Guide to Health Neighbourhoods: Data Sources

Durham Region Health Department

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Table of Contents

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.

As of 2024, we are receiving ICES data for cancer screening through a partnership agreement with the Ontario Community Health Profiles Partnership (OCHPP).

ICES data were used to generate the following indicators:

- Premature mortality in males
- Premature mortality in females
- Mental health and addictions doctor visits, ages 0-24
- Mental health and addictions emergency visits, ages 0-24
- Breast cancer screening (mammography), ages 52-74
- 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+

The following indicators were generated by OCHPP:

- Cervical cancer screening

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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 the **Appendix**.

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If you require this information in an accessible format, contact 1-800-841-2729.

Appendix: 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