Injury Data 101: How are provincial injury data collected?

This factsheet is the sixth in a series on injury data in British Columbia (BC). Visit injuryresearch.bc.ca/data for more information on data in BC.

When an individual visits a hospital or emergency department, an electronic record is created that documents the nature of the injury, treatment provided, and patient outcomes. Records are also created for injury-related deaths. This information is entered into administrative **databases**. An injury **dataset** is a series of these records documenting injury-related information using specific variables, such as date and time of injury, type of injury sustained, cause of injury, etc.

Database: *A structured collection of data organized to allow for retrieval and management. Think of a database as a filing cabinet.*

Dataset: *A collection of information gathered for a specific purpose, such as research. Think of a dataset as a file or set of files in the filing cabinet.*

Datasets can be pulled from databases and analyzed to identify and report on injury trends and patterns across populations.

Injury information is recorded using the **International Classification of Diseases System, 10th revision (ICD-10)**. ICD-10 is a globally-recognized standardized coding system used to classify diseases, health conditions, and external causes of injuries. These codes are developed and maintained by the World Health Organization.

All countries experience diseases, health conditions, or external causes of injuries that are specific to their environment. To capture nationally relevant information, organizations can modify ICD-10 codes. The Canadian Institute for Health information (CIHI) is responsible for reviewing and adapting ICD-10 codes for national use.

CIHI is an independent, not-for-profit organization that collects, analyzes, and publishes health reports in order to inform health policy and improve health care delivery.

ICD-10-CA is Canada's codebook for health data collection. It is used to record patient information for emergency department visits and hospital stays. The international ICD-10 system is used when identifying and recording underlying causes of death.

CIHI publishes updates to the ICD-10-CA on a three-year cycle.

- During each update, new codes may be added, while old codes are disabled or removed.
- In rare cases, urgent or emergent requests are made to change the ICD-10-CA codes.

When new codes are released, Health Information Management professionals, those who code the data, review the new codes and receive training from their hospitals or health authorities on how to apply the new codes within electronic health records.

- Data availability depends on how quickly each hospital is able to start using new codes.
- Coders do not apply new codes to old recorded data.

Example of an ICD-10 Canadian Adaptation

Injuries from winter sports, e.g. skiing, snowboarding, ice skating, tobogganing, and hockey.

Injury hospitalizations and emergency department visits

When patient information is recorded at the hospital, it is entered into a patient record.

Patient records document information such as:

- Date-of-birth, sex, and home address,
- Date and time of arrival, date and time of discharge, and where the person is discharged to (e.g. home or long-term care), and
- Clinical details of the visit.

For injury cases, clinical details include the type of injury sustained and the body part injured.

Hospitals submit their datasets to CIHI, where the data are checked for quality, consistency, and accuracy. Once completed, these validated datasets are:

- Added to the national database;
- Returned to each hospital; and,
- Sent to their respective provincial/territorial Ministry of Health for supporting planning, policy development, and operational decision-making.
- There is generally a one-year time lag before healthcare data become available for surveillance and reporting purposes.

Datasets are also added to the following BC-specific databases.

- **Discharge Abstract Database (DAD):** Captures data on hospitalizations. This includes:
  - Admissions for acute care stays in hospital,
  - Day surgeries, and
  - Long-term stays for rehabilitation.

Data on injury hospitalizations only include acute inpatient stays.

- **National Ambulatory Care and Reporting System (NACRS):** Captures data on emergency department (ED) visits. In BC, NACRS data are reported by 30 hospitals representing approximately 70% of ED visits in the province. The majority of these hospitals are located within the Lower Mainland.

For injury-related visits, BC NACRS does not capture the external cause of injury. This means that while the types of injuries sustained can be identified, (e.g., scrapes, fractures, concussions), information about what the person was doing at the time of injury is not known.

Data on complex trauma patients are detailed in the **BC Trauma Registry (BCTR)**. BCTR is present in 11 acute care facilities in the province. Each BCTR-supported hospital has at least one health information registrar who is responsible for coding and abstracting trauma information according to provincial standards. Site data are transferred to the BCTR.

BCTR includes data for patients who meet any of the following criteria:

- Treated for moderate to major trauma (Injury Severity Score ≥9), except for Vancouver General Hospital (Injury Severity Score ≥12);
- Meet site trauma team activation criteria or have a trauma team response;
- Require coordinated care across facilities;
- Are included in specialized populations (pediatrics); and
- Expire in hospital following a traumatic incident within set parameters.

Canadian Hospitals Injury Reporting and Prevention Program (CHIRPP)

CHIRPP is an injury and poisoning surveillance system that collects and analyzes data on injuries to people who are seen at the emergency departments of 11 pediatric hospitals (and one children's outpatient clinic within a general hospital) and 9 general hospitals in Canada. In BC, CHIRPP data is reported by two hospitals: **BC Children's Hospital** (patients under 17-years-old) and **Kelowna General Hospital**.

The CHIRPP dataset contains unique information on "pre-event" injury information, including:

- Date, time, and location of injury,
- What the injured person was doing,
- Safety equipment used,
- External cause of injury,
- Type of injury sustained, and
- Body part injured.

CHIRPP data are collected using a special form that is completed at the point of registration in the ED. The first page of the form is filled out by the patient or parent/caregiver, after which the CHIRPP staff complete the form and code the data using the CHIRPP coding system. The form is then entered into the secure national database after removing identifying information about the patient, such as name or home address.

Injury deaths

In BC, the database capturing deaths is maintained by the **BC Vital Statistics Agency**. All deaths resulting from injury are investigated by a coroner, who documents the cause of death and other relevant information. The medical certificate with the cause of death is then sent to the BC Vital Statistics Agency, where it is coded using ICD-10.

The time required to complete a coroner's investigation varies, depending on both the complexity of the case and the total number of cases each year. As a result, there may be a delay in obtaining information on deaths resulting from injury.

Data linkage

Injury datasets can be linked together to follow each patient's recovery journey, which may include ambulance attendance and transportation, emergency department care, hospitalization, medication use, rehabilitation, etc. This process is strictly governed by privacy laws and is typically used for research, surveillance, and policy planning purposes.

ICD-11: The 11th revision of the ICD includes improvements to reflect advances in health care practices, medical knowledge, and information technologies. A date for implementing ICD-11 in Canada has not yet been determined.

What data are captured from BC's health care system?

- **Deaths:** coded using ICD-10; no Canadian-specific codes
- **Hospitalizations:** coded using ICD-10-CA
- **ED visits:** coded using ICD-10-CA; no cause of injury codes
- **Urgent Care visits:** not captured
- **Walk-in-Clinic visits:** not captured
- **Family Doctor visits:** not captured

References

1. *Canadian Institute for Health Information. (2025). Coding direction: Specificity for Certain Types of Motorized Pedestrian Conveyance Devices and Motorcycles. Accessed October 28, 2025 https://www.cihi.ca/en/coding-direction-specificity-for-certain-types-of-motorized-pedestrian-conveyance-devices-and*
2. *Malik, Pranjal. McGill Libraries. (2024). "Library Vocab 102: What are datasets and databases?" Accessed October 28, 2025 https://blogs.library.mcgill.ca/hsslibrary/library-vocab-102-what-are-datasets-and-databases/*