



The Guide to Health Neighbourhoods

Durham Region Health Department
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Information in this Guide

The Guide to Health Neighbourhoods is a technical document that describes the methods of analysis used in Durham Region's Health Neighbourhoods Project. The report is divided into four main sections:

- 1) General Background
- 2) Methodological Notes
- 3) Data Sources
- 4) Indicators

General Background

About Health Neighbourhoods

The Health Neighbourhoods initiative examines information for 50 Health Neighbourhoods in Durham Region to better understand patterns of health in our communities. The ultimate goal is to support strong, safe and equitable neighbourhoods that improve the health and well-being of all residents.

Durham Region Health Department developed and produced Health Neighbourhoods and has collaborated with other departments and community partners in the Region of Durham to expand the information. The information provides a picture of how health varies by where we live and includes indicators on population, income, education, births, breastfeeding, early child development, injury, smoking, physical activity, obesity, infectious disease, life expectancy and more. We mapped and summarized each indicator and compared each Neighbourhood to Durham Region as a whole. Figure 1 shows the map of Health Neighbourhoods in Durham Region.

The initial release in January 2015 presented 62 indicators. In February 2016, we added 20 new indicators and updated dental decay as part of Release 2. Release 3 in December 2017 added five immunization indicators and two indicators from police data related to domestic incidents, bringing the total to 89. We also updated 11 indicators in Release 3 and provided two time points to allow comparisons over time.

Health Neighbourhood Products

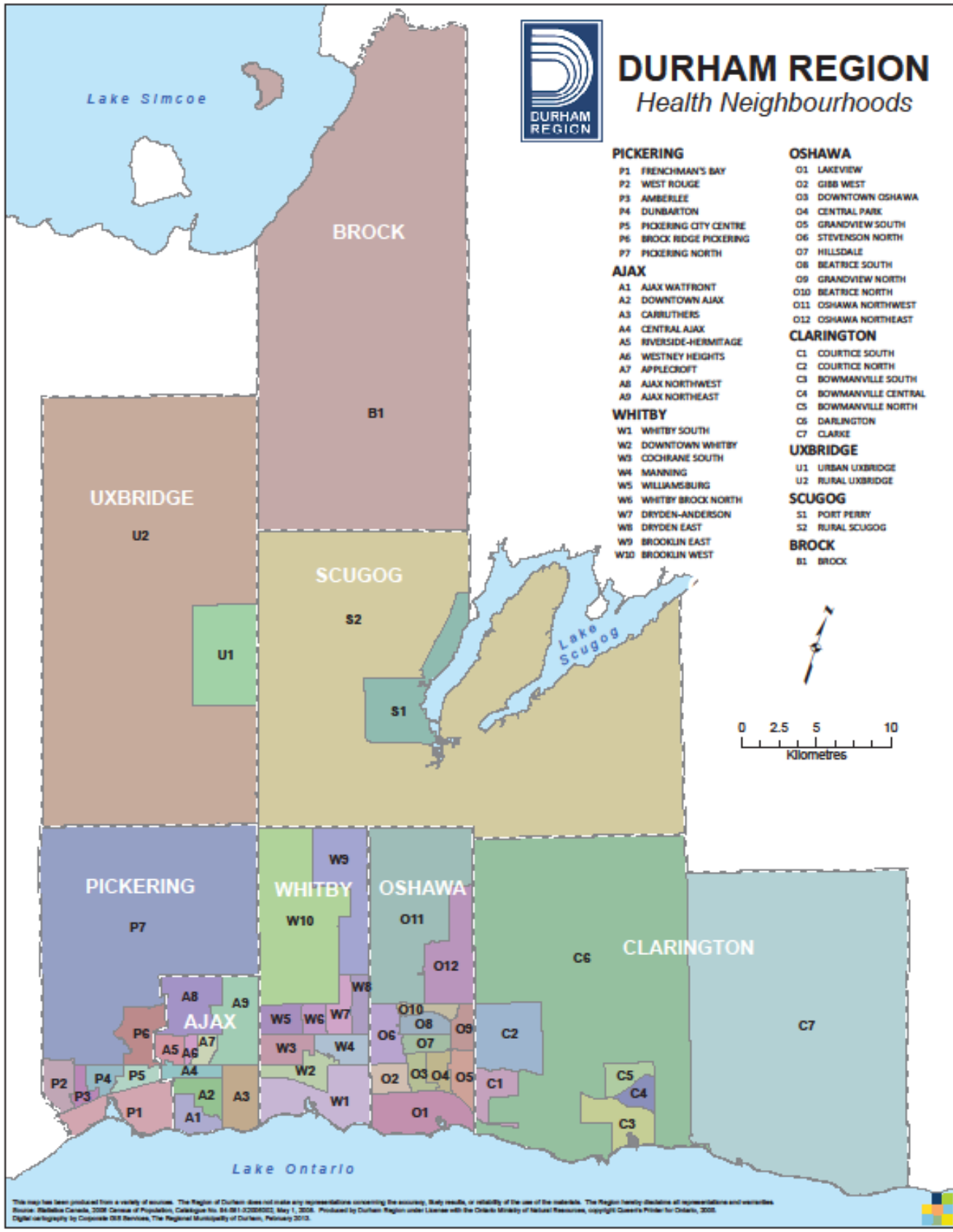
The information is available at the Region of Durham website at durham.ca/neighbourhoods, which provides access to reports, the Map Viewer, indicator summaries, and neighbourhood profiles.

The Map Viewer allows users to zoom in to specific Neighbourhoods and view roads and various points of interest, such as schools and recreational facilities. The “Demographic”, “Early Child Development”, and “Health” tabs provide access to maps on specific indicators, as well as the summaries and profiles.

Each indicator summary consists of an indicator map, summary table, ordered summary table, and indicator notes. The notes include the definition, data source and other information about the indicator. We summarize this information for all indicators in this report.

Each neighbourhood profile has a descriptive map that shows the boundaries and features of the Neighbourhood including major roads, parks, schools, and trails, as well as a profile table with a description of the Neighbourhood and rates for all indicators compared to Durham Region. Profiles are available for each of the 50 Neighbourhoods, the eight municipalities and Durham Region as a whole. The Durham Region profile includes a comparison to Ontario, where available.

The Region of Durham, GIS Services in Corporate Services – Information Technology, created the maps and Map Viewer in-house.



Using the Health Neighbourhoods Information

The Health Department uses Neighbourhoods information to improve programs and services for the residents of Durham Region. For example, we may focus smoking cessation programs in areas with higher smoking rates. Maps on breastfeeding duration can help us to better understand what is needed to support breastfeeding in our communities. The information is also valuable to our community partners including school boards, municipalities, health care providers, health and family service agencies, social planning councils, and other Regional Departments such as Social Services.

Information about Neighbourhoods helps us to understand patterns of health in our communities. It does not prove causal factors – the scientific literature does this much more effectively. However, we can use our knowledge of health from the literature to inform our understanding of the patterns that we see in Durham Region.

The Neighbourhoods information helps to:

- Target programs and initiatives to areas of Durham Region that really need them
- Inform planning, research and capacity building to improve health
- Provide rationale and statistics to support funding proposals
- Form a basis for communications to Durham Region residents
- Inspire dialogue about how health varies across Neighbourhoods

Creating the Boundaries

We devised the Health Neighbourhood boundaries with the intention of creating areas of sufficient population size that health information could be presented accurately. On average, there are 12,000 people in each Neighbourhood although the 2011 population varies from 8,300 in Rural Uxbridge to 17,800 in Lakeview, Oshawa. The Neighbourhoods are typically larger than what most would think of as a “neighbourhood” but this was necessary for reporting health statistics. Durham Region is diverse with a mix of urban, suburban and rural areas. We have some very fast-growing communities. We also have rural Neighbourhoods that cover large geographical areas but have relatively small populations with little growth. The Neighbourhoods show the diversity of Durham Region across a wide range of demographic and health characteristics.

The Neighbourhood areas are groupings of adjacent Statistics Canada Dissemination Areas (DAs). DAs cover all areas of Canada and have populations of approximately 400 to 700 persons per DA, although areas of high population growth often have larger populations prior to being divided before a census. We grouped the Durham Region DAs within the eight municipalities into Neighbourhoods based on population size and demographic characteristics such as income. Boundaries were physical barriers such as highways, major roads, railway lines, and rivers and creeks. Table 1 lists the Health Neighbourhoods and some key information about population size and the number of DAs.

Naming Convention

Each of the Neighbourhoods has a common name and an identification code (ID) with a letter and number, e.g. Frenchman's Bay (P1). The letter in the ID corresponds to first letter of the municipality, i.e., Pickering, Ajax, Whitby, Oshawa, Clarington, Scugog, Uxbridge, Brock. We ordered the municipalities from west to east starting in the south, then moving to the north. The Neighbourhoods are similarly numbered within each municipality from west to east, and south to north. Thus, the first Neighbourhood in a municipality is in the southwest corner and the last Neighbourhood is in the northeast corner.

Table 1: List of Health Neighbourhoods with municipality, ID, 2011 population count, and number of Dissemination Areas (DAs)

| # | Health Neighbourhood | Municipality | ID | 2011 Population | Number of DAs |
|----|-----------------------|--------------|----|-----------------|---------------|
| 1 | Frenchman's Bay | Pickering | P1 | 16,875 | 29 |
| 2 | West Rouge | Pickering | P2 | 13,835 | 18 |
| 3 | Amberlee | Pickering | P3 | 9,975 | 15 |
| 4 | Dunbarton | Pickering | P4 | 13,685 | 23 |
| 5 | Pickering City Centre | Pickering | P5 | 14,170 | 20 |
| 6 | Brock Ridge Pickering | Pickering | P6 | 9,435 | 15 |
| 7 | Pickering North | Pickering | P7 | 10,720 | 18 |
| 8 | Ajax Waterfront | Ajax | A1 | 11,345 | 20 |
| 9 | Downtown Ajax | Ajax | A2 | 11,505 | 19 |
| 10 | Carruthers | Ajax | A3 | 12,260 | 14 |
| 11 | Central Ajax | Ajax | A4 | 11,475 | 21 |
| 12 | Riverside-Hermitage | Ajax | A5 | 13,025 | 17 |
| 13 | Westney Heights | Ajax | A6 | 8,370 | 16 |
| 14 | Applecroft | Ajax | A7 | 11,515 | 19 |
| 15 | Ajax Northwest | Ajax | A8 | 15,170 | 27 |
| 16 | Ajax Northeast | Ajax | A9 | 14,965 | 8 |
| 17 | Whitby South | Whitby | W1 | 13,715 | 21 |
| 18 | Downtown Whitby | Whitby | W2 | 15,760 | 26 |
| 19 | Cochrane South | Whitby | W3 | 9,130 | 15 |
| 20 | Manning | Whitby | W4 | 15,250 | 32 |
| 21 | Williamsburg | Whitby | W5 | 8,725 | 10 |
| 22 | Whitby Brock North | Whitby | W6 | 11,820 | 16 |
| 23 | Dryden-Anderson | Whitby | W7 | 11,125 | 16 |

| # | Health Neighbourhood | Municipality | ID | 2011 Population | Number of DAs |
|----|----------------------|--------------|-----|-----------------|---------------|
| 24 | Dryden East | Whitby | W8 | 12,165 | 18 |
| 25 | Brooklin East | Whitby | W9 | 12,020 | 14 |
| 26 | Brooklin West | Whitby | W10 | 12,330 | 15 |
| 27 | Lakeview | Oshawa | O1 | 17,805 | 33 |
| 28 | Gibb West | Oshawa | O2 | 11,660 | 22 |
| 29 | Downtown Oshawa | Oshawa | O3 | 10,855 | 22 |
| 30 | Central Park | Oshawa | O4 | 11,235 | 24 |
| 31 | Grandview South | Oshawa | O5 | 11,430 | 21 |
| 32 | Stevenson North | Oshawa | O6 | 16,770 | 32 |
| 33 | Hillsdale | Oshawa | O7 | 11,430 | 19 |
| 34 | Beatrice South | Oshawa | O8 | 12,835 | 24 |
| 35 | Grandview North | Oshawa | O9 | 11,720 | 16 |
| 36 | Beatrice North | Oshawa | O10 | 10,215 | 10 |
| 37 | Oshawa Northwest | Oshawa | O11 | 10,605 | 15 |
| 38 | Oshawa Northeast | Oshawa | O12 | 13,070 | 13 |
| 39 | Courtice South | Clarington | C1 | 15,170 | 19 |
| 40 | Courtice North | Clarington | C2 | 10,270 | 16 |
| 41 | Bowmanville South | Clarington | C3 | 14,350 | 23 |
| 42 | Bowmanville Central | Clarington | C4 | 9,305 | 16 |
| 43 | Bowmanville North | Clarington | C5 | 11,230 | 10 |
| 44 | Darlington | Clarington | C6 | 9,240 | 19 |
| 45 | Clarke | Clarington | C7 | 14,930 | 26 |
| 46 | Port Perry | Scugog | S1 | 9,495 | 15 |
| 47 | Rural Scugog | Scugog | S2 | 12,120 | 23 |
| 48 | Urban Uxbridge | Uxbridge | U1 | 12,355 | 13 |
| 49 | Rural Uxbridge | Uxbridge | U2 | 8,285 | 16 |
| 50 | Brock | Brock | B1 | 11,330 | 24 |

Methodological Notes

Geocoding Data into Health Neighbourhoods

Data from the 2011 Census and National Household Survey were directly categorized from Dissemination Area (DA) into Health Neighbourhood. For postal code based data, we used a conversion file to assign postal code to DA and then Neighbourhood.

The conversion file used was the “Environics PCCF 2011 Excel file” obtained through the Community Data Program. For new Release 2 indicators, the postal code conversion file was updated to the Environics July 22, 2015 version and for Release 3, the 2017 Environics version. These files assign postal codes to a specific DA, even though some may not fit precisely into one DA. If the postal code was missing or did not link to a DA, we did some manual coding to try to assign a neighbourhood based on other available address information. We excluded cases from the Neighbourhood analysis if they could not be linked to a DA. The number of cases excluded varied by data source but was generally minimal (less than 5%).

Data Based on Residence

We analyzed all Neighbourhood data based on place of residence, not where the event occurred. The only exception to this is ambulance call data in Release 2, which were geocoded to the pickup location of the patient and not the patient’s address. Durham Region residents who visit an emergency department or are hospitalized at any Ontario facility are captured and coded by where they live. Events occurring outside of Ontario are not included.

Mapping of Indicators – Quintiles and Direction Related to Health

Indicator maps are available on the durham.ca/neighbourhoods web page through the Map Viewer or as PDFs. For each indicator, we ranked Neighbourhoods from lowest to highest rates and divided them into five groups called quintiles. Quintile 1 has the Neighbourhoods with the lowest rates of the indicator, Quintile 2 the next highest, etc. Quintile 5 includes Neighbourhoods with the highest rates.

For indicators where the number of people/cases/events was available and relevant, the quintiles were formed in such a way that there are approximately equal numbers of people/cases/events in each quintile. The number of Neighbourhoods in each quintile was unequal if the number of people/cases/events were not evenly distributed across the Neighbourhoods.

For some indicators, we sorted by rate and divided the Neighbourhoods equally into quintiles, i.e. approximately 10 Neighbourhoods per quintile; for example, indicators based on survey data or where the number of people/cases/events was not meaningful or reported, or if the data were age-standardized. This was the case for indicators from the National Household Survey, the Rapid Risk Factor Surveillance System, the Kindergarten Parent Survey, the Infant Feeding Surveillance System, two breastfeeding indicators from the Integrated Services for Children Information System and five child immunization indicators. The age-standardized indicators were disease prevalence rates (diabetes, lung disease and asthma), cancer screening rates,

population with a primary care physician, and residence ambulance calls. Note that the number of Neighbourhoods was not necessarily 10 in each quintile because Neighbourhoods with the same rate were grouped together, resulting in 11 Neighbourhoods in one quintile and 9 in another. As well, we excluded Neighbourhoods with rates that were not releasable due to small numbers from the quintiles.

Indicators may be neutral, positive, or negative in terms of their impact on health (see Table 2). Neutral indicators, such as population age groups and birth rate, may be associated with health in some way but increasing or decreasing the rate would not improve health in those populations. Maps of neutral indicators show Neighbourhoods with the lowest rates in pale yellow and those with the highest rates in dark red. Positive indicators, such as life expectancy and physical activity, have a positive association with health with higher rates being better. Maps of positive indicators show Neighbourhoods with the best, highest rates in pale yellow and those with the worst, lowest rates in dark red. Negative indicators, such as smoking and injury, are those where a higher rate is associated with worse health. Maps of negative indicators show Neighbourhoods with the lowest, best rates in pale yellow and the worst, highest rates in dark red.

For the positive and negative indicators, the simplest overall message is that the dark red areas on maps highlight Neighbourhoods with poorer health behaviours or outcomes.

Demographic Indicators

Table 2: List of Demographic Indicators and their direction related to health

| # | Grouping | Indicator | Direction |
|----|-----------------------|-----------------------------|-----------|
| 1 | Population growth | Population growth rate | Neutral |
| 2 | Population age groups | Population aged 0-14 years | Neutral |
| 3 | Population age groups | Population aged 0-4 years | Neutral |
| 4 | Population age groups | Population aged 5-9 years | Neutral |
| 5 | Population age groups | Population aged 10-14 years | Neutral |
| 6 | Population age groups | Population aged 15-19 years | Neutral |
| 7 | Population age groups | Population aged 20-24 years | Neutral |
| 8 | Population age groups | Population aged 25-29 years | Neutral |
| 9 | Population age groups | Population aged 30-39 years | Neutral |
| 10 | Population age groups | Population aged 40-49 years | Neutral |

| # | Grouping | Indicator | Direction |
|----|-----------------------|---|-----------|
| 11 | Population age groups | Population aged 50-59 years | Neutral |
| 12 | Population age groups | Population aged 60-64 years | Neutral |
| 13 | Population age groups | Population aged 65+ years | Neutral |
| 14 | Seniors Living Alone | Seniors living alone | Neutral |
| 15 | Lone-Parent Families | Female lone-parent families | Neutral |
| 16 | Income | Low income rate | Negative |
| 17 | Income | Children less than 6 years in low income households | Negative |
| 18 | Income | Median after-tax household income | Positive |
| 19 | Education | No high school completion | Negative |
| 20 | Unemployment | Unemployment rate | Negative |
| 21 | Commuting to work | Commuting duration | Neutral |
| 22 | Aboriginal Population | Aboriginal population | Neutral |
| 23 | Immigrants | Recent immigrants | Neutral |
| 24 | Visible minorities | Visible minorities | Neutral |
| 25 | Housing | Movers | Neutral |
| 26 | Housing | Renters | Neutral |
| 27 | Housing | Shelter costs | Negative |
| 28 | Housing | Not suitable housing | Negative |
| 29 | Housing | Major dwelling repairs | Negative |

Early Child Development Indicators

Table 3: List of Early Childhood Development Indicators and their direction related to health

| # | Grouping | Indicator | Direction |
|----|------------------------------------|--|-----------|
| 30 | Early Development Instrument (EDI) | EDI - Vulnerable in physical health and well-being | Negative |
| 31 | EDI | EDI - Vulnerable in social competence | Negative |
| 32 | EDI | EDI - Vulnerable in emotional maturity | Negative |
| 33 | EDI | EDI - Vulnerable in language and cognitive development | Negative |
| 34 | EDI | EDI - Vulnerable in communication skills and general knowledge | Negative |
| 35 | EDI | EDI - Vulnerable in one or more domains | Negative |
| 36 | Kindergarten Parent Survey (KPS) | Parent-rated health of SK children | Positive |
| 37 | KPS | Child-friendly neighbourhood | Positive |
| 38 | KPS | SK children walking or biking to school | Positive |

Health Indicators

Table 4: List of Health Indicators and their direction related to health

| # | Grouping | Indicator | Direction |
|----|--------------------------|--|-----------|
| 39 | Self-rated health | Self-rated health | Positive |
| 40 | Self-rated mental health | Self-rated mental health | Positive |
| 41 | Life expectancy | Life expectancy - Males | Positive |
| 42 | Life expectancy | Life expectancy - Females | Positive |
| 43 | Births | Live birth rate | Neutral |
| 44 | Births | Births to young mothers ages 23 and younger | Negative |
| 45 | Births | Births to older mothers ages 35+ | Neutral |
| 46 | Births | Preterm birth rate in singletons | Negative |
| 47 | Births | Small-for-gestational age (SGA) rate | Negative |
| 48 | Births | Large-for-gestational age (LGA) rate | Negative |
| 49 | Teen pregnancy | Teen pregnancy rate | Negative |
| 50 | Breastfeeding | Breastfeeding at hospital discharge rate | Positive |
| 51 | Breastfeeding | Breastmilk only at hospital discharge rate | Positive |
| 52 | Breastfeeding | Breastfeeding duration rate at 6 months | Positive |
| 53 | Well-Baby Visit | Well-baby visit rate | Positive |
| 54 | Asthma in children | Asthma ED visit rate, ages 0-14 years | Negative |
| 55 | Asthma in children | Asthma prevalence rate, ages 0-14 years | Negative |
| 56 | Dental decay | Dental decay in Grade 2 students by school | Negative |
| 57 | Injuries | All injuries, Emergency Department (ED) visit rate | Negative |
| 58 | Injuries | Sports injuries, ED visit rate, ages 10-14 years | Negative |

| # | Grouping | Indicator | Direction |
|----|------------------------|--|-----------|
| 59 | Injuries | Motor vehicle traffic collisions, ED visit rate, ages 15-24 years | Negative |
| 60 | Injuries | Falls, ED visit rate, ages 0-4 years | Negative |
| 61 | Injuries | Falls, ED visit rate, ages 65+ years | Negative |
| 62 | Police calls | Domestic incidents | Negative |
| 63 | Police calls | Domestic incidents with children present | Negative |
| 64 | Smoking | Smoking rate, ages 18+ years | Negative |
| 65 | Obesity | Obesity rate, ages 18+ years | Negative |
| 66 | Nutrition | Vegetable and fruit consumption rate, ages 18+ years | Positive |
| 67 | Alcohol use | Alcohol use in excess of Canada's Low-Risk Alcohol Drinking Guidelines, ages 18+ | Negative |
| 68 | Physical activity | Physical activity rate, ages 18-69 years | Positive |
| 69 | Immunization | School-required immunizations, age 7-8 | Positive |
| 70 | Immunization | School-required immunizations, age 16-17 | Positive |
| 71 | Immunization | Hepatitis B in Grade 7 students | Positive |
| 72 | Immunization | Meningococcal disease in Grade 7 students | Positive |
| 73 | Immunization | HPV in Grade 7 students | Positive |
| 74 | Immunization | Flu immunization rate, ages 18+ years | Positive |
| 75 | Cancer Screening | Breast cancer screening (mammography) rate, females ages 52-74 years | Positive |
| 76 | Cancer Screening | Cervical cancer screening (Pap test) rate, females ages 23-70 years | Positive |
| 77 | Cancer Screening | Overdue for colorectal cancer screening, ages 50-74 years | Negative |
| 78 | Cardiovascular disease | Cardiovascular disease hospitalization rate, ages 45-64 | Negative |

| # | Grouping | Indicator | Direction |
|----|-------------------------|---|-----------|
| 79 | Diabetes | Diabetes prevalence, ages 20+ years | Negative |
| 80 | Lung disease | Lung disease (COPD), ages 35+ years | Negative |
| 81 | Infectious diseases | Chlamydia incidence rate, females ages 15-24 years | Negative |
| 82 | Infectious diseases | Enteric diseases incidence rate | Negative |
| 83 | Infectious diseases | Influenza incidence rate | Negative |
| 84 | Infectious diseases | Hepatitis C incidence rate | Negative |
| 85 | Infectious diseases | Latent Tuberculosis Infection (LTBI) incidence rate | Negative |
| 86 | Primary care physicians | Population with primary care physician | Positive |
| 87 | Ambulance calls | Residence ambulance calls | Negative |
| 88 | Ambulance calls | Residence ambulance calls in seniors ages 65+ | Negative |

Determining Highs and Lows

In addition to colour shading based on quintile, Neighbourhoods were classified as higher, lower or similar as compared to Durham Region. For demographic indicators, "Lower" refers to at least 20% lower than the Durham Region rate and "Higher" refers to at least 20% higher. The 20% value was chosen arbitrarily but has been used by other organizations such as the City of Toronto. For early child development and health indicators, "Lower" or "Higher" means that the 95% confidence intervals do not overlap and that the rates are significantly different from Durham Region. "Similar" means that the Neighbourhood is similar to Durham Region as a whole for that indicator. We compared Durham Region and Ontario in the same way. Maps show Neighbourhoods that are lower or higher with an "L" or "H" respectively.

Calculation of Confidence Intervals

Rates for many indicators have 95% confidence intervals provided in the summary table (Table 1) of each Indicator Summary. Confidence intervals indicate the amount of variability and precision of an estimate and also if rates are significantly different. An estimate with wide confidence intervals is less precise, possibly because it is based on a smaller number of cases or a small population or, in the case of survey data, based on a small number of people sampled.

For events such as infectious diseases or teen pregnancies that are based on complete counts, confidence intervals are useful because there may be relatively few events that occur in a given year, particularly at the Neighbourhood level. When the number of events is low and there is a small probability of such an event occurring, there are more random fluctuations within the time period. Rates are unstable from year to year. Grouping multiple years reduces this random fluctuation. Confidence intervals help to quantify how unstable the rates are by indicating that 95% of the time the "true" estimate will be within the range of the 95% confidence interval.

Confidence intervals for estimates from the Rapid Risk Factor Surveillance System were calculated using complex samples in IBM SPSS. Life expectancy confidence intervals were calculated in Excel using the Chiang II method of calculation.

We calculated all other confidence intervals, with the exception of the Early Development Instrument (EDI) indicators, in Excel using a method outlined by Fleiss for proportions close to zero or one. The formula for this calculation is:

- 95% Lower Confidence Interval= $\frac{((2*n*p+1.96*1.96-1)-1.96*SQRT(1.96*1.96-(2+1/n)+4*p*(n*q+1)))/2*(n+1.96*1.96))$
- 95% Upper Confidence Interval= $\frac{((2*n*p+1.96*1.96+1)+1.96*SQRT(1.96*1.96+(2-1/n)+4*p*(n*q-1)))/2*(n+1.96*1.96))$
- where p = numerator/denominator, q = 1-p, n = denominator

The six EDI indicators used critical difference to determine if Neighbourhoods were significantly different from Durham Region or Durham Region from Ontario, and if the percentage of vulnerable children changed significantly between 2012 and 2015. We used the procedures developed by the Human Early Learning Partnership (HELP) through the University of British Columbia. The [HELP website](#) describes the process.

Essentially HELP used modelling techniques to estimate the degree of uncertainty for each of the six EDI measures by testing different sources of measurement error, including neighbourhood size and teacher-related error. Vulnerability rates for large populations are more precise than for smaller populations; the critical difference value decreases as the total number of SK children increases. We entered the equations for each EDI measure into Excel to calculate the critical differences for Durham Region Neighbourhoods. Because HELP did not calculate the critical difference for the EDI indicator vulnerable in two or more EDI domains, we have dropped this as an indicator. We also revised the 2012 maps using the method, which resulted in more Neighbourhoods becoming statistically different from Durham Region. The critical difference method is more specific and precise than the general calculation of statistical significance.

Non-Releasable Estimates

In some cases, we did not release an estimate because the number of cases was too small. The threshold depends on the data source but usually if the numerator is less than five or the denominator less than 30, the estimate is suppressed and marked as “Not Releasable”. This practice protects confidentiality and ensures a minimum standard in terms of the precision of estimates.

For estimates from the Rapid Risk Factor Surveillance System, Kindergarten Parent Survey, and the Infant Feeding Surveillance System, we also used the coefficient of variation to assess whether an estimate had sufficient precision to be released. The coefficient of variation expresses the standard error of an estimate as a percentage of the estimate itself. The higher the coefficient of variation is, the larger the variability and the less precise the estimate. If the coefficient of variation was between 16.5 per cent and 33.3 per cent, the estimate is qualified and should be used with caution. Estimates with a coefficient of variation greater than 33.3 per cent are not releasable.

Municipality Rates and Counts

Counts for municipalities are equal to the sum of the Neighbourhood counts, which may result in municipal counts and rates that are inconsistent with other Health Department reports. This inconsistency is because we excluded cases with missing or incorrect postal codes that we could not code to a Health Neighbourhood.

Age Differences across Neighbourhoods

Age is an important determinant of health. Certain health problems are more prevalent among specific age groups, which means that Neighbourhoods may have higher rates of a health problem simply because they have a higher proportion of people in that age group. Sometimes age standardization is used so that different geographical areas can be compared even though they may have different age structures in their populations. Age-standardization was done for the following indicators: disease prevalence rates (diabetes, lung disease, and asthma), cancer screening rates, population with primary care physician, and residence ambulance calls.

We did not use age standardization for other indicators because of the difficulty in obtaining population counts by sex and age group and methodological issues with

small populations. Instead, we used age-specific rates where possible, with restrictions to the age group with the highest incidence. For example, we presented chlamydia rates for females aged 15-24, and sports injury rates for ages 10-14. In both of these cases, limiting the data to these specific populations allows for a better comparison of incidence across Neighbourhoods. In some cases, the sample size was not large enough to restrict to the most relevant age group. For example, flu shots would ideally be presented for older age groups at highest risk for flu-related complications but the sample size did not allow for this breakdown.

Use of 2011 Census Population Counts for Denominators

For some indicators, such as injury rates or teen pregnancy rate, the denominator used for calculating the indicator is the 2011 population from the Census. Population counts by DA or Health Neighbourhood are only available from the Census. As a result, we calculated rates for years close to 2011 or that straddle the Census year, e.g. 2010-2011-2012 combined. These may not be the most current years of data available. As well, Neighbourhoods that experience very high population growth may have rates that are under-estimated or overestimated if the numerator is far away from the Census year.

As a result of a data request to the Institute for Clinical Evaluative Sciences (ICES) in 2015, we obtained estimated population counts by Health Neighbourhood from the Registered Persons Database (RPDB), a population-based register maintained by the Ministry of Health and Long-Term Care to manage services funded under the Ontario Health Insurance Plan (OHIP). These counts were used as denominators for the Release 2 indicators. Inaccuracies in the RPDB data have been documented, but the estimates appeared reasonable when considering census numbers and population growth.

We will update indicators using 2016 Census data once the data become available through the [Community Data Program](#) and have completed the analysis.

Multiple Testing

We compared each Neighbourhood and municipality with Durham Region for all indicators. Because of the many comparisons using 95% confidence intervals, 1 out of 20 (5%) might be statistically high or low simply by chance. It is thus important to examine overall patterns and understand the context of the indicators and the Neighbourhoods rather than look at a specific rate in isolation.

Complex Nature of Health

Health Neighbourhoods provides a wide range of demographic and health indicators for Durham Region residents that cover the lifespan from birth to death. Many indicators are inter-related. All are complex. We provide some limited information within the indicator summaries to highlight how certain factors can affect health, but we cannot make any causal conclusions from Neighbourhoods data.

Data Sources

The Health Neighbourhoods project uses a variety of data sources and presents a wide range of indicators that cover the lifespan. We document each data source below along with links to more information and a brief discussion of limitations. In many cases, indicators use definitions from the Core Indicators for Public Health in Ontario of the Association of Public Health Epidemiologists in Ontario (APHEO). Information about these indicators and data sources is available at [APHEO Core Indicators](#).

Ambulance Call Report Database and Dispatch Database

The Ambulance Call Report Database (ACR) and Dispatch Database are the information systems used in by Durham Region Paramedic Services for reporting events related to ambulance services. The ACR contains case report data, as recorded by Emergency Medical Attendants, for each patient they serve. The Dispatch Database contains initial contact data for Paramedic Services requests.

Census

Statistics Canada conducts the Canadian Census every five years, providing important demographic data for many different geographical levels. By definition, a census includes everyone in the population. Information about the census is available from Statistics Canada at: [Canadian Census](#).

We obtained Census data by Health Neighbourhood, including population counts, through the Community Data Group, which the Regional Municipality of Durham accesses as a member of the Durham Consortium. Health Neighbourhood is a custom geography for the Durham Consortium.

The main limitation with the Census is that the most recent data available is 2011, which may be out-of-date for Neighbourhoods with fast-growing populations. The Population Growth Rate indicator identifies which Neighbourhoods experienced substantial growth between 2006 and 2011. Health Neighbourhoods will be updated with 2016 Census data in 2018.

National Household Survey (NHS)

The NHS replaced the long-form Census in 2011. Information about the NHS is available from Statistics Canada at: [Statistics Canada NHS](#). As with Census data, we obtained NHS data through the Community Data Group. Health Neighbourhood is a custom geography for the Durham Consortium.

As a voluntary survey, the NHS has more non-response bias than a census, which means that there is a risk that the results are not representative of the actual population, especially in smaller areas or population groups. Comparisons between the 2011 NHS and previous Censuses are not reliable. Statistics Canada uses the global non-response rate (GNR) to assess the quality of the NHS estimates for various geographies. NHS estimates for any area with a GNR greater than or equal to 50% have a high level of error and are not released. The GNR ranges by Health

Neighbourhood from 19.3% to 46.9%. In general, rural areas tend to have a higher GNR. See Table 3 for the GNRs for each Neighbourhood.

We present fourteen indicators from the NHS. Due to imprecision, we provide only percentages with no counts or estimates of the number of people and without confidence intervals. To determine whether the Neighbourhood percentages were similar or different from Durham Region, we used the same criterion as for Census indicators. "Lower" referred to at least 20% lower than the Durham Region rate and "Higher" referred to at least 20% higher. Unlike other data sources, we did not calculate the municipality percentages by summing the Neighbourhood values but used the actual values calculated by Statistics Canada. Summing Neighbourhood values would have resulted in inaccurate estimates due to the rounding that occurs in NHS estimates.

Table 5: Global Non Response Rate (GNR) for the 50 Health Neighbourhoods

| # | Neighbourhood | GNR | # | Neighbourhood | GNR |
|----|----------------------------------|-------|----|----------------------------|-------|
| 1 | Frenchman's Bay, Pickering | 27.3% | 26 | Brooklin West, Whitby | 34.3% |
| 2 | West Rouge, Pickering | 23.3% | 27 | Lakeview, Oshawa | 37.8% |
| 3 | Amberlee, Pickering | 24.8% | 28 | Gibb West, Oshawa | 23.1% |
| 4 | Dunbarton, Pickering | 23.6% | 29 | Downtown Oshawa, Oshawa | 42.7% |
| 5 | Pickering City Centre, Pickering | 30.3% | 30 | Central Park, Oshawa | 32.1% |
| 6 | Brock Ridge, Pickering | 25.1% | 31 | Grandview South, Oshawa | 32.7% |
| 7 | Pickering North, Pickering | 23.1% | 32 | Stevenson North, Oshawa | 19.3% |
| 8 | Ajax Waterfront, Ajax | 23.3% | 33 | Hillsdale, Oshawa | 32.4% |
| 9 | Downtown Ajax, Ajax | 34.9% | 34 | Beatrice South, Oshawa | 33.7% |
| 10 | Carruthers, Ajax | 25.0% | 35 | Grandview North, Oshawa | 35.9% |
| 11 | Central Ajax, Ajax | 26.8% | 36 | Beatrice North, Oshawa | 39.1% |
| 12 | Riverside-Hermitage, Ajax | 27.8% | 37 | Oshawa Northwest, Oshawa | 35.8% |
| 13 | Westney Heights, Ajax | 24.5% | 38 | Oshawa Northeast, Oshawa | 33.9% |
| 14 | Applecroft, Ajax | 27.8% | 39 | Courtice South, Clarington | 28.6% |
| 15 | Ajax Northwest, Ajax | 29.5% | 40 | Courtice North, Clarington | 26.1% |

| # | Neighbourhood | GNR | # | Neighbourhood | GNR |
|-----------|----------------------------|------------|-----------|---------------------------------|------------|
| 16 | Ajax Northeast, Ajax | 30.8% | 41 | Bowmanville South, Clarington | 31.5% |
| 17 | Whitby South, Whitby | 23.9% | 42 | Bowmanville Central, Clarington | 34.7% |
| 18 | Downtown Whitby, Whitby | 28.2% | 43 | Bowmanville North, Clarington | 26.0% |
| 19 | Cochrane South, Whitby | 29.9% | 44 | Darlington, Clarington | 38.3% |
| 20 | Manning, Whitby | 20.9% | 45 | Clarke, Clarington | 30.2% |
| 21 | Williamsburg, Whitby | 30.3% | 46 | Port Perry, Scugog | 34.3% |
| 22 | Whitby Brock North, Whitby | 26.4% | 47 | Rural Scugog, Scugog | 39.4% |
| 23 | Dryden-Anderson, Whitby | 19.7% | 48 | Urban Uxbridge, Uxbridge | 21.2% |
| 24 | Dryden East, Whitby | 23.0% | 49 | Rural Uxbridge, Uxbridge | 42.0% |
| 25 | Brooklin East, Whitby | 28.9% | 50 | Brock | 46.9% |

Digital Health Immunization Repository (Panorama)

The Digital Health Immunization Repository, commonly known as Panorama, is the information system used in Ontario to record and track immunizations administered to school-aged children. The system allows us to track immunization coverage rates and to identify at-risk populations who are vulnerable to vaccine-preventable and reportable diseases. It also provides information related to supply and cost of vaccines. Each public health unit is responsible for updating immunization information into Panorama for immunizations that they administer and for children residing within their boundaries.

The main limitation of using information from Panorama is that not all immunization records for a child may be entered into Panorama. If a child receives an immunization from a health care provider, it is the responsibility of the parents or guardians of the child to provide this immunization information to the Durham Region Health Department. Parents/guardians usually become aware of this after they receive a letter from the Health Department about missing immunization information. If not all immunizations are captured in Panorama, it is possible that the true immunization rates may be higher than the rates presented.

Early Development Instrument (EDI)

The EDI is a teacher-completed instrument developed by the Offord Centre for Child Studies at McMaster University to measure children's ability to meet age appropriate developmental expectation at school entry. Teachers assess senior kindergarten (SK) children on five core areas of early child development (domains) that have been shown to influence future health, education and well-being. The five EDI domains are:

1. physical health and well-being
2. social competence
3. emotional maturity
4. language and cognitive development
5. communication skills and general knowledge

Children with low scores are not ready to meet the day-to-day demands of school. Children are classified as vulnerable if they score below the 10th percentile of Ontario baseline scores. Ontario baseline scores were based on EDI results for all SK children in Ontario collected in the 3-year period from 2003/04 to 2005/06 (Cycle 1). Six EDI indicators are available by Neighbourhood, assessing the percentage of children vulnerable in each of the five domains as well as the percentage vulnerable in one or more domains. More information about the EDI is available at: [Offord Centre - EDI](#).

The EDI was administered to all SK children in Ontario publicly funded schools over the 3-year period from 2009/10 to 2011/12 (Cycle 3) and in 2014/15 school year (Cycle 4), but excluded special needs children and those who had been in their class for less than a month. We present Durham Region EDI data for 2012 and 2015. Because teacher assessed almost all SK children, the data are complete and represent a census rather than a survey.

The Children's Services Division of the Social Services Department owns EDI data for Durham Region. The Data Analysis Coordinator (DAC) from Children's Services geocoded data from both the EDI and Kindergarten Parent Survey (see below) using a

file provided by the Health Department that linked postal code to Neighbourhood. The DAC analyzed the data at the Neighbourhood level and provided Excel files to the Health Department for mapping. The Social Services Department maintained individual record-level data within their department.

With the December 2017 Release, we changed the method by which we determined statistical significance for EDI indicators, adopting the critical difference test. By revising the 2012 map with this method, more Neighbourhoods became statistically different from Durham Region.

Kindergarten Parent Survey (KPS)

The KPS is a questionnaire for parents of SK children that complements the EDI by collecting information about the family and the child's experiences before entering kindergarten. It is a provincial initiative but not all local areas participated. In Durham Region, 2,704 parents completed the KPS, representing a 40% response rate among parents of SK children attending publicly funded schools in Durham Region in spring 2012. We coded 2,696 surveys to a Health Neighbourhood. Ontario did not repeat the KPS in 2015 but plans to conduct the survey in the future.

The confidence intervals around the survey estimates are wide due to the imprecision in the data at the neighbourhood level. Estimates marked with an asterisk (*) should be used with caution due to small sample sizes as defined by a denominator of between 11 and 29 surveys or a coefficient of variation between 16.6% and 33.3%. Estimates are not releasable (NR) if there are fewer than 11 responses or the coefficient of variation is greater than 33.3%.

Hospital In-Patient Discharges

In-patient hospitalization data are collected by the Canadian Institute for Health Information (CIHI) and are coded using the Tenth Revision of the International Classification of Diseases (ICD-10). For hospitalizations, the main diagnostic code gives the primary reason for the hospital stay or "most responsible diagnosis". A hospitalization is typically a "hospital separation" (discharge, death or transfer from a hospital) and is counted upon discharge, not admission. Hospitalization rates are based on patient residence and not where the hospital is located. All hospitals in Ontario are captured. For more information, see [APHEO Core Indicators - Hospitalization](#).

We used hospitalization data for birth information (births, preterm birth, birth weights) because it is relatively complete, capturing all births in Ontario except for approximately 2% of births that occur at home. We also used hospitalization data to count the number of deliveries (live births and stillbirths) among 15-19 year old females as one of the components of teen pregnancy rate. Birth information comes from the newborn record, whereas delivery information, such as age of mother, comes from the maternal hospital record.

We also used hospitalization data to assess cardiovascular disease (CVD). Because not everyone with the disease ends up in hospital, CVD hospitalizations may not necessarily correspond to how common the condition is but rather how physicians manage and treat the disease in hospital. For example, the degree to which a heart procedure is done on an outpatient basis versus requiring hospitalization may vary by

physician, area or over time. As well, patients in rural areas may be more likely to be admitted to hospital than those in urban areas where alternative services are more readily available.

Integrated Services for Children Information System (ISCIS)

ISCIS is a data system used for collecting information for Healthy Babies Health Children (HBHC), a program for families, pregnant women, and children aged 0-6 years. A screening tool, generally applied in hospital by maternity nurses, consists of a series of questions for women who have just delivered, including questions about breastfeeding status. The tool identifies factors associated with risk of parenting problems and is the main source of information in ISCIS. Hospitals send a completed screening form to the health unit of residence for each woman who consented to participate in HBHC. Since the consent rate for participation is over 90% in Durham Region, breastfeeding information is quite complete but does not include all women who gave birth. For more information, see [APHEO Core Indicators - ISCIS](#).

Infant Feeding Surveillance System (IFSS)

The Durham Region Health Department developed the IFSS in 2007 to assess the infant feeding practices of Durham Region mothers. We collect IFSS data in two phases. Since 2009, ISCIS (see above) has provided base information about births to Durham Region mothers. ISCIS is part of Phase I and provides the sampling frame for Phase II, a telephone survey of a random selection of mothers at 6 to 7 months postpartum. We import selected data, including demographic information, gestational age, birth weight, delivery hospital and breastfeeding status, from Phase I to Phase II. Phase II collects detailed information on infant feeding practices.

The main limitation with IFSS Phase II data is that it is a survey based on a limited number of respondents and it has a small target group: mothers who gave birth in the past 6 to 7 months. We grouped multiple years of data to obtain sufficient sample size at the Neighbourhood level. Confidence intervals are wide due to the imprecision in the data at this geographical level.

Institute for Clinical Evaluative Sciences (ICES) Data

ICES is a not-for-profit research institute encompassing a community of research, data and clinical experts, and a secure and accessible array of Ontario's health-related data. The Durham Region Health Department requested data from ICES on chronic diseases, cancer screening, access to primary care physicians, and estimates of population counts. Although ICES uses many different data sources, we grouped them here because of the unique nature of ICES data sources and analysis.

Asthma Database: The Asthma Database consists of Ontario asthma patients identified since 1991. A patient is said to have asthma if, within a two year period, they had at least two Ontario Health Insurance Plan (OHIP) claims with an asthma diagnostic code or a hospital admission for asthma.

Ontario Diabetes Database (ODD): The ODD consists of Ontario diabetes patients identified since 1991. A patient is said to have diabetes if, within a two year period, they had a least two Ontario Health Insurance Plan (OHIP) claims with a diabetes diagnostic

code or one selected diabetes-related OHIP service claim, or a hospital admission for diabetes.

Chronic Obstructive Pulmonary Disease (COPD) Database: The COPD Database consists of Ontario COPD patients identified since 1991. A patient is said to have COPD if, within a two year period, they had at least one Ontario Health Insurance Plan (OHIP) claim with a COPD diagnostic code or a hospital admission for COPD.

Breast Cancer Screening Data: This data combines information from the Ontario Breast Cancer Screening Program (OBSP), Ontario Health Insurance Plan (OHIP), and the Ontario Cancer Registry (OCR). The OCR is a Cancer Care Ontario database of Ontario residents newly diagnosed with cancer or who have died of cancer.

Cervical Cancer Screening Data: This data combines information from the Ontario Health Insurance Plan (OHIP) and the Ontario Cancer Registry (OCR).

Colorectal Cancer Screening Data: This data combines information from the Discharge Abstract Database (DAD), Ontario Health Insurance Plan (OHIP), and the Ontario Cancer Registry (OCR).

Primary Care Physician Data: This data combines information from the Client Agency Enrollment Program (CAPE) and the Ontario Health Insurance Plan (OHIP). CAPE is a registry of patients enrolled in primary care groups.

Registered Persons Database (RPDB): The RPDB is a population-based register maintained by the Ministry of Health and Long-Term Care to manage services funded under the Ontario Health Insurance Plan (OHIP). It is used for assessing OHIP eligibility and determining Ontario population counts. The RPDB provided denominator data for various indicators, including the ambulance call indicators, which were not from ICES data. Researchers have documented various data quality issues for the RPDB because of inaccurate and out-of-date addresses linked to health cards. Data quality is improving as more Ontario residents move to new health cards with photo identification.

We obtained the above data from ICES through an Applied Health Research Question (AHRQ) data request, Project 2016 0900 784 000. ICES provided counts, crude rates, age- and sex-standardized rates, and confidence intervals by Health Neighbourhood, Durham Region municipality and for Durham Region and Ontario.

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Integrated Public Health Information System (iPHIS)

iPHIS is the information system used in Ontario for reporting case information on all reportable communicable diseases for provincial and national surveillance, as described in the Health Protection and Promotion Act. Each public health unit is responsible for collecting case information on reportable communicable diseases occurring within their boundaries and entering this information into iPHIS. The most common source of case identification is through laboratory notification of confirmed test results (serology, microbiology cultures, etc.). Physicians are required to report cases that fulfill laboratory or clinical case definitions. For more information, see [APHEO Core Indicators - iPHIS](#).

The main limitation with iPHIS data is that not all cases of a disease are reported. An infected person who is asymptomatic or has mild clinical symptoms may not seek medical care and/or laboratory testing may not be performed. While a lower incidence of infectious diseases is desirable, a higher number of cases can be a good thing if it means a higher proportion of cases are being detected, reported and treated.

Medical Services (or OHIP data)

We used Medical Services data, also known as data from the Ontario Health Insurance Plan (OHIP), to calculate the Well-Baby Visit rate, three cancer screening indicators, and primary care physician indicator. The Institute for Clinical Evaluative Sciences used OHIP data to build the databases for asthma, diabetes, and chronic obstructive pulmonary disease (COPD) to estimate prevalence of these conditions.

Medical Services data was also used to calculate the number of therapeutic abortions among 15-19 year old females, a component of the teen pregnancy rate. This data provides information about abortions performed in free-standing abortion clinics and physician offices, and is combined with in-patient hospitalization and NACRS data to provide a complete count of live births, stillbirths and therapeutic abortions in the teen population.

For more information about medical services data, see [APHEO Core Indicators - Medical Services](#).

Mortality Data (Life Expectancy)

We used mortality data, specifically the number of deaths by age group, to calculate life expectancy. The Office of the Registrar General (ORG), ServiceOntario, obtains information about mortality from death certificates completed by physicians. All deaths within Ontario are registered in the municipality where the death occurs. The ORG provides death registration data to Statistics Canada for national reporting, which in turn provides the Ministry of Health and Long Term Care with an edited and standardized dataset of deaths that occurred in Ontario. Public health units access this mortality data through IntelliHEALTH. For more information, see [APHEO Core Indicators - Mortality](#).

We used population counts by 5-year age groupings from the 2011 Census, which are sufficient for life expectancy calculations except that population counts of <1 and 1-4 years are needed. Since this breakdown is not available, we calculated these counts by

assuming that the number of children in each single year was evenly distributed, i.e. the number of infants <1 is equal to the total number of children aged 0-4 divided by 5.

National Ambulatory Care Reporting System (NACRS)

As with hospitalization data, the Canadian Institute for Health Information emergency department (ED) visit information is collected by. The ED data is one component of the National Ambulatory Care Reporting System (NACRS). The main diagnostic code is the “main problem” that is deemed to be the clinically significant reason for the visit. For injuries, there are also external cause codes to classify the environmental events, circumstances and conditions that cause an injury. They are examined separately from the main problem. The main problem and external cause are coded using ICD-10. For more information, see [APHEO Core Indicators - NACRS](#). For information specifically about injury ICD-10 codes, see [APHEO Core Indicators - Injury Codes](#).

Multiple external cause codes can exist for each visit. Counts of groupings of external cause codes (e.g. ICD-10 codes W00-W19 for falls) are actually counts of codes, not counts of visits. A small number of visits may be double or triple counted when an individual has two or more codes within a code range for the same visit (e.g. an individual visits the ED for a fall down stairs [W10] involving a skateboard [W02.03]). ED visit rates are based on patient residence and not where the hospital is located. All hospitals in Ontario are captured.

The main limitation with ED data is that it can be heavily influenced by how people in an area use emergency departments generally. People in some Neighbourhoods may be more likely to visit a local ED for care if family doctors or walk-in clinics are not readily available in their community, or if the local ED tends to have short wait times.

In addition to injury and asthma indicators, NACRS was one of the data sources used to count the number of therapeutic abortions among 15-19 year old females, a component of the teen pregnancy rate. We obtained therapeutic abortion data from the Ministry of Health and Long-Term Care. A complex query counts the number of abortions performed as ambulatory care services (NACRS) and in-patient hospitalizations, as well as those performed in free-standing abortion clinics and physician offices through OHIP medical services (see below). An algorithm identifies duplicate records and provides a final count. For more information, see [APHEO Core Indicators - TA Data](#).

Oral Health Screening

The Health Department conducts dental screening for children in JK, SK and grades 2, 4, 6 and 8 on an annual basis. Screening involves dental hygienists conducting a quick visual inspection of a child’s dental condition. The hygienists would miss screening children who absent from school on the day of dental screening, schooled at home, or who refuse to participate. For information about oral health screening processes as defined by the Ontario Public Health Standards, see [Oral Health Assessment and Surveillance Protocol](#). We used the oral health screening data to determine dental decay prevalence among Grade 2 students. The main limitation with this data is that we have decay at the school level and not for the individual or Health Neighbourhood level.

Rapid Risk Factor Surveillance System (RRFSS)

RRFSS is an ongoing survey of adults in Durham Region that collects data related to health knowledge, attitudes and behaviours. The Institute for Social Research at York University conducts the telephone survey on behalf of the Durham Region Health Department and other public health units. Participants aged 18 years and older are selected through random digit dialing. For more information, see [RRFSS](#).

Because RRFSS is a survey and based on a limited number of respondents, we grouped three to five years of data to obtain sufficient sample size to report at the Neighbourhood level. Confidence intervals are wide due to imprecision in the data at this geographical level. Estimates marked with an asterisk (*) should be used with caution due high variability as defined by a coefficient of variation between 16.6% and 33.3%. Estimates are not releasable (NR) if the numerator is less than 5, the denominator is less than 30 or the coefficient of variation is greater than 33.3%.

Indicator Definitions, Data Sources and Notes

Demographic Indicators

Population growth rate

Definition: The population growth rate reflects how much the population grew in the five years between 2006 and 2011. We calculate growth rate by subtracting the 2006 population count from the 2011 population count and dividing by the 2006 population count, multiplied by 100.

Source: 2006, 2011 Census, Statistics Canada.

Release: January 2015

Quintiles: Based on rates, approximately equal numbers of Neighbourhoods in each quintile.

Data Notes:

- Neutral indicator with higher percentages shown on maps in dark red.
- Health Neighbourhood populations for 2006 and 2001 were estimated in cases where the 2006 and 2001 DAs did not correspond with Neighbourhood boundaries. A centroid methodology was used whereby the population of a DA would be attributed to a Neighbourhood if the center of the DA was within that Neighbourhood. An exception was made in Whitby where a DA population was split evenly between the four Neighbourhoods of Dryden-Anderson, Dryden East, Brooklin West, and Brooklin East because the DA centroid was located in the center of these four Neighbourhoods.
- Population counts from the Census differed from the Statistics Canada estimates that the Health Department generally uses for statistics. As a result, counts and rates for Durham Region and the municipalities may vary from those presented in other Health Department reports.

Population age groups

Indicators: Population Aged 0-14, Aged 0-4, Aged 5-9, Aged 10-14, Aged 15-19, Aged 20-24, Aged 25-29, Aged 30-39, Aged 40-49, Aged 50-59, Aged 60-64, Aged 65+ years

Definition: The percentage is calculated by dividing the number of people in the specific age group by the total population, multiplied by 100.

Source: 2011 Census, Statistics Canada.

Release: January 2015

Quintiles: Based on counts, approximately equal numbers of people in each quintile.

Data Notes:

- Neutral indicator with higher percentages shown on maps in dark red.
- Population counts from the 2011 Census differed from the Statistics Canada 2011 estimates that are commonly used by the Health Department, which are adjusted for undercounts. As a result, counts and rates for Durham Region and

the municipalities may vary from those presented in other Health Department reports.

Seniors living alone

Definition: The percentage of seniors aged 65+ who are living alone.

Source: 2011 Census, Statistics Canada.

Release: February 2016

Quintiles: Based on counts, approximately equal numbers in each quintile.

Data Notes:

- Neutral indicator with higher percentages shown on maps in dark red.
- Seniors living alone refers to persons aged 65 years and older in private households who are living alone.

Female lone-parent families

Definition: The percentage of female lone-parent families

Source: 2011 Census, Statistics Canada.

Release: February 2016

Quintiles: Based on counts, approximately equal numbers of families in each quintile.

Data Notes:

- Neutral indicator with higher percentages shown on maps in dark red.
- A female lone-parent family refers to a female of any marital status with at least one child living in the same dwelling. Children may be children by birth, marriage or adoption regardless of their age or marital status as long as they live in the dwelling and do not have their own spouse or child living in the dwelling.

Low income rate

Definition: The percentage of people who live in low income households as determined by the 2010 low income measure after-tax (LIM-AT).

Source: National Household Survey (NHS) 2011, Statistics Canada.

Release: January 2015

Quintiles: Based on rates, approximately equal numbers of Neighbourhoods in each quintile.

Data Notes:

- Negative indicator with lower percentages better for health; higher percentages shown on maps in dark red.
- The after-tax income refers to total 2010 income from all sources minus federal, provincial and territorial income taxes paid for 2010.
- For this measure, the income used is after-tax income of households. This line is set at half the median of adjusted household after-tax income. To account for

potential economies of scale, the income of households with more than one member is divided by the square root of the size of the household.

- The low-income measure after tax (LIM-AT) is a fixed percentage (50%) of median adjusted after-tax income of households observed at the person level, where 'adjusted' indicates that a household's needs are taken into account. Adjustment for household sizes reflects the fact that a household's needs increase as the number of members increase, although not necessarily by the same proportion per additional member. The LIMs derivation begins by calculating the 'adjusted household income' for each household by dividing household income by the square root of the number of persons in the household, otherwise known as the 'equivalence scale.' This adjusted household income is assigned to each individual in the private household, and the median of the adjusted household income (where half of all individuals will be above it and half below) is determined over the population. The LIM for a household of one person is 50% of this median, and the LIMs for other sizes of households are equal to this value multiplied by their equivalence scale.

Children less than 6 years in low income households

Definition: The percentage of children under the age of 6 years who live in low income households as determined by the 2010 low income measure after-tax (LIM-AT).

Source: National Household Survey (NHS) 2011, Statistics Canada.

Release: January 2015

Quintiles: Based on rates, approximately equal numbers of Neighbourhoods in each quintile.

Data Notes:

- Negative indicator with lower percentages better for health; higher percentages shown on maps in dark red.
- The after-tax income refers to total 2010 income from all sources minus federal, provincial and territorial income taxes paid for 2010.

Median after-tax household income

Definition: The median after-tax household income for 2010 income.

Source: National Household Survey (NHS) 2011, Statistics Canada.

Release: January 2015

Quintiles: Based on medians, approximately equal numbers of Neighbourhoods in each quintile.

Data Notes:

- Positive indicator with higher values better for health; lower values shown on maps in dark red.
- The after-tax income refers to total 2010 income from all sources minus federal, provincial and territorial income taxes paid for 2010. The median is the household income that splits the higher half of all the income values from the lower half.

No high school completion (low education)

Definition: The percentage of adults aged 25-64 years who did not complete high school.

Source: National Household Survey (NHS) 2011, Statistics Canada.

Release: January 2015

Quintiles: Based on rates, approximately equal numbers of Neighbourhoods in each quintile.

Data Notes:

- Negative indicator with lower percentages better for health; higher percentages shown on maps in dark red.
- The number with no high school completion corresponds to the number aged 25-64 years without a certificate, diploma or degree and who did not complete high school. This indicator was limited to those aged 25-64 years because those less than 25 may still be in school and those older than 64 tend to have lower levels of education because of fewer educational opportunities available to this cohort. Restricting the age groups allows better comparisons between Neighbourhoods that have different age structures.

Unemployment rate

Definition: The percentage aged 15 and older who were unemployed.

Source: National Household Survey (NHS) 2011, Statistics Canada.

Release: January 2015

Quintiles: Based on rates, approximately equal numbers of Neighbourhoods in each quintile.

Data Notes:

- Negative indicator with lower percentages better for health; higher percentages shown on maps in dark red.
- Unemployment applies to those persons aged 15+ years who, during the week of Sunday, May 1 to Saturday, May 7, 2011, were without paid work or without self-employment work and were available for work and either: (a) had actively looked for paid work in the past four weeks; or (b) were on temporary lay-off and expected to return to their job; or (c) had definite arrangements to start a new job in four weeks or less.

Commuting duration

Definition: The number of minutes it took for a person to travel from home to work.

Source: National Household Survey (NHS) 2011, Statistics Canada.

Release: January 2015

Quintiles: Based on medians, approximately equal numbers of Neighbourhoods in each quintile.

Data Notes:

- Neutral indicator with higher percentages shown on maps in dark red.
- Refers to how many minutes it took for a person to travel from home to work. Median commuting duration is the value that divides the number of commuters into two equal halves, with one half of individuals having a commuting duration below the median and the other half having a commuting duration above the median. Commuting applies to the population aged 15 years and over in private households who, when asked at the time of the NHS, worked at some time since January 1, 2010, and who reported having a usual place of work or no fixed workplace address.

Aboriginal population

Definition: The percentage of the population that reported identifying with the Aboriginal peoples of Canada.

Source: National Household Survey (NHS) 2011, Statistics Canada.

Release: February 2016

Quintiles: Based on counts, approximately equal numbers in each quintile.

Data Notes:

- Neutral indicator with higher percentages shown on maps in dark red.
- Refers to whether the person reported identifying with the Aboriginal peoples of Canada. This includes those who reported being an Aboriginal person (First Nations, Métis or Inuit), and/or those who reported Registered or Treaty Indian status, and/or those who reported membership in a First Nation or Indian band. Aboriginal peoples of Canada are defined in the Constitution Act, 1982, Section 35(2) as including the Indian, Inuit, and Métis peoples of Canada.

Recent immigrants

Definition: The percentage of the population that immigrated to Canada between 2001 and 2011.

Source: National Household Survey (NHS) 2011, Statistics Canada.

Release: January 2015

Quintiles: Based on rates, approximately equal numbers of Neighbourhoods in each quintile.

Data Notes:

- Neutral indicator with higher percentages shown on maps in dark red.
- Recent immigrants are immigrants who landed in Canada between January 1, 2006 and May 10, 2011. Immigrant refers to a person who is or has ever been a landed immigrant/ permanent resident. This person has been granted the right to live in Canada permanently by immigration authorities. Some immigrants have resided in Canada for a number of years, while others have arrived recently. Some immigrants are Canadian citizens, while others are not. Most immigrants are born outside Canada, but a small number are born in Canada.

Visible minorities

Definition: The percentage of the population that indicated they were non-Caucasian in race or non-white in colour.

Source: National Household Survey (NHS) 2011, Statistics Canada.

Release: January 2015

Quintiles: Based on rates, approximately equal numbers of Neighbourhoods in each quintile.

Data Notes:

- Neutral indicator with higher percentages shown on maps in dark red.
- The Employment Equity Act defines visible minorities as “persons, other than Aboriginal peoples, who are non-Caucasian in race or non-white in colour.”

Movers in the past year

Definition: The percentage of the population that moved their place of residence in the past year.

Source: National Household Survey (NHS) 2011, Statistics Canada.

Release: February 2016

Quintiles: Based on rates, approximately equal numbers of Neighbourhoods in each quintile.

Data Notes:

- Neutral indicator with higher percentages shown on maps in dark red.
- Mobility refers to the status of a person with regard to the place of residence on the reference day, May 10, 2011, in relation to the place of residence on the same date one year earlier. Persons who have moved from one residence to another are referred to as movers. Movers include non-migrants (persons who did move but remained in the same city, town, township, village or Indian Reserve), and migrants (persons who moved to a different city, town, township, village or Indian Reserve from within or outside of Canada).

Households that rent

Definition: The percentage of households that rent.

Source: National Household Survey (NHS) 2011, Statistics Canada.

Release: February 2016

Quintiles: Based on rates, approximately equal numbers of Neighbourhoods in each quintile.

Data Notes:

- This indicator is classified as neutral in terms of the direction related to health. The quality and affordability of housing is most important, rather than whether a dwelling is rented or owned.

Shelter costs of 30% or more of income

Definition: The percentage of households that have shelter costs that are 30% or more of their total household income.

Source: National Household Survey (NHS) 2011, Statistics Canada.

Release: February 2016

Quintiles: Based on rates, approximately equal numbers of Neighbourhoods in each quintile.

Data Notes:

- Negative indicator with lower percentages better for health; higher percentages shown on maps in dark red.
- Shelter costs include rent/mortgage payments, utilities (e.g. heating, water, electricity), and insurance costs.

Not suitable housing

Definition: The percentage of households without suitable housing (i.e., housing smaller than what the family needs).

Source: National Household Survey (NHS) 2011, Statistics Canada.

Release: February 2016

Quintiles: Based on rates, approximately equal numbers of Neighbourhoods in each quintile.

Data Notes:

- Negative indicator with lower percentages better for health; higher percentages shown on maps in dark red.
- Not suitable housing refers to households that do not have the required number of bedrooms as measured by the National Occupancy Standard, based on the age, sex, and relationships among household members.

Major dwelling repairs needed

Definition: The percentage of households with major repairs needed to the dwelling.

Source: National Household Survey (NHS) 2011, Statistics Canada.

Release: February 2016

Quintiles: Based on rates, approximately equal numbers of Neighbourhoods in each quintile.

Data Notes:

- Negative indicator with lower percentages better for health; higher percentages shown on maps in dark red.
- Dwellings in need of major repairs, includes dwellings with defective plumbing or electrical wiring and those needing structural repairs to walls, floors or ceilings.

Early Child Development Indicators (EDI)

EDI – Vulnerable in physical health and well-being

Definition: The percentage of senior kindergarten children who scored below the 10th percentile of the Ontario Cycle 1 baseline for physical health and well-being.

Source: Early Development Instrument (EDI), Durham Region, Cycle 3 2012 & Cycle 4 2015.

Release: Updated in December 2017

Quintiles: Based on counts, approximately equal numbers of vulnerable children in each quintile.

Data Notes:

- Negative indicator with lower percentages better for health; higher percentages shown on maps in dark red.
- The update compared 2012 and 2015 data and provided a map to show whether Neighbourhoods experienced a significant increase (pink), decrease (green) or no change (pale yellow) between the two time points.
- We revised the 2012 map, using critical difference to determine whether the Neighbourhood was different from Durham Region. This method is more precise and resulted in more Neighbourhoods being statistically different. The rates and quintiles are the same but there are more “H”s and “L”s on the map.
- Physical health and well-being includes gross and fine motor skills, e.g., holding a pencil, running on the playground, motor coordination, and having adequate energy levels for classroom activities.

EDI – Vulnerable in social competence

Definition: The percentage of senior kindergarten children who scored below the 10th percentile of the Ontario Cycle 1 baseline for social competence.

Source: Early Development Instrument (EDI), Durham Region, Cycle 3 2012 & Cycle 4 2015.

Release: Updated in December 2017

Quintiles: Based on counts, approximately equal numbers of vulnerable children in each quintile.

Data Notes:

- Negative indicator with lower percentages better for health; higher percentages shown on maps in dark red.
- The update compared 2012 and 2015 data and provided a map to show whether Neighbourhoods experienced a significant increase (pink), decrease (green) or no change (pale yellow) between the two time points.
- We revised the 2012 map, using critical difference to determine whether the Neighbourhood was different from Durham Region. This method is more precise and resulted in more Neighbourhoods being statistically different. The rates and quintiles are the same but there are more “H”s and “L”s on the map.

- Social competence includes curiosity about the world, eagerness to try new experiences, knowledge of standard acceptable behaviour in a public place, the ability to control own behaviour, cooperation with others, following rules, and the ability to play and work with other children.

EDI – Vulnerable in emotional maturity

Definition: The percentage of senior kindergarten children who scored below the 10th percentile of the Ontario Cycle 1 baseline for emotional maturity.

Source: Early Development Instrument (EDI), Durham Region, Cycle 3 2012 & Cycle 4 2015.

Release: Updated in December 2017

Quintiles: Based on counts, approximately equal numbers of vulnerable children in each quintile.

Data Notes:

- Negative indicator with lower percentages better for health; higher percentages shown on maps in dark red.
- The update compared 2012 and 2015 data and provided a map to show whether Neighbourhoods experienced a significant increase (pink), decrease (green) or no change (pale yellow) between the two time points.
- We revised the 2012 map, using critical difference to determine whether the Neighbourhood was different from Durham Region. This method is more precise and resulted in more Neighbourhoods being statistically different. The rates and quintiles are the same but there are more “H”s and “L”s on the map.
- Emotional maturity includes the ability to reflect before acting, display a balance between too fearful and too impulsive, deal with feelings at an age appropriate level, and have an empathetic response to other people’s feelings.

EDI – Vulnerable in language and cognitive development

Definition: The percentage of senior kindergarten children who scored below the 10th percentile of the Ontario Cycle 1 baseline for language and cognitive development.

Source: Early Development Instrument (EDI), Durham Region, Cycle 3 2012 & Cycle 4 2015.

Release: Updated in December 2017

Quintiles: Based on counts, approximately equal numbers of vulnerable children in each quintile.

Data Notes:

- Negative indicator with lower percentages better for health; higher percentages shown on maps in dark red.
- The update compared 2012 and 2015 data and provided a map to show whether Neighbourhoods experienced a significant increase (pink), decrease (green) or no change (pale yellow) between the two time points.

- We revised the 2012 map, using critical difference to determine whether the Neighbourhood was different from Durham Region. This method is more precise and resulted in more Neighbourhoods being statistically different. The rates and quintiles are the same but there are more “H”s and “L”s on the map.
- Language and cognitive development includes reading awareness, age appropriate reading, writing and numeracy skills, and the ability to play board games, understand similarities and differences and to recite back specific pieces of information from memory.

EDI – Vulnerable in communication skills and general knowledge

Definition: The percentage of senior kindergarten children who scored below the 10th percentile of the Ontario Cycle 1 baseline for communication skills and general knowledge.

Source: Early Development Instrument (EDI), Durham Region, Cycle 3 2012 & Cycle 4 2015.

Release: Updated in December 2017

Quintiles: Based on counts, approximately equal numbers of vulnerable children in each quintile.

Data Notes:

- Negative indicator with lower percentages better for health; higher percentages shown on maps in dark red.
- The update compared 2012 and 2015 data and provided a map to show whether Neighbourhoods experienced a significant increase (pink), decrease (green) or no change (pale yellow) between the two time points.
- We revised the 2012 map, using critical difference to determine whether the Neighbourhood was different from Durham Region. This method is more precise and resulted in more Neighbourhoods being statistically different. The rates and quintiles are the same but there are more “H”s and “L”s on the map.
- Communication skills and general knowledge includes skills to communicate needs and wants in socially appropriate ways, symbolic use of language, story-telling, and age appropriate knowledge about life and the world around.

EDI - Vulnerable in one or more domains

Definition: The percentage of senior kindergarten children who scored below the 10th percentile of the Ontario Cycle 1 baseline for one or more EDI domains. This is an overall measure of the percentage of vulnerable children.

Source: Early Development Instrument (EDI), Durham Region, Cycle 3 2012 & Cycle 4 2015.

Release: Updated in December 2017

Quintiles: Based on counts, approximately equal numbers of vulnerable children in each quintile.

Data Notes:

- Negative indicator with lower percentages better for health; higher percentages shown on maps in dark red.
- The update compared 2012 and 2015 data and provided a map to show whether Neighbourhoods experienced a significant increase (pink), decrease (green) or no change (pale yellow) between the two time points.
- We revised the 2012 map, using critical difference to determine whether the Neighbourhood was different from Durham Region. This method is more precise and resulted in more Neighbourhoods being statistically different. The rates and quintiles are the same but there are more “H”s and “L”s on the map.
- The five EDI domains are: physical health and well-being, social competence, emotional maturity, language and cognitive development, and communication skills and general knowledge.

EDI - Vulnerable in two or more domains

We dropped this indicator in December 2017 because the Human Early Learning Partnership did not provide critical difference calculations for this measure. The indicator is not typically used by the Offord Centre for Child Studies or the Human Early Learning Partnership in British Columbia for their provincial statistics.

Parent-rated health of SK children

Definition: Percentage of senior kindergarten children whose parents rated their child's health as excellent or very good.

Source: Kindergarten Parent Survey (KPS), 2012, Durham Region.

Release: January 2015

Quintiles: Based on rates, approximately equal numbers of Neighbourhoods in each quintile.

Data Notes:

- Positive indicator with higher percentages better for health; lower percentages shown on maps in dark red.
- KPS question: "In general, would you say your child's health is: Excellent, Very Good, Good, Fair, Poor". This indicator combines "Excellent" and "Very Good" categories.

Child-friendly neighbourhood

Definition: Percentage of senior kindergarten children whose parents answered "true" to the statement "My neighbourhood is child-friendly".

Source: Kindergarten Parent Survey (KPS), 2012, Durham Region.

Release: January 2015

Quintiles: Based on rates, approximately equal numbers of Neighbourhoods in each quintile.

Data Notes:

- Positive indicator with higher percentages better for health; lower percentages shown on maps in dark red.
- KPS question: "My neighbourhood is child-friendly: True, Sometimes True, Not True". This indicator reports the percentage responding "True". This question was the last of a series of statements related to the neighbourhood. The preceding nine questions asked about safety, parks and playgrounds, and neighbours.

SK Children walking or biking to school

Definition: Percentage of senior kindergarten (SK) children whose parents reported that their child gets to school most often by walking or biking.

Source: Kindergarten Parent Survey (KPS), 2012, Durham Region.

Release: January 2015

Quintiles: Based on rates, approximately equal numbers of Neighbourhoods in each quintile.

Data Notes:

- Positive indicator with higher percentages better for health; lower percentages shown on maps in dark red.
- KPS question: "How does your child get to school most often? 1) Walks/bikes with parent/ guardian, 2) Walks/bikes with another adult, sibling or friend, 3) Rides with or takes transit with parent, 4) Rides or takes transit with another child, 5) Takes school bus/taxi, 6) Takes special transit". This indicator combines categories 1 and 2.

Health Indicators

Self-rated health

Definition: The percentage of adults aged 18 years or older who rate their health as excellent or very good.

Source: Durham data - Rapid Risk Factor Surveillance System (RRFSS), Durham Region Health Department and Institute for Social Research, York University, 2009-2013. Ontario data - Rapid Risk Factor Surveillance System (RRFSS) Provincial Sample Pilot Project, 2011.

Release: January 2015

Quintiles: Based on rates, approximately equal numbers of Neighbourhoods in each quintile.

Data Notes:

- Positive indicator with higher percentages better for health; lower percentages shown on maps in dark red.
- We combined five years of RRFSS data to provide a large enough sample for analysis at the Neighbourhood level. Respondents were asked to rate their health as excellent, very good, good, fair or poor. This indicator combined the excellent and very good categories.

Self-rated mental health

Definition: The percentage of adults aged 18 years or older who rate their mental health as excellent or very good.

Source: Durham data - Rapid Risk Factor Surveillance System (RRFSS), Durham Region Health Department and Institute for Social Research, York University, 2013-Aug.2015.

Release: February 2016

Quintiles: Based on rates, approximately equal numbers of Neighbourhoods in each quintile.

Data Notes:

- Positive indicator with higher percentages better for health; lower percentages shown on maps in dark red.
- We combined approximately two and a half years of RRFSS data to provide a large enough sample for analysis at the Neighbourhood level. Respondents were asked to rate their mental health as excellent, very good, good, fair or poor. This indicator combined the excellent and very good categories.

Life expectancy – Males

Definition: The number of years a newborn boy is likely to live based on current mortality rates.

Source: Deaths, 2007-2011, Ontario Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO & 2011 Census, Statistics Canada.

Release: January 2015

Quintiles: Based on life expectancy, approximately equal numbers of Neighbourhoods in each quintile.

Data Notes:

- Positive indicator with higher values better for health; lower values shown on maps in dark red.
- Life expectancy at birth is an overall measure of the health status of the population. We used population counts and the number of deaths by age group to calculate the average number of years that a newborn is expected to live if current mortality rates continue to apply. We used the Chiang II method of calculation, as recommended for small geographical areas by the Office for National Statistics in the United Kingdom and calculated life expectancy separately for males and females.
- We used the 2011 census population to calculate the annual mortality rates for 2007 to 2011. For Neighbourhoods with high population growth from 2007 to 2011, mortality rates will be underestimated for the earlier years causing life expectancy to be overestimated. For consistency with the Neighbourhood data, we applied the same method of using only 2011 population counts for Durham Region and Ontario, even though more accurate population estimates are available for each year.

Life expectancy – Females

Definition: The number of years a newborn girl is likely to live based on current mortality rates.

Source: Deaths, 2007-2011, Ontario Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO & 2011 Census, Statistics Canada.

Release: January 2015

Quintiles: Based on life expectancy, approximately equal numbers of Neighbourhoods in each quintile.

Data Notes:

- Positive indicator with higher values better for health; lower values shown on maps in dark red.
- Life expectancy at birth is an overall measure of the health status of the population. We used population counts and the number of deaths by age group to calculate the average number of years that a newborn is expected to live if current mortality rates continue to apply. We used the Chiang II method of calculation, as recommended for small geographical areas by the Office for National Statistics in the United Kingdom and calculated life expectancy separately for males and females.
- We used the 2011 census population to calculate the annual mortality rates for 2007 to 2011. For Neighbourhoods with high population growth from 2007 to 2011, mortality rates will be underestimated for the earlier years causing life expectancy to be overestimated. For consistency with the Neighbourhood data, we applied the same method of using only 2011 population counts for Durham Region and Ontario, even though more accurate population estimates are available for each year.

Live birth rate

Definition: The number of live births divided by the total population, multiplied by 1,000.

Source: Hospital In-Patient Discharges 2010-2012, Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO & 2011 Census, Statistics Canada.

Release: January 2015

Quintiles: Based on counts, approximately equal numbers of births in each quintile.

Data Notes:

- Neutral indicator with higher percentages shown on maps in dark red.
- The live birth rate is also known as the crude birth rate. It includes the number of live births in hospital based on the mother's place of residence, not where the birth occurred. The number of births and population size were based on 2011 hospitalization and 2011 Census data respectively. We excluded births with postal codes that were missing or could not be coded to a Neighbourhood. Population counts from the 2011 Census differed from the Statistics Canada 2011 estimates that are commonly used by the Health Department. As a result,

counts and rates for Durham Region and the municipalities may vary from those presented in other Health Department reports.

Mothers aged 23 or younger

Definition: The percentage of deliveries that are among young mothers aged 23 years or younger.

Source: Hospital In-Patient Discharges 2010-2014, Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO.

Release: February 2016

Quintiles: Based on counts, approximately equal numbers of deliveries in each quintile.

Data Notes:

- Negative indicator with lower percentages better for health; higher percentages shown on maps in dark red.
- Deliveries include both live births and stillbirths and were determined using Z37 codes on the maternal hospital record. A multiple birth is counted as one delivery.

Mothers aged 35+

Definition: The percentage of deliveries that are among mothers aged 35 years or older.

Source: Hospital In-Patient Discharges 2010-2014, Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO.

Release: February 2016

Quintiles: Based on counts, approximately equal numbers of deliveries in each quintile.

Data Notes:

- This indicator is classified as neutral in terms of health; higher percentages shown on maps in dark red.
- Deliveries include both live births and stillbirths and were determined using Z37 codes on the maternal hospital record. A multiple birth is counted as one delivery.

Preterm birth rate in singletons

Definition: The percentage of singleton (non-multiple) live births delivered in hospital before 37 completed weeks of gestation.

Source: Hospital In-Patient Discharges 2010-2012 and 2013-2015, Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO.

Release: Updated in December 2017

Quintiles: Based on counts, approximately equal numbers of preterm births in each quintile.

Data Notes:

- Negative indicator with lower percentages better for health; higher percentages shown on maps in dark red.
- The update compared 2010-2012 and 2013-2015 data and provided a map to show whether Neighbourhoods experienced a significant increase (pink), decrease (green) or no change (pale yellow) between the two time points.
- We excluded multiple births because they are at high risk of prematurity and have different risk factors than preterm singleton births. A focus on singletons ensures that a chance occurrence of preterm twins in a Neighbourhood with few births will not inflate the rate in that Neighbourhood.

Small-for-gestational age (SGA) rate

Definition: The SGA rate is the percentage of live births with birth weight below the standard 10th percentile of the sex-specific birth weight for gestational age.

Source: Hospital In-Patient Discharges 2010-2012 and 2013-2015, Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO.

Release: Updated in December 2017

Quintiles: Based on counts, approximately equal numbers of SGA births in each quintile.

Data Notes:

- Negative indicator with lower percentages better for health; higher percentages shown on maps in dark red.
- The update compared 2010-2012 and 2013-2015 data and provided a map to show whether Neighbourhoods experienced a significant increase (pink), decrease (green) or no change (pale yellow) between the two time points.
- Since most low birth weight babies are preterm, it is important to consider how far along the pregnancy is when the baby was born. SGA measures birth weight relative to gestational age. For example, a boy born at 39 weeks weighing less than 2,942g (6.5 lbs.) would be SGA. SGA rates include only singleton live births of male and female newborns with gestational age 22-43 weeks. The reference percentile tables for Canadian babies are based on Kramer, 2001. These percentile cut-offs may misclassify healthy infants of some ethnicities as SGA because newborns of parents originating from non-European/ Western nations tend to be smaller at birth.

Large-for-gestational age (LGA) rate

Definition: The LGA rate is the percentage of live births with birth weight above the standard 90th percentile of the sex-specific birth weight for gestational age.

Source: Hospital In-Patient Discharges 2010-2012 and 2013-2015, Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO.

Release: Updated in December 2017

Quintiles: Based on counts, approximately equal numbers of LGA births in each quintile.

Data Notes:

- Negative indicator with lower percentages better for health; higher percentages shown on maps in dark red.
- The update compared 2010-2012 and 2013-2015 data and provided a map to show whether Neighbourhoods experienced a significant increase (pink), decrease (green) or no change (pale yellow) between the two time points.
- Birth weight must be examined within the context of how far along the pregnancy is when the baby was born. LGA measures the birth weight of a baby relative to their gestational age. For example, a girl born at 40 weeks weighing more than 4,034g (8.9 lbs.) would be considered LGA. LGA rates include only singleton live births of male and female newborns with gestational age 22-43 weeks. The reference percentile tables for Canadian babies are based on Kramer, 2001.

Teen pregnancy rate

Definition: The number of live births, stillbirths and therapeutic abortions among females aged 15-19 years per 1,000 population of females aged 15-19.

Source: Hospital In-Patient Discharges, National Ambulatory Care Reporting System & Medical Services 2010-2012, Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO & 2011 Census, Statistics Canada.

Release: January 2015

Quintiles: Based on counts, approximately equal numbers of teen pregnancies in each quintile.

Data Notes:

- Negative indicator with lower percentages better for health; higher percentages shown on maps in dark red.
- The number of live births and stillbirths were determined by counting the number of hospital deliveries (Z37 codes on the maternal record). Therapeutic abortions included those occurring in hospitals, clinics and private physician offices, which were determined by combining hospital and medical services (OHIP) data.

Breastfeeding at hospital discharge rate

Definition: The number of women who were breastfeeding their baby when discharged from hospital divided by the total number of women who delivered multiplied by 100.

Source: Integrated Services for Children Information System (ISCIS) 2010-2012, Durham Region Health Department.

Release: January 2015

Quintiles: Based on rates, approximately equal numbers of Neighbourhoods in each quintile.

Data Notes:

- Positive indicator with higher percentages better for health; lower percentages shown on maps in dark red.

- This indicator reflects the percentage of mothers providing breastmilk only (exclusive breastfeeding) as well as both breastmilk and breastmilk substitute (formula) combined. Breastfeeding status was determined in hospital and the information was entered into ISCIS. Approximately 13% of records were excluded because they did not have a postal code that could be coded to a Neighbourhood or were missing breastfeeding status.

Breastmilk only at hospital discharge rate

Definition: The number of women who were feeding their baby only breastmilk when discharged from hospital divided by the total number of women who delivered multiplied by 100.

Source: Integrated Services for Children Information System (ISCIS) 2010-2012, Durham Region Health Department.

Release: January 2015

Quintiles: Based on rates, approximately equal numbers of Neighbourhoods in each quintile.

Data Notes:

- Positive indicator with higher percentages better for health; lower percentages shown on maps in dark red.
- This indicator reflects the percentage of mothers providing breastmilk only (exclusive breastfeeding) at the time they were discharged from hospital. Breastfeeding status was determined in hospital and the information was entered into ISCIS. Approximately 13% of records were excluded because they did not have a postal code that could be coded to a Neighbourhood or were missing breastfeeding status.

Breastfeeding duration rate at 6 months

Definition: The number of mothers who breastfed their babies for at least 6 months divided by the total number of women who completed the telephone survey as part of the Infant Feeding Surveillance System, multiplied by 100.

Source: Infant Feeding Surveillance System (IFSS) 2007-2012, Durham Region Health Department.

Release: January 2015

Quintiles: Based on rates, approximately equal numbers of Neighbourhoods in each quintile.

Data Notes:

- Positive indicator with higher percentages better for health; lower percentages shown on maps in dark red.
- This indicator reflects the combined percentage of mothers providing either breastmilk only (exclusive breastfeeding) or breastmilk and breastmilk substitute (formula) six months following delivery. This does not account for any formula the infant may have received prior to discharge. Breastfeeding status was determined through a telephone survey of mothers conducted by public health

nurses six to seven months after the birth of their baby. Six years of data were grouped to obtain sufficient sample size at the neighbourhood level. Because the IFSS oversamples teen mothers, the data were weighted accordingly to reflect the distribution of teen and adult mothers in the population.

Well-Baby Visit rate

Definition: The number of children who visited a physician for an enhanced 18-month well-baby visit between April 1, 2010 and March 31, 2012 (fiscal years 2010 and 2011) divided by the total number of children aged two years in 2010 and 2011 as estimated from Ontario Registered Persons database. Repeated for fiscal years 2013/14 and 2014/15 respectively.

Source: Medical Services Data FYs 2010/12 & 2013/15 and Ontario Registered Persons Database, March 31, 2013 & March 31, 2015, Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO.

Release: Updated in December 2016

Quintiles: Based on counts, approximately equal numbers of well-baby visits in each quintile.

Data Notes:

- Positive indicator with higher percentages better for health; lower percentages shown on maps in dark red.
- The update compared 2010/11-2011/12 and 2013/14-2014/15 data and provided a map to show whether Neighbourhoods experienced a significant increase (green), decrease (pink) or no change (pale yellow) between the two time points.
- The Enhanced 18-month Well-Baby Visit is a provincial government strategy to support standardized developmental review and evaluations at 18-months for each child in Ontario. It is the last regularly scheduled visit with a doctor or nurse practitioner before the child enters school and an opportunity to see how well a child is developing and reaching key milestones.
- Well-baby visits are determined using fee codes A002 for family physicians and A268 for paediatricians. We estimated the number of two-year old children from the Ontario Registered Persons database through the Ministry of Health and Long-Term Care. The provincial government introduced the fee schedule codes in October 2009. The billing requirement to claim this increased fee is the documentation of a discussion of the child's development using screening tools completed by the parent/caregiver and the physician.
- An important limitation of the data is that since not all health care providers submit for remuneration, visit rates may be underestimated. Of particular note, we did not capture well-baby visits done by community health centres in this data.

Asthma ED visit rate, ages 0-14 years

Definition: The number of ED visits for asthma among those aged 0-14 years, divided by the total population aged 0-14, multiplied by 1,000.

Source: Emergency Department (ED) Visits, 2010-2012, Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO & 2011 Census, Statistics Canada.

Release: January 2015

Quintiles: Based on counts, approximately equal numbers of ED visits in each quintile.

Data Notes:

- Negative indicator with lower percentages better for health; higher percentages shown on maps in dark red.
- Asthma ED visits were defined as those with ICD10-CA code J45. The ED visits are based on patient residence, not the location of the hospital, where the "main problem" that is deemed to be the clinically significant reason for the visit is asthma.

Asthma prevalence rate, ages 0-14 years

Definition: The number of children aged 0-14 years diagnosed with asthma, per 100 children. The rate was age- and sex-standardized using the 1991 Canadian census population.

Source: Asthma Database 2013, Institute for Clinical Evaluative Sciences (ICES). ICES AHRQ Project 2016 0900 784 000.

Release: February 2016

Quintiles: Based on rates, approximately equal numbers of Neighbourhoods in each quintile.

Data Notes:

- Negative indicator with lower percentages better for health; higher percentages shown on maps in dark red.
- A patient is said to have asthma if, within a two year period, they had at least two OHIP claims with an asthma diagnostic code or a hospital admission for asthma. The Asthma Database identifies patients since 1991. For 2013 data, patients with a diagnosis on or before December 31, 2013 and who are alive as of this date are included. Prevalence counts those living with the disease at a point in time. The rates were age standardized to control for different age structures of populations, allowing for better comparisons.

Dental decay prevalence in schools in grade 2 students

Definition: Dental decay prevalence is determined by the oral health screening results of all Grade 2 (G2) students in Durham Region public schools. Schools with high dental decay are those with 14% or more of G2 students with at least two decayed teeth; medium with 9.5% to 13.9%; and low decay with fewer than 9.5% with at least two decayed teeth. Schools with enhanced screening are those with low or medium decay results but are treated as if they have high decay because of other information.

Source: Oral Health School Screening Program, 2013/14 & 2014/15, Durham Region Health Department.

Release: January 2015, updated February 2016 and December 2017

Data Notes:

- Dental decay information is provided by school and not by Health Neighbourhood.
- Oral health screening is done every year in all public elementary schools for students in JK, SK, and G2. More grades are screened if decay results from the previous year were medium or high. Screening consists of a quick visual inspection by a Registered Dental Hygienist (RDH) to identify dental conditions that are causing pain or may soon cause pain. Parents are notified if their child has an urgent dental problem or if preventive services are needed. Decayed teeth can be either primary or permanent teeth.
- Low decay schools result in screening for JK, SK, G2 students. Schools with medium decay will have JK, SK, G2 and G8 screened. High decay schools will have a minimum of JK, SK, G2, G4, G6 and G8 screened and sometimes all students screened. Reasons for providing enhanced screening include the school's previous decay history, overall decay results of a school not limited to G2s, community water fluoridation in the neighbourhood, small school populations where it may be reasonable to screen more grades, school with large priority populations, reasonable school requests with an identified need, and RDH professional judgment.
- This indicator was updated in February 2016 from 2012/13 data to combining the two school years of 2013/14 and 2014/15. Some schools will change decay results from year to year; combining two years of data helps to reduce this fluctuation. As well, the enhanced screening category was added in this update.

All injuries, ED visit rate

Definition: The number of unscheduled ED visits where there is an injury external cause diagnosis for the visit, divided by the total population, multiplied by 1,000.

Source: Emergency Department (ED) Visits, 2011, Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO & 2011 Census, Statistics Canada.

Release: January 2015

Quintiles: Based on counts, approximately equal numbers of ED visits in each quintile.

Data Notes:

- Negative indicator with lower percentages better for health; higher percentages shown on maps in dark red.
- The ICD-10-CA codes used to classify cause of injury are taken from Chapter 19 - External Causes of Morbidity and Mortality, ICD-10-CA codes V01-Y98. The all injuries rate captures ED visits based on patient residence, not the location of the hospital, where the "main problem" that is deemed to be the clinically significant reason for the visit is an injury.

Sports injuries, ED visit rate, ages 10-14 years

Definition: The number of ED visits for sports injuries among those aged 10-14 years divided by the total population aged 10-14 years, multiplied by 1,000.

Source: Emergency Department (ED) Visits, 2010-2012, Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO & 2011 Census, Statistics Canada.

Release: January 2015

Quintiles: Based on counts, approximately equal numbers of ED visits in each quintile.

Data Notes:

- Negative indicator with lower percentages better for health; higher percentages shown on maps in dark red.
- Sports injuries are defined as those with ICD-10-CA codes W02, W21, W22 (.00-.07) and W51 (.00-.07). These codes include falls involving skates, skis, skateboards and rollerblades, and injuries as a result of being struck by sports equipment (i.e., balls, bat, hockey stick or puck) or while playing (i.e., skiing, tobogganing, hockey, soccer, baseball). The ED visits are based on patient residence, not the location of the hospital, where the "main problem" that is deemed to be the clinically significant reason for the visit is an injury.

Motor vehicle traffic collisions, ED visit rate, ages 15-24 years

Definition: The number of ED visits among those aged 15-24 years for a MVTC divided by the total population aged 15-24 years, multiplied by 1,000.

Source: Emergency Department (ED) Visits, 2010-2012, Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO & 2011 Census, Statistics Canada.

Release: January 2015

Quintiles: Based on counts, approximately equal numbers of ED visits in each quintile.

Data Notes:

- Negative indicator with lower percentages better for health; higher percentages shown on maps in dark red.
- MVTC injuries are those with ICD-10-CA codes V02-V04 (.1,.9), V09.2, V12-V14 (.3-.9), V19 (.4-.6), V20-V28 (.3-.9), V29 (.4-.6,.9), V30-V79 (.4-.9 excluding V39.8, V49.8, V59.8, V69.8, V79.8), V80 (.3-.5), V81-V82 (.1), V83-V86 (.0-.3), V87 (.0-.8), and V89.2. Traffic crashes occur on public streets, roadways or highways involving pedestrians, and/or drivers and passengers of bicycles, motorized tricycles, cars, pick-up trucks or vans, motorcycles, heavy transport vehicles or buses, or other land vehicles such as animal-driven vehicles, railway trains or vehicles, streetcars, all-terrain vehicles and snowmobiles. Includes injuries while boarding or alighting. Non-traffic crashes are excluded. The ED visits are based on patient residence, not the location of the hospital, where the "main problem" that is deemed to be the clinically significant reason for the visit is an injury.

Falls, ED visit rate, ages 0-4 years

Definition: The number of ED visits for unintentional falls among those aged 0-4 years, divided by the total population aged 0-4, multiplied by 1,000.

Source: Emergency Department (ED) Visits, 2010-2012, Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO & 2011 Census, Statistics Canada.

Release: January 2015

Quintiles: Based on counts, approximately equal numbers of ED visits in each quintile.

Data Notes:

- Negative indicator with lower percentages better for health; higher percentages shown on maps in dark red.
- Falls are defined as ED visits with ICD-10-CA codes W00-W19. This excludes intentional falls (self-inflicted and assault) and falls with undetermined intent. The ED visits are based on patient residence, not the location of the hospital, where the "main problem" that is deemed to be the clinically significant reason for the visit is an injury.

Falls, ED visit rate, ages 65+ years

Definition: The number of ED visits for unintentional falls among those aged 65 or older, divided by the total population aged 65 or older, multiplied by 1,000.

Source: Emergency Department (ED) Visits, 2010-2012, Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO & 2011 Census, Statistics Canada.

Release: January 2015

Quintiles: Based on counts, approximately equal numbers of ED visits in each quintile.

Data Notes:

- Negative indicator with lower percentages better for health; higher percentages shown on maps in dark red.
- Falls are defined as ED visits with ICD-10-CA codes W00-W19. This excludes intentional falls (self-inflicted and assault) and falls with undetermined intent. The ED visits are based on patient residence, not the location of the hospital, where the "main problem" that is deemed to be the clinically significant reason for the visit is an injury.

Police-reported domestic incidents rate

Definition: The number police-reported domestic incidents, per 10,000 people.

Source: Durham Region Police Service, Durham Region 2011-2015, Incident-based Uniform Crime Reporting (UCR) Survey, Accessed September 2016.

Release: December 2017

Quintiles: Based on counts, approximately equal numbers of incidents in each quintile.

Data Notes:

- Negative indicator with lower percentages better for health; higher percentages shown on maps in dark red.
- Incident-based reporting provides one record for each incident although each could include multiple offences, victims, offenders and charges. Police could be called to a specific household multiple times with each counted as an incident. Domestic means that intimate partners are involved. Intergenerational incidents such as child or elder abuse that do not also include intimate partners are not included in this indicator.

Police-reported domestic incidents rate with children present

Definition: The number police-reported domestic incidents, per 10,000 people.

Source: Durham Region Police Service, Durham Region 2011-2015, Incident-based Uniform Crime Reporting (UCR) Survey, Accessed September 2016.

Release: December 2017

Quintiles: Based on counts, approximately equal numbers of incidents in each quintile.

Data Notes:

- Negative indicator with lower percentages better for health; higher percentages shown on maps in dark red.
- Incident-based reporting provides one record for each incident although each could include multiple offences, victims, offenders and charges. Police could be called to a specific household multiple times with each counted as an incident. Domestic means that intimate partners are involved. Intergenerational incidents such as child or elder abuse that do not also include intimate partners are not included in this indicator. The reporting officer flags incidents when children are physically present. Children are persons less than 18 years old. This indicator is a subset of the domestic incidents indicator.

Smoking rate, ages 18+ years

Definition: The percentage of adults aged 18 years or older who smoke occasionally or daily.

Source: Durham data - Rapid Risk Factor Surveillance System (RRFSS), Durham Region Health Department and Institute for Social Research, York University, 2009-2013. Ontario data - Rapid Risk Factor Surveillance System (RRFSS) Provincial Sample Pilot Project, 2011.

Release: January 2015

Quintiles: Based on rates, approximately equal numbers of Neighbourhoods in each quintile.

Data Notes:

- Negative indicator with lower percentages better for health; higher percentages shown on maps in dark red.
- Five years of RRFSS data were combined to provide a large enough sample for analysis at the Neighbourhood level. Respondents were asked if they currently smoked cigarettes every day, some days or not at all. Those who smoked every day or some days were classified as current smokers. Three Neighbourhoods had rates that were not releasable because the numbers were too small.

Obesity rate, ages 18+ years

Definition: The percentage of adults aged 18 years or older who are obese based on a Body Mass Index of 30 or greater.

Source: Durham data - Rapid Risk Factor Surveillance System (RRFSS), Durham Region Health Department and Institute for Social Research, York University, 2009-

2013. Ontario data - Rapid Risk Factor Surveillance System (RRFSS) Provincial Sample Pilot Project, 2011.

Release: January 2015

Quintiles: Based on rates, approximately equal numbers of Neighbourhoods in each quintile.

Data Notes:

- Negative indicator with lower percentages better for health; higher percentages shown on maps in dark red.
- Five years of RRFSS data were combined to provide a large enough sample for analysis at the Neighbourhood level. Respondents were asked to report their weight and height. The Body Mass Index (BMI) is a ratio of weight-to-height. It is not a direct measure of body fat but it is an indicator of health risk associated with being underweight or overweight. BMI can be classified into ranges associated with health risk. There are four BMI categories in the Canadian weight classification system: underweight (less than 18.5), normal weight (18.5 to 24.9), overweight (25.0 to 29.9) and obese (30 and over).

Vegetable and fruit consumption rate, ages 18+ years

Definition: The percentage of adults aged 18 years or older who eat vegetables and fruits five or more times per day.

Source: Durham data - Rapid Risk Factor Surveillance System (RRFSS), Durham Region Health Department and Institute for Social Research, York University, 2007 2009, 2011. Ontario data - Rapid Risk Factor Surveillance System (RRFSS) Provincial Sample Pilot Project, 2011.

Release: January 2015

Quintiles: Based on rates, approximately equal numbers of Neighbourhoods in each quintile.

Data Notes:

- Positive indicator with higher percentages better for health; lower percentages shown on maps in dark red.
- Three years of RRFSS data were combined to provide a large enough sample for analysis at the Neighbourhood level. Respondents were asked to report how often they consumed various types of vegetables and fruits. Three Neighbourhoods had rates that were not releasable because the numbers were too small.

Alcohol use in excess of Canada's Low-Risk Alcohol Drinking Guidelines, ages 18+ years

Definition: The percentage of adults aged 18 or older who drink in excess of Canada's Low-Risk Alcohol Drinking Guidelines.

Source: Rapid Risk Factor Surveillance System (RRFSS), Durham Region Health Department and Institute for Social Research, York University, 2008, 2010, 2013.

Release: January 2015

Quintiles: Based on rates, approximately equal numbers of Neighbourhoods in each quintile.

Data Notes:

- Negative indicator with lower percentages better for health; higher percentages shown on maps in dark red.
- Three years of RRFSS data were combined to provide a large enough sample for analysis at the Neighbourhood level. Respondents were asked to report how often they drank alcohol and the average number of drinks consumed. Adherence to the Guidelines was derived from this information. Pregnant women were excluded from the analysis. Other zero consumption circumstances, such as driving, medication use, or mental health problems were not considered in the calculation. Canada's Low-Risk Alcohol Drinking Guidelines recommend no more than 2 drinks a day, 10 per week for women, and 3 drinks a day, 15 per week for men. Four Neighbourhoods had rates that were not releasable because the numbers were too small.

Physical activity rate, ages 18-69 years

Definition: The percentage of adults aged 18 to 69 with a high level of physical activity.

Source: Durham data - Rapid Risk Factor Surveillance System (RRFSS), Durham Region Health Department and Institute for Social Research, York University, 2007, 2009, 2011. Ontario data - Rapid Risk Factor Surveillance System (RRFSS) Provincial Sample Pilot Project, 2011.

Release: January 2015

Quintiles: Based on rates, approximately equal numbers of Neighbourhoods in each quintile.

Data Notes:

- Positive indicator with higher percentages better for health; lower percentages shown on maps in dark red.
- Three years of RRFSS data were combined to provide a large enough sample for analysis at the Neighbourhood level. Respondents were asked a series of questions taken from the International Physical Activity Questionnaire (IPAQ) that are used to estimate levels of physical activity, assessing physical activity across a comprehensive set of domains including leisure time, domestic and gardening activities, work-related and transport-related activities. The Canadian Physical Activity Guideline for adults recommends at least 150 minutes per week of moderate-to-vigorous physical activity. The IPAQ calculated "high level" of physical activity is above this guideline and is considered a more sensitive measure to show variation between populations.

School-required immunization rate, ages 7 or 8

Definition: The percentage of children aged 7 or 8 (born in 2009) fully immunized for the six infectious diseases identified in the Immunization of School Pupils Act (ISPA): diphtheria, tetanus, poliomyelitis, measles, mumps, and rubella.

Source: Ministry of Health and Long-Term Care, Digital Health Immunization Repository, extracted by Durham Region Health Department [2017/07/18].

Release: December 2017

Quintiles: Based on rates, approximately equal numbers of Neighbourhoods in each quintile.

Data Notes:

- Positive indicator with higher percentages better for health; lower percentages shown on maps in dark red.
- We used the Panorama Forecaster tool to determine the percentage of children fully immunized against the six diseases identified by ISPA. Fully immunized refers to receiving the recommended number of immunization doses at the appropriate age and sequence specified by the Ontario Immunization Schedule. Children were considered to be not fully immunized if they were overdue for their next dose for any of the ISPA-related immunizations or if they had an exemption due to medical reasons, conscience or religious beliefs.
- Ontario's ISPA requires that all primary and secondary students attending school in Ontario provide proof of immunization against the six ISPA-related diseases, unless they have an exemption. Exemptions may be granted for medical reasons or conscience or religious beliefs. Parents or guardians are required to report their child's immunizations to their local public health unit. Children may not be allowed to attend school if they are not immunized or do not have a valid exemption.

School-required immunization rate, ages 16 or 17

Definition: The percentage of children aged 16 or 17 (born in 2000) fully immunized for the six infectious diseases identified in the Immunization of School Pupils Act (ISPA): diphtheria, tetanus, poliomyelitis, measles, mumps, and rubella.

Source: Ministry of Health and Long-Term Care, Digital Health Immunization Repository, extracted by Durham Region Health Department [2017/07/18].

Release: December 2017

Quintiles: Based on rates, approximately equal numbers of Neighbourhoods in each quintile.

Data Notes:

- Positive indicator with higher percentages better for health; lower percentages shown on maps in dark red.
- We used the Panorama Forecaster tool to determine the percentage of children fully immunized against the six diseases identified by ISPA. Fully immunized refers to receiving the recommended number of immunization doses at the appropriate age and sequence specified by the Ontario Immunization Schedule. Children were considered to be not fully immunized if they were overdue for their next dose for any of the ISPA-related immunizations or if they had an exemption due to medical reasons, conscience or religious beliefs.

- Ontario's ISPA requires that all primary and secondary students attending school in Ontario provide proof of immunization against the six ISPA-related diseases, unless they have an exemption. Exemptions may be granted for medical reasons or conscience or religious beliefs. Parents or guardians are required to report their child's immunizations to their local public health unit. Children may not be allowed to attend school if they are not immunized or do not have a valid exemption.

Immunization rate for meningococcal disease in Grade 7 students

Definition: The percentage of Grade 7 boys and girls (aged 12 or 13) fully immunized against meningococcal disease.

Source: Ministry of Health and Long-Term Care, Digital Health Immunization Repository, extracted by Durham Region Health Department [2017/07/18].

Release: December 2017

Quintiles: Based on rates, approximately equal numbers of Neighbourhoods in each quintile.

Data Notes:

- Positive indicator with higher percentages better for health; lower percentages shown on maps in dark red.
- We used the Panorama Forecaster tool to determine the percentage of children fully immunized against meningococcal disease. To be fully immunized, children required one dose of vaccine at the appropriate age specified by the Ontario Immunization Schedule. Children were not considered fully immunized if they were due, eligible or overdue for a dose of meningococcal vaccine, or if they had an exemption due to medical reasons, conscience or religious beliefs.

Immunization rate for hepatitis B in Grade 7 students

Definition: The percentage of Grade 7 boys and girls (aged 12 or 13) fully immunized against hepatitis B.

Source: Ministry of Health and Long-Term Care, Digital Health Immunization Repository, extracted by Durham Region Health Department [2017/07/18].

Release: December 2017

Quintiles: Based on rates, approximately equal numbers of Neighbourhoods in each quintile.

Data Notes:

- Positive indicator with higher percentages better for health; lower percentages shown on maps in dark red.
- We used the Panorama Forecaster tool to determine the percentage of children fully immunized against hepatitis B. To be fully immunized, children required two or three doses of vaccine at the appropriate age and sequence specified by the Ontario Immunization Schedule. Children were considered to be not fully immunized if they were due, eligible, overdue, or up-to-date but not yet due for

their next dose, or if they had an exemption due to medical reasons, conscience or religious beliefs.

Immunization rate for HPV in Grade 7 students

Definition: The percentage of Grade 7 boys and girls (aged 12 or 13) fully immunized against HPV.

Source: Ministry of Health and Long-Term Care, Digital Health Immunization Repository, extracted by Durham Region Health Department [2017/07/18].

Release: December 2017

Quintiles: Based on rates, approximately equal numbers of Neighbourhoods in each quintile.

Data Notes:

- Positive indicator with higher percentages better for health; lower percentages shown on maps in dark red.
- We used the Panorama Forecaster tool to determine the percentage of children fully immunized against HPV. To be fully immunized, children required two doses of vaccine at the appropriate age and sequence specified by the Ontario Immunization Schedule. Children were considered to be not fully immunized if they were due, eligible, overdue, or up-to-date but not yet due for their next dose, or if they had an exemption due to medical reasons, conscience or religious beliefs.

Flu immunization rate, ages 18+ years

Definition: The percentage of adults aged 18 years or older who get a flu shot.

Source: Rapid Risk Factor Surveillance System (RRFSS), Durham Region Health Department and Institute for Social Research, York University, 2009-2013.

Release: January 2015

Quintiles: Based on rates, approximately equal numbers of Neighbourhoods in each quintile.

Data Notes:

- Positive indicator with higher percentages better for health; lower percentages shown on maps in dark red.
- Five years of RRFSS data were combined to provide a large enough sample for analysis at the Neighbourhood level. Respondents were asked if they had received their seasonal flu shot for the year. Four Neighbourhoods had rates that were not releasable because the numbers were too small.

Breast cancer screening (mammography) rate, females ages 52-74 years

Definition: The number of females aged 52-74 years with at least one mammogram within a two-year interval, per 100 women in that age group. The rate was age-standardized using the 2011 Canadian census population.

Source: Ontario Breast Cancer Screening Program (OBSP) & Ontario Health Insurance Plan (OHIP) & Ontario Cancer Registry (OCR) 2013, Institute for Clinical Evaluative Sciences (ICES). ICES AHRQ Project 2016 0900 784 000.

Release: February 2016

Quintiles: Based on rates, approximately equal numbers of Neighbourhoods in each quintile.

Data Notes:

- Positive indicator with higher percentages better for health; lower percentages shown on maps in dark red.
- Analysis was restricted to Ontario women aged 52-74 as of December 31, 2013. Women were counted as having been screened if they had at least one mammogram in the previous two years as indicated in the OBSP dataset or if there was an OHIP claim with FEPCODE X185, X172, X178. Some women may appear in both data sources. Women were excluded (from both numerator and denominator) if they had a prior diagnosis of breast cancer in the OCR (ICD-9 code 174).
- Although ICES uses slightly different methods for calculating cancer screening rates than the Cancer Quality Council of Ontario (CQCO), such as different index dates, the general information is the similar. See [CQCO cancer screening information](#) for more information.

Cervical cancer screening (Pap test) rate, females aged 23-69

Definition: The number of females aged 23-69 years with at least one Pap test within a three-year interval, per 100 women in that age group. The rate was age-standardized using the 2011 Canadian census population.

Source: Ontario Health Insurance Plan (OHIP) & Ontario Cancer Registry (OCR) 2013, Institute for Clinical Evaluative Sciences (ICES). ICES AHRQ Project 2016 0900 784 000.

Release: February 2016

Quintiles: Based on rates, approximately equal numbers of Neighbourhoods in each quintile.

Data Notes:

- Positive indicator with higher percentages better for health; lower percentages shown on maps in dark red.
- Analysis was restricted to Ontario women aged 23 to 69 as of December 31, 2013. Women were counted as having been screened if they had at least Pap test in the previous three years as indicated with OHIP fee codes: G365 or G394 with FEESUFF = 'A'; E430; or lab codes L812, L713. Women were excluded (from both numerator and denominator) if they had a previous diagnosis of cervical, endometrial or ovarian cancer in OCR (ICD-9: 179, 180.0, 180.1, 180.8, 180.9, 182.0, 182.1, 182.8, 183.0, 183.2-183.5, 183.8, 183.9), or if they had a hysterectomy recorded in the OHIP database (FEPCODE S810, S757, S758, S759, S816, S710, S763, S762, S727, S765, S766, S767).

- Although ICES uses slightly different methods for calculating cancer screening rates than the Cancer Quality Council of Ontario (CQCO), such as different index dates, the general information is the similar. See [CQCO cancer screening information](#) for more information.

Overdue for colorectal cancer screening, ages 50-74

Definition: The number of people aged 50-74 years who were overdue for colorectal screening, per 100 people in that age group. The rate was age- and sex-standardized using the 2011 Canadian census population.

Source: Discharge Abstract Database (DAD) & Ontario Health Insurance Plan (OHIP) & Ontario Cancer Registry (OCR) 2013, Institute for Clinical Evaluative Sciences (ICES). ICES AHRQ Project 2016 0900 784 000.

Release: February 2016

Quintiles: Based on rates, approximately equal numbers of Neighbourhoods in each quintile.

Data Notes:

- Negative indicator with lower percentages better for health; higher percentages shown on maps in dark red.
- Analysis was restricted to Ontarians aged 52-74 as of December 31, 2013. Individuals were counted as overdue for screening if they did not have any of the following: colonoscopy in the last 10 years as determined by OHIP fee codes Z555 and one of E740, E741, E747, E705; fecal occult blood test (FOBT) in the last 2 years as determined by OHIP fee codes L181, G004, L179, Q152, Q043, Q133 or FEESUFF = A or B; other colorectal investigations in the last 5 years as determined by OHIP fee codes Z535 or Z536 (rigid sigmoidoscopy), Z555 (without E740 or E741 or E747 or E705 on the same day) or Z580 (flexible sigmoidoscopy), X112 (single contrast barium enema), or X113 (double contrast barium enema). People were excluded (from both numerator and denominator) if they had a previous diagnosis of any colorectal cancer prior in the OCR (ICD-9 codes: 153, 154, except cancer of the appendix code 153.5), or if they were diagnosed with any severe inflammatory bowel disease prior to December 31, 2013 (using DAD, SDS) with ICD-9 codes: starting with 555, 556 or ICD-10 codes starting with K50, K51; colonoscopy in the last 10 years, fecal occult blood test (FOBT) in the last 2 years, or other colorectal investigations in the last 5 years including sigmoidoscopy and barium enema.
- Although ICES uses slightly different methods for calculating cancer screening rates than the Cancer Quality Council of Ontario (CQCO), such as different index dates, the general information is the similar. See [CQCO cancer screening information](#) for more information.

Cardiovascular disease hospitalization rate, ages 45-64

Definition: The number of hospital discharges for cardiovascular disease (CVD) among those aged 45-64 years, divided by the total population aged 45-64, multiplied by 1,000.

Source: Hospital In-Patient Discharges, 2010-2012, Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO & 2011 Census, Statistics Canada.

Release: January 2015

Quintiles: Based on counts, approximately equal numbers of hospitalizations in each quintile.

Data Notes:

- Negative indicator with lower percentages better for health; higher percentages shown on maps in dark red.
- CVD includes heart disease, stroke and hypertensive disease. CVD is defined as in-patient hospitalization separations with the "most responsible diagnosis" coded by the hospital as ICD10-CA code I00-I99. Separations are discharges, deaths or transfers from hospital. They are based on patient residence, not the location of the hospital.

Diabetes prevalence rate, ages 20+ years

Definition: The number of people aged 20+ years diagnosed with diabetes, per 100 people in that age group. The rate was age- and sex-standardized using the 1991 Canadian census population.

Source: Ontario Diabetes Database (ODD) 2013, Institute for Clinical Evaluative Sciences (ICES). ICES AHRQ Project 2016 0900 784 000.

Release: February 2016

Quintiles: Based on rates, approximately equal numbers of Neighbourhoods in each quintile.

Data Notes:

- Negative indicator with lower percentages better for health; higher percentages shown on maps in dark red.
- A patient is said to have diabetes if, within a two year period, they had a least two Ontario Health Insurance Plan (OHIP) claims with a diabetes diagnostic code or one selected diabetes-related OHIP service claim, or a hospital admission for diabetes. The ODD identifies patients since 1991. For 2013 data, patients with a diagnosis on or before December 31, 2013 and who are alive as of this date are included. Prevalence counts those living with the disease at a point in time.

Lung disease (COPD) prevalence rate, ages 35+ years

Definition: The number of people aged 35+ years diagnosed with chronic obstructive pulmonary disease (COPD), per 100 people in that age group. The rate was age- and sex-standardized using the 1991 Canadian census population.

Source: Chronic Obstructive Pulmonary Disease (COPD) Database 2013, Institute for Clinical Evaluative Sciences. ICES AHRQ Project 2016 0900 784 000.

Release: February 2016

Quintiles: Based on rates, approximately equal numbers of Neighbourhoods in each quintile.

Data Notes:

- Negative indicator with lower percentages better for health; higher percentages shown on maps in dark red.
- A patient is said to have COPD if, within a two year period, they had at least one Ontario Health Insurance Plan (OHIP) claim with a COPD diagnostic code or a hospital admission for COPD. The COPD Database identifies patients since 1991. For 2013 data, patients with a diagnosis on or before December 31, 2013 and who are alive as of this date are included. Prevalence counts those living with the disease at a point in time.

Chlamydia incidence rate, females 15-24 years

Definition: The number of cases of chlamydia in females ages 15-24 years divided by the number of females ages 15-24 in the population, multiplied by 1,000.

Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, 2010-2012, extracted by Durham Region Health Department, September 2013, iPHIS, Ontario, 2010-2012, Ontario Public Health Portal, Accessed October 2013.

Release: January 2015

Quintiles: Based on counts, approximately equal numbers of cases in each quintile.

Data Notes:

- Negative indicator with lower percentages better for health; higher percentages shown on maps in dark red.
- Chlamydia is a sexually transmitted infection.
- A higher incidence rate may reflect a higher rate of infection but may also be an indication that more cases are being detected and treated. As a reportable infectious disease, physicians, hospitals and laboratories must report cases to the local Medical Officer of Health. Notification is usually through confirmed laboratory results. There is under-reporting of cases because an infected person with mild or no clinical symptoms may not seek medical care and/or laboratory testing may not be performed.

Enteric diseases incidence rate

Definition: The number of cases of enteric diseases divided by the total population, multiplied by 100,000.

Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, 2010-2012, extracted by Durham Region Health Department, September 2013, iPHIS, Ontario, 2010-2012, Ontario Public Health Portal, Accessed October 2013.

Release: January 2015

Quintiles: Based on counts, approximately equal numbers of cases in each quintile.

Data Notes:

- Negative indicator with lower percentages better for health; higher percentages shown on maps in dark red.
- Enteric diseases affect the stomach and intestines. The reportable enteric diseases captured in this indicator include: amebiasis, botulism, brucellosis, campylobacter enteritis, cholera, cryptosporidiosis, cyclosporiasis, food poisoning (all causes), giardiasis, hepatitis A, listeriosis, paratyphoid fever, salmonellosis, shigellosis, trichinosis, typhoid fever, verotoxin-producing *Escherichia coli* (VTEC) infection, and yersiniosis.
- A higher incidence rate may reflect a higher rate of infection but may also be an indication that more cases are being detected and treated. Physicians, hospitals and laboratories must report cases of these reportable diseases to the local Medical Officer of Health. Notification is usually through confirmed laboratory results. There is under-reporting of cases because an infected person with mild or no clinical symptoms may not seek medical care and/or laboratory testing may not be performed.

Influenza incidence rate

Definition: The number of cases of influenza divided by the total population, multiplied by 100,000.

Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, 2009-2013, extracted by Durham Region Health Department, June 2014, iPHIS, Ontario, 2009-2013, Ontario Public Health Portal, Accessed June 2014.

Release: January 2015

Quintiles: Based on counts, approximately equal numbers of cases in each quintile.

Data Notes:

- Negative indicator with lower percentages better for health; higher percentages shown on maps in dark red.
- Influenza, commonly called the flu, is an acute respiratory illness caused by a virus. In Canada, the influenza season usually runs from November to April and rates fluctuate from year to year.
- A higher incidence rate may reflect a higher rate of infection but may also be an indication that more cases are being detected and treated. As a reportable infectious disease, physicians, hospitals and laboratories must report cases to the local Medical Officer of Health. Notification is usually through confirmed laboratory results. There is under-reporting of cases because an infected person with mild or no clinical symptoms may not seek medical care and/or laboratory testing may not be performed.

Hepatitis C incidence rate

Definition: The number of cases of Hepatitis C divided by the total population, multiplied by 100,000.

Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, 2009-2013, extracted by Durham Region Health Department, June 2014, iPHIS, Ontario, 2009-2013, Ontario Public Health Portal, Accessed June 2014.

Release: January 2015

Quintiles: Based on counts, approximately equal numbers of cases in each quintile.

Data Notes:

- Negative indicator with lower percentages better for health; higher percentages shown on maps in dark red.
- Hepatitis C is a liver disease caused by the hepatitis C virus.
- Hepatitis C infections are typically underestimated because they can be asymptomatic. A higher incidence rate may reflect a higher rate of infection but may also be an indication that more cases are being detected and treated. As a reportable infectious disease, physicians, hospitals and laboratories must report cases to the local Medical Officer of Health. Notification is usually through confirmed laboratory results. Under-reporting occurs because an infected person with mild or no clinical symptoms may not seek medical care and/or laboratory testing may not be performed.
- Three Health Neighbourhoods had incidence rates that were not releasable due to small numbers.

Latent Tuberculosis infection (LTBI) incidence rate

Definition: The number of cases of LTBI divided by the total population, multiplied by 100,000.

Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, 2009-2013, extracted by Durham Region Health Department, June 2014, iPHIS, Ontario, 2009-2013, Ontario Public Health Portal, Accessed June 2014.

Release: January 2015

Quintiles: Based on counts, approximately equal numbers of cases in each quintile.

Data Notes:

- Negative indicator with lower percentages better for health; higher percentages shown on maps in dark red.
- Tuberculosis (TB) is a bacterial disease present in two forms: 1) active TB, and 2) latent or inactive TB infection. LTBI cases are mainly asymptomatic and are non-infectious. A higher incidence rate may reflect a higher rate of infection but may also be an indication that more cases are being detected and treated.
- As a reportable infectious disease, physicians, hospitals and laboratories must report cases of LTBI to the local Medical Officer of Health. Notification is usually through confirmed laboratory results. There is under-reporting of cases because an infected person with mild or no clinical symptoms may not seek medical care and/or laboratory testing may not be performed. Two Health Neighbourhoods had incidence rates that were not releasable due to small numbers.

Population with a Primary Care Physician

Definition: The number of people over the age of one year with a primary care physician, per 100 people in that age group. The rate was age- and sex-standardized using the 2011 Canadian census population.

Source: Client Agency Enrollment Program (CAPE) & Ontario Health Insurance Plan (OHIP) 2013, Institute for Clinical Evaluative Sciences (ICES). ICES AHRQ Project 2016 0900 784 000.

Release: February 2016

Quintiles: Based on rates, approximately equal numbers of Neighbourhoods in each quintile.

Data Notes:

- Positive indicator with higher percentages better for health; lower percentages shown on maps in dark red.
- A person was considered to have a primary care physician if they were rostered to a physician in the CAPE tables or if they received primary care from a physician within the past two-year period, as of December 31, 2013. Non-rostered primary care was assessed using a Core Primary Care OHIP fee code which reflects preventive and primary care, such as annual health exams. A primary care physician is not restricted to General Practitioners.
- Having a primary care physician does not necessarily mean that a person sees their doctor on a regular basis or that they access care when needed.

Residence ambulance call rate

Definition: The number of residential ambulance calls, per 100 people. The rate was age-standardized using the 1991 Canadian census population.

Source: Ambulance Call Report Database & Dispatch Database, Durham Region Paramedic Services, 2011-2013. Population counts from the Registered Persons Database 2013, ICES ARHQ Project 2016 0900 784 000.

Release: February 2016

Quintiles: Based on rates, approximately equal numbers of Neighbourhoods in each quintile.

Data Notes:

- Negative indicator with lower percentages better for health; higher percentages shown on maps in dark red.
- Residence ambulance calls consist of prompt and urgent calls to a house, townhouse, apartment, condominium or farm. We excluded calls to other sites such as nursing homes, hospitals, medical offices, shopping malls, etc. We also excluded scheduled calls, transfers and standbys. We included all calls where paramedics arrived at a residence regardless of the disposition of the patient (whether or not they were transported). Ambulance calls are geocoded to the pickup location of the patient, not the patient's address.

Residence ambulance call rate, ages 65+ years

Definition: The number of residential ambulance calls among those aged 65+, per 100 people aged 65+. The rate was age-standardized using the 1991 Canadian census population.

Source: Ambulance Call Report Database & Dispatch Database, Durham Region Paramedic Services, 2011-2013. Population counts from the Registered Persons Database 2013, ICES ARHQ Project 2016 0900 784 000.

Release: February 2016

Quintiles: Based on rates, approximately equal numbers of Neighbourhoods in each quintile.

Data Notes:

- Negative indicator with lower percentages better for health; higher percentages shown on maps in dark red.
- Residence ambulance calls consist of prompt and urgent calls to a house, townhouse, apartment, condominium or farm. We excluded calls to other sites such as nursing homes, hospitals, medical offices, shopping malls, etc. We also excluded scheduled calls, transfers and standbys. We included all calls where paramedics arrived at a residence regardless of the disposition of the patient (whether or not they were transported). Ambulance calls are geocoded to the pickup location of the patient, not the patient's address.

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