The Guide to Health Neighbourhoods

Durham Region Health Department

Date modified: June 2022

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

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General Background

Health Neighbourhoods

Health Neighbourhoods uses local data to improve the health and well-being of all residents.

The Health Neighbourhoods initiative provides a picture of how health varies by where we live and examines socio-demographic, health behaviour, and health outcome data for 50 Health Neighbourhoods in Durham Region. The boundaries of the 50 Health Neighbourhoods are shown in **Figure 1.**

The ultimate goal of the project is to use neighbourhood-level data to support strong, safe and equitable neighbourhoods that improve the health and well-being of all residents through evidence-informed decision making.

Health Neighbourhoods data are valuable assets to community partners.

Health Neighbourhoods information is easily accessible and available to all 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.

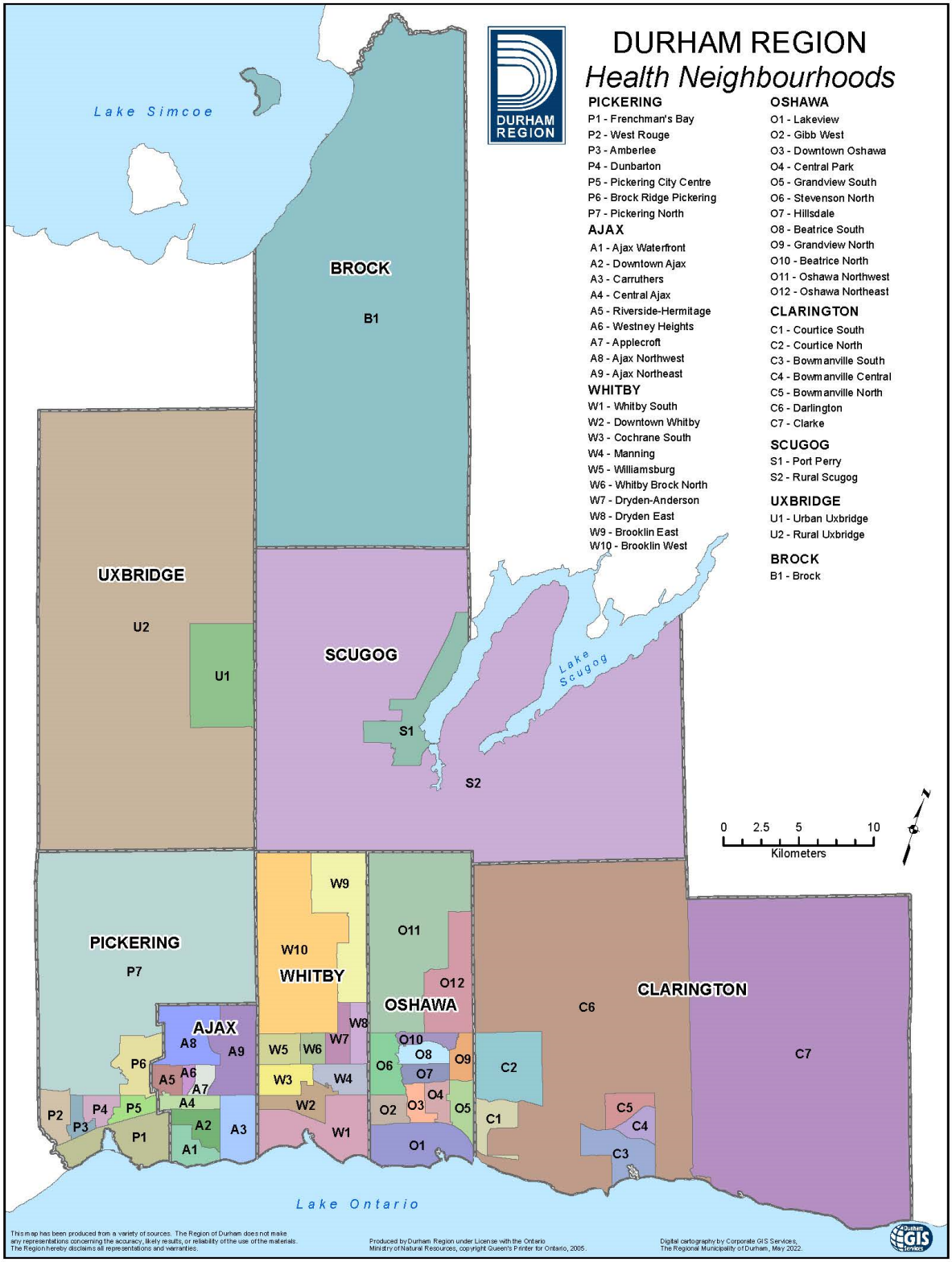
Health Neighbourhoods information does not prove causation but helps to understand patterns of health.

Information about Neighbourhoods helps to understand patterns of health in communities. It does not prove causal factors—scientific literature does this much more effectively. However, information from the literature can be used together with Neighbourhoods information to help inform our understanding of the patterns 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 and support the reduction of health inequalities
- 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
- Meet requirements for Public Health programs and services, as outlined by the Ontario Public Health Standards (OPHS)

Figure 1. Map of Durham Region's 50 Health Neighbourhoods



What Determines Health?

Our health and well-being are affected by more than lifestyle choices and having access to good medical care when are sick.

Our living conditions, including where we are born, grow, live, work, play, and age all play a role in our physical and mental health and well-being.[1] These determinants of health include a range of personal, social, economic, and environmental factors that determine the health status of an individual, community, or population.[2] The Public Health Agency of Canada has identified 12 key factors that influence health and well being.[3]

Determinants of Health:

1. Income and social status
2. Employment and working conditions
3. Education and literacy
4. Childhood experiences
5. Physical environments
6. Social supports and coping skills
7. Healthy behaviours
8. Access to health services
9. Biology and genetic endowment
10. Gender
11. Culture
12. Race and racism

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[1] Commission on Social Determinants of Health. (2008). Closing the gap in a generation: Health equity through action on the social determinants of health: Final report of the Commission on Social Determinants of Health. Geneva: World Health Organization. Available at: https://www.who.int/publications/i/item/WHO-IER-CSDH-08.1

[2] National Collaborating Centre for Determinants of Health. (2013). Let's Talk Health Equity. Available at: Health equity | National Collaborating Centre for Determinants of Health (nccdh.ca)

[3] PHAC website, What Determines Health? Available at: Social determinants of health and health inequalities - Canada.ca

Social determinants of health refer to a specific group of factors within the determinants of health. These relate to an individual's place in society, such as income, education, or employment. Experiences of discrimination, racism and historical trauma are important social determinants of health for certain groups such as Indigenous Peoples, LGBTQ+ and Black Canadians.[3]

Health Inequalities

Although Durham Region residents are generally healthy, some residents are healthier and have more opportunities to lead a healthy life.

Differences in the health status of individuals are called **health inequalities** and can be due to genetics and lifestyle choices. However, the social determinants of health can also have an important influence on health. For example, individuals with higher incomes are often healthier than those with lower incomes.

Health inequalities that result from unfair or unjust systems and policies are referred to as **health inequity**. Health equity seeks to reduce these inequalities by helping to give everyone the same opportunities to be healthy, no matter who they are or where they live.

Health Neighbourhoods can help support the reduction of health inequalities through evidence-informed decision making to foster strong, safe, and equitable neighbourhoods that improve the health and well-being of all residents.

Health Neighbourhoods Development

Health Neighbourhoods was developed and produced by the Durham Region Health Department. The Health Department has collaborated with other departments within Durham Region, as well as many community partners, to expand the project and enable knowledge transfer in the community.

Creating the Boundaries

The Health Neighbourhood boundaries were developed with the intention of creating areas with a sufficient population size that health information could be presented accurately. On average, there are 13,000 people in each Neighbourhood although the 2016 population varies from 8,305 in Westney Heights, Ajax to 22,080 in Ajax Northeast. The Neighbourhoods are typically larger than what most would think of as a "neighbourhood", but this was necessary for reporting health statistics.

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.

Durham Region is diverse with a mix of urban, suburban, and rural areas. Durham Region has some very fast-growing communities, as well as some rural communities that cover large geographic 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

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 and started in the south and then moved 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, 2016 population count, and number of Dissemination Areas (DAs)

#	Health Neighbourhood	Municipality	ID	2016 Population	Number of DAs
1	Frenchman's Bay	Pickering	P1	16,855	29
2	West Rouge	Pickering	P2	13,900	18
3	Amberlee	Pickering	P3	9,685	15
4	Dunbarton	Pickering	P4	13,450	23
5	Pickering City Centre	Pickering	P5	14,030	20
6	Brock Ridge Pickering	Pickering	P6	12,855	15
7	Pickering North	Pickering	P7	10,215	18
8	Ajax Waterfront	Ajax	A1	10,785	20
9	Downtown Ajax	Ajax	A2	11,225	19
10	Carruthers	Ajax	A3	13,670	14
11	Central Ajax	Ajax	A4	11,700	21
12	Riverside-Hermitage	Ajax	A5	12,310	17
13	Westney Heights	Ajax	A6	8,305	16
14	Applecroft	Ajax	A7	11,580	19
15	Ajax Northwest	Ajax	A8	17,520	27
16	Ajax Northeast	Ajax	A9	22,080	8
17	Whitby South	Whitby	W1	14,520	21
18	Downtown Whitby	Whitby	W2	15,720	26
19	Cochrane South	Whitby	W3	8,860	15
20	Manning	Whitby	W4	14,905	32
21	Williamsburg	Whitby	W5	9,450	10
22	Whitby Brock North	Whitby	W6	11,710	16
23	Dryden-Anderson	Whitby	W7	11,360	16
24	Dryden East	Whitby	W8	12,485	18
25	Brooklin East	Whitby	W9	13,190	14
26	Brooklin West	Whitby	W10	14,585	15
27	Lakeview	Oshawa	O1	18,115	33

#	Health Neighbourhood	Municipality	ID	2016 Population	Number of DAs
28	Gibb West	Oshawa	O2	11,355	22
29	Downtown Oshawa	Oshawa	O3	10,770	22
30	Central Park	Oshawa	O4	11,090	24
31	Grandview South	Oshawa	O5	11,110	21
32	Stevenson North	Oshawa	O6	16,170	32
33	Hillsdale	Oshawa	O7	10,755	19
34	Beatrice South	Oshawa	O8	12,765	24
35	Grandview North	Oshawa	O9	12,665	16
36	Beatrice North	Oshawa	O10	10,550	10
37	Oshawa Northwest	Oshawa	O11	13,350	15
38	Oshawa Northeast	Oshawa	O12	18,930	13
39	Courtice South	Clarington	C1	16,635	19
40	Courtice North	Clarington	C2	10,795	16
41	Bowmanville South	Clarington	C3	15,035	23
42	Bowmanville Central	Clarington	C4	8,955	16
43	Bowmanville North	Clarington	C5	12,815	10
44	Darlington	Clarington	C6	11,180	19
45	Clarke	Clarington	C7	15,770	26
46	Port Perry	Scugog	S1	9,025	15
47	Rural Scugog	Scugog	S2	12,365	23
48	Urban Uxbridge	Uxbridge	U1	12,340	13
49	Rural Uxbridge	Uxbridge	U2	8,635	16
50	Brock	Brock	B1	11,355	24

Selecting Priority Neighbourhoods

Seven Health Neighbourhoods have been examined and identified by Durham Region Health Department as communities that require focus to build on health and well-being.

The intention of identifying these Priority Neighbourhoods was to spark a dialogue to create positive action. Building on partnerships and working collaboratively with the people in these communities could be the driving force for change.

How were the priority neighbourhoods selected?

Priority Neighbourhoods were selected primarily based on income measures as income is an important determinant of health.

Our health and well-being are affected by our living conditions. Income is an important determinant of health—people with higher incomes tend to have better physical and mental health than those with lower incomes. Children who grow up in poverty are more likely to experience a variety of health problems across their lifespan. While living in low income is not a guarantee of less favourable health outcomes, inequitable access to the determinants of health at the individual, family and community level increases the risk for poor health outcomes.

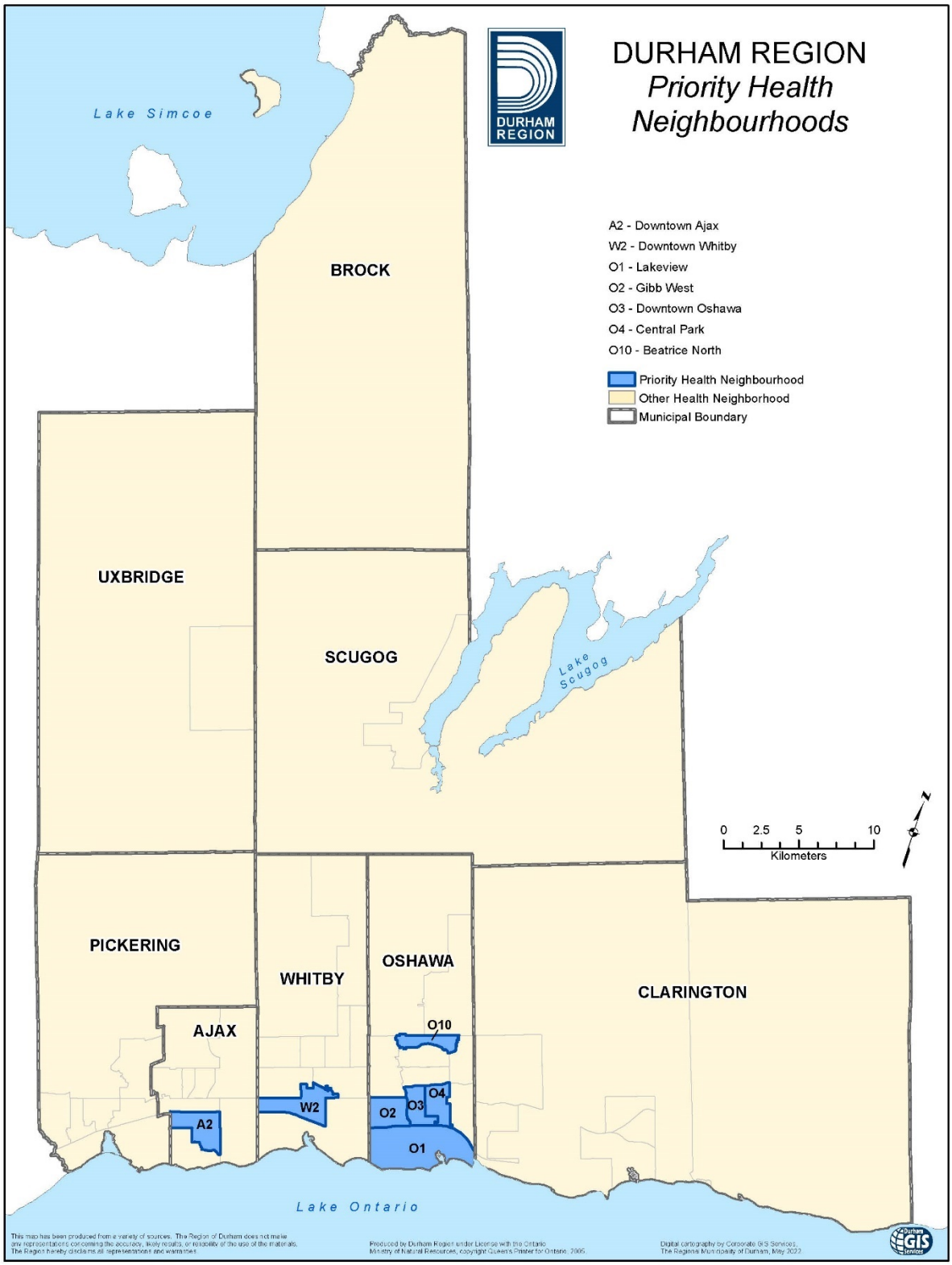
The seven Priority Neighbourhoods are:

1. **Downtown Ajax – Ajax**
2. **Downtown Whitby – Whitby**
3. **Lakeview – Oshawa**
4. **Gibb West – Oshawa**
5. **Downtown Oshawa – Oshawa**
6. **Central Park – Oshawa**
7. **Beatrice North – Oshawa**

The location of these Neighbourhoods is shown on the map below in **Figure 2**. These Neighbourhoods were chosen in 2015 because they had the lowest income levels based on median after-tax household income and the highest rate of low income in children less than 6 years of age. They also rank poorly in terms of overall low-income rate, low education levels, and unemployment, compared to the other 43 Neighbourhoods. Finally, these Neighbourhoods have many health challenges and make up approximately 15 per cent of Durham Region's population.

Although the Priority Neighbourhoods have the lowest income levels of the 50 Health Neighbourhoods, they also have many possible attributes, community assets, resources, and strengths. Understanding communities from a strength base can help the community build on what is working well and develop solutions for improvement.

Figure 2. Map of the 7 Priority Neighbourhoods in Durham Region



Health Neighbourhood Releases

Health Neighbourhoods is a constantly evolving project which continues to expand and improve:

- Initial Release – January 2015, 62 indicators
- Release 2 – February 2016, 82 indicators
- Release 3 – December 2017, 89 indicators
- Release 4 – June 2022, 96 indicators

What's new in Release 4

Health Neighbourhoods Release 4 was launched in June 2022 and involved the most change of any release to date.

This release included the following major updates in the way Neighbourhoods data are presented:

- New map viewer platform
- Online dashboards for data visualization replaced the PDF indicator summaries and Neighbourhood profiles used in earlier versions
- Neighbourhood's data can also be downloaded from the online dashboards

This release also included many indicator updates, including:

- 20 new indicators
    - 3 – Child health
    - 8 – General health
    - 4 – Health behaviours & risks
    - 5 – Socio-demographics
- 48 indicators were updated with two time-point comparisons
- 6 school readiness indicators were updated with three time-point comparisons
- 10 indicators were modified or re-named
- All socio-demographic indicators were updated with 2016 census data

Using Health Neighbourhoods Information

Health Neighbourhoods information is readily available in a variety of formats to the Health Department as well as all community partners, such as school boards, municipalities, health care providers, health and family service agencies, social planning councils, and other Regional Departments, such as Social Services.

Health Neighbourhoods Products

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

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

Map Viewer

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 **Socio-Demographics**, **General Health**, **Child Health**, and **Health Behaviours & Risks** tabs provide access to maps on specific indicators.

Indicator Summaries

All Health Neighbourhood indicators are included in the indicator summaries dashboard. Each summary consists of information about the indicator definition, data source(s), impact on health, and methodological notes of concern.

Each indicator summary also presents the following information:

- Indicator map by Health Neighbourhood
- Ordered Neighbourhood comparison summary graph
- Summary table by Neighbourhood
- Summary table by Municipality
- When possible, a comparison to Ontario

The Neighbourhoods shown on the dashboard can be filtered by the following:

- Priority Neighbourhoods
- Higher than Durham Region
- Lower than Durham Region

The indicator data can also be downloaded by clicking on the “Download Data” button.

Neighbourhood Profiles

The Neighbourhood Profiles interactive dashboard presents information for each Health Neighbourhood, as well as municipality and for Durham Region as a whole. Each profile provides a description of the area, map that shows the boundaries of the Neighbourhood, and summary stats at a glance (population, population growth, number of live births, percentage of seniors, percentage foreign-born, and median income after tax).

The profile includes a table for all indicators compared to Durham Region, and Ontario when available. By default, all available years of data are shown on the profile, but this can be filtered to only show the most recent estimates, by clicking on the “Most Recent Data” box. The profile data can be downloaded by clicking on the “Download Data”.

Evidence-Informed Decision Making

The Health Department uses information from Health Neighbourhoods 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 widely used by our community partners.

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 and reduce health inequalities
- 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

Health Neighbourhoods helps meet Ontario Public Health Standards (OPHS) requirements

Through surveillance, reporting and assessment of socioeconomic, health outcomes and behaviours, and the activities reported above, Health Neighbourhoods helps meet the following requirements for Public Health programs and services, as outlined by the OPHS:

- **Foundational Standard Requirements**
    - Public Health Assessment requirements 1, 2, 3, 4 and 6
    - Heath Equity requirement 1
    - Effective Public Health Practice requirements 5, 6 and 7
- **Program Standard Requirements**
    - Chronic Disease Prevention and Well-Being requirement 1
    - Food Safety requirement 1b
    - Healthy Growth and Development requirement 1
    - Immunization requirement 2
    - Infectious and Communicable Diseases Prevention and Control requirement 1b
    - School Health requirements 1 and 2
    - Substance Use and Injury Prevention requirement 1

Tables 2 to 5 (pages 17-29) provide lists of all Health Neighbourhoods indicators, by theme, and OPHS Requirements relevant to each indicator. More information on the OPHS can be found at the Ontario Public Health Standards: Requirements for Programs, Services and Accountability.

Methodological Notes

Geocoding Data into Health Neighbourhoods

Data from the 2016 census were provided as a custom geography through the Community Data Group, which the Regional Municipality of Durham accesses as a member of the Durham Consortium.

Data from the Better Outcomes Registry and Network (BORN) were directly categorized into Health Neighbourhood from Dissemination Area (DA).

Data based on postal code were categorized into Health Neighbourhood using the 2017 Postal Code ^{OM} Conversion File (PCCF) from Statistics Canada, obtained through the Community Data Program. The PCCF first assigns postal codes to a specific DA and then the DA is used to assign the Health Neighbourhood. Some postal codes do not fit precisely into one DA. If the postal code was missing or did not link to a DA, manual coding was used to try and assign Neighbourhood based on other available geographic information (e.g., address, coordinates). Cases which could not be linked to a DA were excluded from Neighbourhood analysis, however, this was minimal (less than 5%).

Data based on geographic coordinates, such as the ambulance call data, were assigned to Health Neighbourhoods using ArcGIS and an in-house geocoding program developed by the Region of Durham GIS Services. All geocoding was performed by the Region of Durham GIS Services in Corporate Services- Information Technology.

Tables 2 to 5 provide lists of Neighbourhoods indicators and the method used to assign Neighbourhood.

Data Based on Residence

All Neighbourhood data were analyzed based on place of residence, not the location where the event occurred. The only exception was ambulance call data, which were geocoded to the pickup location of the patient and not the patient's address. Durham Region residents who visited an emergency department or were hospitalized at any Ontario facility were captured and coded by their place of residence. Events that occurred outside of Ontario were excluded.

Indicator Mapping – Quintiles and Impact on Health

Indicator maps are available on the durham.ca/neighbourhoods web page through the Map Viewer and Health Neighbourhoods interactive dashboards.

Quintiles

For each indicator, Neighbourhoods were ranked from the lowest to the highest indicator values and divided into quintiles, with Quintile 1 having the Neighbourhoods with the lowest values and Quintile 5 having the highest. However, if a Neighbourhood

had a value that was not releasable due to small numbers, it was excluded from the quintiles.

For indicators where the number of cases/events was available and relevant, the quintiles were formed in such a way that there was approximately an equal number of cases/events in each quintile (approximately 20%). Based on this method, the number of Neighbourhoods in each quintile was unequal if the number of cases/events were not evenly distributed across Neighbourhoods. Indicators based on data from the Census, the Better Outcomes Registry and Network (BORN), and the Early Development Instrument (EDI), as well as crude and age-specific rates were divided into quintiles based on this method.

For the remaining indicators, the Neighbourhoods were sorted by indicator value and divided equally into quintiles. This resulted in approximately 10 Neighbourhoods per quintile. However, since Neighbourhoods with the same value were grouped together, some quintiles may have had greater or fewer than 10 Neighbourhoods. Indicators based on survey data, child immunization data, paramedic or police services data, and age- and/or sex-standardized rates were divided into quintiles using this method.

Tables 2 to 5 provide lists of Neighbourhoods indicators and the method used to divide them into quintiles, either based on an even number of Neighbourhoods or an even count of events/cases.

Impact on Health

Each indicator has a unique impact on health, in terms of both direction and magnitude. For clarity, four categories were used for classifying the health impact of each indicator based on the impact on health:

1. **No impact on health: increases and higher values would not change the health of the population**

   This category includes indicators which may be associated with health in some way but increasing the prevalence or rate of the indicator in a population would not improve or worsen health.

   Maps of these indicators show Neighbourhoods with the lowest values in light yellow and those with the highest values in dark red.

2. **Impact on health is complex: increases and higher values could be better or worse for health**

   This category includes indicators that are associated with health, but it is difficult to determine their impact on health. Increasing the prevalence or rate in a population may improve or worsen health, but the impact often differs based on other factors, such as social structure, support and economic status.

   Maps of these indicators show Neighbourhoods with the lowest values in light yellow and those with the highest values in dark red.

3. **Increases and higher values are worse for health**

   This category includes indicators where higher values are associated with worse health.

   Maps of these indicators show Neighbourhoods with the lowest values in light yellow and the highest values in dark red.

4. **Increases and higher values are better for health**

   This category includes indicators where higher values are associated with better health.

   Maps of these indicators show Neighbourhoods with the highest values in light yellow and the lowest values 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.

Tables 2 to 5 provide lists of Neighbourhoods indicators and their impact on health.

Table 2: List of socio-demographic indicators, methods used to assign Neighbourhood and quintiles, impact on health and relevant OPHS Standards and Requirements

#	Sub-group	Indicator	Method: Neighbourhood Assignment	Method: Quintile Assignment	Impact on Health	Relevant OPHS Standards
1	Population	Population growth rate	Custom geography	Neighbourhood	No impact	• PHA:1
2	Population	Population density	Custom geography	Neighbourhood	No impact	• PHA:1
3	Population	Population aged 0 to 14	Custom geography	Count	Complex	• PHA:1
4	Population	Population aged 0 to 4	Custom geography	Count	Complex	• PHA:1
5	Population	Population aged 5 to 9	Custom geography	Count	Complex	• PHA:1
6	Population	Population aged 10 to 14	Custom geography	Count	Complex	• PHA:1
7	Population	Population aged 15 to 19	Custom geography	Count	Complex	• PHA:1
8	Population	Population aged 20 to 24	Custom geography	Count	Complex	• PHA:1
9	Population	Population aged 25 to 29	Custom geography	Count	Complex	• PHA:1
10	Population	Population aged 30 to 39	Custom geography	Count	Complex	• PHA:1
11	Population	Population aged 40 to 49	Custom geography	Count	Complex	• PHA:1
12	Population	Population aged 50 to 59	Custom geography	Count	Complex	• PHA:1
13	Population	Population aged 60 to 64	Custom geography	Count	Complex	• PHA:1

#	Sub-group	Indicator	Method: Neighbourhood Assignment	Method: Quintile Assignment	Impact on Health	Relevant OPHS Standards
14	Population	Population aged 65+	Custom geography	Count	Complex	• PHA:1
15	Demographics	Female lone-parent families	Custom geography	Count	Worse	• PHA:1,6 • HE:1
16	Demographics	Seniors living alone	Custom geography	Count	Complex	• PHA:1,6 • HE:1
17	Demographics	Aboriginal population	Custom geography	Count	Complex	• PHA:1,6 • HE:1
18	Demographics	Visible minorities	Custom geography	Count	Complex	• PHA:1,6 • HE:1
19	Demographics	Foreign-born population	Custom geography	Count	Complex	• PHA:1,6 • HE:1
20	Demographics	Recent newcomers	Custom geography	Count	Complex	• PHA:1,6 • HE:1
21	Demographics	Non-English speakers	Custom geography	Count	Complex	• PHA:1,6 • HE:1
22	Demographics	Home language not English	Custom geography	Count	Complex	• PHA:1,6 • HE:1
23	Socio-economic status	Median income	Custom geography	Neighbourhood	Better	• PHA:1,6 • HE:1
24	Socio-economic status	Low income	Custom geography	Count	Worse	• PHA:1,6 • HE:1

#	Sub-group	Indicator	Method: Neighbourhood Assignment	Method: Quintile Assignment	Impact on Health	Relevant OPHS Standards
25	Socio-economic status	Children in low-income households	Custom geography	Count	Worse	• PHA:1,6 • HE:1
26	Socio-economic status	Seniors in low-income households	Custom geography	Count	Worse	• PHA:1,6 & HE:1
27	Socio-economic status	Postsecondary education	Custom geography	Count	Better	• PHA:1,6 • HE:1
28	Socio-economic status	Unemployment	Custom geography	Count	Worse	• PHA:1,6 • HE:1
29	Housing	Movers	Custom geography	Count	Complex	• PHA:1,6 • HE:1
30	Housing	Renters	Custom geography	Count	No impact	• PHA:1,6 • HE:1
31	Housing	Shelter costs	Custom geography	Count	Worse	• PHA:1,6 • HE:1
32	Housing	Not suitable housing	Custom geography	Count	Worse	• PHA:1,6 • HE:1
33	Housing	Major dwelling repairs	Custom geography	Count	Worse	• PHA:1,6 • HE:1

HE: Health Equity; **PHA:** Population Health Assessment

Table 3: List of child health indicators, methods used to assign Neighbourhood and quintiles, impact on health, and relevant OPHS Standards and Requirements

#	Sub-group	Indicator	Method: Neighbourhood Assignment	Method: Quintile Assignment	Impact on Health	Relevant OPHS Standards
34	Births	Live birth rate	DA	Count	No impact	• PHA:1 • HG&D:1
35	Births	Teen pregnancy rate	DA	Count	Worse	• PHA:1 • HG&D:1
36	Births	Births to young mothers	DA	Count	Worse	• PHA:1 • HG&D:1
37	Births	Births to older mothers	DA	Count	Complex	• PHA:1 • HG&D:1
38	Births	Preterm births	DA	Count	Worse	• PHA:1 • HG&D:1
39	Births	Small-for-gestational age (SGA)	DA	Count	Worse	• PHA:1 • HG&D:1
40	Births	Large-for-gestational age (LGA)	DA	Count	Worse	• PHA:1 • HG&D:1
41	ACE-like risk factors	Maternal mental illness	Postal code	Count	Worse	• PHA:1, 6 • HE:1 • HG&D:1
42	ACE-like risk factors	Maternal smoking or substance use	Postal code	Count	Worse	• PHA:1, 6 • HE:1 • HG&D:1

#	Sub-group	Indicator	Method: Neighbourhood Assignment	Method: Quintile Assignment	Impact on Health	Relevant OPHS Standards
43	ACE-like risk factors	One or more ACE-like risk factors	Postal code	Count	Worse	• PHA:1, 6 • HE:1 • HG&D:1
44	Breastfeeding	Early breastfeeding	DA	Neighbourhood	Better	• PHA:1 • HG&D:1
45	Breastfeeding	Early exclusive breastfeeding	DA	Neighbourhood	Better	• PHA:1 • HG&D:1
46	Breastfeeding	Breastfeeding for 6 months or more	DA	Neighbourhood	Better	• PHA:1 • HG&D:1
47	Well-baby visits	18-month well-baby visit	Postal code	Neighbourhood	Better	• PHA:1 • HG&D:1
48	School readiness	Physical health and well-being	Postal code	Count	Worse	• PHA:1, 6 • HE:1 • HG&D:1
49	School readiness	Social competence	Postal code	Count	Worse	• PHA:1, 6 • HE:1 • HG&D:1
50	School readiness	Emotional maturity	Postal code	Count	Worse	• PHA:1, 6 • HE:1 • HG&D:1

#	Sub-group	Indicator	Method: Neighbourhood Assignment	Method: Quintile Assignment	Impact on Health	Relevant OPHS Standards
51	School readiness	Language and cognitive development	Postal code	Count	Worse	• PHA:1, 6 • HE:1 • HG&D:1
52	School readiness	Communication skills and general knowledge	Postal code	Count	Worse	• PHA:1, 6 • HE:1 • HG&D:1
53	School readiness	Vulnerable in one or more EDI domains	Postal code	Count	Worse	• PHA:1, 6 • HE:1 • HG&D:1

DA: Dissemination area; **HE:** Health Equity; **HG&D:** Healthy Growth and Development; **PHA:** Population Health Assessment

Table 4: List of General Health Indicators, their impact on health, and method used for dividing Neighbourhoods into quintiles

#	Sub-group	Indicator	Method: Neighbourhood Assignment	Method: Quintile Assignment	Impact on Health	Relevant OPHS Standards
54	Health & longevity	Self-rated health	Postal code	Neighbourhood	Better	• PHA:1 • CDP&WB:1
55	Health & longevity	Life expectancy in males	Postal code	Neighbourhood	Better	• PHA:1
56	Health & longevity	Life expectancy in females	Postal code	Neighbourhood	Better	• PHA:1
57	Health & longevity	Premature mortality in males	DA	Neighbourhood	Worse	• PHA:1, 6 • HE:1
58	Health & longevity	Premature mortality in females	DA	Neighbourhood	Worse	• PHA:1, 6 • HE:1
59	Mental health & addictions (MHA)	Self-rated mental health	Postal code	Neighbourhood	Better	• PHA:1, 6 • HE:1 • CDP&WB:1
60	Mental health & addictions (MHA)	MHA doctor visits, ages 0 to 24	DA	Neighbourhood	Complex	• PHA:1, 6 • HE:1 • CDP&WB:1
61	Mental health & addictions (MHA)	MHA emergency visits, ages 0 to 24	DA	Neighbourhood	Worse	• PHA:1, 6 • HE:1 • CDP&WB:1

#	Sub-group	Indicator	Method: Neighbourhood Assignment	Method: Quintile Assignment	Impact on Health	Relevant OPHS Standards
62	Mental health & addictions (MHA)	Self-harm emergency visits, ages 10 to 24	Postal code	Count	Worse	• PHA:1, 6 • HE:1 • CDP&WB:1
63	Chronic diseases	Obesity	Postal code	Neighbourhood	Worse	• PHA:1 • CDP&WB:1
64	Chronic diseases	Asthma emergency visits in children	Postal code	Count	Worse	• PHA:1 • CDP&WB:1
65	Chronic diseases	Asthma prevalence in children	DA	Neighbourhood	Worse	• PHA:1 • CDP&WB:1
66	Chronic diseases	Diabetes incidence	DA	Neighbourhood	Worse	• PHA:1 • CDP&WB:1
67	Chronic diseases	Diabetes prevalence	DA	Neighbourhood	Worse	• PHA:1 • CDP&WB:1
68	Chronic diseases	Hypertension prevalence	DA	Neighbourhood	Worse	• PHA:1 • CDP&WB:1
69	Chronic diseases	Lung disease (COPD) prevalence	DA	Neighbourhood	Worse	• PHA:1 • CDP&WB:1
70	Chronic diseases	Cardiovascular disease hospitalization	Postal code	Count	Worse	• PHA:1 • CDP&WB:1
71	Infectious diseases	Chlamydia in young females	Postal code	Count	Worse	• PHA:1 • ICDPC:1b

#	Sub-group	Indicator	Method: Neighbourhood Assignment	Method: Quintile Assignment	Impact on Health	Relevant OPHS Standards
72	Infectious diseases	Enteric diseases	Postal code	Count	Worse	• PHA:1 • ICDPC:1b • FS:1b
73	Infectious diseases	Hepatitis C	Postal code	Count	Worse	• PHA:1 • ICDPC:1b
74	Infectious diseases	Tuberculosis	Postal code	Count	Worse	• PHA:1 • ICDPC:1b
75	Injury	Sports injuries, ages 10 to 14	Postal code	Count	Worse	• PHA:1 • SH:1,2 • SU&IP:1
76	Injury	Assault, ages 10 to 24	Postal code	Count	Worse	• PHA:1 • SH:1,2 • SU&IP:1
77	Injury	Motor vehicle collisions, ages 15 to 24	Postal code	Count	Worse	• PHA:1 • SH:1,2 • SU&IP:1
78	Injury	Falls, ages 0 to 4	Postal code	Count	Worse	• PHA:1 • SU&IP:1
79	Injury	Falls, ages 65+	Postal code	Count	Worse	• PHA:1 • SU&IP:1

CDP&WB: Chronic Disease Prevention and Well-Being; **DA:** Dissemination area; **FS:** Food Safety; **ICDPC:** Infectious and Communicable Diseases Prevention and Control; **Imm:** Immunization; **PHA:** Population Health Assessment; **SH:** School Health; **SU&IP:** Substance Use and Injury Prevention

Table 5: List of Health Behaviour & Risks Indicators, their impact on health, and method used for dividing Neighbourhoods into quintiles

#	Sub-group	Indicator	Method: Neighbourhood Assignment	Method: Quintile Assignment	Impact on Health	Relevant OPHS Standards
80	Smoking	Smoking	Postal code	Neighbourhood	Worse	• PHA:1 • SU&IP:1
81	Immunization	School-required immunizations, ages 7 and 8	Postal code	Neighbourhood	Better	• PHA:1 • Imm:2 • SH:1
82	Immunization	School-required immunizations, ages 16 and 17	Postal code	Neighbourhood	Better	• PHA:1 • Imm:2 • SH:1
83	Immunization	Meningococcal disease immunization	Postal code	Neighbourhood	Better	• PHA:1 • Imm:2 • SH:1
84	Immunization	Hepatitis B immunization	Postal code	Neighbourhood	Better	• PHA:1 • Imm:2 • SH:1
85	Immunization	HPV immunization	Postal code	Neighbourhood	Better	• PHA:1 • Imm:2 • SH:1
86	Cancer screening	Breast cancer screening (mammography)	DA	Neighbourhood	Better	• PHA:1 • CDP&WB:1

#	Sub-group	Indicator	Method: Neighbourhood Assignment	Method: Quintile Assignment	Impact on Health	Relevant OPHS Standards
87	Cancer screening	Cervical cancer screening (Pap tests)	DA	Neighbourhood	Better	• PHA:1 • CDP&WB:1
88	Cancer screening	Overdue for colorectal cancer screening	DA	Neighbourhood	Worse	• PHA:1 • CDP&WB:1
89	Ambulance	Residence ambulance calls	Coordinates	Neighbourhood	Worse	• PHA:1
90	Ambulance	Residence ambulance calls in seniors	Coordinates	Neighbourhood	Worse	• PHA:1
91	Ambulance	Non-urgent ambulance calls	Coordinates	Neighbourhood	Worse	• PHA:1
92	Ambulance	Non-urgent ambulance calls in seniors	Coordinates	Neighbourhood	Worse	• PHA:1
93	Police-reported incidents	Domestic incidents	Coordinates	Neighbourhood	Worse	• PHA:1 • SU&IP:1
94	Police-reported incidents	Domestic incidents with children present	Coordinates	Neighbourhood	Worse	• PHA:1 • SU&IP:1
95	Active travel	Walk or cycle trips to school, ages 11 to 17	FSA	Neighbourhood	Better	• PHA:1 • CDP&WB:1 • SH:1

#	Sub-group	Indicator	Method: Neighbourhood Assignment	Method: Quintile Assignment	Impact on Health	Relevant OPHS Standards
96	Active travel	Walk, cycle or transit to work, ages 18+	FSA	Neighbourhood	Better	• PHA:1 • CDP&WB:1

CDP&WB: Chronic Disease Prevention and Well-Being; **DA:** Dissemination area; **FSA:** Forward Sortation Area; **Imm:** Immunization; **PHA:** Population Health Assessment; **SH:** School Health; **SU&IP:** Substance Use and Injury Prevention

Determining Highs and Lows

In addition to assigning Neighbourhoods to quintiles, they were also classified as higher, lower, or similar as compared to Durham Region. For socio-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 indicators under the categories of child health, general health, and health behaviours & risks, "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. When Ontario data were available, Durham Region and Health Neighbourhoods were compared to Ontario in the same way.

We colour coded the words “Lower” or “Higher” as blue, green or red in indicator summaries and neighbourhood profiles to show how the indicator relates to health for ease of reading when there is a significant difference. Indicators with no impact on health or where the impact on health is complex have “Lower” and “Higher” shown in blue. Indicators with higher values that are worse for health have “Higher” shown in red and “Lower” shown in green. Indicators with higher values that are better for health have “Higher” shown in green and “Lower” shown in red.

Calculation of Confidence Intervals

Rates for many indicators have 95% confidence intervals provided. Confidence intervals indicate the amount of variability and precision of an estimate and whether 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 survey commands in STATA. Life expectancy confidence intervals were calculated in Excel using the Chiang II method of calculation.

We calculated all other confidence intervals, except for 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=(((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= (((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, 2015 and 2018. We used the procedures developed by the Human Early Learning Partnership (HELP) through the University of British Columbia. A detailed explanation of the process can be found on the Understanding Critical Difference page of the HELP website. Essentially, the HELP method 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. The equations for each EDI measure were then entered Excel and used to calculate the critical differences for Durham Region Neighbourhoods. The critical difference method is more specific and precise than a general calculation of statistical significance.

Non-Releasable Estimates

In some cases, an estimate was not released 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. The one exception were the EDI indicators, which were not suppressed if the numerator was less than five.

For estimates from the Rapid Risk Factor Surveillance System (RRFSS) and the Infant Feeding Surveillance System (IFSS), the coefficient of variation was also used 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, 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 was identified with an Asterix, in order to state it should be used with caution. Estimates with a coefficient of variation greater than 33.3 per cent were 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 due to the exclusion of cases with missing or incorrect postal codes that could not be assigned 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, using the direct method, was done for the following indicators: breast cancer screening rates and Pap test screening rates. Age- and sex-standardization, using the direct method, was done for the following indicators: disease prevalence (diabetes, lung disease, asthma), diabetes incidence, cancer screening, doctors visits and Emergency Department visits for mental health and addictions, and residence ambulance calls.

The remaining indicators were not standardized by age or sex due to the difficulty in obtaining population counts by sex and age group, as well as methodological issues with small populations. Instead, age-specific rates were used where possible, with restrictions to the age group with the highest incidence. For example, chlamydia rates were presented for females aged 15 to 24 years. In this case, limiting data to this specific population allowed for a better comparison across Neighbourhoods.

Use of Census Population Counts for Denominators

For some indicators (e.g., injury, teen pregnancy rate), the 2011 and 2016 Census population was used as the denominator for indicator calculation. Population counts by DA or Health Neighbourhood were only available from the Census. As a result, rates were calculated for years that straddle the Census year, e.g., 2010-2011-2012 or 2015-2016-2017 combined. These may not be the most current years of data available. Neighbourhoods that experience rapid population growth may have indicators that are under-estimated or overestimated if the numerator is far away from the Census year.

Some indicators, such as residence ambulance calls, used population counts by Health Neighbourhood from the Registered persons Database (RPDB) as the denominator for indicator calculation. The RPDB is a population-based register maintained by the Ministry of Health and the Ministry of Long-Term Care to manage services funded under the Ontario Health Insurance Plan (OHIP). Inaccuracies in the RPDB data have been documented, but the estimates appeared reasonable when census numbers and population growth were considered.

Multiple Testing

Each Neighbourhood and municipality were compared with Durham Region for all indicators. Many comparisons were made using 95% confidence intervals. This means one out of 20 (5%) comparisons may be statistically significant simply due to chance alone. Therefore, it is 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. Some limited information is provided within the indicator summaries to highlight how certain factors can affect health, but casual conclusions cannot be made from Neighbourhoods data.

It is also important to note that it is not possible to make inferences at an individual level based on Neighbourhoods data. Indicators simply represent an average value/outcome for a population. Although individuals from the same Neighbourhood are more likely to be similar to one-another compared to individuals from a different Neighbourhood, Neighbourhoods are not perfectly homogenous with regards to demographics, health behaviours or outcomes. For example, an individual may live in a Neighbourhood with a low median household income and a high prevalence of diabetes, but they may have a very high household income and not be diabetic. Similarly, an individual may live in a very wealthy Neighbourhood, but may experience poverty.

Data Sources

Health Neighbourhoods uses a variety of data sources and presents a wide range of indicators. Each data source is documented 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, which is a project under the Association of Public Health Epidemiologists in Ontario (APHEO). Information about these indicators and data sources is available at APHEO Core Indicators.

Ambulance Dispatch and Call Report Databases

The Ambulance Dispatch Database is the information system used by the Region of Durham Paramedic Services (RDPS) for reporting events related to ambulance services and includes initial contact data for all RDPS requests.

The Ambulance Call Report Database (ACR) is the information system used by RDPS for capturing case report data for each patient. Case reports are recorded by the responding emergency medical attendants and contain information regarding basic patient demographics, pickup location, primary medical complaint, presence of pre-existing health conditions and classification of medical urgency.

Medical urgency for each case is determined by the responding emergency medical attendants using the prehospital Canadian Triage and Acuity Scale (CTAS). This helps determine the most appropriate response time and transport destination, based on the acuity of the patient. CTAS is a five-level scale and is determined based on a patient's need for medical interventions and how aggressive the interventions need to be to prevent loss of life or limb. CTAS level one (Resuscitation) is assigned to the "sickest" patients (e.g., cardiac arrest, unconsciousness, major trauma). CTAS level four (less urgent) and level five (non-urgent) are assigned patients whose health condition does not pose any immediate health risk and have lower levels of pain (e.g., mild anxiety, small burns or cuts, mild diarrhea, sore throat). These patients may be better served by a different health care provider or an alternative destination than the emergency department.

Further information about CTAS is available at CTAS Publications.

Data acquisition and analysis:

Individual call-level data were provided by RDPS and included the geographic coordinates of each pickup location. Geocoding of the geographic coordinates into Health Neighbourhood was done by Durham Region GIS Services.

Paramedic data were used to calculate the following indicators:

- Residence ambulance calls
- Residence ambulance calls in seniors
- Non-urgent ambulance calls
- Non-urgent ambulance calls in seniors

Limitations:

Unique patient identifiers were not available for analysis. To account for this, patient age and Neighbourhood were used to aggregate records into a single record per patient, thereby standing for one 911 call resulting in a paramedic response per patient. If there was more than one patient involved in a call and they were the same age as another patient, they would have been undercounted. However, the impact is minimal.

Emergency medical attendants determine the CTAS level of a patient a minimum of two times: on arrival at the patient (Arrival CTAS) and at the time of departure from the scene (Departure CTAS). If a patient's condition changes during transport or following an intervention, a new CTAS level is assigned. As a result, some cases had more than one recorded CTAS level. For these cases, the most urgent recorded CTAS level was used for analysis. For example, if a patient had CTAS level two and four recorded, level two was kept for analysis. This was done as downgraded CTAS levels often reflect successful medical interventions, and therefore would not represent a truly non urgent or less urgent case. This may have resulted in misclassification of less or non urgent patients. However, the impact was likely minimal, as less than one per cent of cases had multiple CTAS levels recorded.

BORN Information System

The BORN Information System (BIS) is a secure, web-based platform that captures data on all births and young children in Ontario. Sourced from hospitals, labs, midwifery practice groups and clinical programs, the data are collected through a variety of mechanisms and are reported to public health units, hospitals and other authorized users via standard reports and analytical tools. The BIS was created and is maintained by BORN Ontario. For more information, visit BORN Ontario.

Formerly, Health Neighbourhoods presented birth indicators using hospital data from the Discharge Abstract Database (DAD) through IntelliHealth Ontario. BORN is now used as the data source for reproductive health indicators because: historic data became available (starting in 2013), all births are captured including those that occur at home, and a broader range of information is available, such as breastfeeding data.

Data acquisition and analysis:

We obtained Durham Region data directly from the BIS Public Health Analytic Reporting Tool (Cube). Information about births (e.g., births, preterm births, birth weights), deliveries (e.g., maternal age), and breastfeeding was extracted from the outcome, maternal characteristics, and feeding dimensions within the Cube.

Aggregated Ontario-level data were extracted from standard public health unit reports, as public health units are not able to extract patient data from any health unit other than their own within BIS.

BORN data were used to calculate the following indicators:

- Live birth rate
- Births to young mothers (aged 23 or younger)
- Births to older mothers (aged 35+)
- Preterm births
- Small-for-gestational age (SGA)
- Large-for-gestational age (LGA)
- Early breastfeeding
- Early exclusive breastfeeding

Limitations:

The main limitation with BORN data is that DA is that the only geographic information available to determine where a patient lives. Patients only record postal code, which is converted into DA in the BIS using the Single Link Indicator (SLI) from Statistics Canada. The SLI assigns a single DA to a single postal code and the DA is used to assign the patient to a public health unit (PHU). This is problematic and can cause patients to be misclassified, as postal codes can span multiple DAs and can cross PHU boundaries. As information about a patient's municipality, city, town, or address is not available, it is not possible to re-assign patients into the correct DA or PHU. This issue is particularly problematic in rural areas, such as the Neighbourhoods in the northern municipalities, where postal codes cross several DAs. This issue is further compounded in rural areas with community mailboxes. Misclassification between PHUs is also a concern, as PHUs only have access to patients' records assigned to their health unit and may therefore miss cases that are misclassified to adjoining PHUs. This is of concern most concern for Brock, which borders three PHUs. As a result, misclassification of patients between Neighbourhoods is a concern. Furthermore, when a DA cannot be assigned to a patient, as is often the case when new postal codes are created, this information appears as missing. These cases are therefore not included in the Neighbourhood analysis, as they cannot be assigned to a neighbourhood. This would lead to under-reporting of some indicators.

A second limitation is that Aboriginal populations are under-represented within BORN, as data for babies born to mothers living in postal codes where most of the population live in Aboriginal communities, are suppressed. This has a small impact on Durham Region as a whole, as Durham Region is home to only one First Nations community, Mississaugas of Scugog Island First Nations.

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.

Data acquisition and use:

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.

Census data were used to calculate the following socio-demographic indicators:

- Population growth rate
- Population density
- Population age groups (0-14, 0-4, 5-9, 10-14, 15-19, 20-24, 25-29, 30-39, 40-49, 50-59, 60-64, 65+)
- Female lone-parent families
- Seniors living alone
- Aboriginal population
- Visible minorities
- Foreign-born population
- Recent newcomers
- Non-English speakers
- Home language not English
- Median income
- Low income
- Children in low-income households
- Seniors in low-income households
- Post secondary education
- Unemployment
- Movers
- Renters
- Shelter costs
- Not suitable housing
- Major dwelling repairs

Limitations:

The main limitation with the Census is that the most recent data available is 2016, which may be out-of-date for Neighbourhoods with fast-growing populations. The population growth rate indicator identifies which Neighbourhoods experienced substantial growth between 2011 and 2016.

Community Data Program (CDP)

The CDP is a membership-based community development initiative which facilitates access to data for any Canadian public, non-profit or community sector organization with a local service delivery or public policy mandate. This program operates using a consortium model in which member organizations are part of a local Community Data Consortium. Organizations operating at a municipal level are grouped into consortiums to facilitate knowledge translation and collaboration as well as reducing costs for members to acquire credible and customized information and data products.

Data acquisition and use:

The Regional Municipality of Durham obtains Census data by Health Neighbourhood through the CDP as a member of the Durham Consortium. Health Neighbourhood has been created by the CDP as a custom geography for the Durham Consortium.

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 the 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.

Data acquisition and use:

We extracted data from Panorama and used the Panorama Forecaster tool to determine the percentage of children fully immunized for the following indicators:

- School-required immunization, ages 7 to 8
- School-required immunization, ages 16 to 17
- Meningococcal disease immunization (Grade 7s)
- Hepatitis B immunization (Grade 7s)
- HPV immunization (Grade 7s)

Neighbourhood was assigned based on the child's address, not the school they attended and children with postal codes that could not be matched to a Neighbourhood were excluded. Children who attended school outside of Durham Region were also excluded from all analyses.

Limitations:

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 Health Department.

Parents/guardians usually become aware of this after they receive a letter from the Health Department about missing immunization information. If all immunizations are not captured in Panorama, it is possible that the true immunization rates may be higher than the rates presented.

Discharge Abstract Database (DAD)

In-patient hospitalization data are collected by the Canadian Institute for Health Information (CIHI). Hospitalization data are coded using the Tenth Revision of the International Classification of Diseases (ICD-10) and captured within the DAD. 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.

Data acquisition and analysis:

We extracted in-patient hospitalization data from IntelliHealth Ontario and these data were used to calculate the following indicators:

- Cardiovascular disease hospitalization

The number of births to teen mothers was also extracted from the hospitalization data, which was combined with therapeutic abortion data from the National Ambulatory Care Reporting System (NACRS) to calculate teen pregnancy rate.

Limitations:

The main limitation of using hospitalization data to assess cardiovascular disease (CVD) is that not everyone with the disease ends up in the hospital. Therefore, CVD hospitalizations may not necessarily correspond to how common the condition is in the population and instead likely reflects other factors, such as the way 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.

A limitation of using hospitalization data to calculate teen pregnancy rate, is that hospitalization data does not capture home births and medical abortions. This may result in under-reporting of teen pregnancies.

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 expectations 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).

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 the 2014/2015 (Cycle 4) and 2017/18 (Cycle 5) school years. Children with special needs and those who had been in their class for less than a month were excluded. As teachers assess almost all SK children, the data are complete and represent a census rather than a survey. More information about the EDI is available at: Offord Centre - EDI.

Data acquisition and analysis:

The Children's Services Division of the Durham Region Social Services Department owns the Durham Region EDI data. The Data Analysis Coordinator (DAC) from Children's Services provided EDI data, aggregated at the Neighbourhood-level for 2012, 2015 and 2018. Statistical significance was assessed using the critical difference test.

To assess the percentage of SK children vulnerable in each EDI domain, the following indicators were calculated using the EDI data:

- Vulnerable in physical health and well-being
- Vulnerable in social competence
- Vulnerable in emotional maturity
- Vulnerable in language and cognitive development
- Vulnerable in communication skills and general knowledge
- Vulnerable in one or more EDI domains

In 2020, the method used to assign Neighbourhoods in the three northern municipalities of Scugog, Brock and Uxbridge was updated. Neighbourhood assignment in the southern municipalities remained unchanged and was based on the postal code of the child's residence.

The update for Neighbourhoods in North Durham was done to correct for inconsistencies between EDI cycles in the number of children assigned to Neighbourhoods in these municipalities. These inconsistences primarily result from using one-to-one matching when converting postal codes to DAs in sparsely populated areas, as postal codes in these areas often cross municipal boundaries. This is a particular challenge for Brock. The new method involved a two-step subjective process of Neighbourhood assignment. First, the postal code of the child's residence was used

to assign them to the North. They were then assigned to the same Neighbourhood their school was in if it was located in a northern municipality. If the child attended a school in a southern municipality, they were assigned to the Neighbourhood located directly north of their school Neighbourhood. For example, if a child went to a school in Oshawa, they would be assigned to the Rural Scugog Neighbourhood. If a child attended a school outside of Durham Region, they were assigned to the most local Neighbourhood, often based on the closest proximity to their school. For example, if a student who attended school in East Gwillimbury in York Region, they would be assigned to the Rural Uxbridge Neighbourhood, as it borders the York Region municipality.

To allow accurate comparisons between cycle years, children from the northern municipalities in the 2012, 2015 and 2018 EDI cycles were re-assigned to Neighbourhoods based on the new method. As a result, estimates of vulnerable children in North Durham for these cycles will differ from those previously reported. However, as the method for Neighbourhood assignment did not change in the south, estimates for these Neighbourhoods remained unchanged.

Limitations:

An important limitation of EDI data is that there are no repeated measures as the EDI is a point-in-time survey. The change over time is not based on the same children but on point-in-time surveys of different children. It is possible that some of the observed changes over time may simply be due to differences between the SK cohorts.

A second limitation is that boys and girls are reported together in the EDI indicators. When they are examined separately, girls tend to have lower vulnerabilities across all EDI domains compared to boys. This raises questions about whether boys and girls should have the same developmental expectations at this age.

Incident-based Uniform Crime Reporting (UCR) Survey

The Incident-based UCR Survey is a standardized national survey designed to measure the incidence and characteristics of crime in Canadian society. The UCR is used by Durham Region Police Service (DRPS) to report information on crime substantiated by police. Incidence-based reporting provides one record for each incident, although each could include multiple offenses, victims, offenders and charges. Data from the UCR contains key information on characteristics of incidents, victims and accused persons, and is recorded by the reporting officer.

An incident is considered to be domestic in nature if there were intimate partners involved. However, intergenerational incidents such as child or elder abuse that do not include intimate partners are not considered domestic incidents. Domestic incidents are flagged in the UCR Survey when children, less than 18 years of age, are physically present.

Data acquisition and analysis:

Domestic incident data were extracted from the UCR by Durham Region Police Services and included the geographic coordinates of each incident. Geocoding of the

geographic coordinates into Health Neighbourhood was done by Durham Region GIS Services.

These data were used to calculate the following indicators:

- Police reported domestic incidents
- Police reported domestic incidents with children present

Limitations:

The main limitation of Incident-based UCR Survey data is that not all domestic incidents are reported to police and that the number of domestic incidents is underreported. There may be many factors why an incident is not reported to the police, for example, individuals may feel unsafe reporting the incident. Reported incidents may also reflect more serious events, for example, if the event was reported by a non-family member, such as a neighbour, or if the victim needed medical treatment.

ICES Data

ICES is a not-for-profit research institute encompassing a community of research, data and clinical experts with a secure and accessible array of Ontario health-related data. ICES data are unique, as they link individual records across a wide variety of data sources. This allows these data to be used for analyses that are typically not possible within a local public health unit.

ICES combines administrative data from the following sources to derive chronic disease cohort datasets and cancer screening registries:

- **Discharge Abstract Database (DAD):** The DAD contains administrative, clinical, demographic, and administrative information for all admissions to acute care hospitals, rehab, chronic, and day surgery institutions in Ontario. ICES links consecutive DAD records together to form “episodes of care” among hospitals to track patient transfers after their initial hospital admission.
- **Same Day Surgery Database (SDS):** The SDS is compiled by the Canadian Institute for Health Information (CIHI) and contains administrative, clinical, demographic and administrative information for all patient visits made to day surgery institutions in Ontario.
- **OHIP Claims Database:** The Ontario Health Insurance Plan (OHIP) claims database contains information on inpatient and outpatient services provided to Ontario residents eligible for the province’s publicly funded health insurance system.
- **ICES Physician Database (IPDB):** The IPDB provides information about all physicians who have practiced in Ontario and is comprised of data contained in the OHIP Claims History Database, the OHIP Corporate provider Database (CPDB), and the Ontario Physician Human Resource Data Centre (OPHRDC) Database.
- **Registered Persons Database (RPDB):** The RPDB is a population-based register maintained by the Ministry of Health to manage services funded under

the OHIP. It is used for assessing OHIP eligibility and determining Ontario population counts.

- **Ontario Office of the Registrar General Database (ORGD):** The ORGD contains information about mortality from death certificates which are completed by physicians. Statistics Canada provides the Ministry of Health with an edited and standardized dataset for deaths that occurred in Ontario.
- **Yearly Ontario Population estimates and projections (POP):** These data contain intercensal and postcensal estimates of the Ontario population by sex, age, and geographic areas. All estimates are of the population on July 1 of the given year.

The following chronic diseases cohorts are derived and maintained by ICES:

- **Asthma Dataset (ASTHMA):** The Asthma Dataset 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 Dataset (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 OHIP claims with a diabetes diagnostic code or one diabetes-related OHIP service claim, or a hospital admission for diabetes.
- **Chronic Obstructive Pulmonary Disease (COPD) Dataset:** The COPD Dataset 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 OHIP claim with a COPD diagnostic code or a hospital admission for COPD or a same day surgery record with a diagnosis for COPD.
- **Ontario Hypertension Dataset (HYPER):** The HYPER Dataset consists of Ontario hypertension patients identified since 1991. A patient is said to have hypertension if, within a two-year period, they had at least two OHIP claims with a hypertension diagnostic code or a hospital admission or same day surgery record with a diagnosis of hypertension. Patients with a diagnosis of hypertension occurring within 120 days prior to and 180 days after a gestational hospitalization record are excluded.

ICES also maintains the following cancer screening registries:

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

Data acquisition and analysis:

We requested data from ICES on chronic diseases, cancer screening, and estimates of population counts, through an Applied Health Research Question (AHRQ) data request, Project 2019 0900 784 001. Counts, crude rates, age- and sex- standardized rates, and confidence intervals were provided by Health Neighbourhood, Priority Neighbourhood, Durham Region municipality, and for Durham Region and Ontario.

ICES data were used to generate the following indicators:

- Premature mortality in males
- Premature mortality in females
- Mental health and addictions doctors visits, ages 0-24
- Mental health and addictions emergency visits, ages 0-24
- Breast cancer screening (mammography), ages 52-74
- Cervical cancer screening (Pap tests), ages 23-69
- Overdue for colorectal cancer screening, ages 50-74
- Asthma prevalence in children, ages 0-14
- Diabetes incidence, ages 20+
- Diabetes prevalence, ages 20+
- Hypertension prevalence, ages 20+
- Lung disease (COPD) prevalence, ages 35+

Acknowledgement:

This study was supported by ICES which is funded by the Ontario Ministry of Health (MOH). The opinions, results and conclusions are those of the authors and are independent from the funding source. No endorsement by ICES or the Ontario MOH is intended or should be inferred. Parts of this material are based on data and information compiled and provided by CIHI. However, the analyses, conclusions, opinions and statements expressed herein are those of the author, and not necessarily those of CIHI. Parts of this material are based on data and information provided by Cancer Care Ontario (CCO). The opinions, results, view, and conclusions reported in this paper are those of the authors and do not necessarily reflect those of CCO. No endorsement by CCO is intended or should be inferred.

Limitations:

The RPDB was used as denominator data for various indicators, including the ambulance call indicators, which were not derived from ICES data. Researchers have documented various data quality issues with the RPDB because of inaccurate and out-of-date addresses linked to health cards. Data quality is improving as more Ontario residents switch to new health cards with photo identification.

Infant Feeding Surveillance System (IFSS)

The IFSS is a telephone survey of Durham Region mothers who gave birth in the past six or seven months. IFSS was developed by the Health Department to assess infant feeding practices in Durham Region. IFSS uses the Healthy Babies Healthy Children (HBHC) Program's Integrated Services for Children Information System (ISCIS) as a sampling frame to select a random sample of mothers who have given birth in the past six to seven months. These mothers are then contacted by Health Department staff who administer the IFSS survey via telephone. The survey collects detailed information on infant feeding practices, including breastfeeding duration.

Data acquisition and analysis:

Data concerning breastfeeding duration was extracted from IFSS and was used to calculate the following indicator:

- Breastfeeding for six months or more

Limitations:

The main limitation with IFSS survey data is that it captures a limited number of respondents, based on a small target population: mothers who gave birth in the past six to seven months. Multiple years of data were grouped to obtain a sufficient sample size at the Neighbourhood level. However, due to the small sample size, the confidence intervals for each estimate were wide, which reflects the imprecision of the data at this geographic level. Consequently, differences between estimates must be large for a statistically significant difference to be found.

Integrated Public Health Information System (iPHIS)

iPHIS is the information system used in Ontario for reporting case information on 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.

Data acquisition and analysis:

We extracted case report data on reportable communicable diseases from iPHIS and these data were used to calculate the following indicators:

- Chlamydia in females ages 15-24
- Enteric diseases
- Hepatitis C
- Tuberculosis

Neighbourhood was assigned using the client's postal code. If a postal code was not available or could not be matched with a Neighbourhood, it was excluded from analysis.

Limitations:

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.

Healthy Babies Healthy Children (HBHC) - Integrated Services for Children Information System (ISCIS)

The Healthy Babies Healthy Children (HBHC) program is a voluntary prevention and early intervention initiative designed to help families promote healthy child development and help their children achieve their full potential. ISCIS is a multi-tier case management system used by public health units across Ontario to effectively administer the HBHC program.

The Ontario Ministry of Children, Community and Social Services (MCCSS), through province-wide data analysis, identified 7 HBHC screen questions that align with types of Adverse Childhood Experiences (ACEs).

The following questions were found to be predictive of confirmed risk and preliminary analysis suggests they are associated with poorer health outcomes:

- Drinking alcohol during pregnancy
- Drug use during pregnancy
- History of depression, anxiety or other mental illness
- Involvement with child protective services
- No support person for parenting
- Relationship with partner strained

Currently, the HBHC postpartum screen targets all live births that occur in a hospital and for which the parent consent for further follow-up as part of the HBHC program.

Postpartum screens are conducted within the first 48 hours of the post partum period. Hospital births for which consent was not obtained and midwife-attending home births are excluded. However, this screen captured close to 81% of all the births in Durham Region at the time of data extraction.

Data acquisition and analysis:

Data concerning the HBHC screen questions which align with ACE risk factors were extracted from ISCIS and used to calculate the following indicators:

- Maternal mental illness
- Maternal smoking and substance use
- One or more ACE-like risk factors

Neighbourhood was assigned based on the postal code of the mother's residence, not the hospital where she gave birth. Mothers with postal codes that could not be matched to Neighbourhood were excluded.

Limitations:

It is important to consider when interpreting the results of these indicators that hospital nurses may be more likely to say yes to screening questions to ensure patients are not missed to follow up. As a result, the reported prevalence of ACE-like risk factors may be inflated compared to the actual prevalence in the population. However, this impact is likely minimal, as the most recent HBHC screen results were taken for each mother. Meaning, if a Health Department nurse completed a follow-up post-partum screen and found that there were no risk factors, these responses would be used for analysis instead of screen completed by the hospital nurse.

A limitation with ISCIS data is that participation in HBHC is voluntary and as a result ISCIS has incomplete coverage of the total number of births in Durham Region. Multiple years of data were grouped to obtain a sufficient sample size at the Neighbourhood level, as the prevalence of many of the ACE-like risk factors was low in Durham Region. For example, maternal smoking, alcohol use and drug use were grouped into one indicator as the prevalence of these risk factors individually was too low to report at the Neighbourhood level. It was also not possible to evaluate involvement with child protective services, no support person for parenting, and relationship with partner strained individually at the Neighbourhood level due to the low prevalence of these risk factors.

National Ambulatory Care Reporting System (NACRS)

The Canadian Institute for Health Information (CIHI) collects information on emergency department (ED) visits for all hospitals in Ontario. This information is stored within the National Ambulatory Care Reporting System (NACRS). All ED visits are assigned a main diagnostic code, which is the "main problem" that is deemed to be the clinically significant reason for the visit. The main problem is coded using ICD-10. For more information, see APHEO Core Indicators - NACRS.

For injuries, an external cause code is also assigned and examined separately from the main problem. This cause code is used to classify the environmental events, circumstances and conditions that cause an injury. Multiple external cause codes can exist for each visit. External causes are coded using ICD-10, for more information about injury ICD-10 codes, see APHEO Core Indicators - Injury Codes.

Data acquisition and analysis:

We extracted ED visit data for chronic diseases based on the main diagnostic code from IntelliHealth Ontario and these data were used to calculate the following indicator:

- Asthma emergency visits in children

We also extracted ED visit data for injuries based on the external cause codes from IntelliHealth Ontario and these data were used to calculate the following indicators:

- Assault, ages 10-24
- Falls, ages 0-4
- Falls, ages 65+
- Motor vehicle collisions, ages 15-24
- Self-harm emergency visits, ages 10-24

Data were also extracted to count the number of therapeutic abortions among females aged 15-19, as a component of teen pregnancy rate. A complex query was used to count the number of therapeutic 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.

Neighbourhood was assigned using the postal code of the patient's residence, not the location of the hospital. Missing postal codes or those which could not be matched to a Neighbourhood were excluded from analysis.

Limitations:

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.

Ontario Health Insurance Plan (OHIP) Data

OHIP data, also known as Medical Services data, contains information on inpatient and outpatient services provided to Ontario residents eligible for the province's publicly funded health insurance systems. For more information about medical services data, see APHEO Core Indicators - Medical Services.

OHIP data contain information about therapeutic abortions performed in free-standing abortion clinics and physician offices.

Data acquisition and analysis:

Data concerning the number of therapeutic abortions among females aged 15-19 was extracted from IntelliHealth ONTARIO and used to calculate the following indicators (after being combined with the in-patient hospitalization and NACRS data):

- Teen pregnancy rate

Neighbourhood was assigned using the postal code of the patient's residence, not the location of the medical service provider. Missing postal codes or those which could not be matched to a Neighbourhood were excluded from analysis.

Ontario Office of the Registrar General Database (ORGD) Mortality Data (Life Expectancy)

The Office of the Registrar General (ORG), Service Ontario, 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 with an edited and standardized dataset of deaths that occurred in Ontario. Public health units access this mortality data through IntelliHealth Ontario. For more information, see APHEO Core Indicators - Mortality.

Data acquisition and analysis:

Mortality data for Durham Region and Ontario residents from 2009 to 2015 were extracted from IntelliHealth Ontario. A special request was made to the Ministry of Health, who provided mortality count data for Durham Region and Ontario residents from 2016 to 2018.

Mortality data were used as the numerator to calculate the following indicators:

- Life expectancy in males
- Life expectancy in females

Population counts by 5-year age groups from the 2011 and 2016 census, which are sufficient for life expectancy calculations, were used as the denominator for life expectancy calculations.

Neighbourhood was assigned based on the patient's postal code. Individuals who did not a have postal code which could be assigned to a Neighbourhood were excluded from analysis.

Limitations:

Typically, in life expectancy calculations the 0 to 5 age group is split into two smaller groups, <1 years and 1-4 years. However, the population counts from the census do not provide this breakdown. Therefore, life expectancy was calculated without this break down. This may inflate the life expectancy reported slightly, however, the impact is likely minimal.

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 (ISR) 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. Beginning in 2016, approximately 25-33% of interviews are conducted using cell phone numbers, with the remainder being landline telephone numbers. For more information, see rrfss.ca.

Data acquisition and analysis:

Individual-level data were provided to the Durham Region Health Department from ISR at York University. Analysis was conducted using appropriate survey weights.

RRFSS data were used to calculate the following indicators for ages 18+:

- Obesity prevalence
- Self-rated mental health
- Self-rated health
- Smoking prevalence

Limitations:

The primary limitation with RRFSS data is that it is a survey based on a limited number of respondents and is subject to several response biases. In particular, men, younger adults, individuals with lower socioeconomic status and individuals who are not comfortable conversing in English are underrepresented in this survey. Due to the small sample size, three to five years of data were grouped together for analysis to obtain a sufficient sample size to report at the Neighbourhood level. Consequently, the confidence intervals on the estimates are wide due to imprecision in the data at this geographic level.

Transportation Tomorrow Survey (TTS)

The TTS is an ongoing survey about travel conducted every five years in the Greater Toronto and Hamilton Area (GTHA) and most of the Greater Golden Horseshoe. The survey asks about all travel by every member of a household aged 11 and older during the previous weekday. The detailed information is used by municipalities and various organizations to plan for transportation infrastructure and services.

Surveys are completed through either a telephone interview or on-line survey, the latter introduced in 2011. In 2016, survey sample selection was based on FSA (the first 3 characters of the postal code), further stratified by dwelling type (house or multi-unit) and sample type (address-only, and address-and-phone). The sample type stratification was employed to include cell-phone-only households. Targets for each strata were set to achieve an overall sampling rate of 5.0%. The resulting data were weighted using an iterative proportional fitting method that expanded the data to match the Census total household counts. This method adjusted the household weights for dwelling type, household size and householder age by gender and resulted in household counts which matched Census household counts, and household size and dwelling type distributions.

The TTS was conducted in 1986, 1991, 1996, 2001, 2006, 2011 and 2016 by the Data Management Group at the University of Toronto Transportation Research Institute. In Durham Region, the TTS surveyed 11,700 households to gather information from approximately 29,600 people making 60,500 trips in 2016. Further information and reports from the TTS can be accessed at http://dmg.utoronto.ca/transportation-tomorrow-survey/tts-reports.

Data acquisition and analysis:

TTS data were requested through the Data Management Group at the University of Toronto through a special geography request using the Durham Health Neighbourhoods geography. Neighbourhood-level data were provided to the Health Department by the Data Management Group at the UofT. Neighbourhood was assigned based on FSA.

TTS data were used to calculate the following indicators:

- Walk or cycle trips to school, ages 11 to 17
- Walk, cycle or transit to work, ages 18+

Limitations:

Comparisons between the 2011 and 2016 TTS estimates should be done with caution as the comparability between survey years may be affected by several factors, including how well the target population was represented, changes in survey methods and statistical weighting of the estimates. It has been noted the 2011 TTS over-represented the total number of people living in private households by 1.4 per cent. The 2016 TTS was the first survey cycle to include cell-phone-only households in the sample, but this cycle had lower response rates and likely higher non-response bias than the 2011 phone samples. This higher non-response rate may impact the representativeness of the survey.

Discontinued Data Sources

Health Neighbourhoods is a constantly evolving project which uses data from a wide variety of sources. These data sources change over time as survey methods and questionnaires are updated. Data availability also varies with time, as new surveys and databases are created and older data sources are discontinued or replaced, for example the Canadian National Household Survey. As Health Neighbourhoods examines data at a small geographic resolution, variations in response rates and sample size and the overall prevalence of the outcome in the population impacts which data can be released at the Neighbourhood level.

The following data sources were used in earlier releases of Health Neighbourhoods, but were not used in Release 4:

- Kindergarten Parent Survey (KPS)—retired June 2022
- Oral Health Screening—retired June 2022
- National Household Survey—retired June 2022

Further descriptions of these data sources can be found in **Appendix 2**.

Indicator Definitions, Data Sources and Notes

As of June 2020, Health Neighbourhoods presents information on 96 indicators. **Appendix 1** provides a list of all currently available Health Neighbourhoods indicators, including information on status, section, years available and primary data source.

Socio-Demographic Indicators

Population

Population growth rate

Description: The population growth rate reflects how much the population grew in the five years between 2011 and 2016.

Impact on Health: no impact.

- Higher percentages are shown on maps in dark red.
- Higher and lower than Durham Region and Ontario shown in blue.

Data Sources:

- Numerator and denominator: 2011, 2016 Census, Statistics Canada, Canadian Council on Social Development's Community Data Program (CDP).

Method of Calculation:

$$\frac{2016\ total\ population - 2011\ total\ population}{2011\ total\ population}\ X\ 100$$

Quintiles: Based on rate, with an approximately equal number of Neighbourhoods in each quintile.

Neighbourhood Assignment: The CDP supplied Neighbourhood-level data through a custom geography request. Dissemination area was used to determine Neighbourhood.

Release: January 2015, updated June 2022.

Data Notes:

- 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 density

Description: The population density reflects the number of people per square kilometre.

Impact on Health: No impact.

- Higher densities are shown on maps in dark red.
- Higher and lower than Durham Region and Ontario shown in blue.

Data Sources:

- Numerator: 2016 Census, Statistics Canada, Canadian Council on Social Development's Community Data Program.
- Denominator: 2016 Land Area Estimates, Durham Region Information Technology, GIS Services.

Method of Calculation:

$$\frac{total\ population}{total\ land\ area\ (km^2)}$$

Quintiles: Based on density, with an approximately equal number of Neighbourhoods in each quintile.

Neighbourhood Assignment: The CDP supplied Neighbourhood-level data through a custom geography request. Dissemination area was used to determine Neighbourhood.

Release: June 2022.

Data Notes:

- 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.

Description: The percentage of the population made up by people in the specific age group.

Impact on Health: Complex, higher percentages could be better or worse for health.

- The mix of age groups impacts the health of a Neighbourhood. Young children (less than four years of age) and older adults (65 years and older) are at higher risk of illness and injury, which is worse for health.
- Higher percentages are shown on maps in dark red.
- Higher and lower than Durham Region and Ontario shown in blue.

Data Sources:

- Numerator and denominator: 2016 Census, Statistics Canada, Canadian Council on Social Development's Community Data Program.

Method of Calculation:

$$\frac{total\ population\ in\ an\ age\ group}{total\ population}\ X\ 100$$

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

Neighbourhood Assignment: The CDP supplied Neighbourhood-level data through a custom geography request. Dissemination area was used to determine Neighbourhood.

Release: January 2015, updated June 2022.

Data Notes:

- Population counts from the 2016 Census differed from the Statistics Canada 2016 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.

Demographics

Female lone-parent families

Description: The percentage of female-lone parent families.

Impact on Health: Higher percentages and increases are worse for health.

- Female lone-parent families may have less income and more stress than traditional families. This is worse for health, but the impact is less if the family has strong social supports and relationships.
- Higher percentages are shown on maps in dark red.
- Higher and lower than Durham Region and Ontario shown in blue.

Data Sources:

- Numerator and denominator: 2016 Census, Statistics Canada, Canadian Council on Social Development's Community Data Program.

Method of Calculation:

$$\frac{number\ of\ female-lone\ parent\ families}{total\ population}\ X\ 100$$

- Total population: Total-Number of census families in private households—25% sample data.

Neighbourhood Assignment: The CDP supplied Neighbourhood-level data through a custom geography request. Dissemination area was used to determine Neighbourhood.

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

Release: February 2016, replaced June 2022.

Data Notes:

- This indicator used 2016 Census data from the long-form Census and replaced 2011 data from the National Household Survey.
- 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.

Seniors living alone

Description: The percentage of seniors, aged 65 years and older, who live alone.

Impact on Health: Complex, higher percentages could be better or worse for health.

- A lower percentage could be better for health because seniors living with others would have more social and physical support, and those who are alone may be at risk of negative health outcomes.
- However, a higher percentage could be better, as seniors living alone could represent independence and good health, especially if they are well supported within the community.
- Higher percentages are shown on maps in dark red.
- Higher and lower than Durham Region and Ontario shown in blue.

Data Sources:

- Numerator and denominator: 2016 Census, Statistics Canada, Canadian Council on Social Development's Community Data Program.

Method of Calculation:

$$\frac{number\ of\ seniors\ living\ alone}{total\ population}\ x\ 100$$

- Total population: Total-Number of seniors living in private households—25% sample data.

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

Neighbourhood Assignment: The CDP supplied Neighbourhood-level data through a custom geography request. Dissemination area was used to determine Neighbourhood.

Release: February 2016, replaced November 2021.

Data Notes:

- This indicator used 2016 Census data from the long-form Census and replaced 2011 data from the National Household Survey.

- The census definition of living alone is based on the concept of one usual place of residence. Each person is counted as living at one and only one dwelling and in one household. Part-time living situations are not captured and as a result, individuals categorized as living alone in the census may have other persons staying with them for part of the year. This indicator also does not reflect how long an individual has been living alone and if it is a temporary living situation.

Aboriginal population

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

Impact on Health: Complex, higher percentages could be better or worse for health.

- Aboriginal people have a higher risk of illness than non-Aboriginal people. The impact is less if there are strong social supports and connections to Aboriginal culture, language, tradition and ways of knowing.
- Higher percentages are shown on maps in dark red.
- Higher and lower than Durham Region and Ontario shown in blue.

Data Sources:

- Numerator and denominator: 2016 Census, Statistics Canada, Canadian Council on Social Development's Community Data Program.

Method of Calculation:

$$\frac{total\ Aboriginal\ population}{total\ population}\ X\ 100$$

- Total population: Aboriginal identity for the population in private households—25% sample data.

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

Neighbourhood Assignment: The CDP supplied Neighbourhood-level data through a custom geography request. Dissemination area was used to determine Neighbourhood.

Release: February 2016, replaced June 2022.

Data Notes:

- This indicator used 2016 Census data from the long-form Census and replaced 2011 data from the National Household Survey.
- 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.

Visible minorities

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

Impact on Health: Complex, higher percentages could be better or worse for health.

- Visible minorities may experience discrimination and have different health vulnerabilities which may be worse for health.
- Higher percentages are shown on maps in dark red.
- Higher and lower than Durham Region and Ontario shown in blue.

Data Sources:

- Numerator and denominator: 2016 Census, Statistics Canada, Canadian Council on Social Development's Community Data Program.

Method of Calculation:

$$\frac{total\ visible\ minority\ population}{total\ population}\ X\ 100$$

- Total population: Total-Visible minority for the population in private households—25% sample data.

Release: January 2015, replaced June 2022.

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

Neighbourhood Assignment: The CDP supplied Neighbourhood-level data through a custom geography request. Dissemination area was used to determine Neighbourhood.

Data Notes:

- This indicator used 2016 Census data from the long-form Census and replaced 2011 data from the National Household Survey.
- The Employment Equity Act defines visible minorities as "persons, other than Aboriginal peoples, who are non-Caucasian in race or non-white in colour." This population is mostly comprised of these groups: South Asian, Chinese, Black, Filipino, Latin American, Arab, Southeast Asian, West Asian, Korean, Japanese.

Foreign-born population

Description: The percentage of the population who are immigrants.

Impact on Health: Complex, higher percentages could be better or worse for health.

- Recent immigrants are usually healthier than Canadian-born residents but this difference decreases over time. Immigrants may experience discrimination and have different health vulnerabilities which may be worse for health.
- Higher percentages are shown on maps in dark red.
- Higher and lower than Durham Region and Ontario shown in blue.

Data Sources:

- Numerator and denominator: 2016 Census, Statistics Canada, Canadian Council on Social Development's Community Data Program.

Method of Calculation:

$$\frac{population\ born\ outside\ of\ Canada}{total\ population}\ X\ 100$$

- Total population: Total-Immigrant status and period of immigration for the population in private households—25% sample data.
- Refugees, non-permanent residents and people who landed in Canada after May 10, 2016, were excluded.

Release: June 2022.

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

Neighbourhood Assignment: The CDP supplied Neighbourhood-level data through a custom geography request. Dissemination area was used to determine Neighbourhood.

Data Notes:

- Immigrants included people who had ever been landed immigrants or permanent residents and people who have become Canadian citizens by naturalization.

Recent newcomers

Description: The percentage of the population that immigrated to Canada between 2011 and 2016.

Impact on health: Complex, higher percentages could be better or worse for health.

- Recent immigrants are usually healthier than Canadian-born residents but this difference decreases over time. Immigrants may experience discrimination and have different health vulnerabilities which may be worse for health.
- Higher percentages are shown on maps in dark red.
- Higher and lower than Durham Region and Ontario shown in blue.

Data Sources:

- Numerator and denominator: 2016 Census, Statistics Canada, Canadian Council on Social Development's Community Data Program.

Method of Calculation:

$$\frac{total\ population\ who\ immigrated\ between\ 2011\ and\ 2016}{2016\ total\ population}\ X\ 100$$

- Total population: Total-Immigrant status and period of immigration for the population in private households—25% sample data.

- Refugees, non-permanent residents and people who landed in Canada after May 10, 2016, were excluded.

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

Neighbourhood Assignment: The CDP supplied Neighbourhood-level data through a custom geography request. Dissemination area was used to determine Neighbourhood.

Release: January 2015, Replaced June 2022.

Data Notes:

- This indicator used 2016 Census data from the long-form Census and replaced 2011 data from the National Household Survey.
- Recent immigrants are immigrants who landed in Canada between January 1, 2011, and May 10, 2016. 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 many 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.

Non-English speakers

Description: The percentage of the population who cannot speak English well enough to hold a conversation.

Impact on Health: Complex, higher percentages could be better or worse for health.

- Ability to speak English may impact a person's ability to access information and healthcare services.
- Higher percentages are shown on maps in dark red.
- Higher and lower than Durham Region and Ontario shown in blue.

Data Sources:

- Numerator and denominator: 2016 Census, Statistics Canada, Canadian Council on Social Development's Community Data Program.

Method of Calculation:

$$\frac{population\ who\ speak\ French\ only + population\ who\ speak\ neither\ English\ nor\ French}{total\ population}\ X\ 100$$

- Total population: Total-knowledge of official languages of the population in private households—25% sample data.

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

Neighbourhood Assignment: The CDP supplied Neighbourhood-level data through a custom geography request. Dissemination area was used to determine Neighbourhood.

Release: June 2022.

Data Notes:

- This included children who have not yet learned to speak, if the language the child is learning to speak at home is a language other than English.

Home language not English

Description: Percentage of the population that speak a language other than English most often at home.

Impact on Health: Complex, higher percentages could be better or worse for health.

- If a person speaks a language other than English at home, it may indicate they are more comfortable speaking a language other than English. This may impact their ability to access information and health care services if these services are not available in their home-language.
- Higher percentages are shown on maps in dark red.
- Higher and lower than Durham Region and Ontario shown in blue.

Data Sources:

- Numerator and denominator: 2016 Census, Statistics Canada, Canadian Council on Social Development's Community Data Program.

Method of Calculation:

$$\frac{population\ that\ speak\ (French + non-official\ language + French\ and\ non-official\ language)}{total\ population}\ X\ 100$$

- Total population: Total-Language spoken most often at home for the population in private households—25% sample data.

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

Neighbourhood Assignment: The CDP supplied Neighbourhood-level data through a custom geography request. Dissemination area was used to determine Neighbourhood.

Release: June 2022.

Data Notes:

- A person can report more than one language as the most often language spoken at home if the languages are spoken equally often. For a person who lives alone, this is the language they feel most comfortable speaking. For a child who has not learned how to speak, it is the language spoken most often to the child at home.

Socio-economic status

Median income

Description: The median after-tax household income for 2015 income.

Impact on Health: Higher incomes are better for health.

- Lower values are shown on maps in dark red.
- Higher than Durham Region and Ontario shown in green, lower in red.

Data Sources:

- 2016 Census, Statistics Canada, Canadian Council on Social Development's Community Data Program.

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

Neighbourhood Assignment: The CDP supplied Neighbourhood-level data through a custom geography request. Dissemination area was used to determine Neighbourhood.

Release: January 2015, replaced June 2022.

Data Notes:

- This indicator used 2016 Census data from the short-form Census and replaced 2011 data from the National Household Survey.
- The after-tax income refers to total 2015 income from all sources minus federal, provincial and territorial income taxes paid for 2015. The median is the household income that splits the higher half of all the income values from the lower half.
- The Canadian Council on Social Development's Community Data Program (CDP) supplied Neighbourhood-level data through a custom geography request. Median income data from the custom geography files provided by the CDP differ from what is reported by Statistics Canada, as the CDP data is based on the 25% Census sample (long-form census), whereas the data usually reported by Statistics Canada is based on the 100% Census sample (short-form census).

Low income

Definition: The percentage of people who live in low-income households as determined by the 2015 low-income measure after-tax (LIM-AT).

Impact on Health: Higher percentages are worse for health.

- Higher percentages are shown on maps in dark red.
- Higher than Durham Region and Ontario shown in red, lower in green.

Data Sources:

- Numerator and denominator: 2016 Census, Statistics Canada, Canadian Council on Social Development's Community Data Program.

Method of Calculation:

$$\frac{population\ in\ low\ income\ households}{total\ population}\ X\ 100$$

- Total population: Total-Low-income status in 2015 for the population in private households to whom low-income concepts are applicable—25% sample data.

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

Neighbourhood Assignment: The CDP supplied Neighbourhood-level data through a custom geography request. Dissemination area was used to determine Neighbourhood.

Release: January 2015, replaced June 2022.

Data Notes:

- This indicator used 2016 Census data from the long-form Census and replaced 2011 data from the National Household Survey.
- For this measure, the income used is after-tax income of households, which refers to the 2015 income from all sources minus federal, provincial and territorial income taxes paid for 2015.
- 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 in low-income households

Description: The percentage of children under the age of 6 years who live in low-income households as determined by the 2015 low-income measure after-tax (LIM-AT).

Impact on Health: Higher percentages are worse for health.

- Higher percentages are shown on maps in dark red.
- Higher than Durham Region and Ontario shown in red, lower in green.

Data Sources:

- Numerator and denominator: 2016 Census, Statistics Canada, Canadian Council on Social Development's Community Data Program.

Method of Calculation:

$$\frac{number\ aged\ 0\ to\ 5\ years\ in\ low\ income\ households}{total\ population}\ X\ 100$$

- Total population: Total-Low-income status in 2015 for the population in private households to whom low-income concepts are applicable—25% sample data.

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

Neighbourhood Assignment: The CDP supplied Neighbourhood-level data through a custom geography request. Dissemination area was used to determine Neighbourhood.

Release: January 2015, replaced June 2022.

Data Notes:

- This indicator used 2016 Census data from the long-form Census and replaced 2011 data from the National Household Survey.
- For this measure, the income used is after-tax income of households, which refers to the 2015 income from all sources minus federal, provincial and territorial income taxes paid for 2015.
- 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.

Seniors in low-income households

Description: The percentage of seniors aged 65 and older who live in low-income households as determined by the 2015 low-income measure after-tax (LIM-AT).

Impact on Health: Higher percentages are worse for health.

- Higher percentages are shown on maps in dark red.
- Higher than Durham Region and Ontario shown in red, lower in green.

Data Sources:

- Numerator and denominator: 2016 Census, Statistics Canada, Canadian Council on Social Development's Community Data Program.

Method of Calculation:

$$\frac{number\ aged\ 65\ years\ and\ older\ in\ low\ income\ households}{total\ population}\ X\ 100$$

- Total population: Total-Low-income status in 2015 for the population in private households to whom low-income concepts are applicable—25% sample data.

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

Neighbourhood Assignment: The CDP supplied Neighbourhood-level data through a custom geography request. Dissemination area was used to determine Neighbourhood.

Release: June 2022.

Data Notes:

- For this measure, the income used is after-tax income of households, which refers to the 2015 income from all sources minus federal, provincial and territorial income taxes paid for 2015.
- 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.

Postsecondary education

Description: The percentage of adults aged 25-64 years who have received a postsecondary education.

Impact on Health: Higher percentages are better or health.

- Lower percentages are shown on maps in dark red.
- Higher than Durham Region and Ontario shown in green, lower in red.

Data Sources:

- Numerator and denominator: 2016 Census, Statistics Canada, Canadian Council on Social Development's Community Data Program.

Method of Calculation:

$$\frac{number\ with\ a\ postsecondary\ certificate, diploma\ or\ degree, ages\ 25\ to\ 64}{total\ population\ aged\ 25\ to\ 64}\ X\ 100$$

- Total population: Total- Major field of study: Classification of Instructional Programs (CIP) 2016 for the population aged 25 to 64 years in private households—25% sample data.

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

Neighbourhood Assignment: The CDP supplied Neighbourhood-level data through a custom geography request. Dissemination area was used to determine Neighbourhood.

Release: June 2022.

Data Notes:

- The number with postsecondary education corresponds to the number of adults 25 to 64 years of age who have successfully completed a postsecondary certificate, diploma or degree. This was based on the highest certificate, diploma or degree awarded.
- Postsecondary education was classified based on the highest level of education a person had successfully completed. The highest level was used to measure educational attainment as someone who has completed one type of certificate, diploma or degree will not necessarily have completed the credentials listed below it in the hierarchy. For example, a person with a trades certificate may not have completed a high school certificate or diploma.
- 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

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

Impact on Health: Higher percentages are worse for health.

- Higher percentages are shown on maps in dark red.
- Higher than Durham Region and Ontario shown in red, lower in green.

Data Sources:

- Numerator and denominator: 2016 Census, Statistics Canada, Canadian Council on Social Development's Community Data Program.

Method of Calculation:

$$\frac{number\ unemployed}{total\ population\ aged\ 15\ years\ and\ over}\ X\ 100$$

- Total population: Total- Population aged 15 years and over in the labour force—25% sample data.

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

Neighbourhood Assignment: The CDP supplied Neighbourhood-level data through a custom geography request. Dissemination area was used to determine Neighbourhood.

Release: January 2015, updated June 2022.

Data Notes:

- This indicator used 2016 Census data from the long-form Census and replaced 2011 data from the National Household Survey.
- Unemployment applies to those persons aged 15+ years who, during the week of Sunday, May 1 to Saturday, May 7, 2016, 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.

Housing

Movers

Description: The percentage of the population aged one year or older that moved their place of residence in the past year.

Impact on Health: Complex, higher percentages can be better or worse for health.

- Lower percentages could be better for health if it reflects greater stability. However, higher percentages could be better for health if it is better for housing and opportunity, and worse if people cannot find adequate housing.
- Higher percentages are shown on maps in dark red.
- Higher and lower than Durham Region and Ontario shown in blue.

Data Sources:

- Numerator and denominator: 2016 Census, Statistics Canada, Canadian Council on Social Development's Community Data Program.

Method of Calculation:

$$\frac{number\ who\ moved\ in\ the\ last\ year}{total\ population}\ X\ 100$$

- Total population: Total-Mobility status 1 year ago—25% sample data.

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

Neighbourhood Assignment: The CDP supplied Neighbourhood-level data through a custom geography request. Dissemination area was used to determine Neighbourhood.

Release: February 2016, replaced June 2022.

Data Notes:

- This indicator used 2016 Census data from the long-form Census and replaced 2011 data from the National Household Survey.
- Mobility refers to the status of a person with regard to the place of residence on the reference day, May 10, 2016, 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).

Renters

Description: The percentage of households that rent.

Impact on Health: No impact.

- The quality and affordability of housing is most important, rather than whether a dwelling is rented or owned.
- Higher percentages are shown on maps in dark red.
- Higher and lower than Durham Region and Ontario shown in blue.

Data Sources:

- Numerator and denominator: 2016 Census, Statistics Canada, Canadian Council on Social Development's Community Data Program.

Method of Calculation:

$$\frac{number\ of\ households\ that\ rent}{total\ population\ of\ private\ households}\ X\ 100$$

- Total population: Total-Private households by tenure—25% sample data.

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

Neighbourhood Assignment: The CDP supplied Neighbourhood-level data through a custom geography request. Dissemination area was used to determine Neighbourhood.

Release: February 2016, replaced June 2022.

Data Notes:

- This indicator used 2016 Census data from the long-form Census and replaced 2011 data from the National Household Survey.

Shelter costs

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

Impact on Health: Higher percentages are worse for health.

- Higher percentages are shown on maps in dark red.
- Higher than Durham Region and Ontario shown in red, lower in green.

Data Sources:

- Numerator and denominator: 2016 Census, Statistics Canada, Canadian Council on Social Development's Community Data Program.

Method of Calculation:

$$\frac{number\ of\ households\ that\ spend\ 30\%\ or\ more\ of\ income\ on\ shelter\ costs}{total\ population\ of\ private\ households}\ X\ 100$$

- Total population: Total-Owner and tenant households with household total income greater than zero, in non-farm, non-reserve private dwellings by shelter-cost-to-income ratio—25% sample data.

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

Neighbourhood Assignment: The CDP supplied Neighbourhood-level data through a custom geography request. Dissemination area was used to determine Neighbourhood.

Release: February 2016, replaced June 2022.

Data Notes:

- This indicator used 2016 Census data from the long-form Census and replaced 2011 data from the National Household Survey.
- Shelter costs include rent/mortgage payments, utilities (e.g., heating, water, electricity), and insurance costs. The share of household income spent on shelter costs is known as the shelter-cost-to-income ratio; a threshold of 30 per cent is accepted as the upper limit for defining affordable housing in Canada.

Not suitable housing

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

Impact on Health: Higher percentages are worse for health.

- Higher percentages are shown on maps in dark red.
- Higher than Durham Region and Ontario shown in red, lower in green.

Data Sources:

- Numerator and denominator: 2016 Census, Statistics Canada, Canadian Council on Social Development's Community Data Program.

Method of Calculation:

$$\frac{number\ of\ households\ without\ suitable\ housing}{total\ population\ of\ private\ households}\ X\ 100$$

- Total population: Total-Private households by housing suitability—25% sample data.

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

Neighbourhood Assignment: The CDP supplied Neighbourhood-level data through a custom geography request. Dissemination area was used to determine Neighbourhood.

Release: February 2016, replaced June 2022.

Data Notes:

- This indicator used 2016 Census data from the long-form Census and replaced 2011 data from the National Household Survey.
- 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

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

Impact on Health: Higher percentages are worse for health.

- Higher percentages are shown on maps in dark red.
- Higher than Durham Region and Ontario shown in red, lower in green.

Data Sources:

- Numerator and denominator: 2016 Census, Statistics Canada, Canadian Council on Social Development's Community Data Program.

Method of Calculation:

$$\frac{number\ of\ dwellings\ that\ require\ major\ repairs}{total\ population\ of\ occupied\ private\ dwellings}\ X\ 100$$

- Total population: Total-Occupied private dwellings by dwelling condition—25% sample data.

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

Neighbourhood Assignment: The CDP supplied Neighbourhood-level data through a custom geography request. Dissemination area was used to determine Neighbourhood.

Release: February 2016, replaced June 2022.

Data Notes:

- This indicator used 2016 Census data from the long-form Census and replaced 2011 data from the National Household Survey.
- Dwellings in need of major repairs, includes dwellings with defective plumbing or electrical wiring and those needing structural repairs to walls, floors, or ceilings.

Child Health Indicators

Births

Live birth rate

Description: The annual number of live births per 1,000 population.

Impact on Health: No impact.

- Higher rates are shown on maps in dark red.
- Higher and lower than Durham Region and Ontario shown in blue.

Data Sources:

- Numerator: Public Health Unit Analytic Reporting Tool (Cube) and Public Health Reports 2016-2018, BORN Information System, BORN Ontario.
- Denominator: 2016 Census, Statistics Canada, Canadian Council on Social Development's Community Data Program.

Method of Calculation:

$$\frac{number\ of\ live\ births}{total\ population}\ X\ 1{,}000$$

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

Neighbourhood Assignment: Dissemination area was used to determine Neighbourhood.

Release: January 2015, replaced June 2022.

Data Notes:

- The live birth rate is also known as the crude birth rate. It includes the number of live births based on the mother's place of residence, not where the birth occurred. Births with postal codes that were missing or could not be coded to a neighbourhood were excluded.
- This indicator used 2016 birth data from BORN and replaced 2011 hospital in-patient discharge data.
- Population counts from the 2016 Census differed from the Statistics Canada 2016 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.

Teen pregnancy rate

Description: The number of live births, stillbirths and therapeutic abortions among females aged 15 to 19 years per 1,000 population of females in that age group.

Impact on Health: Higher rates and increases are worse for health.

- Higher rates and increases are shown on maps in dark red.
- Higher than Durham Region and Ontario shown in red, lower in green.

Data Sources:

- Numerator:
    - Birth data: Public Health Unit Analytic Reporting Tool (Cube) and Public Health Reports 2010-2012, 2015-2017, BORN Information System, BORN Ontario.
    - Therapeutic abortion data: Hospital In-Patient Discharges, National Ambulatory Care Reporting System & Medical Services 2010-2012, 2015-2017, Ministry of Health, IntelliHealth ONTARIO.
- Denominator: 2016 Census, Statistics Canada, Canadian Council on Social Development's Community Data Program.

Method of Calculation:

$$\frac{number\ of\ live\ births + number\ of\ stillbirths + number\ of\ therapeutic\ abortions\ among\ mothers\ aged\ 15\ to\ 19\ years}{total\ population,\ females\ aged\ 15\ to\ 19\ \ years} X\ 1{,}000$$

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

Neighbourhood Assignment: Dissemination area (DA) was used to determine Neighbourhood.

- DA was based on the mother's residence and missing DAs or those that could not be coded to a Neighbourhood were excluded.

Release: January 2015, replaced June 2022.

Data Notes:

- The number of live births and stillbirths were determined by counting the number of births and stillbirths reported by BORN, which captures births that occurred at a hospital or at home.
- Therapeutic abortions included those occurring in hospitals, clinics and private physician offices, which were determined by combining hospital and medical services (OHIP) data.

Births to young mothers

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

Impact on Health: Higher percentages and increases are worse for health.

- Higher percentages and increases are shown on maps in dark red.
- Higher than Durham Region and Ontario shown in red, lower in green.

Data Sources:

- Numerator and denominator: Public Health Unit Analytic Reporting Tool (Cube) and Public Health Reports 2013-2015 and 2016-2018, BORN Information System, BORN Ontario.

Method of Calculation:

$$\frac{number\ of\ deliveries\ to\ mothers\ aged\ 23\ years\ or\ younger}{total\ number\ of\ deliveries}\ X\ 100$$

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

Neighbourhood Assignment: Dissemination area (DA) was used to determine Neighbourhood.

- DA was based on the mother's residence and missing DAs or those that could not be coded to a Neighbourhood were excluded.

Release: February 2016, replaced June 2022.

Data Notes:

- This indicator used 2013-2018 delivery data from BORN and replaced 2010-2014 hospital in-patient discharge data.
- Deliveries include both live births and stillbirths. A multiple birth was counted as one delivery.

Births to older mothers

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

Impact on Health: Complex, higher percentages and increases could be better or worse for health.

- An older mother is associated with increased health risks for mother and baby. However, some health outcomes may be more positive for older mothers as they tend to have higher education levels and be more finically secure.
- Higher percentages and increases are shown on maps in dark red.
- Higher and lower than Durham Region and Ontario shown in blue.

Data Sources:

- Numerator and denominator: Public Health Unit Analytic Reporting Tool (Cube) and Public Health Reports 2013-2015 and 2016-2018, BORN Information System, BORN Ontario.

Method of Calculation:

$$\frac{number\ of\ deliveries\ to\ mothers\ aged\ 35\ years\ or\ older}{total\ number\ of\ deliveries}\ X\ 100$$

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

Neighbourhood Assignment: Dissemination area (DA) was used to determine Neighbourhood.

- DA was based on the mother's residence and missing DAs or those that could not be coded to a Neighbourhood were excluded.

Release: February 2016, replaced June 2022.

Data Notes:

- This indicator used 2013-2018 delivery data from BORN and replaced 2010-2014 hospital in-patient discharge data.
- Deliveries include both live births and stillbirths. A multiple birth was counted as one delivery.

Preterm births

Description: The percentage of live births delivered before 37 completed weeks of gestation.

Impact on Health: Higher percentages and increases are worse for health.

- Higher percentages and increases are shown on maps in dark red.
- Higher than Durham Region and Ontario shown in red, lower in green.

Data Sources:

- Numerator and denominator: Public Health Unit Analytic Reporting Tool (Cube) and Public Health Reports 2013-2015 and 2016-2018, BORN Information System, BORN Ontario.

Method of Calculation:

$$\frac{number\ of\ live\ births\ delivered\ before\ 37\ completed\ weeks\ of\ gestation}{total\ number\ of\ live\ births}\ X\ 100$$

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

Neighbourhood Assignment: Dissemination area (DA) was used to determine Neighbourhood.

- DA was based on the mother's residence and missing DAs or those that could not be coded to a Neighbourhood were excluded.

Release: Updated December 2017, replaced June 2022.

Data Notes:

- Pregnancy lasts about 40 weeks. A preterm or premature birth occurs more than three weeks before the baby's estimated due date and is at higher risk of complications.
- This indicator used 2013-2018 BORN live birth delivery data and replaced 2010-2015 hospital in-patient discharge data. Previously, this indicator excluded multiple births, as they are at high risk of prematurity and have different risk factors than preterm singleton births. However, as the Ontario-level premature birth indicator from BORN includes multiple births, calculation of this indicator at the Neighbourhoods levels has been updated to reflect this difference.

Small-for-gestational age (SGA)

Description: The percentage of singleton live births that have a birth weight below the standard 10th percentile of the sex-specific birth weight for gestational age.

Impact on Health: Higher percentages and increases are worse for health.

- Higher percentages and increases are shown on maps in dark red.
- Higher than Durham Region and Ontario shown in red, lower in green.

Data Sources:

- Numerator and denominator: Public Health Unit Analytic Reporting Tool (Cube) and Public Health Reports 2013-2015 and 2016-2018, BORN Information System, BORN Ontario.

Method of Calculation:

$$\frac{number\ of\ live\ singleton\ SGA\ births}{total\ number\ of\ live\ singleton\ births}\ X\ 100$$

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

Neighbourhood Assignment: Dissemination area (DA) was used to determine Neighbourhood.

- DA was based on the mother's residence and missing DAs or those that could not be coded to a Neighbourhood were excluded.

Release: Updated December 2017, replaced June 2022.

Data Notes:

- 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 percentages 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.

- This indicator used 2013-2018 BORN live birth delivery data and replaced 2010-2015 hospital in-patient discharge data.

Large-for-gestational age (LGA)

Description: The percentage of singleton live births with birth weight above the standard 90th percentile of the sex-specific birth weight for gestational age.

Impact on Health: Higher percentages and increases are worse for health.

- Higher percentages and increases are shown on maps in dark red.
- Higher than Durham Region and Ontario shown in red, lower in green.

Data Sources:

- Numerator and denominator: Public Health Unit Analytic Reporting Tool (Cube) and Public Health Reports 2013-2015 and 2016-2018, BORN Information System, BORN Ontario.

Method of Calculation:

$$\frac{number\ of\ live\ singleton\ LGA\ births}{total\ number\ of\ live\ singleton\ births}\ X\ 100$$

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

Neighbourhood Assignment: Dissemination area (DA) was used to determine Neighbourhood.

- DA was based on the mother's residence and missing DAs or those that could not be coded to a Neighbourhood were excluded.

Release: Updated December 2017, replaced June 2022.

Data Notes:

- 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 percentages 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.
- This indicator used 2013-2018 BORN live birth delivery data and replaced 2010-2015 hospital in-patient discharge data.

Adverse Childhood Events (ACE)-like risk factors

Maternal mental illness

Description: The percentage of newborns born to a mother with a history of anxiety, depression or mental illness identified by the HBHC screening tool.

Impact on Health: higher percentages and increases are worse for health.

- Higher percentages and increases are shown on maps in dark red.
- Higher than Durham Region shown in red, lower in green.

Data Sources:

- Numerator and denominator: Healthy Babies Healthy Children (HBHC) Screening, Integrated Services for Children Information System (ISCIS) 2013-2015 and 2016-2018, Ministry of Children and Youth Services.

Method of Calculation:

$$\frac{number\ of\ newborns\ born\ to\ a\ mother\ with\ a\ history\ of\ mental\ illness}{total\ number\ of\ newborns} X100$$

- Total number of newborns: number of newborns screened using the HBHC screening tool
- Hospital births for which consent was not obtained and midwife-attended home births are excluded

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

Neighbourhood Assignment: Postal code was used to determine Neighbourhood.

- Postal code was based on the mother's residence, not where the baby was born.
- Missing postal codes or those that could not be coded to a Neighbourhood were excluded.

Release: June 2022.

Data Notes:

- The HBHC postpartum screen targets all live births that occur in a hospital. Newborns, for which the parent consents for further follow-up, are screened by hospital nurses within the first 48 hours after birth.
- The prevalence may be inflated compared to the actual prevalence in the population as hospital nurses may be more likely to say yes to HBHC screening questions to ensure patients are not missed to follow up.

Maternal smoking or substance use

Description: The percentage of newborns born to a mother who smoked cigarettes or used alcohol or drugs during pregnancy identified with the HBHC screening tool.

Impact on Health: higher percentages and increases are worse for health.

- Higher percentages and increases are shown on maps in dark red.
- Higher than Durham Region shown in red, lower in green.

Data Sources:

- Numerator and denominator: Healthy Babies Healthy Children (HBHC) Screening, Integrated Services for Children Information System (ISCIS) 2013-2015 and 2016-2018, Ministry of Children and Youth Services.

Method of Calculation:

$$\frac{number\ of\ newborns\ born\ to\ a\ mother\ who\ smoked\ or\ used\ alcohol\ or\ drugs\ during\ pregnancy}{total\ number\ of\ newborns} X100$$

- Total number of newborns: number of newborns screened using the HBHC screening tool
- Midwife-attended home births are excluded

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

Neighbourhood Assignment: Postal code was used to determine Neighbourhood.

- Postal code was based on the mother's residence, not where the baby was born.
- Missing postal codes or those that could not be coded to a Neighbourhood were excluded.

Release: June 2022.

Data Notes:

- Drug use included all illicit and recreational drugs as well as prescription medications that affect daily living or are teratogenic, in other words, drugs that can negatively affect fetus development.
- The HBHC postpartum screen targets all live births that occur in a hospital. Newborns, for which the parent consents for further follow-up, are screened by hospital nurses within the first 48 hours after birth.
- The prevalence may be inflated compared to the actual prevalence in the population as hospital nurses may be more likely to say yes to HBHC screening questions to ensure patients are not missed to follow up.

One or more ACE-like risk factors

Description: The percentage of newborns with one or more ACE-like risk factors based on the HBHC screening tool.

Impact on Health: Higher percentages and increases are worse for health.

- Higher percentages and increases are shown on maps in dark red.
- Higher than Durham Region shown in red, lower in green.

Data Sources:

- Numerator and denominator: Healthy Babies Healthy Children (HBHC) Screening, Integrated Services for Children Information System (ISCIS) 2013-2015 and 2016-2018, Ministry of Children and Youth Services.

Method of Calculation:

$$\frac{number\ of\ newborns\ with\ one\ or\ more\ ACE-like\ risk\ factors}{total\ number\ of\ newborns} X100$$

- Total number of newborns: number of newborns screened using the HBHC screening tool
- Midwife-attended home births are excluded

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

Neighbourhood Assignment: Postal code was used to determine Neighbourhood.

- Postal code was based on the mother's residence, not where the baby was born.
- Missing postal codes or those that could not be coded to a Neighbourhood were excluded.

Release: June 2022.

Data Notes:

- The seven ACE-like risk factors are: maternal alcohol use during pregnancy, maternal drug use during pregnancy, maternal smoking during pregnancy, maternal history of depression, anxiety or other mental illness, involvement with child protective services, no support person for parenting, and relationship with parenting partner strained.
- The HBHC postpartum screen targets all live births that occur in a hospital. Newborns, for which the parent consents for further follow-up, are screened by hospital nurses within the first 48 hours after birth.
- The prevalence may be inflated compared to the actual prevalence in the population as hospital nurses may be more likely to say yes to HBHC screening questions to ensure patients are not missed to follow-up.

Breastfeeding

Early breastfeeding

Description: The percentage of newborns fed breastmilk (either exclusively or with breastmilk substitute) at the time the baby was discharged from hospital or birth centre or three days post-partum for home births.

Impact on Health: Higher percentages are better for health.

- Lower percentages are shown on maps in dark red.
- Higher than Durham Region and Ontario shown in green, lower in red.

Data Sources:

- Numerator and denominator: Public Health Unit Analytic Reporting Tool (Cube) and Public Health Reports, 2014-2017 BORN Information System, BORN Ontario.

Method of Calculation:

$$\frac{number\ of\ newborns\ breastfed}{total\ number\ of\ newborns\ discharged}\ X\ 100$$

- Total number discharged included homebirths, three days post-partum.

Quintiles: Based on percentages, approximately 10 Neighbourhoods in each quintile.

Neighbourhood Assignment: Dissemination area (DA) was used to determine Neighbourhood.

- DA was based on the mother's residence, missing DAs or those that could not be coded to a Neighbourhood were excluded.

Release: June 2022.

Data Notes:

- This indicator combines the number of newborns receiving only breastmilk (exclusive breastfeeding) as well as breastmilk used in combination with a substitute (formula). Feeding status was determined by care provider upon discharge or by midwife three days after the home birth.
- Missing data where breastfeeding status or dissemination area was unknown were excluded. Missing data ranged by Health Neighbourhood from 1.3 to 13.9 per cent and were highest in Pickering and Ajax where results should be interpreted with more caution.

Early exclusive breastfeeding

Description: The percentage of newborns fed breastmilk exclusively by the time the baby was discharged from hospital or birth centre or three days post-partum for home births.

Impact on Health: Higher percentages are better for health.

- Lower percentages are shown on maps in dark red.
- Higher than Durham Region and Ontario shown in green, lower in red.

Data Sources:

- Numerator and denominator: Public Health Unit Analytic Reporting Tool (Cube) and Public Health Reports, 2014-2017 BORN Information System, BORN Ontario.

Method of Calculation:

$$\frac{number\ of\ newborns\ exclusively\ breastfed}{total\ number\ of\ newborns\ discharged}\ X\ 100$$

- Total number discharged included homebirths, three days post-partum.

Quintiles: Based on percentages, approximately 10 Neighbourhoods in each quintile.

Neighbourhood Assignment: Dissemination area (DA) was used to determine Neighbourhood.

- DA was based on the mother's residence, missing DAs or those that could not be coded to a Neighbourhood were excluded.

Release: June 2022.

Data Notes:

- This indicator counts the number of newborns receiving only breastmilk (exclusive breastfeeding). Feeding status was determined by care provider upon discharge or by midwife three days after the home birth.
- Missing data where breastfeeding status or dissemination area was unknown were excluded. Missing data ranged by Health Neighbourhood from 1.3 to 13.9 per cent and were highest in Pickering and Ajax where results should be interpreted with more caution.

Breastfeeding for 6 months or more

Description: The percentage of mothers who breastfed their babies for at least 6 months, based on women who completed the telephone survey as part of the Infant Feeding Surveillance System.

Impact on Health: Higher percentages and increases are better for health.

- Lower percentages and decreases are shown on maps in dark red.
- Higher than Durham Region shown in green, lower in red.

Data Sources:

- Numerator and denominator: Durham Region Infant Feeding Surveillance System (IFSS), 2007 to 2012 and 2013 to 2017, Durham Region Health Department.

Method of Calculation:

$$\frac{number\ of\ mothers\ who\ breastfed\ their\ babies\ for\ at\ least\ 6\ months}{total\ number\ of\ mothers\ who\ completed\ the\ IFSS\ telephone\ survey}\ X\ 100$$

Quintiles: Based on percentages, approximately 10 Neighbourhoods in each quintile.

Neighbourhood Assignment: Postal code was used to determine Neighbourhood.

- Postal code was based on the mother's residence, missing postal codes or those that could not be matched to a Neighbourhood were excluded.

Release: March 2019, Updated June 2022.

Data Notes:

- 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 staff six to seven months after the birth of their baby.
- Six and five 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 visits

18-month well-baby visit

Description: The percentage of two-year old children who visited a health care provider for an enhanced 18-month well-baby visit in a two-year period.

Impact on Health: Higher percentages and increases are better for health.

- Lower percentages and decreases are shown on maps in dark red.
- Higher than Durham Region and Ontario shown in green, lower in red.

Data Sources:

- Numerator: Medical Services Data 2010/12 and 2013/15, Ministry of Health, IntelliHealth ONTARIO.
- Denominator: Ontario Registered Persons Database, March 31, 2013 and March 31, 2015, Ministry of Health, IntelliHealth ONTARIO.

Method of Calculation:

$$\frac{number\ of\ children\ who\ had\ an\ enhanced\ 18-month\ well-baby\ visit}{total\ number\ of\ children\ aged\ two\ years}\ X\ 100$$

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

Neighbourhood Assignment: Postal code was used to determine Neighbourhood.

- Postal code was based on the mother's residence, missing postal codes or those that could not be matched to a Neighbourhood were excluded.

Release: Updated December 2016.

Data Notes:

- 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. 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. We did not capture well-baby visits done by community health centres in this data.

School readiness

Vulnerable in physical health and well-being

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

Impact on Health: Higher percentages and increases are worse for health.

- Higher percentages and increases are shown on maps in dark red.
- Higher than Durham Region and Ontario shown in red, lower in green.

Data Sources:

- Numerator and denominator: Early Development Instrument (EDI), Durham Region, Cycle 3 2012, Cycle 4 2015 & Cycle 5 2018.

Method of Calculation:

$$\frac{number\ of\ vulnerable\ SK\ children}{total\ number\ of\ SK\ children\ that\ had\ an\ EDI\ completed\ by\ their\ teacher}\ X\ 100$$

- Children with special needs and those who had been in a class for less than one month at the time of the survey were excluded.
- Statistical significance was assessed using critical difference, as this method is more precise than using 95 per cent confidence intervals.

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

Neighbourhood Assignment: Postal code was used to determine Neighbourhood.

- For students in the southern municipalities, postal code was based on the child's residence, not the school where the EDI screening was completed.
- For students in the northern municipalities, postal code was based on the postal code of the school the child attended. If the student attended a school outside of the northern municipalities, or Durham Region, the Neighbourhood which was closest to the school and within a northern municipality was assigned.
- Missing postal codes or those that could not be matched to a Neighbourhood were excluded.

Release: March 2013, updated June 2022.

Data Notes:

- Physical health 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.
- Teachers complete the EDI for all students, except for children with special needs and those who had been in a class for less than one month at the time of the survey.

Vulnerable in social competence

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

Impact on Health: Higher percentages and increases are worse for health.

- Higher percentages and increases are shown on maps in dark red.
- Higher than Durham Region and Ontario shown in red, lower in green.

Data Sources:

- Numerator and denominator: Early Development Instrument (EDI), Durham Region, Cycle 3 2012, Cycle 4 2015 & Cycle 5 2018.

Method of Calculation:

$$\frac{number\ of\ vulnerable\ SK\ children}{total\ number\ of\ SK\ children\ that\ had\ an\ EDI\ completed\ by\ their\ teacher}\ X\ 100$$

- Children with special needs and those who had been in a class for less than one month at the time of the survey were excluded.
- Statistical significance was assessed using critical difference, as this method is more precise than using 95 per cent confidence intervals.

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

Neighbourhood Assignment: Postal code was used to determine Neighbourhood.

- For students in the southern municipalities, postal code was based on the child's residence, not the school where the EDI screening was completed.
- For students in the northern municipalities, postal code was based on the postal code of the school the child attended. If the student attended a school outside of the northern municipalities, or Durham Region, the Neighbourhood which was closest to the school and within a northern municipality was assigned.
- Missing postal codes or those that could not be matched to a Neighbourhood were excluded.

Release: March 2013, updated June 2022.

Data Notes:

- 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.
- Teachers complete the EDI for all students, except for children with special needs and those who had been in a class for less than one month at the time of the survey.

Vulnerable in emotional maturity

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

Impact on Health: Higher percentages and increases are worse for health.

- Higher percentages and increases are shown on maps in dark red.
- Higher than Durham Region and Ontario shown in red, lower in green.

Data Sources:

- Numerator and denominator: Early Development Instrument (EDI), Durham Region, Cycle 3 2012, Cycle 4 2015 & Cycle 5 2018.

Method of Calculation:

$$\frac{number\ of\ vulnerable\ SK\ children}{total\ number\ of\ SK\ children\ that\ had\ an\ EDI\ completed\ by\ their\ teacher}\ X\ 100$$

- Children with special needs and those who had been in a class for less than one month at the time of the survey were excluded.
- Statistical significance was assessed using critical difference, as this method is more precise than using 95 per cent confidence intervals.

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

Neighbourhood Assignment: Postal code was used to determine Neighbourhood.

- For students in the southern municipalities, postal code was based on the child's residence, not the school where the EDI screening was completed.
- For students in the northern municipalities, postal code was based on the postal code of the school the child attended. If the student attended a school outside of the northern municipalities, or Durham Region, the Neighbourhood which was closest to the school and within a northern municipality was assigned.
- Missing postal codes or those that could not be matched to a Neighbourhood were excluded.

Release: March 2013, updated June 2022.

Data Notes:

- 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.
- Teachers complete the EDI for all students, except for children with special needs and those who had been in a class for less than one month at the time of the survey.

Vulnerable in language and cognitive development

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

Impact on Health: Higher percentages and increases are worse for health.

- Higher percentages and increases are shown on maps in dark red.
- Higher than Durham Region and Ontario shown in red, lower in green.

Data Sources:

- Numerator and denominator: Early Development Instrument (EDI), Durham Region, Cycle 3 2012, Cycle 4 2015 & Cycle 5 2018.

Method of Calculation:

$$\frac{number\ of\ vulnerable\ SK\ children}{total\ number\ of\ SK\ children\ that\ had\ an\ EDI\ completed\ by\ their\ teacher}\ X\ 100$$

- Children with special needs and those who had been in a class for less than one month at the time of the survey were excluded.
- Statistical significance was assessed using critical difference, as this method is more precise than using 95 per cent confidence intervals.

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

Neighbourhood Assignment: Postal code was used to determine Neighbourhood.

- For students in the southern municipalities, postal code was based on the child's residence, not the school where the EDI screening was completed.
- For students in the northern municipalities, postal code was based on the postal code of the school the child attended. If the student attended a school outside of the northern municipalities, or Durham Region, the Neighbourhood which was closest to the school and within a northern municipality was assigned.
- Missing postal codes or those that could not be matched to a Neighbourhood were excluded.

Release: March 2013, updated June 2022.

Data Notes:

- 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.
- Teachers complete the EDI for all students, except for children with special needs and those who had been in a class for less than one month at the time of the survey.

Vulnerable in communication skills and general knowledge

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

Impact on Health: Higher percentages and increases are worse for health.

- Higher percentages and increases are shown on maps in dark red.
- Higher than Durham Region and Ontario shown in red, lower in green.

Data Sources:

- Numerator and denominator: Early Development Instrument (EDI), Durham Region, Cycle 3 2012, Cycle 4 2015 & Cycle 5 2018.

Method of Calculation:

$$\frac{number\ of\ vulnerable\ SK\ children}{total\ number\ of\ SK\ children\ that\ had\ an\ EDI\ completed\ by\ their\ teacher}\ X\ 100$$

- Children with special needs and those who had been in a class for less than one month at the time of the survey were excluded.
- Statistical significance was assessed using critical difference, as this method is more precise than using 95 per cent confidence intervals.

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

Neighbourhood Assignment: Postal code was used to determine Neighbourhood.

- For students in the southern municipalities, postal code was based on the child's residence, not the school where the EDI screening was completed.
- For students in the northern municipalities, postal code was based on the postal code of the school the child attended. If the student attended a school outside of the northern municipalities, or Durham Region, the Neighbourhood which was closest to the school and within a northern municipality was assigned.
- Missing postal codes or those that could not be matched to a Neighbourhood were excluded.

Release: March 2013, updated June 2022.

Data Notes:

- 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.
- Teachers complete the EDI for all students, except for children with special needs and those who had been in a class for less than one month at the time of the survey.

Vulnerable in one or more EDI domains

Description: 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.

Impact on Health: Higher percentages and increases are worse for health.

- Higher percentages and increases are shown on maps in dark red.
- Higher than Durham Region and Ontario shown in red, lower in green.

Data Sources:

- Numerator and denominator: Early Development Instrument (EDI), Durham Region, Cycle 3 2012, Cycle 4 2015 & Cycle 5 2018.

Method of Calculation:

$$\frac{number\ of\ vulnerable\ SK\ children}{total\ number\ of\ SK\ children\ that\ had\ an\ EDI\ completed\ by\ their\ teacher}\ X\ 100$$

- Children with special needs and those who had been in a class for less than one month at the time of the survey were excluded.
- Statistical significance was assessed using critical difference, as this method is more precise than using 95 per cent confidence intervals.

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

Neighbourhood Assignment: Postal code was used to determine Neighbourhood.

- For students in the southern municipalities, postal code was based on the child's residence, not the school where the EDI screening was completed.
- For students in the northern municipalities, postal code was based on the postal code of the school the child attended. If the student attended a school outside of the northern municipalities, or Durham Region, the Neighbourhood which was closest to the school and within a northern municipality was assigned.
- Missing postal codes or those that could not be matched to a Neighbourhood were excluded.

Release: March 2013, updated June 2022.

Data Notes:

- The five EDI domains are: physical health and well-being, social competence, emotional maturity, language and cognitive development, and communication skills and general knowledge.
- Teachers complete the EDI for all students, except for children with special needs and those who had been in a class for less than one month at the time of the survey.

General Health Indicators

Health & longevity

Self-rated health

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

Impact on Health: Higher percentages and increases are better for health.

- Lower percentages and decreases are shown on maps in dark red.
- Higher than Durham Region shown in green, lower in red.

Data Sources:

- Numerator and denominator: Durham data – Rapid Risk Factor Surveillance System (RRFSS), Durham Region Health Department and Institute for Social Research, York University, 2009-2018.

Method of Calculation:

$$\frac{number\ who\ rate\ their\ health\ as\ excellent + number\ who\ rate\ their\ health\ as\ very\ good}{Durham\ Region\ adults\ aged\ 18\ years\ and\ older} X\ 100$$

- Respondents were asked to rate their health as excellent, very good, good, fair or poor. The excellent and very good categories were combined for analysis.

- Durham Region adults includes all adults who completed the RRFSS telephone survey.
- Analysis was completed using survey software and household weights were applied.

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

Neighbourhood Assignment: Postal code was used to determine Neighbourhood.

- Missing postal codes or those that could not be matched to a Neighbourhood were excluded.

Release: October 2019.

Data Notes:

- Five years of RRFSS data were combined to provide a large enough sample for analysis at the Neighbourhood level.

Life expectancy in males

Description: How many years a newborn boy is likely to live based on the current mortality rate.

Impact on Health: Higher values and increases are better for health.

- Lower percentages and decreases are shown on maps in dark red.
- Higher than Durham Region and Ontario shown in green, lower in red.

Data Sources:

- Numerator: Mortality Data, 2009-2013 and 2014-2018, Ontario Ministry of Health, IntelliHealth ONTARIO.
- Denominator: 2011 and 2016 Census, Statistics Canada, Canadian Council on Social Development's Community Data Program.

Method of Calculation:

- Population counts and the number of deaths by 5 year age groups were used to calculate the average number of years a newborn is expected to live if current mortality rates continue to apply.
- The Chiang II method of calculation was used, as recommended for small geographical areas by the Office for National Statistics in the United Kingdom.
- Non-Ontario residents who died in Ontario were excluded from the Ontario-level analysis.

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

Neighbourhood Assignment: Postal code was used to determine Neighbourhood.

- Postal code was based on the individual's residence at time of death.

- Missing postal codes or those that could not be matched to a Neighbourhood were excluded.

Release: January 2015, updated June 2022.

Data Notes:

- Life expectancy at birth is an overall measure of the health status of the population.
- The 2011 and 2016 Census population was used to calculate mortality rates for the two time periods. For Neighbourhoods with high population growth, mortality rates will be underestimated for the earlier years, causing life expectancy to be overestimated. For consistency with the Neighbourhood data, the same method using only Census population counts was used for Durham Region and Ontario, even though more accurate population estimates are available for each year.

Life expectancy in females

Description: How many years a newborn girl is likely to live based on the current mortality rate.

Impact on Health: Higher values and increases are better for health.

- Lower percentages and decreases are shown on maps in dark red.
- Higher than Durham Region and Ontario shown in green, lower in red.

Data Sources:

- Numerator: Mortality Data, 2009-2013 and 2014-2018, Ontario Ministry of Health, IntelliHealth ONTARIO.
- Denominator: 2011 and 2016 Census, Statistics Canada, Canadian Council on Social Development's Community Data Program.

Method of Calculation:

- Population counts and the number of deaths by 5 year age groups were used to calculate the average number of years a newborn is expected to live if current mortality rates continue to apply.
- The Chiang II method of calculation was used, as recommended for small geographical areas by the Office for National Statistics in the United Kingdom.
- Non-Ontario residents who died in Ontario were excluded from the Ontario-level analysis.

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

Neighbourhood Assignment: Postal code was used to determine Neighbourhood.

- Postal code was based on the individual's residence at time of death.
- Missing postal codes or those that could not be matched to a Neighbourhood were excluded.

Release: January 2015, updated June 2022.

Data Notes:

- Life expectancy at birth is an overall measure of population health status.
- The 2011 and 2016 Census population was used to calculate mortality rates for the two time periods. For Neighbourhoods with high population growth, mortality rates will be underestimated for the earlier years, causing life expectancy to be overestimated. For consistency with the Neighbourhood data, the same method using only Census population counts was used for Durham Region and Ontario, even though more accurate population estimates are available for each year.

Premature mortality

Premature mortality in males

Description: The number of premature deaths in males aged 0 to 74, per 10,000 males in that age group.

Impact on Health: Higher rates are worse for health.

- Higher rates are shown on maps in dark red.
- Higher than Durham Region and Ontario shown in red, lower in green.

Data Sources:

- Numerator: Ontario Registrar General Data (ORGD) 2012-2016, Institute for Clinical Evaluative Services (ICES).
- Denominator: Registered Persons Database (RPDB) 2012-2016, Institute for Clinical Evaluative Services (ICES).
- Standard population: 2011 Canadian Census, Statistics Canada.
- Reference: Institute for Clinical Evaluative Sciences (ICES). Neighbourhoods-Update, Applied Health Research Questions (AHRQ) 2019 0900 784 001.

Method of Calculation:

- Age-standardized premature mortality rates were calculated by ICES and provided to the Health Department through an Applied Health Research Question Request.
- The rate was directly age-standardized using the 2011 Canadian census population.

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

Neighbourhood Assignment: Dissemination area (DA) was used to determine Neighbourhood.

Release: June 2022.

Data Notes:

- Premature deaths are those before the age of 75.

Premature mortality in females

Description: The number of premature deaths in females aged 0 to 74, per 10,000 males in that age group.

Impact on Health: Higher rates are worse for health.

- Higher rates are shown on maps in dark red.
- Higher than Durham Region and Ontario shown in red, lower in green.

Data Sources:

- Numerator: Ontario Registrar General Data (ORGD) 2012-2016, Institute for Clinical Evaluative Services (ICES).
- Denominator: Registered Persons Database (RPDB) 2012-2016, Institute for Clinical Evaluative Services (ICES).
- Standard population: 2011 Canadian Census, Statistics Canada.
- Reference: Institute for Clinical Evaluative Sciences (ICES). Neighbourhoods-Update, Applied Health Research Questions (AHRQ) 2019 0900 784 001.

Method of Calculation:

- Age-standardized premature mortality rates were calculated by ICES and provided to the Health Department through an Applied Health Research Question Request.
- The rate was directly age-standardized using the 2011 Canadian census population.

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

Neighbourhood Assignment: Dissemination area (DA) was used to determine Neighbourhood.

Release: June 2022.

Data Notes:

- Premature deaths are those before the age of 75.

Mental health & additions (MHA)

Self-rated mental health

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

Impact on Health: Higher percentages are better for health.

- Lower percentages are shown on maps in dark red.

- Higher than Durham Region and Ontario shown in green, lower in red.

Data Sources:

- Numerator and denominator: Durham data – Rapid Risk Factor Surveillance System (RRFSS), Durham Region Health Department and Institute for Social Research, York University, 2014-2018.

Method of Calculation:

$$\frac{number\ who\ rate\ their\ mental\ health\ as\ excellent + number\ who\ rate\ their\ mental\ health\ as\ very\ good}{Durham\ Region\ adults\ aged\ 18\ years\ and\ older} X\ 100$$

- Respondents were asked to rate their mental health as excellent, very good, good, fair or poor. The excellent and very good categories were combined for analysis.
- Durham Region adults includes all adults who completed the RRFSS telephone survey.
- Analysis was completed using survey software and household weights were applied.

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

Neighbourhood Assignment: Postal code was used to determine Neighbourhood.

Release: October 2019.

Data Notes:

- Five years of RRFSS data were combined to provide a large enough sample for analysis at the Neighbourhood level.

Mental health and addictions (MHA) doctor visits, ages 0 to 24

Description: The number of doctor visits for MHA for children and youth aged 0 to 24 years, per 100 children and youth. The rate was directly standardized by age and sex using the 2006 Ontario Census population.

Impact on Health: Complex, higher rates and increases can be better or worse for health.

- Higher rates and increases may be better for health if they are because of decreased stigma and increased access to healthcare. However, increases may be worse for health if they reflect increases in the incidence or severity of mental illness and addictions in the community.
- This indicator is best interpreted in conjunction with the MHA Emergency Department (ED) visit rate indicator.
- Higher rates and increases are shown on maps in dark red.
- Higher and lower than Durham Region and Ontario shown in blue.

Data Sources:

- Numerator: Ontario Health Insurance Plan (OHIP) 2013 and 2016, Institute for Clinical Evaluative Services (ICES).
- Denominator: Registered Persons Database (RPDB) 2013 and 2016, Institute for Clinical Evaluative Services (ICES).
- Standard population: 2006 Ontario Census, Statistics Canada.
- Reference: Institute for Clinical Evaluative Sciences (ICES). Neighbourhoods-Update, Applied Health Research Questions (AHRQ) 2019 0900 784 001.

Method of Calculation:

- Age-Sex standardized MHA doctor visit rates were calculated by ICES and provided to the Health Department through an Applied Health Research Question Request.
- The rate was directly age-sex standardized using the 2006 Ontario Census population.

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

Neighbourhood Assignment: Dissemination area (DA) was used to determine Neighbourhood.

Release: June 2022.

Data Notes:

- Doctor's office visits (outpatient physician visits) include scheduled visits to family doctors, pediatricians and psychiatrists. This includes visits for substance-related disorders, sleep disorders, behaviour disorders, sexual deviations, delays in development, family problems and issues with social adjustment.
- The eligible population (denominator) was from the RPDB and included Ontario residents eligible for OHIP in the last quarter of 2013 or 2016 and the date of last contact was less than 8 years.

Mental health and addictions (MHA) emergency department (ED) visits, ages 0 to 24

Description: The number of ED visits for MHA for children and youth aged 0 to 24 years, per 100 children and youth. The rate was directly standardized by age and sex using the 2006 Ontario Census population.

Impact on Health: Higher rates and increases are worse for health.

- Higher rates and increases are shown on maps in dark red.
- Higher than Durham Region and Ontario shown in red, lower in green.

Data Sources:

- Numerator: Ontario Health Insurance Plan (OHIP) 2013 and 2016, Institute for Clinical Evaluative Services (ICES).

- Denominator: Registered Persons Database (RPDB) 2013 and 2016, Institute for Clinical Evaluative Services (ICES).
- Standard population: 2006 Ontario Census, Statistics Canada.
- Reference: Institute for Clinical Evaluative Sciences (ICES). Neighbourhoods-Update, Applied Health Research Questions (AHRQ) 2019 0900 784 001.

Method of Calculation:

- Age-Sex standardized MHA ED visit rates were calculated by ICES and provided to the Health Department through an Applied Health Research Question Request.
- The rate was directly age-sex standardized using the 2006 Ontario Census population.

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

Neighbourhood Assignment: Dissemination area (DA) was used to determine Neighbourhood.

Release: June 2022.

Data Notes:

- ED visits for MHA includes visits for substance-related disorders, schizophrenia and other psychotic disorders, mood disorders and anxiety disorders.
- The eligible population (denominator) was from the RPDB and included Ontario residents eligible for OHIP in the last quarter of 2013 or 2016 and the date of last contact was less than 8 years.

Chronic diseases

Asthma emergency visits in children

Description: The number of Emergency Department (ED) visits for asthma among children aged 0 to 14 years, per 1,000 children.

Impact on Health: Higher rates and increases are worse for health.

- Higher rates and increases are shown on maps in dark red.
- Higher than Durham Region and Ontario shown in red, lower in green.

Data Sources:

- Numerator: Emergency Department (ED) Visits, 2010-2012 and 2015-2017, Ministry of Health, IntelliHealth ONTARIO.
- Denominator: 2011 and 2016 Census, Statistics Canada, Canadian Council on Social Development's Community Data Program.

Method of Calculation:

$$\frac{number\ of\ ED\ visits\ for\ asthma, ages\ 0\ to\ 14}{total\ population\ aged\ 0\ to\ 14\ years} X1{,}000$$

- Asthma ED visits were defined as those with ICD10-CA code J45.

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

Neighbourhood Assignment: Postal code was used to determine Neighbourhood.

- Postal code was based on patient residence, not the location of the hospital.
- Missing postal codes or those that could not be matched to a Neighbourhood were excluded from analysis.

Release: January 2015, updated June 2022.

Data Notes:

- ED visits for asthma were defined as ED visits where the "main problem" that was deemed to be the clinically significant reason for the ED visit was asthma.

Asthma prevalence in children

Description: The number of children aged 0 to 14 years diagnosed with asthma, per 100 children.

Impact on Health: Higher prevalence and increases are worse for health.

- Higher prevalence and increases are shown on maps in dark red.
- Higher than Durham Region and Ontario shown in red, lower in green.

Data Sources:

- Numerator: Ontario Asthma Dataset (ASTHMA) 2013 and 2016, Institute for Clinical Evaluative Services (ICES).
- Denominator: Registered Persons Database (RPD) 2013 and 2016, Institute for Clinical and Evaluative Services (ICES).
- Standard population: 1991 Canadian Census, Statistics Canada.
- Reference: Institute for Clinical Evaluative Sciences (ICES). Neighbourhoods-Update, Applied Health Research Questions (AHRQ) 2019 0900 784 001.

Method of Calculation:

- Age-sex standardized asthma prevalence in children was calculated by ICES and provided to the Health Department through an Applied Health Research Question Request.
- The rate was directly age-sex standardized using the 1991 Canadian Census population.

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

Neighbourhood Assignment: Dissemination area (DA) was used to determine Neighbourhood.

- Individuals without a valid health card number were excluded from analysis.

Release: February 2016, updated June 2022.

Data Notes:

- 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 (OHIP diagnosis code: 493) or a hospital admission for asthma (ICD-9 diagnosis code: 493; ICD-10 diagnosis codes: J45, J46).
- 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. For 2016 data, patients with a diagnosis on or before December 31, 2016, and who are alive as of this date are included. Prevalence counts those living with the disease at a point in time.

Diabetes prevalence

Description: The number of people aged 20 years and older who have been diagnosed with diabetes, per 100 people in that age group**.**

Impact on Health: Higher prevalence and increases are worse for health.

- Higher prevalence and increases are shown on maps in dark red.
- Higher than Durham Region and Ontario shown in red, lower in green.

Data Sources:

- Numerator: Ontario Diabetes Database (ODD) 2013 and 2016, Institute for Clinical Evaluative Services (ICES).
- Denominator: Registered Persons Database (RPD) 2013 and 2016, Institute for Clinical and Evaluative Services (ICES).
- Standard population: 1991 Canadian Census, Statistics Canada.
- Reference: Institute for Clinical Evaluative Sciences (ICES). Neighbourhoods-Update, Applied Health Research Questions (AHRQ) 2019 0900 784 001.

Method of Calculation:

- Age-sex standardized diabetes prevalence in adults, aged 20 years and older, was calculated by ICES and provided to the Health Department through an Applied Health Research Question Request.
- The prevalence was directly age-sex standardized using the 1991 Canadian Census population.

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

Neighbourhood Assignment: Dissemination area (DA) was used to assign Neighbourhood.

- Individuals without a valid health card number were excluded from analysis.

Release: February 2016, updated June 2022.

Data Notes:

- 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 (OHIP diagnosis code: 250), or a hospital admission for diabetes (ICD-9 diagnosis code: 250; ICD-10 diagnosis codes: E10, E11, E13, E14).
- 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. For 2016 data, patients with a diagnosis on or before December 31, 2016 and who are alive as of this date are included. Prevalence counts those living with the disease at a point in time.

Diabetes incidence

Description: The rate of new cases of diabetes diagnosed in people aged 20 years and older, per 1,000 people in that age group.

Impact on Health: Higher rates and increases are worse for health.

- Higher rates and increases are shown on maps in dark red.
- Higher than Durham Region and Ontario shown in red, lower in green.

Data Sources:

- Numerator: Ontario Diabetes Database (ODD) 2013 and 2016, Institute for Clinical Evaluative Services (ICES).
- Denominator: Registered Persons Database (RPD) 2013 and 2016, Institute for Clinical and Evaluative Services (ICES).
- Standard population: 1991 Canadian Census, Statistics Canada.
- Reference: Institute for Clinical Evaluative Sciences (ICES). Neighbourhoods-Update, Applied Health Research Questions (AHRQ) 2019 0900 784 001.

Method of Calculation:

- Age-sex standardized diabetes incidence rates in adults, aged 20 years and older, was calculated by ICES and provided to the Health Department through an Applied Health Research Question Request.
- The rate was directly age-sex standardized using the 1991 Canadian Census population.

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

Neighbourhood Assignment: Dissemination area (DA) was used to assign Neighbourhood.

- Individuals without a valid health card number were excluded from analysis.

Release: February 2016, updated June 2022.

Data Notes:

- A patient is said to have diabetes if, within a two-year period, they had a least two OHIP physician billing claims with a diagnosis for diabetes (OHIP diagnosis code: 250), or one inpatient hospitalization or same day surgery record with a diagnosis for diabetes (ICD-9 diagnosis code: 250; ICD-10 diagnosis codes: E10, E11, E13, E14).
- Physician claims and hospitalizations with a diagnosis of diabetes occurring within 120 prior to and 180 days after a gestational hospitalization record were excluded.

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. For 2016 data, patients with a diagnosis on or before December 31, 2016, and who are alive as of this date are included.

Hypertension prevalence

Description: The prevalence of hypertension (high blood pressure) in adults aged 20 years and older, per 100 adults in that age group.

Impact on Health: Higher prevalence and increases are worse for health.

- Higher prevalence and increases are shown on maps in dark red.
- Higher than Durham Region and Ontario shown in red, lower in green.

Data Sources:

- Numerator: Ontario Hypertension Dataset (HYPER) 2013 and 2016, Institute for Clinical Evaluative Services (ICES).
- Denominator: Registered Persons Database (RPD) 2013 and 2016, Institute for Clinical and Evaluative Services (ICES).
- Standard population: 1991 Canadian Census, Statistics Canada.
- Reference: Institute for Clinical Evaluative Sciences (ICES). Neighbourhoods-Update, Applied Health Research Questions (AHRQ) 2019 0900 784 001.

Method of Calculation:

- Age-sex standardized hypertension prevalence in adults, aged 20 years and older, was calculated by ICES and provided to the Health Department through an Applied Health Research Question Request.
- The rate was directly age-sex standardized using the 1991 Canadian Census population.

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

- Individuals without a valid health card number were excluded from analysis.

Neighbourhood Assignment: Dissemination area (DA) was used to determine Neighbourhood.

Release: June 2022.

Data Notes:

- An individual was said to have high blood pressure if they had at least two or more physician billing claims with a diagnosis of hypertension (OHIP diagnosis codes: 401-405) and/or one or more inpatient hospitalization or same day surgery with a diagnosis of hypertension (ICD-9 diagnosis codes: 401-405; ICD-10 diagnosis codes: I10-I13, I15) in a two-year period.
- Physician claims and hospitalizations with a diagnosis of hypertension occurring within 120 prior to and 180 days after a gestational hospitalization are excluded.
- For 2013 data, patients with a diagnosis on or before December 31, 2013, and who are alive as of this date are included. For 2016 data, patients with a diagnosis on or before December 31, 2016, 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

Description: The number of people aged 35+ years diagnosed with chronic obstructive pulmonary disease (COPD), per 100 people in that age group.

Impact on Health: Higher prevalence and increases are worse for health.

- Higher prevalence and increases are shown on maps in dark red.
- Higher than Durham Region and Ontario shown in red, lower in green.

Data Sources:

- Numerator: Ontario Chronic Obstructive Pulmonary Disease Dataset (COPD) 2013 and 2016, Institute for Clinical Evaluative Services (ICES).
- Denominator: Registered Persons Database (RPD) 2013 and 2016, Institute for Clinical and Evaluative Services (ICES).
- Standard population: 1991 Canadian Census, Statistics Canada.
- Reference: Institute for Clinical Evaluative Sciences (ICES). Neighbourhoods-Update, Applied Health Research Questions (AHRQ) 2019 0900 784 001.

Method of Calculation:

- Age-sex standardized COPD prevalence in adults, aged 35 years and older, was calculated by ICES and provided to the Health Department through an Applied Health Research Question Request.
- The rate was directly age-sex standardized using the 1991 Canadian Census population.

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

- Individuals without a valid health card number were excluded from analysis.

Neighbourhood Assignment: Dissemination area (DA) was used to determine Neighbourhood.

Release: February 2016, updated June 2022.

Data Notes:

- A patient was said to have COPD if they had at least one health care intervention specific to COPD. This includes inpatient hospitalizations or same day surgeries with a COPD diagnosis record (ICD-9 diagnosis codes: 491, 492, 496; ICD-10 diagnosis codes: J41-J44) or a physician billing claim for COPD (OHIP diagnosis codes: 491, 492, 496).
- The COPD Dataset 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. For 2016 data, patients with a diagnosis on or before December 31, 2016, and who are alive as of this date are included. Prevalence counts those living with the disease at a point in time.

Cardiovascular disease hospitalization

Description: The rate of hospital discharges for cardiovascular disease (CVD) among people aged 45 to 65 years, per 1,000 people in that age group.

Impact on Health: Higher rates and increases are worse for health.

- Higher rates and increases are shown on maps in dark red.

Data Sources:

- Numerator: Hospital In-Patient Discharges, 2010-2012 and 2015-2017, Ministry of Health, IntelliHealth ONTARIO.
- Denominator: 2011 and 2016 Census, Statistics Canada, Canadian Council on Social Development's Community Data Program.

Method of Calculation:

$$\frac{total\ number\ of\ hospital\ discharges\ for\ CVD, ages\ 45\ to\ 65}{total\ population, ages\ 45\ to\ 65} X1{,}000$$

- CVD was defined as in-patient hospitalization separations with the "most responsible diagnosis" coded by the hospital as ICD10-CA code I00-I99.

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

Neighbourhood Assignment: Postal code was used to determine Neighbourhood.

- Postal code was based on patient residence, not the location of the hospital.
- Missing postal codes or those that could not be matched to a Neighbourhood were excluded from analysis.

Release: January 2015, updated June 2022.

Data Notes:

- CVD includes heart disease, stroke, and hypertensive disease.
- Separations are discharges, deaths, or transfers from hospital.

Obesity

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

Impact on Health: Higher percentages and increases are worse for health.

- Higher percentages and increases are shown on maps in dark red.
- Higher than Durham Region shown in red, lower in green.

Data Sources:

- Numerator and denominator: Durham data – Rapid Risk Factor Surveillance System (RRFSS), Durham Region Health Department and Institute for Social Research, York University, 2009-2013 and 2014-2018.

Method of Calculation:

$$\frac{number\ of\ adults\ with\ a\ BMI\ of\ 30\ or\ greater}{Durham\ Region\ adults\ aged\ 18\ years\ and\ older} X100$$

- Respondents were asked to report their weight and height, and their BMI was calculated.
- Durham Region adults includes all adults who completed the RRFSS telephone survey.
- Analysis was completed using survey software and household weights were applied.

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

Neighbourhood Assignment: Postal code was used to determine Neighbourhood.

Release: October 2019.

Data Notes:

- The Body Mass Index (BMI) is a ratio of weight-to-height. It is not a direct measure of body fat but 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).
- Five years of RRFSS data were combined to provide a large enough sample for analysis at the Neighbourhood level.

Infectious diseases

Chlamydia in young females

Description: The rate of new cases of chlamydia reported in young females aged 15 to 24 years, per 1,000 young females.

Impact on Health: Higher rates and increases are worse for health.

- Higher rates and increases are shown on maps in dark red.
- Higher than Durham Region and Ontario shown in red, lower in green.

Data Sources:

- Numerator: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, 2010-2012 and 2015-2017, extracted by Durham Region Health Department.
- Denominator: 2011 and 2016 Census, Statistics Canada, Canadian Council on Social Development's Community Data Program.

Method of Calculation:

$$\frac{total\ number\ of\ new\ cases\ of\ chlamydia, females\ ages\ 15\ to\ 24}{total\ female\ population, ages\ 15\ to\ 24} X 1{,}000$$

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

Neighbourhood Assignment: Postal code was used to determine Neighbourhood.

- Postal code was based on patient residence.
- Cases without a valid postal code or one that could not be matched to a Neighbourhood were excluded from analysis.

Release: January 2015, updated June 2022.

Data Notes:

- 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

Description: The rate of new cases of enteric diseases reported per 100,000 people.

Impact on Health: Higher rates and increases are worse for health.

- Higher rates and increases are shown on maps in dark red.

- Higher than Durham Region and Ontario shown in red, lower in green.

Data Sources:

- Numerator: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, 2010-2012 and 2015-2017, extracted by Durham Region Health Department.
- Denominator: 2011 and 2016 Census, Statistics Canada, Canadian Council on Social Development's Community Data Program.

Method of Calculation:

$$\frac{total\ number\ of\ new\ cases\ of\ enteric\ diseases}{total\ population} X100{,}000$$

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

Neighbourhood Assignment: Postal code was used to determine Neighbourhood.

- Postal code was based on patient residence.
- Cases without a valid postal code or one that could not be matched to a Neighbourhood were excluded from analysis.

Release: January 2015, updated June 2022.

Data Notes:

- 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.

Hepatitis C

Description: The rate of new cases of hepatitis C infections reported per 100,000 people.

Impact on Health: Higher rates and increases are worse for health.

- Higher rates and increases are shown on maps in dark red.
- Higher than Durham Region and Ontario shown in red, lower in green.

Data Sources:

- Numerator: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, 2009-2013 and 2014-2018, extracted by Durham Region Health Department.
- Denominator: 2011 and 2016 Census, Statistics Canada, Canadian Council on Social Development's Community Data Program.

Method of Calculation:

$$\frac{total\ number\ of\ new\ cases\ of\ hepatitis\ C}{total\ population} X100{,}000$$

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

Neighbourhood Assignment: Postal code was used to determine Neighbourhood.

- Postal code was based on patient residence.
- Cases without a valid postal code or one that could not be matched to a Neighbourhood were excluded from analysis.

Release: January 2015, updated June 2022.

Data Notes:

- 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.

Tuberculosis

Description: The rate of new cases of latent tuberculosis infection (LTBI) reported, per 100,000 people.

Impact on Health: Higher rates and increases are worse for health.

- Higher rates and increases are shown on maps in dark red.
- Higher than Durham Region and Ontario shown in red, lower in green.

Data Sources:

- Numerator: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, 2009-2013 and 2014-2018, extracted by Durham Region Health Department.

- Denominator: 2011 and 2016 Census, Statistics Canada, Canadian Council on Social Development's Community Data Program.

Method of Calculation:

$$\frac{total\ number\ of\ new\ cases\ of\ LTBI}{total\ population} X100{,}000$$

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

Neighbourhood Assignment: Postal code was used to determine Neighbourhood.

- Postal code was based on patient residence.
- Cases without a valid postal code or one that could not be matched to a Neighbourhood were excluded from analysis.

Release: January 2015, updated June 2022.

Data Notes:

- 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.

Injury

Sports injuries, ages 10 to 14

Description: The number of Emergency Department (ED) visits for sports injuries among youth aged 10 to 14 years, per 1,000 youth.

Impact on Health: Higher rates and increases are worse for health.

- Higher rates and increases are shown on maps in dark red.
- Higher than Durham Region and Ontario shown in red, lower in green.

Data Sources:

- Numerator: Emergency Department (ED) Visits, 2010-2012 and 2015-2017, Ministry of Health, IntelliHealth ONTARIO.
- Denominator: 2011 and 2016 Census, Statistics Canada, Canadian Council on Social Development's Community Data Program.

Method of Calculation:

$$\frac{total\ number\ of\ ED\ visits\ for\ sports\ injuries, ages\ 10\ to\ 14}{total\ population, ages\ 10\ to\ 14} X1{,}000$$

- Sports injuries are defined as those with ICD-10-CA external cause codes W02, W21, W22 (.00-.07) and W51 (.00-.07).

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

Neighbourhood Assignment: Postal code was used to determine Neighbourhood.

- Postal code was based on patient residence, not the location of the hospital where the ED visit occurred.
- ED visits without a valid postal code or one that could not be matched to a Neighbourhood were excluded from analysis.

Release: January 2015, updated June 2022.

Data Notes:

- This includes ED visits where the "main problem" that is deemed to be the clinically significant reason for the visit was an injury.
- Sports injuries 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).

Assault, ages 10 to 14

Description: The number of Emergency Department (ED) visits for intentional injuries (not self-inflected) among youth aged 10 to 24 years, per 1,000 youth.

Impact on Health: Higher rates and increases are worse for health.

- Higher rates and increases are shown on maps in dark red.
- Higher than Durham Region and Ontario shown in red, lower in green.

Data Sources:

- Numerator: Emergency Department (ED) Visits, 2010-2012 and 2015-2017, Ministry of Health, IntelliHealth ONTARIO.
- Denominator: 2011 and 2016 Census, Statistics Canada, Canadian Council on Social Development's Community Data Program.

Method of Calculation:

$$\frac{total\ number\ of\ ED\ visits\ for\ intentional\ injuries, ages\ 10\ to\ 14}{total\ population, ages\ 10\ to\ 14} X1{,}000$$

- Intentional injuries are defined as ED visits with ICD-10-CA external cause codes X85-Y09 and Y87.1.

- Self-inflicted intentional injuries (e.g., self-harm and suicide) and injuries with undetermined intent were excluded.

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

Neighbourhood Assignment: Postal code was used to determine Neighbourhood.

- Postal code was based on patient residence, not the location of the hospital where the ED visit occurred.
- ED visits without a valid postal code or one that could not be matched to a Neighbourhood were excluded from analysis.

Release: June 2022.

Data Notes:

- This includes ED visits where the "main problem" that is deemed to be the clinically significant reason for the visit was an injury.
- This includes intentional injuries cause by someone else using chemicals, drugs, physical violence, firearms, other objects (e.g., blunt, sharp, hot), drowning and suffocation, and maltreatment (e.g., neglect, abandonment, mistreatment).

Motor vehicle traffic collisions, ages 15 to 24

Description: The number of Emergency Department (ED) visits among those aged 15 to 24 years for a motor vehicle traffic collision (MVTC) per 1,000 people in that age group.

Impact on Health: Higher rates and increases are worse for health.

- Higher rates and increases are shown on maps in dark red.
- Higher than Durham Region and Ontario shown in red, lower in green.

Data Sources:

- Numerator: Emergency Department (ED) Visits, 2010-2012 and 2015-2017, Ministry of Health, IntelliHealth ONTARIO.
- Denominator: 2011 and 2016 Census, Statistics Canada, Canadian Council on Social Development's Community Data Program.

Method of Calculation:

$$\frac{total\ number\ of\ ED\ visits\ for\ MTVC\ injuries, ages\ 15\ to\ 24}{total\ population, ages\ 15\ to\ 24}\ X\ 1{,}000$$

- MVTC injuries are defined as those with ICD-10-CA external cause 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.
- Non-traffic collisions were excluded.

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

Neighbourhood Assignment: Postal code was used to determine Neighbourhood.

- Postal code was based on patient residence, not the location of the hospital where the ED visit occurred.
- ED visits without a valid postal code or one that could not be matched to a Neighbourhood were excluded from analysis.

Release: January 2015, updated June 2022.

Data Notes:

- This includes ED visits where the "main problem" that is deemed to be the clinically significant reason for the visit was an injury.
- 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.

Falls, ages 0 to 4

Description: The number of ED visits for unintentional falls among children aged 4 or younger, per 1,000 children.

Impact on Health: Higher rates and increases are worse for health.

- Higher rates and increases are shown on maps in dark red.
- Higher than Durham Region and Ontario shown in red, lower in green.

Data Sources:

- Numerator: Emergency Department (ED) Visits, 2010-2012 and 2015-2017, Ministry of Health, IntelliHealth ONTARIO.
- Denominator: 2011 and 2016 Census, Statistics Canada, Canadian Council on Social Development's Community Data Program.

Method of Calculation:

$$\frac{total\ number\ of\ ED\ visits\ for\ falls, ages\ 0\ to\ 4}{total\ population, ages\ 0\ to\ 4}\ X\ 1{,}000$$

- Falls were defined as ED visits with ICD-10-CA external cause codes W00-W19.
- Intentional falls (self-inflicted and assault) and falls with undetermined intent were excluded.

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

Neighbourhood Assignment: Postal code was used to determine Neighbourhood.

- Postal code was based on patient residence, not the location of the hospital where the ED visit occurred.

- ED visits without a valid postal code or one that could not be matched to a Neighbourhood were excluded from analysis.

Release: January 2015, updated June 2022.

Data Notes:

- This includes ED visits where the “main problem” that is deemed to be the clinically significant reason for the visit was an injury.

Falls, ages 65+

Description: The number of ED visits for unintentional falls among those aged 65 or older, per 1,000 people in that age group.

Impact on Health: Higher rates and increases are worse for health.

- Higher rates and increases are shown on maps in dark red.
- Higher than Durham Region and Ontario shown in red, lower in green.

Data Sources:

- Numerator: Emergency Department (ED) Visits, 2010-2012 and 2015-2017, Ministry of Health, IntelliHealth ONTARIO.
- Denominator: 2011 and 2016 Census, Statistics Canada, Canadian Council on Social Development’s Community Data Program.

Method of Calculation:

$$\frac{total\ number\ of\ ED\ visits\ for\ falls, ages\ 65+}{total\ population, ages\ 65+}\ X\ 1{,}000$$

- Falls were defined as ED visits with ICD-10-CA external cause codes W00-W19.
- Intentional falls (self-inflicted and assault) and falls with undetermined intent were excluded.

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

Neighbourhood Assignment: Postal code was used to determine Neighbourhood.

- Postal code was based on patient residence, not the location of the hospital where the ED visit occurred.
- ED visits without a valid postal code or one that could not be matched to a Neighbourhood were excluded from analysis.

Release: January 2015, updated June 2022.

Data Notes:

- This includes ED visits where the “main problem” that is deemed to be the clinically significant reason for the visit was an injury.

Health Behaviours & Risks Indicators

Smoking

Smoking

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

Impact on Health: Higher percentages and increases are worse for health.

- Higher percentages and increases are shown on maps in dark red.
- Higher than Durham Region shown in red, lower in green.

Data Sources:

- Numerator and denominator: Durham Region Data 2009-2013 and 2014-2018, Rapid Risk Factor Surveillance System (RRFSS), Durham Region Health Department and Institute for Social Research, York University.

Method of Calculation:

$$\frac{number\ who\ smoke\ cigarettes\ every\ day + number\ who\ smoke\ cigarettes\ some\ days}{Durham\ Region\ adults\ aged\ 18\ years\ and\ older}\ X\ 100$$

- Respondents were asked if they currently smoked cigarettes every day, some days or not at all. Those who smoked every day or smoke days were classified as current smokers.
- Durham Region adults includes all adults who completed the RRFSS telephone survey.
- Analysis was completed using survey software and household weights were applied.

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

Neighbourhood Assignment: Postal code was used to determine Neighbourhood.

- Postal code was based on the respondent's residence. Missing postal codes or those which could not be matched to a Neighbourhood were excluded from analysis.

Release: August 2014, updated June 2022.

Data Notes:

- Five years of RRFSS data were combined to provide a large enough sample for analysis at the Neighbourhood level.

Immunization

School-required immunization rate, ages 7 to 8

Description: The percentage of children aged 7 or 8 fully immunized for the nine infectious diseases named in the Immunization of School Pupils Act (ISPA): diphtheria, tetanus, poliomyelitis, pertussis, meningococcal disease, measles, mumps, rubella, and varicella.

Impact on Health: Higher percentages and increases are better for health.

- Lower percentages and increases are shown on maps in dark red.
- Higher than Durham Region shown in green, lower in red.

Data Sources:

- Numerator and Denominator: Ministry of Health, Digital Health Immunization Repository, extracted by Durham Region Health Department [2019/09/03].

Method of Calculation:

- The Panorama Forecaster tool was used to determine the percentage of children fully immunized against the nine 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 fully immunized, or protected against a disease, if they were not overdue for their next dose for any of the ISPA-related immunizations or if they had a medical exemption based on evidence of immunity.

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

Neighbourhood Assignment: Postal code was used to determine Neighbourhood.

- Postal code was based on the student's residence, not the location of the school they attend.
- Missing postal codes or those which could not be matched to a Neighbourhood were excluded from analysis.

Release: August 2017, updated June 2022.

Data Notes:

- For the 2018/19 school year, this corresponds to the cohort born in 2011.
- Ontario's ISPA requires that all primary and secondary students attending school in Ontario provide proof of immunization against the nine 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 to 17

Description: The percentage of children aged 16 or 17 fully immunized for the eight infectious diseases identified in the Immunization of School Pupils Act (ISPA): diphtheria, tetanus, poliomyelitis, pertussis, meningococcal disease, measles, mumps, and rubella.

Impact on Health: Higher percentages and increases are better for health.

- Lower percentages and increases are shown on maps in dark red.
- Higher than Durham Region shown in green, lower in red.

Data Sources:

- Numerator and Denominator: Ministry of Health, Digital Health Immunization Repository, extracted by Durham Region Health Department [2019/09/03].

Method of Calculation:

- The Panorama Forecaster tool was used to determine the percentage of children fully immunized against the eight 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 fully immunized, or protected against a disease, if they were not overdue for their next dose for any of the ISPA-related immunizations or if they had a medical exemption based on evidence of immunity.

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

Neighbourhood Assignment: Postal code was used to determine Neighbourhood.

- Postal code was based on the student's residence, not the location of the school they attend.
- Missing postal codes or those which could not be matched to a Neighbourhood were excluded from analysis.

Release: August 2017, updated June 2022.

Data Notes:

- For the 2018/19 school year, this corresponds to the cohort born in 2002.
- Ontario's ISPA requires that all primary and secondary students attending school in Ontario provide proof of immunization against the nine 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.

Meningococcal disease immunization

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

Impact on Health: Higher percentages and increases are better for health.

- Lower percentages and increases are shown on maps in dark red.
- Higher than Durham Region shown in green, lower in red.

Data Sources:

- Numerator and Denominator: Ministry of Health, Digital Health Immunization Repository, extracted by Durham Region Health Department [2019/09/03].

Method of Calculation:

- The Panorama Forecaster tool was used to determine the percentage of children fully immunized against meningococcal disease.
- To be fully immunized, children required one dose of the meningococcal-conjugate-C vaccine no earlier than one year of age and one dose of meningococcal conjugate-ACYW-135 vaccine at age 12 or older, as specified by the Ontario Immunization Schedule. Children were considered fully immunized, or protected against the disease, if they were not due, eligible or overdue for a dose of meningococcal vaccine, or if they had a medical exemption based on evidence of immunity.

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

Neighbourhood Assignment: Postal code was used to determine Neighbourhood.

- Postal code was based on the student's residence, not the location of the school they attend.
- Missing postal codes or those which could not be matched to a Neighbourhood were excluded from analysis.

Release: August 2017, updated June 2022.

Data Notes:

- For the 2018/19 school year, this corresponds to the cohort born in 2006.

Hepatitis B immunization

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

Impact on Health: Higher percentages and increases are better for health.

- Lower percentages and increases are shown on maps in dark red.
- Higher than Durham Region shown in green, lower in red.

Data Sources:

- Numerator and Denominator: Ministry of Health, Digital Health Immunization Repository, extracted by Durham Region Health Department [2019/09/03].

Method of Calculation:

- The Panorama Forecaster tool was used 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 fully immunized, or protected against the disease, if they were not due, eligible, overdue, or up-to-date but not yet due for their next dose, or if they had a medical exemption based on evidence of immunity.

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

Neighbourhood Assignment: Postal code was used to determine Neighbourhood.

- Postal code was based on the student's residence, not the location of the school they attend.
- Missing postal codes or those which could not be matched to a Neighbourhood were excluded from analysis.

Release: August 2017, updated June 2022.

Data Notes:

- For the 2018/19 school year, this corresponds to the cohort born in 2006.

HPV immunization

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

Impact on Health: Higher percentages and increases are better for health.

- Lower percentages and increases are shown on maps in dark red.
- Higher than Durham Region shown in green, lower in red.

Data Sources:

- Numerator and Denominator: Ministry of Health, Digital Health Immunization Repository, extracted by Durham Region Health Department [2019/09/03].

Method of Calculation:

- The Panorama Forecaster tool was used 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 fully immunized, or protected against the disease, if they

were not due, eligible, overdue, or up-to-date but not yet due for their next dose, or if they had a medical exemption based on evidence of immunity.

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

Neighbourhood Assignment: Postal code was used to determine Neighbourhood.

- Postal code was based on the student's residence, not the location of the school they attend.
- Missing postal codes or those which could not be matched to a Neighbourhood were excluded from analysis.

Release: August 2017, updated June 2022.

Data Notes:

- For the 2018/19 school year, this corresponds to the cohort born in 2006.

Cancer Screening

Breast cancer screening (mammography)

Description: The number of females aged 52 to 74 years with at least one mammogram within a two-year interval, per 100 women in that age group.

Impact on Health: Higher percentages and increases are better for health.

- Lower percentages and increases are shown on maps in dark red.
- Higher than Durham Region and Ontario shown in green, lower in red.

Data Sources:

- Numerator: Ontario Breast Cancer Screening Program (OBSP) & Ontario Health Insurance Plan (OHIP) & Ontario Cancer Registry (OCR) 2013 and 2016, Institute for Clinical Evaluative Sciences (ICES).
- Denominator: Registered Persons Database (RPD) 2013 and 2016, Institute for Clinical and Evaluative Services (ICES).
- Standard population: 2011 Canadian Census, Statistics Canada.
- Reference: Institute for Clinical Evaluative Sciences (ICES). Neighbourhoods-Update, Applied Health Research Questions (AHRQ) 2019 0900 784 001.

Method of Calculation:

- Age standardized breast cancer screening percentages were calculated by ICES and provided to the Health Department through an Applied Health Research Question Request.
- The rate was directly age-sex standardized using the 2011 Canadian Census population.
- Analysis was restricted to Ontario women aged 52-74 as of December 31, 2013 for the 2013 estimate and December 31, 2016 for the 2016 estimate.

- 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 FEECODE 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).

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

Neighbourhood Assignment: Dissemination area (DA) was used to determine Neighbourhood.

Release: February 2016, updated June 2022.

Data Notes:

- 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 tests)

Description: 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.

Impact on Health: Higher percentages and increases are better for health.

- Lower percentages and increases are shown on maps in dark red.
- Higher than Durham Region and Ontario shown in green, lower in red.

Data Sources:

- Numerator: Ontario Health Insurance Plan (OHIP) & Ontario Cancer Registry (OCR) 2013 and 2016, Institute for Clinical Evaluative Sciences (ICES).
- Denominator: Registered Persons Database (RPD) 2013 and 2016, Institute for Clinical and Evaluative Services (ICES).
- Standard population: 2011 Canadian Census, Statistics Canada.
- Reference: Institute for Clinical Evaluative Sciences (ICES). Neighbourhoods-Update, Applied Health Research Questions (AHRQ) 2019 0900 784 001.

Method of Calculation:

- Age standardized cervical cancer screening percentages were calculated by ICES and provided to the Health Department through an Applied Health Research Question Request.
- The rate was directly age standardized using the 2011 Canadian Census population.
- Analysis was restricted to Ontario women aged 23 to 69 as of December 31, 2013 for the 2013 estimate and December 31, 2016 for the 2016 estimate.

- 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 (FEECODE S810, S757, S758, S759, S816, S710, S763, S762, S727, S765, S766, S767).

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

Neighbourhood Assignment: Dissemination area (DA) was used to determine Neighbourhood.

Release: February 2016, updated June 2022.

Data Notes:

- 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

Description: The number of people aged 50-74 years who were overdue for colorectal screening, per 100 people in that age group.

Impact on Health: Higher percentages and increases are worse for health.

- Higher percentages and increases are shown on maps in dark red.
- Higher than Durham Region and Ontario shown in red, lower in green.

Data Sources:

- Numerator: Discharge Abstract Database (DAD) & Ontario Health Insurance Plan (OHIP) & Ontario Cancer Registry (OCR) 2013 and 2016 Institute for Clinical Evaluative Sciences (ICES).
- Denominator: Registered Persons Database (RPD) 2013 and 2016, Institute for Clinical and Evaluative Services (ICES).
- Standard population: 2011 Canadian Census, Statistics Canada.
- Reference: Institute for Clinical Evaluative Sciences (ICES). Neighbourhoods-Update, Applied Health Research Questions (AHRQ) 2019 0900 784 001.

Method of Calculation:

- Age-sex standardized percentages were calculated by ICES and provided to the Health Department through an Applied Health Research Question Request.
- The rate was directly age-sex standardized using the 2011 Canadian Census population.

- Analysis was restricted to Ontarians aged 52-74 as of December 31, 2013 for the 2013 estimate and December 31, 2016 for the 2016 estimate.
- 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.

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

Neighbourhood Assignment: Dissemination area (DA) was used to determine Neighbourhood.

Release: February 2016, updated June 2022.

Data Notes:

- 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.

Ambulance

Residence ambulance calls

Description: The number of residential ambulance calls, per 100 people.

Impact on Health: Higher rates and increases are worse for health.

- Higher rates and increases are shown on maps in dark red.
- Higher than Durham Region shown in red, lower in green.

Data Sources:

- Numerator: Ambulance Call Report Database and Dispatch Database, Durham Region Paramedic Services, 2012-2014 and 2015-2017.

- Denominator: Registered Persons Database (RPD) 2012-2014 and 2015-2017, Institute for Clinical and Evaluative Services (ICES).
- Reference: Institute for Clinical Evaluative Sciences (ICES). Neighbourhoods-Update, Applied Health Research Questions (AHRQ) 2019 0900 784 001.
- Standard population: 1991 Canadian Census, Statistics Canada.

Method of Calculation:

- The rate of residential ambulance calls was directly age-standardized using the 1991 Canadian Census population.
- Calls to non-residential buildings (e.g., nursing homes, hospitals, medical offices, shopping malls) and scheduled calls, transfers and standbys were excluded.

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

Neighbourhood Assignment: Geographic coordinates were used to determine Neighbourhood.

- Ambulance calls were geocoded to the pickup location of the patient, not the patient's address.
- Ambulance calls with missing coordinates or those that could not be coded to a Neighbourhood were excluded from analysis.

Release: February 2016, updated June 2022.

Data Notes:

- Ambulance calls consist of 911 calls resulting in paramedic response to a house, townhouse, apartment, condominium, or farm. All calls where paramedics arrived at a residence are included, regardless if the patient was transported or not.

Residence ambulance calls in seniors

Description: The number of residential ambulance calls among seniors aged 65 years and older, per 100 seniors.

Impact on Health: Higher rates and increases are worse for health.

- Higher rates and increases are shown on maps in dark red.
- Higher than Durham Region shown in red, lower in green.

Data Sources:

- Numerator: Ambulance Call Report Database and Dispatch Database, Durham Region Paramedic Services, 2012-2014 and 2015-2017.
- Denominator: Registered Persons Database (RPD) 2012-2014 and 2015-2017, Institute for Clinical and Evaluative Services (ICES).
- Reference: Institute for Clinical Evaluative Sciences (ICES). Neighbourhoods-Update, Applied Health Research Questions (AHRQ) 2019 0900 784 001.
- Standard population: 1991 Canadian Census, Statistics Canada.

Method of Calculation:

- The rate was directly age-standardized using the 1991 Canadian Census population.
- Calls to non-residential buildings (e.g., nursing homes, hospitals, medical offices, shopping malls) and scheduled calls, transfers and standbys were excluded.

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

Neighbourhood Assignment: Geographic coordinates were used to determine Neighbourhood.

- Ambulance calls were geocoded to the pickup location of the patient, not the patient's address.
- Ambulance calls with missing coordinates or those that could not be coded to a Neighbourhood were excluded from analysis.

Release: February 2016, updated June 2022.

Data Notes:

- Ambulance calls consist of 911 calls resulting in paramedic response to a house, townhouse, apartment, condominium, or farm. All calls where paramedics arrived at a residence are included, regardless if the patient was transported or not.

Non-urgent ambulance calls

Description: The percentage of residential ambulance calls that are less urgent or non urgent, based on a Canadian Triage and Acuity Scale (CTAS) level of 4 or 5.

Impact on Health: Higher percentages and increases are worse for health.

- Higher percentages and increases are shown on maps in dark red.
- Higher than Durham Region shown in red, lower in green.

Data Sources:

- Numerator and denominator: Ambulance Call Report Database and Dispatch Database, Durham Region Paramedic Services, 2012-2014 and 2015-2017.

Method of Calculation:

$$\frac{number\ of\ CTAS\ level\ 4\ ambulance\ calls + number\ of\ CTAS\ level\ 5\ ambulance\ calls}{total\ number\ of\ ambulance\ calls}\ X\ 100$$

- Calls to non-residential buildings (e.g., nursing homes, hospitals, medical offices, shopping malls) and scheduled calls, transfers and standbys were excluded.

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

Neighbourhood Assignment: Geographic coordinates were used to determine Neighbourhood.

- Ambulance calls were geocoded to the pickup location of the patient, not the patient's address.
- Ambulance calls with missing coordinates or those that could not be coded to a Neighbourhood were excluded from analysis.

Release: June 2022.

Data Notes:

- Ambulance calls consist of 911 calls resulting in paramedic response to a house, townhouse, apartment, condominium, or farm. All calls where paramedics arrived at a residence are included, regardless if the patient was transported or not. CTAS helps paramedics determine the urgency of the medical care required, e.g., CTAS level 1 patients have life-threatening needs. A CTAS level of 4 or 5 is given when the patient's condition does not pose any immediate health risk and these patients may be better served by a different health care provider or an alternative destination than the Emergency Department.

Non-urgent ambulance calls in seniors

Description: The percentage of residential ambulance calls among seniors aged 65 years and older, that are less urgent or non urgent, based on a Canadian Triage and Acuity Scale (CTAS) level of 4 or 5.

Impact on Health: Higher percentages and increases are worse for health.

- Higher percentages and increases are shown on maps in dark red.
- Higher than Durham Region shown in red, lower in green.

Data Sources:

- Numerator and denominator: Ambulance Call Report Database and Dispatch Database, Durham Region Paramedic Services, 2012-2014 and 2015-2017.

Method of Calculation:

$$\frac{number\ of\ CTAS\ level\ 4\ ambulance\ calls + number\ of\ CTAS\ level\ 5\ ambulance\ calls, seniors\ ages\ 65+}{total\ number\ of\ ambulance\ calls\ among\ seniors\ aged\ 65+} X\ 100$$

- Calls to non-residential buildings (e.g., nursing homes, hospitals, medical offices, shopping malls) and scheduled calls, transfers and standbys were excluded.

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

Neighbourhood Assignment: Geographic coordinates were used to determine Neighbourhood.

- Ambulance calls were geocoded to the pickup location of the patient, not the patient's address.
- Ambulance calls with missing coordinates or those that could not be coded to a Neighbourhood were excluded from analysis.

Release: June 2022.

Data Notes:

- Ambulance calls consist of 911 calls resulting in paramedic response to a house, townhouse, apartment, condominium, or farm. All calls where paramedics arrived at a residence are included, regardless if the patient was transported or not. CTAS helps paramedics determine the urgency of the medical care required, e.g., CTAS level 1 patients have life-threatening needs. A CTAS level of 4 or 5 is given when the patient's condition does not pose any immediate health risk and these patients may be better served by a different health care provider or an alternative destination than the Emergency Department.

Police-reported incidents

Domestic incidents

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

Impact on Health: Higher rates and increases are worse for health.

- Higher rates and increases are shown on maps in dark red.
- Higher than Durham Region shown in red, lower in green.

Data Sources:

- Numerator: Durham Region Police Service, Durham Region 2012-2014 and 2015-2017, Incident-based Uniform Crime Reporting (UCR) Survey.
- Denominator: Registered Persons Database (RPDB) 2012-2014 and 2015-2017, Institute for Clinical Evaluative Services (ICES).
    - Reference: Institute for Clinical Evaluative Sciences (ICES). Neighbourhoods- Update, Applied Health Research Questions (AHRQ) 2019 0900 784 001.

Method of Calculation:

$$\frac{number\ of\ police-reported\ domestic\ incidents}{total\ population}\ X\ 10{,}000$$

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

Neighbourhood Assignment: Geographic coordinates were used to determine Neighbourhood.

- Domestic incidents were geocoded to the location of the incident.
- Incidents with missing geographic coordinates or coordinators which could not be coded to Neighbourhood were excluded.

Release: December 2017, updated June 2022.

Data Notes:

- 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.

Domestic incidents with children present

Description: The number police-reported domestic incidents with children less than 18 years of age physically present during the incident, per 10,000 people.

Impact on Health: Higher rates and increases are worse for health.

- Higher rates and increases are shown on maps in dark red.
- Higher than Durham Region shown in red, lower in green.

Data Sources:

- Numerator: Durham Region Police Service, Durham Region 2012-2014 and 2015-2017, Incident-based Uniform Crime Reporting (UCR) Survey.
- Denominator: Registered Persons Database (RPDB) 2012-2014 and 2015-2017, Institute for Clinical Evaluative Services (ICES).
    - Reference: Institute for Clinical Evaluative Sciences (ICES). Neighbourhoods- Update, Applied Health Research Questions (AHRQ) 2019 0900 784 001.

Method of Calculation:

$$\frac{number\ of\ police-reported\ domestic\ incidents\ with\ children\ present}{total\ population}\ X\ 10{,}000$$

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

Neighbourhood Assignment: Geographic coordinates were used to determine Neighbourhood.

- Domestic incidents were geocoded to the location of the incident.
- Incidents with missing geographic coordinates or coordinators which could not be coded to Neighbourhood were excluded.

Release: December 2017, updated June 2022.

Data Notes:

- 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.

Active travel

Walk or cycle trips to school, ages 11 to 17

Description: The percentage of children and youth aged 11 to 17 years who walk or cycle to school.

Impact on Health: Higher percentages are better for health.

- Lower percentages are shown on maps in dark red.
- Higher than Durham Region and Greater Toronto Hamilton Area (GTHA) shown in green, lower in red.

Data Sources:

- Numerator and denominator: Transportation Tomorrow Survey (TTS) 2016, Data Management Group, University of Toronto. Custom request for Durham Region, August 2018.

Method of Calculation:

$$\frac{number\ of\ trips\ to\ school\ by\ walking\ or\ cycling}{total\ number\ of\ trips\ to\ school\ for\ children\ and\ youth\ aged\ 11\ to\ 17\ during\ a\ typical\ weekday}\ X\ 100$$

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

Neighbourhood Assignment: Forward sortation area (FSA) was used to determine Neighbourhood.

- Postal code was based on the child's residence, not the location of their school.

Release: June 2022.

Data Notes:

- Percentages reflect the number of children and youth who walked or cycled to school on the day before the household completed the Transportation Tomorrow Survey.
- The mode options for trips to school were: school bus, bicycle, walk, auto driver, auto passenger, public transit, GO rail, joint GO rail and public transit, taxi, paid rideshare and other. This indicator combined the categories of bicycle and walk. The auto total included both auto driver and auto passenger.

Walk or cycle trips to work, ages 18+

Description: The number of trips to work by walking, cycling or transit, divided by the total number of trips to work multiplied by 100, for ages 18 and older during a typical weekday.

Impact on Health: Higher percentages are better for health.

- Lower percentages are shown on maps in dark red.
- Higher than Durham Region and Greater Toronto Hamilton Area (GTHA) shown in green, lower in red.

Data Sources:

- Numerator and denominator: Transportation Tomorrow Survey (TTS) 2016, Data Management Group, University of Toronto. Custom request for Durham Region, August 2018.

Method of Calculation:

$$\frac{total\ number\ of\ trips\ to\ work\ by\ walking, cycling\ or\ taking\ the\ bus}{total\ number\ of\ trips\ to\ work\ during\ a\ tyical\ weekday, adults\ 18+} X\ 100$$

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

Neighbourhood Assignment: Forward sortation area (FSA) was used to determine Neighbourhood.

- Postal code was based on the respondent's residence, not the location of their workplace.

Release: June 2022.

Data Notes:

- Percentages reflect the number of adults who walked, cycled or took transit to work on the day before the household completed the Transportation Tomorrow Survey.
- The mode options for trips to work were: bicycle, walk, auto driver, auto passenger, motorcycle, public transit, GO rail, joint GO and transit, school bus, taxi, paid rideshare and other. This indicator combined the categories of bicycle, walk and transit, with transit including public transit, GO rail, and joint GO rail and public transit. The auto total included auto driver, auto passenger and motorcycle. The mode does not specifically consider carpooling.

Retired Indicators

Health Neighbourhoods is a constantly evolving project which continues to expand and improve. Consequently, the indicators included in the Health Neighbourhoods project have changed over time. These changes are due to a variety of factors including data availability, usefulness of indicators, and updates to survey methods.

There are 20 indicators, reported in previous Health Neighbourhoods releases, that were excluded from Release 4:

- 9 indicators were permanently dropped
- 4 indicators were suspended
- 7 indicators were replaced

Indicators were **permanently dropped** if the data were no longer available or the indicator was not informative or helpful. Relevant replacement indicators are not available.

Indicators were **replaced** if they were renamed, or if there was a substantial change to the indicator definition, definition or analysis method.

Indicators were **suspended** if they provide essential information but current data are unavailable. They will be updated once current data are available.

Table 6 below provides a summary of the indicators not included in Release 4, along with the reason for exclusion and any alternative indicators available in the current release.

Appendix 3 provides detailed information for all indicators not included in the most recent Health Neighbourhoods release. The information provided includes indicator descriptions, data sources, data availability, and availability of replacement or alternative indicators.

Table 6: List of historically available Health Neighbourhoods indicators excluded from Release 4 (June 2022)

Indicator	Description & historical data available	Status	Reason for replacement or retirement	Replacement indicators
Alcohol use in excess of Canada's low-risk alcohol drinking guidelines, ages 18+	The percentage of adults aged 18 or older who drink in excess of Canada's Low-Risk Alcohol Drinking Guidelines. **Historical data:** • 2009, 2010, 2013 *(3 years grouped)*	**Dropped** (2021)	• Data unavailable after 2013.	Not available.
All injuries, ED visit rate	The number of unscheduled ED visits where there is an injury external cause diagnosis for the visit. **Historical data:** • 2011	**Replaced** (2021)	• Replaced by six more specific injury indicators.	• Assault, ages 10-14 • Falls, ages 0-4 • Falls, ages 65+ • Motor vehicle traffic collisions, ages 15-24 • Self-harm, ages 10-24 • Sports injuries, ages 10-24

Indicator	Description & historical data available	Status	Reason for replacement or retirement	Replacement indicators
Breastfeeding at hospital discharge	The number of women who breastfed when discharged from hospital divided by the total number of women who delivered, multiplied by 100. **Historical data:** • 2010 to 2012	**Replaced** (2021)	• Data source changed from ISCIS to BORN. • Indicator definition updated to capture home births.	• Early breastfeeding
Breastmilk only at hospital discharge	The number of women who were feeding their baby breastmilk only when discharged from hospital divided by the total number of women who delivered, multiplied by 100. **Historical data:** • 2010 to 2012	**Replaced** (2021)	• Data source changed from ISCIS to BORN. • Indicator definition updated to capture home births.	• Early exclusive breastfeeding
Child-friendly neighbourhood	Percentage of senior kindergarten children whose parents answered "true" to the statement "My neighbourhood is child-friendly". **Historical data:** • 2012	**Suspended** (2021)	• 2018 KPS sample size too small for Neighbourhood analysis.	Not available.

Indicator	Description & historical data available	Status	Reason for replacement or retirement	Replacement indicators
Commuting duration	The number of minutes it took for a person to travel from home to work. **Historical data:** 2012	**Suspended** (2021)	• Neighbourhood-level data currently unavailable.	Not available.
Dental decay prevalence in school in grade 2 students	Dental decay prevalence is determined by the oral health screening results of all Grade 2 students in Durham Region public schools. **Historical data:** • 2013/14 • 2014/15	**Dropped** (2021)	• Individual and Neighbourhood-level data currently unavailable.	Not available.
EDI- Vulnerable in two or more domains	The EDI indicator measures the percentage of SK children who scored below the Ontario 10th percentile cut-off in two or more EDI domains. **Historical data:** • 2012 • 2015	**Dropped** (2017)	• Critical difference not provided for calculating statistically significant differences.	Not available.

Indicator	Description & historical data available	Status	Reason for replacement or retirement	Replacement indicators
Flu immunization rate, ages 18+	The percentage of adults aged 18 years or older who get a flu shot. **Historical data:** • 2009 to 2013	**Dropped** (2021)	• Indicator primarily identified Neighbourhoods with high senior populations.	Not available.
Influenza	The number of cases of influenza divided by the total population, multiplied by 100,000. **Historical data:** • 2009 to 2013	**Dropped** (2021)	• Indicator primarily identified Neighbourhoods with high senior populations.	Not available.
Mothers aged 23 years or younger	The percentage of deliveries that are among young mothers aged 23 years or younger. **Historical data:** • 2010 to 2014	**Replaced** (2021)	• Data source changed from hospital discharges to BORN to capture homebirths. • Indicator was renamed.	• Births to young mothers
Mothers aged 35 years or older	The percentage of deliveries that are among young mothers aged 35 years and older. **Historical data:** • 2010 to 2014	**Replaced** (2021)	• Data source changed from hospital discharges to BORN to capture homebirths. • Indicator was renamed.	• Births to older mothers

Indicator	Description & historical data available	Status	Reason for replacement or retirement	Replacement indicators
No high school completion (low education)	The percentage aged 25 to 64 years that did not complete high school. **Historical data:** • 2011	**Replaced** (2021)	• Data source updated from the NHS to the long-form census. • Replaced by an indicator with a positive outcome.	• Postsecondary education
Parent-rated health of SK children	Percentage of senior kindergarten (SK) children whose parents rated their child's health as excellent or very good.	**Suspended** (2021)	• 2018 KPS sample size too small for Neighbourhood analysis.	Not available
Physical activity rate, ages 18-69 years	The percentage of adults aged 18 to 69 with a high level of physical activity.	**Dropped** (2021)	• Data unavailable after 2013.	Not available
Population with a primary care physician	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). **Historical data:** • 2013	**Dropped** (2021)	• Indicator not informative.	Not available

Indicator	Description & historical data available	Status	Reason for replacement or retirement	Replacement indicators
Preterm birth rate in singletons	The percentage of singleton (non-multiple) live births delivered in hospital before 37 completed weeks of gestation. **Historical data:** • 2010 to 2012 • 2013 to 2015	**Replaced** (2021)	• Data source changed from hospital discharges to BORN. • Indicator definition updated to capture homebirths and multiple births.	• Preterm births
Recent immigrants	The percentage of the population that immigrated to Canada between 2001 and 2011. **Historical data:** • 2011	**Replaced** (2021)	• Data source updated from the NHS to the long-form census. • Indicator renamed using more inclusive language.	• Recent newcomers
SK children walking or biking to school	Percentage of senior kindergarten (SK) children whose parents reported that their child gets to school most often by **Historical data:** • 2012	**Suspended** (2021)	• 2018 KPS sample size was too small for Neighbourhood analysis.	Not available.

Indicator	Description & historical data available	Status	Reason for replacement or retirement	Replacement indicators
Vegetable and fruit consumption rate, ages 18+ years	The percentage of adults aged 18 years or older who eat vegetables and fruits five or more times per day. **Historical data:** • 2007, 2009, 2011 *(3 years grouped)*	**Dropped** (2021)	• Data unavailable after 2013.	Not available.

ISCIS: Integrated Services for Children Information System

BORN: Better Outcomes Registry Network

KPS: Kindergarten Parent Survey

RRFSS: Rapid Risk Factor Surveillance Survey

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If you require this information in an accessible format, contact 1-800-841-2729.

Appendix 1: List of Current Health Neighbourhoods Indicators

	Indicator	Status	Section	Years Available	Data Source
1	18-month Well-Baby Visit	Updated	Child health: 18-month well baby visit	2010-2012, 2013-2015	OHIP
2	Births to older mothers	Modified, updated	Child health: Births	2013-2015, 2016-2018	BORN
3	Births to young mothers	Modified, updated	Child health: Births	2013-2015, 2016-2018	BORN
4	Large-for-gestational age (LGA)	Modified, updated	Child health: Births	2013-2015, 2016-2018	BORN
5	Live birth rate	Modified, updated	Child health: Births	2016	BORN
6	Preterm births	Modified, updated	Child health: Births	2013-2015, 2016-2018	BORN
7	Small-for-gestational age (SGA)	Modified, updated	Child health: Births	2013-2015, 2016-2018	BORN
8	Teen pregnancy rate	Updated	Child health: Births	2010-2012, 2015-2017	BORN, DAD & OHIP
9	Breastfeeding for 6 months or more	Updated	Child health: Breastfeeding	2007-2012, 2013-2017	BORN
10	Early breastfeeding	Modified, updated	Child health: Breastfeeding	2014-2017	BORN
11	Early exclusive breastfeeding	Modified, updated	Child health: Breastfeeding	2014-2017	BORN

	Indicator	Status	Section	Years Available	Data Source
12	Communication skills & general knowledge	Updated	Child health: School readiness	2012, 2015, 2018	EDI
13	Emotional maturity	Updated	Child health: School readiness	2012, 2015, 2018	EDI
14	Language & cognitive development	Updated	Child health: School readiness	2012, 2015, 2018	EDI
15	Physical health and well-being	Updated	Child health: School readiness	2012, 2015, 2018	EDI
16	Social competence	Updated	Child health: School readiness	2012, 2015, 2018	EDI
17	Vulnerable in one or more EDI domains	Updated	Child health: School readiness	2012, 2015, 2018	EDI
18	ACE-like risk factors: Maternal mental illness	New	Child health: Adverse childhood experiences	2013-2015, 2016-2018	ISCIS
19	ACE-like risk factors: Maternal smoking or substance use	New	Child health: Adverse childhood experiences	2013-2015, 2016-2018	ISCIS
20	ACE-like risk factors: One or more	New	Child health: Adverse childhood experiences	2013-2015, 2016-2018	ISCIS
21	Asthma prevalence in children	Updated	General health: Chronic diseases	2013, 2016	ICES
22	Cardiovascular disease hospitalization	Updated	General health: Chronic diseases	2010-2012, 2015-2017	DAD
23	Diabetes incidence	New	General health: Chronic diseases	2013, 2016	ICES
24	Diabetes prevalence	Updated	General health: Chronic diseases	2013, 2016	ICES

	Indicator	Status	Section	Years Available	Data Source
25	Hypertension prevalence	New	General health: Chronic diseases	2013, 2016	ICES
26	Lung disease (COPD) prevalence	Updated	General health: Chronic diseases	2013, 2016	ICES
27	Obesity	Updated	General health: Obesity	2009-2013, 2014-2018	RRFSS
28	Life expectancy in females	Updated	General health: Health & longevity	2009-2013, 2014-2018	ORGD
29	Life expectancy in males	Updated	General health: Health & longevity	2009-2013, 2014-2018	ORGD
30	Premature mortality in females	New	General health: Health & longevity	2012-2016	ICES
31	Premature mortality in males	New	General health: Health & longevity	2012-2016	ICES
32	Self-rated health	Updated	General health: Health & longevity	2009-2013, 2014-2018	RRFSS
33	Chlamydia in young females	Updated	General health: Infectious diseases	2010-2012, 2015-2017	iPHIS
34	Enteric diseases	Updated	General health: Infectious diseases	2010-2012, 2015-2017	iPHIS
35	Hepatitis C	Updated	General health: Infectious diseases	2009-2013, 2014-2018	iPHIS
36	Tuberculosis	Updated	General health: Infectious diseases	2009-2013, 2014-2018	iPHIS
37	Assault, ages 10-24	New	General health: Injury	2010-2012, 2015-2017	NACRS
38	Asthma emergency visits in children	Updated	General health: Injury	2010-2012, 2015-2017	NACRS

	Indicator	Status	Section	Years Available	Data Source
39	Falls, ages 0-4	Updated	General health: Injury	2010-2012, 2015-2017	NACRS
40	Falls, ages 65+	Updated	General health: Injury	2010-2012, 2015-2017	NACRS
41	Motor vehicle collisions, ages 15-24	Updated	General health: Injury	2010-2012, 2015-2017	NACRS
42	Sports injuries, ages 10-14	Updated	General health: Injury	2010-2012, 2015-2017	NACRS
43	MHA doctor visits, ages 0-24	New	General health: Mental health & addictions	2013, 2016	ICES
44	MHA emergency visits, ages 0-24	New	General health: Mental health & addictions	2013, 2016	ICES
45	Self-harm emergency visits, ages 10-24	New	General health: Mental health & addictions	2010-2012, 2015-2017	NACRS
46	Self-rated mental health	Updated	General health: Mental health & addictions	2014-2018	RRFSS
47	Walk or cycle trips to school, ages 11-17	New	Health behaviours & risks: Active transport	2016	TTS
48	Walk, cycle or transit to work, ages 18+	New	Health behaviours & risks: Active transport	2016	TTS

	Indicator	Status	Section	Years Available	Data Source
49	Non-urgent ambulance calls	New	Health behaviours & risks: Ambulance	2012-2014, 2015-2017	ACR
50	Non-urgent ambulance calls in seniors	New	Health behaviours & risks: Ambulance	2012-2014, 2015-2017	ACR
51	Residence ambulance calls	Updated	Health behaviours & risks: Ambulance	2012-2014, 2015-2017	ACR
52	Residence ambulance calls in seniors	Updated	Health behaviours & risks: Ambulance	2012-2014, 2015-2017	ACR
53	Breast cancer screening (mammography)	Updated	Health behaviours & risks: Cancer screening	2013, 2016	ICES
54	Cervical cancer screening (Pap tests)	Updated	Health behaviours & risks: Cancer screening	2013, 2016	ICES
55	Overdue for colorectal cancer screening	Updated	Health behaviours & risks: Cancer screening	2013, 2016	ICES
56	Hepatitis B immunization	Updated	Health behaviours & risks: Immunization	2018/2019, 2019/2020	Panorama
57	HPV immunization	Updated	Health behaviours & risks: Immunization	2018/2019, 2019/2020	Panorama
58	Meningococcal disease immunization	Updated	Health behaviours & risks: Immunization	2018/2019, 2019/2020	Panorama
59	School-required immunizations, ages 16-17	Updated	Health behaviours & risks: Immunization	2018/2019, 2019/2020	Panorama
60	School-required immunizations, ages 7-8	Updated	Health behaviours & risks: Immunization	2018/2019, 2019/2020	Panorama

	Indicator	Status	Section	Years Available	Data Source
61	Domestic incidents	Updated	Health behaviours & risks: Police-reported incidents	2012-2014, 2015-2017	UCR
62	Domestic incidents with children present	Updated	Health behaviours & risks: Police-reported incidents	2012-2014, 2015-2017	UCR
63	Smoking	Updated	Health behaviours & risks: Smoking	2009-2013, 2014-2018	RRFSS
64	Children in low income households	Updated	Socio-Demographics: Socio-economic status	2016	Census
65	Low income	Updated	Socio-Demographics: Socio-economic status	2016	Census
66	Median income	Updated	Socio-Demographics: Socio-economic status	2016	Census
67	Postsecondary education	Modified, updated	Socio-Demographics: Socio-economic status	2016	Census
68	Seniors in low income households	New	Socio-Demographics: Socio-economic status	2016	Census
69	Unemployment	Updated	Socio-Demographics: Socio-economic status	2016	Census
70	Aboriginal population	Updated	Socio-Demographics: Demographics	2016	Census
71	Female lone-parent families	Updated	Socio-Demographics: Demographics	2016	Census
72	Foreign-born population	New	Socio-Demographics: Demographics	2016	Census

	Indicator	Status	Section	Years Available	Data Source
73	Home language not English	New	Socio-Demographics: Demographics	2016	Census
74	Non-English speakers	New	Socio-Demographics: Demographics	2016	Census
75	Recent newcomers	Updated, renamed	Socio-Demographics: Demographics	2016	Census
76	Seniors living alone	Updated	Socio-Demographics: Demographics	2016	Census
77	Visible minorities	Updated	Socio-Demographics: Demographics	2016	Census
78	Major dwelling repairs	Updated	Socio-Demographics: Housing	2016	Census
79	Movers	Updated	Socio-Demographics: Housing	2016	Census
80	Not suitable housing	Updated	Socio-Demographics: Housing	2016	Census
81	Renters	Updated	Socio-Demographics: Housing	2016	Census
82	Shelter costs	Updated	Socio-Demographics: Housing	2016	Census
83	Population aged 0-14	Updated	Socio-Demographics: Population	2011, 2016	Census
84	Population aged 0-4	Updated	Socio-Demographics: Population	2011, 2016	Census
85	Population aged 5-9	Updated	Socio-Demographics: Population	2011, 2016	Census
86	Population aged 10-14	Updated	Socio-Demographics: Population	2011, 2016	Census
87	Population aged 15-19	Updated	Socio-Demographics: Population	2011, 2016	Census

	Indicator	Status	Section	Years Available	Data Source
88	Population aged 20-24	Updated	Socio-Demographics: Population	2011, 2016	Census
89	Population aged 25-29	Updated	Socio-Demographics: Population	2011, 2016	Census
90	Population aged 30-39	Updated	Socio-Demographics: Population	2011, 2016	Census
91	Population aged 40-49	Updated	Socio-Demographics: Population	2011, 2016	Census
92	Population aged 50-59	Updated	Socio-Demographics: Population	2011, 2016	Census
93	Population aged 60-64	Updated	Socio-Demographics: Population	2011, 2016	Census
94	Population aged 65+	Updated	Socio-Demographics: Population	2011, 2016	Census
95	Population density	New	Socio-Demographics: Population	2016	Census
96	Population growth rate	Updated	Socio-Demographics: Population	2011, 2016	Census

Appendix 1: List of Release 4 Health Neighbourhoods Indicators, June 2022
Glossary of Data Sources

ACR	Ambulance Call Report Database, Region of Durham Paramedic Services (RDPS)
BORN	BORN Information System, BORN Ontario
Census	Canadian Census, Statistics Canada
DAD	Discharge Abstract Database, IntelliHealth Ontario, Ministry of Health
EDI	Early Development Instrument, Durham Region Social Services Department
ICES	ICES, formerly the Institute for Clinical Evaluative Sciences
IFSS	Infant Feeding Surveillance System, Durham Region Health Department
iPHIS	Integrated Public Health Information System
ISCIS	Integrated Services for Children Information System, Durham Region Health Department
NACRS	National Ambulatory Care Reporting System, IntelliHealth, Ministry of Health
OHIP	Ontario Health Insurance Plan, Medical Services data, IntelliHealth Ontario, Ministry of Health
ORGD	Ontario Office of the Registrar General Database, Mortality Data, IntelliHealth Ontario, Ministry of Health
Panorama	Digital Health Immunization Repository (provincial immunization database)
RRFSS	Rapid Risk Factor Surveillance System, Durham Region Health Department
TTS	Transporation Tomorrow Survey
UCR	Incident-based Uniform Crime Reporting Survey, Durham Region Police Service (DRPS)

Appendix 2: Dropped Data Sources

Kindergarten Parent Survey (KPS)—retired June 2022

The KPS is a questionnaire for parents of senior kindergarten (SK) children that complements the EDI by collecting information about the family and the child's experiences before entering kindergarten.

Reason for retirement: The 2018 KPS did not achieve a sufficient response rate to examine KPS indicators at a Neighbourhood level.

Indicators:

- Child-friendly neighbourhood
- Parent-rated health of SK children
- SK children walking or biking to school

National Household Survey (NHS)—retired June 2022

The NHS replaced the long-form Census in 2011. Similar to Census data, NHS data was obtained through the Community Data Program, with Health Neighbourhood as a custom geography provided for the Durham Consortium. The NHS was a voluntary survey which resulted in more non-response bias than a census, which means that results may not representative of the population, especially in smaller areas or population groups.

Reason for retirement: The long-form Census returned in 2016 and replaced the NHS.

Indicators:

- Aboriginal population
- Children in low-income households
- Female lone-parent families
- Low income
- Major dwelling repairs
- Median income
- Movers
- No high school completion (low education)
- Not suitable housing
- Recent immigrants
- Renters
- Shelter costs
- Seniors living alone
- Unemployment
- Visible minorities

Oral Health Screening—retired June 2022

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.

Reason for retirement: Data were only available at the school level, not the individual or Neighbourhood-level.

Indicators:

- Dental decay prevalence grade 2 students

Appendix 3: Retired & Replaced Indicators

Alcohol use in excess of Canada's low-risk alcohol drinking guidelines, ages 18+

Status	Historical data available	Replacement or alternative indicators available
Dropped (2022) Unavailable after 2013	• 2009, 2010, 2013 *(3 years grouped)*	Not available.

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

Data Sources:

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

Release: January 2015.

All injuries, ED visit rate

Status	Historical data available	Replacement or alternative indicators available
Dropped (2022) Indicator replaced by 6 more specific injury indicators.	• 2011	• Assault, ages 10-14 • Falls, ages 0-4 • Falls, ages 65+ • Motor vehicle traffic collisions, ages 15-24 • Self-harm, ages 10-24 • Sports injuries, ages 10-24

Description: 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.

- 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.

Data Sources:

- Numerator: Emergency Department (ED) Visits, 2011, Ministry of Health, IntelliHealth Ontario.
- Denominator: 2011 Census, Statistics Canada.

Release: January 2015.

Breastfeeding at hospital discharge

Status	Historical data available	Replacement or alternative indicators available
Replaced (2022) Data source changed from ISCIS to BORN. Indicator definition updated to capture homebirths.	• 2010-2012	• Early breastfeeding

Description: The breastfeeding at hospital discharge rate is the number of women who breastfed when discharged from hospital divided by the total number of women who delivered, multiplied by 100.

- This indicator reflects the combined percentage of mothers providing only breastmilk (exclusive breastfeeding) as well as both breastmilk and breastmilk substitute (formula).

Data Sources:

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

Release: January 2015.

Breast milk only at hospital discharge

Status	Historical data available	Replacement or alternative indicators available
Replaced (2022) Data source changed from ISCIS to BORN. Indicator definition updated to capture homebirths.	• 2010-2012	• Early exclusive breastfeeding

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

- Reflects the percentage of mothers providing breastmilk only (exclusive breastfeeding) at the time they were discharged from hospital.
- This indicator does not account for any formula the infant may have received prior to discharge.

Data Sources:

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

Release: January 2015.

Child-friendly neighbourhood

Status	Historical data available	Replacement or alternative indicators available
Suspended (2022) 2018 KPS sample size too small for Neighbourhood analysis.	2012	Not available.

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

Data Sources:

- Numerator and denominator: Kindergarten Parent Survey (KPS), 2012, Durham Region.

Release: January 2015.

Commuting duration

Status	Historical data available	Replacement or alternative indicators available
Suspended (2022) Neighbourhood-level data currently unavailable.	2011	Not available.

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

Data Sources:

- Numerator and denominator: National Household Survey (NHS) 2011, Statistics Canada.

Release: January 2015.

Dental decay prevalence in school in grade 2 students

Status	Historical data available	Replacement or alternative indicators available
Dropped (2022) Individual and Neighbourhood-level data unavailable.	School years: • 2013/14 • 2014/15	Not available.

Description: 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.

- Dental decay information is provided by school and not by Health Neighbourhood.

Data Sources:

- Numerator and denominator: Oral Health School Screening Program, 2013/14 & 2014/15, Durham Region Health Department.

Release: January 2015.

EDI- Vulnerable in two or more domains

Status	Historical data available	Replacement or alternative indicators available
Dropped (2017) Critical difference not provided for calculating statistically significant differences.	• 2012 • 2015	Not available.

Description: The EDI indicator measures the percentage of SK children who scored below the Ontario 10th percentile cut-off in two or more EDI domains. The five EDI domains are: physical health and well-being, social competence, emotional maturity, language and cognitive development, and communication skills and general knowledge.

Data Sources:

- Numerator and denominator: Early Development Instrument (EDI), Durham Region, Cycle 3 2012 and Cycle 4 2015.

Release: January 2015.

Flu immunization rate, ages 18+

Status	Historical data available	Replacement or alternative indicators available
Dropped (2022) Indicator primarily identified Neighbourhoods with high senior populations.	• 2009 to 2013	Not available.

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

Data Sources:

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

Release: January 2015.

Influenza

Status	Historical data available	Replacement or alternative indicators available
Dropped (2022) Indicator not informative and does not do a good job at showing patterns that could be targeted by public health efforts. Uneven testing, older adults, and those in long-term care facilities and retirement homes were likely to be picked up more.	• 2009 to 2013	Not available.

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

Data Sources:

- Numerator and denominator: Ontario Ministry of Health, integrated Public Health Information System (iPHIS) database, 2009-2013.

Release: January 2015.

Mothers aged 23 years or younger

Status	Historical data available	Replacement or alternative indicators available
Replaced (2022) Data source changed from hospital discharges to BORN to capture homebirths. Indicator renamed.	• 2010-2014	Births to young mothers

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

- Deliveries include both live births and stillbirths.
- A multiple birth is counted as one delivery.

Data Sources:

- Numerator and denominator: Hospital In-Patient Discharges 2010-2014, Ministry of Health, IntelliHealth ONTARIO.

Release: February 2016.

Mothers aged 35 years or older

Status	Historical data available	Replacement or alternative indicators available
Replaced (2022) Data source changed from hospital discharges to BORN to capture homebirths. Indicator renamed.	• 2010-2014	Births to older mothers

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

- Deliveries include both live births and stillbirths.
- A multiple birth is counted as one delivery.

Data Sources:

- Numerator and denominator: Hospital In-Patient Discharges 2010-2014, Ministry of Health, IntelliHealth ONTARIO.

Release: February 2016.

No high school completion (low education)

Status	Historical data available	Replacement or alternative indicators available
Replaced (2022) Replaced by an indicator with a positive outcome.	• 2011	Postsecondary education

Description: The percentage aged 25 to 64 years that did not complete high school.

Data Sources:

- Numerator and denominator: National Household Survey (NHS) 2011, Statistics Canada.

Release: January 2015.

Parent-rated health of SK children

Status	Historical data available	Replacement or alternative indicators available
Suspended (2022) 2018 KPS sample size too small for Neighbourhood analysis.	• 2012	Not available.

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

Data Sources:

- Numerator and denominator: Kindergarten Parent Survey (KPS), 2012, Durham Region.

Release: January 2015.

Physical activity rate, ages 18-69 years

Status	Historical data available	Replacement or alternative indicators available
Dropped (2022) Data unavailable after 2013.	2007, 2009, 2011 (3 years grouped)	Not available.

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

- Physical activity was assessed based on 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.

Data Sources:

- Numerator and denominator: 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.

Population with a Primary Care Physician

Status	Historical data available	Replacement or alternative indicators available
Dropped (2022) Not informative.	2013	Not available.

Description: 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.

- 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.
- A primary care physician is not restricted to General Practitioners.

Data Sources:

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

Release: February 2016.

Preterm birth rate in singletons

Status	Historical data available	Replacement or alternative indicators available
Replaced (2022) Data source changed from hospital discharges to BORN. Indicator definition updated to capture homebirths and multiple births.	• 2010 to 2012 • 2013 to 2015	• Preterm births (2013 to 2015; 2015 to 2018)

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

- Multiple births were excluded 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 occurrent of preterm twins in a Neighbourhood with few births will not inflate the rate in that Neighbourhood.

Data Sources:

- Numerator and denominator: Hospital In-Patient Discharges, 2010-2012 and 2013-2015, Ministry of Health, IntelliHealth ONTARIO.

Release: January 2015.

Recent immigrants

Status	Historical data available	Replacement or alternative indicators available
Replaced (2022) Data source updated from the NHS to the long-form census. Indicator renamed using more inclusive language.	• 2011	• Recent newcomers (2016)

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

Data Sources:

- Numerator and denominator: National Household Survey (NHS) 2011, Statistics Canada.

Release: January 2015.

SK Children walking or biking to school

Status	Historical data available	Replacement or alternative indicators available
Suspended (2022) 2018 KPS sample size too small for Neighbourhood analysis.	2012	Not available.

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

Data Sources:

- Numerator and denominator: Kindergarten Parent Survey (KPS), 2012, Durham Region.

Release: January 2015.

Vegetable and fruit consumption rate, ages 18+ years

Status	Historical data available	Replacement or alternative indicators available
Dropped (2022) Data unavailable after 2013.	2007, 2009, 2011 *(3 years grouped)*	Not available.

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

Data Sources:

- Numerator and denominator: 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.