

Injury Data 101: What is an injury? How are injury data captured?

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

What is an injury?

An injury is damage to the body. This damage can be caused by energy exerted on the body. Damage can also be caused by lack of heat or oxygen, such as in frostbite or choking.

Injuries can result from different types of energy:



Physical



Chemical



Electrical



Heat



Radiation

How do we describe injuries?

Classification systems are used to capture data and organize injuries by type, cause, and demographics.

- Administrators **record** patient cases through the health care system, tracking treatments, resources, and costs. These data include emergency department visits, hospitalizations, and deaths.
- Researchers **look** for trends and patterns of injury within a population to inform prevention, mitigation, and treatment strategies. These data are described using terms such as rates, averages, and disability-adjusted life years.



When talking about data, it's correct to refer to them in the plural.

What are common ways to describe injuries?

The **external cause** is the event that resulted in the injury.

In BC, there are three provincial priorities for injury prevention:



Community-dwelling seniors fall and fall-related injury prevention



Transport-related injury prevention



Youth suicide and self-harm prevention

Other common external causes of injury include: poisoning, burns and scalds, drowning, and being hit by a person or with an object.



Referring to injuries as unintentional sometimes suggests that they are “accidents” and “just happen.” Unintentional does not mean there's nothing that can be done about it—almost all injuries are preventable.

Common terms



Intent:

- Unintentional:** These result in the majority of injuries.
- Intentional:** These are more accurately described as **inflicted** injuries. These are injuries that result from violence or self-inflicted harm.

Injuries can be both inflicted and unintentional; for example, when a child sustains an injury during play fighting with siblings.

Sometimes the intent is **undetermined**: meaning the true intent of an injury can be difficult to identify, such as when there is insufficient information or the suspicion of foul play.



Activity when injured: This is what the person was doing at the time of injury. This information is not always available, depending on the data source. Work-related injuries and injuries resulting from motor vehicle crashes during travel are typically captured due to insurance implications. Exceptions to this include work situations that are not covered by worker's compensation, or cases of hit-and-run pedestrian injury.



Nature or type of injury: This describes the injury itself, such as fractures, traumatic brain injuries, and open wounds. Sometimes, the type of injury is the same as the cause of injury, such as poisonings and burns.



Place of occurrence: This is where the injury happened. Injuries can happen anywhere: at home, at school, work, at the playground, on the road, or on the water. Place is typically captured as the person's home address or the hospital where they were treated. For some injuries, such as the intersection where a motor vehicle crash occurred, the exact place of occurrence can be captured using geocodes (longitude and latitude).



Severity: The most severe injuries are those that result in death. Generally, injuries that result in a hospital stay are considered to be more severe injuries than those treated in the emergency department.

However, admission policies are not standardized among hospitals or jurisdictions—the same injury might result in a hospital stay in one city, but not another. Injuries treated in emergency departments are generally considered to be more severe than those seen in doctor's offices and walk-in clinics. The least severe injuries are those that are treated at home, or that do not require any treatment at all. These are often not captured in injury data systems, as the person did not interact with the health care system.

Common activities at the time of injury include: sports or physical activity, unpaid work (e.g., work around the house), vital and personal activity (e.g., taking a bath or shower), while being taken care of (e.g., an infant being bathed by someone else), and while receiving health care.

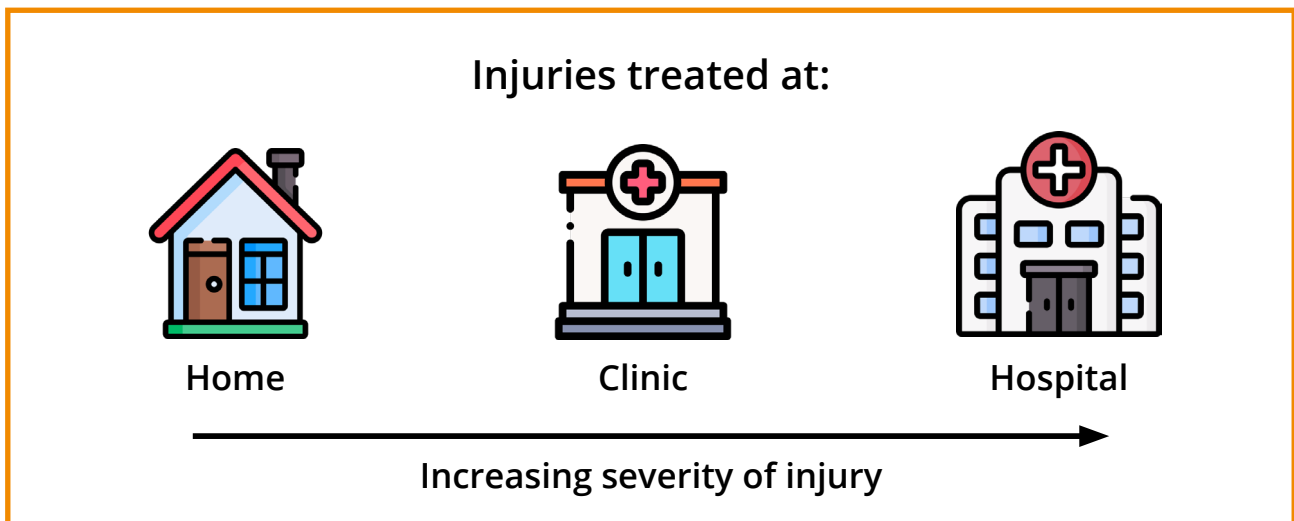


- **Injury mortality:** Injuries that result in death—the number of individuals who died.
- **Injury morbidity:** Other injury outcomes, such as hospitalization, emergency and primary health care, disability, and the use of other health care services—the number of individuals injured.

How do we describe injury by population?

There are many ways to describe injuries by population characteristics. These factors also influence a particular population's risk for injury and can help inform injury prevention efforts.

- By individual information: sex, date of birth (e.g., infants, children, young workers, older adults)



- With details about the incident: date of injury, date of hospital admission, location
- By geography: urban vs. rural and remote populations, city, region
- By socioeconomic factors: education, income, social connections, ethnicity

Injury prevention efforts can target particular populations:

- Very young children who are unable to assess risk for themselves.
- Young workers who may not have the training or experience for the work they are asked to do, and who may not know that they have the right to refuse dangerous work conditions.
- Older adults who may have balance issues and be at risk of falling.
- Remote populations who may not have easy access to health care.

How are injury data coded?

The International Statistical Classification of Diseases and Health Related Problems (ICD) is a standard coding system developed by the World Health Organization (WHO) for classifying diseases and health conditions. For over a decade, the ICD 10th Revision has been used to code death, hospitalization, and some emergency department data.

- Chapter XIX (S00-T98): Injury, poisoning and certain other consequences of external causes. This includes type of injury related to a single body region and injuries to multiple or unspecified body regions, as well as poisoning and other consequences.
- Chapter XX (V01-Y98): External causes of morbidity and mortality



The new ICD-11 came into effect in early 2022. Changes to the coding system help capture more details about injuries. Unfortunately, changing coding systems disrupts how trends and patterns are reported and investigated. It will be difficult to compare data coded using ICD-10 with data coded using ICD-11, as the two systems are very different.

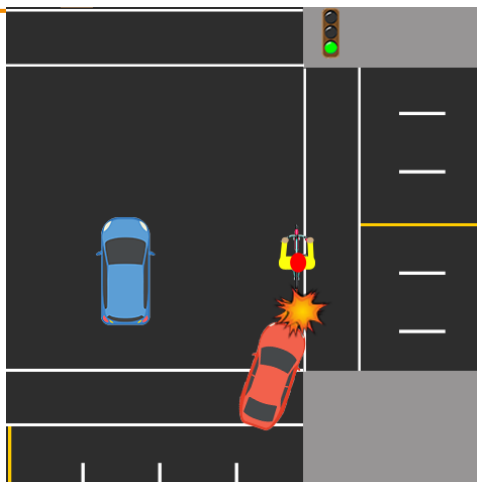
Why do we collect data on injury?

We collect data to understand the **burden of injury** – more useful pieces of information are:

- Who was injured? (age and sex)
- How did it happen? (external cause)
- Where did it happen? (place of occurrence)
- What was the person doing when it happened? (activity when injured)

Looking at trends and patterns of injury can help inform risk factors, policy changes, and prevention efforts.

Example: Caitlin Smith, 22-years-old (Who), sustained a right arm fracture (Type of Injury) and a concussion at the corner of Main Street and Broadway in Vancouver (Place of Occurrence). She was crossing the intersection on her bike (Activity When Injured) when a car turning right hit the back tire of her bicycle (External Cause).



RESOURCES

WHO ICD-10 Chapter XIX – Injury, poisoning and certain other consequences of external causes (S00-T98): <https://icd.who.int/browse10/2019/en#/XIX>

WHO ICD-10 Chapter XX – External causes of morbidity and mortality (V01-Y98): <https://icd.who.int/browse10/2019/en#/XX>

WHO's new International Classification of Diseases (ICD-11) comes into effect: [https://www.who.int/news/item/11-02-2022-who-s-new-international-classification-of-diseases-\(icd-11\)-comes-into-effect](https://www.who.int/news/item/11-02-2022-who-s-new-international-classification-of-diseases-(icd-11)-comes-into-effect)

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