

# Understanding Differences in Data Reported by IVPB and Data Reported by Other Sources

NCDHHS Division of Public Health, Injury and Violence Prevention Branch (IVPB), Epidemiology, Surveillance, and Informatics (ESI) Unit

## There are many reasons why different data sources may report different numbers of injuries.

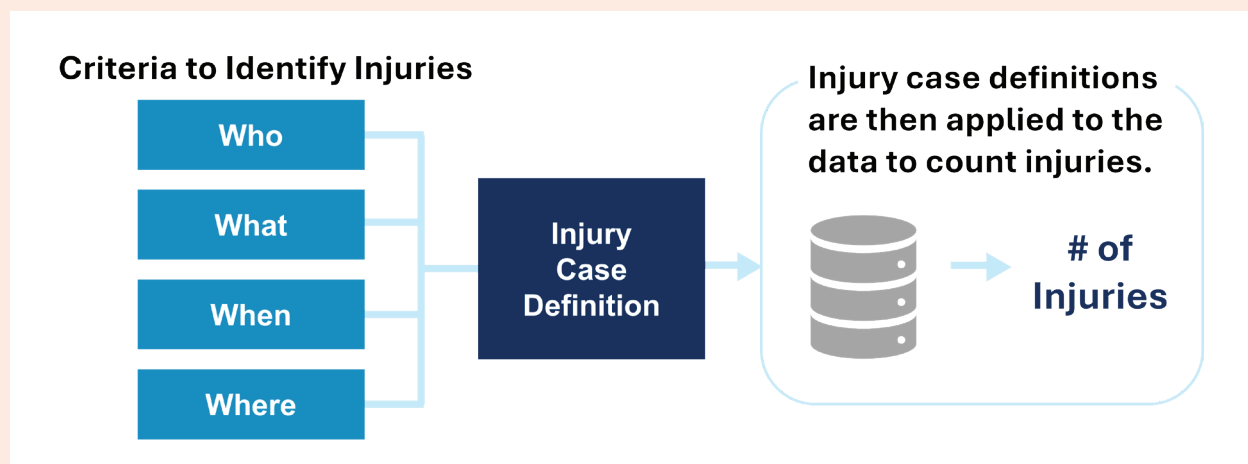
Reported numbers depend on many things, including:

- How injuries are being counted or defined (their case definition).
- The data source being used.
- The time period of data being used (e.g. month, year, or several years).
- Whether the data are still being updated or are final.
  - To learn more about provisional data, visit [Using Provisional Data for Monitoring Injuries](#).

### SURVEILLANCE CASE DEFINITIONS

A surveillance<sup>1</sup> case definition is a set of rules used to decide what is included when identifying cases of a certain health problem or specific health events.

- Case definitions help ensure injuries or other health events are counted the same way in different places and over time.
- The exact rules or criteria used to count cases can be different depending on the program, agency, or the type of data being used.
- To learn more about the surveillance case definitions IVPB uses, visit [Understanding Injury Surveillance Case Definitions](#).



<sup>1</sup> Public health surveillance is the process of collecting, analyzing, and using data to monitor injuries or health conditions and to help prevent and control these health events (Thacker S. B., Berkelman R. L. Public Health Surveillance in the United States. Epidemiologic Reviews. 1988;10:164-90.)



# Examples of Known Differences in Reported Injury Death Data

## Differences Between IVPB Death Data and National Death Data Sources

Data on deaths in NC due to violence, overdose, and other injuries are included in several national interactive data portals. Most of these tools use death certificate data from the [National Vital Statistics System \(NVSS\)](#).

Below are some reasons why data shared through these national systems can be different from data shared by IVPB.

### DIFFERENCES WHEN USING PROVISIONAL DATA

#### Delays in Reporting

- There is a delay in cause of death coding in the death certificate data because of the time it takes to investigate deaths and complete the death certificate.
  - Delays can be longer for some injuries, like overdoses and violent deaths.
- Many indicators that use the NVSS provisional data count cases based on the cause of death information reported in the data at that point in time.
  - This can underestimate the number of some deaths, like overdoses, where some records may not have a specific cause of death code yet.
- IVPB uses data from the Office of the Chief Medical Examiner (OCME) to monitor early numbers of overdose deaths.
  - These indicators often show higher numbers of overdose deaths than provisional death certificate data because of the delays in death certificate coding.
- For more information visit, [Using Provisional Data for Monitoring Injuries](#) and [Using Provisional Overdose Data](#).

#### Who Is Included

- Some national sources of provisional data do not restrict data to deaths among residents.
  - All reported cases are used, including those among residents of other states and countries.
  - Most IVPB reports using provisional data are limited to NC residents.
- Final national datasets do limit data to residents, which may then show different numbers of deaths than were shown in the provisional data.
- For more information on data by occurrence (where a death happened) vs residence status, visit [Understanding Injury Surveillance Case Definitions](#).

#### Final Data

- Once the NVSS death certificate data are considered closed or final, the data are “frozen”.
  - Data are no longer updated even if additional records are submitted by states or jurisdictions to NVSS.

- “Freezing” data provides a single reference file for analysis and helps ensure consistency in the data.
- Some records in the final annual NVSS file will have an unknown or pending cause of death even if the information becomes available later.
- NC continues to update information in the state Vital Records system at the NC State Center for Health Statistics (SCHS) after the national file is closed.
  - Updates made to the NC file after the NVSS data are finalized can create discrepancies between the final national and state death certificate data.
  - The SCHS also creates a final “frozen” death file once the SCHS has finalized most death certificates for that year. It may or may not match the NVSS final file.

## **VIOLENT DEATH REPORTING SYSTEM (VDRS) AND STATE UNINTENTIONAL DRUG OVERDOSE REPORTING SYSTEM (SUDORS)**

- IVPB reports data from the NC-VDRS and NC-SUDORS to the Centers for Disease Control and Prevention (CDC) to be included in the National VDRS and SUDORS.
- There can be differences in the number of violent deaths and overdoses reported between the state systems and the national systems.
  - Differences can be caused by delays with cause of death coding in the death certificate data.
- NC-VDRS and NC-SUDORS continue to be updated after the national systems are closed out or “frozen”.

## **Differences Between IVPB Death Data and Other NC Data Sources**

### **DIFFERENCES BETWEEN DATA FROM IVPB AND THE NC DATA PORTAL**

The [NC Data Portal](#) provides access to data to support community health assessments and inform other public health activities. This tool includes several different indicators on overdose, violence, and other types of injuries.

- Most of the NC Data Portal indicators use age-adjusted rates, where IVPB normally uses crude rates.
  - For more information on the difference between crude and age-adjusted rates, visit [Understanding Counts and Rates](#).
- Some of the NC Data Portal indicators come from national data sources and may not be the same as the data IVPB shares on these same injury topics.
  - See the [Differences Between IVPB Death Data and National Death Data Sources section](#) in this document for more context.
- IVPB substance use and injury epidemiologists consult with national leaders, state data providers, and other experts to be sure they are counting injuries and overdoses as accurately as possible using NC data.
  - Because of this, the NC Data Portal may use different case definitions than IVPB.
  - For more information, visit [Understanding How IVPB Processes Data](#) and [Understanding Injury Surveillance Case Definitions](#).
- There can also be differences due to the timeliness of data.
  - IVPB tends to have more recent data posted than the data included in the NC Data Portal.
  - For more information, visit [Using Provisional Data for Monitoring Injuries](#).

## **DIFFERENCES BETWEEN NC OCME AND NC DEATH CERTIFICATE DATA**

IVPB uses both NC OCME and death certificate data for monitoring injury fatalities, depending on the topic or the purpose of the data resource.

Data from OCME and death certificate data from SCHS can differ for many reasons, including the different purposes of these two systems.

- The cause of death on a death certificate is the medical opinion of the death certifier based on the information available at the time of death.
  - There can be a difference of medical opinion between the professional certifying the death and the medical examiner (ME) after investigation.
- MEs investigate deaths that are unexplained, unexpected, or that are due to injury, violence, or poisoning.
  - They do not investigate all deaths but do investigate most injuries.
  - Death certificate data include many natural deaths that are not included in OCME data.
  - OCME data may include investigated deaths that are not included in death certificate data because OCME investigates all deaths occurring in NC, not just deaths among NC residents.
- During the ME and law enforcement investigations, more information can become available that shows the death was due to a different cause than what is on the death certificate.
  - For example, a death certificate may show unintentional firearm injury as the cause, but after further investigation the death was determined MEs to be a firearm homicide.
  - This information is not always available before the annual death certificate data file is finalized and “frozen”, so the same death could have a different cause/intent in each system.
- OCME does not “freeze” their data and continuously updates data as information becomes available.
  - This can contribute to differences between OCME data and death certificate data since death certificate data are closed and “frozen” each year.
  - OCME data may include deaths among non-residents that are not included in the death certificate data.

There can also be differences between data included in IVPB products and data published by the SCHS and OCME. Differences in data can depend on which source of data is being used, which case definition is being applied to the data, and if the data are provisional or final.

## **DIFFERENCES BETWEEN NC DEATH CERTIFICATE DATA AND DATA FROM NC-VDRS AND NC-SUDORS**

NC-VDRS and NC-SUDORS are both multi-source data systems that compile data from death certificates, ME reports, and law enforcement reports.

- Data captured in NC-VDRS and NC-SUDORS are based on evidence from all data sources used to populate these systems.
  - The CDC coding manual is used to determine SUDORS and VDRS case inclusion or exclusion, but the manner of death in NC-VDRS and NC-SUDORS is heavily influenced by both death certificate and ME data.
- NC-VDRS and NC-SUDORS data are limited to deaths that happened in NC, where final death certificate data also include deaths among NC residents that happened outside of the state.

- NC-VDRS and NC-SUDORS process deaths on a later timeline than the death certificate data.
  - NC-VDRS and NC-SUDORS may include information that was not available when the death certificate file was closed or “frozen”.
  - This can result in a final cause and manner of death that is different than what is listed on the death certificate.
  - Any updates to the manner and cause of death in NC-VDRS or NC-SUDORS are not made to the death certificate file if it has already been “frozen”.
- Legal intervention deaths, or deaths caused by law enforcement officers or other authorized personnel using deadly force in the line of duty, is its own category of violent death in the NC-VDRS.
  - These deaths are always coded as homicides in the death certificate data.

## DIFFERENCES BETWEEN NC OCME DATA AND DATA FROM NC-VDRS AND NC-SUDORS

- There can be differences between NC OCME and the NC-VDRS and NC-SUDORS data because of the case definitions used to identify causes and manners of deaths between OCME and these two systems.
- The case definitions NC-VDRS and NC-SUDORS use are similar to case definitions used by NC OCME for many causes and manners of death but do not align for all kinds of deaths.
- CDC’s coding manual is used to determine SUDORS and VDRS case inclusion or exclusion, but the manner of death in NC-VDRS and NC-SUDORS is heavily influenced by both death certificate and ME data.

**FOR MORE RESOURCES:**

Visit our [Injury Data Users Toolkit](#)

