GAPS IN PUBLIC HEALTH INDICATORS AND DATA IN ONTARIO

Prepared by the Association of Public Health Epidemiologists in Ontario (APHEO) Core Indicators Work Group in Collaboration with Public Health Ontario (PHO)

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INTRODUCTION:

This is a revised version of the document, "Data Gaps in Public Health Indicators in Ontario". The previous version was created prior to the 2008 publication of the Ontario Public Health Standards (OPHS).

The primary purpose of this document is to highlight the gaps in available data which affect the ability to create meaningful public health indicators. In addition it identifies areas where data may exist but no indicators have been defined. These gaps were identified based on a comparison of the Core Indicators for Public Health in Ontario (Core Indicators) (1) and the expectations outlined in the following components of the OPHS:

- Assessment and Surveillance Program Requirements
- Population Health Assessment Requirements and Surveillance Requirements of the Foundational Standard

In addition, selected Ontario Ministry of Health and Long-Term Care (MOHLTC) Guidance Documents (i.e., Child Health and Reproductive Health Guidance documents) were used to provide more detailed descriptions and potential indicators for more 'general' assessment and surveillance requirements (e.g., growth and development, preparation for parenting)(2,3).

Two types of gaps are included in this document:

1. Indicator gaps due to a lack of developed Core Indicators to support an OPHS outcome or requirement. An indicator may be:
   i. in development - currently under development
   ii. under consideration - priority for development in the near future
   iii. not developed - not currently under consideration for development due to other priorities
2. Data gaps due to lack of data sources or limitations in the existing data sources (e.g., data not available for the majority of health units).

A secondary purpose of this report is to support efforts to access existing datasets or the collection of new data that will help address indicator gaps. Efforts could include:

- Association of Public Health Epidemiologists in Ontario (APHEO) developing an access strategy that can be used for various datasets and across different organizations/agencies
- APHEO and Public Health Ontario (PHO) working with other public health agencies, government or associations (e.g., Ontario Public Health Association (OPHA); Association of Local Public Health Associations (alPHa); Council of Ontario Medical Officers of Health (COMOH)) to develop or enhance province-wide data collection systems
- Those responsible for assessment and surveillance who are employed in public health units raising awareness with their boards of health/regional councils about the need to access existing data sets or create new data sets

"Section 1" of this report discusses gaps by topic, organized by OPHS program standard. "Section 2" describes some common data sources and their limitations.

Section 1: Indicator and Data Gaps by OPHS Program Standard - Requirements for Population Health Assessment and Surveillance

1. CHRONIC DISEASES AND INJURIES PROGRAM STANDARDS

1.1 Chronic Disease Prevention:

1. ***Healthy Eating***

Currently, two Core Indicators, *Vegetable and Fruit Consumption* and *Food Insecurity*, are available for use to meet this requirement. Canadian Community Health Survey (CCHS) data are available for the population 12 years of age and older.

Indicator Gaps:

Indicators Not Developed:

- meals eaten in home versus out of home
  - Data available through the Rapid Risk Factor Surveillance System (RRFSS) nutrition module
- sodium intake
  - Data available through three RRFSS modules: *Sodium Consumption; Sodium Reduction; Sodium – Food Labels* (assess sodium consumption, strategies for reducing sodium in the diet, and knowledge of and use of food labels in influencing food purchasing patterns, respectively)

Data Gaps:

Currently, no data are available for intake of dietary fibre, fat, dairy products, fast foods and accessibility to healthy foods.

- food skills
  - i.e., knowledge, planning, conceptualizing food, mechanical techniques and food preparation
- density of fast food outlets
- density of convenience stores
- density of grocery stores
- healthy eating information for children 11 years and under

2. ***Healthy Weights***

Currently, *Adult Body Mass Index (BMI)* and *Adolescent BMI* Core Indicators are available to meet this requirement. CCHS data are available for the population 12 years of age and older.

Indicator Gaps:

Indicators Not Developed:

- waist circumference
  - data available through RRFSS (18+ population; available for some health units)

Data Gaps:

- no weight information for children 11 years and under
- sample from CCHS not large enough to examine adolescent BMI in some health units

- BMI measure developed based on a predominately Caucasian population and therefore there may be limitations to its use in a more ethnically diverse population

3. ***Comprehensive Tobacco Control***

Six Core Indicators fall under this requirement: *Smoking Status; Smoke-free Homes; Non-smoker Second-hand Smoke Exposure; Smoking Cessation; Smoking During Pregnancy and Minors' Access to Tobacco.* Limitations associated with the *Minors' Access to Tobacco* are noted within the indicator comments of this APHEO Core Indicator (4). An optional CCHS module and a RRFSS module cover this topic.

Indicator Gaps:

Indicators Not Developed:

- age of initiation
  - data available through CCHS (age at which respondent smoked first whole cigarette and age respondent started smoking daily)
- alternative tobacco products
  - cigar, pipe smoking, snuff and chewing tobacco use
  - data available through optional CCHS module (sample size may be too small for analyses at the health unit level)
- youth initiation rates (incidence)
  - data available through CCHS
- tobacco retail density
  - data available through inspection databases
- youth tobacco cessation desire
  - proportion of youth that want to stop their use of tobacco (recommended indicator of youth tobacco use by Youth Excel) (5)
  - data available through CCHS optional content; sample may be too small for youth
- second hand smoke exposure for people who live in multiunit dwellings
  - data available through optional RRFSS module: *Smoking in multi-unit dwellings*

Data Gaps:

- alternative tobacco products (e.g., smokeless tobacco, water pipe tobacco, cigarillos)
- contraband tobacco
- social exposure to tobacco use
- physical access to tobacco
- prevalence of use and risk factors for priority populations including young adults, low-income pregnant women, blue collar workers, Aboriginal population

The following are recommended by Youth Excel as indicators of youth tobacco use (5):

- proportion of youth who have never had a puff of a cigarette
  - data available to some health units through the Ontario Student Drug Use and Health Survey (OSDUHS)
  - health units must buy extra sample in order to use OSDUHS; in 2010, six of the 36 units bought into this sample
- youth susceptibility to cigarette experimentation
  - proportion of youth who have never had a puff of a cigarette who are susceptible to cigarette smoking
- youth tobacco use (excluding cigarettes)

4. ***Physical Activity***

The current Core Indicators aligning with this requirement include: *Leisure Time Physical Activity*; *Screen Time*; and *Population Density*. CCHS data are available for the population 12 years and older.

Indicator Gaps:

Indicators Not Developed:

- International Physical Activity Questionnaire (IPAQ)
  - data available through RRFSS (18+ population; available for some health units)

Data Gaps:

- physical activity or sedentary behaviour information for children 11 years and under
- access to recreational opportunities
  - examine factors such as recreational centre density and accessibility to trails and parks
- ability to walk or bike as mode of transportation

5. ***Alcohol Use***

Three Core Indicators can be used to examine alcohol use: *Underage Alcohol Drinking*; *Drinking in Excess of the Low Risk Drinking Guidelines*; and *Heavy Drinking Episodes*.

Indicator Gaps:

Indicators Not Developed:

- current drinkers and proportion abstaining from alcohol consumption
  - data available through CCHS

Data Gaps:

- age of initiation of drinking alcoholic beverages
  - data available to some health units through OSDUHS
  - health units must buy extra sample in order to use OSDUHS; in 2010, six of the 36 units bought into this sample
- degree of alcohol dependency
- type of drinking
  - social/recreational, experimental, situational and intensive
  - CCHS optional module not chosen for inclusion in the questionnaire since 2001
- alcohol outlet density, bar density
- exposure to advertisements in the built environment
- drinking in excess of the Canadian low risk drinking guidelines (LRDG) (6)
  - CCHS does not provide needed data for LRDG number two
  - RRFSS module is under development

6. ***Exposure to UV Radiation***

Currently, one Core Indicator, *Ultraviolet Radiation*, can be used to meet this requirement. This indicator evaluates sunburns in the past 12 months as well as sun safety practices. RRFSS is used as the data source and therefore this information is only available for the population 18 years and older and is not available for all health units. Although there is an optional module, *Sun Safety Behaviours*, available through CCHS, it has never been selected for Ontario.

Indicator Gaps:

Indicators Not Developed:

- tanning bed use
  - data available through RRFSS
- heat islands
  - mapping tool from the Clean Air Partnership (7)

Data Gaps:

- no information for children and adolescents
- shade protection
  - shade available in recreational facilities, playground and parks

7. ***Food Affordability***

Currently, two Core Indicators are available: *Cost of a Nutritious Food Basket* and *Food Insecurity*.

Data Gaps:

- *Cost of a Nutritious Food Basket*
  - does not take into consideration the cost of special diets
- food insecurity
  - data available through the CCHS
  - do not capture some populations most likely to experience food insecurity (e.g., homeless, individuals living on Indian Reserves)

1.2 Prevention of Injury and Substance Misuse:

1. ***Alcohol and Other Substances***

The currently available Core Indicators are: *Underage Alcohol Drinking*; *Drinking in Excess of the Low Risk Drinking Guidelines*; *Heavy Drinking Episodes*; *Drinking and Driving Prevalence*; *Adolescent Drug Use*; and *Alcohol-Related Injury and Mortality from Motor Vehicle Traffic Collisions*.

Indicator Gaps:

Indicator in Development or Under Consideration:

- illicit drug use
  - data available through CCHS optional module selected in 2003 and from 2009-2012
- hospitalizations for alcohol-related psychiatric diagnoses
  - data available through OHMRS (Ontario Mental Health Reporting System)

Data Gaps:

- alcohol-related injuries

    - ICD-10 codes capture unintentional poisoning by alcohol but do not capture injuries which have alcohol as a contributing factor
    - data available through the Ontario Ministry of Transportation (MTO) for injury or death resulting from alcohol-related motor vehicle collisions
- drinking in excess of the Canadian LRDG (6)
    - CCHS does not provide needed data for LRDG number two
    - RRFSS module is under development

2. Falls across the Lifespan

Four Core Indicators are currently available: *Injury-Related Mortality*; *Injury-Related Hospitalization*; *Fall-Related Mortality;* and *Fall-Related Hospitalization.*

Indicator Gaps:

Indicator in Development or Under Consideration:

- fall-related emergency department (ED) visits
    - data available through National Ambulatory Care Reporting System (NACRS)
- injury-related emergency department visits
    - data available through NACRS

Data Gaps:

- none identified at this time

3. Road and Off-road Safety

Six Core Indicators are currently available: *Drinking and Driving Prevalence*; *Alcohol-Related Injury and Mortality from Motor Vehicle Traffic Collisions*; *Motor Vehicle Traffic Collisions Injuries; Injury-Related Mortality*; *Injury-Related Hospitalization*; *and Seat Belt Use.*

Indicator Gaps:

Indicator in Development or Under Consideration:

- cell phone use while driving
    - data available through RRFSS and CCHS
- car seat and booster seat safety
    - data available through RRFSS
- injury-related emergency department visits
    - data available through NARCS

Data Gaps:

- none identified at this time

4. Other Areas

Five Core Indicators are currently available: *Suicide Mortality*; *Intentional Self-Harm-Related Hospitalization*; *Suicidal Thoughts and Attempts*; *Injury-Related Hospitalization;* and *Injury-Related Mortality*.

Indicator Gaps:

Indicator in Development or Under Consideration:

- injury-related emergency department visits (includes leading causes of injury)
    - data available through NACRS
- neurotrauma-related hospitalization
    - data available through NACRS

- self-reported injury
    - data available through CCHS

Indicators Not Developed

- domestic violence awareness
    - data available through RRFSS optional module
- awareness of childhood injuries
    - data available through RRFSS optional module

Data Gaps:

- farm injuries
    - data limited to examining external cause of injury codes (ICD-10 U98 codes) by place of occurrence only (i.e., farm)
- playground safety
    - data limited to ED and hospital records which capture falls from playground equipment; no other external causes of playground injury available
- sports injuries
    - Data limited to examining ICD-10 external cause of injury codes for sporting activities and falls (W00-W19), exposure to inanimate mechanical forces (W20-W49), exposure to animate mechanical forces (W50-W64) during sporting activities
    - definition of "sport" may be determined differently by health units and other agencies
    - may not be known whether injury-causing activity was recreational or employment-related
- attempted suicide
    - intentional self-harm data limited to ED and hospital records which provide no information about intent

2. FAMILY HEALTH PROGRAM STANDARDS

2.1. Reproductive Health:

1. *Pre-conception Health*

It is assumed that this applies to both men and women of reproductive age. The pre-conception period is a time to make decisions about pregnancy and parenting and to achieve a state of optimal health to optimize reproductive health and birth outcomes (3).

Folic Acid Supplementation is the only available indicator that falls under this requirement.

The Ontario Reproductive Health Guidance Document (3) discusses examining the following factors in relation to developing reproductive health, "pre-conception health" communication strategies: alcohol/drug use; awareness of community services; oral health; environmental toxins (including environmental tobacco smoke); family violence; folic acid; history, screening and testing; home environment; nutrition; physical activity; preparation for breastfeeding; reproductive primary care; tobacco; transition of parenthood; and work environment.

Indicator Gaps:

Indicators in Development or Under Consideration:

The following indicators may be used to meet this requirement once they have been developed for a defined population of reproductive age:

- *Adult Body Mass Index*
- *Vegetable and Fruit Consumption*
- *Self-Perceived Life Stress*
- *Heavy Drinking Episodes*
- *Drinking in Excess of the Low Risk Drinking Guidelines*
- *Leisure-Time Physical Activity*
- *Self-Perceived Work Stress*
- *Smoking Status*
- *Smoke-free Homes*
- *Non-Smoker Second-hand Smoke Exposure*
- *Number of Sexual Partners*

Indicators Not Developed:

- number of women in childbearing years who have a family doctor
  - data available through CCHS
  - data available through optional RRFSS content (women that visited a health care provider prior to becoming pregnant in the past 5 years)
- ethnicity of women in childbearing years
  - data available through Census, CCHS
- number of women in childbearing years
  - data available through the Census
- geographic distribution of women in childbearing years
  - data available through the Census
- sexually transmitted infection (STI) rates (including HIV) among women of childbearing age
  - data available through the *Integrated Public Health Information System* (iPHIS)
- alcohol consumption among women of childbearing age

- data available through CCHS, RRFSS
- oral health
  - data available through CCHS, RRFSS
- maternal health conditions
  - data available through the Better Outcomes Registry and Network (BORN) Information System

Data Gaps:

- use of fertility treatments among women of childbearing age
  - Data available through CCHS "Infertility Module" included in the Rapid Response in 2009-2010; data not available at the health unit level
  - Deliveries in which artificial reproductive technology was used available through the BORN Information System and the Discharge Abstract Database (DAD); will not take all women of childbearing age into consideration
- multi-vitamin intake (including folic acid) among women of childbearing age
- alcohol/drug use
- awareness of community services
- oral health
- environmental toxins (including environmental tobacco smoke)
- family violence
- history, screening, testing
- home environment
- nutrition
- physical activity
- preparation for breastfeeding
- primary care provider of pregnant women (obstetrician, family doctor, midwife, nurse practitioner)
- tobacco
- transition of parenthood
- work environment

2. Healthy Pregnancies

These requirements are assumed to apply to pregnant women only. Currently, two indicators can be used to meet this requirement: *Smoking during Pregnancy* and *Folic Acid Supplementation*.

The Ontario Reproductive Health Guidance Document (3) discusses examining the following factors in relation to developing reproductive health, "healthy pregnancies" communication strategies: alcohol/drug use; awareness of community services; oral health; environmental toxins (including environmental tobacco smoke); family violence; folic acid; history, screening and testing; home environment; nutrition; physical activity; preparation for breastfeeding; reproductive primary care; awareness of signs and symptoms of preterm labour; tobacco; transition of parenthood; and work environment.

Indicator Gaps:

Indicators in Development or Under Consideration:

- maternal obesity
- maternal weight gain
- pre-pregnancy weight
- intention to breastfeed

- data available through the BORN Information System

Indicators Not Developed:

The Ontario Reproductive Health Guidance Document (3) discusses examining the following factors:

- gestational diabetes incidence
  - data available through the BORN Information System
- prenatal class attendance
  - data available through the BORN Information System

Data Gaps:

- hepatitis B prevalence and STI rates (including HIV) in pregnant women
- alcohol/drug use
- awareness of community services
- oral health
- environmental toxins (including environmental tobacco smoke)
- family violence
- history, screening, testing
- home environment
- nutrition
- physical activity
- preparation for breastfeeding
- primary care provider of pregnant women (obstetrician, family doctor, midwife, nurse practitioner)
- awareness of signs and symptoms of preterm labour
- tobacco
- transition of parenthood
- work environment
- mother's education
- perinatal mood disorder

3. ***Reproductive Health Outcomes***

These outcomes are related to the health of the baby and the mother post-partum. Current Core Indicators include: *Crude Birth Rate; Fertility Rates*; *Total Fertility Rate*; *Pregnancy Rate*; *Age of Parent at Infant's Birth; Birth Weights*; *Preterm Births*; *Multiple Births*; *Congenital Infections*; *Perinatal Mortality and Stillbirths*; *Neonatal* and *Infant Mortality; Congenital Anomalies*.

Indicator Gaps:

Indicators Not Developed:

The Ontario Reproductive Health Guidance Document (3) discusses examining the following factors:

- caesarean section rate
  - data available through the BORN Information System, Discharge Abstract Database (DAD - a secondary data source)
- epidural rates
  - data available through the BORN Information System, DAD
- assisted delivery rates (forceps/vacuum)
  - data available through the BORN Information System, DAD
- incidence of pre-eclampsia and eclampsia

- data available through the BORN Information System, DAD
- incidence of placenta previa or abruption
  - data available through the BORN Information System, DAD

Data Gaps:

- perinatal mood disorder

4. ***Preparation for Parenting***

A definition of "preparation for parenting" is required to determine what factors could be examined to meet this requirement. The Reproductive Health Guidance Document (3) suggests examining the following factors in relation to developing reproductive health, "preparation for parenting" communication strategies: alcohol/drug use; awareness of community services; environmental toxins (including environmental tobacco smoke); family violence; home environment; nutrition; physical activity; preparation for breastfeeding; tobacco; transition of parenthood; and work environment.

Currently, one Core Indicator can be used to meet this requirement: *Folic Acid Supplementation*.

Indicator Gaps:

Indicators in Development or Under Consideration:

- intention to breastfeed
  - data available through the BORN Information System

Indicators Not Developed:

- prenatal class attendance
  - data available through the BORN Information System, RRFSS

Data Gaps:

- alcohol/drug use
- awareness of community services
- environmental toxins (including environmental tobacco smoke)
- family violence
- home environment
- nutrition
- physical activity
- preparation for breastfeeding
- tobacco
- transition of parenthood
- work environment

2.2. Child Health:

A child is defined as anyone less than 18 years of age.

1. ***Positive Parenting***

Positive parenting is defined as positive/warm and consistent parenting interactions with the child (e.g., parents frequently talk, play, praise, laugh and do special things together with their children, have clear and consistent expectations and use non-punitive consequences with regard to child behaviour) (2).

Currently, no Core Indicators meet this requirement or are in development to meet this requirement.

Indicator Gaps:
Indicators Not Developed:

- awareness and use of parenting programs
  - data available through optional RRFSS content
  - data may also be available for senior kindergarten (SK) students through the Kindergarten Parent Survey (KPS) for selected school boards in Ontario
- child discipline campaign
  - data available through optional RRFSS content
- perceptions about the prevalence of family violence in the community
  - data available through optional RRFSS content
- parenting consistency/positive parenting
  - data available through optional RRFSS content
- parenting type
  - data available through optional RRFSS modules: *Parenting Style; Parenting Consistency/Positive Parenting*
- parenting time with child
  - data may be available for SK students through the KPS for selected school boards in Ontario

Data Gaps:

- type of discipline

2. ***Breastfeeding***

The Core Indicators *Breastfeeding Initiation; Breastfeeding Duration;* and *Breastfeeding Exclusivity* can be used to meet this requirement.

Indicator Gaps:
Indicators in Development or Under Consideration:

- intention to breastfeed
  - data available through the BORN Information System
- breastfeeding exclusivity at discharge from hospital
  - data available through the BORN Information System

Data Gaps:

- breastfeeding exclusivity
    - data available through CCHS; sample available not large enough to obtain reliable estimates
    - exclusive breastfeeding, at time of hospital discharge only, available through BORN Information System

3. ***Healthy Family Dynamics***

Currently, four Core Indicators fall under this requirement: *Single Parent Families*; *Pregnancy Rate (teen)*; *Underage Alcohol Drinking;* and *Illicit Drug Use (adolescent)*.

To examine family dynamics, the Child Health Guidance Document (2) suggests assessing the following topics/subjects listed as either an indicator gap or a data gap.

Indicator Gaps:

Indicators Not Developed:

- awareness and perceptions of family violence
    - data available through optional RRFSS content
- abuse of women
    - data available through optional RRFSS module: *Woman Abuse/Routine Universal Comprehensive Screening (RUCS)*
- awareness of post-partum mood disorder
    - data available through optional RRFSS content
- child relationships
    - data available through optional RRFSS module: *Child/Youth Sexual Education* which assesses parent-child sexual health communication

Data Gaps:

- substance misuse among children and teenagers
    - includes alcohol consumption, illicit drug use, prescription drug use, tobacco use
    - prescription drug use (teen) may be available to select health units through OSDUHS
    - health units must buy extra sample in order to use OSDUHS; in 2010, six of the 36 units had bought into this sample
- child abuse
- shaken baby syndrome/abusive head trauma
- family connectedness
- family functioning
- child custody

4. ***Healthy Eating, Healthy Weights and Physical Activity***

Currently, several Core Indicators can be used to meet this requirement for children 12 to 18 years of age, including *Vegetable and Fruit Consumption*; *Adolescent Body Mass Index*; *Leisure-Time Physical Activity; and Screen Time*. This information may be available to some health units.

Indicator Gaps:

Indicators Not Developed:

- physical activity (SK students)

  - data may be available for SK students through the KPS for selected school boards in Ontario
- screen time (SK students)
  - data may be available for SK students through the KPS for selected school boards in Ontario
- healthy weights (BMI) (SK students)
  - data may be available for SK students through the KPS for selected school boards in Ontario
- healthy eating (SK students)
  - data may be available for SK students through the KPS for selected school boards in Ontario in the areas of:
    - vegetable and fruit consumption
    - milk product consumption
    - fast food consumption
    - sweetened drink consumption

Data Gaps:

- limited data sources available for information about healthy eating, healthy weights and physical activity in children under the age of 12 years old at the local or provincial level
- OSDUHS may be used by some health units as a data source for children in grades 7-12
- potential to use the NutriSTEP Tool data collection system to generate information on nutrition status of preschoolers (8)

5. ***Growth and Development***

Currently, no Core Indicators have been developed or are under development to meet this requirement. The Early Development Instrument (EDI) could be used to assess school readiness for health units with data access. EDI data are only available for children of senior kindergarten (SK) age in Ontario at this time. Medical Services data could be explored to assess the 18-month well baby visit.

The Child Health Guidance Document (2) describes this requirement as including motor, language, social, emotional, cognitive skills and abilities. It suggests examining injury prevention; fetal alcohol spectrum disorder (FASD); vision; speech and language; hearing; and education.

Indicator Gaps:

Indicators Not Developed:

- motor, language, social, emotional cognitive skills and abilities
  - data available through EDI
- readiness to learn among SK students
  - data available through EDI
- physical health and well-being; social competence; emotional maturity; language and cognitive development; communication; and general knowledge
  - data available through EDI
- vulnerability and multiple challenge index
  - data available through EDI
- education
  - data available through Education Quality and Accessibility Office (EQAO) (9)

Data Gaps:

- growth and development data for children 0-4 years of age (i.e., younger than senior kindergarten-aged children)

- developmental milestones
- injury prevention
- Fetal Alcohol Spectrum Disorder (FASD)
- vision and hearing

3. INFECTIOUS DISEASE PROGRAM STANDARDS

3.1. Infectious Diseases Prevention and Control:

1. *Infectious Diseases of Public Health Importance (Morbidity, Mortality and Associated Risk Factors)*

Eight Core Indicators can be used to meet this requirement: *Infectious Disease Incidence*; *Infectious Disease Mortality*; *Pelvic Inflammatory Disease Morbidity*; *Rabies*; *Influenza Vaccination; Adult Pneumococcal Vaccination; Influenza and Pneumococcal Vaccination Rates among Long-term Care Facility Residents; and Influenza Vaccination Rates among Staff at Long-term Care Facilities and Hospitals*.

Indicator Gaps:
Indicators Not Developed:

- infectious disease risk factor indicators
  - iPHIS risk factor data collected by individual health units (please see "Section 2" below for an account of iPHIS data limitations)

Data Gaps:

- no data available for diseases of public health importance that are currently not reportable
- emerging trends
  - no consistent source of ED visit, school absenteeism or other syndromic surveillance data

2. *Infection Prevention and Control Practices of Inspected Premises*

Two Core Indicators fall under this requirement*: Influenza and Pneumococcal Vaccination Rates among Long-term Care Facility Residents;* and *Influenza Vaccination Rates among Staff at Long-term Care Facilities and Hospitals*.

Data Gaps:

- no system in place to collect other infection prevention and control practices across public health units

3.2. Rabies Prevention and Control:

1. *Rabies*

The *Rabies* Core Indicator can be used to meet this requirement.

Data Gaps:

- none identified at this time

3.3. Tuberculosis Prevention and Control:

1. ***Tuberculosis***

The *Infectious Disease Mortality* and *Infectious Disease Incidence* Core Indicators can be used to meet this requirement.

Indicator Gaps:

Indicators Not Developed:

- latent tuberculosis (TB) Infection (LTBI)
    - data available through iPHIS; Core Indicator not developed due to the small number of cases

Data Gaps:

- none identified at this time

3.4. Sexual Health, Sexually Transmitted Infections, and Blood-borne Infections (including HIV):

1. ***Sexually Transmitted Infections (STI) and Associated Risk Factors***

Nine Core Indicators can be used to meet this requirement: *Infectious Disease Incidence*; *Infectious Disease Mortality*; *Pelvic Inflammatory Disease Morbidity*; *Cancer Incidence (Cervical)*; *Cancer Mortality (Cervical)*; *Number of Sexual Partners*; *Condom Use the Last Time Among Those at Risk for STIs*; *Youth Sexual Activity;* and *Age of Sexual Debut*.

iPHIS has risk factor data collected by individual health units. Please see “Section 2” below for an account of iPHIS data limitations.

Indicator Gaps:

Indicators Not Developed:

- prevalence of HIV/AIDS

Data Gaps:

- frequency of condom use among those at risk for STIs – formerly available from the CCHS

2. ***Blood-borne Infections and Associated Risk Factors***

Two Core Indicators can be used to meet this requirement: *Infectious Disease Incidence* and *Infectious Disease Mortality*.

iPHIS has risk factor data collected by individual health units. Please see “Section 2” below for an account of iPHIS data limitations.

Indicator Gaps:

Indicators Not Developed:

- prevalence of Hepatitis B

3. Reproductive Outcomes

Currently, two Core Indicators can be used to meet this requirement: *Congenital Infections* and *Pelvic Inflammatory Disease Morbidity.*

Data Gaps:

- infertility

4. Distribution of Harm Reduction Materials/Equipment

Currently, no Core Indicators meet this requirement and no Core Indicators are in development to meet this requirement.

Data Gaps:

- distribution/availability of harm reduction materials and equipment

3.5. Vaccine Preventable Diseases:

1. Child Immunization Status

Currently, one Core Indicator, *Childhood Vaccination Coverage*, can be used to meet this requirement.

2. Board of Health Clinic Immunizations

Currently, no Core Indicators have been developed or in development to meet this requirement.

Data Gaps:

- no systematic collection of immunization clinic data

3. Other Indicators Supporting this Standard

Six Core Indicators fall under this category: *Influenza and Pneumococcal Vaccination Rates Among Long-term Care Facility Residents*; *Influenza Vaccination Rates among Staff at Long-term Care Facilities and Hospitals*; *Vaccine Wastage; Adverse Events Following Immunization*; *Influenza Vaccination; and Adult Pneumococcal Vaccination*.

4. ENVIRONMENTAL HEALTH PROGRAM STANDARDS

4.1. Food Safety:

1. Suspected and Confirmed Food-borne Illnesses

Currently, two Core Indicators fall under this requirement: *Infectious Disease Incidence* and *Infectious Disease Mortality*.

Indicator Gaps:

Indicators Not Developed:

- food handling practices
    - data available through optional RRFSS module: *Food Safety in the Home - Time/Temperature Food Handling Behaviours*
- food safety
    - data available through optional RRFSS module: *Food Safety in the Home - Awareness, Behaviour and Communication*

4.2. Safe Water:

1. Drinking Water Illnesses

Currently, five Core Indicators fall under this requirement: *Infectious Disease Incidence*; *Infectious Disease Mortality*; *Municipal Drinking Water Quality*; *Private Well Water Testing;* and *Water Advisories*.

Data Gaps:

- none identified at this time

2. Beach Water Illnesses

Currently, three Core Indicators fall under this requirement: *Infectious Disease Incidence*; *Infectious Disease Mortality*; and *Posted Bathing Beaches*.

Data Gaps:

- none identified at this time

4.3. Health Hazard Prevention and Management:

1. Community Environmental Health Status

Currently, one Core Indicator falls under this requirement: *Air Quality*.

Indicator Gaps:

Indicators Not Developed:

- extreme weather
    - data available through Environment Canada

- climate change
    - Optional RRFSS modules available to assess public knowledge of issues related to climate change and health as well as beliefs about individual and government responsibility in affecting climate change:
        - *Knowledge of Climate Change and the Causes of Climate Change*
        - *Impact of Climate Change on the Local Community*
        - *Impact of Poor Air Quality on Health*
        - *Built Environment*
        - *Saving Energy at Home*
        - *Home Temperature Settings*
        - *Public Transit*
        - *Motorized Vehicles and Climate Change*
        - *Active Transportation*

Data Gaps:

- indoor air quality
- exposure to radiation

5. EMERGENCY PREPAREDNESS PROGRAM STANDARDS

5.1 Public Health Emergency Preparedness Standard:

1. Public Health Emergency Preparedness

Data Gaps:

- none identified at this time

Section 2: Common Data Sources and their Limitations

1. **Canadian Community Health Survey (CCHS)** (10)

- Cross-sectional design, self-report
- Data collected in 2001, 2003, 2005, 2007 and annually afterwards
    i. Data collected January-December
- Three types of content components (10,11): common, optional and rapid response
    i. Common content is collected from all survey respondents in all provinces and territories, unless otherwise specified
        - Annual common content modules are collected every year and remain relatively unchanged over several years
        - One and two-year common content questions are related to a specific topic and are reintroduced into the survey every two, four or six years if required

    ii. Optional content may vary by health region and province, may vary annually and is reviewed every two years
        - Ontario has selected the same optional content for all health regions starting from CCHS 2005

    iii. Rapid response content may be added as required when national estimates on an emerging issue are required
        - It can be included in the survey in each two month collection period (11,12)
- The CCHS uses three sampling frames to select the sample of households: an area frame, a list frame of telephone numbers and a Random Digit Dialling (RDD) sampling frame. In 2009 - 2010, 49.5% of the sample was selected from the area frame, 49.5% from the list frame and 1% from the RDD frame except for the last two sampling periods of 2010 (40.5% area frame; 58.5% list frame and 1.0% RDD frame) (10)
- The CCHS questionnaire is administered using computer-assisted interviewing (CAI), specifically, the Computer-Assisted Personal Interviewing (CAPI) method for sample units selected from the area frame; or the Computer-Assisted Telephone Interviewing (CATI) method for units selected from the Random Digit Dialling (RDD) and telephone list frames (10)
- The CCHS covers approximately 98% of the Canadian population aged 12 and over. In 2010 the sampling frame covered 90% of private households in the Yukon, 97% in the Northwest Territories and 71% in Nunavut (10)
- In Ontario, 2010, the combined response rate for the area and telephone frames was 68.7% (10)

Limitations:

- Excludes:
    i. Those living on Indian Reserves; Crown Land; Canadian Forces bases/full-time members of the Canadian Forces
    ii. Children under the age of 12
    iii. Institutional residents
    iv. Residents of certain remote regions
- Sample size too small in some health regions to analyze data at the health unit level
- Based on self-reported information, therefore may be subject to biases, such as recall bias or social desirability bias, or result in high non-response
- Telephone-based survey may exclude certain populations
- The survey is conducted only in English or French
- Cross-sectional design therefore cannot determine causal order

2. **Census of Canada and National Household Survey (NHS)** (13,14)

- The census is conducted every five years. The most recent census year was 2011
- 100% of the population completes the short form of the census with information on:
    i. Age
    ii. Sex
    iii. Marital status
    iv. Mother tongue
    v. Relationship to person “x” (12,13)
- Prior to the 2011 census, 20% of the Canadian population (or one in five) were mandated to complete the long form of the census which collected detailed social and economic data about:
    i. Aboriginal peoples
    ii. commuting to work
    iii. education, training and learning
    iv. employment and unemployment
    v. ethnic diversity and immigration
    vi. families, households and housing
    vii. globalization and the labour market
    viii. income, pensions, spending and wealth
    ix. industries

x. labour
xi. languages
xii. occupations
xiii. population and demography
xiv. population estimates and projections
xv. unpaid work
xvi. vital statistics

- In 2011, information previously collected by the mandatory long-form census questionnaire was collected as part of the new voluntary National Household Survey (NHS), distributed to one in three Canadian households

Limitations:

- The NHS is voluntary and may be subject to bias and a higher non-response rate than the mandatory census long-form

3. **Rapid Risk Factor Surveillance System (RRFSS)** (15)

- Three cycles of data collection each year, typically with 400 surveys completed for each participating health unit per cycle (range 240-600 surveys)
- Typically a 20 (range 12-20) minute telephone interview conducted in English or French by the Institute for Social Research (ISR)
- Different types of content: core content, rotating core content, and optional content; core and rotating core decided by consensus of all RRFSS-participating health units every two years, for a two-year period

    i. Core modules - asked throughout the two year period

    ii. Rotating core modules - asked for one of the two years; typically include content for which the anticipated rate of change does not warrant yearly monitoring

    iii. Optional modules - specified by individual health units

- Provincial sample piloted in 2011 for selected modules

Limitations:

- The number of participating health units varies by year
- Samples the population 18 years or older
- Based on self-reported information, therefore may be subject to biases, such as recall bias or social desirability bias, or result in high non-response
- Telephone-based survey may exclude certain populations
- Survey only administered in English or French

- Cross-sectional design therefore cannot determine causal order

4. **Ontario Student Drug Use and Health Survey (OSDUHS)** (16-18)

- Targets students enrolled in Ontario's public and Catholic regular school systems
- Sample youth in grades seven through twelve
- Since 1977, sample design has divided Ontario into four regional strata based on the following boundaries (18):
  - i. City of Toronto
  - ii. Northern Ontario (Parry Sound District, Nipissing District and areas farther north)
  - iii. Western Ontario (Peel District, Dufferin County and areas farther west)
  - iv. Eastern Ontario (Simcoe county, York County and areas farther east)
- Optional extra sample buy in available to health units
  - i. 2009 Survey over-sampled six health units: Durham Region Health Department; Ottawa Public Health; York Region Community and Health Services Department; Haliburton-Kawartha-Pine Ridge District Health Unit; Leeds-Grenville-Lanark District Health Unit; and the City of Hamilton Public Health (17)
  - ii. 2011 survey over-sampled five health units: Durham Region Health Department; Ottawa Public Health; York Region Community and Health Services Department; Niagara Region Public Health; and North Bay Parry Sound District Health Unit (18)
- Surveys students every two years; most recent data are from 2011
- Next survey will be completed in 2013

Limitations:

- Excludes private school students, students that have dropped out, those institutionalized for correctional or health reasons, those on First Nations reserves, military bases, and in the far North regions of Ontario (these exclusions account for 7% of Ontario students) (17,18)
- Self-report therefore actual population rates are likely underestimated due to underreporting and recall bias
- Cross-sectional therefore cannot determine causal order

- Does not survey same students each cycle therefore can't evaluate developmental patterns or changes over time
- Sample too small to determine rates at local level for most health units

5. **Integrated Public Health Information System (iPHIS)** (19)

   - Started in 2005
   - The information system used for reporting case information on all reportable communicable diseases for provincial and national surveillance
   - Each health unit is responsible for collecting case information on reportable communicable diseases occurring within their boundaries and entering information into iPHIS

   Limitations:

   - For many diseases reported numbers are an underestimate of the population's actual burden of disease
   - Comparisons between health units can be problematic due to inconsistencies in data entry. Also, some cases may be counted in more than one health unit
   - Some case definitions changed in 2009 therefore caution should be used when examining trends (12)
   - Although risk factor data are collected in iPHIS, completeness of both collection and entry of risk factor data from cases can vary significantly across health units. Draft provincial guidelines for risk factor data collection and entry were first released in February 2011 and updated in January 2012 (19)

6. **Immunization Records Information System (IRIS)**

   - Record of six mandatory vaccines (diphtheria, tetanus, polio, measles, mumps and rubella) should be relatively complete

   Limitations:

   - Data may not be complete for children under the age of seven
   - Record of other childhood vaccines may depend on health unit (Hepatitis B, Varicella, Haemophilus, Pneumococcal Conjugate, Meningococcal Conjugate C and Human Papillomavirus)
   - Ages at which booster is required for a specific illness may have what appears to be a reduced vaccine coverage rate. This is an artefact due to the reporting Criteria used to determine vaccine

coverage can vary across health units (12); care should be taken when making comparisons

7. **Better Outcomes Registry and Network (BORN) Information System** (20,21)

- Previously the Ontario Perinatal Surveillance System
- Comprised of five founding members:
    i. Prenatal Screening Ontario (fetal and congenital anomalies)
    ii. Fetal Alert Network (FAN)
    iii. Ontario Midwifery Program (OMP)
    iv. Niday Perinatal & Neonatal Intensive Care Unit (NICU)/Special Care Nursery (SCN) Database
    v. Newborn Screening Ontario
- Over 100 hospitals and 80 midwifery groups will be contributing data to the BORN system
- BORN database is set up to have information entered by encounters across the continuum of maternal, newborn and perinatal care
- Reporting system within the BORN database is comprised of three components: clinical dashboards, standard reports and analytical reports:
    i. Clinical dashboards display outcomes for key performance indicators from maternal-newborn, NICU and SCN, prenatal screening, prenatal screening follow-up, newborn screening and newborn screening follow-up care settings
    ii. Standard reports are tools to assist clinical programs and practice groups to examine their performance, outcomes and utilization, and also to assist with planning. These reports are meant to be generated from the system on a regular basis (monthly, quarterly or annually) and will have drill down capability when further information is required, as well as display comparator values
    iii. Analytic reports are being developed for those who want to have the ability to perform custom queries of the BORN data. Specific analysis "Cubes" are being designed for maternal newborn health, pregnancy and birth, prenatal and newborn screening, as well as for public health and midwifery practices. Users having access to these cubes will have the ability to manipulate data to answer specific questions
- Access to the BORN reporting system is based on status as a health information custodian and various levels of access can be given based on an individual's clearance to see personal health information

Limitations:

- All Ontario hospitals with maternal-newborn services contribute data to the BORN Information System. However, the small numbers of births that take place each year in hospitals with no obstetrical services are not captured by the database

- Data capture was complete in most regions from 2005 onwards, and capture of all Ontario births was attained in November 2009; therefore examination of long-term trends is not possible at a provincial level or for all health unit areas
- New variables added to the BORN Information System will be available as of April 2012 with no historic data. Some variables that were in the Niday Perinatal Database changed with the new system and will not be comparable with historic data

8. **Early Developmental Instrument (EDI)** (22)**:**

- A teacher-completed instrument designed to measure a child's readiness to learn at school in five general domains: physical health and well-being; social knowledge and competence; emotional health/maturity; language and cognitive development; and general knowledge and communication skills
- Across Canada, the EDI targets children enrolled in junior or senior kindergarten in publically funded English and Francophone school boards
- In Ontario, the EDI is completed in three year waves (i.e., one out of three of the school boards or regions are completed each year) and is currently implemented only in senior kindergarten classes
- Two cycles of the EDI have been completed (2004 – 2006 (Baseline); 2007 – 2009 (Cycle two)). Cycle three will be completed in 2012

Limitations:

- Targets kindergarten-aged children only
- Excludes children enrolled in private schools
- Some health units currently experience issues obtaining access to the data

9. **Kindergarten-Parent Survey** (23)

- Developed to meet the need for more information on family characteristics and experiences of children before entering kindergarten
- Can be used as a companion document to the EDI
- Targets children enrolled in senior kindergarten in publically funded English and Francophone school boards
- Implemented in 2010
- Like the EDI, the KPS is completed in three year waves

- The first cycle of the KPS will be completed in 2012

Limitations:

- Based on self-reported information, therefore may be subject to biases, such as recall bias or social desirability bias, or result in high non-response
- Survey response rate varies among school boards/regions
- Targets kindergarten-aged children only
- Excludes children enrolled in private schools

Abbreviations

BMI	Body Mass Index [weight (kilograms)/height (metres^2)]
BORN	Better Outcome Registry and Network
CCHS	Canadian Community Health Survey
DAD	Discharge Abstract Database
EDI	Early Development Index
ED	Emergency Department
EQAO	Education Quality and Accountability Office
FAN	Fetal Alert Network
FASD	Fetal Alcohol Spectrum Disorder
IPAQ	International Physical Activity Questionnaire
IRIS	Immunization Records Information System
iPHIS	Integrated Public Health Information System
ISR	Institute for Social Research
KPS	Kindergarten Parent Survey
LRDG	Low-Risk Drinking Guidelines
LTBI	Latent Tuberculosis Infection
NARCS	National Ambulatory Care Reporting System
NHS	National Household Survey
NICU	Neonatal Intensive Care Unit
OHMRS	Ontario Mental Health Reporting System
OMP	Ontario Midwifery Program
OPHS	Ontario Public Health Standards
OSDUHS	Ontario Student Drug Use and Health Survey
RRFSS	Rapid Risk Factor Surveillance System

RUCS	Routine Universal Comprehensive Screen
SCN	Special Care Nursery
SK	Senior Kindergarten
STI	Sexually Transmitted Infection
TB	Tuberculosis

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