

Impact of Socioeconomic Factors on Health in York Region



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EXECUTIVE SUMMARY

Health is complex and influenced by a variety of factors beyond medical care such as income, social status, education, employment, social environments, gender and culture. These factors are referred to as the social determinants of health. The social and economic conditions under which individuals live have a cumulative effect on their chances of remaining healthy or becoming ill.¹ Evidence shows that adequate income, a healthy physical environment and social support networks all affect a person's health.¹ This report presents differences found in rates of select health indicators (quality of life, chronic disease and injury, health behaviours, family health and mental health) between neighbourhoods defined by measures of marginalization.

Marginalization in this report is characterized by the four dimensions of the Ontario Marginalization Index (ON-Marg) and neighbourhood income levels. ON-Marg uses the dimensions of material deprivation, dependency, residential instability and ethnic concentration at the neighbourhood level to define possible differences in equity.²

Health inequalities are about health differences between population groups that can be measured. For example, differences in physical capabilities between elderly and younger people would be considered a health inequality (unavoidable).³

Inequity is about disadvantage. Health inequities are about health differences between population groups that are unfair, avoidable and unjust. Health inequities are defined in social, economic, demographic or geographic terms.⁴ For example, Type-2 diabetes has been found to be four times higher among Canada's lowest income group compared to the highest income group.⁵ "Identifying health inequities requires the use of judgment regarding the social justice of an inequality and may depend on the causes of the inequality and context of local community."^{3,6}

Neighbourhood income level was measured using quintiles of neighbourhood income per single person equivalent (QAIPPE) based on the average household income in the 2006 Census dissemination areas adjusted for household size.⁷ Dissemination areas are the smallest geographic areas (population of 400 to 700 persons) for which census data are made available by Statistics Canada.⁸

Based on the analysis conducted, York Region residents living in neighbourhoods with negative socioeconomic characteristics were more likely to have negative health outcomes. However, with a small number of indicators, neighbourhoods with positive socioeconomic characteristics would instead have more negative health outcomes.

Neighbourhoods with the highest material deprivation were more likely to have:

- Reported only fair or poor health.
- Higher levels of chronic diseases and injury.
- Residents who smoke.
- Homes where smoking in the home is allowed.
- Physically inactive residents.

Neighbourhoods with the highest residential instability were more likely to:

- Have higher levels of chronic diseases and injury.
- Have higher rates of all-cause hospitalization.
- Report only fair or poor health.
- Have residents who smoke.
- Have homes where smoking in the home is allowed.
- Have residents visiting emergency rooms because of intentional self-harm.

On the other hand, residents in neighbourhoods with the lowest residential instability had higher rates of reported sunburn in the past year.

Neighbourhoods with highest levels of dependency were more likely to:

- Report only fair or poor health.
- Have residents visit the emergency room because of injury-related reasons.
- Have physically inactive residents.

Ethnic concentration was found to have a seemingly reversed association with selected indicators.

Neighbourhoods with the lowest ethnic concentration were more likely to have:

- High rates of injury-related emergency visits.
- Residents who drink in excess of the low-risk drinking guidelines.
- Residents who reported sunburn in the past year.

On the other hand, residents in neighbourhoods with high ethnic concentration were more likely to be overweight or obese.

Neighbourhoods with the lowest neighbourhood income levels were more likely to:

- Have a higher all-cause hospitalization rate.
- Report only fair or poor health.
- Have residents hospitalized for circulatory disease.
- Have residents who smoke.
- Have homes where smoking in the home is allowed.

On the other hand, residents in neighbourhoods with the highest neighbourhood income levels were more likely to have residents reported sunburn in the past year.

Unlike other health indicators analyzed in this report, fruit and vegetable consumption, as well as low birth weight rates, were not associated with any of the ON-Marg dimensions or neighbourhood income levels. York Region neighbourhoods with all levels of socioeconomic statuses had similar outcomes for these two indicators.

The findings of this report show that marginalization is associated with health inequity and can have varied impacts on health outcomes in York Region neighbourhoods. Specifically, material deprivation and residential instability were associated with more indicators of poor health than any of the other marginalization measures. As can be seen in the report, the magnitude of these associations between marginalization and health outcomes differed depending on the marginalization measure and indicator. That being said, this report only used a small number of marginalization measures and select health outcomes, which only begins to show the association between health equity and health outcomes. As such, further investigations and actions will be necessary to better understand and address effectively health equity as it presents in The Regional Municipality of York.

BACKGROUND

Health Equity in York Region

Local public health units contribute to the health and well-being of their population in many ways, including addressing health equity. They are mandated by the Ontario Public Health Standards to provide population health information including determinants of health and health inequities to the public, community partners, and health care providers.^{9,10}

Health inequalities can be defined as differences in health status or in the distribution of health determinants between different population groups.¹¹ Not all differences in health status though, are considered to be health inequities. Health inequities are health inequalities that are deemed unnecessary and avoidable as well as unjust and unfair.

This report examines differences in rates of selected health indicators (quality of life, chronic disease and injuries, health behaviours and family health) between population groups defined by area-based measures of marginalization to better understand how to improve health equity in York Region.

Social Determinants of Health

Health is complex and influenced by a variety of factors. Non-medical factors that influence health, such as income, social status, education, employment, social environments, gender and culture, are referred to as the social determinants of health. The social and economic conditions affecting individuals have a cumulative effect on their chances of remaining healthy or becoming ill.¹ Evidence shows that adequate income, a healthy physical environment and social support networks all affect a person's health.¹

- In 2011, 18.2% of York Region families with children were single parent families.¹²
- English was spoken most often at home by 71.0% of York Region residents. Non-official languages were spoken most often at home by 28.7% of the population and included: Chinese languages 11.9%; Russian 2.5%; Farsi 2.1%; and Italian 1.9% in 2011.¹²
- The unemployment rate for York Region's labour force was approximately 6.9% in December 2013.¹³
- In 2011, 80.7% of the working population living in York Region had a usual place of work, 7.6% worked at home, 11.1% had no fixed workplace address and 0.6% worked outside Canada.¹⁴
- One-in-five (20.9%) York Region residents 25 to 64 years of age had completed a high school education, 70.2% had completed post-secondary education and 9.0% had less than a Grade 9 education in 2011.¹⁴
- More than four-in-ten (43.2%) of all York Region residents identified themselves as visible minorities in 2011. Those who identified themselves as belonging to a Chinese or South Asian minority group accounted for 17.7% and 10.5% of the population, respectively.¹⁴
- In York Region, 10.9% of residents lived in low income households in 2010 based on Statistics Canada's after-tax low-income measure.¹²

METHODS

Ontario Marginalization Index

The Ontario Marginalization Index (ON-Marg) is a census and geographically based index derived to show differences in marginalization between areas.² The four dimensions of marginalization it examines are material deprivation, dependency, residential instability and ethnic concentration. This index can also be used to understand inequalities in various measures of health and social well-being in populations or geographical areas as a proxy for determinants of health. The ON-Marg has demonstrated stability across both time period and geographic areas. Table 1 describes the variables included in the marginalization index.

ON-Marg contains quintiles that have been created by sorting the marginalization data of 18,921 Census dissemination areas in Ontario into five groups, ranked from 1 (least marginalized 'Q1') to 5 (most marginalized 'Q5'). Using material deprivation as an example, if an area has a value of 5 (quintile 5 or 'Q5') on the material deprivation scale, it means that the area is in the top 20% of materially deprived areas in Ontario.

Figures 1 to 4 show the geographic distribution of the four dimensions of deprivation (residential instability, material deprivation, dependency and ethnic diversity) in York Region. Areas of high deprivation were observed to vary greatly depending on the dimension examined.

The marginalization analyses conducted for this report followed the steps and methods outlined in the ON-Marg User Guide. The time period for comparison of the rate of events with marginalization (e.g., hospitalization rates in York Region compared across the five marginalization scale values) matches the 2006 census year as closely as possible to ensure data comparability. York Region rates for more recent years are shown, where available, to provide a context for the marginalization analysis.

In general, disparities across the neighbourhood marginalization quintiles were identified by comparing the difference between the highest marginalized areas and the lowest marginalized areas in York Region. This comparison quantifies the difference in morbidity between the most deprived quintile and the least deprived quintile. A 95% confidence interval is the range within which the true value lies, 19 times out of 20. The confidence intervals for rates are presented as error bars in the graphs. Assessment of significant differences across groups was based on whether the confidence interval of a particular group overlapped with the confidence interval of another group. Although the differences between quintiles for all indicators in this report were examined for all ON-Marg dimensions (material deprivation, dependency, residential instability and ethnic concentration) and neighbourhood income, in general, statistically significant differences have selected for discussion in the text.

Table 1 - Variables included in the Ontario Marginalization Index

Dimension	Census Variables
Residential instability	Proportion of the population living alone Proportion of the population who are not youth aged 16+ Average number of persons per dwelling Proportion of the dwellings that are apartment buildings Proportion of the population who are single/divorced/widowed Proportion of the dwellings that are not owned Proportion of the population who moved during the past 5 years
Material deprivation	Proportion of the population aged 20+ without a high school diploma Proportion of the families who are lone parent families Proportion of the population receiving government transfer payments Proportion of the population aged 15+ who are unemployed Proportion of the population who are considered low-income Proportion of the households living in dwellings that are in need of repair
Dependency	Proportion of the population who are aged 65 and older Dependency ratio (total population 0-14 and 65+/total population 15 to 64) Proportion of the population not participating in labour force aged 15+
Ethnic concentration	Proportion of the population who are recent immigrants (arrived in the past 5 years prior to census) Proportion of the population who self-identify as visible minority

Table 2 Number of Dissemination Areas and Population by Ontario Marginalization Index Dimension Quintiles, York Region, 2006

	ON-Marg Dimension Quintile*							
	Residential Instability		Material Deprivation		Dependency		Ethnic concentration	
	# of DA	Population	# of DA	Population	# of DA	Population	# of DA	Population
1 (Least deprived)	656	510,856	384	337,196	291	246,412	34	18,125
2	215	196,533	366	291,576	367	331,720	96	50,206
3	125	81,596	224	160,955	259	178,573	171	102,846
4	82	61,972	119	81,006	129	73,919	269	195,405
5 (Most deprived)	50	41,402	35	21,626	82	61,735	558	525,777
Total	1,128	892,359	1,128	892,359	1128	892,359	1,128	892,359

*Each quintile does not contain an equal proportion of the York Region population.

Ontario Marginalization Index by Dissemination Area Residential Instability Component, York Region, 2006

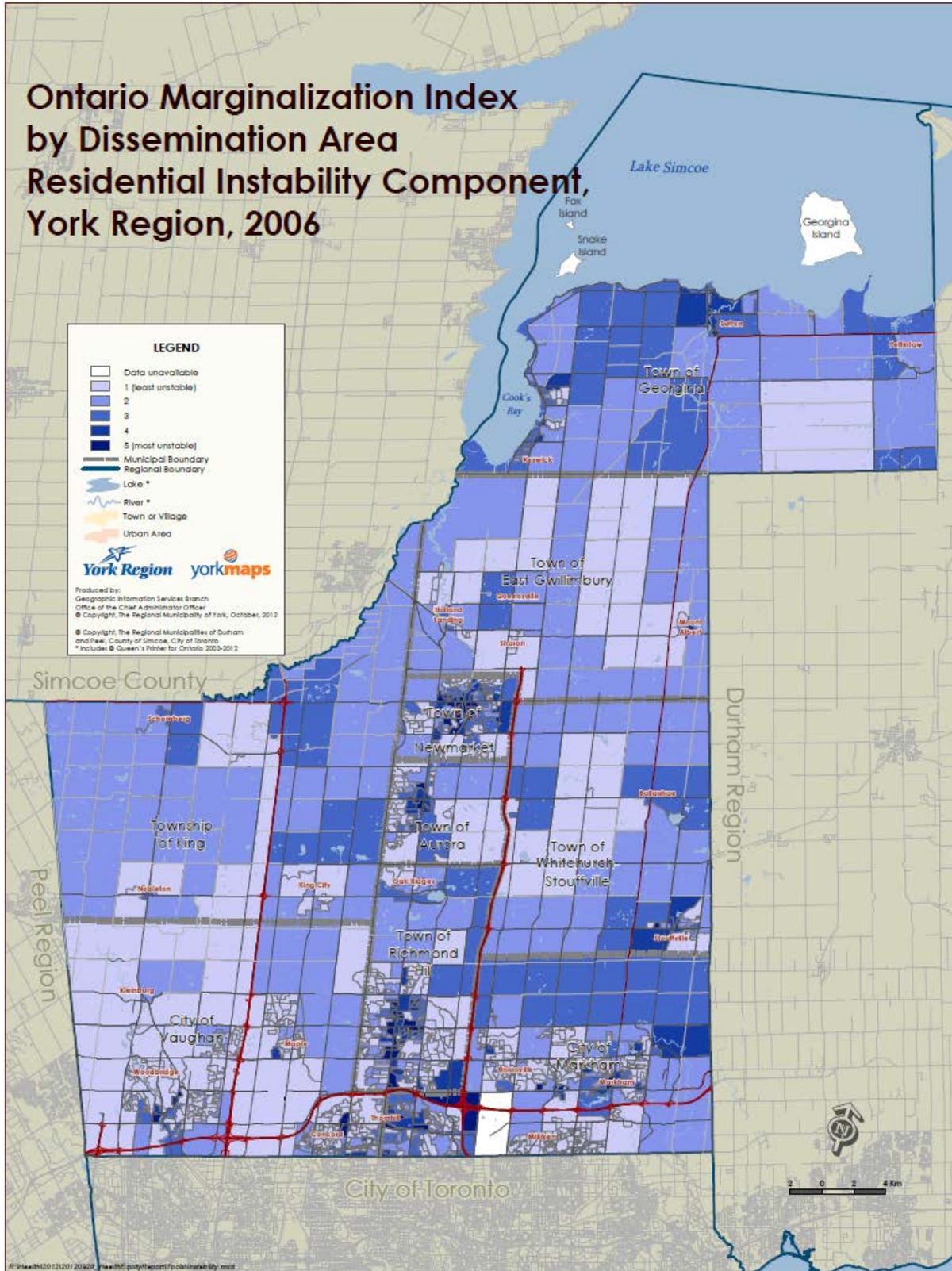


Figure 1 - Ontario Marginalization Index by Dissemination Area, Residential Instability Component, York Region, 2006

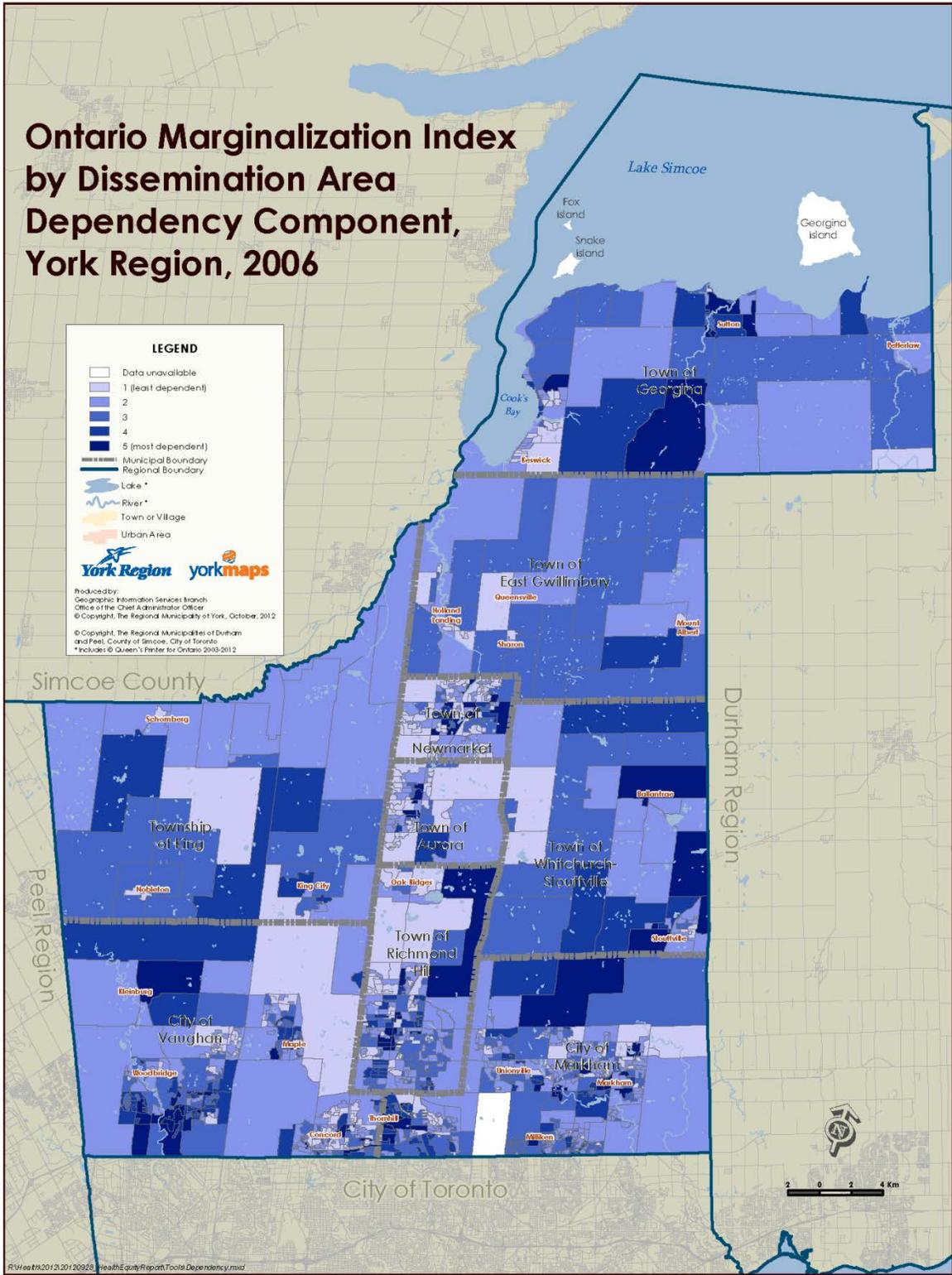


Figure 3 - Ontario Marginalization Index by Dissemination Area, Dependency Component, York Region, 2006

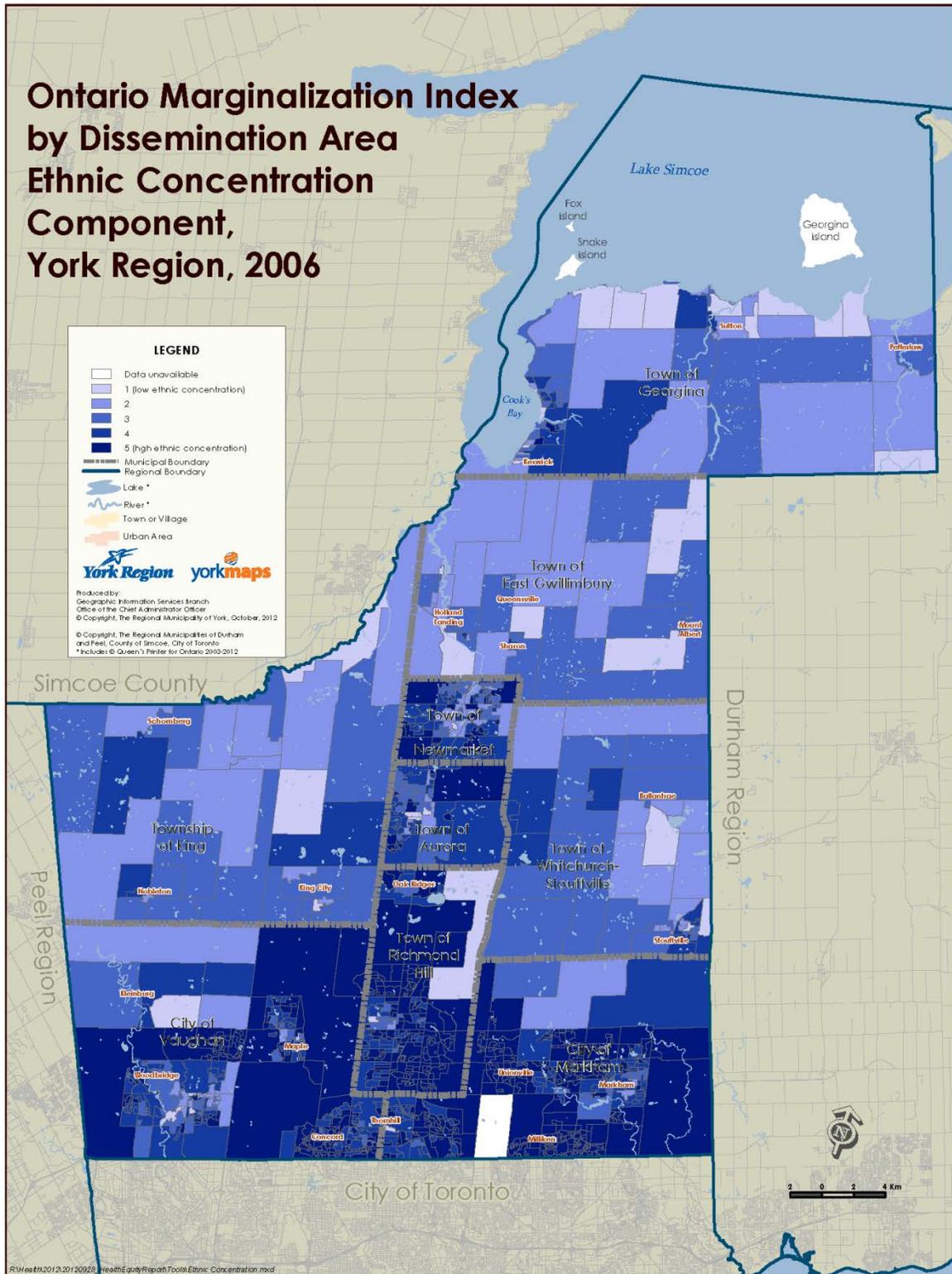


Figure 4 - Ontario Marginalization Index by Dissemination Area, Ethnic Concentration Component, York Region, 2006

Neighbourhood Income Quintiles

A supplementary socio-demographic indicator for this health equity analysis is quintiles of neighbourhood income per single person equivalent (QAIPPE), defined as the average household income in 2006 Census dissemination areas adjusted for household size.⁷ A QAIPPE quintile value of 1 is the lowest

income category and represents approximately 4.2% of York Region’s population in 2006 (Table 3). Conversely, a quintile value of 5 is the highest income category and represents approximately 26.5%. Figure 5 shows the geographic distribution of neighbourhood income in York Region.

Table 3 Number of Dissemination Areas and Population by Income Quintiles, York Region, 2006

	Income Quintile (QAIPPE)	
	# of Dissemination Areas	Population
1 (lowest)	53	37,500
2	141	123,143
3	253	214,950
4	323	280,297
5 (highest)	357	236,142
Total	1,128	892,359

Note: As the QAIPPE was developed using all households across Canada, each quintile presented above does not contain an equal proportion of the York Region population.

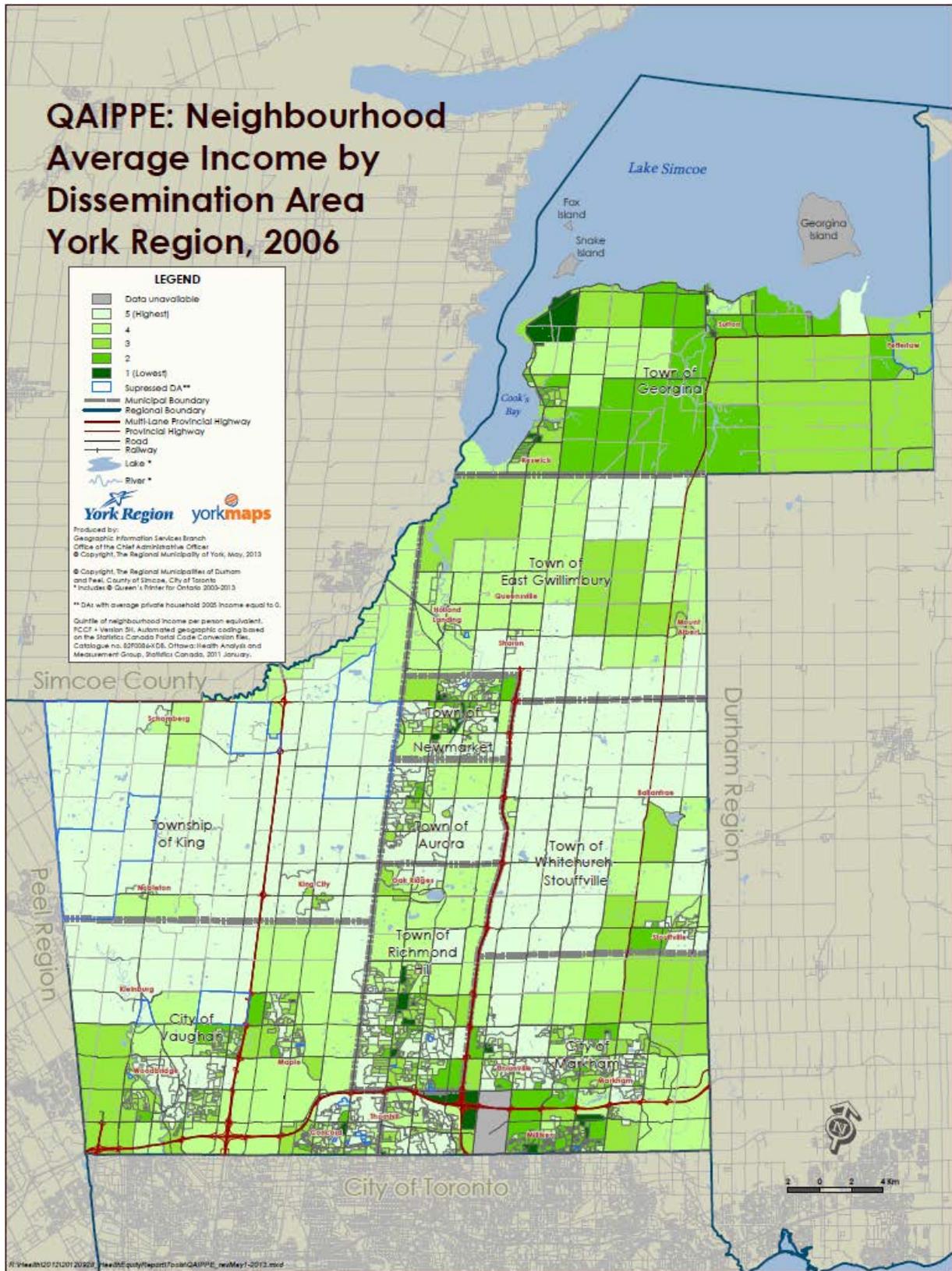


Figure 5 - Average neighbourhood income by Dissemination Area, York Region, 2006

HEALTH EQUITY IN YORK REGION

The following are select indicators of health associated with socioeconomic factors. In general, this York Region-specific report comments on deprivation indices and income where a trend was observed. Full data tables for the selected indicators can be found in the Appendix.

Health-related Quality of Life

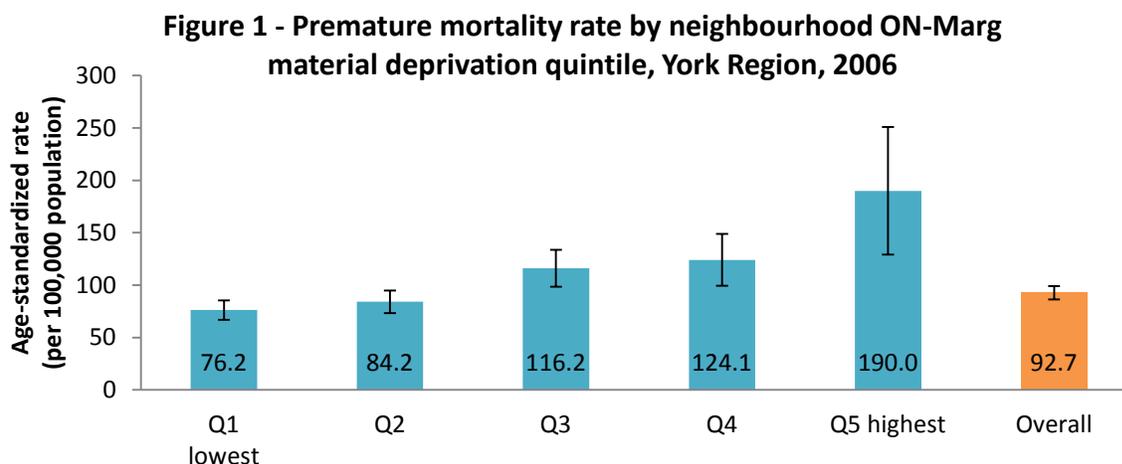
Premature Death

Higher rates of premature death were observed in neighbourhoods with the highest material deprivation.

The life expectancy for a York Region resident was 84.4 years in 2009. A premature or early death is defined to have occurred if an individual dies before they reach the average life expectancy. Early deaths are more common among socially deprived or less affluent groups.¹⁵ A common way to calculate premature death is the all-cause, age-standardized mortality rate per 100,000 population for all individuals under 65 years of age.

In 2009, the age-standardized premature mortality rate among York Region residents was 84.1 per 100,000 population (64.6 for females and 103.8 for males). Between 2003 and 2009, the overall premature mortality rate decreased from 100.7 to 84.1 per 100,000 population.

- People living in neighbourhoods with the most material deprivation (Q5) had a higher premature mortality rate compared with those living in neighbourhoods with the least material deprivation (Q1) in 2006 (Figure 1).



95% confidence intervals shown at the top of each rate

Data Sources: Mortality Data 2006, Ontario Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO, April 2013. 2006 Census, Statistics Canada. Ontario Marginalization Index, Centre for Research on Inner City Health, 2012.

All-Cause Hospitalizations

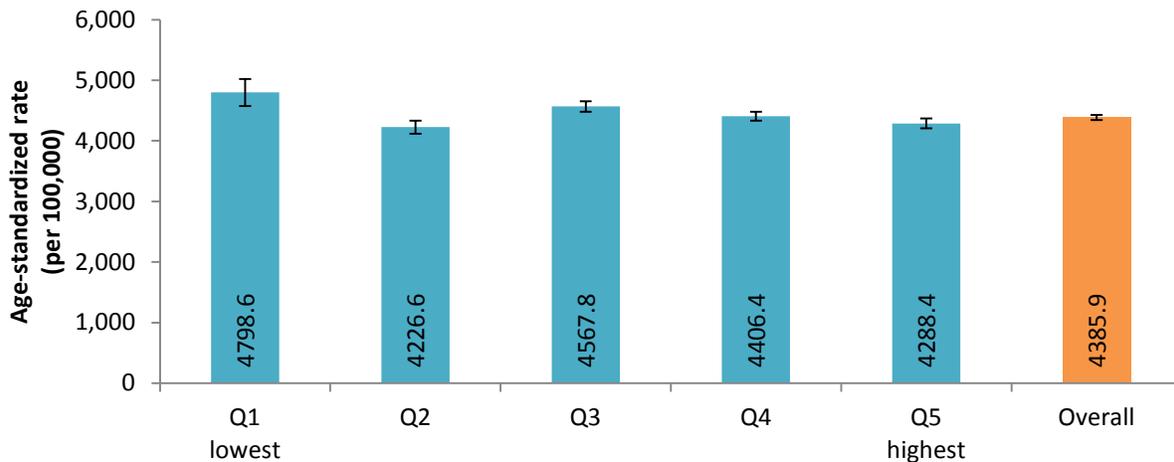
York Region residents living in the neighbourhoods with the lowest neighbourhood average income, most residential instability, and the most material deprivation have higher rates of hospitalization.

The rate of hospitalizations from all causes is a commonly used indicator that provides a general measure of health status and well-being. Multiple studies have found that low income and low socioeconomic status is often associated with high rates of hospitalization.¹⁶⁻²⁰

In 2012, the age-standardized all-cause hospitalization rate for York Region was 3,938.2 per 100,000 residents (3,650.7 for females and 4,281.6 for males). Between 2004 and 2012, the overall all-cause hospitalization rate decreased from 4,724.3 to 3,938.2 per 100,000.

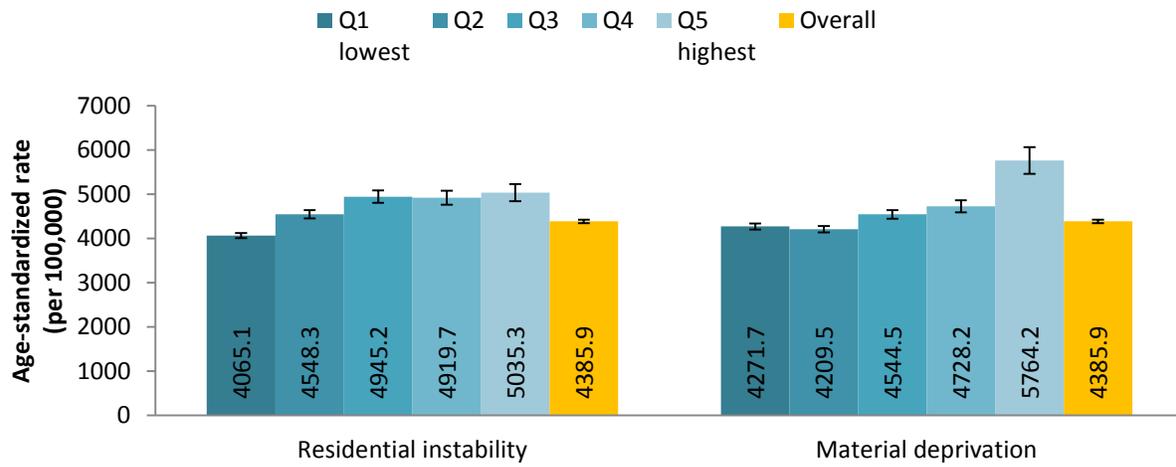
- Residents living in neighbourhoods with the lowest neighbourhood average income had higher rates of hospitalization compared to those living in the highest neighbourhood income group (Figure 2).
- Residents living in neighbourhoods with the most residential instability (Q5) and the most material deprivation (Q5) had higher all-cause hospitalization rates than those living in neighbourhoods with the least residential instability or material deprivation (Q1) (Figure 3).

Figure 2 - Hospitalization rate (all causes) by neighbourhood income quintile, York Region, 2006



Data Sources: Inpatient Discharges 2006, Ontario Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO, April 2013. 2006 Census, Statistics Canada. PCCF+ Version H, Statistics Canada.

Figure 3 - Hospitalization rate (all causes) by neighbourhood residential instability and material deprivation quintiles, York Region, 2006



Data Sources: Inpatient Discharges 2006, Ontario Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO, April 2013. 2006 Census, Statistics Canada. Ontario Marginalization Index, Centre for Research on Inner City Health, 2012.

Self-reported General Health

Higher rates of fair or poor perceived health were observed in neighbourhoods with the most residential instability, most material deprivation, higher levels of dependency, as well as lower neighbourhood average income.

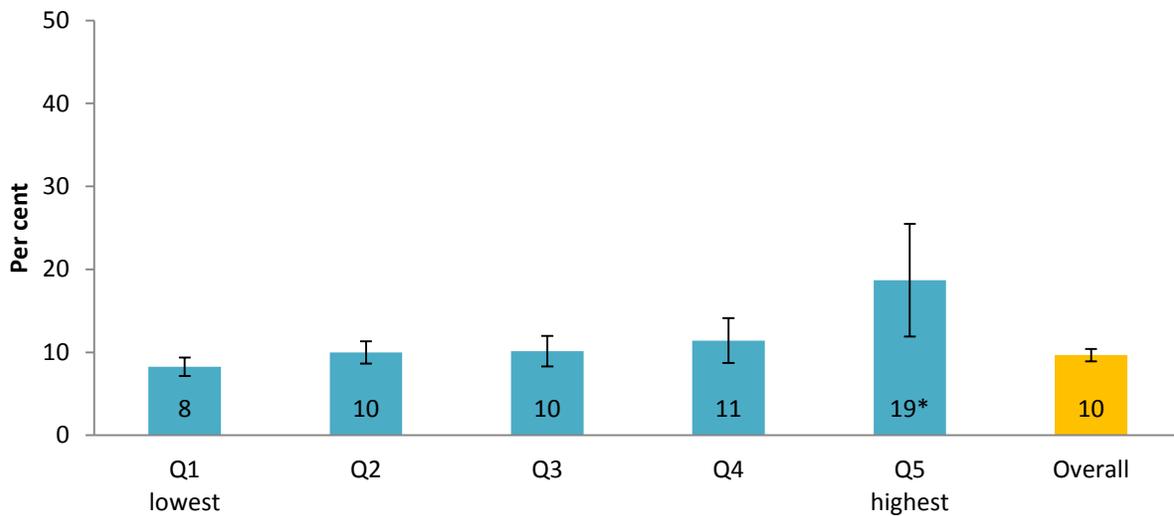
The proportion of the population reporting fair or poor perceived health provides an approximate measure of overall health status. In 2012, 10% of York Region residents aged 18 and over rated their own health as fair or poor (11% of females and 9% of males). Since 2001, the percentage of York Region adults who reported fair or poor perceived health has remained stable ranging between 7% and 12%.

- Adults living in neighbourhoods with the highest levels of residential

instability, material deprivation and dependency were more likely to report fair or poor health than those living in neighbourhoods with the lowest levels (data not shown).

- Residents living in neighbourhoods with the lowest neighbourhood average income were more likely to report fair or poor health compared to those living in the highest neighbourhood income group (Figure 4).

Figure 4 - Fair or poor general health by neighbourhood material deprivation quintile, York Region, 2006 - 2011 combined



*Interpret with caution. High variability

Data Sources: Rapid Risk Factor Surveillance System 2006-2011, York Region Community and Health Services Department. Ontario Marginalization Index, Centre for Research on Inner City Health, 2012.

Chronic Disease and Injuries

Circulatory Disease Hospitalizations

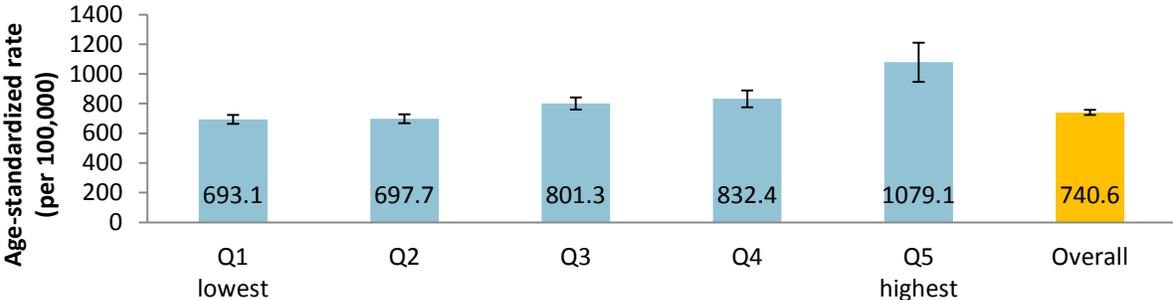
Higher rates of circulatory disease hospitalizations were observed in neighbourhoods with the most material deprivation, most residential instability, as well as the lower neighbourhood average income.

Circulatory diseases are diseases that affect the heart or blood vessels. Common circulatory diseases requiring hospitalization include ischemic heart disease (IHD) and stroke. The main types of IHD are heart attack and chest pain both of which result from lack of coronary blood flow. Studies have found that factors such as age, gender, ethnicity and deprivation among others may be associated with hospitalizations for at least some circulatory diseases.^{21,22}

In 2012, the age-standardized circulatory disease hospitalization rate for York Region was 598.6 per 100,000 residents (417.4 for females and 802.3 for males). Between 2004 and 2012, the circulatory disease hospitalization rate decreased from 805.7 to 598.6 per 100,000.

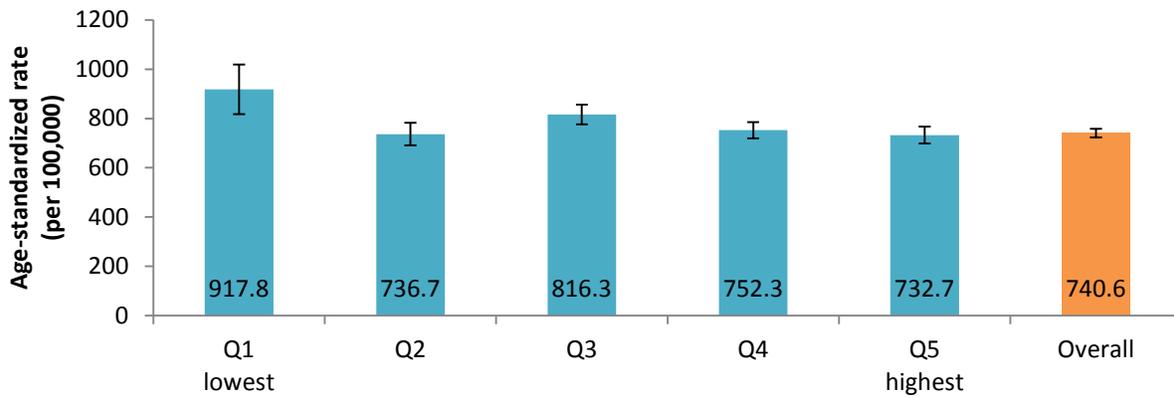
- Residents living in neighbourhoods with the most material deprivation had a higher circulatory disease hospitalization rate than York Region as a whole, as well as neighbourhoods with the least material deprivation (Figure 5).
- Residents in neighbourhoods with the most residential instability had a higher circulatory disease hospitalization rate than the lowest areas in York Region (data not shown).
- Residents living in neighbourhoods with the lowest neighbourhood average income had a higher circulatory disease hospitalization rate than York Region as a whole, as well as the highest neighbourhood income areas (Figure 6).

Figure 5 - Circulatory disease hospitalization rates by neighbourhood material deprivation quintile, York Region, 2006



Data Sources: Inpatient Discharges 2006, Ontario Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO, April 2013. 2006 Census, Statistics Canada. Ontario Marginalization Index, Centre for Research on Inner City Health, 2012.

Figure 6 - Circulatory disease hospitalization rates by neighbourhood income quintile, York Region, 2006



Data Sources: Inpatient Discharges 2006, Ontario Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO, April 2013. 2006 Census, Statistics Canada. PCCF+ Version H, Statistics Canada.

All Injury Emergency Room Visits

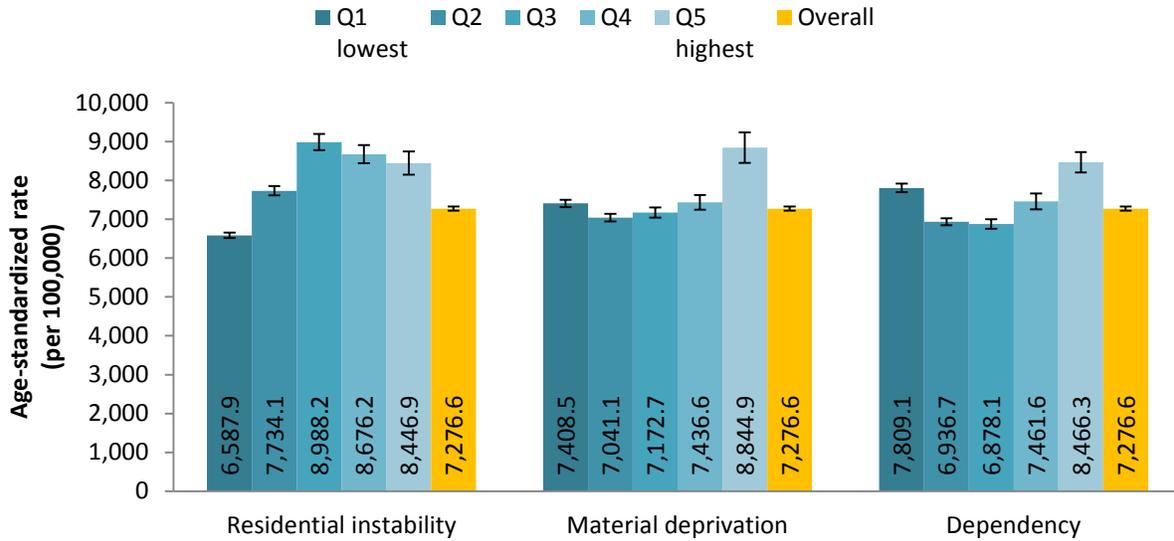
Higher rates of injury-related emergency room visits seen in neighbourhoods with the most material deprivation.

Socioeconomic features at both the individual and neighbourhood level are related to a person’s risk of injury. Living in neighbourhoods with greater residential instability and higher ethnic concentration, as well as low income and unstable family structure, have been associated with an increased risk of death from homicide, motor vehicle accidents and other external causes.²³⁻²⁵

In 2012, the age-standardized emergency ambulatory visit rate for all injuries among York Region residents was 7,254.0 per 100,000 residents (6,186.5 for females and 8,286.9 for males). Between 2004 and 2009, the emergency ambulatory visit rate for all injuries declined from 7,283.5 per 100,000 to 6,863.8 per 100,000. Between 2009 and 2012 though, this rate has increased.

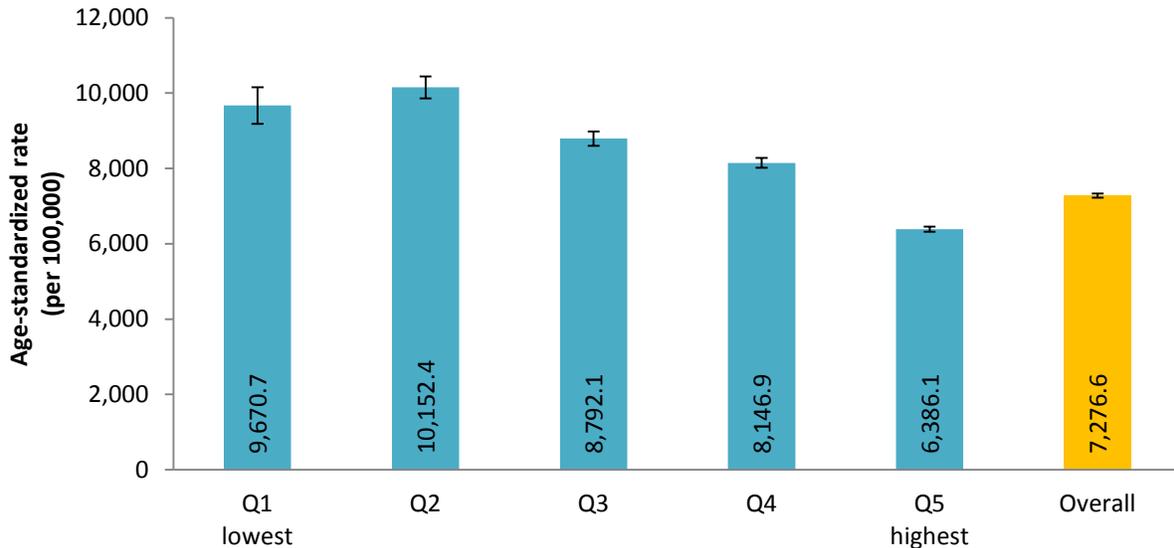
- Neighbourhoods with the most residential instability, most material deprivation and higher levels of dependency had higher injury-related emergency room visit rates than those at the opposite end of the spectrum in these various dimensions (Figure 7).
- Residents in neighbourhoods with the lower ethnic concentration had higher injury-related emergency visit rates than those with the higher ethnic concentration (Figure 8).
- No statistical difference was observed in injury-related emergency ambulatory visit rates between neighbourhoods with the lowest and highest neighbourhood average income.

Figure 7 - Injury-related emergency ambulatory visit rate by select ON-Marg dimensions and quintiles, York Region, 2006



Data Sources: Ambulatory Emergency External Cause Data 2006, Ontario Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO, April 2013. 2006 Census, Statistics Canada. Ontario Marginalization Index, Centre for Research on Inner City Health, 2012.

Figure 8 - Injury-related emergency ambulatory visit rate by neighbourhood ethnic concentration quintile, York Region, 2006



Data Sources: Ambulatory Emergency External Cause Data 2006, Ontario Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO, April 2013. 2006 Census, Statistics Canada. Ontario Marginalization Index, Centre for Research on Inner City Health, 2012.

Health Behaviours

Current Smoking

Higher rates of current smoking were observed in neighbourhoods with the most material deprivation and the most residential instability, as well as neighbourhoods with lowest neighbourhood average income.

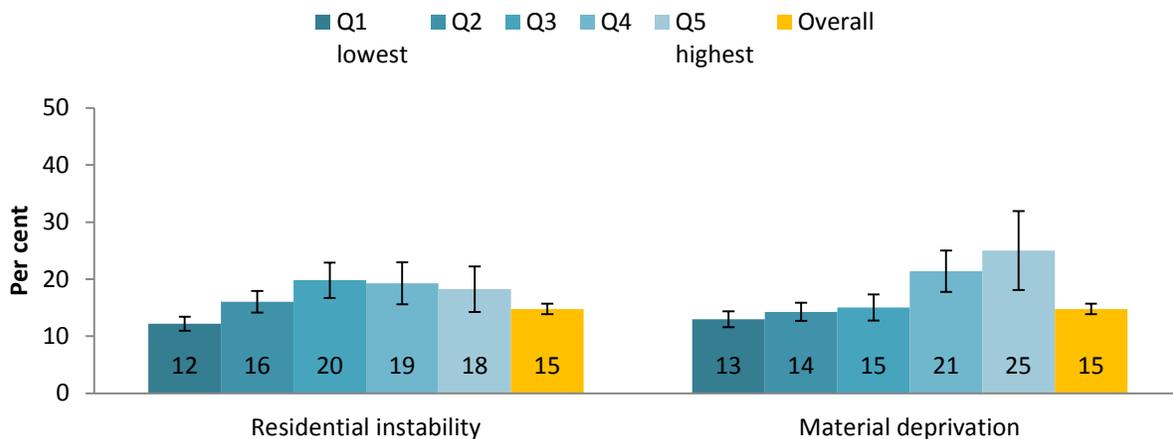
Cigarette smoking is a major contributor to mortality and illness. In 2012, 12% of York Region adults reported being a current smoker (11% of females and 14% of males). Between 2001 and 2012, the percentage of current smokers decreased from 21% to 12%.

- Adults living in neighbourhoods with the most residential instability or the most material deprivation were more likely to smoke than those living in

neighbourhoods with the least residential instability or material deprivation (Figure 9).

- Adults living in neighbourhoods with the lowest neighbourhood average income were more likely to report current smoking compared to those living in neighbourhoods with the highest neighbourhood average income.

Figure 9 - Current smoking by neighbourhood residential instability and material deprivation quintile, York Region, 2006 - 2011 combined



Data Sources: Rapid Risk Factor Surveillance System 2006-2011, York Region Community and Health Services Department. Ontario Marginalization Index, Centre for Research on Inner City Health, 2012.

Alcohol Consumption

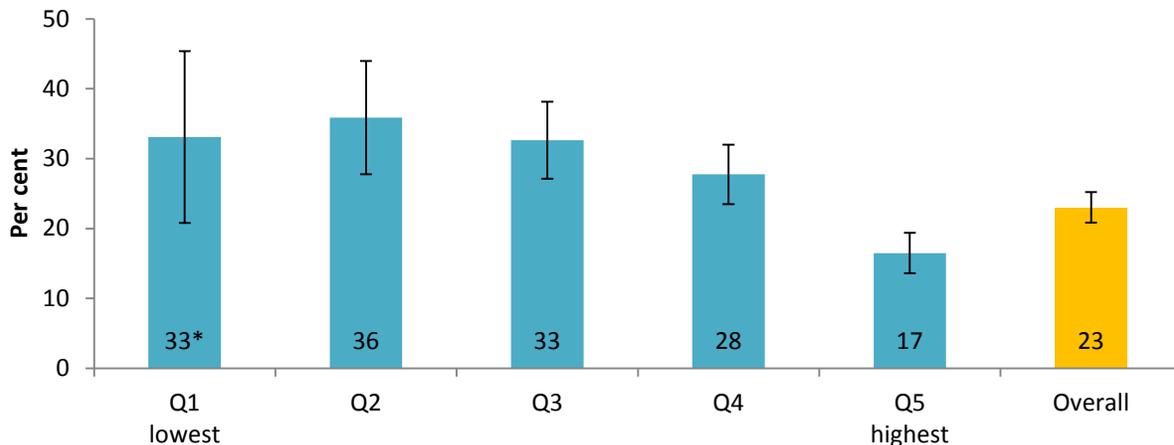
Lowest rates of drinking in excess of the low-risk drinking guidelines were observed in neighbourhoods with highest ethnic concentration.

The proportion of the population of legal drinking age who report consuming alcohol at levels that exceed Canada’s Low-Risk Drinking Guidelines (LRDG) provides an approximate measure of individuals at increased risk to immediate and long-term alcohol-related harm. These guidelines were introduced in 2011 to help Canadians moderate their alcohol consumption and reduce their immediate and long-term alcohol-related harm.²⁶ They consist of sex-specific daily and weekly limits for alcohol consumption and at least two non-drinking days per week.

In 2011, 25% of York Region residents aged 19 and over reported drinking in excess of the LRDG (21% of females and 29% of males). Since 2005, the percentage of York Region adults who reported drinking in excess of the low-risk drinking guidelines has remained stable ranging between 20% and 26%.

- Adults living in neighbourhoods with lower neighbourhood ethnic concentration (Q1) were more likely to drink in excess of the LRDG compared with those living in neighbourhoods with the higher neighbourhood ethnic concentration (Q5) (Figure 10).

Figure 10 - Drinking in excess of the low-risk drinking guidelines by neighbourhood ON-Marg ethnic concentration quintile, York Region, 2005, 2007/08, 2009/10 & 2011 combined



*Interpret with caution. High variability

Data Sources: Canadian Community Health Survey 2005, 2007/08, 2009/10, 2011, Statistics Canada. Ontario Marginalization Index, Centre for Research on Inner City Health, 2012.

Physical Inactivity

Residents in neighbourhoods with the most material deprivation or higher levels of dependency were more likely to be physically inactive.

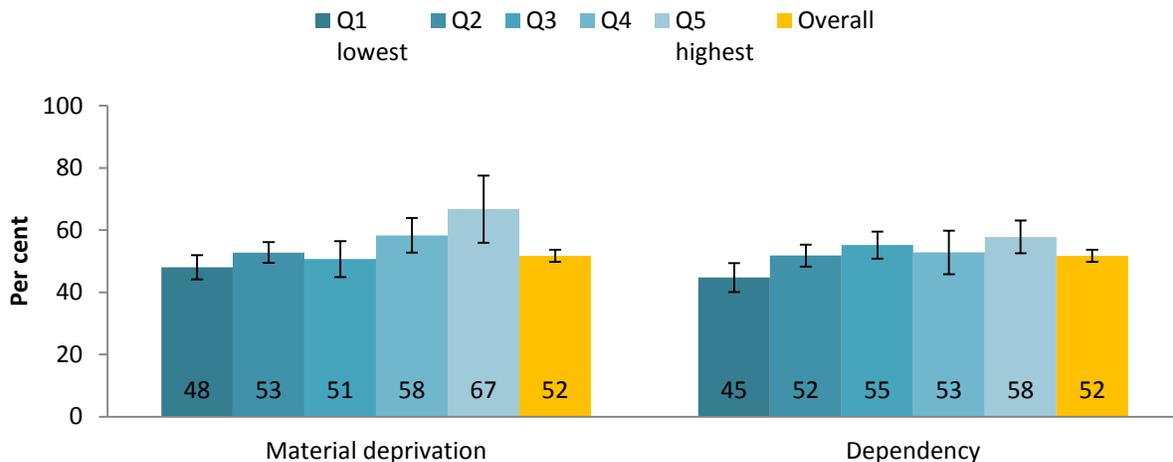
Physical activity reduces the risk of cardiovascular disease, such as diabetes, obesity and high blood pressure.²⁷ The proportion of the population who report having participated in leisure-time physical activities below 1.5 kilocalorie per kilogram per day are considered at an 'inactive' level of energy expenditure. Furthermore, research suggests that socially disadvantaged neighbourhoods are associated with lower levels of physical activity.²⁸

In 2011, 53% of York Region residents aged 12 and over were physically inactive (59% of

females and 47% of males). From 2000 to 2011, the percentage of the population who were physically inactive has ranged between 47% and 54%.

- Residents of neighbourhoods with the most material deprivation (Q5) or higher levels of dependency (Q5) had a higher level of physical inactivity compared to York Region as a whole or to neighbourhoods with the least material deprivation or lower levels of dependency (Q1) (Figure 11).

Figure 11 - Percentage of residents (aged 12+) who were physically inactive during leisure time by neighbourhood material deprivation and dependency quintiles, York Region, 2005, 2007/08, 2009/10 & 2011 combined



Data Sources: Canadian Community Health Survey 2005, 2007/08, 2009/10, 2011, Statistics Canada. Ontario Marginalization Index, Centre for Research on Inner City Health, 2012.

Body Weight

Lower rate of self-reported overweight or obese in neighbourhoods with the highest ethnic concentration.

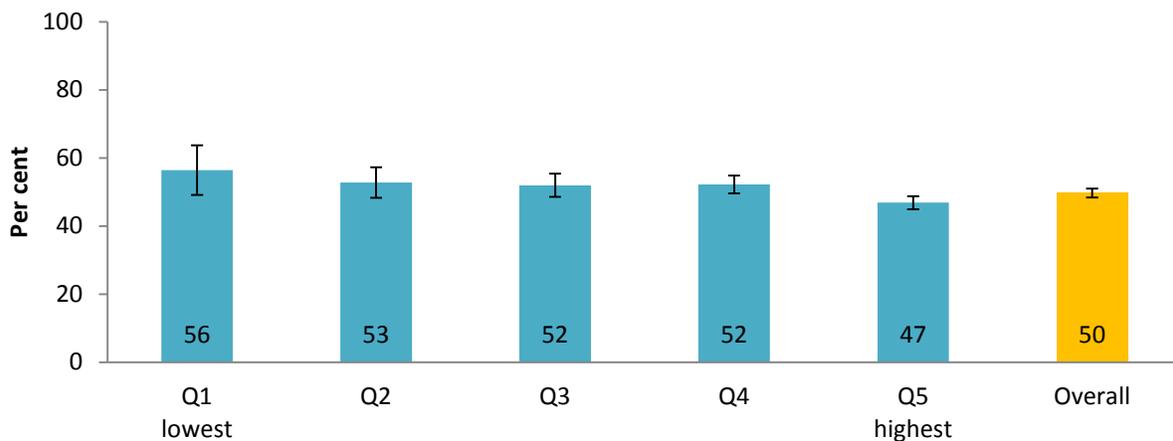
The proportion of the population who are considered overweight or obese, as defined by the body mass index (BMI), is a commonly used indicator of health status. The BMI is based on height and weight and classifies people into risk categories with groups on either extreme of the index having a higher risk for developing health problems. Health outcomes linked with being overweight or obese include Type 2 diabetes, hypertension and cardiovascular disease.²⁹ Research has suggested that low socioeconomic status is associated with a greater risk of becoming overweight or obese compared to high socioeconomic status.³⁰ Furthermore, research has found that neighbourhood ethnic

concentration is associated with being overweight and obese.³¹

In 2012, 50% of York Region adults were overweight or obese (36% of females and 67% of males). From 2001 to 2012, the percentage of the adults who were overweight or obese has ranged between 43% and 55%.

- Adults living in neighbourhoods with a higher ethnic concentration had a lower likelihood of being overweight or obese compared to adults living in neighbourhoods with a lower ethnic concentration (Figure 12).

Figure 12 - Percentage of residents (aged 18+) who were overweight or obese by neighbourhood ethnic concentration, York Region, 2006 - 2011 combined



Data Sources: Rapid Risk Factor Surveillance System 2006-2011, York Region Community and Health Services Department. Ontario Marginalization Index, Centre for Research on Inner City Health, 2012.

Vegetable and Fruit Consumption

The percentage of York Region residents who do not eat enough fruits and vegetables remains stable between 57% and 62%.

Low consumption of fruits and vegetables is a risk factor adding to the global burden of disease for diseases with significant dietary components such as certain cancers, cardiovascular and cerebrovascular disease.³² Individuals with high income, who are married and live in advantaged neighbourhoods tend to have higher consumption of fruits and vegetables.³³

In 2011, 61% of York Region residents aged 12 and over reported eating less than five

vegetable and fruit servings per day (52% of females and 71% of males). From 2001 to 2011, this percentage has ranged between 57% and 62%.

- No statistical differences were observed in the proportion of York Region residents who reported eating less than five servings of vegetables and fruits per day based on the four ON-Marg dimensions and neighbourhood income examined as part of this analysis.

Ultraviolet Light Exposure

Areas with the highest neighbourhood average income had higher rates of reported sunburn in the last 12 months.

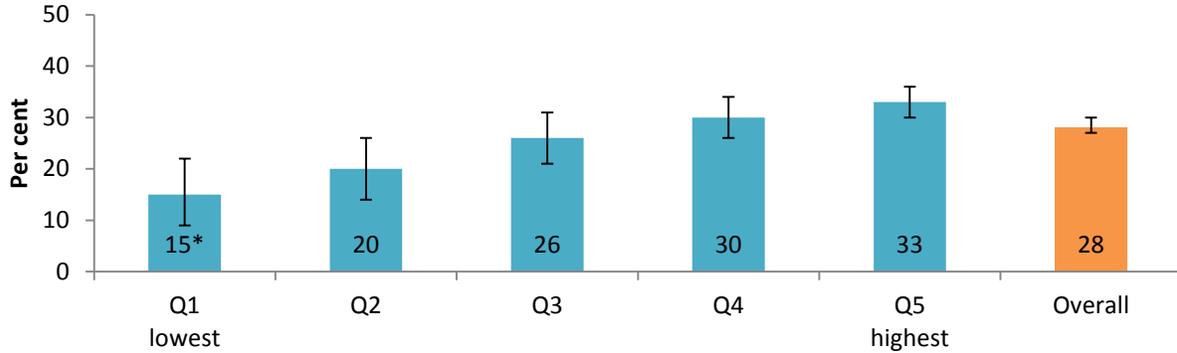
Sunlight or ultraviolet ray (UVR) exposure is the main cause of skin cancer and can be prevented by minimizing exposure to time spent in the sun. In Canada, more than 25% of adults and 50% of children spend prolonged time in the sun during the summer. Young adults, especially males, are likely to report sunburn, as well as people who take part in recreational activities and are not used to UVR exposure.^{34,35} Research shows that people with a lower socioeconomic status are less knowledgeable about skin cancer, are less likely to use protective behavior and are more likely to work outside, receiving higher amounts of sun exposure.^{34,36}

In 2012, 29% of York Region adults reported sunburn in the past 12 months (27% of females and 33% of males). From 2001 to 2012, the

percentage of residents who reported sunburn has ranged between 26% and 32%.

- Residents in areas with the highest neighbourhood average income were more likely to report sunburn in the past 12 months compared to those living in areas with the lowest neighbourhood incomes (Figure 13).
- Residents in areas with the least residential instability were more likely to report sunburn in the past 12 months compared to those with the most residential instability (Figure 14).
- Residents in areas with a lower ethnic concentration were more likely to report sunburn in the past 12 months compared to those living in areas with a higher ethnic concentration (Figure 14).

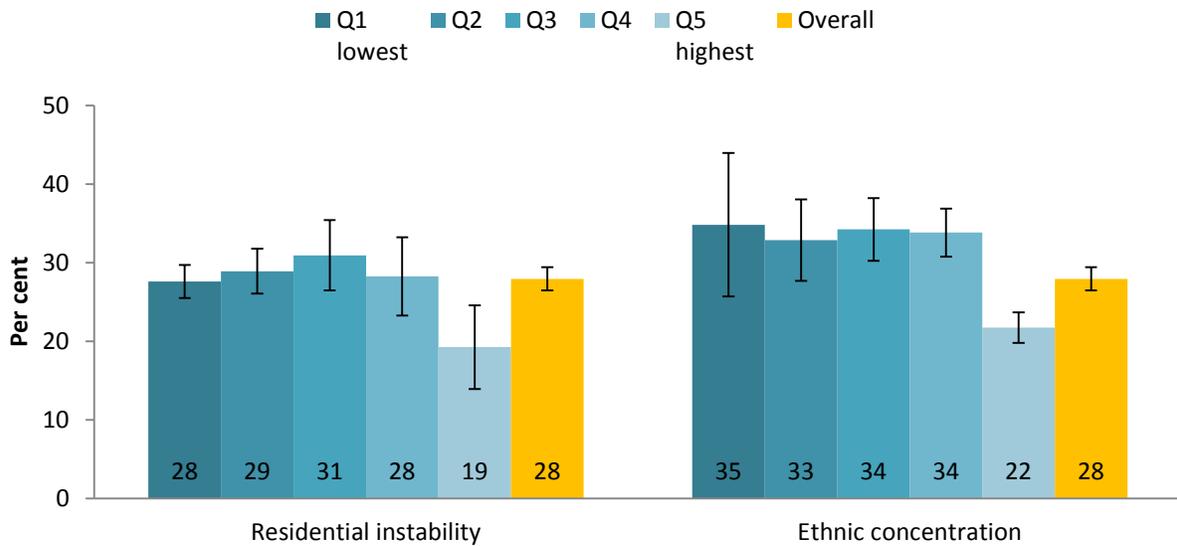
Figure 13 - Percentage of residents who reported sunburn in the past 12 months by neighbourhood income quintile, York Region, 2006 and 2008-2010 combined



*Interpret with caution. High variability

Data Sources: Rapid Risk Factor Surveillance System 2006, 2008-2010, York Region Community and Health Services Department. PCCF+ Version H, Statistics Canada.

Figure 14 - Percentage of residents who reported sunburn in the past 12 months by neighbourhood residential instability and ethnic concentration quintiles, York Region, 2006 and 2008-2010 combined



Data Sources: Rapid Risk Factor Surveillance System 2006, 2008-2010, York Region Community and Health Services Department. PCCF+ Version H, Statistics Canada.

Family Health

Low Birth Weight

Low birth weight rate for York Region remains stable between 4.1 and 5.0 per 100 singleton births.

A population's low birth weight rate (defined as the proportion of newborns born weighing less than 2,500 grams at birth relative to all live births) is a widely used indicator of infant, child and community health. Low birth weight can result from babies not growing sufficiently during gestation, being born preterm (i.e., less than 37 weeks gestation) or a combination of the two. Multiple interconnected risks for low birth weight include maternal, cultural and lifestyle factors, as well as pregnancy factors such as multiple births (e.g. twins). In this analysis, multiple births were excluded. Research has also shown that mothers living in low income areas may also be affected by social

and economic difficulties that can affect birth outcomes including birth weight.^{16,37-39} In 2012, the singleton low birth weight rate for York Region was 4.3 per 100 hospital births (4.3 for females and 4.2 for males). From 2004 to 2012, the low birth weight rate has ranged between 4.1 and 5.0 per 100 singleton births.

- Contrary to what has been reported elsewhere,^{15,37-39} no statistical differences were observed in low birth weight rate in York Region based on the four ON-Marg dimensions and neighbourhood income examined as part of this analysis.

Exposure to Tobacco Smoke in the Home

York Region residents in areas with the lowest neighbourhood average income, most residential instability or most material deprivation are more likely to be exposed to tobacco smoke in their homes.

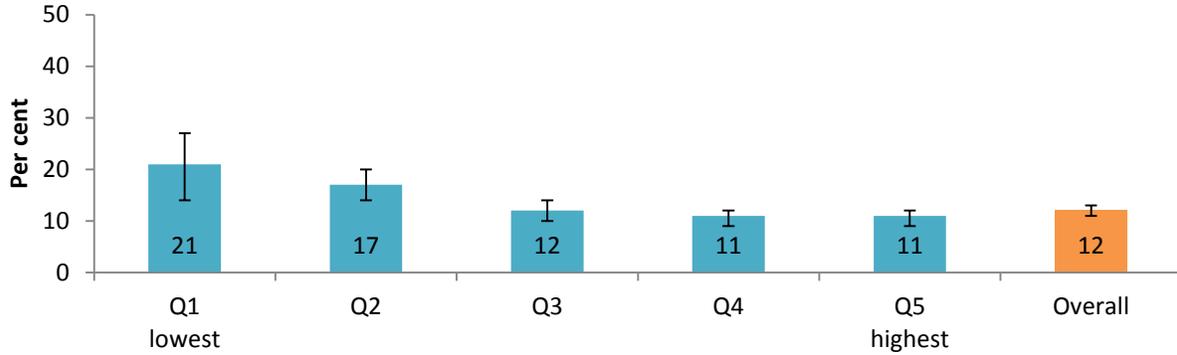
Cigarette smoking is a major contributor to preventable illness and death. Non-smoking adults and children who are exposed to environmental tobacco smoke in the home are also susceptible to negative health effects.⁴⁰ In 2013 (January-April), 9% of York Region residents reported living in homes where someone smoked regularly or where visitors were allowed to smoke. Between 2001 and 2010, the percentage of people living in homes that allow smoking decreased from 31% to 10%.

- Adults living in neighbourhoods with lower neighbourhood average income per person were more likely to report

living in homes that allowed smoking compared those living in the highest neighbourhood income group (Figure 15).

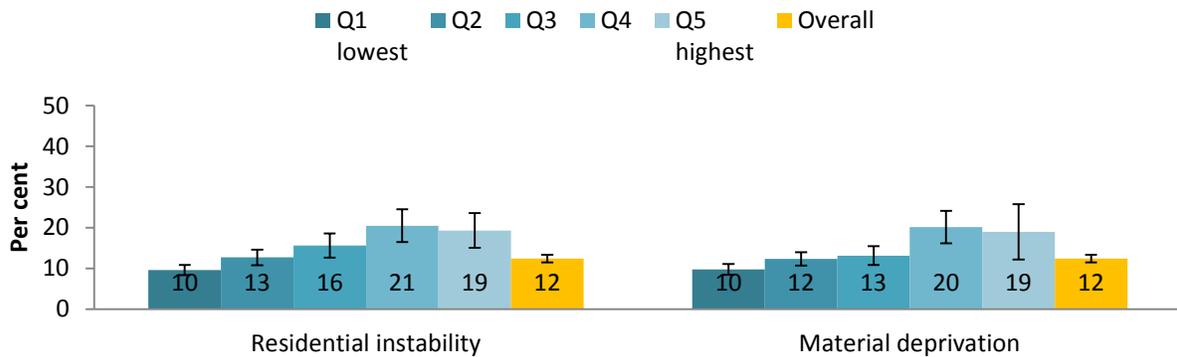
- Adults living in neighbourhoods with the most material deprivation (Q5) or the most residential instability (Q5) were more likely to report living in homes that allowed smoking compared with those living in neighbourhoods with the least material deprivation or the least residential instability (Figure 16).

Figure 15 - Percentage of residents who lived in homes where someone smoked regularly in the home or visitors were allowed to smoke by neighbourhood income quintile, York Region, 2006-2010 combined



Data Sources: Rapid Risk Factor Surveillance System 2006-2010, York Region Community and Health Services Department. PCCF+ Version H, Statistics Canada.

Figure 16 - Percentage of residents who lived in homes where someone smoked regularly in the home or visitors were allowed to smoke by neighbourhood residential instability and material deprivation quintiles, York Region, 2006-2010 combined



Data Sources: Rapid Risk Factor Surveillance System 2006-2010, York Region Community and Health Services Department. Ontario Marginalization Index, Centre for Research on Inner City Health, 2012.

Mental Health

Intentional self-harm-related emergency department visits

Highest rates of intentional self-harm-related emergency department visits were observed in areas with the most residential instability.

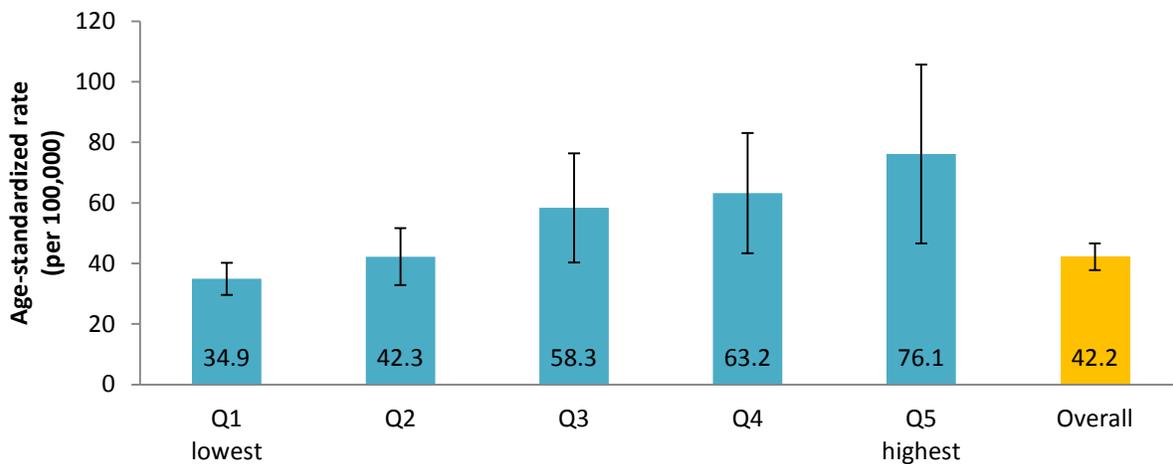
Intentional self-harm includes attempted suicide and purposeful self-inflicted poisoning or injury. The injury emergency ambulatory visit rate is an approximate measure of the frequency of self-harm incidents serious enough to warrant an ambulatory visit to a hospital emergency department.

In 2012, the age-standardized emergency ambulatory visit rate for intentional self-harm among York Region residents was 37.2 per 100,000 residents (47.4 for females and 27.9 for

males). Between 2004 and 2012, the intentional self-harm-related emergency ambulatory visit rate decreased from 55.8 per 100,000 to 37.2 per 100,000.

- Residents living in areas with the most neighbourhood residential instability had a higher intentional self-harm ambulatory visit rate compared with those living in areas with the least residential instability (Figure 17).

Figure 17 - Intentional self-harm emergency ambulatory visit rate by neighbourhood residential instability quintile, York Region, 2006



Data Sources: Ambulatory Emergency External Cause Data 2006, Ontario Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO, April 2013. Ontario Marginalization Index, Centre for Research on Inner City Health, 2012.

LIMITATIONS OF THE DATA

Since data analyses were limited to those data available to York Region Public Health, the indicators chosen for this report were dictated by this limitation. Individual data sources were used in this report also have limitations such as:

- Statistics Canada's Census of Canada undercounts certain groups such as the homeless and young people.⁴¹
- Some analyses based on survey data sources such as the Canadian Community Health Survey or the Rapid Risk Factor Surveillance System may be affected by sample size limitations.
- Analyses based on hospitalization or emergency ambulatory visit data may be influenced by factors that are unrelated to health status, such as availability and accessibility of care and administrative policies and procedures.
- Area-based deprivation analyses, such as those using ON-Marg and QAIPPE, reflect conditions at the neighbourhood level and are not an individual measure of socio-economic conditions. In addition area-based deprivation analyses may also be affected by small numbers in some subgroup comparisons and also conceptualizes the subgroups as homogeneous when they may be heterogeneous.

CONCLUSION

The findings of this report show that marginalization across four different dimensions are associated with health inequity and can have varied impacts on health outcomes throughout York Region. Specifically, material deprivation and residential instability were associated with more indicators of poor health than any of the other marginalization measures. The magnitude of these associations between marginalization and health outcomes differed depending on the marginalization measure and indicator. In a handful of associations, neighbourhoods with the best socioeconomic characteristics were actually more likely to report the negative health outcomes.

Neighbourhoods with the highest material deprivation were more likely to have:

- higher levels of chronic diseases and injury;
- higher percentage of smokers;
- higher percentage of homes where smoking in the home is allowed;
- and a higher percentage of physically inactivity.

Neighbourhoods with the highest residential instability were more likely to have:

- higher levels of chronic diseases and injury; -
- higher rates of all-cause hospitalization;
- higher percentage of fair or poor self-rated health;
- higher percentage of smokers;
- higher percentage of homes where smoking in the home is allowed;
- and a higher emergency room visit rate related to intentional self-harm.

Neighbourhoods with highest levels of dependency were more likely to have:

- higher percentage of fair or poor self-rated health;
- higher emergency room visit rate related to injuries;
- a higher percentage of physical inactivity.

Neighbourhoods with the lowest ethnic concentration were more likely to have:

- higher emergency room visit rate related to injuries;
- higher percentage of drinking in excess of the low-risk drinking guidelines;
- and a higher percentage of reported sunburn.

Neighbourhoods with the lowest neighbourhood income levels were more likely to have:

- higher all-cause hospitalization rate;
- higher percentage of fair or poor self-rated health;
- higher hospitalization rate for circulatory disease;
- higher percentage of smokers;
- and a higher percentage of homes where smoking in the home is allowed.

Health equity and how it relates to health outcomes is a complex issue. This report only used a small number of marginalization measures and select health indicators, which only begins to show the association between health equity and health outcomes.

The Regional Municipality of York believes that a healthy population includes all residents having the opportunity to participate in society and have a good quality of life.⁴² The Region is also committed to helping residents with low socioeconomic status access basic needs, finding and keeping jobs, housing, and optimizing health for all ages and stages through health protection, prevention and promotion initiatives and the development of public policies that support health.⁴³ It is with this strategic direction that this report investigates and contributes to the larger Regional initiative to improve the health of all residents. The Public Health Branch is committed to implementing activities and initiatives that will contribute to addressing health equity as it presents in The Regional Municipality of York. The collection and analysis of data is critical to assess and monitor how health inequity affects communities in York Region and to guide the development of services, programs and policies to minimize health inequity and its impacts.

References

1. What makes Canadians healthy or unhealthy? [Internet]. Ottawa, ON: Public Health Agency of Canada. Available from: <http://www.phac-aspc.gc.ca/ph-sp/determinants/determinants-eng.php>.
2. Matheson F, Dunn J, Smith K, Moineddin R, Glazier R. Canadian marginalization index user guide version 1.0. [serial online]. 2011 [cited 2013 June 15] Available from: http://www.crunch.mcmaster.ca/documents/CAN-Marg_user_guide_1.0_FINAL_MAY2012.pdf.
3. Public Health Ontario. Summary measures of socioeconomic inequalities in health. [Government report online]. Toronto, ON: Queen's Printer for Ontario; 2013 [cited 2014 Aug 14]. Available from: http://www.publichealthontario.ca/en/eRepository/Summary_Measures_Socioeconomic_Inequalities_Health_2013.pdf.
4. National Collaborating Centre for Determinants of Health. Let's talk health equity. [Report online]. Nova Scotia: National Collaborating Centre for Determinants of Health; 2013 [cited 2014 Aug 13]. Available from: http://nccdh.ca/images/uploads/Lets_Talk_Health_Equity_English.pdf.
5. Dinca-Panaitescu S, Dinca-Panaitescu M, Bryant T, Daiski I, Pilkington B, Raphael D. Diabetes prevalence and income: results of the Canadian community health survey. *Health Policy*. 2011; 99(2): 116-23.
6. Mackenbach JP, Kunst AE. Measuring the magnitude of socio-economic inequalities in health: an overview of available measures illustrated with two examples from Europe. *Soc Sci Med*. 1997; 44(6): 757-71.
7. Postal code conversion file: October 2010 postal codes [CD-ROM]. Ottawa, ON: Statistics Canada; 2011.
8. Statistics Canada. Census dictionary 2011. [Report online]. Ottawa: Minister of Industry; 2012 (98-301-X2011001). [cited 2014 Jul 30]. Available from: <http://www12.statcan.gc.ca/census-recensement/2011/ref/dict/98-301-X2011001-eng.pdf>.
9. Ontario Ministry of Health and Long-Term Care. Ontario public health standards. [Government report online]. Toronto: Queen's Printer for Ontario; 2008 [cited 2013 Sept 14]. Available from: http://www.health.gov.on.ca/en/pro/programs/publichealth/oph_standards/docs/ophs_2008.pdf.
10. Ontario Ministry of Health and Long-Term Care. Population health assessment and surveillance protocol. [Report online]. Toronto, ON: Queen's Printer for Ontario; 2008 [cited 2013 Jul 15]. Available from: http://www.health.gov.on.ca/en/pro/programs/publichealth/oph_standards/docs/population_health_assessment.pdf.
11. Pinto BM, Rabin C, Abdow S, Papandonatos GD. A pilot study on disseminating physical activity promotion among cancer survivors: A brief report. *Psychooncology*. 2008; 17(5): 517-21.

12. Statistics Canada. York Region census profile 2011. [Internet]. Ottawa, ON: Statistics Canada; 2012 [cited 2013 Jul 15]. Available from:<http://www12.statcan.gc.ca/census-recensement/2011/dp-pd/prof/details/page.cfm?Lang=E&Geo1=CD&Code1=3519&Geo2=PR&Code2=35&Data=Count&SearchText=York&SearchType=Begins&SearchPR=35&B1=All&Custom=&TABID=1>.
13. Regional Municipality of York, Office of the Chief Administrative Officer, Long Range and Strategic Planning. Growth and development review 2013. [Report online]. Newmarket, ON: Regional Municipality of York; 2013 [cited 2014 Aug 15]. Available from:<http://www.york.ca/wps/wcm/connect/yorkpublic/bca6514e-b127-4bc1-b9dd-bf5536f137f5/may+1+growth+ex.pdf?MOD=AJPERES>.
14. Statistics Canada. National household survey(NHS), 2011. [Internet]. Ottawa, ON: Statistics Canada; 2013 (Catalogue no. 99-004-XWE). [cited 2013 Sept 11]. Available from:<http://www12.statcan.gc.ca/nhs-enm/2011/dp-pd/prof/index.cfm?Lang=E>.
15. Tjepkema M, Wilkins R, Long A. Socio-economic inequalities in cause-specific mortality: A 16-year follow-up study. *Can J Public Health*. 2013; 104(7): e472-8.
16. Canadian Institute for Health Information. Reducing gaps in health: a focus on socio-economic status in urban Canada. [Report online]. Ottawa: CIHI; 2008 [cited 2013 Jun 18]. Available from:<https://www.google.com/#q=a+focus+on+socio-economic+status+in+urban+canada;>
17. Canadian Institute for Health Information. Hospitalization disparities by socio-economic status for males and females. [Report online]. Ottawa: CIHI; 2010 [cited 2013 Jun 19]. Available from:https://secure.cihi.ca/free_products/disparities_in_hospitalization_by_sex2010_e.pdf.
18. Roos N, Burchill C, Carriere K. Who are the high hospital users? A Canadian case study. *J Health Serv Res Policy*. 2003; 8(1): 5-10.
19. Lemstra M, Mackenbach J, Neudorf C, Nannapaneni U. High health care utilization and costs associated with lower socio-economic status: results from a linked dataset. *Can J Public Health*. 2009; 100(3): 180-3.
20. Glazier RH, Badley EM, Gilbert JE, Rothman L. The nature of increased hospital use in poor neighbourhoods: findings from a canadian inner city. *Can J Public Health*. 2000; 91(4): 268-73.
21. Bayentin L, Adlouni L, Ouarda T, Gosselin P, Doyon B, Chebana F. Spatial variability of climate effects on ischemic heart disease hospitalization rates for the period 1989–2006 in Quebec, Canada. *Int J Health Geogr*. [serial online]. 2010 [cited 2013 Jun 13];9(5) Available from: <http://www.ij-healthgeographics.com/content/pdf/1476-072X-9-5.pdf>.
22. Wenneker MB, Epstein AM. Racial inequalities in the use of procedures for patients with ischemic heart disease in Massachusetts. *JAMA*. 1989; 261(2): 253-7.
23. Cubbin C, LeClere FB, Smith GS. Socioeconomic status and injury mortality: individual and neighbourhood determinants. *J Epidemiol Community Health*. 2000; 54(7): 517-24.

24. Alberta Centre for Injury Control & Research. Socioeconomic status (SES) and injury. [Report online]. Alberta: Alberta Centre for Injury Control & Research; 2006 [cited 2013 Jun 15]. Available from:<http://acicr.ca/Upload/news-events/communications-education/injury-examiner/socioeconomic-status/SES.pdf>;
25. Macpherson AK, Schull M, Manuel D, Cernat G, Redelmeier DA, Laupacis A. Injuries in Ontario. ICES atlas. [Report online]. Toronto: Institute for Clinical Evaluative Sciences; 2005 [cited 2013 Mar 28]. Available from:http://www.ices.on.ca/file/injuries_prelim.pdf;
26. Canadian Centre on Substance Abuse. Canada's low-risk alcohol drinking guidelines. [Report online]. Ottawa: CCSA; 2011 [cited 2013 Jan 15]. Available from:<http://www.ccsa.ca/2012%20CCSA%20Documents/2012-Canada-Low-Risk-Alcohol-Drinking-Guidelines-Brochure-en.pdf>.
27. Gilmour H. Physically active Canadians. Health Rep [serial online]. 2007 [cited 2013 Jun 12];18(3):45-65 Available from: <http://www.statcan.gc.ca/pub/82-003-x/2006008/article/phys/10307-eng.pdf>.
28. Singh GK, Kogan MD, Siahpush M, van Dyck PC. Independent and joint effects of socioeconomic, behavioral, and neighborhood characteristics on physical inactivity and activity levels among US children and adolescents. *J Community Health*. 2008; 33(4): 206-16.
29. Wilson PW, D'Agostino RB, Sullivan L, Parise H, Kannel WB. Overweight and obesity as determinants of cardiovascular risk: The Framingham experience. *Arch Intern Med*. 2002; 162(16): 1867-72.
30. Novak M, Ahlgren C, Hammarstrom A. A life-course approach in explaining social inequity in obesity among young adult men and women. *Int J Obes (Lond)*. 2006; 30(1): 191-200.
31. Molaodi OR, Leyland AH, Ellaway A, Kearns A, Harding S. Neighbourhood food and physical activity environments in England, UK: Does ethnic density matter? *Int J Behav Nutr Phys Act* [serial online]. 2012 [cited 2013 Mar 27];9:75 Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3409029/pdf/1479-5868-9-75.pdf>.
32. Lock K, Pomerleau J, Causer L, Altmann DR, McKee M. The global burden of disease attributable to low consumption of fruit and vegetables: Implications for the global strategy on diet. *Bull World Health Organ*. 2005; 83(2): 100-8.
33. Kamphuis CB, Giskes K, de Bruijn GJ, Wendel-Vos W, Brug J, van Lenthe FJ. Environmental determinants of fruit and vegetable consumption among adults: a systematic review. *Br J Nutr*. 2006; 96(4): 620-35.
34. National Skin Cancer Prevention Committee. Exposure to and protection from the sun in Canada: a report based on the 2006 second national sun survey. [Report online]. Toronto: Canadian Partnership Against Cancer; 2010 [cited 2013 Jun 10]. Available from:<http://www.partnershipagainstcancer.ca/wp-content/uploads/Exposure-to-and-Protection-from-the-Sun-in-Canada.pdf>.
35. Pukkala E, Martinsen JI, Lynge E, Gunnarsdottir HK, Sparen P, Tryggvadottir L, et al. Occupation and cancer - follow-up of 15 million people in five Nordic countries. *Acta Oncol*. 2009; 48(5): 646-790.

36. Gordon-Dseagu V. Cancer and health inequalities: an introduction to current evidence. [Report online]. London: Cancer Research UK; 2006 [cited 2013 Jul 9]. Available from:http://www.cancerresearchuk.org/prod_consump/groups/cr_common/@nre/@pol/documents/generalcontent/crukmig_1000ast-3344.pdf.
37. Canadian Institute for Health Information. Too early too small: a profile of small babies across Canada. [Report online]. Ottawa: CIHI; 2009 [cited 2013 Jun 16]. Available from:https://secure.cihi.ca/free_products/too_early_too_small_en.pdf.
38. Ontario Ministry of Health and Long-Term Care. 2011 annual report of the chief medical officer of health of Ontario to the legislative assembly of Ontario. Maintaining the gains, moving the yardstick: Ontario health status report. [Government report online]. Toronto ON: Queen's Printer for Ontario; 2011 [cited 2013 June 20]. Available from:http://www.health.gov.on.ca/en/common/ministry/publications/reports/cmoh_13/cmoh_13.pdf.
39. Urquia ML, Frank JW, Glazier RH, Moineddin R, Matheson FI, Gagnon AJ. Neighborhood context and infant birthweight among recent immigrant mothers: A multilevel analysis. *Am J Public Health*. 2009; 99(2): 285-93.
40. Sims TH. Technical report--tobacco as a substance of abuse. *Peds* [serial online]. 2009 [cited 2014 Jun 15];124(5):e1045-53 Available from:
<http://pediatrics.aappublications.org/content/124/5/e1045.full.pdf+html>.
41. Statistics Canada. 2006 census technical report: Coverage. [Government report online]. Ottawa: Statistics Canada; 2010 (Catalogue No. 92 567-X). [cited 2014 Feb 16]. Available from:<http://www12.statcan.gc.ca/census-recensement/2006/ref/rp-guides/rp/coverage-couverture/pdf/92-567-X2006001-eng.pdf>.
42. Regional Municipality of York, Human Services Planning Board of York Region (HSPB-YR). Making ends meet in York Region. Newmarket, ON: Regional Municipality of York; 2011 Available from:http://www.york.ca/NR/rdonlyres/daqox5bazio7bp3kncfsbrd2eb6f2onk2d7owjzdxpsemvvhnt6ig7v6essqn6iu4ox6x3zpdapxolnteqlcnb4wh/Making_Ends_Meet_Discussion_Paper.pdf.
43. Regional Municipality of York, Community and Health Services Department. Investing in our communities 2010-2015. multi-year plan. Newmarket, ON: Regional Municipality of York; 2011 [cited 2013 May 10]. Available from:<http://www.york.ca/wps/wcm/connect/yorkpublic/ce0c839d-6619-4e9e-915a-127a139d7425/multiyearplanchs-2010-2015.pdf?MOD=AJPERES>.

APPENDICES

Appendix A – ON-Marg dimension data tables for proportion-based indicators

Indicator	Quintile	Residential Instability	Material Deprivation	Dependency	Ethnic Concentration
Current smoking	1 lowest	12 (11, 13)	13 (12, 14)	15 (14, 17)	23 (17, 29)
	2	16 (14, 18)	14 (13, 16)	15 (14, 17)	17 (14, 20)
	3	20 (17, 23)	15 (13, 17)	13 (11, 15)	19 (16, 21)
	4	19 (16, 23)	21 (18, 25)	15 (12, 18)	15 (13, 17)
	5 highest	18 (14, 22)	25 (18, 32)	15 (12, 18)	13 (11, 14)
	Overall			15 (14, 16)	
Drinking in excess of low-risk alcohol drinking guidelines	1 lowest	21 (18, 23)	25 (21, 29)	29 (24, 34)	33 (21, 45)
	2	28 (22, 35)	19 (16, 22)	19 (15, 23)	36 (28, 44)
	3	28 (22, 35)	26 (21, 31)	21 (17, 24)	33 (27, 38)
	4	20 (15, 26)	21 (16, 27)	28 (20, 37)	28 (24, 32)
	5 highest	23 (16, 30)	36 (17, 55)	28 (23, 33)	17 (14, 19)
	Overall			23 (21, 25)	
Fair or poor perceived health	1 lowest	9 (8, 10)*	8 (7, 9)	8 (7, 10)	13 (8, 18)
	2	8 (7, 10)	10 (9, 11)	9 (8, 10)	9 (7, 12)
	3	11 (9, 13)	10 (8, 12)	10 (8, 12)	11 (9, 13)
	4	14 (11, 18)	11 (9, 14)	11 (8, 14)	10 (9, 12)
	5 highest	18 (14, 22)	19 (12, 25)	16 (13, 18)	9 (8, 10)
	Overall			10 (9, 10)	
Inadequate fruit and vegetable intake	1 lowest	59 (56, 62)	58 (55, 62)	59 (55, 62)	64 (55, 73)
	2	65 (61, 68)	62 (58, 66)	62 (58, 67)	58 (51, 65)
	3	51 (46, 56)	58 (53, 62)	58 (54, 62)	54 (50, 58)
	4	59 (54, 64)	59 (52, 65)	60 (54, 66)	58 (54, 62)
	5 highest	66 (59, 72)	70 (57, 82)	55 (49, 61)	62 (58, 65)
	Overall			60 (58, 62)	
Overweight and obesity	1 lowest	48 (46, 50)	49 (47, 51)	51 (48, 53)	56 (49, 64)
	2	51 (48, 53)	51 (48, 53)	48 (46, 50)	53 (48, 57)
	3	53 (49, 57)	51 (47, 54)	50 (47, 53)	52 (49, 55)
	4	51 (46, 55)	49 (45, 54)	48 (44, 53)	52 (50, 55)
	5 highest	53 (48, 58)	47 (39, 55)	53 (48, 57)	47 (45, 49)
	Overall			50 (48, 51)	
Physical inactivity	1 lowest	53 (50, 56)	48 (44, 52)	45 (40, 49)	48 (37, 59)
	2	45 (40, 50)	53 (49, 56)	52 (48, 55)	46 (38, 54)
	3	51 (45, 58)	51 (45, 56)	55 (51, 60)	49 (44, 54)
	4	55 (50, 60)	58 (53, 64)	53 (46, 60)	51 (47, 55)
	5 highest	58 (51, 64)	67 (56, 78)	58 (53, 63)	54 (50, 57)
	Overall			52 (50, 54)	
Smoking in homes	1 lowest	10 (8, 11)	10 (9, 11)	10 (9, 12)	22 (16, 29)
	2	13 (11, 15)	12 (11, 14)	13 (11, 14)	17 (13, 20)
	3	16 (13, 19)	13 (11, 16)	12 (10, 15)	15 (12, 17)
	4	21 (17, 25)	20 (16, 24)	15 (13, 18)	13 (11, 15)
	5 highest	19 (15, 24)	19 (12, 26)	15 (12, 18)	10 (9, 11)
	Overall			12 (11-13)	

Indicator	Quintile	Residential Instability	Material Deprivation	Dependency	Ethnic Concentration
Sunburn in past 12 months	1 lowest	28 (26, 30)	31 (29, 34)	31 (28, 34)	35 (26, 44)
	2	29 (26, 32)	26 (23, 28)	27 (25, 30)	33 (28, 38)
	3	31 (27, 35)	28 (24, 31)	27 (24, 31)	34 (30, 38)
	4	28 (23, 33)	21 (17, 26)	25 (21, 30)	34 (31, 37)
	5 highest	19 (14, 25)	22 (14, 30)	25 (20, 30)	22 (20, 24)
	Overall	28 (27-30)			

(95% confidence intervals in parentheses)

Appendix B – ON-Marg dimension data tables for rate-based indicators

Indicator	Quintile	Residential Instability	Material Deprivation	Dependency	Ethnic Concentration
All causes hospitalization (rate per 100,000 population)	1 lowest	4,065.1 (4,007.4, 4,122.8)	4,271.7 (4,201.9, 4,341.5)	4,767.0 (4,669.1, 4,864.9)	5,176.0 (4,866.6, 5,485.4)
	2	4,548.3 (4,456, 4,640.5)	4,209.5 (4,137.8, 4,281.3)	4,269.2 (4,197, 4,341.4)	5,624.6 (5,432.5, 5,816.7)
	3	4,945.2 (4,805.4, 5,085.1)	4,544.5 (4,446.4, 4,642.5)	4,103.2 (4,012.1, 4,194.2)	5,008.1 (4,879.8, 5,136.4)
	4	4,919.7 (4,761.4, 5,078.0)	4,728.2 (4,589, 4,867.4)	4,352.6 (4,214.5, 4,490.7)	4,702.2 (4,610.1, 4,794.3)
	5 highest	5,035.3 (4,841.4, 5,229.3)	5,764.2 (5,462.9, 6,065.5)	4,946.3 (4,782.8, 5,109.7)	3,920.8 (3,866.4, 3,975.2)
	Overall	4,385.9 (4,344.1, 4427.8)			
Circulatory disease hospitalization (rate per 100,000 population)	1 lowest	693.6 (667.9, 719.4)	693.1 (663.1, 723.1)	804.1 (757.2, 850.9)	669.4 (572.4, 766.4)
	2	783.8 (743.2, 824.4)	697.7 (667.9, 727.5)	743.3 (710.4, 776.1)	910.2 (838.7, 981.6)
	3	809.4 (755.5, 863.3)	801.3 (760.6, 842.1)	654.0 (618.1, 689.9)	816.0 (768, 863.9)
	4	756.2 (698.8, 813.6)	832.4 (774.8, 890)	777.0 (724, 830)	777.1 (740.1, 814.1)
	5 highest	850.3 (781.5, 919.1)	1,079.1 (947.4, 1210.8)	786.4 (734.5, 838.2)	677.0 (652.7, 701.3)
	Overall	740.6 (723.0, 758.3)			
Injury-related emergency ambulatory visit (rate per 100,000 population)	1 lowest	6,587.9 (6,516.6, 6,659.2)	7,408.5 (7,316.9, 7,500)	7,809.1 (7,696.4, 7,921.8)	9,670.7 (9,185.4, 1,0156)
	2	7,734.1 (7,612.9, 7,855.3)	7,041.1 (6,944.3, 7,137.8)	6,936.7 (6,846.6, 7,026.8)	10,152.4 (9,862.6, 10,442.2)
	3	8,988.2 (8,778.2, 9,198.1)	7,172.7 (7,041.3, 7,304.1)	6,878.1 (6,753.9, 7,002.4)	8,792.1 (8,603.1, 8,981)
	4	8,676.2 (8,441.1, 8,911.4)	7,436.6 (7,248.5, 7,624.7)	7,461.6 (7,257.2, 7,666.1)	8,146.9 (8,017.9, 8,275.9)
	5 highest	8,446.9 (8,146.7, 8,747.2)	8,844.9 (8,450.9, 9,238.9)	8,466.3 (8,203.8, 8,728.7)	6,386.1 (6,318.1, 6,454.1)
	Overall	7,276.6 (7,220.8, 7,332.4)			

Indicator	Quintile	Residential Instability	Material Deprivation	Dependency	Ethnic Concentration
Intentional self-harm emergency ambulatory visit (rate per 100,000 population)	1 lowest	34.9 (29.6, 40.3)	31.7 (25.4, 37.9)	41.4 (33.1, 49.6)	42.8 (5.3, 80.3)
	2	42.3 (32.8, 51.7)	44.2 (36.2, 52.2)	36.7 (30.1, 43.3)	37.7 (19.2, 56.1)
	3	58.3 (40.3, 76.4)	50.5 (39.1, 62)	47.7 (37.0, 58.5)	48.0 (32.2, 63.8)
	4	63.2 (43.4, 83.1)	57.1 (40.1, 74.1)	46.7 (30.2, 63.1)	51.0 (40.1, 61.9)
	5 highest	76.1 (46.6, 105.7)	68.2 (33.6, 102.8)	59.6 (34.6, 84.6)	39.8 (34.3, 45.3)
	Overall	42.2 (37.8, 46.6)			
Low birth weight (rate per 100 singleton hospital births)	1 lowest	4.7 (4.5, 5.0)	4.7 (4.4, 4.9)	4.6 (4.3, 4.9)	4.6 (3.1, 6.0)
	2	4.7 (4.4, 5.0)	4.4 (4.1, 4.8)	4.8 (4.5, 5.0)	4.1 (3.4, 4.9)
	3	4.8 (4.2, 5.4)	4.9 (4.5, 5.4)	5.0 (4.6, 5.5)	4.2 (3.6, 4.8)
	4	4.2 (3.5, 4.8)	4.9 (4.3, 5.6)	4.2 (3.5, 4.9)	4.3 (3.9, 4.7)
	5 highest	4.3 (3.5, 5.2)	4.6 (3.4, 5.8)	3.8 (3.0, 4.5)	4.9 (4.6, 5.1)
	Overall	4.7 (4.5, 4.9)			
Premature mortality (rate per 100,000 population)	1 lowest	77.1 (69.2, 85.0)	76.2 (66.8, 85.6)	94.8 (85.4, 104.2)	176.1 (105.1, 247.0)
	2	96.7 (82.7, 110.7)	84.2 (73.4, 94.9)	88.2 (77.4, 99.0)	172.2 (132.3, 212.0)
	3	118.1 (94.2, 141.9)	116.2 (98.6, 133.7)	84.3 (66.7, 101.8)	106.9 (86.1, 127.7)
	4	139.6 (109.4, 169.8)	124.1 (99.3, 148.9)	100.8 (76.1, 125.6)	98.9 (84.7, 113.1)
	5 highest	156.2 (115.7, 196.8)	190.0 (129.1, 250.9)	137.6 (76.6, 198.5)	78.3 (70.5, 86.1)
	Overall	92.7 (86.2, 99.1)			

Appendix C – Neighborhood income (based on QAIPE) quintile data tables for proportion-based indicators

Quintile	Current smoking	Drinking in excess of low-risk alcohol drinking guidelines	Fair or poor perceived health	Inadequate fruit and vegetable intake
1 lowest	25 (19, 31)	17 (7, 27)	21 (14, 27)	66 (53, 79)
2	17 (14, 20)	19 (14, 24)	13 (10, 15)	64 (58, 69)
3	15 (13, 17)	20 (16, 24)	10 (8, 11)	60 (55, 65)
4	14 (13, 16)	26 (22, 30)	9 (8, 10)	59 (55, 63)
5 highest	13 (11, 15)	25 (21, 28)	8 (7, 10)	57 (54, 60)
Overall	15 (14, 16)	23 (21, 25)	10 (9, 10)	60 (58, 62)

Quintile	Overweight and Obesity	Physical Inactivity	Smoking in Homes	Sunburn in past 12 months
1 lowest	43 (36, 50)	56 (44, 68)	21 (14, 27)	15 (9, 22)
2	48 (44, 52)	57 (52, 63)	17 (14, 20)	20 (14, 26)
3	51 (48, 54)	54 (49, 58)	12 (10, 14)	26 (21, 31)
4	52 (50, 54)	50 (46, 54)	11 (9, 12)	30 (26, 34)
5 highest	47 (45, 50)	49 (45, 53)	11 (9, 12)	33 (30, 36)
Overall	50 (48, 51)	52 (50, 54)	12 (11, 13)	28 (27, 30)

Appendix D – Neighborhood income (based on QAIPE) quintile data tables for rate-based indicators

Quintile	All Causes Hospitalization (rate per 100,000 population)	Circulatory Disease Hospitalizations (rate per 100,000 population)	Injury-related emergency ambulatory visit (rate per 100,000 population)
1 lowest	4,798.6 (4,576.6, 5,020.4)	917.8 (817.0, 1,018.6)	7,310.5 (7,022.0, 7,599.0)
2	4,226.6 (4,118.6, 4,334.6)	736.7 (690.9, 782.6)	6,700.7 (6,557.7, 6,843.7)
3	4,567.8 (4,480.4, 4,655.2)	816.3 (776.7, 855.9)	7,204.5 (7,092.3, 7,316.7)
4	4,406.4 (4,331.1, 4,481.7)	752.3 (719.4, 785.2)	7,288.1 (7,188.7, 7,387.5)
5 highest	4,288.4 (4,205.8, 4,371.2)	732.7 (698.4, 767.0)	7,623.6 (7,508.5, 7,738.7)
Overall	4,385.9 (4,344.1, 4,427.8)	740.6 (723.0, 758.3)	7,276.6 (7,220.8, 7,332.4)

Quintile	Low Birth Weight (rate per 100 singleton hospital births)	Intentional self-harm emergency ambulatory visit (rate per 100,000 population)	Premature mortality (rate per 100,000 population)
1 lowest	5.0(4.1, 6.0)	61.5 (35.3, 87.7)	129.6 (89.7, 169.5)
2	4.9 (4.5, 5.4)	50.0 (37.3, 62.7)	127.2 (106.4, 147.9)
3	4.8 (4.4, 5.1)	40.7 (32.1, 49.3)	100.7 (86.7, 114.6)
4	4.5 (4.2, 4.8)	39.4 (32.0, 46.8)	82.3 (71.4, 93.1)
5 highest	4.6 (4.2, 5.0)	42.3 (32.8, 51.7)	77.0 (65.9, 88.2)
Overall	4.7 (4.5, 4.9)	42.2 (37.8, 46.6)	92.7 (86.2, 99.1)



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