Measuring the Health of Infants, Children and Youth for Public Health in Ontario:
Indicators, Gaps and Recommendations for Moving Forward

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Main messages

This report charts a path forward for population health assessment and surveillance in infants, children and youth from birth to 19 years of age (referred to broadly as “children”) for the public health sector in Ontario. Recognizing the importance of forming strong partnerships with other sectors that have a stake in child health, we hope to foster the necessary commitment to advance a coordinated, province-wide population health assessment and surveillance system for children in Ontario.

The results highlight a strong foundation of ready-to-report Core Indicators produced by the Association of Public Health Epidemiologists in Ontario (APHEO) that can be used to measure child health. Sixty-seven Core Indicators that correspond to requirements of the Ontario Public Health Standards (OPHS) may be reported on now, while an additional 12 relevant Core Indicators require expanded data sources or definitions for infants, children or youth. The greatest need for indicator development is in breastfeeding, exposure to ultraviolet radiation, growth and development, healthy eating, healthy family dynamics, healthy weights and positive parenting. In addition, stakeholders identified that there is a need to develop indicators in areas outside of the OPHS, such as mental health and healthy schools.

The results also outline first steps toward indicator development in priority areas, but in many cases filling gaps will require research to develop valid and reliable survey questions or tools, data source development or defining the OPHS assessment and surveillance topic area in operational terms. Based on the results, a series of 10 system-level recommendations actionable by Public Health Ontario in collaboration with key partners is presented to demonstrate the breadth and depth of work that is needed to advance population health assessment and surveillance for children in the province and to provide steps for moving forward.

No other initiatives have examined the ability to report on child health in Ontario according to the requirements described in the OPHS with standardized indicators that are commonly used. This approach is beneficial because it grounds the report in the mandated work of public health. However, this focus limits the scope of the report compared to initiatives that have broadly defined health based on a socio-ecological model. Future work should integrate these approaches to collect and analyze data at all levels, over time and across the life course. This represents an ideal state for a child and youth health population health assessment and surveillance system.
Executive summary

Background

Ontario is home to nearly 3.1 million infants, children and youth aged 0 to 19 years (referred to here as “children”), yet the province lacks a coordinated system to monitor their health. Population health assessment and surveillance activities specifically tailored to children are critical for several reasons:

- The risk factors, diseases and disorders and determinants of health for children are different from adults.¹

- Early-life exposure to key risk and protective factors affect how physical, cognitive, emotional, behavioural and social capacities develop throughout childhood and across the life course.²

- Robust surveillance systems aid in informing the planning, monitoring and evaluation of collective actions to improve child health. These actions may have cost-saving implications in the form of illness prevention and improved population health outcomes across the life course.³

To date, few child health status reports have been produced at the provincial level (an exception is a commissioned report on child well-being published in 2009⁴), and a requisite set of common indicator definitions and comprehensive data collection systems do not exist. While several important initiatives have assessed the availability of indicators in the general population, none of these initiatives focus specifically on children.⁵,⁶

This report aims to advance child population health assessment and surveillance in Ontario, starting from an initial set of indicators generated by the Association of Public Health Epidemiologists in Ontario (APHEO) Core Indicators Work Group.⁷ The objectives of this report are to:

1. Identify existing indicators and data sources in Ontario that can be used to measure child health, including health disparities.

2. Describe gaps in the current range of indicators.

3. Initiate a process to address indicator gaps.

4. Develop recommendations for a proposed approach to advance population health assessment and surveillance for children in Ontario.
Approach and limitations

This report is the result of a project that employed various methods to assess the availability of indicators to measure child health in Ontario. A Stakeholder Advisory Committee (SAC) and a Scientific Review Panel (SRP) consisting of leaders in child health from research, policy and practice were formed to contribute field and scientific expertise to this report. The assessment of indicators focuses on the Core Indicators generated by the APHEO. Core Indicators, which are commonly used for health status reporting in Ontario, are measured against the requirements of the Ontario Public Health Standards (OPHS). The OPHS sets out the measurement requirements for local boards of health (public health units). Use of the OPHS and Core Indicators grounded this report in the core work of public health; however, other important areas and indicators outside the scope of the OPHS or the Core Indicators were therefore not included. Future work should expand on this report to include additional topics and indicators that examine child health more broadly.

Results

Availability of Core Indicators for child health

APHEO Core Indicators provide a foundation for population health status reporting in public health in Ontario. Seventy-nine unique Core Indicators that correspond to the assessment and surveillance requirements of the OPHS were determined to be relevant to child health. Of these, 67 have both a definition and a data source (see appendix D) and are therefore considered to be ready to report (listed on next page).
**Ready to report indicators**

1. Aboriginal population  
2. Adolescent body mass index  
3. Adverse events following immunization  
4. Age of parents at infant’s birth  
5. All-cause hospitalization  
6. All-cause mortality  
7. Birth weight  
8. Breastfeeding initiation and duration  
9. Cancer incidence  
10. Cancer mortality  
11. Car seat and booster seat safety  
12. Caries-free children  
13. Cellphone use while driving  
14. Child and adolescent hospitalization  
15. Child and adolescent mortality  
16. Children with dental treatment needs  
17. Chronic disease hospitalization  
18. Chronic disease mortality  
19. Congenital anomalies  
20. Congenital infections  
21. Crude birth rate  
22. deft/DMFT index  
23. Dependency ratios  
24. Drinking and driving prevalence  
25. Ethnic/cultural origin  
26. Fall-related emergency department visits  
27. Fall-related hospitalizations  
28. Falls-related mortality  
29. Fertility rates  
30. Fluorosis index  
31. Food insecurity  
32. Heavy drinking episodes  
33. Home language  
34. Illicit drug use  
35. Immigrant population  
36. Infectious disease incidence  
37. Infectious disease mortality  
38. Injury-related emergency department visits  
39. Injury-related hospitalization  
40. Injury-related mortality  
41. Intentional self-harm-related hospitalization  
42. Minors’ access to tobacco  
43. Mother tongue  
44. Motor vehicle traffic collision injuries  
45. Multiple birthrate  
46. Neonatal and infant mortality rates  
47. Neurotrauma-related hospitalization  
48. Non-smoker second-hand smoke exposure  
49. Pelvic inflammatory disease morbidity  
50. Per cent who cannot speak English or French  
51. Perinatal mortality and stillbirth rates  
52. Population by age and sex  
53. Population growth  
54. Pregnancy rate  
55. Pre-term birthrate  
56. Projected population growth  
57. Seatbelt use  
58. Single-parent family  
59. Smoke-free homes  
60. Smoking cessation  
61. Smoking during pregnancy  
62. Smoking status  
63. Suicidal thoughts and attempts  
64. Suicide mortality  
65. Underage alcohol drinking  
66. Urban and rural population  
67. Youth sexual activity
An additional 12 Core Indicators are underdeveloped for measurement in children. Five have a definition but an inadequate data source, six have a data source but an inadequate definition, and one has an inadequate data source and definition.

**Adequate definition; inadequate data source**
1. Childhood vaccination coverage
2. Early-childhood tooth decay
3. Self-rated health
4. Self-reported injury
5. Ultraviolet radiation exposure

**Adequate data source; inadequate definition**
1. Age of sexual debut
2. Condom use the last time among those at risk of STDs
3. Frequency of condom use among those at risk for STDs
4. Leisure-time physical activity
5. Number of sexual partners
6. Screen time

**Inadequate definition and data source**
1. Vegetable and fruit consumption

**Priority areas for development**
Seven assessment and surveillance requirement areas in the OPHS have been identified as priority areas for indicator development because they have fewer than two corresponding Core Indicators. These areas are:
1. Breastfeeding
2. Exposure to ultraviolet radiation
3. Growth and development
4. Healthy eating
5. Healthy family dynamics
6. Healthy weights
7. Positive parenting
Recommendations for moving forward

Ten recommendations for moving forward have been provided to suggest next steps for reporting on available indicators, operationalizing existing indicators without data sources or definitions, addressing indicator gaps and developing an approach for ongoing population health assessment and surveillance:

1. Report on available indicators
2. Expand Core Indicators
3. Enhance data sources
4. Address major OPHS indicator gaps
5. Assess minor OPHS indicator gaps
6. Evaluate indicators outside of OPHS
7. Identify indicators for measuring health disparities
8. Determine indicator subsets
9. Renew and revisit indicators
10. Advance a coordinated system

Next steps

To achieve progress on these recommendations, substantial commitment will need to be made by organizations that have a stake in child health, including Public Health Ontario. As a first step, organizations with a mandate consistent with the recommendations should meet to prioritize the recommendations, define leadership roles and related commitments, and chart a course of actionable next steps.
1. Overview

It is widely recognized that the health of our population is dependent on the health of our children, but Ontario lacks a coordinated population health assessment and surveillance system to monitor our success. The specific objectives of this report are to:

1. Identify existing health indicators and data sources in Ontario that can be used to measure child health, including health disparities.
2. Describe gaps in the current range of indicators.
3. Initiate a process to address indicator gaps.
4. Develop recommendations for a proposed approach to advance population health assessment and surveillance for children in Ontario.

Emphasis will be placed on the domains of health outlined in the Ontario Public Health Standards (OPHS) program standards, which includes chronic diseases and injuries, family health (i.e., reproductive and child health), infectious diseases and environmental health. Indicator availability will be assessed based on Core Indicators produced by the Association of Public Health Epidemiologists (APHEO).

1.1. Introduction

It is widely recognized that the health of our population is dependent on the health of our infants, children and youth, referred to broadly as “children,” and yet Ontario lacks a coordinated population health assessment and surveillance system to monitor our success. The purpose of this report is to assess the availability of indicators that can be used to measure child health, highlight indicator gaps and make recommendations for ongoing population health assessment and surveillance for child health in Ontario. Few provincial health status reports exist for this group (a notable exception is a commissioned report on child well-being in Ontario), and the requisite set of common indicator definitions and data collection system with a focus on children does not exist.
The project outlined in this report had an additional benefit beyond assessing the availability of indicators in Ontario. It brought together key stakeholders working in research, policy and practice from public health, health care, education and other sectors to engage in a conversation about future directions for child population health assessment and surveillance in Ontario. The results may be used to aid population health assessment and surveillance activities, including report writing and web-based tool development, and prioritize topic areas for indicator development and research.

1.1.1. Objectives
The specific objectives of this report are to:

1. Identify existing indicators and data sources in Ontario that can be used to measure child health, including measures of health disparities.

2. Describe gaps in the current range of child health indicators.

3. Initiate a process to address indicator gaps.

4. Develop recommendations for a proposed approach to advance population health assessment and surveillance for child health in Ontario.

1.1.2. Scope
Although the preconception and prenatal periods are critical stages of development for child health, this report focuses on indicators that specifically address the period from birth to 19 years of age. There are many ways to conceptualize the age ranges that distinguish infants (and toddlers), children and youth; however, the following were chosen by the project committees as the age ranges used in this report:

- infants: birth to one year of age (i.e., birth to less than two)
- children: two to 11 years of age (i.e., two to less than 12)
- youth: 12 to 19 years of age (i.e., 12 to less than 20)

Emphasis is placed on the measurement requirements outlined in the 2008 Ontario Public Health Standards (OPHS) program standards, which include chronic diseases and injuries, family health, infectious diseases and environmental health. Indicator availability is assessed based on those produced by the Association of Public Health Epidemiologists (APHEO) as part of the Core Indicators for Public Health in Ontario project.
1.2. Background

Ontario is home to nearly 3.1 million children between the ages of zero and 19 years, which represents nearly a quarter of the population of the province. Population health assessment and surveillance activities specifically tailored to this group are critical as the suite of risk factors, diseases, disorders and determinants of health for children are different from adults. In addition, exposure to key risk and protective factors during critical periods of a child’s development, and cumulatively throughout the life course, plays a key role in the genesis of adult health, including chronic disease, mental illness and addiction. A robust system for population health assessment and surveillance for child health contributes to planning cost-efficient programs and evaluating collective action to improve the health of children now and when they become adults.

Internationally, tremendous effort has been dedicated to advancing population health assessment and surveillance in children in the past decade. Organizations in the United States, Australia, New Zealand, Ireland and Europe have completed large-scale projects to develop and assess indicators to monitor the health status, development and well-being of children. For example:

- In 2011, the America’s Children: Key National Indicators of Well-being report presented 41 key indicators that measure the aspects of children’s lives that influence the likelihood they will grow to be well-educated, economically secure, productive and healthy adults.
- In 2006, the New Zealand Child and Youth Health Indicator Project identified 53 indicators under four domains, which were designed to reflect the key steps in the causal pathways linking the wider social-political environment to health outcomes.
- In 2002, the European initiative Child Health Indicators of Life and Development (CHILD) identified 38 core indicators by taking a determinants of child health approach and characterized its indicators into the following three domains: health status measures, health process measures and measures of determinants.
1.2.1. Leveraging existing initiatives

In Ontario, several important initiatives have assessed the availability of indicators to report on the health of the population, but none of these initiatives specifically focus on children. APHEO has made major strides in improving population health assessment and surveillance in Ontario through the Core Indicators for Public Health in Ontario project, which is aimed at developing common indicators based on standard definitions and analytic methods. To date, over 120 Core Indicators have been created, and they are updated as resources permit.

Although an assessment of indicators for children has not been conducted, a number of initiatives have approached the issue from a variety of directions, including:

- As a system-wide visioning process: the Ontario Youth Excel project, a collaboration between the Propel Centre for Population Health Impact and Public Health Ontario, has been working since 2010 to develop a shared vision, goals, objectives and strategies for youth population health assessment and surveillance in Ontario.

- As a primary care research initiative: the Toronto Area Research Group for Kids (TARGet Kids!) is a primary care research network collecting longitudinal clinical, laboratory and other information on a cohort of preschool-aged children within pediatric primary care practices.

- As a public health reporting project: many of Ontario’s 36 public health units have advanced population health assessment and surveillance in children by releasing focused health status reports, which require internal indicator selection processes and, in some cases, survey design and administration.

1.2.2. Framing child health

Several frameworks have been developed to conceptualize child health. Most emphasize individual and family characteristics; however, as early as 1979, broad determinants of health that extend beyond the individual have also been recognized as important. Thus many frameworks for child health also emphasize social and structural characteristics at community, neighbourhood, daycare, school and health care system level, as well as the influence of the broader social and political environment. Several frameworks also incorporate the dimension of time – from conception to adulthood – recognizing the impact of risk and protective factors at critical periods and as they accumulate throughout the life of a child.

Public Health Ontario and the Public Health Agency of Canada have also endorsed an overall socio-ecological model of health first proposed by Dahlgren and Whitehead and described in a paper by the World Health Organization. Working to address determinants of health and reduce health inequities within Ontario, boards of health are responsible for delivering public
health programs and services for their respective public health unit jurisdictions as outlined by the OPHS. In order to ground this report in the fundamental work of public health in Ontario, child health indicators are organized according to the domains of health identified in the OPHS. The OPHS are published by the Ministry of Health and Long-Term Care and identify public health programs and services to be delivered by boards of health across Ontario. The five domains of health discussed in the program standards of the OPHS are: chronic diseases and injuries; family health; infectious diseases; environmental health; and emergency preparedness (Figure 1).

Within each of these domains, the OPHS outlines requirements for:

- assessment and surveillance
- health promotion and policy development
- disease prevention
- health protection

The assessment and surveillance requirements provide specific areas that must be measured and reported on. For example, healthy eating and healthy weights are two areas that require measurement in the chronic diseases and injuries program standards. There are also protocols that provide additional direction on the population health assessment and surveillance activities outlined in the OPHS requirements. The Population Health Assessment and Surveillance protocol provides detailed direction on health status reporting, including identifying that standard indicator definitions such as those provided by APHEO, Statistics Canada and the Canadian Institute for Health Information should be used where available.

Figure 1: Domains of health based on the programs standards of the OPHS
2. Approach

Stakeholder engagement was as important as scientific methods in creating this report. Although the project was led by Public Health Ontario, the project team worked closely with two external committees: the Stakeholder Advisory Committee (SAC) and the Scientific Review Panel (SRP).

To determine the availability of indicators that can be used to measure child health in Ontario, Core Indicators for Public Health in Ontario were matched to measurement areas of the OPHS. Indicator gaps were identified, and available indicators were populated with data sources and definitions. Initial steps were taken to fill gaps, including a series of expert consultations. Recommendations for future action were developed in consultation with the SAC and SRP.

Accurately measuring child health requires partnerships between public health and many other sectors. For this reason, stakeholder engagement was as important as scientific methods in creating this report. A Stakeholder Advisory Committee (SAC) and Scientific Review Panel (SRP) was created to bring leaders together across the broad base of public health, health care and other sectors instrumental to the health and well-being of children. Various methods were used, and emphasis was placed on ensuring that each step of the process achieved multiple levels of agreement. Detailed methods, strengths and limitations are provided in Appendix A.

2.1. Project team and external engagement

The project team at Public Health Ontario worked closely with two external committees: the SAC and SRP. These committees were co-chaired by a Public Health Ontario representative and an external partner. The SAC advised the project team on project direction to ensure that the end product meets the needs of the field. Contributions included providing advice by responding to specific queries from the project team, reviewing documents and discussing recommendations for future action. The SRP ensured that project deliverables were supported by the best available scientific evidence. Contributions included providing scientific and technical advice by responding to specific queries from the project team, reviewing documents and identifying and discussing
recommendations for future action. The SAC and SRP also formed two specialized working groups for specific project-related tasks: the Data Sources Workgroup and the Selection Criteria Workgroup.

2.2. Methods

The relevance of each OPHS assessment and surveillance requirement area was assessed based on two criteria developed to exclude areas that do not apply to children and areas that are more suited to measurement in the general population. To be considered relevant, an area had to:

- represent a phenomena that is disproportionately common in infants, children and youth or
- represent a phenomena that has disproportionately serious consequences when it occurs in infants, children and youth.

Once relevant OPHS assessment and surveillance requirement areas were determined, APHEO Core Indicators were matched to the relevant areas and the Population Health Assessment and Surveillance protocol using the “Alignment of the APHEO Core Indicators with the Ontario Public Health Standards” document as a guide. Areas with two or more Core Indicators were considered to be at least somewhat developed.

In order to assess the relevance of each Core Indicator that was matched to the OPHS, the same relevance criteria were used (i.e., the indicator had to be disproportionately common or have disproportionately serious consequences in children). Each Core Indicator that was determined to be relevant to child health based on its title was then assessed in terms of the availability of data and a definition that captures each age group (infants: zero to one year of age; children: two to 11 years of age; youth: 12 to 19 years of age). The availability of data sources were assessed based on a scan of data sources available to public health according to the following criteria:

- the data are available at the provincial level or
- the data are available to four or more public health units.

A brief literature review was conducted to compile a short list of indicators for measuring health disparities or inequities in children. Four sample indicators were selected, and each data source used in the project was scanned for the availability of those indicators.

In addition to Core Indicators produced by APHEO, “new” suggested indicator titles were generated. The list of “new” suggested indicator titles was used to take a first step toward filling gaps in priority areas. For each priority
area, up to five indicator titles were selected as most important for measurement in children by participants of a 90-minute workshop which took place at a provincial public health conference, The Ontario Public Health Convention (TOPHC). For each selected indicator, a scan of local, provincial and national public health reports was completed to find recently used definitions. All data sources used in the project were scanned for available data.

Once the list of up to five “new” indicators in priority areas was populated with definitions and data sources, experts were consulted by the project team to comment on their agreement with the selection of indicators made by the TOPHC workshop participants, the validity and reliability of existing definitions and data sources for each new priority indicator, and pressing concerns around ethics of data collection and acceptability by the target population.

2.3. Strengths and limitations

This report has several strengths which make it a unique contribution to population health assessment and surveillance in children in Ontario, including the:

- Integrated involvement of the stakeholder and scientific community.
- Use of the OPHS as the guiding framework and APHEO Core Indicators as the indicators of interest (this makes the results highly applicable to public health practice in the province).
- Provision of system-level recommendations developed with scientific and stakeholder input to ensure that work in this area moves forward after project completion.
- Methods that were validated at every stage.

This report also has several limitations, including the:

- Limited post-hoc examination of other important child health frameworks outside of the OPHS, including a socio-ecological perspective (this meant that many important dimensions of child health, including mental health, were not covered).
- Limited examination of areas of importance that are not explicitly mentioned in the assessment and surveillance requirements of the OPHS, especially aspects of environmental health, mental health and healthy schools.
- Use of APHEO Core Indicators as the basis of the gap analysis instead of indicators developed by other organizations (this meant that other potentially high-quality indicators that exist in Ontario were not assessed). Several additional limitations of the use of APHEO Core Indicators should be noted:
- Core Indicators are not specifically developed for children (therefore there may be better measures specific to this population).

- Many Core Indicators have been identified by APHEO as being in need of revision.

- There has been an emphasis on disease-based, as opposed to exposure- or risk factor-based, indicators in some areas such as infectious disease.

- Use of subjective cut points to determine priority areas for future development (this meant that identified areas may not reflect the actual development status of each area; some areas with one indicator may be sufficiently developed with only one indicator, whereas other areas with more indicators may still benefit from additional indicator to measure the concept).

- Use of self-selected workshop participants to make indicator decision in some phases of the project (i.e., at TOPHC) (this meant that other key stakeholders may not have been available or present at the workshop).
3. Results

The OPHS and APHEO Core Indicators provide a foundation for population health status reporting in Ontario. Twenty-four OPHS assessment and surveillance requirement areas and 79 unique Core Indicators that correspond to the OPHS were determined to be relevant to child health. Of these, 12 Core Indicators are underdeveloped for measurement in children. Several indicators for measuring health disparities in children are also available.

Seven assessment and surveillance requirement areas in the OPHS have been identified as priority areas for indicator development because they have fewer than two corresponding Core Indicators. These areas are: breastfeeding, exposure to ultraviolet radiation, growth and development, healthy eating, healthy family dynamics, healthy weights and positive parenting. Preliminary work on filling indicator gaps in these areas is explored.

3.1. Relevant public health content areas for child health

The program standards of the OPHS represent the requirements of boards of health in key content areas relative to protecting and promoting the population’s health. According to this assessment, four of the five domains of health addressed in the OPHS program standards – chronic diseases and injuries, family health, infectious diseases and environmental health – contain assessment and surveillance requirement areas that are relevant to children. Emergency preparedness, the remaining OPHS program standard, impacts the lives of children, but it was determined to be better suited to measurement at the community level.

Across the four relevant program standards, a total of 24 assessment and surveillance requirement areas were determined to be relevant to child health (Figure 2). Other OPHS areas, such as Safe Water and Health Hazard Prevention and Management (measurement requirement areas under the Environmental Health program standards), were excluded because they were determined to be better suited to measurement in the general population.

Additional overarching areas that are outlined in the OPHS Population Health Assessment and Surveillance protocol were determined to be relevant for child health, including:
- socio-demographics (e.g., population counts by age, sex, education, income)
- mortality, including death by cause
- morbidity, including reportable infectious diseases and chronic diseases

It should be noted that there are topic areas that are important to child health which are not explicitly outlined in the OPHS assessment and surveillance requirements or the Population Health Assessment and Surveillance Protocol. In some cases, they are mentioned in other areas of the OPHS like the health promotion and policy development requirements (e.g., healthy schools). In other cases, they may be implicit across the OPHS Program Standards (e.g., mental health). These areas were not included in this analysis.

**Figure 2: OPHS program standards, program areas and assessment and surveillance requirements that are relevant to child health**

*These OPHS assessment and surveillance requirement area names have been abbreviated
†This OPHS assessment and surveillance requirement area name has been modified (to reflect that this area was not considered only in the context of child care and school settings)
### 3.2. Availability of core indicators for child health

#### 3.2.1. Indicator availability

In total, the titles of 79 unique Core Indicators were determined to be relevant to child health. Of these indicator titles, 58 correspond to specific OPHS assessment and surveillance requirement areas and 21 correspond to the more general content in the OPHS Population Health Assessment and Surveillance Protocol. Table 1 summarizes the relationship between OPHS program standards, program areas, assessment and surveillance requirements, and corresponding Core Indicators titles. All indicators are at the individual level of the child unless otherwise noted (e.g., smoke-free homes).

#### Table 1: Assessment of the availability of APHEO Core Indicators that have been determined to be relevant to child health, arranged by OPHS assessment and surveillance requirement area

<table>
<thead>
<tr>
<th>OPHS program standard</th>
<th>OPHS program Area</th>
<th>OPHS assessment and surveillance requirement area</th>
<th>Relevant APHEO Core Indicator title*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic diseases and injuries</td>
<td>Chronic disease prevention</td>
<td>Healthy eating</td>
<td>Vegetable and fruit consumption</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Healthy weights</td>
<td>Adolescent body mass index</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Comprehensive tobacco control</td>
<td>Minors' access to tobacco</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>Non-smoker second-hand smoke exposure</td>
</tr>
<tr>
<td></td>
<td></td>
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<td>Smoking cessation</td>
</tr>
<tr>
<td></td>
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<td>Smoking during pregnancy</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>Smoke-free homes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Smoking status</td>
</tr>
<tr>
<td>Physical activity</td>
<td></td>
<td>Leisure-time physical activity</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Screen time</td>
<td></td>
</tr>
<tr>
<td>Alcohol use</td>
<td></td>
<td>Heavy drinking episodes</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Underage alcohol drinking</td>
<td></td>
</tr>
<tr>
<td>Exposure to UV radiation</td>
<td></td>
<td>Ultraviolet radiation exposure</td>
<td></td>
</tr>
</tbody>
</table>

Seventy-nine APHEO Core Indicators are relevant to child health.
Table 1: Assessment of the availability of APHEO Core Indicators that have been determined to be relevant to child health, arranged by OPHS assessment and surveillance requirement area

<table>
<thead>
<tr>
<th>OPHS program standard</th>
<th>OPHS program Area</th>
<th>OPHS assessment and surveillance requirement area</th>
<th>Relevant APHEO Core Indicator title*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic diseases and injuries (continued)</td>
<td>Prevention of injury and substance misuse</td>
<td>Alcohol and other substances</td>
<td>Drinking and driving prevalence</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Illicit drug use</td>
<td></td>
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<td></td>
<td>Falls across the lifespan</td>
<td>Fall-related emergency department visits</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fall-related hospitalizations</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fall-related mortality</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Road and off-road safety</td>
<td>Car seat and booster seat safety</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cellphone use while driving</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Seatbelt use</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other areas of public health importance for injuries†</td>
<td>Injury-related emergency department visits</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Injury-related hospitalization</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Injury-related mortality</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Intentional self-harm-related hospitalization</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Motor vehicle traffic collision injuries</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Neurotrauma-related hospitalization</td>
<td></td>
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<td></td>
<td></td>
<td>Self-reported injury</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Suicidal thoughts and attempts</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Suicide mortality</td>
<td></td>
</tr>
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</table>
Table 1: Assessment of the availability of APHEO Core Indicators that have been determined to be relevant to child health, arranged by OPHS assessment and surveillance requirement area

<table>
<thead>
<tr>
<th>OPHS program standard</th>
<th>OPHS program Area</th>
<th>OPHS assessment and surveillance requirement area</th>
<th>Relevant APHEO Core Indicator title*</th>
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<tbody>
<tr>
<td><strong>Family health</strong></td>
<td>Reproductive health</td>
<td>Reproductive health outcomes</td>
<td>Fertility rates ________________________________</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Preterm birthrate ____________________________</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Multiple birthrate ___________________________</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Birth weight _________________________________</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Congenital anomalies _________________________</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Congenital infections _________________________</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Perinatal mortality and stillbirth rates _______</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Crude birthrate ______________________________</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Pregnancy rate _______________________________</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Neonatal and infant mortality rates ____________</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Age of parent at infant's birth _________________</td>
</tr>
<tr>
<td><strong>Child health</strong></td>
<td>Positive parenting</td>
<td></td>
<td>________________________________</td>
</tr>
<tr>
<td></td>
<td>Breastfeeding</td>
<td></td>
<td>Breastfeeding initiation and duration ________</td>
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<tr>
<td></td>
<td>Healthy family dynamics</td>
<td></td>
<td>Single-parent families ________________</td>
</tr>
<tr>
<td></td>
<td>Growth and development</td>
<td></td>
<td>________________________________</td>
</tr>
<tr>
<td></td>
<td>Oral health</td>
<td></td>
<td>________________________________</td>
</tr>
<tr>
<td></td>
<td>Infectious diseases prevention and control</td>
<td>Infectious diseases and their risk factors†</td>
<td>Infectious disease incidence __________________</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Infectious disease mortality _________________</td>
</tr>
<tr>
<td>OPHS program standard</td>
<td>OPHS program Area</td>
<td>OPHS assessment and surveillance requirement area</td>
<td>Relevant APHEO Core Indicator title*</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-------------------</td>
<td>-----------------------------------------------</td>
<td>-------------------------------------</td>
</tr>
</tbody>
</table>
| Infectious diseases   | Sexual health, sexually transmitted infections and blood-borne infections | Sexually transmitted infections | Pelvic inflammatory disease morbidity  
| (continued)           |                   |                                               | Infectious disease incidence (STI)  
|                       |                   |                                               | Infectious disease mortality (STI)  
|                       |                   | Blood-borne infections                        | Infectious disease incidence (BBI)  
|                       |                   |                                               | Infectious disease mortality (BBI)  
|                       |                   | Risk behaviours                                | Frequency of condom use among those at risk for STDs  
|                       |                   |                                               | Condom use the last time among those at risk of STDs  
|                       |                   |                                               | Youth sexual activity  
|                       |                   |                                               | Age of sexual debut  
|                       |                   |                                               | Number of sexual partners  
| Tuberculosis prevention and control | Tuberculosis† | Infectious disease incidence (TB)  
|                       |                   |                                               | Infectious disease mortality (TB)  
| Vaccine-preventable diseases | Vaccine-preventable diseases | Infectious disease incidence (VPD)  
|                       |                   |                                               | Infectious disease mortality (VPD)  
|                       |                   | Immunization status‡                          | Childhood vaccination coverage  
|                       |                   |                                               | Adverse events following immunization  
| Environmental health  | Food safety       | Suspected and confirmed food-borne illnesses | Infectious disease incidence (enteric diseases)  
|                       |                   |                                               | Infectious disease mortality (enteric diseases)  

Table 1: Assessment of the availability of APHEO Core Indicators that have been determined to be relevant to child health, arranged by OPHS assessment and surveillance requirement area
Table 1: Assessment of the availability of APHEO Core Indicators that have been determined to be relevant to child health, arranged by OPHS assessment and surveillance requirement area

<table>
<thead>
<tr>
<th>OPHS program standard</th>
<th>OPHS program Area</th>
<th>OPHS assessment and surveillance requirement area</th>
<th>Relevant APHEO Core Indicator title*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population health assessment and surveillance protocol</td>
<td>N/A</td>
<td>N/A</td>
<td>Aboriginal population</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>All-cause hospitalization</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>All-cause mortality</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Cancer incidence</td>
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<td></td>
<td></td>
<td></td>
<td>Cancer mortality</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Child and adolescent hospitalization</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Child and adolescent mortality</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Chronic disease hospitalization</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Chronic disease mortality</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Dependency ratios</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ethnic/cultural origin</td>
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<td></td>
<td></td>
<td></td>
<td>Home language</td>
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<td></td>
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<td>Immigrant population</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Mother tongue</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Per cent who cannot speak English nor French</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Population growth</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Population by age and sex</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Projected population growth</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Self-rated health</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Urban and rural population</td>
</tr>
</tbody>
</table>

*Repeated indicator titles are relevant to more than one assessment and surveillance requirement
†These OPHS assessment and surveillance requirement area names have been abbreviated
‡This OPHS assessment and surveillance requirement area name has been modified (to reflect that this area was not considered only in the context of child care and school settings)
3.2.2. Priority areas for further development

In order to assess which areas are in greatest need of indicator development, priority areas were determined by the number of available Core Indicators. Areas with fewer than two Core Indicators were considered a priority for indicator development, while areas with two or more Core Indicators were considered at least partially developed.

In total, 17 of the 24 assessment and surveillance requirement areas have two or more Core Indicators. The remaining seven areas, which have fewer than two Core Indicators, are: breastfeeding, exposure to ultraviolet radiation, growth and development, healthy eating, healthy family dynamics, healthy weights and positive parenting (Table 2). These are priority areas for future indicator development.

In addition to indicator gaps related to the OPHS, it may be helpful to consider the availability of Core Indicators using different frameworks to illuminate other types of gaps. For example, Appendix B, which maps the Core Indicators by socio-ecological level, suggests there may be gaps in family- and policy-level indicators for some age groups.

### Table 2: Priority areas for indicator development, based on the availability of fewer than two APHEO Core Indicators

<table>
<thead>
<tr>
<th>OPHS assessment and surveillance requirement areas with 0 APHEO Core Indicators</th>
<th>OPHS assessment and surveillance requirement areas with 1 APHEO Core Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breastfeeding</td>
<td>Exposure to ultraviolet radiation</td>
</tr>
<tr>
<td>Growth and development</td>
<td>Healthy eating</td>
</tr>
<tr>
<td>Positive parenting</td>
<td>Healthy family dynamics</td>
</tr>
<tr>
<td></td>
<td>Healthy weights</td>
</tr>
</tbody>
</table>
3.3. Status of available core indicators for child health

Of the 79 Core Indicators that were determined to be relevant to child health, 67 are considered ready to report because they have relevant data sources and definitions (Table 3). A total of 12 are not ready to report because the indicator has an inadequate definition or data source for measuring the concept in infants, children and/or youth. The 12 indicators that are not ready to report fall into the following groups:

- inadequate definition for infants, children and/or youth (n=6)
- inadequate data source for infants, children and/or youth (n=5)
- inadequate definition and data source for infants, children and/or youth (n=1)

All of the Core Indicators that are ready to report were theoretically available at the provincial and public health unit level except for those that depend on data from the Rapid Risk Factor Surveillance System (RRFSS); this impacts two indicators (Table 3). Additional work needs to be done to ensure that sample sizes and data access procedures allow for public health unit-level analyses. A complete list of Core Indicator definitions and available data sources for children are outlined in Appendix D. It should also be noted that the Core Indicator-related information in this report may become outdated quickly because it is consistently being re-evaluated and updated. For the most current information, visit the APHEO website at http://www.apheo.ca.

Details of the data sources, including age ranges and geographical availability, are outlined in Appendix E. A more comprehensive summary and assessment of these data sources is currently being completed by PHO as part of a derivative data sources project. This project will capture information on areas influencing data quality and utility for child and youth health data sources in Ontario, including coverage, sustainability and accessibility. An assessment will be provided for each data source included according to its strengths and limitations in these areas. Information included in the data source assessments will be validated through contact with external experts.

3.3.1. Indicators with inadequate definition for infants, children and/or youth

The six Core Indicators that have inadequate definitions for infants, children or youth – meaning that the existing definition does not apply to one or all of these groups – tend to be in the areas of sexual health risk behaviours and physical activity. In particular:

- Age of sexual debut is missing a definition for youth (not applicable to infants or children).
Condom use the last time among those at risk of sexually transmitted diseases, now more commonly referred to as sexually transmitted infections, is missing a definition for youth (not applicable to infants or children).

Frequency of condom use among those at risk for sexually transmitted diseases, now more commonly referred to as sexually transmitted infections, is missing a definition for youth (not applicable to infants or children).

Leisure-time physical activity is missing a definition for children (not applicable to infants).

Number of sexual partners is missing a definition for youth (not applicable to infants or children).

Screen time is missing a definition for children (not applicable to infants).

Early-childhood tooth decay is missing a data source for children.

Self-/parent-rated health is missing a data source for infants.

Self-/parent-reported injury is missing a data source for infants and children.

Ultraviolet radiation exposure is missing a data source for children and youth (not applicable to infants).

An additional indicator, early-childhood tooth decay, appears to be missing a data source for children (not applicable to infants or youth). It has been identified that this indicator is in urgent need of revision.

### 3.3.2. Indicators with inadequate data source for infants, children and/or youth

Indicators from various OPHS assessment and surveillance requirement areas do not have adequate data sources. Specifically:

- Childhood vaccination coverage is missing a data source for infants and for children and youth who are not school age.

### 3.3.3. Indicators with inadequate definition and data source for infants, children and/or youth

One healthy eating indicator, vegetable and fruit consumption, is missing a data source and definition for children.

Table 3 describes the availability of data sources and definitions for infants, children and youth, including geographic availability at the local and provincial level.
Table 3: Summary of the assessment of relevance of APHEO Core Indicators for children, availability of data sources for children and geographic availability of data

<table>
<thead>
<tr>
<th>APHEO Core Indicator title</th>
<th>APHEO definition available*</th>
<th>Data source available*</th>
<th>Geographic availability †</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Infants</td>
<td>Children</td>
<td>Youth</td>
</tr>
<tr>
<td>1. Aboriginal population</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>2. Adolescent body mass index</td>
<td>N/A</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>3. Adverse events following immunization</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>4. Age of parent at infant’s birth</td>
<td>Y</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>5. Age of sexual debut</td>
<td>N/A</td>
<td>N/A</td>
<td>N</td>
</tr>
<tr>
<td>6. All-cause hospitalization</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>7. All-cause mortality</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>8. Birth weight</td>
<td>Y</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>9. Breastfeeding initiation and duration</td>
<td>Y</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>10. Cancer incidence</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>11. Cancer mortality</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>12. Car seat and booster seat safety</td>
<td>Y</td>
<td>Y</td>
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<td>13. Caries-free children</td>
<td>N/A</td>
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<td>14. Cellphone use while driving</td>
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<td>15. Child and adolescent hospitalization</td>
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<td>Y</td>
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</tr>
<tr>
<td>16. Child and adolescent mortality</td>
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<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>17. Childhood vaccination coverage</td>
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<td>18. Children with dental treatment needs</td>
<td>N/A</td>
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<td>19. Chronic disease hospitalization</td>
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</tr>
<tr>
<td>20. Chronic disease mortality</td>
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<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>21. Condom use the last time among those at risk of STDs</td>
<td>N/A</td>
<td>N/A</td>
<td>N</td>
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<tr>
<td>22. Congenital anomalies</td>
<td>Y</td>
<td>N/A</td>
<td>N/A</td>
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</tbody>
</table>
Table 3: Summary of the assessment of relevance of APHEO Core Indicators for children, availability of data sources for children and geographic availability of data

<table>
<thead>
<tr>
<th>APHEO Core Indicator title</th>
<th>APHEO definition available*</th>
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<th>Geographic availability †</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Infants</td>
<td>Children</td>
<td>Youth</td>
</tr>
<tr>
<td>23. Congenital infections</td>
<td>Y</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>24. Crude birthrate</td>
<td>Y</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>25. deft/DMFT index</td>
<td>N/A</td>
<td>Y</td>
<td>N/A</td>
</tr>
<tr>
<td>26. Dependency ratios</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>27. Drinking and driving prevalence</td>
<td>N/A</td>
<td>N/A</td>
<td>Y</td>
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<tr>
<td>28. Early-childhood tooth decay</td>
<td>N/A</td>
<td>Y</td>
<td>N/A</td>
</tr>
<tr>
<td>29. Ethnic/cultural origin</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>30. Fall-related emergency department visits</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>31. Fall-related hospitalizations</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>32. Fall-related mortality</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>33. Fertility rates</td>
<td>N/A</td>
<td>N/A</td>
<td>Y</td>
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<tr>
<td>34. Fluorosis index</td>
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<td>Y</td>
<td>N/A</td>
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<tr>
<td>35. Food insecurity</td>
<td>Y</td>
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<td>Y</td>
</tr>
<tr>
<td>36. Frequency of condom use among those at risk for STDs</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>37. Heavy drinking episodes</td>
<td>N/A</td>
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</tr>
<tr>
<td>38. Home language</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
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<td>39. Illicit drug use</td>
<td>N/A</td>
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<tr>
<td>40. Immigrant population</td>
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<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>41. Infectious disease incidence</td>
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<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>42. Infectious disease mortality</td>
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<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>43. Injury-related emergency department visits</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>44. Injury-related hospitalization</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
</tbody>
</table>
Table 3: Summary of the assessment of relevance of APHEO Core Indicators for children, availability of data sources for children and geographic availability of data

<table>
<thead>
<tr>
<th>APHEO Core Indicator title</th>
<th>APHEO definition available*</th>
<th>Data source available*</th>
<th>Geographic availability †</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Infants</td>
<td>Children</td>
<td>Youth</td>
</tr>
<tr>
<td>45. Injury-related mortality</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>46. Intentional self-harm-related hospitalization</td>
<td>N/A</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>47. Leisure-time physical activity</td>
<td>Y</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>48. Minors’ access to tobacco</td>
<td>N/A</td>
<td>N/A</td>
<td>Y</td>
</tr>
<tr>
<td>49. Mother tongue</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>50. Motor vehicle traffic collision injuries</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>51. Multiple birthrate</td>
<td>Y</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>52. Neonatal and infant mortality rates</td>
<td>Y</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>53. Neurotrauma-related hospitalization</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>54. Non-smoker second-hand smoke exposure</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>55. Number of sexual partners</td>
<td>N/A</td>
<td>N/A</td>
<td>N</td>
</tr>
<tr>
<td>56. Pelvic inflammatory disease morbidity</td>
<td>N/A</td>
<td>N/A</td>
<td>Y</td>
</tr>
<tr>
<td>57. Per cent who cannot speak English nor French</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>58. Perinatal mortality and stillbirth rates</td>
<td>Y</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>59. Population by age and sex</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>60. Population growth</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>61. Pregnancy rate</td>
<td>N/A</td>
<td>N/A</td>
<td>Y</td>
</tr>
<tr>
<td>62. Preterm birthrate</td>
<td>Y</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>63. Projected population growth</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>64. Screen time</td>
<td>Y</td>
<td>N/A</td>
<td>Y</td>
</tr>
<tr>
<td>65. Seatbelt use</td>
<td>N/A</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>66. Self-rated health</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
</tbody>
</table>
### Table 3: Summary of the assessment of relevance of APHEO Core Indicators for children, availability of data sources for children and geographic availability of data

<table>
<thead>
<tr>
<th>APHEO Core Indicator title</th>
<th>APHEO definition available*</th>
<th>Data source available*</th>
<th>Geographic availability †</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Infants</td>
<td>Children</td>
<td>Youth</td>
</tr>
<tr>
<td>67. Self-reported injury</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>68. Single-parent families</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>69. Smoke-free homes</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>70. Smoking cessation</td>
<td>N/A</td>
<td>N/A</td>
<td>Y</td>
</tr>
<tr>
<td>71. Smoking during pregnancy</td>
<td>N/A</td>
<td>N/A</td>
<td>Y</td>
</tr>
<tr>
<td>72. Smoking status</td>
<td>N/A</td>
<td>N/A</td>
<td>Y</td>
</tr>
<tr>
<td>73. Suicidal thoughts and attempts</td>
<td>N/A</td>
<td>N/A</td>
<td>Y</td>
</tr>
<tr>
<td>74. Suicide mortality</td>
<td>N/A</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>75. Ultraviolet radiation exposure</td>
<td>N/A</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>76. Underage alcohol drinking</td>
<td>N/A</td>
<td>N/A</td>
<td>Y</td>
</tr>
<tr>
<td>77. Urban and rural population</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>78. Vegetable and fruit consumption</td>
<td>N/A</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>79. Youth sexual activity</td>
<td>N/A</td>
<td>N/A</td>
<td>Y</td>
</tr>
</tbody>
</table>

*GREEN (Y) = yes, a definition or data source is available for this age group; YELLOW (P) = a definition or data source is partially available for this age group (e.g., data are available for 18- to 19-year-olds but not 12- to 17-year-olds); RED (N) = no, a data source or definition is not available; N/A = not applicable

†GREEN (Y) = yes, data is likely available at the provincial and public health unit level; YELLOW (P) = data is available at either the provincial or public health unit level
3.4. Availability of stratifiers for considering health disparities and inequities

The ability to report stratified results (i.e., results that are broken down by other factors) is essential to assessing health disparities that may indicate inequities among subpopulations of children. As a first step toward facilitating disparity-based reporting, a small set of socio-demographic indicators that are important for measurement in children are presented by source in Table 4.

Selected indicators, modified from indicator sets suggested in the published literature,\textsuperscript{29,30} are:

- Aboriginal status
- Household income
- Immigration status
- Parental education

Table 4 identifies available data for each stratifier. This information is intended to provide a first step toward breaking down population health assessment and surveillance data to unmask the needs of marginalized and vulnerable children. More work is required to operationalize these indicators, including assessing feasibility of stratification (i.e., whether sample sizes are adequate) and addressing any privacy considerations that may arise.

<table>
<thead>
<tr>
<th>Data source</th>
<th>Aboriginal status</th>
<th>Household income</th>
<th>Immigration status</th>
<th>Parental education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aboriginal Peoples Survey (APS)</td>
<td>\textbf{Y}</td>
<td>\textbf{Y}</td>
<td>\textbf{Y}</td>
<td>\textbf{Y}</td>
</tr>
<tr>
<td>Accident Data System (ADS)</td>
<td></td>
<td>\textbf{Y}</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Better Outcomes Registry &amp; Network (BORN) Ontario</td>
<td></td>
<td>\textbf{Y}</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canadian Alcohol and Drug Use Monitoring Survey (CADUMS)</td>
<td>\textbf{Y}</td>
<td>\textbf{Y}</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canadian Community Health Survey (CCHS)</td>
<td>\textbf{Y}</td>
<td>\textbf{Y}</td>
<td>\textbf{Y}</td>
<td></td>
</tr>
<tr>
<td>Canadian Tobacco Use Monitoring Survey (CTUMS)</td>
<td>\textbf{Y}</td>
<td></td>
<td>\textbf{Y}</td>
<td></td>
</tr>
<tr>
<td>Census of Canada and National Household Survey (NHS)</td>
<td>\textbf{Y}</td>
<td>\textbf{Y}</td>
<td>\textbf{Y}</td>
<td></td>
</tr>
<tr>
<td>Discharge Abstract Database (DAD)</td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 4: Data sources by availability of indicators for assessing health equity

<table>
<thead>
<tr>
<th>Data source</th>
<th>Aboriginal status</th>
<th>Household income</th>
<th>Immigration status</th>
<th>Parental education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Development Instrument (EDI)</td>
<td>Y</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Social Survey (GSS)</td>
<td></td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Health Behaviour of School-Aged Children (HBSC)</td>
<td>Y</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Immunization Records Information System (IRIS)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Integrated Public Health Information System (iPHIS)</td>
<td>P*</td>
<td>P*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Integrated Services for Children Information System (ISCIS) - Healthy Babies Healthy Children (HBHC)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>National Ambulatory Care Reporting System (NACRS)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ontario Cancer Registry (OCR)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ontario Student Drug Use and Health Survey (OSDUHS)</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Oral Health Information Support System (OHISS)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Population Estimates</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Population Projections</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rapid Risk Factor Surveillance System (RRFSS)</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Survey of Young Canadians (SYC)</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Tobacco Vendor Compliance Data/Tobacco Inspection system</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vital Statistics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Youth Smoking Survey (YSS)</td>
<td>Y</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** GREEN (Y) = yes, this information is available; YELLOW (P) = this information is partially available

*Aboriginal and immigration status may be available in iPHIS for a limited number of reportable infectious diseases such as tuberculosis and HIV
3.5. Toward filling indicator gaps in priority areas

Assessment and surveillance requirement areas in the OPHS were considered to be priority areas for indicator development if they had fewer than two corresponding Core Indicators. As outlined above, seven areas met this criterion:

- Breastfeeding
- Exposure to ultraviolet radiation
- Growth and development
- Healthy eating
- Healthy family dynamics
- Healthy weights
- Positive parenting

For each priority area, a list of “new” indicator titles for future development was suggested (Appendix C).

Participants at a conference workshop selected up to five potential new indicators per priority area that were considered most important in children. Experts in each priority area evaluated the list and made comments on existing definitions for those indicators. These findings are intended to be an initial step toward filling indicator gaps in the seven priority areas. Additional work is needed to evaluate these indicators further and ensure they are ready to report. For additional details from expert consultations, see Appendix F.

3.5.1. Breastfeeding

Workshop participants at The Ontario Public Health Convention (TOPHC) identified the following indicator titles as most important for measuring breastfeeding (in alphabetical order):

- Attitudes
- Duration
- Exclusivity
- Initiation
- Intention rate

The concepts of initiation, duration and exclusivity are included in the breastfeeding initiation and duration APHEO Core Indicator. Attitudes and intention rate do not correspond with a Core Indicator definition.

Three content experts from academia reviewed the list of indicator titles, sample definitions and data sources and commented on the availability and quality of indicators for measuring breastfeeding among infants (Appendix F). Several suggestions were made for additions to this list, including:

- An indicator that captures maternal self-efficacy (i.e., a measure of a mother’s confidence in her ability to breastfeed)
- Hospital practices to support breastfeeding initiation
- Supplementation rate
3.5.2. Exposure to ultraviolet radiation

Workshop participants at TOPHC identified the following indicator titles as most important for measuring exposure to ultraviolet radiation in children:

- Engagement in artificial tanning
- Exposure to ultraviolet radiation
- Sunburn in the past 12 months
- Use of sunscreen

One UV radiation indicator chosen by participants, exposure to ultraviolet radiation, already has an APHEO Core Indicator definition. Sunburn in the past 12 months and use of sunscreen are covered in the Core Indicator definition for “exposure to ultraviolet radiation.” There is no Core Indicator definition for engagement in artificial tanning.

Two content experts who work in research and public health practice reviewed the list of indicator titles, sample definitions and data sources and commented on the availability and quality of indicators for measuring ultraviolet exposure in children (Appendix F). Experts suggested some additional concepts that should be added to this list, including:

- Availability and use of shade
- Engaging in tan-seeking behaviour (e.g., laying in the sun specifically to tan)

3.5.3. Growth and development

Workshop participants at TOPHC identified the following indicator titles as most important for measuring growth and development:

- Access to a physician
- Achievement of developmental milestones
- Physical literacy
- School readiness
- Well-baby visit (at 18 months)

All of these indicator titles represent gaps, as there are no existing APHEO Core Indicator definitions.

Three content experts from academia reviewed the list of indicator titles and commented on the availability and quality of indicators for measuring growth and development (Appendix F). Some experts expressed a concern that the concept of growth and development itself needed further clarification before indicators can be selected; an ideal conception of growth and development would include cognitive, language, physical and socio-emotional domains across the life course. The current list of indicators disproportionately focuses on infants and young children.
3.5.4. Healthy eating

Workshop participants at TOPHC identified the following indicator titles as most important for measuring healthy eating in children:

- Family meals
- Food label reading
- Food insecurity
- Food skills
- Vegetable and fruit consumption

One indicator chosen by participants, vegetable and fruit consumption, already has an APHEO Core Indicator definition. The remaining four indicator titles do not.

Three content experts who work in research and public health practice reviewed the list of indicator titles, sample definitions and data sources and commented on the availability and quality of indicators for measuring healthy eating in children (Appendix F). Each expert suggested at least one additional concept that should be added to this list, including:

- Overall diet quality/consumption of foods from the four food groups
- Factors related to unhealthy eating, including sugar-sweetened beverages and fast food
- Factors related to dietary patterns, including breakfast consumption
- Indicators that are focused on the early years (e.g., NutriSTEP indicators)

When asked if any of the indicator titles chosen by the workshop participants are not among the five most important for measuring healthy eating in child health, some suggested that food label reading and food skills may not be the most important for measurement across the span of zero to 19 years of age.

3.5.5. Healthy family dynamics

Workshop participants at TOPHC identified the following indicator titles as most important for measuring healthy family dynamics:

- Attachment to parents
- Child and parent engagement in schools
- Family violence
- Involvement with the Children’s Aid Society/foster care
- Parental employment/housing

All of these indicator titles represent gaps, as there are no existing APHEO Core Indicator definitions.

Two content experts from academia reviewed the list of indicator titles, sample definitions and data sources and commented on the availability and quality of indicators for measuring healthy family dynamics (Appendix F). Several suggestions were made for additions to this list, including an indicator of maternal, paternal and child (including sibling) mental health and addictions and parenting style.
3.5.6. Healthy weights

Workshop participants at TOPHC identified the following indicator titles as most important for measuring healthy weights in children:

- Birth weight
- Body mass index (BMI) for age (or another measure of weight status in children and youth)
- Psychosocial factors, including weight-based teasing
- Weight concern

Two indicators chosen by participants, birth weight and body mass index for age (referred to as adolescent BMI), already have Core Indicator definitions. The remaining two indicators do not.

Two content experts who work in research and public health practice reviewed the list of indicator titles, sample data sources and definitions and commented on the availability and quality of indicators for measuring healthy weights of children (Appendix F). Each expert suggested at least one additional concept that should be added to this list, including:

- Physical activity
- Healthy and unhealthy diet/dietary practices
- Other risk factors, such as insufficient sleep and excessive sedentary behaviour

- An indicator that assesses having a healthy relationship with food
- Upstream determinants, such as the quality of the built environment

There were divergent opinions expressed among the experts interviewed regarding the acceptability of taking physical measures of height and weight in children and youth. Most experts suggested there may be unintended consequences, including increased stigmatization. Some experts believe these unintended consequences can be mitigated using a sensitive, confidential approach, while others do not believe they can be mitigated, particularly in a school setting.

3.5.7. Positive parenting

Workshop participants at TOPHC identified the following indicator titles as most important for measuring positive parenting:

- Interaction
- Parental alcohol or drug addiction
- Parental mental health
- Positive family dynamics
- Reading to child

All of these indicator titles represent gaps, as there are no existing APHEO Core Indicator definitions.
Three content experts who worked in research and practice reviewed the list of indicator titles, sample data sources and definitions and commented on the availability and quality of indicators for measuring positive parenting (Appendix F). One expert suggested that an indicator that captures parenting style should be added. Experts were not confident that parental mental health or addictions should be included in this list. Concern was expressed that although mental health and addictions may influence positive parenting, they are not specific to parenting and including them as indicators of positive parenting may increase stigma.
4. Recommendations

Based on the results of this report, a series of recommendations for moving forward have been made. The recommendations are intended to be system-level, actionable by Public Health Ontario in collaboration with other organizations, and to move the system forward by: reporting on available indicators, operationalizing existing indicators that are without data sources or definitions, addressing indicator gaps and developing an approach for ongoing population health assessment and surveillance.

This report provides an initial set of available indicators that can be used to measure the health status of children in Ontario with the eventual goal of creating an ongoing approach for comprehensive population health assessment and surveillance. Ten recommendations are outlined that move the system forward by reporting on available indicators, operationalizing existing indicators that are without data sources or definitions, addressing indicator gaps and developing an approach for ongoing population health assessment and surveillance.

RECOMMENDATION 1:
Report on available indicators

Use available indicators to create a health status report. There is a strong foundation of indicators that are ready to report for child health. A reporting mechanism should be created, such as an online application or health status report, which utilizes existing indicators to measure the health status of infants, children and youth in Ontario.
RECOMMENDATION 2: Expand Core Indicators

Expand the APHEO Core Indicators to include relevant definitions for children.

APHEO has a large suite of Core Indicators that are widely used in public health in Ontario. These indicators are data-source dependent, therefore they often focus on the segments of the population with the greatest data availability (i.e., adults). While most Core Indicator definitions are applicable across the life course, some require additional work to increase their relevance to infants, children and/or youth. Indicators with relevant definitions for adults that could be expanded to increase relevance for infants, children and/or youth include:

- Age of sexual debut
- Condom use the last time among those at risk of STDs
- Frequency of condom use among those at risk for STDs
- Leisure-time physical activity
- Number of sexual partners
- Screen time

RECOMMENDATION 3: Enhance data sources

Augment existing data sources or develop new data sources for APHEO Core Indicators that lack data for children.

Most data sources suggested by APHEO for the Core Indicators have active data sources across the life course. However, for those that do not, opportunities to expand existing or develop new data sources should be sought. This could happen through revitalizing inactive data sources, expanding data sources that have limited geographic or sub-group coverage, accessing data sources from non-public health partners, supporting emerging data sources, linking multiple data sources to make them more useful or developing new data sources and registries where necessary (e.g., immunization registry for childhood vaccination coverage). Some data sources are already considering expanding into younger age groups, including the Canadian Community Health Survey. 31

Indicators that require data sources for infants, children and/or youth include:

- Childhood vaccination coverage
- Early-childhood tooth decay
- Self-rated health
- Self-reported injury
- Ultraviolet radiation exposure
RECOMMENDATION 4:  
Address major OPHS indicator gaps

Support the development of indicators to address child health in areas that have major gaps (i.e., fewer than two APHEO Core Indicators) as outlined in the OPHS assessment and surveillance requirements.

More than three-quarters of OPHS assessment and surveillance requirement areas have at least two APHEO Core Indicators that are relevant to children, which suggests that there is at least a minimum set of available indicators. Areas that have fewer are a priority for indicator development. This project began the process of filling these gaps, but in many cases indicator development will require encouraging research in the area to develop valid and reliable survey questions or tools, data source development or defining the OPHS assessment and surveillance topic area in operational terms (e.g., what was meant by “healthy family dynamics”?)

OPHS assessment and surveillance requirement areas that have major indicator gaps include:

- Breastfeeding
- Exposure to ultraviolet radiation
- Growth and development
- Healthy eating
- Healthy family dynamics
- Healthy weights
- Positive parenting

RECOMMENDATION 5:  
Assess minor OPHS indicator gaps

Assess need and, where necessary, develop additional indicators in Ontario Public Health Standard assessment and surveillance requirement areas that are somewhat developed (i.e., areas that have two or more APHEO Core Indicators).

Some OPHS assessment and surveillance requirement areas that have two or more APHEO Core Indicators need additional indicators to improve measurement of complex topics. Areas that have two or more Core Indicators should be assessed to determine whether the current suite of indicators is sufficient to measure the topic. In areas that do not have sufficient Core Indicators, additional indicators should be developed.
RECOMMENDATION 6:
Evaluate indicators outside of OPHS

Determine the availability of indicators in areas important to child health that are not explicitly stated in the OPHS assessment and surveillance requirements.

Several important child health-related topic areas that were identified by stakeholders are not explicitly stated in the OPHS assessment and surveillance requirements. These areas may already be included other OPHS requirement areas or they may be cross-cutting topics across the OPHS. Examples include:

- Mental health and emotional well-being
- Vision
- Healthy schools
- Social support
- Other environmental and community-level factors

An exercise should be completed to assess child health from a socio-ecological perspective, prioritize which areas are important and determine the availability of indicators.

RECOMMENDATION 7:
Identify indicators for measuring health disparities

Determine the availability of indicators to measure health disparities among children.

Producing results broken down by determinants of health is important to the assessment of health disparities among children. This report considered the availability of a small number of stratifiers by data source. However, the availability of socio-demographic indicators related to health disparities and equities should be assessed for each child health indicator, and the feasibility of operationalizing these indicators should be determined.
RECOMMENDATION 8: Determine indicator subsets

Develop subsets of ready-to-report indicators for population health status reporting.

It is not always possible for health status reports to include the full set of available child health indicators. To aid organizations in selecting indicators on which to report, subsets of indicators should be created. Subsets should cater to different situations—i.e., report size (small, medium and large), age-group focus (infants, children, youth or all three groups), and topic area focus (general health status or subtopic-specific).

RECOMMENDATION 9: Renew and revisit indicators

Develop an evergreening process to ensure indicators are updated and revised and new indicators of public health importance are added as they become available.

Maintaining high-quality indicators for population health assessment and surveillance in children is an ongoing process. It is essential that indicators are updated according to a regular review schedule that balances the need to adapt as new information becomes available and the need to maintain core components for comparability over time.

RECOMMENDATION 10: Advance a coordinated system

Develop and implement a provincewide coordinated system for ongoing population health assessment and surveillance for children in Ontario.

In partnership with key stakeholders, a co-ordinated approach for ongoing population health assessment and surveillance should be created. Population health assessment and surveillance is a key function of public health and a key contribution by the public health sector to enable intersectoral health-related planning. Core elements of such a system include: data access, collection and measurement; data analysis; reporting and dissemination; infrastructure and partnership; and evidence-informed action.9,12,33

Ideally, indicators at all socio-ecological levels, assessed over time, would be included. Although implementation of such a system is a significant undertaking, the need for a coordinated approach to access complete, continuous, comprehensive, reliable and valid data has been identified in several recent provincial-level reports.5,17,34
5. Discussion

Ready-to-report indicators for child health in Ontario have been identified across key public health topic areas, as well as gaps and opportunities to add new indicators. Approaches to furthering the work for ongoing population health assessment and surveillance are proposed through recommendations actionable by Public Health Ontario in conjunction with key partners. It is recognized that the recommendations will require commitment by Public Health Ontario and partners.

5.1. Key findings

Using the OPHS, ready-to-report indicators for child health in Ontario have been identified across key public health topic areas, as well as gaps and opportunities to add new indicators. Sixty-seven of the 79 unique APHEO Core Indicators that correspond to requirements of the OPHS are ready to report for children. These indicators correspond to 24 assessment and surveillance requirement areas spanning chronic diseases and injuries, family health (including reproductive and child health), infectious disease and environmental health. When the scope of these indicators is considered by requirement area, nearly three-quarters (17 areas) are considered somewhat developed and the other quarter (seven areas) is considered underdeveloped or “priority areas for development.” These underdeveloped areas are breastfeeding, exposure to ultraviolet radiation, growth and development, healthy eating, healthy family dynamics, healthy weights and positive parenting. In addition, the 12 indicators are not ready to report due to inadequate definitions and/or data sources.

Approaches to furthering the work for ongoing population health assessment and surveillance in Ontario are proposed through a series of 10 system-level recommendations, actionable by Public Health Ontario in collaboration with key partners. The recommendations cover the following topics: reporting on existing indicators, enhancing data sources, addressing indicator gaps and developing an approach for ongoing population health assessment and surveillance. Research may be needed to develop valid and reliable survey questions or tools, develop data sources or define the OPHS assessment and surveillance topic area in operational terms.

While establishing a set of ready-to-report indicators is an important step forward for child health reporting in Ontario, stimulating a wider discussion on population health assessment and surveillance and broadening the discussion beyond the public health sector is an important contribution to fostering commitment to the co-ordination of healthy status reporting in the broader child health community. Although the use of the OPHS
and APHEO Core Indicators grounded this report in the core work of public health, it did so at the expense of other important areas and indicators that are not within the scope of the OPHS or the Core Indicator resources. Future work should include indicators and topic areas that examine child health broadly.

These findings chart a path forward for child health reporting for Public Health Ontario and the multiple partners engaged in optimizing child health. There is a clearly defined suite of ready-to-report indicators that span most relevant OPHS areas. Those areas that are not ready to report warrant further efforts and specific recommendations have been made in the following section to move those areas forward.

5.2. Partnerships for moving forward

The following list of key partners provides a preliminary list of organizations that could make a contribution to moving population health assessment and surveillance forward in the province.

**Operationalizing existing indicators**

Some initial key players suggested by the SAC and SRP that may help facilitate next steps in operationalizing existing indicators that are without data sources or definitions include:

- Hub organizations (e.g., Public Health Ontario and Cancer Care Ontario)
- Government ministries (e.g., Children and Youth Services, Community and Social Services, Correctional Services, Education, Health and Long-Term Care)
- Data collectors either through existing registries, surveys and/or programs (e.g., registries including BORN Ontario; surveys including the Ontario Child Health Study, Health Behaviour in School-Aged Children [HBSC] survey, the Canadian Community Health Survey [CCHS], Ontario Student Drug Use and Health Survey [OSDUHS], School Health Action Planning and Evaluation System Ontario [SHAPES], Youth Smoking Survey [YSS]; and programs including NutriSTEP®)
- Data users such as local public health units, school boards and schools
- Pre-existing networks, including associations, societies, and research groups (e.g., the APHEO Core Indicators Working Group, Canadian Cancer Society, Canadian Society for Epidemiology and Biostatistics, Joint Consortium of Healthy Schools, Ontario Healthy Schools Coalition, Ontario Physical Health Education Association, Parachute Canada, School Health Public Health Managers Network, Toronto Area Research Group for Kids [TARGetKids!])
• Federal agencies and organizations (e.g., Health Canada, Public Health Agency of Canada, Statistics Canada, Sex Information and Education Council of Canada)

Addressing indicator gaps
To help facilitate the next steps in addressing indicator gaps, some initial key players suggested by the SAC/SRP include:

• Hub organizations (e.g., Public Health Ontario)

• Government ministries (e.g., Aboriginal Affairs, Attorney General, Community and Social Services, Education, Health and Long-Term Care)

• Pre-existing networks, associations, societies and research groups (e.g., APHEO, Ontario College of Family Physicians, Ontario Family Health Management Network, Ontario Healthy Schools Coalition, School Health Public Health Managers Network, Public Health Chronic Disease Managers Network, Social Planning Network of Ontario, Fraser Mustard Institute for Human Development, Joint Consortium of Healthy Schools, Youth Excel CLASP)

• Data collectors either through existing registries, surveys and/or programs (e.g., registries and surveys at Centre for Addiction and Mental Health, Children’s Hospital of Eastern Ontario, Offord Centre for Child Studies; programs including Triple P Ontario)

• Data users such as local public health units, school boards and schools

• Research funders (e.g., Canadian Institute of Health Research [CIHR], Social Sciences and Humanities Research Council [SSHRC])

Developing an approach for ongoing population health assessment and surveillance
To help facilitate the next steps in developing an approach for ongoing population health assessment and surveillance of child and youth health in Ontario, some initial key players suggested by the SAC/SRP include:

• Hub organizations (e.g., Public Health Ontario)

• Pre-existing networks, including associations and societies, as well as research groups (e.g., alPHA/OPHA Joint Workgroup on Health Equity, APHEO, Ontario Healthy Schools Coalition, Public Health Leadership Council, members of this report’s SAC and SRP, School Health Public Health Managers Network)

• Government ministries (e.g., Education, Health and Long-Term Care, etc.)

• Data collectors either through existing registries, surveys and/or programs.
5.3. Next steps

To maintain the existing momentum and interest in child health in Ontario that resulted from the creation of this report and move the recommendations made in this report forward, substantial commitment will need to be made by key organizations that have a stake in child health, including Public Health Ontario. As a first step, organizations with a mandate consistent with the recommendations should meet to prioritize the recommendations, define leadership roles and related commitments and chart a course of actionable next steps.

- Data users such as local public health units, school boards and schools
- Federal agencies (e.g., Canadian Institute of Health Information, National Collaborating Centre for Determinant of Health)
List of acronyms

ADS - Accident Data System  
AEFI - Adverse Events Following Immunization  
AIDS - Acquired Immunodeficiency Syndrome  
APHEO - Association of Public Health Epidemiologists in Ontario  
APS - Aboriginal Peoples Survey  
BBI - Blood-Borne Infections  
BMI - Body Mass Index  
BORN - Better Outcomes Registry & Network  
CA - Congenital Anomalies  
CAMH - Centre for Addiction and Mental Health  
CADUMS - Canadian Alcohol and Drug Use Monitoring Survey  
CCHS - Canadian Community Health Survey  
CHD - Congenital Heart Defects  
CHILD - Child Health Indicators of Life and Development  
CIHI - Canadian Institute for Health Information  
CINOT - Children in Need of Treatment  
CLASP - Coalitions Linking Action & Science for Prevention  
COPD - Chronic Obstructive Pulmonary Disease  
CTUMS - Canadian Tobacco Use Monitoring Survey  
CMV - Cytomegalovirus  
DAD - Discharge Abstract Database  
DMFT - Decayed, Missing and Filled Teeth  
DS - Down Syndrome  
EDI - Early Development Instrument  
EQAO - Education Quality and Accountability Office  
GFR - General Fertility Rate  
GSS - General Social Survey  

HBHC - Healthy Babies Healthy Children  
HBHC-IS CIS - Healthy Babies Healthy Children-Integrated Services for Children Information System  
HBSC - Health Behaviour of School-Aged Children  
HIV - Human Immunodeficiency Virus  
HPPA - Health Protection and Promotion Act  
IMR - Infant Mortality Rate  
iPHIS - Integrated Public Health Information System  
IRIS - Immunization Records Information System  
ISR - Institute for Social Research  
JK - Junior Kindergarten  
LBW - Low Birth Weight Rate  
LSD - Lysergic Acid Diethylamide  
MCYS - Ministry of Children and Youth Services  
MDMA - 3,4-Methylenedioxyamphetamine (Ecstasy)  
MOHLTC - Ministry of Health & Long-Term Care  
MSKs - Musculoskeletal Anomalies  
MVTC - Motor Vehicle Traffic Collisions  
NACRS - National Ambulatory Care Reporting System  
NHS - National Household Survey  
NPHS - National Population Health Survey  
NTDs - Neural Tube Defects  
OFCs - Orofacial Clefts  
OCR - Ontario Cancer Registry  
OHISS - Oral Health Information Support System  
OPHS - Ontario Public Health Standards  
OPHEA - Ontario Physical and Health Education Association
## List of acronyms continued

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<tr>
<th>Acronym</th>
<th>Description</th>
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<tr>
<td>OSDUHS</td>
<td>Ontario Student Drug Use and Health Survey</td>
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<td>PCP</td>
<td>Phencyclidine</td>
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<td>PHUs</td>
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<td>PUMF</td>
<td>Public Use Microdata File</td>
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<td>RRFSS</td>
<td>Rapid Risk Factor Surveillance System</td>
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<td>SAC</td>
<td>Stakeholder Advisory Committee</td>
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<td>SHAPES</td>
<td>The School Health Action, Planning and Evaluation System</td>
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<td>SIR</td>
<td>Standardized Incidence Ratio</td>
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<td>SMR</td>
<td>Standardized Mortality/Morbidity Ratio</td>
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<td>SRATE</td>
<td>Age-Standardized Rate (i.e., ED Visit, Mortality, Hospitalization, Incidence)</td>
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<td>SPF</td>
<td>Sun Protection Factor</td>
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<td>SRP</td>
<td>Scientific Review Panel</td>
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<td>STDs</td>
<td>Sexually Transmitted Diseases</td>
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<td>STI</td>
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<td>SYC</td>
<td>Survey of Young Canadians</td>
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<td>Tuberculosis</td>
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<td>TIMS</td>
<td>Tobacco Information Monitoring System</td>
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<td>TOPHC</td>
<td>The Ontario Public Health Convention</td>
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<td>UV</td>
<td>Ultraviolet</td>
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<td>VPD</td>
<td>Vaccine-Preventable Diseases</td>
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<td>WHO</td>
<td>World Health Organization</td>
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<td>YSS</td>
<td>Youth Smoking Survey</td>
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References


28. Allison K. Personal communication on the child and youth health data sources project. 2012.


31. Paul C. Personal communication on the feasibility of including children under 12 years of age in the Canadian Community Health Survey. 2012.


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