



DATA SOURCES AND METHODOLOGY

This chapter summarizes the data sources and methodology used in the charts presented in the *Sacred and Strong: Technical Supplement*. The *Sacred and Strong: Technical Supplement* serves as a companion to the main *Sacred and Strong: Upholding our Matriarchal Roles* report. It includes detailed figures for quantitative data referenced throughout the main report that are not publicly available in other reports.

DATA SOURCES

DATA GOVERNANCE AND LIMITATIONS

It is imperative to honour every data point included in the *Sacred and Strong: Technical Supplement*, as each one represents a unique individual who is a beloved member of a family, community, and a proud Nation. The First Nations Health Authority (FNHA) and the BC Office of the Provincial Health Officer are committed to upholding First Nations data governance principles and advancing First Nations' inherent right to control their own data. While self-determination of First Nations data is our ultimate goal, it should be noted that the data sets used in this report are BC-wide and not held by any one Nation, with most sources being external to the FNHA and the BC Ministry of Health.

This report presents data in a distinctions-based manner by specifying whether the data are from individuals who are Status First Nations or those who identify as Indigenous. We recognize that there are limitations to the data presented in this report, one being that the data may not reflect the diversity of First Nations individuals and their social identities (such as their gender). Most of the data reflect only binary sex categories (male/female), and not a full spectrum of gender identities. In most surveys, there is no differentiation between an individual's biologically determined sex and their gender (how a person self-identifies). This report includes almost exclusively provincial-level data and, on one occasion, data by regional health authority. However, the report fails to reflect the significant diversity across the more than 200 distinct and self-determining BC First Nations communities; the differences between urban, rural, and remote communities; and the differences between individuals living on reserve compared to away-from-home.

Finally, it should be noted that many of the data included in this report are dated and do not reflect the many social, cultural, economic, political, and legal changes that have occurred over the past decade. Furthermore, they do not fully account for the impacts of the ongoing public health emergencies in BC, such as the toxic drug crisis and the COVID-19 pandemic.

Please refer to the main report—*Sacred and Strong: Upholding our Matriarchal Roles*—for further comments on the full limitations of the data for this project.



FIRST NATIONS DATA AND WISDOM

First Nations have shared knowledge and history for thousands of years through oral storytelling.^b The *Sacred and Strong: Technical Supplement* honours this established way of knowing by including the histories and lived experiences of First Nations in BC throughout this report. These voices and histories are forms of First Nations data and wisdom that are held up as equally important to the quantitative, population health data primarily presented in this technical supplement.

REVIEWS, SURVEYS, AND CENSUS

The *Sacred and Strong: Technical Supplement* reports on data that have been collected and analyzed by other groups. This section summarizes these data sources and links the reader to published information on the reviews, surveys, and Census.


In Plain Sight Data Report

The Addressing Racism Review was an independent investigation into Indigenous-specific racism in the BC health care system, launched on July 9, 2020. The results of this investigation are presented in the report *In Plain Sight: Addressing Indigenous-specific Racism and Discrimination in B.C. Health Care*, released by the BC Minister of Health and Hon. Dr. M.E. Turpel-Lafond (Aki-Kwe) on November 30, 2020 ([Full Report](#)) and February 4, 2021 ([Data Report](#)). The full report and its companion data report include data collected from almost 9,000 people in BC. These reports analyze health sector data via information solicited from the Addressing Racism Review (e.g., key informant interviews, emails) as well as data from other surveys and health administrative databases. A significant portion of the quantitative data used to populate *In Plain Sight* was provided by the FNHA. Some of the data reported in this technical supplement are sourced from the *In Plain Sight Data Report*.

First Nations Regional Health Survey

The [First Nations Regional Health Survey](#) (RHS) is part of a national health survey conducted by and for First Nations. It captures a snapshot of the health and wellness of First Nations people living on-reserve across Canada. The FNHA is responsible for gathering and sharing the knowledge from the BC survey on behalf of First Nations in BC. This technical supplement presents data from the first three phases of the RHS ([Phase 1 in 2002–03](#), [Phase 2 in 2008–10](#), and [Phase 3 in 2015–17](#)). The RHS includes questions specific to BC, many of which are analyzed and presented in this supplement.

Some RHS questions had response categories with numbers too small to report in this technical supplement. These numbers were rounded; therefore, the sum of responses across all categories might not add up to 100%.



The First Nations principles of OCAP^{®a}: ownership, control, access, and possession, are intended to be used as a tool to facilitate conversations between First Nations and those who hold First Nations data about how that information is collected, managed and shared.

OWNERSHIP: A community or group owns their information collectively, like an individual owns their personal information.

CONTROL: First Nations are within their rights to seek control over any aspects of research or information gathering that impacts them.

ACCESS: First Nations must have access to information and data about themselves and their communities regardless of where it is held.

POSSESSION: Ownership is asserted and protected by the physical control of the data. This may be implemented with stewardship agreements if physical possession is too costly or unwanted by a First Nation.

- *Sacred and Strong: Upholding our Matriarchal Roles* (p.4)

a First Nations Information Governance Centre. The First Nations principles of OCAP [Internet]. Akwesasne, ON: First Nations Information Governance Centre. Available from: <https://fnigc.ca/ocap-training/>.

b Marshall M, Marshall A, Bartlett C. Two-eyed seeing in medicine. In: Greenwood M, de Leeuw S, Lindsay N, editors. Determinants of Indigenous peoples' health: beyond the social. 2nd ed. Toronto, ON: Canadian Scholars Press; 2015. pp. 44–53.

Early Years Development Instrument

The [Early Years Development Instrument](#) is an annual survey conducted by the [Human Early Learning Partnership](#) (HELP) research network at the University of British Columbia. In February, this survey is disseminated to kindergarten teachers who respond to the survey questions for each student in their class. The questions are focused on the following areas: physical health and well-being, language and cognitive development, social competence, emotional maturity, and communication skills and general knowledge. Together, the data collected using the Early Years Development Instrument can be strong predictors of adult health, education, and social outcomes. Participation is open to all schools in BC, including public, independent, and on-reserve schools. The data are collected in waves that aggregate results from several consecutive school years. This technical supplement reports on Wave 2 (2004–2007) through Wave 7 (2016–2019). Please refer to the [Early Development Instrument Interpretation Toolkit](#) for more information on the survey and its methods.

Middle Years Development Instrument

The [Middle Years Development Instrument](#) is an annual survey conducted by the [HELP](#) research network at the University of British Columbia. There are two questionnaires, one for children in grades 4–5, and another longer questionnaire for children in grades 6–8. The questions relate to five areas of development: physical health and well-being, connectedness, social and emotional development, school experiences, and use of after-school time. Participation is open to all schools in BC, including public, independent, and on-reserve schools. This technical supplement reports on surveys from the 2013/14 school year through the 2017/18 school year. At the recommendation of the HELP team, the data presented in this supplement are disaggregated by the two grade cohorts due to the unique experiences of the two cohorts across the various indicators. Please refer to [A Companion Guide to the Middle Years Development Instrument \(MDI\)](#) for more information on the survey and its methods.

Adolescent Health Survey

The [BC Adolescent Health Survey \(AHS\)](#) is conducted by the [McCreary Centre Society](#) every five years for youth in grades 7 to 12. The AHS reports on physical and emotional health, as well as factors that could impact youth health. The AHS is administered in public schools only and excludes, for example, schools on-reserve and independent schools. This technical supplement includes AHS data from 2003, 2008, and 2013.

Canadian Census

The Census Program, conducted by Statistics Canada, occurs every five years and includes the entire Canadian population: citizens, landed immigrants, as well as non-permanent residents and their households living with them in Canada. Foreign residents who are temporarily visiting or representing a foreign government are not included. The Census collects demographic, social, and economic information in two parts: a short Census survey administered to all households, and



a long-form survey (National Household Survey) administered to a subset of Census participants. This technical supplement reports on results from the 2016 Census and uses population data from the 2016 National Household Survey. In addition, the 2011 Census population is used as the standard population for age-standardized rates in this report, as explained in the Methodology section.

BC COVID-19 Survey on Population Experiences, Action and Knowledge

The BC COVID-19 Survey on Population Experiences, Action and Knowledge (SPEAK) was funded by the BCCDC Foundation for Public Health. The SPEAK data are publicly accessible in an [online dashboard](#), and additional details are published in a [technical guide](#). This technical supplement reports on SPEAK Round 1 only.

Patient Reported Experience Measures Acute Inpatient Survey

The Patient Reported Experience Measures Acute Inpatient Survey is led by the [BC Office of Patient-centred Measurement](#), and is part of a provincial strategy to measure and improve patient experiences and outcomes. This technical supplement presents data from the 2016/17 Acute Inpatient Survey, asking whether respondents felt that their care providers were respectful of their culture and traditions during their hospital stay in acute inpatient care. Responses reported from this survey are unweighted.



ADMINISTRATIVE HEALTH DATA

First Nations Client File

The First Nations Client File (FNCF) is a cohort of First Nations people who (a) are BC residents; (b) have health records that could be linked through their BC Personal Health Number; and (c) are either registered under the federal *Indian Act*, or descendants of registered individuals determined to be eligible under the *Indian Act*. While the FNCF is the best available cohort of Status First Nations people living in BC, there are some limitations; specifically, the number of infants has been underrepresented in the FNCF since 2012.

To conduct population data analysis for the *Sacred and Strong: Technical Supplement*, the FNCF was linked with administrative health databases including the following: BC Client Roster, BC Perinatal Data Registry, BC Vital Statistics Agency (Births), Medical Services Plan (MSP) Database, Hospital Discharge Records / Discharge Abstract Database, and the Chronic Disease Registry.

BC Client Roster

This BC Ministry of Health database is a roster of everyone who interacts with the BC health system. For this technical supplement, denominators for rates are sourced from the BC Client Roster when the numerator is based on administrative health data. The denominators are based on mid-year populations of people who live, or have lived, in BC and have registered for a Personal Health Number. Every person in the FNCF is also in the BC Client Roster.



BC Perinatal Data Registry

The [BC Perinatal Data Registry](#) captures data on almost all births in BC from over 60 hospitals, as well as births at home attended by registered midwives. In addition, this registry captures data on maternal postpartum readmissions up to 42 days post-delivery, as well as baby transfers and readmissions up to 28 days after birth. The registry sources data from obstetrical and neonatal medical records. This technical supplement reports from an extract of this data registry as of January 2018.

BC Vital Statistics Agency, Births

The [BC Vital Statistics Agency](#) registers births, marriages, deaths, and changes of name in BC. This technical supplement reports on [birth data](#) available from the Vital Statistics Agency up to December 2017, including birth weights, gestational age of baby at birth, as well as rates of pregnancies and abortions.

Medical Services Plan Database

This BC Ministry of Health database contains records of health services eligible to be billed to the BC Medical Services Plan (MSP). This includes all medically required services from general practitioners and specialists, as well as laboratory services and diagnostic procedures including x-rays and ultrasound examinations. Dental and oral surgery are included when performed in hospital. Some supplementary health care benefits (e.g., chiropractic, massage therapy, naturopathy, physiotherapy, non-surgical podiatry, and acupuncture services) are also provided through the MSP for specific eligibility groups.

Hospital Discharge Records / Discharge Abstract Database

This BC Ministry of Health database contains records of patients who are admitted to hospitals. Each record follows a patient in a facility from admission to discharge, transfer, or death. Patients who are transferred have a new record at the next facility. Records include International Classification of Diseases and Related Health Problems 10th Revision, Canada (ICD-10-CA) diagnosis codes that identify the causes, types, and locations of injury.

Chronic Disease Registry

The Chronic Disease Registry is created by the Office of the Provincial Health Officer using other BC Ministry of Health databases—specifically the Discharge Abstract Database, Pharmacy Dispenses database, and MSP database—to identify people living with specific chronic conditions. Membership in these registries is not based on medical diagnosis, but instead determined based on whether their use of the health care system matches the case definitions for that condition. The Chronic Disease Registry data as well as data notes are published in an [online dashboard](#).

HEALTH SURVEILLANCE DATA

Human Papillomavirus Immunization

The BC Centre for Disease Control and Vancouver Coastal Health Authority provide data on the Human Papillomavirus (HPV) immunization series. The *Sacred and Strong: Technical Supplement* reports on the percentage of young women who have completed the HPV immunization series prior to their 16th birthday.

Sexually Transmitted Infections

This technical supplement reports on the crude rate of sexually transmitted infections. This rate is provided by the BC Centre for Disease Control.

OTHER BC GOVERNMENT DATA

BC Ministry of Children and Family Development

The *Sacred and Strong: Technical Supplement* reports on two datasets provided by the BC Ministry of Children and Family Development. The first dataset reports the rates of youth in custody of the Provincial Corrections system from the Ministry's Specialized Intervention and Youth Justice Branch, using data from the BC Corrections Operations Network (CORNET). The second dataset reports the rates of children in care from the Ministry's Integrated Case Management System.

BC Ministry of Education

This technical supplement reports on two datasets provided by the BC Ministry of Education. The first is the Eight Year Completion Rate and the second is the annual School Satisfaction Survey for years 2010/11 to 2014/15. The School Satisfaction Survey has been renamed the [Student Learning Survey](#).

BC Ministry of Advanced Education and Skills Training

This technical supplement reports on two datasets provided by the BC Ministry of Advanced Education and Skills Training. The first dataset is the [Student Transitions Project](#), which provides data on the paths of BC students from high school to public post-secondary school in the province. The second dataset is the [Baccalaureate Graduate Survey](#). This survey asks graduates from baccalaureate programs about their financial, employment, and educational outcomes, as well as their evaluation of, and satisfaction with, their post-secondary education programs. Graduates are surveyed two years after graduation. This technical supplement reports on the surveys from 2014, 2015, and 2016 (for graduates completing programs in 2012, 2013, and 2014, respectively).

BC Ministry of Public Safety and the Solicitor General and BC Corrections

The BC Ministry of Public Safety and Solicitor General provided data on women in custody via the BC Corrections Operations Network (CORNET). This technical supplement reports on the rate of Indigenous women in custody.



METHODOLOGY

SURVEY DATA: WEIGHTING AND PERCENTAGES

The *Sacred and Strong: Technical Supplement* reports data from multiple survey sources. Unless otherwise stated in the chart notes or in this chapter, reported survey responses are weighted to align the surveyed population with the study population. Therefore, the percentages responding with a given survey answer represent the study population, not the survey population. This technical supplement also reports all response options for a survey, unless otherwise stated. Finally, in some cases, the sum of percentages across reported response options may not equal 100% due to rounding or omission of some response categories.

RATES

This technical supplement reports on several epidemiological rates—measures of the frequency of reported events in a specific population over a specific period of time. Unless otherwise stated, this technical supplement reports rates for a given calendar or fiscal year, so rates are often represented as a number of events per number of people in the study population (e.g., “10 per 100,000 population”). The following describes the types of rates reported in this work.

Crude Rate (e.g., Age-specific Rate)

A crude rate is an unadjusted rate where the numerator is the number of events, and the denominator is the size of the study population. Age-specific rates are an example of crude rates reported in this technical supplement and refer to crude rates for each age group. Crude rates represent the true frequency of events in the study population and can be used to determine the burden of a disease or condition in that population. They also account for the population size. However, if two populations have different age structures, it would not be meaningful to directly compare the crude rates, as differences in rates could be a result of differences in population ages rather than in the occurrence of the disease or condition.

Age-standardized Rate

An age-standardized rate is a rate adjusted to account for different age structures in addition to different population sizes. The adjustment is often made so that each reported rate is aligned with the age structure of a standard population. This technical supplement reports age-standardized rates using the 2011 Canadian population as the standard population. While age-standardized rates allow for comparison of frequency between two populations adjusting for both size and age, the absolute value of these rates does not have a real-world meaning. Age-standardized rates should not be used to infer an actual burden or magnitude of event frequency.

To calculate the age-standardized rate, first calculate the age-specific rates for each age group in the study population. Then, multiply these rates by the percentage of the standard population within the age group of that age-specific rate. Finally, sum these numbers. In other words, the age-standardized rate is calculated as a weighted average of the age-specific rates for the study population, where the weights are the percentage of the standard population within the age group for the corresponding age-specific rate.

PREVALENCE

Prevalence is the proportion of people within a population who are living with a specific condition. This technical supplement reports prevalence of certain conditions from the BC Chronic Disease Registry (see above). This includes age-specific prevalence of these conditions for a specified time period, as well as age-standardized prevalence of these conditions over a number of years. The latter is reported to compare the prevalence by sex and by First Nations identity. Prevalence is reported per 100 residents (i.e., a percentage).

