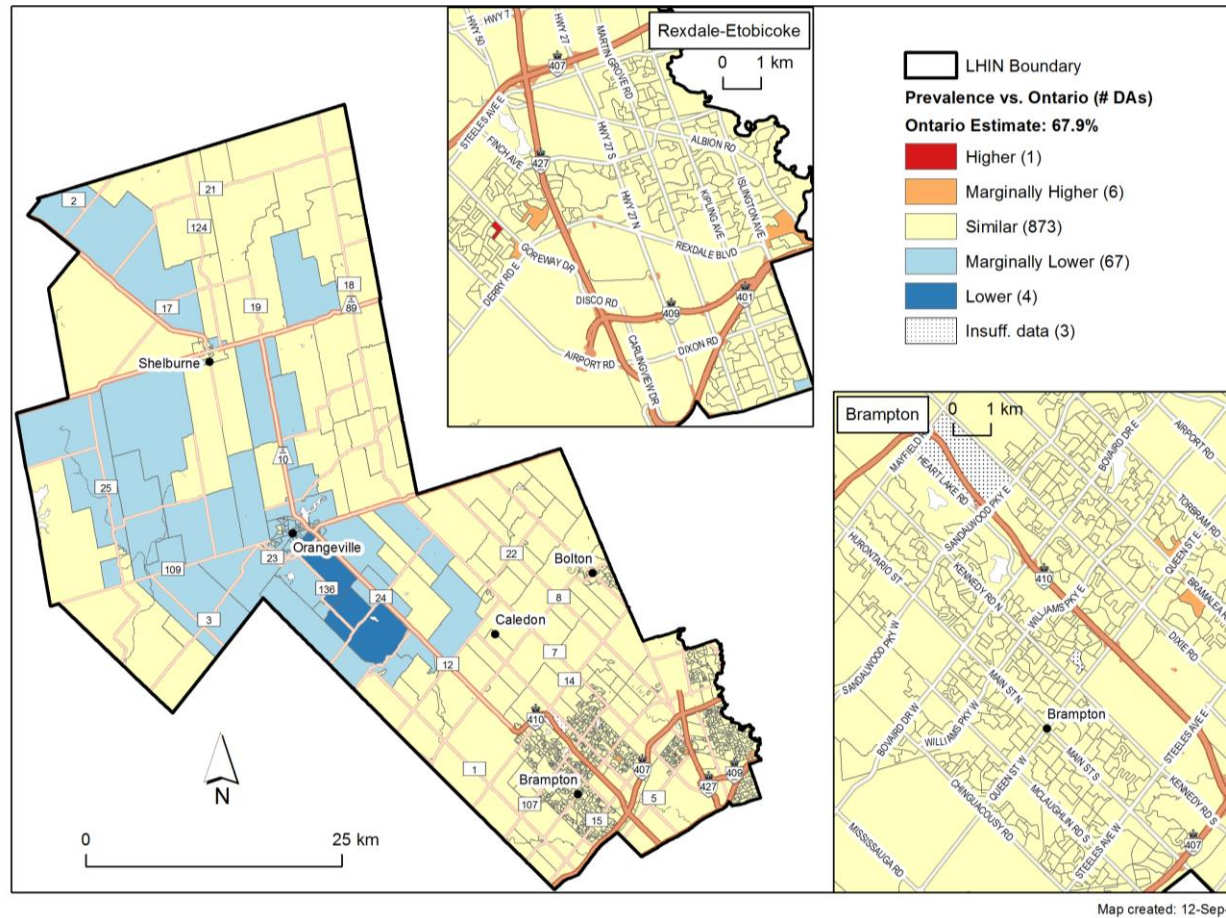| Category	Mean prevalence % (range)
Overall	6.9
Higher	10.5 (9.0, 14.3)
Marginally Higher	8.9 (8.0, 10.2)
Similar	7.3 (5.9, 9.0)
Marginally Lower	5.7 (4.7, 6.2)
Lower	4.6 (3.3, 5.7)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
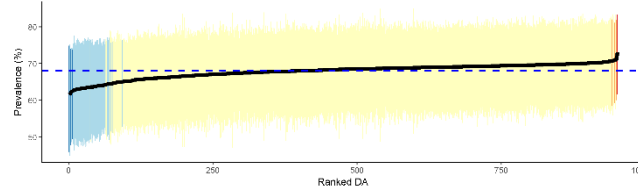
LHIN Boundary

Prevalence vs. Ontario (# DAs)

Ontario Estimate: 8.5%

- Higher (119)
- Marginally Higher (141)
- Similar (445)
- Marginally Lower (155)
- Lower (504)
- Insuff. data (1)
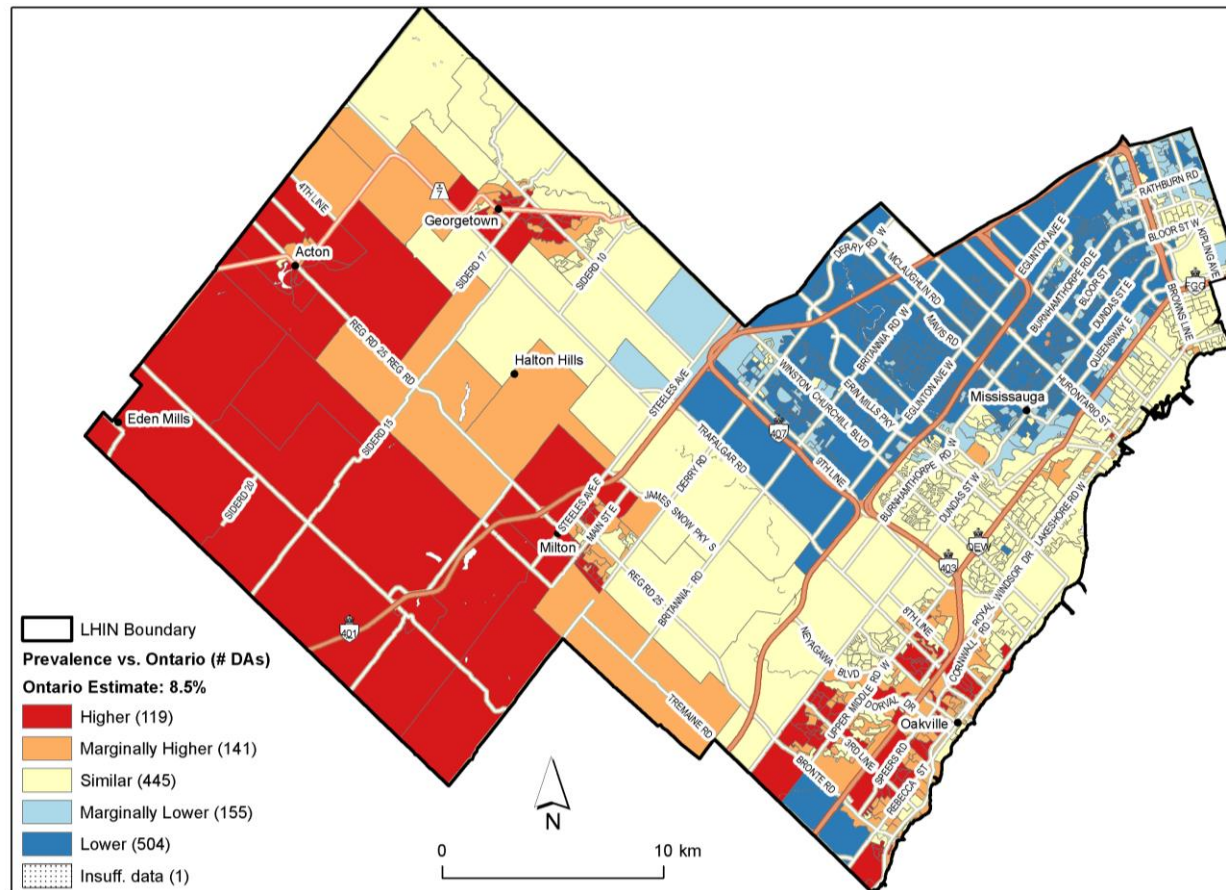
Map created: 11-Sep-17

Category	Mean prevalence % (range)
Overall	8.2
Higher	11.3 (10.2, 13.2)
Marginally Higher	10.4 (9.6, 11.4)
Similar	9.0 (7.5, 10.4)
Marginally Lower	7.3 (6.7, 7.8)
Lower	6.4 (4.8, 7.3)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
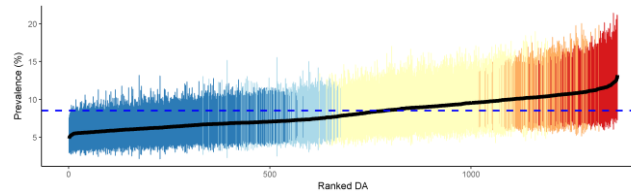
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Excess body weight

People age 12 and older

The estimated Ontario prevalence of excess body weight (overweight or obese) was 41% among females and 56% among males.

Higher prevalence than Ontario

For females, areas with a higher prevalence of excess body weight than the Ontario average (n=16; Figure 6.7) were mostly located in eastern Mississauga. For males (n=9; Figure 6.8), the few higher prevalence areas identified were scattered throughout the western half of the LHIN around Georgetown and Milton.

Lower prevalence than Ontario

For females (n=633; Figure 6.7) and males (n=559; Figure 6.8), most areas with a lower prevalence of excess body weight than the Ontario average were located in the eastern half of the LHIN, in many parts of Mississauga and Oakville. For females, a few additional areas were located in Milton.

Adolescents

Among Ontario adolescents, an estimated 15% of females and 25% of males were overweight or obese. In the Mississauga Halton LHIN, there were no areas with a higher prevalence than Ontario for adolescents, which is why those maps are not shown.

Figure 6.7 Excess body weight (overweight/obese) among females (age 12 and older), 2000–2014, Mississauga Halton Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
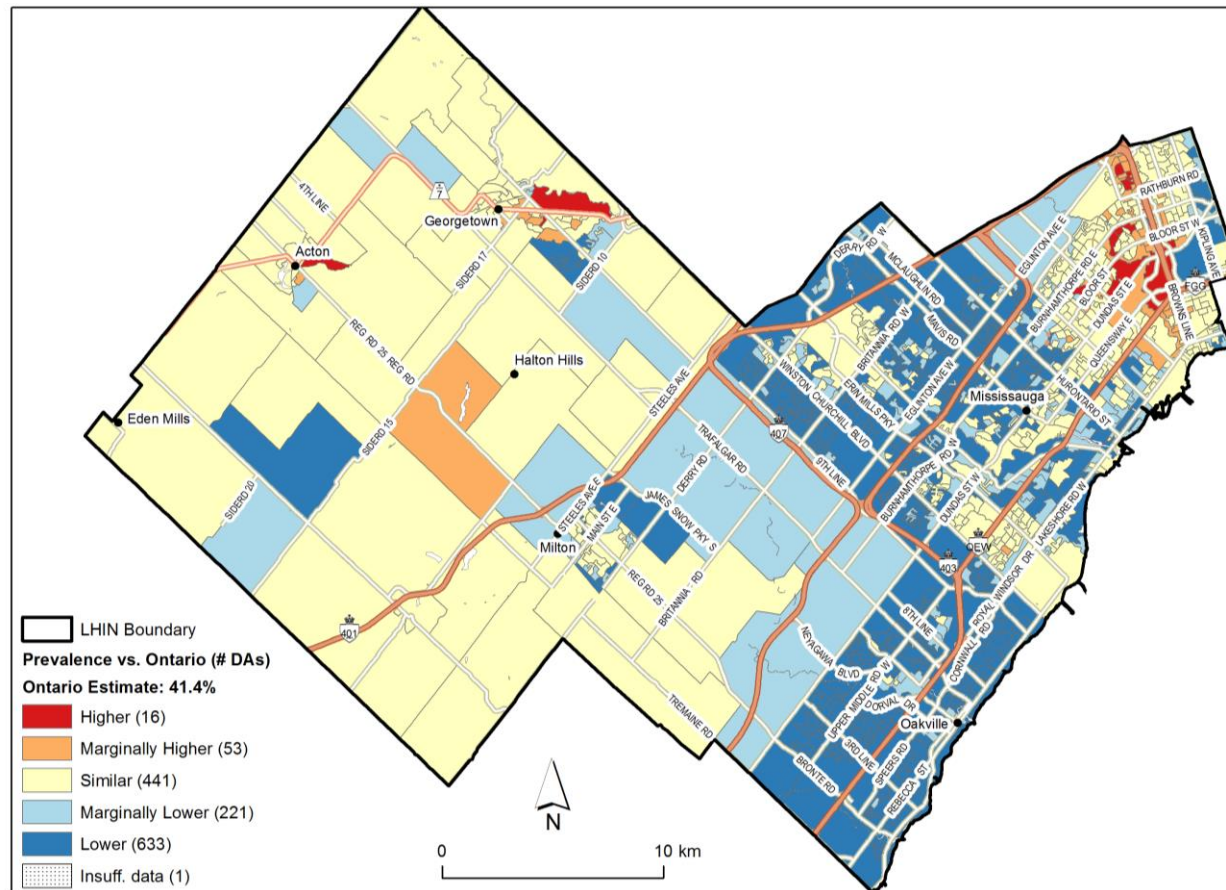
Category	Mean prevalence % (range)
Overall	38.0
Higher	46.3 (44.8, 49.1)
Marginally Higher	44.8 (43.6, 47.3)
Similar	41.0 (37.1, 44.5)
Marginally Lower	38.0 (34.4, 39.5)
Lower	35.2 (30.1, 38.2)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
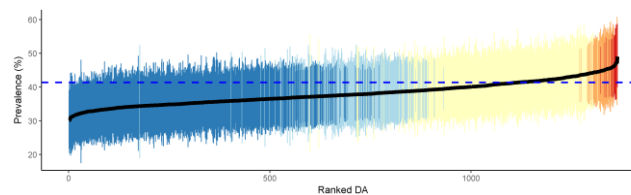
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 6.8 Excess body weight (overweight/obese) among males (age 12 and older), 2000–2014, Mississauga Halton Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	53.1
Higher	60.4 (58.9, 64.1)
Marginally Higher	58.6 (57.8, 59.6)
Similar	55.3 (52.1, 58.5)
Marginally Lower	52.9 (50.4, 54.1)
Lower	50.8 (40.4, 53.4)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Inadequate vegetable and fruit consumption

People age 12 and older

Inadequate consumption of vegetables and fruits was common across Ontario, with approximately 63% of females and 77% of males reporting inadequate consumption.

Higher prevalence than Ontario

There were no areas with a higher prevalence of inadequate vegetable and fruit consumption than the Ontario average identified for females in the Mississauga Halton LHIN. For males, only one area with a higher prevalence of inadequate vegetable and fruit consumption in the LHIN was identified. This area was located near Georgetown (Figure 6.9).

Lower prevalence than Ontario

For males (n=278; Figure 6.9), areas with a lower prevalence of inadequate vegetable and fruit consumption than Ontario were located throughout Mississauga and Oakville and in the western part of the LHIN near Eden Mills and Milton.

Adolescents

More than two thirds of the adolescent Ontario population had inadequate vegetable and fruit consumption at approximately 68% for females and 74% for males. In the Mississauga Halton LHIN, there were no areas with a higher prevalence than the Ontario average for adolescents, which is why those maps are not shown.

Figure 6.9 Inadequate vegetable and fruit consumption among males (age 12 and older), 2000–2014, Mississauga Halton Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

LHIN Boundary
Prevalence vs. Ontario (# DAs)
Ontario Estimate: 76.6%

Higher (1)
Marginally Higher (7)
Similar (715)
Marginally Lower (363)
Lower (278)
Insuff. data (1)
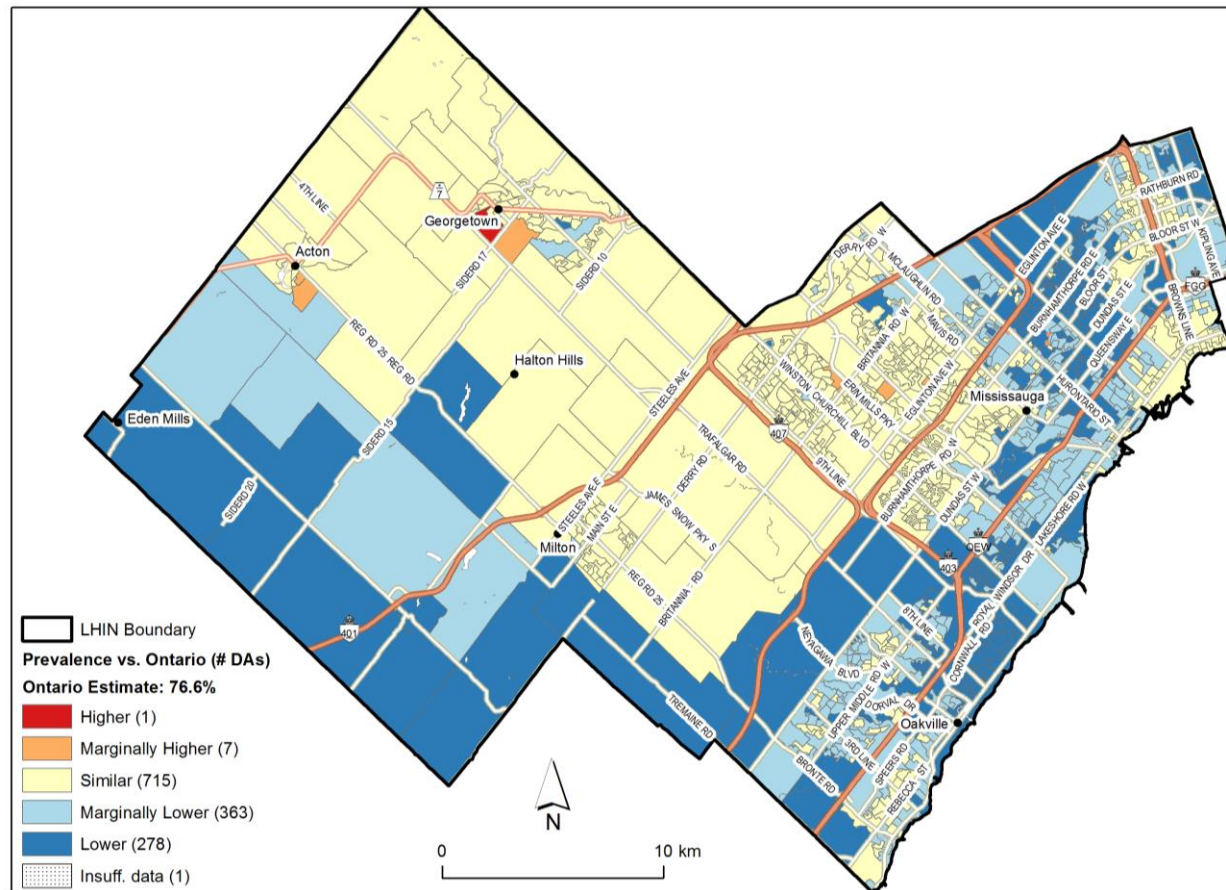
Map created: 12-Sep-17

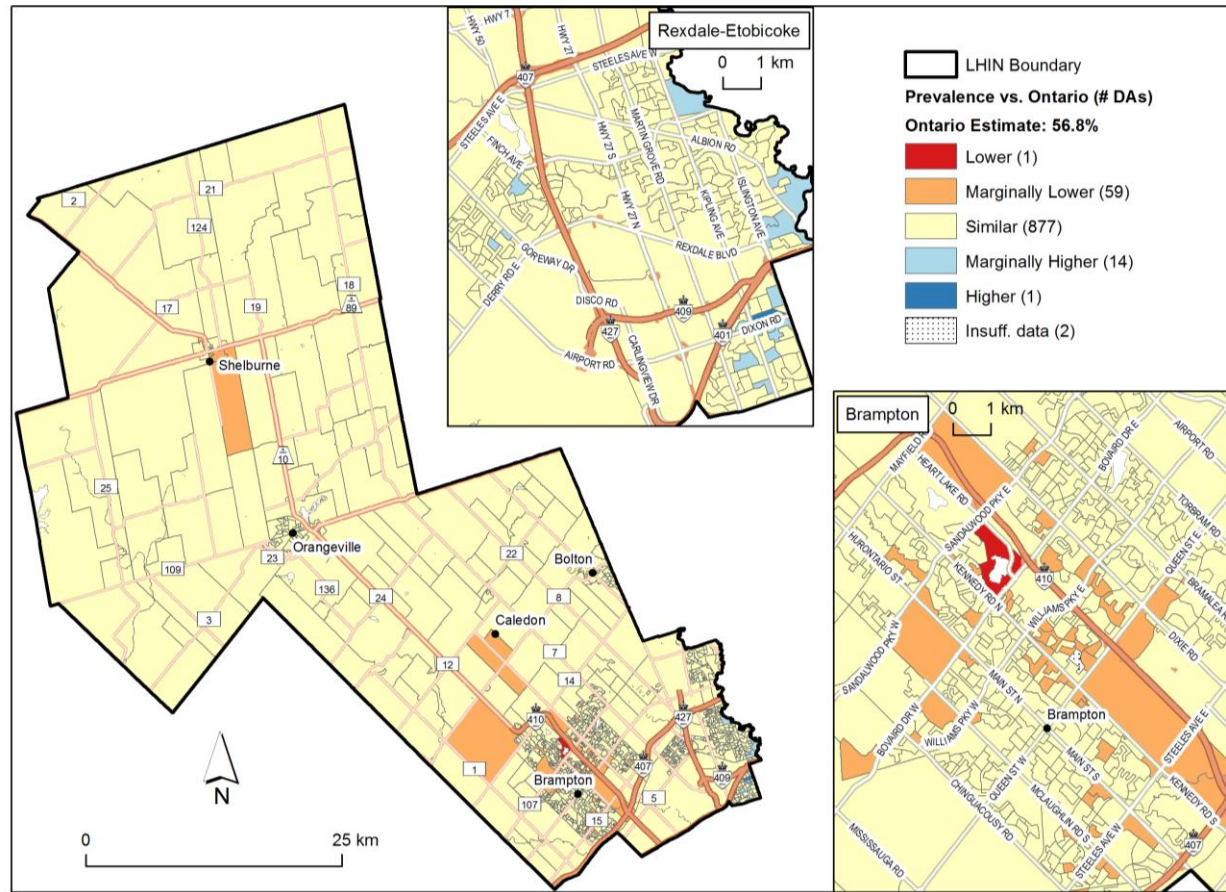| Category	Mean prevalence % (range)
Overall	74.4
Higher	79.2 (79.2, 79.2)
Marginally Higher	78.4 (78.0, 79.5)
Similar	75.7 (72.5, 78.2)
Marginally Lower	73.7 (71.8, 74.8)
Lower	72.0 (67.6, 73.9)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Physical activity

Because physical activity reduces cancer risk, lower prevalence estimates of this risk factor are of interest. The colour scheme of the maps was inverted so that the "lower than Ontario" estimates are displayed in red.

People age 12 and older

Most of the Ontario population was not physically active, with approximately one in five (23%) females and one in three (30%) males being physically active.

Lower prevalence than Ontario

In the Mississauga Halton LHIN, there were more areas with a lower prevalence of physical activity than the Ontario average for females (n=43; Figure 6.10) compared to males (n=8; Figure 6.11). For both sexes, most of these areas were mostly scattered throughout Mississauga.

Higher prevalence than Ontario

Areas with a higher prevalence of physical activity compared to the Ontario average were typically detected in Oakville, southern Mississauga and Milton for females (n=213; Figure 6.10) and males (n=309; Figure 6.11). For females, additional areas were located towards the western part of the LHIN, near Action and Eden Mills and south of Milton.

Adolescents

Adolescents were more physically active than adults, with approximately 40% of adolescent females and 57% of adolescent males being active.

Lower prevalence than Ontario

There were no areas with a lower prevalence of physical activity than the Ontario average for adolescent females, which is why that map is not shown. For adolescent males (Figure 6.12), there were only two areas with a lower prevalence of physical activity. These were located near Georgetown.

Higher prevalence than Ontario

Areas with a higher prevalence of physical activity, than Ontario for adolescent males (n=8; Figure 6.12) were located in northeastern Oakville.

Figure 6.10 Physical activity among females (age 12 and older), 2000–2014, Mississauga Halton Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

LHIN Boundary

Prevalence vs. Ontario (# DAs)
Ontario Estimate: 22.8%

Lower (43)
Marginally Lower (63)
Similar (839)
Marginally Higher (206)
Higher (213)
Insuff. data (1)

0   10 km

N

Map created: 11-Sep-17
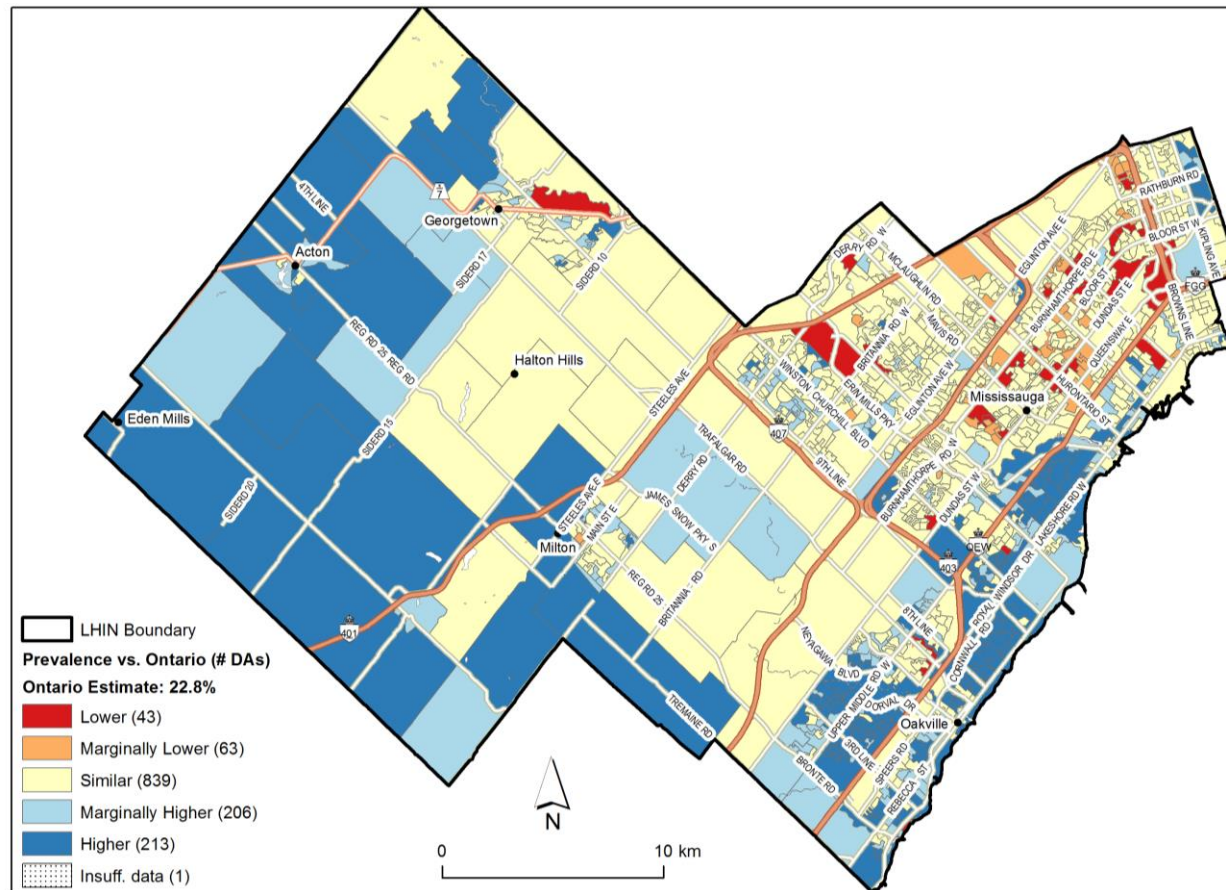
Category	Mean prevalence % (range)
Overall	24.4
Lower	18.4 (13.9, 20.4)
Marginally Lower	20.3 (19.1, 21.0)
Similar	23.4 (20.4, 26.9)
Marginally Higher	26.3 (25.2, 28.2)
Higher	28.7 (26.4, 33.5)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
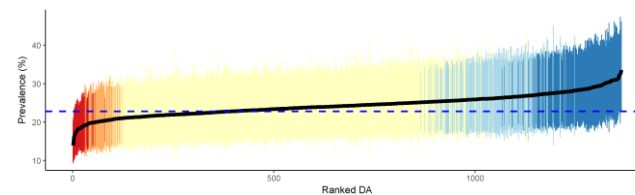
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 6.11 Physical activity among males (age 12 and older), 2000–2014, Mississauga Halton Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Map created: 11-Sep-17

Category	Mean prevalence % (range)
Overall	32.2
Lower	25.1 (20.6, 26.5)
Marginally Lower	26.9 (26.2, 27.6)
Similar	30.7 (27.1, 33.4)
Marginally Higher	33.3 (31.9, 35.7)
Higher	35.7 (33.2, 42.4)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
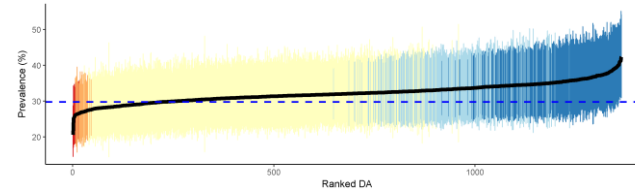
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 6.12 Physical activity among adolescent males (ages 12 to 18), 2000–2014, Mississauga Halton Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

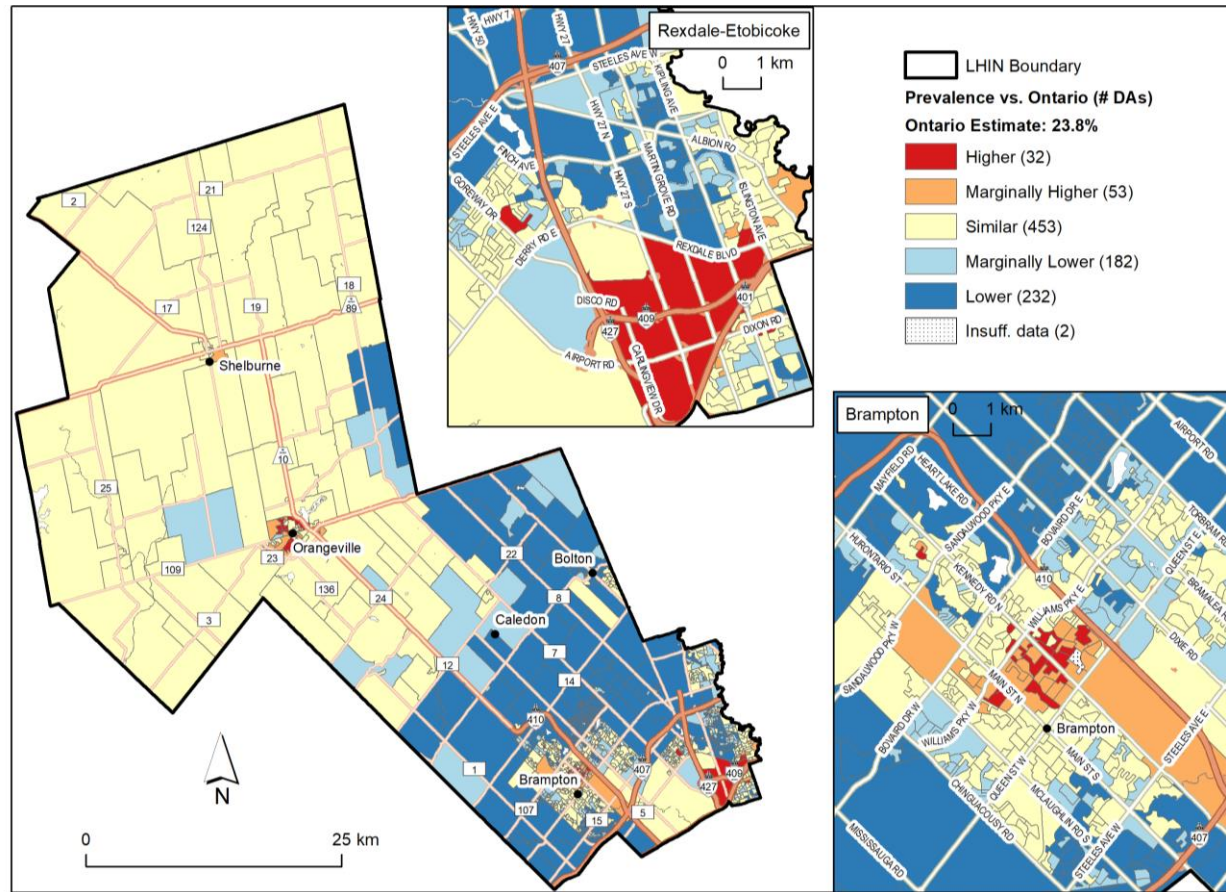| Category	Mean prevalence % (range)
Overall	58.3
Lower	51.6 (51.3, 51.9)
Marginally Lower	53.0 (51.6, 53.8)
Similar	58.1 (52.8, 60.5)
Marginally Higher	60.2 (59.4, 62.1)
Higher	61.8 (60.9, 62.6)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
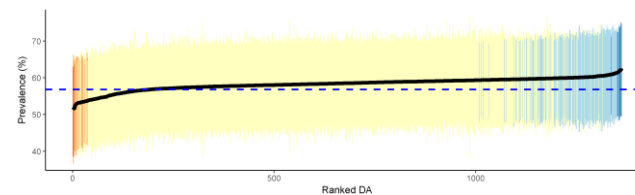
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Sedentary behaviour

People age 12 and older

Approximately half of the Ontario population reported sedentary behaviour during leisure time (females, 49%; males, 56%).

Higher prevalence than Ontario

Areas with a higher prevalence of sedentary behaviour than the Ontario average were uncommon for females (n=4; Figure 6.13). These areas were located in Mississauga and Oakville. In the Mississauga Halton LHIN, there were no higher prevalence areas for males, which is why that map is not shown.

Lower prevalence than Ontario

For females (n=231; Figure 6.13), areas with a lower prevalence of sedentary behaviour than Ontario were scattered across the LHIN in Oakville and Mississauga, and around Acton, Georgetown and Milton.

Adolescents

More than half of the Ontario adolescent population reported sedentary behaviour during leisure time, at approximately 55% for females and 60% for males. In the Mississauga Halton LHIN, there were no areas of higher prevalence for adolescents, which is why those maps are not shown.

Figure 6.13
Sedentary behaviour among females (age 12 and older), 2000–2014, Mississauga Halton Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Legend:
LHIN Boundary
Prevalence vs. Ontario (# DAs)
Ontario Estimate: 49.0%
- Higher (4)
- Marginally Higher (6)
- Similar (749)
- Marginally Lower (374)
- Lower (231)
- Insuff. data (1)
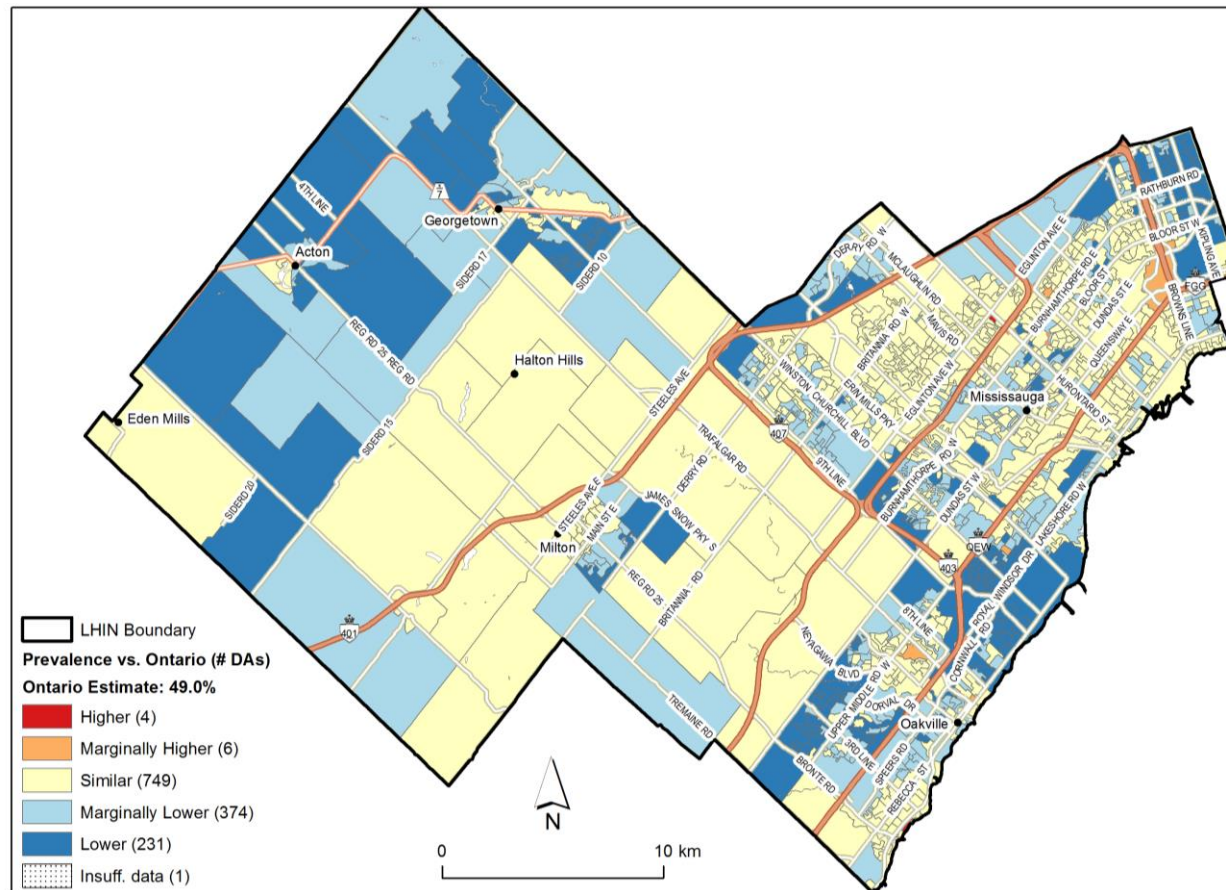
Map created: 11-Sep-17

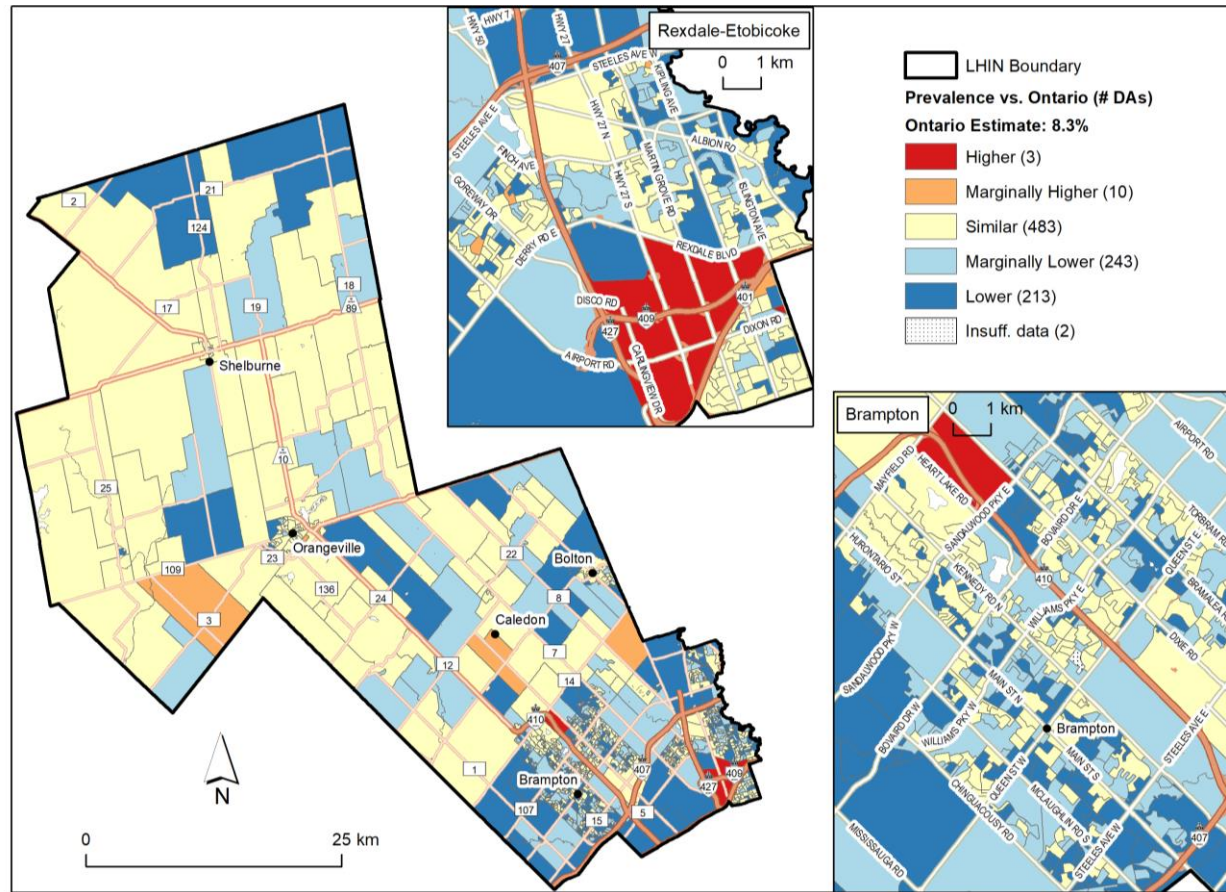| Category	Mean prevalence % (range)
Overall	46.5
Higher	53.9 (53.3, 54.7)
Marginally Higher	52.1 (51.2, 53.2)
Similar	47.8 (45.4, 52.2)
Marginally Lower	45.6 (43.9, 46.9)
Lower	43.5 (39.6, 45.7)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
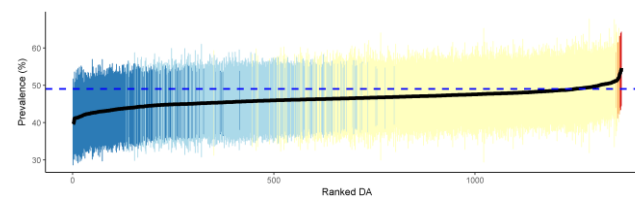
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Smoking—current status

People age 12 and older

Current tobacco smoking was reported by 17% of Ontario females and 24% of males.

Higher prevalence than Ontario

For females (n=22; Figure 6.14) and males (n=43; Figure 6.15), areas with a higher prevalence of current smoking than the Ontario average were scattered across Mississauga, and located around Milton and Acton.

Lower prevalence than Ontario

For females (n=420; Figure 6.14) and males (n=437; Figure 6.15), most areas with a lower prevalence of current smoking than Ontario were located towards the central part of the LHIN, in many parts of Mississauga. For females, additional areas were located along the western boundary of the LHIN and in some areas south of Milton. For males, many lower prevalence areas were located in Oakville.

Adolescents

Approximately 8% of adolescent females and adolescent males in Ontario reported that they currently smoked tobacco.

Higher prevalence than Ontario

For adolescent females (n=54; Figure 6.16) and adolescent males (n=9; Figure 6.17), most areas with a higher prevalence of current smoking than the Ontario average were located in the eastern half of the LHIN. For adolescent females, most areas were located in Oakville. For adolescent males, these areas were scattered across Mississauga and Oakville.

Lower prevalence than Ontario

For adolescent females (n=163; Figure 6.16), most areas with a lower prevalence of current smoking than Ontario were located in northern Mississauga. Among adolescent males (n=327; Figure 6.17), lower prevalence areas were distributed more widely across the LHIN. Most of these areas were located in northwest Mississauga, in Oakville and near Milton or Georgetown.

Figure 6.14 Current smoking among females (age 12 and older), 2000–2014, Mississauga Halton Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Map legend:

LHIN Boundary
Prevalence vs. Ontario (# DAs)
Ontario Estimate: 17.0%

- Higher (22)
- Marginally Higher (48)
- Similar (630)
- Marginally Lower (244)
- Lower (420)
- Insuff. data (1)

Map created: 11-Sep-17
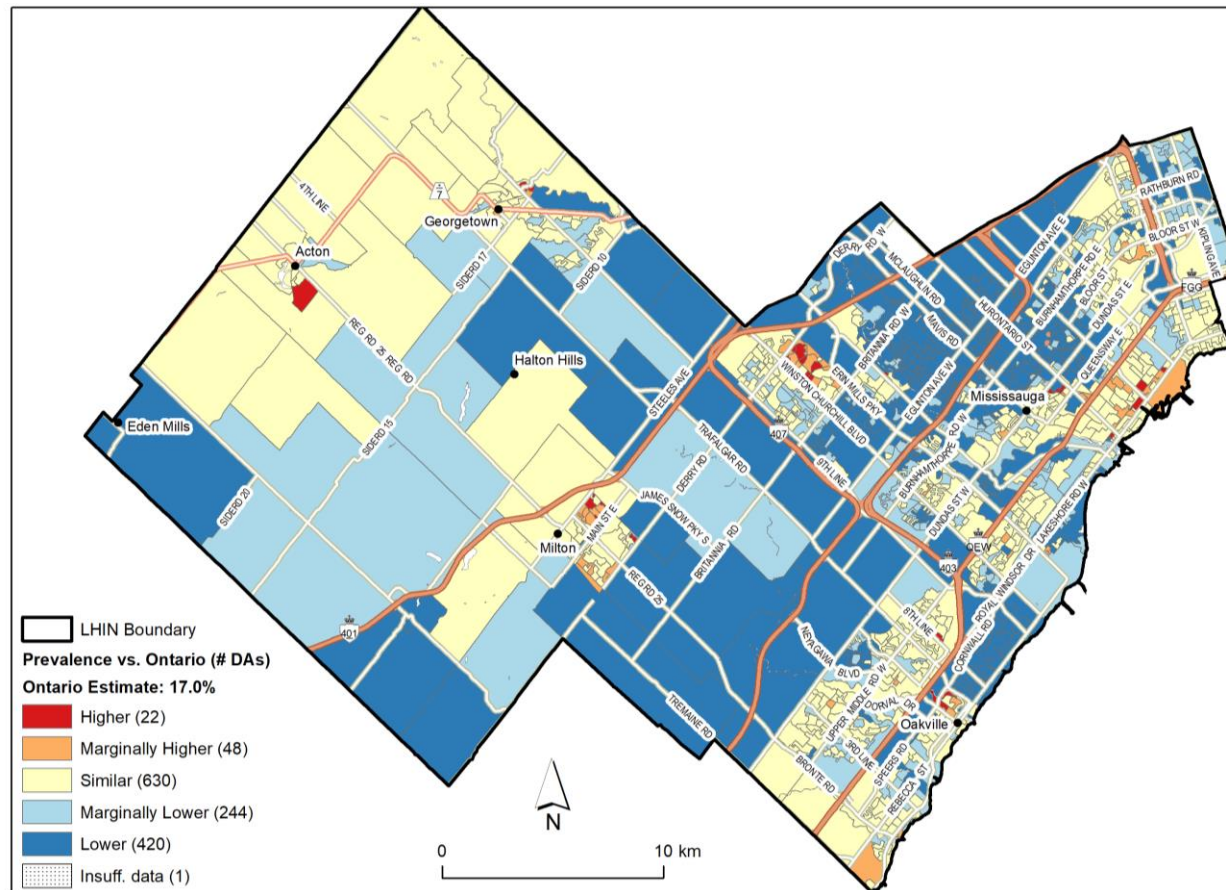
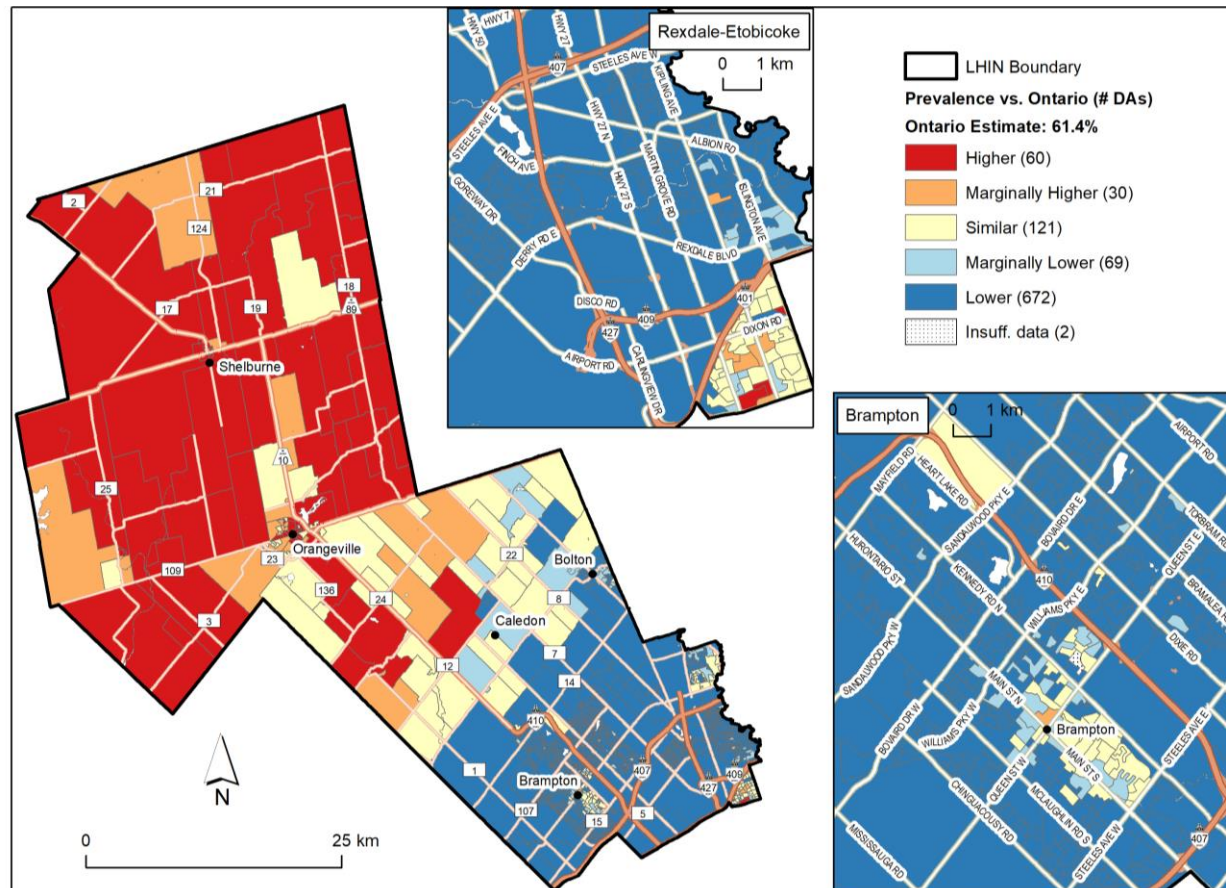| Category	Mean prevalence % (range)
Overall	15.3
Higher	23.0 (21.2, 27.3)
Marginally Higher	20.9 (19.3, 23.1)
Similar	17.0 (14.3, 22.0)
Marginally Lower	14.4 (12.1, 15.5)
Lower	12.2 (8.9, 14.8)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
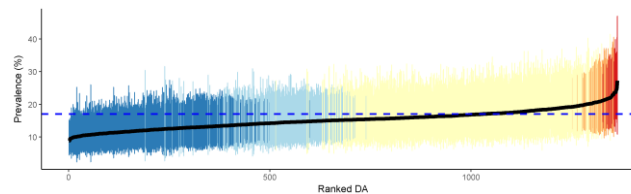
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 6.15 Current smoking among males (age 12 and older), 2000–2014, Mississauga Halton Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	21.5
Higher	31.1 (27.5, 39.1)
Marginally Higher	28.2 (26.4, 30.4)
Similar	23.6 (20.7, 28.2)
Marginally Lower	20.6 (18.2, 22.0)
Lower	18.0 (12.1, 20.9)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
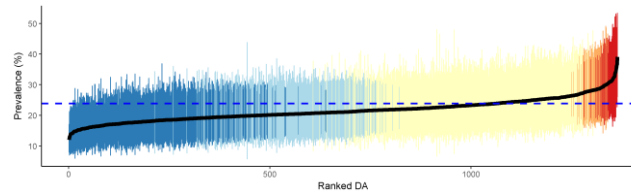
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 6.16 Current smoking among adolescent females (ages 12 to 18), 2000–2014, Mississauga Halton Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Map created: 11-Sep-17
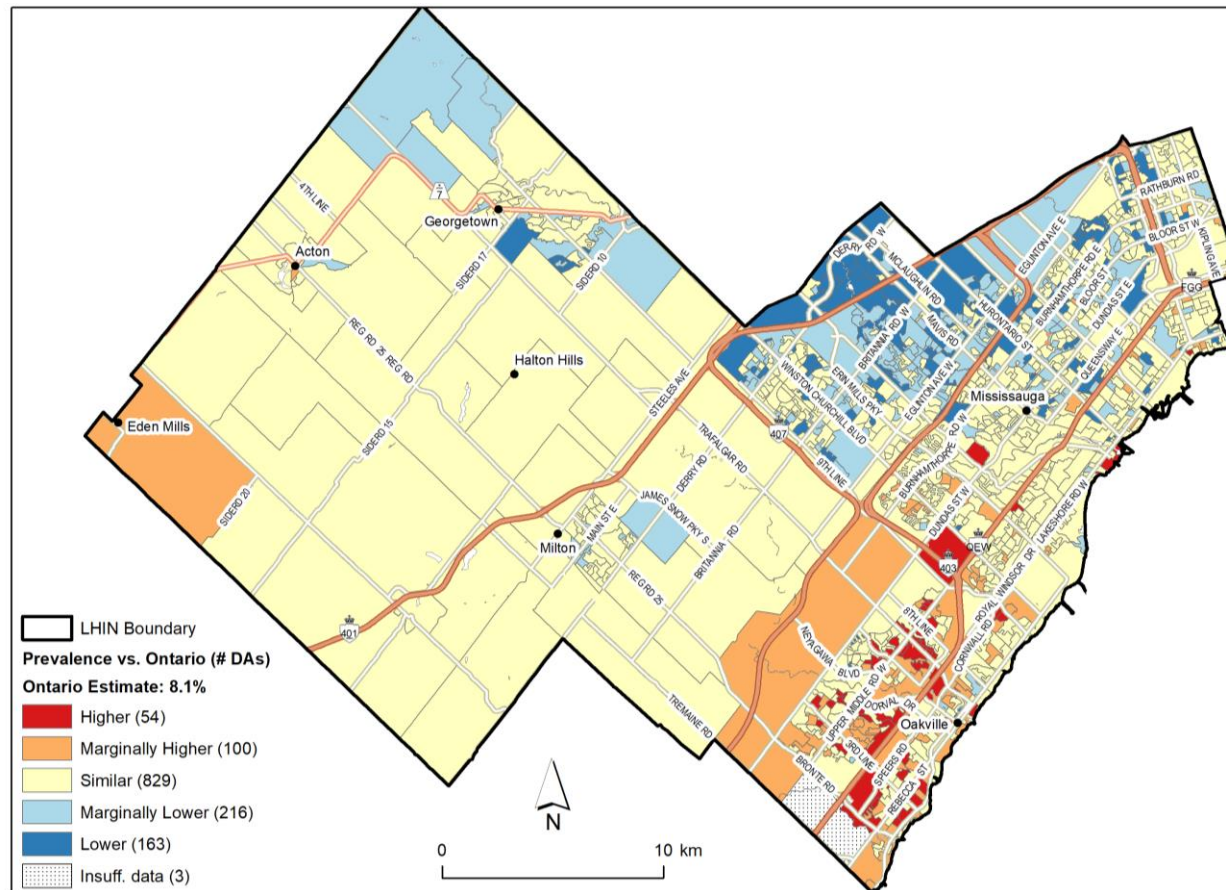
Category	Mean prevalence % (range)
Overall	8.2
Higher	12.7 (11.1, 16.3)
Marginally Higher	11.1 (9.9, 13.0)
Similar	8.5 (7.0, 11.4)
Marginally Lower	6.7 (6.1, 7.2)
Lower	5.6 (1.7, 6.5)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 6.17 Current smoking among adolescent males (ages 12 to 18), 2000–2014, Mississauga Halton Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	7.5
Higher	12.7 (11.6, 13.7)
Marginally Higher	11.1 (10.4, 12.6)
Similar	8.4 (7.1, 10.8)
Marginally Lower	6.9 (6.1, 7.4)
Lower	5.7 (1.1, 6.6)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
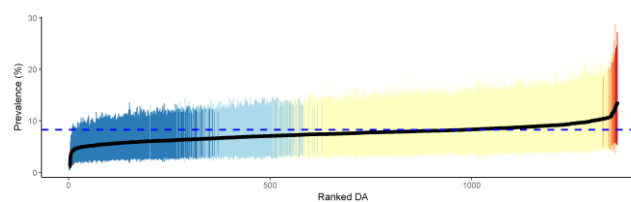
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Smoking—ever-smoked status

People age 12 and older

Approximately one in two Ontario females and three in five Ontario males reported having ever-smoked.

Higher prevalence than Ontario

For females, areas with a higher prevalence of ever-smoked status (n=218; Figure 6.18) than the Ontario average were located in many parts of Oakville, some parts of Mississauga, and areas around Georgetown, Acton, Eden Mills and Milton. For males, many higher prevalence areas (n=135; Figure 6.19) were located in northeastern Mississauga, in Oakville and in some areas around Georgetown, Acton, Eden Mills and Milton.

Lower prevalence than Ontario

For females, areas with a lower prevalence of ever-smoked status (n=442; Figure 6.18) than Ontario were located mostly in northern or western Mississauga. For males, lower prevalence areas (n=500; Figure 6.19) were located in many parts of Mississauga and Oakville.

Adolescents

The area-based prevalence of ever-smoked status was not estimated for adolescent populations.

Figure 6.18 Ever-smoked status among females (age 12 and older), 2000–2014, Mississauga Halton Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
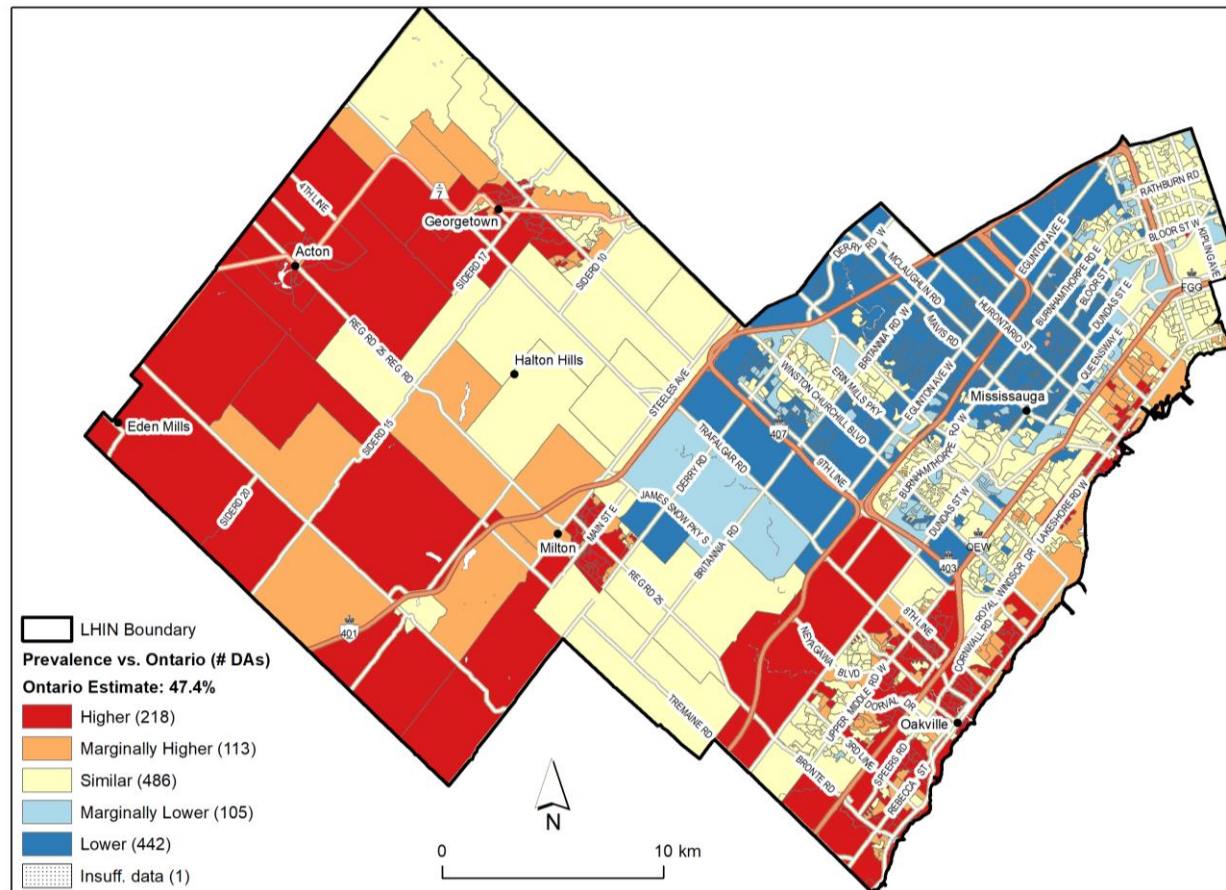
Category	Mean prevalence % (range)
Overall	45.3
Higher	54.7 (50.6, 61.0)
Marginally Higher	51.5 (49.8, 53.5)
Similar	47.4 (42.4, 51.4)
Marginally Lower	43.2 (39.8, 45.1)
Lower	37.3 (27.4, 44.1)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
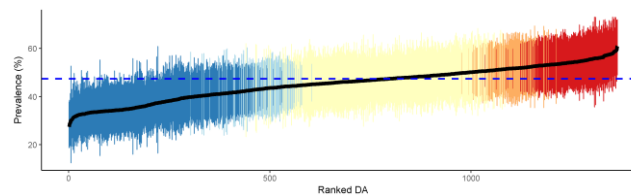
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 6.19 Ever-smoked status among males (age 12 and older), 2000–2014, Mississauga Halton Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

LHIN Boundary

Prevalence vs. Ontario (# DAs)
Ontario Estimate: 61.4%

- Higher (135)
- Marginally Higher (100)
- Similar (482)
- Marginally Lower (147)
- Lower (500)
- Insuff. data (1)

0   10 km

N

Map created: 12-Sep-17

Category	Mean prevalence % (range)
Overall	59.1
Higher	66.9 (64.3, 73.7)
Marginally Higher	64.4 (63.4, 66.6)
Similar	61.1 (58.0, 64.1)
Marginally Lower	58.1 (53.9, 59.6)
Lower	54.2 (45.2, 58.0)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
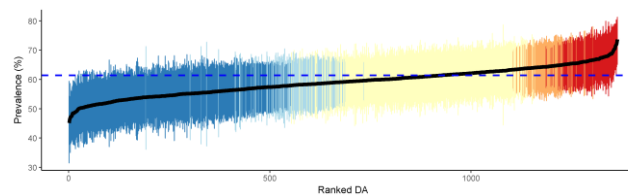
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

LHIN 7
Toronto Central

7. Toronto Central LHIN

Key Findings

Top three priority risk factor population estimates by sex (see Table 7.1 below):

Females
Alcohol—current consumption
Smoking—ever-smoked status
Alcohol—consumption exceeding cancer prevention recommendations

Males
Alcohol—current consumption
Smoking—ever-smoked status
Smoking—current status

Risk factor summary

Alcohol—current consumption
Priority areas:
- Females: areas throughout the central, western and eastern parts of the LHIN
- Males: areas throughout the central part of the LHIN and in the western and eastern parts of the LHIN
- Adolescent females: areas were mainly dispersed across the downtown Toronto core
- Adolescent males: areas dispersed across the LHIN

Alcohol—consumption exceeding cancer prevention recommendations
Priority areas:
- Females: areas throughout the central and eastern parts of the LHIN
- Males: clusters in the central and eastern parts of the LHIN

Excess body weight
Priority areas:
- Females: very few areas in the western and eastern parts of the LHIN

Inadequate vegetable and fruit consumption
Priority areas:
- Females: one area in the western part of the LHIN

Physical activity
Priority areas:
- Females: areas in the western and eastern parts of the LHIN
- Males: areas in the western and eastern parts of the LHIN
- Adolescent females: areas throughout the central and eastern parts of the LHIN

Sedentary behaviour
Priority areas:
- Females: few areas, mostly in the eastern parts of the LHIN

Smoking—current status
Priority areas:
- Females: areas in the southern and eastern parts of the LHIN
- Males: areas in the central-west and eastern parts of the LHIN
- Adolescent females: few areas in the central part of the LHIN
- Adolescent males: areas dispersed across the central part of the LHIN

Smoking—ever-smoked status
Priority areas:
- Females: areas throughout the central LHIN and in the western and eastern parts of the LHIN
- Males: areas dispersed throughout the LHIN

Introduction

This section describes the estimated local prevalence of risk factors across the LHIN compared to the Ontario prevalence estimates from 2000 to 2014. These comparisons are always relative to Ontario with respect to the level of statistical evidence for the underlying prevalence estimate and often the number of areas meeting specific criteria are presented in parentheses (e.g., n=40). Risk factor maps are presented for females and males age 12 and older, and for adolescent females and adolescent males ages 12 to 18 inclusive. Throughout the text, the terms "area(s)" and "local" refer to the 2006 census dissemination areas (see the Data and Methods section, page 3).

Exclusions

As discussed in the Interpretation section (page 7), maps are shown only for risk factor estimates in the LHIN where one or more local estimates were higher than Ontario (or lower than Ontario for physical activity). Therefore, the risk factor maps not displayed for Toronto Central LHIN include:

- excess body weight (overweight/obese) among males, adolescent females and adolescent males;
- inadequate vegetable and fruit consumption among males, adolescent females and adolescent males;
- physical activity among adolescent males; and
- sedentary behaviour among males, adolescent females and adolescent males.

Notes

Risk factor prevalence could not be estimated for several areas in the Toronto Central LHIN (e.g., suppressed census populations or institutionalized populations), which are shown as "insufficient data" on the maps. See Appendix C for a full list of areas in the insufficient data category.

Priority population estimates

Priority population estimates may be helpful in prioritizing health promotion and planning efforts for potential populations affected by certain modifiable risk factors. Table 7.1 (page 235) presents the estimated priority populations for each risk factor by sex and age group in the Toronto Central LHIN. Priority populations are defined as those living in areas with a higher risk factor prevalence (or lower prevalence for physical activity) than Ontario. These estimates were produced by summing the population from all higher (or lower for physical activity) prevalence small areas (2006 dissemination areas) after taking into account the risk factor prevalence of each area. For example, if among females 100 areas had a higher prevalence of current alcohol consumption than Ontario, the female 2006 census populations in each of these areas were multiplied by the prevalence of current alcohol consumption for each area and then summed across the 100 areas to produce an estimate of the female "priority population." These calculations are intended to provide a measure to prioritize the risk factors rather than a population estimate.

According to the Methods (page 4) and Interpretation (page 7) sections, these higher prevalence areas had strong statistical evidence of elevated prevalence compared to Ontario (posterior probabilities ≥ 80%). An exception is physical activity, which had strong statistical evidence of lower prevalence estimates than Ontario (posterior probabilities ≤ 20%). Therefore, the population estimates for each risk factor are likely undercounted because areas with less statistical certainty (posterior probabilities < 80% and physical activity posterior probabilities > 20%) are not included in the priority population estimates.

Table 7.1 Estimated priority populations among higher prevalence** dissemination areas compared to Ontario by risk factor, sex and age group, Toronto Central Local Health Integration Network (LHIN), using 2006 census populations

Risk factor	Female priority population*†	% of female population in the LHIN† (n=494,440)	Male priority population*†	% of male population in the LHIN† (n=457,110)	Adolescent female priority population*‡	% of adolescent female population in the LHIN‡ (n=36,930)	Adolescent males priority population*‡	% of adolescent male population in the LHIN‡ (n=38,490)
Alcohol—current consumption	209,790	42%	174,090	38%	660	2%	990	3%
Alcohol—consumption exceeding cancer prevention recommendations	32,570	7%	6,550	1%	NM	—	NM	—
Excess body weight	440	0%	NE	—	NE	—	NE	—
Inadequate vegetable and fruit consumption	2,070	0%	NE	—	NE	—	NE	—
Physical activity**	6,470	1%	13,210	3%	3,730	10%	NP	—
Sedentary behaviour	960	0%	210	0%	NE	—	NE	—
Smoking—current status	10,010	2%	23,810	5%	40	0%	70	0%
Smoking—ever-smoked status	109,610	22%	56,210	12%	NM	—	NM	—

NE = no estimates within the "higher" prevalence categories**; NM = not modelled; NP = census population estimates not available
* Estimates rounded to multiples of 10
** For physical activity, priority populations are those living in areas with a lower risk factor prevalence compared to Ontario
† Population age 12 and older
‡ Population ages 12 to 18
— Value not applicable

Alcohol—current consumption

People age 12 and older

An estimated 70% of females and 79% of males in Ontario reported current alcohol consumption.

Higher prevalence than Ontario

For females (Figure 7.1), there were 867 areas with a higher prevalence of current alcohol consumption compared to the Ontario average, and 718 areas for males (Figure 7.2). For both sexes, higher prevalence estimates occurred mainly in the central parts of the LHIN, (e.g. along Yonge Street) as well as areas around the intersections of Bloor Street West and Parkside Drive, and Evans Avenue and Islington Avenue in the western tip of the LHIN. For females, additional areas with a higher prevalence were located more extensively in the central, eastern and western parts of the LHIN, along Royal York Road, Broadview Avenue and Kingston Road.

Lower prevalence than Ontario

Lower prevalence of current alcohol consumption than the Ontario average was similarly common among females (n=166; Figure 7.1) and males (n=156; Figure 7.2). For females and males, clusters of lower prevalence areas were located in the northwestern part of the LHIN, along Weston Road. Another clustering was located in the northeastern part of the LHIN around the intersection of St. Clair Avenue East and Victoria Park Avenue. There were also a few lower prevalence areas scattered around the central part of the LHIN for both sexes.

Adolescents

Among the adolescent population in Ontario, approximately 40% of females and males reported current alcohol consumption.

Higher prevalence than Ontario

Fewer areas with higher prevalence estimates than Ontario were identified for adolescent females (n=114; Figure 7.3) compared to adolescent males (n=151; Figure 7.4). For both sexes, these higher prevalence areas were scattered across the LHIN, but for adolescent females, tended to be located towards the south of the LHIN.

Lower prevalence than Ontario

Areas with a lower prevalence than Ontario were widespread throughout the LHIN for both adolescent females (n=793; Figure 7.3) and adolescent males (n=709; Figure 7.4).

Figure 7.1 Current alcohol consumption among females (age 12 and older), 2000–2014, Toronto Central Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
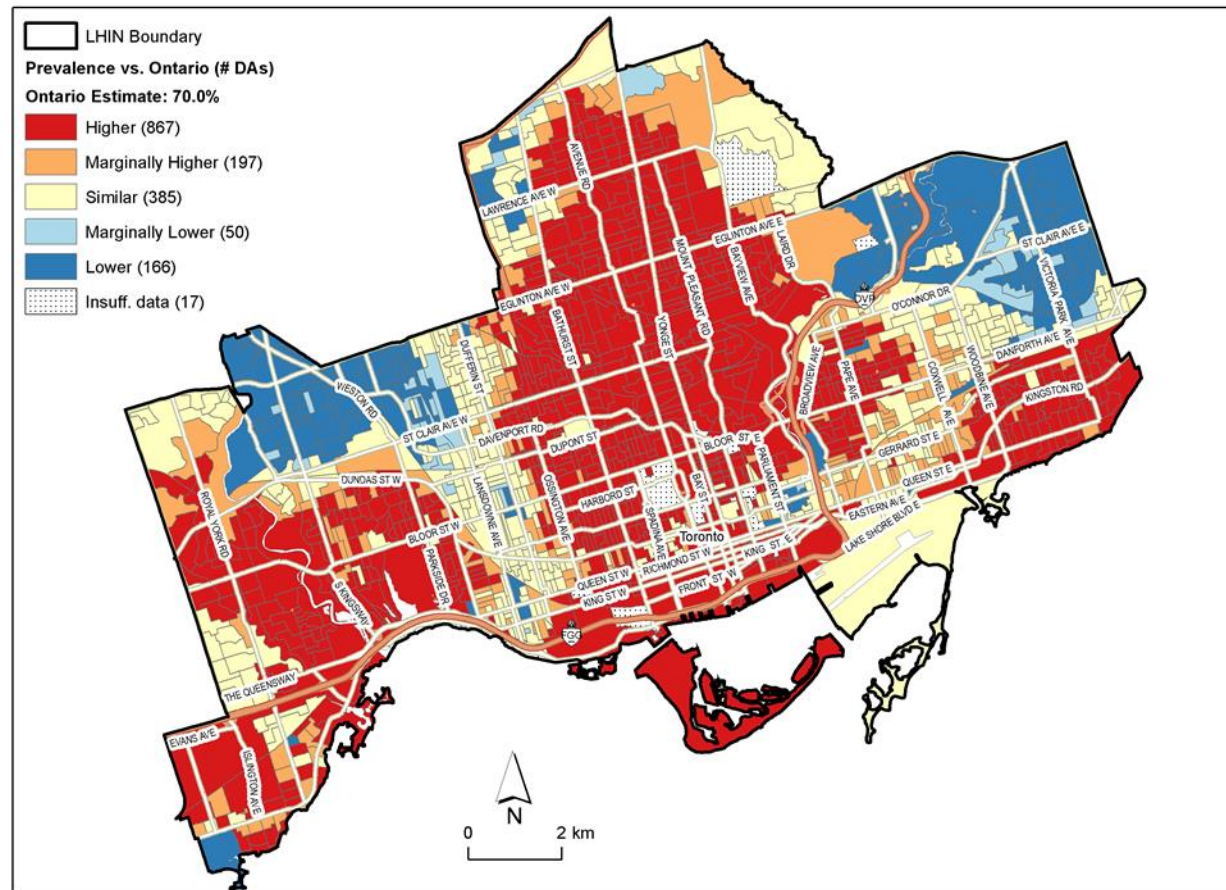
Category	Mean prevalence % (range)
Overall	74.5
Higher	79.7 (73.9, 89.6)
Marginally Higher	74.0 (72.4, 75.9)
Similar	70.3 (64.4, 73.5)
Marginally Lower	64.8 (61.9, 66.8)
Lower	60.4 (52.1, 65.3)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 7.2 Current alcohol consumption among males (age 12 and older), 2000–2014, Toronto Central Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

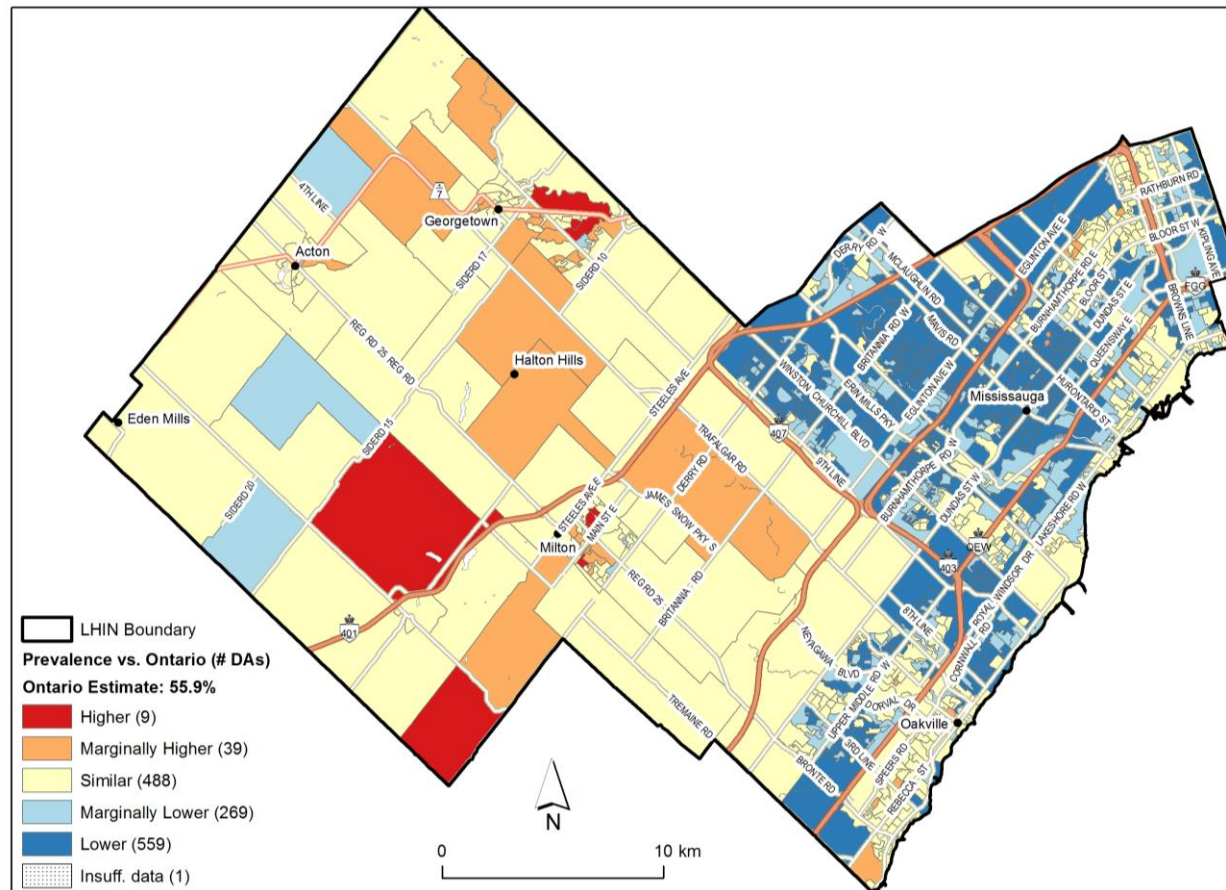| Category	Mean prevalence % (range)
Overall	81.0
Higher	84.8 (82.1, 90.3)
Marginally Higher	81.8 (80.7, 83.0)
Similar	79.1 (75.4, 81.6)
Marginally Lower	75.6 (72.2, 77.2)
Lower	70.6 (59.9, 75.6)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
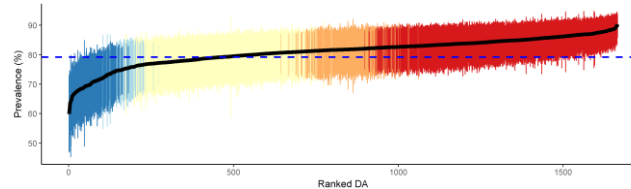
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 7.3 Current alcohol consumption among adolescent females (ages 12 to 18), 2000–2014, Toronto Central Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
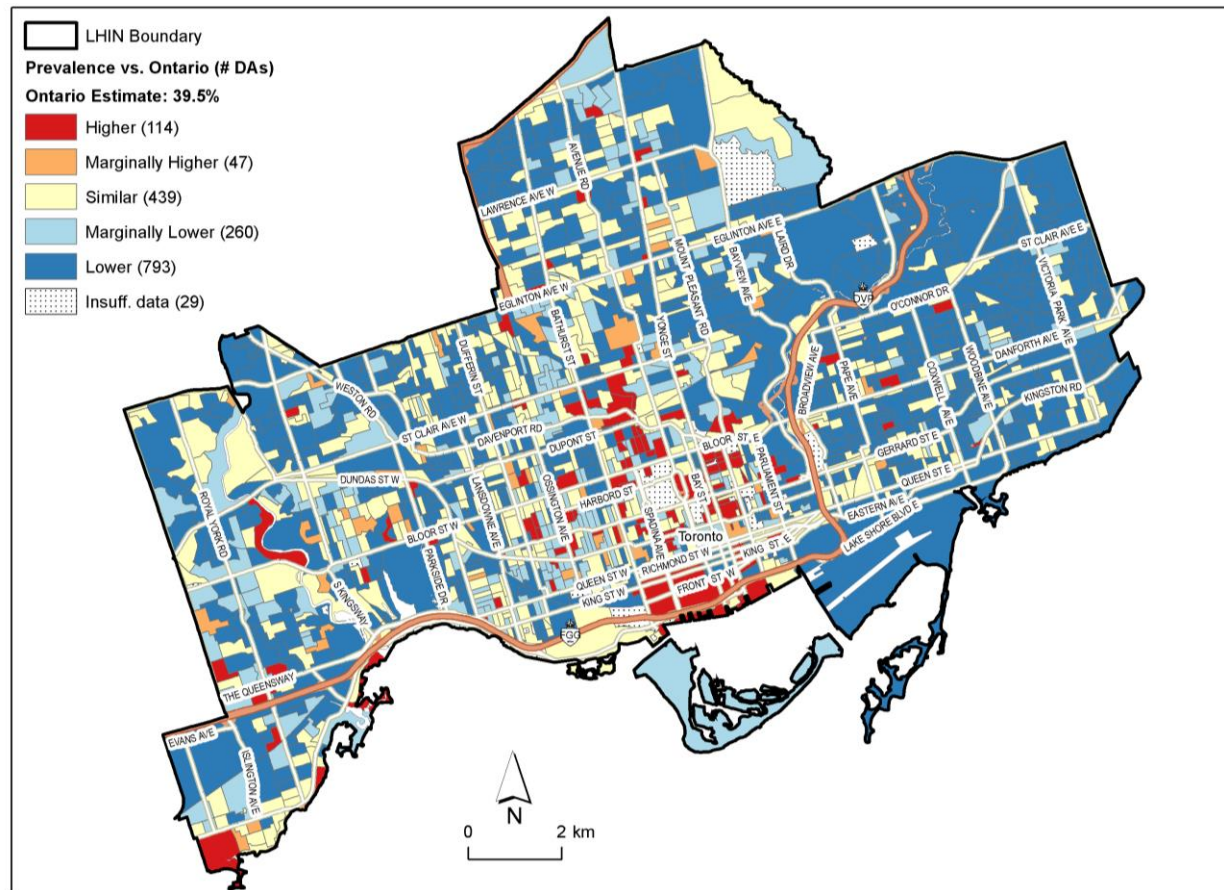
Category	Mean prevalence % (range)
Overall	35.1
Higher	51.1 (44.8, 55.6)
Marginally Higher	44.0 (42.5, 45.7)
Similar	39.6 (36.0, 44.0)
Marginally Lower	35.5 (34.0, 36.7)
Lower	29.7 (8.4, 35.5)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
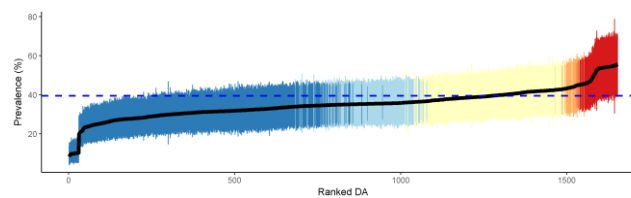
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
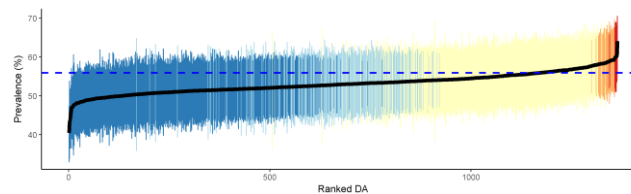
Figure 7.4 Current alcohol consumption among adolescent males (ages 12 to 18), 2000–2014, Toronto Central Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
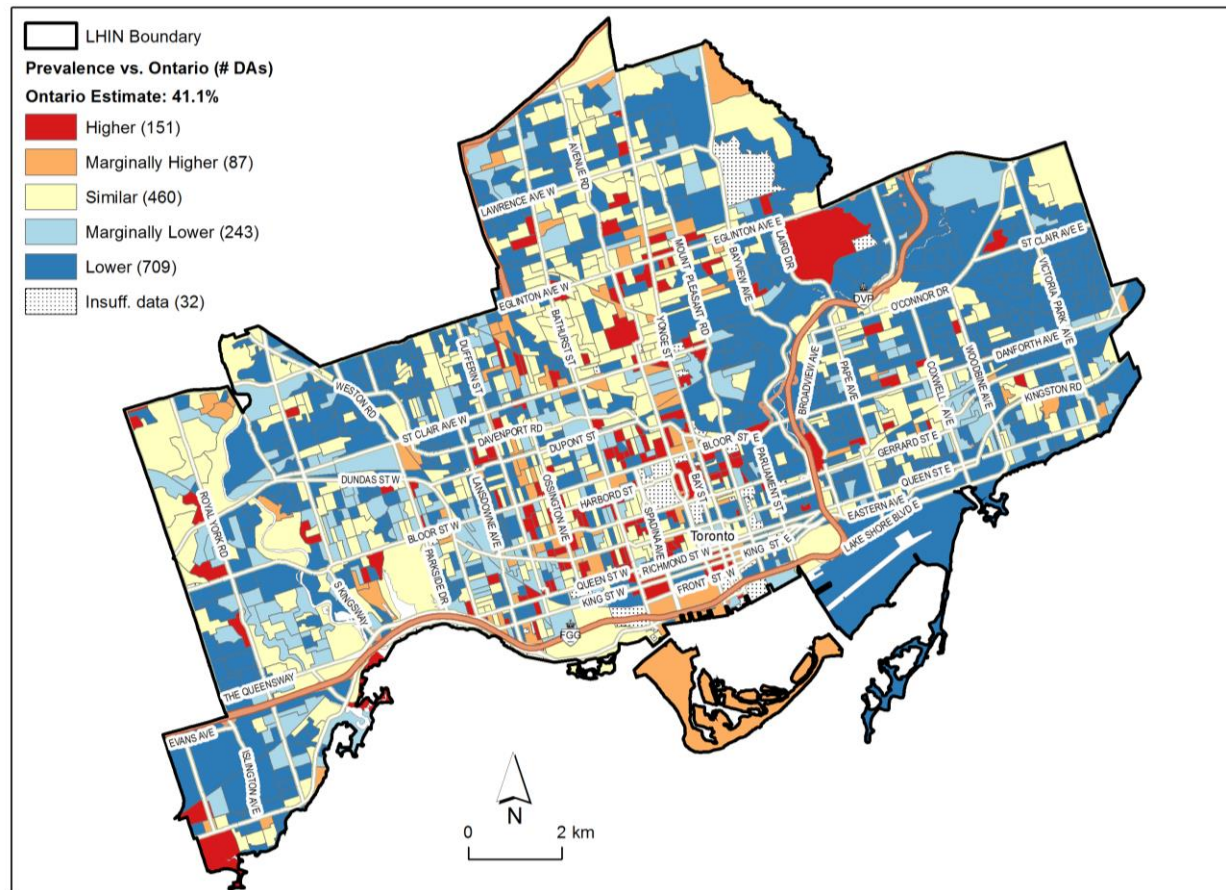
Category	Mean prevalence % (range)
Overall	37.5
Higher	52.0 (45.7, 59.7)
Marginally Higher	45.5 (44.2, 47.9)
Similar	40.8 (37.3, 44.9)
Marginally Lower	37.3 (35.4, 38.5)
Lower	31.4 (8.5, 37.4)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
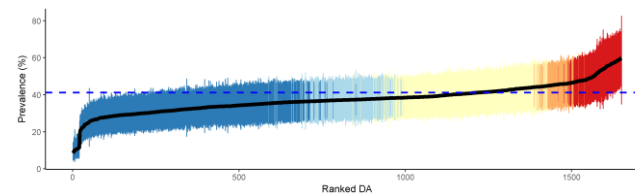
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Alcohol—consumption exceeding cancer prevention recommendations

People age 12 and older

Almost 7% of the female population in Ontario drank alcohol in excess of the recommended limits for cancer prevention. Among males, the Ontario prevalence of exceeding the recommended limits was 8.5%.

Higher prevalence than Ontario

There were 952 areas with a higher prevalence of alcohol consumption in excess of cancer prevention recommendations than the Ontario average for females (Figure 7.5). These areas occurred in the central (downtown Toronto and north to Lawrence Avenue West) and the southeastern parts of the LHIN, as well as along Parkside Drive. For males, 182 areas had a higher prevalence than Ontario (Figure 7.6). For males, these areas tended to cluster south of St. Clair Avenue West and Yonge Street, and in the eastern tip of the LHIN, south of O'Connor Drive between Broadview Avenue and Victoria Park Avenue.

Lower prevalence than Ontario

Areas with a lower prevalence of alcohol consumption in excess of cancer prevention recommendations than the Ontario average were less common among females (n=31; Figure 7.5) compared to males (n=216; Figure 7.6). For females, these areas occurred around Weston Road and northwest of Lawrence Avenue West and Bathurst Street. For males, these areas were located along the north boundary of the LHIN, along St. Clair Avenue West, Lawrence Avenue and St. Clair Avenue East.

Adolescents

The area-based prevalence of exceeding cancer prevention recommendations was not estimated for adolescent populations.

Figure 7.5 Alcohol consumption exceeding cancer prevention recommendations among females (age 12 and older), 2000–2014, Toronto Central Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
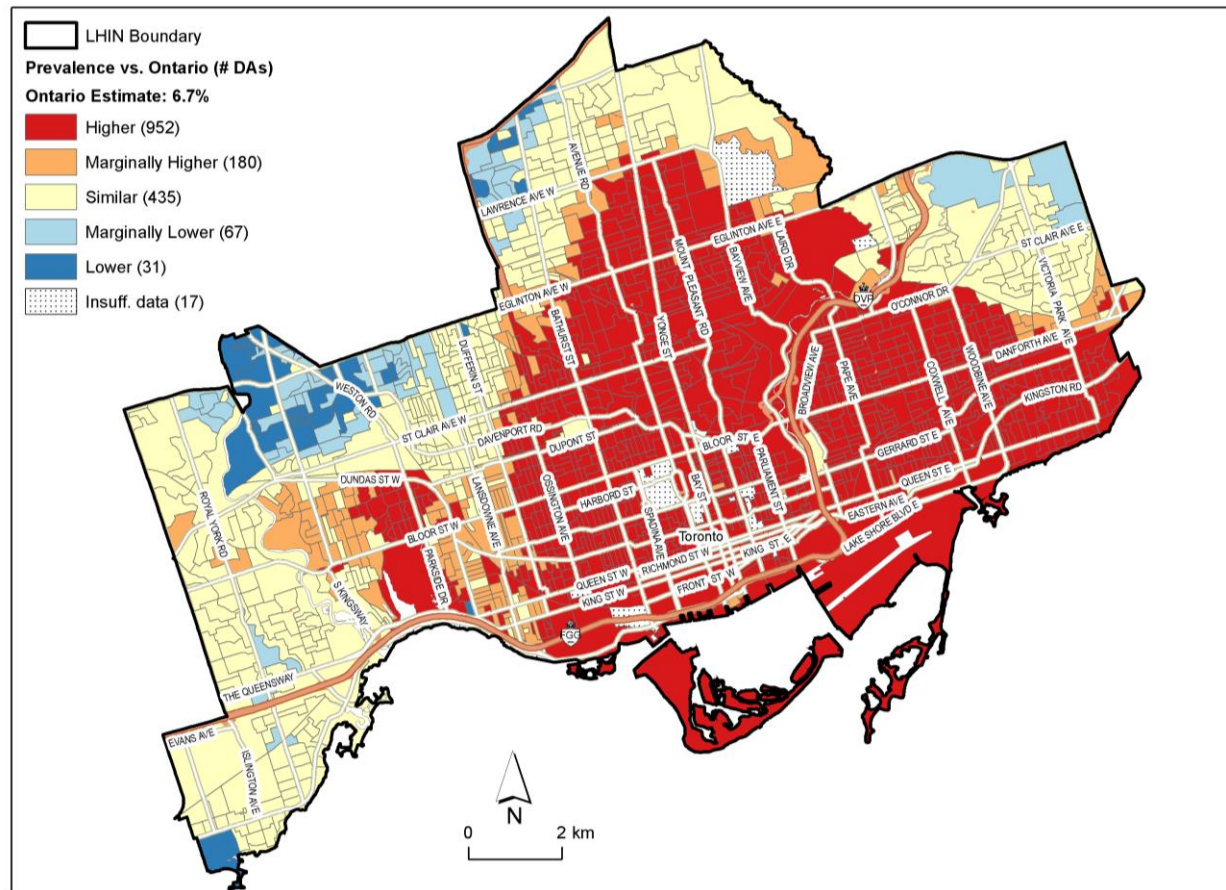
Map created: 11-Sep-17

Category	Mean prevalence % (range)
Overall	9.8
Higher	11.5 (8.8, 17.1)
Marginally Higher	8.9 (8.1, 10.3)
Similar	7.3 (5.8, 9.0)
Marginally Lower	5.7 (5.2, 6.1)
Lower	5.1 (3.8, 5.5)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
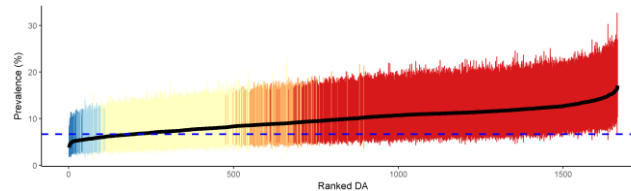
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 7.6 Alcohol consumption exceeding cancer prevention recommendations among males (age 12 and older), 2000–2014, Toronto Central Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
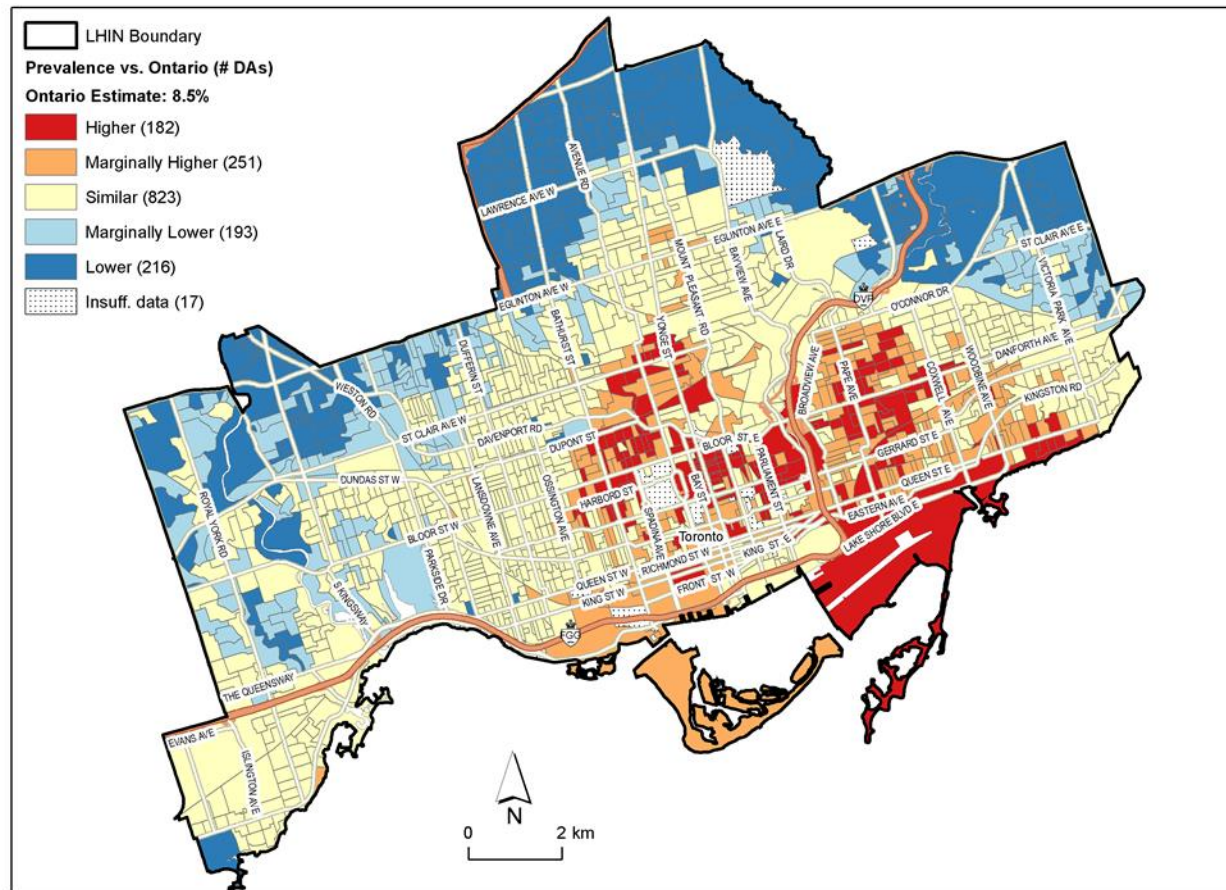
Map created: 11-Sep-17

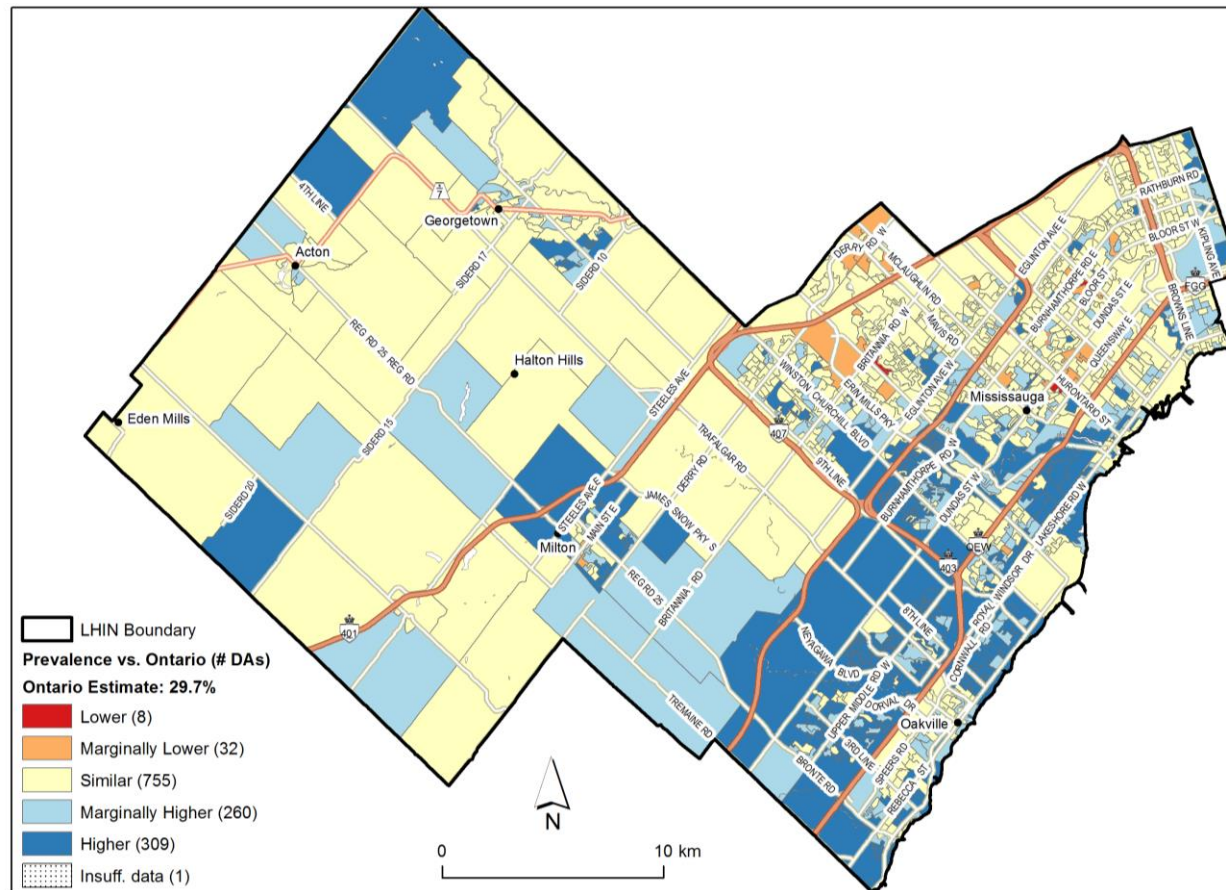| Category	Mean prevalence % (range)
Overall	8.8
Higher	11.2 (10.3, 14.0)
Marginally Higher	10.4 (9.7, 11.4)
Similar	8.8 (7.6, 10.4)
Marginally Lower	7.4 (6.9, 7.7)
Lower	6.4 (4.0, 7.3)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
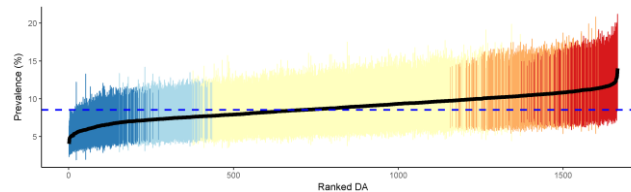
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Excess body weight

People age 12 and older

The estimated Ontario prevalence of excess body weight (overweight or obese) was 41% among females and 56% among males.

Higher prevalence than Ontario

Areas with a higher prevalence of excess body weight compared to Ontario were uncommon for females (n=3; Figure 7.7) and were located in the western and eastern parts of the LHIN. In the Toronto Central LHIN, there were no areas with a higher prevalence than Ontario for males, which is why that map is not shown.

Lower prevalence than Ontario

Most areas in the Toronto Central LHIN had a lower prevalence of excess body weight than the Ontario average for females (n=1,316; Figure 7.7). Two exceptions were located in the western (e.g., Weston Road) and eastern (e.g., St. Clair Avenue East) parts of the LHIN.

Adolescents

Among Ontario adolescents, an estimated 15% of females and 25% of males were overweight or obese. In the Toronto Central LHIN, there were no areas with a higher prevalence than Ontario for adolescents, which is why those maps are not shown.

Legend:
- LHIN Boundary
- **Prevalence vs. Ontario (# DAs)**
- **Ontario Estimate: 41.4%**
- Higher (3)
- Marginally Higher (3)
- Similar (203)
- Marginally Lower (140)
- Lower (1,316)
- Insuff. data (17)
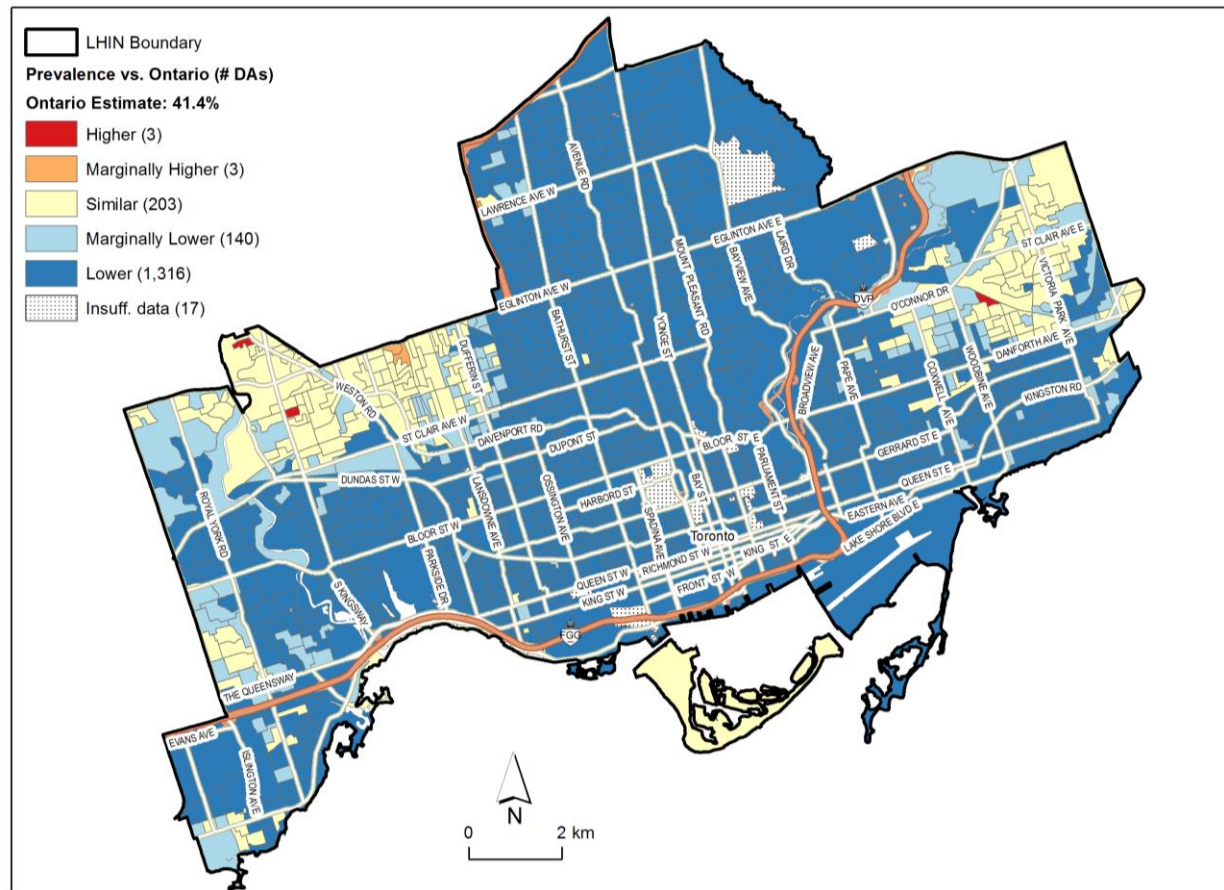
Map created: 11-Sep-17

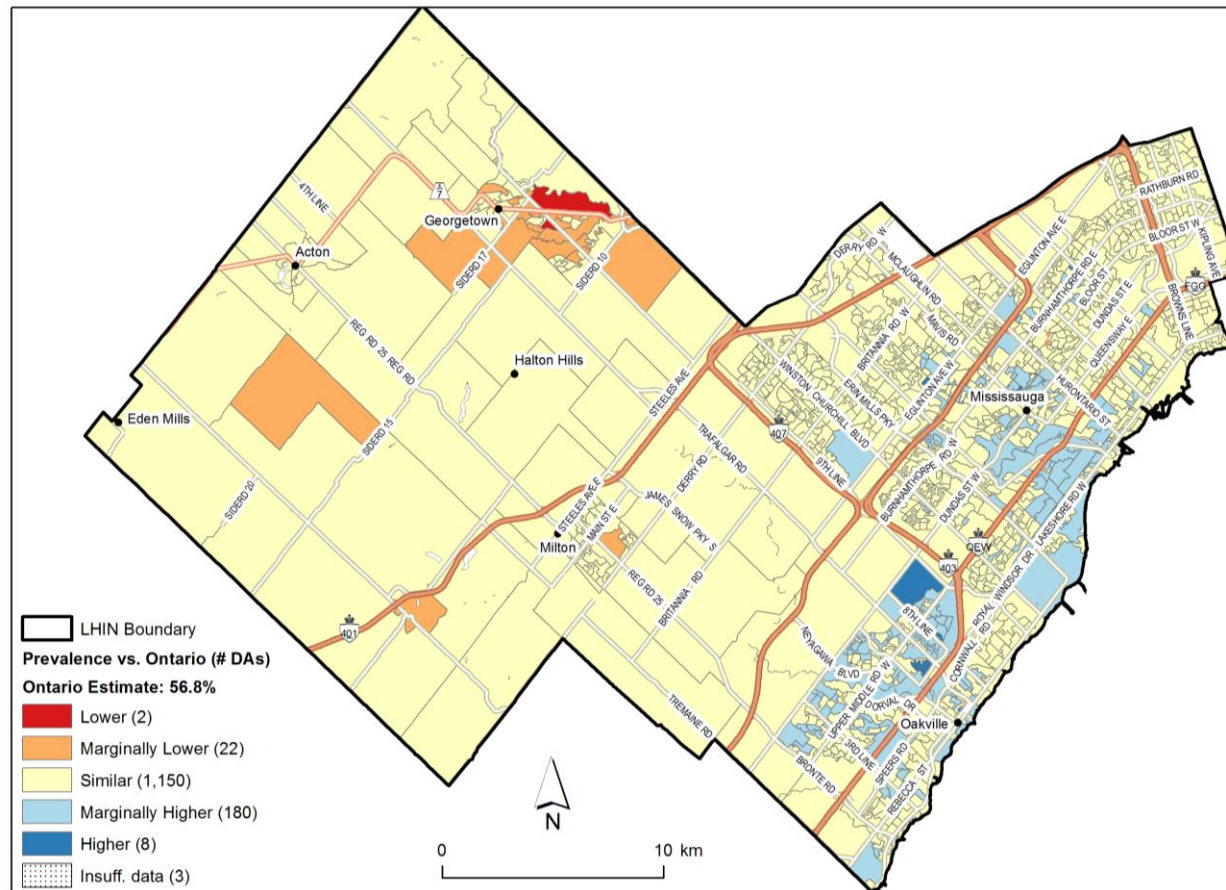| Category	Mean prevalence % (range)
Overall	33.6
Higher	46.7 (46.2, 47.2)
Marginally Higher	45.6 (44.5, 47.0)
Similar	40.4 (37.1, 44.3)
Marginally Lower	37.9 (35.6, 39.2)
Lower	32.0 (22.9, 37.6)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
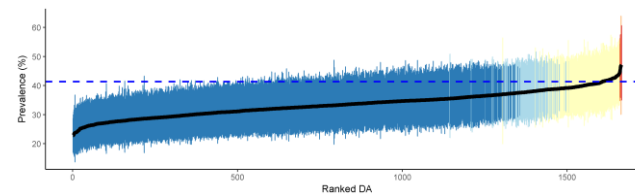
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Inadequate vegetable and fruit consumption

People age 12 and older

Inadequate consumption of vegetables and fruits was common across Ontario, with approximately 63% of females and 77% of males reporting inadequate consumption.

Higher prevalence than Ontario

Only one area had a higher prevalence of inadequate vegetable and fruit consumption than the Ontario average for females (Figure 7.8). This area was located at the intersection of Weston Road and St. Clair Avenue West. In the Toronto Central LHIN, there were no areas with a higher prevalence than Ontario for males, which is why that map is not shown.

Lower prevalence than Ontario

Areas with a lower prevalence of inadequate vegetable and fruit consumption than Ontario for females (n=168; Figure 7.8) were concentrated in western, northern, central and southeastern parts of Toronto Central LHIN. For example, these areas were located along Royal York Road north of Bloor Street West, around Yonge Street and Lawrence Avenue West and along Eglinton Avenue East between Yonge Street and Laird Drive. They were also located north of Bloor Street East between Bathurst Street and Bayview Avenue, along the Don Valley Parkway (DVP) between Bloor Street East and Gerrard Street East, and south of Danforth Avenue between Coxwell Avenue and Victoria Park Avenue.

Adolescents

More than two thirds of the adolescent Ontario population had inadequate vegetable and fruit consumption at approximately 68% for females and 74% for males. In the Toronto Central LHIN, there were no areas with a higher prevalence than the Ontario average for adolescents, which is why those maps are not shown.

Figure 7.8 Inadequate vegetable and fruit consumption among females (age 12 and older), 2000–2014, Toronto Central Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
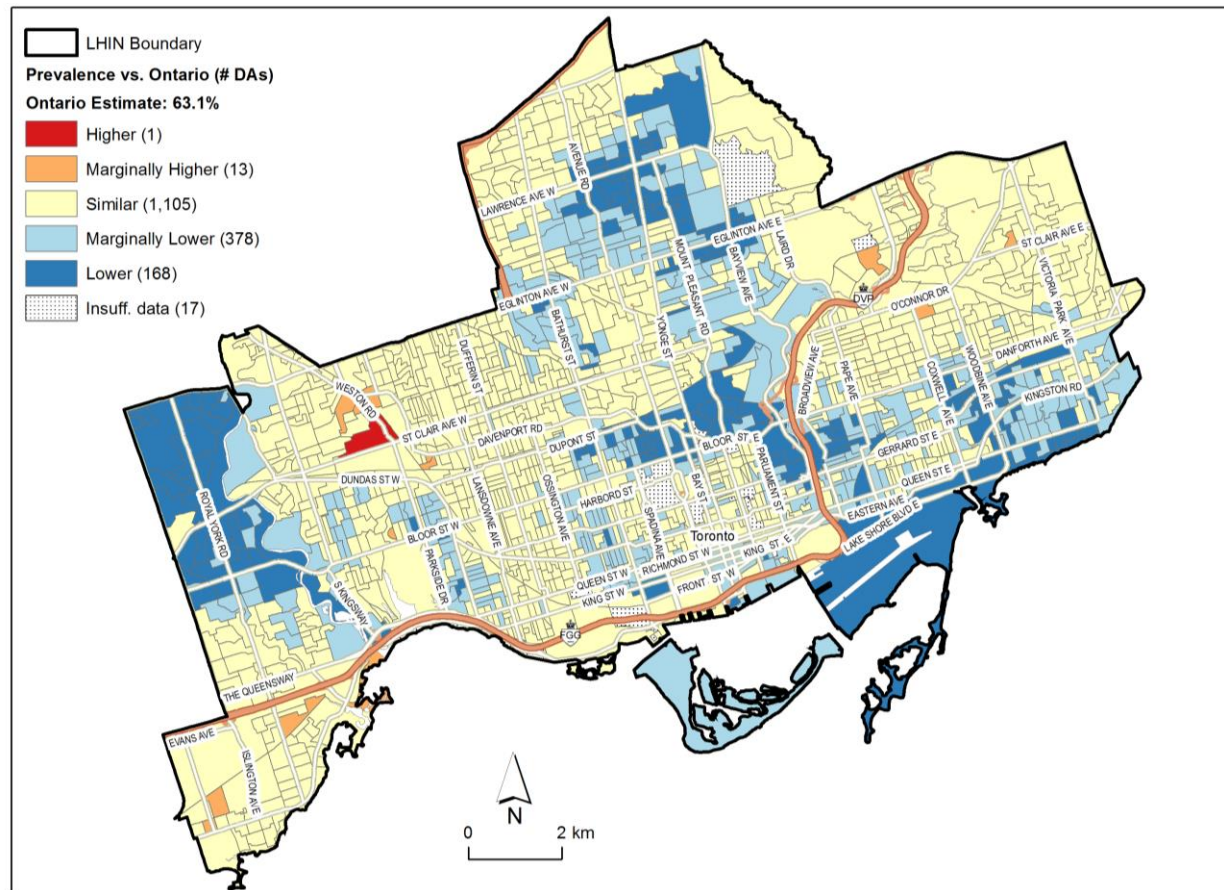
Category	Mean prevalence % (range)
Overall	61.2
Higher	66.3 (66.3, 66.3)
Marginally Higher	66.1 (65.3, 67.0)
Similar	62.1 (59.2, 66.2)
Marginally Lower	59.6 (57.6, 61.0)
Lower	57.8 (54.4, 59.7)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Physical activity

Because physical activity reduces cancer risk, lower prevalence estimates of this risk factor are of interest. The colour scheme of the maps was inverted so that the "lower than Ontario" estimates are displayed in red.

People age 12 and older

Most of the Ontario population was not physically active, with approximately one in five (23%) females and one in three (30%) males being physically active.

Lower prevalence than Ontario

There were fewer areas with a lower prevalence of physical activity than the Ontario average for females (n=99; Figure 7.9) compared to males (n=179; Figure 7.10). For both sexes, lower prevalence estimates occurred in northwestern and eastern parts of Toronto Central LHIN. For females, additional areas with a lower prevalence were scattered across the LHIN, whereas for males they were mostly found along Dufferin Street north of St. Clair Avenue West and to the east along Victoria Park Avenue north of Danforth Avenue as well as west of Woodbine Avenue

Higher prevalence than Ontario

Areas with a higher prevalence of physical activity than Ontario were more common for females (n=182; Figure 7.9) compared to males (n=77; Figure 7.10). For both sexes, the higher prevalence areas were located in the western and central parts of the LHIN, but the distribution of these areas was more extensive for females than males.

Adolescents

Adolescents were more physically active than adults, with approximately 40% of adolescent females and 57% of adolescent males being active.

Lower prevalence than Ontario

Areas with a lower prevalence of physical activity than the Ontario average for adolescent females (n=545; Figure 7.11) were widespread across the central and eastern parts of the LHIN. Lower prevalence areas were particularly common in the downtown core and along Danforth Avenue, roughly bounded by O'Connor Drive and Queen Street East. There were no areas with a lower prevalence than Ontario for adolescent males, which is why that map is not shown.

Higher prevalence than Ontario

There were no areas with a higher prevalence than Ontario detected among adolescent females (Figure 7.11).
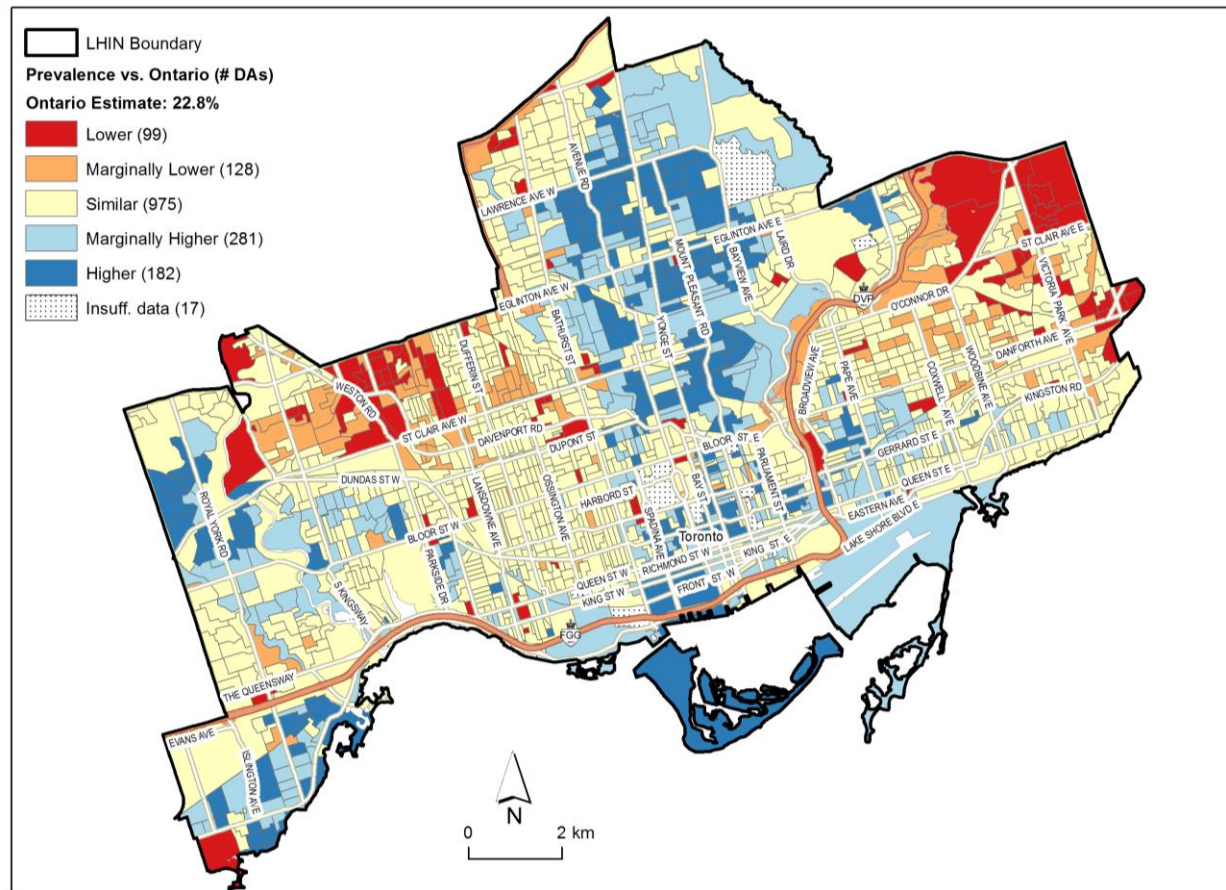
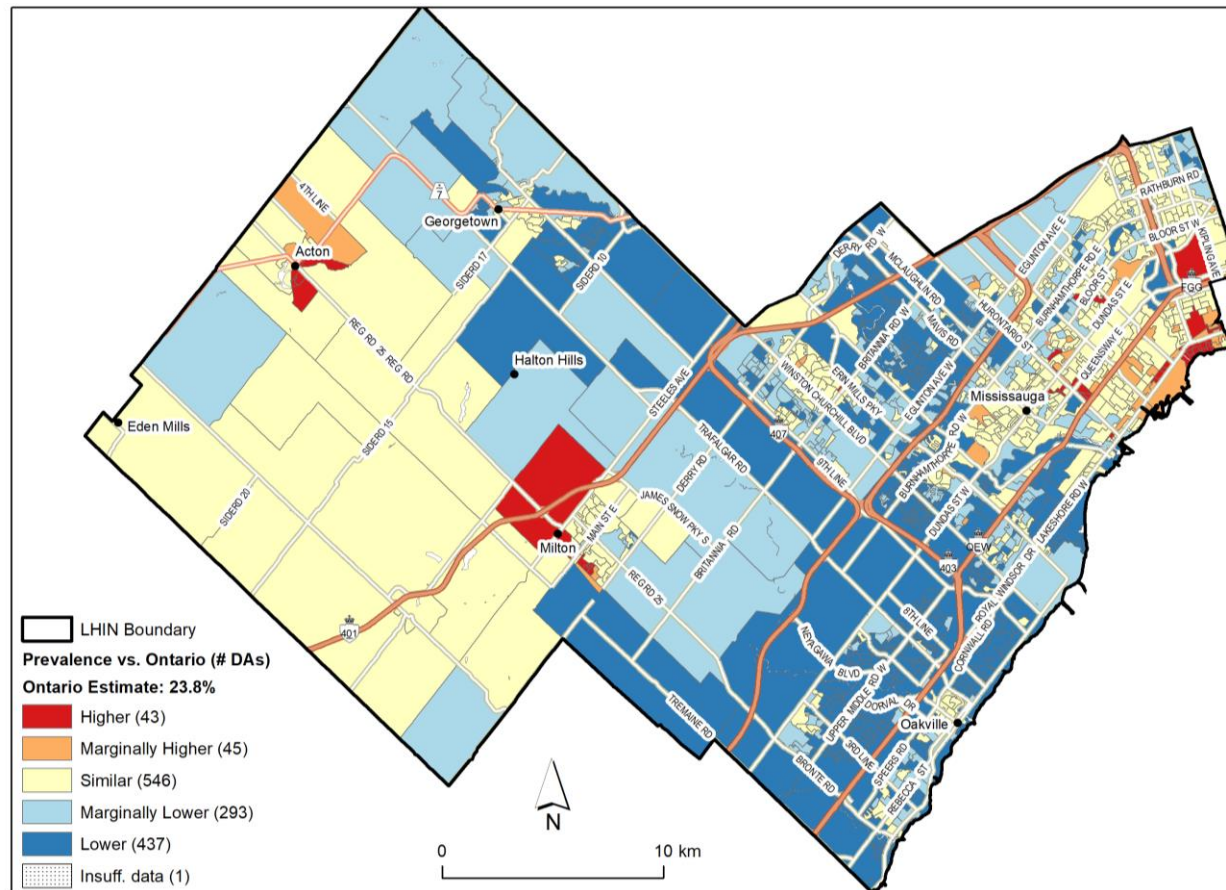| Category	Mean prevalence % (range)
Overall	23.9
Lower	18.2 (12.9, 20.2)
Marginally Lower	20.3 (19.3, 21.1)
Similar	23.4 (20.6, 25.9)
Marginally Higher	26.2 (25.1, 27.9)
Higher	28.4 (26.5, 34.9)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
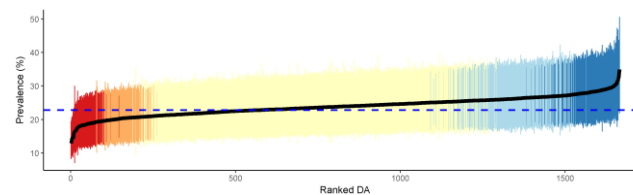
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 7.10 Physical activity among males (age 12 and older), 2000–2014, Toronto Central Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Map created: 11-Sep-17

Category	Mean prevalence % (range)
Overall	29.6
Lower	24.9 (21.9, 26.4)
Marginally Lower	26.9 (25.5, 27.8)
Similar	29.9 (27.2, 33.8)
Marginally Higher	33.3 (32.2, 35.6)
Higher	35.8 (33.8, 45.5)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
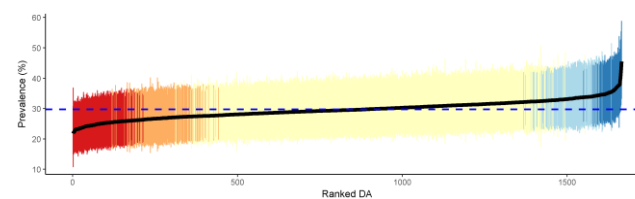
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
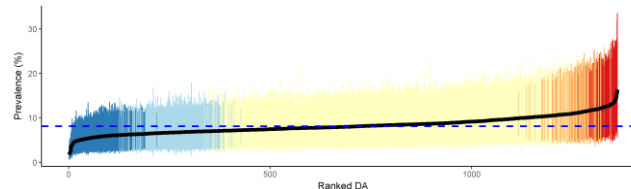
Figure 7.11 Physical activity among adolescent females (ages 12 to 18), 2000–2014, Toronto Central Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
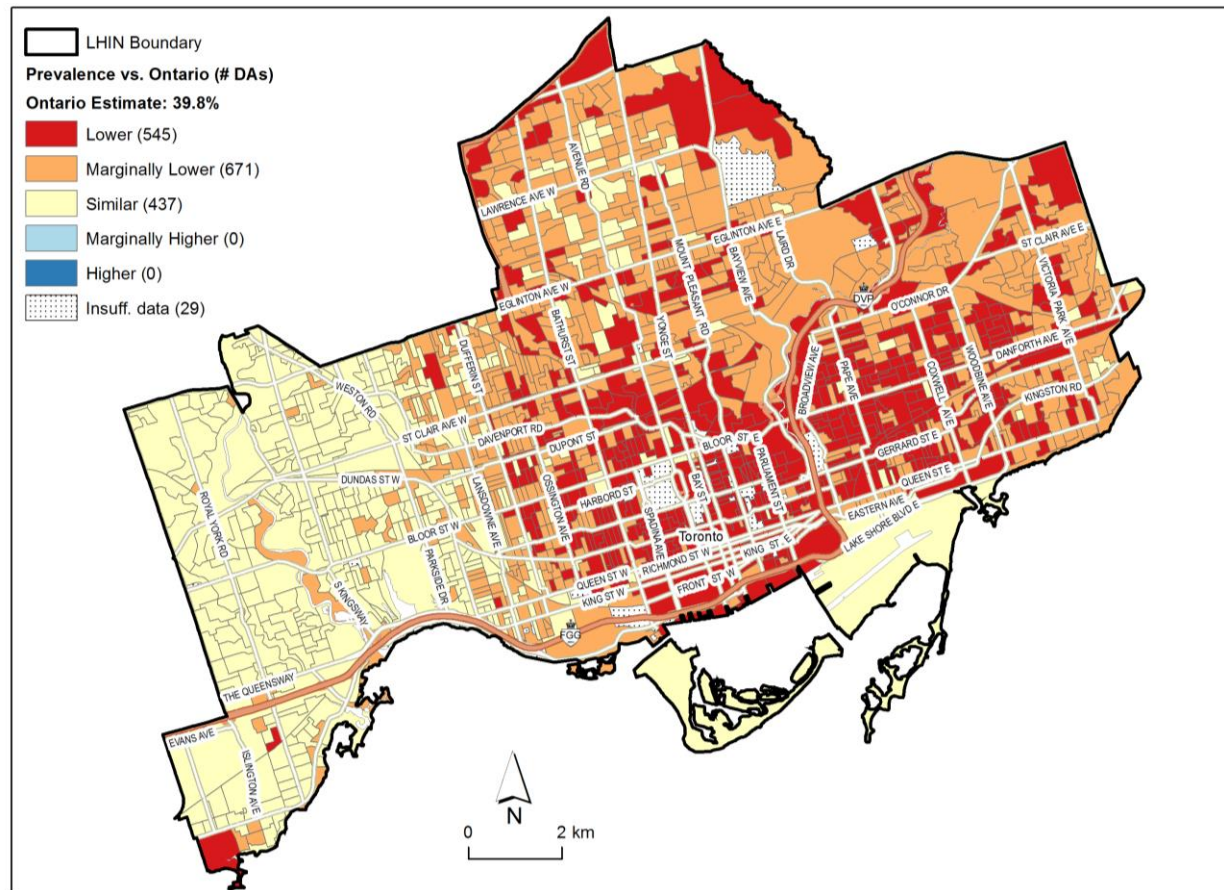
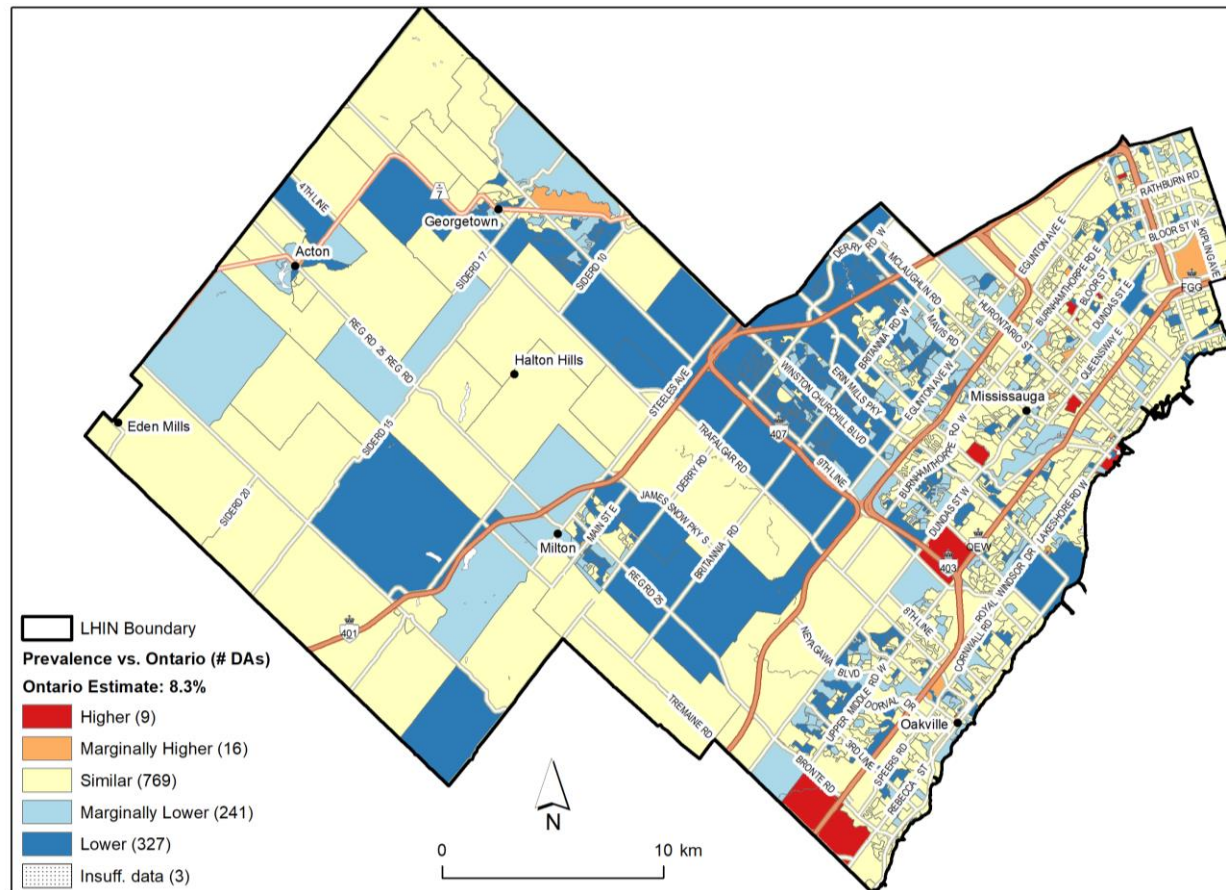| Category	Mean prevalence % (range)
Overall	35.6
Lower	33.7 (30.6, 35.4)
Marginally Lower	35.6 (33.1, 37.0)
Similar	38.0 (36.3, 42.4)
Marginally Higher	N/A
Higher	N/A

N/A = no estimates in the category

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Sedentary behaviour

People age 12 and older

Approximately half of the Ontario population reported sedentary behaviour during leisure time (females, 49%; males, 56%).

Higher prevalence than Ontario

In the Toronto Central LHIN, six areas had a higher prevalence of sedentary behaviour than the Ontario average for females (Figure 7.12), located mainly in the eastern part of the LHIN. Only one higher prevalence area was identified for males (Figure 7.13).

Lower prevalence than Ontario

Areas with a lower prevalence of sedentary behaviour than Ontario for females (n=779; Figure 7.12) were located extensively throughout the western (e.g., west of Bathurst Street) and northern parts of the LHIN (e.g., Avenue Road and Lawrence Avenue West). A few lower prevalence areas also occurred around the downtown core and south of Danforth Avenue towards the east. Among males (n=23; Figure 7.13) lower prevalence areas were located in the western part of the LHIN (e.g., west of Kingsway South).

Adolescents

More than half of the Ontario adolescent population reported sedentary behaviour during leisure time, at approximately 55% for females and 60% for males. In the Toronto Central LHIN, there were no areas with a higher prevalence than Ontario for adolescents, which is why those maps are not shown.

Figure 7.12 Sedentary behaviour among females (age 12 and older), 2000–2014, Toronto Central Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
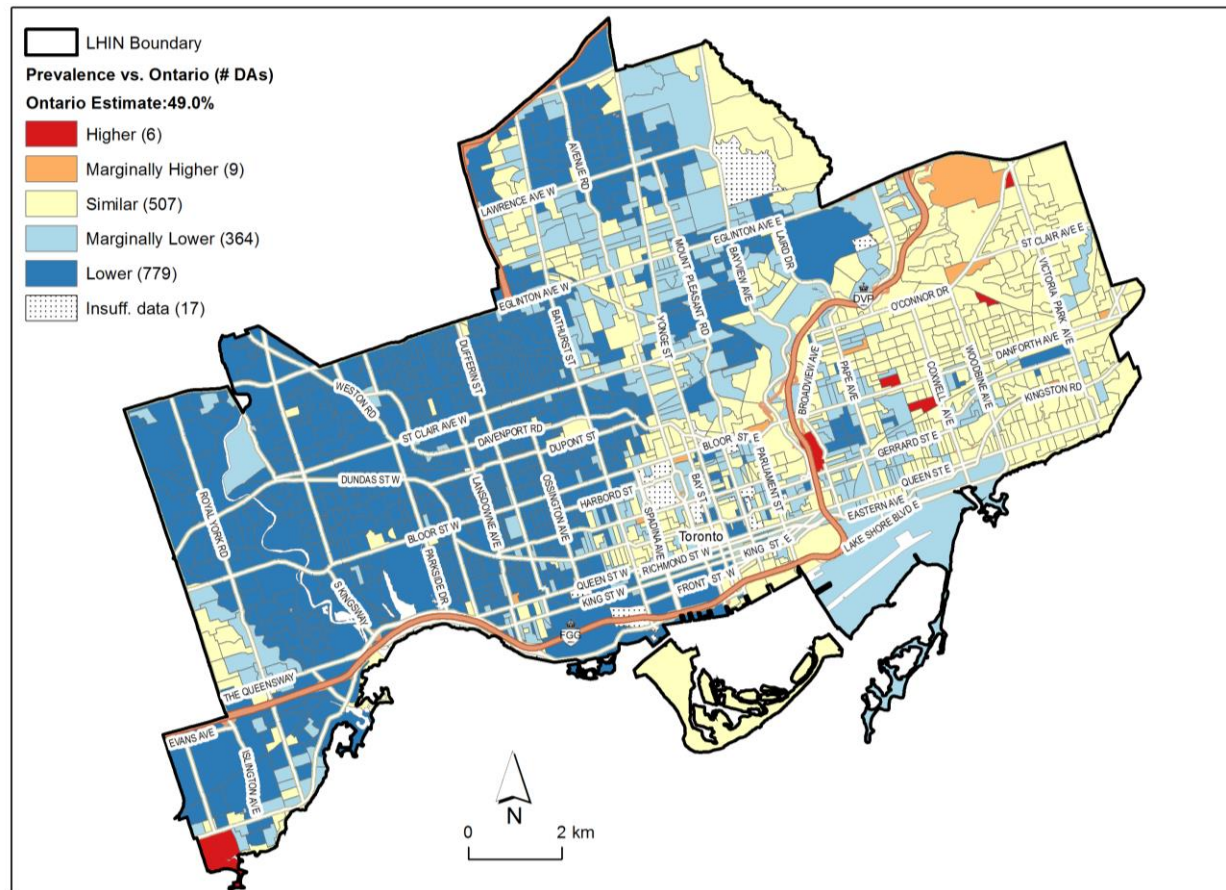
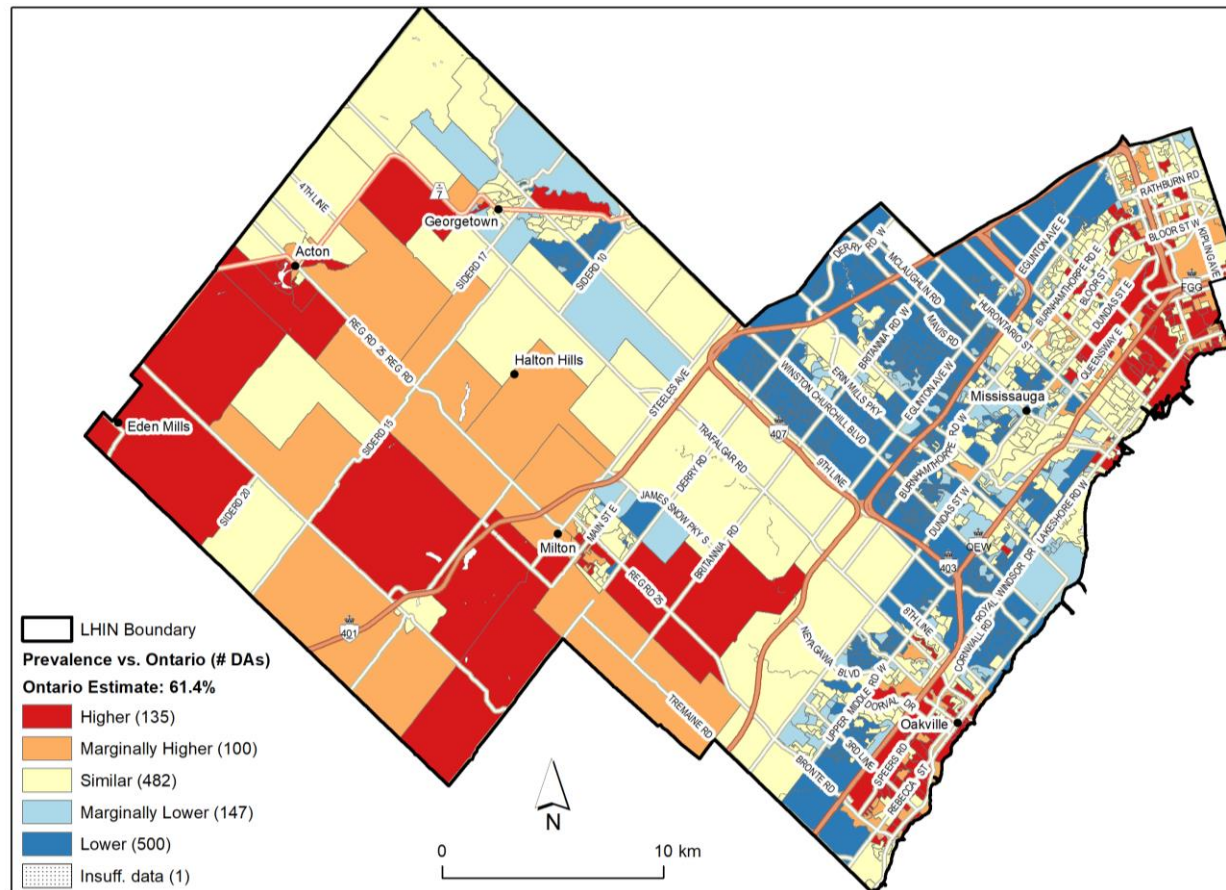| Category	Mean prevalence % (range)
Overall	45.0
Higher	54.0 (52.7, 54.7)
Marginally Higher	52.1 (51.3, 52.9)
Similar	47.9 (45.4, 52.6)
Marginally Lower	45.5 (43.3, 46.7)
Lower	42.8 (39.2, 45.6)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 7.13 Sedentary behaviour among males (age 12 and older), 2000–2014, Toronto Central Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Legend:
LHIN Boundary
Prevalence vs. Ontario (# DAs)
Ontario Estimate: 55.7%
- Higher (1)
- Marginally Higher (8)
- Similar (1,443)
- Marginally Lower (190)
- Lower (23)
- Insuff. data (17)

Map created: 05-Oct-17

Category	Mean prevalence % (range)
Overall	54.4
Higher	60.8 (60.8, 60.8)
Marginally Higher	59.6 (58.7, 62.5)
Similar	54.7 (52.0, 59.6)
Marginally Lower	51.9 (50.2, 53.2)
Lower	49.8 (45.4, 51.5)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
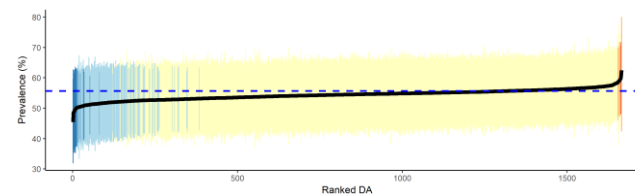
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Smoking—current status

People age 12 and older

Current tobacco smoking was reported by 17% of Ontario females and 24% of males.

Higher prevalence than Ontario

For females (Figure 7.14), 136 areas with a higher prevalence of current smoking than the Ontario average were identified, whereas 232 areas were identified for males (Figure 7.15). For females, higher prevalence areas tended to occur in the southeastern part of the LHIN (e.g. south of Danforth Avenue) as well as around the downtown core (e.g. Front Street West). In contrast, higher prevalence areas for males were located in the central and eastern parts of the LHIN around Dufferin Street and Bloor Street West, along King Street West and Parliament Street, north of Danforth Avenue and south of Queen Street East.

Lower prevalence than Ontario

Areas with a lower prevalence of current smoking than Ontario were less common for females (n=228; Figure 7.14) compared to males (n=350; Figure 7.15). For both sexes, lower prevalence areas occurred towards the northern and western boundaries of the LHIN. For females, these areas were also found along Don Valley Parkway (DVP) north of O'Connor Drive. Additional lower prevalence areas for males occurred between Eglinton Avenue and Bloor Street as well as east of Royal York Road and west of Parkside Drive.

Adolescents

Approximately 8% of adolescent females and adolescent males in Ontario reported that they currently smoked tobacco.

Higher prevalence than Ontario

Forty-one areas had a higher prevalence of current smoking than the Ontario average for adolescent females (Figure 7.16) and 66 areas for adolescent males (Figure 7.17). For both sexes, higher prevalence areas were dispersed mostly around the central part of the LHIN.

Lower prevalence than Ontario

Areas with lower prevalence estimates were located mainly in northern and eastern parts of the LHIN but also spread sparsely across the LHIN for both adolescent females (n=249; Figure 7.16) and adolescent males (n=313; Figure 7.17).

Figure 7.14 Current smoking among females (age 12 and older), 2000–2014, Toronto Central Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
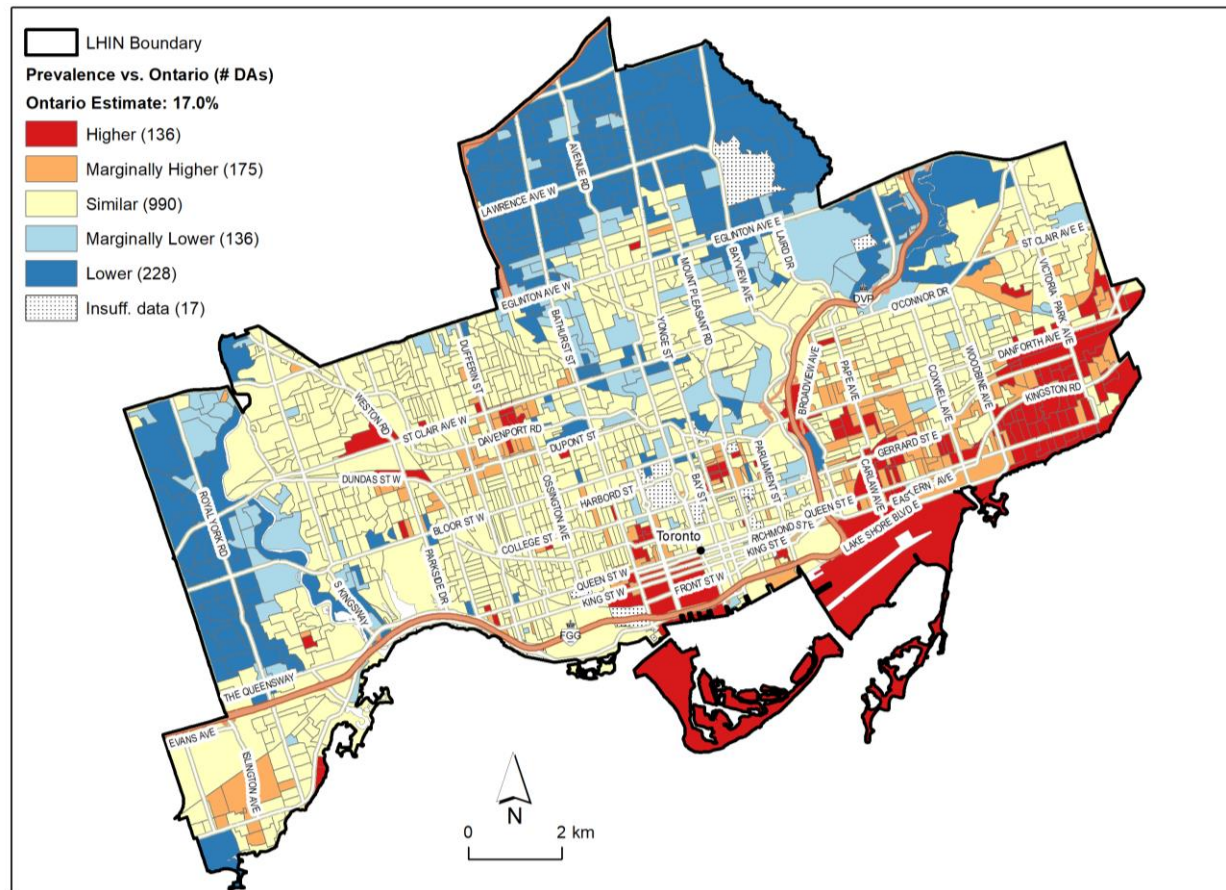
Category	Mean prevalence % (range)
Overall	17.6
Higher	23.6 (20.5, 29.1)
Marginally Higher	21.2 (19.2, 25.3)
Similar	17.8 (14.8, 22.1)
Marginally Lower	14.5 (13.3, 15.2)
Lower	12.1 (7.1, 14.4)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 7.15 Current smoking among males (age 12 and older), 2000–2014, Toronto Central Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
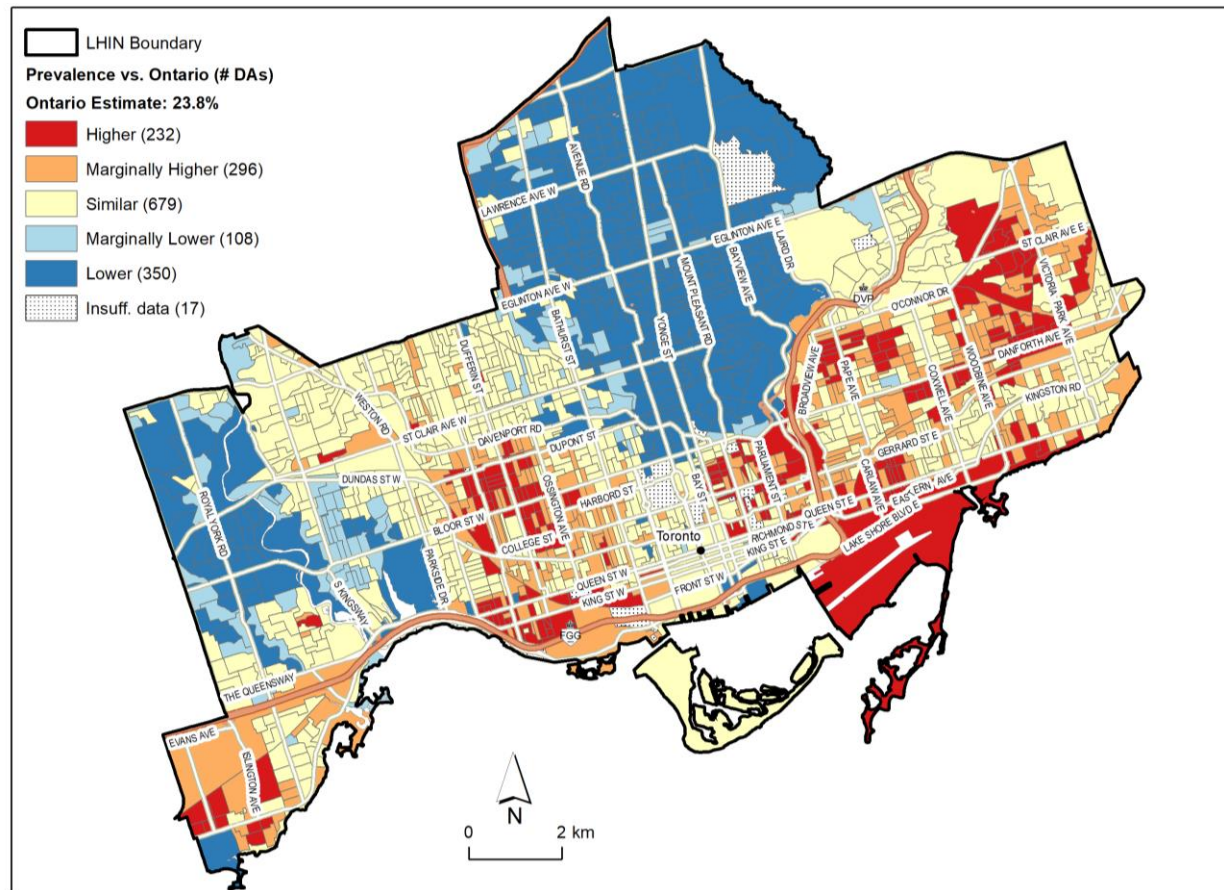
Category	Mean prevalence % (range)
Overall	24.4
Higher	31.0 (27.9, 37.9)
Marginally Higher	28.4 (26.2, 31.1)
Similar	25.0 (20.4, 29.0)
Marginally Lower	20.5 (19.3, 21.8)
Lower	16.8 (9.3, 20.9)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
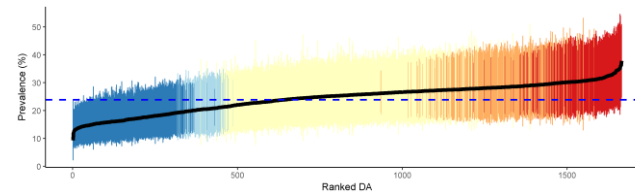
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 7.16 Current smoking among adolescent females (ages 12 to 18), 2000–2014, Toronto Central Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Map created: 11-Sep-17
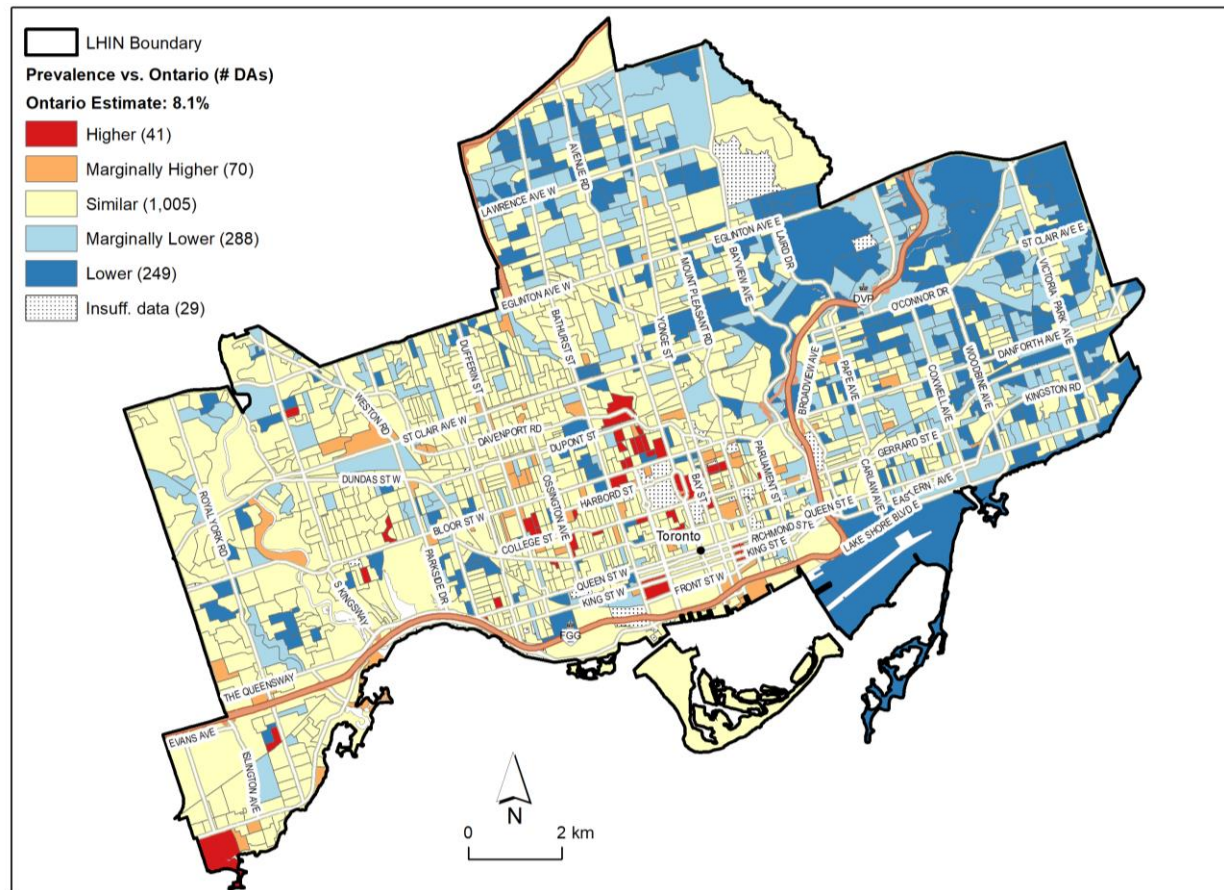
Category	Mean prevalence % (range)
Overall	7.9
Higher	12.7 (11.8, 13.8)
Marginally Higher	11.4 (10.1, 14.1)
Similar	8.5 (6.9, 11.0)
Marginally Lower	6.7 (6.1, 7.2)
Lower	5.2 (1.6, 6.4)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 7.17 Current smoking among adolescent males (ages 12 to 18), 2000–2014, Toronto Central Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Map created: 11-Sep-17

Category	Mean prevalence % (range)
Overall	8.0
Higher	12.8 (11.8, 14.1)
Marginally Higher	11.2 (10.4, 14.0)
Similar	8.5 (7.2, 11.0)
Marginally Lower	6.9 (6.3, 7.4)
Lower	5.5 (1.0, 6.6)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Smoking—ever-smoked status

People age 12 and older

Approximately one in two Ontario females and three in five Ontario males reported having ever-smoked.

Higher prevalence than Ontario

More areas with a higher prevalence of ever-smokers than the Ontario average were detected for females (n=659; Figure 7.18) compared to males (n=284; Figure 7.19). For females, these areas were found mainly throughout the central and southeastern parts of the LHIN, with an additional cluster to the west around Bloor Street West and Parkside Drive. For males, higher prevalence areas were dispersed in areas throughout the central (e.g. Yonge Street St. and Clair Avenue West, Parliament Street and Bloor Street East), southern (e.g. along Queen Street West and East) and western (e.g. along Royal York Road south of Bloor Street West) parts of the LHIN.

Lower prevalence than Ontario

Areas with a lower prevalence of ever-smokers than the Ontario average were detected for females (n=139; Figure 7.18) and males (n=88; Figure 7.19). For females, most of these areas were located towards the western, northwestern and eastern boundaries of the LHIN north of St. Clair Avenue West and west of Dufferin Street; along the Don Valley Parkway (DVP) north of O'Connor Drive; and, along Victoria Park Avenue north of Danforth Avenue. For males, higher prevalence areas were dispersed in the western, eastern and northern parts of the LHIN.

Adolescents

The area-based prevalence of ever-smoked status was not estimated for adolescent populations.

Figure 7.18 Ever-smoked status among females (age 12 and older), 2000–2014, Toronto Central Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
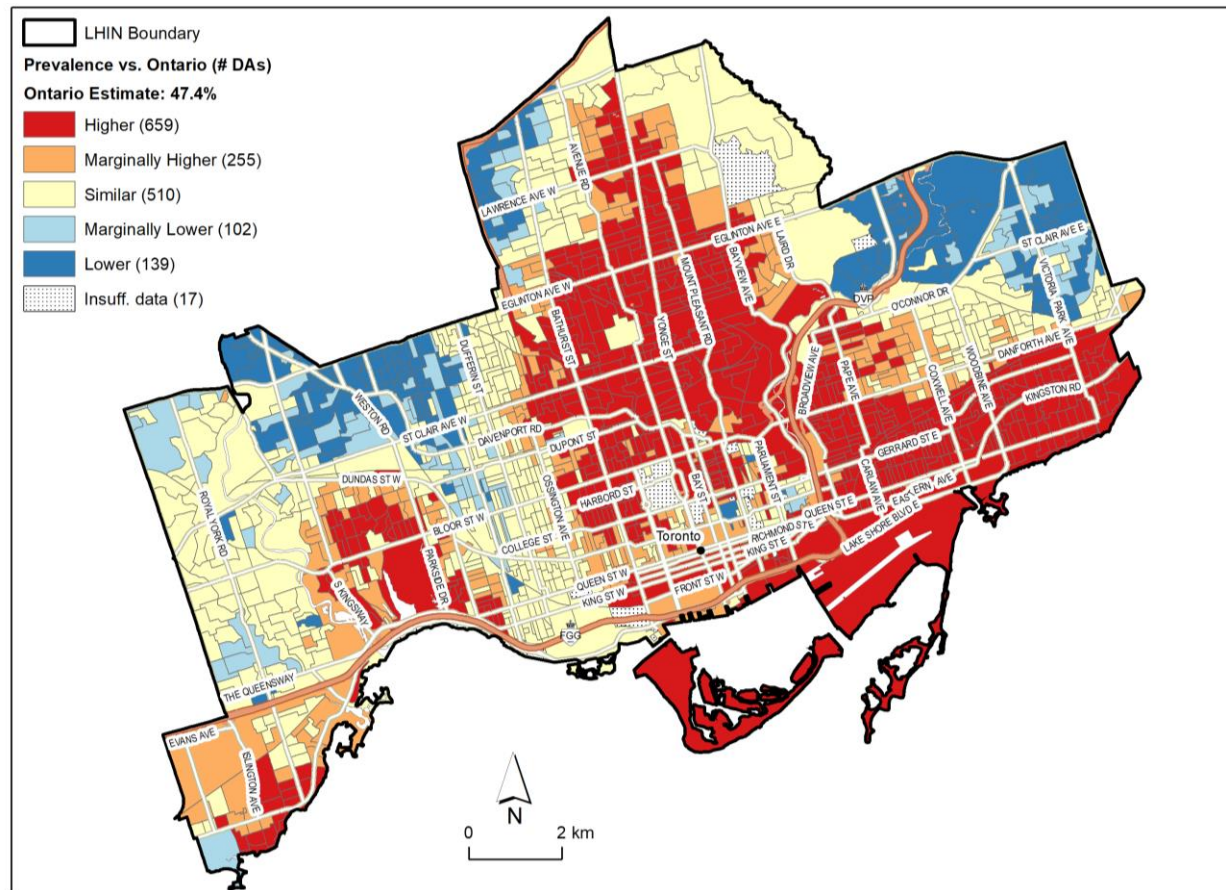
Map created: 12-Sep-17

Category	Mean prevalence % (range)
Overall	50.8
Higher	56.1 (51.5, 64.7)
Marginally Higher	51.8 (50.0, 54.6)
Similar	47.7 (43.2, 53.7)
Marginally Lower	43.1 (40.3, 45.0)
Lower	40.1 (34.1, 43.7)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
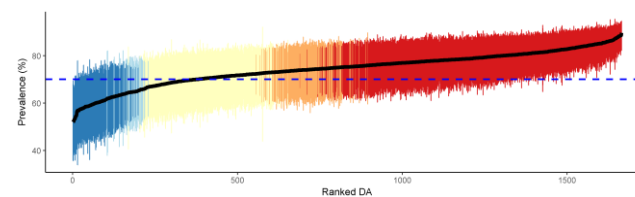
Figure 7.19 Ever-smoked status among males (age 12 and older), 2000–2014, Toronto Central Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Map created: 12-Sep-17
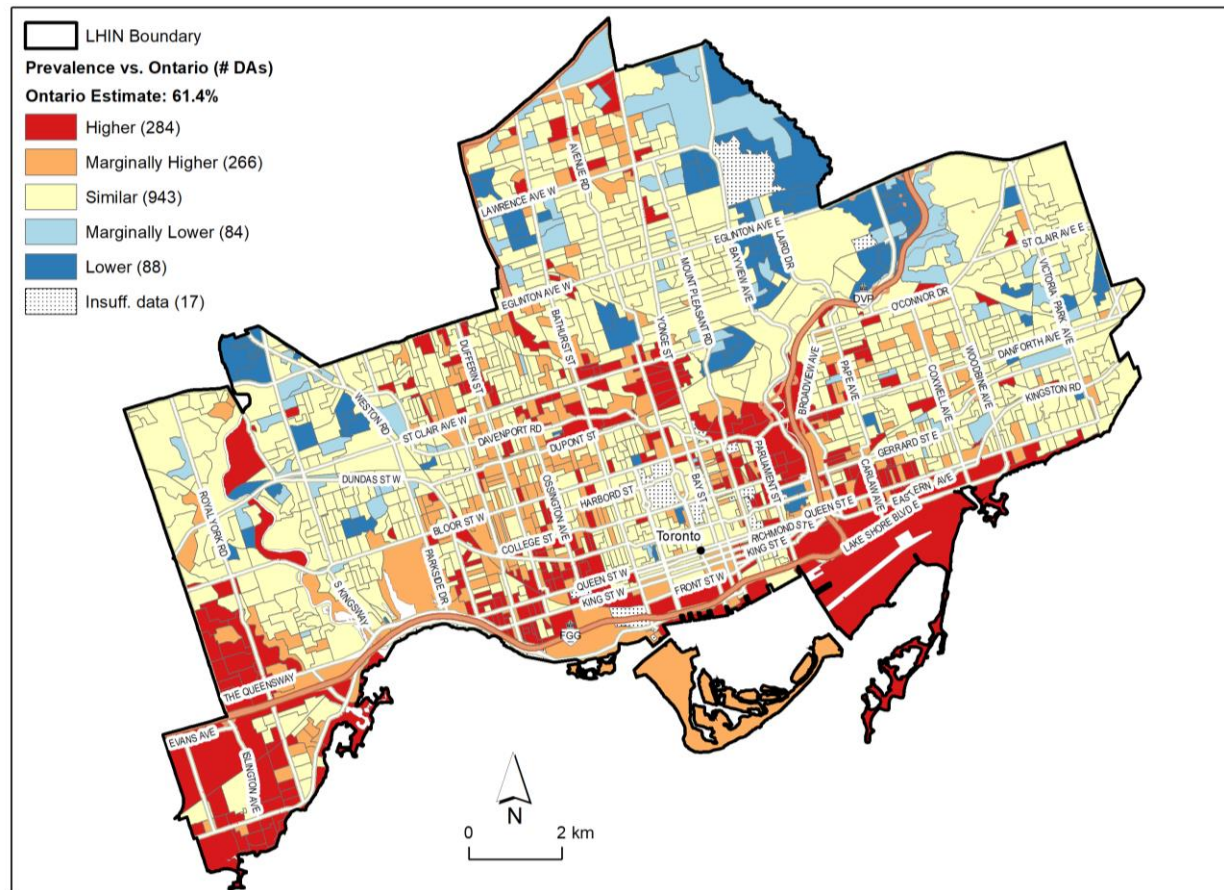
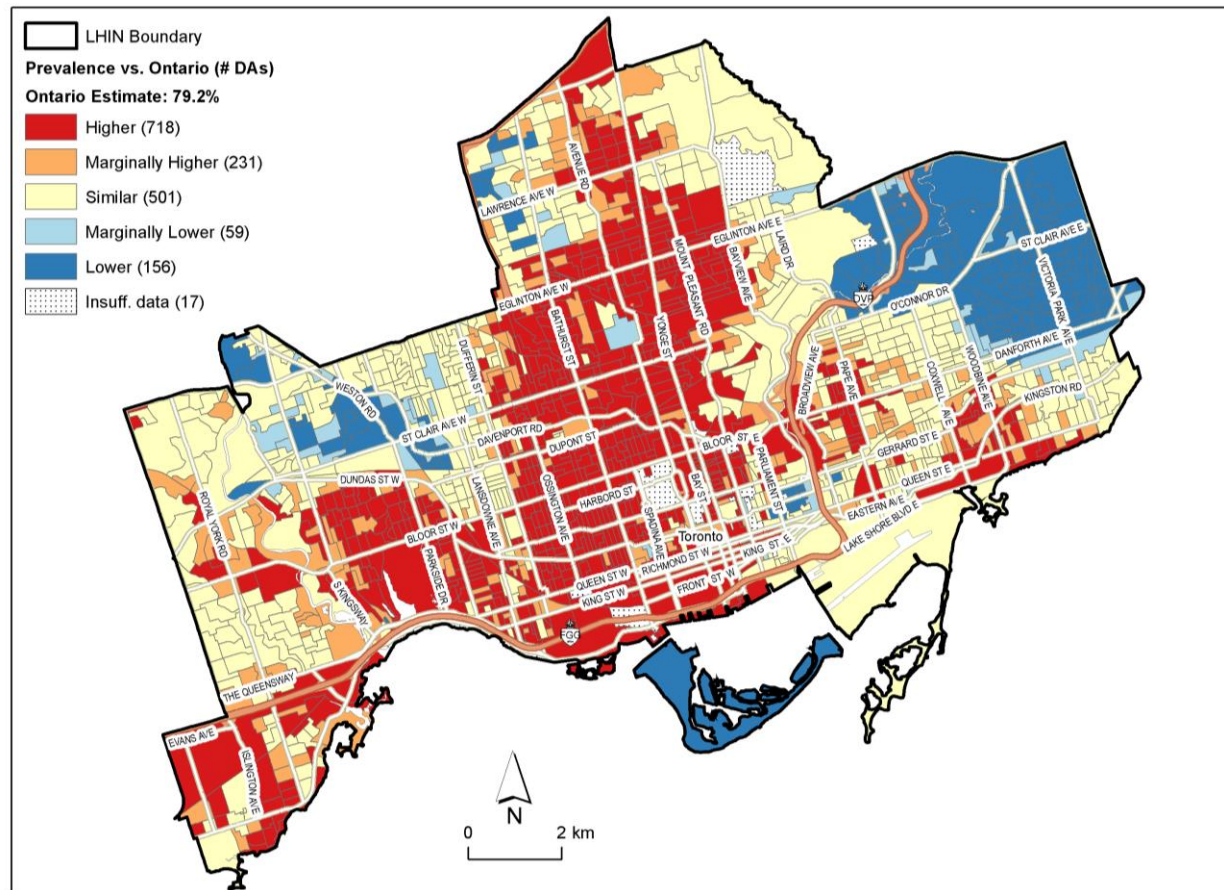| Category	Mean prevalence % (range)
Overall	62.4
Higher	66.9 (64.7, 73.3)
Marginally Higher	64.5 (63.4, 66.7)
Similar	61.6 (57.4, 64.2)
Marginally Lower	58.1 (54.4, 59.3)
Lower	54.7 (44.2, 58.0)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
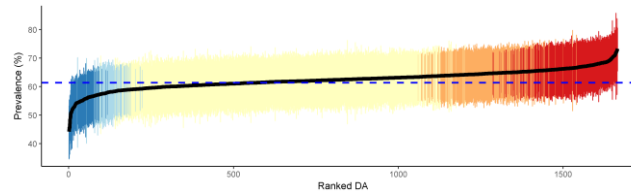
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

LHIN 8

Central

8. Central LHIN

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Key Findings

Top three priority risk factor population estimates by sex (see Table 8.1 below):

Females
Alcohol—current consumption
Physical activity
Smoking—ever-smoked status

Males
Alcohol—current consumption
Smoking—ever-smoked status
Physical activity

Risk factor summary

Alcohol—current consumption
   Priority areas:
   - Females: areas throughout the northern half of the LHIN (e.g. Bradford, Newmarket, Aurora)
   - Males: areas in the northern and central parts of the LHIN (e.g. Bradford, Newmarket, King City)
   - Adolescent females: areas in northern parts of the LHIN (e.g. Bradford, Newmarket, Aurora)
   - Adolescent males: areas dispersed across the northern part of the LHIN (e.g. Newmarket, Bradford, Keswick)

Alcohol—consumption exceeding cancer prevention recommendations
   Priority areas:
   - Females: areas towards the western and eastern boundaries of the LHIN
   - Males: areas throughout the northern part of the LHIN (e.g. north of Newmarket)

Excess body weight
   Priority areas:
   - Females: areas in the west of Northern Toronto and scattered across the northern tip of the LHIN
   - Males: areas across the northern half of the LHIN

Inadequate vegetable and fruit consumption
   Priority areas:
   - Females: areas in Richmond Hill, Markham and in the northeast of the LHIN
   - Males: areas in the northeastern and eastern parts of the LHIN

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Physical activity
Priority areas:

- Females: areas in the southern part of the LHIN (e.g. Vaughan, Markham and Northern Toronto)
- Males: dispersed in areas around Bradford and the southern part of the LHIN (e.g. Markham and Northern Toronto)
- Adolescent females: areas in the southern parts of the LHIN (e.g. Vaughan, Markham and Northern Toronto)
- Adolescent males: a few areas in Markham

Sedentary behaviour
Priority areas:

- Females: few areas mostly in Markham
- Males: two areas at the northwestern part of the LHIN

Smoking—current status
Priority areas:

- Females: areas in the northern half of the LHIN, mostly north of Newmarket
- Males: areas in the northeastern part of the LHIN around Keswick
- Adolescent females: areas in the northeastern part of the LHIN around Keswick
- Adolescent males: few areas in Northern Toronto

Smoking—ever-smoked status
Priority areas:

- Females: areas throughout the northern half of the LHIN (e.g. Keswick, Bradford, Newmarket, Aurora)
- Males: areas in the northern half of the LHIN (e.g. Keswick, Bradford, Newmarket, Aurora) and in Northern Toronto

Introduction

This section describes the estimated local prevalence of risk factors across the LHIN compared to the Ontario prevalence estimates from 2000 to 2014. These comparisons are always relative to Ontario with respect to the level of statistical evidence for the underlying prevalence estimate and often the number of areas meeting specific criteria are presented in parentheses (e.g., n=40). Risk factor maps are presented for females and males age 12 and older, and for adolescent females and adolescent males ages 12 to 18 inclusive. Throughout the text, the terms "area(s)" and "local" refer to the 2006 census dissemination areas (see the Data and Methods section, page 3).

Exclusions

As discussed in the Interpretation section (page 7), maps are shown only for risk factor estimates in the LHIN where one or more local estimates were higher than Ontario (or lower than Ontario for physical activity). Therefore, the risk factor maps not displayed for Central LHIN include:

- excess body weight (overweight/obese) among adolescent females and adolescent males;
- inadequate vegetable and fruit consumption among adolescent females and adolescent males; and
- sedentary behaviour among adolescent females and adolescent males.

Notes

Risk factor prevalence could not be estimated for several areas in the Central LHIN (e.g., suppressed census populations or institutionalized populations), which are shown as "insufficient data" on the maps. These areas include the Chippewas of Georgina Island First Nation. Additionally, areas with unavailable population data are shown as "insufficient data." See Appendix C for a full list of areas in the insufficient data category.

Priority population estimates

Priority population estimates may be helpful in prioritizing health promotion and planning efforts for potential populations affected by certain modifiable risk factors. Table 8.1 (page 267) presents the estimated priority populations for each risk factor by sex and age group in the Central LHIN. Priority populations are defined as those living in areas with a higher risk factor prevalence (or lower prevalence for physical activity) than Ontario. These estimates were produced by summing the population from all higher (or lower for physical activity) prevalence small areas (2006 dissemination areas) after taking into account the risk factor prevalence of each area. For example, if among females 100 areas had a higher prevalence of current alcohol consumption than Ontario, the female 2006 census populations in each of these areas were multiplied by the prevalence of current alcohol consumption for each area and then summed across the 100 areas to produce an estimate of the female "priority population." These calculations are intended to provide a measure to prioritize the risk factors rather than a population estimate.

According to the Methods (page 4) and Interpretation (page 7) sections, these higher prevalence areas had strong statistical evidence of elevated prevalence compared to Ontario (posterior probabilities ≥ 80%). An exception is physical activity, which had strong statistical evidence of lower prevalence estimates than Ontario (posterior probabilities ≤ 20%). Therefore, the population estimates for each risk factor are likely undercounted because areas with less statistical certainty (posterior probabilities < 80% and physical activity posterior probabilities > 20%) are not included in the priority population estimates.

Table 8.1 Estimated priority populations among higher prevalence** dissemination areas compared to Ontario by risk factor, sex and age group, Central Local Health Integration Network (LHIN), using 2006 census populations

Risk factor	Female priority population*†	% of female population in the LHIN† (n=681,080)	Male priority population*†	% of male population in the LHIN† (n=627,470)	Adolescent female priority population*‡	% of adolescent female population in the LHIN‡ (n=72,040)	Adolescent males priority population*‡	% of adolescent male population in the LHIN‡ (n=76,800)
Alcohol—current consumption	71,670	11%	60,090	10%	2,210	3%	2,120	3%
Alcohol—consumption exceeding cancer prevention recommendations	1,120	0%	8,840	1%	NM	—	NM	—
Excess body weight	10,950	2%	16,360	3%	NE	—	NE	—
Inadequate vegetable and fruit consumption	45,260	7%	14,100	2%	NE	—	NE	—
Physical activity**	52,440	8%	25,200	4%	4,380	6%	600	1%
Sedentary behaviour	4,270	1%	1,500	0%	NE	—	NE	—
Smoking—current status	9,630	1%	4,800	1%	90	0%	0	0%
Smoking—ever-smoked status	46,990	7%	34,710	6%	NM	—	NM	—

NE = no estimates within the "higher" prevalence categories**; NM = not modelled
* Estimates rounded to multiples of 10
** For physical activity, priority populations are those living in areas with a lower risk factor prevalence compared to Ontario
† Population age 12 and older
‡ Population ages 12 to 18
— Value not applicable

Alcohol—current consumption

People age 12 and older

An estimated 70% of females and 79% of males in Ontario reported current alcohol consumption.

Higher prevalence than Ontario

Areas with a higher prevalence of current alcohol consumption than the Ontario average were more common among females (n=297; Figure 8.1) compared to males (n=192; Figure 8.2). These areas were found mainly in the northern part of the LHIN (e.g. Keswick, Bradford, Newmarket and Aurora) with a few areas around Richmond Hill, Markham and on the south side of Northern Toronto. For males, higher prevalence areas were dispersed more extensively in the central and northern parts of the LHIN around Keswick, Bradford, Newmarket, Aurora and King City. Also, for males, higher prevalence areas were located further south across Vaughan, Richmond Hill and Markham compared to females.

Lower prevalence than Ontario

Areas with a lower prevalence of current alcohol consumption than Ontario were located across the southern half of the LHIN (e.g. Vaughan, parts of Richmond Hill and Markham, Northern Toronto) for females (n=756; Figure 8.1). For males, these areas were located around Richmond Hill and Markham, and in the eastern (e.g., along Highway 404) and western (e.g., along Highway 400) parts of Northern Toronto (n=385; Figure 8.2).

Adolescents

Among the adolescent population in Ontario, approximately 40% of females and males reported current alcohol consumption.

Higher prevalence than Ontario

Areas with a higher prevalence of current alcohol consumption than Ontario for adolescent females (n=164; Figure 8.3) were prominent across the northern part of the LHIN. These areas were located around Keswick, Bradford, Newmarket and Aurora. A few areas were also scattered across Northern Toronto and Markham-Richmond Hill. For adolescent males (n=146; Figure 8.4), higher prevalence areas were dispersed across the northern part of the LHIN and across Northern Toronto (e.g., around Newmarket and King City).

Lower prevalence than Ontario

Lower prevalence of current alcohol consumption was common for adolescent females (n=926; Figure 8.3) and adolescent males (n=844; Figure 8.4) and occurred mainly throughout the southern part of the LHIN. For adolescent females, lower prevalence areas were located in and around Aurora, King City, Vaughan, Richmond Hill and Markham, and throughout Northern Toronto. Lower prevalence areas for adolescent males were found in many parts of Markham, Richmond Hill and Northern Toronto, and near Aurora and Vaughan.

Figure 8.1 Current alcohol consumption among females (age 12 and older), 2000–2014, Central Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
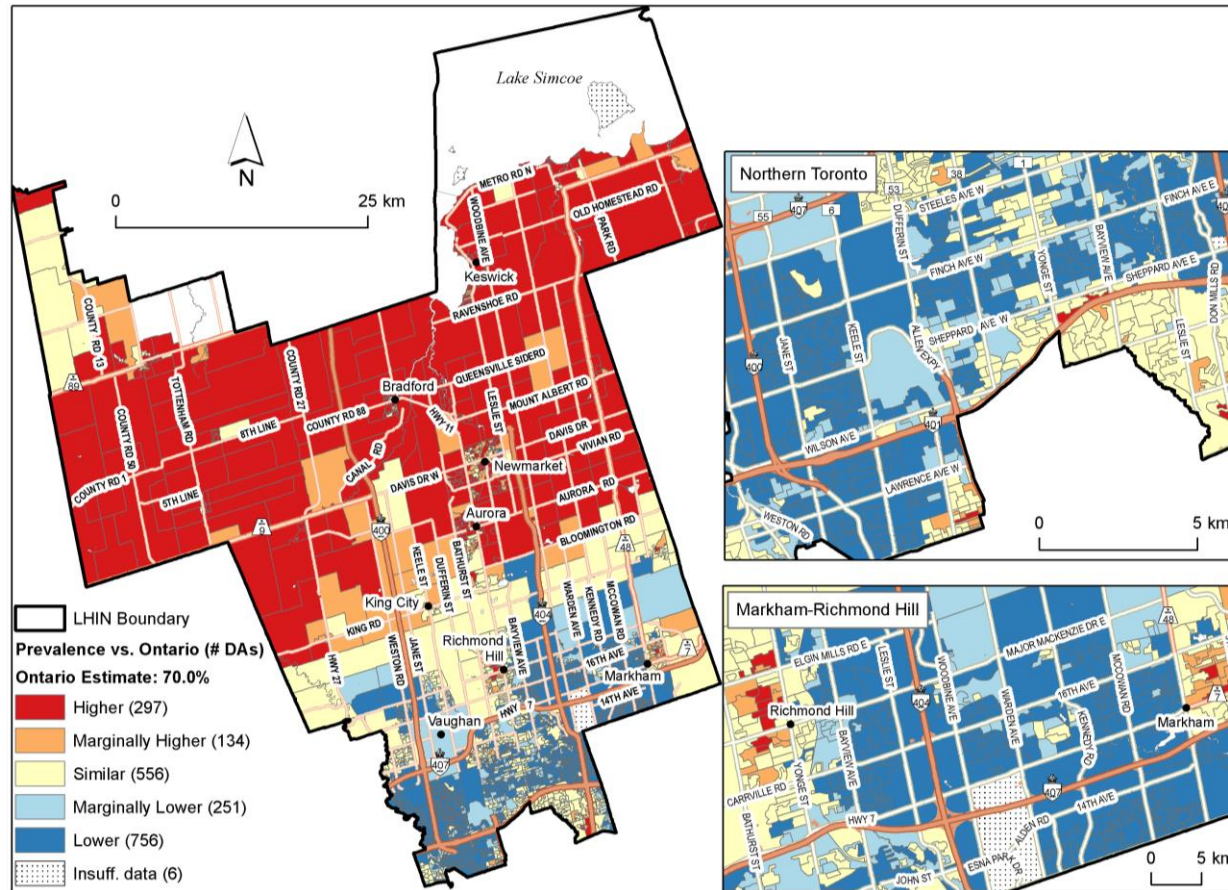
Category	Mean prevalence % (range)
Overall	66.3
Higher	77.3 (73.8, 83.9)
Marginally Higher	74.0 (72.1, 76.4)
Similar	69.1 (64.3, 73.6)
Marginally Lower	65.0 (61.0, 67.6)
Lower	58.9 (39.3, 65.5)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 8.2 Current alcohol consumption among males (age 12 and older), 2000–2014, Central Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Map created: 08-Sep-17

Category	Mean prevalence % (range)
Overall	77.9
Higher	83.3 (81.8, 86.3)
Marginally Higher	81.6 (80.5, 83.1)
Similar	78.7 (73.8, 81.7)
Marginally Lower	75.7 (71.9, 77.1)
Lower	72.4 (61.8, 76.3)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 8.3 Current alcohol consumption among adolescent females (ages 12 to 18), 2000–2014, Central Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Map created: 08-Sep-17

Category	Mean prevalence % (range)
Overall	35.6
Higher	48.2 (43.8, 60.2)
Marginally Higher	43.8 (42.4, 46.9)
Similar	39.2 (35.7, 43.6)
Marginally Lower	35.5 (32.4, 37.3)
Lower	30.5 (7.3, 35.4)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
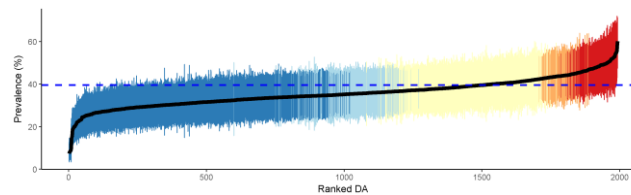
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 8.4 Current alcohol consumption among adolescent males (ages 12 to 18), 2000–2014, Central Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
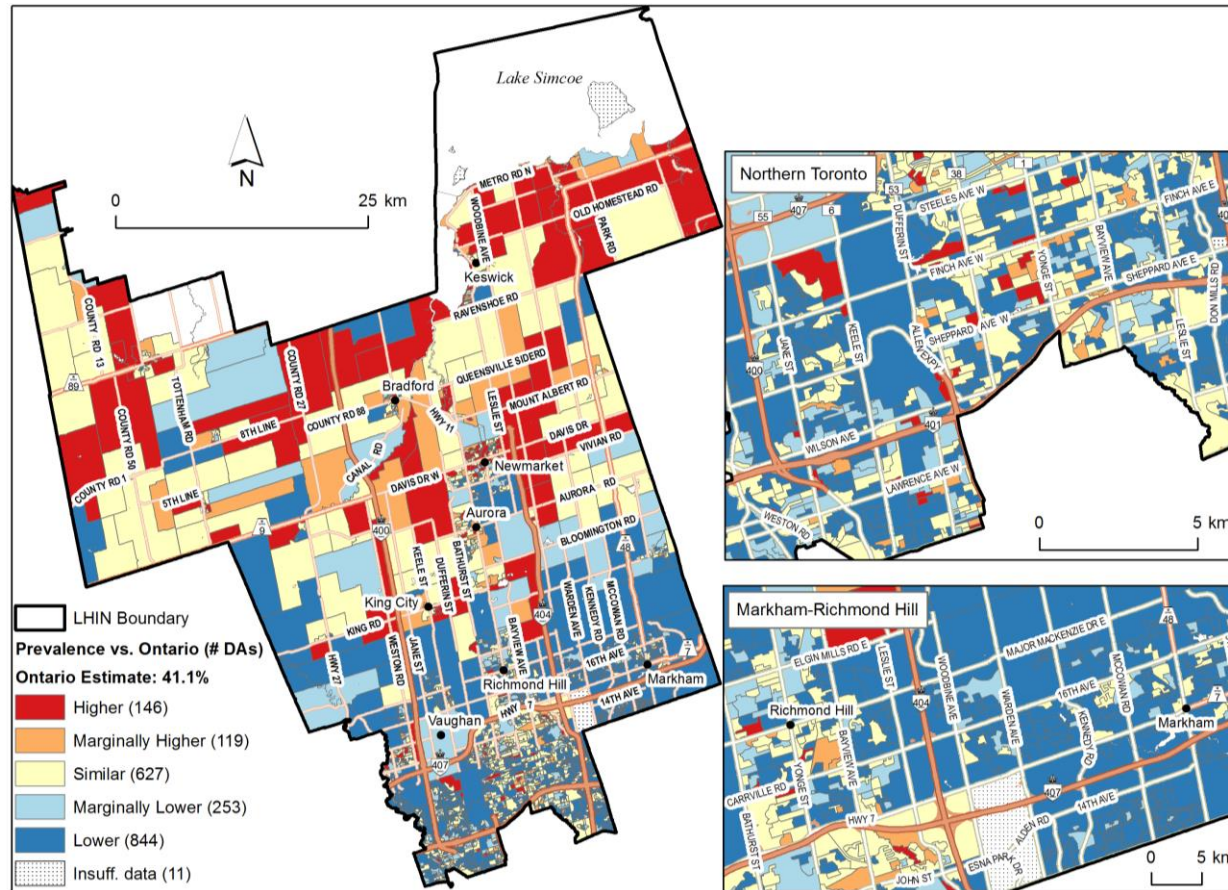
Map created: 11-Sep-17

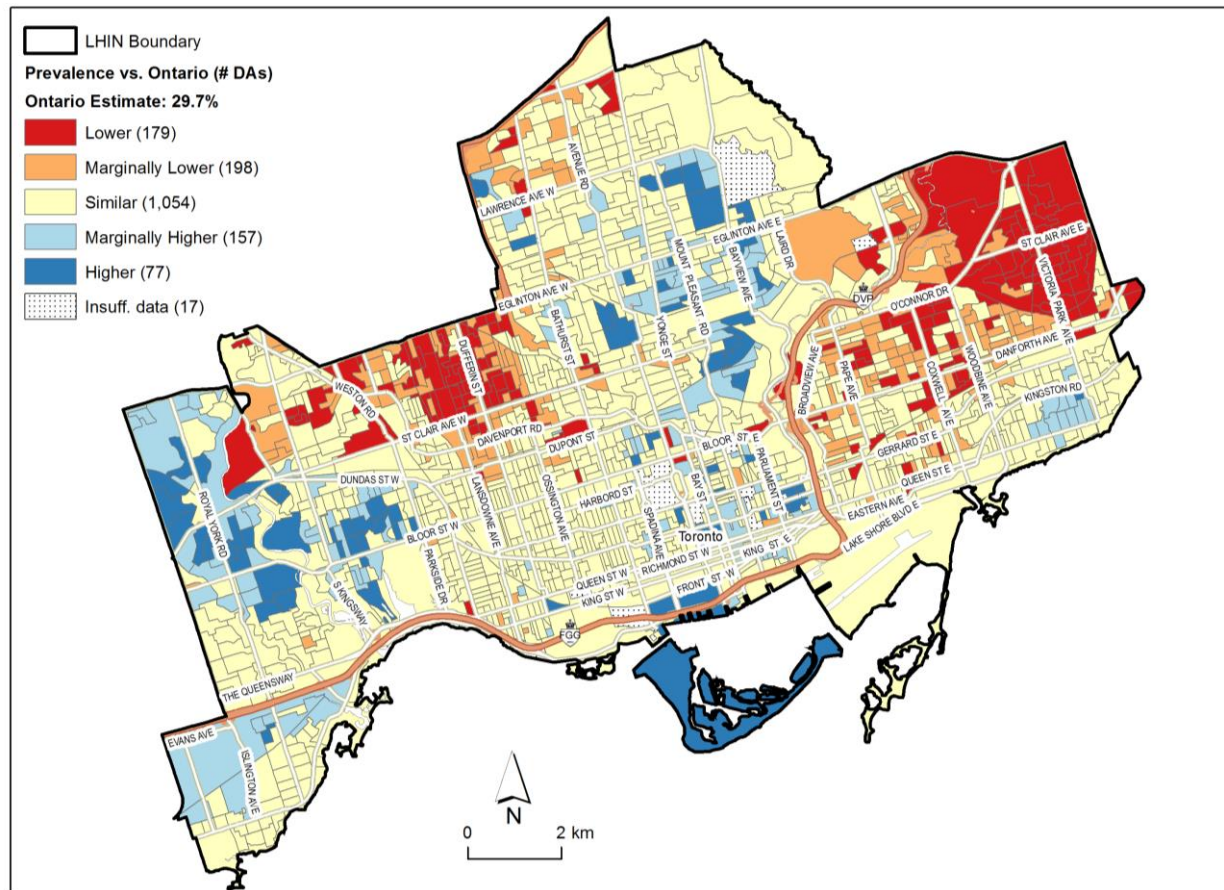| Category	Mean prevalence % (range)
Overall	37.7
Higher	48.9 (45.5, 58.7)
Marginally Higher	45.2 (43.7, 48.5)
Similar	41.0 (36.8, 45.5)
Marginally Lower	37.2 (34.7, 38.7)
Lower	32.3 (9.9, 37.4)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
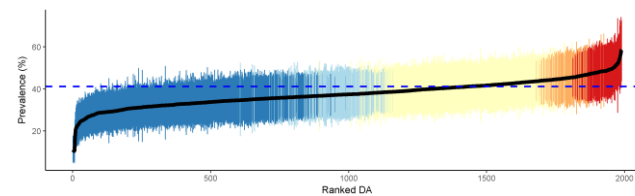
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
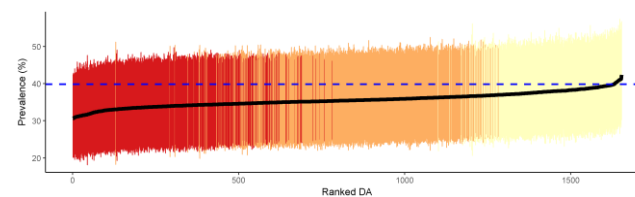
Alcohol—consumption exceeding cancer prevention recommendations

People age 12 and older

Almost 7% of the female population in Ontario drank alcohol in excess of the recommended limits for cancer prevention. Among males, the Ontario prevalence of exceeding the recommended limits was 8.5%.

Higher prevalence than Ontario

For females (Figure 8.5), 44 areas had a higher prevalence than the Ontario average of alcohol consumption in excess of recommended limits for cancer prevention. These areas occurred along the northwestern and northeastern boundaries of the LHIN. Among males (n=263; Figure 8.6), higher prevalence estimates were detected throughout the northern part of the LHIN, in and around Keswick, Bradford and Newmarket.

Lower prevalence than Ontario

Areas with a lower prevalence than the Ontario average of alcohol consumption in excess of cancer prevention recommended limits were located in southern parts of the LHIN in and around Richmond Hill, Vaughan and in parts of Markham and Northern Toronto for females (n=1,258; Figure 8.5) and males (n=1,527; Figure 8.6). Additional lower prevalence areas were located south of Highway 401 in the southeast of Northern Toronto and east of Highway 48 in the northeast of Markham for males only.

Adolescents

The area-based prevalence of exceeding cancer prevention recommendations was not estimated for adolescent populations.

Figure 8.5 Alcohol consumption exceeding cancer prevention recommendations among females (age 12 and older), 2000–2014, Central Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
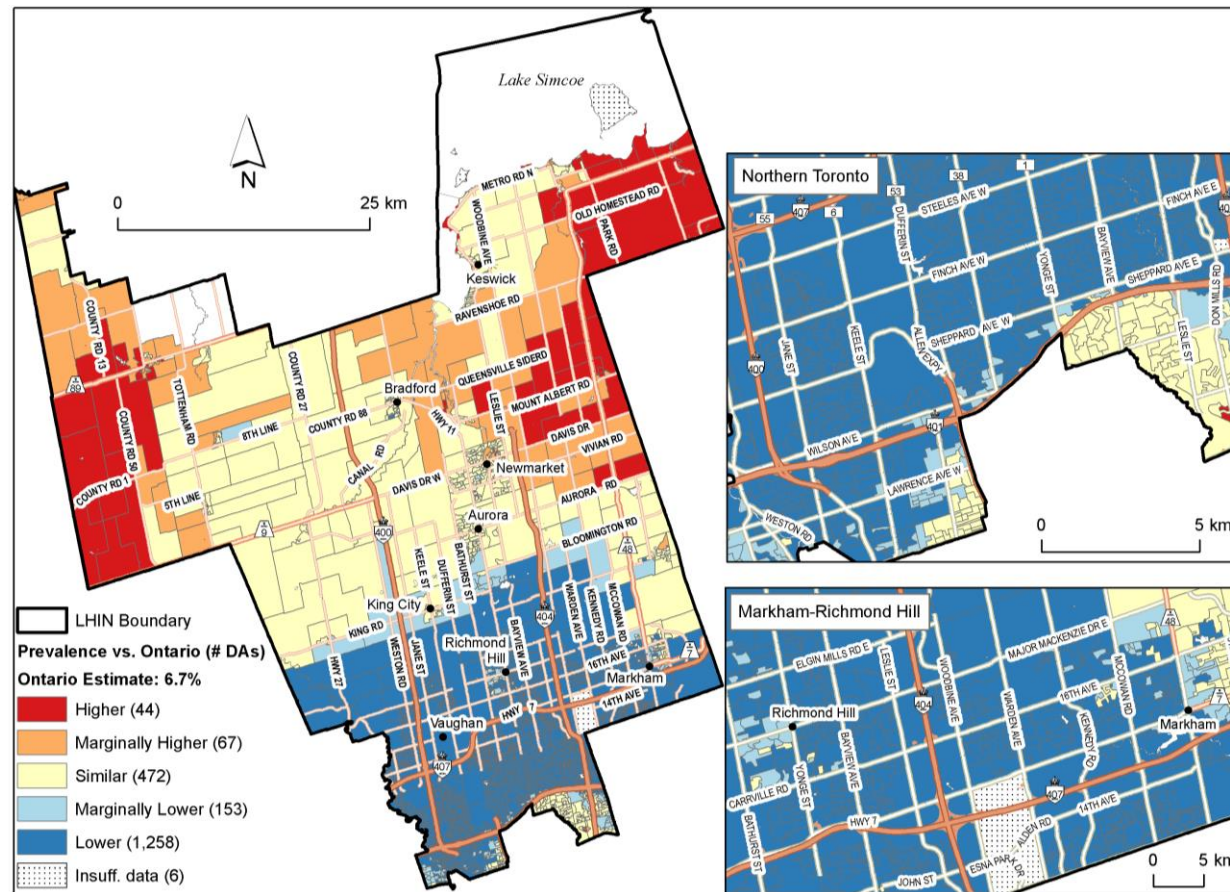
Map created: 11-Sep-17

Category	Mean prevalence % (range)
Overall	5.3
Higher	10.0 (8.8, 12.4)
Marginally Higher	8.8 (8.2, 9.8)
Similar	7.2 (5.9, 8.8)
Marginally Lower	5.6 (4.9, 6.2)
Lower	4.2 (2.4, 5.6)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
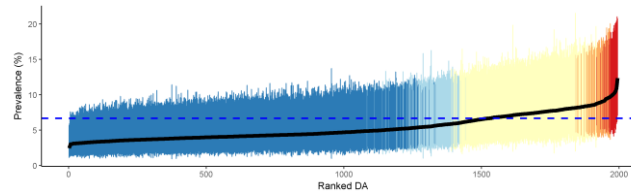
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

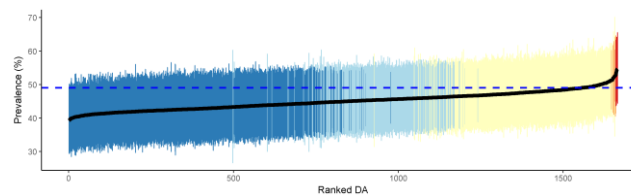## Figure 8.6 Alcohol consumption exceeding cancer prevention recommendations among males (age 12 and older), 2000–2014, Central Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
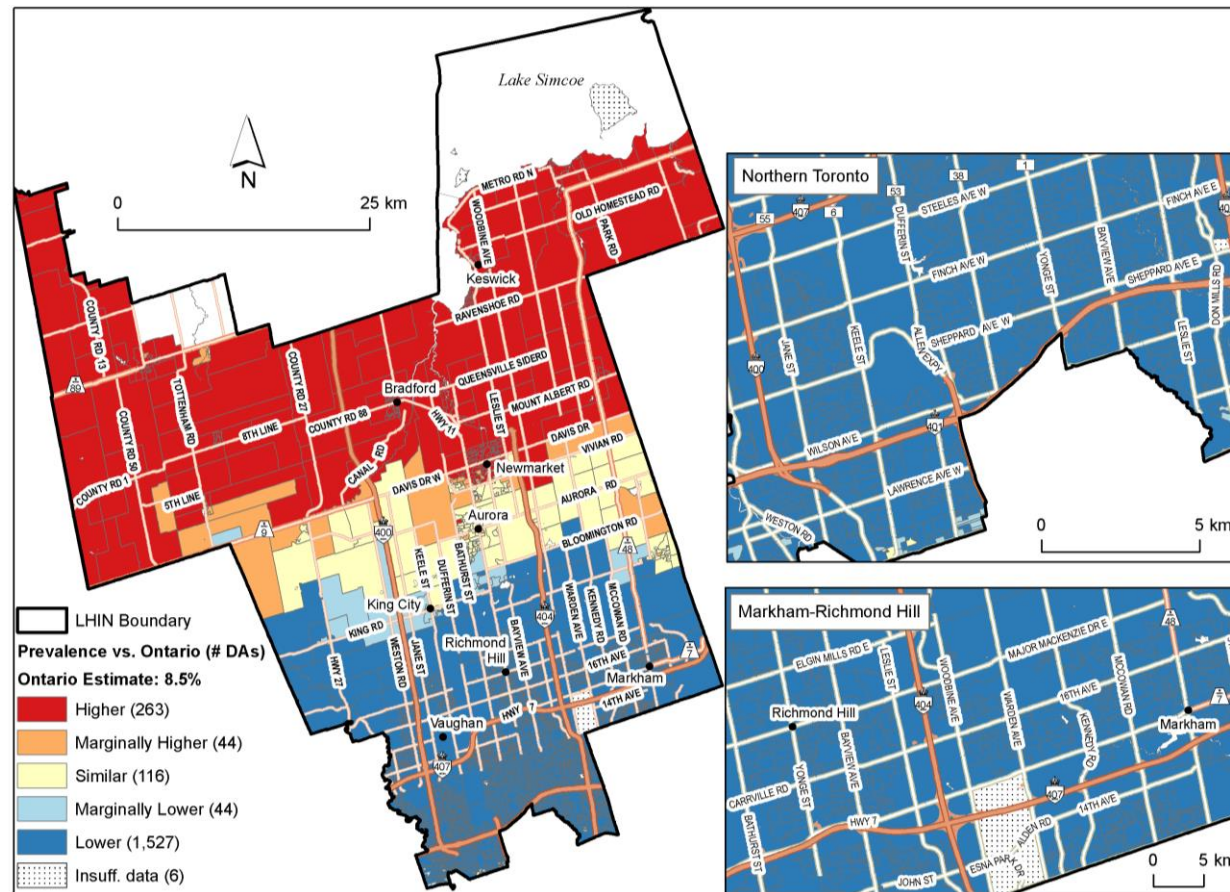
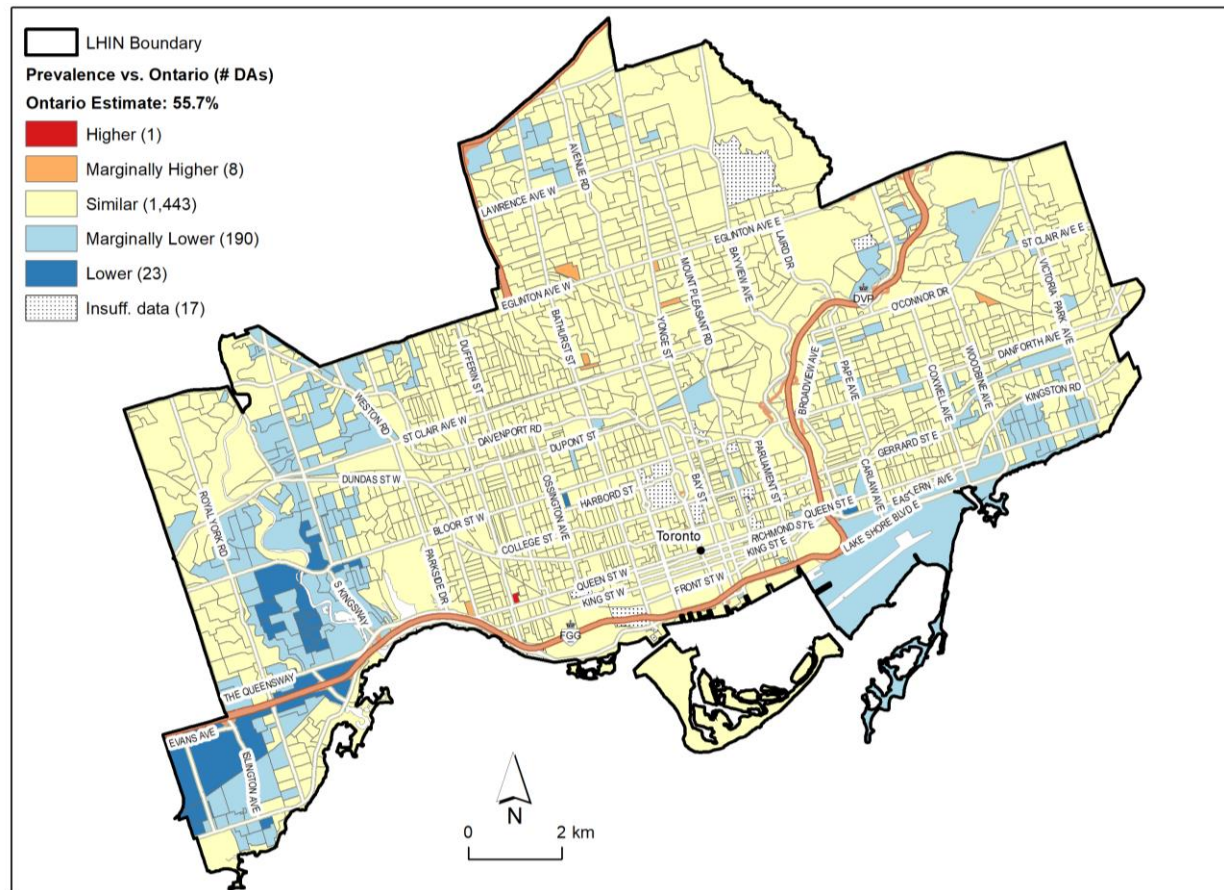| Category	Mean prevalence % (range)
Overall	6.4
Higher	13.1 (10.4, 16.3)
Marginally Higher	10.4 (9.7, 11.7)
Similar	9.0 (7.6, 10.7)
Marginally Lower	7.3 (6.9, 7.8)
Lower	4.9 (3.0, 7.3)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
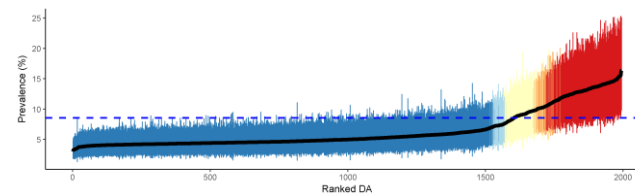
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Excess body weight

People age 12 and older

The estimated Ontario prevalence of excess body weight (overweight or obese) was 41% among females and 56% among males.

Higher prevalence than Ontario

A similar number of areas with a higher prevalence of excess body weight than the Ontario average were detected for females (n=80; Figure 8.7) and males (n=85; Figure 8.8) but their geographic patterns were different. For females, higher prevalence estimates were dispersed in the western and eastern parts of the northern half of the LHIN and also to the south in the west of Northern Toronto. For males, higher prevalence areas were mostly located in the northern parts of the LHIN around Keswick, Bradford and Newmarket.

Lower prevalence than Ontario

Areas with a lower prevalence of excess body weight than Ontario for females (n=1,114; Figure 8.7) were common in the southern half of the LHIN. These areas were found in and around Newmarket, Aurora and King City, Richmond Hill and Markham, and in the eastern part of Northern Toronto (e.g. east of Dufferin Street). Compared to females, lower prevalence areas for males (n=1,233; Figure 8.8) occurred more often south of King City and Aurora, and in Richmond Hill, Vaughan, Markham and Northern Toronto.

Adolescents

Among Ontario adolescents, an estimated 15% of females and 25% of males were overweight or obese. In the Central LHIN, there were no areas with a higher prevalence than the Ontario average for adolescents, which is why those maps are not shown.

Figure 8.7 Excess body weight (overweight/obese) among females (age 12 and older), 2000–2014, Central Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
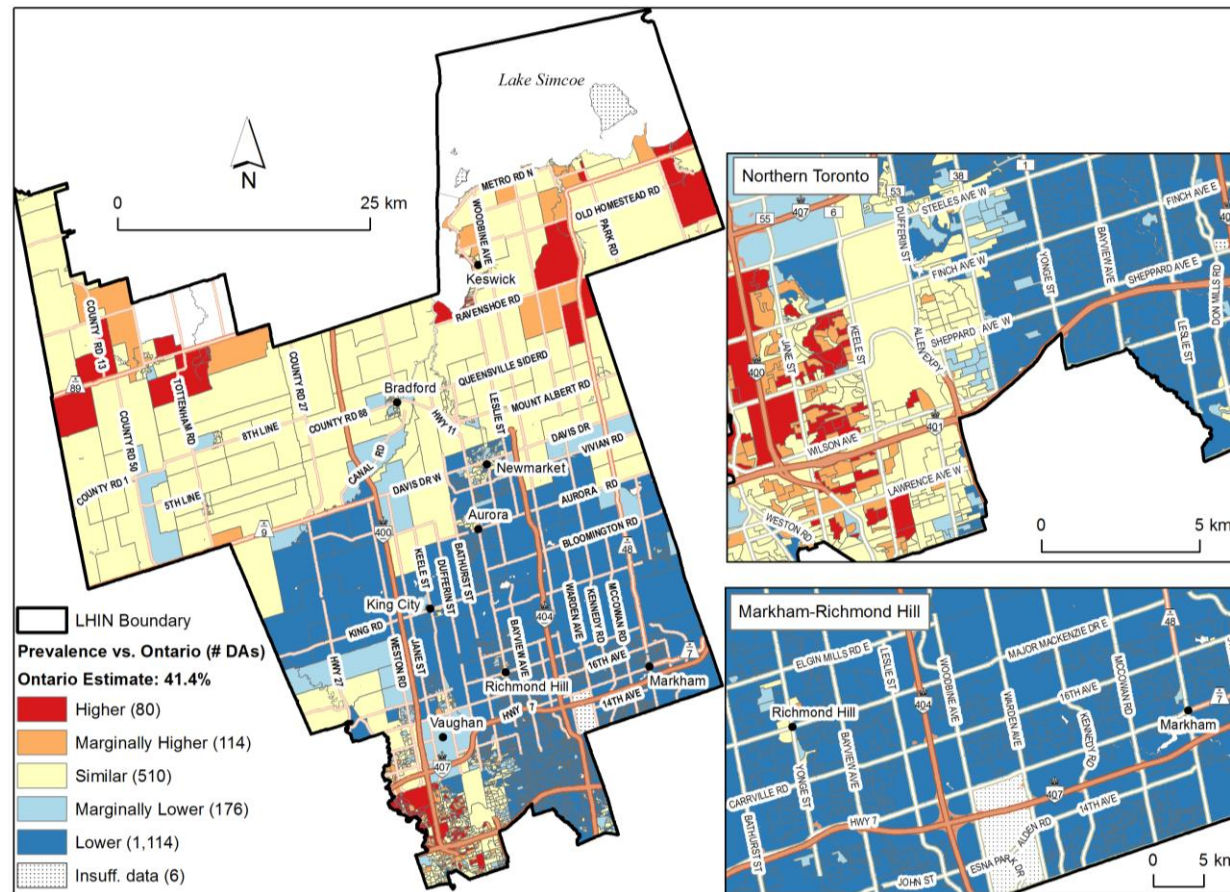
Category	Mean prevalence % (range)
Overall	36.2
Higher	47.2 (44.7, 53.4)
Marginally Higher	45.1 (43.6, 46.9)
Similar	41.3 (38.1, 45.0)
Marginally Lower	37.9 (34.4, 39.4)
Lower	31.9 (22.4, 38.1)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
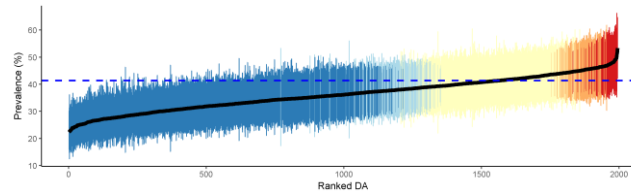
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 8.8 Excess body weight (overweight/obese) among males (age 12 and older), 2000–2014, Central Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
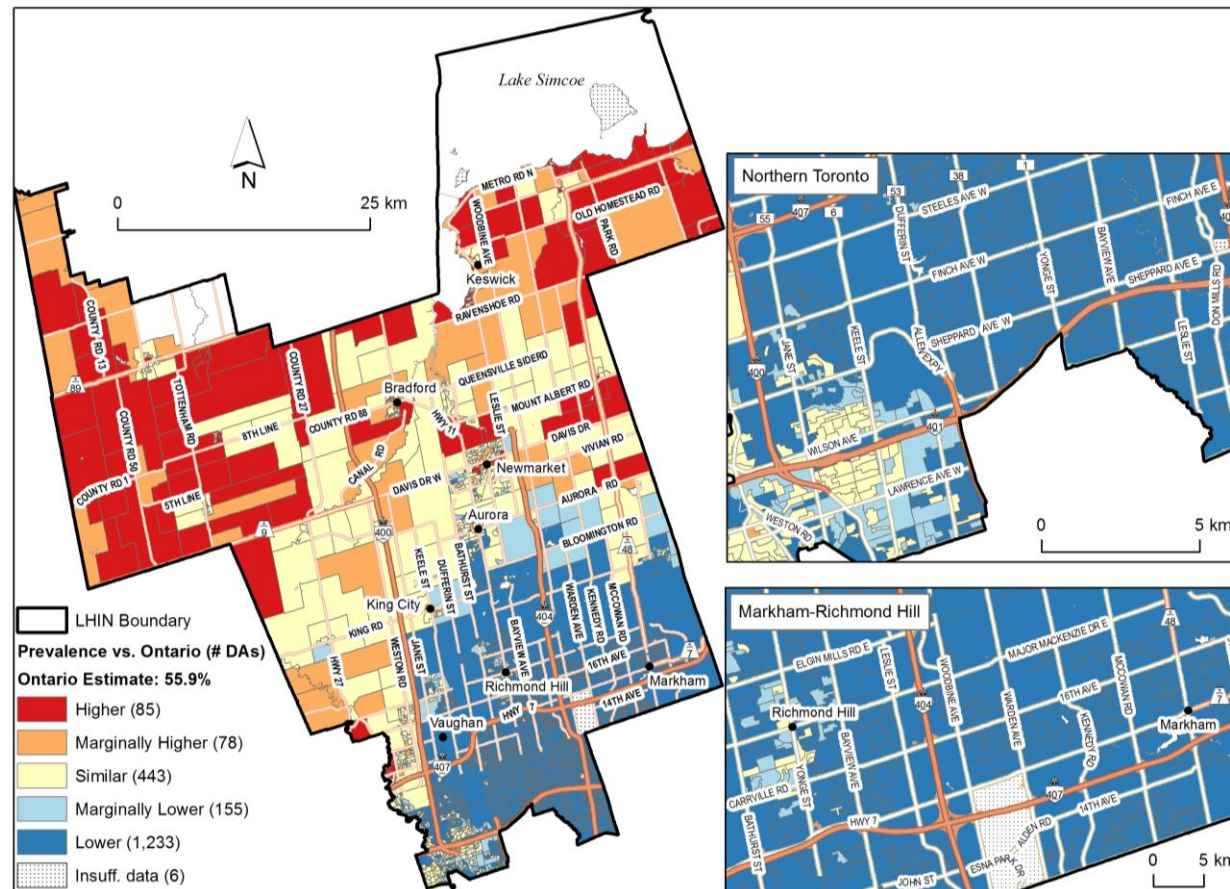
Map created: 11-Sep-17

Category	Mean prevalence % (range)
Overall	50.6
Higher	60.4 (58.6, 65.7)
Marginally Higher	58.6 (57.6, 59.9)
Similar	55.7 (51.9, 58.8)
Marginally Lower	52.8 (50.2, 54.2)
Lower	47.3 (37.8, 52.9)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
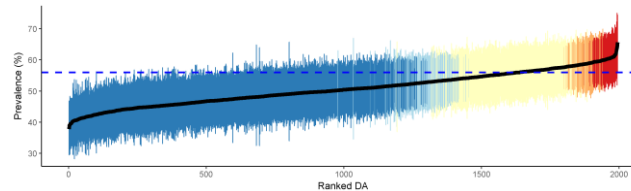
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Inadequate vegetable and fruit consumption

People age 12 and older

Inadequate consumption of vegetables and fruits was common across Ontario, with approximately 63% of females and 77% of males reporting inadequate consumption.

Higher prevalence than Ontario

One hundred and sixty-three areas with a higher prevalence than the Ontario average of inadequate vegetable and fruit consumption were detected for females (Figure 8.9), whereas only 59 (Figure 8.10) were detected for males. For both sexes, higher prevalence estimates occurred around Keswick and the northeast of the LHIN. For females, additional areas of higher prevalence occurred in eastern Richmond Hill and southern Markham. Additional areas for males were located east of Newmarket along the eastern boundary of the LHIN. Several higher prevalence areas for males were also located in parts of Markham.

Lower prevalence than Ontario

Areas with a lower prevalence of inadequate vegetable and fruit consumption than Ontario were less common for females (n=101; Figure 8.9) than males (n=682; Figure 8.10). For females, these areas occurred between King City and Aurora, west of County Road 50, west of Vaughan, and the southwest tip of Northern Toronto. For males, lower prevalence areas were identified predominantly across southwestern parts of the LHIN near King City, throughout Vaughan and Northern Toronto.

Adolescents

More than two thirds of the adolescent Ontario population had inadequate vegetable and fruit consumption at approximately 68% for females and 74% for males. In the Central LHIN, there were no areas with a higher prevalence than the Ontario average for adolescents, which is why those maps are not shown.

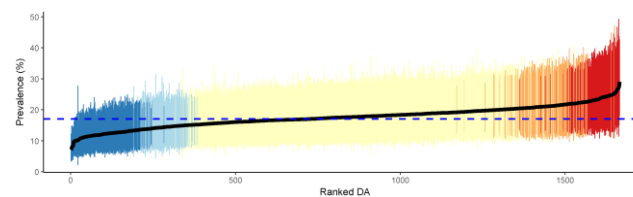## Figure 8.9 Inadequate vegetable and fruit consumption among females (age 12 and older), 2000–2014, Central Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Map created: 11-Sep-17

Legend (map):

LHIN Boundary

Prevalence vs. Ontario (# DAs)
Ontario Estimate: 63.1%

- Higher (163)
- Marginally Higher (177)
- Similar (1,363)
- Marginally Lower (190)
- Lower (101)
- Insuff. data (6)
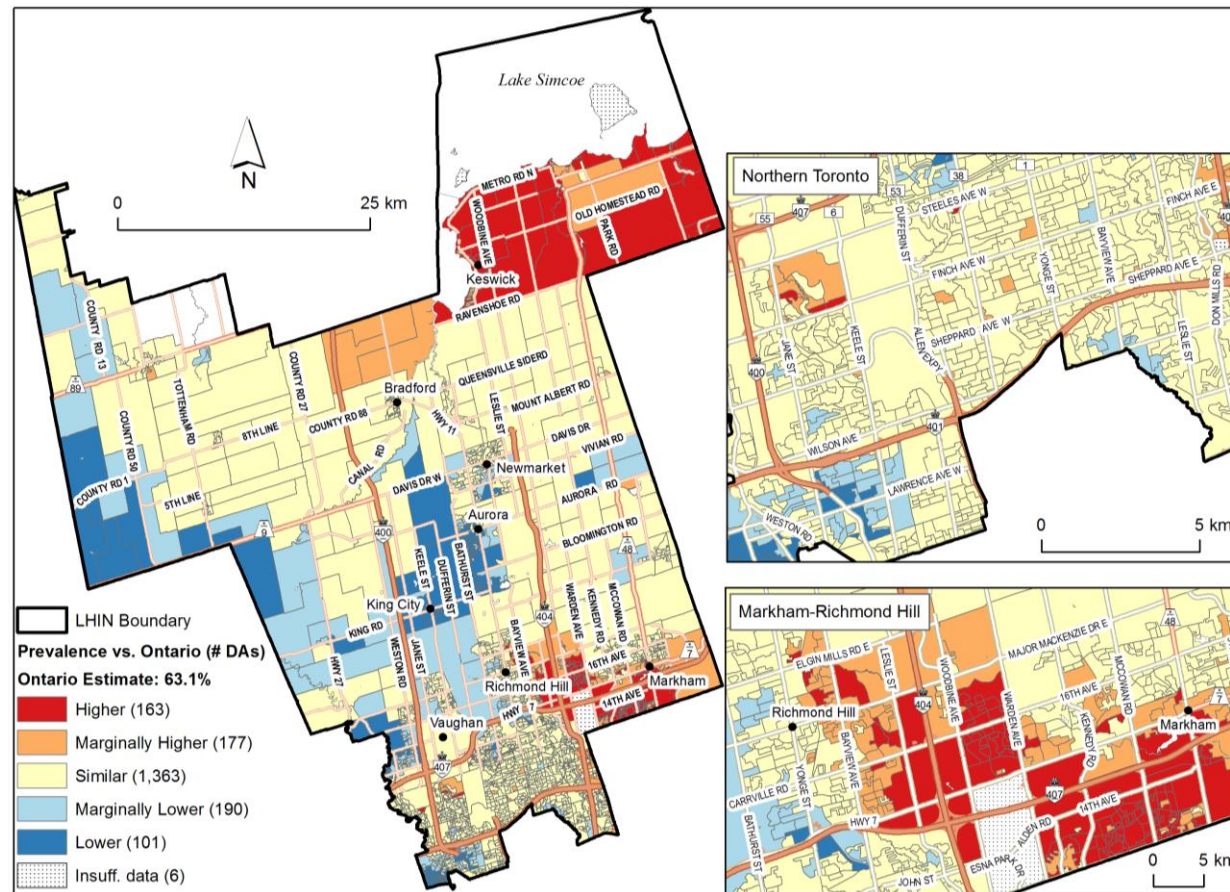
Category	Mean prevalence % (range)
Overall	63.0
Higher	68.5 (66.3, 72.0)
Marginally Higher	66.3 (64.9, 68.7)
Similar	62.8 (58.7, 66.6)
Marginally Lower	59.6 (57.1, 61.1)
Lower	57.6 (52.8, 59.8)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
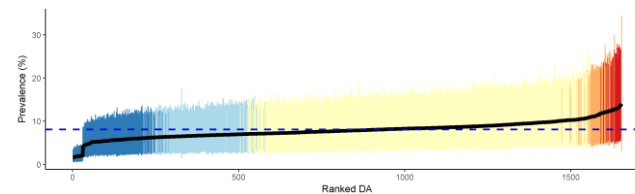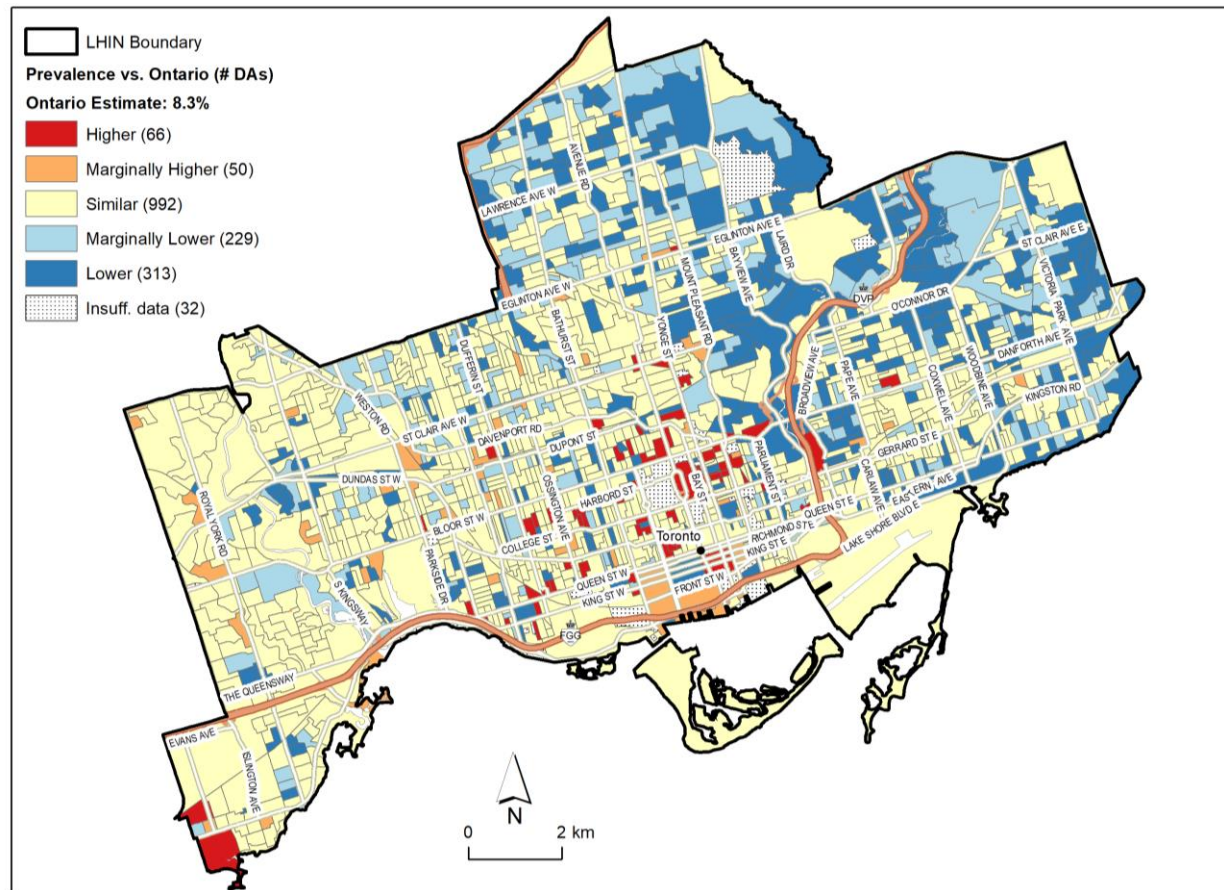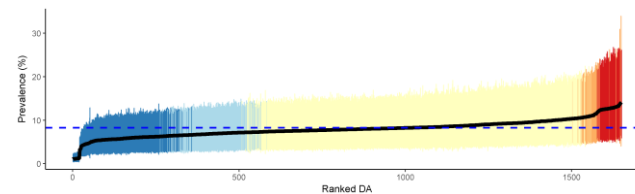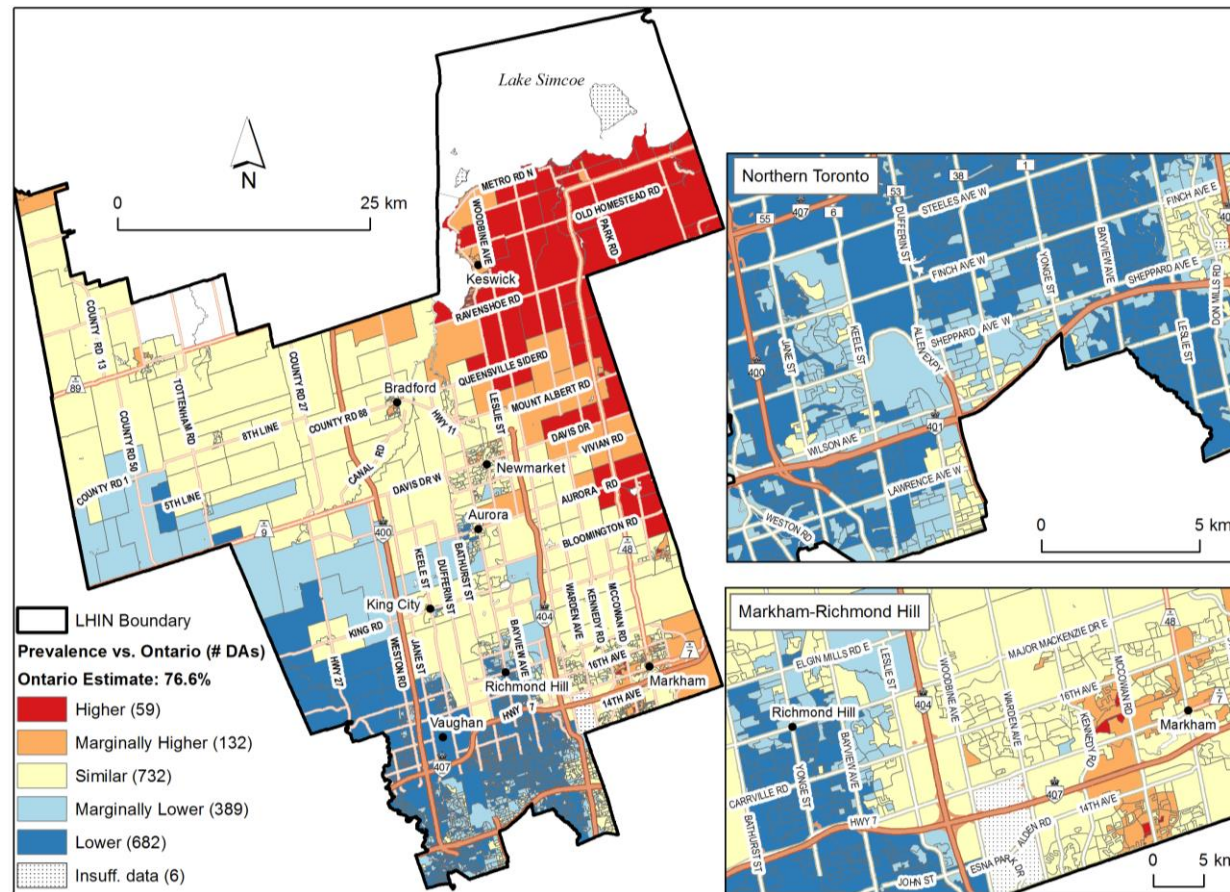
Category	Mean prevalence % (range)
Overall	74.4
Higher	80.3 (79.2, 82.0)
Marginally Higher	78.8 (78.1, 79.8)
Similar	76.2 (72.9, 78.9)
Marginally Lower	73.4 (70.4, 74.7)
Lower	71.6 (63.8, 73.7)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Physical activity

Because physical activity reduces cancer risk, lower prevalence estimates of this risk factor are of interest. The colour scheme of the maps was inverted so that the "lower than Ontario" estimates are displayed in red.

People age 12 and older

Most of the Ontario population was not physically active, with approximately one in five (23%) females and one in three (30%) males being physically active.

Lower prevalence than Ontario

Areas with a lower prevalence of physical activity than the Ontario average were detected mainly in the southern part of the LHIN for females (n=785; Figure 8.11) and males (n=304; Figure 8.12). For females, these areas were located around Vaughan, Richmond Hill, Markham and in Northern Toronto. For males, lower prevalence areas were detected for males around Bradford, south of Vaughan and Markham, as well as in Northern Toronto.

Higher prevalence than Ontario

Higher prevalence estimates than Ontario for females (n=141; Figure 8.11) tended to occur in the northern and eastern parts of the LHIN, and around Newmarket and Aurora. Higher prevalence areas for males were less extensive (n=96; Figure 8.12) and mostly occurred in the northwestern part of the LHIN, around Newmarket and southeast of Newmarket.

Adolescents

Adolescents were more physically active than adults, with approximately 40% of adolescent females and 57% of adolescent males being active.

Lower prevalence than Ontario

Many areas with a lower prevalence of physical activity than the Ontario average were detected for adolescent females (n=321; Figure 8.13) compared to adolescent males (n=23; Figure 8.14). For both sexes, lower prevalence areas were located in Markham, but occurred throughout parts of Northern Toronto and Vaughan among adolescent females.

Higher prevalence than Ontario

Areas with a higher prevalence of physical activity than the Ontario average were located along the northern boundary of the LHIN for adolescent females (n=55; Figure 8.13), typically north of Bradford. No higher prevalence areas were detected for adolescent males (Figure 8.14).

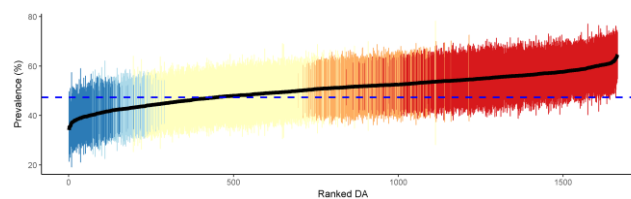**Figure 8.11** Physical activity among females (age 12 and older), 2000–2014, Central Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
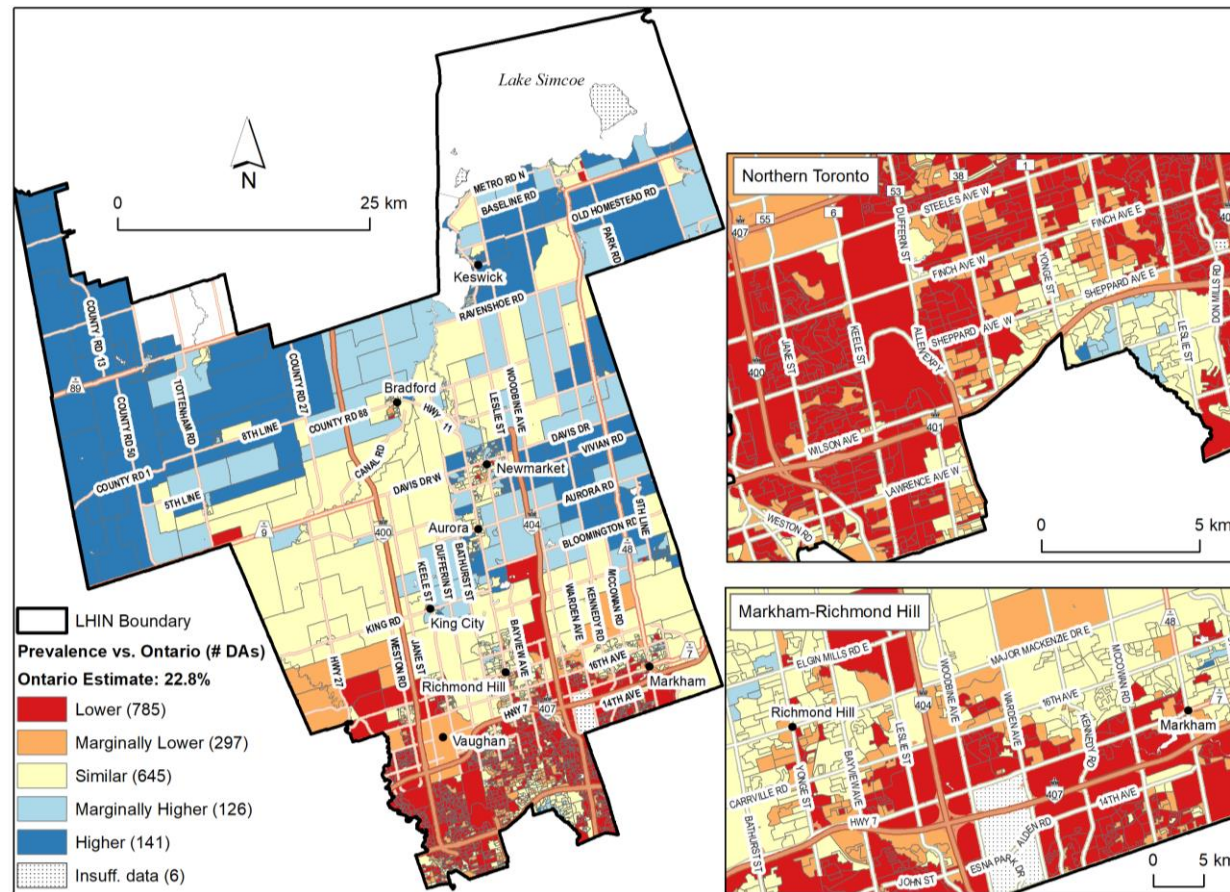
Category	Mean prevalence % (range)
Overall	21.1
Lower	17.9 (11.9, 20.4)
Marginally Lower	20.1 (18.8, 21.1)
Similar	22.7 (20.2, 26.5)
Marginally Higher	26.3 (24.6, 28.4)
Higher	28.8 (26.5, 36.3)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 8.12 Physical activity among males (age 12 and older), 2000–2014, Central Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	29.1
Lower	24.9 (19.8, 26.6)
Marginally Lower	26.7 (24.6, 27.8)
Similar	29.8 (26.5, 33.4)
Marginally Higher	33.3 (32.0, 35.2)
Higher	35.2 (33.6, 38.3)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 8.13 Physical activity among adolescent females (ages 12 to 18), 2000–2014, Central Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	37.6
Lower	34.3 (31.3, 35.7)
Marginally Lower	35.8 (34.0, 37.3)
Similar	39.3 (35.9, 44.0)
Marginally Higher	44.3 (43.0, 46.0)
Higher	46.7 (44.8, 50.2)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
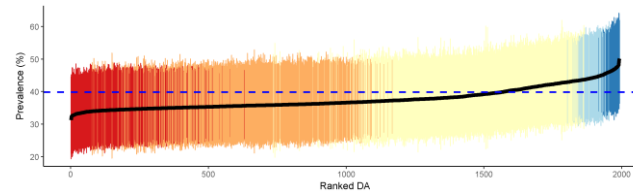
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 8.14 Physical activity among adolescent males (ages 12 to 18), 2000–2014, Central Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
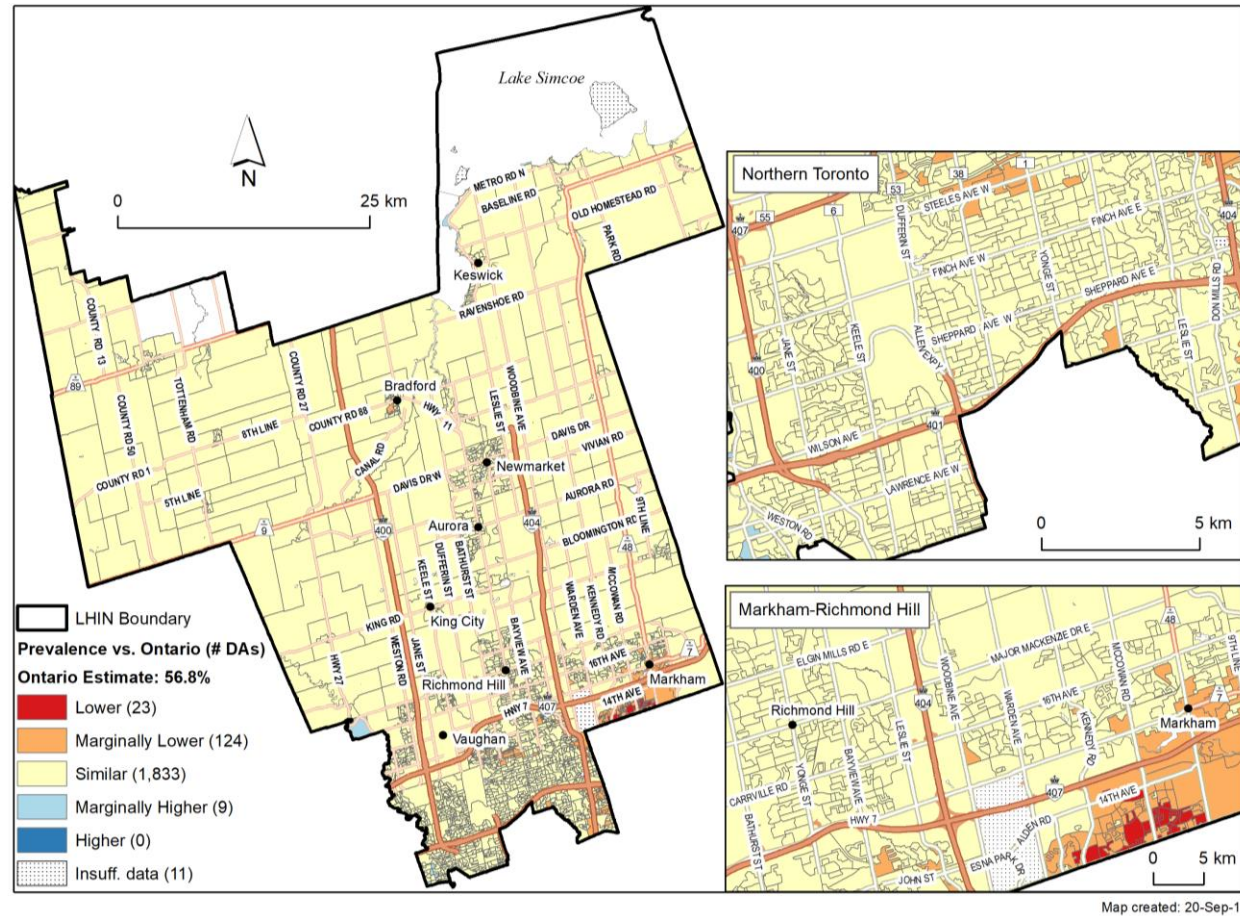
Category	Mean prevalence % (range)
Overall	56.0
Lower	51.1 (49.2, 51.9)
Marginally Lower	52.6 (50.7, 53.9)
Similar	56.3 (52.5, 60.2)
Marginally Higher	60.3 (59.9, 61.0)
Higher	N/A

N/A = no estimates in the category

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Sedentary behaviour

People age 12 and older

Approximately half of the Ontario population reported sedentary behaviour during leisure time (females, 49%; males, 56%).

Higher prevalence than Ontario

Areas with a higher prevalence of sedentary behaviour during leisure time than the Ontario average were uncommon in the LHIN for females (n=16; Figure 8.15) and males (n=6; Figure 8.16). For females, these areas were dispersed across the northern parts of the LHIN and in Markham, Richmond Hill and Northern Toronto. The few higher prevalence areas for males were located in Richmond Hill and Northern Toronto.

Lower prevalence than Ontario

Many areas with a lower prevalence of sedentary behaviour than Ontario were identified for females (n=527; Figure 8.15). In contrast, only 132 areas were detected for males (Figure 8.16). For females, the lower prevalence areas were located throughout the central and western parts of the LHIN, in Bradford, Newmarket, Aurora, King City and Vaughan and in the west of Northern Toronto. For males, lower prevalence areas were located throughout the western part of the LHIN as well as near Keswick and Aurora.

Adolescents

More than half of the Ontario adolescent population reported sedentary behaviour during leisure time, at approximately 55% for females and 60% for males. In the Central LHIN, there were no areas with a higher prevalence than Ontario for adolescents, which is why those maps are not shown.

Figure 8.15 Sedentary behaviour among females (age 12 and older), 2000–2014, Central Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Map created: 11-Sep-17

Category	Mean prevalence % (range)
Overall	46.5
Higher	55.3 (53.5, 62.0)
Marginally Higher	52.3 (51.3, 54.4)
Similar	48.5 (44.0, 52.1)
Marginally Lower	45.5 (41.8, 46.8)
Lower	43.0 (37.3, 45.4)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 8.16 Sedentary behaviour among males (age 12 and older), 2000–2014, Central Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Map created: 05-Oct-17

Category	Mean prevalence % (range)
Overall	54.6
Higher	60.8 (60.0, 61.8)
Marginally Higher	59.3 (57.9, 62.4)
Similar	55.2 (51.3, 59.4)
Marginally Lower	51.8 (49.4, 53.1)
Lower	49.7 (46.7, 52.2)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
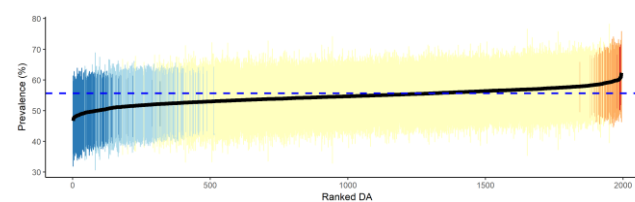
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Smoking—current status

People age 12 and older

Current tobacco smoking was reported by 17% of Ontario females and 24% of males.

Higher prevalence than Ontario

There were more areas with a higher prevalence of current smoking than the Ontario average for females (n=135; Figure 8.17) compared to males (n=49; Figure 8.18). Among females, higher prevalence areas were located throughout the northern part of the LHIN around Keswick, Bradford and Newmarket. Among males, higher prevalence areas tended to occur mainly in the northeastern tip of the LHIN around Keswick.

Lower prevalence than Ontario

For females (n=1,162; Figure 8.17), areas with a lower prevalence of current smoking were located extensively across the southern half of the LHIN, in Newmarket, Aurora, King City, Richmond Hill, Vaughan, Markham and Northern Toronto. For males (n=830; Figure 8.18), lower prevalence areas also tended to be located in the southern half of the LHIN in similar areas as for females, but they also extended north of King City.

Adolescents

Approximately 8% of adolescent females and adolescent males in Ontario reported that they currently smoked tobacco.

Higher prevalence than Ontario

For adolescent females, areas with a higher prevalence of current smoking than the Ontario average were located east of Keswick (n=25; Figure 8.19). For adolescent males, areas with a higher prevalence than Ontario were rarely detected in the LHIN (n=2; Figure 8.20).

Lower prevalence than Ontario

Areas with a lower prevalence of current smoking than Ontario for adolescent females (n=664; Figure 8.19) were located mostly in the southern half of the LHIN, around Aurora King City, Richmond Hill, Vaughan, Markham and Northern Toronto. For adolescent males (n=558; Figure 8.20), lower prevalence areas mostly occurred south of Newmarket, around Aurora, King City, Vaughan and in many parts of Richmond Hill, Markham and Northern Toronto.
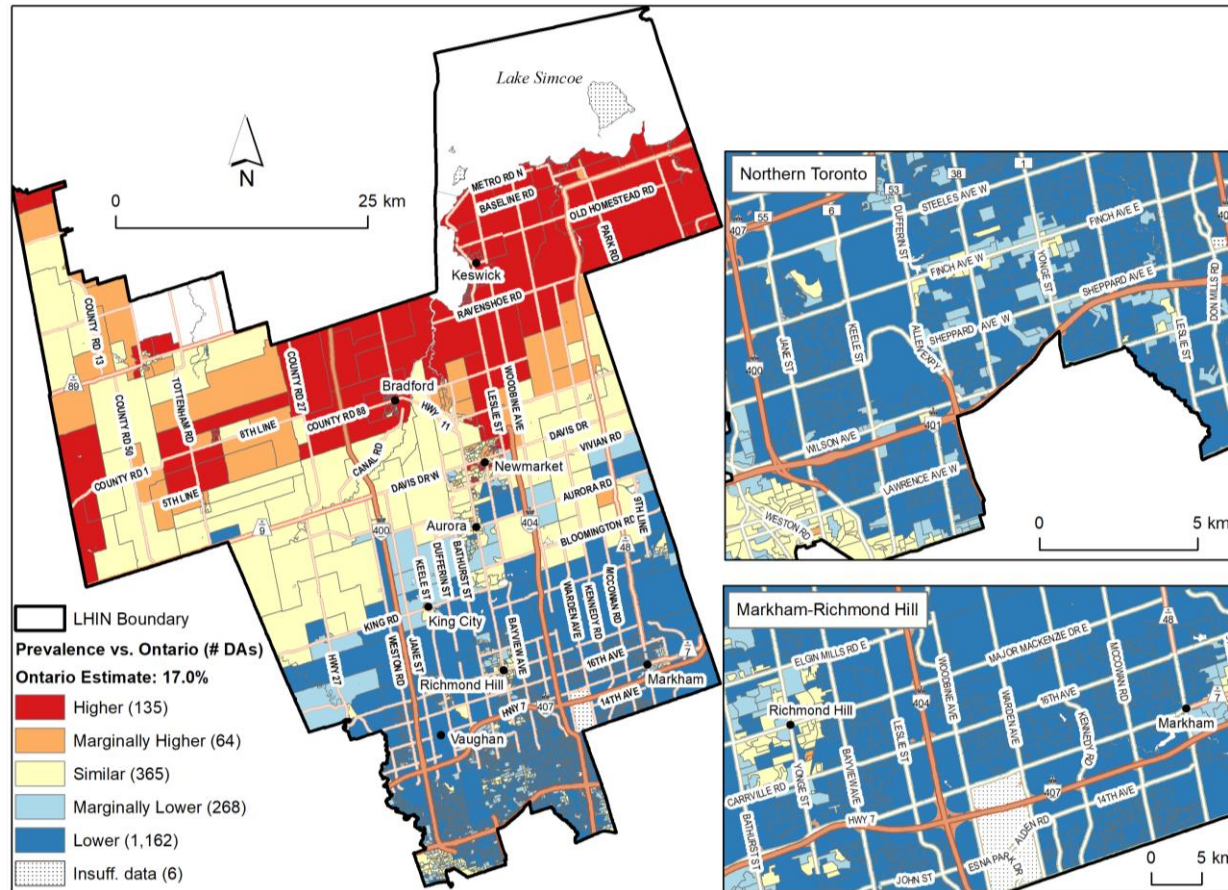
Category	Mean prevalence % (range)
Overall	14.0
Higher	26.1 (20.8, 36.1)
Marginally Higher	21.4 (19.4, 24.8)
Similar	17.1 (14.6, 21.6)
Marginally Lower	14.2 (12.5, 15.5)
Lower	11.1 (4.7, 14.7)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 8.18 Current smoking among males (age 12 and older), 2000–2014, Central Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	20.9
Higher	31.6 (27.9, 39.0)
Marginally Higher	28.4 (26.6, 30.4)
Similar	23.8 (20.3, 28.2)
Marginally Lower	20.5 (18.1, 21.9)
Lower	17.4 (6.9, 20.8)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
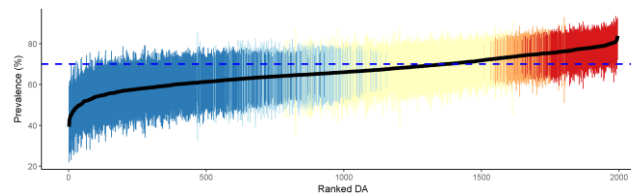
Figure 8.19 Current smoking among adolescent females (ages 12 to 18), 2000–2014, Central Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

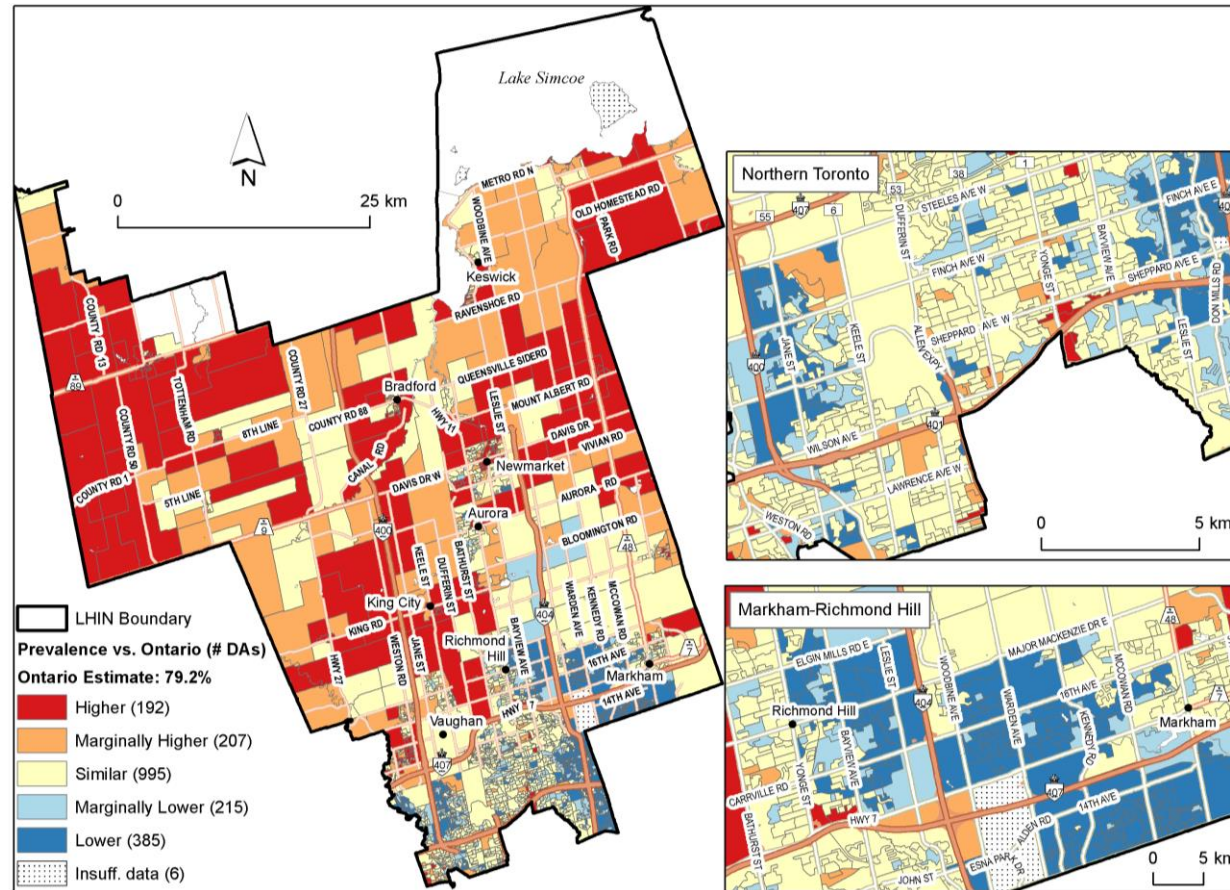| Category	Mean prevalence % (range)
Overall	7.0
Higher	12.2 (10.7, 13.7)
Marginally Higher	11.0 (10.2, 12.5)
Similar	8.2 (6.9, 11.0)
Marginally Lower	6.6 (6.0, 7.3)
Lower	5.6 (1.3, 6.4)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
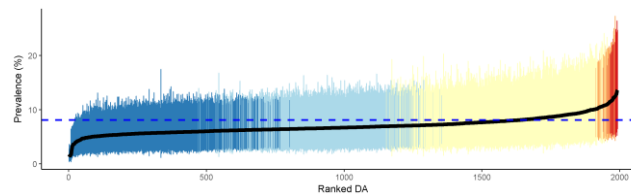
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
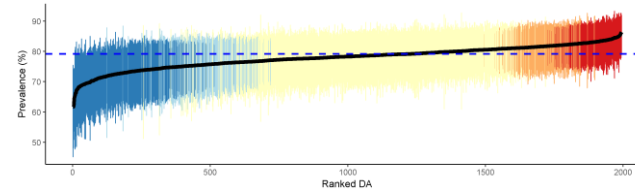
Figure 8.20 Current smoking among adolescent males (ages 12 to 18), 2000–2014, Central Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
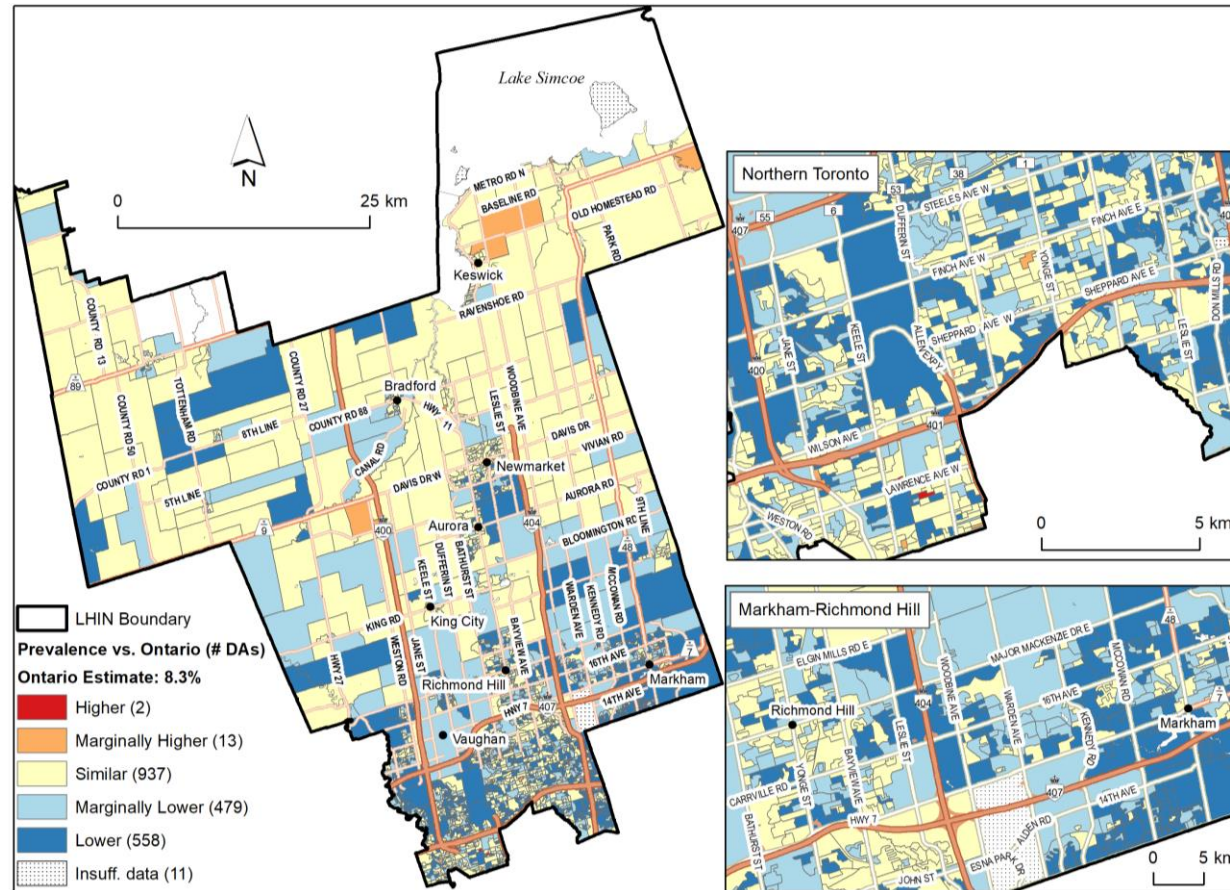
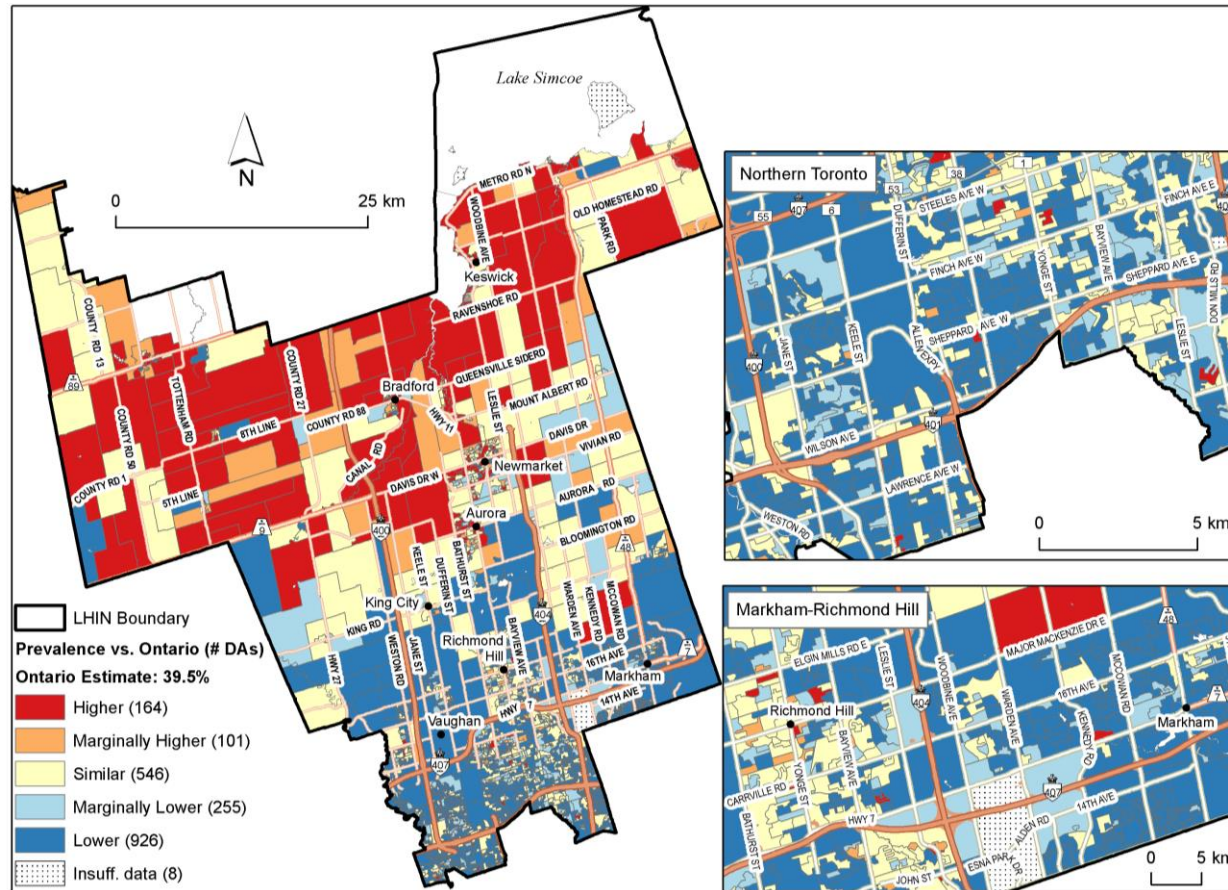| Category	Mean prevalence % (range)
Overall	7.2
Higher	12.6 (12.6, 12.7)
Marginally Higher	10.8 (10.4, 11.4)
Similar	8.2 (7.0, 10.8)
Marginally Lower	6.9 (6.2, 7.4)
Lower	5.7 (1.0, 6.8)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Smoking—ever-smoked status

People age 12 and older

Approximately one in two Ontario females and three in five Ontario males reported having ever-smoked.

Higher prevalence than Ontario

For females, areas with a higher prevalence of ever smokers than the Ontario average (n=287; Figure 8.21) were located in the northern half of the LHIN, in and around Keswick, Bradford, Newmarket and Aurora. For males, higher prevalence areas (n=202; Figure 8.22) were also identified in the northern half of the LHIN—less extensively around Newmarket and Aurora—but, also in Northern Toronto.

Lower prevalence than Ontario

Areas with a lower prevalence of ever-smokers than Ontario tended to occur south of Aurora for adolescent females (n=1,284; Figure 8.21) and adolescent males (n=1,043; Figure 8.22).

Adolescents

The area-based prevalence of ever-smoked status was not estimated for adolescent populations.

Figure 8.21 Ever-smoked status among females (age 12 and older), 2000–2014, Central Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
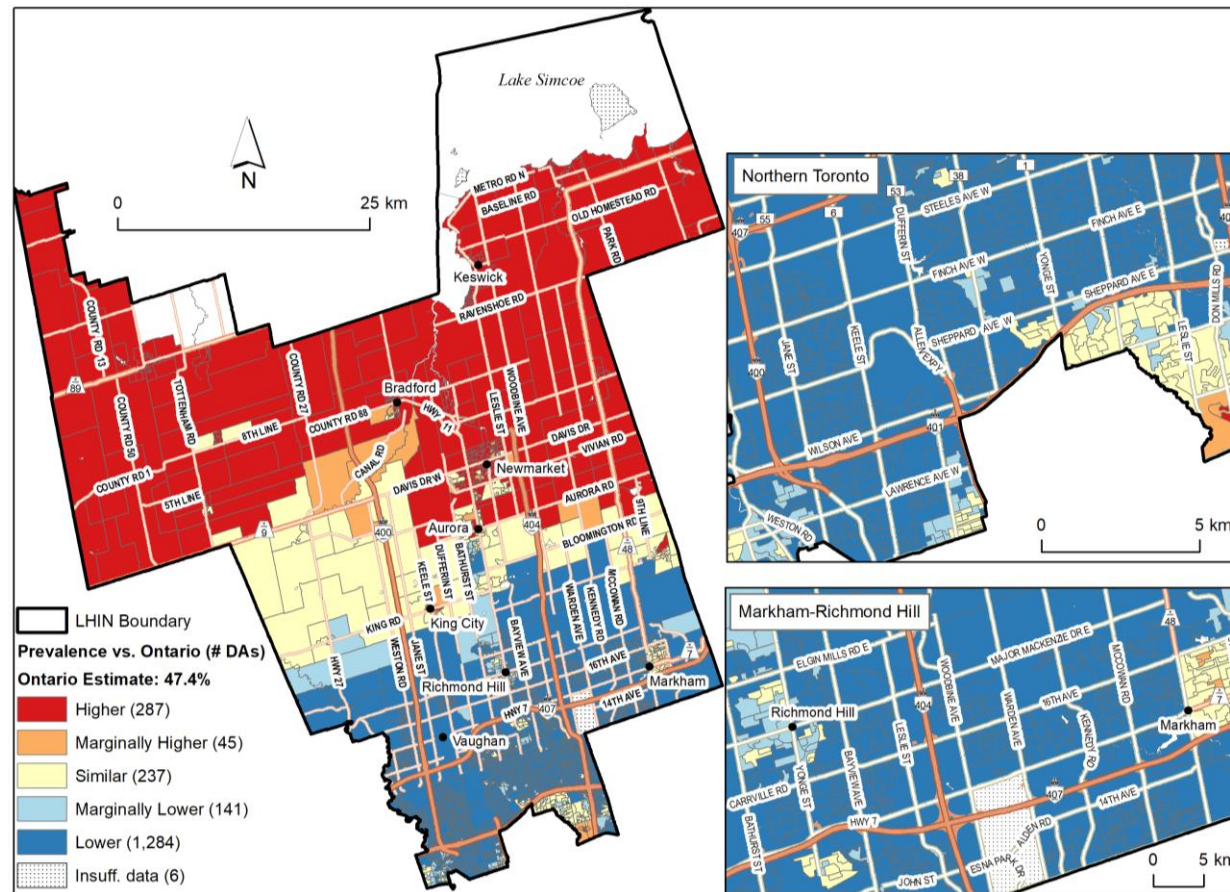
Map created: 12-Sep-17

Category	Mean prevalence % (range)
Overall	40.4
Higher	57.6 (50.9, 70.7)
Marginally Higher	51.6 (49.8, 55.0)
Similar	46.9 (41.1, 53.7)
Marginally Lower	42.7 (37.8, 44.8)
Lower	34.8 (20.0, 43.6)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 8.22 Ever-smoked status among males (age 12 and older), 2000–2014, Central Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	57.4
Higher	67.4 (64.7, 79.7)
Marginally Higher	64.4 (63.4, 65.8)
Similar	61.0 (57.4, 64.1)
Marginally Lower	57.8 (54.4, 59.6)
Lower	53.1 (40.4, 58.3)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
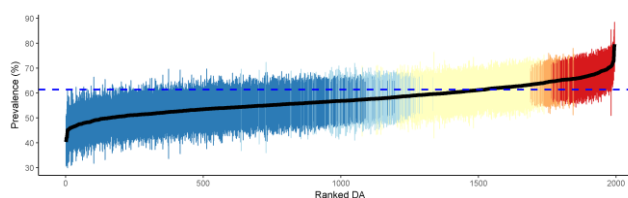
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

LHIN 9
Central East

9. Central East LHIN

Key Findings

Top three priority risk factor population estimates by sex (see Table 9.1 below):

Females
Alcohol—current consumption
Smoking—ever-smoked status
Inadequate vegetable and fruit consumption

Males
Inadequate vegetable and fruit consumption
Smoking—ever-smoked status
Alcohol—current consumption

Risk factor summary

Alcohol—current consumption
   Priority areas:
   • Females: areas throughout the LHIN except for eastern Toronto and parts of Oshawa
   • Males: areas in the central (e.g., Lindsay) and southern (e.g., Bowmanville) parts of the LHIN
   • Adolescent females: areas scattered throughout the LHIN except for eastern Toronto
   • Adolescent males: areas dispersed throughout the LHIN except for eastern Toronto

Alcohol—consumption exceeding cancer prevention recommendations
   Priority areas:
   • Females: areas throughout the central part of the LHIN (e.g., Lindsay, Peterborough)
   • Males: areas throughout the LHIN except around Pickering and in eastern Toronto

Excess body weight
   Priority areas:
   • Females: areas in the northern and southern parts of the LHIN (e.g., Haliburton, Oshawa, Bowmanville, Port Hope, Cobourg, Campbellford)
   • Males: areas in the northern and eastern parts of the LHIN (e.g., Haliburton and Campbellford, respectively) and along the southern boundary near Bowmanville
   • Adolescent females: areas in the northern and western parts of the LHIN (e.g., Haliburton and Campbellford, respectively)

Inadequate vegetable and fruit consumption
  Priority areas:
  - Females: areas around Lindsay and in many parts of Eastern Toronto, Whitby and Oshawa
  - Males: areas throughout the LHIN except in the southeastern tip near Pickering and in eastern Toronto
  - Adolescent females: areas in Oshawa
  - Adolescent males: areas in Whitby and Oshawa

Physical activity
  Priority areas:
  - Females: parts of eastern Toronto and in Whitby and Oshawa
  - Males: many parts of eastern Toronto, Whitby and Oshawa
  - Adolescent females: parts of eastern Toronto
  - Adolescent males: parts of eastern Toronto

Sedentary behaviour
  Priority areas:
  - Females: clusters around Lindsay, Peterborough, Oshawa and Whitby
  - Males: one area in each of Peterborough and Oshawa

Smoking—current status
  Priority areas:
  - Females: areas throughout the central and northern parts of the LHIN as well as in Bowmanville, Oshawa, Whitby and eastern Toronto
  - Males: areas around Haliburton and Lindsay and in Peterborough, Oshawa, Whitby and eastern Toronto
  - Adolescent females: areas throughout the LHIN (e.g., Haliburton, Peterborough, Oshawa and Bowmanville)
  - Adolescent males: areas in the eastern half of the LHIN (e.g., Haliburton, Peterborough, Campbellford, Port Hope and Cobourg) but also in Oshawa

Smoking—ever-smoked status
  Priority areas:
  - Females: areas throughout the LHIN and in the southeastern tip of eastern Toronto
  - Males: areas throughout the LHIN except for most parts of eastern Toronto and northern Whitby

Introduction

This section describes the estimated local prevalence of risk factors across the LHIN compared to the Ontario prevalence estimates from 2000 to 2014. These comparisons are always relative to Ontario with respect to the level of statistical evidence for the underlying prevalence estimate and often the number of areas meeting specific criteria are presented in parentheses (e.g., n=40). Risk factor maps are presented for females and males age 12 and older, and for adolescent females and adolescent males ages 12 to 18 inclusive. Throughout the text, the terms "area(s)" and "local" refer to the 2006 census dissemination areas (see the Data and Methods section, page 3).

Exclusions

As discussed in the Interpretation section (page 7), maps are shown only for risk factor estimates in the LHIN where one or more local estimates were higher than Ontario (or lower than Ontario for physical activity). Therefore, the risk factor maps not displayed for Central East LHIN include:

- excess body weight (overweight/obese) among adolescent males; and
- sedentary behaviour among adolescent females and adolescent males.

Notes

Risk factor prevalence could not be estimated for several areas in the Central East LHIN (e.g., suppressed census populations or institutionalized populations), which are shown as "insufficient data" on the maps. These areas include the Alderville, Curve Lake, Hiawatha and the Mississaugas of Scugog Island First Nations. Additionally, areas with unavailable population data are shown as "insufficient data." See Appendix C for a complete list of areas in the insufficient data category.

Priority population estimates

Priority population estimates may be helpful in prioritizing health promotion and planning efforts for potential populations affected by certain modifiable risk factors. Table 9.1 (page 302) presents the estimated priority populations for each risk factor by sex and age group in the Central East LHIN. Priority populations are defined as those living in areas with a higher risk factor prevalence (or lower prevalence for physical activity) than Ontario. These estimates were produced by summing the population from all higher (or lower for physical activity) prevalence small areas (2006 dissemination areas) after taking into account the risk factor prevalence of each area. For example, if among females 100 areas had a higher prevalence of current alcohol consumption than Ontario, the female 2006 census populations in each of these areas were multiplied by the prevalence of current alcohol consumption for each area and then summed across the 100 areas to produce an estimate of the female "priority population." These calculations are intended to provide a measure to prioritize the risk factors rather than a population estimate.

According to the Methods (page 4) and Interpretation (page 7) sections, these higher prevalence areas had strong statistical evidence of elevated prevalence compared to Ontario (posterior probabilities ≥ 80%). An exception is physical activity, which had strong statistical evidence of lower prevalence estimates than Ontario (posterior probabilities ≤ 20%). Therefore, the population estimates for each risk factor are likely undercounted because areas with less statistical certainty (posterior probabilities < 80% and physical activity posterior probabilities > 20%) are not included in the priority population estimates.

Table 9.1 Estimated priority populations among higher prevalence** dissemination areas compared to Ontario by risk factor, sex and age group, Central East Local Health Integration Network (LHIN), using 2006 census populations

Risk factor	Female priority population*†	% of female population in the LHIN† (n=637,070)	Male priority population*†	% of male population in the LHIN† (n=587,660)	Adolescent female priority population*‡	% of adolescent female population in the LHIN‡ (n=69,480)	Adolescent males priority population*‡	% of adolescent male population in the LHIN‡ (n=73,010)
Alcohol—current consumption	157,540	25%	61,500	10%	3,040	4%	4,950	7%
Alcohol—consumption exceeding cancer prevention recommendations	9,380	1%	20,660	4%	NM	—	NM	—
Excess body weight	65,640	10%	60,200	10%	520	1%	NE	—
Inadequate vegetable and fruit consumption	151,040	24%	167,340	28%	2,930	4%	8,880	12%
Physical activity**	43,120	7%	48,700	8%	5,600	8%	8,430	12%
Sedentary behaviour	17,970	3%	770	0%	NE	—	NE	—
Smoking—current status	42,510	7%	23,060	4%	820	1%	580	1%
Smoking—ever-smoked status	157,060	25%	124,500	21%	NM	—	NM	—

NE = no estimates within the "higher" prevalence categories**; NM = not modelled
* Estimates rounded to multiples of 10
** For physical activity, priority populations are those living in areas with a lower risk factor prevalence compared to Ontario
† Population age 12 and older
‡ Population ages 12 to 18
— Value not applicable

Alcohol—current consumption

People age 12 and older

An estimated 70% of females and 79% of males in Ontario reported current alcohol consumption.

Higher prevalence than Ontario

There were more areas with a higher prevalence of current alcohol consumption than the Ontario average for females (n=697; Figure 9.1) compared to males (n=240; Figure 9.2). For females, these areas were common throughout the LHIN, except in parts of eastern Toronto (southwestern tip of the LHIN). For males, higher prevalence areas occurred mostly in central and southern parts of the LHIN, in areas in-between Haliburton and Lindsay, east of Uxbridge, northeast of Bowmanville and Port Hope and in the outskirts of Whitby.

Lower prevalence than Ontario

Areas with a lower prevalence of current alcohol consumption than Ontario occurred mostly in eastern Toronto and the south of Oshawa for females (n=679; Figure 9.1) and males (n=757; Figure 9.2). Additional areas of lower prevalence were located in parts of Peterborough, Campbellford and Pickering.

Adolescents

Among the adolescent population in Ontario, approximately 40% of females and males reported current alcohol consumption.

Higher prevalence than Ontario

Areas with a higher prevalence of current alcohol consumption than Ontario were dispersed across the LHIN except in eastern Toronto, Pickering and Ajax for adolescent females (n=257; Figure 9.3) and adolescent males (n=358; Figure 9.4). Additional areas of higher prevalence for adolescent males were located mostly around Bowmanville, Cobourg, Campbellford, Peterborough and Haliburton.

Lower prevalence than Ontario

Lower prevalence of current alcohol consumption than Ontario was identified for 911 areas for adolescent females (Figure 9.3) and 841 areas for adolescent males (Figure 9.4). For both sexes, these lower prevalence areas occurred in many parts of eastern Toronto, Pickering and Ajax and were otherwise scattered across the rest of the LHIN.

Figure 9.1 Current alcohol consumption among females (age 12 and older), 2000–2014, Central East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

LHIN Boundary

Prevalence vs. Ontario (# DAs)
Ontario Estimate: 70.0%

- Higher (697)
- Marginally Higher (201)
- Similar (446)
- Marginally Lower (79)
- Lower (679)
- Insuff. data (19)
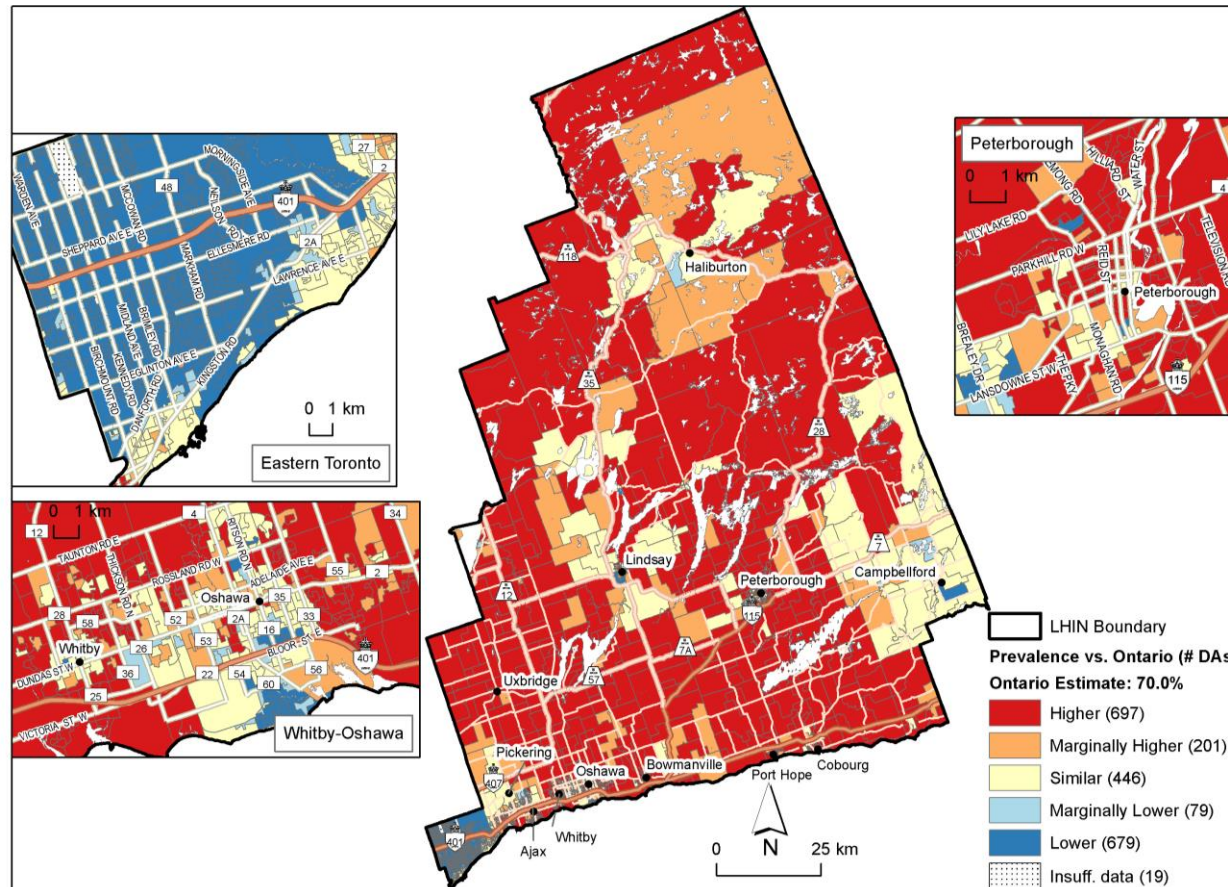
Map Created: 24-Sep-17

Category	Mean prevalence % (range)
Overall	67.5
Higher	77.1 (73.4, 84.5)
Marginally Higher	73.8 (72.2, 76.3)
Similar	69.7 (63.2, 73.8)
Marginally Lower	64.9 (59.5, 67.4)
Lower	54.6 (37.4, 65.3)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
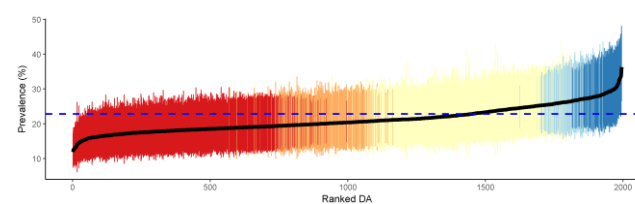
Figure 9.2 Current alcohol consumption among males (age 12 and older), 2000–2014, Central East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

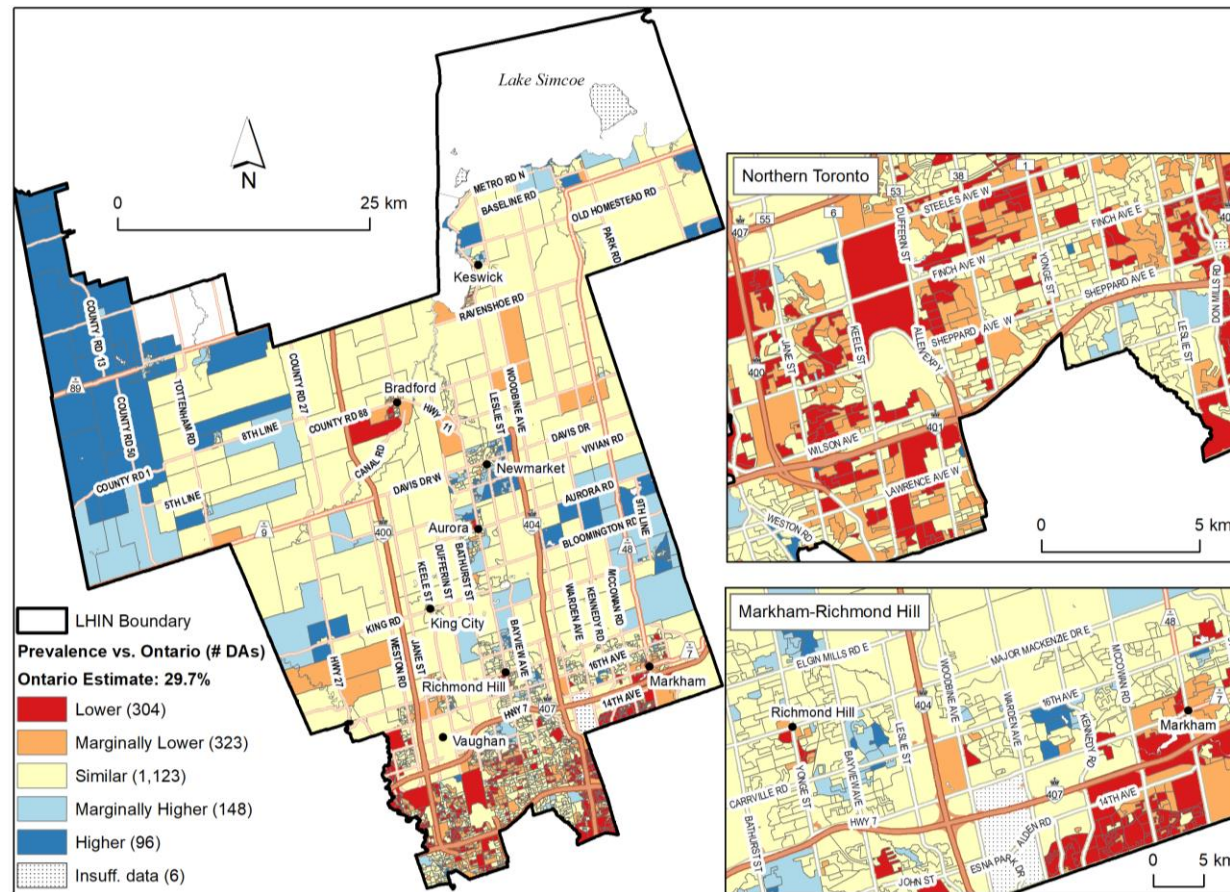| Category	Mean prevalence % (range)
Overall	76.4
Higher	83.3 (81.3, 86.5)
Marginally Higher	81.6 (80.6, 83.9)
Similar	79.0 (73.7, 81.4)
Marginally Lower	75.5 (72.2, 77.3)
Lower	70.2 (58.1, 76.5)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
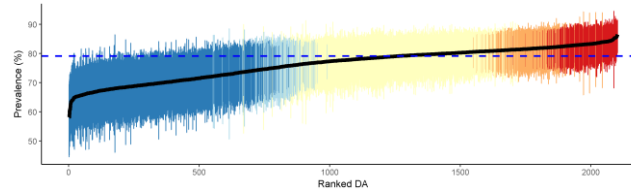
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
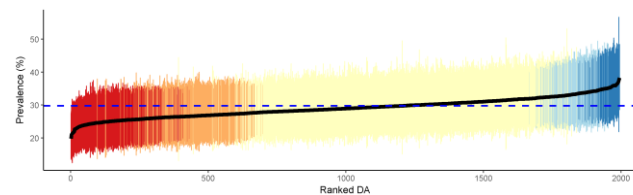
Figure 9.3 Current alcohol consumption among adolescent females (ages 12 to 18), 2000–2014, Central East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
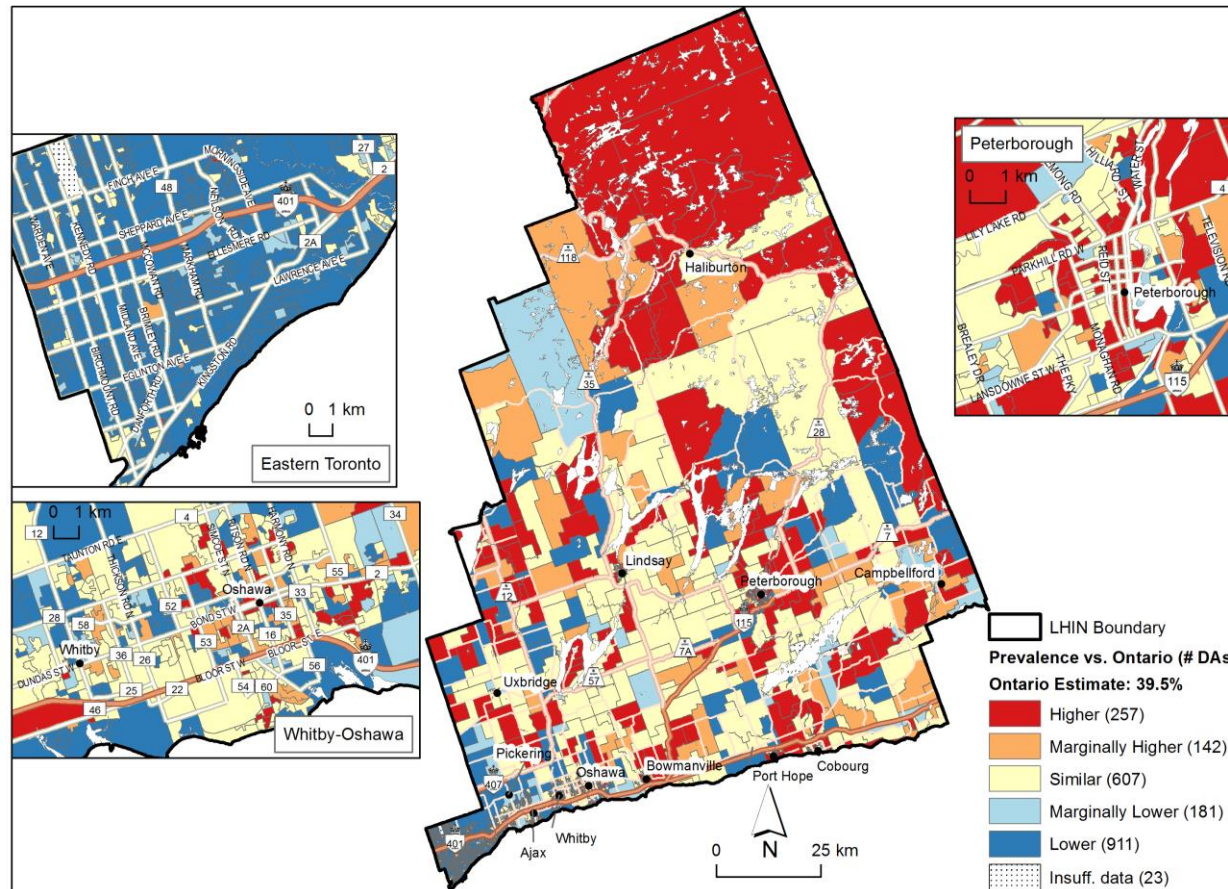
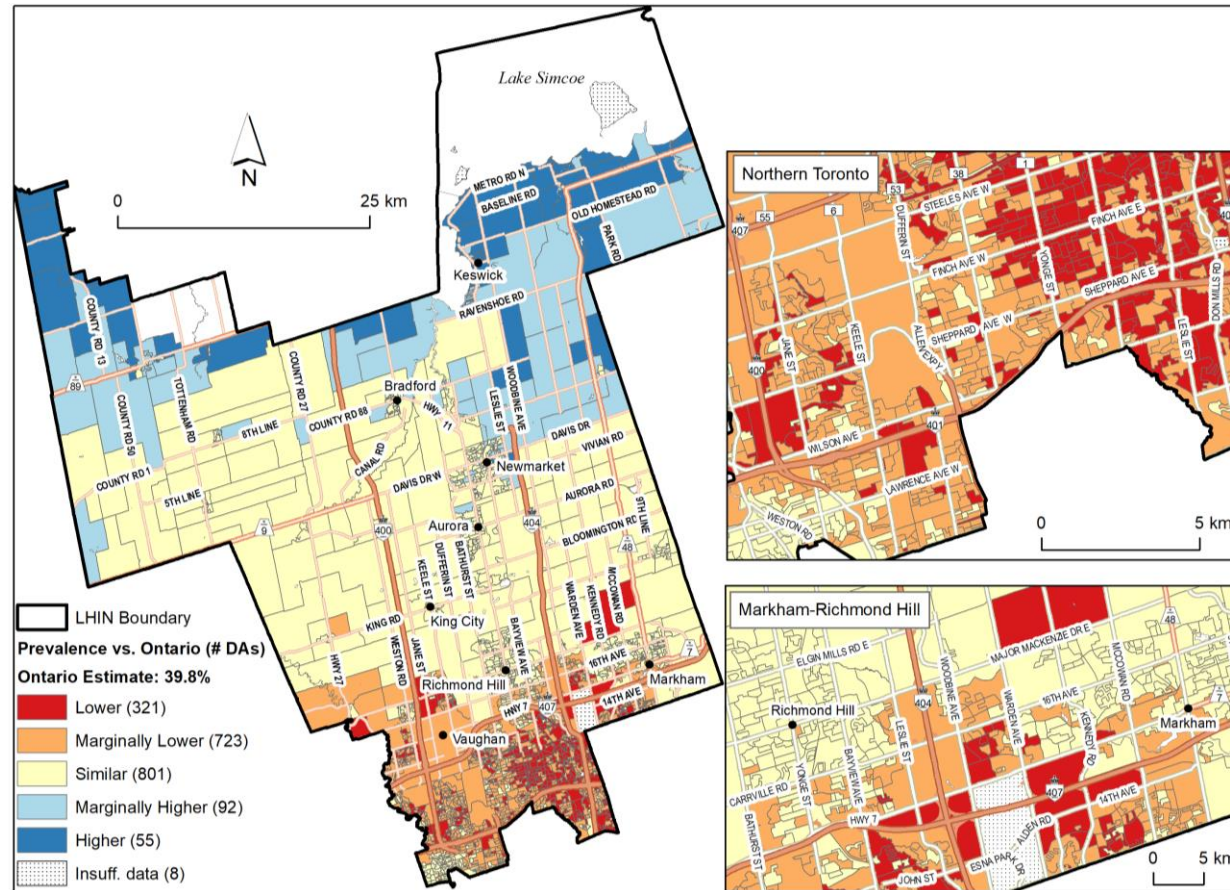| Category	Mean prevalence % (range)
Overall	36.1
Higher	48.4 (43.9, 65.6)
Marginally Higher	43.7 (42.0, 47.0)
Similar	39.4 (35.0, 43.3)
Marginally Lower	35.6 (33.0, 36.9)
Lower	29.4 (7.6, 35.7)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
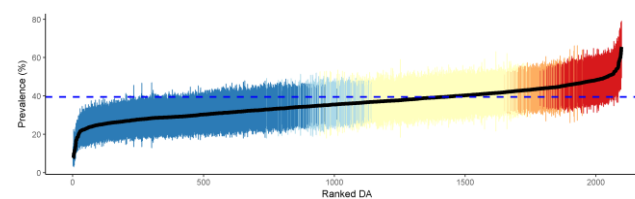
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 9.4 Current alcohol consumption among adolescent males (ages 12 to 18), 2000–2014, Central East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
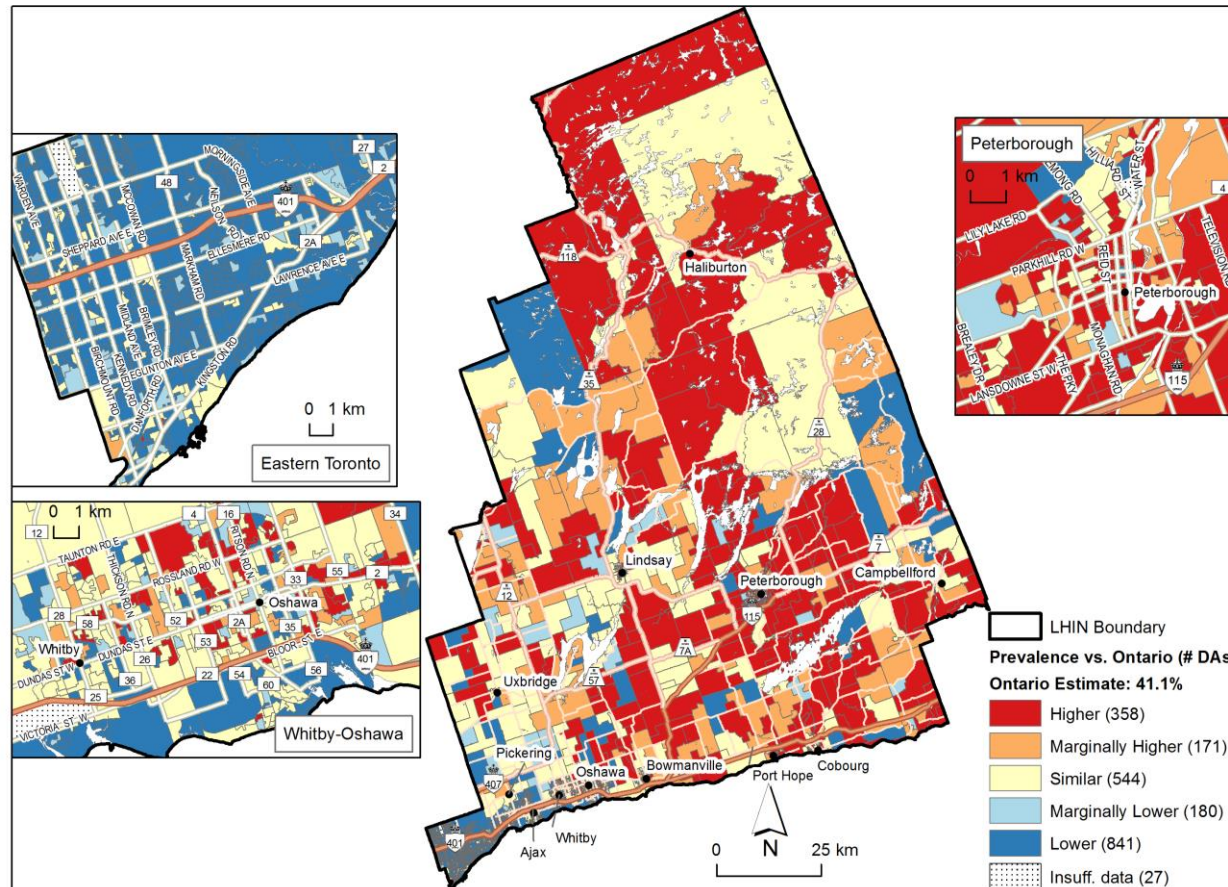
Map Created: 24-Sep-17

Category	Mean prevalence % (range)
Overall	38.8
Higher	50.2 (45.5, 66.9)
Marginally Higher	45.1 (43.8, 49.8)
Similar	41.1 (36.1, 45.1)
Marginally Lower	37.1 (35.1, 38.9)
Lower	31.5 (7.6, 37.6)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
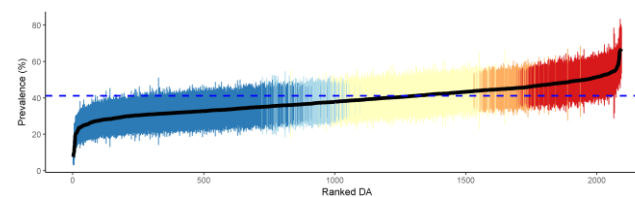
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
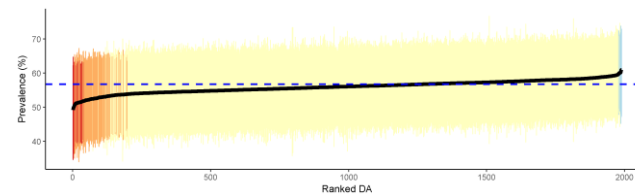
Alcohol—consumption exceeding cancer prevention recommendations

People age 12 and older

Almost 7% of the female population in Ontario drank alcohol in excess of the recommended limits for cancer prevention. Among males, the Ontario prevalence of exceeding the recommended limits was 8.5%.

Higher prevalence than Ontario

Compared to the Ontario averages, 328 areas had a higher prevalence of alcohol consumption in excess of cancer prevention recommendations for females (Figure 9.5) and and 674 areas for males (Figure 9.6). For females, higher prevalence areas were distributed across the central and western parts of the LHIN, from Peterborough to Uxbridge. Higher prevalence areas were also found around Bowmanville, Cobourg, Port Hope and south of Campbellford. For males, many areas of the LHIN had a higher prevalence of alcohol consumption in excess of cancer prevention recommendations than Ontario (e.g., Haliburton, Campbellford, Oshawa, Bowmanville, Port Hope, Cobourg, Lindsay and Peterborough). An exception was the southeastern tip of the LHIN, which includes eastern Toronto, Pickering and Ajax.

Lower prevalence than Ontario

Lower prevalence areas were located in the southwestern parts of the Central East LHIN, particularly in eastern Toronto and Pickering for females (n=709; Figure 9.5) and males (n=785; Figure 9.6). Additional lower prevalence areas for females were located in the Whitby-Oshawa area.

Adolescents

The area-based prevalence of exceeding cancer prevention recommendations was not estimated for adolescent populations.

Figure 9.5 Alcohol consumption exceeding cancer prevention recommendations among females (age 12 and older), 2000–2014, Central East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
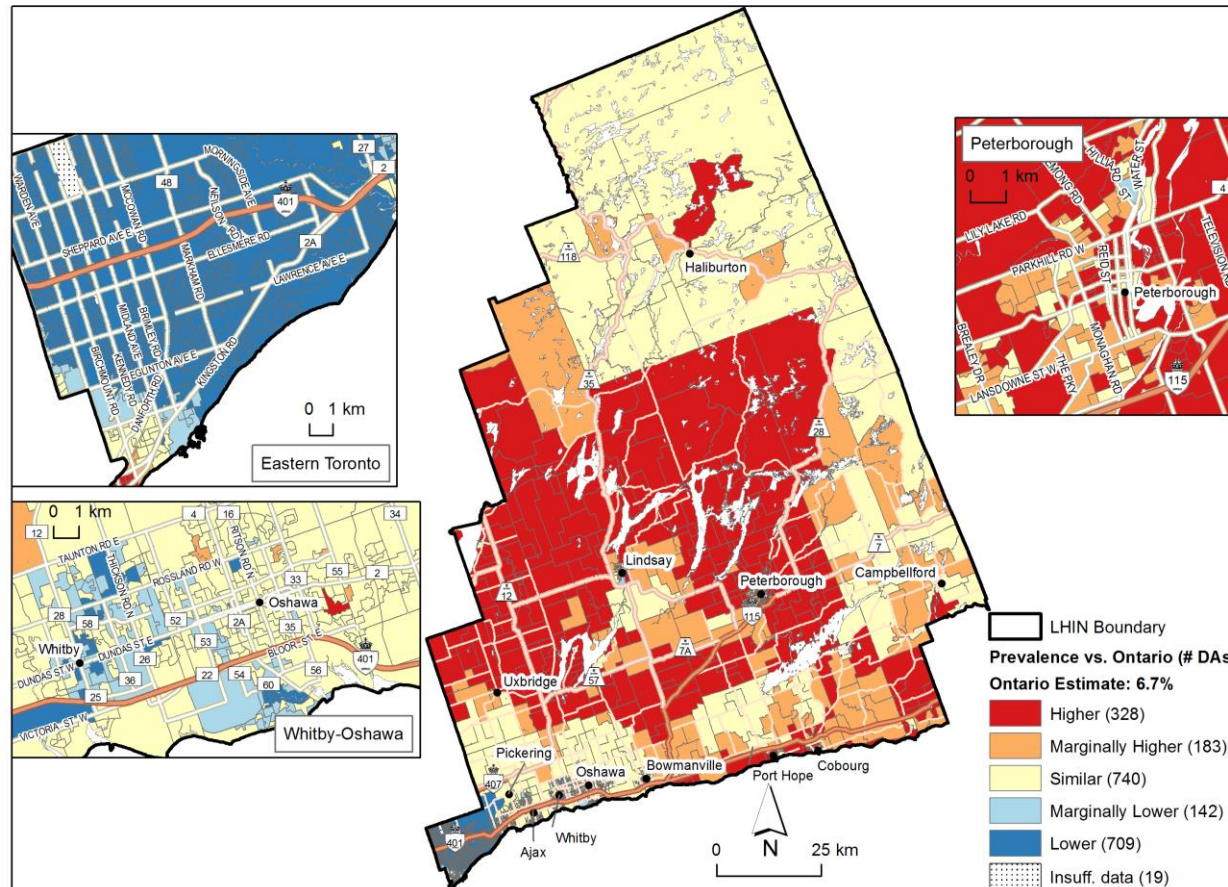
Category	Mean prevalence % (range)
Overall	6.6
Higher	10.3 (8.7, 14.9)
Marginally Higher	8.8 (7.9, 10.2)
Similar	7.1 (5.8, 10.5)
Marginally Lower	5.8 (5.2, 6.1)
Lower	3.9 (2.5, 5.5)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
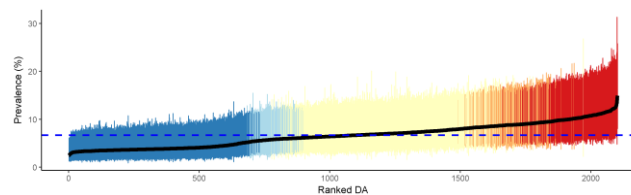
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
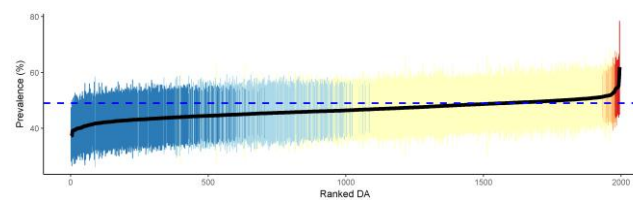
Figure 9.6 Alcohol consumption exceeding cancer prevention recommendations among males (age 12 and older), 2000–2014, Central East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

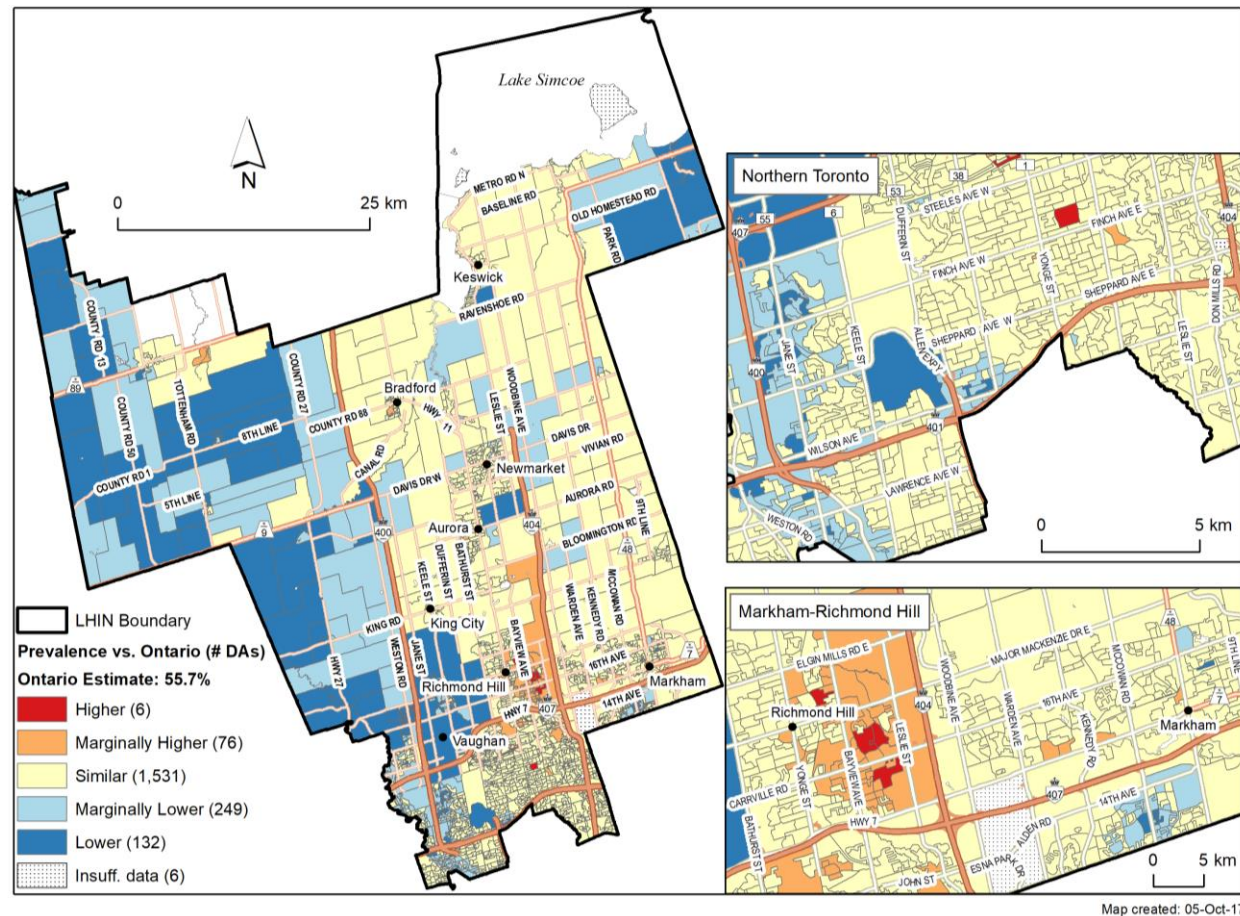| Category	Mean prevalence % (range)
Overall	8.6
Higher	11.8 (10.3, 15.8)
Marginally Higher	10.5 (9.6, 11.6)
Similar	8.8 (7.4, 10.9)
Marginally Lower	7.3 (6.5, 7.8)
Lower	5.4 (3.4, 7.2)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
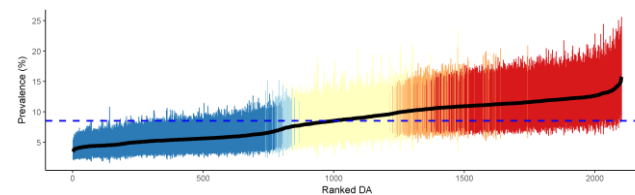
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Excess body weight

People age 12 and older

The estimated Ontario prevalence of excess body weight (overweight or obese) among females was 41% and among males was 56%.

Higher prevalence than Ontario

Areas with a higher prevalence of excess body weight than the Ontario averages were detected for females (n=500; Figure 9.7) and males (n=361; Figure 9.8). For females, areas with a higher prevalence occurred primarily in the northern (e.g., around Haliburton), eastern (e.g., around Campbellford) and southern-most (e.g., Oshawa to Cobourg) part of the LHIN. Overall, the geographic pattern of higher prevalence areas for males was similar to that of females, but these areas were less extensive north of Port Hope and south of Peterborough.

Lower prevalence than Ontario

Areas with lower estimates compared to Ontario among females (n=387; Figure 9.7) and males (n=858; Figure 9.8) were common in eastern Toronto. Among females, additional lower prevalence areas were located around Uxbridge, Pickering, Whitby and Peterborough. Among males, additional lower prevalence areas were located in Peterborough and parts of Oshawa.

Adolescents

Among Ontario adolescents, an estimated 15% of females and 25% of males were overweight or obese.

Higher prevalence than Ontario

Higher prevalence areas among adolescent females (n=94; Figure 9.9) were located mainly in the northern (e.g., Haliburton) and eastern (e.g., Campbellford) parts of the LHIN, as well as in Oshawa, around Peterborough and Cobourg. No areas with a higher prevalence of excess body weight than Ontario were detected for adolescent males (map not shown).

Lower prevalence than Ontario

Areas with a lower prevalence of excess body weight than Ontario were detected in the western tip of eastern Toronto for adolescent females (n=97; Figure 9.9).

Figure 9.7 Excess body weight (overweight/obese) among females (age 12 and older), 2000–2014, Central East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
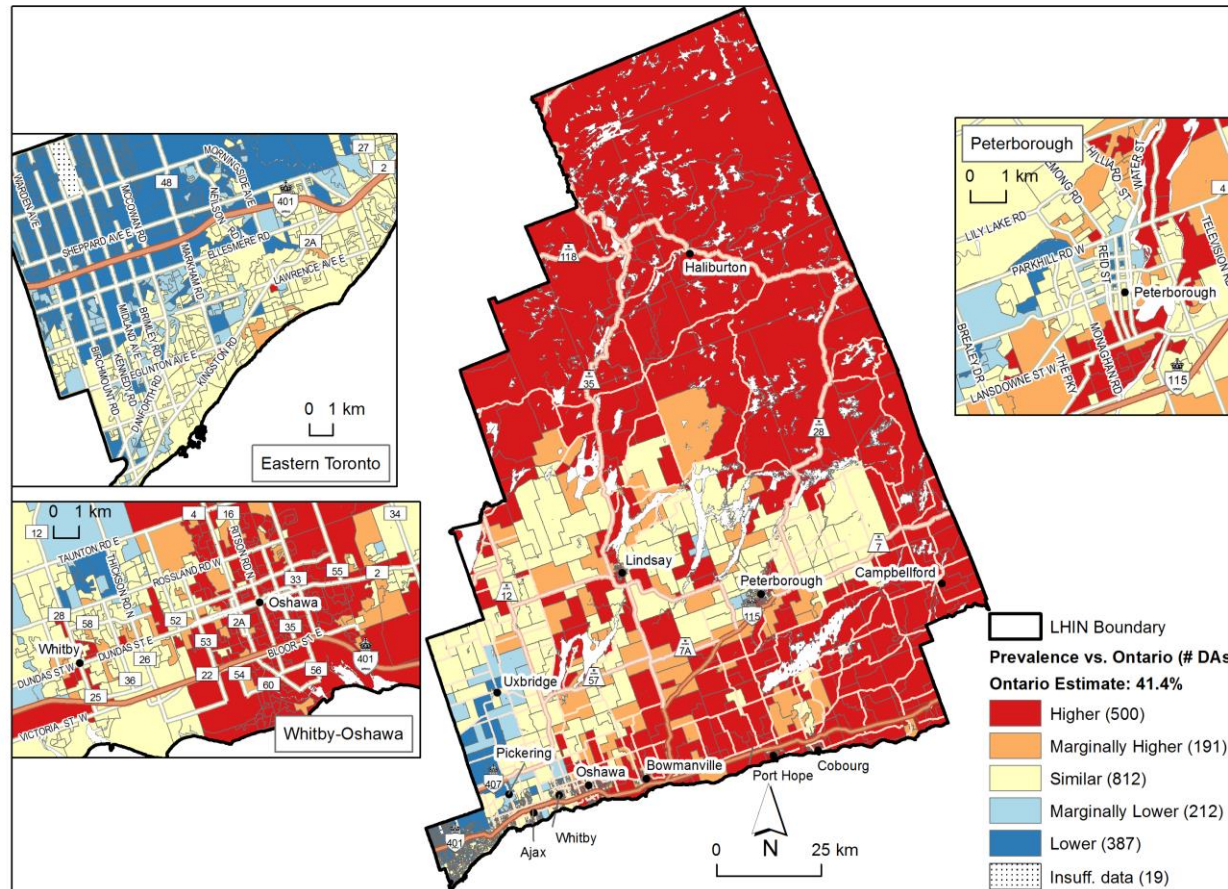
Category	Mean prevalence % (range)
Overall	41.4
Higher	48.4 (44.9, 58.5)
Marginally Higher	44.8 (43.4, 46.4)
Similar	41.2 (37.1, 44.8)
Marginally Lower	38.1 (35.9, 39.4)
Lower	33.1 (25.4, 37.8)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
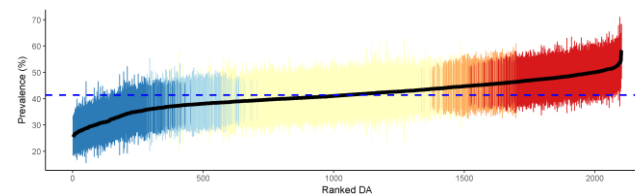
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

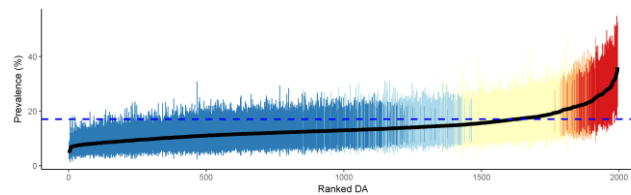## Figure 9.8 Excess body weight (overweight/obese) among males (age 12 and older), 2000–2014, Central East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	53.1
Higher	61.3 (58.7, 66.3)
Marginally Higher	58.7 (57.8, 62.3)
Similar	56.0 (52.2, 59.1)
Marginally Lower	52.9 (51.2, 54.0)
Lower	46.7 (35.6, 53.0)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
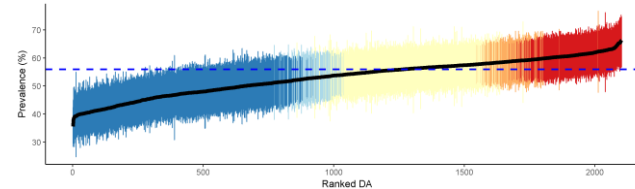
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
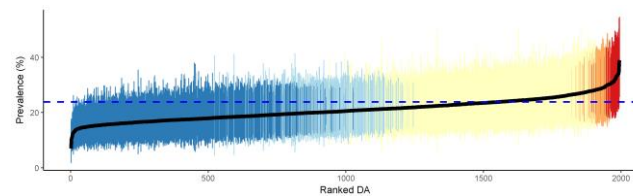
Figure 9.9 Excess body weight (overweight/obese) among adolescent females (ages 12 to 18), 2000–2014, Central East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
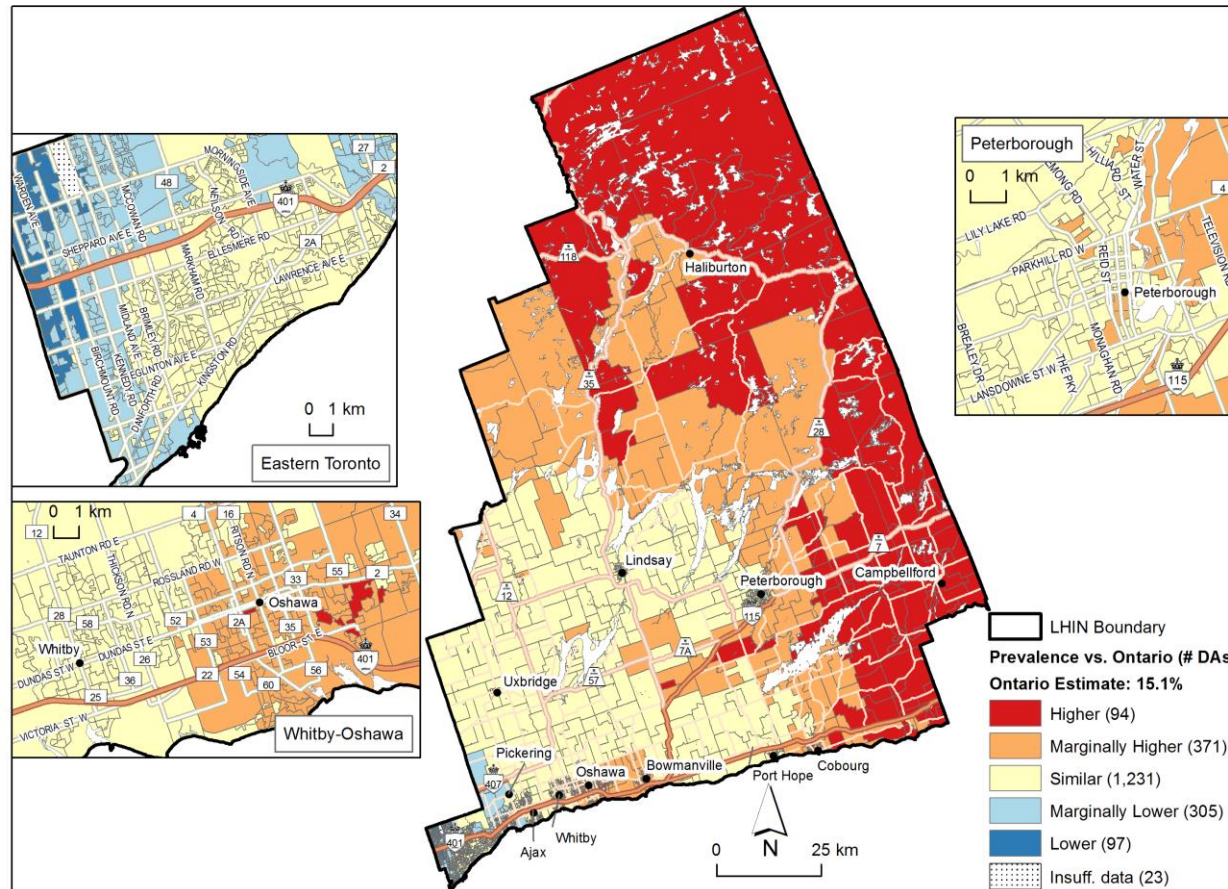
Map Created: 24-Sep-17

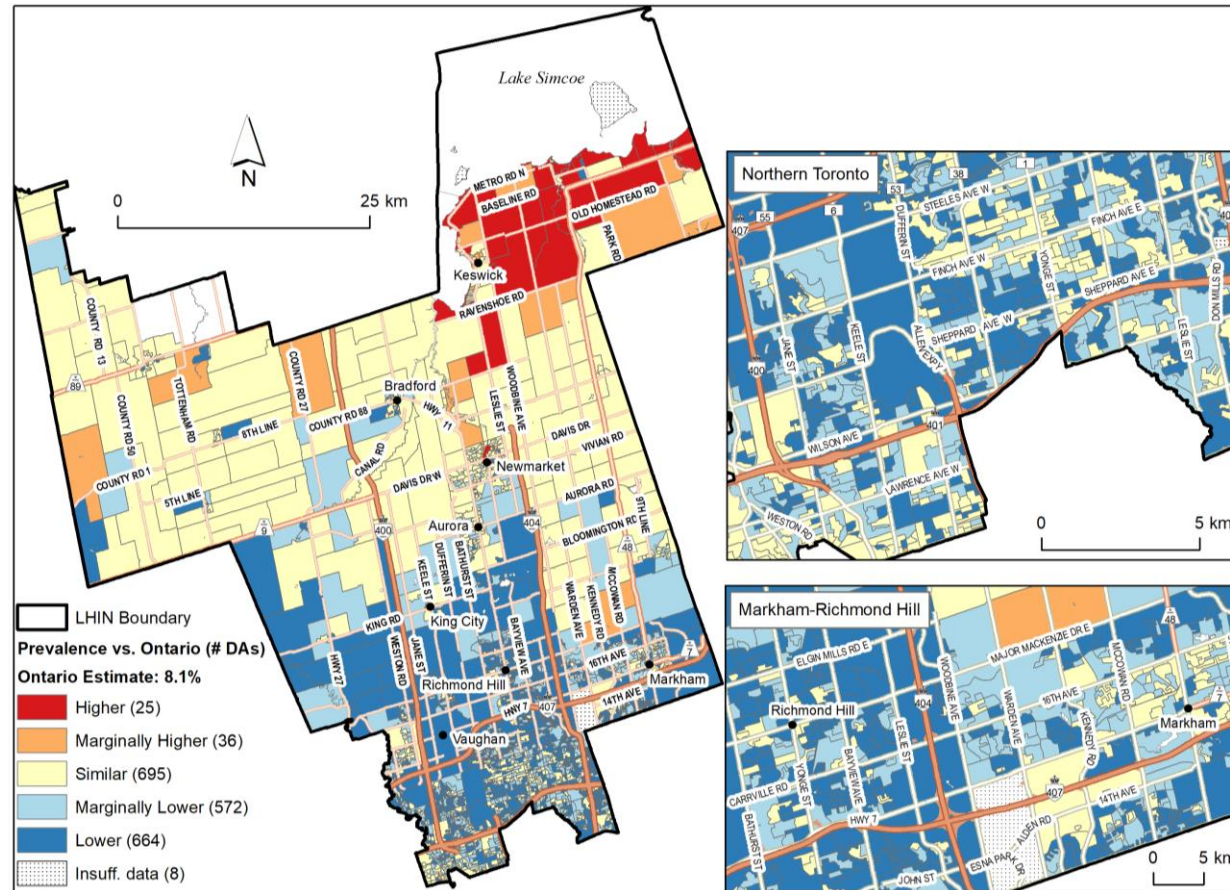| Category	Mean prevalence % (range)
Overall	15.7
Higher	19.9 (18.7, 21.4)
Marginally Higher	18.5 (17.4, 20.4)
Similar	15.5 (13.4, 19.2)
Marginally Lower	13.1 (12.2, 13.8)
Lower	12.3 (11.8, 12.8)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Inadequate vegetable and fruit consumption

People age 12 and older

Inadequate consumption of vegetables and fruits was common across Ontario, with approximately 63% of females and 77% of males reporting inadequate consumption.

Higher prevalence than Ontario

Areas with a higher prevalence of inadequate vegetable and fruit consumption than the Ontario average were less widespread for females (n=657; Figure 9.10) compared to males (n=775; Figure 9.11). For females, higher prevalence areas were detected mainly in the western half of the LHIN, around Lindsay, Peterborough, Uxbridge, eastern Toronto, Whitby, Oshawa and Bowmanville. In contrast, higher prevalence areas for males occurred throughout the LHIN, except in eastern Toronto.

Lower prevalence than Ontario

There were 16 areas with a lower prevalence than Ontario for females (Figure 9.10) and 14 areas for males (Figure 9.11). For females, these lower prevalence areas were detected in parts of eastern Toronto, Peterborough, Port Hope and east of Cobourg. For males, these lower prevalence areas were located in the east of eastern Toronto.

Adolescents

More than two thirds of the adolescent Ontario population had inadequate vegetable and fruit consumption at approximately 68% for females and 74% for males.

Higher prevalence than Ontario

One hundred twenty-five higher prevalence areas were identified for adolescent females (Figure 9.12) and 331 were identified for adolescent males (Figure 9.13). For adolescent females, higher prevalence areas occurred in Peterborough and Whitby, and were concentrated in Oshawa. For adolescent males, higher estimates occurred in the Whitby-Oshawa area, as well as parts of Pickering and Bowmanville.

Lower prevalence than Ontario

There were very few lower prevalence areas for adolescents (females, n=1; Figure 9.12; males, n=1; Figure 9.13). These areas were located in eastern Toronto.

Figure 9.10 Inadequate vegetable and fruit consumption among females (age 12 and older), 2000–2014, Central East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
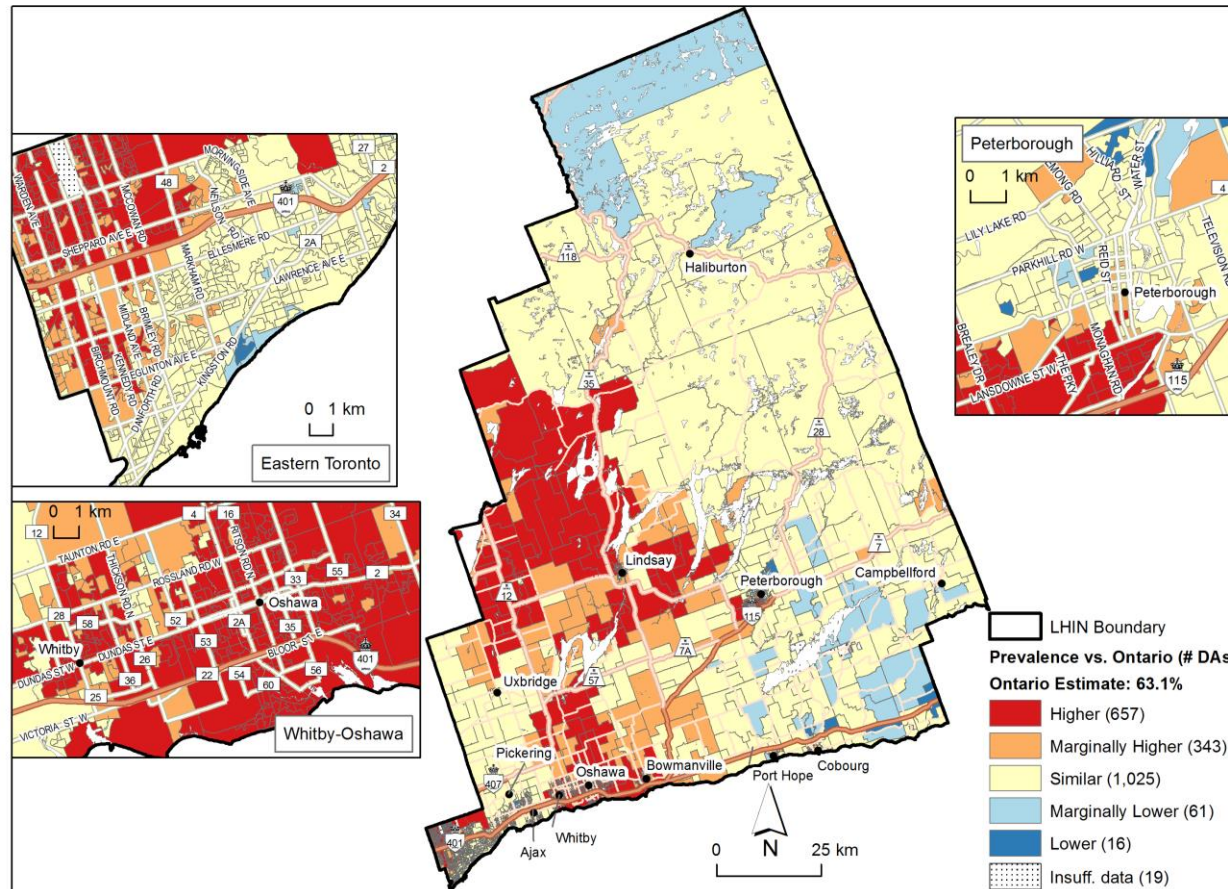
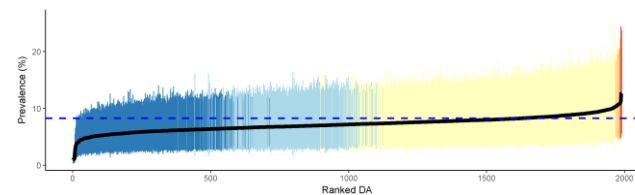| Category	Mean prevalence % (range)
Overall	65.5
Higher	69.5 (65.5, 77.4)
Marginally Higher	66.4 (65.3, 68.7)
Similar	63.2 (59.3, 67.4)
Marginally Lower	59.7 (58.1, 60.7)
Lower	58.3 (54.2, 59.8)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
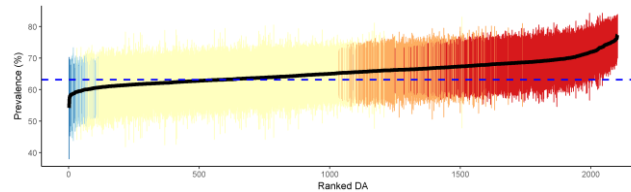
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

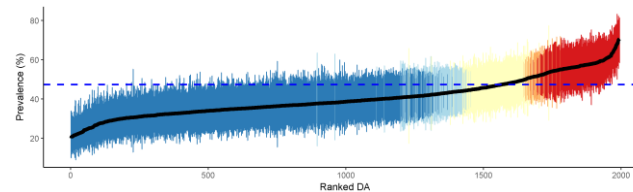## Figure 9.11 Inadequate vegetable and fruit consumption among males (age 12 and older), 2000–2014, Central East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
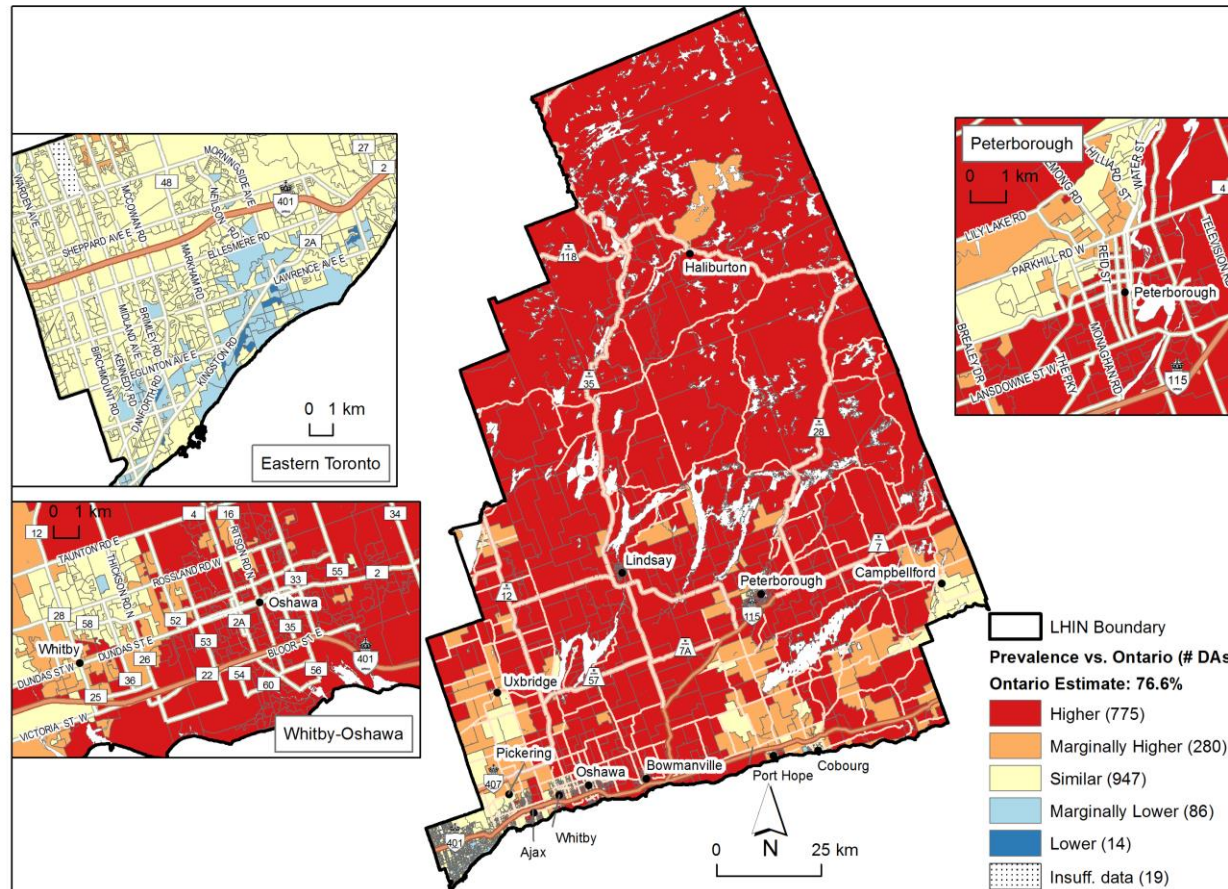
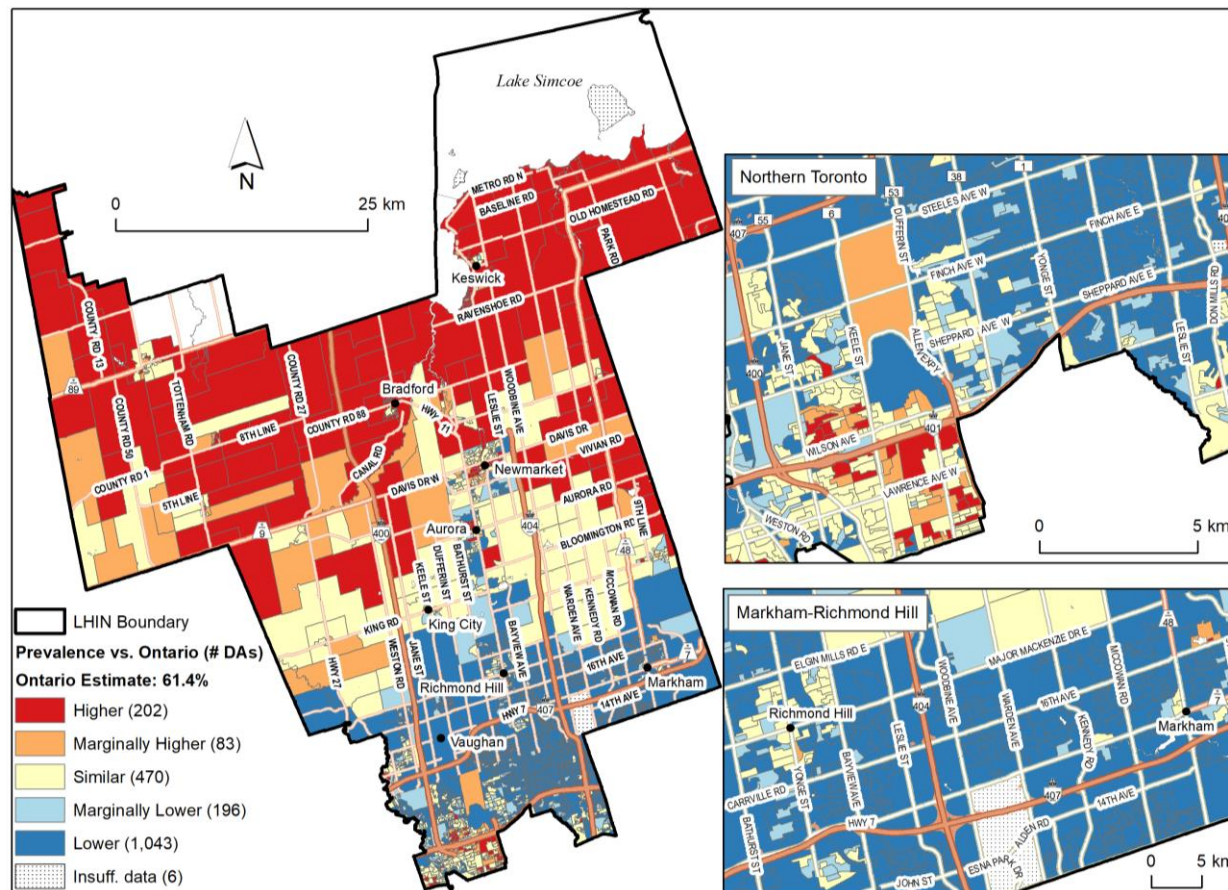| Category	Mean prevalence % (range)
Overall	78.3
Higher	81.1 (78.9, 84.6)
Marginally Higher	79.0 (78.1, 80.5)
Similar	76.3 (73.4, 78.9)
Marginally Lower	73.9 (72.9, 74.7)
Lower	72.1 (70.5, 73.2)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
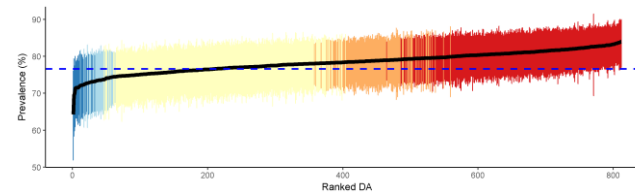
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 9.12 Inadequate vegetable and fruit consumption among adolescent females (ages 12 to 18), 2000–2014, Central East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
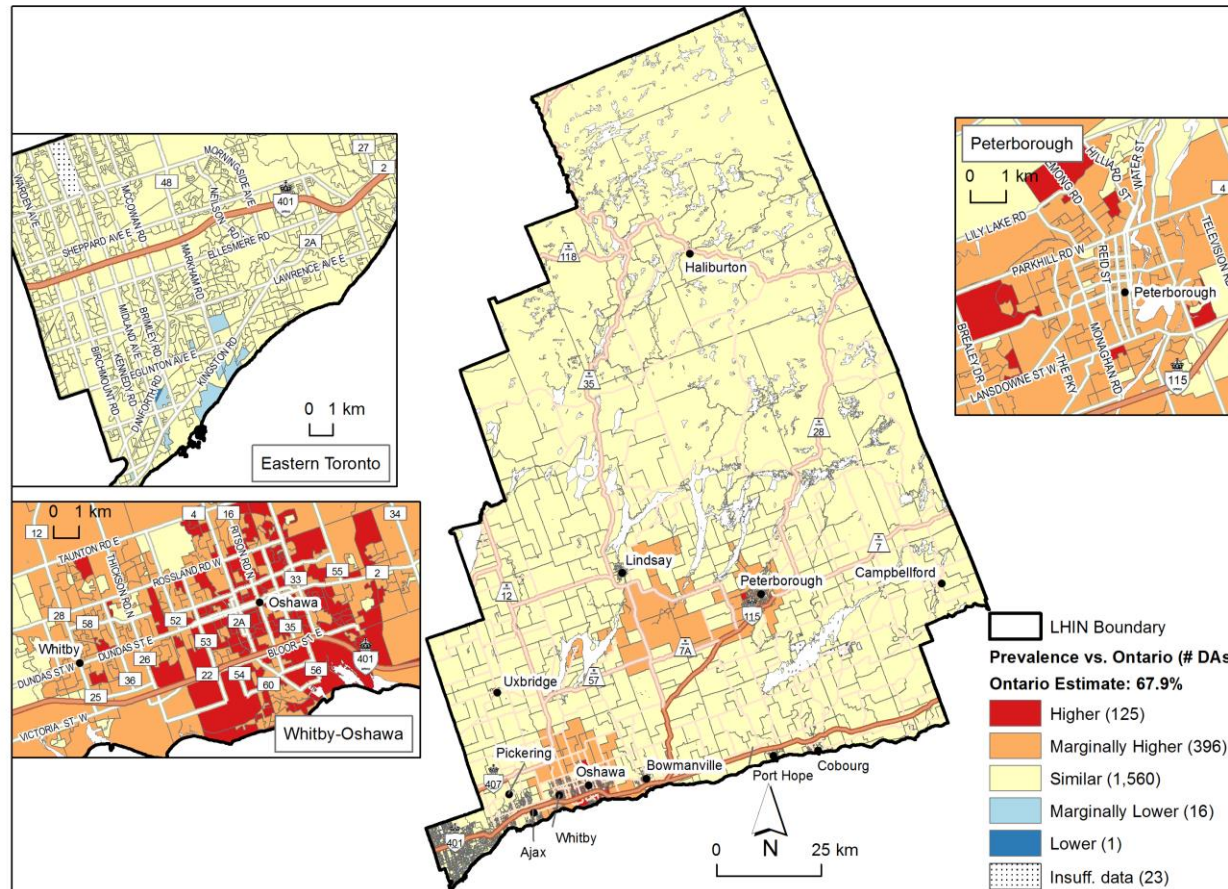
Category	Mean prevalence % (range)
Overall	68.7
Higher	73.0 (72.0, 74.0)
Marginally Higher	71.8 (70.6, 73.1)
Similar	67.7 (64.0, 71.5)
Marginally Lower	63.8 (63.4, 64.6)
Lower	62.2 (62.2, 62.2)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
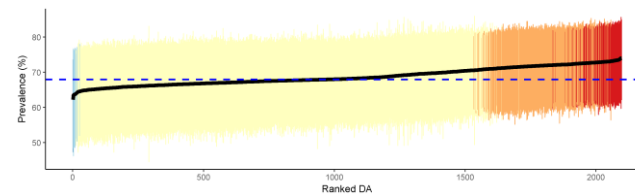
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 9.13 Inadequate vegetable and fruit consumption among adolescent males (ages 12 to 18), 2000–2014, Central East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
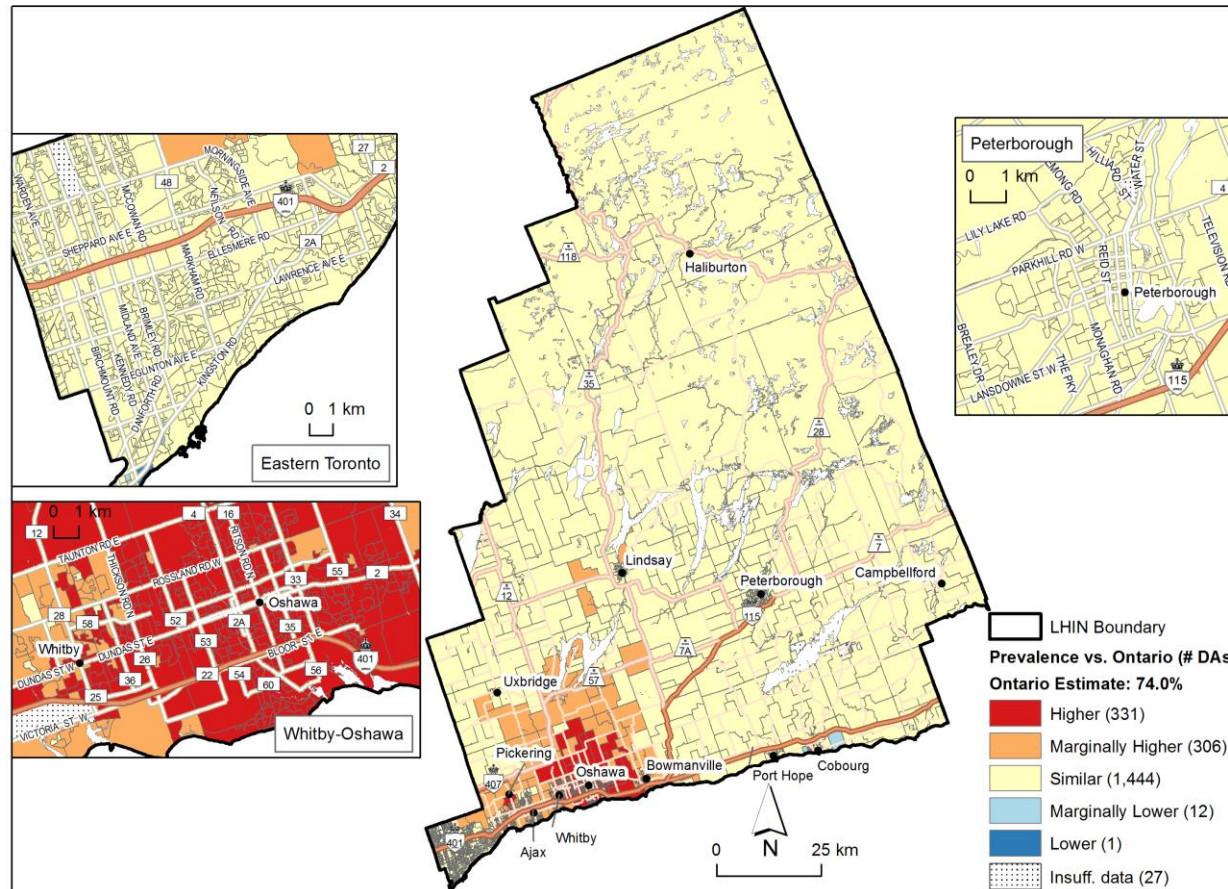
Category	Mean prevalence % (range)
Overall	75.1
Higher	78.8 (77.3, 80.5)
Marginally Higher	76.9 (75.8, 78.2)
Similar	74.0 (70.8, 76.8)
Marginally Lower	70.4 (69.5, 71.0)
Lower	69.2 (69.2, 69.2)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Physical activity

Because physical activity reduces cancer risk, lower prevalence estimates of this risk factor are of interest. The colour scheme of the maps was inverted so that the "lower than Ontario" estimates are displayed in red.

People age 12 and older

Most of the Ontario population was not physically active, with approximately one in five (23%) females and one in three (30%) males being physically active.

Lower prevalence than Ontario

A similar number of areas with a lower prevalence of physical activity than the Ontario average were identified for both sexes (females: n=733, Figure 9.14; males: n=654, Figure 9.15) in the Central East LHIN. Many were located in eastern Toronto, but a few were located in Oshawa, Whitby and Peterborough. For females, additional areas with a lower prevalence than Ontario were located around Lindsay and Port Hope.

Higher prevalence than Ontario

Areas with a higher prevalence of physical activity than Ontario were dispersed across the LHIN for females (n=536; Figure 9.14) and males (n=622; Figure 9.15). For females, these areas occurred more on the western and eastern boundaries of the LHIN compared to males, but were less extensive in the northern part of the LHIN (around Haliburton) and in Pickering and Ajax.

Adolescents

Adolescents were more physically active than adults, with approximately 40% of adolescent females and 57% of adolescent males being active.

Lower prevalence than Ontario

There were 438 areas with a lower prevalence of physical activity for adolescent females (Figure 9.16) and 408 areas for males (Figure 9.17). For both sexes, these areas occurred in many parts of eastern Toronto.

Higher prevalence than Ontario

Areas with a higher prevalence than the Ontario average were common across the LHIN—except for the southwestern part—for adolescent females (n=410; Figure 9.16). In contrast, for adolescent males, higher prevalence areas (n=103; Figure 9.17) were located only near Port Hope, Cobourg and Peterborough.

Figure 9.14 Physical activity among females (age 12 and older), 2000–2014, Central East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Map Created: 24-Sep-17

Prevalence vs. Ontario (# DAs)
Ontario Estimate: 22.8%

- Lower (733)
- Marginally Lower (134)
- Similar (539)
- Marginally Higher (160)
- Higher (536)
- Insuff. data (19)
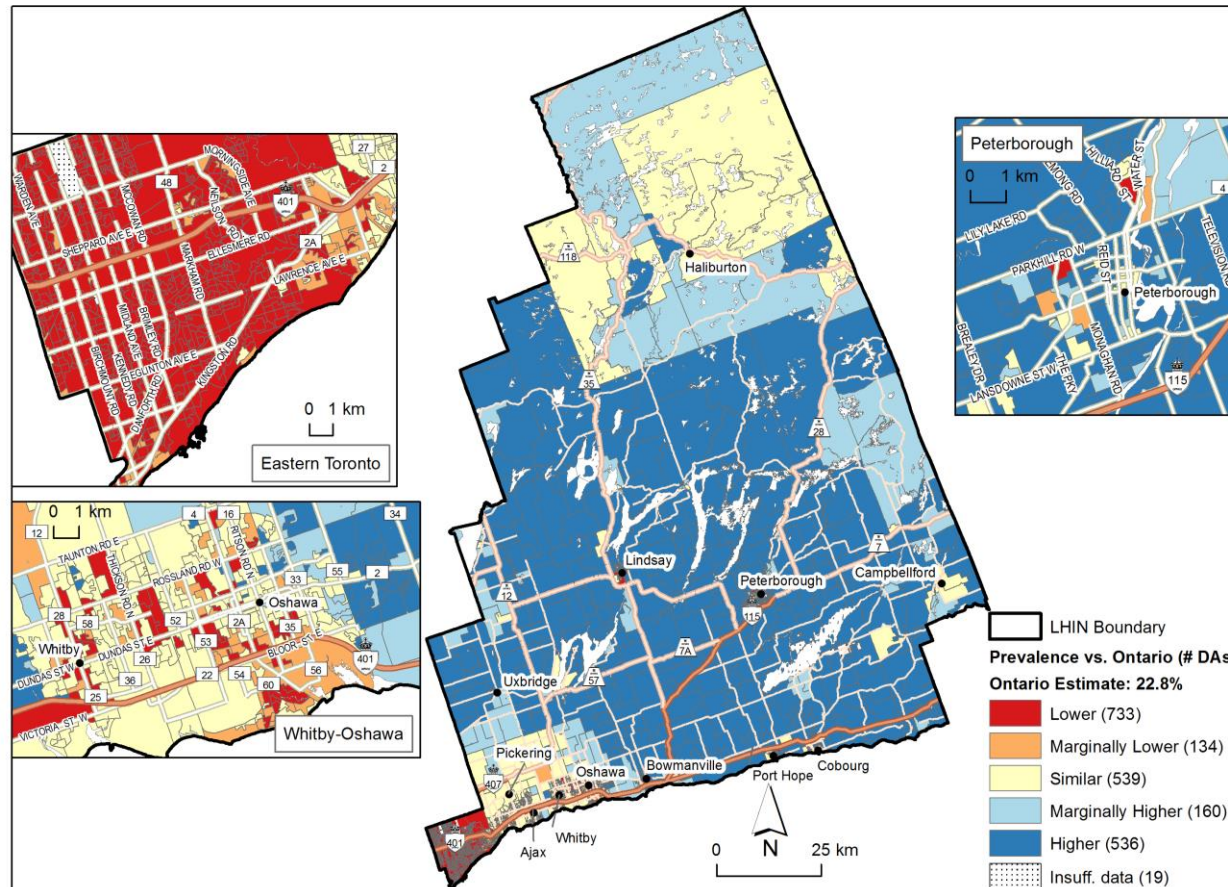
Category	Mean prevalence % (range)
Overall	22.8
Lower	17.0 (9.5, 20.1)
Marginally Lower	20.1 (18.5, 21.2)
Similar	23.2 (20.5, 27.7)
Marginally Higher	26.2 (25.1, 28.9)
Higher	29.8 (26.1, 36.9)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 9.15 Physical activity among males (age 12 and older), 2000–2014, Central East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Map Created: 24-Sep-17

Prevalence vs. Ontario (# DAs)
Ontario Estimate: 29.7%

- Lower (654)
- Marginally Lower (145)
- Similar (435)
- Marginally Higher (246)
- Higher (622)
- Insuff. data (19)
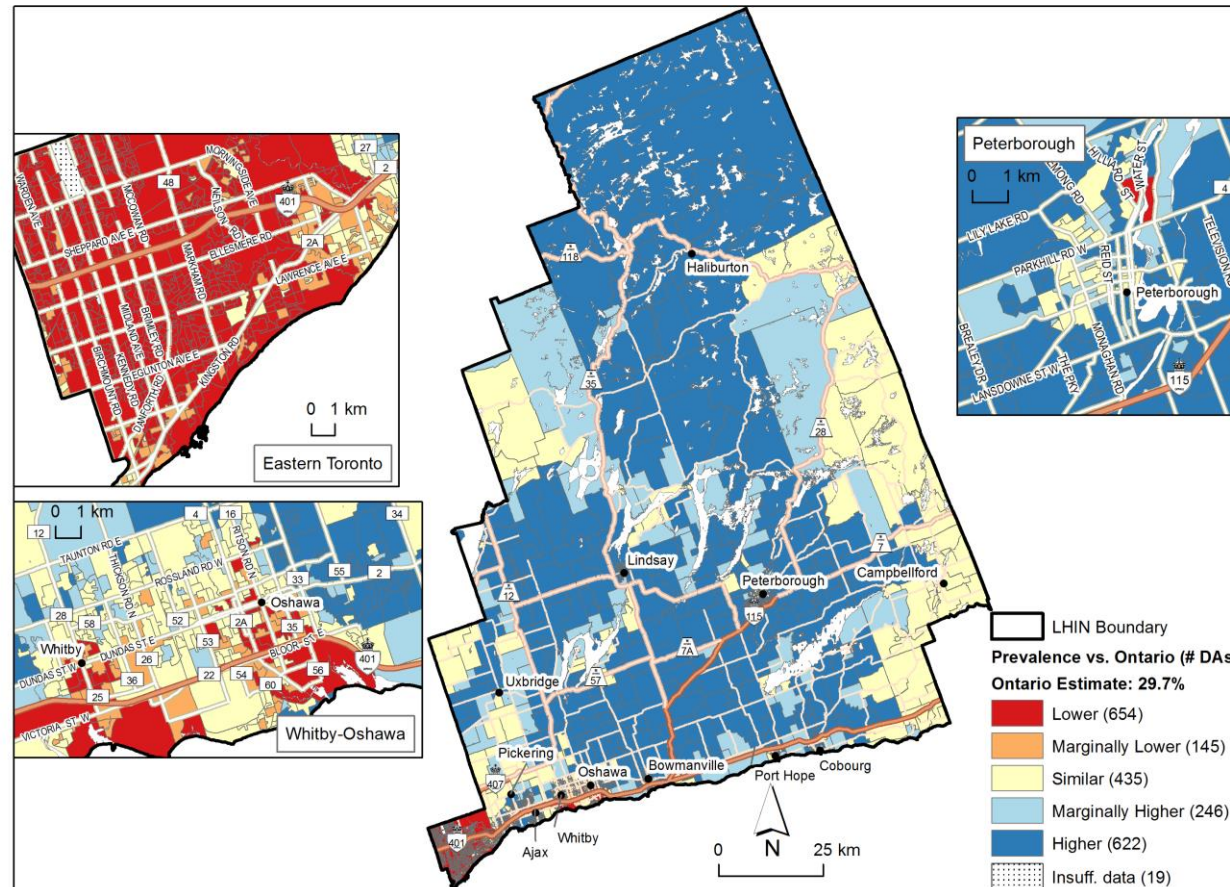
Category	Mean prevalence % (range)
Overall	30.1
Lower	23.6 (16.6, 26.6)
Marginally Lower	26.6 (25.2, 27.7)
Similar	30.5 (26.9, 34.9)
Marginally Higher	33.4 (31.7, 36.5)
Higher	36.4 (33.2, 46.5)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 9.16 Physical activity among adolescent females (ages 12 to 18), 2000–2014, Central East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Prevalence vs. Ontario (# DAs)
Ontario Estimate: 39.8%

- Lower (438)
- Marginally Lower (307)
- Similar (772)
- Marginally Higher (171)
- Higher (410)
- Insuff. data (23)

LHIN Boundary

Map Created: 24-Sep-17

Category	Mean prevalence % (range)
Overall	39.9
Lower	34.0 (30.6, 35.5)
Marginally Lower	35.3 (33.9, 37.0)
Similar	39.9 (35.8, 44.5)
Marginally Higher	44.6 (43.0, 46.7)
Higher	47.6 (45.0, 52.2)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 9.17 Physical activity among adolescent males (ages 12 to 18), 2000–2014, Central East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
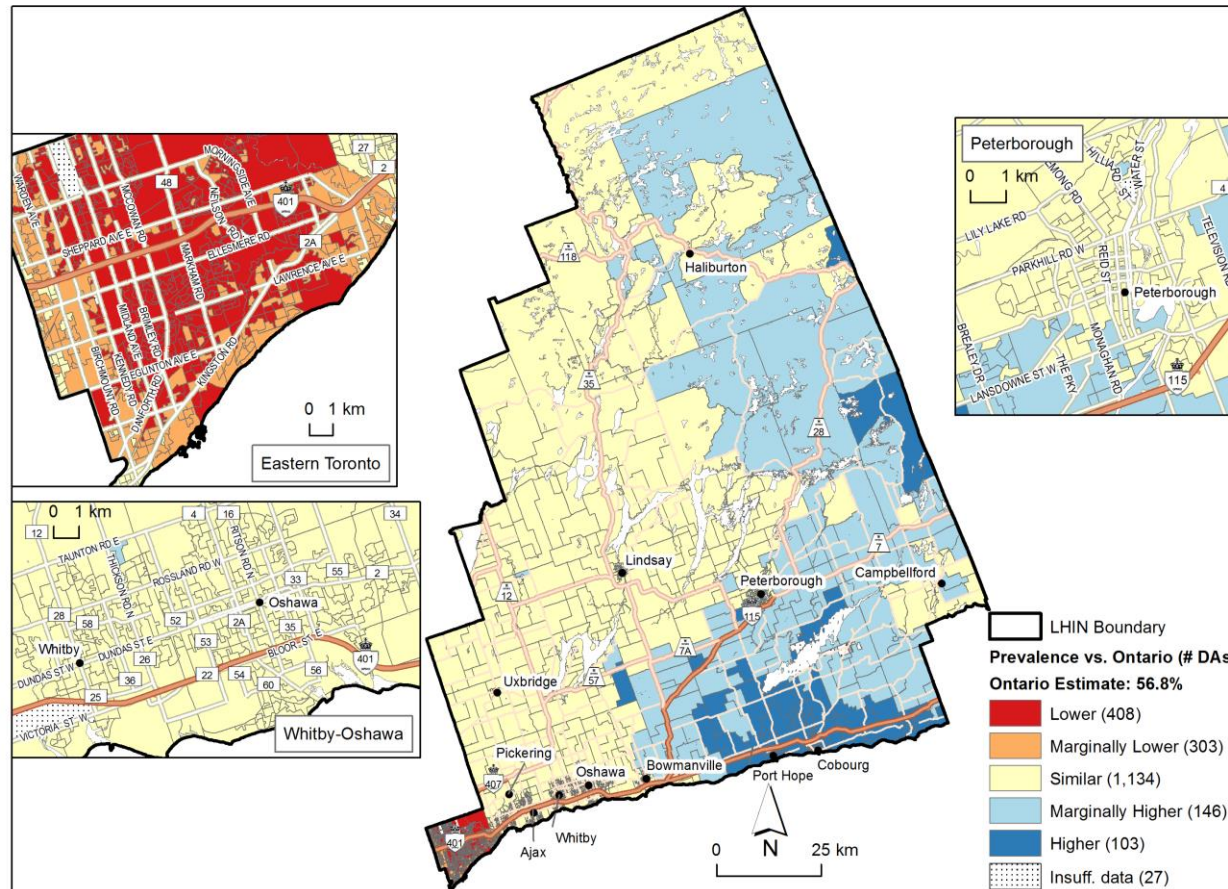
Category	Mean prevalence % (range)
Overall	55.7
Lower	50.5 (48.1, 52.2)
Marginally Lower	52.1 (50.0, 53.7)
Similar	57.3 (52.5, 60.3)
Marginally Higher	60.6 (59.6, 62.8)
Higher	63.7 (61.5, 66.9)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
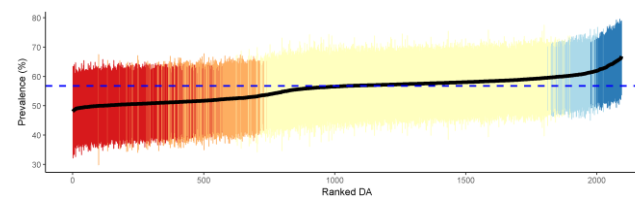
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Sedentary behaviour

People age 12 and older

Approximately half of the Ontario population reported sedentary behaviour during leisure time (females, 49%; males, 56%).

Higher prevalence than Ontario

Areas with a higher prevalence of sedentary behaviour than the Ontario average were more common for females (n=102; Figure 9.18) compared to males (n=5; Figure 9.19). For females, these areas clustered around Lindsay, Peterborough, Whitby and Oshawa. Higher prevalence areas for males were identified only in Oshawa and Peterborough.

Lower prevalence than Ontario

The number of areas with a lower prevalence of sedentary behaviour than Ontario for females (n=193; Figure 9.18) and males (n=239; Figure 9.19) was similar. For females, these areas were detected mainly in eastern Toronto, as well as a few areas near Uxbridge, Ajax, Oshawa and Bowmanville. For males, areas with a lower prevalence were clustered around Uxbridge, Lindsay, Peterborough, Bowmanville, as well as parts of eastern Toronto.

Adolescents

More than half of the Ontario adolescent population reported sedentary behaviour during leisure time, at approximately 55% for females and 60% for males. In the Central East LHIN, no areas with a higher prevalence than Ontario for adolescents were identified, which is why those maps are not shown.

Figure 9.18 Sedentary behaviour among females (age 12 and older), 2000–2014, Central East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
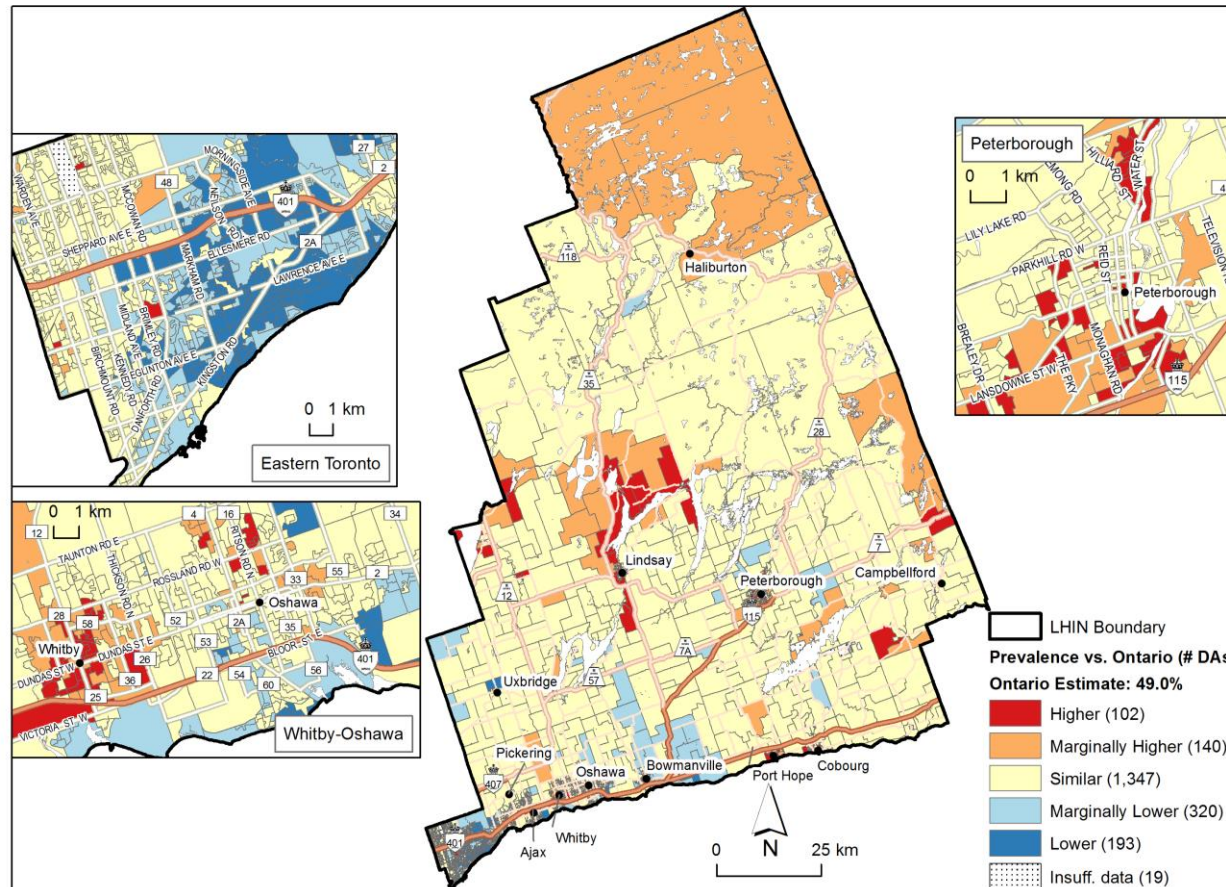
Category	Mean prevalence % (range)
Overall	48.3
Higher	54.6 (52.9, 59.2)
Marginally Higher	52.5 (51.2, 54.4)
Similar	48.7 (44.8, 52.7)
Marginally Lower	45.5 (43.3, 46.9)
Lower	43.4 (37.9, 45.6)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
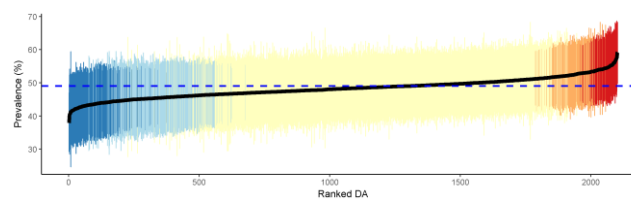
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
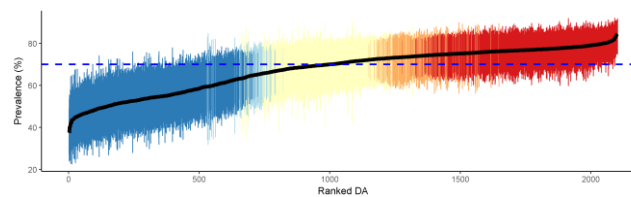
Figure 9.19 Sedentary behaviour among males (age 12 and older), 2000–2014, Central East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Prevalence vs. Ontario (# DAs)
Ontario Estimate: 55.7%

LHIN Boundary

Higher (5)	
Marginally Higher (36)	
Similar (1,532)	
Marginally Lower (290)	
Lower (239)	
Insuff. data (19)	

Map Created: 05-Oct-17

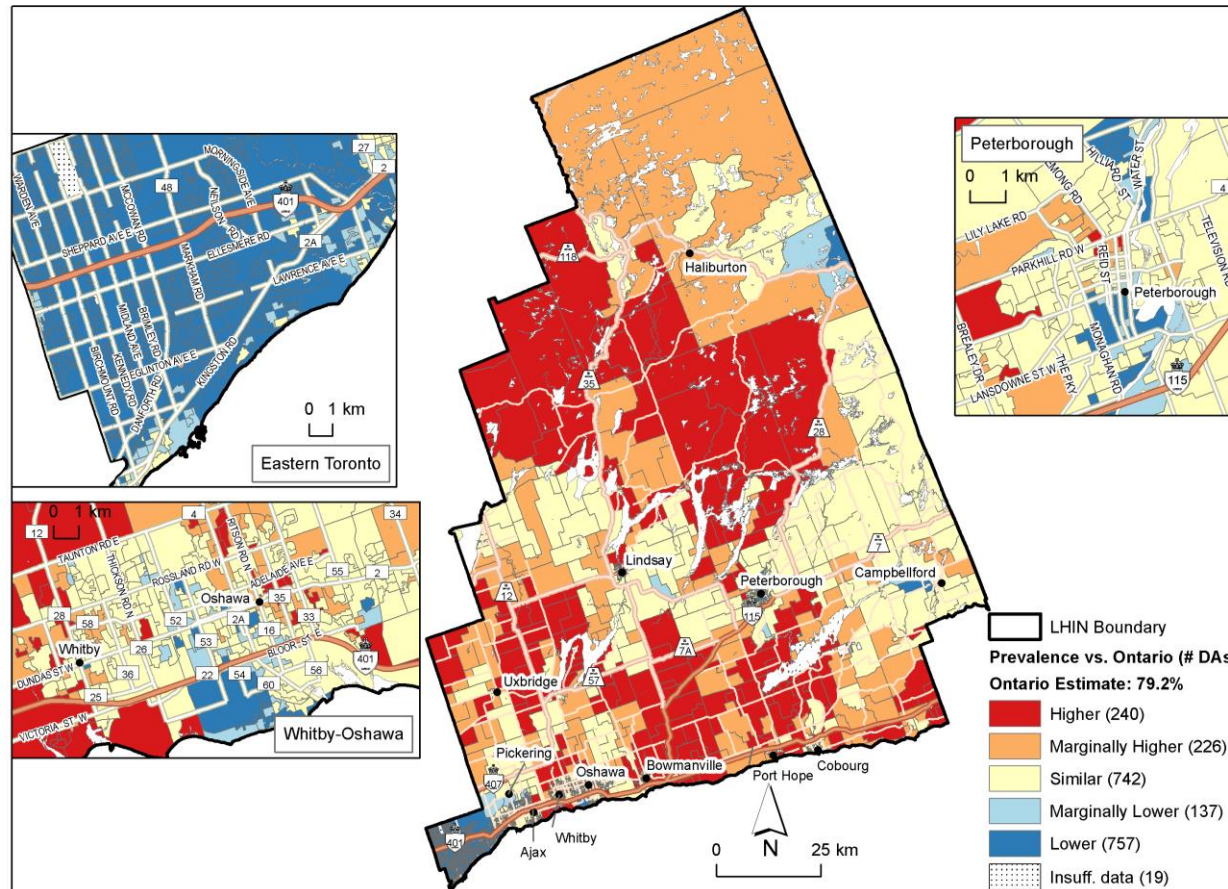| Category	Mean prevalence % (range)
Overall	54.0
Higher	61.3 (60.8, 61.9)
Marginally Higher	59.3 (58.2, 60.3)
Similar	55.1 (51.3, 59.0)
Marginally Lower	51.6 (48.6, 53.2)
Lower	49.3 (45.6, 51.8)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
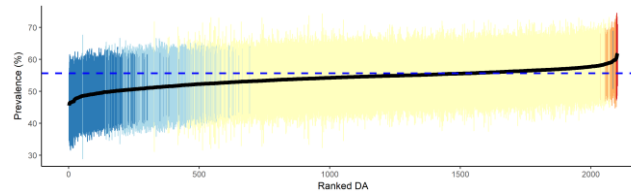
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Smoking—current status

People age 12 and older

Current tobacco smoking was reported by 17% of Ontario females and 24% of males.

Higher prevalence than Ontario

More areas with higher prevalence of current tobacco smoking than the Ontario average occurred for females (n=607; Figure 9.20) compared to males (n=287; Figure 9.21). For females, these areas were widespread across the LHIN, and occurred in parts of eastern Toronto, Peterborough and the Whitby-Oshawa area. For males, higher prevalence areas were located around Haliburton, west of Lindsay, in Peterborough, east of Cobourg, in parts of Whitby and Oshawa.

Lower prevalence than Ontario

Lower prevalence of current smoking than the Ontario average was detected in 571 areas for females (Figure 9.20) and 544 areas for males (Figure 9.21). For both sexes, lower prevalence areas occurred in eastern Toronto, Uxbridge, Pickering and northern Whitby. In males, additional areas were found in Lindsay and around Peterborough, Oshawa, Port Hope and Cobourg.

Adolescents

Approximately 8% of adolescent females and adolescent males in Ontario reported that they currently smoked tobacco.

Higher prevalence than Ontario

For adolescent females (n=246; Figure 9.22), areas with a higher prevalence of current smoking than Ontario were dispersed throughout the Central East LHIN. For adolescent males (n=177; Figure 9.23), these areas tended to be located around Haliburton and Oshawa and in the southeast of the LHIN (e.g., Peterborough, Campbellford, Port Hope and Cobourg).

Lower prevalence than Ontario

Lower prevalence areas were found predominantly in eastern Toronto but were also scattered around Pickering, Ajax and the Whitby-Oshawa area for adolescent females (n=523; Figure 9.22) and adolescent males (n=557; Figure 9.23).

Figure 9.20 Current smoking among females (age 12 and older), 2000–2014, Central East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
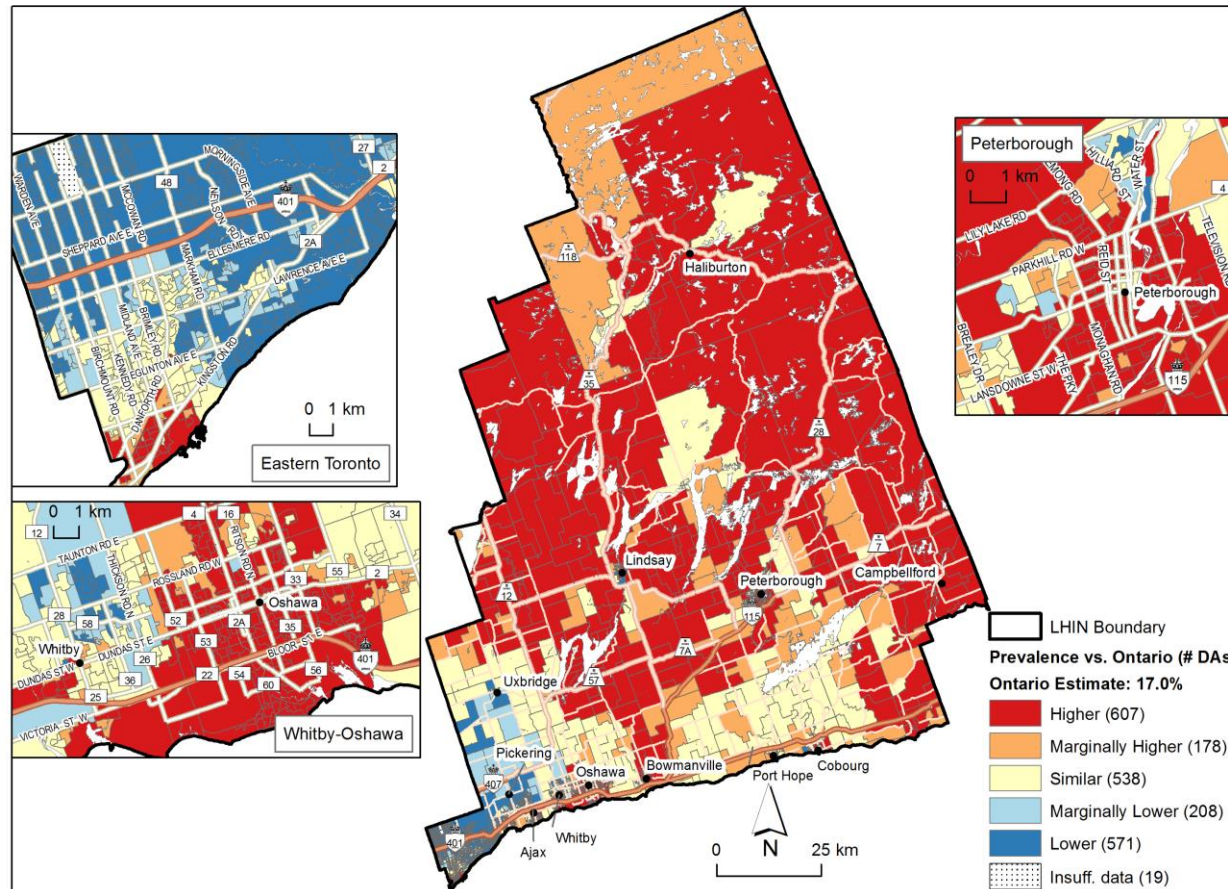
Category	Mean prevalence % (range)
Overall	18.1
Higher	26.0 (19.8, 43.6)
Marginally Higher	21.0 (19.4, 24.4)
Similar	17.6 (14.5, 25.1)
Marginally Lower	14.3 (12.4, 15.5)
Lower	10.6 (5.4, 14.4)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 9.21 Current smoking among males (age 12 and older), 2000–2014, Central East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Map Created: 24-Sep-17

Category	Mean prevalence % (range)
Overall	23.5
Higher	33.3 (27.9, 45.9)
Marginally Higher	28.1 (26.5, 31.0)
Similar	23.9 (20.6, 29.2)
Marginally Lower	20.5 (18.0, 21.8)
Lower	17.6 (8.9, 20.9)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
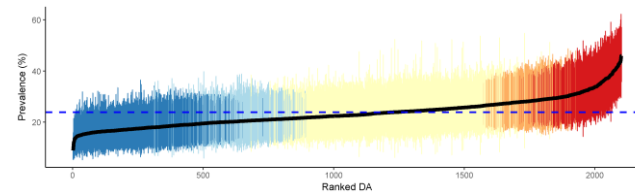
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 9.22 Current smoking among adolescent females (ages 12 to 18), 2000–2014, Central East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

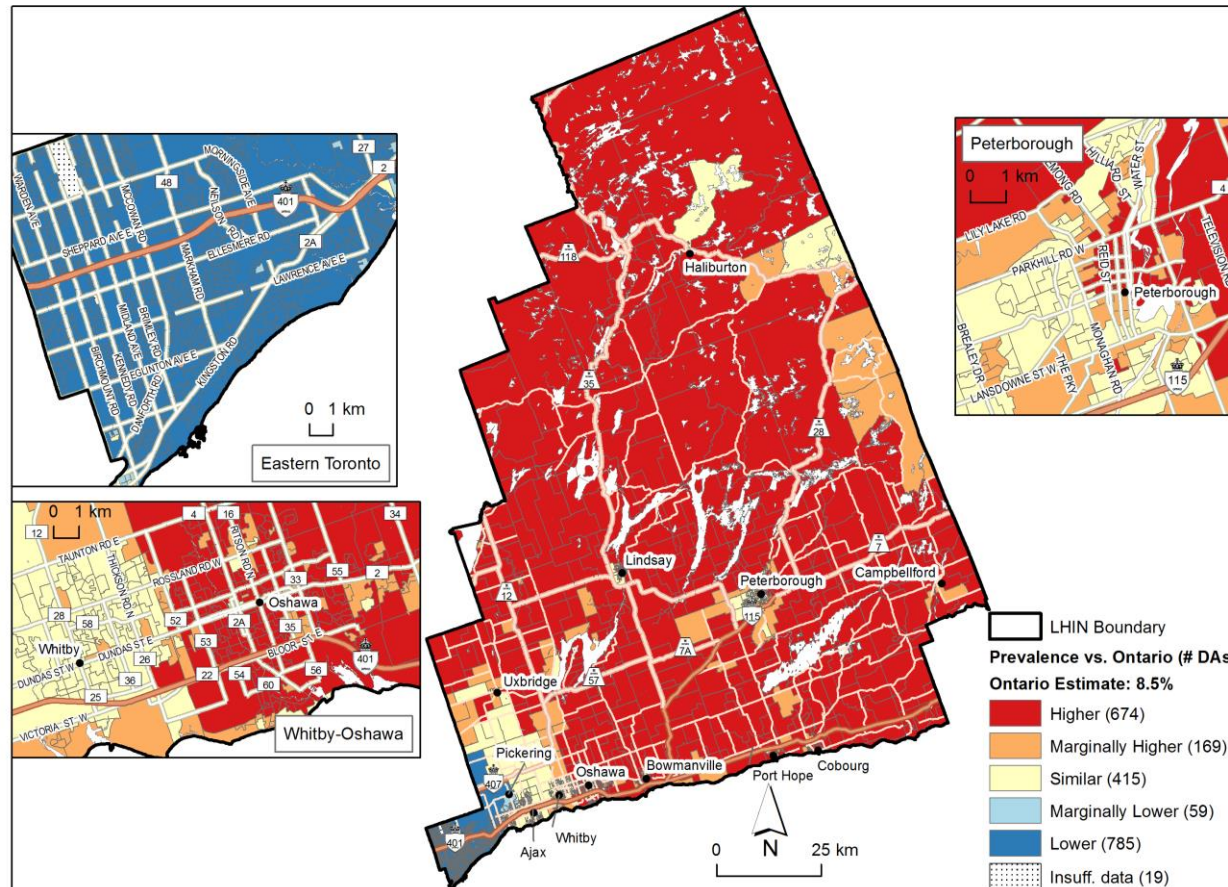| Category	Mean prevalence % (range)
Overall	8.4
Higher	13.0 (10.9, 19.9)
Marginally Higher	11.0 (9.8, 13.6)
Similar	8.7 (6.9, 11.8)
Marginally Lower	6.6 (5.9, 7.2)
Lower	5.3 (1.5, 6.5)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 9.23 Current smoking among adolescent males (ages 12 to 18), 2000–2014, Central East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Map Created: 24-Sep-17

Category	Mean prevalence % (range)
Overall	8.3
Higher	13.1 (11.2, 18.5)
Marginally Higher	11.1 (10.1, 13.8)
Similar	8.8 (7.1, 11.2)
Marginally Lower	6.8 (6.2, 7.3)
Lower	5.6 (0.9, 6.7)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
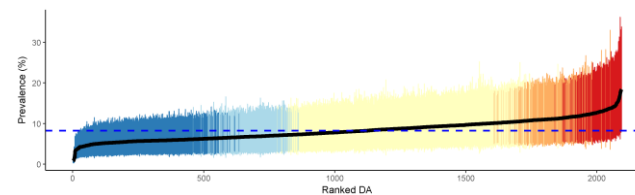
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Smoking—ever-smoked status

People age 12 and older

Approximately one in two Ontario females and three in five Ontario males reported having ever-smoked.

Higher prevalence than Ontario

Areas with a higher ever-smoked prevalence than the Ontario average were typical in the Central East LHIN with 990 areas detected for females (Figure 9.24) and 719 for males (Figure 9.25). These areas were widespread across the LHIN for both sexes, except towards the southwestern tip in many parts of eastern Toronto.

Lower prevalence than Ontario

Areas with a lower prevalence of ever-smokers than Ontario were common in eastern Toronto and around Pickering for females (n=711; Figure 9.24) and males (n=823; Figure 9.25). For males, additional areas were located around Ajax, and Peterborough.

Adolescents

The area-based prevalence of ever-smoked status was not estimated for adolescent populations.

Figure 9.24 Ever-smoked status among females (age 12 and older), 2000–2014, Central East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
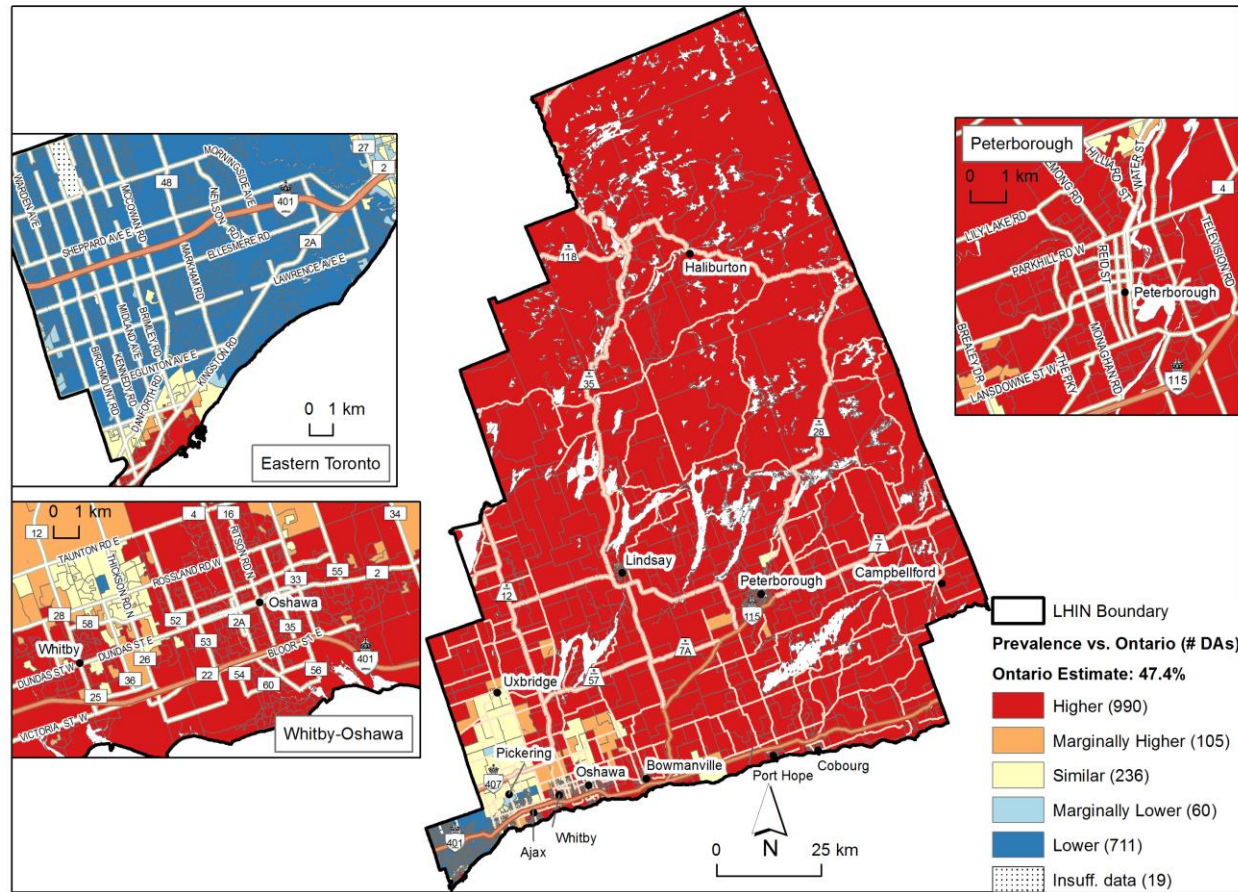
Category	Mean prevalence % (range)
Overall	47.7
Higher	58.6 (51.0, 69.5)
Marginally Higher	51.8 (49.6, 56.0)
Similar	47.4 (42.2, 51.7)
Marginally Lower	42.6 (38.7, 45.2)
Lower	32.3 (18.0, 43.3)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 9.25 Ever-smoked status among males (age 12 and older), 2000–2014, Central East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	60.3
Higher	68.9 (64.3, 83.4)
Marginally Higher	64.4 (63.2, 65.8)
Similar	61.4 (57.9, 64.3)
Marginally Lower	57.8 (53.2, 59.3)
Lower	52.0 (38.8, 58.1)

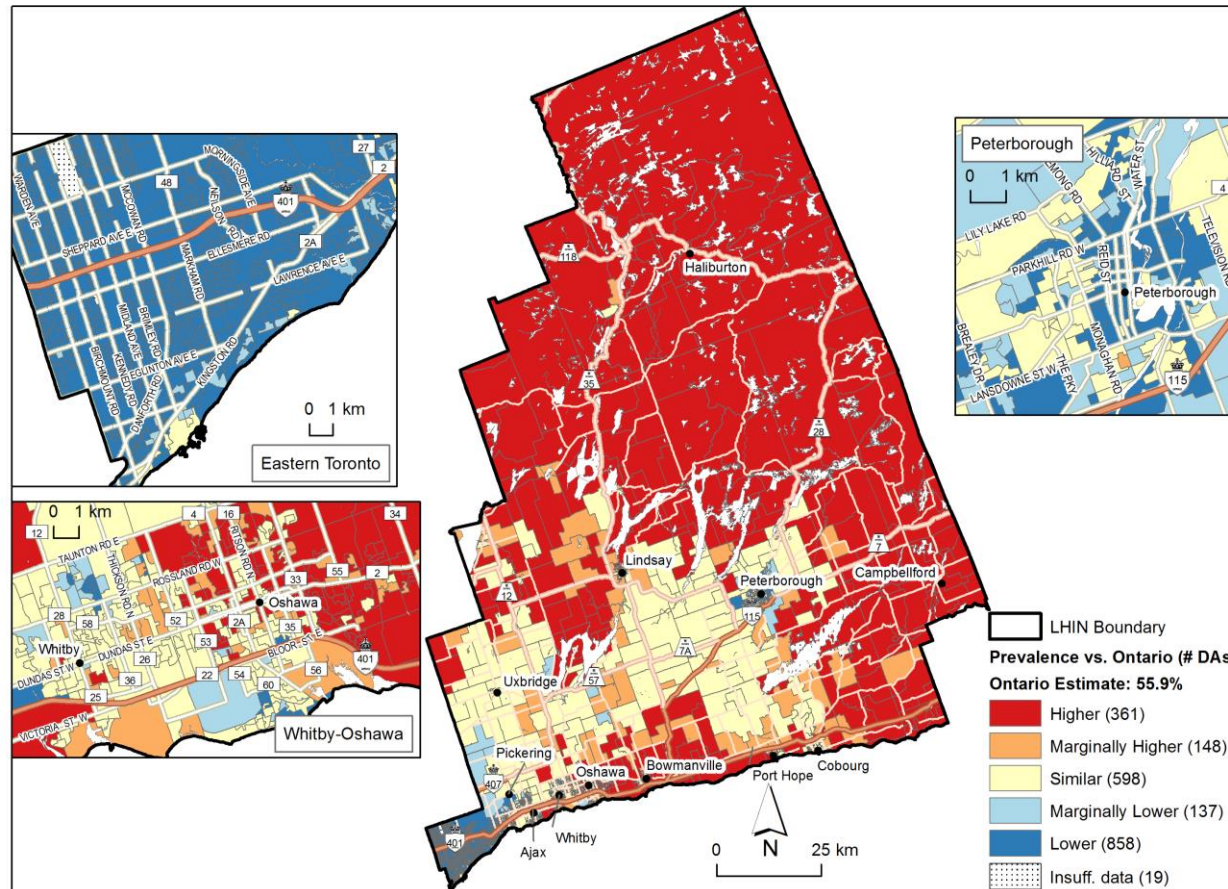Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
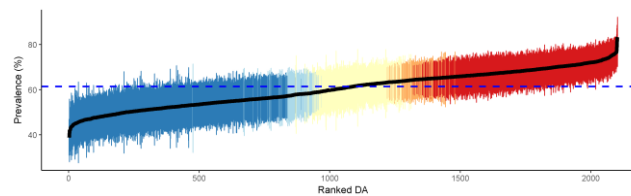
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
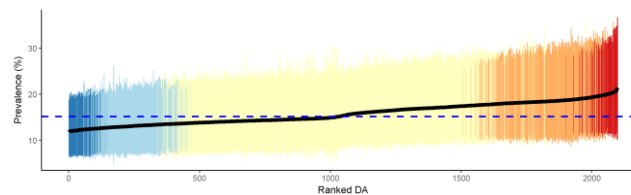
LHIN 10
South East

10. South East LHIN

Key Findings

Top three priority risk factor population estimates by sex (see Table 10.1 below):

Females
>   Smoking—ever-smoked status
>   Alcohol—current consumption
>   Excess body weight

Males
>   Smoking—ever-smoked status
>   Excess body weight
>   Inadequate vegetable and fruit consumption

Risk factor summary

Alcohol—current consumption
>   *Priority areas:*
>   - Females: southwestern (e.g., Belleville, Picton) and eastern (e.g., Perth, Smith Falls, Prescott) parts of the LHIN
>   - Males: areas around Brighton Kingston, Gananoque and Perth
>   - Adolescent females: northwestern (e.g. Bancroft), southwestern (e.g., Picton, Belleville), central (e.g., Kingston) and eastern (e.g., Perth, Merrickville and Prescott) parts of the LHIN
>   - Adolescent males: northwestern (e.g., Bancroft), southwestern (e.g., Picton, Belleville), central (Kingston and surrounding areas) and eastern (e.g., Westport, Brockville and Prescott) parts of the LHIN

Alcohol—consumption exceeding cancer prevention recommendations
>   *Priority areas:*
>   - Females: southwestern and eastern parts of the LHIN, with some areas north of Belleville
>   - Males: areas throughout the LHIN

Excess body weight
>   *Priority areas:*
>   - Females: many areas across the LHIN except around Kingston and Gananoque
>   - Males: similar pattern to females with additional areas in the eastern part of the LHIN
>   - Adolescent females: most areas in the western (e.g., west of Napanee), southwestern (e.g. Picton) and central (e.g., north of Kingston and Napanee) parts of the LHIN

Inadequate vegetable and fruit consumption
  Priority areas:
  - Females: northwestern (e.g. surrounding Bancroft) and northeastern (e.g. surrounding Brockville and Prescott) parts of the LHIN
  - Males: areas across northwestern, central and eastern parts of the LHIN

Physical activity
  Priority areas:
  - Females: very few areas located near Bancroft, Belleville, Deseronto and in Kingston
  - Males: very few areas dispersed north of Deseronto, near Picton, south of Napanee and east of Gananoque

Sedentary behaviour
  Priority areas:
  - Females: areas in the southwestern tip of the LHIN (e.g., near Belleville and Picton), around Westport and in Kingston
  - Males: very few areas scattered across the LHIN

Smoking—current status
  Priority areas:
  - Females: areas in the western (e.g., Belleville), southern (e.g., Picton), central northern (e.g., north of Napanee) and eastern (e.g., Smiths Falls) parts of the LHIN
  - Males: western (e.g. Trenton) and eastern (e.g., Brockville) parts of the LHIN, areas north of Napanee and around Bancroft
  - Adolescent females: many parts of the LHIN
  - Adolescent males: some parts of the LHIN around Bancroft and Brockville

Smoking—ever-smoked status
  Priority areas:
  - Females: most parts of the LHIN
  - Males: similar pattern to females, but fewer areas near Picton and north of Kingston

Introduction

This section describes the estimated local prevalence of risk factors across the LHIN compared to the Ontario prevalence estimates from 2000 to 2014. These comparisons are always relative to Ontario with respect to the level of statistical evidence for the underlying prevalence estimate and often the number of areas meeting specific criteria are presented in parentheses (e.g., n=40). Risk factor maps are presented for females and males age 12 and older, and for adolescent females and adolescent males ages 12 to 18 inclusive. Throughout the text, the terms "area(s)" and "local" refer to the 2006 census dissemination areas (see the Data and Methods section, page 3).

Exclusions

As discussed in the Interpretation section (page 7), maps are shown only for risk factor estimates in the LHIN where one or more local estimates were higher than Ontario (or lower than Ontario for physical activity). Therefore, the risk factor maps not displayed for South East LHIN include:

- excess body weight (overweight/obese) among adolescent males
- inadequate vegetable and fruit consumption among adolescent males and adolescent females
- physical activity among adolescent males and adolescent females
- sedentary behaviour among adolescent males and adolescent females

Notes

Risk factor prevalence could not be estimated for several areas in the South East LHIN (e.g., suppressed census populations or institutionalized populations), which are shown as "insufficient data" on the maps. These areas include the Tyendinaga Mohawk Territory. Additionally, areas with unavailable population data are shown as "insufficient data." See Appendix C for a full list of areas in the insufficient data category.

Priority population estimates

Priority population estimates may be helpful in prioritizing health promotion and planning efforts for potential populations affected by certain modifiable risk factors. Table 10.1 (page 340) presents the estimated priority populations for each risk factor by sex and age group in the South East LHIN. Priority populations are defined as those living in areas with a higher risk factor prevalence (or lower prevalence for physical activity) than Ontario. These estimates were produced by summing the population from all higher (or lower for physical activity) prevalence small areas (2006 dissemination areas) after taking into account the risk factor prevalence of each area. For example, if among females 100 areas had a higher prevalence of current alcohol consumption than Ontario, the female 2006 census populations in each of these areas were multiplied by the prevalence of current alcohol consumption for each area and then summed across the 100 areas to produce an estimate of the female "priority population." These calculations are intended to provide a measure to prioritize the risk factors rather than a population estimate.

According to the Methods (page 4) and Interpretation (page 7) sections, these higher prevalence areas had strong statistical evidence of elevated prevalence compared to Ontario (posterior probabilities ≥ 80%). An exception is physical activity, which had strong statistical evidence of lower prevalence estimates than Ontario (posterior probabilities ≤ 20%). Therefore, the population estimates for each risk factor are likely undercounted because areas with less statistical certainty (posterior probabilities < 80% and physical activity posterior probabilities > 20%) are not included in the priority population estimates.

Table 10.1 Estimated priority populations among higher prevalence** dissemination areas compared to Ontario by risk factor, sex and age group, South East Local Health Integration Network (LHIN), using 2006 census populations

Risk factor	Female priority population*†	% of female population in the LHIN† (n= 210,560)	Male priority population*†	% of male population in the LHIN† (n= 196,620)	Adolescent female priority population*‡	% of adolescent female population in the LHIN‡ (n= 21,070)	Adolescent male priority population*‡	% of adolescent male population in the LHIN‡ (n= 22,380)
Alcohol—current consumption	83,410	40%	33,620	17%	3,010	14%	5,590	25%
Alcohol—consumption exceeding cancer prevention recommendations	7,180	3%	16,370	8%	NM	—	NM	—
Excess body weight	67,610	32%	67,830	35%	2,220	11%	NE	—
Inadequate vegetable and fruit consumption	16,220	8%	58,610	30%	NE	—	NE	—
Physical activity**	860	0%	730	0%	NP	—	NP	—
Sedentary behaviour	25,690	12%	21,680	11%	NE	—	NE	—
Smoking—current status	28,840	14%	20,540	10%	520	2%	1,370	6%
Smoking—ever-smoked status	114,440	54%	99,190	50%	NM	—	NM	—

NE = no estimates within the "higher" prevalence categories**; NM = not modelled; NP = census population estimates not available
* Estimates rounded to multiples of 10
** For physical activity, priority populations are those living in areas with a lower risk factor prevalence compared to Ontario
† Population age 12 and older
‡ Population ages 12 to 18
— Value not applicable

Alcohol—current consumption

People age 12 and older

An estimated 70% of females and 79% of males in Ontario reported current alcohol consumption.

Higher prevalence than Ontario

Across the South East LHIN, areas with a higher prevalence of current alcohol consumption than the Ontario average were more common among females (n=415; Figure 10.1) compared to males (n=159; Figure 10.2). For both sexes, higher prevalence areas occurred in the southwestern (e.g., around Brighton), south-central (e.g., Napanee) and eastern (e.g., Kingston, Gananoque, Smith Falls and Prescott) parts of the LHIN. Among females, additional areas of higher prevalence occurred in the northern (e.g., west and east of Bancroft) and eastern (e.g., Smiths Falls, Prescott) parts of the LHIN.

Lower prevalence than Ontario

There were fewer areas that had a lower prevalence of current alcohol consumption than the Ontario average for females (n=17; Figure 10.1) compared to males (n=65; Figure 10.2). For both sexes, areas of lower prevalence generally occurred in the western part of the LHIN. Among males, most of these areas were located around Belleville. Lower prevalence areas for females occurred near Bancroft, north of Belleville and near Kingston.

Adolescents

Among the adolescent population in Ontario, approximately 40% of females and males reported current alcohol consumption.

Higher prevalence than Ontario

Areas with a higher prevalence of current alcohol consumption than Ontario were less common among adolescent females (n=250; Figure 10.3) compared to adolescent males (n=413; Figure 10.4). For both sexes, areas of higher prevalence occurred in the northwest (e.g., Bancroft), southwest (e.g., Picton, Belleville), central (Kingston and surrounding areas) and the eastern parts of the LHIN (e.g., Brockville, Smiths Falls, Westport). But, the patterns differed between adolescent females and adolescent males. For example, for adolescent males, higher prevalence areas were located in the northern-most parts of the LHIN (i.e., north of Napanee).

Lower prevalence than Ontario

Areas with a lower prevalence of current alcohol consumption than the Ontario average were more common among adolescent females (n=78; Figure 10.3) compared to adolescent males (n=41; Figure 10.4). For adolescent females and adolescent males, areas of lower prevalence were dispersed across the LHIN.

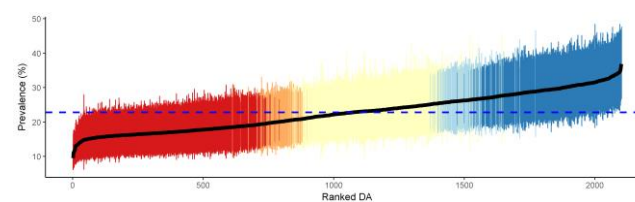**Figure 10.1** Current alcohol consumption among females (age 12 and older), 2000–2014, South East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
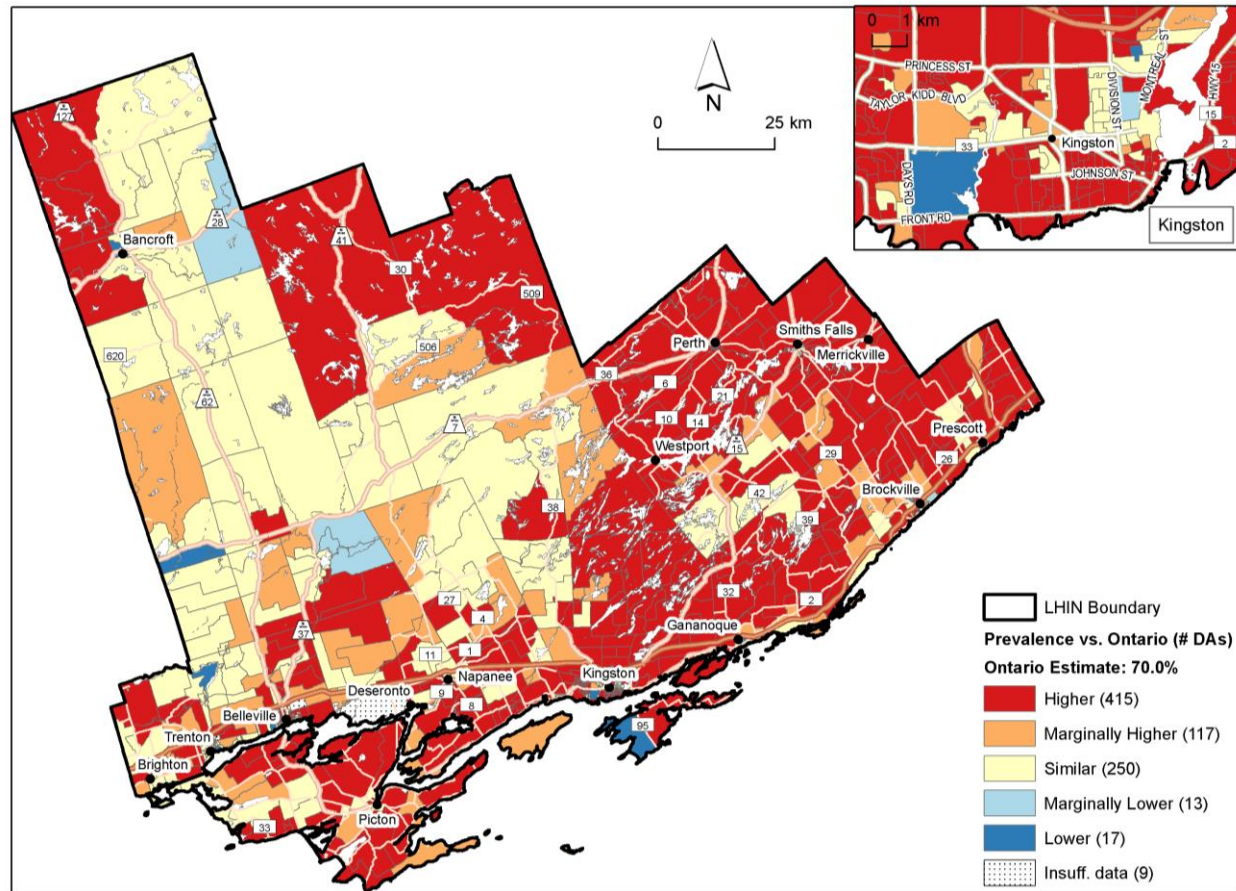
Map Created: 08-Sep-17

Category	Mean prevalence % (range)
Overall	74.4
Higher	77.8 (73.7, 87.8)
Marginally Higher	73.6 (72.3, 78.7)
Similar	70.5 (65.5, 73.1)
Marginally Lower	66.1 (65.2, 67.5)
Lower	61.6 (53.9, 65.1)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
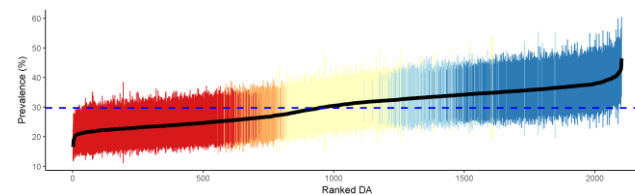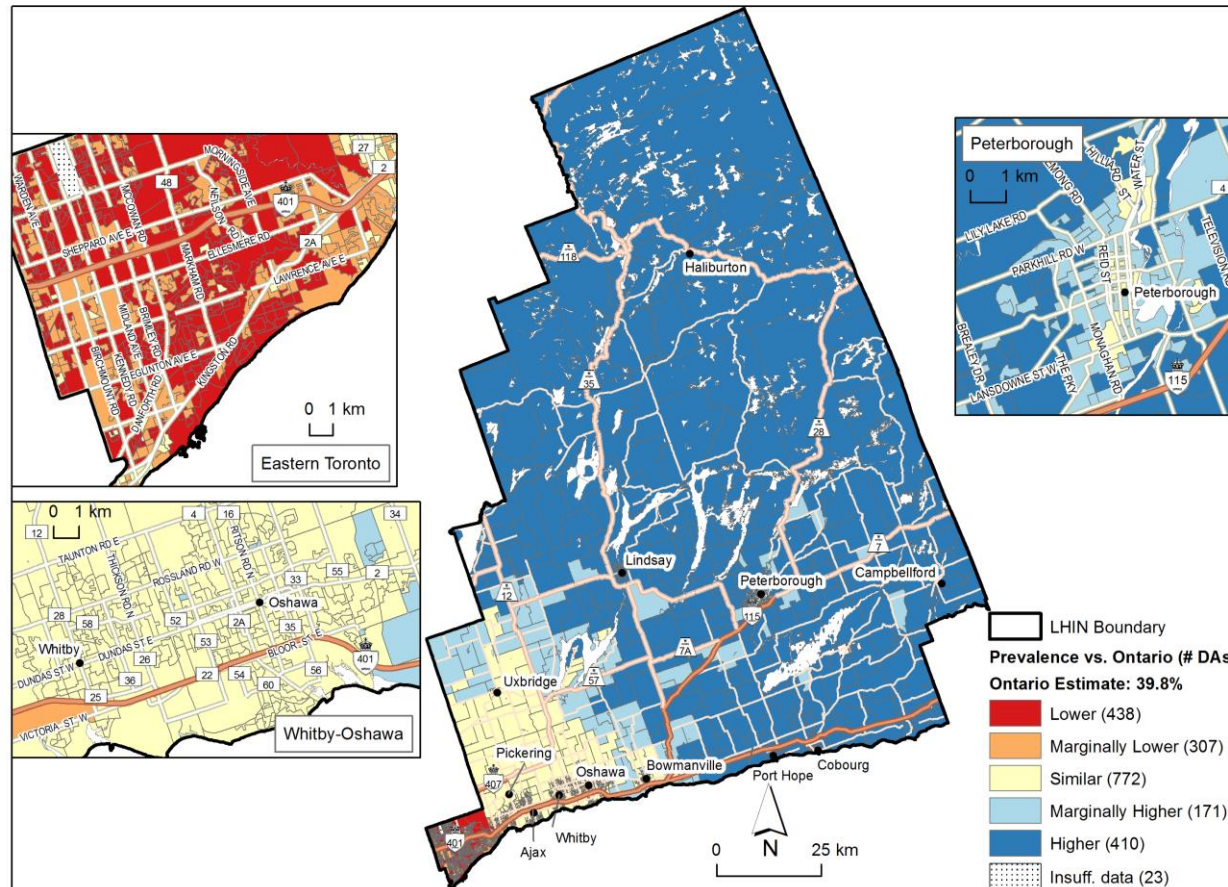
Figure 10.2 Current alcohol consumption among males (age 12 and older), 2000–2014, South East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	79.6
Higher	83.9 (81.7, 90.0)
Marginally Higher	81.6 (80.6, 83.4)
Similar	79.0 (75.9, 82.5)
Marginally Lower	75.9 (74.4, 77.1)
Lower	73.0 (62.1, 75.5)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
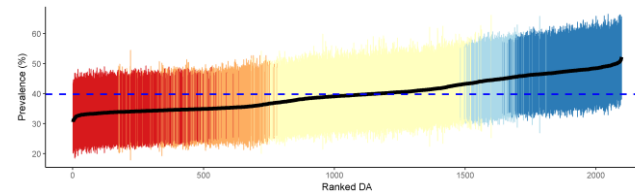
Figure 10.3 Current alcohol consumption among adolescent females (ages 12 to 18), 2000–2014, South East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	42.2
Higher	49.1 (44.3, 63.6)
Marginally Higher	43.8 (42.1, 45.8)
Similar	39.9 (36.0, 43.7)
Marginally Lower	35.8 (34.1, 37.0)
Lower	32.2 (12.5, 35.5)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
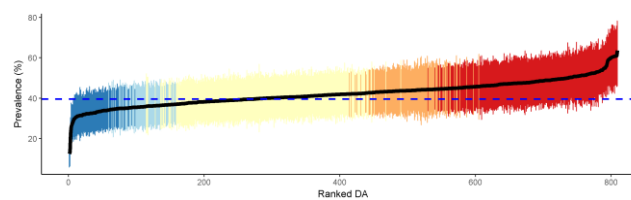
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 10.4 Current alcohol consumption among adolescent males (ages 12 to 18), 2000–2014, South East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
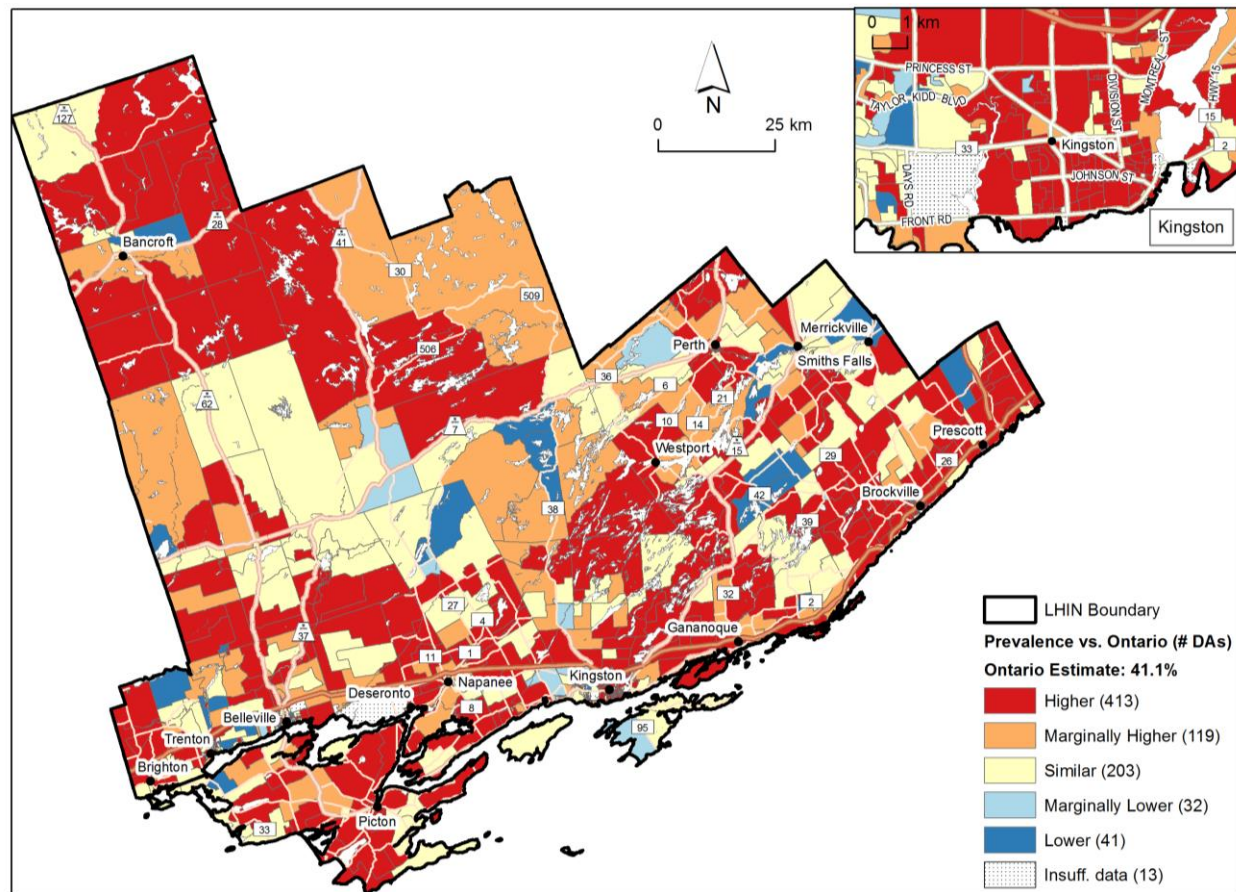
Category	Mean prevalence % (range)
Overall	46.4
Higher	51.2 (45.6, 73.0)
Marginally Higher	45.1 (43.9, 47.4)
Similar	41.6 (38.1, 45.5)
Marginally Lower	37.2 (35.1, 38.5)
Lower	33.6 (13.3, 37.2)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Alcohol—consumption exceeding cancer prevention recommendations

People age 12 and older

Almost 7% of the female population in Ontario drank alcohol in excess of the recommended limits for cancer prevention. Among males, the Ontario prevalence of exceeding the recommended limits was 8.5%.

Higher prevalence than Ontario

For females, areas with a higher prevalence than the Ontario average of alcohol consumption in excess of the recommended limits for cancer prevention (n=268; Figure 10.5) occurred mainly in the southwestern (e.g., Picton) and eastern (e.g., Perth, Merrickville and Prescott) parts of the LHIN. Higher prevalence areas were much more common for males (n=562; Figure 10.6) than females and occurred in most parts of the LHIN.

Lower prevalence than Ontario

For females (n=4; Figure 10.5) and males (n=1; Figure 10.6), areas with a lower prevalence than Ontario of alcohol consumption in excess of the recommended limits for cancer prevention were uncommon in the South East LHIN.

Adolescents

The area-based prevalence of exceeding cancer prevention recommendations was not estimated for adolescent populations.

**Figure 10.5** Alcohol consumption exceeding cancer prevention recommendations among females (age 12 and older), 2000–2014, South East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
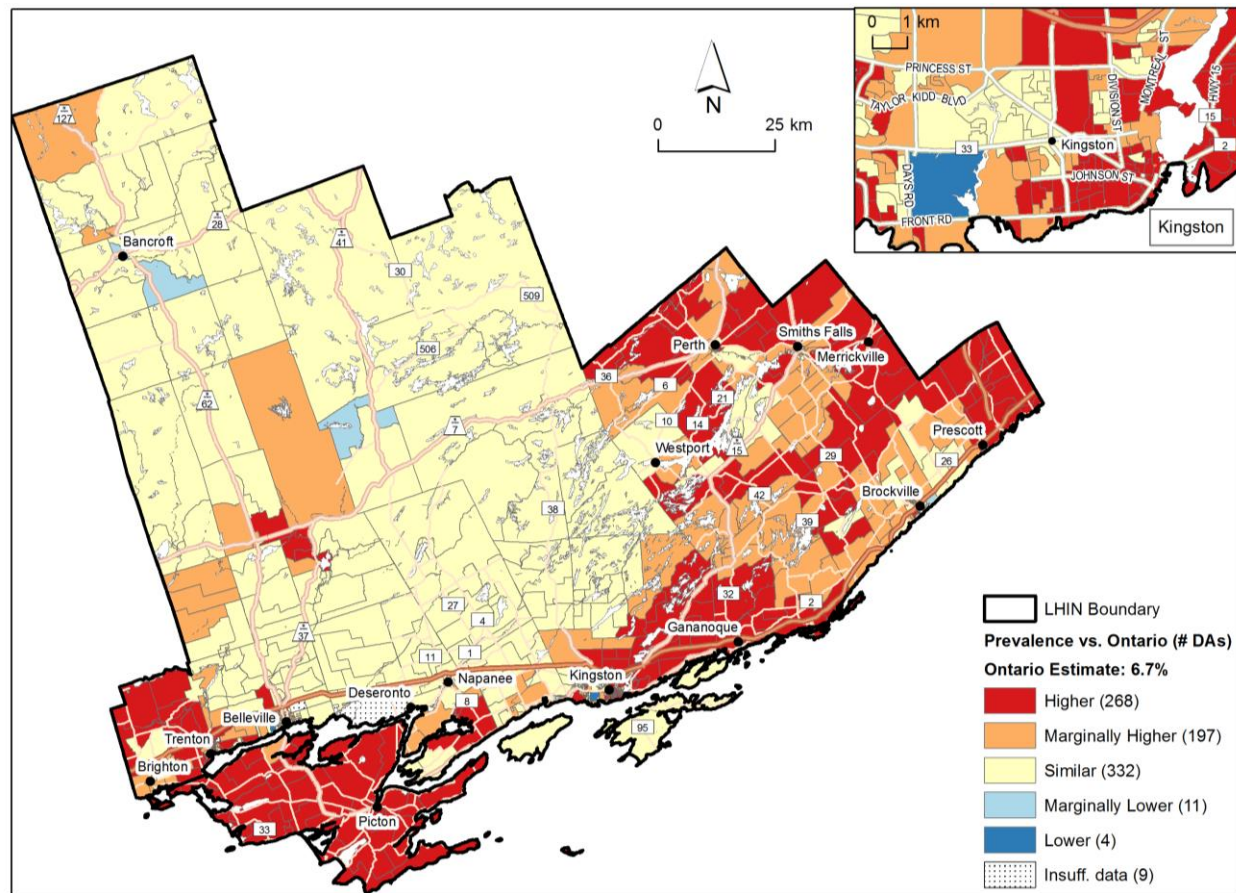
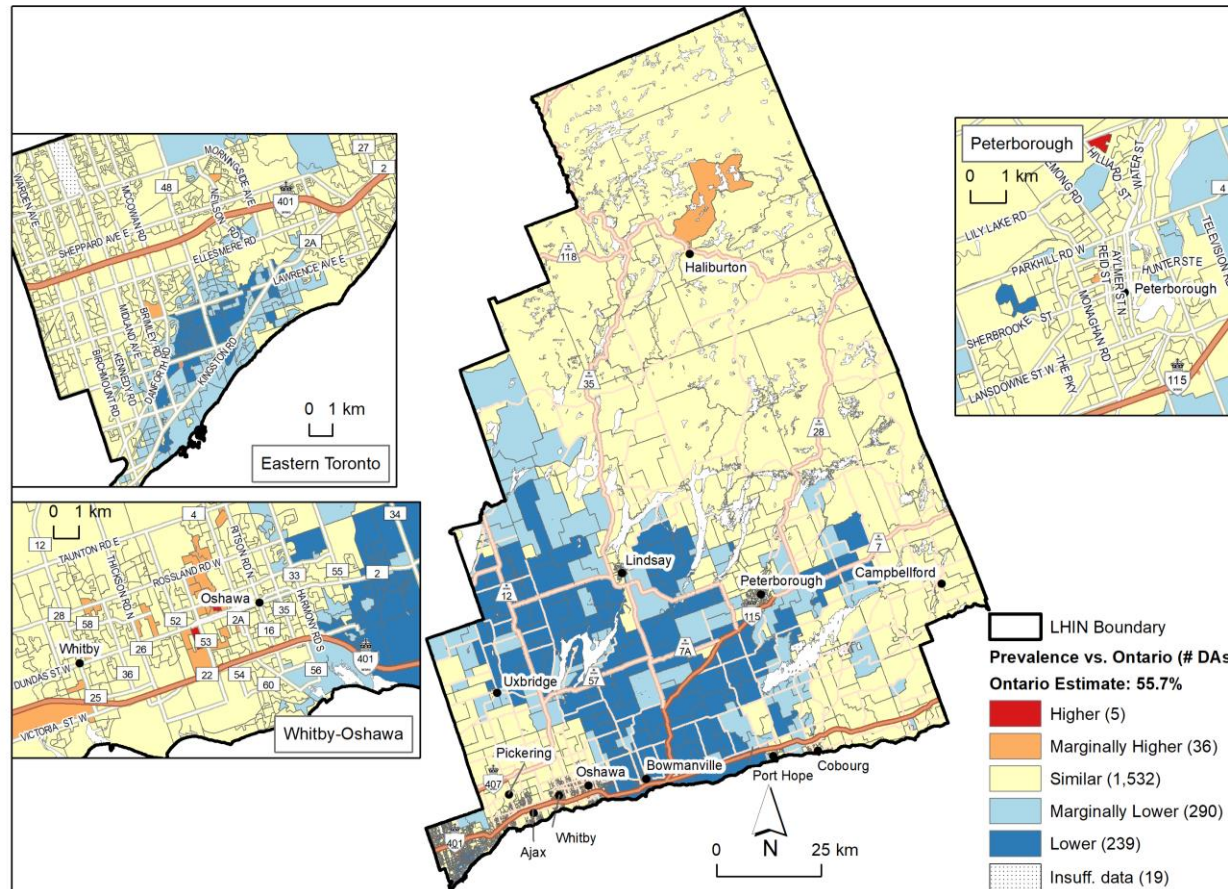| Category	Mean prevalence % (range)
Overall	8.8
Higher	10.5 (8.6, 17.8)
Marginally Higher	8.8 (8.1, 11.5)
Similar	7.6 (5.9, 8.8)
Marginally Lower	5.8 (5.6, 6.0)
Lower	4.7 (4.2, 5.4)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
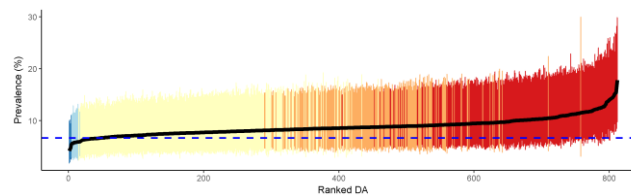
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 10.6 Alcohol consumption exceeding cancer prevention recommendations among males (age 12 and older), 2000–2014, South East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
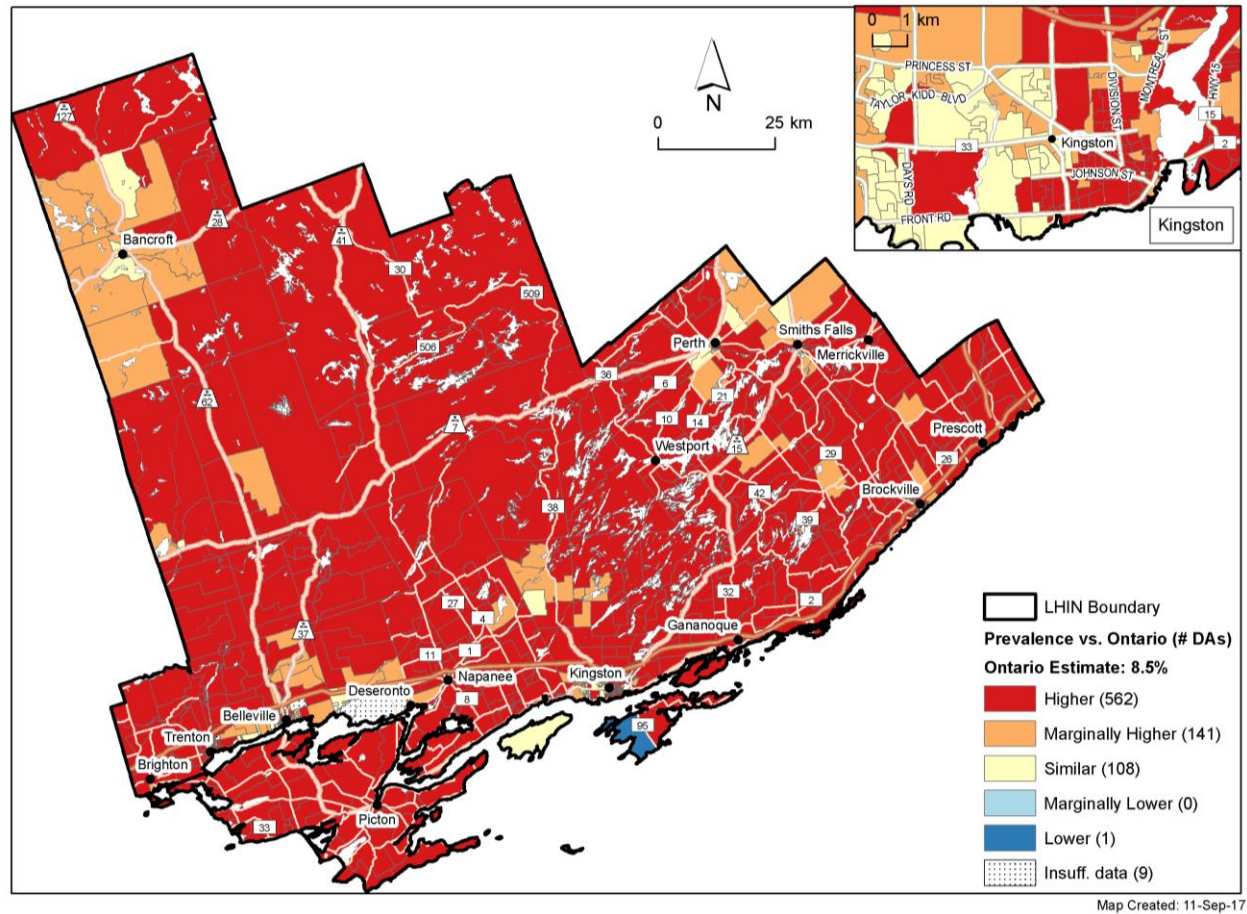
Category	Mean prevalence % (range)
Overall	11.5
Higher	12.3 (10.3, 17.0)
Marginally Higher	10.4 (9.6, 12.3)
Similar	9.3 (7.7, 10.5)
Marginally Lower	N/A
Lower	5.8 (5.8, 5.8)

N/A = no estimates in the category

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Excess body weight

People age 12 and older

The estimated Ontario prevalence of excess body weight (overweight or obese) among females was 41% and among males was 56%.

Higher prevalence than Ontario

For males and females, areas with a higher prevalence of excess body weight were prominent across the LHIN with fairly similar patterns for both sexes. Higher prevalence areas were more common for females (n=529; Figure 10.7) compared to males (n=444; Figure 10.8), particularly in Kingston. However, higher prevalence areas were more common for males in the eastern part of the LHIN.

Lower prevalence than Ontario

There were more areas with a higher prevalence of excess body weight than Ontario for females (n=25; Figure 10.7) compared to males (n=45; Figure 10.8). For both sexes, these areas were located in and around Kingston.

Adolescents

Among Ontario adolescents, an estimated 15% of females and 25% of males surveyed were overweight or obese.

Higher prevalence than Ontario

For adolescent females (n=393; Figure 10.9), areas with a higher prevalence of excess body weight than the Ontario average were common in the western (e.g., west of Napanee), southwestern (e.g. south of Deseronto) and central (e.g., north of Kingston) parts of the LHIN. Areas of higher prevalence were also located in the eastern part of the LHIN (e.g. north east of Kingston). In the South East LHIN, no areas with a higher prevalence than Ontario for adolescent males were identified, which is why that map is not shown.

Lower prevalence than Ontario

Across the LHIN, no areas with a lower prevalence of excess body weight than Ontario were detected for adolescent females (Figure 10.9).

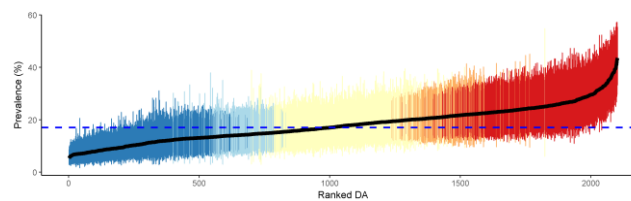**Figure 10.7** Excess body weight (overweight/obese) among females (age 12 and older), 2000–2014, South East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
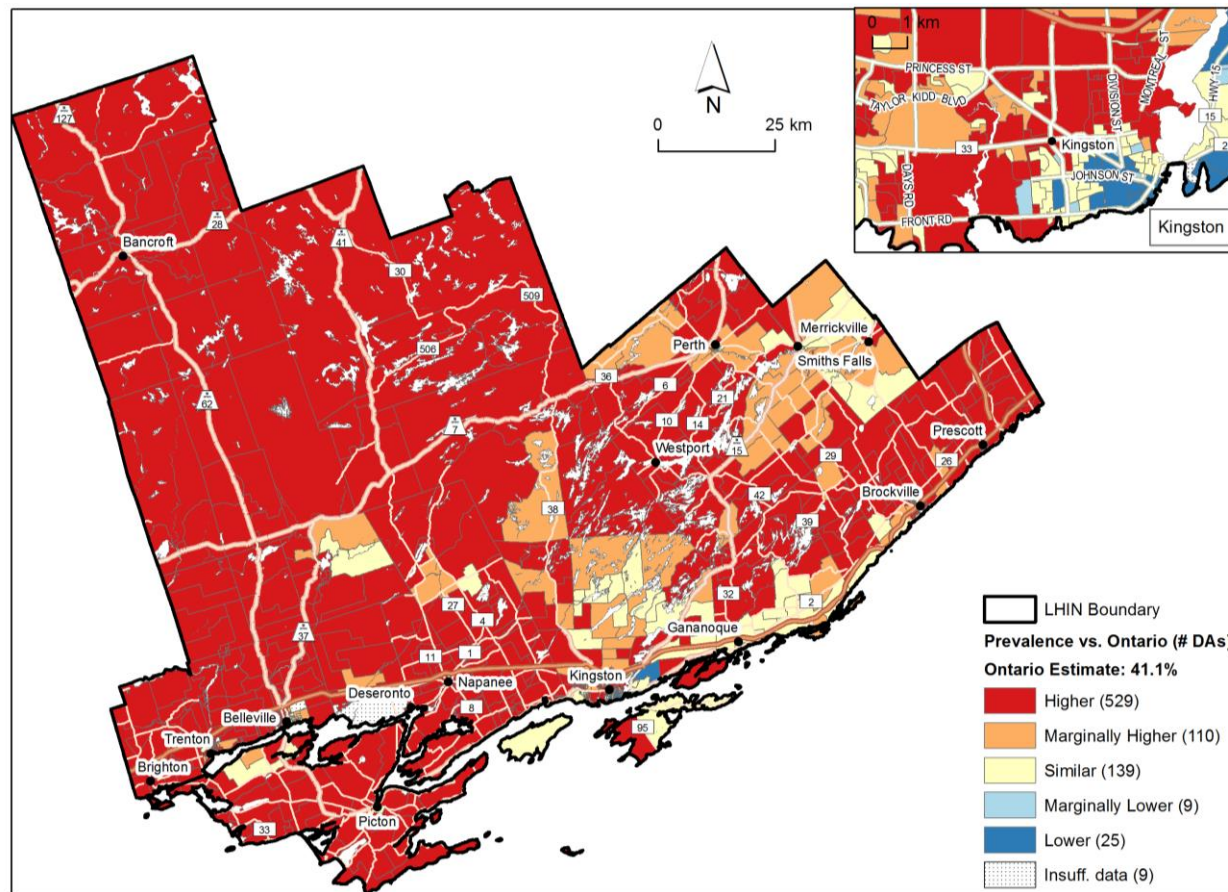
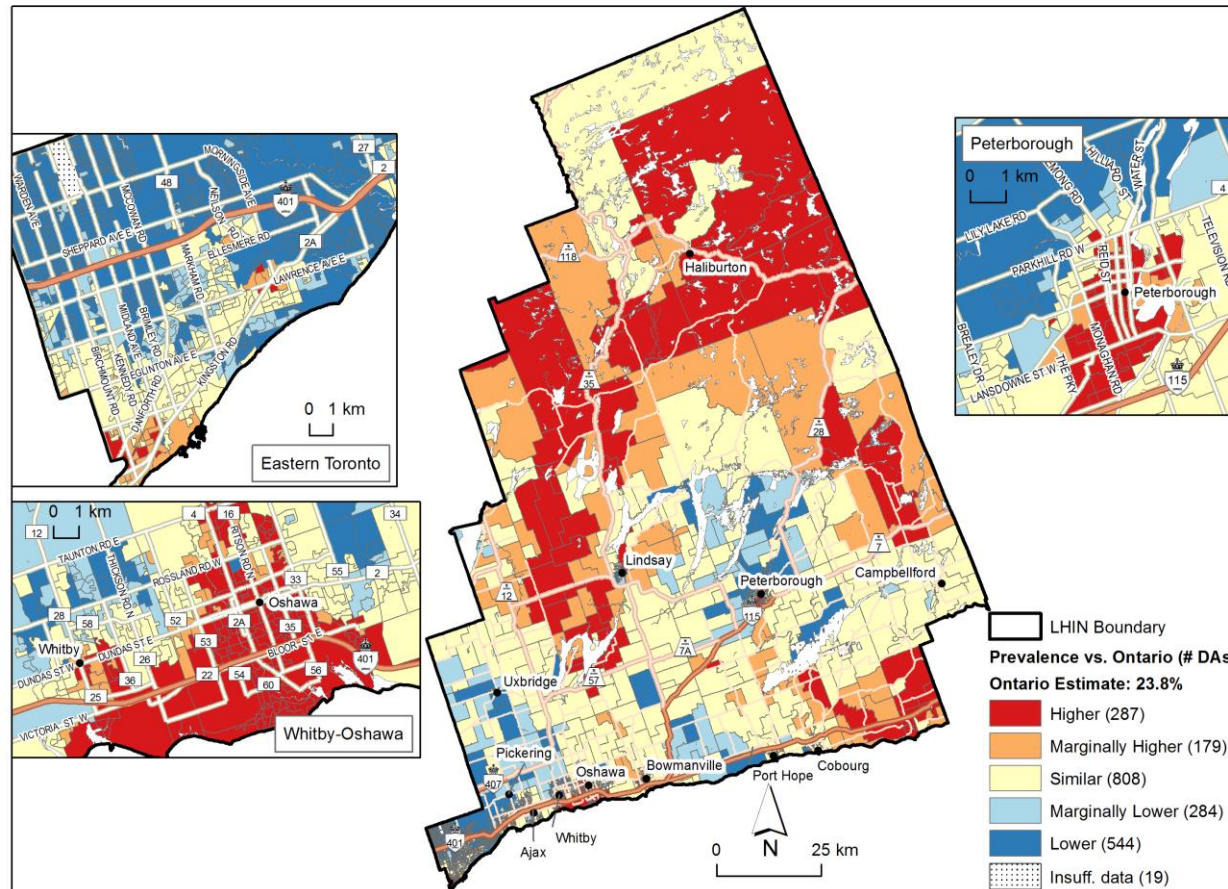| Category	Mean prevalence % (range)
Overall	46.6
Higher	49.0 (44.6, 57.7)
Marginally Higher	44.7 (43.4, 46.6)
Similar	42.0 (39.1, 44.8)
Marginally Lower	38.2 (37.9, 38.6)
Lower	34.0 (29.5, 36.6)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
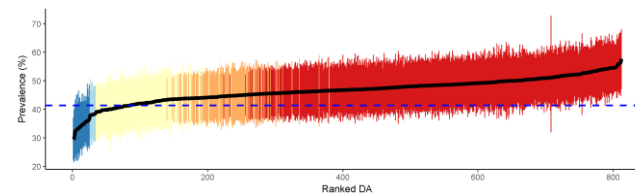
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 10.8 Excess body weight (overweight/obese) among males (age 12 and older), 2000–2014, South East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Map Created: 18-Sep-17
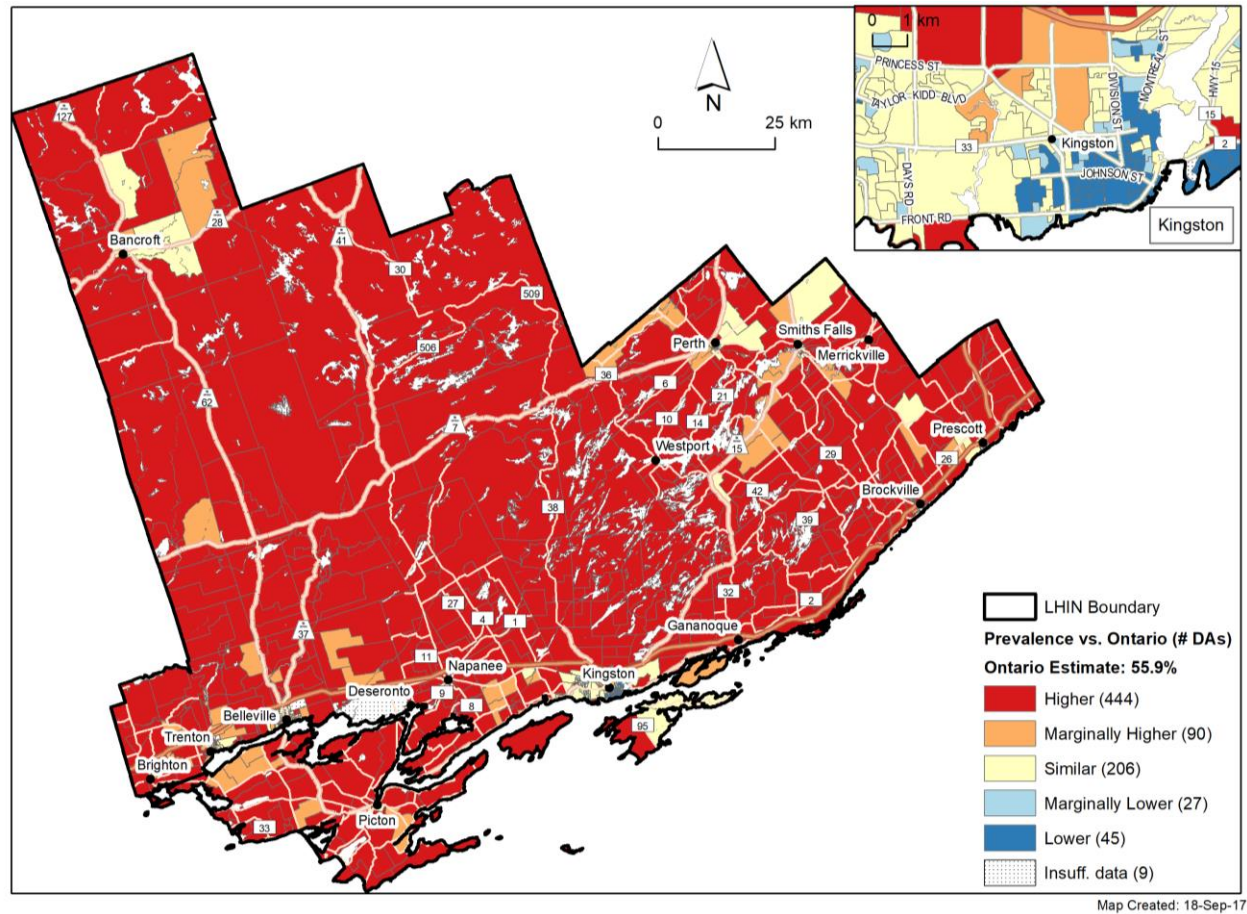
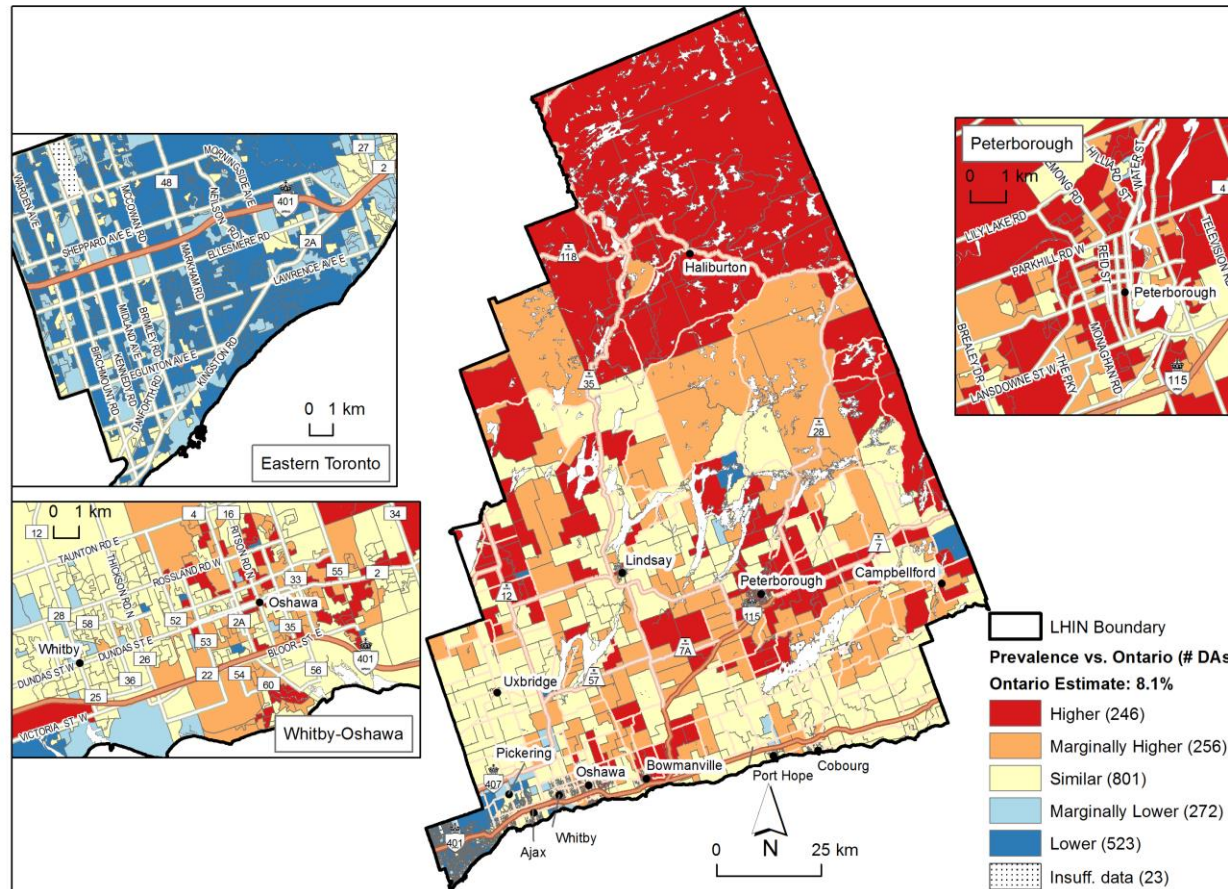| Category	Mean prevalence % (range)
Overall	59.2
Higher	62.0 (59.0, 68.9)
Marginally Higher	58.9 (57.9, 60.3)
Similar	56.3 (53.4, 58.3)
Marginally Lower	53.0 (51.9, 54.2)
Lower	49.5 (42.8, 52.4)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
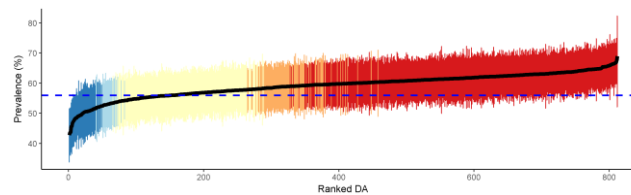
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
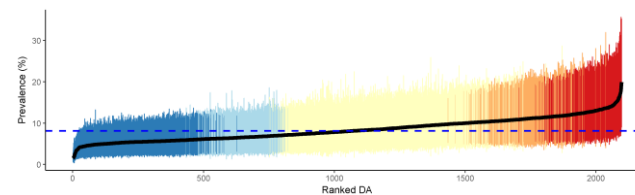
Figure 10.9 Excess body weight (overweight/obese) among adolescent females (ages 12 to 18), 2000–2014, South East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
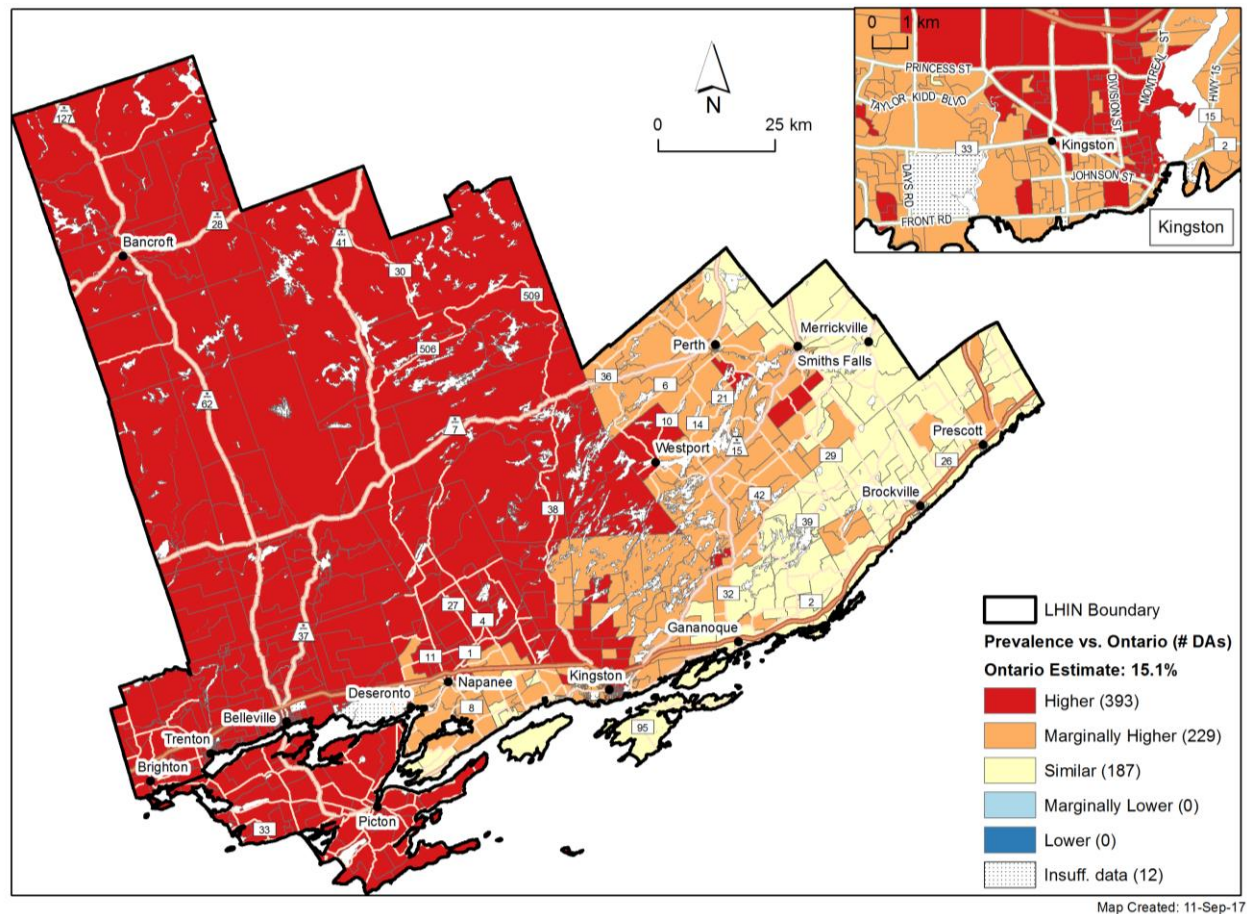
Category	Mean prevalence % (range)
Overall	19.4
Higher	21.0 (18.7, 24.3)
Marginally Higher	18.7 (17.6, 20.7)
Similar	16.9 (15.4, 18.4)
Marginally Lower	N/A
Lower	N/A

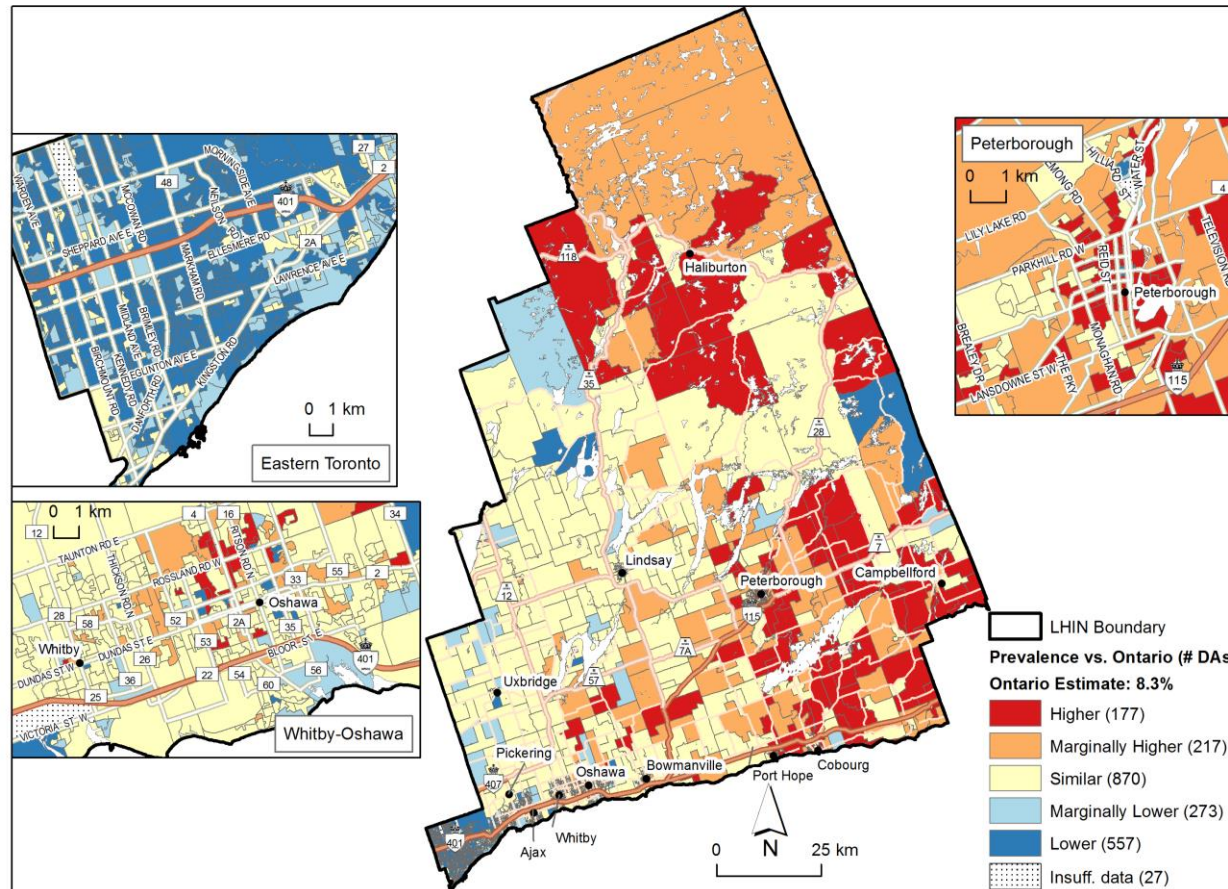N/A = no estimates in the category

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Inadequate vegetable and fruit consumption

People age 12 and older

Inadequate consumption of vegetables and fruits was common across Ontario, with approximately 63% of females and 77% of males reporting inadequate consumption.

Higher prevalence than Ontario

Across the LHIN, fewer areas had a higher prevalence of inadequate vegetable and fruit consumption than the Ontario average for females (n=92; Figure 10.10) compared to males (n=303; Figure 10.11). For both sexes, higher prevalence areas were located in the northwestern (e.g. surrounding Bancroft) and northeastern (e.g. surrounding Brockville and Prescott) tips of the LHIN. Among males, areas of higher prevalence were also located throughout the central part of the LHIN, and a few areas in the southwest (e.g. south of Deseronto).

Lower prevalence than Ontario

Areas of adequate consumption (lower prevalence than the Ontario average) were more common among females (n=56; Figure 10.10) compared to males (n=22; Figure 10.11). For both sexes, lower prevalence areas occurred around Belleville and in Kingston. Among females, additional areas were located south of Belleville and north of Perth.

Adolescents

More than two thirds of the adolescent Ontario population had inadequate vegetable and fruit consumption at approximately 68% for females and 74% for males. In the South East LHIN, there were no areas with a higher prevalence than the Ontario average for adolescents, which is why those maps are not shown.

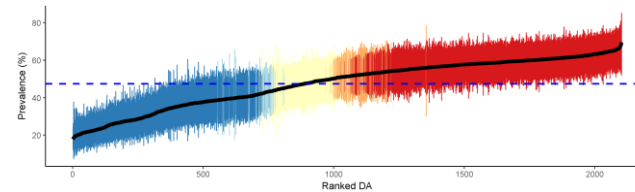**Figure 10.10** Inadequate vegetable and fruit consumption among females (age 12 and older), 2000–2014, South East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
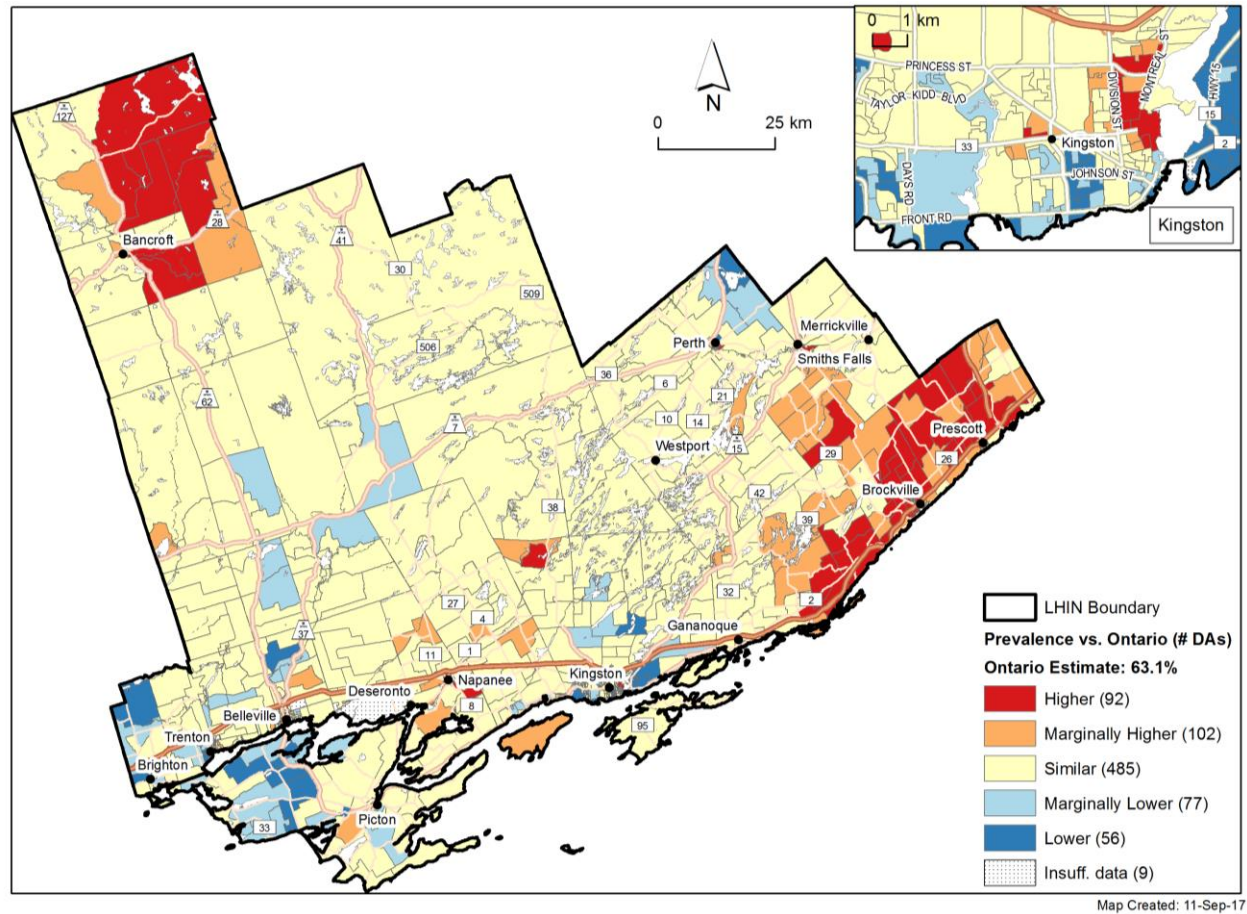
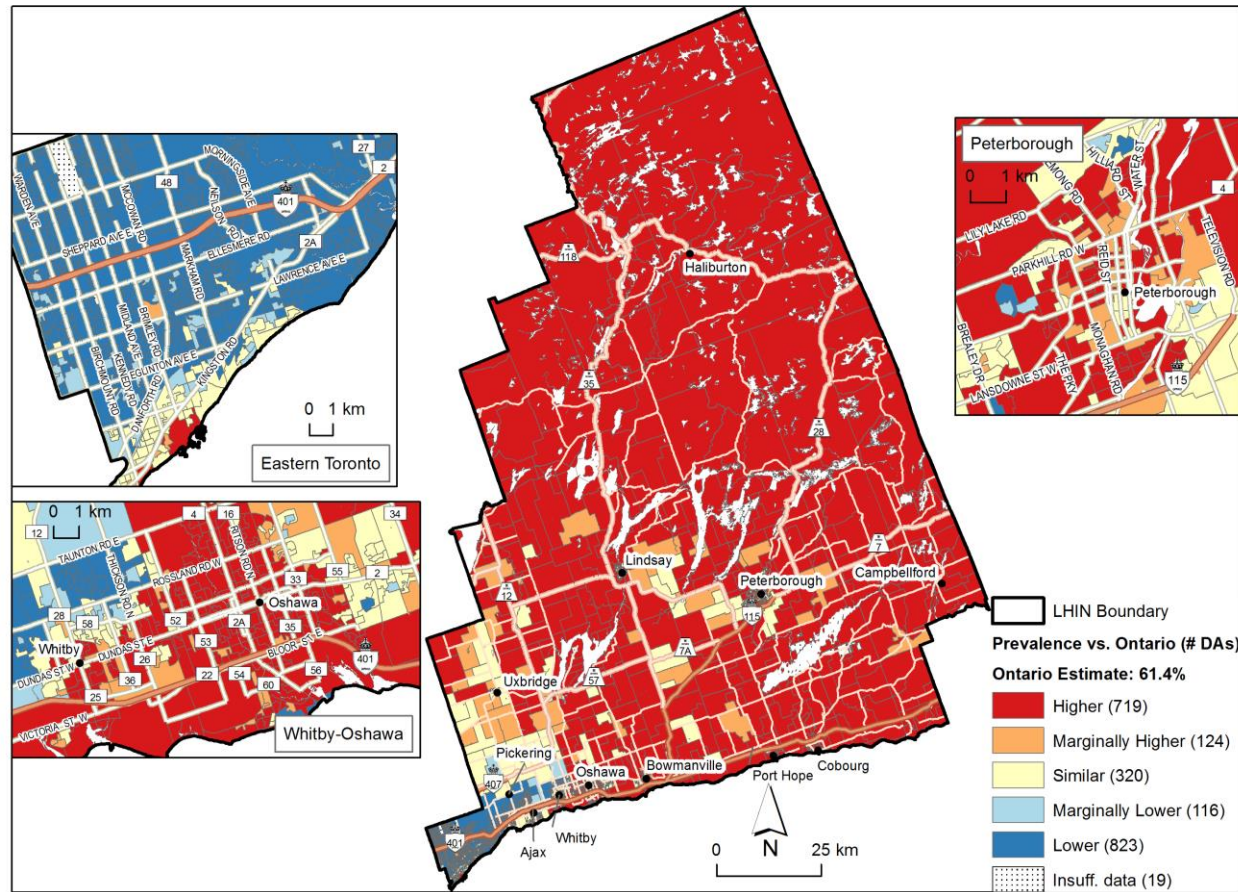| Category	Mean prevalence % (range)
Overall	63.4
Higher	68.0 (66.5, 71.9)
Marginally Higher	66.2 (65.2, 68.2)
Similar	63.1 (59.8, 66.0)
Marginally Lower	59.8 (57.5, 61.2)
Lower	57.2 (52.6, 59.5)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
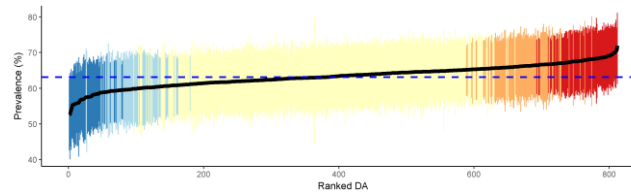
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 10.11 Inadequate vegetable and fruit consumption among males (age 12 and older), 2000–2014, South East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
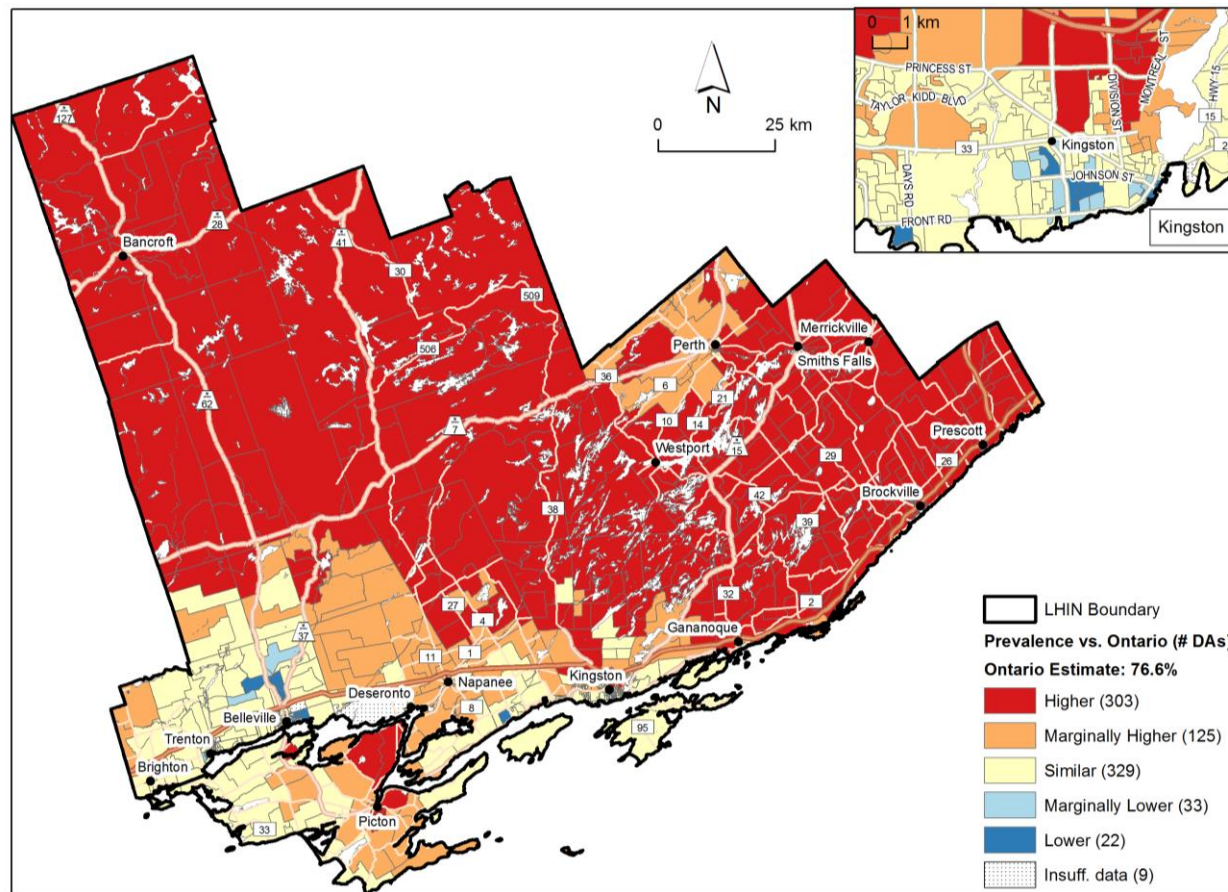
Category	Mean prevalence % (range)
Overall	78.4
Higher	81.1 (79.0, 83.9)
Marginally Higher	78.8 (78.1, 79.9)
Similar	76.6 (73.7, 78.4)
Marginally Lower	73.5 (72.1, 74.5)
Lower	71.6 (64.3, 73.2)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Physical activity

Because physical activity reduces cancer risk, lower prevalence estimates of this risk factor are of interest. The colour scheme of the maps was inverted so that the "lower than Ontario" estimates are displayed in red.

People age 12 and older

Most of the Ontario population was not physically active, with approximately one in five (23%) females and one in three (30%) males being physically active.

Lower prevalence than Ontario

For both sexes, areas with a lower prevalence of physical activity than their respective Ontario averages were not very common in the South East LHIN. For females (n=14; Figure 10.12), these areas were located near Bancroft, Belleville, Deseronto and Kingston. For males (n=13; Figure 10.13), these areas were scattered north of Deseronto, near Picton, south of Napanee and east of Gananoque.

Higher prevalence than Ontario

Areas with a higher prevalence of physical activity than Ontario were common for females (n=399; Figure 10.12) and occurred throughout the LHIN. Among males (n=210; Figure 10.13), higher prevalence areas were less common and were typically located around Belleville, Kingston and the eastern part of the LHIN (e.g. around Perth).

Adolescents

Adolescents were more physically active than adults, with approximately 40% of adolescent females and 57% of adolescent males being active. In the South East LHIN, there were no areas with a lower prevalence than Ontario for adolescents, which is why those maps are not shown.

Figure 10.12 Physical activity among females (age 12 and older), 2000–2014, South East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
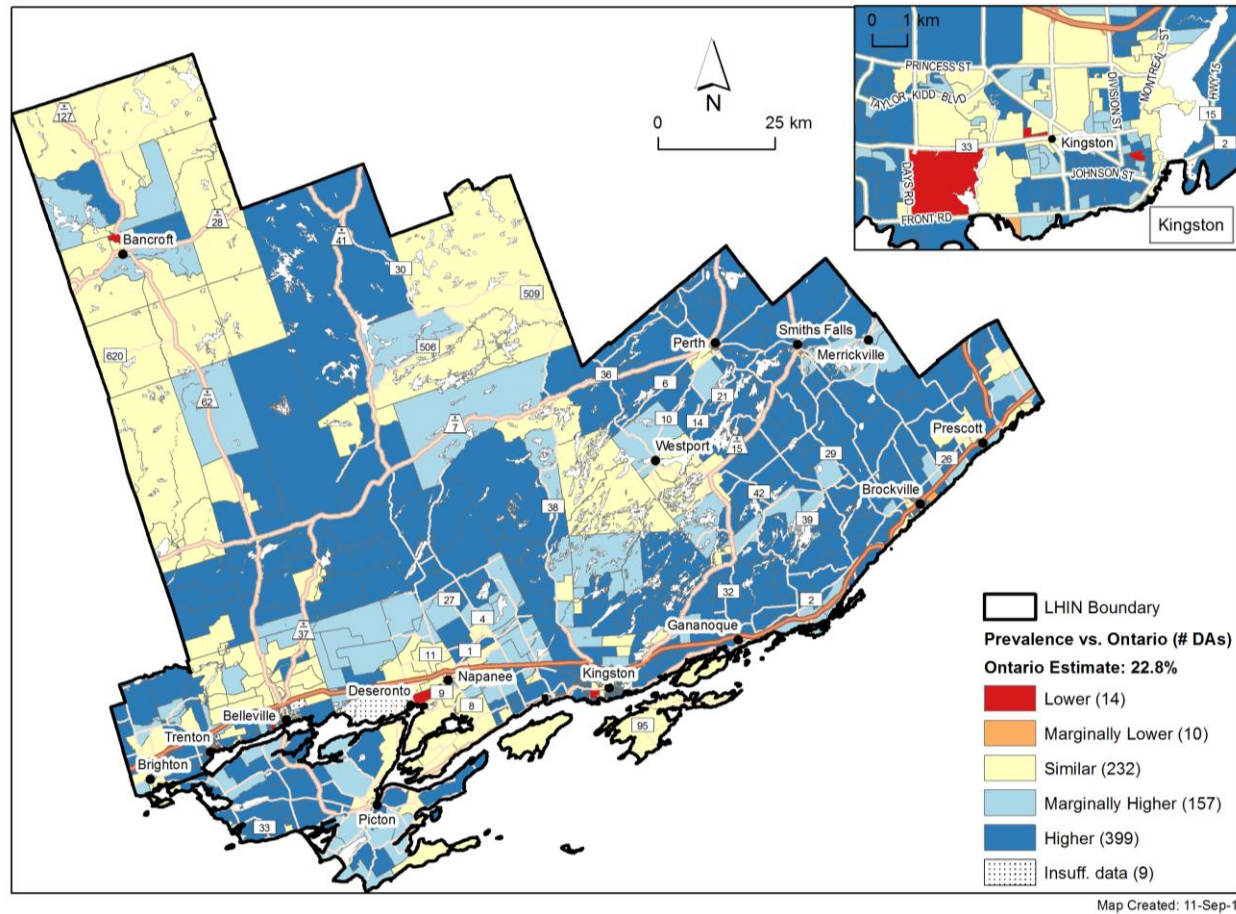
Category	Mean prevalence % (range)
Overall	26.7
Lower	18.0 (12.2, 19.8)
Marginally Lower	20.5 (19.8, 20.9)
Similar	23.8 (20.5, 26.1)
Marginally Higher	26.1 (25.2, 27.7)
Higher	29.2 (26.2, 38.2)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
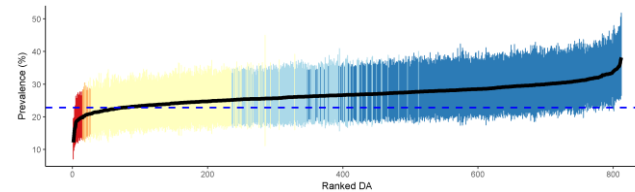
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 10.13 Physical activity among males (age 12 and older), 2000–2014, South East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	32.1
Lower	24.9 (20.9, 26.7)
Marginally Lower	27.1 (26.3, 27.8)
Similar	30.3 (27.1, 33.2)
Marginally Higher	33.2 (31.9, 35.5)
Higher	35.7 (33.1, 43.8)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
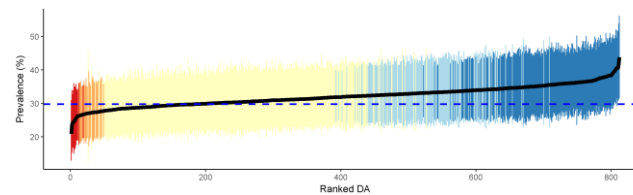
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Sedentary behaviour

People age 12 and older

Approximately half of the Ontario population reported sedentary behaviour during leisure time (females, 49%; males, 56%).

Higher prevalence than Ontario

The number of areas with a higher prevalence of sedentary behaviour than the Ontario average was similar among females (n=159; Figure 10.14) and males (n=147; Figure 10.15) in the South East LHIN. For females, areas of higher prevalence were concentrated in the southwest (e.g., near Belleville and Picton) and south of Westport. Higher prevalence areas for males were located around Belleville, Brockville and in Kingston.

Lower prevalence than Ontario

Overall, areas with a lower prevalence of sedentary behaviour than Ontario were not common across the LHIN. For females (n=14; Figure 10.14), these areas were located around Bancroft, Perth, Prescott and in Kingston. Fewer areas of lower prevalence were evident for males (n=3; Figure 10.15); these areas were located south of Bancroft and south of the intersection of Highway 7 and Highway 37.

Adolescents

More than half of the Ontario adolescent population reported sedentary behaviour during leisure time, at approximately 55% for females and 60% for males. In the South East LHIN, there were no areas with a higher prevalence than Ontario among adolescents, which is why those maps are not shown.

Figure 10.14 Sedentary behaviour among females (age 12 and older), 2000–2014, South East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
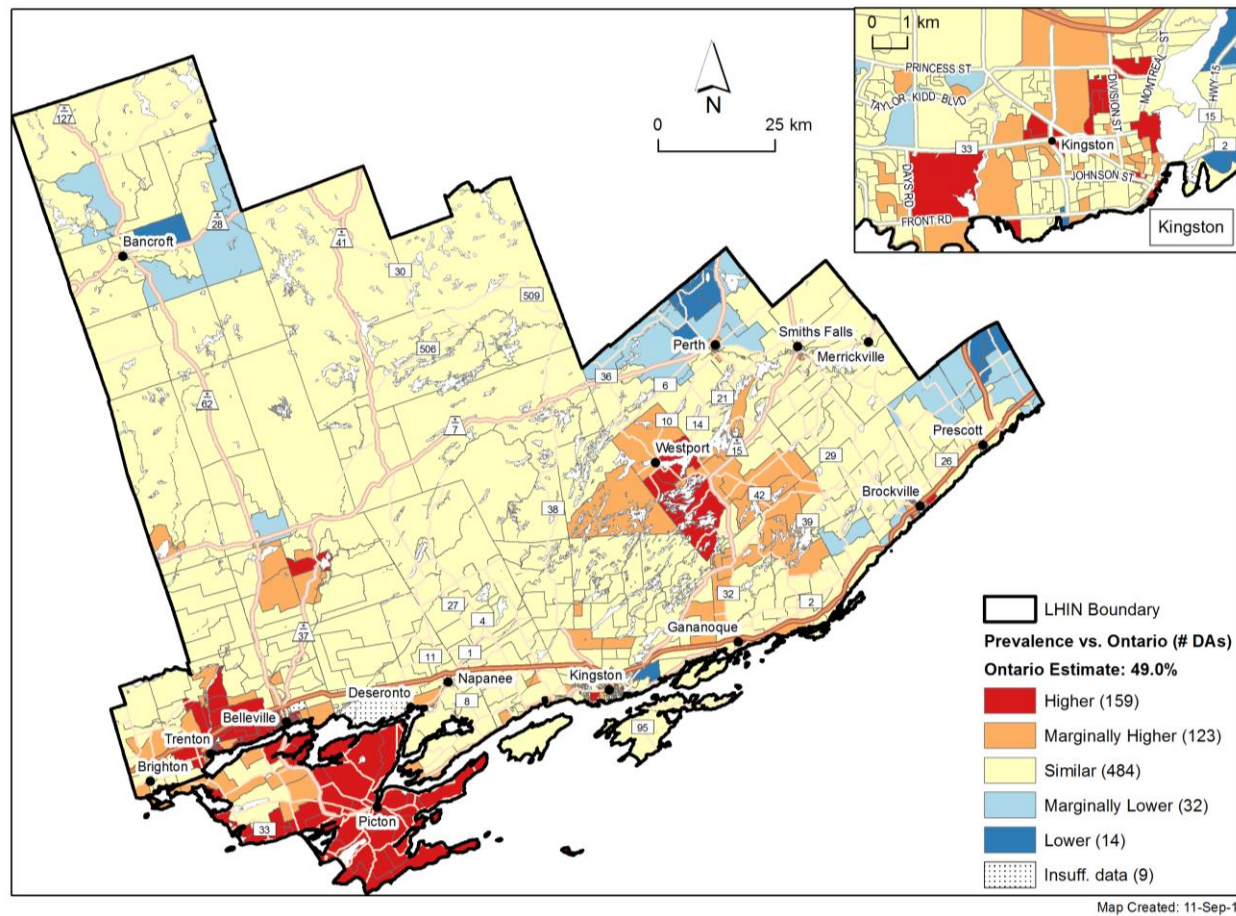
Category	Mean prevalence % (range)
Overall	51.0
Higher	56.2 (52.6, 64.2)
Marginally Higher	52.4 (51.3, 54.0)
Similar	49.6 (46.0, 52.3)
Marginally Lower	46.0 (44.9, 46.9)
Lower	43.3 (41.5, 45.2)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
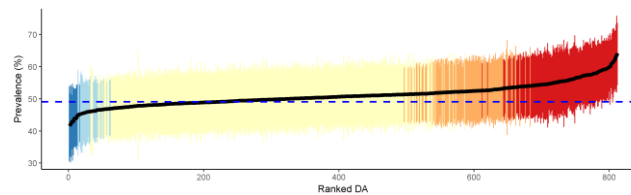
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 10.15 Sedentary behaviour among males (age 12 and older), 2000–2014, South East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
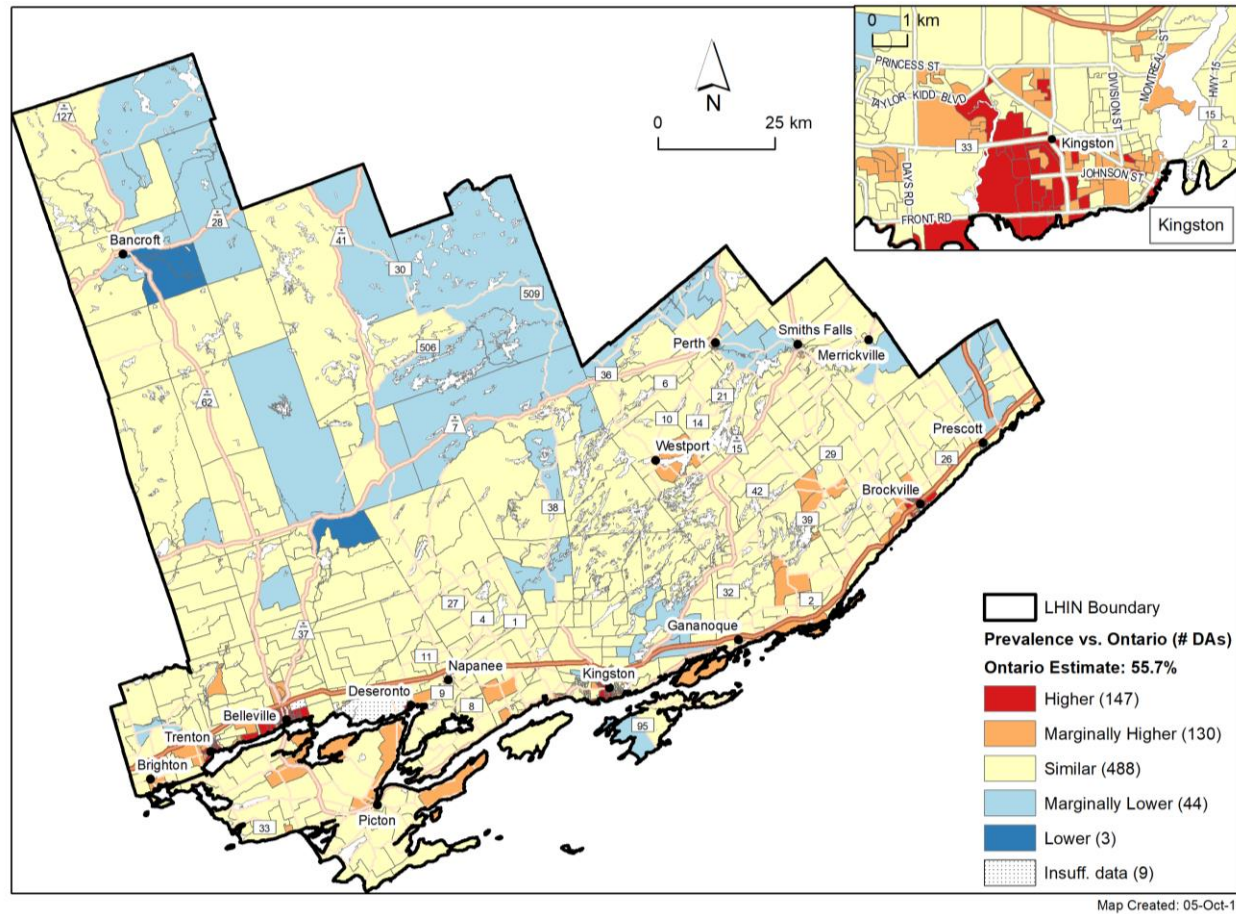
Category	Mean prevalence % (range)
Overall	57.3
Higher	62.0 (59.9, 65.1)
Marginally Higher	59.4 (58.2, 61.5)
Similar	55.8 (52.1, 59.0)
Marginally Lower	52.1 (50.4, 53.1)
Lower	50.5 (49.7, 51.0)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
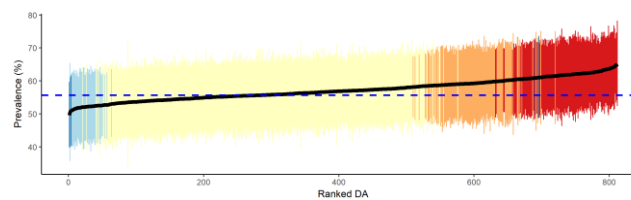
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Smoking—current status

People age 12 and older

Current tobacco smoking was reported by 17% of Ontario females and 24% of males.

Higher prevalence than Ontario

In the South East LHIN, there were more areas with a higher prevalence of current smoking than the Ontario average for females (n=449; Figure 10.16) compared to males (n=273; Figure 10.17). For both sexes, areas of higher prevalence were generally found in the western and eastern parts of the LHIN. Areas of higher prevalence for females were also found in the southern (e.g., south of Napanee and near Picton) and central northern (e.g., north of Napanee) parts of the LHIN.

Lower prevalence than Ontario

There were fewer areas with a lower prevalence of current smoking than the Ontario average for females (n=30; Figure 10.16) compared to males (n=58; Figure 10.17). For females, lower prevalence areas were detected west of Picton, in and around Kingston, and south of Gananoque. Among males, areas of lower prevalence were also located in and around Kingston, and near Perth.

Adolescents

Approximately 8% of adolescent females and adolescent males in Ontario reported that they currently smoked tobacco.

Higher prevalence than Ontario

For adolescent females, areas with a higher prevalence of current smoking (n=156; Figure 10.18) than the Ontario average were located across the western and northern parts of the LHIN. Comparatively, higher prevalence areas for adolescent males (n=384; Figure 10.19) were scattered across all parts of the LHIN.

Lower prevalence than Ontario

Lower prevalence areas for adolescent females (n=74; Figure 10.18) were located near Kingston and Gananoque. For adolescent males (n=8; Figure 10.19), lower prevalence areas were uncommon.

Figure 10.16 Current smoking among females (age 12 and older), 2000–2014, South East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
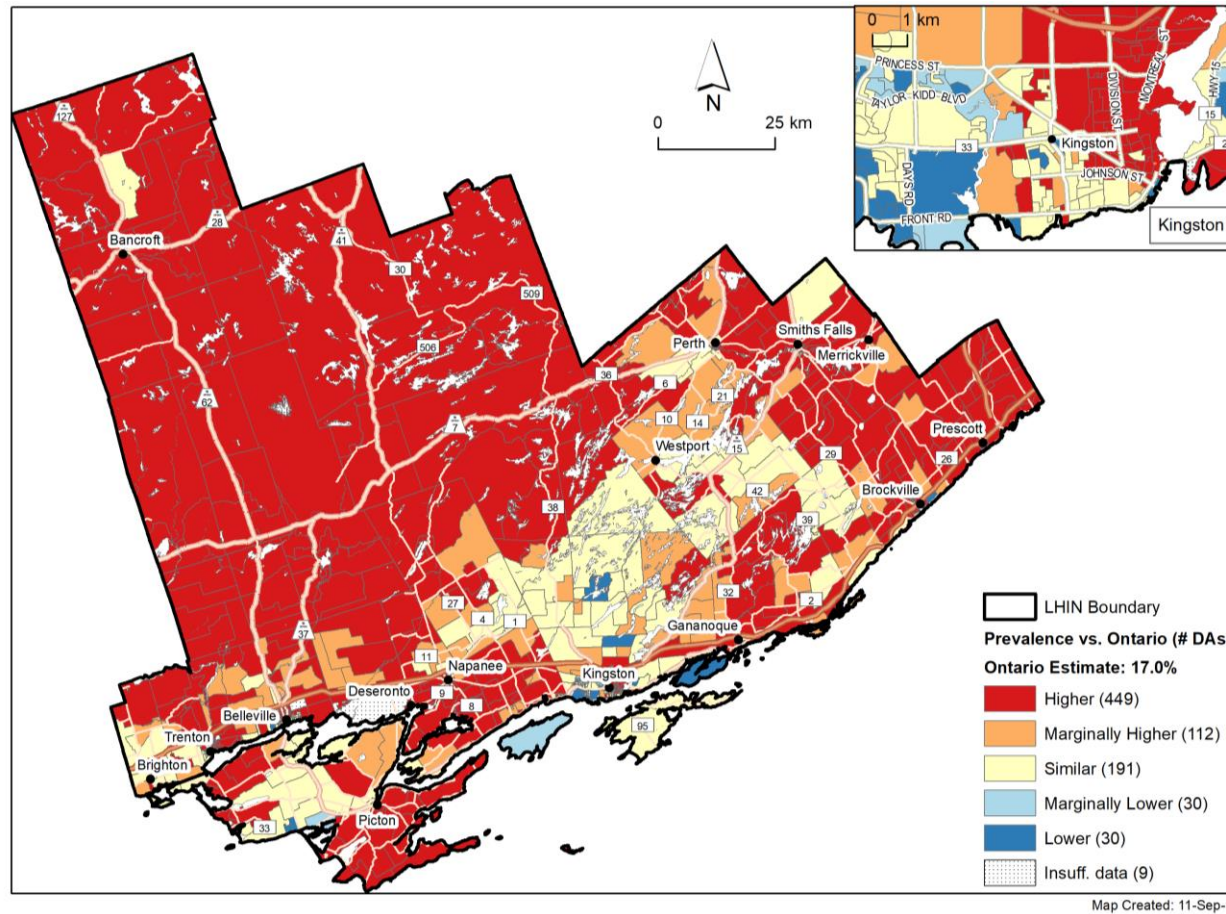
Category	Mean prevalence % (range)
Overall	22.5
Higher	26.1 (20.6, 40.6)
Marginally Higher	20.9 (19.4, 23.2)
Similar	18.0 (15.2, 21.2)
Marginally Lower	14.6 (14.0, 15.5)
Lower	12.6 (7.1, 14.4)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
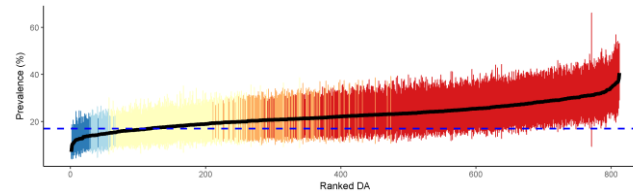
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
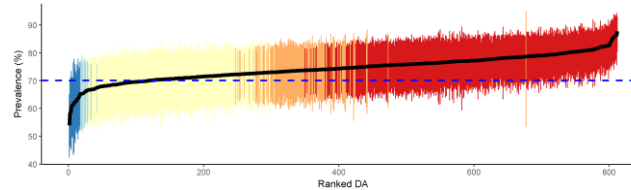
Figure 10.17 Current smoking among males (age 12 and older), 2000–2014, South East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
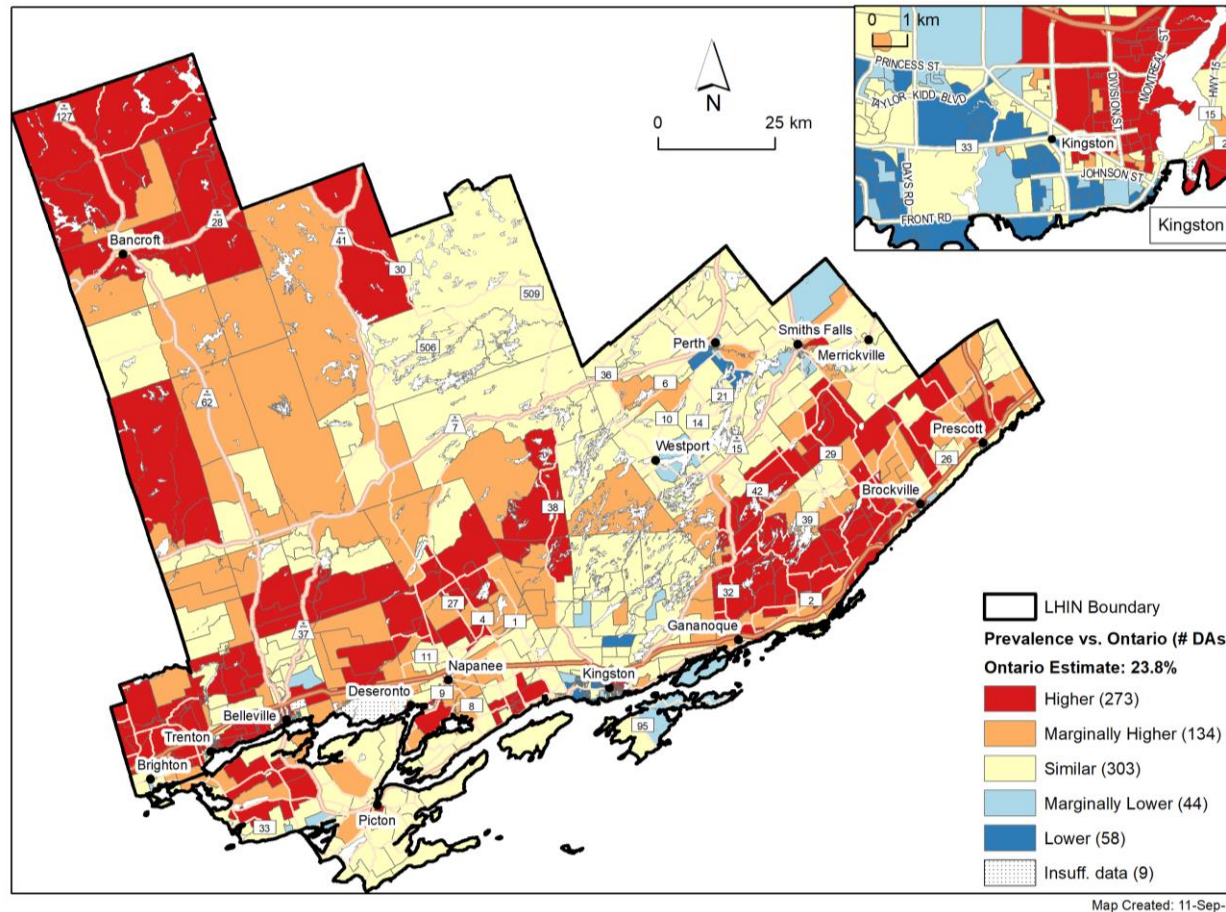
Category	Mean prevalence % (range)
Overall	27.2
Higher	32.6 (27.6, 45.5)
Marginally Higher	28.0 (26.5, 30.9)
Similar	24.6 (21.5, 29.8)
Marginally Lower	20.7 (18.3, 21.8)
Lower	18.2 (11.8, 20.4)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
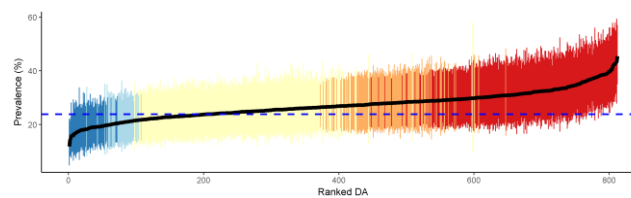
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 10.18 Current smoking among adolescent females (ages 12 to 18), 2000–2014, South East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
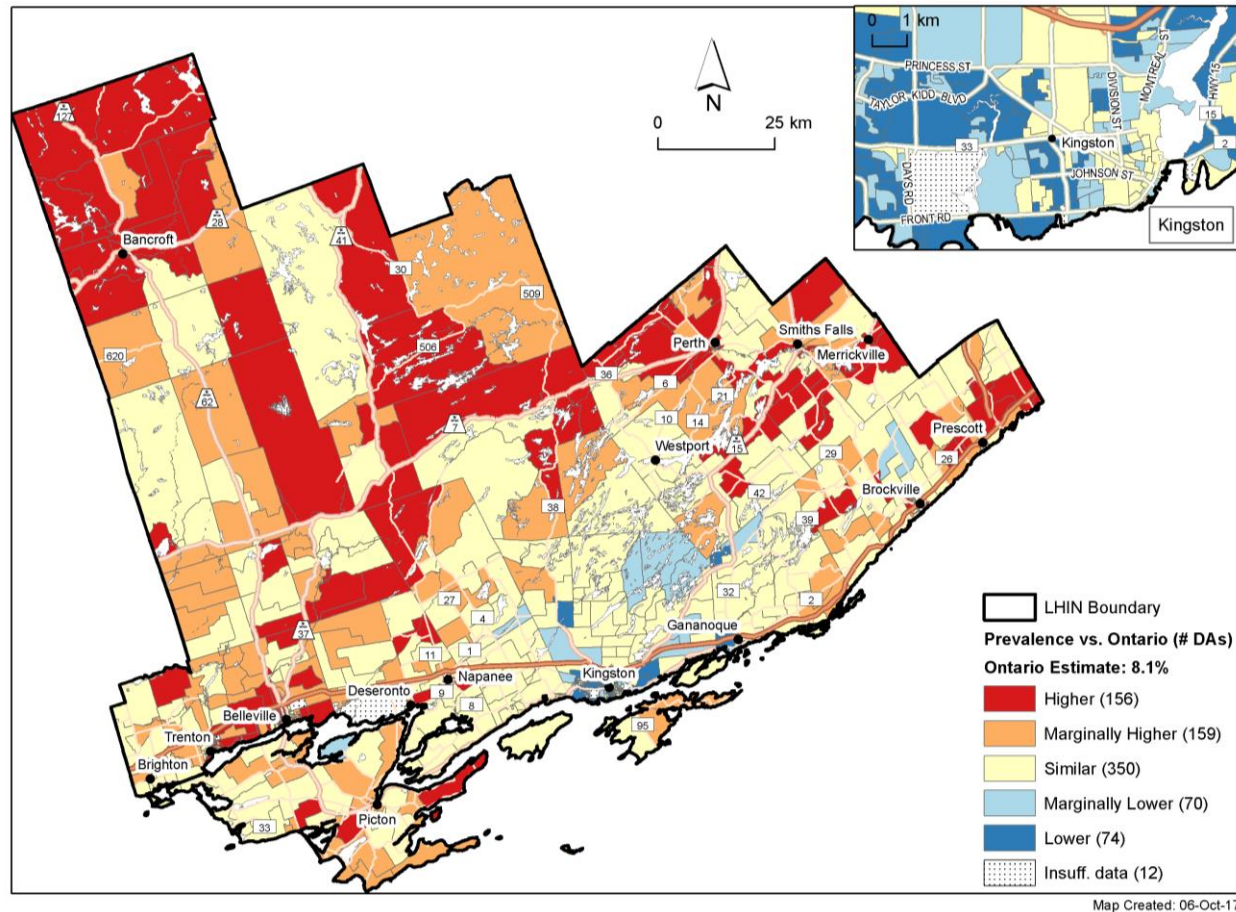
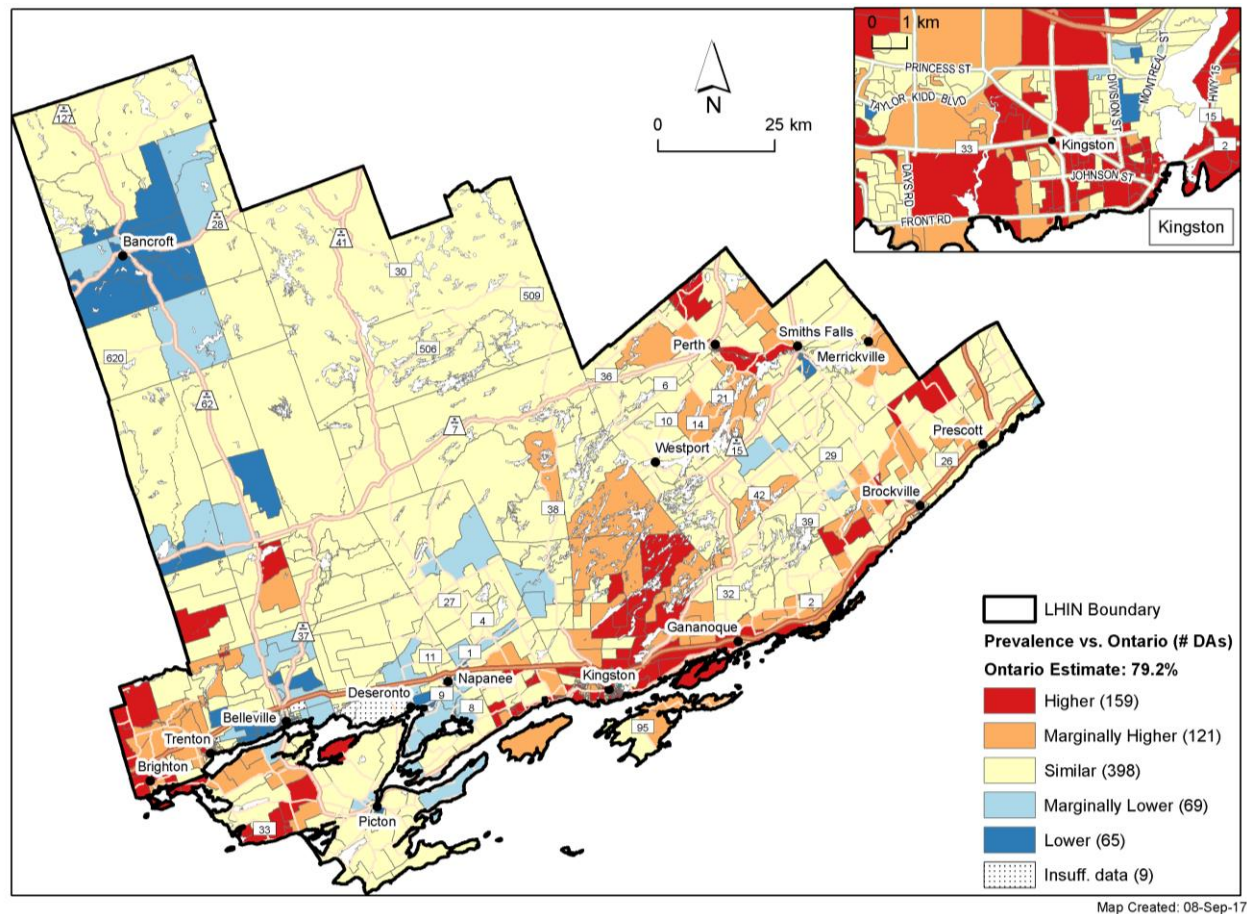| Category	Mean prevalence % (range)
Overall	9.7
Higher	13.0 (11.3, 17.5)
Marginally Higher	11.2 (10.0, 13.2)
Similar	9.0 (7.0, 11.8)
Marginally Lower	6.6 (5.9, 7.1)
Lower	5.5 (1.4, 6.4)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
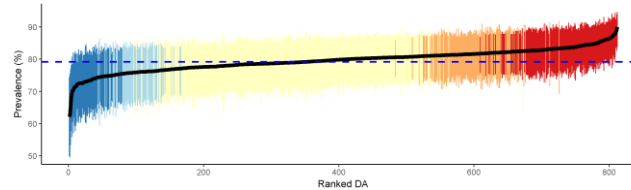
Figure 10.19 Current smoking among adolescent males (ages 12 to 18), 2000–2014, South East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
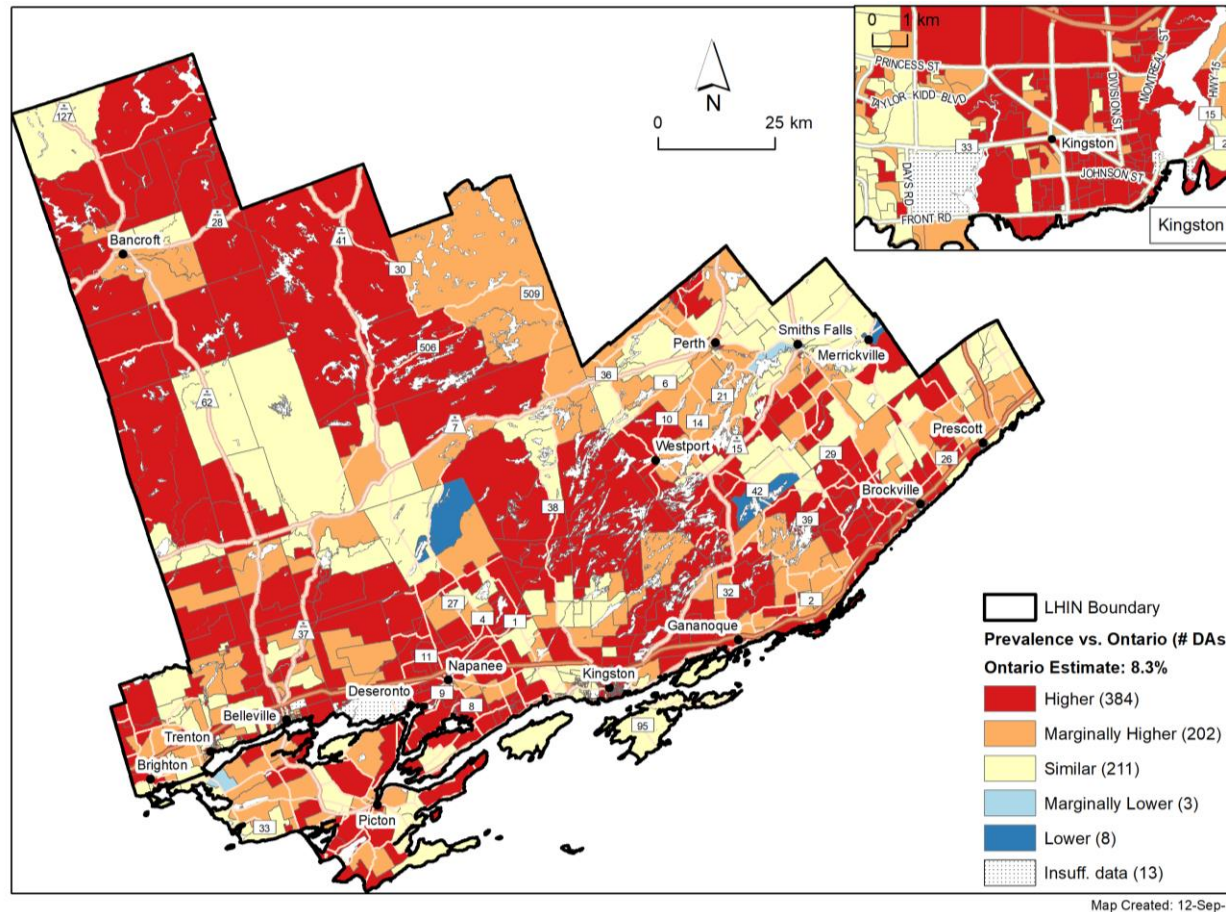
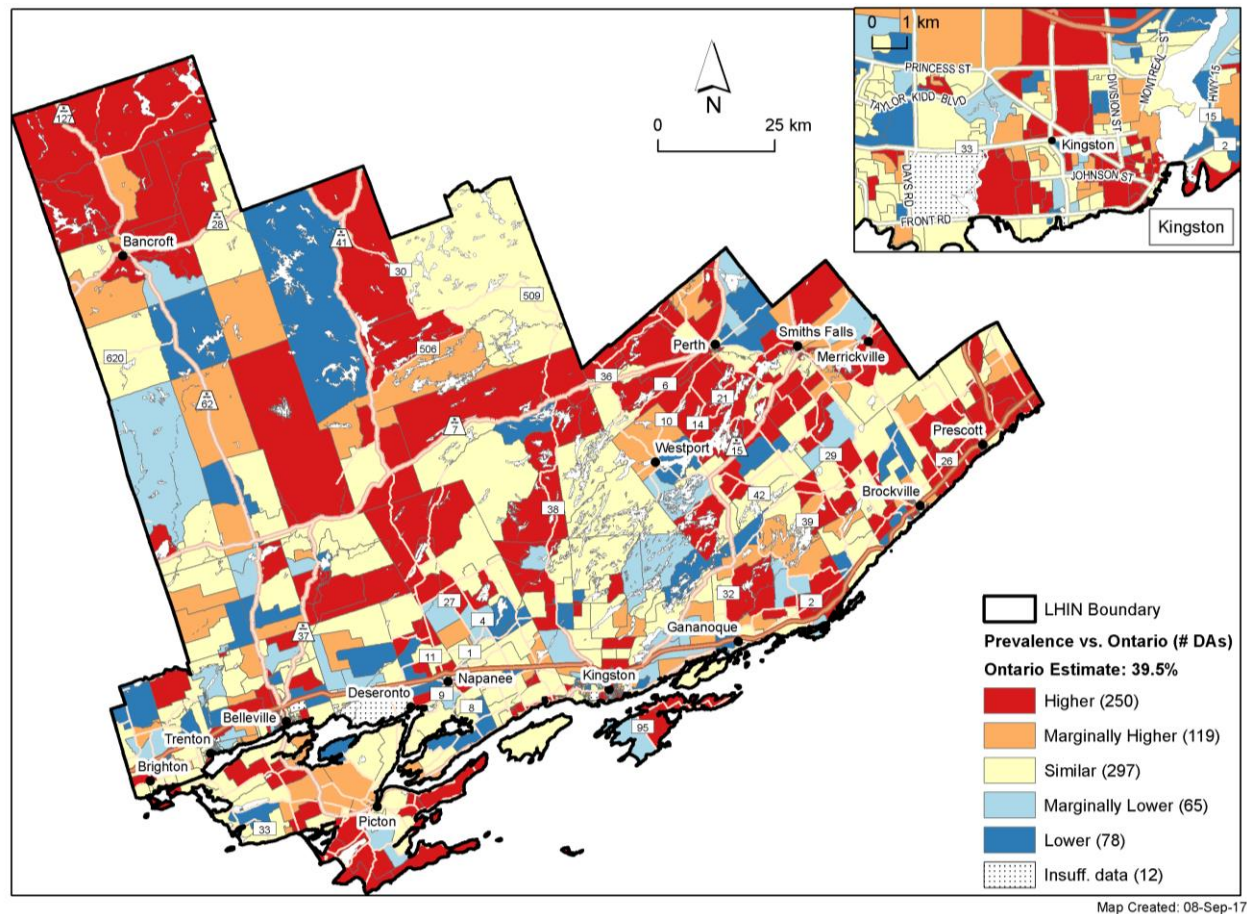| Category	Mean prevalence % (range)
Overall	11.9
Higher	13.7 (11.2, 23.0)
Marginally Higher	11.2 (10.2, 13.3)
Similar	9.4 (7.4, 11.1)
Marginally Lower	7.0 (6.9, 7.3)
Lower	5.5 (1.9, 6.5)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
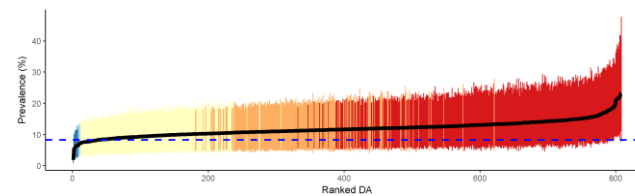
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Smoking—ever-smoked status

People age 12 and older

Approximately one in two Ontario females and three in five Ontario males reported having ever-smoked.

Higher prevalence than Ontario

Areas with a higher prevalence of ever-smokers than the Ontario average were common across the South East LHIN for females (n=746; Figure 10.20) and males (n=592, Figure 10.21). For males, fewer higher prevalence areas occurred in and north of Kingston.

Lower prevalence than Ontario

No lower prevalence areas were detected for females (Figure 10.20) and few were detected for males (n=6; Figure 10.21).

Adolescents

The area-based prevalence of ever-smoked status was not estimated for adolescent populations.

Figure 10.20 Ever-smoked status among females (age 12 and older), 2000–2014, South East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
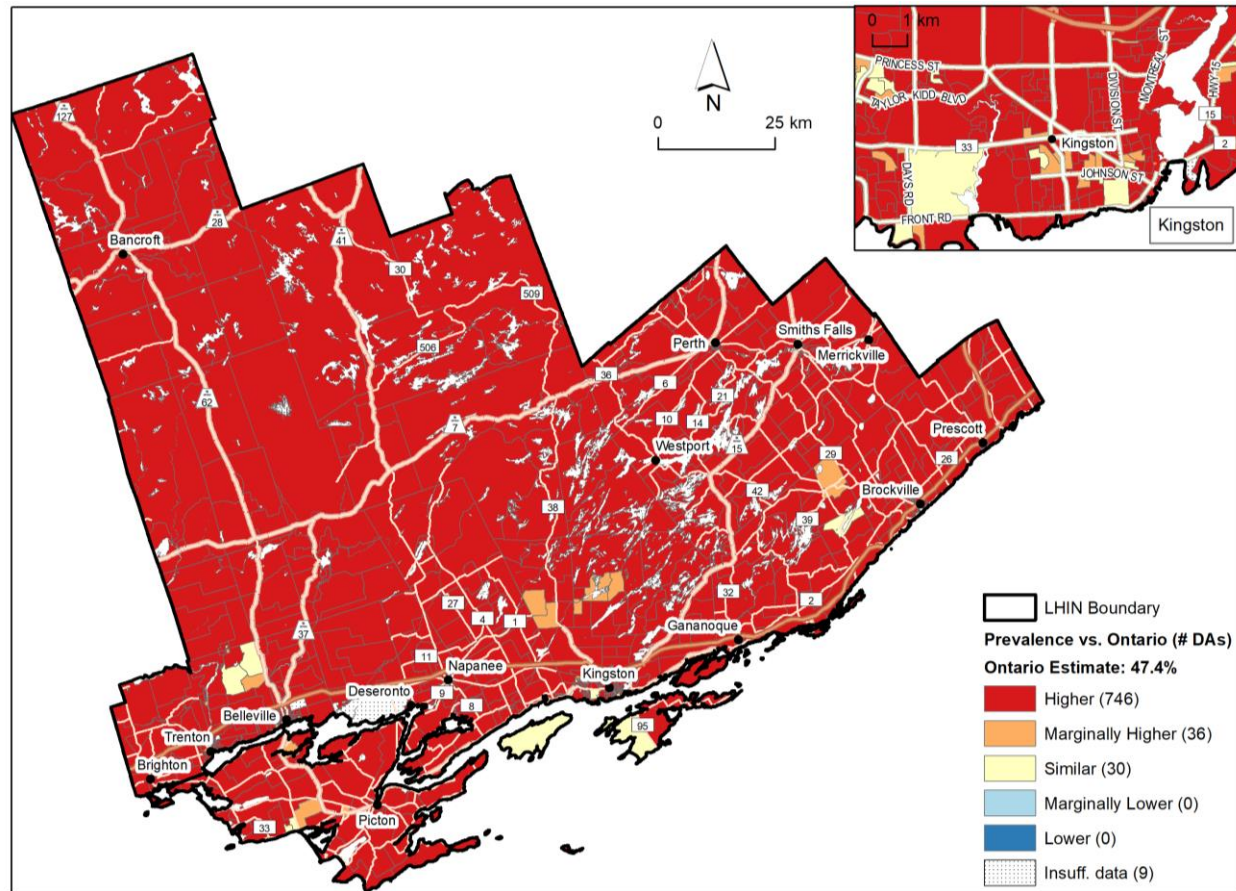
Category	Mean prevalence % (range)
Overall	58.4
Higher	59.2 (51.4, 72.2)
Marginally Higher	51.5 (50.1, 52.6)
Similar	48.4 (43.7, 50.7)
Marginally Lower	N/A
Lower	N/A

N/A = no estimates in the category

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
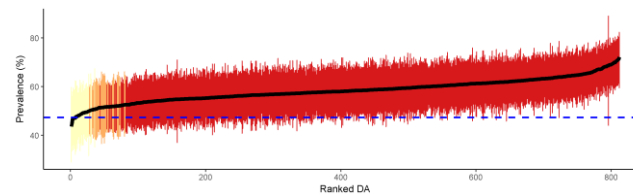
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
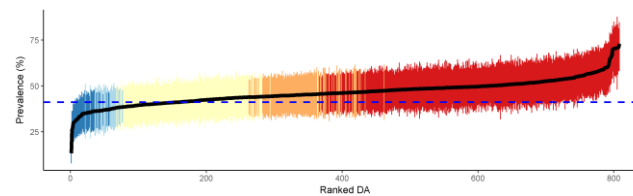
Figure 10.21 Ever-smoked status among males (age 12 and older), 2000–2014, South East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	67.1
Higher	68.7 (64.2, 80.5)
Marginally Higher	64.4 (63.2, 66.0)
Similar	61.9 (58.3, 64.1)
Marginally Lower	58.0 (56.9, 58.8)
Lower	56.6 (56.0, 57.1)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
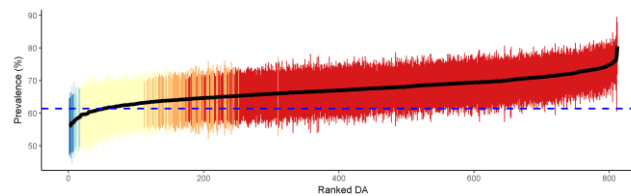
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

LHIN 11
Champlain

11. Champlain LHIN

Key Findings

Top three priority risk factor population estimates by sex (see Table 11.1 below):

Females
    Alcohol—current consumption
    Smoking—ever-smoked status
    Excess body weight

Males
    Alcohol—current consumption
    Smoking—ever-smoked status
    Inadequate vegetable and fruit consumption

Risk factor summary

Alcohol—current consumption
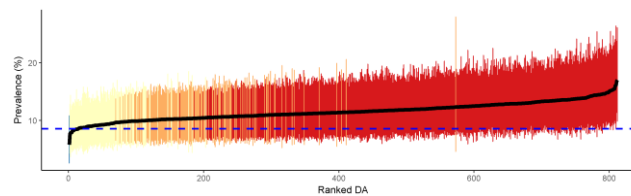   *Priority areas:*
- Females: areas throughout the LHIN
- Males: areas in the central (e.g., Ottawa, Carleton Place), eastern (Cornwall, Casselman) and northwestern (e.g., Deep River, Petawawa) parts of the LHIN
- Adolescent females and adolescent males: areas dispersed throughout the LHIN and in all towns and cities

Alcohol—consumption exceeding cancer prevention recommendations
    Priority areas:
- Females: areas throughout the central (e.g., Carleton Place) part of the LHIN and in Ottawa
- Males: areas throughout the western (e.g. Deep River to Almonte) and southeastern (e.g., Cornwall) parts of the LHIN and in Ottawa

Excess body weight:
    Priority areas:
- Females and males: areas throughout the eastern and western parts of the LHIN
- Adolescent females: areas throughout the eastern and western parts of the LHIN

Inadequate vegetable and fruit consumption
    Priority areas:
- Females: areas in the western part of the LHIN and in parts of Cornwall
- Males: areas in the western and southeastern parts of the LHIN

Physical Activity

Priority areas:

- Females: areas in Cornwall and Ottawa
- Males: areas near Renfrew and Hawkesbury and in Cornwall and Ottawa

Sedentary behaviour:

Priority areas:

- Females: Cornwall and Ottawa
- Males: few areas in Cornwall and Ottawa

Smoking—current status:

Priority areas:

- Females: areas in the eastern and western parts of the LHIN, and areas in Cornwall and innortheast Ottawa
- Males: areas in western and eastern parts of the LHIN, and in parts of Cornwall and central Ottawa
- Adolescent females: areas in the western part of the LHIN and around Casselman and in parts of Ottawa
- Adolescent males: areas in the western and eastern parts of the LHIN and in Ottawa

Smoking—ever-smoked status:

Priority areas:

- Females: many parts of the LHIN including areas in Cornwall and Ottawa
- Males: areas in the western and eastern parts of the LHIN, in Cornwall and clustered in Ottawa

Introduction

This section describes the estimated local prevalence of risk factors across the LHIN compared to the Ontario prevalence estimates from 2000 to 2014. These comparisons are always relative to Ontario with respect to the level of statistical evidence for the underlying prevalence estimate and often the number of areas meeting specific criteria are presented in parentheses (e.g., n=40). Risk factor maps are presented for females and males age 12 and older, and for adolescent females and adolescent males ages 12 to 18 inclusive. Throughout the text, the terms "area(s)" and "local" refer to the 2006 census dissemination areas (see the Data and Methods section, page 3).

Exclusions

As discussed in the Interpretation section (page 7), maps are shown only for risk factor estimates in the LHIN where one or more local estimates were higher than Ontario (or lower than Ontario for physical activity). Therefore, the risk factor maps not displayed for Champlain LHIN include:

- excess body weight (overweight/obese) among adolescent males;
- inadequate vegetable and fruit consumption among adolescents for females and males;
- physical activity among adolescent males and adolescent females; and,
- sedentary behaviour among adolescents for females and males.

Notes

Risk factor prevalence could not be estimated for several areas in the Champlain LHIN (e.g., suppressed census populations or institutionalized populations), which are shown as "insufficient data" on the maps. These areas include part of the Akwesasne Territory (Akwesasne 59) and the Algonquins of Pikwàkanagàn First Nations. Additionally, areas with unavailable population data are shown as "insufficient data." See Appendix C for a full list of areas in the insufficient data category.

Priority population estimates

Priority population estimates may be helpful in prioritizing health promotion and planning efforts for potential populations affected by certain modifiable risk factors. Table 11.1 (page 374) presents the estimated priority populations for each risk factor by sex and age group in the Champlain LHIN. Priority populations are defined as those living in areas with a higher risk factor prevalence (or lower prevalence for physical activity) than Ontario. These estimates were produced by summing the population from all higher (or lower for physical activity) prevalence small areas (2006 dissemination areas) after taking into account the risk factor prevalence of each area. For example, if among females 100 areas had a higher prevalence of current alcohol consumption than Ontario, the female 2006 census populations in each of these areas were multiplied by the prevalence of current alcohol consumption for each area and then summed across the 100 areas to produce an estimate of the female "priority population." These calculations are intended to provide a measure to prioritize the risk factors rather than a population estimate.

According to the Methods (page 4) and Interpretation (page 7) sections, these higher prevalence areas had strong statistical evidence of elevated prevalence compared to Ontario (posterior probabilities ≥ 80%). An exception is physical activity, which had strong statistical evidence of lower prevalence estimates than Ontario (posterior probabilities ≤ 20%). Therefore, the population estimates for each risk factor are likely undercounted

because areas with less statistical certainty (posterior probabilities < 80% and physical activity posterior probabilities > 20%) are not included in the priority population estimates.

Table 11.1 Estimated priority populations among higher prevalence** dissemination areas compared to Ontario by risk factor, sex and age group, Champlain Local Health Integration Network (LHIN), using 2006 census populations

Risk factor	Female priority population*†	% of female population in the LHIN† (n=509,870)	Male priority population*†	% of male population in the LHIN† (n=475,800)	Adolescent female priority population*‡	% of adolescent female priority population in the LHIN‡ (n=53,100)	Adolescent males priority population*‡	% of adolescent male population in the LHIN‡ (n=55,240)
Alcohol—current consumption	313,780	62%	166,440	35%	10,680	20%	9,120	17%
Alcohol—consumption exceeding cancer prevention recommendations	12,610	2%	12,590	3%	NM	—	NM	—
Excess body weight	69,020	14%	73,690	15%	2,720	5%	NE	—
Inadequate vegetable and fruit consumption	29,300	6%	76,970	16%	NE	—	NE	—
Physical activity	5,560	1%	3,050	1%	NP	—	NP	—
Sedentary behaviour	20,070	4%	15,330	3%	NE	—	NE	—
Smoking—current status	33,760	7%	22,650	5%	880	2%	1,180	2%
Smoking—ever-smoked status	191,110	37%	119,660	25%	NM	—	NM	—

NE = no estimates within the "higher" prevalence categories**; NM = not modelled; NP = census population estimates not available
* Estimates rounded to multiples of 10
** For physical activity, priority populations are those living in areas with a lower risk factor prevalence compared to Ontario
† Population age 12 and older
‡ Population ages 12 to 18
— Value not applicable

Alcohol—current consumption

People age 12 and older

An estimated 70% of females and 79% of males in Ontario reported current alcohol consumption.

Higher prevalence than Ontario

Across the Champlain LHIN, more areas had a higher prevalence than the Ontario average for females (n=1,446; Figure 11.1) compared to males (n=687; Figure 11.2). Higher prevalence areas for females were located throughout most of the LHIN, in Deep River, Petawawa, Pembroke, Renfrew, Arnprior, Almonte, Carleton Place, Rockland and Casselman. These areas were also common in Cornwall and Ottawa. Among males, areas with a higher prevalence than Ontario were typically located in the eastern (e.g., Ottawa, Cornwall, Rockland and Casselman), central (e.g., Carleton Place, Almonte and Renfrew) and northwestern (e.g., Petawawa and Deep River) parts of the LHIN.

Lower prevalence than Ontario

The few areas that had lower prevalence of current alcohol consumption than Ontario for females (n=11; Figure 11.1) were located in parts of Ottawa, Cornwall and along the western boundary of the LHIN. The lower prevalence areas for males (n=54; Figure 11.2) were located mainly in Ottawa and Cornwall.

Adolescents

Among the adolescent population in Ontario, approximately 40% of females and males reported current alcohol consumption.

Higher prevalence than Ontario

The number of areas with a higher prevalence of current alcohol consumption than Ontario was higher for adolescent females (n=795; Figure 11.3) compared to adolescent males (n=636; Figure 11.4). For both sexes, higher prevalence areas were located in the central part of the LHIN near Renfrew, the eastern part near Casselman, and in Ottawa and Cornwall. For adolescent females, higher prevalence areas were more common in the southwestern and southeastern parts of the LHIN.

Lower prevalence than Ontario

Areas with a lower prevalence of current alcohol consumption for adolescent females (n=156; Figure 11.3) and adolescent males (n=220; Figure 11.4) were found throughout the LHIN, including many areas in Cornwall and Ottawa. Lower prevalence areas were more common in Cornwall for adolescent males than for adolescent females.

Figure 11.1 Current alcohol consumption among females (age 12 and older), 2000–2014, Champlain Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
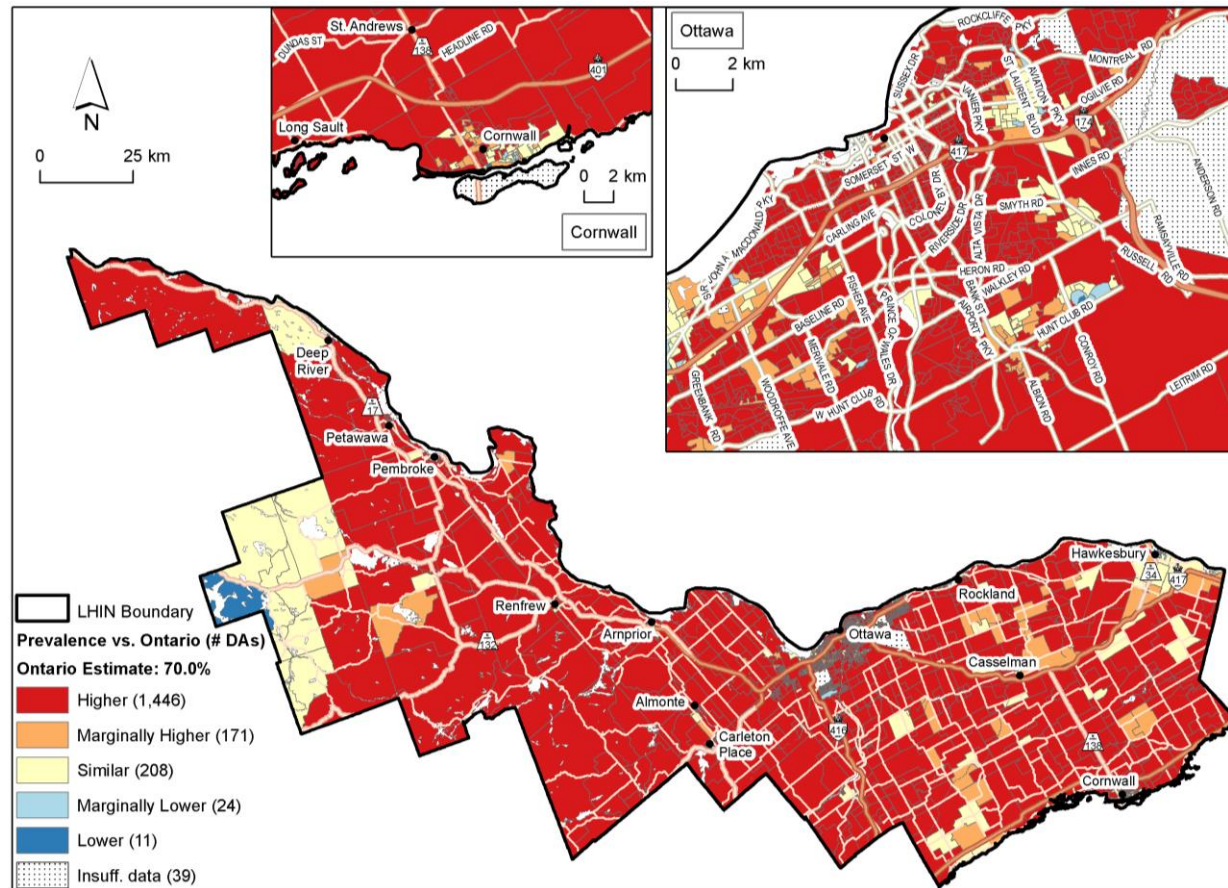
Map created: 08-Sep-17

Category	Mean prevalence % (range)
Overall	77.3
Higher	79.0 (73.3, 88.4)
Marginally Higher	74.0 (72.3, 76.5)
Similar	70.6 (66.1, 73.2)
Marginally Lower	65.6 (63.5, 67.2)
Lower	61.8 (56.7, 65.1)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 11.2 Current alcohol consumption among males (age 12 and older), 2000–2014, Champlain Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
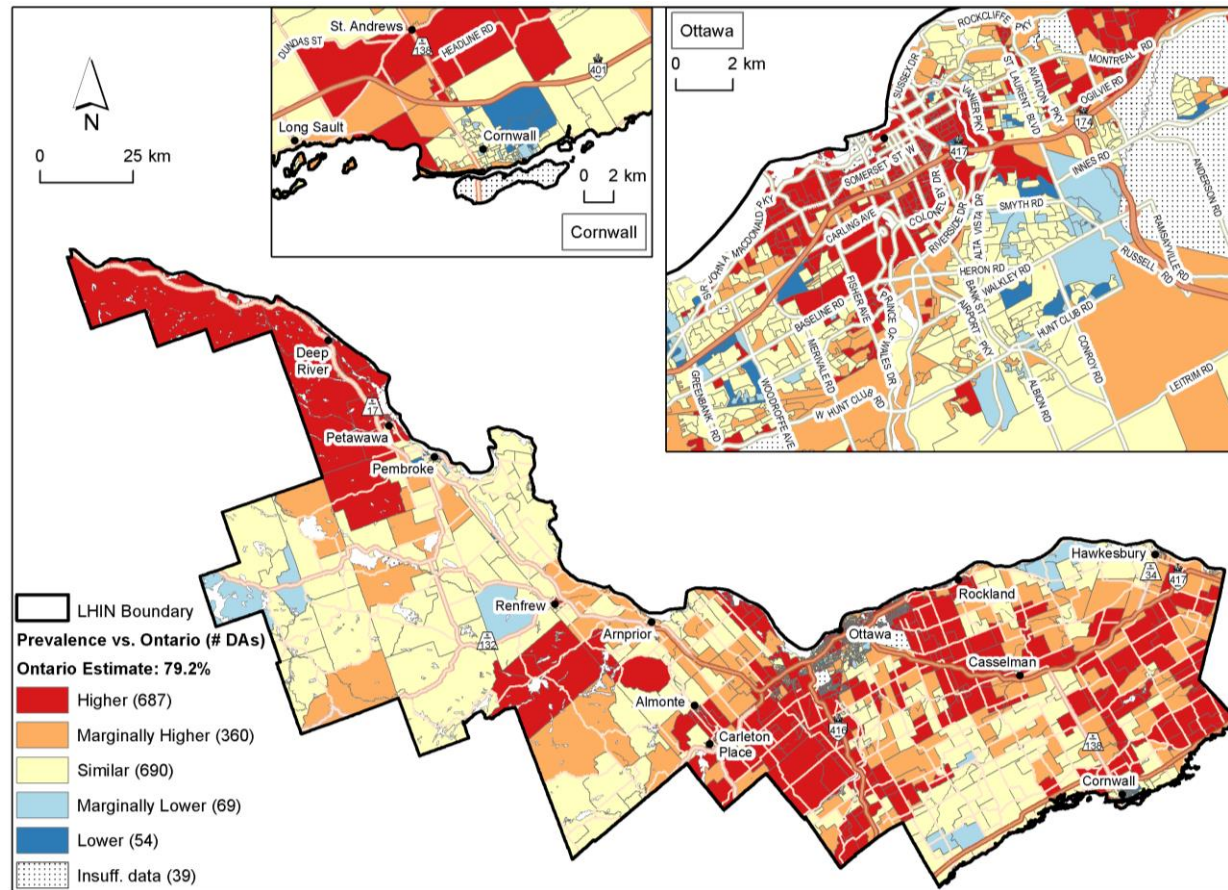
Map created: 08-Sep-17

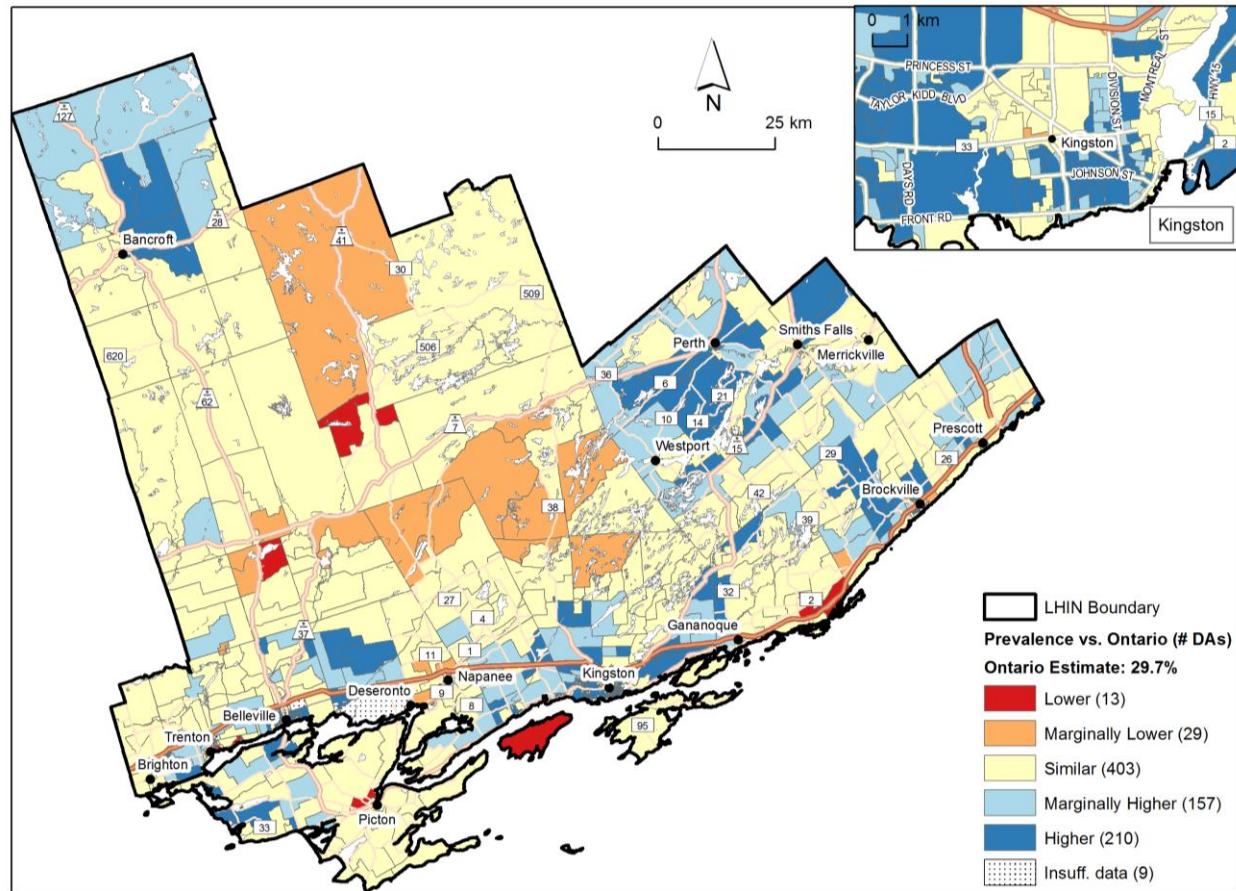| Category	Mean prevalence % (range)
Overall	81.2
Higher	84.1 (81.5, 89.4)
Marginally Higher	81.7 (80.7, 83.7)
Similar	79.2 (75.3, 81.6)
Marginally Lower	75.9 (73.9, 77.4)
Lower	73.1 (64.5, 75.8)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 11.3 Current alcohol consumption among adolescent females (ages 12 to 18), 2000–2014, Champlain Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
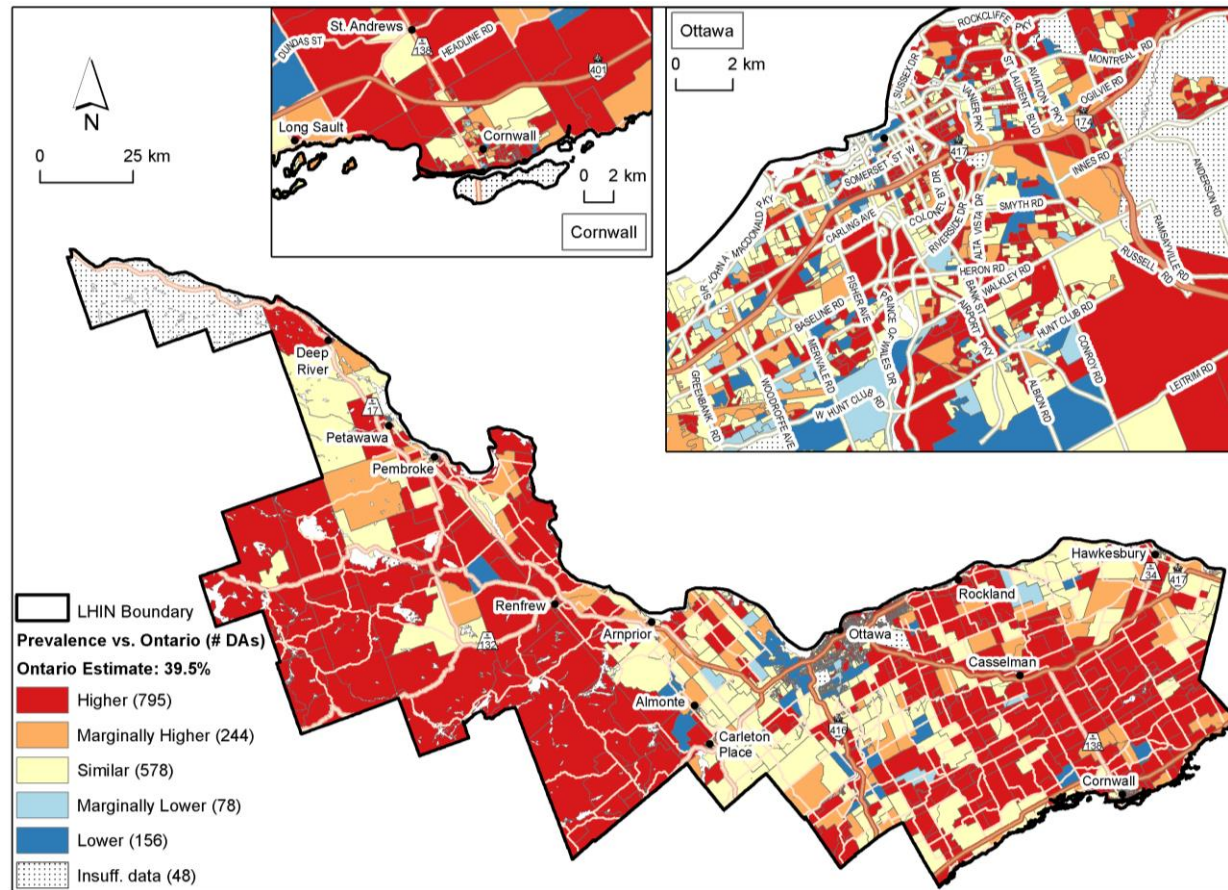
Category	Mean prevalence % (range)
Overall	43.9
Higher	49.7 (43.5, 65.9)
Marginally Higher	43.7 (42.0, 46.3)
Similar	40.4 (36.0, 43.6)
Marginally Lower	35.8 (34.5, 36.9)
Lower	31.1 (13.3, 36.0)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 11.4 Current alcohol consumption among adolescent males (ages 12 to 18), 2000–2014, Champlain Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

LHIN Boundary

Prevalence vs. Ontario (# DAs)

Ontario Estimate: 41.1%

- Higher (636)
- Marginally Higher (241)
- Similar (640)
- Marginally Lower (116)
- Lower (220)
- Insuff. data (46)

Map created: 11-Sep-17

Category	Mean prevalence % (range)
Overall	44.0
Higher	51.2 (45.1, 72.0)
Marginally Higher	45.3 (43.7, 48.4)
Similar	41.6 (38.0, 45.2)
Marginally Lower	37.5 (35.8, 38.8)
Lower	31.9 (12.2, 37.5)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
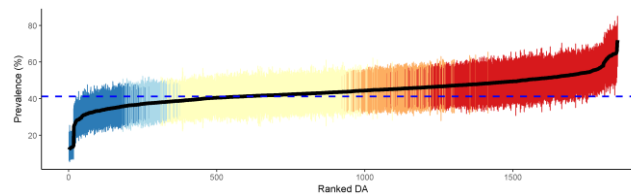
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Alcohol—consumption exceeding cancer prevention recommendations

People age 12 and older

Almost 7% of the female population in Ontario drank alcohol in excess of the recommended limits for cancer prevention. Among males, the Ontario prevalence of exceeding the recommended limits was 8.5%.

Higher prevalence than Ontario

For females (n=422; Figure 11.5), areas with a higher prevalence than the Ontario average of alcohol consumption in excess of cancer prevention recommendations occurred mainly in the central part of the LHIN, around Almonte and Carleton Place, and in Ottawa. For males (n=421; Figure 11.6), many higher prevalence areas were located in the western half of the LHIN (e.g., Deep River, Petawawa, Pembroke, Renfrew, Arnprior, Almonte and Carleton Place). Areas of higher prevalence for males were also identified in Ottawa and in and around Cornwall.

Lower prevalence than Ontario

Few areas had a lower prevalence of alcohol consumption in excess of cancer prevention recommendations than Ontario for females (n=67; Figure 11.5) and males (n=43; Figure 11.6). For both sexes, these areas occurred mainly in and around Ottawa and, for females, in the eastern parts of the LHIN (e.g., around Casselman and Hawkesbury).

Adolescents

The area-based prevalence of exceeding cancer prevention recommendations was not estimated for adolescent populations.

Figure 11.5 Alcohol consumption exceeding cancer prevention recommendations among females (age 12 and older), 2000–2014, Champlain Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
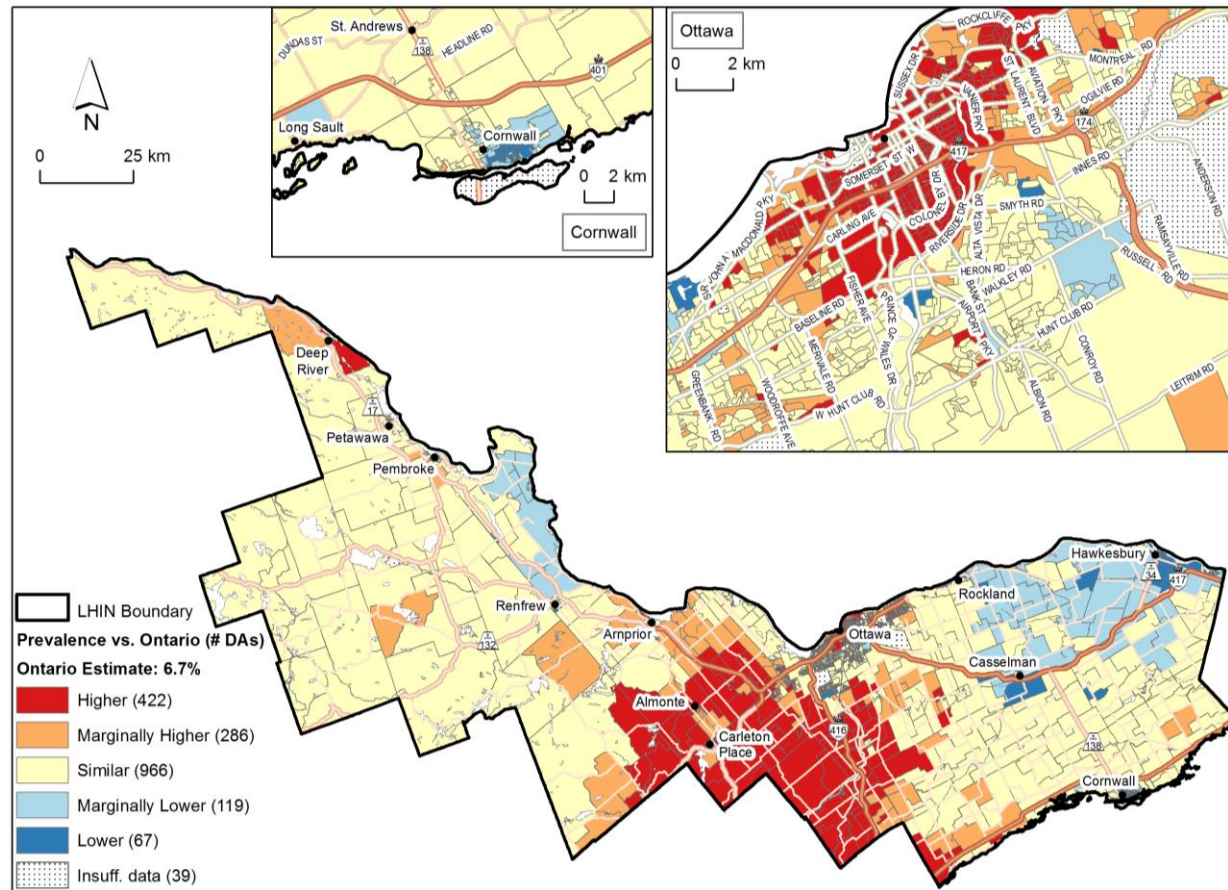
Category	Mean prevalence % (range)
Overall	8.3
Higher	11.3 (8.7, 19.5)
Marginally Higher	8.8 (8.0, 10.8)
Similar	7.4 (6.0, 9.3)
Marginally Lower	5.8 (5.3, 6.2)
Lower	5.0 (3.5, 5.5)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
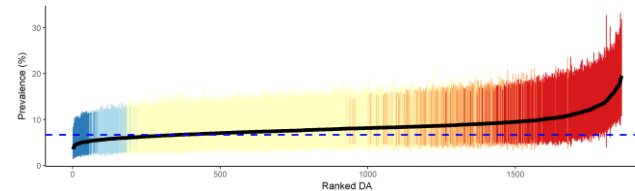
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 11.6 Alcohol consumption exceeding cancer prevention recommendations among males (age 12 and older), 2000–2014, Champlain Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	9.6
Higher	11.9 (9.9, 16.3)
Marginally Higher	10.4 (9.6, 12.2)
Similar	8.9 (7.5, 10.9)
Marginally Lower	7.4 (6.9, 7.8)
Lower	6.8 (5.7, 7.3)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
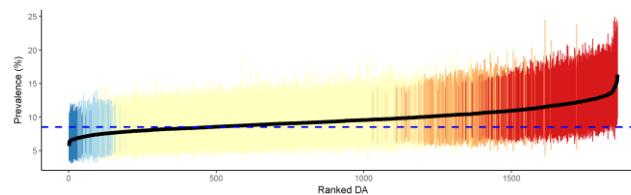
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Excess body weight

People age 12 and older

The estimated Ontario prevalence of excess body weight (overweight or obese) was 41% among females and 56% among males.

Higher prevalence than Ontario

Areas with a higher prevalence of excess body weight than the Ontario average for females (n=548; Figure 11.7) were located in the eastern and western parts of the Champlain LHIN (e.g., Petawawa, Pembroke, Renfrew, Arnprior, Almonte, Hawkesbury and Casselman). Higher prevalence areas were also found in parts of Cornwall and Ottawa. For males, there were fewer areas with a higher prevalence of excess body weight than Ontario (n=488; Figure 11.8) compared to females. These areas were also located in the eastern and western parts of the LHIN but were less common in Cornwall and Ottawa compared to females.

Lower prevalence than Ontario

Several areas had prevalence estimates lower than Ontario for females (n=451; Figure 11.7) and males (n=528; Figure 11.8). These areas were located mainly in the central part of the LHIN, particularly in Ottawa.

Adolescents

Among Ontario adolescents, an estimated 15% of females and 25% of males were overweight or obese.

Higher prevalence than Ontario

In the Champlain LHIN, most areas with a higher prevalence of excess body weight (overweight or obese) compared to Ontario for adolescent females (n=442; Figure 11.9) were located towards the eastern and western tips of the LHIN, and in Cornwall. In the Champlain LHIN, no areas with a higher prevalence than Ontario were detected among adolescent males, which is why that map is not shown.

Lower prevalence than Ontario

Across the LHIN, there were no areas with lower prevalence estimates than Ontario for adolescents (Figure 11.9).

**Figure 11.7** Excess body weight (overweight/obese) among females (age 12 and older), 2000–2014, Champlain Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
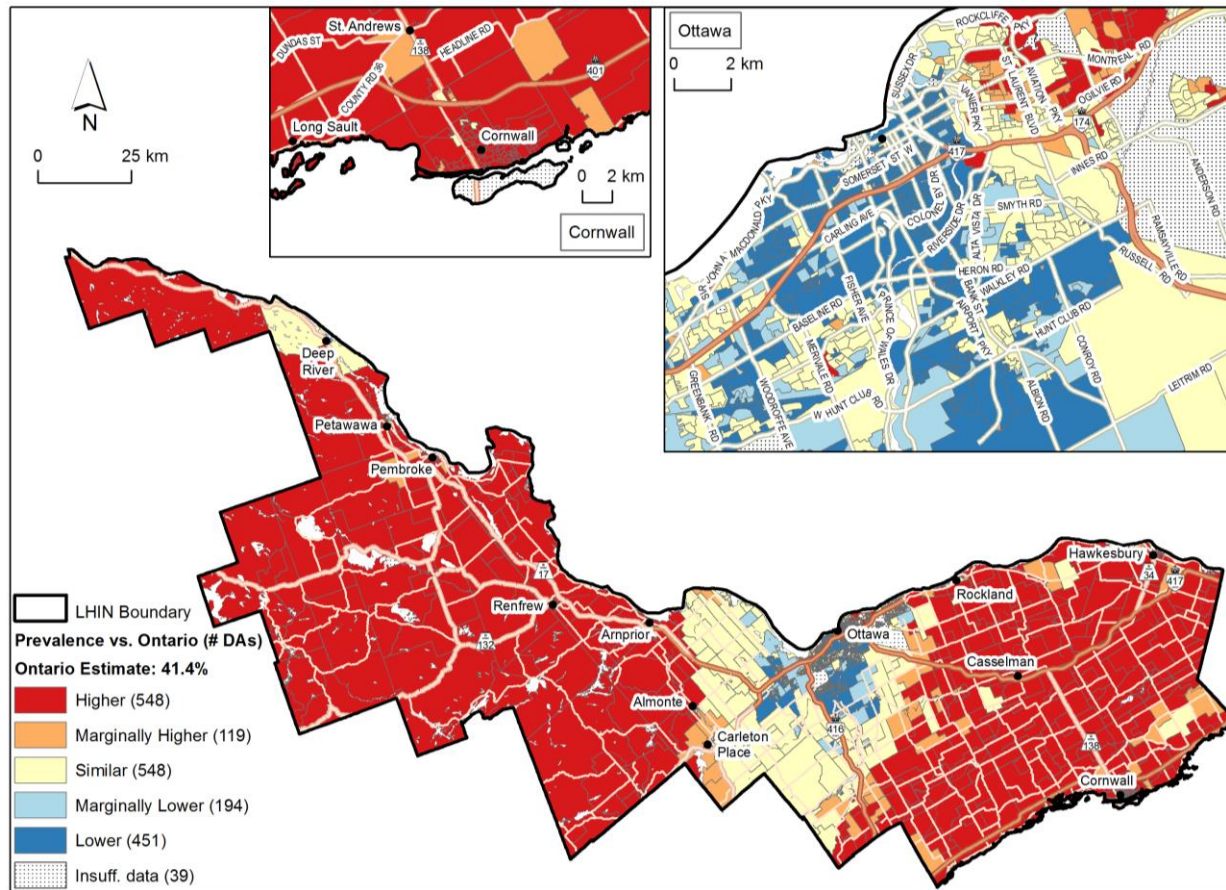
Category	Mean prevalence % (range)
Overall	41.9
Higher	49.2 (44.9, 58.7)
Marginally Higher	44.9 (43.6, 47.3)
Similar	41.2 (37.8, 45.1)
Marginally Lower	38.0 (36.0, 39.3)
Lower	34.6 (25.3, 38.2)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
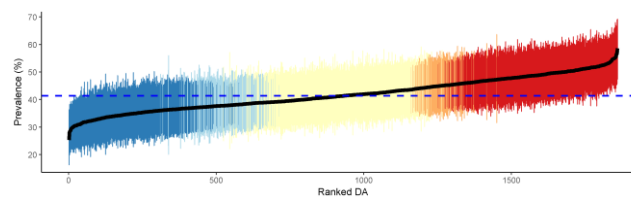
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 11.8 Excess body weight (overweight/obese) among males (age 12 and older), 2000–2014, Champlain Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
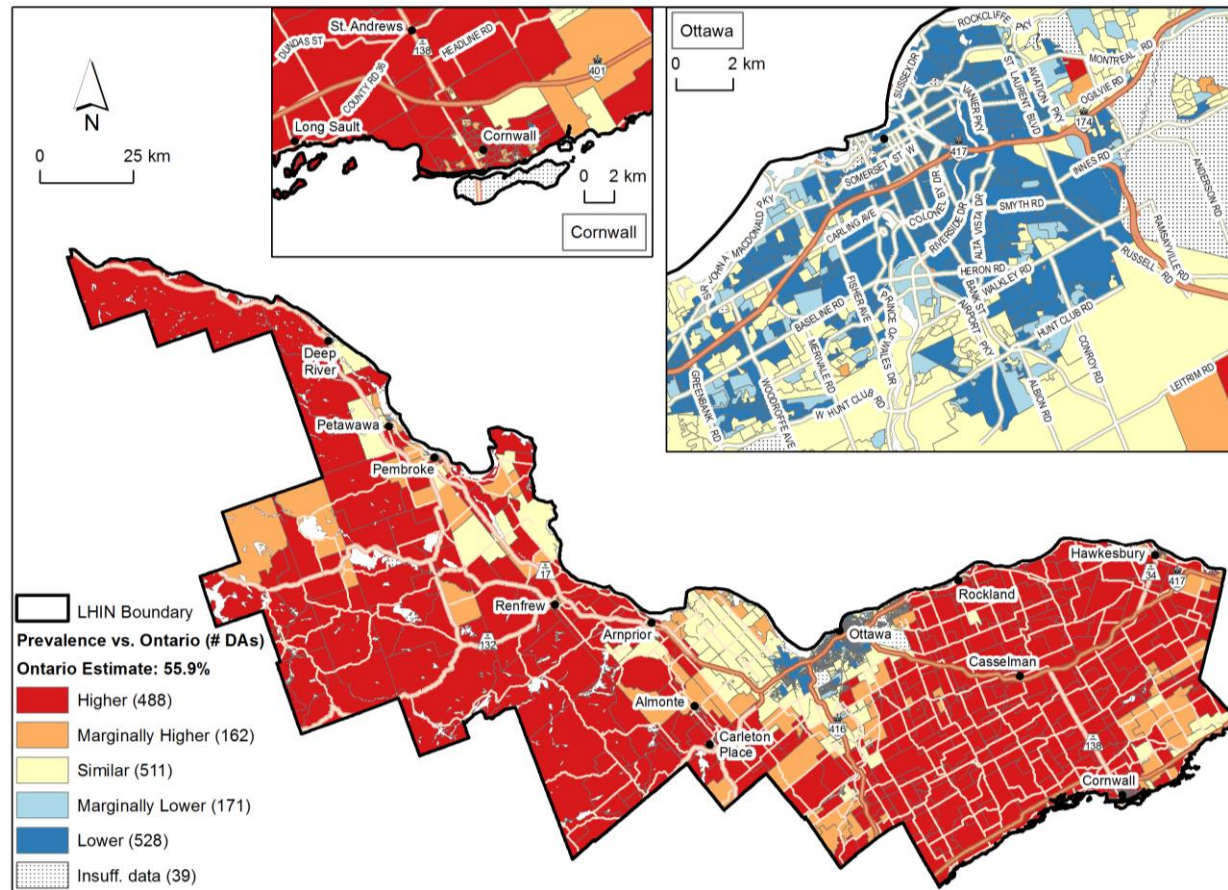
Category	Mean prevalence % (range)
Overall	55.3
Higher	61.3 (58.4, 67.2)
Marginally Higher	58.8 (57.6, 61.3)
Similar	55.7 (53.0, 58.8)
Marginally Lower	52.8 (51.2, 54.0)
Lower	49.1 (38.7, 53.7)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
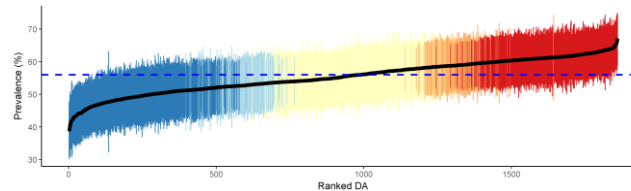
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
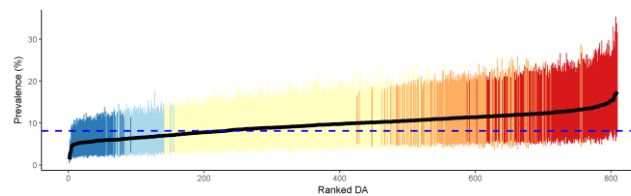
Figure 11.9 Excess body weight (overweight/obese) among adolescent females (ages 12 to 18), 2000–2014, Champlain Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
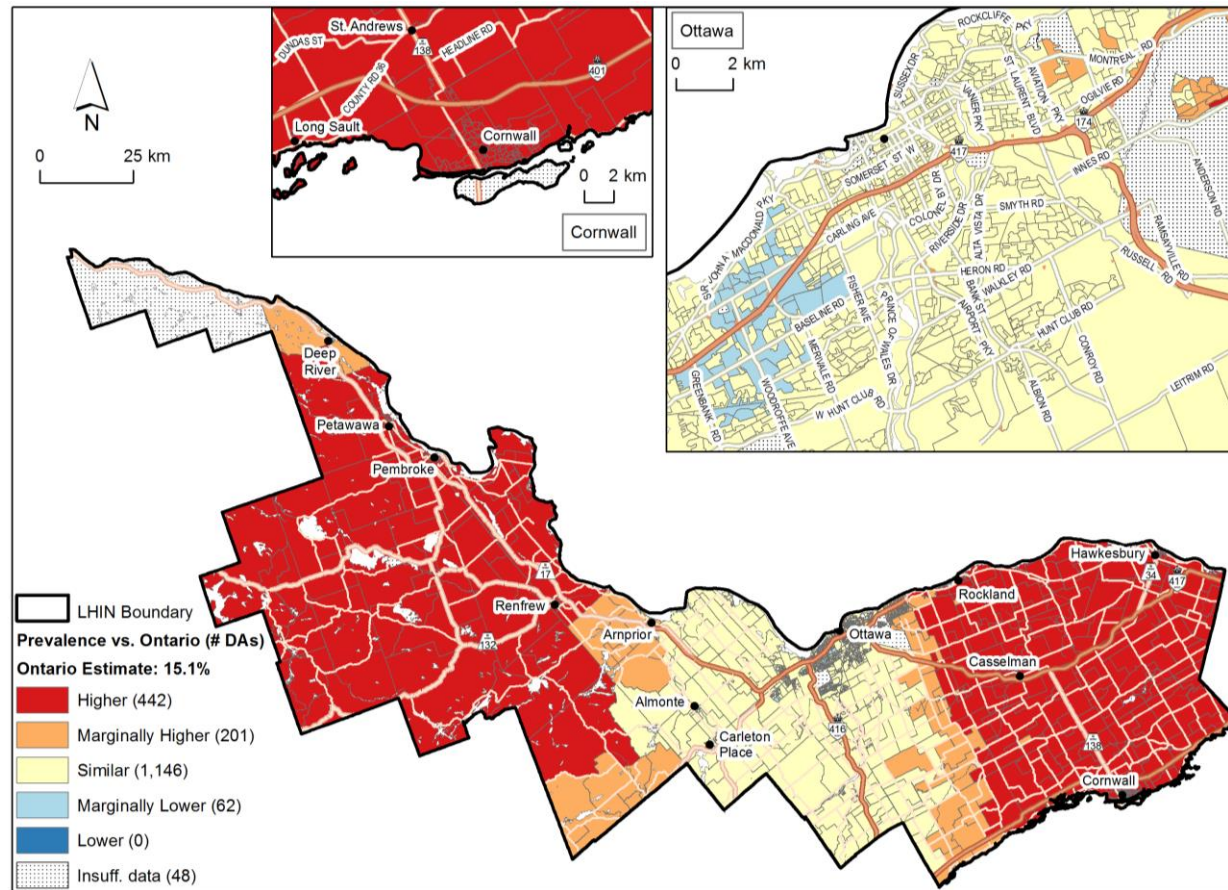
Map created: 11-Sep-17

Category	Mean prevalence % (range)
Overall	17.3
Higher	22.6 (18.7, 31.6)
Marginally Higher	18.6 (17.4, 20.3)
Similar	15.3 (13.4, 19.1)
Marginally Lower	13.4 (13.0, 13.7)
Lower	N/A

N/A = no estimates in the category

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Inadequate vegetable and fruit consumption

People age 12 and older

Inadequate consumption of vegetables and fruits was common across Ontario, with approximately 63% of females and 77% of males reporting inadequate consumption.

Higher prevalence than Ontario

Among females, areas with a higher prevalence of inadequate vegetable and fruit consumption than the Ontario average (n=173; Figure 11.10) were mainly located in the western part of the LHIN, in Renfrew and around Petawawa and Pembroke. In the eastern part of the LHIN, these areas occurred in and around Cornwall. Compared to females, more areas had a higher prevalence than Ontario for males (n=405; Figure 11.11). These areas occurred throughout the western and southeastern parts of the LHIN, in almost all areas in and around Cornwall.

Lower prevalence than Ontario

For females (Figure 11.10), 516 areas had a lower prevalence of inadequate vegetable and fruit consumption than Ontario. These areas were located mainly in the central (e.g., Ottawa) and eastern (e.g., Rockland) parts of the LHIN, especially in Ottawa. Prevalence of adequate consumption (i.e., lower prevalence) was less common for males (n=202; Figure 11.11) than females. For males, most lower prevalence areas were located in Ottawa.

Adolescents

More than two-thirds of the adolescent Ontario population had inadequate vegetable and fruit consumption at approximately 68% for females and 74% for males. In the Champlain LHIN, there were no areas with a higher prevalence than the Ontario average for adolescent females or adolescent males. Therefore those maps are not shown.

Figure 11.10 Inadequate vegetable and fruit consumption among females (age 12 and older), 2000–2014, Champlain Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
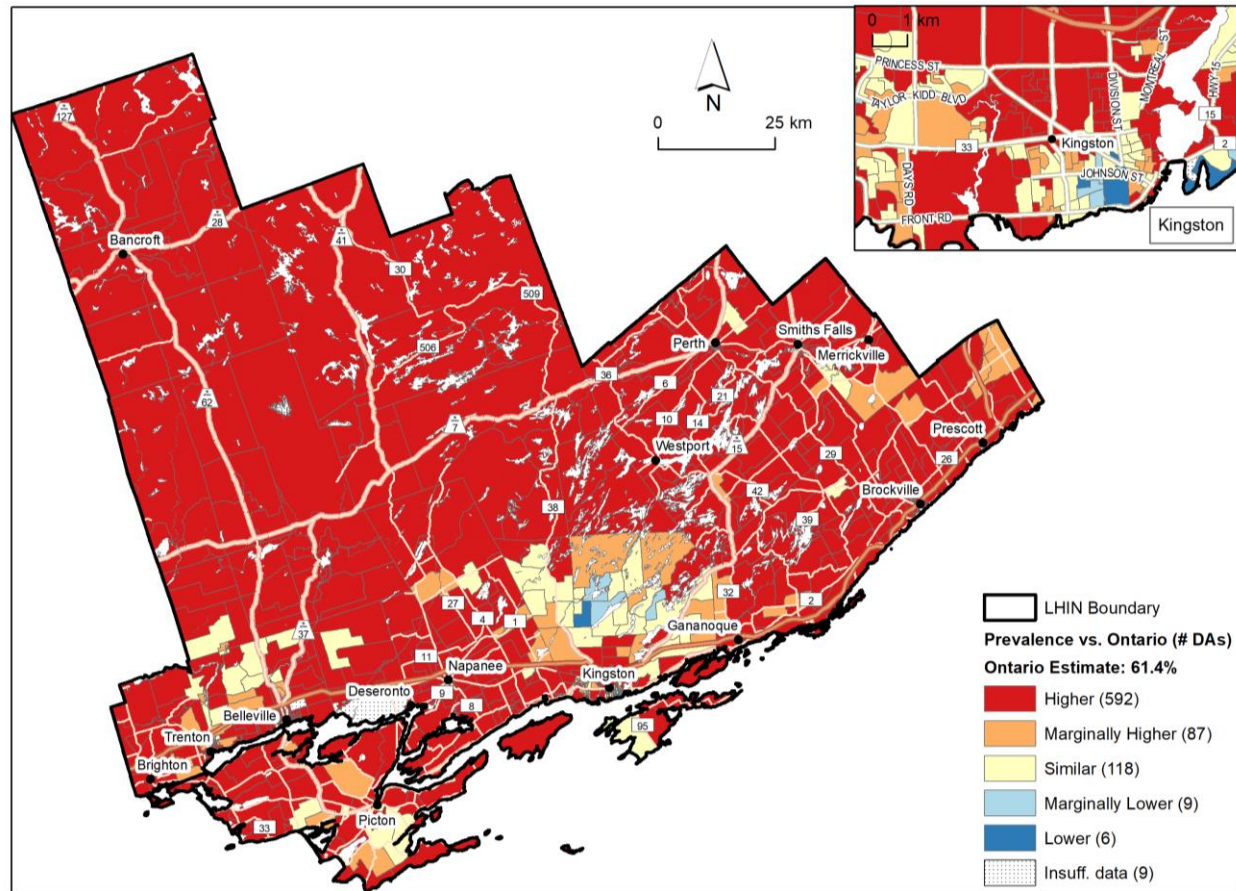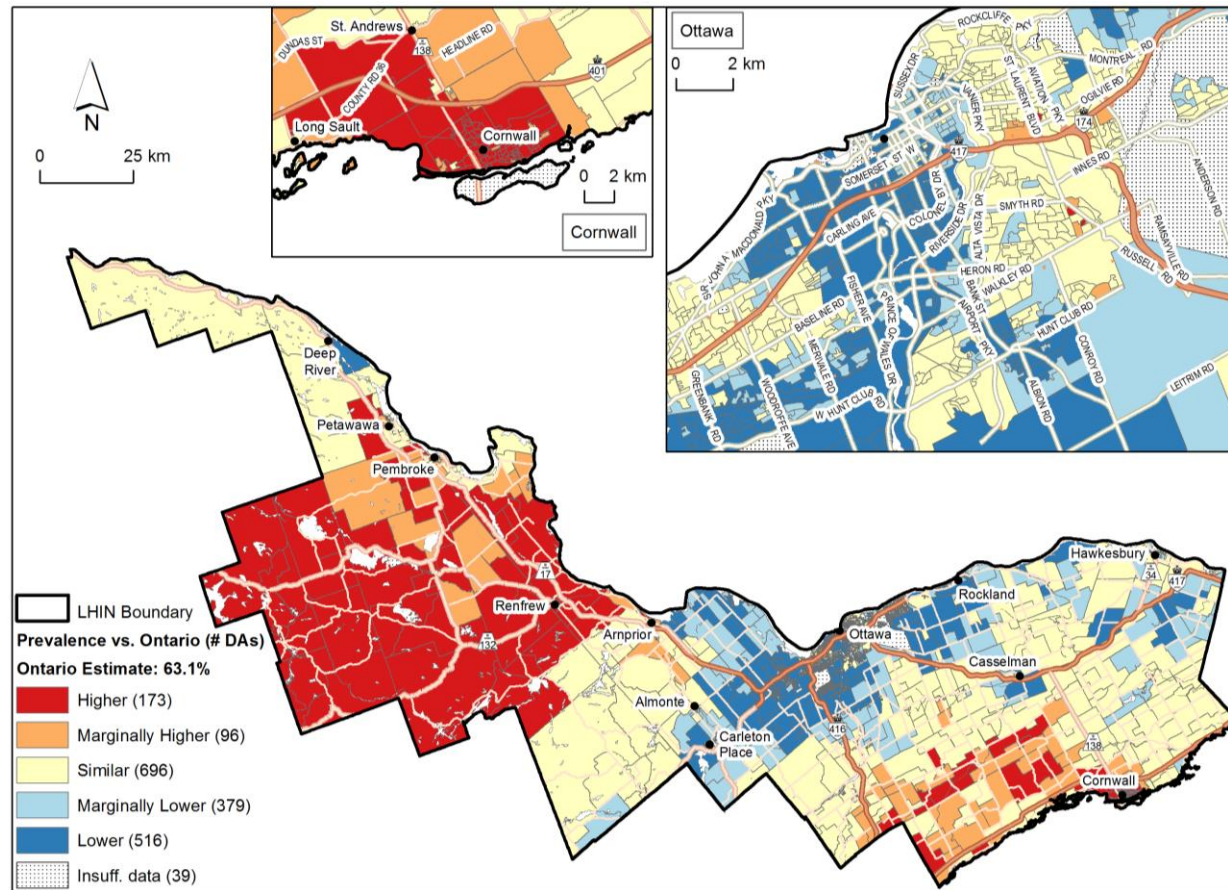

Map created: 11-Sep-17

Category	Mean prevalence % (range)
Overall	61.0
Higher	68.7 (66.2, 74.1)
Marginally Higher	66.2 (65.2, 67.7)
Similar	62.4 (59.0, 66.0)
Marginally Lower	59.3 (55.3, 60.9)
Lower	56.9 (50.7, 59.9)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
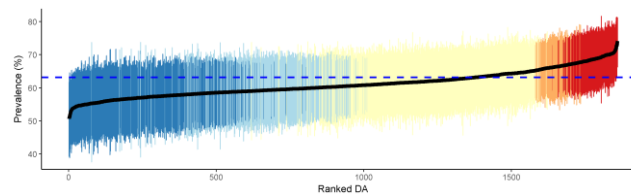
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 11.11 Inadequate vegetable and fruit consumption among males (age 12 and older), 2000–2014, Champlain Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
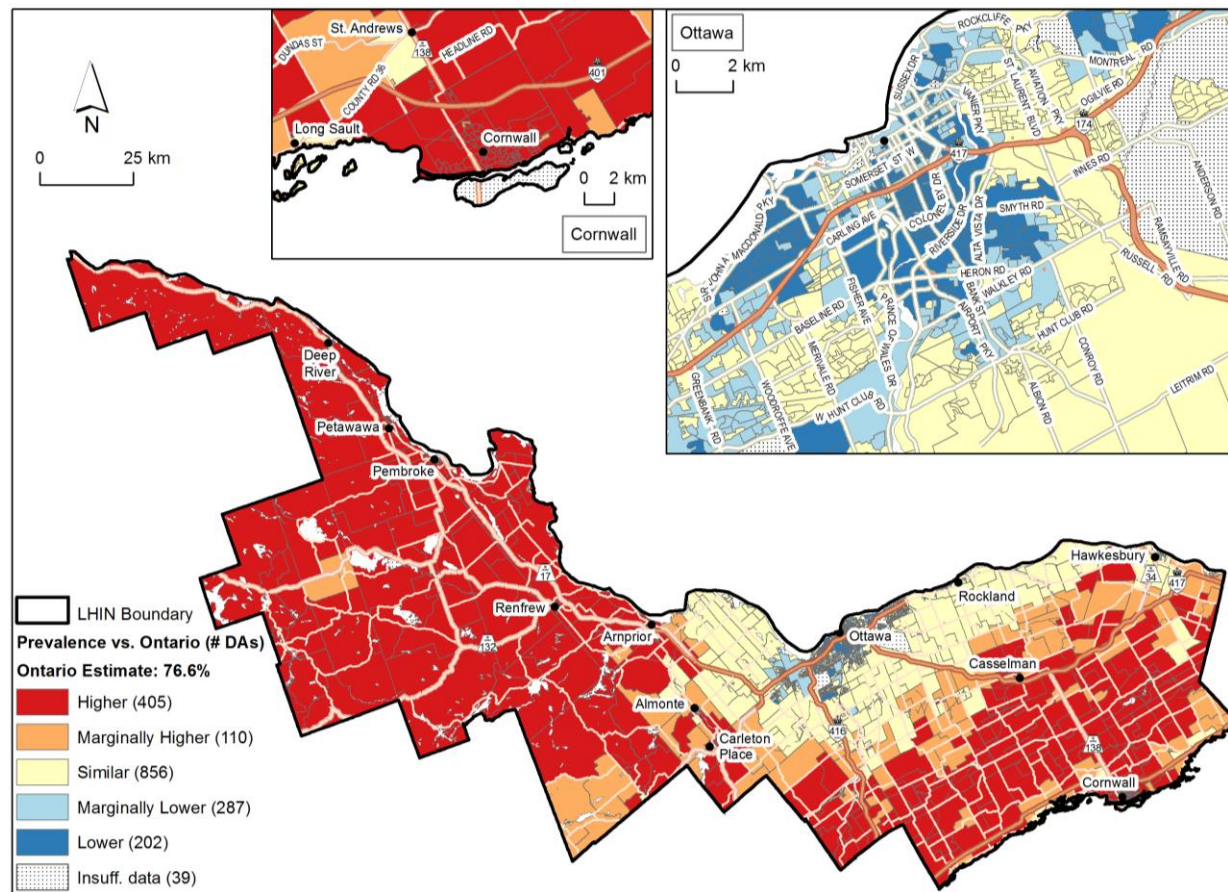
Category	Mean prevalence % (range)
Overall	76.4
Higher	81.4 (79.1, 85.0)
Marginally Higher	78.9 (78.0, 80.5)
Similar	75.8 (73.3, 78.6)
Marginally Lower	73.7 (71.8, 75.0)
Lower	71.9 (68.4, 73.6)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Physical activity

Because physical activity reduces cancer risk, lower prevalence estimates of this risk factor are of interest. The colour scheme of the maps was inverted so that the "lower than Ontario" estimates are displayed in red.

People age 12 and older

Most of the Ontario population was not physically active, with approximately one in five (23%) females and one in three (30%) males being physically active.

Lower prevalence than Ontario

Across the LHIN, most areas with a lower prevalence of physical activity than the Ontario average for females (n=91; Figure 11.12) were located in Cornwall and Ottawa. For males (n=43; Figure 11.13), lower prevalence areas were located in parts of Ottawa and Cornwall and near Renfrew and Hawkesbury.

Higher prevalence than Ontario

Overall, areas with a higher prevalence of physical activity than Ontario for females (n=707; Figure 11.12) were located in the central (e.g., Almonte,Carleton Place and Ottawa) and eastern (e.g., south of Hawkesbuy) parts of the LHIN. There were also areas around Deep River and Petawawa. For males (n=782; Figure 11.13), higher prevalence areas were also located in the northwestern (e.g., Deep River and Petawawa) and central (e.g., Almonte, Carleton Place and Ottawa) parts of the LHIN.

Adolescents

Adolescents were more physically active than adults, with approximately 40% of adolescent females and 57% of adolescent males being active. There were no areas with a lower prevalence than Ontario detected for adolescents in the Champlain LHIN, which is why those maps are not shown.

Figure 11.12 Physical activity among females (age 12 and older), 2000–2014, Champlain Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Map created: 11-Sep-17

LHIN Boundary

Prevalence vs. Ontario (# DAs)

Ontario Estimate: 22.8%

- Lower (91)
- Marginally Lower (77)
- Similar (647)
- Marginally Higher (338)
- Higher (707)
- Insuff. data (39)
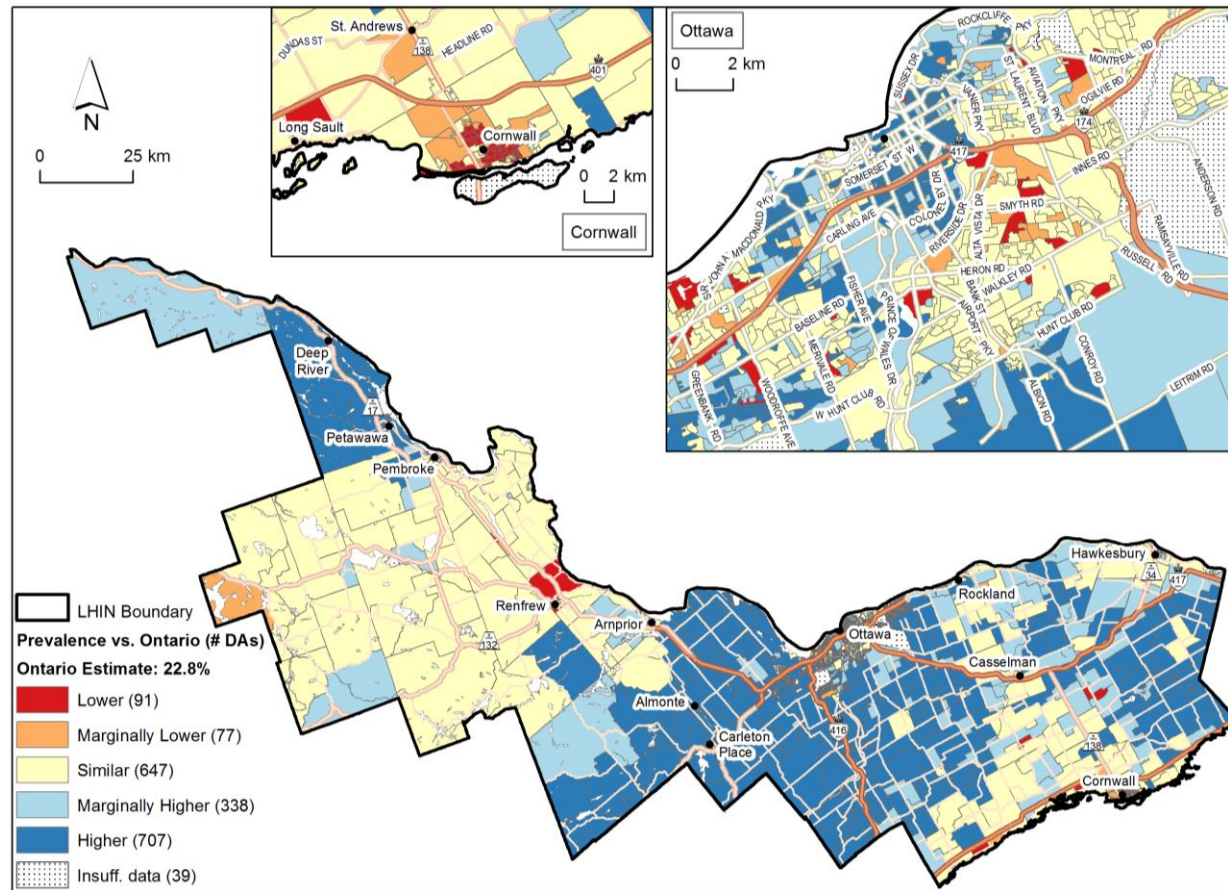
Category	Mean prevalence % (range)
Overall	25.9
Lower	17.7 (11.5, 20.0)
Marginally Lower	20.2 (18.9, 21.0)
Similar	23.5 (20.6, 27.2)
Marginally Higher	26.3 (24.7, 28.7)
Higher	29.4 (26.3, 40.1)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
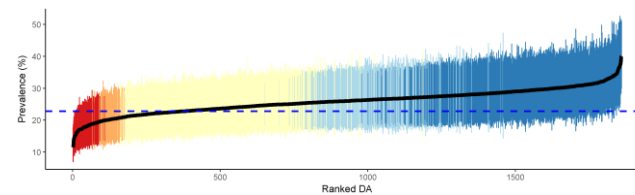
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 11.13 Physical activity among males (age 12 and older), 2000–2014, Champlain Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	33.4
Lower	25.2 (21.3, 26.5)
Marginally Lower	27.0 (25.5, 27.9)
Similar	30.6 (27.4, 33.7)
Marginally Higher	33.4 (32.0, 35.9)
Higher	36.4 (33.0, 46.9)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
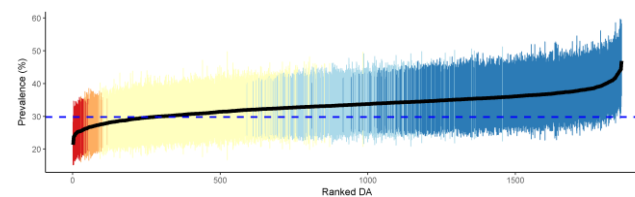
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Sedentary behaviour

People age 12 and older

Approximately half of the Ontario population reported sedentary behaviour during leisure time (females, 49%; males, 56%).

Higher prevalence than Ontario

For females, 137 areas with a higher prevalence of sedentary behaviour than the Ontario average were identified (Figure 11.14). These areas were located in the northwestern (e.g., around Petawawa and Pembroke) and southeastern (e.g., around Cornwall) parts of the LHIN. For males, areas with a higher prevalence than Ontario were located in parts of Cornwall and Ottawa (n=102; Figure 11.15).

Lower prevalence than Ontario

Overall, more areas with a lower prevalence of sedentary behaviour than the Ontario average were identified for females (n=520; Figure 11.14) compared to males (n=187; Figure 11.15). These lower prevalence areas occurred mainly in the central (e.g., Renfrew, Rockland and Casselman) parts of the LHIN for females. For males, lower prevalence areas were located in the western and eastern parts of the LHIN, near Pembroke, Renfrew, Arnprior, Almonte, Rockland, Casselman and Hawkesbury.

Adolescents

More than half of the Ontario adolescent population reported sedentary behaviour during leisure time, at approximately 55% for females and 60% for males. In the Champlain LHIN, there were no areas with a higher prevalence than Ontario for adolescents, which is why those maps are not shown.

Figure 11.14 Sedentary behaviour among females (age 12 and older), 2000–2014, Champlain Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
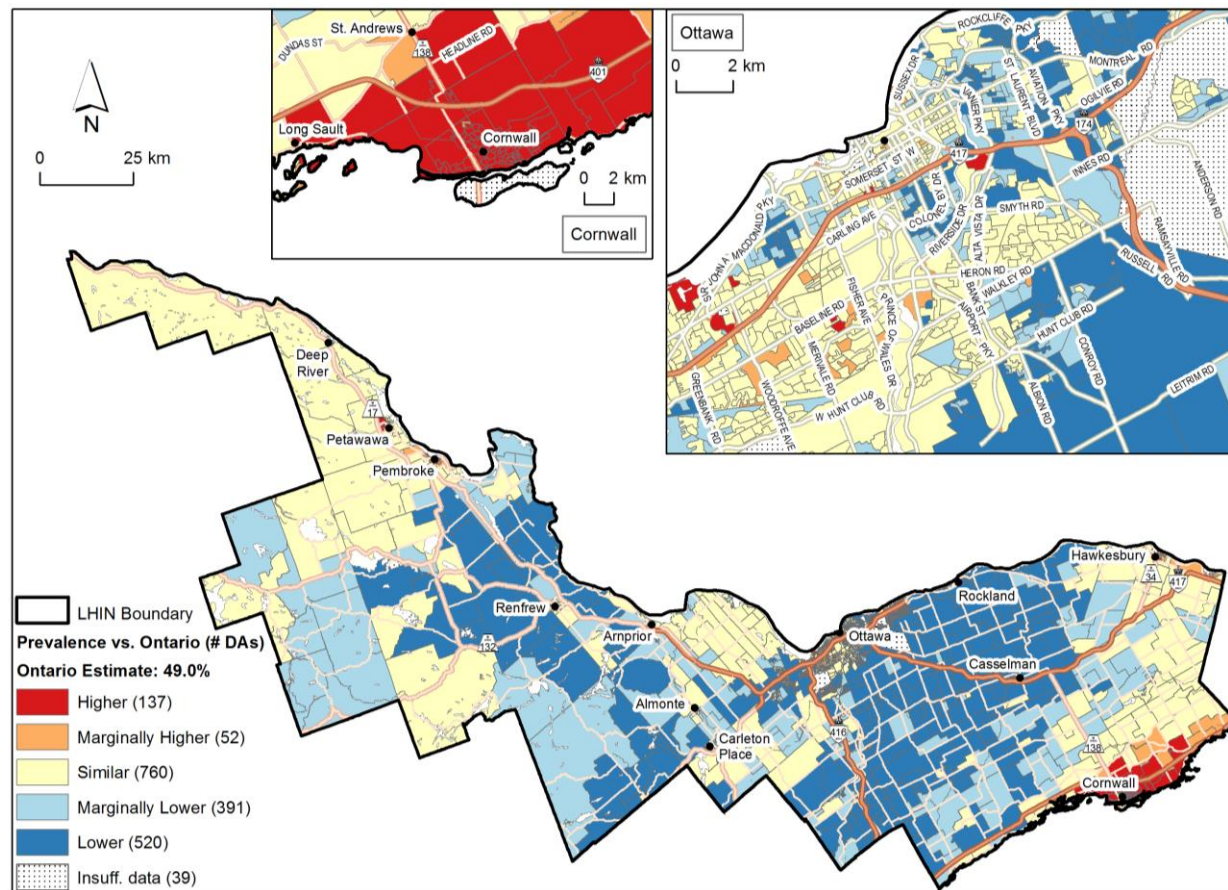
Category	Mean prevalence % (range)
Overall	47.2
Higher	58.9 (52.6, 69.2)
Marginally Higher	52.4 (51.4, 54.5)
Similar	48.2 (45.4, 52.2)
Marginally Lower	45.5 (42.7, 47.0)
Lower	43.2 (37.4, 46.1)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
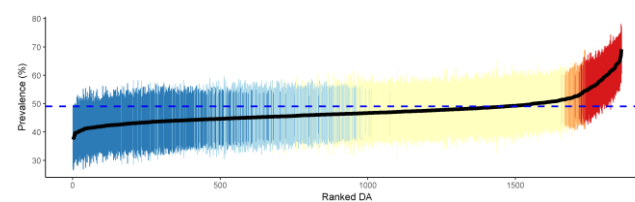
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 11.15 Sedentary behaviour among males (age 12 and older), 2000–2014, Champlain Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	55.5
Higher	61.8 (59.6, 66.3)
Marginally Higher	59.4 (58.1, 61.0)
Similar	55.9 (50.7, 59.2)
Marginally Lower	51.8 (48.7, 53.2)
Lower	49.1 (42.5, 51.5)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
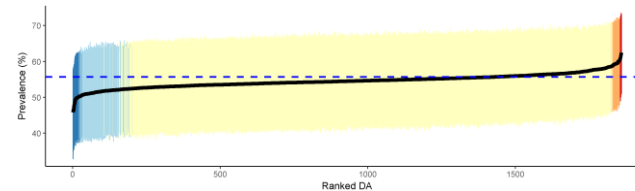
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Smoking—current status

People age 12 and older

Current tobacco smoking was reported by 17% of Ontario females and 24% of males.

Higher prevalence than Ontario

For females (n=527; Figure 11.16), areas with a higher prevalence of current smoking than the Ontario average were located throughout the LHIN, around Petawawa, Pembroke, Renfrew, Arnprior, Carleton Place, Casselman and Hawkesbury. Higher prevalence areas were also detected in Cornwall and in northeastern Ottawa. For males (n=284; Figure 11.17), higher prevalence areas were more common in the western (e.g., Petawawa and Pembroke) and eastern (e.g., Casselman and Hawkesbury) parts of the LHIN. Higher prevalence areas for males were also located, in Cornwall, and in parts of Ottawa.

Lower prevalence than Ontario

Areas with a lower prevalence of current smoking than the Ontario average for females (n=389; Figure 11.16) tended to be located towards the central part of the LHIN, in and around Ottawa. For males, lower prevalence areas (n=644; Figure 11.17) were more common than for females, and were also located in and around Ottawa.

Adolescents

Approximately 8% of adolescent females and adolescent males reported smoking tobacco.

Higher prevalence than Ontario

For adolescent females (n=244; Figure 11.18), areas with a higher prevalence of current smoking than Ontario were located in the western (i.e., west of Carleton Place), and in eastern parts of the LHIN, near Casselman and Hawkesbury, and in Ottawa. For adolescent males (n=327; Figure 11.19), higher prevalence areas occurred in the western parts of the LHIN near Deep River, Petawawa, Renfrew and Almonte and in many of the eastern parts of the LHIN around Hawkesbury, Casselman and Cornwall. Several areas of Ottawa had a higher prevalence for female and male adolescents, but the patterns were dissimilar.

Lower prevalence than Ontario

Most areas with a lower prevalence of current smoking than the Ontario average for adolescent females (n=67; Figure 11.18) were mostly located in Ottawa. Lower prevalence areas for adolescent males (n=119; Figure 11.19) were located in the central part of Champlain LHIN, including Ottawa.

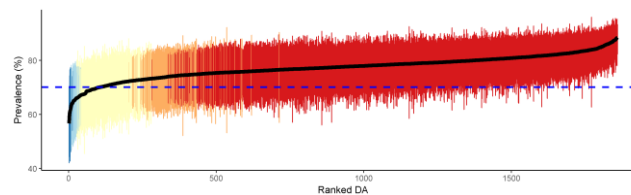**Figure 11.16** Current smoking among females (age 12 and older), 2000–2014, Champlain Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
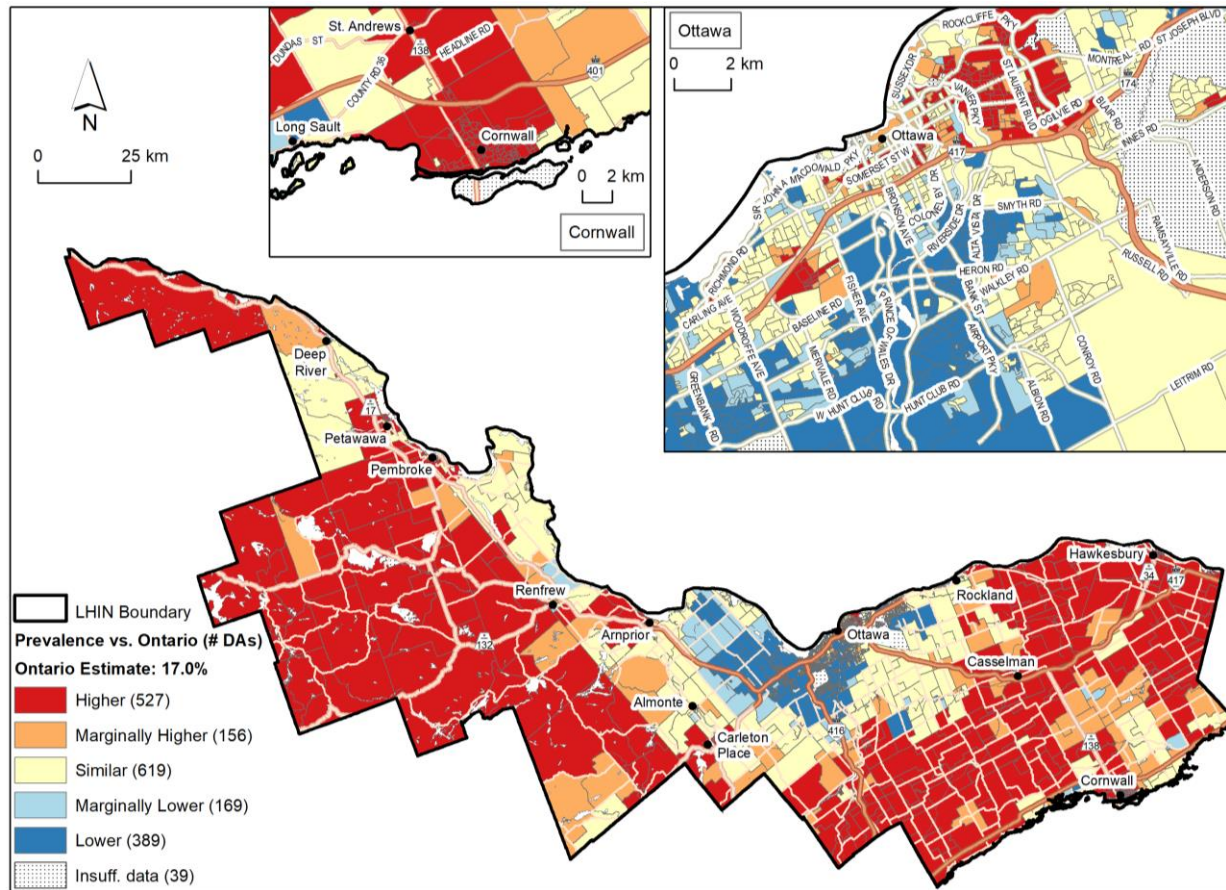
Category	Mean prevalence % (range)
Overall	18.6
Higher	25.8 (20.8, 44.4)
Marginally Higher	20.9 (19.0, 23.0)
Similar	17.4 (14.6, 21.3)
Marginally Lower	14.4 (12.3, 15.5)
Lower	11.4 (6.2, 14.4)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
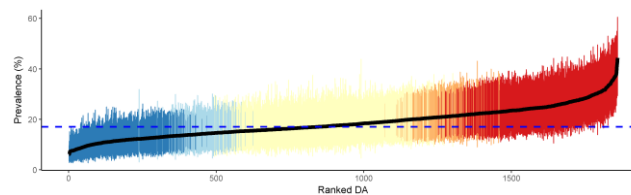
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
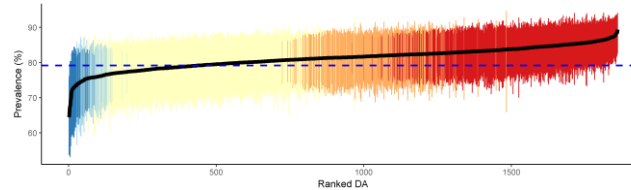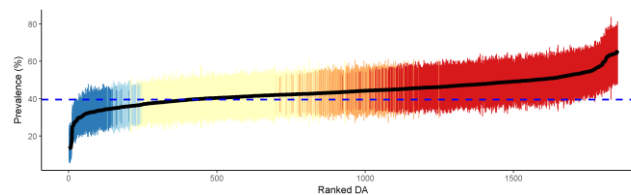
Figure 11.17 Current smoking among males (age 12 and older), 2000–2014, Champlain Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Map created: 11-Sep-17
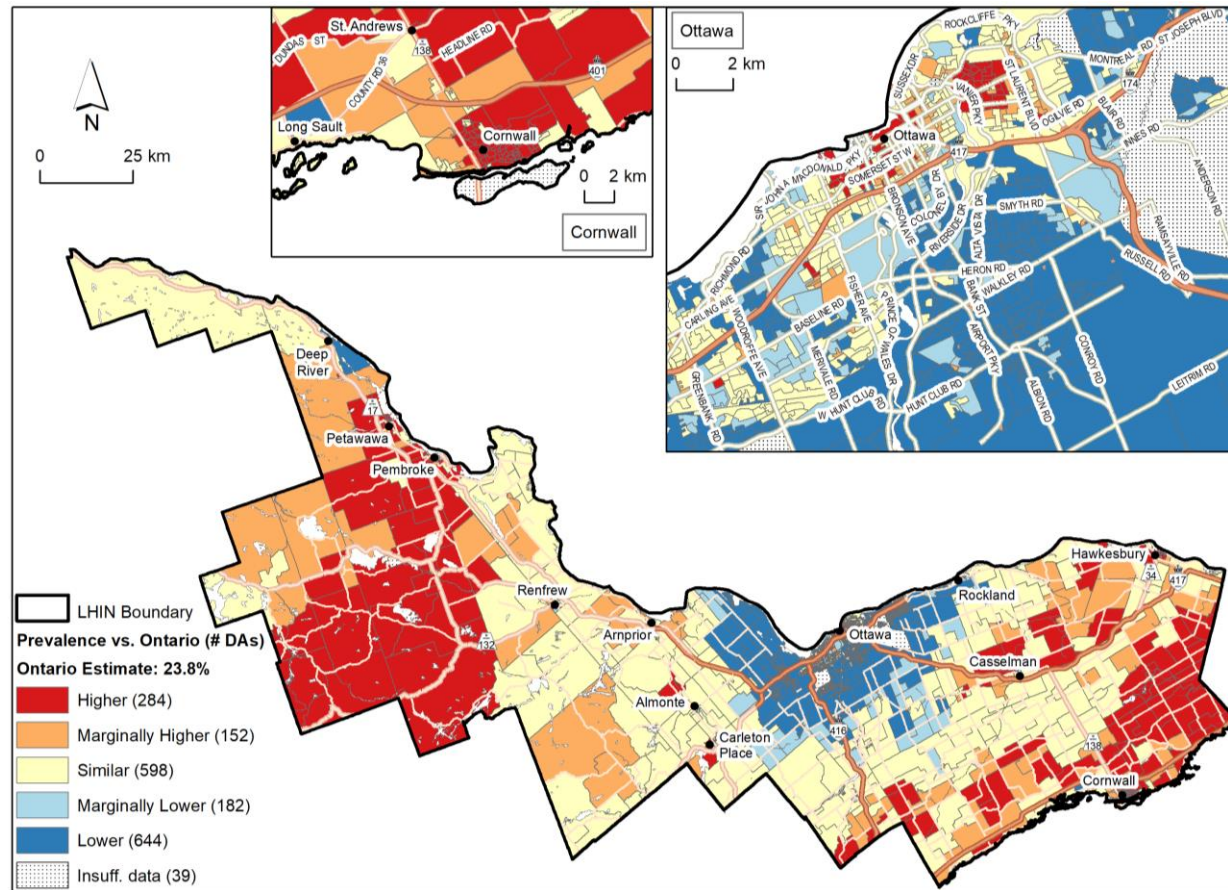
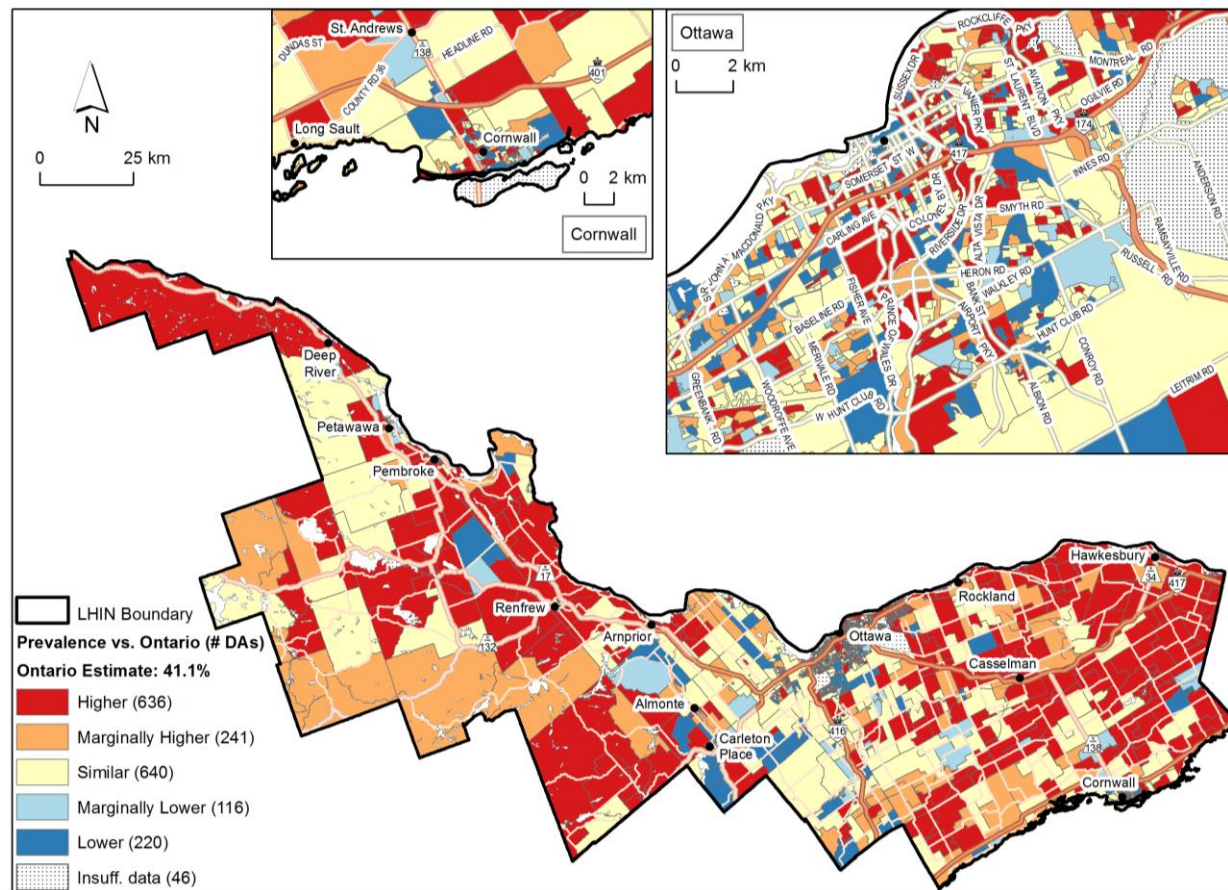| Category	Mean prevalence % (range)
Overall	23.2
Higher	33.2 (27.9, 52.3)
Marginally Higher	28.1 (26.2, 31.0)
Similar	24.2 (20.8, 28.8)
Marginally Lower	20.4 (18.4, 22.0)
Lower	17.4 (10.3, 20.5)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
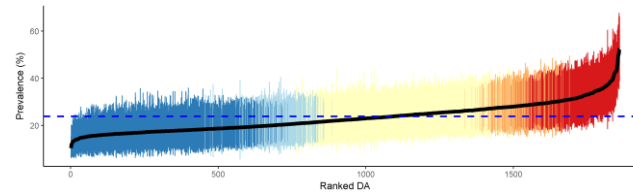
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 11.18 Current smoking among adolescent females (ages 12 to 18), 2000–2014, Champlain Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
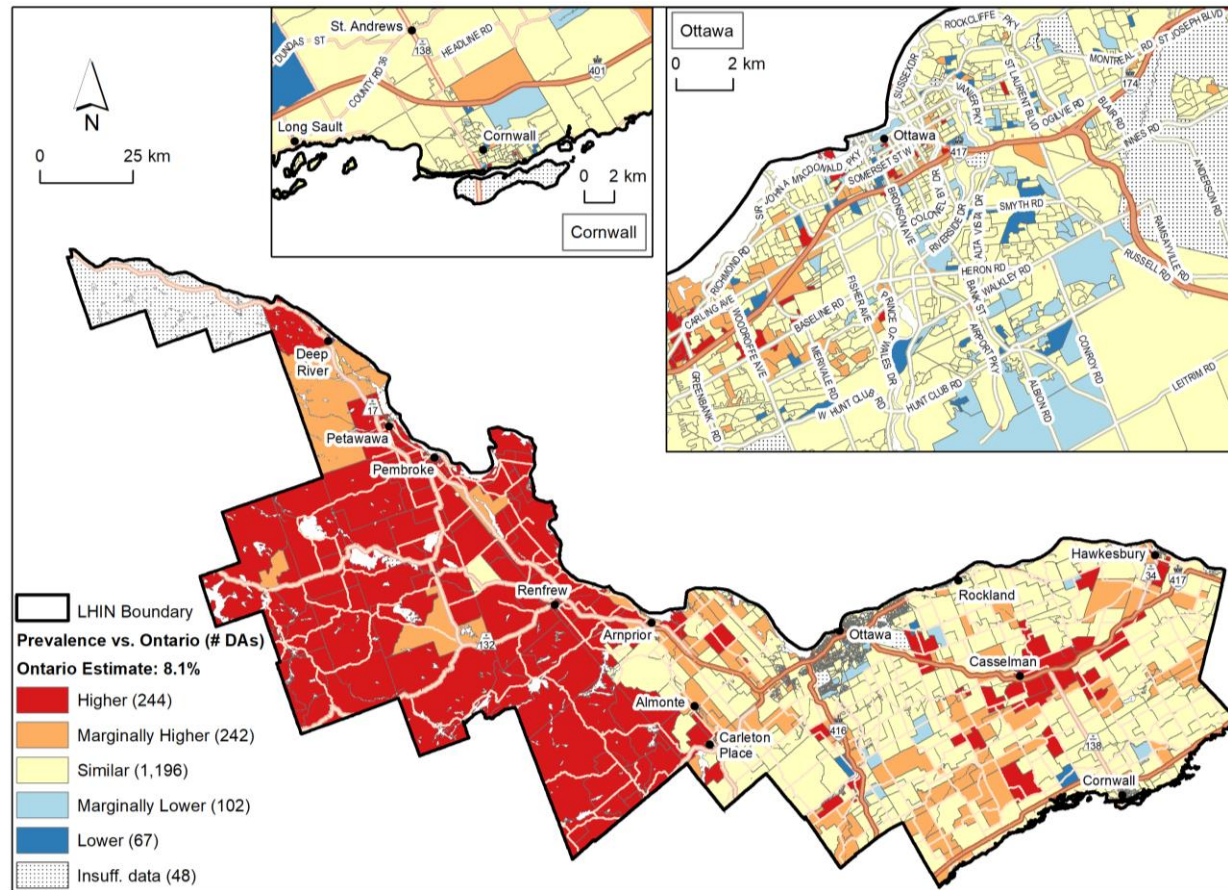
Map created: 11-Sep-17

Category	Mean prevalence % (range)
Overall	9.6
Higher	14.0 (11.2, 23.4)
Marginally Higher	11.2 (9.8, 13.2)
Similar	8.8 (7.0, 11.5)
Marginally Lower	6.7 (6.0, 7.2)
Lower	5.2 (1.8, 6.4)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
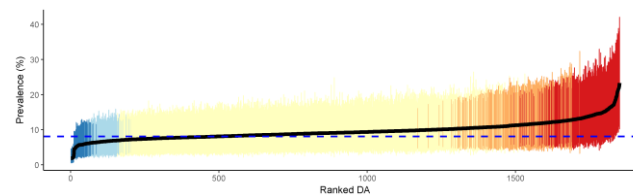
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 11.19 Current smoking among adolescent males (ages 12 to 18), 2000–2014, Champlain Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	9.6
Higher	13.9 (11.3, 24.0)
Marginally Higher	11.1 (10.1, 13.0)
Similar	8.9 (7.1, 11.2)
Marginally Lower	6.9 (6.3, 7.4)
Lower	5.2 (1.2, 6.7)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
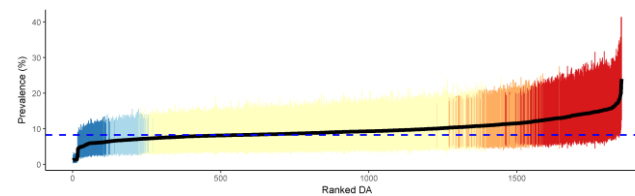
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Smoking—ever-smoked status

People age 12 and older

Approximately one in two Ontario females and three in five Ontario males reported having ever-smoked.

Higher prevalence than Ontario

Across the LHIN, most areas had a higher prevalence of ever-smoked status than the Ontario average, for females (n=1,245; Figure 11.20) and males (n=722; Figure 11.21). The location of these areas was generally similar for females and males, except in the central (e.g., surrounding Ottawa) part of the LHIN.In Ottawa, areas with a higher prevalence of ever-smokers than Ontario were more common for females than males.

Lower prevalence than Ontario

For females (n=8; Figure 11.20) and males (n=158; Figure 11.21), areas with a lower prevalence of ever-smoking status than Ontario tended to occur in the central part of the LHIN, and for males, particularly in parts of Ottawa.

Adolescents

The area-based prevalence of ever-smoked status was not estimated for adolescent populations.

Figure 11.20 Ever-smoked status among females (age 12 and older), 2000–2014, Champlain Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
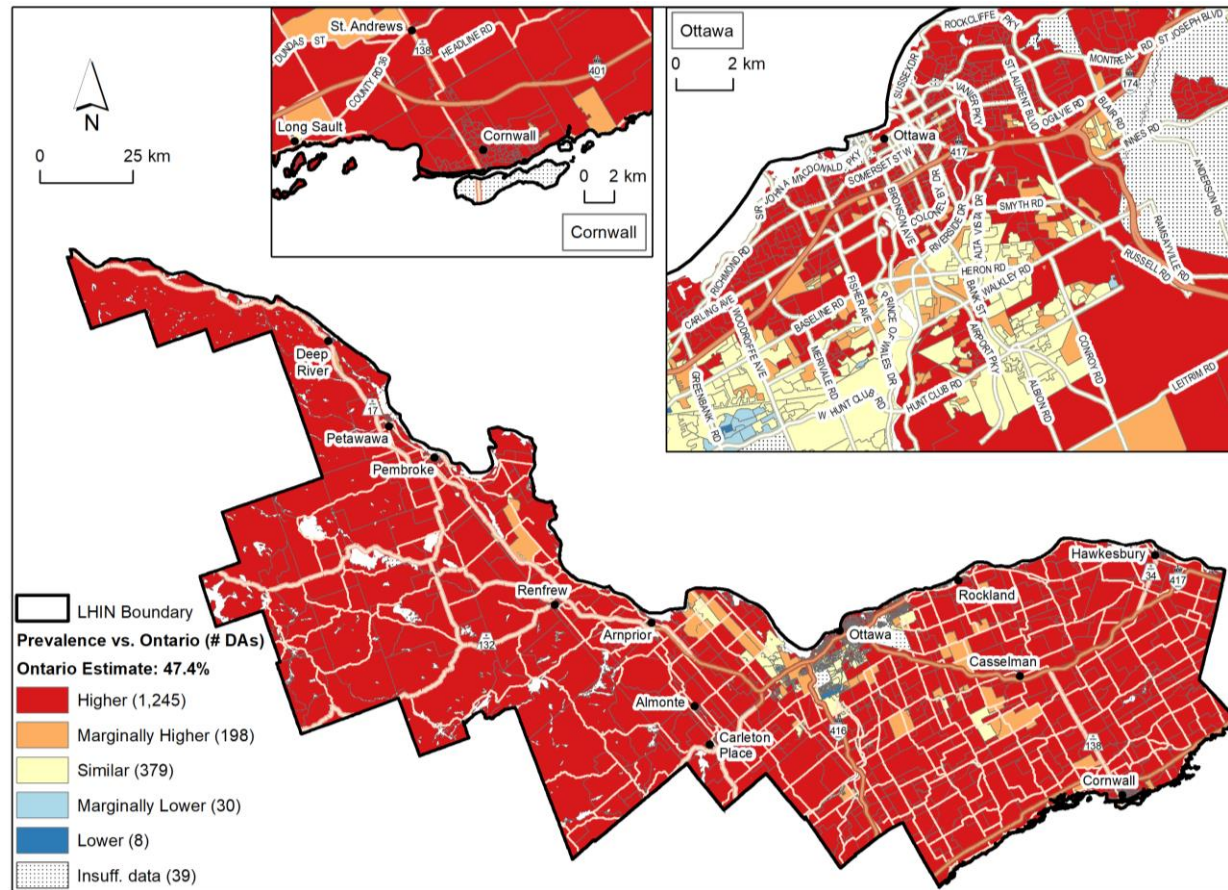
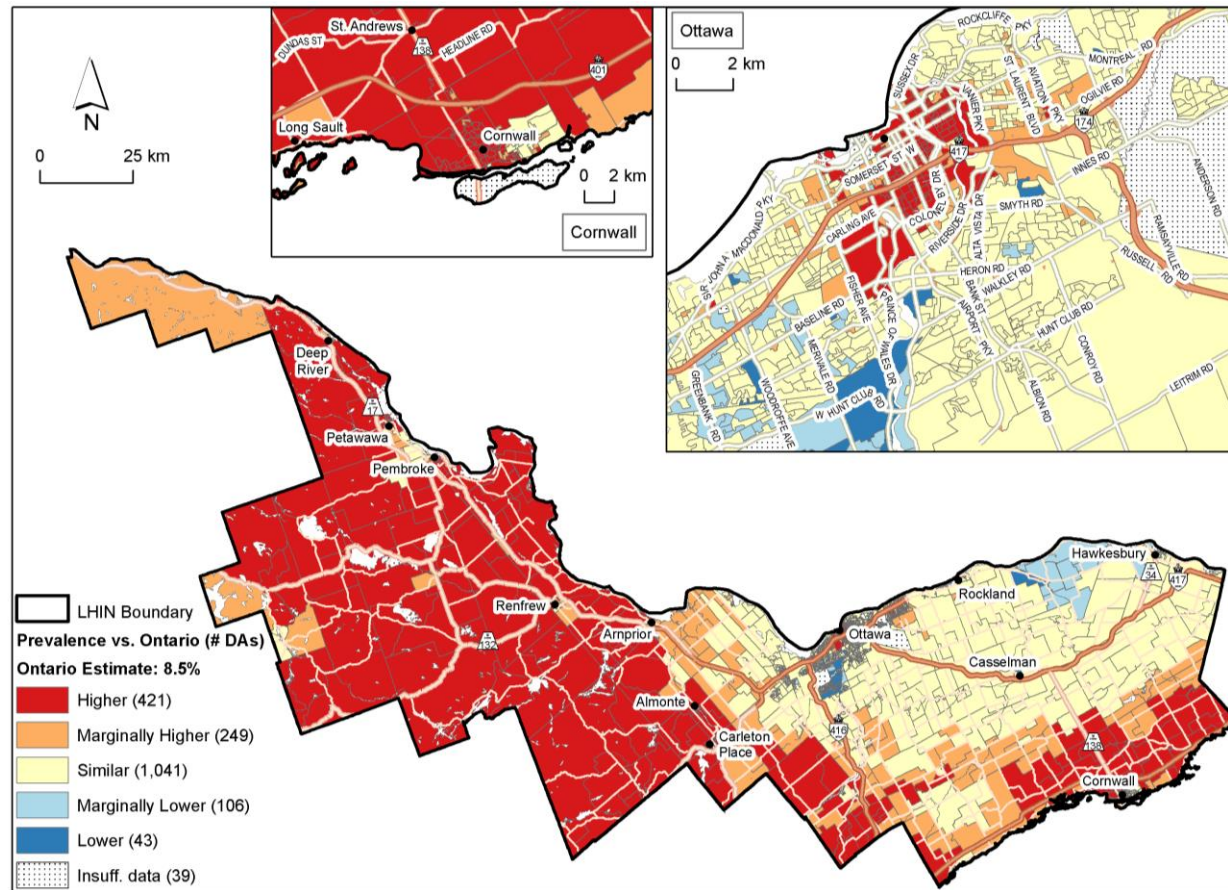| Category	Mean prevalence % (range)
Overall	55.0
Higher	58.0 (50.8, 68.8)
Marginally Higher	51.8 (49.3, 54.2)
Similar	48.0 (43.0, 52.2)
Marginally Lower	43.1 (41.1, 44.2)
Lower	40.5 (38.0, 42.2)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
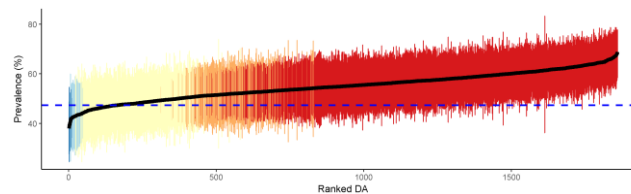
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 11.21 Ever-smoked status among males (age 12 and older), 2000–2014, Champlain Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
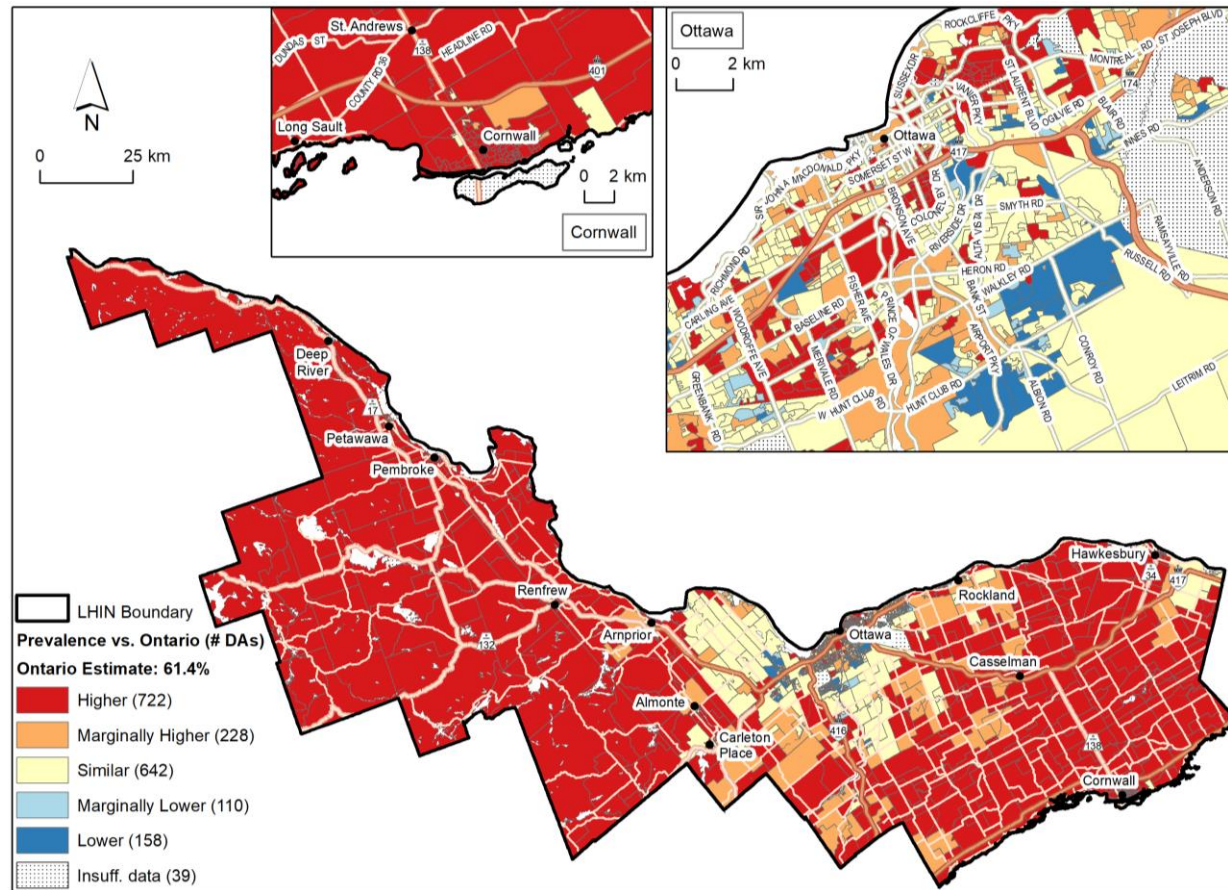
Map created: 12-Sep-17

Category	Mean prevalence % (range)
Overall	63.9
Higher	68.6 (64.2, 81.4)
Marginally Higher	64.4 (63.2, 66.2)
Similar	61.5 (57.3, 64.5)
Marginally Lower	57.9 (55.3, 59.2)
Lower	55.2 (45.9, 58.3)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
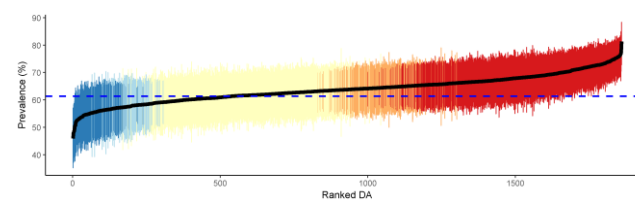
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

LHIN 12

North Simcoe
Muskoka

12.   North Simcoe Muskoka LHIN

Key Findings

Top three priority risk factor population estimates by sex (see Table 12.1 below):

Females
     Alcohol—current consumption
     Smoking—ever-smoked status
     Smoking—current status

Males
     Smoking—ever-smoked status
     Inadequate vegetable and fruit consumption
     Alcohol—current consumption

Risk factor summary

Alcohol—current consumption
     Priority areas:
     • Females: most parts of the LHIN
     • Males: areas in Barrie and areas along Highway 11 and Highway 26 and in the western part of the LHIN
     • Adolescent females and adolescent males: most parts of the LHIN

Alcohol—consumption exceeding cancer prevention recommendations
     Priority areas:
     • Females: areas in the northern part of the LHIN and parts of Collingwood and Barrie
     • Males: most areas throughout the LHIN

Excess body weight:
     Priority areas:
     • Females: areas in the northern half of the LHIN, in and around Orillia and near Wasaga Beach and Barrie
     • Males: areas across the LHIN in all cities and towns
     • Adolescent females: areas north of Huntsville and Bracebridge, in and around Penetanguishene, Midland and Orillia

Inadequate vegetable and fruit consumption
     Priority areas:
     • Females: areas in and around Midland, Wasaga Beach, Barrie and Orillia
     • Males: areas across the LHIN in all cities and towns except Collingwood

Physical activity:

Priority areas:
- Females and males: few areas in Orillia and Barrie

Sedentary behaviour:

Priority areas:
- Females: areas around Penetanguishene, Midland and Wasaga Beach and in Orillia and Barrie
- Males: few areas southeast of Barrie

Smoking—current status:

Priority areas:
- Females: areas throughout the LHIN and in Orillia and Barrie
- Males: areas in the eastern part of the LHIN, areas around Midland and in Orillia and Barrie
- Adolescent females: areas across the northern and central parts of the LHIN and in Orillia and Barrie
- Adolescent males: areas dispersed across the northern part of the LHIN

Smoking—ever-smoked status:

Priority areas:
- Females and males: most areas throughout the LHIN and in Orillia and Barrie

Introduction

This section describes the estimated local prevalence of risk factors across the LHIN compared to the Ontario prevalence estimates from 2000 to 2014. These comparisons are always relative to Ontario with respect to the level of statistical evidence for the underlying prevalence estimate and often the number of areas meeting specific criteria are presented in parentheses (e.g., n=40). Risk factor maps are presented for females and males age 12 and older, and for adolescent females and adolescent males ages 12 to 18 inclusive. Throughout the text, the terms "area(s)" and "local" refer to the 2006 census dissemination areas (see the Data and Methods section, page 3).

Exclusions

As discussed in the Interpretation section (page 7), maps are shown only for risk factor estimates in the LHIN where one or more local estimates were higher than Ontario (or lower than Ontario for physical activity). Therefore, the risk factor maps not displayed for North Simcoe Muskoka LHIN include:

- excess body weight (overweight/obese) among adolescent males;
- inadequate vegetable and fruit consumption among adolescent females and adolescent males;
- physical activity among adolescent females and adolescent males; and
- sedentary behaviour among adolescent females and adolescent males.

Notes

Risk factor prevalence could not be estimated for several areas in the North Simcoe Muskoka LHIN (e.g., suppressed census populations or institutionalized populations), which are shown as "insufficient data" on the maps. These areas include the Indian River, Christian Island, Moose Point, Wahta Mohawk and Mnjikaning First Nations. Additionally, areas with unavailable population data are shown as "insufficient data." See Appendix C for a full list of DAs in the insufficient data category.

Priority population estimates

Priority population estimates may be helpful in prioritizing health promotion and planning efforts for potential populations affected by certain modifiable risk factors. Table 12.1 (page 408) presents the estimated priority populations for each risk factor by sex and age group in the North Simcoe Muskoka LHIN. Priority populations are defined as those living in areas with a higher risk factor prevalence (or lower prevalence for physical activity) than Ontario. These estimates were produced by summing the population from all higher (or lower for physical activity) prevalence small areas (2006 dissemination areas) after taking into account the risk factor prevalence of each area. For example, if among females 100 areas had a higher prevalence of current alcohol consumption than Ontario, the female 2006 census populations in each of these areas were multiplied by the prevalence of current alcohol consumption for each area and then summed across the 100 areas to produce an estimate of the female "priority population." These calculations are intended to provide a measure to prioritize the risk factors rather than a population estimate.

According to the Methods (page 4) and Interpretation (page 7) sections, these higher prevalence areas had strong statistical evidence of elevated prevalence compared to Ontario (posterior probabilities $\geq$ 80%). An exception is physical activity, which had strong statistical evidence of lower prevalence estimates than Ontario (posterior probabilities $\leq$ 20%). Therefore, the population estimates for each risk factor are likely undercounted

because areas with less statistical certainty (posterior probabilities < 80% and physical activity posterior probabilities > 20%) are not included in the priority population estimates.

Table 12.1 Estimated priority populations among higher prevalence** dissemination areas compared to Ontario by risk factor, sex and age group, North Simcoe Muskoka Local Health Integration Network (LHIN), using 2006 census populations

Risk factor	Female priority population*†	% of female population in the LHIN† (n=183,010)	Male priority population*†	% of male population in the LHIN† (n=174,070)	Adolescent female priority population*‡	% of adolescent female population in the LHIN‡ (n=20,200)	Adolescent males priority population*‡	% of adolescent male population in the LHIN‡ (n=21,270)
Alcohol—current consumption	107,590	59%	53,810	31%	4,710	23%	5,680	27%
Alcohol—consumption exceeding cancer prevention recommendations	7,710	4%	20,750	12%	NM	—	NM	—
Excess body weight	26,970	15%	41,550	24%	430	2%	NE	—
Inadequate vegetable and fruit consumption	16,680	9%	65,470	38%	NE	—	NE	—
Physical activity	380	0%	40	0%	NP	—	NP	—
Sedentary behaviour	16,780	9%	11,020	6%	NE	—	NE	—
Smoking—current status	28,830	16%	10,310	6%	1,180	6%	60	0%
Smoking—ever-smoked status	106,070	58%	90,220	52%	NM	—	NM	—

NE = no estimates within the "higher" prevalence categories**; NM = not modelled; NP = census population estimates not available
* Estimates rounded to multiples of 10
** For physical activity, priority populations are those living in areas with a lower risk factor prevalence compared to Ontario
† Population age 12 and older
‡ Population ages 12 to 18
— Value not applicable

Alcohol—current consumption

People age 12 and older

An estimated 70% of females and 79% of males in Ontario reported current alcohol consumption.

Higher prevalence than Ontario

Across the North Simcoe Muskoka LHIN, more areas had a higher prevalence of current alcohol consumption than the Ontario average for females (n=577; Figure 12.1) compared to males (n=265; Figure 12.2). For females, higher prevalence areas were located in and around Huntsville, Bracebridge, Gravenhurst, Midland, Orillia, Collingwood, Wasaga Beach and Barrie. For males, higher prevalence areas tended to be located along Highway 11 and Highway 12 and in and around Collingwood, Wasaga Beach, Barrie and Orillia.

Lower prevalence than Ontario

Areas with a lower prevalence of current alcohol consumption than Ontario were distributed across Barrie and Orillia for females (n=8; Figure 12.1) and located near Penetanguishene and Midland for males (n=5; Figure 12.2).

Adolescents

Among the adolescent population in Ontario, approximately 40% of females and males reported current alcohol consumption.

Higher prevalence than Ontario

There were fewer areas with a higher prevalence of current alcohol consumption than the Ontario average for adolescent females (n=366; Figure 12.3) compared to adolescent males (n=406; Figure 12.4). For adolescent females, higher prevalence areas occurred throughout the northeastern, western and southeastern parts of the LHIN. Higher prevalence areas were common in Orillia and Barrie. For adolescent males, higher prevalence areas tended to cluster more than for adolescent females, particularly in the southern part of the LHIN. Higher prevalence areas were also located in Barrie and Orillia.

Lower prevalence than Ontario

Areas with a lower prevalence of current alcohol consumption than Ontario for adolescent females (n=32; Figure 12.3) and adolescent males (n=35; Figure 12.4) were located in Barrie and Orillia, but were uncommon across the rest of the LHIN.

Figure 12.1 Current alcohol consumption among females (age 12 and older), 2000–2014, North Simcoe Muskoka Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
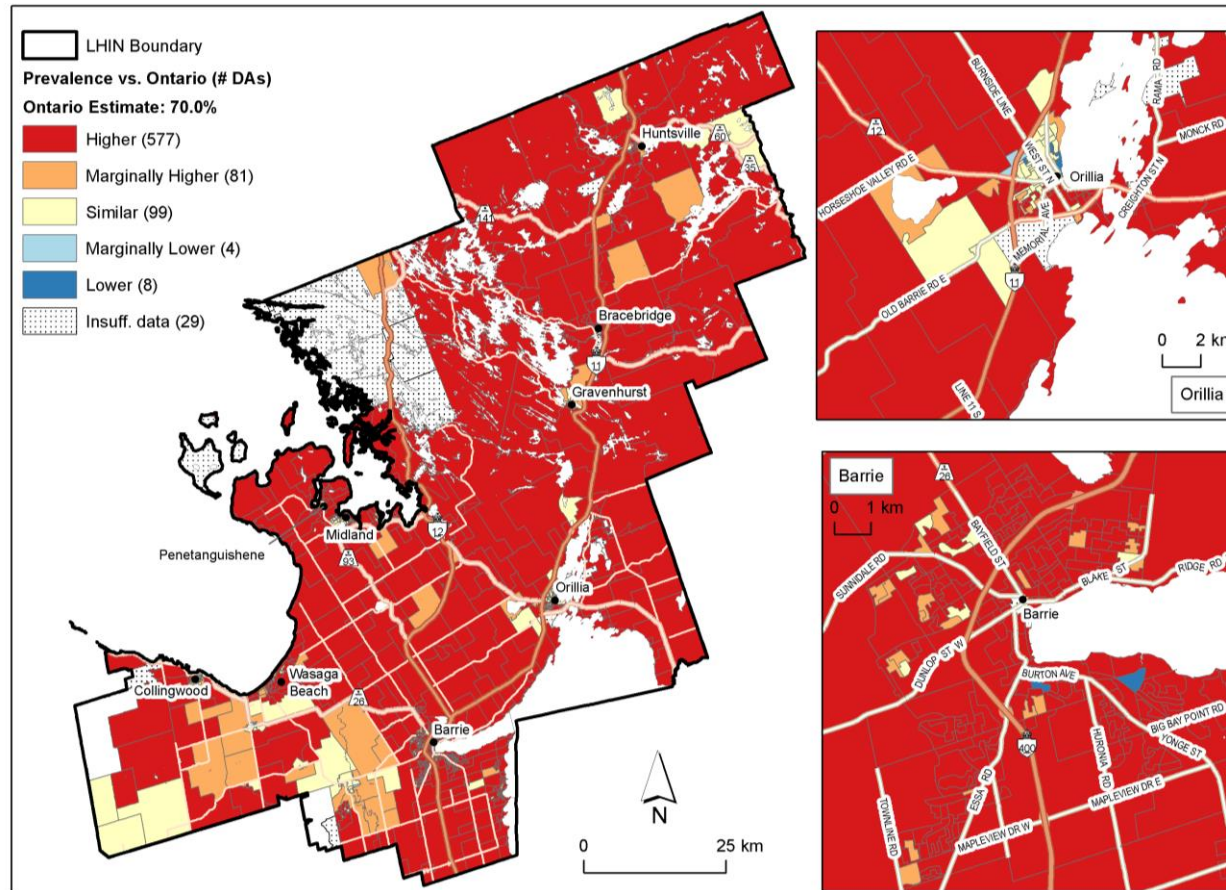
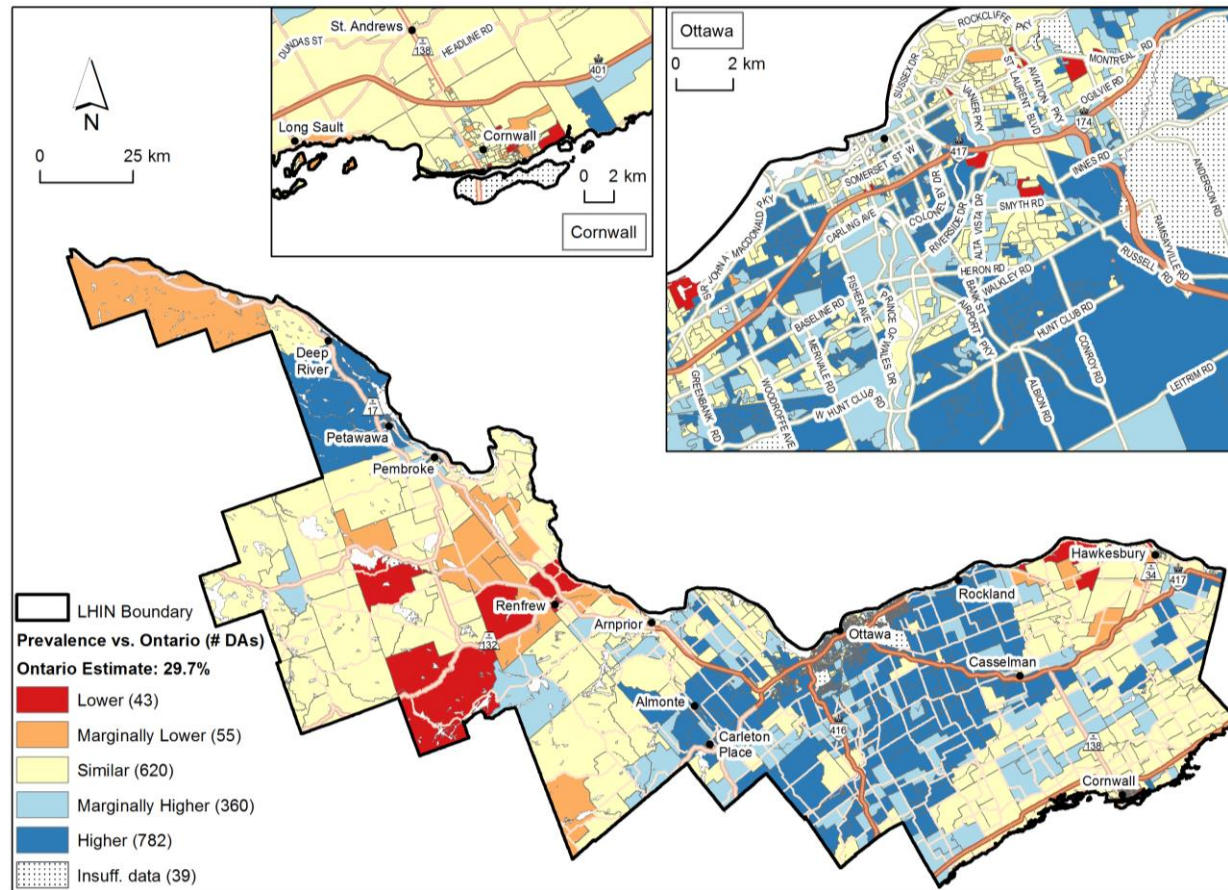| Category	Mean prevalence % (range)
Overall	76.6
Higher	78.2 (73.9, 84.3)
Marginally Higher	73.9 (72.3, 75.7)
Similar	70.8 (66.5, 73.1)
Marginally Lower	65.8 (64.8, 66.2)
Lower	62.4 (56.6, 65.0)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 12.2 Current alcohol consumption among males (age 12 and older), 2000–2014, North Simcoe Muskoka Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
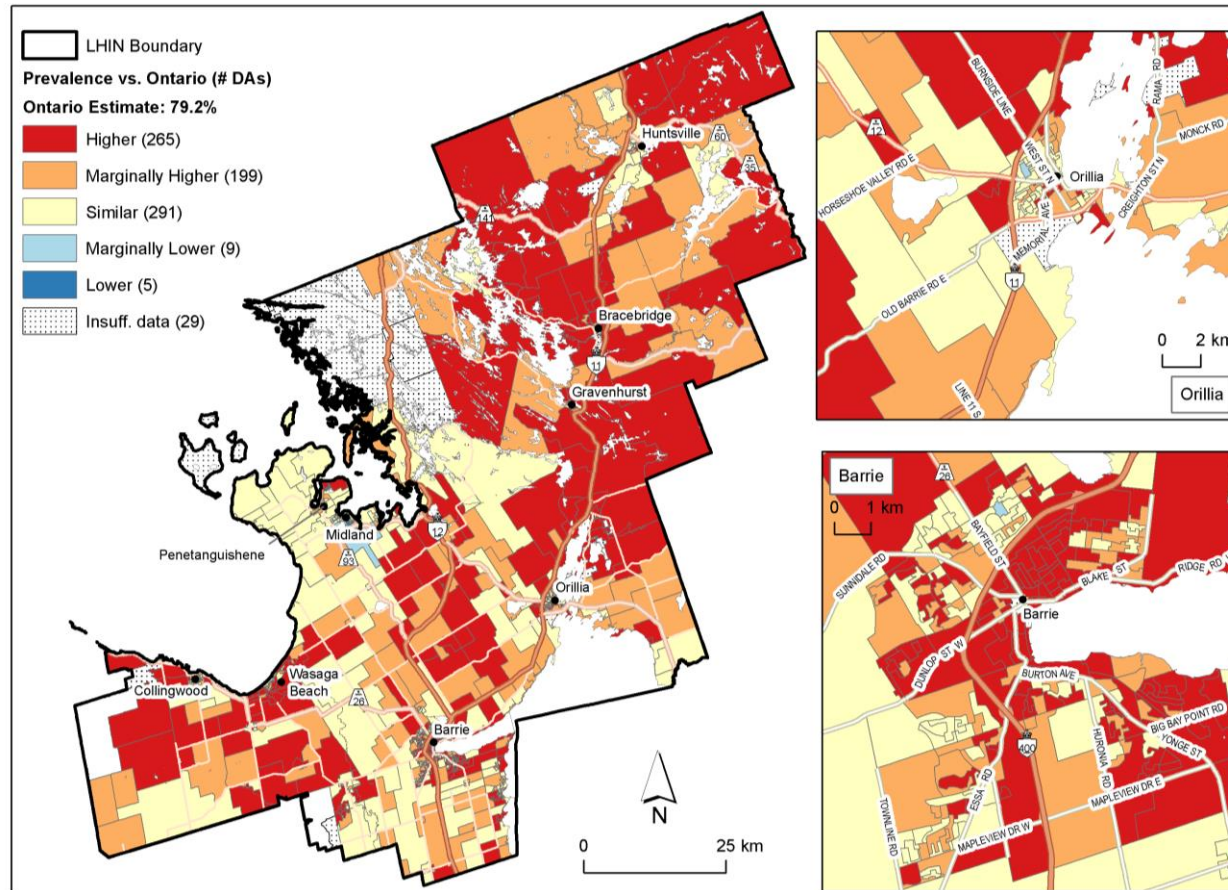
Category	Mean prevalence % (range)
Overall	81.4
Higher	83.7 (81.6, 88.2)
Marginally Higher	81.7 (80.7, 83.1)
Similar	79.5 (76.2, 81.4)
Marginally Lower	76.0 (74.0, 77.0)
Lower	74.1 (73.0, 75.2)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 12.3 Current alcohol consumption among adolescent females (ages 12 to 18), 2000–2014, North Simcoe Muskoka Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	44.4
Higher	49.3 (43.6, 69.4)
Marginally Higher	43.5 (42.1, 45.2)
Similar	39.9 (36.5, 43.5)
Marginally Lower	35.9 (34.7, 36.9)
Lower	30.1 (14.2, 35.5)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 12.4 Current alcohol consumption among adolescent males (ages 12 to 18), 2000–2014, North Simcoe Muskoka Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

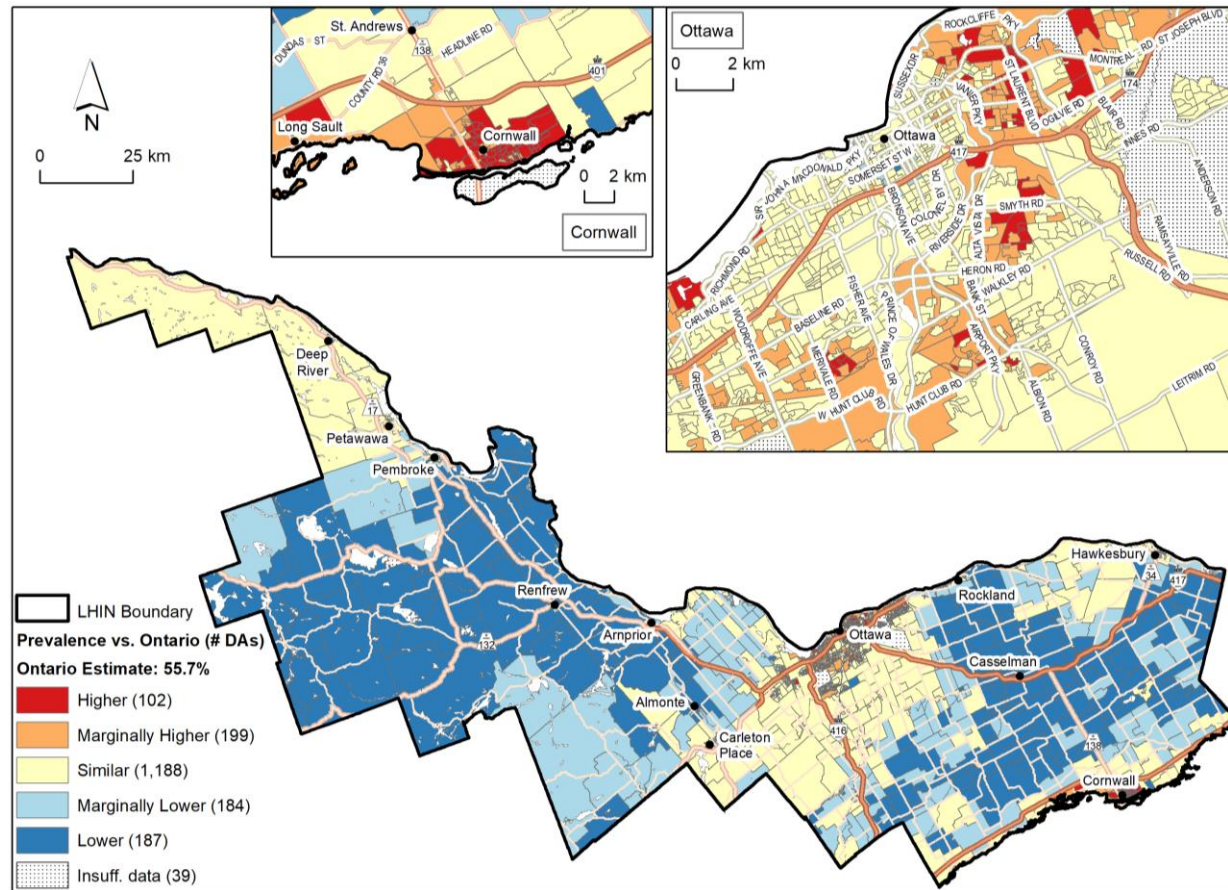| Category	Mean prevalence % (range)
Overall	46.4
Higher	50.8 (44.8, 71.0)
Marginally Higher	45.4 (43.8, 47.4)
Similar	41.6 (37.9, 45.2)
Marginally Lower	37.7 (36.6, 38.9)
Lower	32.3 (15.8, 37.3)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Alcohol—consumption exceeding cancer prevention recommendations

People age 12 and older

Almost 7% of the female population in Ontario drank alcohol in excess of the recommended limits for cancer prevention. Among males, the Ontario prevalence of exceeding the recommended limits was 8.5%.

Higher prevalence than Ontario

Areas with a higher prevalence than the Ontario average of alcohol consumption in excess of cancer prevention recommended limits for females (n=318; Figure 12.5) occurred mainly in the northern and eastern parts of the LHIN, and in Orillia and Barrie. Higher prevalence areas for females were also detected south of Barrie and in and around Penetanguishene. For males higher prevalence areas (n=707; Figure 12.6) were located across most of the LHIN.

Lower prevalence than Ontario

Few areas had a lower prevalence than Ontario of alcohol consumption in excess of cancer prevention recommendations for females (n=2; Figure 12.5). For males, lower prevalence areas were not detected in the LHIN (Figure 12.6).

Adolescents

The area-based prevalence of exceeding cancer prevention recommendations was not estimated for adolescent populations.

Figure 12.5 Alcohol consumption exceeding cancer prevention recommendations among females (age 12 and older), 2000–2014, North Simcoe Muskoka Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
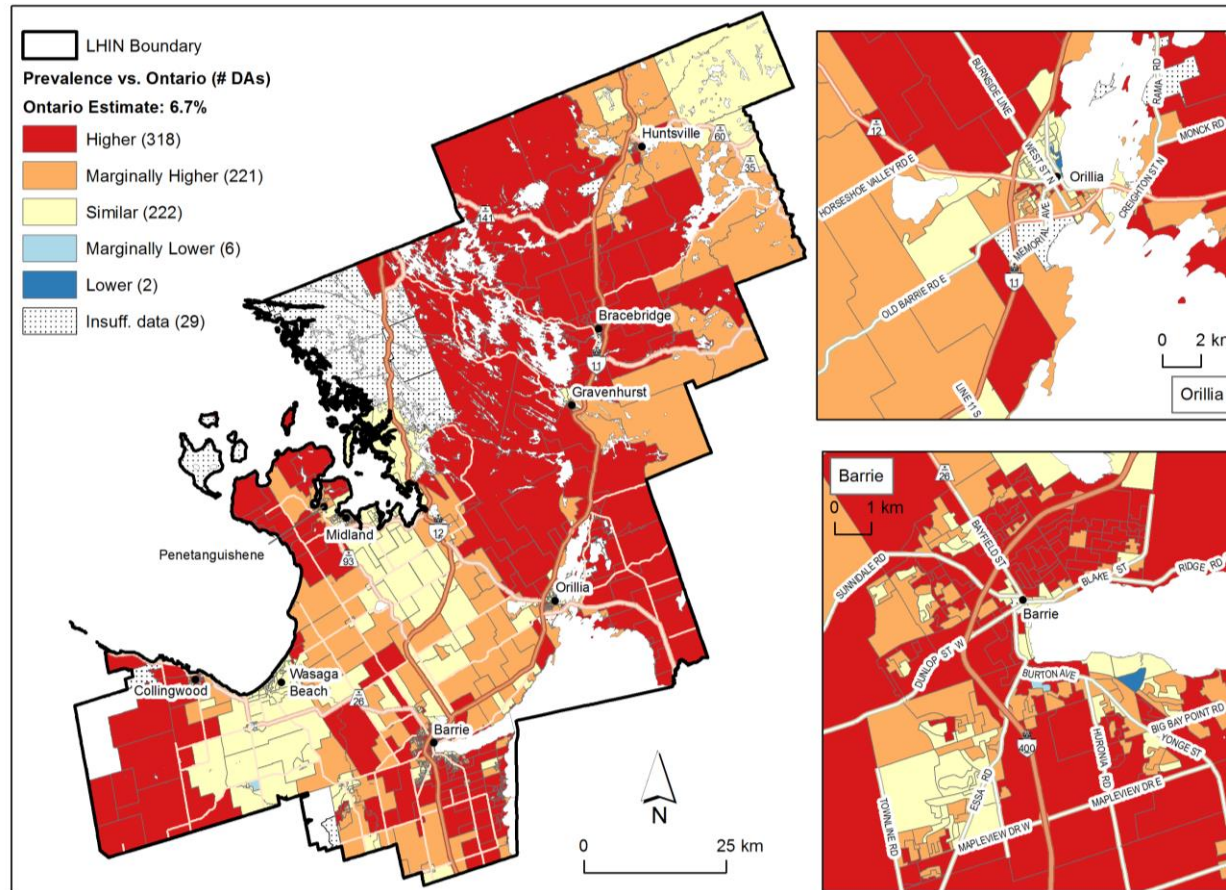
Category	Mean prevalence % (range)
Overall	9.1
Higher	10.1 (8.6, 13.2)
Marginally Higher	8.9 (8.1, 10.9)
Similar	7.8 (6.3, 9.1)
Marginally Lower	5.8 (5.7, 5.9)
Lower	5.3 (5.0, 5.6)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
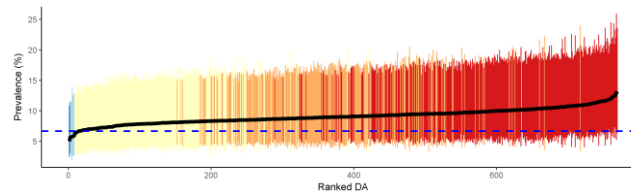
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 12.6 Alcohol consumption exceeding cancer prevention recommendations among males (age 12 and older), 2000–2014, North Simcoe Muskoka Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	12.6
Higher	12.8 (10.4, 18.8)
Marginally Higher	10.8 (9.9, 11.7)
Similar	9.4 (8.0, 10.4)
Marginally Lower	N/A
Lower	N/A

N/A = no estimates in the category

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Excess body weight

People age 12 and older

The estimated Ontario prevalence of excess body weight (overweight or obese) was 41% among females and 56% among males.

Higher prevalence than Ontario

There were many areas with a higher prevalence excess body weight than the Ontario average for females (n=221; Figure 12.7) in the northern part of the LHIN. Higher prevalence areas for females were also located in Orillia, in and around Barrie and around Wasaga Beach. For males, higher prevalence areas (n=286; Figure 12.8) were located extensively throughout the southern and northeastern parts of the LHIN and in Orillia and Barrie.

Lower prevalence than Ontario

A few areas, mainly in Barrie, had lower prevalence of excess body weight than the Ontario average for females (n=18; Figure 12.7). For males, the few areas of lower prevalence were scattered in the southern part of the LHIN (n=3; Figure 12.8).

Adolescents

Among Ontario adolescents, an estimated 15% of females and 25% of males were overweight or obese.

Higher prevalence than Ontario

Across the LHIN, most areas with a higher prevalence of excess body weight (overweight or obese) than Ontario for adolescent females (n=81; Figure 12.9) were located in the northern part of LHIN, north of Huntsville and Bracebridge, northeast of Orillia and in and around Penetanguishene, Midland and Orillia. In the North Simcoe Muskoka LHIN, there were no areas with a higher prevalence than Ontario for adolescent males, which is why that map is not shown.

Lower prevalence than Ontario

No areas of lower prevalence were identified for adolescent females (Figure 12.9).

Figure 12.7 Excess body weight (overweight/obese) among females (age 12 and older), 2000–2014, North Simcoe Muskoka Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
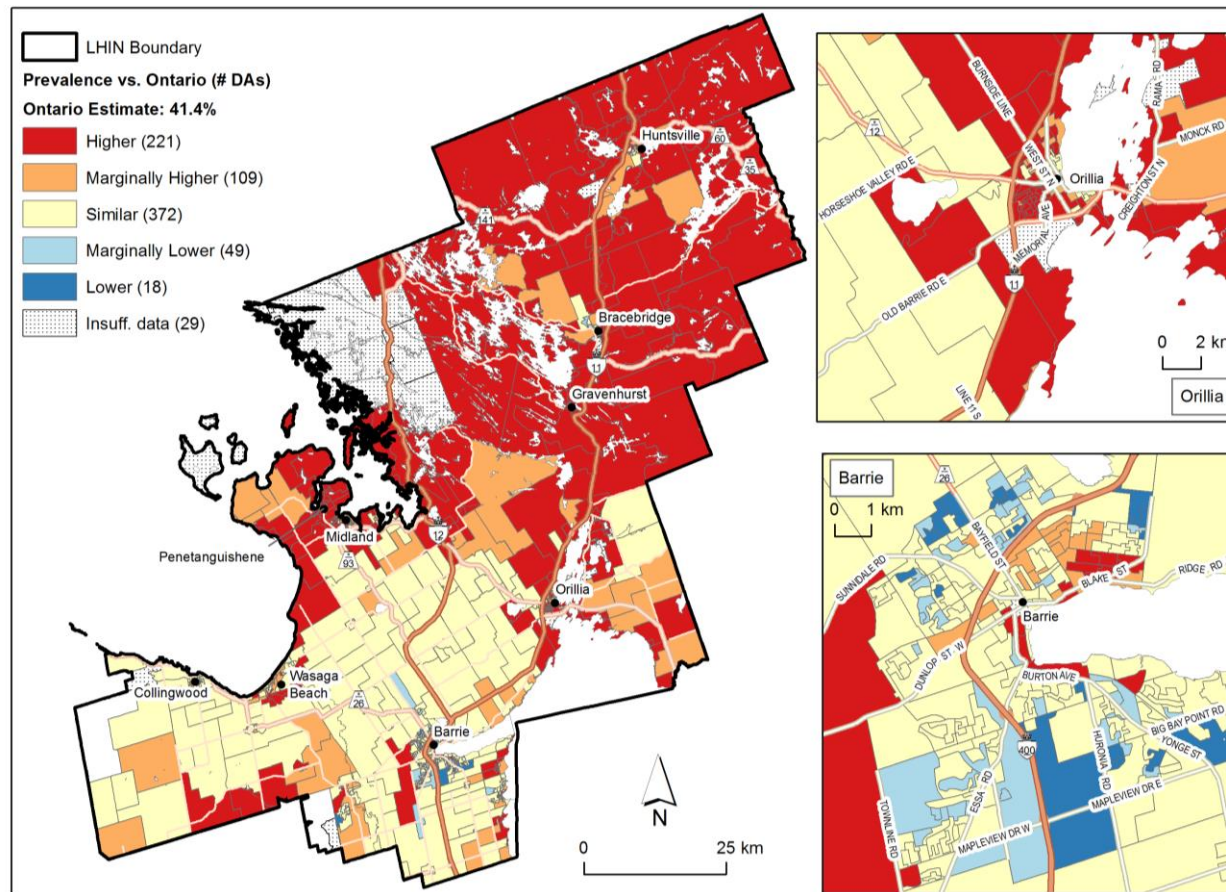
Category	Mean prevalence % (range)
Overall	43.6
Higher	48.2 (44.6, 55.8)
Marginally Higher	44.8 (43.7, 46.2)
Similar	41.6 (38.7, 44.7)
Marginally Lower	38.0 (35.4, 39.2)
Lower	36.3 (33.6, 38.3)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
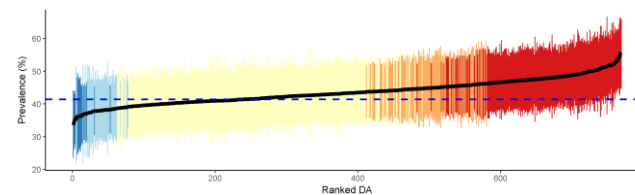
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 12.8 Excess body weight (overweight/obese) among males (age 12 and older), 2000–2014, North Simcoe Muskoka Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
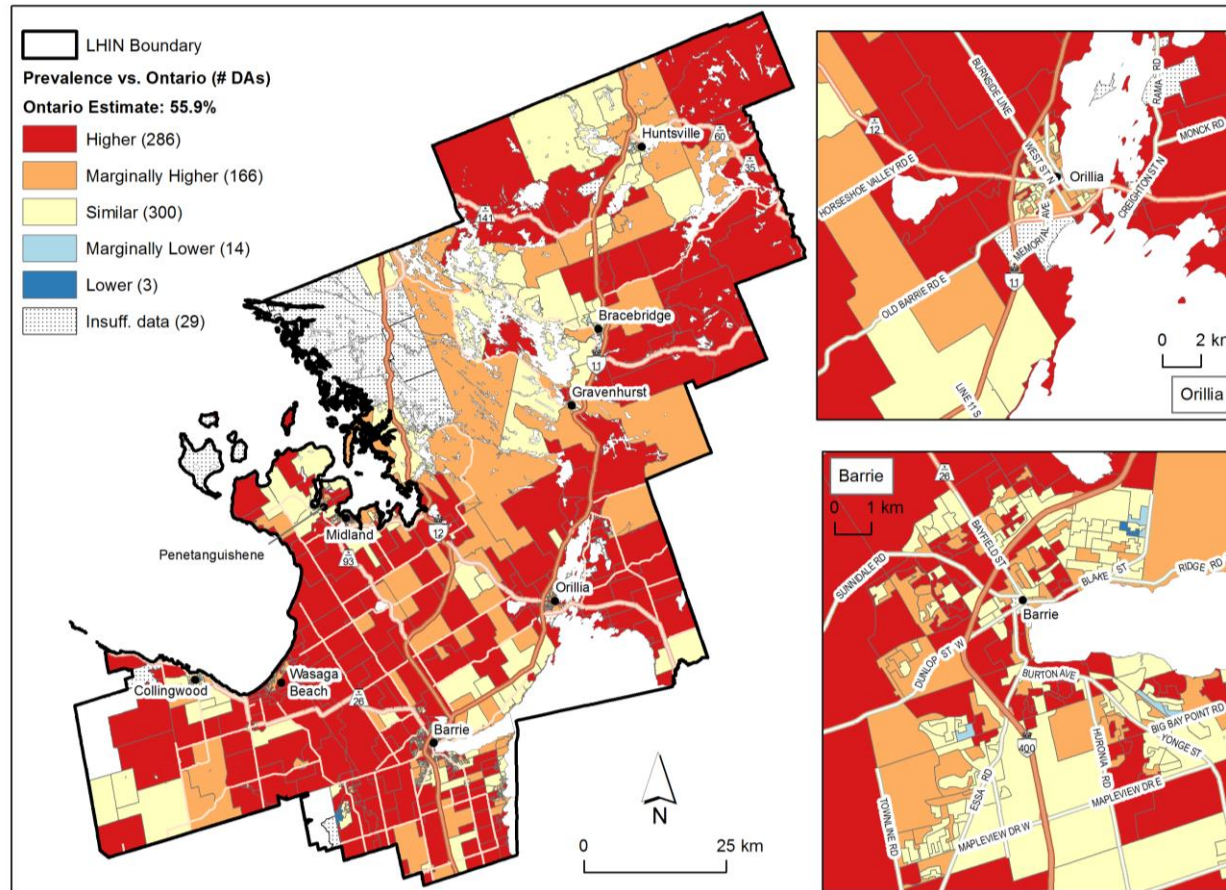
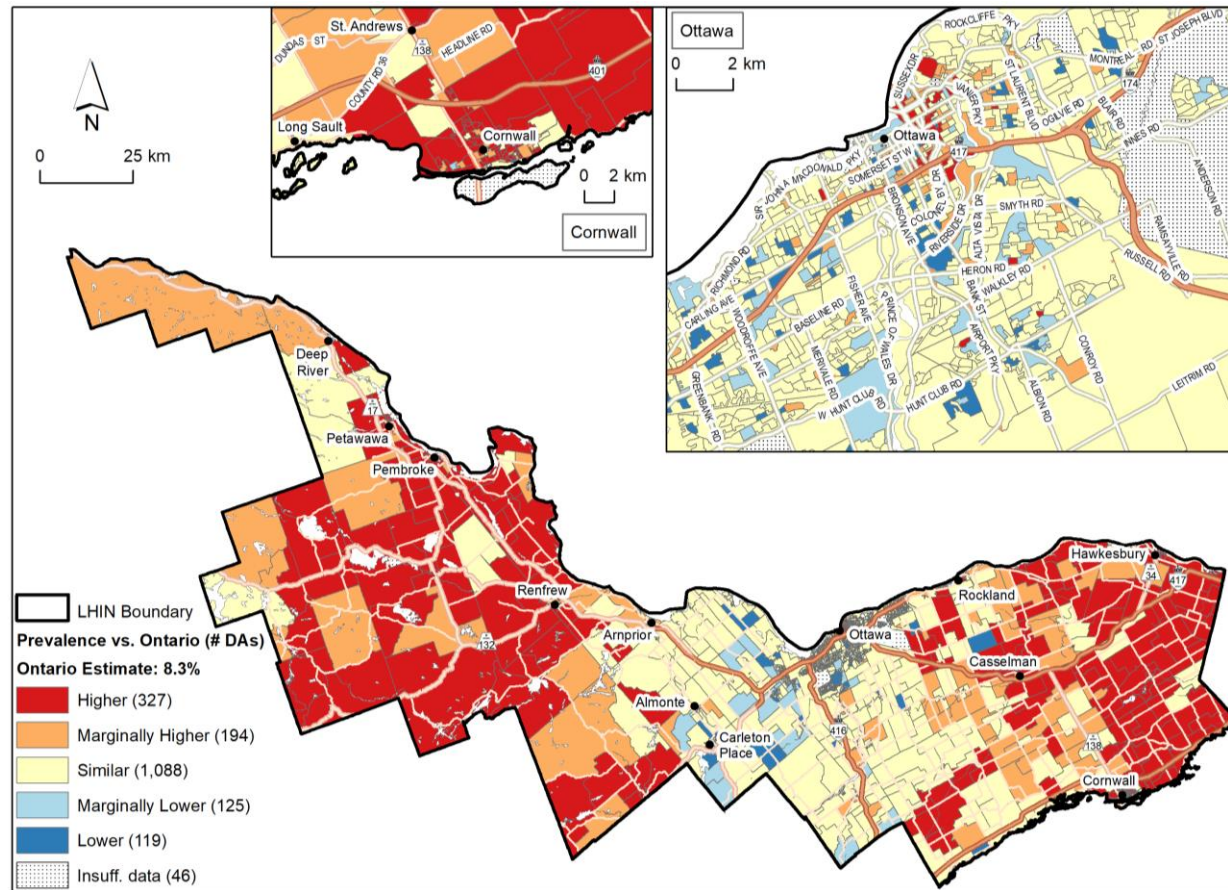| Category	Mean prevalence % (range)
Overall	58.5
Higher	60.7 (58.5, 66.4)
Marginally Higher	58.7 (57.7, 60.7)
Similar	56.5 (53.5, 58.7)
Marginally Lower	53.2 (52.9, 53.7)
Lower	49.1 (47.1, 52.2)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
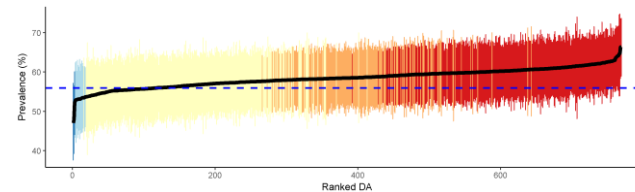
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 12.9 Excess body weight (overweight/obese) among adolescent females (ages 12 to 18), 2000–2014, North Simcoe Muskoka Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
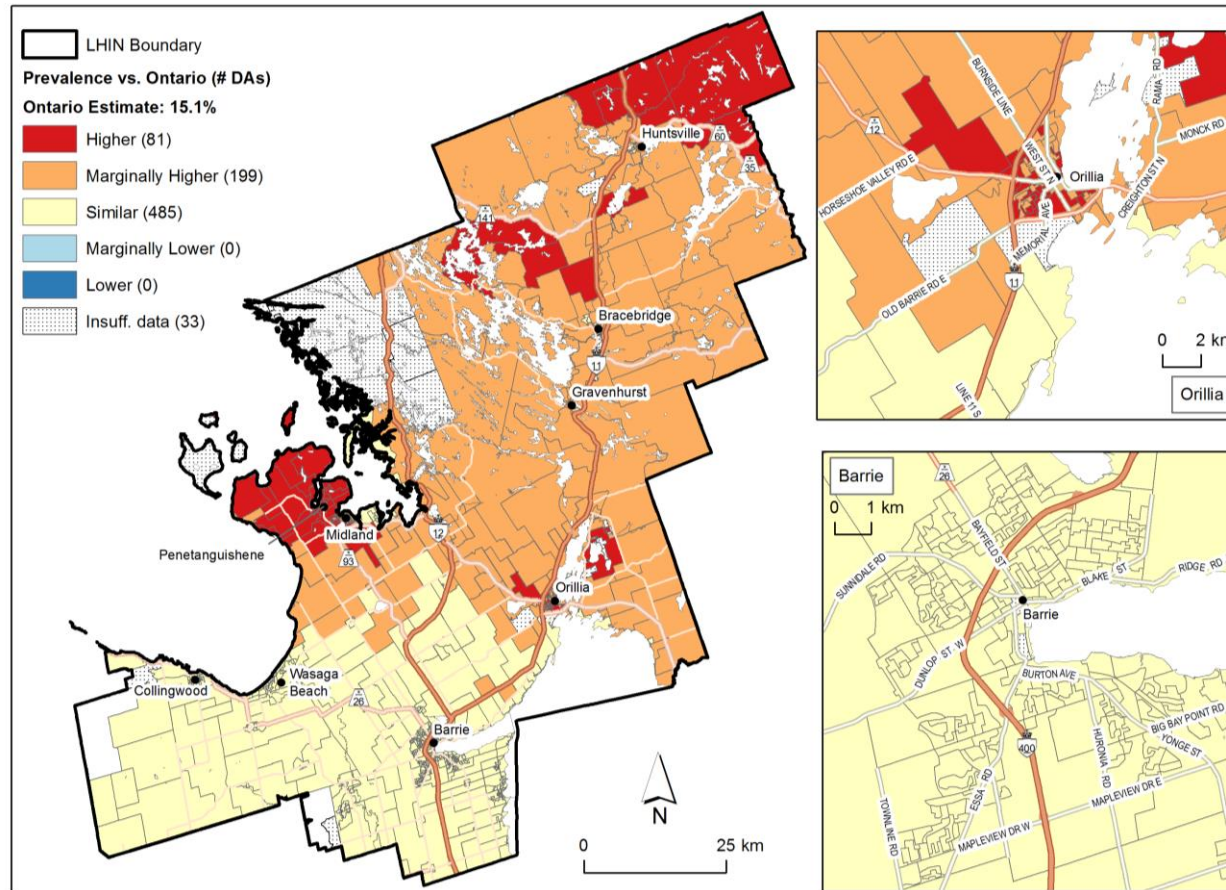
Map created: 11-Sep-17

Category	Mean prevalence % (range)
Overall	17.3
Higher	20.7 (18.8, 23.3)
Marginally Higher	18.8 (17.6, 20.6)
Similar	16.1 (14.4, 18.8)
Marginally Lower	N/A
Lower	N/A

N/A = no estimates in the category

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Inadequate vegetable and fruit consumption

People age 12 and older

Inadequate consumption of vegetables and fruits was common across Ontario, with approximately 63% of females and 77% of males reporting inadequate consumption.

Higher prevalence than Ontario

Across the North Simcoe Muskoka LHIN, there were fewer areas with a higher prevalence than Ontario of inadequate vegetable and fruit consumption for females (n=105; Figure 12.10) compared to males (n=339; Figure 12.11). For females, higher prevalence areas were located in and west of Orillia, south of Barrie and near Midland and Wasaga Beach. In contrast, higher prevalence areas for males were identified in many parts of the LHIN including in Orillia and Barrie.

Lower prevalence than Ontario

For females, there were 43 areas with a lower prevalence of inadequate vegetable and fruit consumption than Ontario (Figure 12.10). These areas were located between Huntsville and Bracebridge, around Penetanguishene and Midland, in the outskirts of Barrie and around Collingwood. Only one area with adequate consumption (lower prevalence) was found for males; this area was located in Barrie (Figure 12.11).

Adolescents

More than two-thirds of the adolescent Ontario population had inadequate vegetable and fruit consumption, at approximately 68% for females and 74% for males. In the North Simcoe Muskoka LHIN, there were no areas with a higher prevalence than Ontario for adolescent females or adolescent males, which is why those maps are not shown.

## Figure 12.10 Inadequate vegetable and fruit consumption among females (age 12 and older), 2000–2014, North Simcoe Muskoka Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
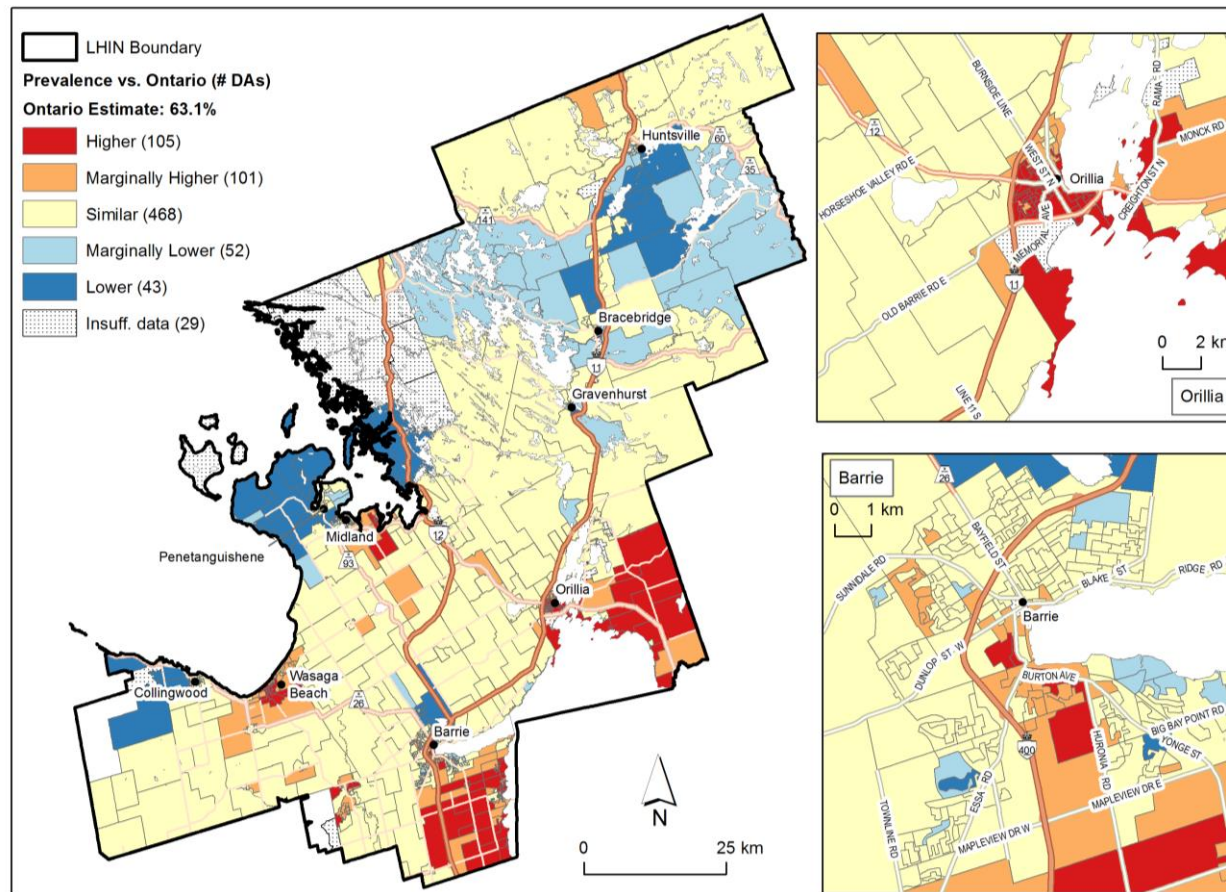
Category	Mean prevalence % (range)
Overall	63.7
Higher	68.2 (66.5, 70.8)
Marginally Higher	66.3 (65.2, 67.6)
Similar	63.2 (59.3, 66.6)
Marginally Lower	59.6 (57.9, 60.9)
Lower	57.2 (54.0, 59.7)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
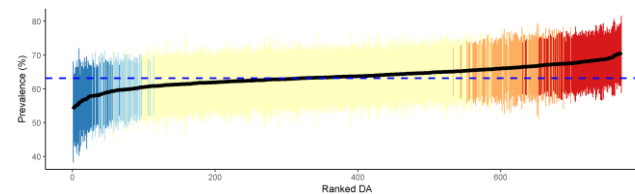
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 12.11 Inadequate vegetable and fruit consumption among males (age 12 and older), 2000–2014, North Simcoe Muskoka Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
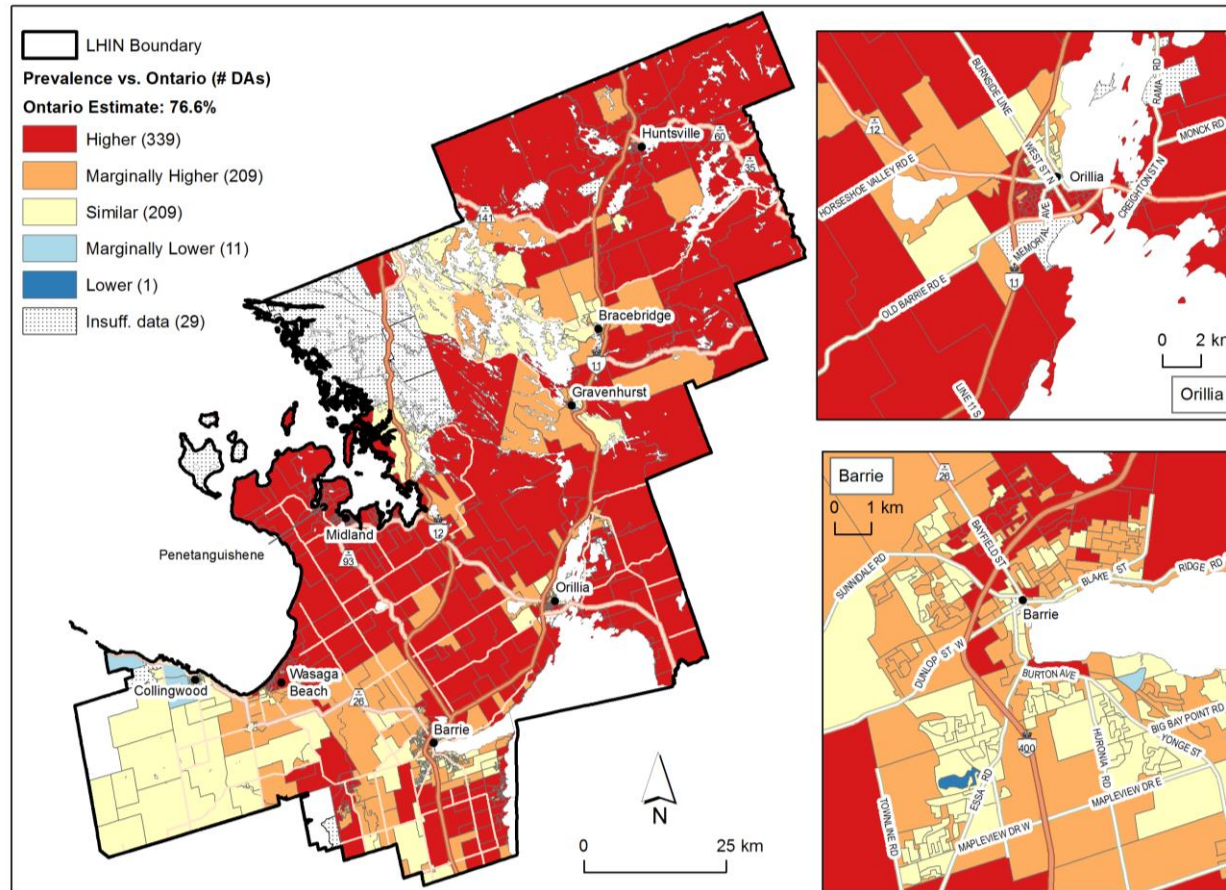
Category	Mean prevalence % (range)
Overall	79.2
Higher	80.8 (78.8, 84.1)
Marginally Higher	78.9 (78.0, 80.1)
Similar	77.2 (74.4, 78.9)
Marginally Lower	73.7 (72.9, 74.5)
Lower	71.3 (71.3, 71.3)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Physical activity

Because physical activity reduces cancer risk, lower prevalence estimates of this risk factor are of interest. The colour scheme of the maps was inverted so that the "lower than Ontario" estimates are displayed in red.

People age 12 and older

Most of the Ontario population was not physically active, with approximately one in five (23%) females and one in three (30%) males being physically active.

Lower prevalence than Ontario

Across the LHIN, areas with a lower prevalence of physical activity than the Ontario average for females (n=7; Figure 12.12) and males (n=1; Figure 12.13) were uncommon. These areas were located in Barrie and, for females only, in Orillia.

Higher prevalence than Ontario

Overall, areas with a higher prevalence of physical activity than the Ontario average were common throughout the LHIN for females (n=615; Figure 12.12) and males (n=578; Figure 12.13), and the patterns were generally similar.

Adolescents

Adolescents were more physically active than adults, with approximately 40% of adolescent females and 57% of adolescent males being active. There were no areas with a lower prevalence than Ontario for adolescents in the North Simcoe Muskoka LHIN, which is why those maps are not shown.

Figure 12.12 Physical activity among females (age 12 and older), 2000–2014, North Simcoe Muskoka Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
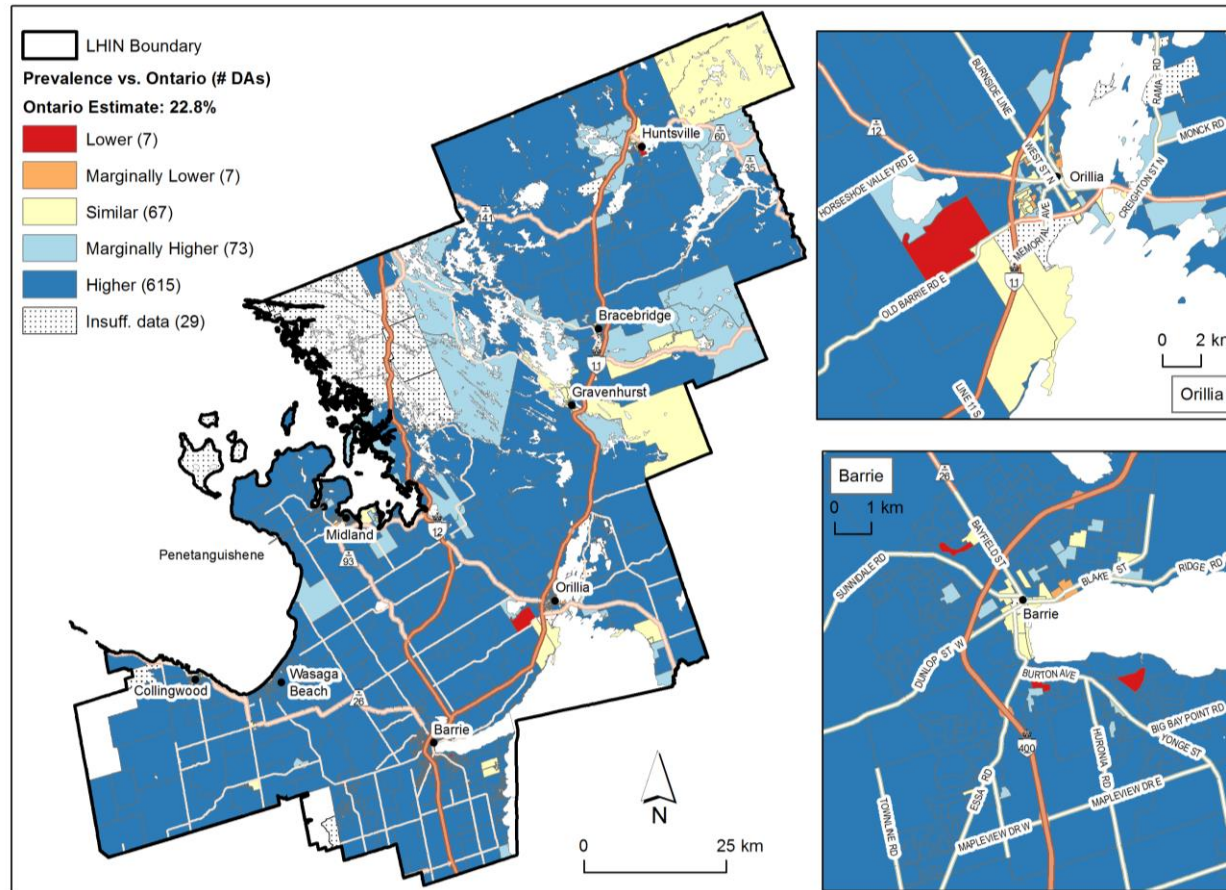
Category	Mean prevalence % (range)
Overall	29.3
Lower	18.2 (15.7, 19.6)
Marginally Lower	20.7 (20.3, 20.9)
Similar	23.7 (21.1, 25.8)
Marginally Higher	26.4 (25.2, 29.2)
Higher	30.5 (26.4, 37.5)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
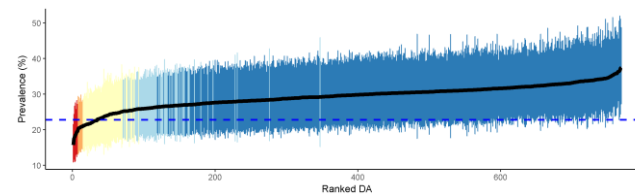
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 12.13 Physical activity among males (age 12 and older), 2000–2014, North Simcoe Muskoka Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
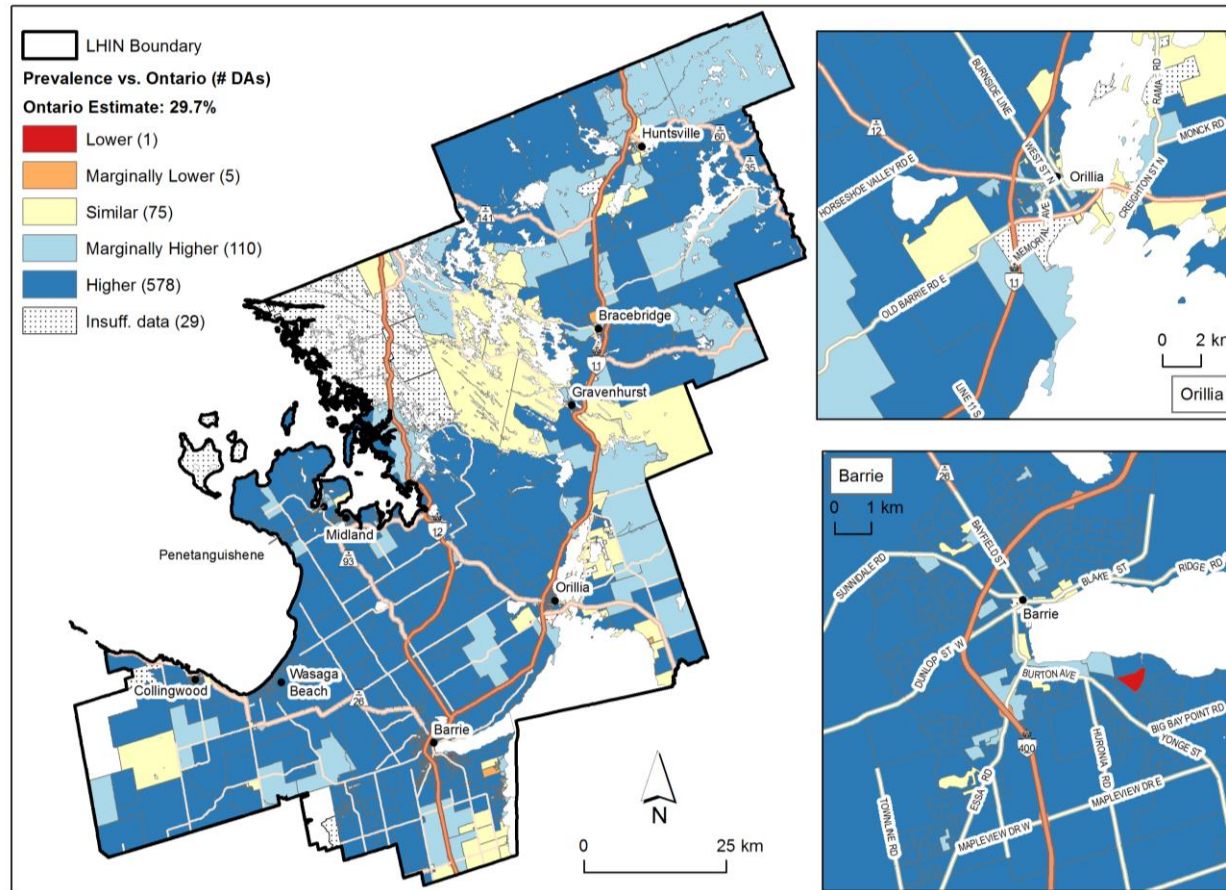
Category	Mean prevalence % (range)
Overall	36.0
Lower	24.6 (24.6, 24.6)
Marginally Lower	27.0 (26.3, 27.5)
Similar	31.1 (27.6, 33.6)
Marginally Higher	33.5 (32.2, 35.8)
Higher	37.2 (33.4, 45.7)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
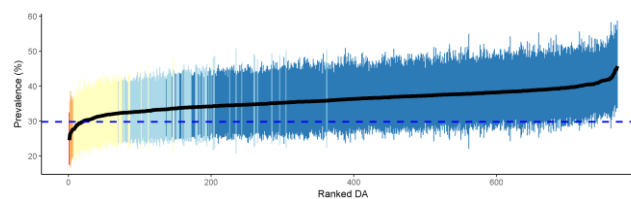
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Sedentary behaviour

People age 12 and older

Approximately half of the Ontario population reported sedentary behaviour during leisure time (females, 49%; males, 56%).

Higher prevalence than Ontario

For females, 121 areas (Figure 12.14) areas with a higher prevalence of sedentary behaviour than the Ontario average were identified. , These areas were located in the southern part of the LHIN, around Penetanguishene, Midland, Wasaga Beach and Collingwood. Higher prevalence areas were also located in and around Orillia and Barrie. For males (n=78; Figure 12.15), areas with a higher prevalence than Ontario were also detected around Penetanguishene, Midland and Wasaga Beach.

Lower prevalence than Ontario

Overall, there was similar number of areas with a lower prevalence of sedentary behaviour than the Ontario average for females (n=32; Figure 12.14) and males (n=26; Figure 12.15).). These lower prevalence areas occurrred mainly in parts of Barrie. Additional lower prevalence areas were located near Huntsville for females and south of Collingwood and north of Highway 26 for males.

Adolescents

More than half of the Ontario adolescent population reported sedentary behaviour during leisure time, at approximately 55% for females and 60% for males. In the North Simcoe Muskoka LHIN, there were no areas with a higher prevalence than Ontario for adolescents, which is why those maps are not shown.

Figure 12.14 Sedentary behaviour among females (age 12 and older), 2000–2014, North Simcoe Muskoka Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
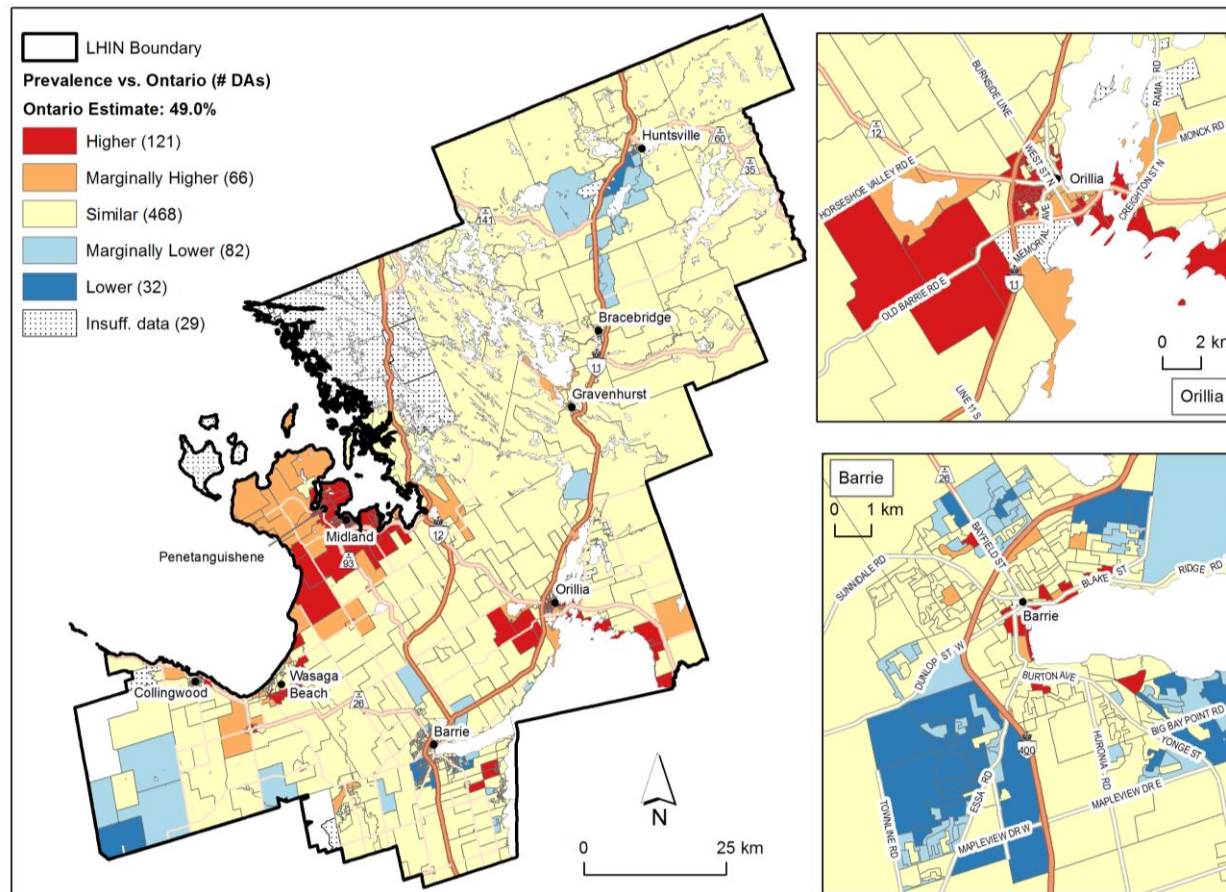
Category	Mean prevalence % (range)
Overall	49.8
Higher	55.4 (52.9, 64.0)
Marginally Higher	52.5 (51.5, 53.8)
Similar	49.0 (45.7, 52.3)
Marginally Lower	45.6 (43.6, 46.6)
Lower	44.1 (42.7, 45.4)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
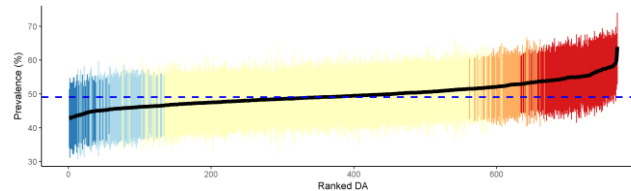
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 12.15 Sedentary behaviour among males (age 12 and older), 2000–2014, North Simcoe Muskoka Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	55.6
Higher	63.0 (59.6, 65.9)
Marginally Higher	59.8 (58.5, 61.2)
Similar	55.2 (51.3, 59.1)
Marginally Lower	51.8 (50.2, 53.0)
Lower	49.9 (47.6, 51.7)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
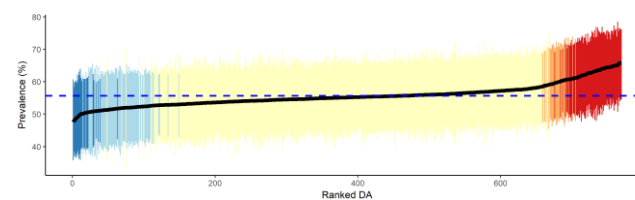
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Smoking—current status

People age 12 and older

Current tobacco smoking was reported by 17% of Ontario females and 24% of males.

Higher prevalence than Ontario

Across the North Simcoe Muskoka LHIN, areas with a higher prevalence of current smoking than the Ontario average were more common for females compared to males. For females, higher prevalence areas (n=480; Figure 12.16) were located throughout the LHIN, near Bracebridge, Gravenhurst, Penetanguishene, Midland, Wasaga Beach, Collingwood and in Orillia and Barrie. For males, higher prevalence areas (n=146; Figure 12.17) were more common in the eastern parts of the LHIN, near Bracebridge, Gravenhurst, Orillia and Barrie, but were also located near Penetanguishene and Midland.

Lower prevalence than Ontario

For females, lower prevalence areas were uncommon (n=6; Figure 12.16), and were located in Barrie. Areas of lower prevalence for males (n=44; Figure 12.17) were typically located near Penetanguishene, Midland and Wasaga Beach and in Orillia and Barrie.

Adolescents

Approximately 8% of adolescent females and adolescent males reported smoking tobacco.

Higher prevalence than Ontario

Areas with a higher prevalence of current smoking than the Ontario average were much more common for adolescent females (n=351; Figure 12.18) compared to adolescent males (n=22; Figure 12.19). For adolescent females, higher prevalence areas were located in the northern and southeastern parts of the LHIN, near Huntsville, Bracebridge, Gravenhurst and Penetanguishene and Midland. Many higher prevalence areas for adolescent females were also located southeast of Barrie and in Orillia and Barrie. For adolescent males, areas with a higher prevalence of current smoking than Ontario were located in the northern part of the LHIN (e.g., around Huntsville and Gravenhurst), in and around Midland, and southeast of Collingwood and Barrie.

Lower prevalence than Ontario

Areas with a lower prevalence of current smoking than the Ontario average for adolescent females (n=7; Figure 12.18) were located in the central part of the LHIN (e.g., south of Orillia, Barrie). Lower prevalence areas for adolescent males (n=55; Figure 12.19) were more common compared to adolescent females, and were located mainly in the southern part of the LHIN, particularly in Barrie and around Wasaga Beach and Collingwood.
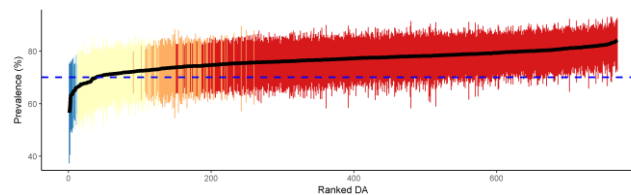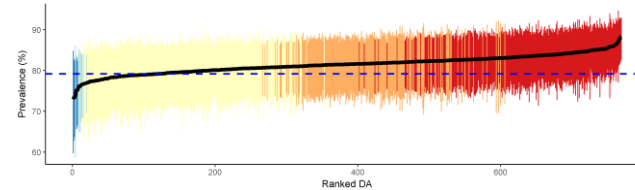
Figure 12.16 Current smoking among females (age 12 and older), 2000–2014, North Simcoe Muskoka Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
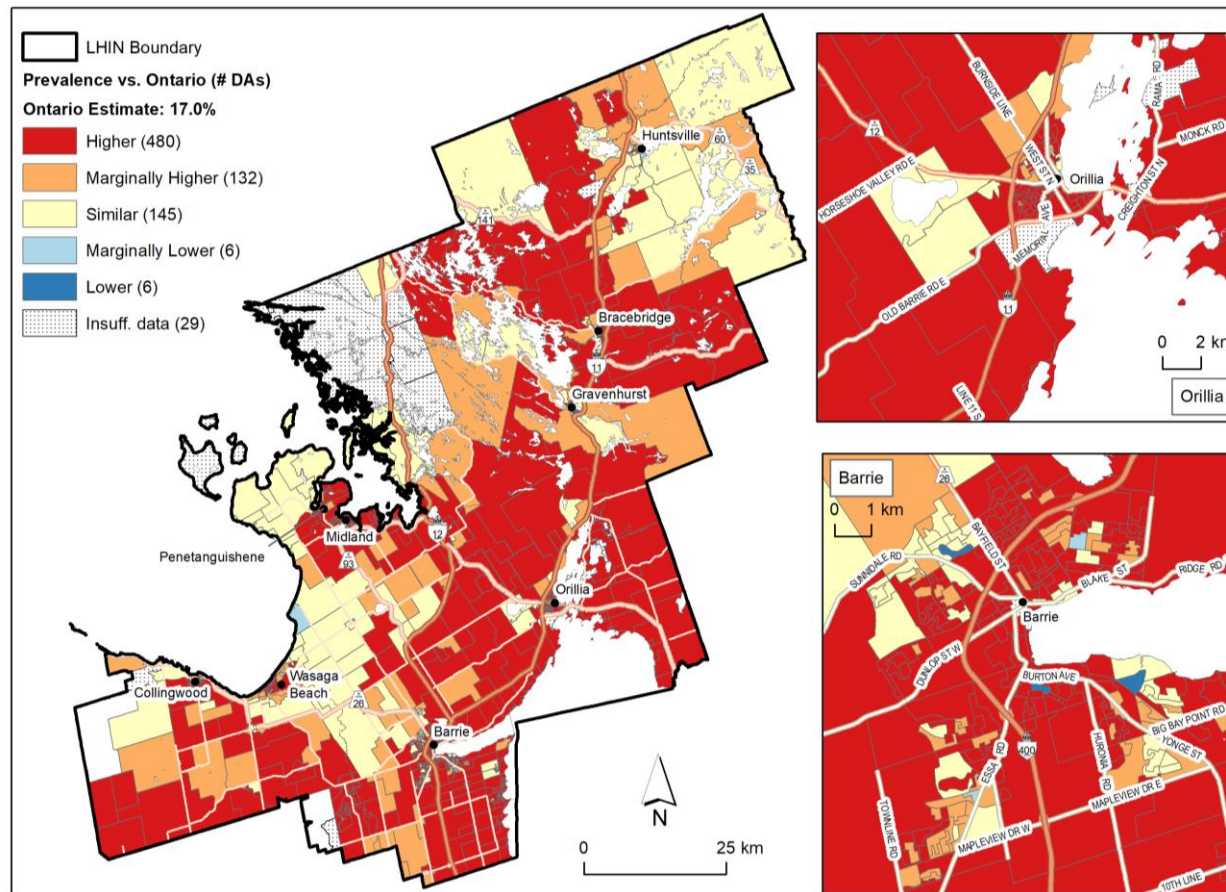
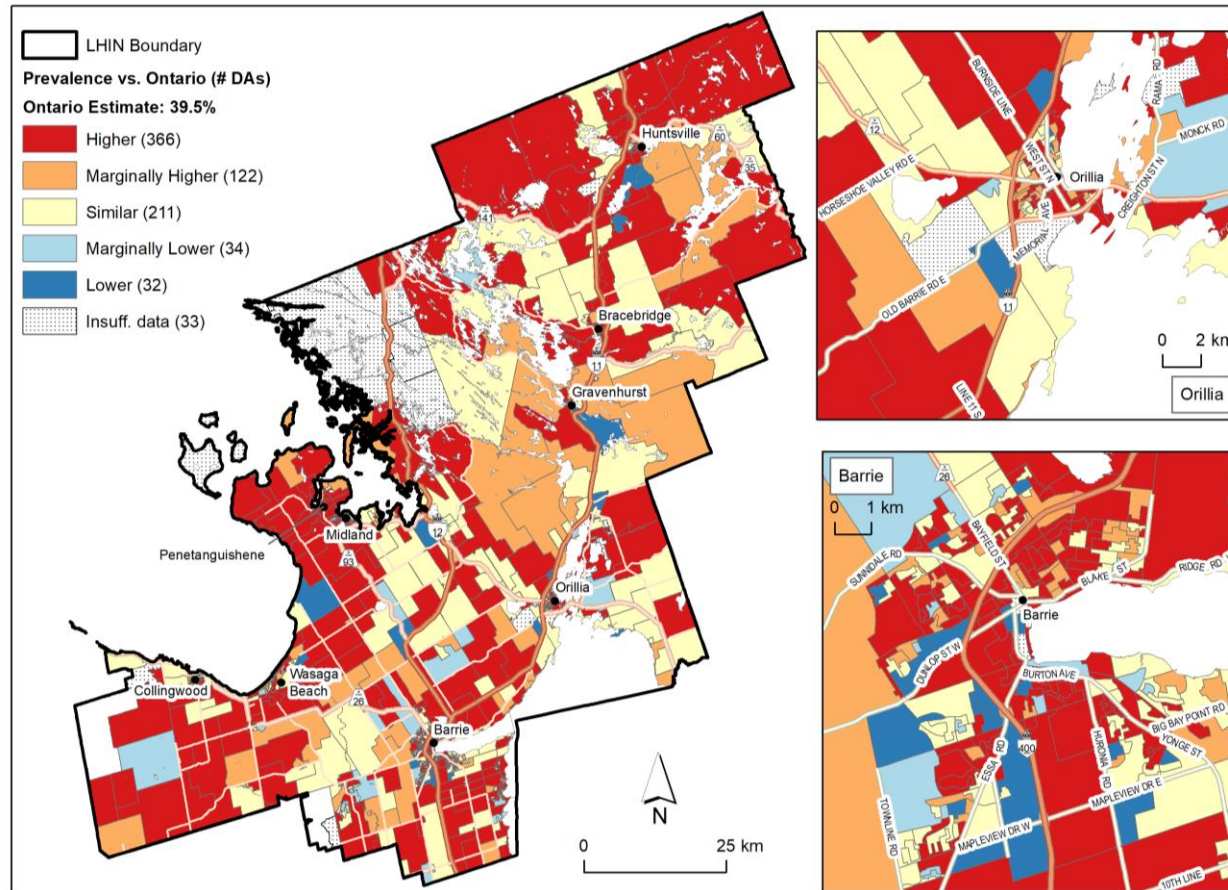| Category	Mean prevalence % (range)
Overall	23.5
Higher	25.9 (20.2, 41.8)
Marginally Higher	21.1 (19.1, 25.3)
Similar	18.5 (15.0, 22.3)
Marginally Lower	14.6 (13.7, 15.3)
Lower	11.8 (9.0, 14.1)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
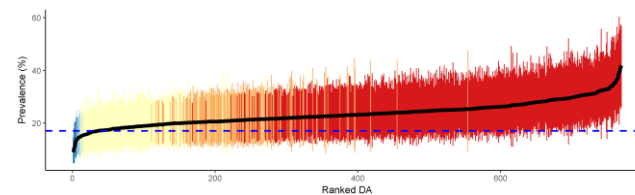
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
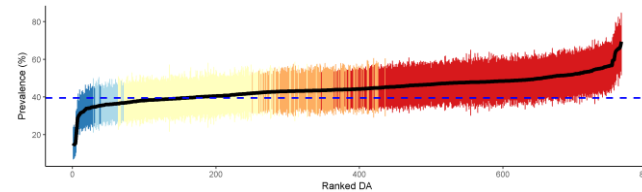
Figure 12.17 Current smoking among males (age 12 and older), 2000–2014, North Simcoe Muskoka Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

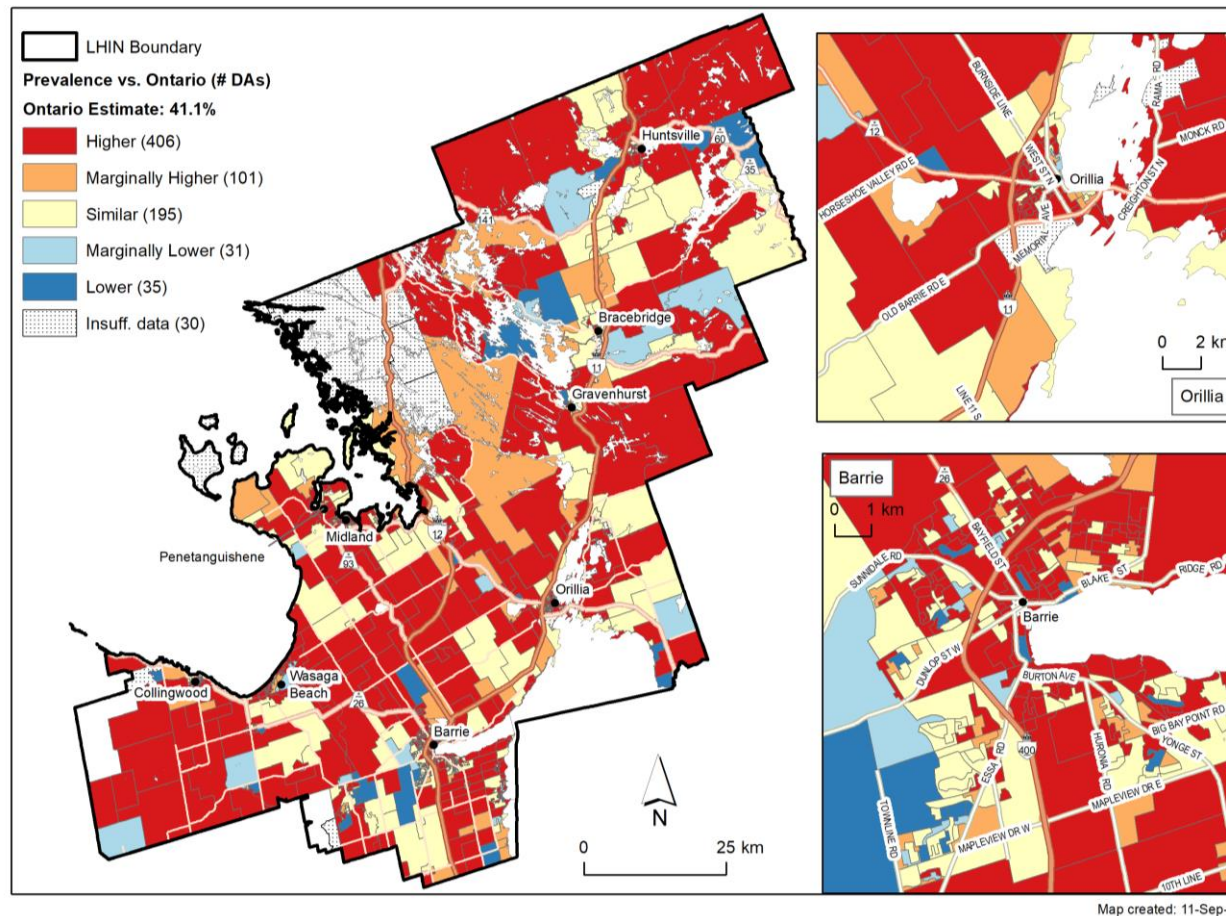| Category	Mean prevalence % (range)
Overall	25.6
Higher	32.3 (28.2, 41.7)
Marginally Higher	28.0 (26.0, 32.4)
Similar	24.3 (21.1, 28.5)
Marginally Lower	20.8 (19.2, 21.8)
Lower	18.5 (12.1, 20.5)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
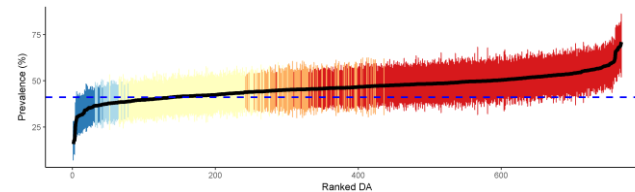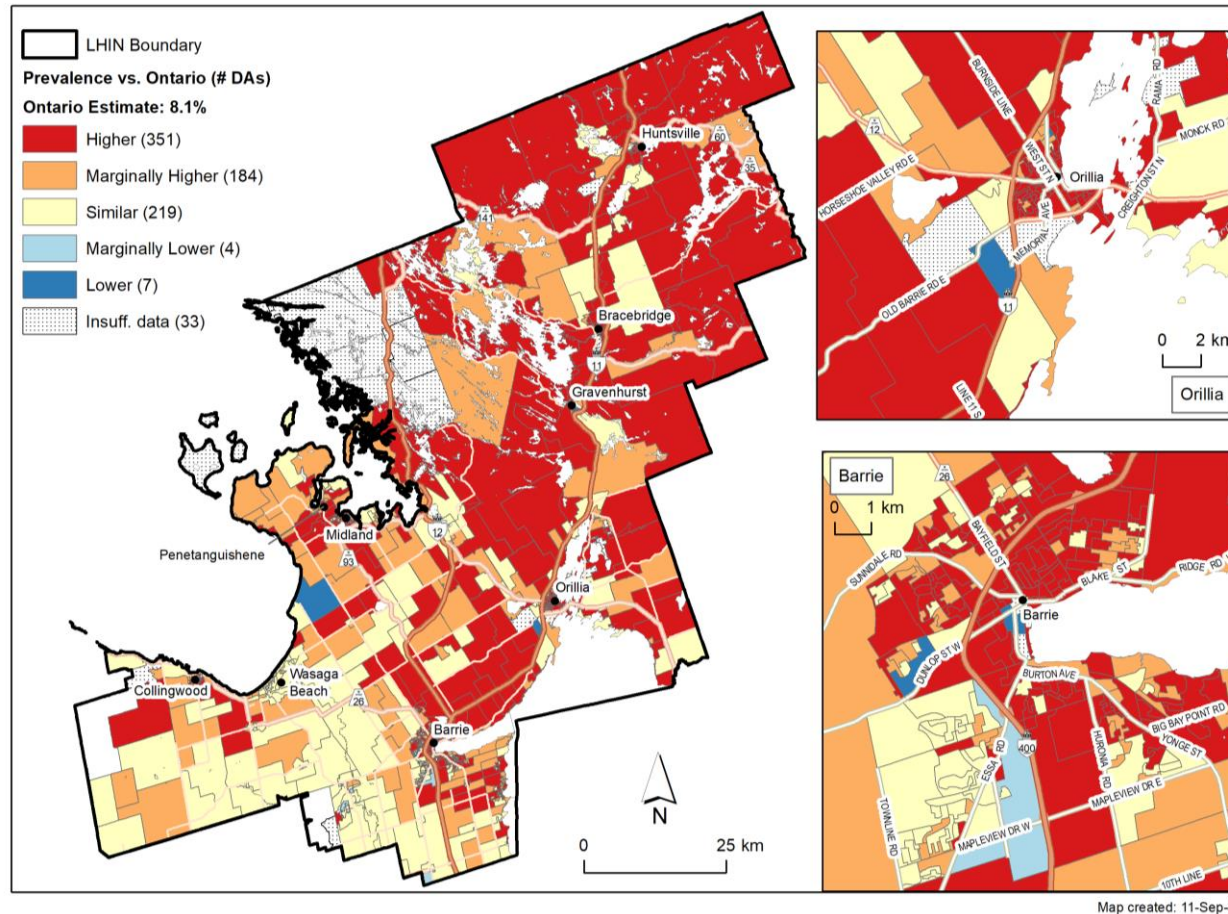
Category	Mean prevalence % (range)
Overall	11.6
Higher	13.4 (10.9, 21.7)
Marginally Higher	11.2 (9.8, 13.2)
Similar	9.4 (7.2, 11.8)
Marginally Lower	6.7 (6.4, 6.9)
Lower	4.0 (3.0, 6.2)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
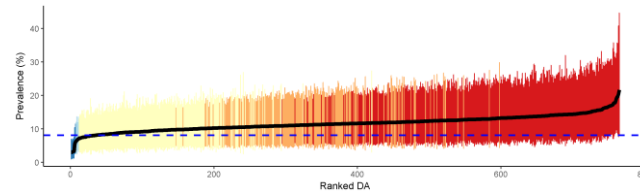
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
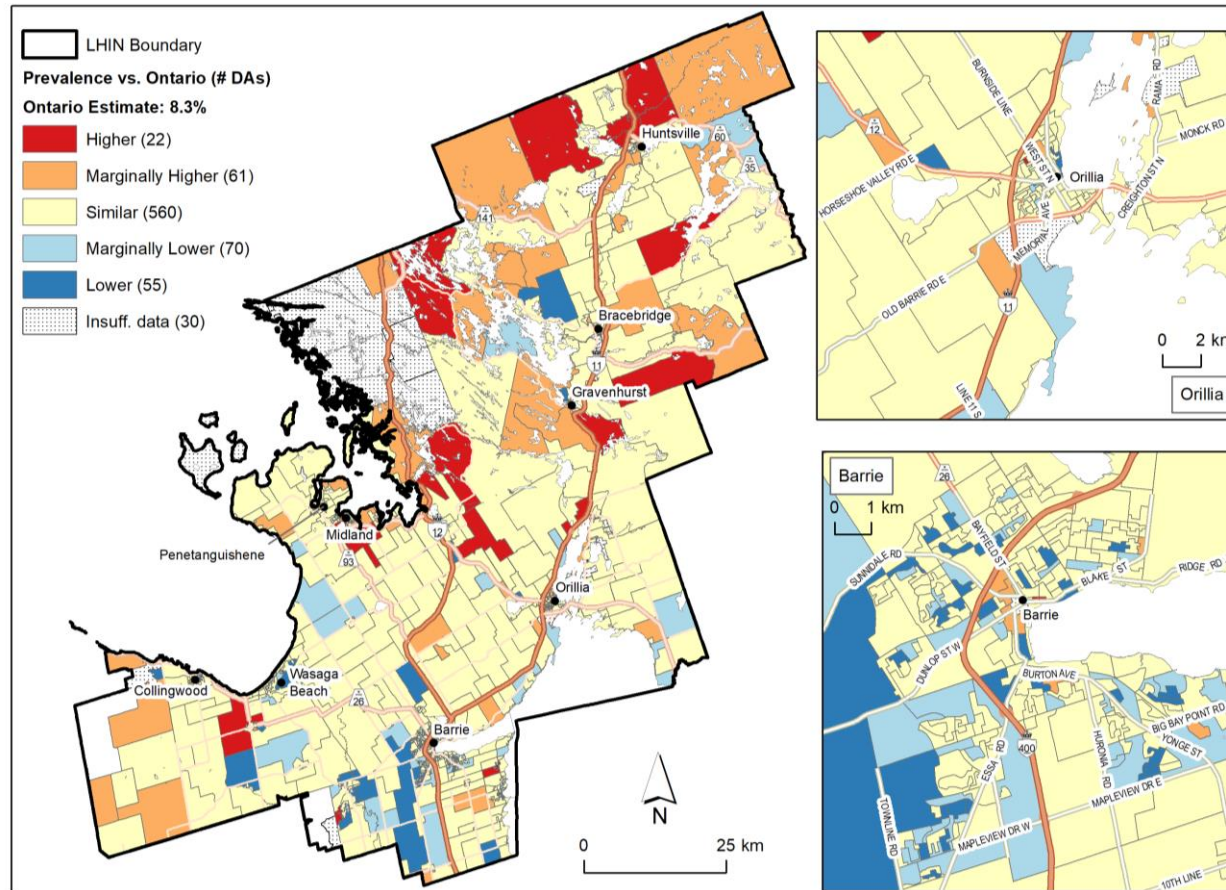
Category	Mean prevalence % (range)
Overall	8.7
Higher	12.6 (11.4, 14.5)
Marginally Higher	11.2 (10.2, 12.7)
Similar	8.8 (7.1, 11.3)
Marginally Lower	6.9 (6.4, 7.4)
Lower	5.5 (1.2, 6.6)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
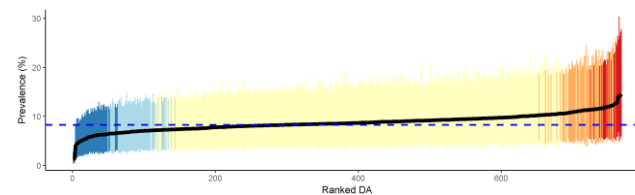
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Smoking—ever-smoked status

People age 12 and older

Approximately one in two Ontario females and three in five Ontario males reported having ever-smoked.

Higher prevalence than Ontario

Across the LHIN, most areas had a higher prevalence of ever-smoked status than the Ontario average, for females (n=739; Figure 12.20) and males (n=565; Figure 12.21). The location of these areas was similar for females and males. However, there were more higher prevalence areas for females in Barrie compared to males.

Lower prevalence than Ontario

No areas with a lower prevalence of ever-smoked status than the Ontario average were identified for females (Figure 12.20). A few lower prevalence areas were identified for males (n=7; Figure 12.21).

Adolescents

The area-based prevalence of ever-smoked status was not estimated for adolescent populations.

Figure 12.20 Ever-smoked status among females (age 12 and older), 2000–2014, North Simcoe Muskoka Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
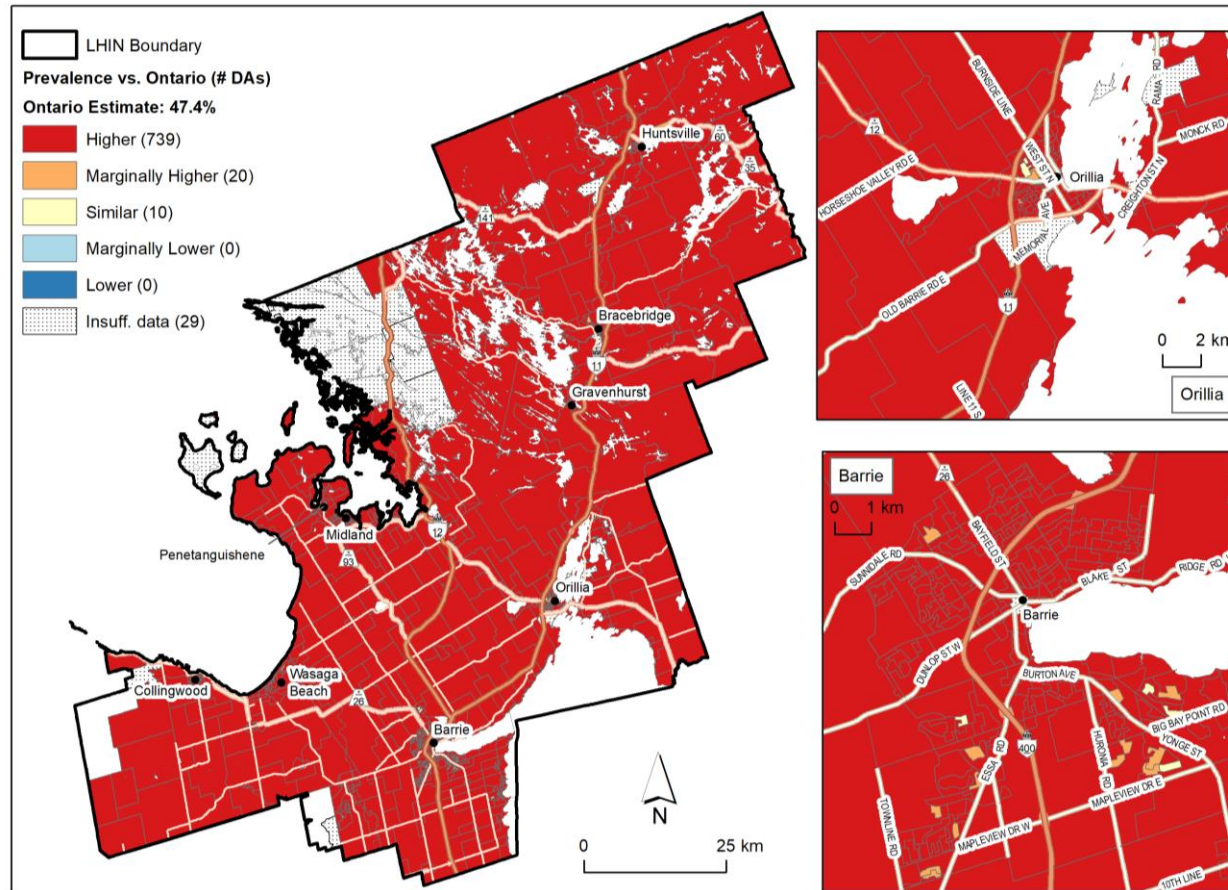
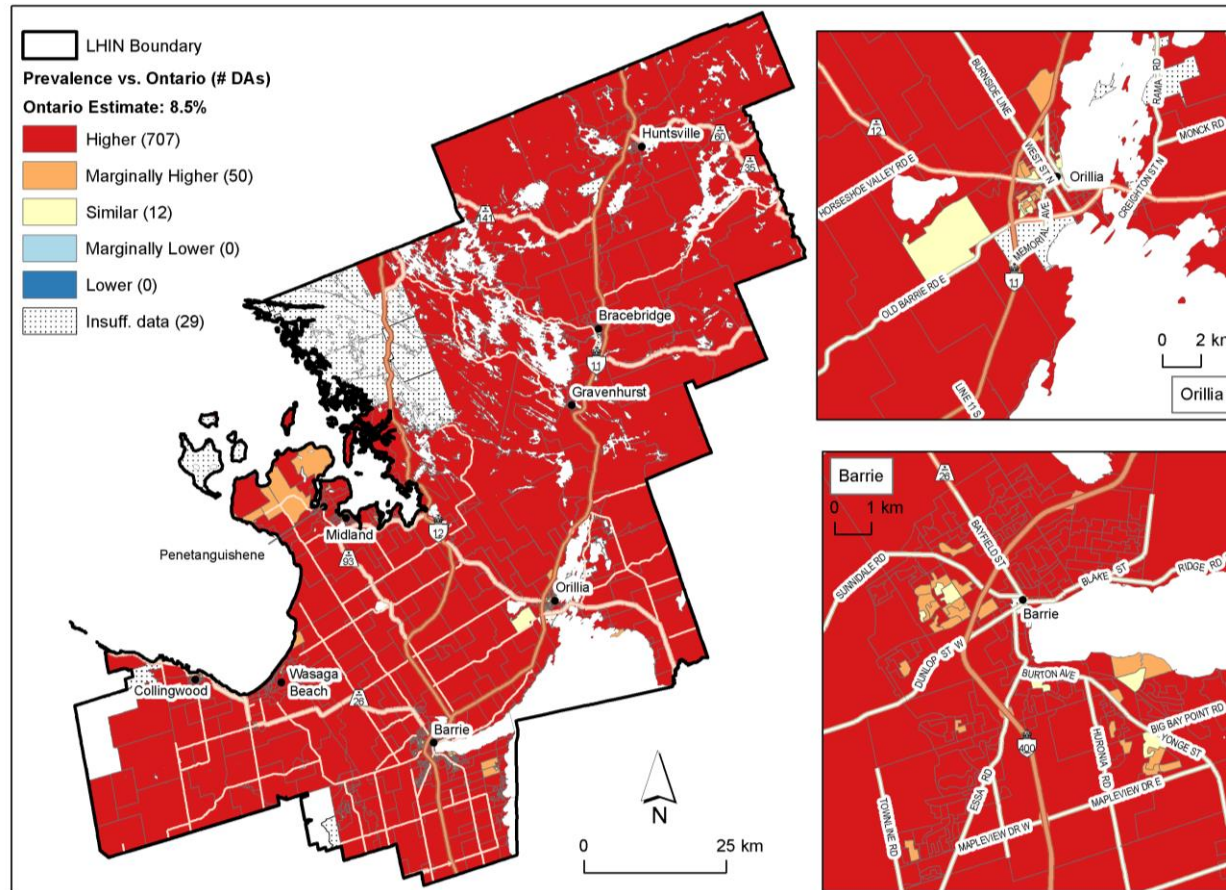| Category	Mean prevalence % (range)
Overall	59.7
Higher	60.0 (52.0, 72.0)
Marginally Higher	52.2 (50.9, 54.0)
Similar	49.7 (47.7, 51.3)
Marginally Lower	N/A
Lower	N/A

N/A = no estimates in the category

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Category	Mean prevalence % (range)
Overall	67.4
Higher	69.2 (64.3, 80.2)
Marginally Higher	64.5 (63.1, 66.7)
Similar	61.9 (58.4, 64.3)
Marginally Lower	58.2 (56.9, 58.9)
Lower	56.6 (55.5, 57.0)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
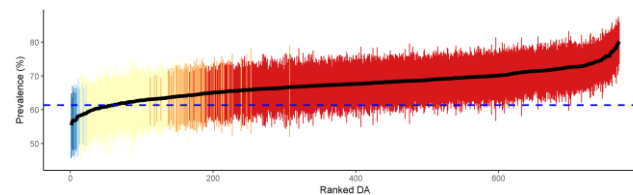
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

LHIN 13
North East

13. North East LHIN

Key Findings

Top three priority risk factor population estimates by sex (see Table 13.1 below):

Females
  Smoking—ever-smoked status
  Alcohol—current consumption
  Excess body weight

Males
  Smoking—ever-smoked status
  Inadequate fruit and vegetable consumption
  Excess body weight

Risk factor summary

Alcohol—current consumption
  Priority areas:
  • Females: areas in the central and southern parts of the LHIN and in North Bay and Sudbury
  • Males: areas in the northeastern part of the LHIN and in North Bay and Sudbury
  • Adolescent females: areas across the LHIN and areas in North Bay and Sudbury
  • Adolescent males: areas in the northwestern, central and southern parts of the LHIN and in North Bay and Sudbury

Alcohol—consumption exceeding cancer prevention recommendations
  Priority areas:
  • Females: areas near Temagami and Parry Sound and in North Bay and Sudbury
  • Males: areas throughout the LHIN and in North Bay and Sudbury

Excess body weight:
  Priority areas:
  • Females and males: areas throughout the LHIN and in North Bay and Sudbury
  • Adolescent females: areas throughout the LHIN and in North Bay and parts of Sudbury
  • Adolescent males: areas in the northeastern part of the LHIN

Inadequate vegetable and fruit consumption
Priority areas:
- Females: areas in the northern and central parts of the LHIN and in Sudbury
- Males: areas across the LHIN and in parts of North Bay and Sudbury
- Adolescent females: very few areas in the northeastern part of the LHIN

Physical activity:
Priority areas:
- Females: a few areas in North Bay and Sudbury
- Males: few areas south of Kirkland Lake and in Sudbury

Sedentary behaviour:
Priority areas:
- Females: areas in the western part of the LHIN and in parts of North Bay and Sudbury
- Males: very few areas

Smoking—current status:
Priority areas:
- Females: areas throughout the LHIN and in North Bay and Sudbury
- Males: areas throughout the northern and central parts of the LHIN and parts of North Bay and Sudbury
- Adolescent females: areas throughout the LHIN and in North Bay and Sudbury
- Adolescent males: areas throughout the northwestern, central and southern parts of the LHIN and in North Bay and Sudbury

Smoking—ever-smoked status:
Priority areas:
- Females and males: areas across the LHIN and in North Bay and Sudbury

Introduction

This section describes the estimated local prevalence of risk factors across the LHIN compared to the Ontario prevalence estimates from 2000 to 2014. These comparisons are always relative to Ontario with respect to the level of statistical evidence for the underlying prevalence estimate and often the number of areas meeting specific criteria are presented in parentheses (e.g., n=40). Risk factor maps are presented for females and males age 12 and older, and for adolescent females and adolescent males ages 12 to 18 inclusive. Throughout the text, the terms "area(s)" and "local" refer to the 2006 census dissemination areas (see the Data and Methods section, page 3).

Exclusions

As discussed in the Interpretation section (page 7), maps are shown only for risk factor estimates in the LHIN where one or more local estimates were higher than Ontario (or lower than Ontario for physical activity). Therefore, the risk factor maps not displayed for North East LHIN include:

- inadequate vegetable and fruit consumption among adolescent males;
- physical activity among adolescent females and adolescent males; and
- sedentary behaviour among adolescent females and adolescent males.

Notes

Risk factor prevalence could not be estimated for several areas in the North East LHIN (e.g., suppressed census populations or institutionalized populations), which are shown as "insufficient data" on the maps. These areas include many First Nations located in the LHIN. Additionally, areas with unavailable population data are shown as "insufficient data." See Appendix C for a full list of DAs in the insufficient data category.

Priority population estimates

Priority population estimates may be helpful in prioritizing health promotion and planning efforts for potential populations affected by certain modifiable risk factors. Table 13.1 (page 442) presents the estimated priority populations for each risk factor by sex and age group in the North East LHIN. Priority populations are defined as those living in areas with a higher risk factor prevalence (or lower prevalence for physical activity) than Ontario. These estimates were produced by summing the population from all higher (or lower for physical activity) prevalence small areas (2006 dissemination areas) after taking into account the risk factor prevalence of each area. For example, if among females 100 areas had a higher prevalence of current alcohol consumption than Ontario, the female 2006 census populations in each of these areas were multiplied by the prevalence of current alcohol consumption for each area and then summed across the 100 areas to produce an estimate of the female "priority population." These calculations are intended to provide a measure to prioritize the risk factors rather than a population estimate.

According to the Methods (page 4) and Interpretation (page 7) sections, these higher prevalence areas had strong statistical evidence of elevated prevalence compared to Ontario (posterior probabilities ≥ 80%). An exception is physical activity, which had strong statistical evidence of lower prevalence estimates than Ontario (posterior probabilities ≤ 20%). Therefore, the population estimates for each risk factor are likely undercounted because areas with less statistical certainty (posterior probabilities < 80% and physical activity posterior probabilities > 20%) are not included in the priority population estimates.

Table 13.1 Estimated priority populations among higher prevalence** dissemination areas compared to Ontario by risk factor, sex and age group, North East Local Health Integration Network (LHIN), using 2006 census populations

Risk factor	Female priority population*[†]	% of female population in the LHIN[†] (n=241,050)	Male priority population*[†]	% of male population in the LHIN[†] (n=227,600)	Adolescent female priority population*[‡]	% of adolescent female population in the LHIN[‡] (n=24,130)	Adolescent males priority population*[‡]	% of adolescent male population in the LHIN[‡] (n=25,520)
Alcohol—current consumption	113,060	47%	61,760	27%	9,950	41%	11,000	43%
Alcohol—consumption exceeding cancer prevention recommendations	2,030	1%	20,290	9%	NM	—	NM	—
Excess body weight	107,680	45%	119,750	53%	3,330	14%	210	1%
Inadequate vegetable and fruit consumption	78,450	33%	121,920	54%	360	1%	NE	—
Physical activity	2,220	1%	450	0%	NP	—	NP	—
Sedentary behaviour	31,130	13%	3,720	2%	NE	—	NE	—
Smoking—current status	48,620	20%	40,180	18%	3,070	13%	2,540	10%
Smoking—ever-smoked status	142,650	59%	152,460	67%	NM	—	NM	—

NE = no estimates within the "higher" prevalence categories**; NM = not modelled; NP = census population estimates not available
* Estimates rounded to multiples of 10
** For physical activity, priority populations are those living in areas with a lower risk factor prevalence compared to Ontario
[†] Population age 12 and older
[‡] Population ages 12 to 18
— Value not applicable

Alcohol—current consumption

People age 12 and older

An estimated 70% of females and 79% of males in Ontario reported current alcohol consumption.

Higher prevalence than Ontario

Across the North East LHIN, more areas had a higher prevalence of current alcohol consumption than the Ontario average for females (n=574; Figure 13.1) compared to males (n=296; Figure 13.2). For both sexes, higher prevalence areas were located in North Bay and Sudbury. For females, higher prevalence areas were also located in the central and southern parts of the LHIN, particularly south of Highway 11. Higher prevalence areas for males were located in the northeastern part of the LHIN (e.g., Moosonee and Kapuskasing) and were dispersed across southern parts of the LHIN (e.g., near Elliot Lake and Parry Sound).

Lower prevalence than Ontario

Few areas had a lower prevalence of current alcohol consumption than the Ontario average for females (n=16; Figure 13.1) and males (n=47; Figure 13.2). Many of these lower prevalence areas were located in the southern parts of the LHIN (e.g., North Bay and Sudbury for females; and, Elliot Lake, North Bay and Sudbury for males).

Adolescents

Among the adolescent population in Ontario, approximately 40% of females and males reported current alcohol consumption.

Higher prevalence than Ontario

A similar number of areas with a higher prevalence of current alcohol consumption than the Ontario average were found for adolescent females (n=754; Figure 13.3) and adolescent males (n=769; Figure 13.4). For adolescent females, higher prevalence areas occurred throughout the LHIN in the larger cities (e.g., Sault Ste. Marie, Sudbury and North Bay) and in and around smaller towns (e.g., Hearst, Kapuskasing, Cochrane, Iroquois Falls, Timmins, Kirkland Lake, Temagami, Elliot Lake and Parry Sound). Higher prevalence areas for adolescent males tended to be located towards the central and southern parts of the LHIN, near Timmins, Kirkland Lake, Temagami, Sault Ste. Marie, Elliot Lake, Sudbury, North Bay and Parry Sound. Higher prevalence areas for adolescent males were also located along Highway 11 (from Hearst towards Iroquois Falls). Similar to the pattern for adolescent females, many higher prevalence areas for adolescent males were located in North Bay and Sudbury.

Lower prevalence than Ontario

Areas with a lower prevalence of current alcohol consumption than the Ontario average for adolescent females (n=19; Figure 13.3) and adolescent males (n=16; Figure 13.4) were uncommon and located in the southern parts of the LHIN (e.g., south of Elliot Lake and Sudbury).

Figure 13.1 Current alcohol consumption among females (age 12 and older), 2000–2014, North East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
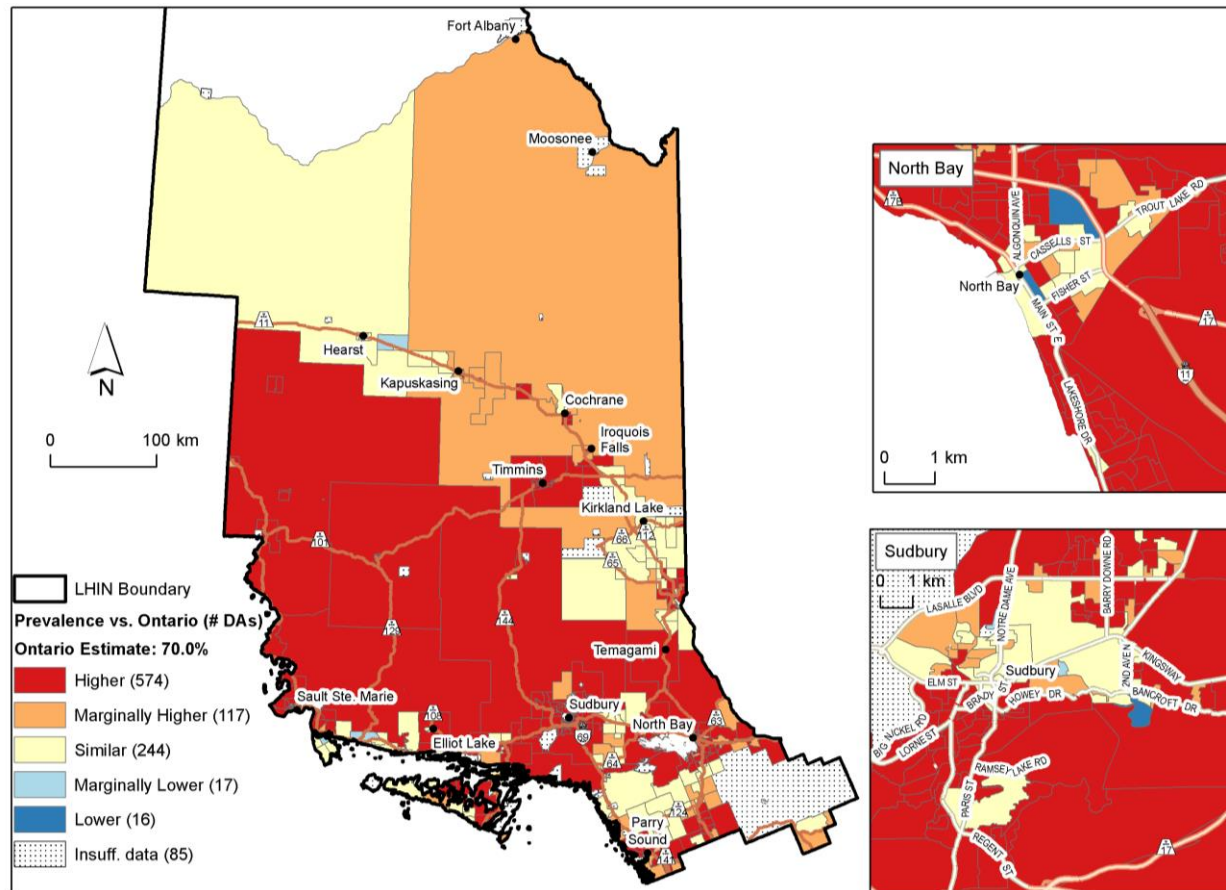
Category	Mean prevalence % (range)
Overall	75.0
Higher	77.7 (73.6, 86.2)
Marginally Higher	73.6 (71.9, 75.7)
Similar	70.7 (66.0, 73.9)
Marginally Lower	65.8 (63.2, 67.0)
Lower	61.6 (50.4, 65.5)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
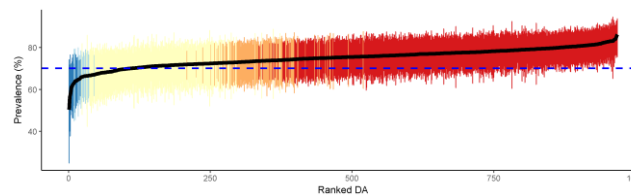
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 13.2 Current alcohol consumption among males (age 12 and older), 2000–2014, North East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Map created: 08-Sep-17

Category	Mean prevalence % (range)
Overall	80.6
Higher	83.7 (81.0, 88.6)
Marginally Higher	81.6 (80.4, 83.1)
Similar	79.3 (75.9, 81.9)
Marginally Lower	75.7 (71.9, 77.3)
Lower	73.3 (67.6, 76.5)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
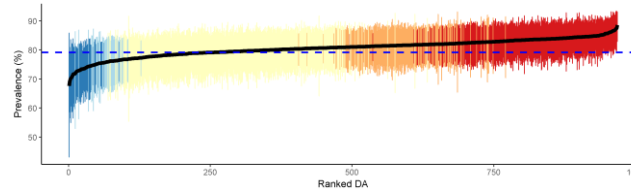
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
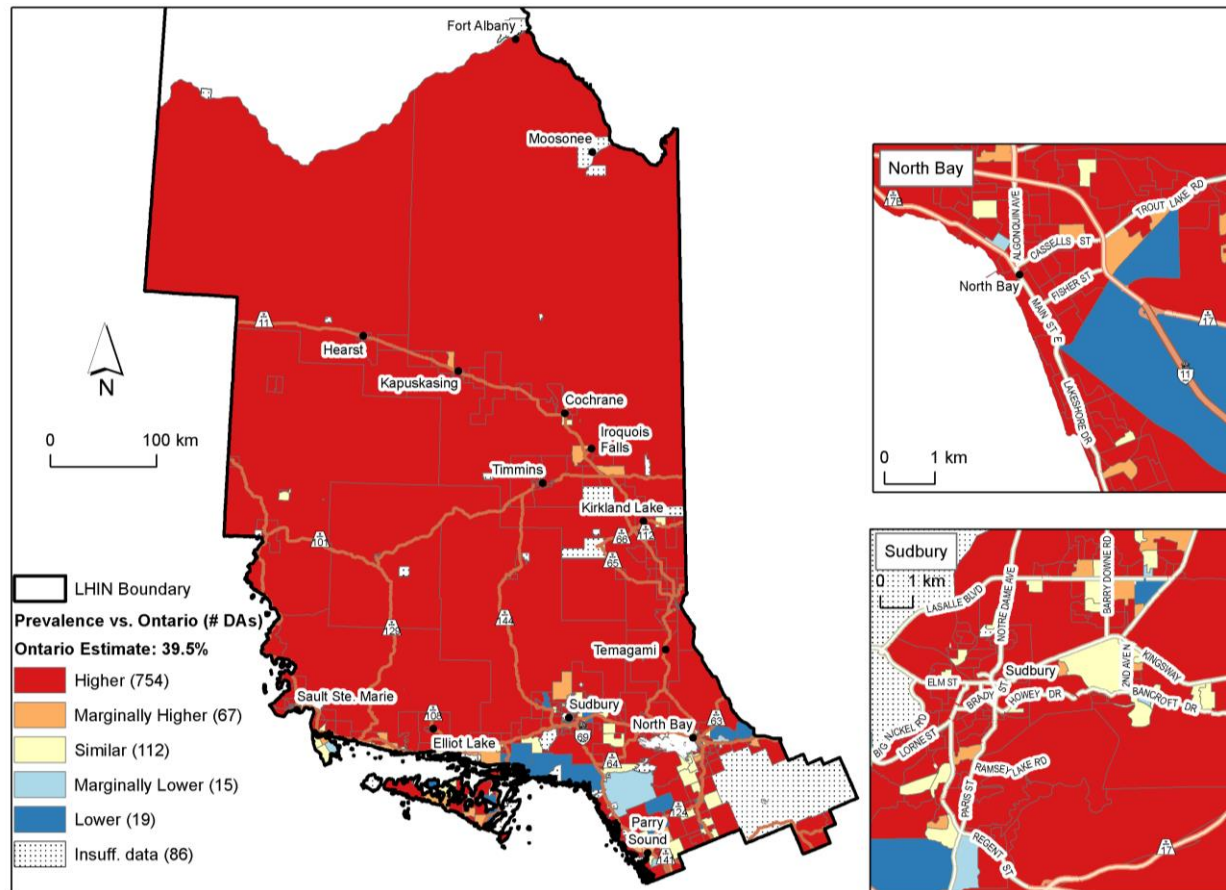
Category	Mean prevalence % (range)
Overall	49.3
Higher	51.9 (43.8, 73.8)
Marginally Higher	43.9 (42.1, 45.9)
Similar	40.1 (36.6, 44.1)
Marginally Lower	35.6 (32.4, 36.9)
Lower	29.9 (12.5, 35.5)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
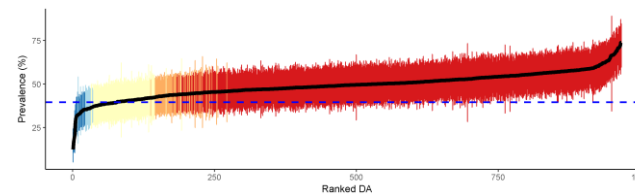
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 13.4 Current alcohol consumption among adolescent males (ages 12 to 18), 2000–2014, North East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

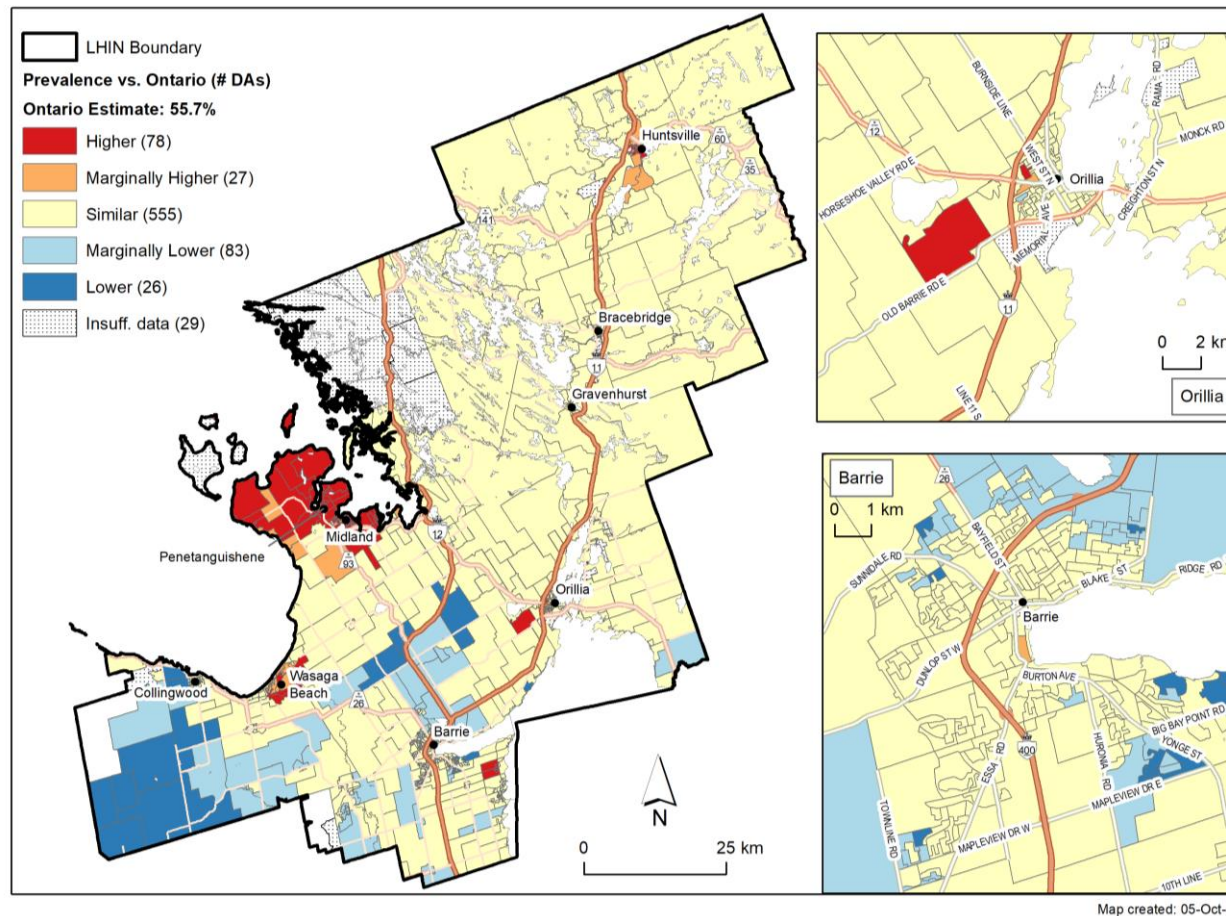| Category	Mean prevalence % (range)
Overall	51.1
Higher	53.4 (45.2, 75.7)
Marginally Higher	45.4 (43.4, 50.6)
Similar	41.9 (37.1, 46.8)
Marginally Lower	37.3 (36.1, 38.4)
Lower	31.4 (18.4, 36.1)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Alcohol—consumption exceeding cancer prevention recommendations

People age 12 and older

Almost 7% of the female population in Ontario drank alcohol in excess of the recommended limits for cancer prevention. Among males, the Ontario prevalence of exceeding the recommended limits was 8.5%.

Higher prevalence than Ontario

Areas with a higher prevalence than the Ontario average of alcohol consumption in excess of cancer prevention recommended limits for females (n=71; Figure 13.5) were mostly located in the southern part of the LHIN near Temagami, Parry Sound, North Bay and Sudbury. For males, higher prevalence areas were located across the LHIN, with 677 areas having a higher prevalence than Ontario (Figure 13.6).

Lower prevalence than Ontario

Few areas with a lower prevalence than Ontario of alcohol consumption in excess of cancer prevention recommended limits were found for females (n=35; Figure 13.5). These areas were located in the northeastern part of the LHIN. For males, only one area of lower prevalence was identified in the LHIN (Figure 13.6).

Adolescents

The area-based prevalence of exceeding cancer prevention recommendations was not estimated for adolescent populations.

Figure 13.5 Alcohol consumption exceeding cancer prevention recommendations among females (age 12 and older), 2000–2014, North East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
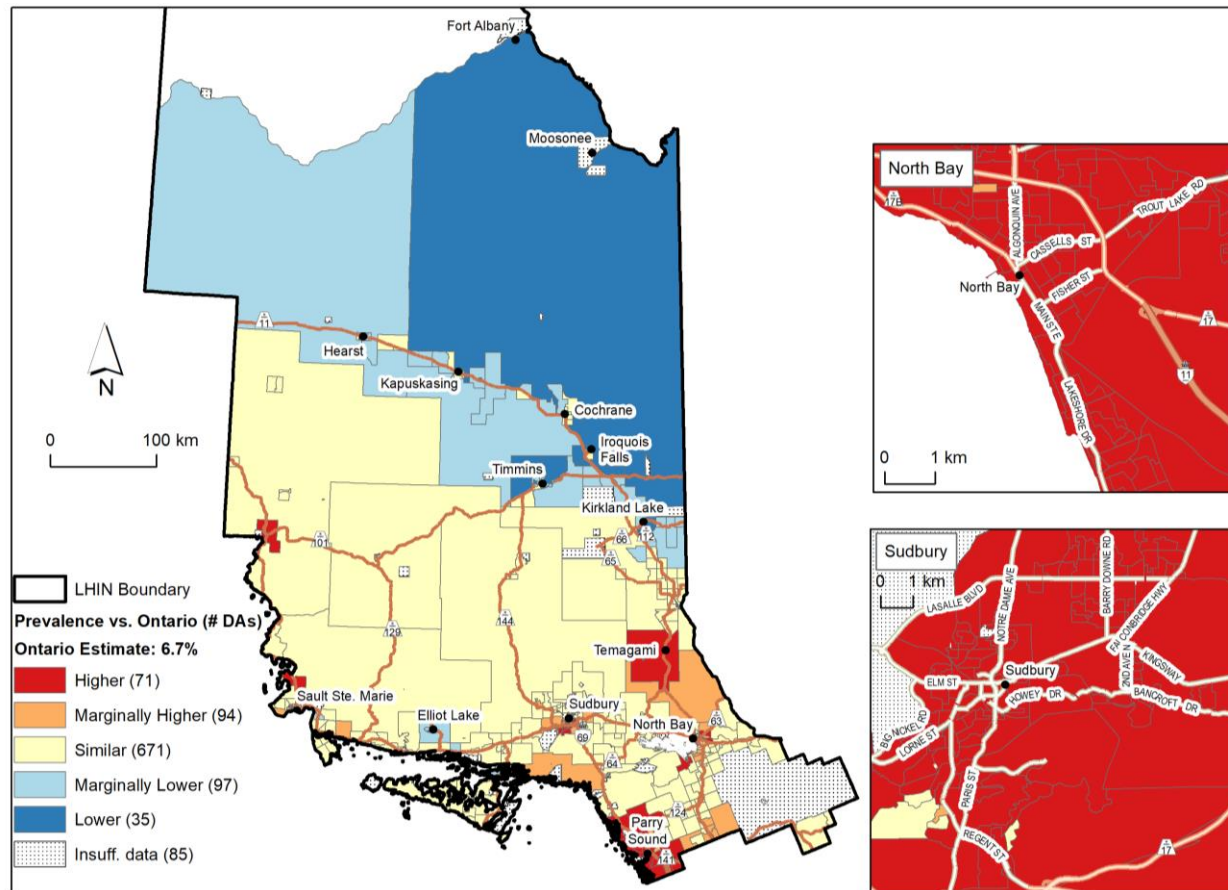
Category	Mean prevalence % (range)
Overall	7.3
Higher	10.4 (8.8, 14.6)
Marginally Higher	8.6 (7.9, 9.7)
Similar	7.2 (5.8, 9.5)
Marginally Lower	5.8 (5.2, 6.2)
Lower	5.2 (4.4, 5.8)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
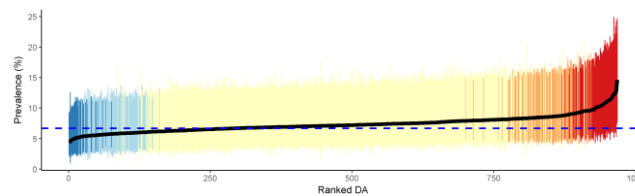
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 13.6 Alcohol consumption exceeding cancer prevention recommendations among males (age 12 and older), 2000–2014, North East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

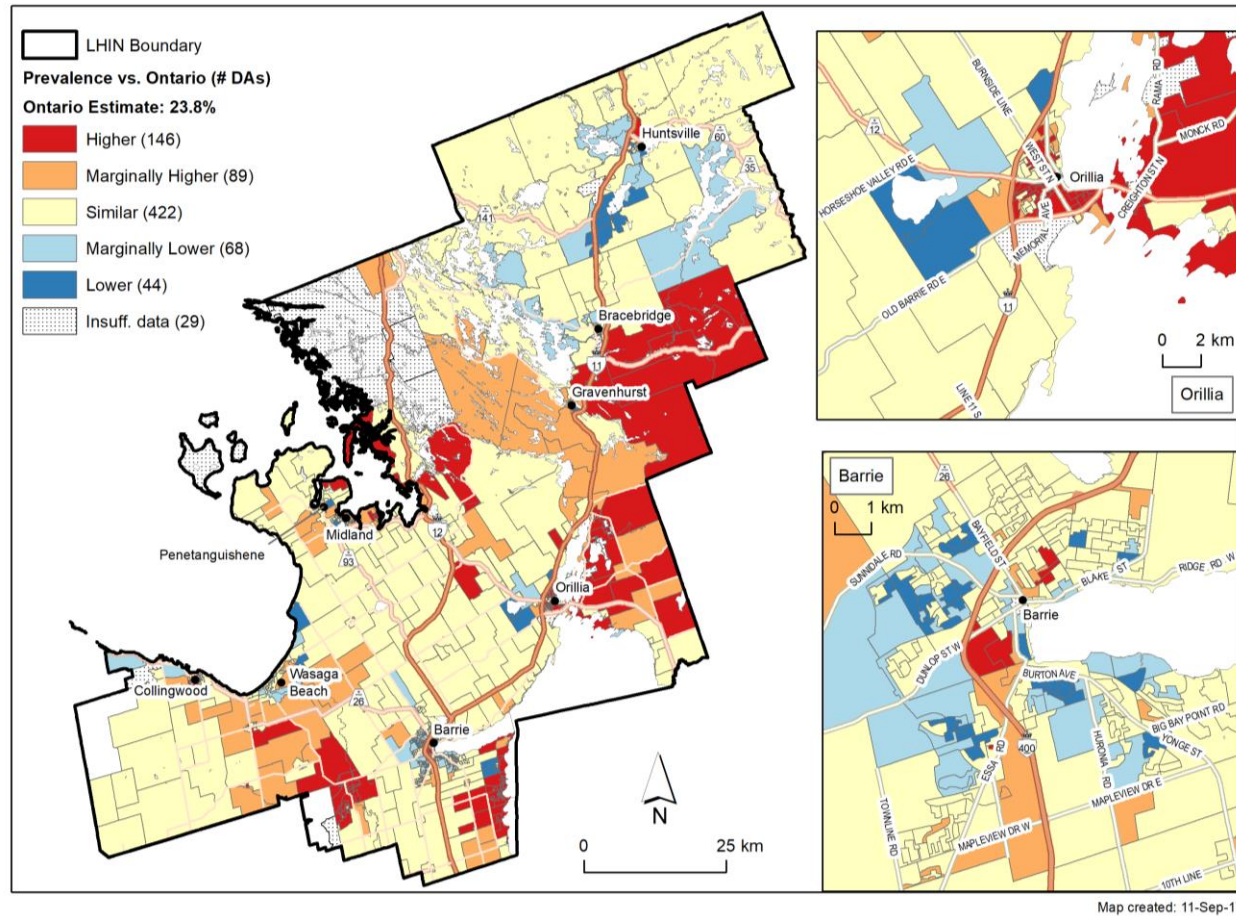| Category	Mean prevalence % (range)
Overall	11.6
Higher	12.3 (10.3, 18.2)
Marginally Higher	10.6 (9.7, 11.7)
Similar	9.1 (7.6, 10.5)
Marginally Lower	7.6 (7.3, 7.7)
Lower	7.0 (7.0, 7.0)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
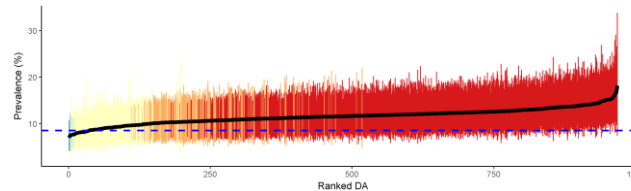
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
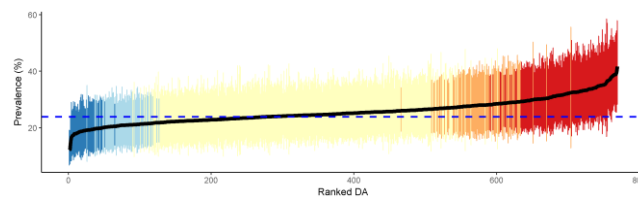
Excess body weight

People age 12 and older

The estimated Ontario prevalence of excess body weight (overweight or obese) was 41% among females and 56% among males.

Higher prevalence than Ontario
Areas with a higher prevalence of excess body weight than the Ontario average were common across the LHIN for females (n=852; Figure 13.7) and males (n=795; Figure 13.8).

Lower prevalence than Ontario
Areas with a lower prevalence of excess body weight than the Ontario average were not found for females (Figure 13.7) and only for one area (in North Bay) was found for males (Figure 13.8).

Adolescents

Among Ontario adolescents, an estimated 15% of females and 25% of males were overweight or obese.

Higher prevalence than Ontario
Most areas in the LHIN had a higher prevalence of excess body weight (overweight or obese) than Ontario for adolescent females (n=624; Figure 13.9), with the exception of some areas in Sudbury. For adolescent males (n=28; Figure 13.10), higher prevalence areas were far less common compared to females. These areas were located in the northeastern part of the LHIN (e.g., north of Highway 101 and south of Kirkland Lake).

Lower prevalence than Ontario
There were no areas with prevalence estimates lower than the Ontario average for adolescent females (Figure 13.9) or adolescent males (Figure 13.10).

Figure 13.7 Excess body weight (overweight/obese) among females (age 12 and older), 2000–2014, North East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
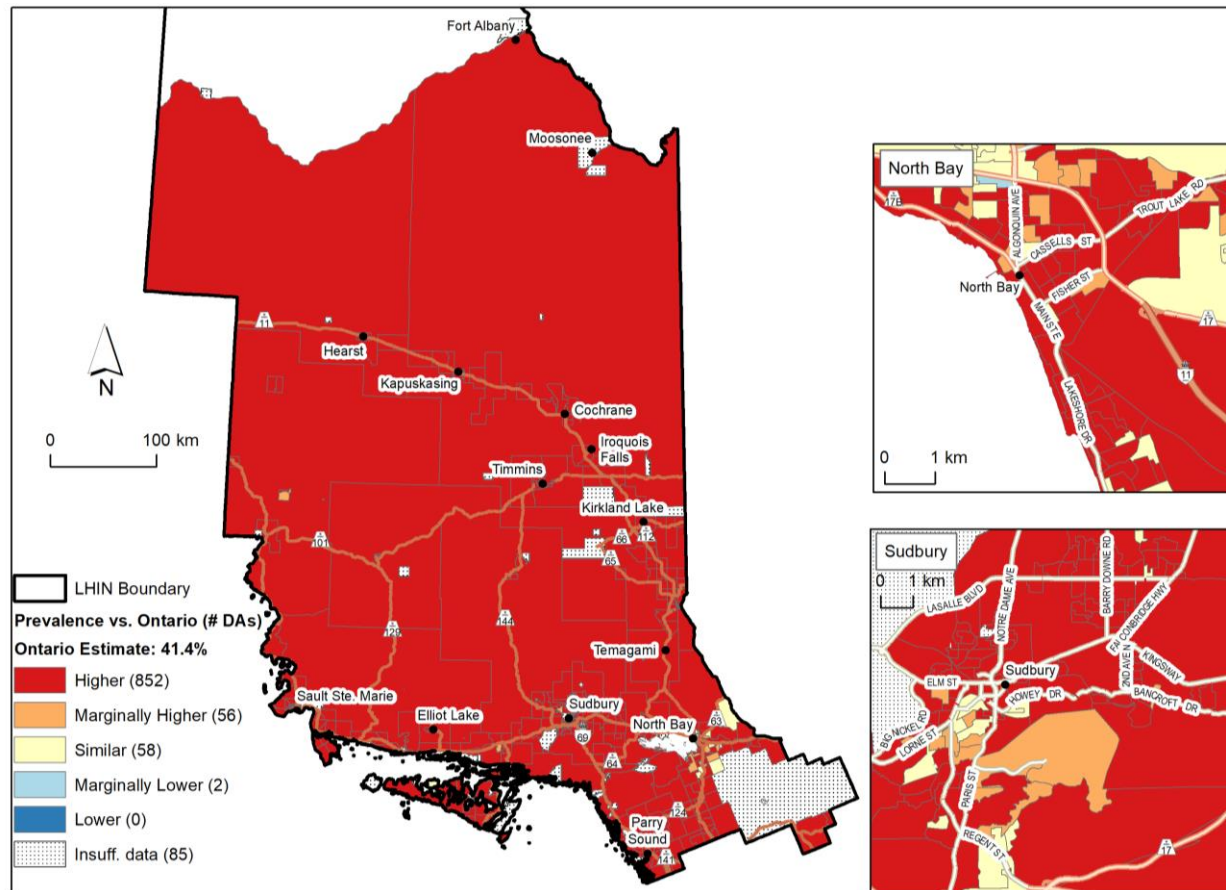
Category	Mean prevalence % (range)
Overall	49.9
Higher	50.8 (44.5, 65.5)
Marginally Higher	45.2 (43.5, 48.3)
Similar	42.4 (38.1, 44.7)
Marginally Lower	38.9 (38.8, 39.1)
Lower	N/A

N/A = no estimates in the category

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
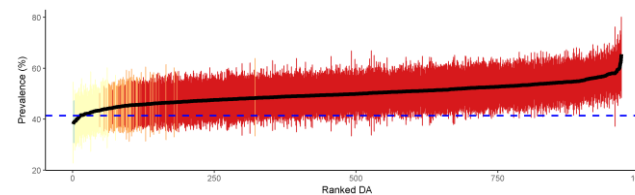
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 13.8 Excess body weight (overweight/obese) among males (age 12 and older), 2000–2014, North East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	62.0
Higher	63.0 (58.9, 69.5)
Marginally Higher	58.8 (57.6, 60.2)
Similar	57.0 (53.1, 59.0)
Marginally Lower	53.2 (52.8, 53.7)
Lower	51.7 (51.7, 51.7)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
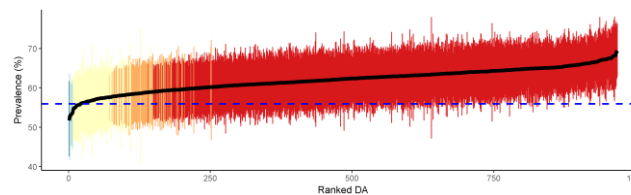
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 13.9 Excess body weight (overweight/obese) among adolescent females (ages 12 to 18), 2000–2014, North East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
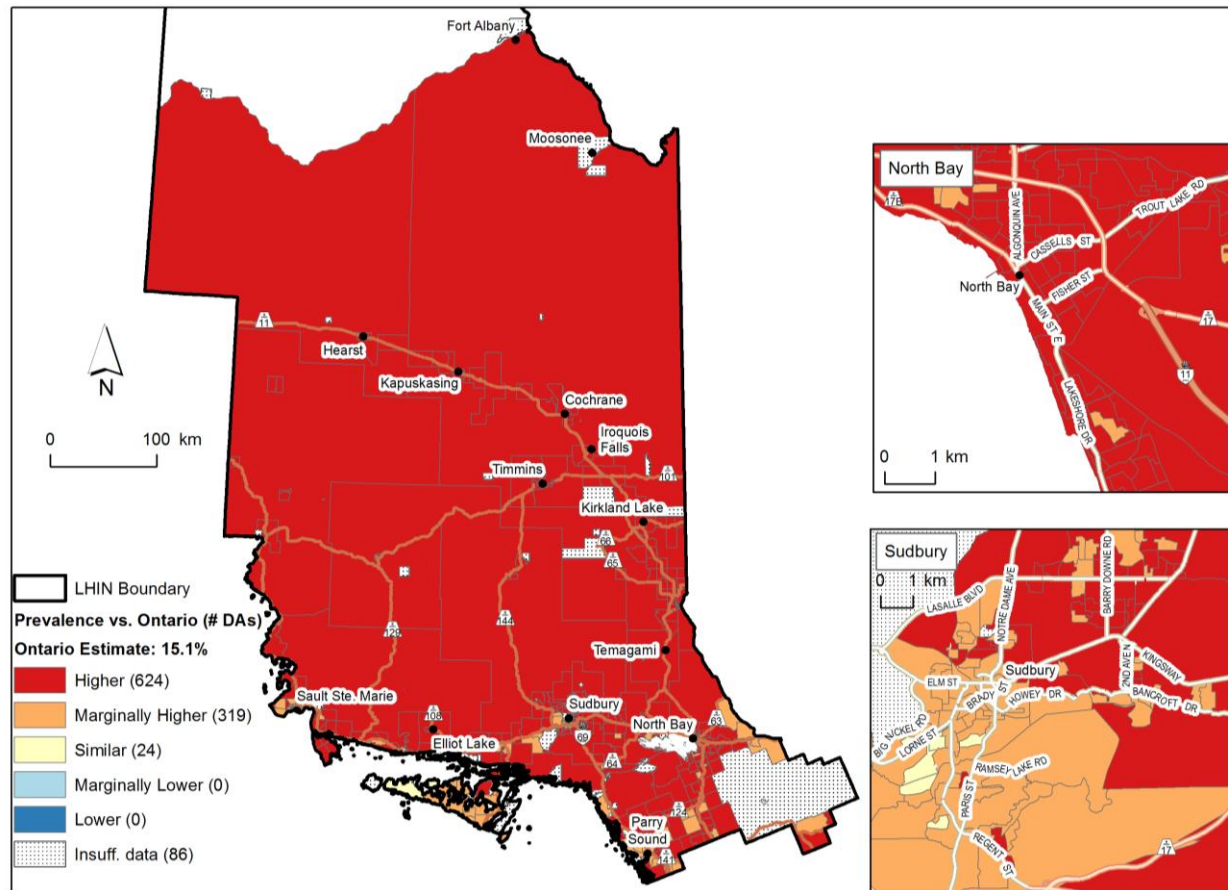
Category	Mean prevalence % (range)
Overall	20.0
Higher	20.6 (18.8, 25.8)
Marginally Higher	19.1 (17.6, 21.9)
Similar	18.2 (15.9, 20.4)
Marginally Lower	N/A
Lower	N/A

N/A = no estimates in the category

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
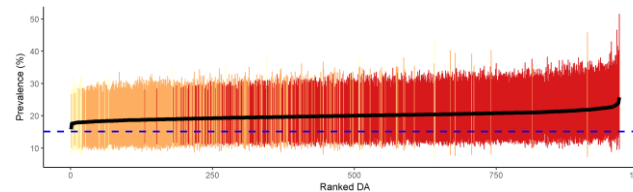
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 13.10 Excess body weight (overweight/obese) among adolescent males (ages 12 to 18), 2000–2014, North East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
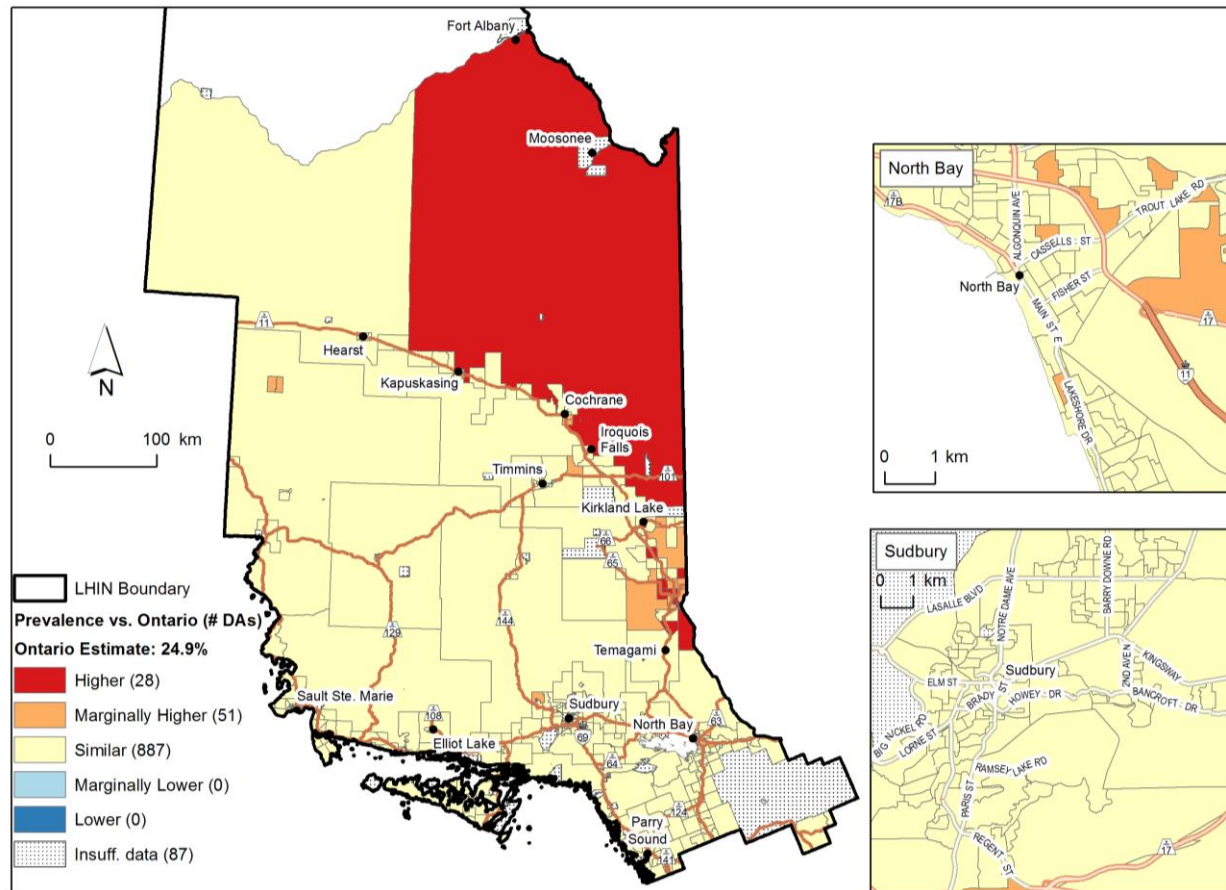
Category	Mean prevalence % (range)
Overall	26.6
Higher	31.4 (29.5, 34.2)
Marginally Higher	29.3 (28.3, 31.0)
Similar	26.3 (22.6, 29.4)
Marginally Lower	N/A
Lower	N/A

N/A = no estimates in the category

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Inadequate vegetable and fruit consumption

People age 12 and older

Inadequate consumption of vegetables and fruits was common across Ontario, with approximately 63% of females and 77% of males reporting inadequate consumption.

Higher prevalence than Ontario

Across the North East LHIN, fewer areas with a higher prevalence of inadequate vegetable and fruit consumption than the Ontario average were identified for females (n=450; Figure 13.11) compared to males (n=637; Figure 13.12). For each sex, areas of higher prevalence occurred throughout the central and northern parts of the LHIN, as well as parts of North Bay and Sudbury. For males, additional areas occurred throughout the southern part of the LHIN (e.g. Sault Ste. Marie to Parry Sound) with the exception of areas in and around Sudbury and North Bay.

Lower prevalence than Ontario

Several areas in Sudbury and North Bay had a lower prevalence of inadequate consumption of vegetables and fruits than the Ontario average for females (n=26; Figure 13.11). Areas of adequate consumption of vegetables and fruits (lower prevalence category) were uncommon for males (n=1; Figure 13.12).

Adolescents

More than two-thirds of the adolescent Ontario population had inadequate vegetable and fruit consumption, at approximately 68% for females and 74% for males.

Higher prevalence than Ontario

Across the LHIN, there were few areas with a higher prevalence of inadequate consumption of vegetables and fruits than the Ontario average for adolescent females (n=15; Figure 13.13), and these areas were located in the northeastern part of the LHIN. There were no higher prevalence areas found for adolescent males, which is why that map is not shown.

Lower prevalence than Ontario

No areas of adequate consumption of vegetables and fruits for adolescent females in the North East LHIN were identified (Figure 13.13).

Figure 13.11 Inadequate vegetable and fruit consumption among females (age 12 and older), 2000–2014, North East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Map created: 12-Sep-17
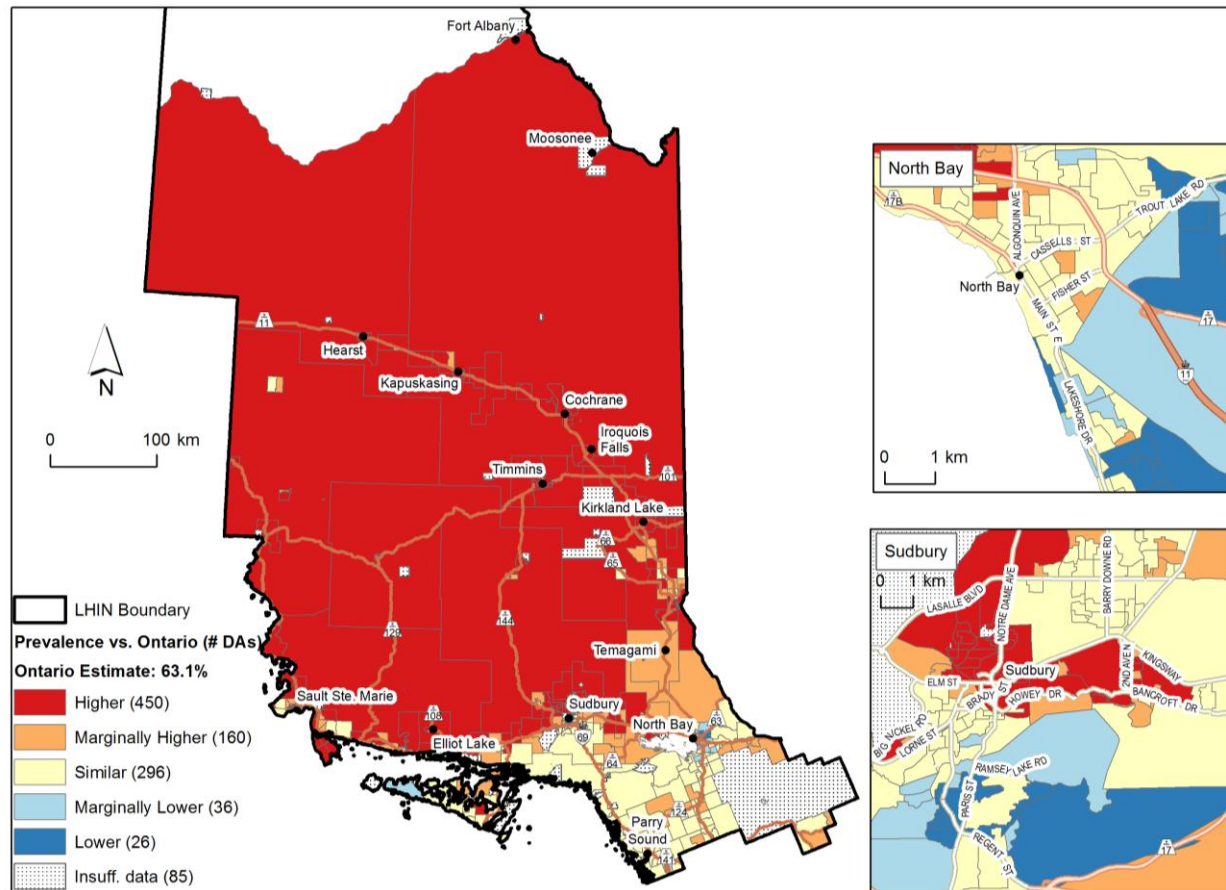
Category	Mean prevalence % (range)
Overall	66.5
Higher	69.4 (66.3, 75.0)
Marginally Higher	66.4 (65.1, 68.6)
Similar	63.8 (59.3, 66.0)
Marginally Lower	59.8 (55.6, 60.8)
Lower	57.0 (51.3, 59.5)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
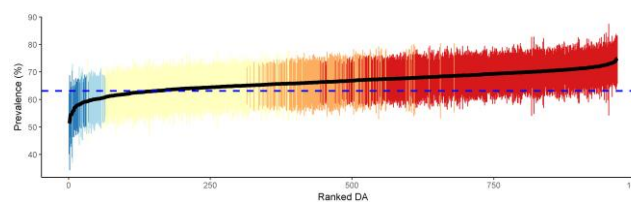
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 13.12 Inadequate vegetable and fruit consumption among males (age 12 and older), 2000–2014, North East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Map created: 12-Sep-17
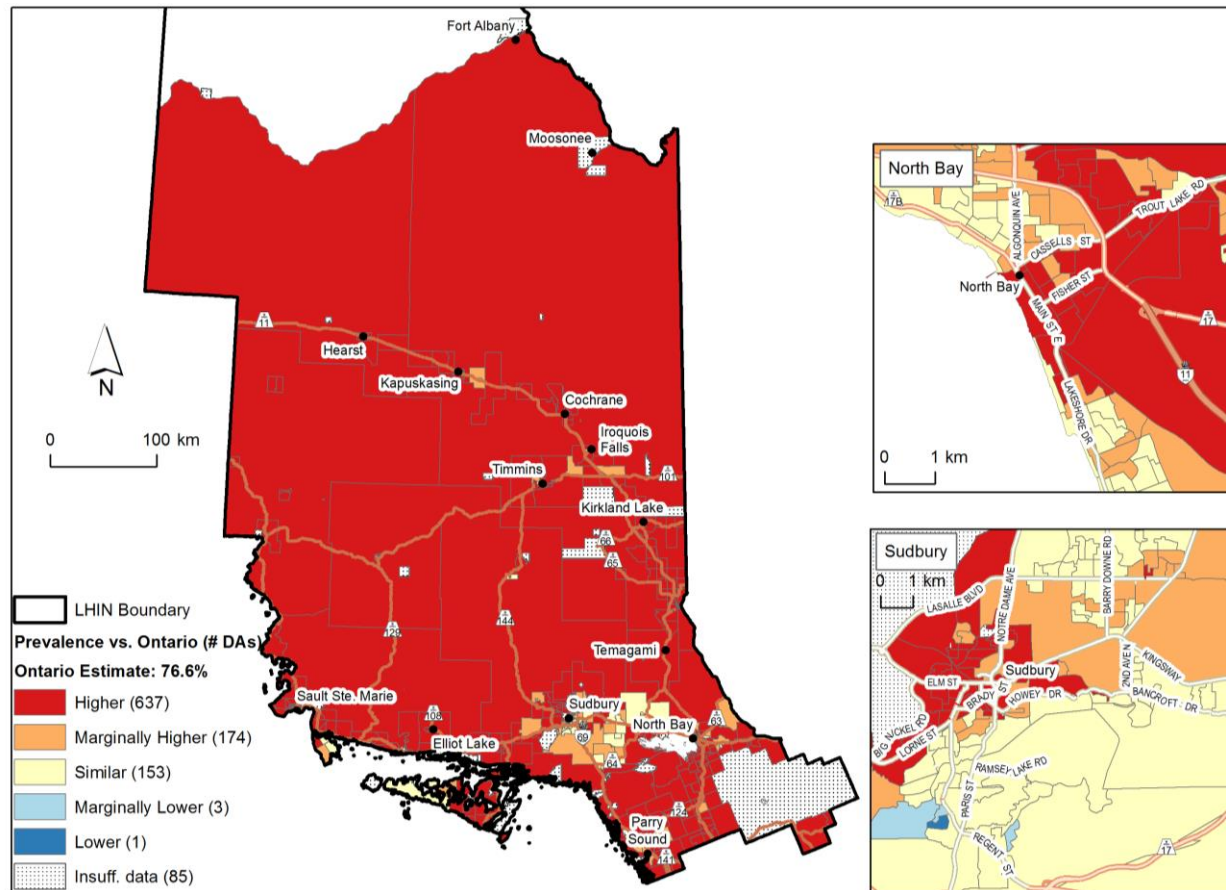
Category	Mean prevalence % (range)
Overall	80.1
Higher	81.2 (79.0, 87.3)
Marginally Higher	79.0 (78.1, 80.4)
Similar	77.1 (74.5, 78.8)
Marginally Lower	73.3 (73.0, 73.7)
Lower	72.0 (72.0, 72.0)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
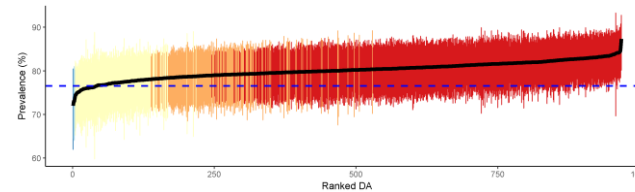
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 13.13 Inadequate vegetable and fruit consumption among adolescent females (ages 12 to 18), 2000–2014, North East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
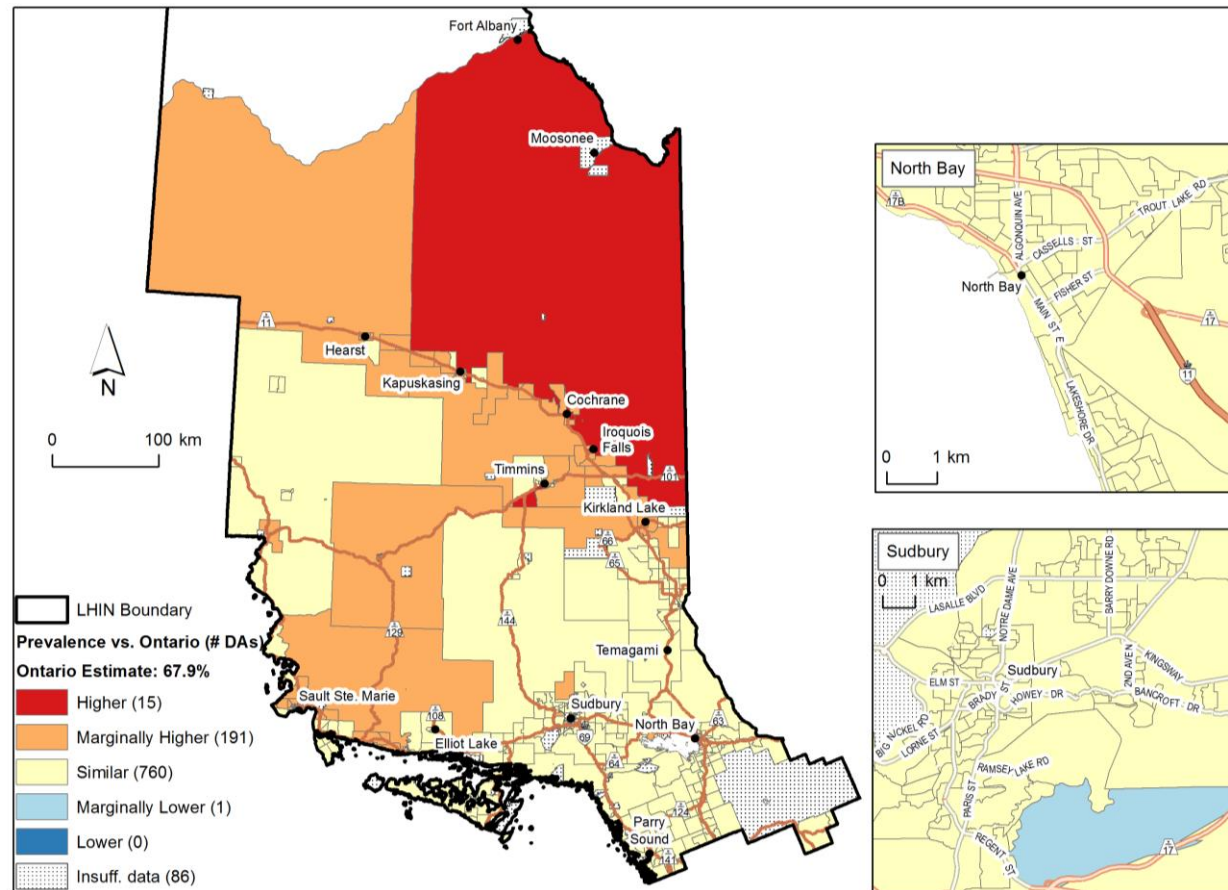
Category	Mean prevalence % (range)
Overall	69.3
Higher	73.2 (72.0, 75.0)
Marginally Higher	71.5 (70.3, 73.1)
Similar	68.6 (64.9, 71.5)
Marginally Lower	64.3 (64.3, 64.3)
Lower	N/A

N/A = no estimates in the category

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Physical activity

Because physical activity reduces cancer risk, lower prevalence estimates of this risk factor are of interest. The colour scheme of the maps was inverted so that the "lower than Ontario" estimates are displayed in red.

People age 12 and older

Most of the Ontario population was not physically active, with approximately one in five (23%) females and one in three (30%) males being physically active.

Lower prevalence than Ontario

Across the LHIN, areas with a lower prevalence of physical activity than the Ontario average for females (n=36; Figure 13.14) were found only in Sudbury and North Bay. There were fewer areas of lower prevalence for males (n=10; Figure 13.15); most of these areas were located south of Kirkland Lake and in Sudbury.

Higher prevalence than Ontario

Overall, areas with a higher prevalence of physical activity than Ontario for females (n=354; Figure 13.14) were located in the central and northwestern parts of the LHIN and southwards of Parry Sound. For males (n=341; Figure 13.15), higher prevalence areas tended to be located in the western part of the LHIN and near Sudbury, North Bay and Parry Sound.

Adolescents

Adolescents were more physically active than adults, with approximately 40% of adolescent females and 57% of adolescent males being active. In the North East LHIN, no areas with a lower prevalence of physical activity than Ontario were found for adolescents, which is why those maps are not shown.

Figure 13.14 Physical activity among females (age 12 and older), 2000–2014, North East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
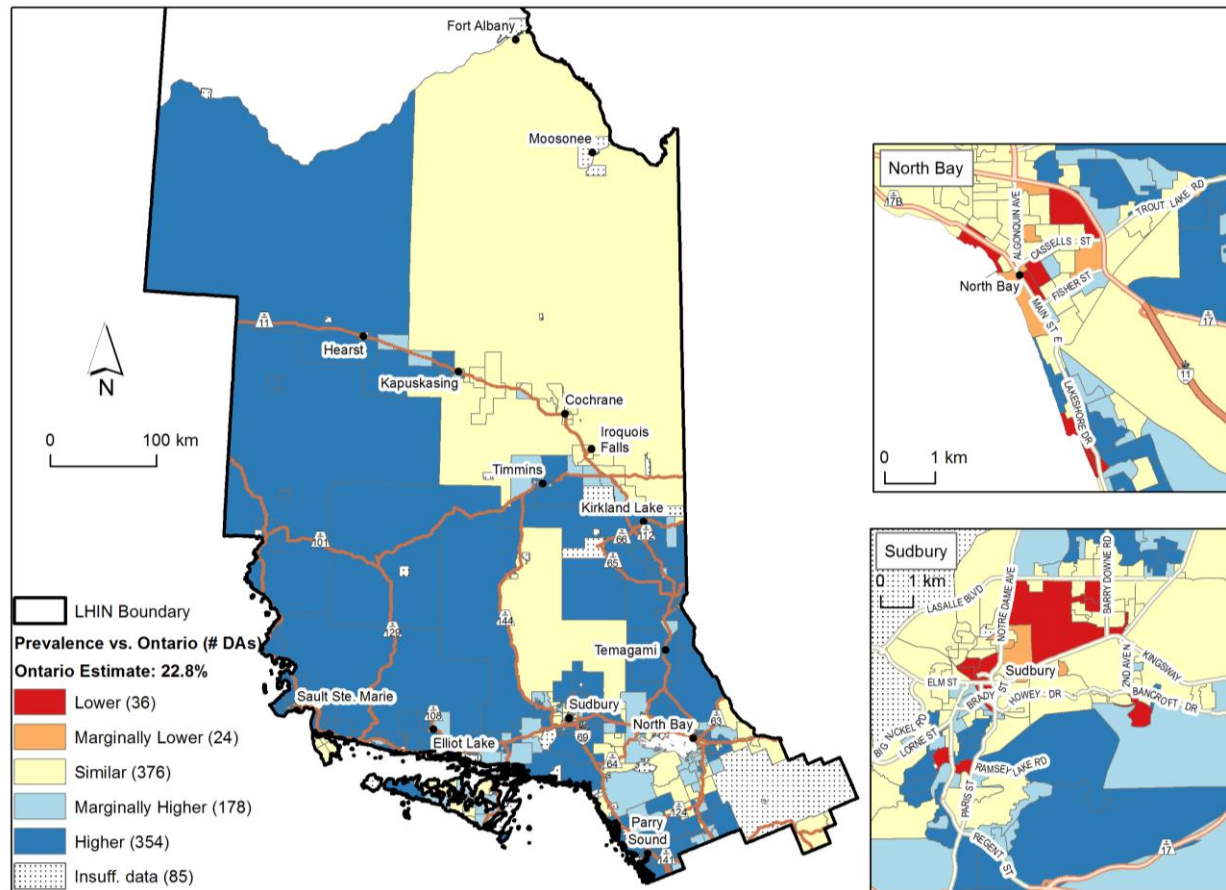
Category	Mean prevalence % (range)
Overall	25.7
Lower	18.3 (12.5, 20.3)
Marginally Lower	20.5 (19.6, 21.0)
Similar	23.4 (20.4, 26.2)
Marginally Higher	26.1 (24.7, 29.3)
Higher	28.9 (25.8, 36.6)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 13.15 Physical activity among males (age 12 and older), 2000–2014, North East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Prevalence vs. Ontario (# DAs)
Ontario Estimate: 29.7%

■	Lower (10)
■	Marginally Lower (30)
■	Similar (390)
■	Marginally Higher (197)
■	Higher (341)
⋯	Insuff. data (85)

Map created: 11-Sep-17

Category	Mean prevalence % (range)
Overall	32.9
Lower	24.9 (21.5, 26.4)
Marginally Lower	26.8 (25.8, 27.5)
Similar	30.6 (26.5, 33.9)
Marginally Higher	33.2 (31.6, 35.7)
Higher	36.1 (33.4, 46.7)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
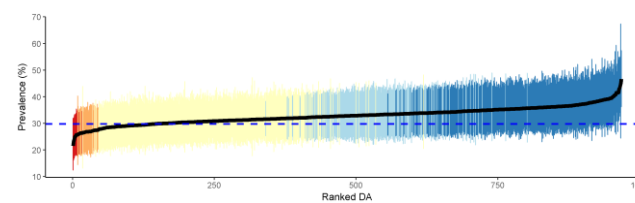
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Sedentary behaviour

People age 12 and older

Approximately half of the Ontario population reported sedentary behaviour during leisure time (females, 49%; males, 56%).

Higher prevalence than Ontario

Across the LHIN, 207 areas with a higher prevalence of sedentary behaviour than the Ontario average were found for females (Figure 13.16). These areas were located in the western part of the LHIN (e.g. Kapuskasing, Cochrane, Iroquois Falls, Timmins and Elliot Lake), near Kirkland Lake and in Sudbury and North Bay. For males, higher prevalence areas (n=25; Figure 13.17) were relatively uncommon and were located in North Bay.

Lower prevalence than Ontario

Overall, areas with a lower prevalence of sedentary behaviour than the Ontario average were not common across the LHIN (females, n=0; Figure 13.16; males, n=24; Figure 13.17). For males, these lower prevalence areas were located mainly around Sault Ste. Marie.

Adolescents

More than half of the Ontario adolescent population reported sedentary behaviour during leisure time, at approximately 55% for females and 60% for males. In the North East LHIN, no areas with a higher prevalence than the Ontario average were found for adolescents, which is why those maps are not shown.
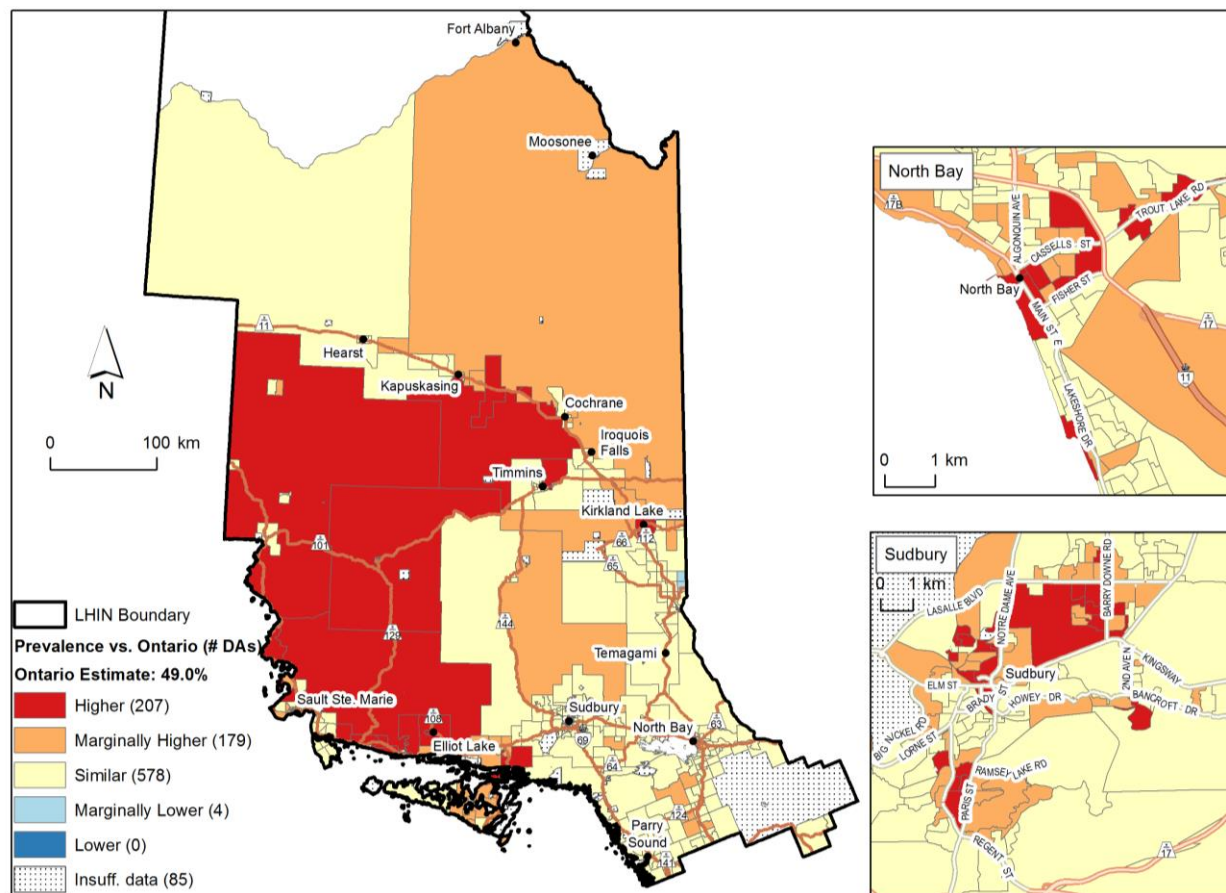
Category	Mean prevalence % (range)
Overall	51.6
Higher	55.8 (52.7, 67.3)
Marginally Higher	52.7 (51.3, 55.3)
Similar	49.8 (46.2, 53.4)
Marginally Lower	46.0 (45.7, 46.3)
Lower	N/A

N/A = no estimates in the category

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Map created: 05-Oct-17

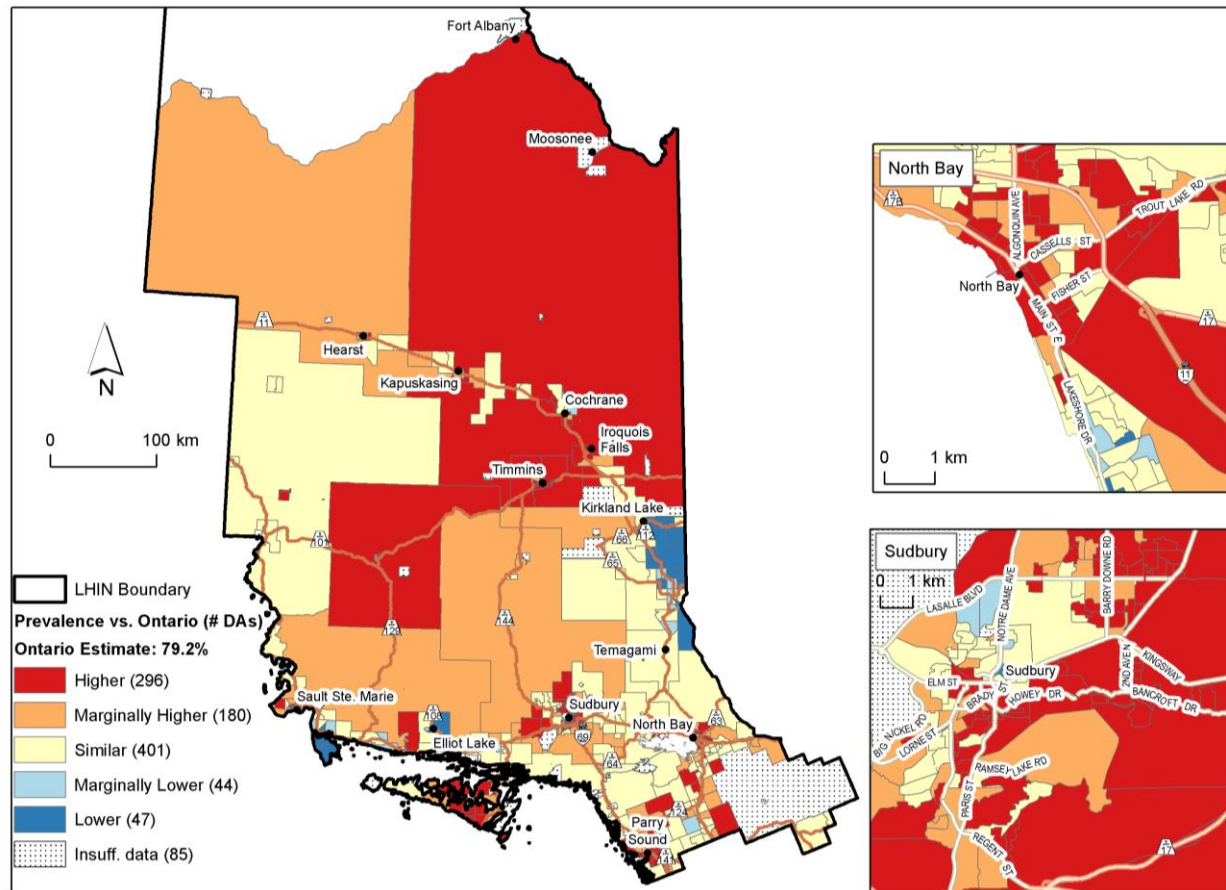| Category	Mean prevalence % (range)
Overall	55.1
Higher	61.3 (60.1, 63.1)
Marginally Higher	59.7 (58.4, 61.2)
Similar	55.1 (51.2, 59.5)
Marginally Lower	51.6 (49.5, 52.9)
Lower	49.5 (48.0, 51.0)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
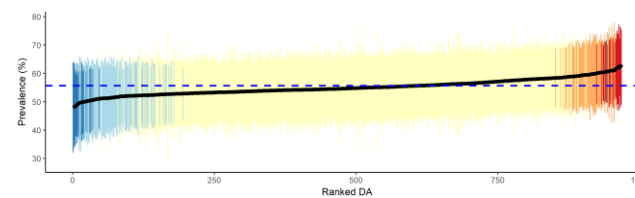
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Smoking—current status

People age 12 and older

Current tobacco smoking was reported by 17% of Ontario females and 24% of males.

Higher prevalence than Ontario

For females, most areas had a higher prevalence of current smoking (n=749; Figure 13.18) than the Ontario average. For males, areas with a higher prevalence of current smoking (n=511; Figure 13.19) than Ontario were also common throughout the LHIN, with the exception of areas near Parry Sound and southern parts of the LHIN.

Lower prevalence than Ontario

Among females, lower prevalence areas were not common (n=2; Figure 13.18). Areas with a lower prevalence of current smoking for males (n=19; Figure 13.19) tended to be located towards the southern part of the LHIN, mainly in Sudbury and North Bay.

Adolescents

Approximately 8% of adolescent females and adolescent males reported smoking tobacco.

Higher prevalence than Ontario

Areas with a higher prevalence of current smoking than the Ontario average were more common for adolescent females (n=799; Figure 13.20) than adolescent males (n=670; Figure 13.21). For adolescent females, many higher prevalence areas were located in the northern and central parts of the LHIN near Hearst, Kapuskasing, Cochrane, Iroquois Falls, Timmins, Kirkland Lake and Temagami. In the southern part of the LHIN, these areas were located near Sault Ste. Marie, Elliot Lake, Sudbury, North Bay and Parry Sound. For adolescent males, areas with a higher prevalence of current smoking than Ontario were located in the northwestern and southern parts of the LHIN, similar to females.

Lower prevalence than Ontario

Across the LHIN, there were few areas with a lower prevalence of current smoking than the Ontario average for adolescent females (n=4; Figure 13.20) or adolescent males (n=5; Figure 13.21).

Figure 13.18 Current smoking among females (age 12 and older), 2000–2014, North East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
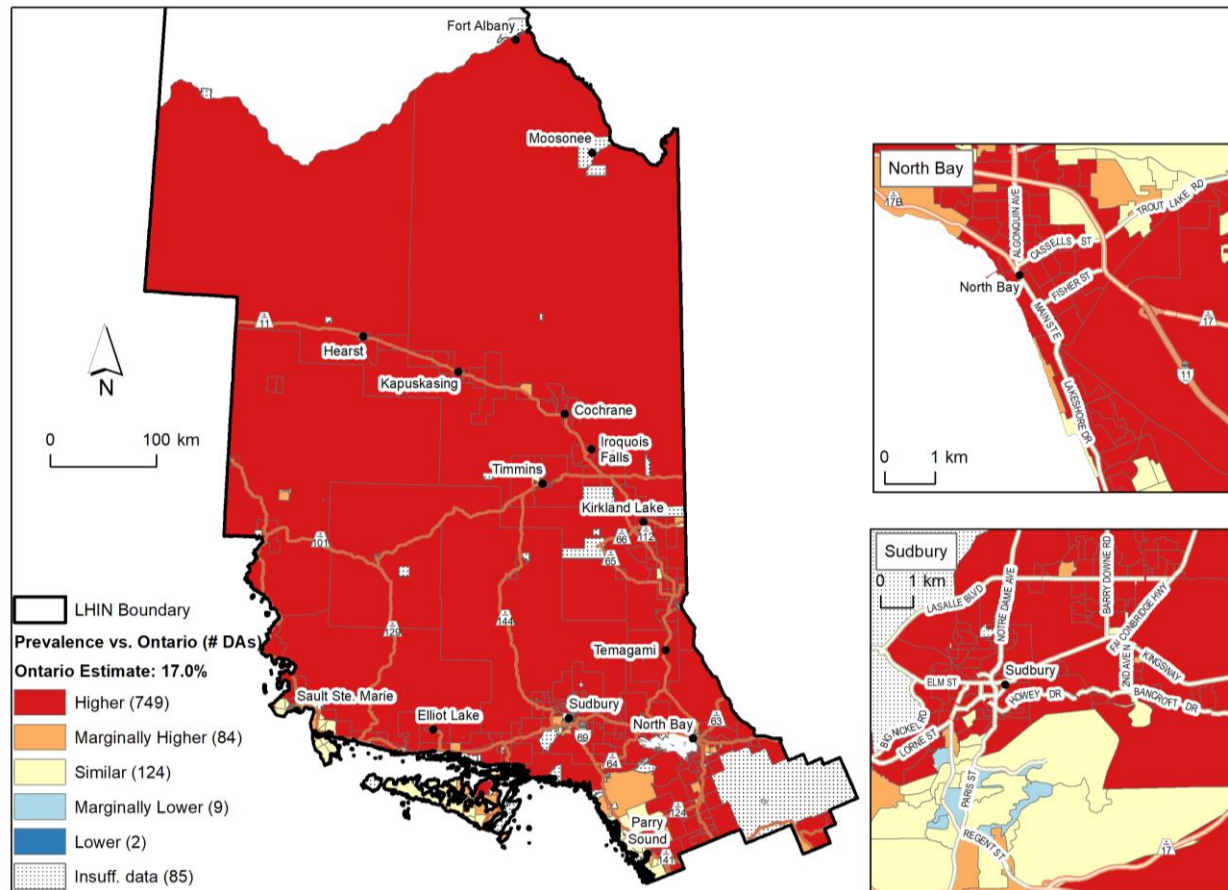
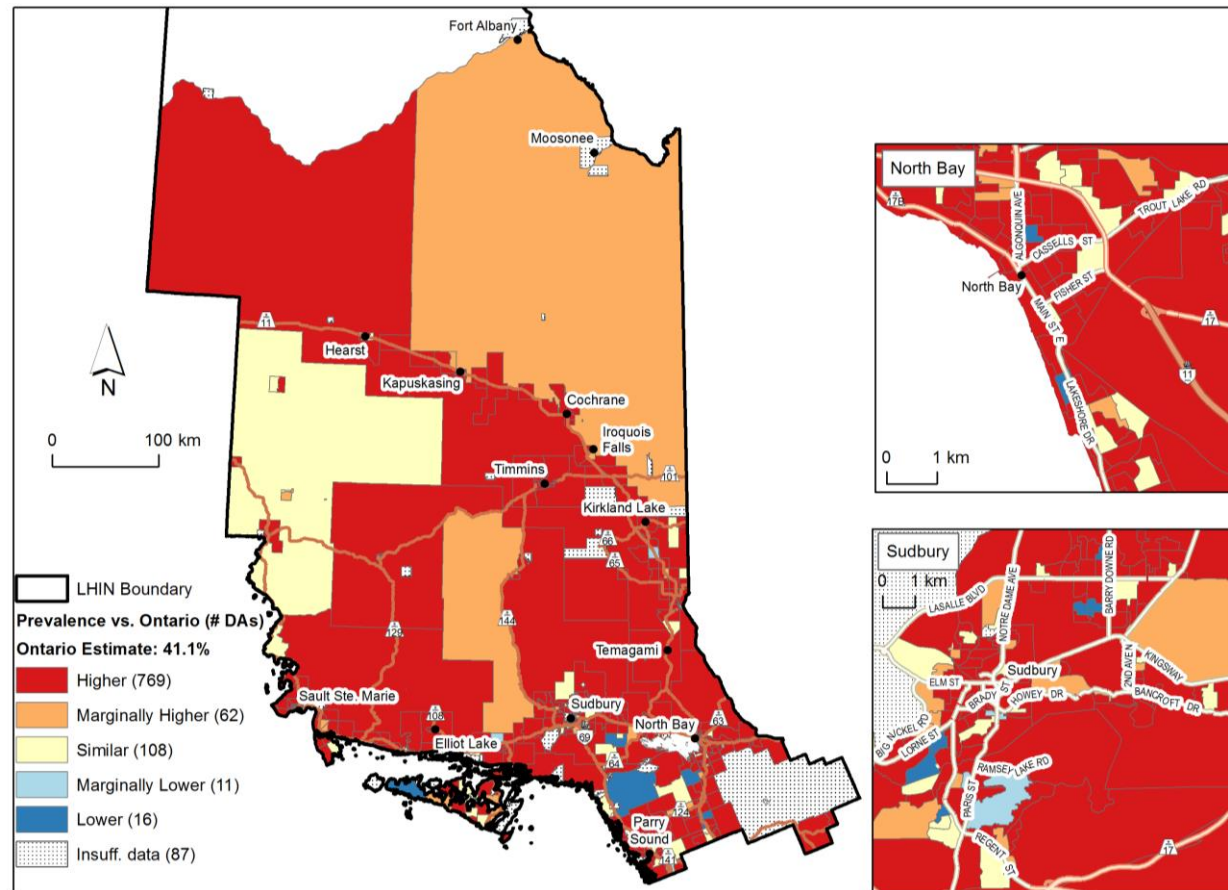| Category	Mean prevalence % (range)
Overall	24.9
Higher	26.6 (20.1, 45.1)
Marginally Higher	21.1 (18.9, 25.1)
Similar	18.5 (15.1, 22.9)
Marginally Lower	14.5 (13.8, 15.5)
Lower	13.2 (12.4, 14.0)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
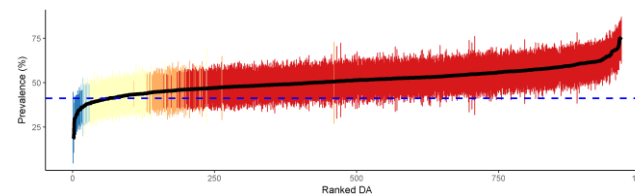
Figure 13.19 Current smoking among males (age 12 and older), 2000–2014, North East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	29.5
Higher	33.1 (27.4, 47.7)
Marginally Higher	28.1 (26.0, 31.9)
Similar	24.7 (20.8, 27.8)
Marginally Lower	20.8 (19.4, 21.6)
Lower	18.9 (15.7, 20.4)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
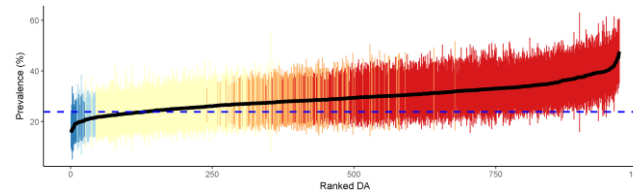
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 13.20 Current smoking among adolescent females (ages 12 to 18), 2000–2014, North East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	14.4
Higher	15.1 (10.8, 27.7)
Marginally Higher	11.6 (10.0, 16.6)
Similar	10.0 (8.0, 13.2)
Marginally Lower	6.7 (6.7, 6.7)
Lower	3.4 (2.3, 4.2)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 13.21 Current smoking among adolescent males (ages 12 to 18), 2000–2014, North East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

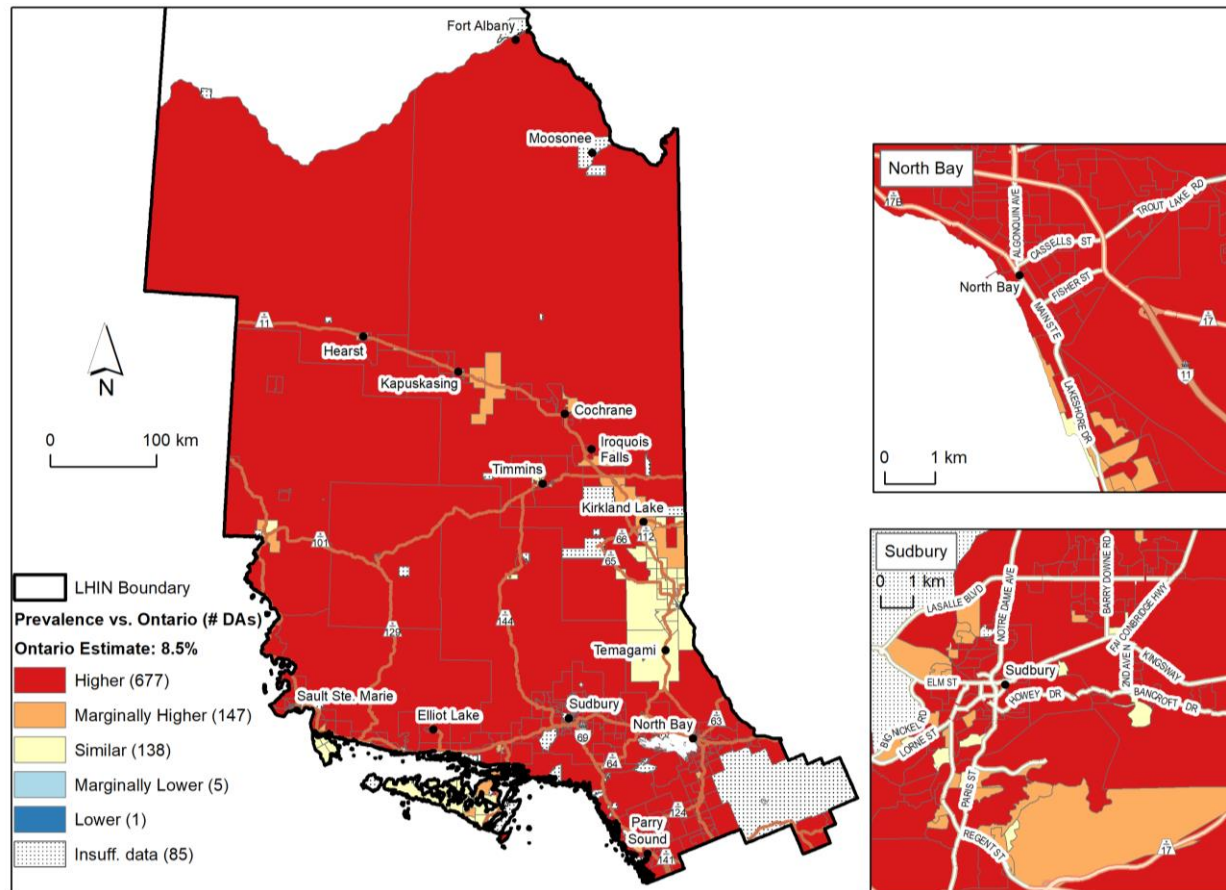| Category	Mean prevalence % (range)
Overall	13.2
Higher	14.5 (11.1, 25.5)
Marginally Higher	11.2 (10.3, 13.3)
Similar	9.5 (7.1, 12.8)
Marginally Lower	6.8 (6.4, 7.2)
Lower	4.3 (1.7, 6.1)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Smoking—ever-smoked status

People age 12 and older

Approximately one in two Ontario females and three in five Ontario males reported having ever-smoked.

Higher prevalence than Ontario

Across the LHIN, most areas had a higher prevalence of ever-smoked status than the Ontario average for females (n=939; Figure 13.22) and males (n=909; Figure 13.23). The location of higher prevalence areas was similar for females and males.

Lower prevalence than Ontario

For females and males, only one area of lower prevalence of ever-smoked status was found (Figure 13.22 and Figure 13.23, respectively).

Adolescents

The area-based prevalence of ever-smoked status was not estimated for adolescent populations.

Figure 13.22 Ever-smoked status among females (age 12 and older), 2000–2014, North East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Map created: 12-Sep-17
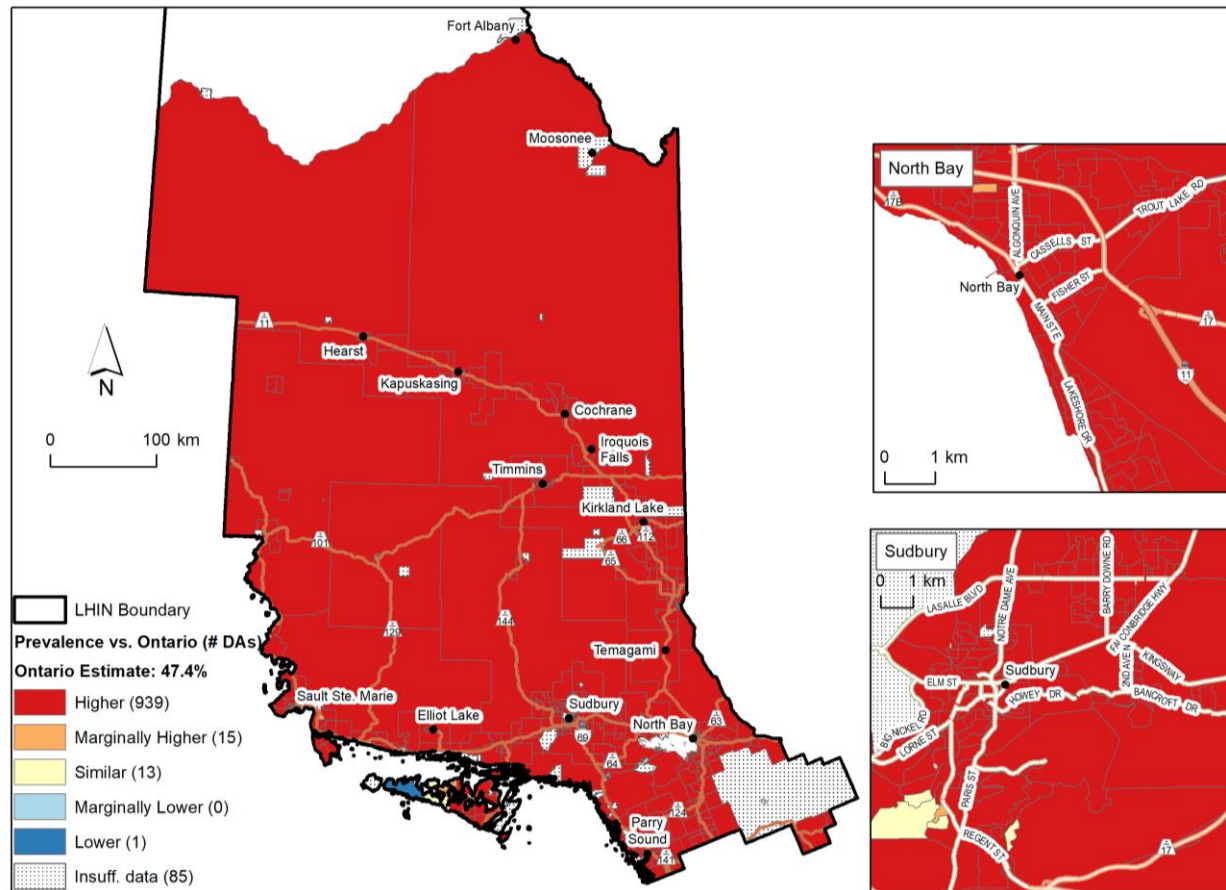
Category	Mean prevalence % (range)
Overall	60.5
Higher	60.8 (51.8, 71.0)
Marginally Higher	51.7 (49.8, 53.6)
Similar	48.5 (44.0, 51.3)
Marginally Lower	N/A
Lower	36.8 (36.8, 36.8)

N/A = no estimates in the category

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 13.23 Ever-smoked status among males (age 12 and older), 2000–2014, North East Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
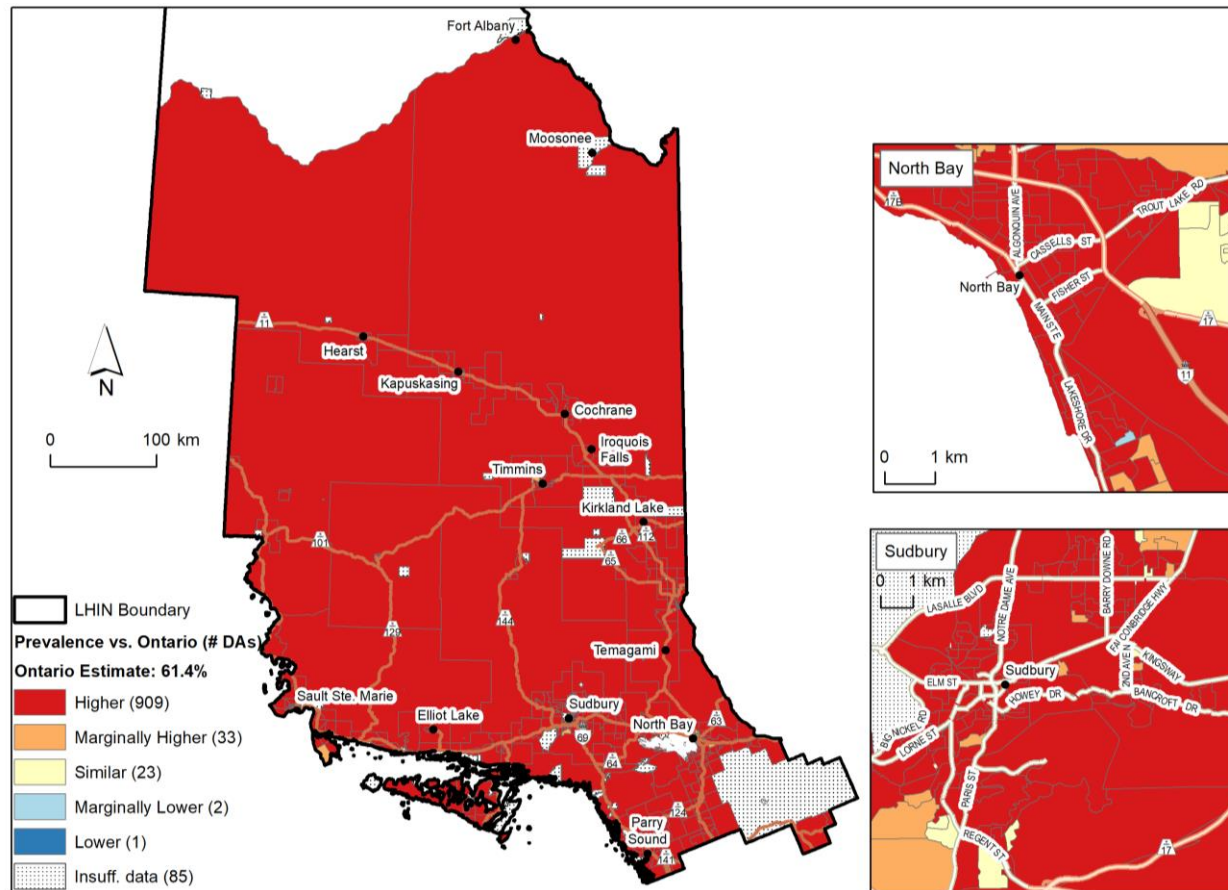
Category	Mean prevalence % (range)
Overall	70.9
Higher	71.4 (64.4, 83.1)
Marginally Higher	64.7 (63.4, 66.2)
Similar	62.0 (59.1, 63.7)
Marginally Lower	55.9 (54.6, 57.2)
Lower	56.8 (56.8, 56.8)

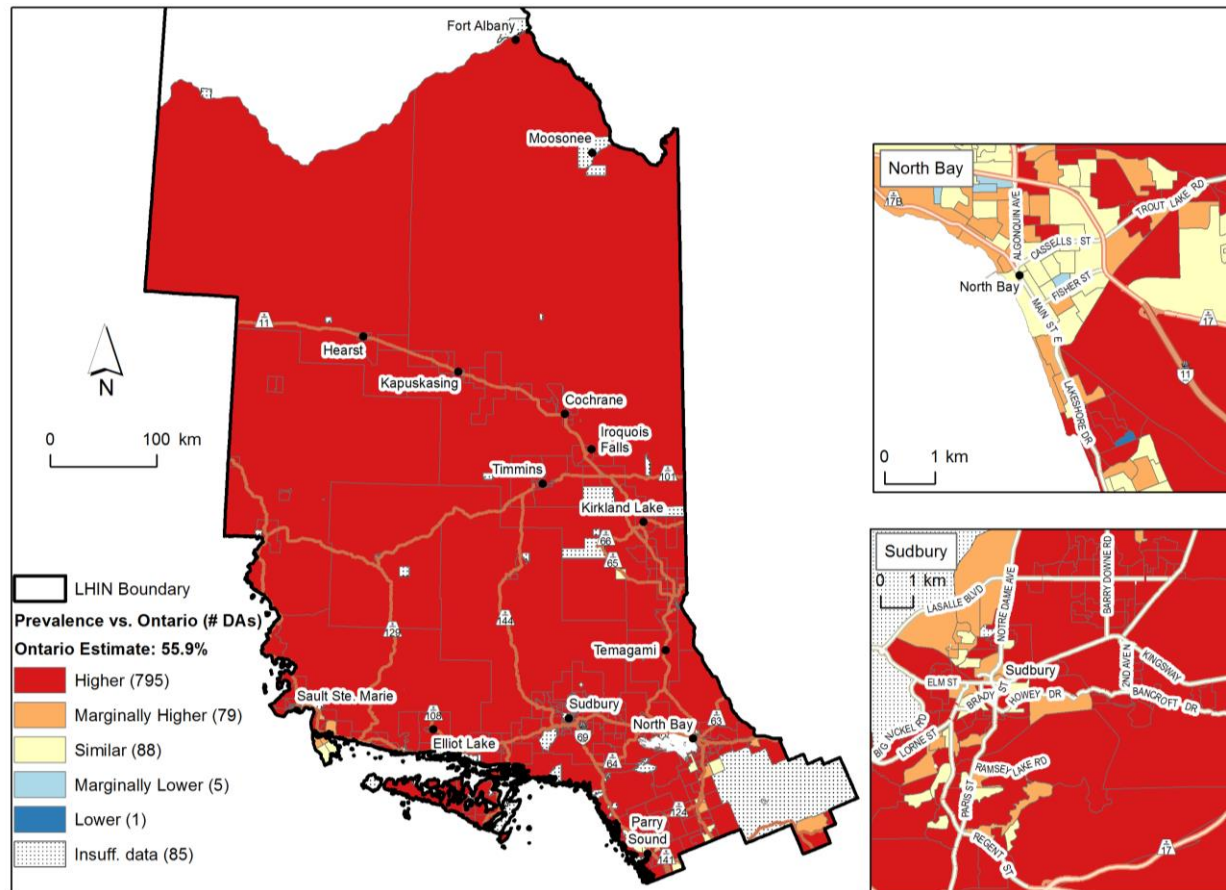Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
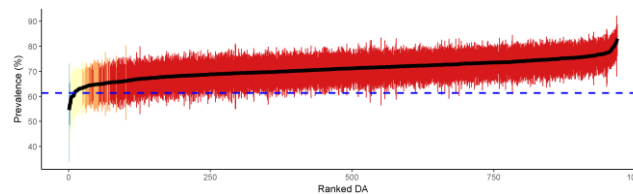
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

LHIN 14
North West

14. North West LHIN

Key Findings

Top three priority risk factor population estimates by sex (see Table 14.1 below):

Females
    Smoking—ever-smoked status
    Alcohol—current consumption
    Excess body weight

Males
    Inadequate fruit and vegetable consumption
    Smoking—ever-smoked status
    Excess body weight

Risk factor summary

Alcohol—current consumption
    Priority areas:
    • Females: areas in the northern and western parts of the LHIN and in Thunder Bay
    • Males: areas in the northern part of the LHIN and in Thunder Bay
    • Adolescent females and adolescent males: areas throughout the LHIN and in Thunder Bay
Alcohol—consumption exceeding cancer prevention recommendations
    Priority areas:
    • Females: areas in the northern part of the LHIN, west of Thunder Bay and areas in Thunder Bay
    • Males: areas throughout the LHIN and in Thunder Bay
Excess body weight:
    Priority areas:
    • Females and males: areas throughout the LHIN and in Thunder Bay
    • Adolescent females: areas across the LHIN; a few areas in Thunder Bay
    • Adolescent males: few areas in Thunder Bay

Inadequate vegetable and fruit consumption

Priority areas:
- Females: areas in the northern and southeastern parts of the LHIN and in and around Thunder Bay
- Males: areas throughout the LHIN and in Thunder Bay
- Adolescent females: few areas dispersed across the southern part of the LHIN (e.g., Fort Frances, Marathon)
- Adolescent males: areas in southeastern (e.g., Geraldton, Marathon) and southwestern (e.g., Fort Frances) parts of the LHIN

Physical activity:

Priority areas:
- Females: few areas clustered in Thunder Bay

Sedentary behaviour:

Priority areas:
- Females: a few areas in Thunder Bay

Smoking—current status:

Priority areas:
- Females: areas throughout the majority of the LHIN and in Thunder Bay
- Males: areas throughout northern and southeastern parts of the LHIN and in and around Thunder Bay
- Adolescent females: areas throughout the LHIN and in Thunder Bay
- Adolescent males: areas throughout the northern, western and southeastern parts of the LHIN and in and around Thunder Bay

Smoking—ever-smoked status:

Priority areas:
- Females and males: majority of areas throughout the LHIN

Introduction

This section describes the estimated local prevalence of risk factors across the LHIN compared to the Ontario prevalence estimates from 2000 to 2014. These comparisons are always relative to Ontario with respect to the level of statistical evidence for the underlying prevalence estimate and often the number of areas meeting specific criteria are presented in parentheses (e.g., n=40). Risk factor maps are presented for females and males age 12 and older, and for adolescent females and adolescent males ages 12 to 18 inclusive. Throughout the text, the terms "area(s)" and "local" refer to the 2006 census dissemination areas (see the Data and Methods section, page 3).

Exclusions

As discussed in the Interpretation section (page 7), maps are shown only for risk factor estimates in the LHIN where one or more local estimates were higher than Ontario (or lower than Ontario for physical activity). Therefore, the risk factor maps not displayed for North West LHIN include:

- physical activity among males and adolescents for both sexes; and
- sedentary behaviour among males and adolescents for both sexes.

Notes

Risk factor prevalence could not be estimated for several areas in the North West LHIN (e.g., suppressed census populations or institutionalized populations), which are shown as "insufficient data" on the maps. These areas include many First Nations located in the LHIN. Additionally, areas with unavailable population data are shown as "insufficient data." See Appendix C for a full list of DAs in the insufficient data category.

Priority population estimates

Priority population estimates may be helpful in prioritizing health promotion and planning efforts for potential populations affected by certain modifiable risk factors. Table 14.1 (page 478) presents the estimated priority populations for each risk factor by sex and age group in the North West LHIN. Priority populations are defined as those living in areas with a higher risk factor prevalence (or lower prevalence for physical activity) than Ontario. These estimates were produced by summing the population from all higher (or lower for physical activity) prevalence small areas (2006 dissemination areas) after taking into account the risk factor prevalence of each area. For example, if among females 100 areas had a higher prevalence of current alcohol consumption than Ontario, the female 2006 census populations in each of these areas were multiplied by the prevalence of current alcohol consumption for each area and then summed across the 100 areas to produce an estimate of the female "priority population." These calculations are intended to provide a measure to prioritize the risk factors rather than a population estimate.

According to the Methods (page 4) and Interpretation (page 7) sections, these higher prevalence areas had strong statistical evidence of elevated prevalence compared to Ontario (posterior probabilities ≥ 80%). An exception is physical activity, which had strong statistical evidence of lower prevalence estimates than Ontario (posterior probabilities ≤ 20%). Therefore, the population estimates for each risk factor are likely undercounted because areas with less statistical certainty (posterior probabilities < 80% and physical activity posterior probabilities > 20%) are not included in the population estimates.

Table 14.1 Estimated priority populations among higher prevalence** dissemination areas compared to Ontario by risk factor, sex and age group, North West Local Health Integration Network (LHIN), using 2006 census populations

Risk factor	Female priority population*†	% of female population in the LHIN† (n=92,600)	Male priority population*†	% of male population in the LHIN† (n=88,980)	Adolescent female priority population*‡	% of adolescent female priority population in the LHIN‡ (n=9,630)	Adolescent males priority population*‡	% of adolescent male population in the LHIN‡ (n=10,240)
Alcohol—current consumption	50,630	55%	16,860	19%	4,180	43%	2,920	28%
Alcohol—consumption exceeding cancer prevention recommendations	2,060	2%	6,120	7%	NM	—	NM	—
Excess body weight	38,880	42%	53,970	61%	930	10%	20	0%
Inadequate vegetable and fruit consumption	34,940	38%	64,990	73%	170	2%	330	3%
Physical activity	280	0%	NE	—	NP	—	NP	—
Sedentary behaviour	3,930	4%	1,960	2%	NE	—	NE	—
Smoking—current status	16,450	18%	8,260	9%	1,060	11%	920	9%
Smoking—ever-smoked status	55,970	60%	59,330	67%	NM	—	NM	—

NE = no estimates within the "higher" prevalence categories**; NM = not modelled; NP = census population estimates not available
* Estimates rounded to multiples of 10
** For physical activity, priority populations are those living in areas with a lower risk factor prevalence compared to Ontario
† Population age 12 and older
‡ Population ages 12 to 18
— Value not applicable

Alcohol—current consumption

People age 12 and older

An estimated 70% of females and 79% of males in Ontario reported current alcohol consumption.

Higher prevalence than Ontario

Across the North West LHIN, more areas with a higher prevalence of alcohol consumption than the Ontario average were detected for females (n=275; Figure 14.1) compared to males (n=85; Figure 14.2). For females, these areas were located throughout the northern (e.g., Pikangikum and Fort Hope) and central (e.g., Red Lake Road, Dryden and Sioux Lookout) parts of the LHIN and in and around Thunder Bay. For males, higher prevalence areas occurred mainly in the northern parts of the LHIN (e.g., Pikangikum and Fort Hope), as well as in Thunder Bay.

Lower prevalence than Ontario

Few areas with a lower prevalence of current alcohol consumption than the Ontario average were found for females (n=9; Figure 14.1) or males (n=15; Figure 14.2). These areas were located in the southwestern part of the LHIN.

Adolescents

Among the adolescent population in Ontario, approximately 40% of females and males reported current alcohol consumption.

Higher prevalence than Ontario

Areas with a higher prevalence of current alcohol consumption than the Ontario average were more numerous for adolescent females (n=328; Figure 14.3) compared to adolescent males (n=225; Figure 14.4). For both sexes, higher prevalence areas occurred throughout the LHIN, but were more common in Thunder Bay for adolescent females than adolescent males.

Lower prevalence than Ontario

Most areas with a lower prevalence of current alcohol consumption for adolescent females (n=5; Figure 14.3) and adolescent males (n=26; Figure 14.4) were located in and around Thunder Bay.

Figure 14.1 Current alcohol consumption among females (age 12 and older), 2000–2014, North West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
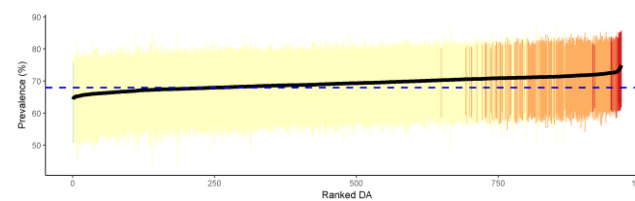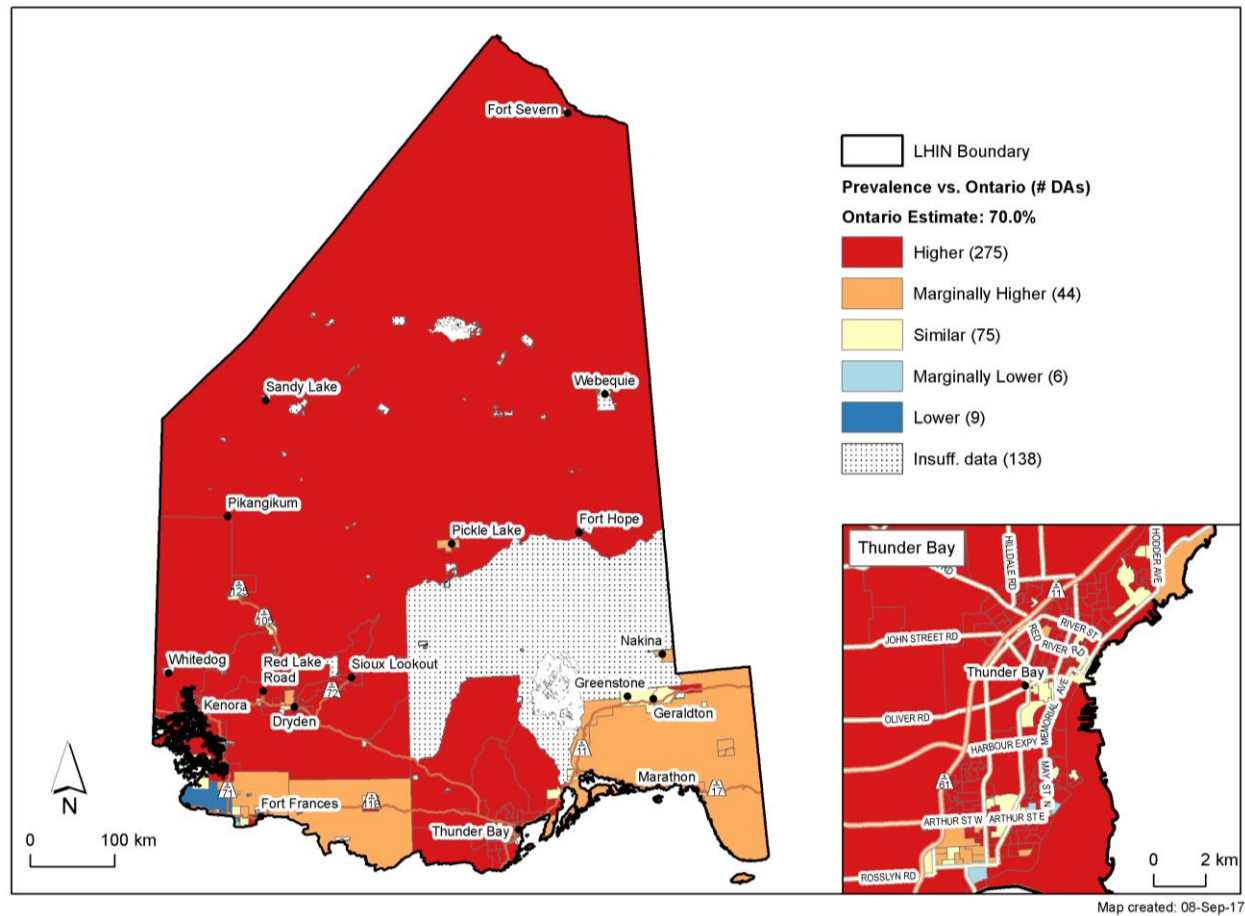

Category	Mean prevalence % (range)
Overall	75.7
Higher	78.0 (73.1, 87.3)
Marginally Higher	73.7 (72.1, 75.6)
Similar	70.9 (65.4, 73.4)
Marginally Lower	66.4 (64.3, 67.6)
Lower	59.8 (53.6, 62.4)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
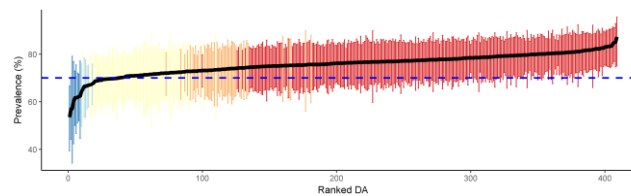
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
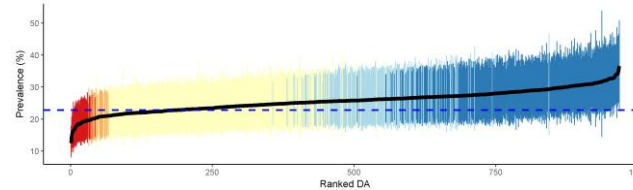
Figure 14.2 Current alcohol consumption among males (age 12 and older), 2000–2014, North West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
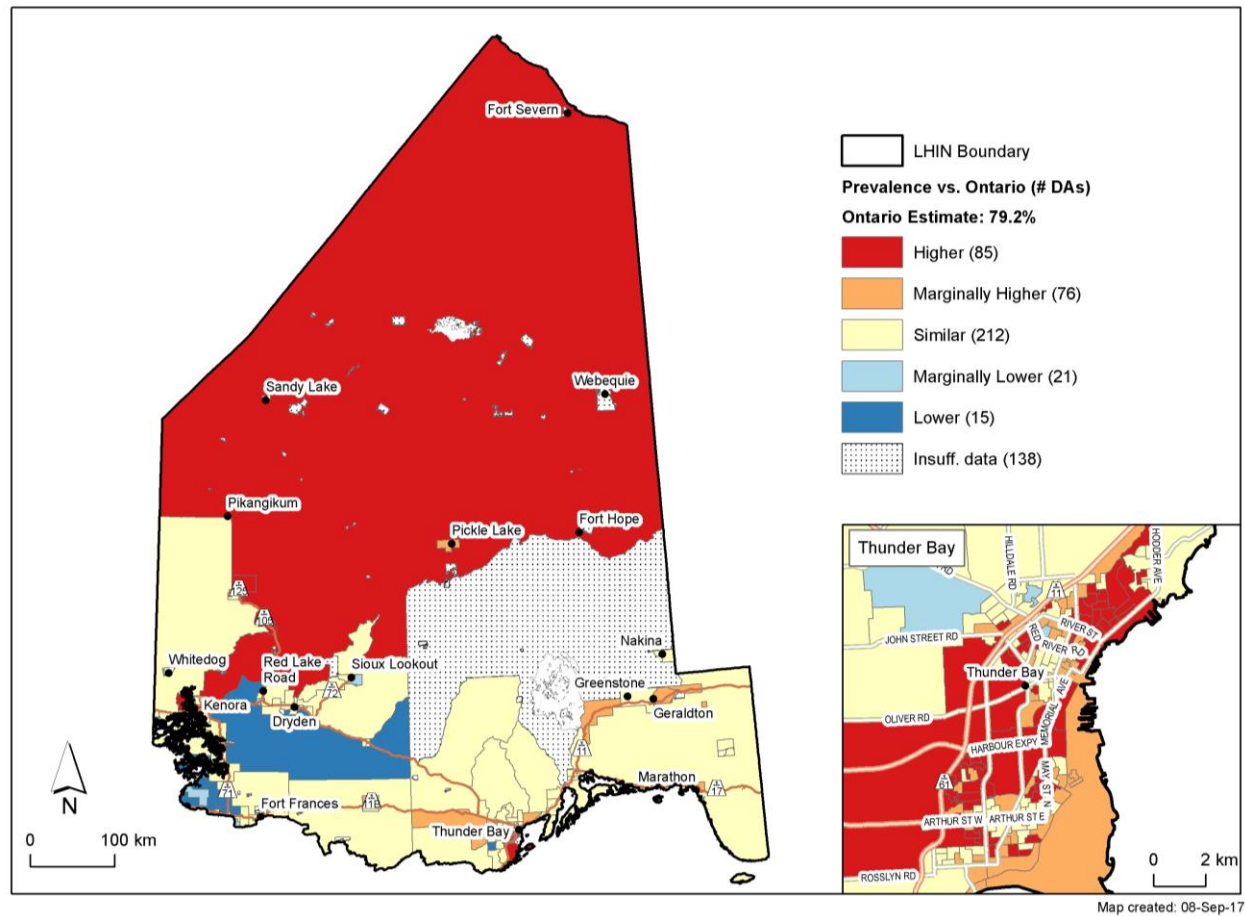
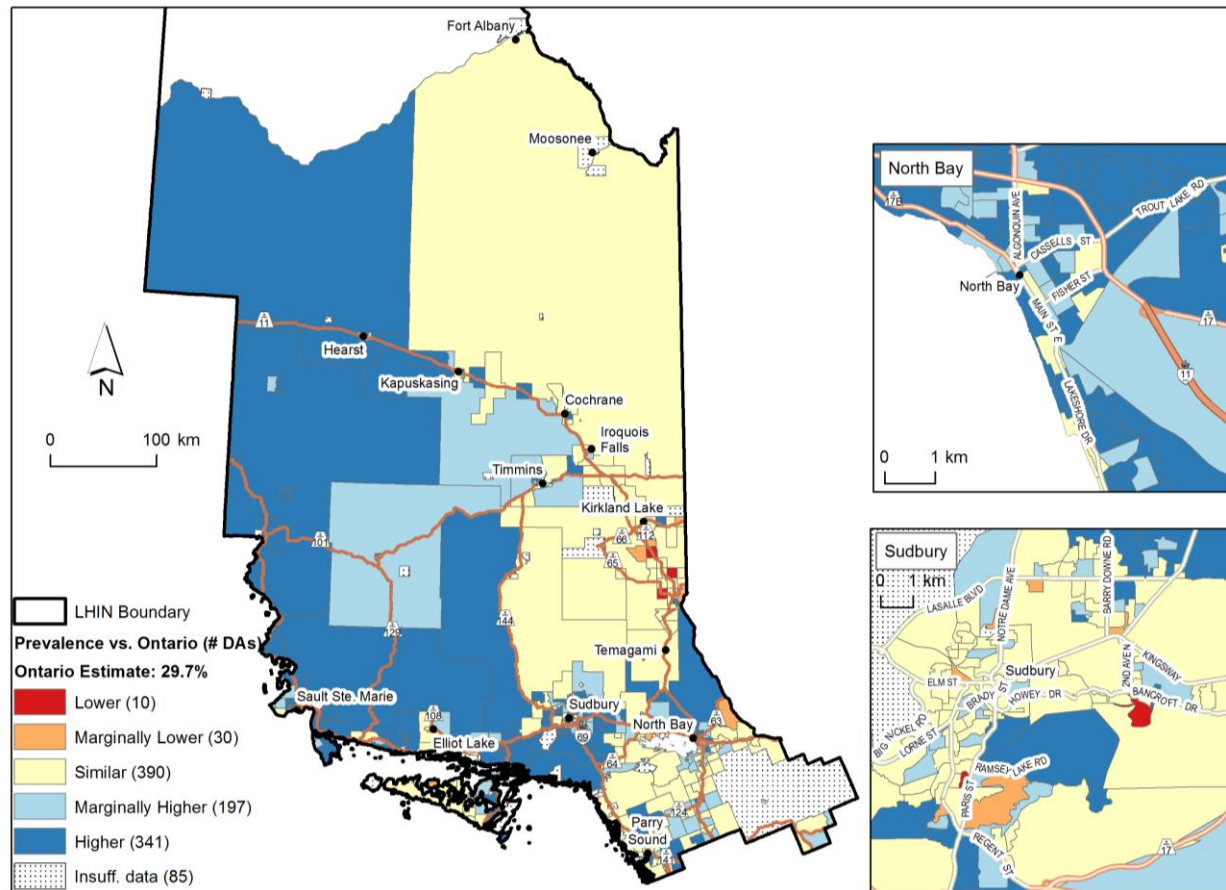| Category	Mean prevalence % (range)
Overall	80.1
Higher	83.4 (81.9, 87.7)
Marginally Higher	81.6 (80.7, 83.2)
Similar	79.1 (76.2, 81.4)
Marginally Lower	75.7 (73.8, 76.7)
Lower	72.7 (62.8, 76.3)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
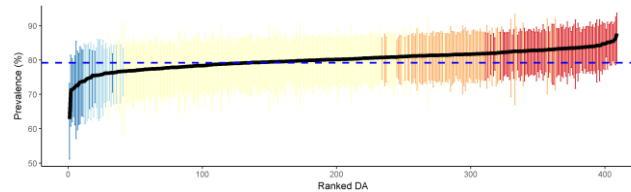
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 14.3 Current alcohol consumption among adolescent females (ages 12 to 18), 2000–2014, North West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
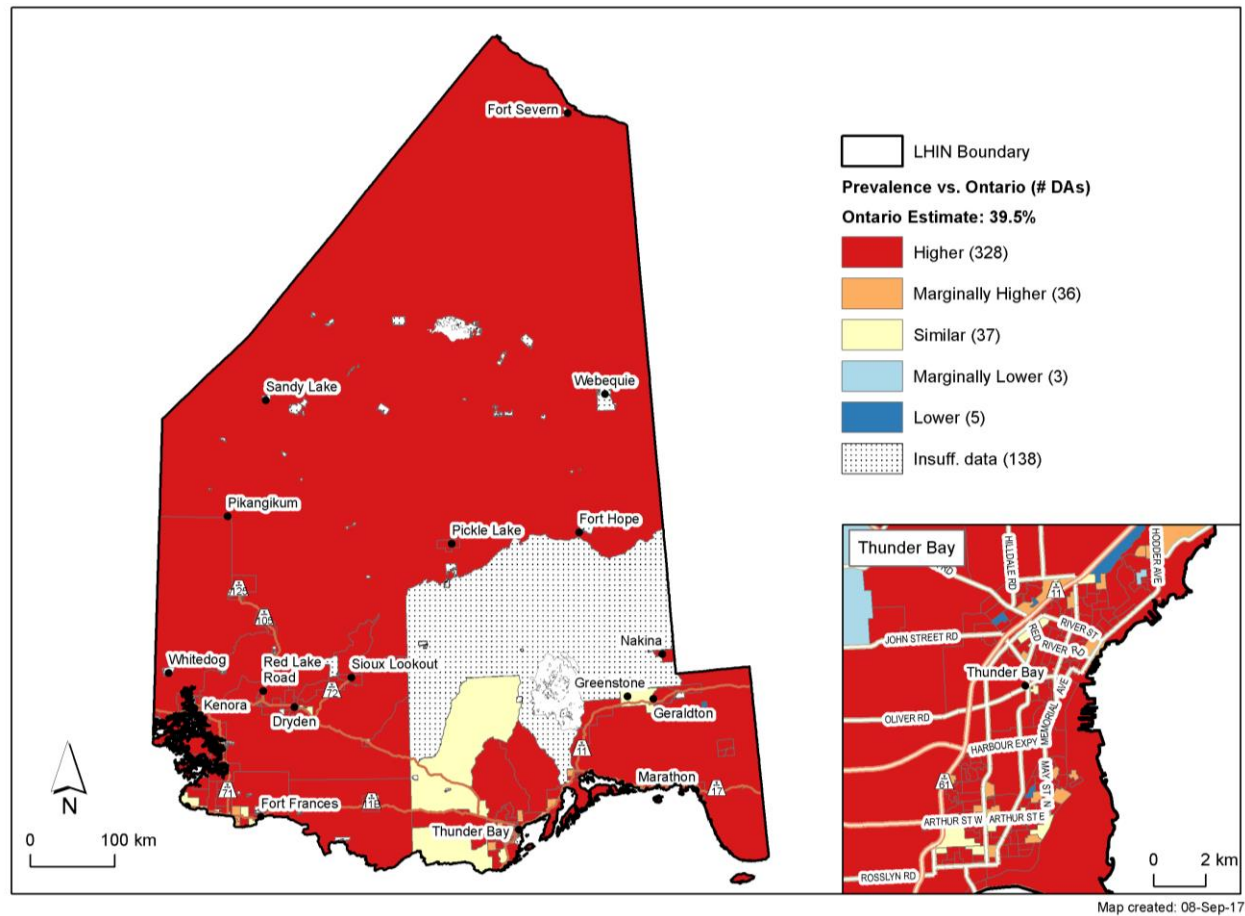
Category	Mean prevalence % (range)
Overall	49.9
Higher	52.1 (43.9, 73.7)
Marginally Higher	44.0 (42.3, 48.1)
Similar	40.3 (36.3, 43.2)
Marginally Lower	35.6 (35.5, 35.7)
Lower	31.5 (23.3, 34.6)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
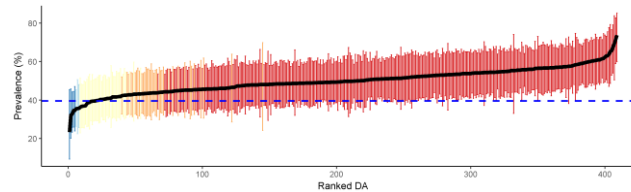
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 14.4 Current alcohol consumption among adolescent males (ages 12 to 18), 2000–2014, North West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	47.0
Higher	51.5 (45.2, 69.9)
Marginally Higher	45.2 (43.8, 49.0)
Similar	41.9 (37.8, 46.4)
Marginally Lower	37.6 (36.7, 38.3)
Lower	33.7 (19.6, 37.2)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Alcohol—consumption exceeding cancer prevention recommendations

People age 12 and older

Almost 7% of the female population in Ontario drank alcohol in excess of the recommended limits for cancer prevention. Among males, the Ontario prevalence of exceeding the recommended limits was 8.5%.

Higher prevalence than Ontario

Areas with a higher prevalence than the Ontario average of alcohol consumption in excess of cancer prevention recommended limits for females (n=92; Figure 14.5) were located mainly in the northern part of the LHIN (e.g., Pikangikum, Sioux Lookout) and areas west of and in Thunder Bay. Higher prevalence areas were more common for males (n=227; Figure 14.6) than females, and were located throughout the LHIN.

Lower prevalence than Ontario

Few areas had a lower prevalence than the Ontario average of alcohol consumption in excess of cancer prevention recommended limits for females (n=1; Figure 14.5) or males (n=1; Figure 14.6).

Adolescents

The area-based prevalence of exceeding cancer prevention recommendations was not estimated for adolescent populations.

Figure 14.5 Alcohol consumption exceeding cancer prevention recommendations among females (age 12 and older), 2000–2014, North West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
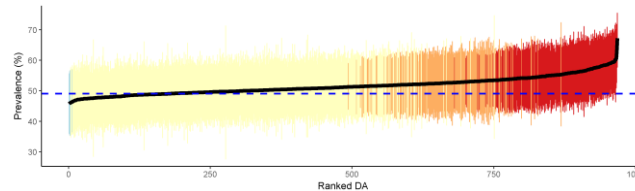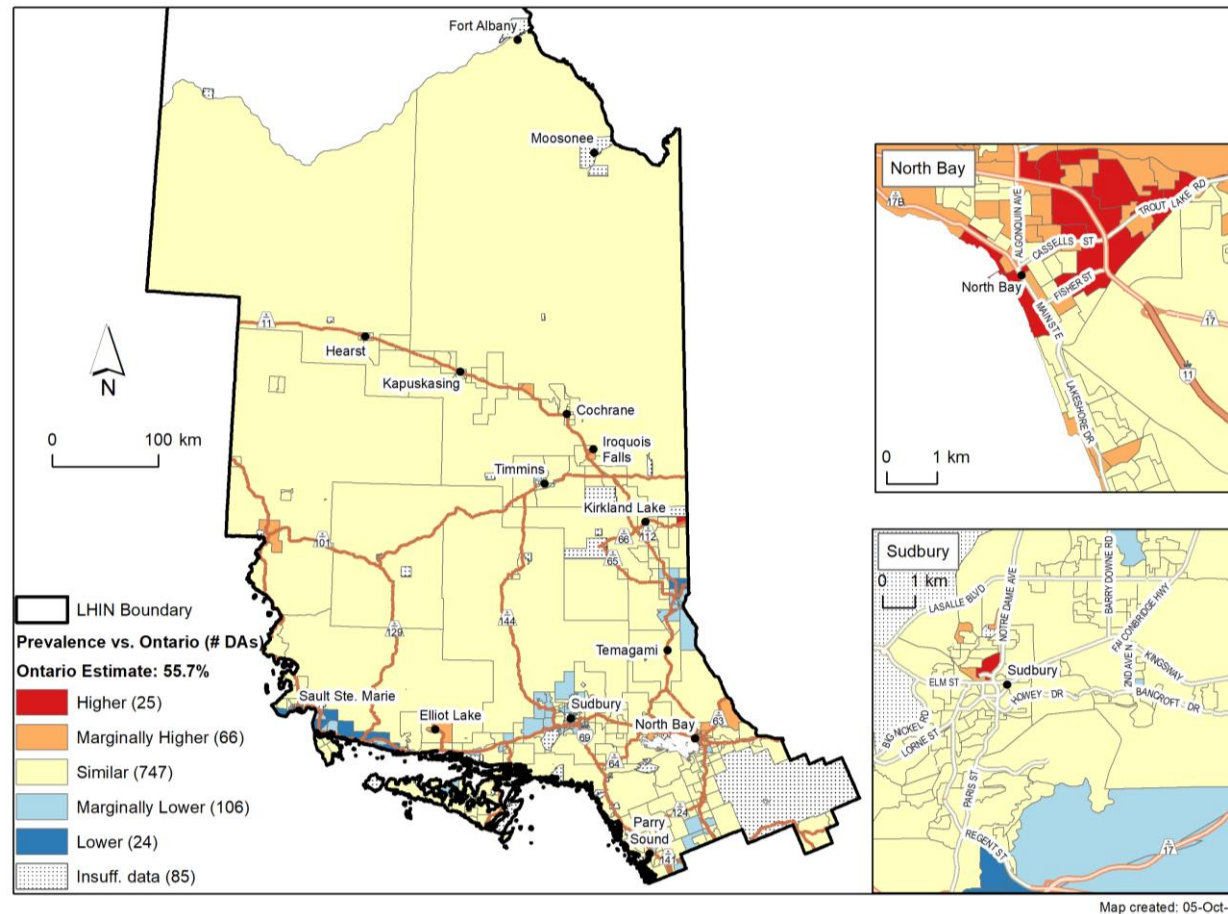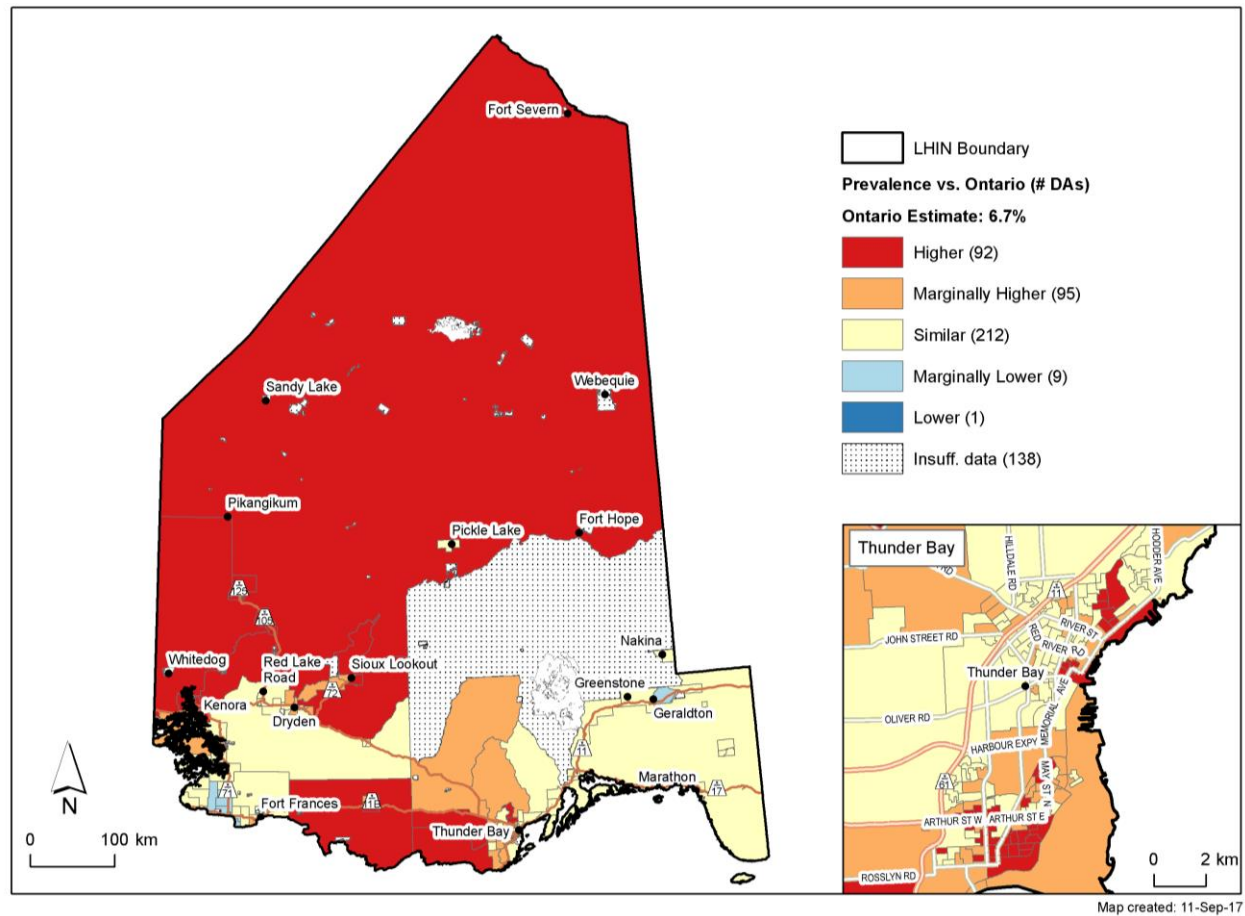

Category	Mean prevalence % (range)
Overall	8.3
Higher	10.0 (8.8, 18.3)
Marginally Higher	8.7 (7.9, 9.7)
Similar	7.4 (5.9, 9.6)
Marginally Lower	5.8 (5.4, 6.0)
Lower	4.4 (4.4, 4.4)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
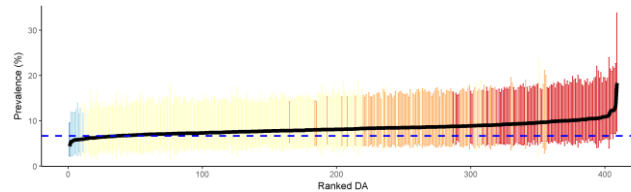
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 14.6 Alcohol consumption exceeding cancer prevention recommendations among males (age 12 and older), 2000–2014, North West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	11.1
Higher	11.9 (10.2, 16.7)
Marginally Higher	10.4 (9.6, 11.8)
Similar	9.6 (8.5, 11.5)
Marginally Lower	6.7 (6.2, 7.1)
Lower	6.2 (6.2, 6.2)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
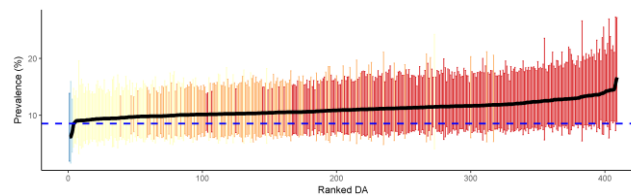
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Excess body weight

People age 12 and older

The estimated Ontario prevalence of excess body weight (overweight or obese) was 41% among females and 56% among males.

Higher prevalence than Ontario

Areas with a higher prevalence of excess body weight than the Ontario average were common across the LHIN for females (n=343; Figure 14.7) and males (n=385; Figure 14.8). In Thunder Bay, higher prevalence areas were more extensive for males than females.

Lower prevalence than Ontario

No areas with prevalence estimates lower than the Ontario average were found for females (Figure 14.7) or males (Figure 14.8).

Adolescents

Among Ontario adolescents, an estimated 15% of females and 25% of males were overweight or obese.

Higher prevalence than Ontario

Areas with a higher prevalence of excess body weight (overweight or obese) than the Ontario average for adolescent females (n=173; Figure 14.9) were located throughout the LHIN except for some areas in and around Thunder Bay. For adolescent males, higher prevalence areas were far less common (n=2; Figure 14.10) compared to adolescent females.

Lower prevalence than Ontario

Lower prevalence areas were not identified for adolescents (Figure 14.9 and Figure 14.10).

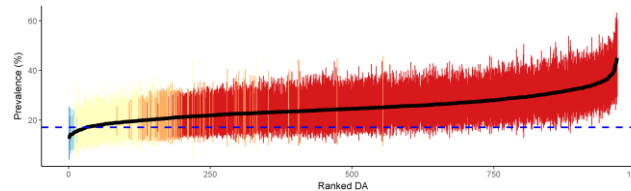**Figure 14.7** Excess body weight (overweight/obese) among females (age 12 and older), 2000–2014, North West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
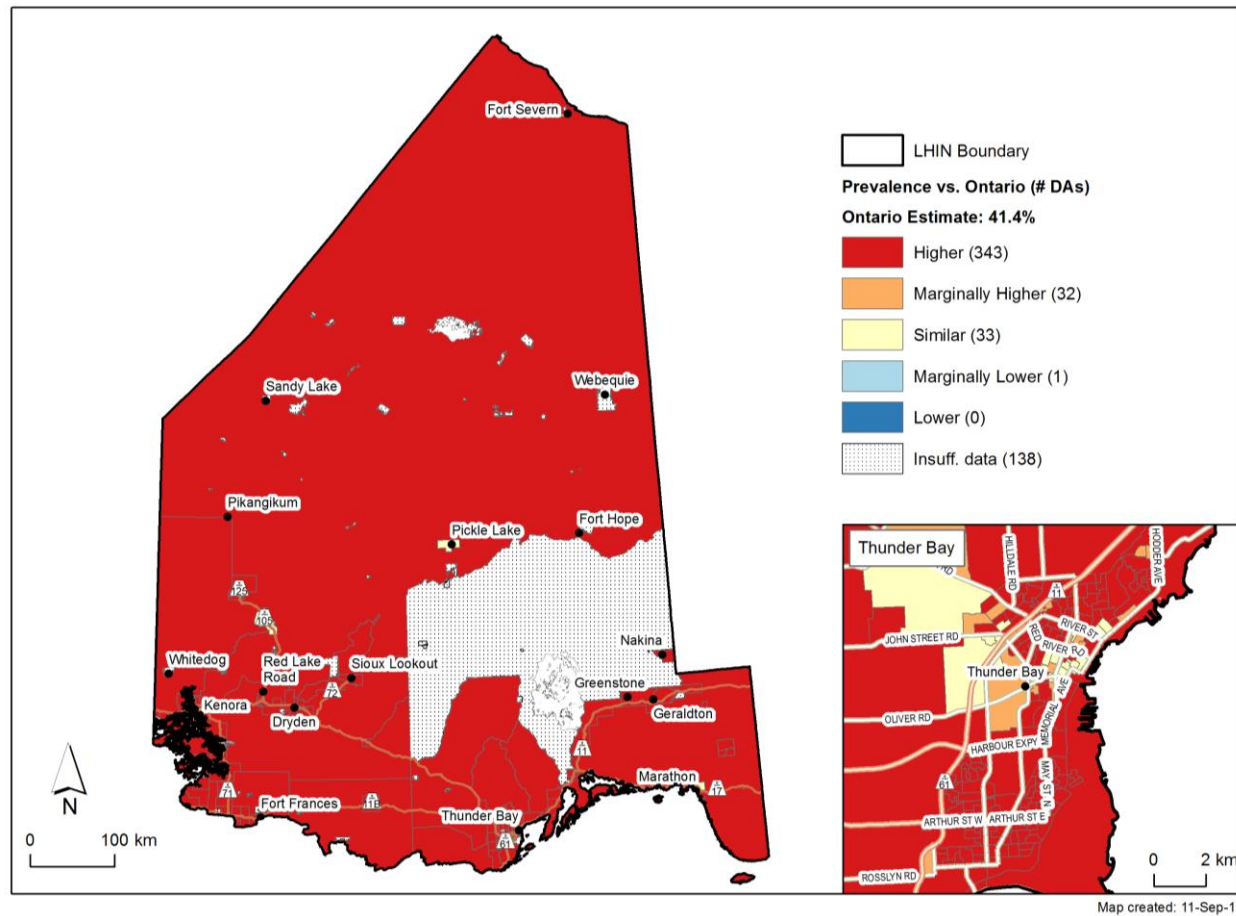
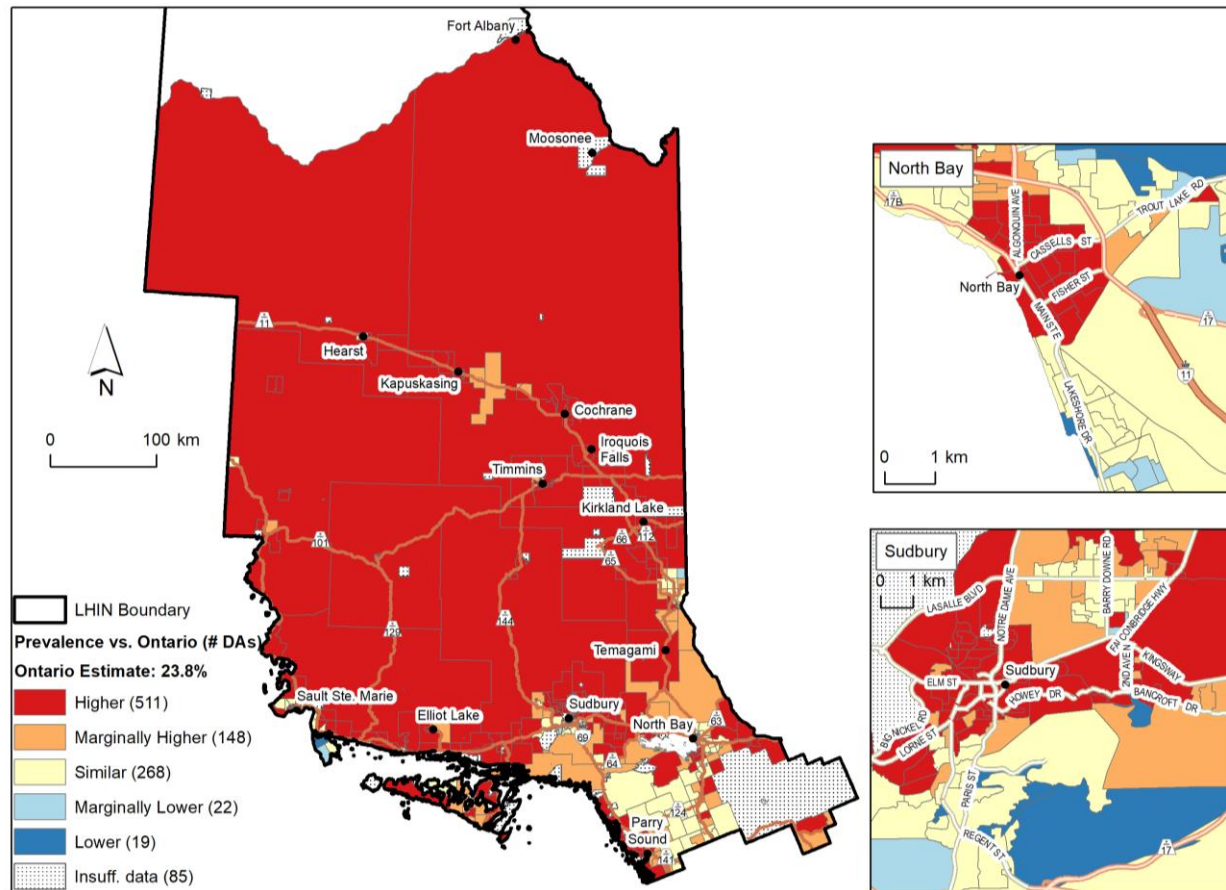| Category	Mean prevalence % (range)
Overall	49.3
Higher	50.4 (45.2, 62.5)
Marginally Higher	44.9 (43.4, 46.2)
Similar	42.3 (38.3, 44.0)
Marginally Lower	38.8 (38.8, 38.8)
Lower	N/A

N/A = no estimates in the category

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
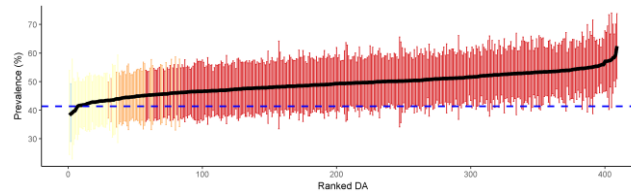
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 14.8 Excess body weight (overweight/obese) among males (age 12 and older), 2000–2014, North West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)

Category	Mean prevalence % (range)
Overall	63.9
Higher	64.2 (59.2, 70.2)
Marginally Higher	58.8 (58.2, 59.6)
Similar	56.7 (55.2, 58.0)
Marginally Lower	N/A
Lower	N/A

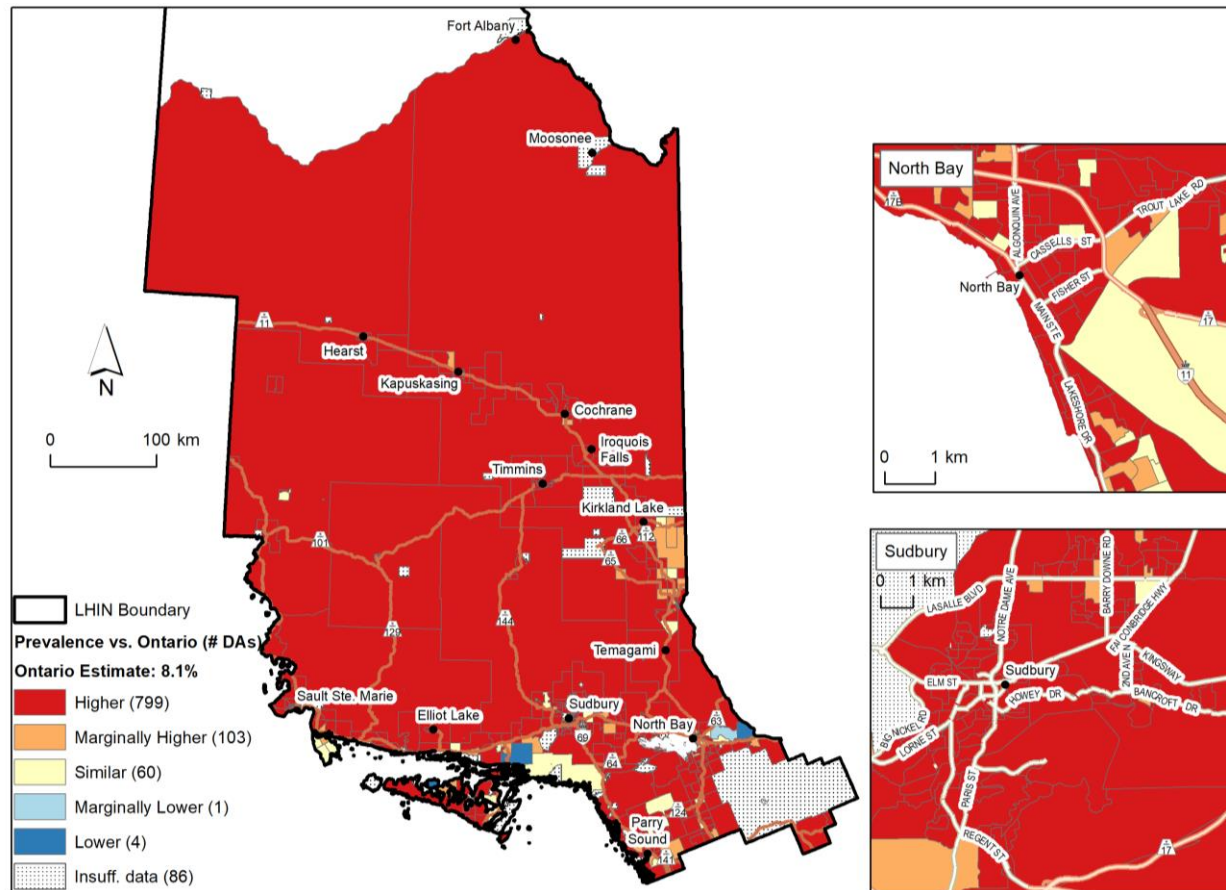N/A = no estimates in the category

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
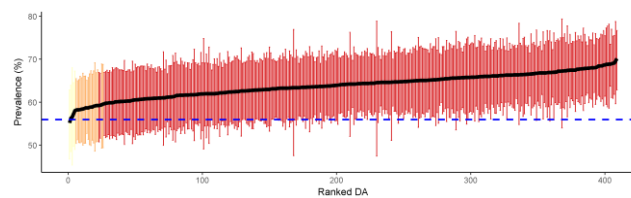
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
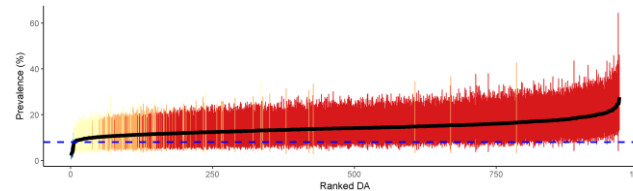
Figure 14.9 Excess body weight (overweight/obese) among adolescent females (ages 12 to 18), 2000–2014, North West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
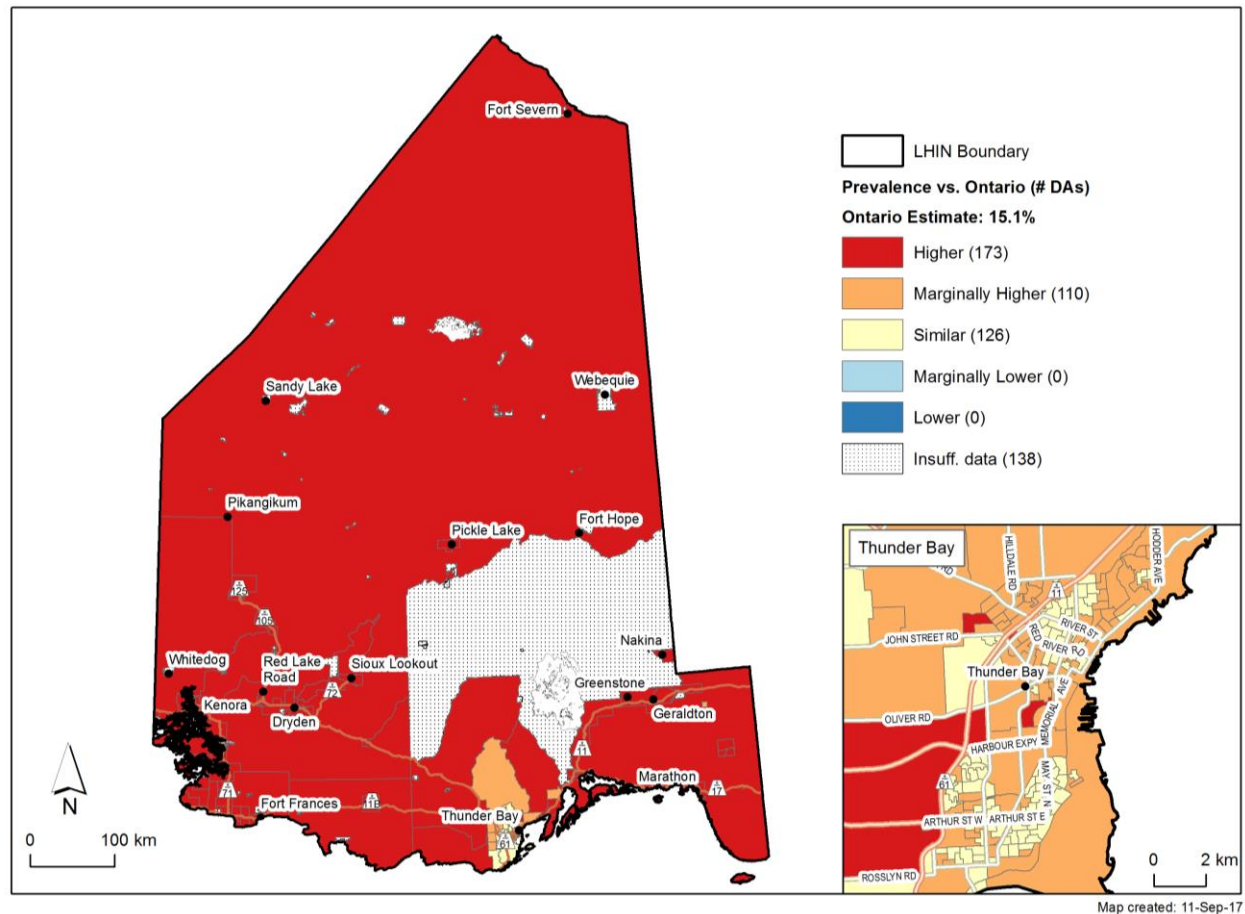
Category	Mean prevalence % (range)
Overall	19.8
Higher	22.3 (18.8, 27.7)
Marginally Higher	18.6 (17.6, 22.8)
Similar	17.6 (16.7, 18.8)
Marginally Lower	N/A
Lower	N/A

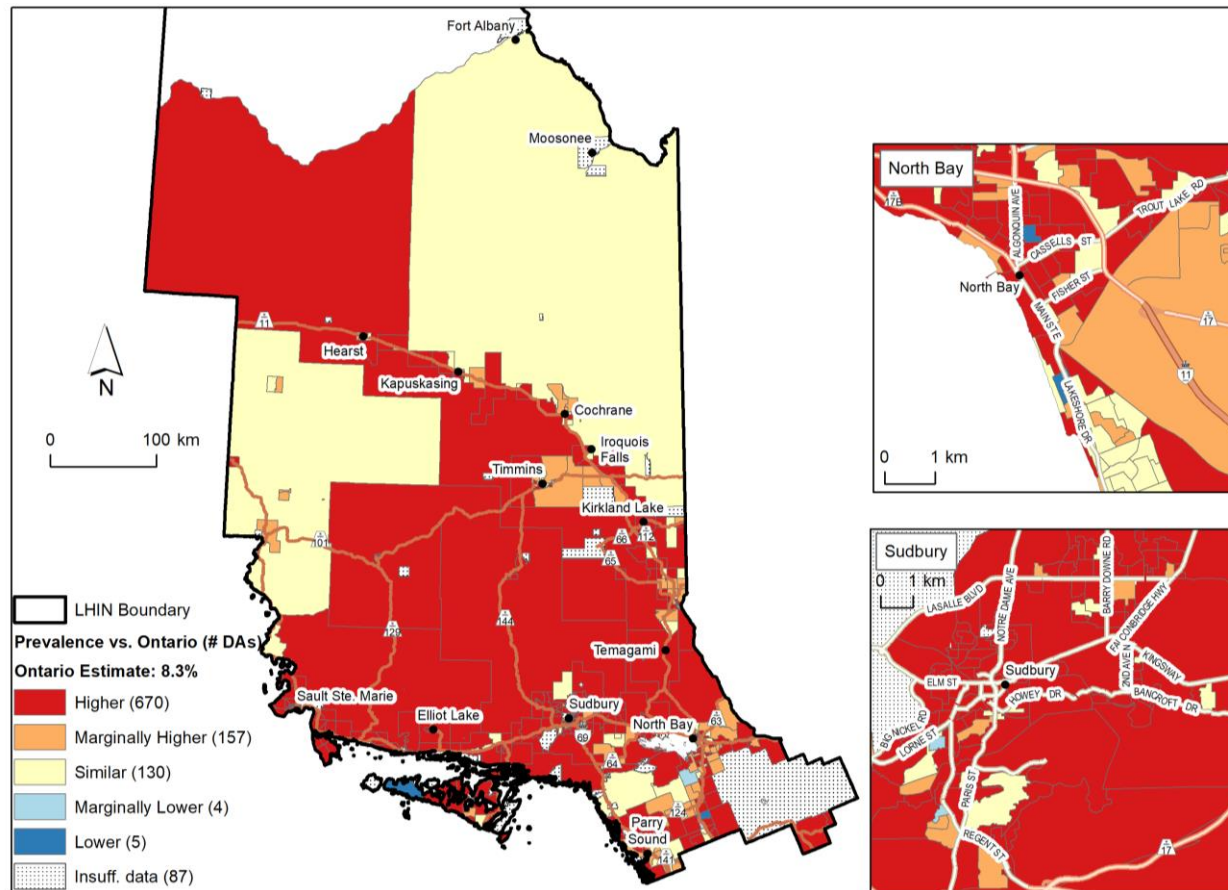N/A = no estimates in the category

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
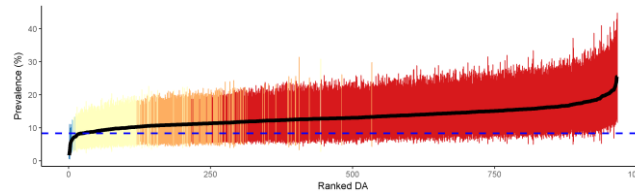
Category	Mean prevalence % (range)
Overall	26.0
Higher	31.3 (30.6, 32.1)
Marginally Higher	29.2 (28.7, 30.0)
Similar	25.9 (23.1, 28.9)
Marginally Lower	22.0 (21.7, 22.2)
Lower	N/A

N/A = no estimates in the category

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Inadequate vegetable and fruit consumption

People age 12 and older

Inadequate consumption of vegetables and fruits was common across Ontario, with approximately 63% of females and 77% of males reporting inadequate consumption.

Higher prevalence than Ontario

Across the North West LHIN, fewer areas with a higher prevalence of inadequate vegetable and fruit consumption than the Ontario average were found for females (n=221; Figure 14.11) compared to males (n=367; Figure 14.12). For females, higher prevalence areas occurred throughout the northern (e.g., Pikangikum and Fort Hope) and southeastern (e.g., Nakina, Greenstone, Geraldton and Marathon) parts of the LHIN, and in Thunder Bay. Higher prevalence areas for males were located also throughout the LHIN, except in central parts of Thunder Bay.

Lower prevalence than Ontario

Few areas with a lower prevalence of inadequate vegetable and fruit consumption than the Ontario average were identified for females (n=3; Figure 14.11). No areas with adequate consumption (lower prevalence) were identified for males (Figure 14.12).

Adolescents

More than two-thirds of the adolescent Ontario population had inadequate vegetable and fruit consumption, at approximately 68% for females and 74% for males.

Higher prevalence than Ontario

Across the LHIN, areas with a higher prevalence of inadequate vegetable and fruit consumption than the Ontario average were not common for adolescent females (n=7; Figure 14.13). These areas were located in the southeastern and southwestern parts of the LHIN. Higher prevalence areas were more common for adolescent males (n=19; Figure 14.14) compared to adolescent females and were also located in the southeastern and southwestern parts of the LHIN.

Lower prevalence than Ontario

Areas of adequate vegetable and fruit consumption for adolescents were not detected in the North West LHIN (Figure 14.13 and Figure 14.14).

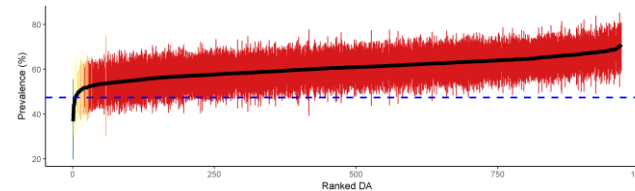**Figure 14.11** Inadequate vegetable and fruit consumption among females (age 12 and older), 2000–2014, North West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
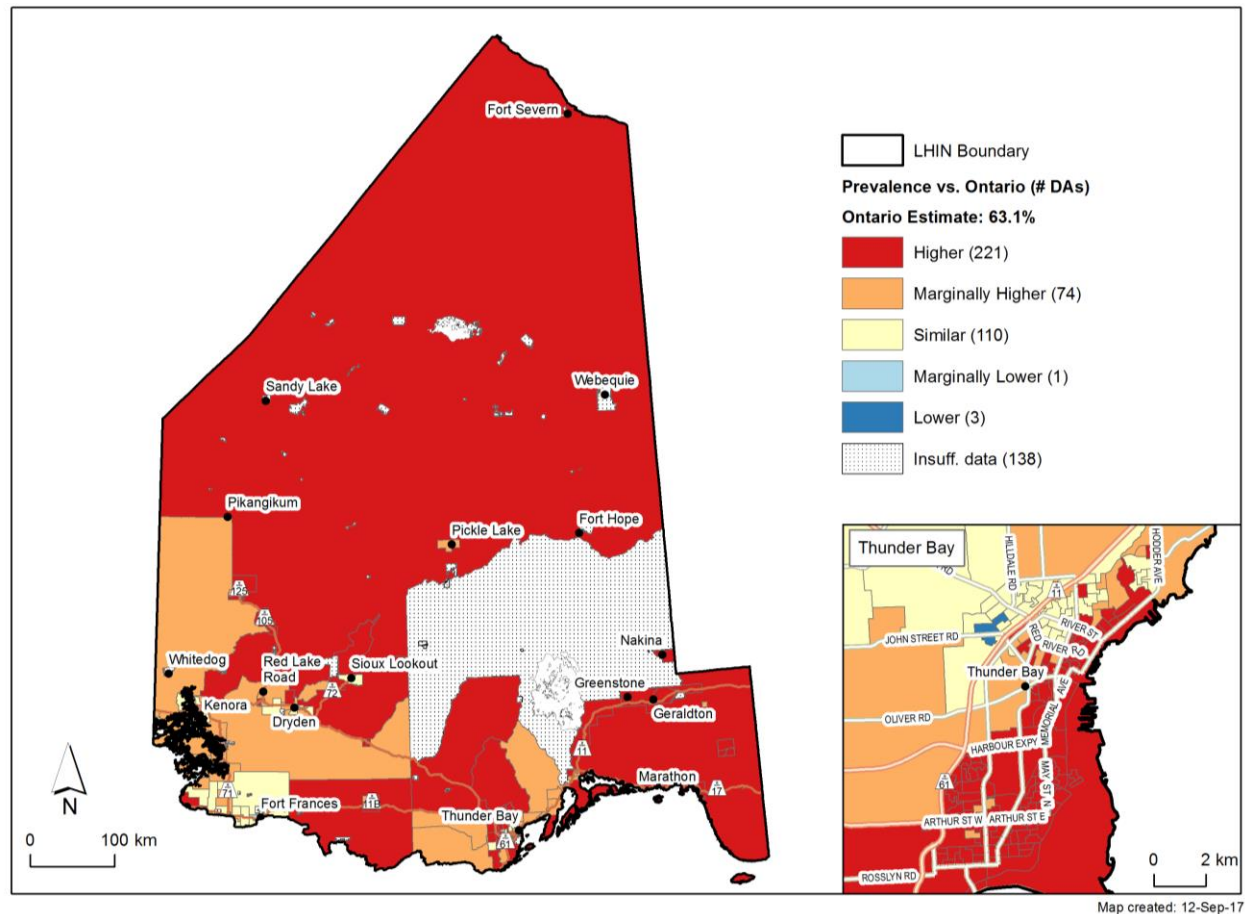
Category	Mean prevalence % (range)
Overall	67.6
Higher	69.9 (66.5, 74.7)
Marginally Higher	66.3 (65.2, 69.4)
Similar	64.0 (60.3, 66.0)
Marginally Lower	59.6 (59.6, 59.6)
Lower	58.1 (57.2, 58.6)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
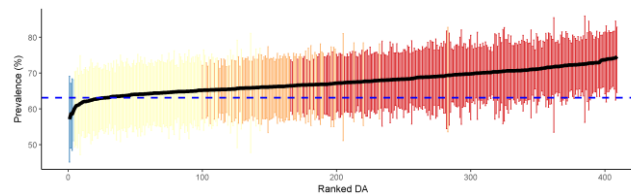
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 14.12 Inadequate vegetable and fruit consumption among males (age 12 and older), 2000–2014, North West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
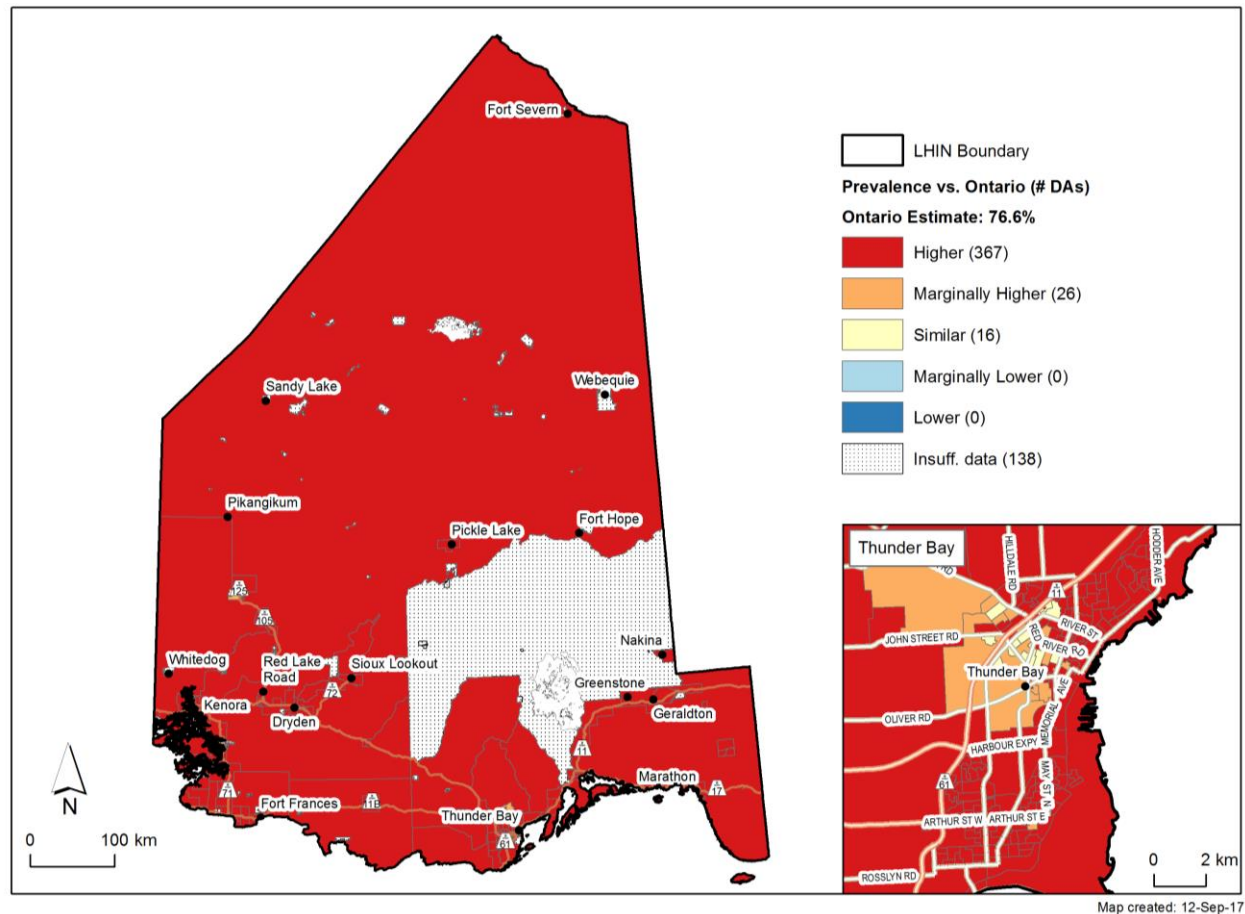
Category	Mean prevalence % (range)
Overall	82.0
Higher	82.4 (78.8, 87.7)
Marginally Higher	79.1 (78.3, 81.6)
Similar	77.4 (75.7, 78.8)
Marginally Lower	N/A
Lower	N/A

N/A = no estimates in the category

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
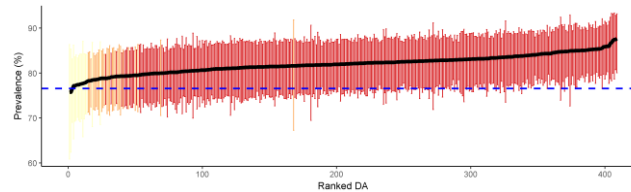
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 14.13 Inadequate vegetable and fruit consumption among adolescent females (ages 12 to 18), 2000–2014, North West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
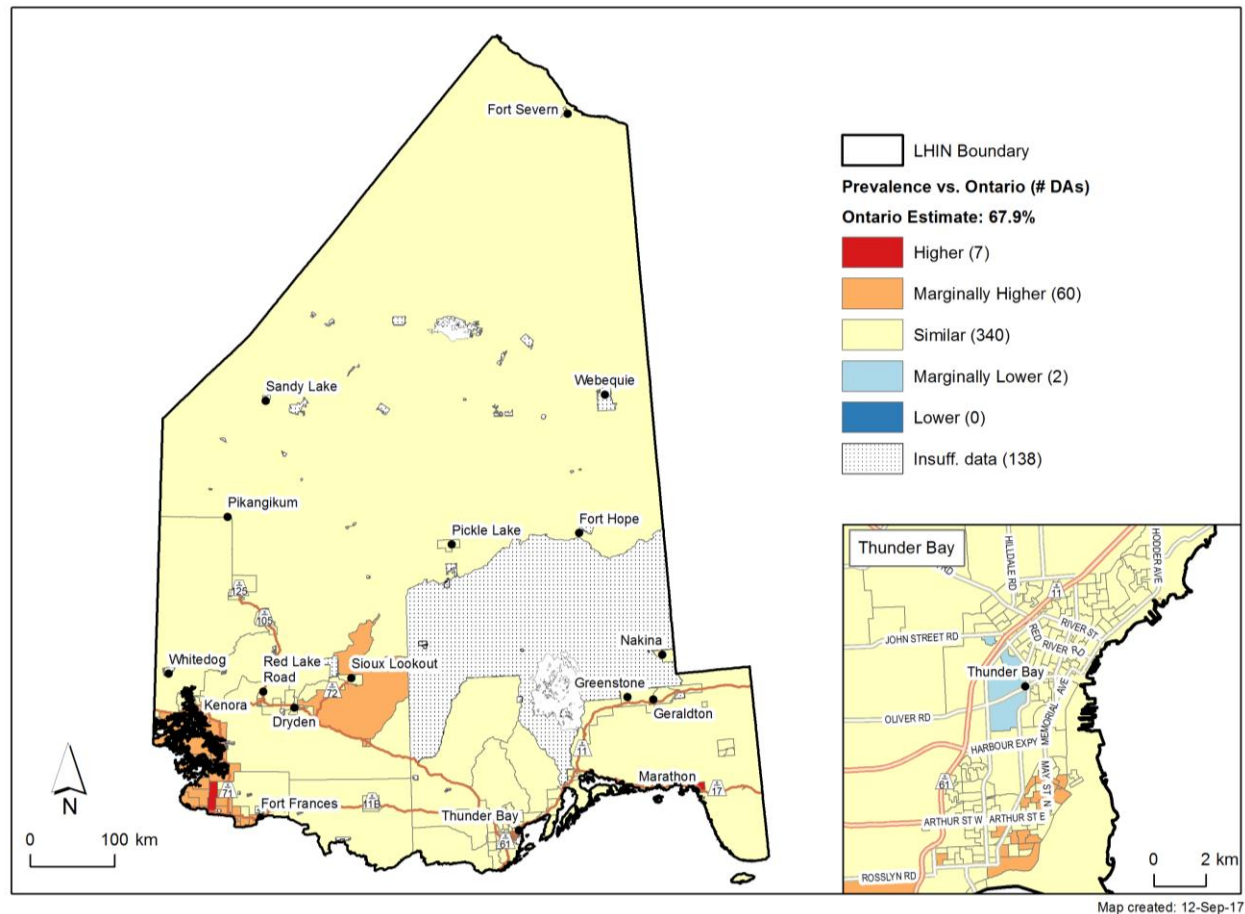
Category	Mean prevalence % (range)
Overall	69.5
Higher	75.7 (72.6, 77.1)
Marginally Higher	71.7 (70.4, 75.3)
Similar	69.0 (65.3, 71.2)
Marginally Lower	63.8 (63.2, 64.4)
Lower	N/A

N/A = no estimates in the category

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
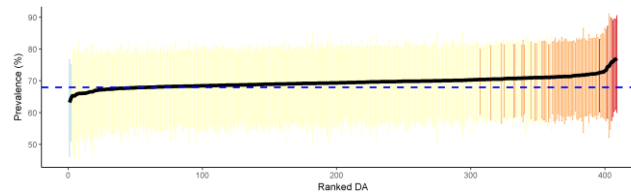
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 14.14 Inadequate vegetable and fruit consumption among adolescent males (ages 12 to 18), 2000–2014, North West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
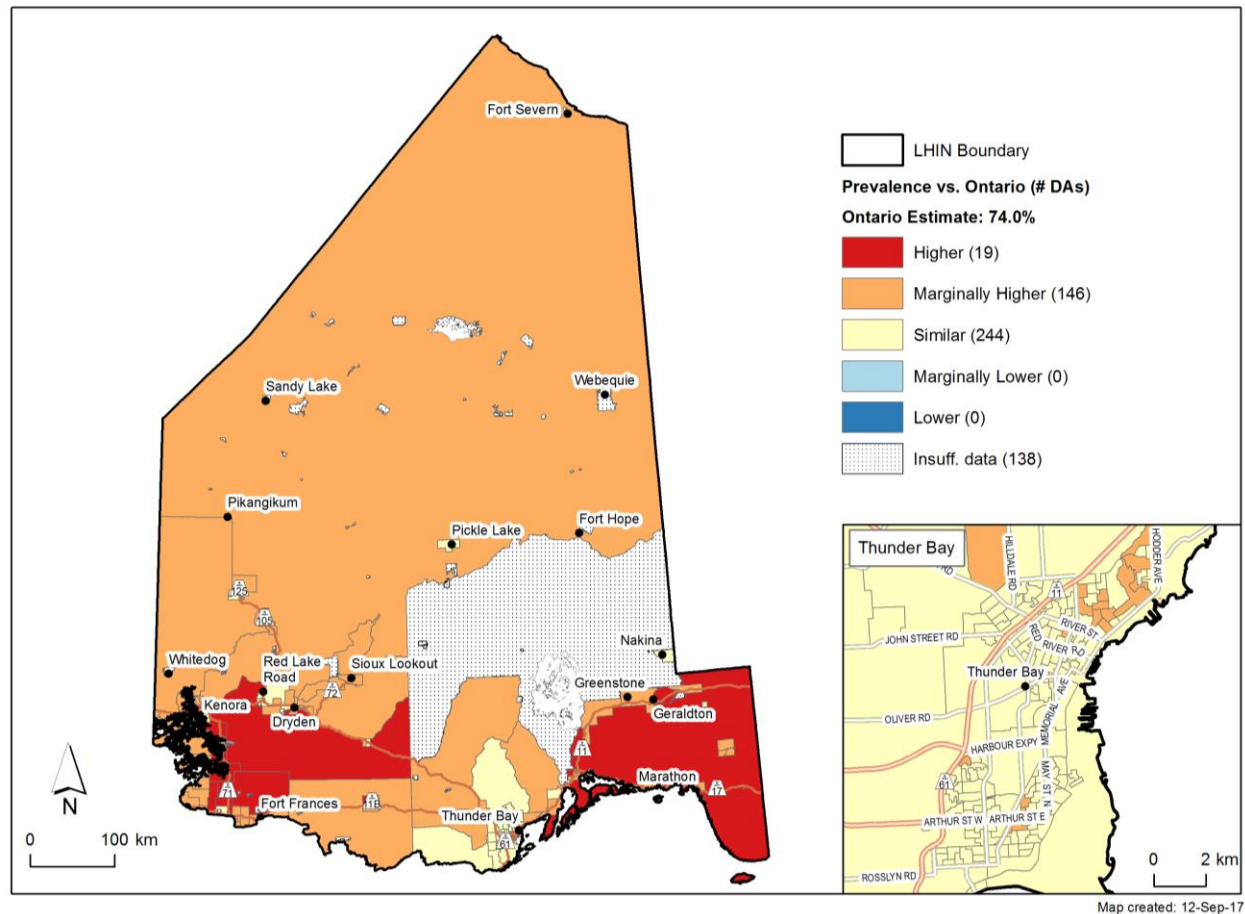
Category	Mean prevalence % (range)
Overall	76.0
Higher	78.1 (77.1, 78.8)
Marginally Higher	77.1 (75.9, 78.9)
Similar	75.1 (72.9, 77.0)
Marginally Lower	N/A
Lower	N/A

N/A = no estimates in the category

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals

Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Physical activity

Because physical activity reduces cancer risk, lower prevalence estimates of this risk factor are of interest. The colour scheme of the maps was inverted so that the "lower than Ontario" estimates are displayed in red.

People age 12 and older

Most of the Ontario population was not physically active, with approximately one in five (23%) females and one in three (30%) males being physically active.

Lower prevalence than Ontario

Across the LHIN, areas with a lower prevalence of physical than the Ontario average for females (n=5; Figure 14.15) were located in some parts of Thunder Bay. No lower prevalence areas were detected for males in the North West LHIN.

Higher prevalence than Ontario

Aeas with a higher prevalence of physical activity than the Ontario average for females (n=289; Figure 14.15) were located throughout the LHIN in areas near Pikangikum, Pickle Lake, Fort Hope, Kenora, Dryden, Sioux Lookout, Nakina, Geraldton and Marathon, and in Thunder Bay.

Adolescents

Adolescents were more physically active than adults, with approximately 40% of adolescent females and 57% of adolescent males being active. There were no areas with a lower prevalence than the Ontario average for adolescents in the North West LHIN, which is why those maps are not shown.

Figure 14.15 Physical activity among females (age 12 and older), 2000–2014, North West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
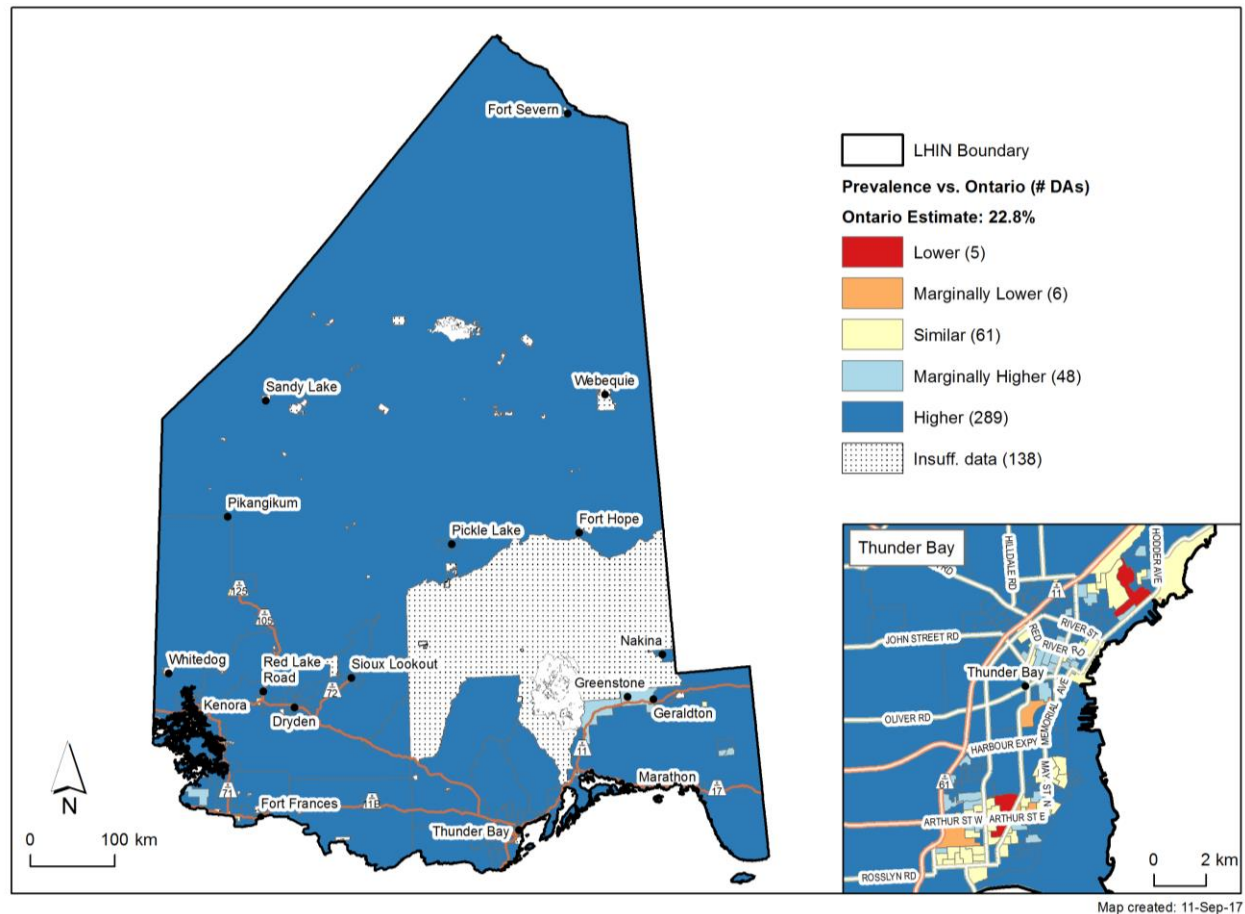
Category	Mean prevalence % (range)
Overall	28.7
Lower	18.1 (16.7, 19.0)
Marginally Lower	20.6 (19.9, 21.0)
Similar	24.1 (21.3, 27.0)
Marginally Higher	26.2 (25.1, 28.5)
Higher	30.4 (26.3, 37.7)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
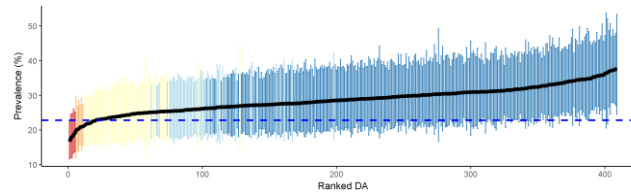
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Sedentary behaviour

People age 12 and older

Approximately half of the Ontario population reported sedentary behaviour during leisure time (females, 49%; males, 56%).

Higher prevalence than Ontario

There were 27 areas with a higher prevalence of sedentary behaviour than the Ontario average for females (Figure 14.16). These areas were located in Thunder Bay. For males (Figure 14.17), there were 15 higher prevalence areas located in Thunder Bay.

Lower prevalence than Ontario

Areas with a lower prevalence of sedentary behaviour than the Ontario average for females were located in the southern part of the LHIN (n=60; Figure 14.16). These areas were mainly clustered around Fort Frances and in and around Thunder Bay. For males, many lower prevalence areas (n=32, Figure 14.17) were clustered in the western part of the LHIN, around Red Lake Road, Dryden, Sioux Lookout, and around Thunder Bay.

Adolescents

More than half of the Ontario adolescent population reported sedentary behaviour during leisure time, at approximately 55% for females and 60% for males. In the North West LHIN, no areas with a higher prevalence than Ontario were detected for adolescents, which is why those maps are not shown.

Figure 14.16 Sedentary behaviour among females (age 12 and older), 2000–2014, North West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
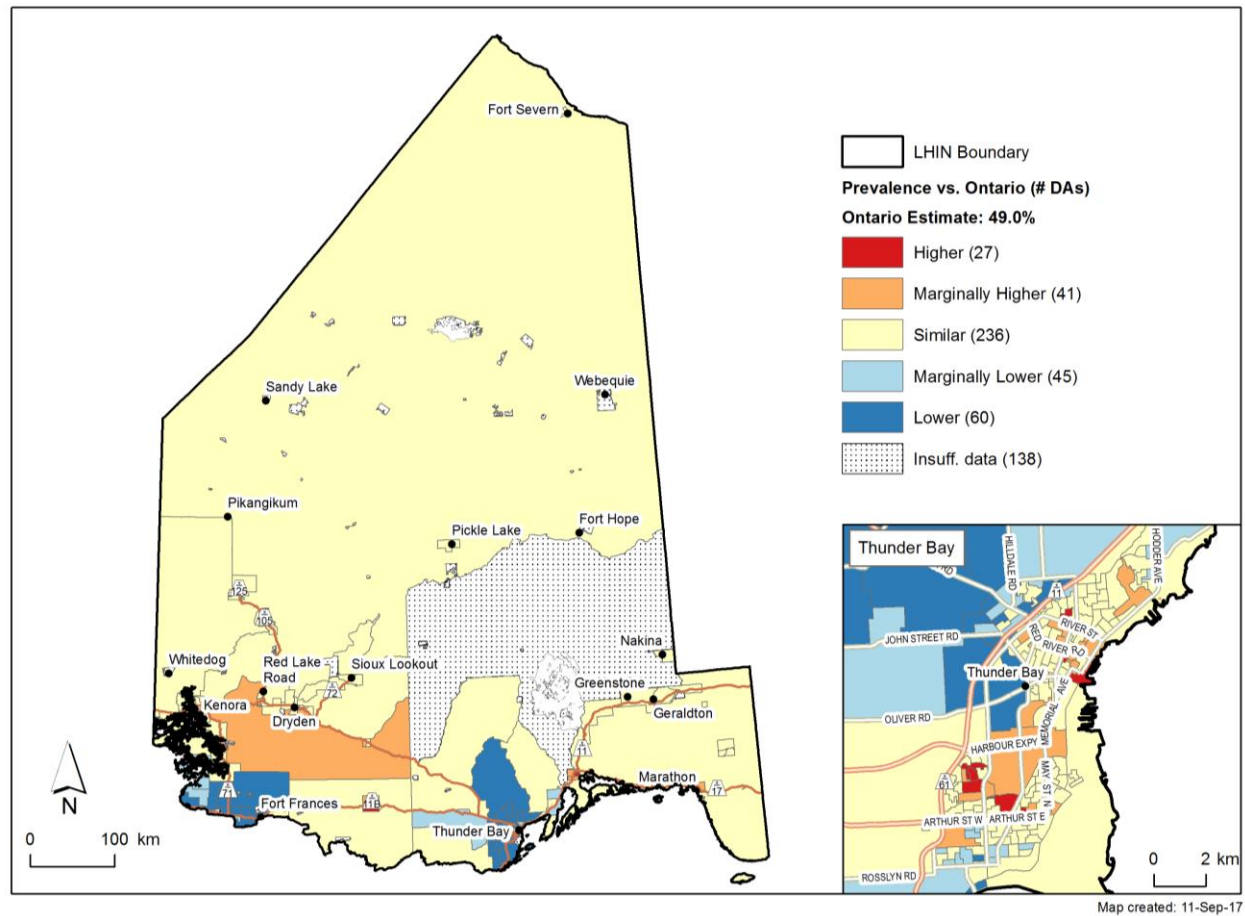
Category	Mean prevalence % (range)
Overall	48.5
Higher	55.1 (53.0, 58.6)
Marginally Higher	52.8 (51.3, 55.7)
Similar	49.1 (45.1, 52.8)
Marginally Lower	45.6 (42.3, 46.5)
Lower	42.4 (38.1, 46.0)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
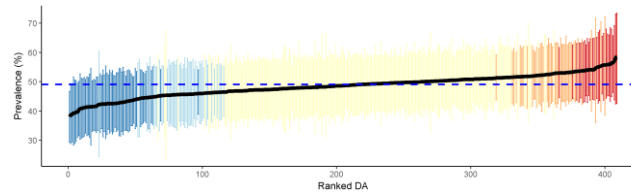
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 14.17 Sedentary behaviour among males (age 12 and older), 2000–2014, North West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
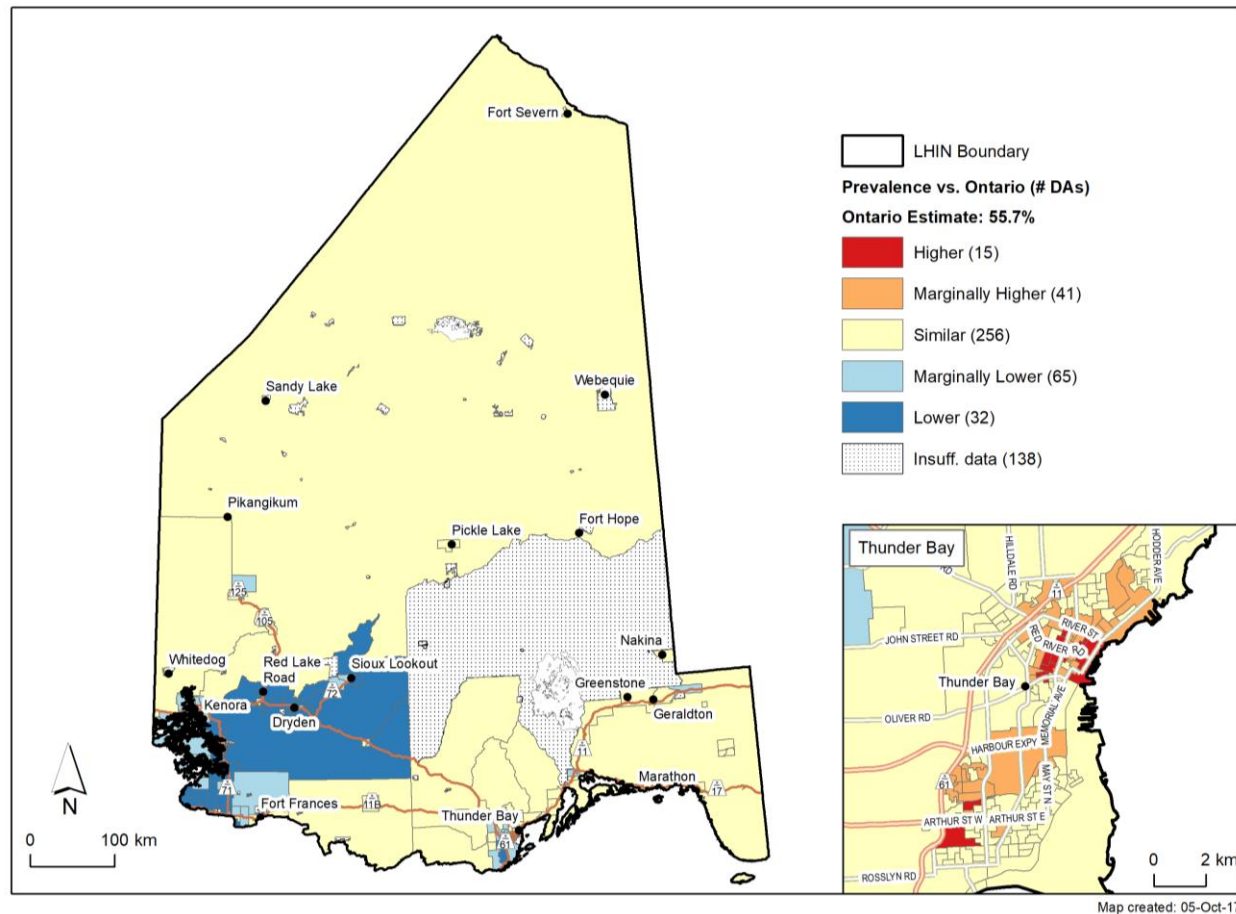
Category	Mean prevalence % (range)
Overall	55.0
Higher	60.8 (59.7, 62.1)
Marginally Higher	59.3 (58.1, 60.8)
Similar	55.6 (49.3, 59.2)
Marginally Lower	51.3 (46.5, 52.7)
Lower	49.3 (45.2, 51.5)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
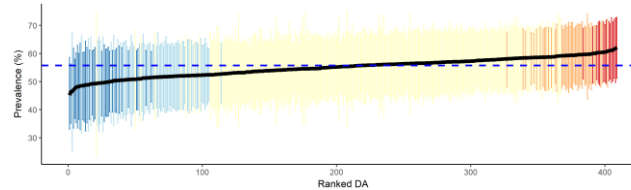
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Smoking—current status

People age 12 and older

Current tobacco smoking was reported by 17% of Ontario females and 24% of males.

Higher prevalence than Ontario

Across the LHIN, most areas with a higher prevalence of current smoking compared to the Ontario average for females (n=272; Figure 14.18) were located across the LHIN, except in areas near Fort Frances and in parts of Thunder Bay. For males, higher prevalence areas (n=117; Figure 14.19) were located in the northern and southeastern parts of the LHIN, near Pikangikum, Pickle Lake, Fort Hope, Kenora, Red Lake Road, Nakina, Geraldton and Marathon. For males, additional higher prevalence areas were located in and around Thunder Bay.

Lower prevalence than Ontario

For females, few lower prevalence areas were detected (n=6; Figure 14.18). These were located near Fort Frances. Areas with a lower prevalence of current smoking for males (n=15; Figure 14.19) were also located near Fort Frances and in parts of Thunder Bay.

Adolescents

Approximately 8% of adolescent females and adolescent males reported smoking tobacco.

Higher prevalence than Ontario

Areas with a higher prevalence of current smoking than Ontario were slightly more common for adolescent females (n=307; Figure 14.20) than adolescent males (n=262; Figure 14.21). For adolescent females, higher prevalence areas occurred throughout the LHIN, including areas near Pikangikum, Fort Hope, Kenora, Red Lake Road, Sioux Lookout, Dryden and Fort Frances. Higher prevalence areas were also located in the southeastern part of the LHIN, in Thunder Bay and around Nakina, Greenstone, Geraldton and Marathon. For adolescent males, areas with a higher prevalence of current smoking also occurred around Pikangikum, Fort Hope, Kenora, Dryden, Fort Frances, Geraldton and Marathon, as well as areas in and around Thunder Bay, but were less common near Thunder Bay and Red Lake Road.

Lower prevalence than Ontario

Across the LHIN, lower prevalence areas were uncommon for adolescent females (n=1; Figure 14.20) and adolescent males (n=2; Figure 14.21).

Figure 14.18 Current smoking among females (age 12 and older), 2000–2014, North West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
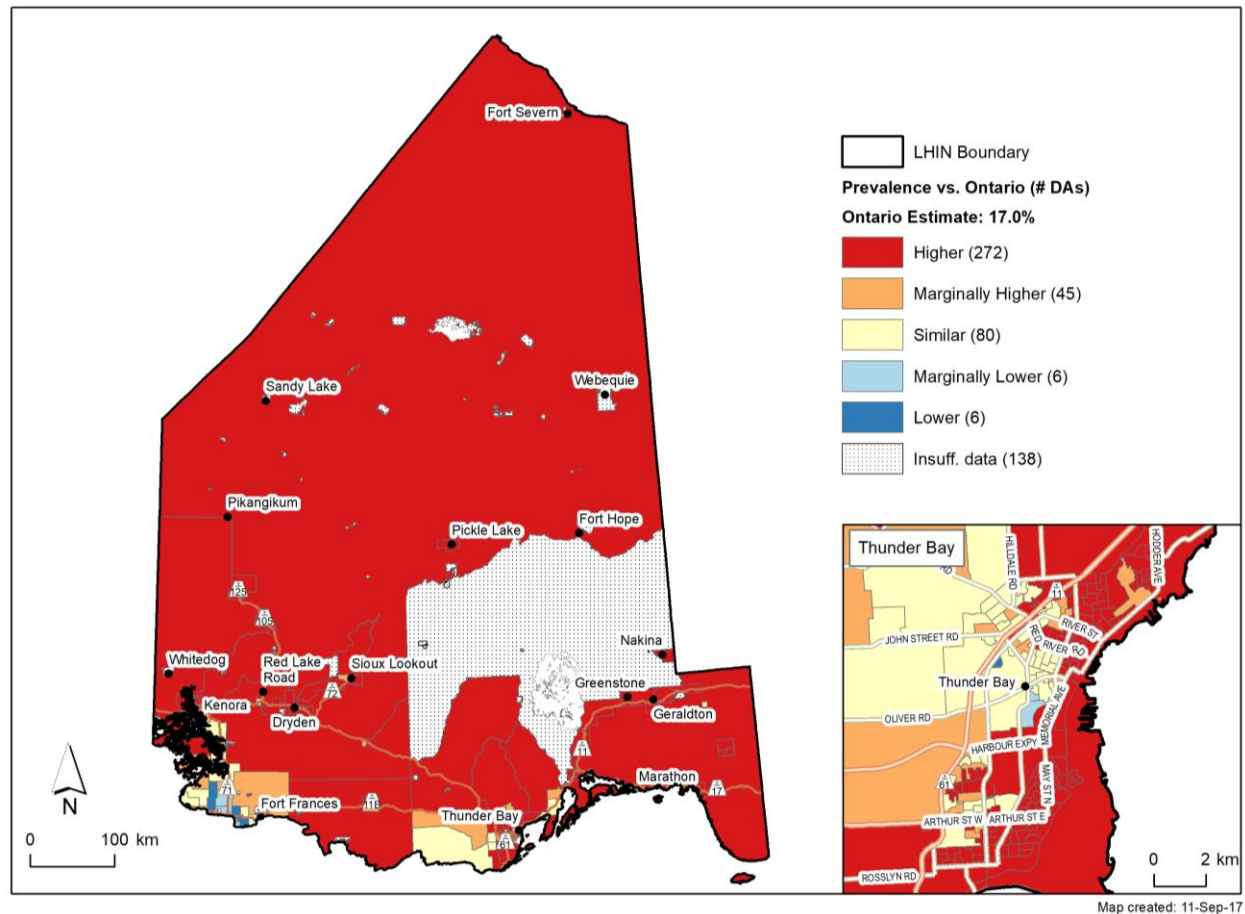
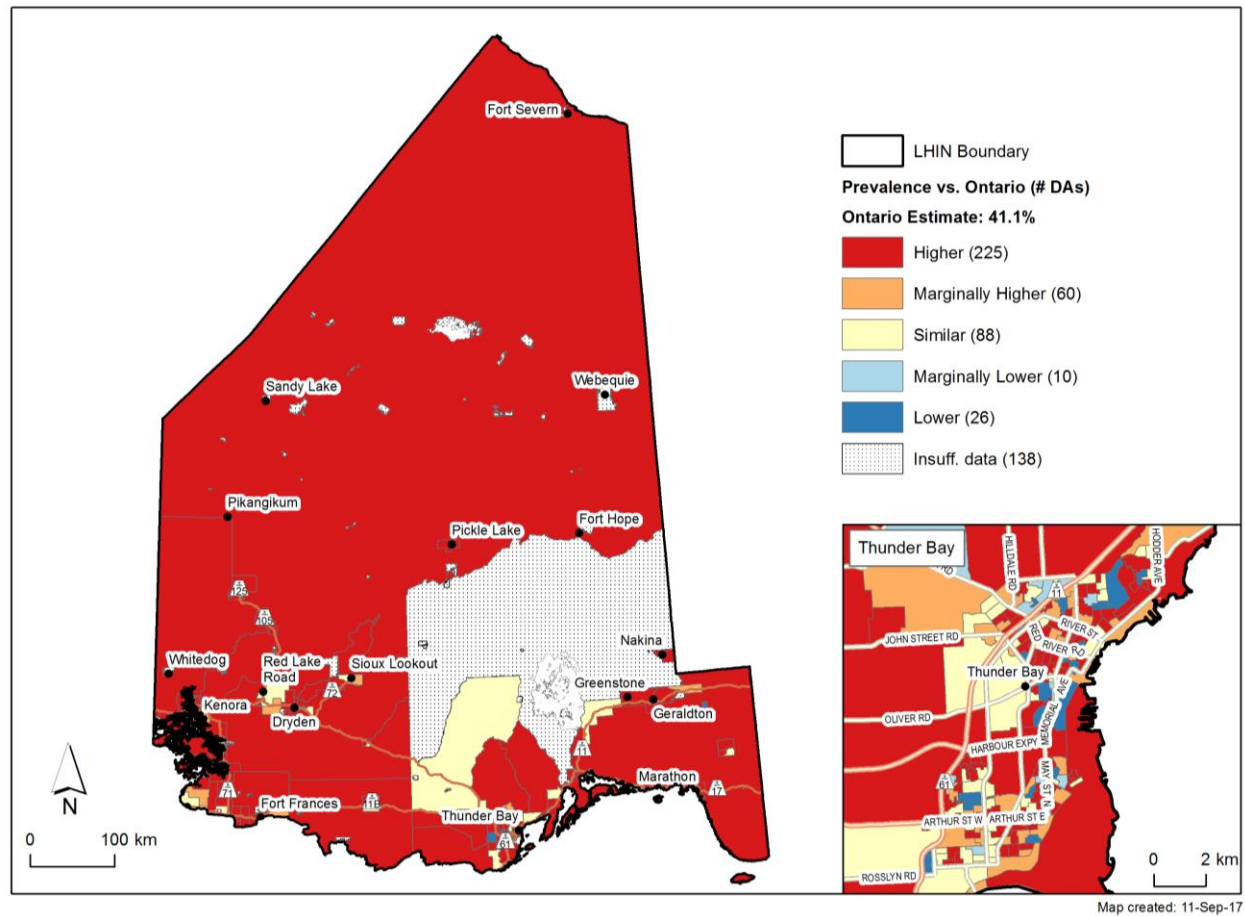| Category	Mean prevalence % (range)
Overall	24.6
Higher	27.6 (20.9, 45.1)
Marginally Higher	20.7 (18.9, 23.7)
Similar	18.3 (15.5, 22.1)
Marginally Lower	14.5 (13.9, 14.9)
Lower	12.5 (10.1, 14.1)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
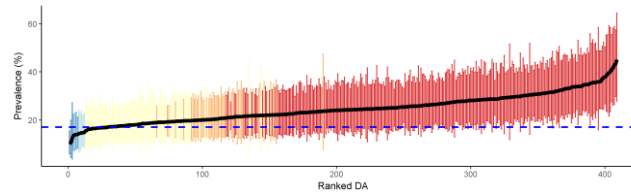
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
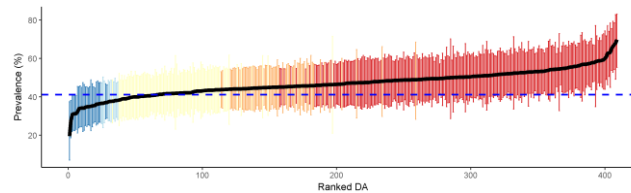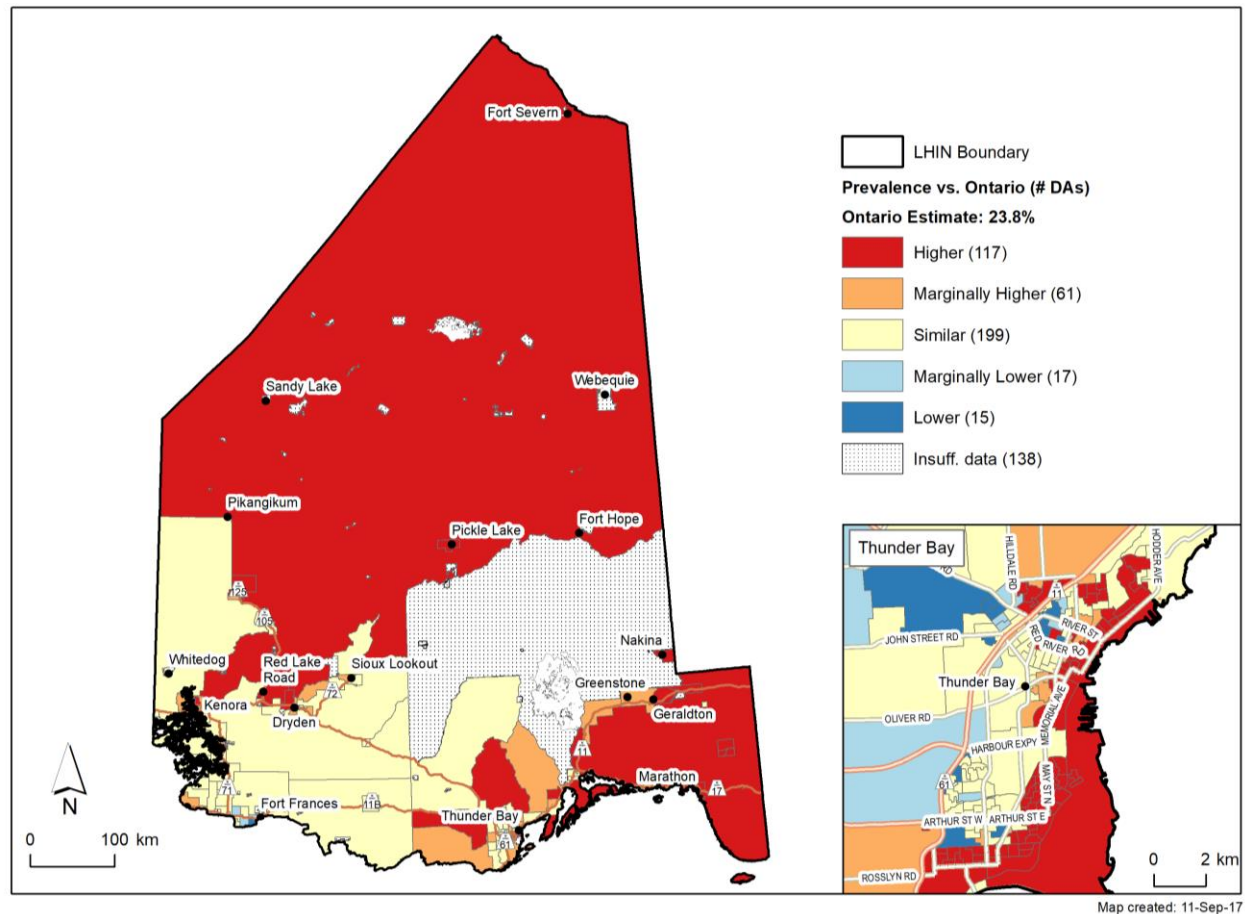
Category	Mean prevalence % (range)
Overall	27.0
Higher	32.7 (26.7, 44.1)
Marginally Higher	28.0 (26.4, 31.3)
Similar	24.4 (21.0, 28.1)
Marginally Lower	20.8 (19.5, 21.8)
Lower	19.1 (16.8, 20.5)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
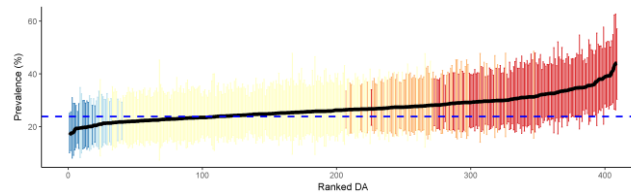
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
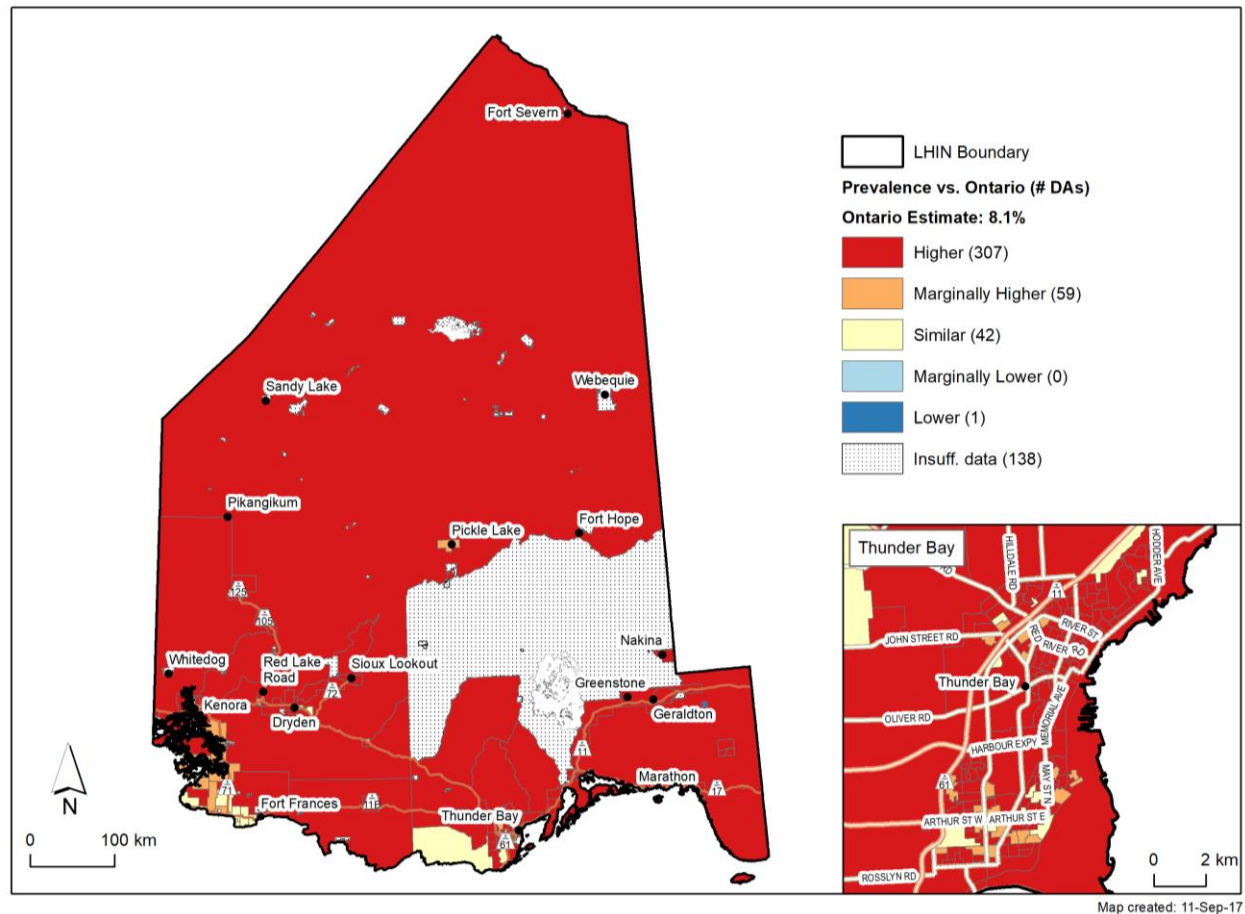
Category	Mean prevalence % (range)
Overall	13.4
Higher	14.3 (11.1, 22.9)
Marginally Higher	11.5 (10.3, 14.0)
Similar	9.4 (7.2, 11.3)
Marginally Lower	N/A
Lower	4.3 (4.3, 4.3)

N/A = no estimates in the category

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
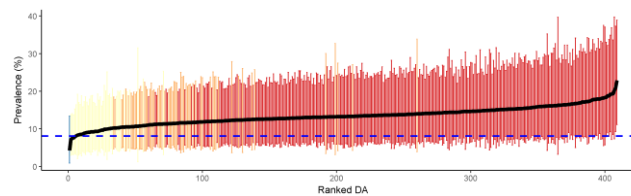
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 14.21 Current smoking among adolescent males (ages 12 to 18), 2000–2014, North West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
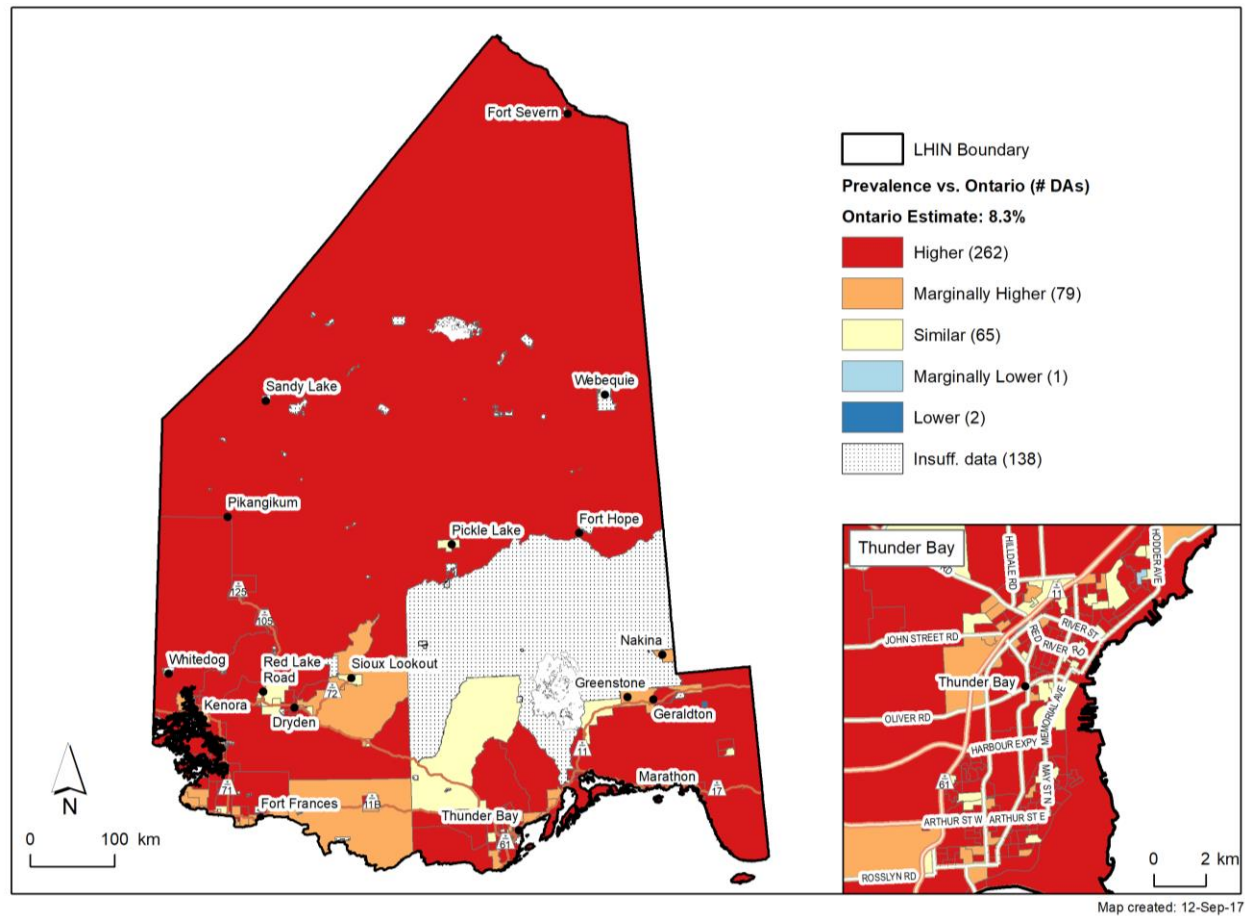
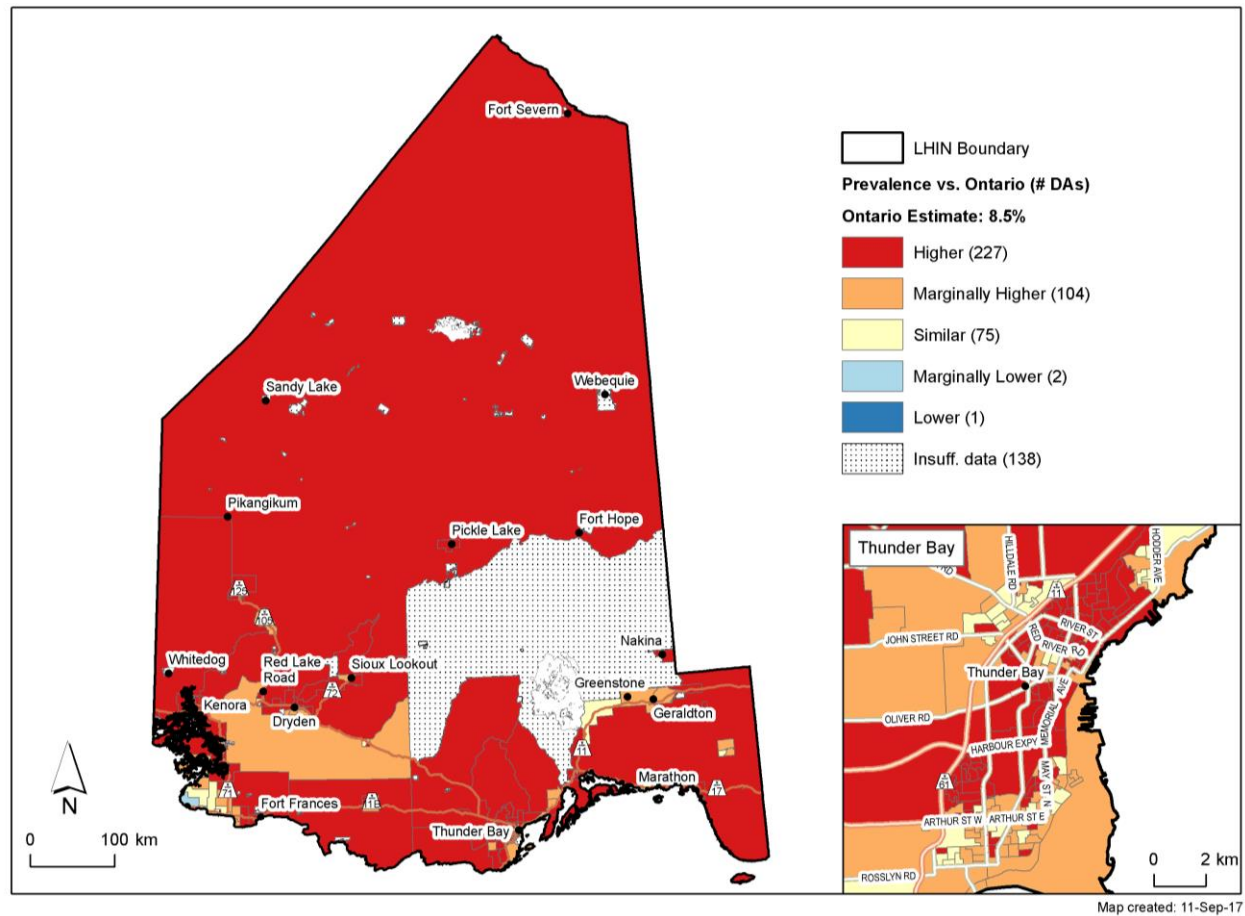| Category	Mean prevalence % (range)
Overall	12.7
Higher	13.9 (11.3, 25.0)
Marginally Higher	11.4 (10.3, 14.3)
Similar	9.6 (7.8, 13.1)
Marginally Lower	6.9 (6.9, 6.9)
Lower	4.1 (2.2, 6.0)

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
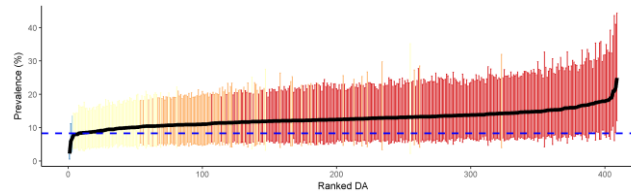
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Smoking—ever-smoked status

People age 12 and older

Approximately one in two Ontario females and three in five Ontario males reported having ever-smoked.

Higher prevalence than Ontario

Across the North West LHIN, most areas had a higher prevalence of ever-smokers than the Ontario average, for females (n=394; Figure 14.22) and males (n=387; Figure 14.23). These areas were located throughout the LHIN. However, areas of higher prevalence than the Ontario average were slightly more common in Thunder Bay for females compared to males.

Lower prevalence than Ontario

Areas with a lower prevalence of ever-smoking status than the Ontario average were not detected in the North West LHIN for females or males (Figure 14.22; Figure 14.23, respectively).

Adolescents

The area-based prevalence of ever-smoked status was not estimated for adolescent populations.

Figure 14.22 Ever-smoked status among females (age 12 and older), 2000–2014, North West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
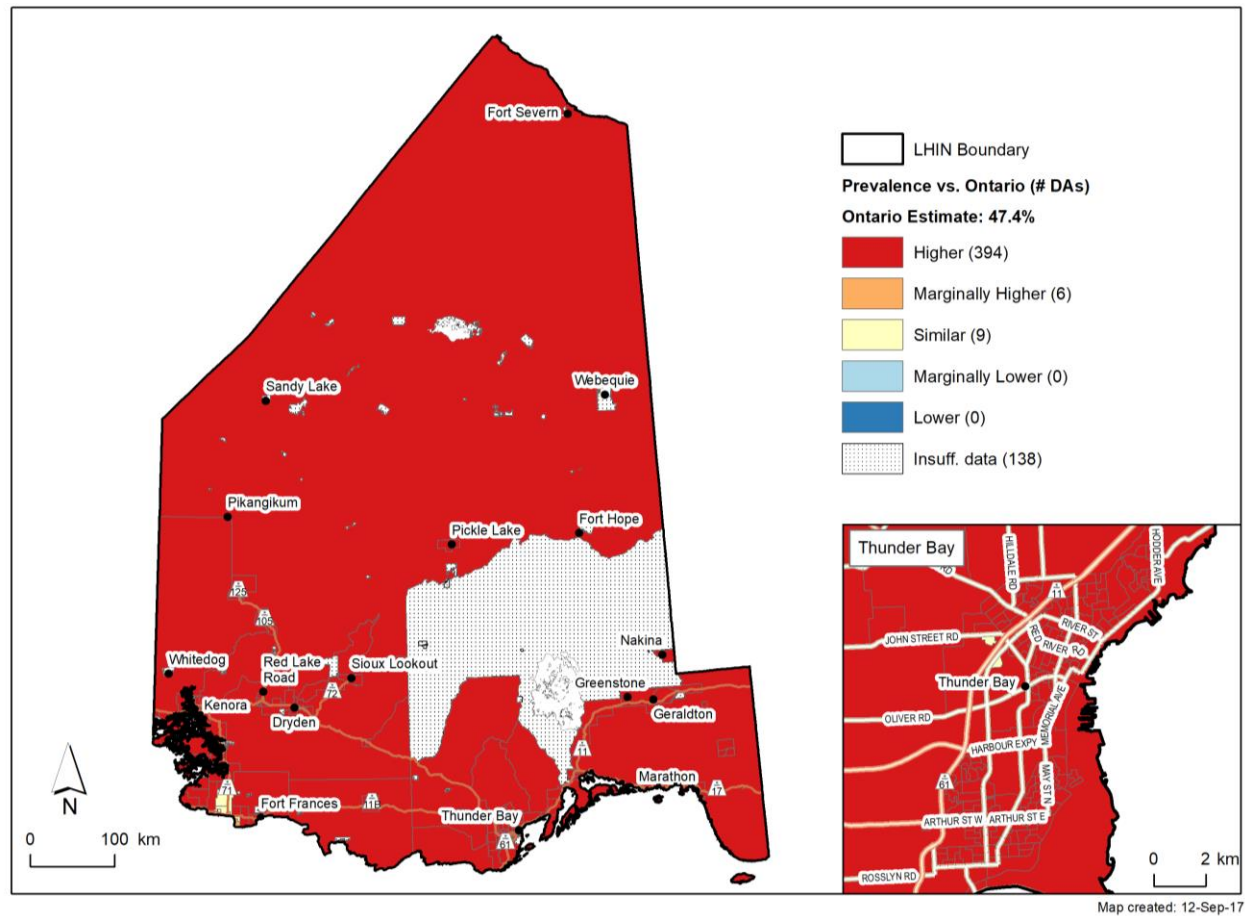
Category	Mean prevalence % (range)
Overall	62.3
Higher	62.8 (52.3, 74.4)
Marginally Higher	51.5 (50.5, 52.5)
Similar	49.6 (46.8, 51.7)
Marginally Lower	N/A
Lower	N/A

N/A = no estimates in the category

Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
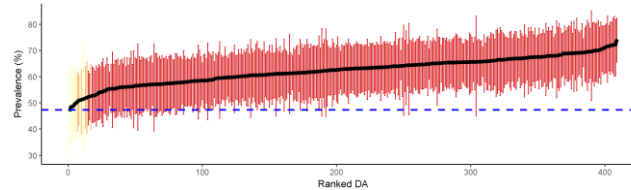
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.

Figure 14.23 Ever-smoked status among males (age 12 and older), 2000–2014, North West Local Health Integration Network (LHIN) by 2006 dissemination area (DA)
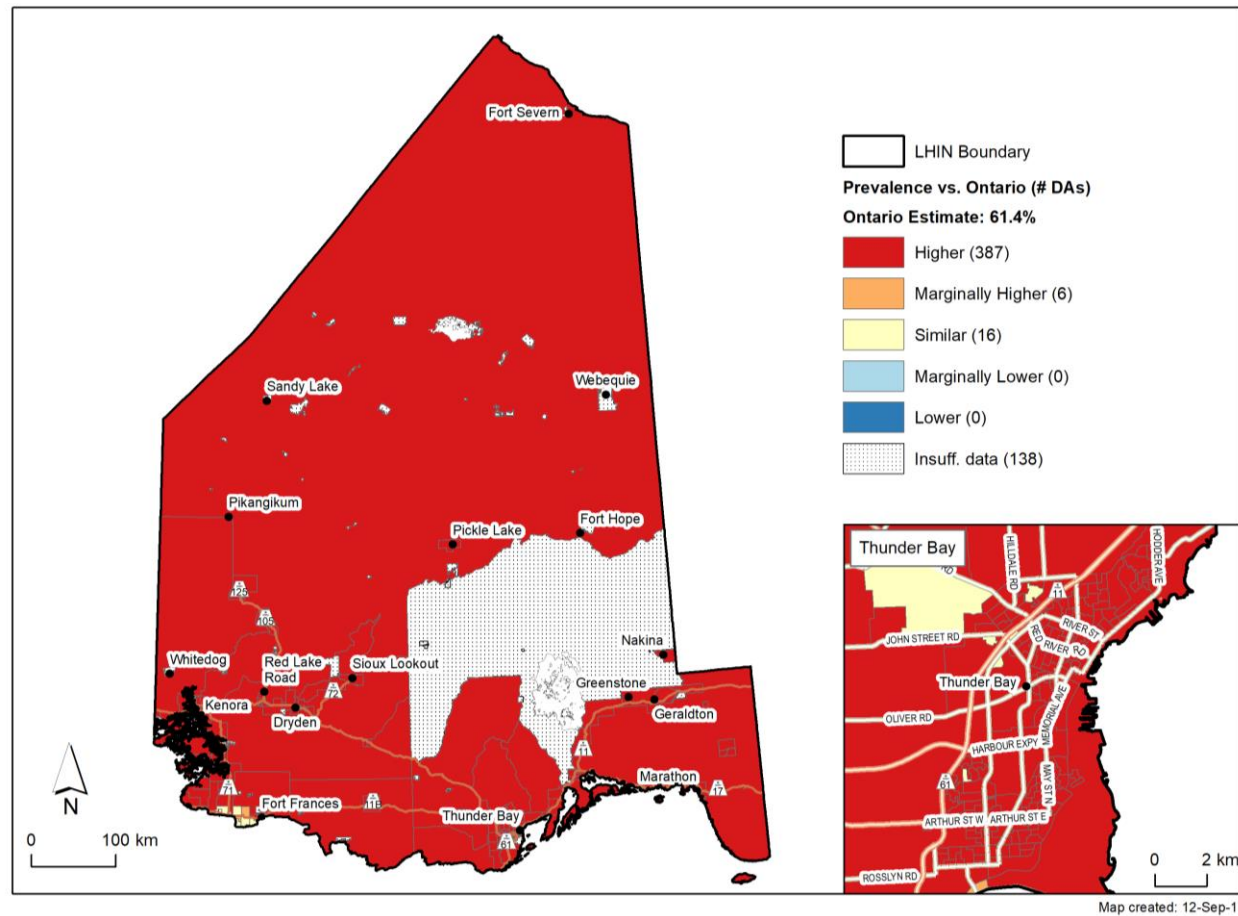
Category	Mean prevalence % (range)
Overall	70.1
Higher	70.5 (64.7, 78.6)
Marginally Higher	64.5 (63.6, 65.7)
Similar	62.2 (59.0, 63.8)
Marginally Lower	N/A
Lower	N/A

N/A = no estimates in the category
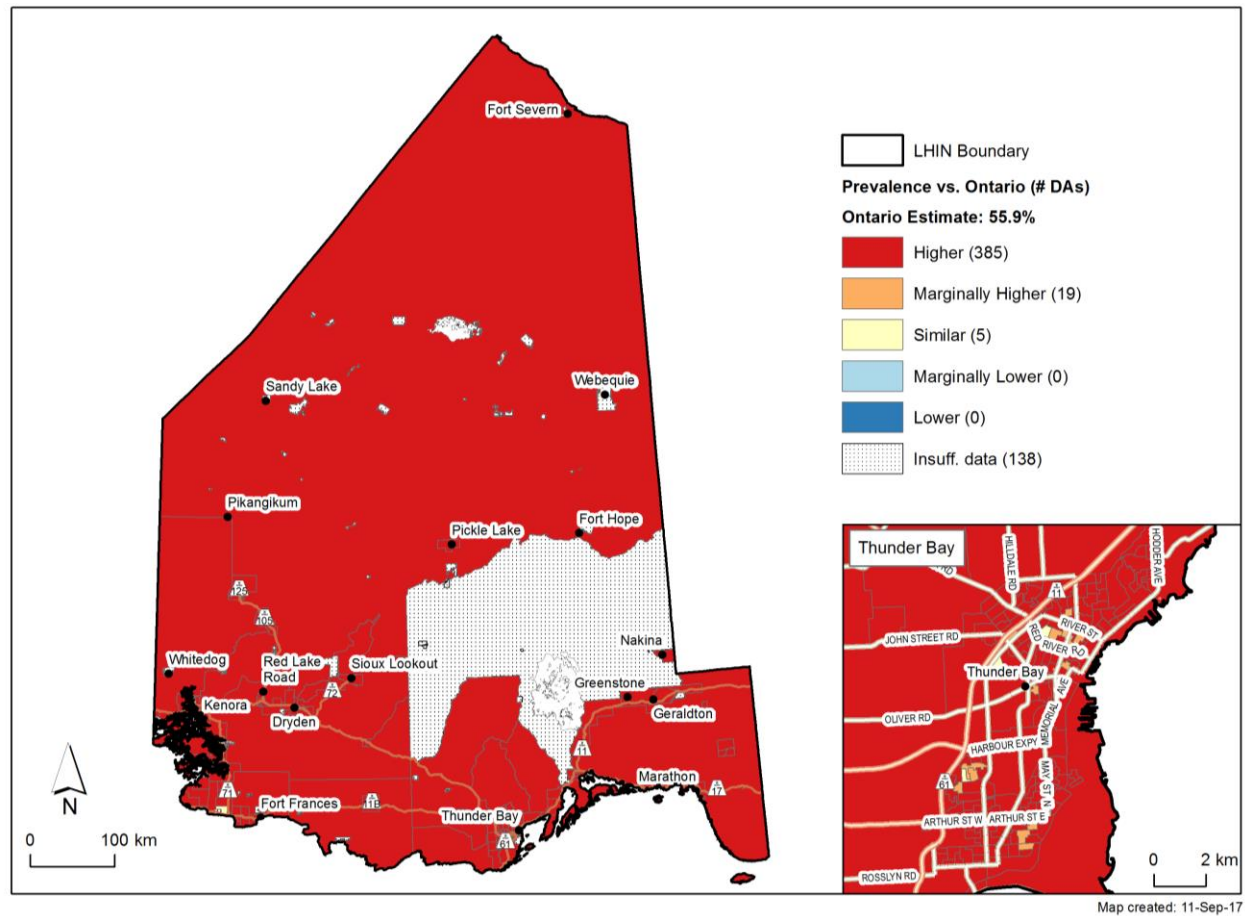
Prevalence by 2006 dissemination areas (DA) and 95% credibility intervals
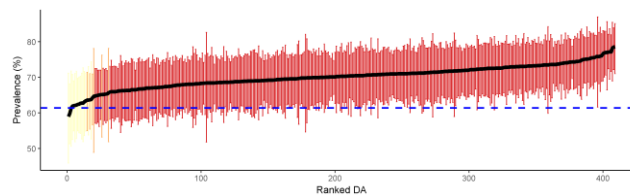
Note: The black solid line is the mean prevalence estimate for each DA ranked in ascending order. The colour coded vertical lines are the 95% credibility intervals around the mean estimate for each DA, coloured by the categories on the table (and map). The blue dotted line in the background is the Ontario estimate.
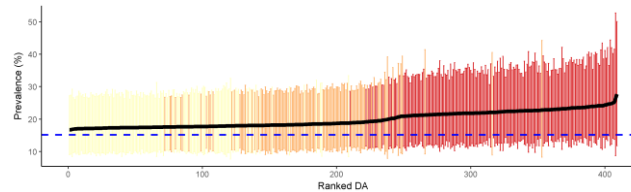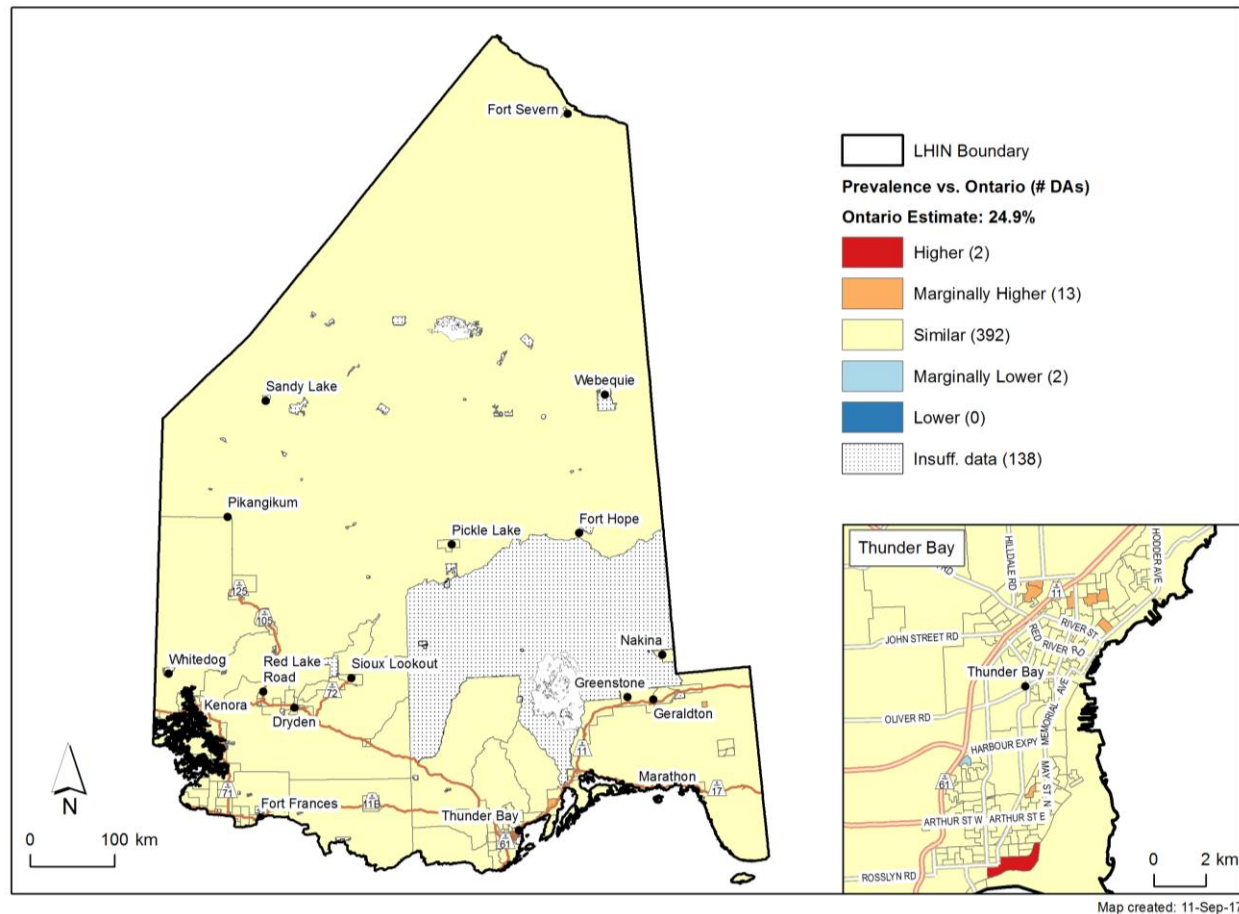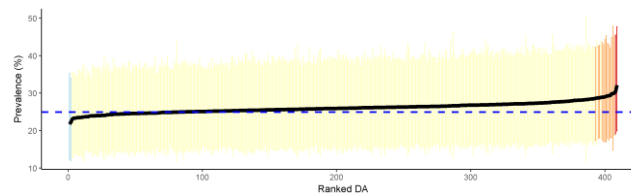
Appendix A: Canadian Community Health Survey (CCHS) Variable Definitions

The table below details the CCHS variables used across multiple cycles to derive the observations prior to modeling (see the Methods section and Appendix B). The "final variable" column records the encoding used for the variable in the modeling.

Characteristic	Definition	CCHS Variable (Cycle)	Variable Coding	Description	Final Variable
Sex	Sex of respondent	DHHA_SEX (1.1) DHHB_SEX (1.2) DHHC_SEX (2.1) DHHD_SEX (2.2) DHHE_SEX (3.1, 3.2) DHH_SEX (07/08, 09/10, 11/12, 13/14)	1=Male 2=Female	Completed by interviewer for Cycles 1.1, 1.2, 2.1 and 2.2, for subsequent cycles entered by interviewer and confirmed with respondent if needed	**Sex** *Binary* *1=Male* *2=Female*
Age	Age of respondent	DHHA_AGE (1.1) DHHB_AGE (1.2) DHHC_AGE (2.1) DHHD_AGE (2.2) DHHE_AGE (3.1, 3.2) DHH_AGE (07/08, 09/10, 11/12, 13/14)	Numeric >=12 Max at 101 or 102 depending on the cycle	Derived from DHH_DOB, DHH_MOB, DHH_YOB (DHHx_DB for Cycles 1.1-3.2) during interview and confirmed with respondent. x=A (1.1); B (1.2); C (2.1); D (2.2); E (3.1, 3.2)	**Age** *Years of age, categorized:* **All surveyed ages:** *1=12-19 2=20-29* *3=30-39 4=40-49* *5=50-59 6=60-69* *7=70-79 8=80+* *(reference group=5)* **Adolescent:** *1=12-14* *2=15-18* *(reference group=2)*
Excess body weight	Respondent identified as overweight or obese based on derived BMI of respondent	Height: HWTADHTM(1.1) HWTBDHTM (1.2) HWTCDHTM (2.1) HWTDDHTM (2.2) HWTEDHTM (3.1, 3.2) HWTDHTM (07/08, 09/10, 11/12, 13/14) Weight: HWTADWTK (1.1) HWTBDWTK (1.2) HWTCDWTK (2.1) HWTDDWTK (2.2) HWTEDWTK (3.1, 3.2) HWTDWTK (07/08, 09/10, 11/12, 13/14) Exclusions (Pregnant/breastfeeding): MAMA_37, BRFA_03 (1.1) HWTB_1 (1.2) MAMC_037, MEXC_05 (2.1) WHCD_03, WHCD05 (2.2)	Height in metres based on small intervals; 9.996= N/A (only in Cycles 09/10, 11/12, 13/14) 9.999=Not Stated Weight in kilograms; 999.96= N/A (only in Cycles 09/10, 11/12, 13/14) 999.99=Not Stated Pregnant/ breastfeeding: 1=Yes 2=No	Height: Self-reported; Derived from HWT_2, HWT_2C-F (HWTx_2 , HWTx_2A-F for Cycles 1.1-3.2), MAM_037 (only for Cycles 09/10, 11/12, 13/14) Weight: Self-reported; Derived from HWT_3, HWT_N4 (HWTx_3, HWTx_N4 for Cycles 1.1-3.2), MAM_037 (only for Cycles 09/10, 11/12, 13/14) Where x corresponds to the following letters, by survey cycle: A (1.1); B (1.2); C (2.1); D (2.2); E (3.1, 3.2) Pregnant (including "don't know" and refusal responses) and breastfeeding females excluded. Pregnant: MAM_037, MAMA_37, HWTB_1, MAMC_037, MAME_037 or WHCD_03:	**D_OvwtObs** *Overweight or obese* *1=Yes* *0=No* ***For respondents 18 years or older:*** *Overweight:* *25<=BMI<30* *Obese: BMI>=30* ***For respondents under age 18 years:*** *The classification of overweight or obese is using the international standard from Cole et. al., consistent with CCO's Cancer System Quality Index (CSQI) reports.*

Characteristic	Definition	CCHS Variable (Cycle)	Variable Coding	Description	Final Variable
		MAME_037, MEXE_05 (3.1, 3.2) MAM_037, MEX_05 (07/08, 09/10, 11/12, 13/14)	6= N/A 7=Don't Know 8=Refusal 9=Not Stated	Breastfeeding: MEX_05, BRFA_03, MEXC_05, MEXE_05, or WHCD05: Still breastfeeding last child	
Smoking	Type of smoker	SMKADSTY (1.1) SMKBDSTY (1.2) SMKCDSTY (2.1) SMKDDSTY (2.2) SMKEDSTY (3.1, 3.2) SMKDSTY (07/08, 09/10, 11/12, 13/14)	1=Daily Smoker 2=Occasional Smoker (Former Daily Smoker) 3=Always an Occasional Smoker 4=Former Daily Smoker 5=Former Occasional Smoker 6=Never Smoked 99=Not Stated	Derived from SMK_01A, SMK_01B, SMK_202, SMK_05D (SMKx_01A, SMKx_01B, SMKx_202, SMKx_05D for Cycles 1.1-3.2) Where x corresponds to the following letters, by survey cycle: A (1.1); B (1.2); C (2.1); D (2.2); E (3.1, 3.2)	**SMK_Current** *Current smoker* *1=Yes (1,2,3)* *0=No (4,5,6)* **SMK_ Ever** *Ever smoked* *1=Yes (1,2,3,4,5)* *0=No (6)*
Alcohol consumption	Type of drinker	ALCADTYP (1.1) ALCBDTYP (1.2) ALCCDTYP (2.1) ALCDDTYP (2.2) ALCEDTYP (3.1, 3.2) ALCDTTM (07/08, 09/10, 11/12, 13/14) Exclusions (Pregnant/Breastfeeding): MAMA_37, BRFA_03 (1.1) HWTB_1 (1.2) MAMC_037, MEXC_05 (2.1) WHCD_03, WHCD05 (2.2) MAME_037, MEXE_05 (3.1, 3.2) MAM_037, MEX_05 (07/08, 09/10, 11/12, 13/14)	=Regular drinker 2=Occasional drinker 3=Did not drink in the last 12 months 9=Not Stated (For Cycles 1.1-3.2 3=Former drinker 4=Never drank) Pregnant/breastfeeding: 1=Yes 2=No 6= N/A 7=Don't Know 8=Refusal 9=Not Stated	Derived from ALC_1, ALC_2 (ALCx_2, ALCx_5B for Cycles 1.1-3.2) Where x corresponds to the following letters, by survey cycle: A (1.1); B (1.2); C (2.1); D (2.2); E (3.1, 3.2) Pregnant (including "don't know" and refusal responses) and breastfeeding females excluded. Pregnant: MAM_037, MAMA_37, HWTB_1, MAMC_037, MAME_037 or WHCD_03: Breastfeeding: MEX_05, BRFA_03, MEXC_05, MEXE_05, or WHCD05:	**ALC_Current** *Current drinker* *1=Yes (1,2)* *0=No (3) (or 3,4 for cycles 1.1-3.2)*

Characteristic	Definition	CCHS Variable (Cycle)	Variable Coding	Description	Final Variable
Alcohol consumption in excess of recommended daily limits for cancer prevention	Respondent identified as drinking in excess of recommended limits for cancer prevention	ALCADWKY (1.1) ALCBDWKY (1.2) ALCCDWKY (2.1) ALCEDWKY (3.1, 3.2) ALWDWKY (07/08, 09/10, 11/12, 13/14) Prerequisites (Drank in past 12 months): ALCA_1=1 (1.1) ALCB_1=1 (1.2) ALCC_1=1 (2.1) ALCE_1=1,7,8 (3.1, 3.2) ALC_1=1,7,8 (07/08, 09/10, 11/12, 13/14) and (Drank alcohol in past week): ALWFOPT=1 (07/08) DOALW=1 (09/10, 11/12, 13/14) Exclusions (Pregnant/Breastfeeding): MAMA_37, BRFA_03 (1.1) HWTB_1 (1.2) MAMC_037, MEXC_05 (2.1) WHCD_03, WHCD05 (2.2) MAME_037, MEXE_05 (3.1, 3.2) MAM_037, MEX_05 (07/08, 09/10, 11/12, 13/14)	Number of drinks; 996= N/A 999=Not Stated Drank in past 12 months 1=Yes 2=No 3=Don't Know 4=Refusal 5=Not Stated Drank alcohol in past week: 1=Yes Pregnant/Breastfeeding: 1=Yes 2=No 6= N/A 7=Don't Know 8=Refusal 9=Not Stated	ALWDWKY or ALCxDWKY: Number of drinks in past week; Derived from ALC_1, ALC_2A1, ALC_2A2, ALC_2A3, ALC_2A4, ALC_2A5, ALC_2A6 and ALC_2A7 (ALCx_1, ALCx_5A1, ALCx_5A2, ALCx_5A3, ALCx_5A4, ALCx_5A5, ALCx_5A6 and ALCx_5A7 for Cycles 1.1-3.2) Drank alcohol in past 12 months: ALC_1 or ALCx_1 Where x corresponds to the following letters, by survey cycle: A (1.1); B (1.2); C (2.1); E (3.1, 3.2) Drank alcohol in past week: ALWFOPT (optional module flag) or DOALW (inclusion flag) Pregnant (including "don't know" and refusal responses) and breastfeeding females excluded Pregnant: MAM_037, MAMA_37, HWTB_1, MAMC_037, MAME_037 or WHCD_03: Breastfeeding: MEX_05, BRFA_03, MEXC_05, MEXE_05, or WHCD05:	**ALC_WkExcess** Drinking alcohol in excess of recommended limits for cancer prevention *1=Yes* *0=No* ***For males:*** *>14 drinks/week* ***For females:*** *>7 drinks/week*
Physical activity	Respondent identified as inactive/active/ moderately active in the past 3 months, based on daily estimated energy expenditure (EE)	PACADPAI (1.1) PACBDPAI (1.2) PACCDPAI (2.1) PACDDPAI (2.2) PACEDPAI (3.1, 3.2) PACDPAI (07/08, 09/10, 11/12, 13/14)	1=Active 2=Moderate 3=Inactive 9=Not Stated	Leisure time physical activity index based on daily energy expenditure (PACDEE, or PACxDEE for Cycles 1.1-3.2) Where x corresponds to the following letters, by survey cycle: x=A (1.1); B (1.2); C (2.1); D (2.2); E (3.1, 3.2)	**PAC_Active** *Active during leisure time* *1=Yes (1)* *0=No (2,3)*
Sedentary behaviour	Respondent identified as sedentary during leisure time in the past 3 months.	Number of hours on computer: SACA_1 (1.1) SACC_1 (2.1) SAC_1 (07/08, 11/12) Number of hours watching television or videos: SACA_3 (1.1) SACC_3 (2.1) SAC_3 (07/08, c11/12)	1=None 2=<1 hr 3=1-2 hrs 4=3-5 hrs 5=6-10 hrs 6=11-14 hrs 7=15-20 hrs 8=>20 hrs 96= N/A (for Cycles 1.1, 2.1) 97=Don't Know 98=Refusal 99=Not Stated	Number of hours on computer: SAC_1 or SACx_1: Number of hours watching television or videos: SAC_3 or SACx_3: Where x corresponds to the following letters, by survey cycle: x=A (1.1); C (2.1)	**SAC_Sedent** *>15 hours/week watching television/ videos or using computer* *1=Yes* *0=No*

Characteristic	Definition	CCHS Variable (Cycle)	Variable Coding	Description	Final Variable
Inadequate vegetable and fruit consumption	Respondent identified as having low vegetable and fruit intake.	FVCAGTOT (1.1) FVCCGTOT (2.1) FVCDGTOT (2.2) FVCEGTOT (3.1) FVCGTOT (07/08, 09/10, 11/12, 13/14) Prerequisites (Optional module): FVCEFOPT=1 (3.1)	1=<5 times per day 2=5-10 times per day 3=>10 times per day 9=Not Stated 1=YES	FVCGTOT or FVCxGTOT: Daily consumption of total fruits and vegetables; Derived from FVCDTOT (FVCxDTOT for Cycles 1.1-3.1) FVCEFOPT (optional module flag) Fruit and vegetable consumption Where x corresponds to the following letters, by survey cycle: x=A (1.1); C (2.1); D (2.2); E (3.1)	**FVC_Low** Daily consumption of vegetables and fruits less than 5 times *1=Yes (1)* *0=No (2,3)*

N/A = not applicable

Appendix B: Statistical Modeling

Statistical details to accompany the main text of this atlas are provided in this appendix. An understanding of introductory level statistics, at minimum, is helpful to understand the descriptions. Each risk factor was modeled separately for females and males.

Combining CCHS cycles

Pooled approach

Multiple survey years ("cycles") of the CCHS were combined to increase the sample size within each small area unit of analysis to provide more reliable risk factor prevalence estimates. The pooled approach, described by Statistics Canada, was adopted to combine data at the microdata level to increase the power to draw inferences.[25]

Prior to combining the data, variables related to cancer risk were examined for adequate coverage (i.e., sampled across multiple cycles), consistency (i.e., questions or derived variables defined consistently across all cycles) and completeness (i.e., adequate response rate across multiple cycles) and then merged vertically, renaming or re-deriving variables as needed (see Appendix A: Canadian Community Health Survey (CCHS) Variable Definitions). Since the CCHS uses a stratified sampling approach, each respondent has a survey "weight", which corresponds to the proportion of the population (from their respective administrative health region and age group) that they represent. These weights can also be merged across the cycles. However, the weights should be scaled back by the number of cycles included for estimation of a total. For estimation of ratios, proportions, or means, there is no need to scale back the weights since the same estimates would be produced regardless of scaling.[25]

Upon combining the cycles, a bootstrap program, such as Statistics Canada's bootvar program, may be used to produce simulated sets of weights for variance estimation. The bootvar program allows for accurate estimation at the national, provincial, or health region level by using the weights that take the sample design and survey methods into consideration. However, weights are not available for the small area analyses that were conducted for this atlas. Therefore, a Census-population weighted post-stratification approach was applied once each survey observation had been modelled under the assumption of independence. As well, the full Bayesian modelling approach used allowed for spatial correlation among adjacent small area estimates to inform each another, which can increase the stability of the estimates. These modeling approaches are discussed further below.

Assumptions and limitations

There are several general limitations related to the use of survey data, which are not specific to this atlas. It is assumed that the participant selection process for each CCHS survey cycle was successful in obtaining a sample that is representative of the Canadian population. Self-report surveys such as the CCHS are subject to recall bias. Measures may also be overestimated or underestimated due to social response bias. For example, height tends to be overestimated and weight tends to be underestimated.[26] Additionally, measures can be biased due to the different methods of data collection. For example, it has been found that respondents tend not to disclose their smoking status through telephone interviews. Since the CCHS share file is used, only data from respondents who agreed to the sharing of their data are included. This may introduce some underlying bias if, for example, the respondents who do not agree to share their data tend be from a certain age group. However, more than 90% of respondents agreed to share their information and are therefore included in the share file data.[17] Complete documentation regarding the assumptions and limitations related to the CCHS data are available on the Statistics Canada website.

One limitation is specific to the pooling of CCHS cycles. Combining respondents from different time periods and scaling survey weights results in final estimates that represent an evolving population that did not exist at any point in time. For example, respondents age 20 in 2001 were combined with respondents age 20 in 2008, but the respondents were not age 20 at the same point in time. In recognition of this limitation, survey cycle was included as a covariate in the modeling to adjust for modifiable risk factor prevalence change over time. This does not solve the issue of a fictitious population but attempts to account for societal changes using survey cycle as a proxy. One of the primary assumptions is that the combined respondents across multiple CCHS cycles represents one sample of the Ontario population.[25] This is a strong assumption.

Statistics Canada has guidelines for the disclosure of information based upon the CCHS. These guidelines are based on the design-based estimates which use the survey weights, and utilizes the coefficient of variation (CV) statistic which is a measure of the sampling variability. Typically, the smaller the sample size, the more variability. The "sampling variability guidelines" are shown below in Table AB.1 (page 516).

These guidelines exist to promote the disclosure of estimates that meet a certain level of reliability for the design-based estimates. However, the methods used here produce model-based estimates. Moreover, survey weights to obtain design based estimates and correctly calculate CVs are not available at the small area level, and the adoption of Bayesian statistical approach means that CVs are not strictly applicable. Additionally, Statistics Canada has no such guidelines for model-based estimates.[27] To ensure that the information provided in this atlas is informative, statistical methods (e.g., "exceedance probabilities" and "sensitivity analyses") were used, described below. Nevertheless, CVs were estimated since readers are likely familiar with this measure of dispersion and are provided below in the Coefficients of variation section (page 521).

Table AB.1 CCHS sampling variability guidelines

Type of estimate	Coefficient of variation (%)	Guidelines
Acceptable	0.0 ≤ CV ≤ 16.5	Estimates can be considered for general unrestricted release. Requires no special notation.
Marginal	16.6 ≤ CV ≤ 33.3	Estimates can be considered for general unrestricted release but should be accompanied by a warning cautioning subsequent users of the high sampling variability associated with the estimates. Such estimates should be identified by the letter E (or in some other similar fashion).
Unacceptable	CV > 33.3	Statistics Canada recommends not to release estimates of unacceptable quality. However, if the user chooses to do so then estimates should be flagged with the letter F (or in some other fashion) and the following warning should accompany the estimates: "The user is advised that … (specify the data) … do not meet Statistics Canada's quality standards for this statistical program. Conclusions based on these data will be unreliable and most likely invalid. These data and any consequent findings should not be published. If the user chooses to publish these data or findings, then this disclaimer must be published with the data."

Source: Statistics Canada, Canadian Community Health Survey (CCHS) annual component user guide: 2014 and 2013-2014 Microdata files, page 44[17]

Bayesian modeling

Many readers are familiar with the frequentist statistical approach. A distinguishing feature of the Bayesian statistical paradigm is the viewpoint that every measure can be represented by a statistical distribution (and thus has some error). This approach is based on Bayes' theorem and requires prior information about the characteristics, or parameters, of interest. These "priors" have an estimate and statistical distribution. Many statistical distributions may be used, as suitable to the data being modelled. In the case that no prior information is available, the parameters (priors) can be given distributions called "hyperpriors" (discussed further below). This approach means there are different hierarchies or stages in the model. For this atlas, a Bayesian hierarchical model was employed to estimate small area prevalence of the risk factors: the Besag, York and Mollié (BYM) model.[28] Since factors underlying the prevalence of a risk factor may differ for females and males, the two sexes were modelled separately.

The BYM model

The BYM model is a type of a Bayesian hierarchical model. It is a spatial model because it pools data from adjacent areas to provide more robust estimates. (Note that this pooling is distinct from combining CCHS cycles). The amount of adjustment that occurs depends on the number of observations, as described in the main text (page 5). This approach is appropriate because small area data are typically spatially correlated. For example, residential areas where smoking is prevalent may be clustered because of underlying social determinants of health, including income level. There are several ways to define an adjacent area for a spatial model. Here, the commonly used conditional autoregressive model was utilized, which is based on data derived from areas that share a boundary (horizontal or vertical) or point (diagonal neighbours).[29] As well, the BYM model allows for variations in the estimates to occur independently of any spatially correlated effect. This is referred to as an independent random effect (see equation 2). This may occur, for example, if there is an abrupt change in the data with sufficient observations to inform the resulting estimate.

The BYM model is commonly used in disease mapping and has been shown to be robust.[30, 31] For these analyses, the model was applied to estimate risk factor prevalence based on individual responses. An individual's response to a dichotomized (e.g. yes/no) risk factor question (or a derived dichotomized result) from the CCHS survey was assumed to be associated with individual- and area-level factors. The first hierarchy of the model was defined as:

$$y_{ijk} \sim Bernoulli \ (p_{ijk}) \hspace{4cm} \text{(Equation 1)}$$

where, y_{ijk} is a dichotomized response related to a risk factor (e.g. 1=yes; 0=no for currently smoking) and p_{ijk} the probability of an individual having the risk factor based upon that individual's age group i, survey cycle j and residence in area k. Age groups were: 12-19, 20-29, 30-39, 40-49, 50-59, 60-69, 70-79 and 80 years and older for people age 12 and over; or ages 12-14 for estimates specific to adolescents. The number of cycles and small areas varied by sex and by risk factor depending on data availability and data suppression rules. The cycles available for each risk factor can be found in Table AB.2 (page 517). The number of areas ranged from 1 to a maximum of 18,903 areas with population data to obtain the post-stratified prevalence estimates (see Risk factor prevalence estimation section below).

Table AB.2 Summary of cycles available for each risk factor

Risk factor	Cycles available
Excess body weight (males & adolescent males) Physical activity (females & males, adolescent females & males)	CCHS cycles 1.1, 1.2, 2.1, 2.2, 3.1, 3.2, 2007-2008, 2009-2010, 2011-2012, 2013-2014
Excess body weight (females & adolescent females) Smoking—current status (females & males, adolescent females & males) Smoking—ever-smoked status (females & males)	CCHS cycles 1.1, 2.1, 2.2, 3.1, 3.2, 2007-2008, 2009-2010, 2011-2012, 2013-2014
Alcohol— current consumption (females & males, adolescent females & males) Alcohol—consumption in excess of cancer prevention recommendations (females & males)	CCHS cycles 1.1, 1.2, 2.1, 3.1, 3.2, 2007-2008, 2009-2010, 2011-2012, 2013-2014
Inadequate vegetable and fruit consumption (females & males, adolescent females & males)	CCHS cycles 1.1, 2.1, 2.2, 3.1, 2007/08, 2009/10, 2011/12, 2013/14
Sedentary behaviour (females & males, adolescent females & males)	CCHS cycles 1.1, 2.1, 2007-2008, 2011-2012

The second hierarchy was the BYM model— similar in form to a regression model—but it includes spatial and independent random effects. The log-odds, or logit, for the presence of a risk factor for an individual from age group i, cycle j and in area k was defined as:

$$\log\left(\frac{p_{ijk}}{1 - p_{ijk}}\right) = logit(p_{ijk}) = \ \alpha + \beta_i + \ \gamma_j + u_k + v_k \hspace{2cm} \text{(Equation 2)}$$

where, α is the intercept which contains the referent groups, β_i is a vector of coefficients for age group categories (12-19, 20-29, 30-39, 40-49, 60-69, 70-79, 80 and older; or 12-14 for adolescents), γ_j is a vector of coefficients for CCHS cycles (1.1, 1.2, 2.1, 2.2, 3.1, 3.2, 2009-2010, 2011-2012, 2013-2014). Age group 50-59 (15-18 for adolescents) and cycle 2007-2008 were selected as the referent groups since most risk factors were most prevalent amongst this age group and the cycle was a median of the CCHS survey data used. The BYM model random effects, u_k and v_k, capture the area-based

variation in the response not explained by respondent age and survey cycle-- conceptually, this captures geographically correlated factors that influence risk factor prevalence.

Additional variables are often added to models to better understand associations between an explanatory variable (i.e. income) and outcome (e.g. excess body weight). For this atlas, the primary interest was the overall risk factor prevalence, rather than the contribution of a specific factor variable towards risk factor prevalence. For example, income was not fit to the models to examine income effects as a proxy for social determinants. This effect would be captured in the random effect terms as described above (an unobserved or latent effect), and provides the area-based estimate of the prevalence of the log-odds of the risk factor. Fitting survey cycle as a variable was intended to serve as a proxy to adjust for societal changes that may occur over time (e.g., decreased use of tobacco use). Fitting age allowed for implementation of a post-stratification approach in consideration of the CCHS survey design, described further below.

Computational method

Bayesian inference was conducted using the recently developed Integrated Nested Laplace Approximation (INLA) method for the BYM model. As implied by its name, this is an approximation method and it produces inferences from a hierarchical model of the observed data under conditional independence given the parameters being studied (a latent Gaussian Markov random field (GMRF) model). INLA achieves computational efficiency by evaluating a finite sum of the GMRF for the observed data to estimate the model parameters using a normal approximation to match the mode and curvature at the mode. [32] This computational efficiency allowed for the models to be run for the entire province and thus avoided false boundary effects which may be introduced by partitioning Ontario into health regions for analyses. Also, areas of Ontario represented as islands or unconnected to the mainland were included in the modelling when these areas had census population data available. These singular areas were assumed to have a standard normal distribution and were specified using features in the INLA package. [33] The details of this method are beyond the scope of this atlas and readers are referred to the seminal INLA paper[32], a primer paper[34] and project website for further details.[33]

Risk Factor prevalence estimation/post-stratification

In recognition that the Bayesian model based parameter estimates were not fixed numbers but from statistical distributions, 1000 random samples were generated based on their posterior distributions for each parameter coefficient. To estimate area prevalence, first, the individual level probabilities, p_{ijk}^m, were obtained for each combination of age group i, cycle j, area k and sample m, on a linear scale:

$$p_{ijk}^m = \frac{\exp\left(\alpha^m + \beta_i^m + \gamma_j^m + u_k^m + v_k^m\right)}{1 + \exp\left(\alpha^m + \beta_i^m + \gamma_j^m + u_k^m + v_k^m\right)}$$

(Equation 3)

The remaining parameters were defined as for equation 2. Thus far, the estimates ignored the complex survey design of the CCHS. In consideration of the survey design, the probability estimates were then scaled by CCHS survey cycles and census populations via the application of a post-stratification method.[22] The population weighting served as a proxy for survey weights, which are unavailable at the small area level. As such, each area's age-specific population weights (each sex was modeled separately) and equal weights for cycles were applied across each combination of the four facets (i.e., i, j, k, m). The results were then summed over age groups and cycles to derive population-weighted prevalence estimates, $prev_k^m$, for each random sample:

$$prev_k^m = \sum_i \sum_j \left(p_{ijk}^m \times \frac{Pop_{ik}}{Pop_k} \times \frac{1}{\#cycles} \right)$$

(Equation 4)

The age-specific population weights were calculated by dividing the 2006 census age-specific population for each area across Ontario over the total population in that area (Pop_{ik}/Pop_k). Each CCHS data collection cycle was weighted equally at 1/$\#cycle$, where the number of collection cycles available for a specific risk factor varied (see Table AB.2). For example, eight data collection samples were available for inadequate vegetable and fruit consumption.

The posterior mean of each area's risk factor prevalence estimate was obtained by taking the mean over the 1000 samples. Finally, the probability of these estimates exceeding the Ontario design-based survey estimates (the reference standard, provided in Table D.1 and Table D.2) was calculated using the marginal distributions of the model-based estimates, known as posterior probabilities or exceedance probabilities.

Model parameters

Model parameters estimates for the categorical variables (age groups and cycles) are available upon request.

Priors and sensitivity analyses

As stated previously, priors and hyperpriors require specification to commence modelling. Since small area estimates using CCHS data have not been calculated on a large geographic scope, informative priors were lacking. In this case, a logical workaround was to use non-informative or vague priors. These were specified as flat prior distributions for the age and cycle variables. The independent random effect and spatial effect hyperpriors were based on the gamma distribution, which is very flexible and quickly changes according to informative observed data. This distribution is defined by two parameters, in this case the "shape" and "rate" were specified, and these specifications varied by risk factor.

In the Bayesian approach, if the data are not informative, the priors inform the results. Therefore, the sensitivity analyses used additional sets of priors specifying different parameters from the gamma distribution, as well as the recently introduced Penalized Complexity (PC) priors, which are weakly informative priors specifying the contribution of the spatial random effect to the overall variance.[35] Table AB.3 (page 520) provides the prior specifications. Comparing the results from different prior specifications, the small area level posterior estimates had low root mean square deviations (all < 0.07) and high Spearman's rank correlation coefficient for correlation (all > 0.96). The high correlation and low root mean square deviations provide evidence that the results were not sensitive to the choice of priors and that the data informed the results. Hence, the results were considered meaningful.

Table AB.3 Specification of hyperpriors by risk factor

Risk Factor	Gamma priors set 1 (shape)	Gamma priors set 1 (rate)	Gamma priors set 2 (shape)	Gamma priors set 2 (rate)	PC priors (precision)	PC priors (fraction)
Alcohol—current consumption (adolescent females & males) Alcohol—consumption exceeding cancer prevention recommendations (females) Physical activity (adolescents females & males)	1	0.025	$4.89903*10^{-2}$	$1.0*10^{-7}$	(1, 0.025)	(0.9, 0.2)
Smoking—current status (adolescent females) Sedentary behaviour (adolescent females)	0.5	0.025	$4.13801*10^{-2}$	$1.0*10^{-7}$	(0.5, 0.025)	(0.9, 0.2)
Smoking—current status (females) Smoking—ever-smoked status (females) Alcohol—current consumption (females & males) Alcohol—consumption exceeding cancer prevention recommendations (males) Excess body weight (males & adolescent females) Physical activity (females & males) Sedentary behaviour (males & adolescent males) Inadequate vegetable and fruit consumption (females & males, adolescent females & males)	0.35	0.025	$3.84462*10^{-2}$	$1.0*10^{-7}$	(0.35, 0.025)	(0.9, 0.2)
Smoking—current status (males) Sedentary behaviour (females)	0.18	0.025	$3.36961*10^{-2}$	$1.0*10^{-7}$	(0.18, 0.025)	(0.9, 0.2)
Smoking—current status (adolescent males) Smoking—ever-smoked status (males) Excess body weight (adolescent males & females)	0.13	0.025	$1.00004*10^{-6}$	$2.49997*10^{-3}$	(0.125, 0.025)	(0.9, 0.2)

Coefficients of variation

Using the posterior samples (see risk factor estimation above), coefficients of variation (CVs) for each risk factor were calculated (since readers of this atlas are likely familiar with this statistic). Table AB.4 shows the means and 95% credibility intervals of the CVs specifically corresponding to estimates in the "higher" prevalence category for each risk factor (or "lower" category for physical activity). Note that the CVs are not strictly applicable—they are only provided as indicators as to the reliability of the risk factor estimates.

Table AB.4 Coefficients of variation with respect to the "higher" prevalence category*

Risk factor	Female % (95% CI)	Male % (95% CI)	Adolescent female % (95% CI)	Adolescent male % (95% CI)
Alcohol—current consumption	6.4 (4.4, 8.7)	4.2 (3.1, 5.6)	12.7 (9.8, 16.1)	12 (9.1, 15.6)
Alcohol—consumption exceeding cancer prevention recommendations	32.6 (27, 39.4)	23.1 (18.2, 30.0)	—	—
Excess body weight	10 (7.7, 13.1)	6.4 (4.9, 8.3)	26 (22.3, 32.1)	21.4 (18.4, 23.8)
Inadequate vegetable and fruit consumption	6.4 (4.9, 8.3)	4.0 (3.1, 5.0)	7.9 (7, 9)	5.7 (5.1, 6.5)
Physical activity	20.9 (16.6, 26.9)	17.3 (14.1, 21.9)	17.7 (15.6, 20.2)	12.5 (10.6, 14.7)
Sedentary behaviour	8.9 (7.0, 11.2)	8.9 (7.3, 10.9)	NE	NE
Smoking—current status	22.4 (16.3, 29.8)	18.8 (13.8, 24.6)	35.3 (29.1, 43.3)	34.4 (29.6, 41.1)
Smoking—ever-smoked status	9.6 (6.6, 13.4)	5.9 (4.4, 7.9)	—	—

CI: = credibility interval; NE= no estimates within the "higher" prevalence category
* For physical activity, it refers to the "lower" prevalence category
— Value not applicable

Relationship of risk factor prevalence estimates, posterior probabilities and coefficients of variation

Tables AB.5 to AB.8 below (pages 522 to 523) show the strong correlation between the prevalence estimates and posterior probabilities. Correlation between the posterior probabilities and CVs is also presented. Spearman's rank correlation coefficient measures the relationship of monotonic changes while Pearson's correlation coefficient indicates the linear relationship between two variables. As noted, all correlations are statistically significant (p-value < 0.05).

Table AB.5 Prevalence estimates and posterior probabilities, females age 12 and older

Risk factor	Prevalence estimate μ (range)	Posterior probability (PP) μ (range)	Spearman's rank correlation coefficient*	Pearson's correlation coefficient*	Spearman's rank correlation coefficient between PP and CV
Alcohol—current consumption	72.2 (37.4, 89.6)	0.7 (0.0, 1.0)	0.989	0.958	-0.866
Alcohol—consumption exceeding cancer prevention recommendations	7.4 (2.4, 19.5)	0.5 (0.0, 1.0)	0.995	0.961	-0.764
Excess body weight	42.0 (22.4, 65.5)	0.5 (0.0, 1.0)	0.995	0.965	-0.724
Inadequate vegetable and fruit consumption	63.4 (48.9, 81.0)	0.5 (0.0, 1.0)	0.996	0.977	-0.633
Physical activity	24.1 (9.4, 40.1)	0.6 (0.0, 1.0)	0.996	0.975	-0.561
Sedentary behaviour	48.0 (37.2, 69.2)	0.4 (0.0, 1.0)	0.995	0.979	-0.511
Smoking—current status	19.0 (4.7, 50.8)	0.5 (0.0, 1.0)	0.994	0.938	-0.646
Smoking—ever-smoked status	51.1 (18.0, 74.4)	0.7 (0.0, 1.0)	0.986	0.951	-0.839

* All p-values < 0.05

Table AB.6 Prevalence estimates and posterior probabilities, males age 12 and older

Risk factor	Prevalence estimate μ (range)	Posterior probability (PP) μ (range)	Spearman's rank correlation coefficient*	Pearson's correlation coefficient*	Spearman's rank correlation coefficient between PP and CV
Alcohol—current consumption	79.5 (49.4, 90.3)	0.6 (0.0, 1.0)	0.995	0.962	-0.772
Alcohol— consumption exceeding cancer prevention recommendations	9.5 (3.0, 18.8)	0.6 (0.0, 1.0)	0.988	0.970	-0.448
Excess body weight	55.5 (28.7, 73.3)	0.5 (0.0, 1.0)	0.996	0.957	-0.741
Inadequate vegetable and fruit consumption	76.9 (62.3, 89.9)	0.5 (0.0, 1.0)	0.996	0.980	-0.764
Physical activity	31.2 (16.6, 46.9)	0.6 (0.0, 1.0)	0.995	0.977	-0.544
Sedentary behaviour	54.7 (32.6, 68.2)	0.4 (0.0, 1.0)	0.996	0.981	-0.489
Smoking—current status	24.3 (6.9, 52.5)	0.5 (0.0, 1.0)	0.995	0.959	-0.562
Smoking—ever-smoked status	62.9 (33.7, 83.4)	0.6 (0.0, 1.0)	0.994	0.958	-0.812

* All p-values < 0.05

Table AB.7 Prevalence estimates and posterior probabilities, adolescent females ages 12 to 18

Risk factor	Prevalence estimate μ (range)	Posterior probability (PP) μ (range)	Spearman's rank correlation coefficient*	Pearson's correlation coefficient*	Spearman's rank correlation coefficient between PP and CV
Alcohol—current consumption	39.8 (7.3, 73.8)	0.5 (0.0, 1.0)	0.997	0.945	-0.734
Excess body weight	15.9 (11.1, 31.6)	0.5 (0.1, 1.0)	0.996	0.979	-0.281
Inadequate vegetable and fruit consumption	67.0 (58.0, 77.1)	0.5 (0.1, 0.9)	0.995	0.993	-0.626
Physical activity	41.8 (30.6, 59.9)	0.6 (0.0, 1.0)	0.997	0.984	-0.725
Sedentary behaviour	52.6 (46.3, 56.9)	0.4 (0.1, 0.7)	0.993	0.990	-0.624
Smoking—current status	9.4 (1.3, 27.7)	0.5 (0.0, 1.0)	0.995	0.949	-0.425

* All p-values < 0.05

Table AB.8 Prevalence estimates and posterior probabilities, adolescent males ages 12 to 18

Risk factor	Prevalence estimate μ (range)	Posterior probability (PP) μ (range)	Spearman's rank correlation coefficient*	Pearson's correlation coefficient*	Spearman's rank correlation coefficient between PP and CV
Alcohol—current consumption	41.7 (7.6, 75.7)	0.5 (0.0, 1.0)	0.997	0.942	-0.694
Excess body weight	22.2 (16.2, 34.2)	0.3 (0.0, 0.9)	0.993	0.994	-0.403
Inadequate vegetable and fruit consumption	73.0 (65.1, 81.7)	0.4 (0.0, 1.0)	0.994	0.994	-0.698
Physical activity	57.8 (48.1, 69.2)	0.6 (0.1, 1.0)	0.997	0.990	-0.642
Sedentary behaviour	57.5 (47.8, 64.3)	0.3 (0.0, 0.8)	0.994	0.981	-0.687
Smoking—current status	9.1 (0.9, 25.5)	0.5 (0.0, 1.0)	0.997	0.957	-0.419

* All p-values < 0.05

Fraction of variation explained by the spatial component

Table AB.9 shows that the majority of the risk factors have a high fraction of variation explained by the spatial component. These results demonstrate the spatial autocorrelation in the estimates and suitability of a spatial model.

Table AB.9 Fraction of variation explained by the spatial component

Risk factor	Female % (95% CI)	Male % (95% CI)	Adolescent female % (95% CI)	Adolescent male % (95% CI)
Alcohol—current consumption	94.8 (90.9, 97.6)	92.6 (86.4, 96.8)	87.6 (69.1, 96.7)	89.8 (76.5, 97.0)
Alcohol—consumption exceeding cancer prevention recommendations	94.3 (87.8, 97.9)	94.2 (88.7, 97.6)	—	—
Excess body weight	93.2 (88.9, 96.4)	92.7 (87.4, 96.7)	79.0 (54.5, 94.2)	44.0 (25.9, 67.0)
Inadequate vegetable and fruit consumption	87.3 (80.8, 93.5)	85.7 (76.0, 93.2)	64.3 (40.2, 89.1)	64.5 (41.1, 88.6)
Physical activity	76.7 (68.2, 85.5)	78.1 (67.8, 87.6)	73.1 (50.4, 93.8)	75.3 (52.6, 91.1)
Sedentary behaviour	82.0 (68.6, 91.6)	80.1 (65.7, 91.0)	43.8 (18.1, 74.9)	54.1 (26.7, 82.0)
Smoking—current status	96.3 (93.2, 98.4)	94.2 (89.2, 97.6)	87.4 (71.9, 96.7)	75.8 (53.5, 94.8)
Smoking—ever-smoked status	93.0 (87.2, 96.8)	93.0 (87.2, 96.8)	—	—

CI = credibility interval

Software

SAS software version 9.4 of the SAS system for Windows, copyright © 2012 SAS Institute Inc. (SAS and all other SAS Institute Inc. product or service names are registered trademarks or trademarks of SAS Institute Inc., Cary, NC, USA)[36] was used to combined all cycles of the CCHS, derive variables where necessary (see Appendix A, page 510), calculate the CCHS design-based estimates using Statistics Canada's bootstrapping program ("bootvar"), conduct data quality checking, and descriptive statistics of the combined data. This pooled data set was then exported to a DateBase File (DBF) and imported into R software version 3.3.3 for statistical computing.[37] Within R, Bayesian modeling was performed using the INLA package.[38]

Appendix C: Areas (2006 dissemination areas) in the Insufficient Data Category

Risk factor prevalence estimates are not reported for dissemination areas (DAs) classified as having "insufficient data" on the maps. The table below lists the "insufficient data" areas (n = 485) and their limitations relevant to the sex and age groups modelled. Where applicable, the name of the Indian Reserve located in these areas are also given.

Limitations:

- the area contained populations (e.g. people living on Indian Reserves, institutionalized populations) which were not sampled by the Canadian Community Health Survey **(coded as "1")**;
- the entire population of the area was suppressed in the Census data due to confidentiality or quality concerns **(coded as "2")**; or
- the area had no Census population estimate for a particular sex and age group for the modelling procedures **(coded as "3")**. The modeling procedures are detailed in Appendix B: Statistical Modeling.

A **code of "–"** denotes that none of the above limitations apply to the relevant sex and age group, or an Indian Reserve was not located in the area.

Table AD.1: Dissemination areas in the "insufficient data" category and limitations by sex and age group

DA identifier	LHIN identifier	PHU identifier	Municipality / Indian reserve	Area limitation among males age 12 and older	Area limitation among females age 12 and older	Area limitation among adolescent males	Area limitation among adolescent females
35010174	3511	3558	Akwesasne (Part) 59	1	1	1	1
35010175	3511	3558	Akwesasne (Part) 59	1	1	1	1
35010176	3511	3558	Akwesasne (Part) 59	1	1	1	1
35010177	3511	3558	Akwesasne (Part) 59	1	1	1	1
35010178	3511	3558	Akwesasne (Part) 59	1	1	1	1
35010201	3511	3558	Akwesasne (Part) 59	1	1	1	1
35010236	3511	3558	Akwesasne (Part) 59	1	1	1	1
35010248	3511	3558	–	–	–	–	3
35010377	3511	3558	Akwesasne (Part) 59	1	1	1	1
35010378	3511	3558	Akwesasne (Part) 59	1	1	1	1
35010379	3511	3558	Akwesasne (Part) 59	1	1	1	1
35010380	3511	3558	Akwesasne (Part) 59	1	1	1	1
35010381	3511	3558	Akwesasne (Part) 59	1	1	1	1
35010382	3511	3558	Akwesasne (Part) 59	1	1	1	1
35010383	3511	3558	Akwesasne (Part) 59	1	1	1	1
35010384	3511	3558	Akwesasne (Part) 59	1	1	1	1
35010385	3511	3558	Akwesasne (Part) 59	1	1	1	1
35010386	3511	3558	Akwesasne (Part) 59	1	1	1	1
35010387	3511	3558	Akwesasne (Part) 59	1	1	1	1
35010388	3511	3558	Akwesasne (Part) 59	1	1	1	1

DA identifier	LHIN identifier	PHU identifier	Municipality / Indian reserve	Area limitation among males age 12 and older	Area limitation among females age 12 and older	Area limitation among adolescent males	Area limitation among adolescent females
35010389	3511	3558	Akwesasne (Part) 59	1	1	1	1
35010390	3511	3558	Akwesasne (Part) 59	1	1	1	1
35010391	3511	3558	Akwesasne (Part) 59	1	1	1	1
35010392	3511	3558	Akwesasne (Part) 59	1	1	1	1
35010393	3511	3558	Akwesasne (Part) 59	1	1	1	1
35010394	3511	3558	Akwesasne (Part) 59	1	1	1	1
35010395	3511	3558	Akwesasne (Part) 59	1	1	1	1
35010396	3511	3558	Akwesasne (Part) 59	1	1	1	1
35010397	3511	3558	Akwesasne (Part) 59	1	1	1	1
35010398	3511	3558	Akwesasne (Part) 59	1	1	1	1
35060089	3511	3551	–	2	2	2	2
35060191	3511	3551	–	–	–	3	–
35060253	3511	3551	–	–	–	3	–
35060254	3511	3551	–	–	–	3	–
35060325	3511	3551	–	–	–	3	–
35060331	3511	3551	–	–	–	3	–
35060335	3511	3551	–	–	–	–	3
35060370	3511	3551	–	–	–	3	–
35060399	3511	3551	–	2	2	2	2
35060402	3511	3551	–	–	–	–	3
35060407	3511	3551	–	–	–	–	3
35060608	3511	3551	–	2	2	2	2
35060973	3511	3551	–	–	–	3	–
35061015	3511	3551	–	–	–	3	–
35061024	3511	3551	–	–	–	–	3
35061027	3511	3551	–	–	–	–	3
35061182	3511	3551	–	–	–	–	3
35061285	3511	3551	–	2	2	2	2
35061339	3511	3551	–	2	2	2	2
35061342	3511	3551	–	2	2	2	2
35061344	3511	3551	–	2	2	2	2
35061347	3511	3551	–	2	2	2	2
35061391	3511	3551	–	2	2	2	2
35090206	3510	3543	–	–	–	3	3
35100072	3510	3541	–	–	–	3	3
35100199	3510	3541	–	–	–	–	3
35100263	3510	3541	–	1	1	3	–
35100288	3510	3541	–	2	2	2	2
35100316	3510	3541	–	–	–	3	3
35120307	3510	3538	–	2	2	2	2

DA identifier	LHIN identifier	PHU identifier	Municipality / Indian reserve	Area limitation among males age 12 and older	Area limitation among females age 12 and older	Area limitation among adolescent males	Area limitation among adolescent females
35120312	3510	3538	–	2	2	2	2
35120362	3510	3538	–	2	2	2	2
35120363	3510	3538	–	2	2	2	2
35120375	3510	3538	–	2	2	2	2
35120388	3510	3538	Tyendinaga Mohawk Territory	1	1	1	1
35140130	3509	3535	Alderville First Nation	1	1	1	1
35140131	3509	3535	Alderville First Nation	1	1	1	1
35140132	3509	3535	Alderville First Nation	1	1	1	1
35140134	3509	3535	Alderville First Nation	1	1	1	1
35140136	3509	3535	Alderville First Nation	1	1	1	1
35140138	3509	3535	Alderville First Nation	1	1	1	1
35140188	3510	3535	–	1	1	3	–
35140217	3509	3535	–	–	–	3	–
35150126	3509	3555	–	–	–	–	3
35150240	3509	3555	Curve Lake First Nation 35	1	1	1	1
35150273	3509	3555	Hiawatha First Nation	1	1	1	1
35150275	3509	3555	Hiawatha First Nation	1	1	1	1
35150276	3509	3555	Hiawatha First Nation	1	1	1	1
35180185	3509	3530	–	–	–	–	3
35180194	3509	3530	–	–	–	3	–
35180901	3509	3530	–	–	–	–	3
35180902	3509	3530	–	–	–	–	3
35180904	3509	3530	–	–	–	–	3
35180944	3509	3530	Mississaugas of Scugog Island	1	1	1	1
35180945	3509	3530	Mississaugas of Scugog Island	1	1	1	1
35180967	3509	3530	–	–	–	3	3
35180968	3509	3530	–	–	–	–	3
35181019	3509	3530	–	–	–	–	3
35190001	3508	3570	Chippewas of Georgina Island First Nation	1	1	1	1
35190039	3508	3570	Chippewas of Georgina Island First Nation	1	1	1	1
35190040	3508	3570	Chippewas of Georgina Island First Nation	1	1	1	1
35190747	3508	3570	–	2	2	2	2
35191046	3508	3570	–	2	2	2	2
35191171	3508	3570	–	–	–	3	3
35200060	3509	3595	–	2	2	2	2
35200094	3509	3595	–	2	2	2	2
35200179	3509	3595	–	2	2	2	2

DA identifier	LHIN identifier	PHU identifier	Municipality / Indian reserve	Area limitation among males age 12 and older	Area limitation among females age 12 and older	Area limitation among adolescent males	Area limitation among adolescent females
35200313	3508	3595	–	2	2	2	2
35200545	3507	3595	–	2	2	2	2
35200757	3507	3595	–	2	2	2	2
35200798	3507	3595	–	–	–	–	3
35200801	3507	3595	–	2	2	2	2
35200829	3507	3595	–	2	2	2	2
35200907	3507	3595	–	–	–	3	–
35200968	3507	3595	–	2	2	2	2
35201161	3507	3595	–	–	–	3	–
35201286	3507	3595	–	–	–	–	3
35201405	3507	3595	–	–	–	–	3
35201459	3507	3595	–	–	–	3	3
35201461	3507	3595	–	–	–	3	3
35201466	3507	3595	–	2	2	2	2
35201480	3507	3595	–	–	–	3	–
35202414	3508	3595	–	–	–	–	3
35202799	3507	3595	–	–	–	3	3
35202819	3507	3595	–	2	2	2	2
35202840	3507	3595	–	2	2	2	2
35202843	3507	3595	–	–	–	3	–
35202849	3507	3595	–	2	2	2	2
35202977	3508	3595	–	–	–	–	3
35203156	3507	3595	–	2	2	2	2
35203157	3507	3595	–	2	2	2	2
35203161	3507	3595	–	2	2	2	2
35203185	3507	3595	–	–	–	3	–
35203649	3509	3595	–	2	2	2	2
35203717	3509	3595	–	2	2	2	2
35204130	3509	3595	–	2	2	2	2
35204157	3507	3595	–	2	2	2	2
35204200	3508	3595	–	–	–	–	3
35204204	3509	3595	–	–	–	3	–
35204229	3507	3595	–	–	–	–	3
35204245	3507	3595	–	2	2	2	2
35204258	3505	3595	–	2	2	2	2
35204265	3507	3595	–	2	2	2	2
35204273	3509	3595	–	2	2	2	2
35204503	3507	3595	–	–	–	–	3
35204508	3507	3595	–	–	–	–	3
35204545	3507	3595	–	–	–	–	3

DA identifier	LHIN identifier	PHU identifier	Municipality / Indian reserve	Area limitation among males age 12 and older	Area limitation among females age 12 and older	Area limitation among adolescent males	Area limitation among adolescent females
35204585	3507	3595	–	–	–	3	–
35204587	3507	3595	–	–	–	–	3
35204598	3507	3595	–	–	–	–	3
35204603	3507	3595	–	–	–	–	3
35204610	3507	3595	–	2	2	2	2
35204617	3507	3595	–	2	2	2	2
35204622	3507	3595	–	–	–	3	–
35204651	3507	3595	–	–	–	–	3
35204656	3507	3595	–	–	–	3	–
35204671	3507	3595	–	–	–	3	3
35210378	3506	3553	–	–	–	–	3
35210448	3506	3553	–	2	2	2	2
35210972	3506	3553	–	–	–	3	3
35211497	3505	3553	–	2	2	2	2
35211762	3505	3553	–	–	–	3	–
35230075	3503	3566	–	–	–	3	3
35230378	3503	3566	–	–	–	3	3
35230380	3503	3566	–	2	2	2	2
35230383	3503	3566	–	–	–	3	–
35240267	3506	3536	–	–	–	3	–
35250133	3504	3537	–	–	–	3	3
35250242	3504	3537	–	2	2	2	2
35250340	3504	3537	–	–	–	3	–
35250364	3504	3537	–	–	–	–	3
35250398	3504	3537	–	–	–	3	3
35250422	3504	3537	–	–	–	–	3
35250457	3504	3537	–	–	–	3	3
35250468	3504	3537	–	2	2	2	2
35250727	3504	3537	–	2	2	2	2
35250863	3504	3537	–	2	2	2	2
35250966	3504	3537	–	2	2	2	2
35280163	3504	3527	Six Nations (Part) 40	1	1	1	1
35280165	3504	3527	New Credit (Part) 40A	1	1	1	1
35290258	3504	3527	Six Nations (Part) 40	1	1	1	1
35290262	3504	3527	Six Nations (Part) 40	1	1	1	1
35290266	3504	3527	Six Nations (Part) 40	1	1	1	1
35290267	3504	3527	New Credit (Part) 40A	1	1	1	1
35300040	3503	3565	–	2	2	2	2
35300129	3503	3565	–	–	–	3	3
35300222	3503	3565	–	2	2	2	2

DA identifier	LHIN identifier	PHU identifier	Municipality / Indian reserve	Area limitation among males age 12 and older	Area limitation among females age 12 and older	Area limitation among adolescent males	Area limitation among adolescent females
35300290	3503	3565	–	–	–	–	3
35300383	3503	3565	–	–	–	–	3
35300385	3503	3565	–	–	–	–	3
35300749	3503	3565	–	2	2	2	2
35360162	3501	3540	Moravian 47	1	1	1	1
35360249	3501	3540	–	2	2	2	2
35360250	3501	3540	–	2	2	2	2
35370190	3501	3568	–	–	–	3	–
35370191	3501	3568	–	–	–	3	–
35370309	3501	3568	–	–	–	–	3
35380196	3501	3542	–	–	–	–	3
35380197	3501	3542	–	2	2	2	2
35380198	3501	3542	Sarnia 45	1	1	1	1
35380199	3501	3542	–	2	2	2	2
35380200	3501	3542	–	2	2	2	2
35380202	3501	3542	–	–	–	–	3
35380307	3501	3542	Kettle Point 44	1	1	1	1
35380329	3501	3542	Walpole Island 46	1	1	1	1
35380330	3501	3542	Walpole Island 46	1	1	1	1
35380331	3501	3542	Walpole Island 46	1	1	1	1
35380332	3501	3542	Walpole Island 46	1	1	1	1
35390056	3502	3544	–	2	2	2	2
35390315	3502	3544	–	2	2	2	2
35390321	3502	3544	–	–	–	–	3
35390684	3502	3544	–	2	2	2	2
35390704	3502	3544	–	–	–	3	3
35390749	3502	3544	Oneida 41	1	1	1	1
35390750	3502	3544	Chippewas of the Thames First Nation 42	1	1	1	1
35390752	3502	3544	Chippewas of the Thames First Nation 42	1	1	1	1
35390753	3502	3544	Munsee-Delaware Nation 1	1	1	1	1
35390754	3502	3544	Munsee-Delaware Nation 1	1	1	1	1
35390755	3502	3544	Munsee-Delaware Nation 1	1	1	1	1
35390756	3502	3544	Munsee-Delaware Nation 1	1	1	1	1
35390757	3502	3544	Chippewas of the Thames First Nation 42	1	1	1	1
35390758	3502	3544	Munsee-Delaware Nation 1	1	1	1	1
35390761	3502	3544	Munsee-Delaware Nation 1	1	1	1	1
35390891	3502	3544	–	–	–	3	–
35400206	3502	3539	–	2	2	2	2
35400209	3502	3539	–	–	–	3	3
35410159	3502	3533	Saugeen 29	1	1	1	1

DA identifier	LHIN identifier	PHU identifier	Municipality / Indian reserve	Area limitation among males age 12 and older	Area limitation among females age 12 and older	Area limitation among adolescent males	Area limitation among adolescent females
35410165	3502	3533	–	2	2	2	2
35410245	3502	3533	Neyaashiinigmiing 27	1	1	1	1
35420227	3512	3533	–	2	2	2	2
35430547	3512	3560	Christian Island 30	1	1	1	1
35430549	3512	3560	Christian Island 30	1	1	1	1
35430550	3512	3560	Christian Island 30	1	1	1	1
35430551	3512	3560	Christian Island 30A	1	1	1	1
35430736	3512	3560	–	2	2	2	2
35430737	3512	3560	–	–	–	3	–
35430739	3512	3560	–	2	2	2	2
35430822	3508	3560	–	–	–	3	3
35430897	3512	3560	–	2	2	2	2
35431018	3512	3560	–	–	–	3	–
35431059	3512	3560	–	2	2	2	2
35431144	3512	3560	–	–	–	3	–
35431145	3512	3560	–	–	–	–	3
35431165	3512	3560	–	2	2	2	2
35431232	3512	3560	Mnjikaning First Nation 32 (Rama First Nation 32)	1	1	1	1
35431233	3512	3560	Mnjikaning First Nation 32 (Rama First Nation 32)	1	1	1	1
35431235	3512	3560	Mnjikaning First Nation 32 (Rama First Nation 32)	1	1	1	1
35431236	3512	3560	Mnjikaning First Nation 32 (Rama First Nation 32)	1	1	1	1
35431237	3512	3560	Mnjikaning First Nation 32 (Rama First Nation 32)	1	1	1	1
35431238	3512	3560	Mnjikaning First Nation 32 (Rama First Nation 32)	1	1	1	1
35431253	3512	3560	Mnjikaning First Nation 32 (Rama First Nation 32)	1	1	1	1
35431255	3512	3560	Mnjikaning First Nation 32 (Rama First Nation 32)	1	1	1	1
35431256	3512	3560	Mnjikaning First Nation 32 (Rama First Nation 32)	1	1	1	1
35431257	3512	3560	Mnjikaning First Nation 32 (Rama First Nation 32)	1	1	1	1
35431267	3512	3560	–	–	–	3	–
35440186	3512	3560	–	2	2	2	2
35440206	3512	3560	–	2	2	2	2

DA identifier	LHIN identifier	PHU identifier	Municipality / Indian reserve	Area limitation among males age 12 and older	Area limitation among females age 12 and older	Area limitation among adolescent males	Area limitation among adolescent females
35440207	3512	3560	–	2	2	2	2
35440238	3512	3560	–	2	2	2	2
35440255	3512	3560	Wahta Mohawk Territory	1	1	1	1
35440256	3512	3560	–	2	2	2	2
35440257	3512	3560	Moose Point 79	1	1	1	1
35440258	3512	3560	Moose Point 79	1	1	1	1
35440259	3512	3560	Moose Point 79	1	1	1	1
35470163	3511	3557	–	–	–	3	–
35470234	3511	3557	Pikwakanagan (Golden Lake 39)	1	1	1	1
35480179	3513	3563	Bear Island 1	1	1	1	1
35480200	3513	3547	Nipissing 10	1	1	1	1
35480201	3513	3547	–	2	2	2	2
35480202	3513	3547	–	2	2	2	2
35480228	3513	3557	–	2	2	2	2
35490207	3513	3547	Parry Island First Nation	1	1	1	1
35490208	3513	3547	–	2	2	2	2
35490211	3513	3547	Parry Island First Nation	1	1	1	1
35490212	3513	3547	–	2	2	2	2
35490213	3513	3547	Shawanaga 17	1	1	1	1
35490214	3513	3547	Naiscoutaing 17A	1	1	1	1
35490216	3513	3547	Magnetewan 1	1	1	1	1
35490218	3513	3547	French River 13	1	1	1	1
35490219	3513	3547	French River 13	1	1	1	1
35490220	3513	3547	Henvey Inlet 2	1	1	1	1
35490221	3513	3547	Dokis 9	1	1	1	1
35510069	3513	3561	Manitoulin	1	1	1	1
35510071	3513	3561	Whitefish River (Part) 4	1	1	1	1
35510076	3513	3561	Sucker Creek 23	1	1	1	1
35510077	3513	3561	Sheguiandah 24	1	1	1	1
35510080	3513	3561	Wikwemikong Unceded	1	1	1	1
35510081	3513	3561	Wikwemikong Unceded	1	1	1	1
35510082	3513	3561	Wikwemikong Unceded	1	1	1	1
35510083	3513	3561	Wikwemikong Unceded	1	1	1	1
35510084	3513	3561	Wikwemikong Unceded	1	1	1	1
35510090	3513	3561	–	2	2	2	2
35510096	3513	3561	M'Chigeeng 22 (West Bay 22)	1	1	1	1
35510097	3513	3561	–	2	2	2	2
35510098	3513	3561	–	–	–	–	3
35510100	3513	3561	Sheshegwaning 20	1	1	1	1
35510101	3513	3561	–	2	2	2	2

DA identifier	LHIN identifier	PHU identifier	Municipality / Indian reserve	Area limitation among males age 12 and older	Area limitation among females age 12 and older	Area limitation among adolescent males	Area limitation among adolescent females
35510102	3513	3561	Zhiibaahaasing 19A (Cockburn Island 19A)	1	1	1	1
35510103	3513	3561	–	2	2	2	2
35510104	3513	3561	Zhiibaahaasing 19 (Cockburn Island 19)	1	1	1	1
35520082	3513	3561	Mattagami 71	1	1	1	1
35520084	3513	3561	Mattagami 71	1	1	1	1
35520088	3513	3561	Duck Lake 76B	1	1	1	1
35520089	3513	3561	Mountbatten 76A	1	1	1	1
35520090	3513	3561	Chapleau 75	1	1	1	1
35520097	3513	3561	Chapleau 74A	1	1	1	1
35520116	3513	3561	Whitefish River (Part) 4	1	1	1	1
35520121	3513	3561	Whitefish Lake 6	1	1	1	1
35520123	3513	3561	–	–	–	–	3
35530095	3513	3561	–	2	2	2	2
35530260	3513	3561	Wahnapitei 11	1	1	1	1
35530347	3513	3561	–	2	2	2	2
35540073	3513	3563	–	2	2	2	2
35540142	3513	3563	–	2	2	2	2
35540144	3513	3563	Matachewan 72	1	1	1	1
35560182	3513	3556	Fort Albany (Part) 67	1	1	1	1
35560184	3513	3556	Abitibi 70	1	1	1	1
35560185	3513	3556	New Post 69A	1	1	1	1
35560186	3513	3556	New Post 69	1	1	1	1
35560187	3513	3556	Fort Albany (Part) 67	1	1	1	1
35560188	3513	3556	Fort Albany (Part) 67	1	1	1	1
35560189	3513	3556	Moose Factory 68	1	1	1	1
35560190	3513	3556	New Post 69A	1	1	1	1
35560202	3513	3556	Flying Post 73	1	1	1	1
35560278	3513	3556	–	2	2	2	2
35560280	3513	3556	–	2	2	2	2
35560315	3513	3556	Constance Lake 92	1	1	1	1
35560333	3513	3556	–	2	2	2	2
35560334	3513	3556	Factory Island 1	1	1	1	1
35560335	3513	3556	Factory Island 1	1	1	1	1
35560336	3513	3556	Factory Island 1	1	1	1	1
35560337	3513	3556	–	2	2	2	2
35570041	3513	3526	–	2	2	2	2
35570104	3513	3526	Rankin Location 15D	1	1	1	1
35570286	3513	3526	Missanabie 62	1	1	1	1
35570295	3513	3526	Gros Cap 49	1	1	1	1

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35570301	3513	3526	Goulais Bay 15A	1	1	1	1
35570302	3513	3526	Goulais Bay 15A	1	1	1	1
35570307	3513	3526	Garden River 14	1	1	1	1
35570311	3513	3526	Garden River 14	1	1	1	1
35570312	3513	3526	Garden River 14	1	1	1	1
35570313	3513	3526	Rankin Location 15D	1	1	1	1
35570319	3513	3526	–	–	–	3	–
35570330	3513	3526	Thessalon 12	1	1	1	1
35570333	3513	3526	Mississagi River 8	1	1	1	1
35570334	3513	3526	Mississagi River 8	1	1	1	1
35570335	3513	3526	Mississagi River 8	1	1	1	1
35570336	3513	3526	Mississagi River 8	1	1	1	1
35570343	3513	3526	Serpent River 7	1	1	1	1
35570346	3513	3526	Sagamok	1	1	1	1
35570347	3513	3526	–	2	2	2	2
35580286	3514	3562	–	2	2	2	2
35580362	3514	3549	Osnaburgh 63A	1	1	1	1
35580363	3514	3562	–	2	2	2	2
35580364	3514	3562	Aroland 83	1	1	1	1
35580365	3514	3549	Ojibway Nation of Saugeen (Savant Lake)	1	1	1	1
35580366	3514	3549	Ojibway Nation of Saugeen (Savant Lake)	1	1	1	1
35580368	3514	3562	Whitesand	1	1	1	1
35580369	3514	3562	Gull River 55	1	1	1	1
35580371	3514	3562	Seine River 22A2	1	1	1	1
35580372	3514	3562	Lac des Mille Lacs 22A1	1	1	1	1
35580386	3514	3562	Pic Mobert South	1	1	1	1
35580387	3514	3562	Pic Mobert South	1	1	1	1
35580388	3514	3562	Pic Mobert South	1	1	1	1
35580389	3514	3562	Pic Mobert North	1	1	1	1
35580390	3514	3562	Pic River 50	1	1	1	1
35580392	3514	3562	Pays Plat 51	1	1	1	1
35580401	3514	3562	–	2	2	2	2
35580413	3514	3562	Ginoogaming First Nation	1	1	1	1
35580418	3514	3562	Long Lake 58	1	1	1	1
35580425	3514	3562	Rocky Bay 1	1	1	1	1
35580426	3514	3562	Lake Helen 53A	1	1	1	1
35580434	3514	3562	Fort William 52	1	1	1	1
35590060	3514	3549	Sabaskong Bay (Part) 35C	1	1	1	1
35590062	3514	3549	Saug-a-Gaw-Sing 1	1	1	1	1
35590063	3514	3549	Big Grassy River 35G	1	1	1	1

DA identifier	LHIN identifier	PHU identifier	Municipality / Indian reserve	Area limitation among males age 12 and older	Area limitation among females age 12 and older	Area limitation among adolescent males	Area limitation among adolescent females
35590064	3514	3549	Big Island Mainland 93	1	1	1	1
35590070	3514	3549	Long Sault 12	1	1	1	1
35590073	3514	3549	Manitou Rapids 11	1	1	1	1
35590097	3514	3549	Agency 1	1	1	1	1
35590098	3514	3549	Couchiching 16A	1	1	1	1
35590101	3514	3549	Rainy Lake 17A	1	1	1	1
35590102	3514	3549	Rainy Lake 17B	1	1	1	1
35590103	3514	3549	Rainy Lake 17A	1	1	1	1
35590104	3514	3549	Rainy Lake 17A	1	1	1	1
35590105	3514	3549	Rainy Lake 18C	1	1	1	1
35590106	3514	3549	Rainy Lake 17A	1	1	1	1
35590108	3514	3549	Rainy Lake 26A	1	1	1	1
35590110	3514	3549	Seine River 23B	1	1	1	1
35590111	3514	3549	Seine River 23A	1	1	1	1
35590112	3514	3549	Neguaguon Lake 25D	1	1	1	1
35600206	3514	3562	–	2	2	2	2
35600207	3514	3562	Fort Severn 89	1	1	1	1
35600209	3514	3549	English River 21	1	1	1	1
35600210	3514	3549	Wabauskang 21	1	1	1	1
35600211	3514	3549	Wabauskang 21	1	1	1	1
35600212	3514	3549	English River 21	1	1	1	1
35600213	3514	3562	Kitchenuhmaykoosib Aaki 84 (Big Trout Lake)	1	1	1	1
35600214	3514	3562	Wapekeka 2	1	1	1	1
35600215	3514	3562	Kitchenuhmaykoosib Aaki 84 (Big Trout Lake)	1	1	1	1
35600216	3514	3562	Kitchenuhmaykoosib Aaki 84 (Big Trout Lake)	1	1	1	1
35600217	3514	3549	Bearskin Lake	1	1	1	1
35600218	3514	3562	Wawakapewin (Long Dog Lake)	1	1	1	1
35600219	3514	3549	Muskrat Dam Lake	1	1	1	1
35600220	3514	3562	Kitchenuhmaykoosib Aaki 84 (Big Trout Lake)	1	1	1	1
35600221	3514	3562	Kasabonika Lake	1	1	1	1
35600222	3514	3562	Kasabonika Lake	1	1	1	1
35600223	3514	3562	Kasabonika Lake	1	1	1	1
35600224	3514	3549	Muskrat Dam Lake	1	1	1	1
35600225	3513	3556	Peawanuck	1	1	1	1
35600226	3513	3556	Fort Albany (Part) 67	1	1	1	1
35600227	3513	3556	Fort Albany (Part) 67	1	1	1	1

DA identifier	LHIN identifier	PHU identifier	Municipality / Indian reserve	Area limitation among males age 12 and older	Area limitation among females age 12 and older	Area limitation among adolescent males	Area limitation among adolescent females
35600228	3514	3549	Osnaburgh 63B	1	1	1	1
35600229	3514	3562	Fort Hope 64	1	1	1	1
35600230	3514	3549	Osnaburgh 63B	1	1	1	1
35600231	3514	3562	Lansdowne House	1	1	1	1
35600232	3513	3556	Marten Falls 65	1	1	1	1
35600233	3514	3549	Deer Lake	1	1	1	1
35600234	3514	3549	North Spirit Lake	1	1	1	1
35600235	3514	3549	Deer Lake	1	1	1	1
35600236	3514	3549	English River 21	1	1	1	1
35600237	3514	3549	Muskrat Dam Lake	1	1	1	1
35600238	3514	3549	Kee-Way-Win	1	1	1	1
35600239	3514	3549	Poplar Hill	1	1	1	1
35600240	3514	3549	North Spirit Lake	1	1	1	1
35600241	3514	3549	MacDowell Lake	1	1	1	1
35600242	3514	3549	Sachigo Lake 1	1	1	1	1
35600243	3514	3549	Sandy Lake 88	1	1	1	1
35600244	3514	3549	Sachigo Lake 2	1	1	1	1
35600245	3514	3549	Sachigo Lake 2	1	1	1	1
35600246	3514	3549	Slate Falls	1	1	1	1
35600247	3514	3562	Wunnumin 1	1	1	1	1
35600248	3514	3562	Wunnumin 1	1	1	1	1
35600250	3514	3549	Weagamow Lake 87	1	1	1	1
35600251	3514	3562	Summer Beaver	1	1	1	1
35600252	3514	3562	Wunnumin 2	1	1	1	1
35600253	3514	3562	Wunnumin 1	1	1	1	1
35600254	3514	3562	Wunnumin 1	1	1	1	1
35600255	3514	3562	Neskantaga	1	1	1	1
35600256	3514	3562	Kingfisher Lake 1	1	1	1	1
35600257	3514	3562	Webequie	1	1	1	1
35600258	3514	3549	Cat Lake 63C	1	1	1	1
35600259	3513	3556	Attawapiskat 91A	1	1	1	1
35600260	3514	3549	Cat Lake 63C	1	1	1	1
35600261	3514	3549	Cat Lake 63C	1	1	1	1
35600262	3513	3556	Attawapiskat 91A	1	1	1	1
35600263	3514	3562	Wapekeka 1	1	1	1	1
35600264	3514	3562	Kitchenuhmaykoosib Aaki 84 (Big Trout Lake)	1	1	1	1
35600265	3514	3562	–	2	2	2	2
35600266	3514	3549	Pikangikum 14	1	1	1	1
35600268	3514	3549	English River 21	1	1	1	1

DA identifier	LHIN identifier	PHU identifier	Municipality / Indian reserve	Area limitation among males age 12 and older	Area limitation among females age 12 and older	Area limitation among adolescent males	Area limitation among adolescent females
35600269	3514	3549	Wabaseemoong	1	1	1	1
35600270	3514	3549	The Dalles 38C	1	1	1	1
35600295	3514	3549	Kenora 38B	1	1	1	1
35600297	3514	3549	Kenora 38B	1	1	1	1
35600299	3514	3549	Kenora 38B	1	1	1	1
35600300	3514	3549	Kenora 38B	1	1	1	1
35600301	3514	3549	Kenora 38B	1	1	1	1
35600302	3514	3549	Shoal Lake (Part) 39A	1	1	1	1
35600303	3514	3549	Kenora 38B	1	1	1	1
35600304	3514	3549	Lake Of The Woods 37	1	1	1	1
35600305	3514	3549	Lake Of The Woods 37	1	1	1	1
35600306	3514	3549	Lake Of The Woods 37	1	1	1	1
35600307	3514	3549	Lake Of The Woods 31G	1	1	1	1
35600308	3514	3549	Lake Of The Woods 37	1	1	1	1
35600309	3514	3549	Rat Portage 38A	1	1	1	1
35600310	3514	3549	Shoal Lake 34B2	1	1	1	1
35600311	3514	3549	Shoal Lake (Part) 39A	1	1	1	1
35600312	3514	3549	Shoal Lake (Part) 40	1	1	1	1
35600313	3514	3549	Northwest Angle 33B	1	1	1	1
35600314	3514	3549	Shoal Lake 34B2	1	1	1	1
35600315	3514	3549	Shoal Lake (Part) 40	1	1	1	1
35600324	3514	3549	Whitefish Bay 32A	1	1	1	1
35600325	3514	3549	Whitefish Bay 32A	1	1	1	1
35600326	3514	3549	Whitefish Bay 32A	1	1	1	1
35600327	3514	3549	Whitefish Bay 32A	1	1	1	1
35600328	3514	3549	Sabaskong Bay (Part) 35C	1	1	1	1
35600329	3514	3549	Whitefish Bay 34A	1	1	1	1
35600330	3514	3549	Whitefish Bay 33A	1	1	1	1
35600331	3514	3549	Whitefish Bay 32A	1	1	1	1
35600333	3514	3549	Sabaskong Bay 35D	1	1	1	1
35600334	3514	3549	–	2	2	2	2
35600335	3514	3549	–	2	2	2	2
35600336	3514	3549	–	2	2	2	2
35600337	3514	3549	Wabigoon Lake 27	1	1	1	1
35600338	3514	3549	–	2	2	2	2
35600339	3514	3549	Wabigoon Lake 27	1	1	1	1
35600340	3514	3549	Whitefish Bay 32A	1	1	1	1
35600341	3514	3549	Whitefish Bay 32A	1	1	1	1
35600342	3514	3549	Whitefish Bay 32A	1	1	1	1
35600343	3514	3549	Eagle Lake 27	1	1	1	1

DA identifier	LHIN identifier	PHU identifier	Municipality / Indian reserve	Area limitation among males age 12 and older	Area limitation among females age 12 and older	Area limitation among adolescent males	Area limitation among adolescent females
35600347	3514	3549	–	2	2	2	2
35600348	3514	3549	–	2	2	2	2
35600349	3514	3549	–	2	2	2	2
35600374	3514	3549	Lac Seul 28	1	1	1	1

References

1. World Health Organization. Noncommunicable Diseases Progress Monitor. Geneva: World Health Organization; 2017.
2. World Health Organization. Global status report on noncommunicable diseases 2014. Geneva: World Health Organization; 2014.
3. Ontario Ministry of Health and Long-Term Care. Ontario Mortality Data. intelliHEALTH ONTARIO2011.
4. Patra J, Popova S, Rehm J, Bondy S, Flint R, Giesbrecht N. Economic cost of chronic disease in Canada 1995-2003. Toronto, ON: Ontario Chronic Disease Prevention Alliance; 2007.
5. Cancer Care Ontario, Ontario Agency for Health Protection and Promotion (Public Health Ontario). Taking action to prevent chronic disease: recommendations for a healthier Ontario. Toronto; 2012.
6. Reaven GM. Insulin resistance: the link between obesity and cardiovascular disease. The Medical clinics of North America. 2011;95(5):875-92.
7. World Cancer Research Fund International/American Institute for Cancer Research. Continuous Update Project Report: Diet, Nutrition, Physical Activity and Colorectal Cancer. 2017.
8. Danaei G, Vander Hoorn S, Lopez AD, Murray CJ, Ezzati M. Causes of cancer in the world: comparative risk assessment of nine behavioural and environmental risk factors. Lancet (London, England). 2005;366(9499):1784-93.
9. Parkin DM, Boyd L, Walker LC. The fraction of cancer attributable to lifestyle and environmental factors in the UK in 2010. British journal of cancer. 2011;105 Suppl 2:S77-81.
10. Colditz GA, Wolin KY, Gehlert S. Applying what we know to accelerate cancer prevention. Science translational medicine. 2012;4(127):127rv4.
11. Brownson RC, Baker EA, Novick LF. Community-based prevention: programs that work. Gaithersburg: Aspen Publishers; 1999.
12. Green L, Kreuter MW. Health program planning: an educational and ecological approach. 4th ed. Boston: McGraw-Hill; 2005.
13. Cancer Care Ontario. Cancer Risk Factors in Ontario: Evidence Summary. Toronto; 2013.
14. Statistics Canada. 2006 Census of Population Ottawa: Statistics Canada; 2014 [updated 2017-01-26. Available from: http://www12.statcan.gc.ca/census-recensement/2006/index-eng.cfm.
15. Statistics Canada. Boundary Files, Reference Guide, Census year 2006. Ministry of Industry; 2007. Report No.: 92-160-GIE.
16. Statistics Canada. 2006 Census Dictionary 2008 [92-566-XWE:[Available from: http://www12.statcan.gc.ca/census-recensement/2006/ref/dict/index-eng.cfm.
17. Statistics Canada. Canadian Community Health Survey (CCHS) Annual component: user guide 2014 and 2013-2014 Microdata files. Industry Mo; 2015 June 2015.
18. Statistics Canada. Postal Code Conversion File Plus (PCCF+). 5K, 6B ed2011 and 2014.
19. Statistics Canada. 2011 Census questions Ottawa, ON: Statistics Canada; 2011 [updated 2015-12-30; cited 2017 August 13]. Available from: http://www12.statcan.gc.ca/census-recensement/2011/ref/about-apropos/questions-eng.cfm.
20. Besag J, York J, Mollie A. Bayesian image restoration, with 2 Applications in Spatial Statistics. Annals of the Institute of Statistical Mathematics. 1991;43(1):1-20.
21. Lawson A. Bayesian Disease Mapping, Hierarchical Modeling in Spatial Epidemiology. Boca Raton, FL: CRC Press; 2009.
22. Zhang X, Holt JB, Lu H, Wheaton AG, Ford ES, Greenlund KJ, et al. Multilevel regression and poststratification for small-area estimation of population health outcomes: a case study of chronic obstructive pulmonary disease prevalence using the behavioral risk factor surveillance system. American journal of epidemiology. 2014;179(8):1025-33.

23. Seliske L, Norwood TA, McLaughlin JR, Wang S, Palleschi C, Holowaty E. Estimating micro area behavioural risk factor prevalence from large population-based surveys: a full Bayesian approach. BMC public health. 2016;16:478.
24. Richardson S, Thomson A, Best N, Elliott P. Interpreting posterior relative risk estimates in disease-mapping studies. Environmental health perspectives. 2004;112(9):1016-25.
25. Thomas S, Wannell B. Combining cycles of the Canadian Community Health Survey. Health Reports. 2009;20(1):53–8.
26. Shields M, Connor Gorber S, Janssen I, Tremblay MS. Bias in self-reported estimates of obesity in Canadian health surveys: an update on correction equations for adults. Health Rep. 2011;22(3):35-45.
27. Mach L. Question regarding coefficient of variation for publication. In: Wang S, editor. Toronto, ON2013.
28. Besag J, York J, Mollié A. Bayesian image restoration, with two application in spatial statistics. Annals of the Institute of Statistical Mathematics. 2005;43:1-59.
29. Lee D. A comparison of conditional autoregressive models used in Bayesian disease mapping. Spatial and Spatio-temporal Epidemiology. 2001;2:79-89.
30. Best N, Richardson S, Thomson A. A comparison of Bayesian spatial models for disease mapping. Statistical Methods in Medicine Research. 2005;14(1):35-9.
31. Lawson AB, Biggeri AB, Boehning D, Lesaffre E, Viel J-F, Clark A, et al. Disease mapping models: an empirical evaluation. Statistics in Medicine. 2000;19:2217-41.
32. Rue H, Martino S, Chopin N. Approximate Bayesian inference for latent Gaussian models using integrated nested Laplace approximations (with discussion). Journal of the Royal Statistical Society, Series B. 2009;71(2):319-92.
33. The R-INLA project R-inla.org2017 [Available from: http://www.r-inla.org/.
34. Schrödle B, Held L. A primer on disease mapping and ecological regression using $$\texttt{INLA}$$. Computational Statistics. 2011;26(2):241-58.
35. Simpson DP, Rue H, Martins TG, Riebler A, Sorbye S. Penalising model component complexity: A principled, practical approach to constructing priors. arXiv:14034630 2014.
36. SAS Institute Inc. SAS® 9.4. Cary, NC: SAS Institute Inc; 2012.
37. R Core Team. R: A language and environment for statistical computing. Vienna, Austria: R Foundation for Statistical Computing; 2017.
38. Rue H, Martino S, Lindgren F, Simpson D, Riebler A, Krainski ET, et al. INLA Package: Functions which Allow to Perform Full Bayesian Analysis of Latent Gaussian Models using Integrated Nested Laplace Approximations. Version: 0.0-1468872408 ed2016.

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