NC DEPARTMENT OF HEALTH AND HUMAN SERVICES
North Carolina Injury & Violence Prevention Branch

Core Injury Surveillance Technical Notes

This document is a detailed resource to accompany core injury surveillance data dissemination materials produced by the Injury and Violence Prevention Branch (IVPB). The document provides more specific information about the data sources, methodology, surveillance case definitions, and other relevant information to effectively interpret and use data products produced by the IVPB.

Contents

Data Sources

Core injury surveillance uses three main data sources – death certificate, hospital discharge, and emergency department visit data – to understand the burden of injury within the state. North Carolina Violent Death Reporting System (NC-VDRS) and North Carolina State Unintentional Drug Overdose Reporting System (NC-SUDORS) data are also used to better understand violent deaths and overdose deaths as well as circumstances surrounding those deaths. Each of these sources is described briefly below.

Death Certificate Data

Vital Statistics death certificate data are obtained from the NC State Center of Health Statistics (SCHS). Data include International Classification of Diseases, 10th Revision (ICD-10) codes for the primary and underlying causes of death. The ICD-10 cause of death codes are listed in order of primacy, where the first listed code is the primary cause of death. Death certificate data are available starting in 1999.

For questions about these data, please contact schs.info@dhhs.nc.gov.

Morbidity Data

ICD-10-CM Transition

The ICD, Clinical Modification is a coding structure used to classify morbidity data. On October 1, 2015, the ICD, Tenth Revision, Clinical Modification (ICD-10-CM) replaced the Ninth Revision (ICD-9-CM) for coding diagnoses and other information in hospital discharge, emergency department, and outpatient records. Due to the large impact of the transition injury surveillance, ICD-10-CM and ICD-9-CM coded injury data are usually not compared. For more information on how the transition impacts injury surveillance and additional resources on using ICD-10-CM coded administrative data for injury surveillance, please see the following ICD-10-CM transition fact sheet: https://www.injuryfreenc.ncdhhs.gov/DataSurveillance/ICD-10-Transition-1pg-Summary.pdf

Hospital Discharge Data

Hospital discharge data (HDD) are also obtained from the NC SCHS and include data on inpatient discharges in NC. The HDD include a primary ICD-10-CM diagnosis code followed by additional codes. After the primary diagnosis field, there is no primacy to the order of the following diagnosis codes. HDD are available starting in 2006, though data are often suppressed for 2015 and not compared across this time frame due to the ICD-10-CM transition.

For questions about these data, please contact schs.info@dhhs.nc.gov.

Emergency Department Visit Data

Emergency Department (ED) data are obtained from the North Carolina Disease Event Tracking and Epidemiologic Collection Tool (NC DETECT). NC DETECT serves as NC's statewide syndromic surveillance system as part of the Centers of Disease Control and Prevention's (CDC) national Syndromic Surveillance Program (NSSP). Unlike the mortality data, there is no primacy to the order of any ICD-10-CM codes within the NC DETECT data. These data are available starting in 2008, though data are often suppressed for 2015 and not compared across this time frame due to the ICD-10-CM transition.

For more information on NC DETECT, please visit: https://ncdetect.org/.

For questions about these data, please contact ncdetect@listserv.med.unc.edu.

NC-VDRS

The North Carolina Violent Death Reporting System (NC-VDRS) is a state-wide surveillance system funded by CDC that collects detailed information on deaths that occur in NC resulting from homicide, suicide, unintentional firearm-related injuries, legal intervention, and deaths for which the intent could not be determined (see Definitions section for more information on each category of violent death). NC-VDRS began collecting data in January 2004. De-identified NC-VDRS data are reported to CDC and are captured in the National Violent Death Reporting System (NVDRS).

For more information on NC-VDRS and for additional data user tools, please visit: https://www.injuryfreenc.ncdhhs.gov/DataSurveillance/ViolentDeathData.htm

For more information on CDC's NVDRS, please visit: https://www.cdc.gov/violenceprevention/datasources/nvdrs/index.html

NC-SUDORS

The North Carolina State Unintentional Drug Overdose Reporting System (NC-SUDORS) is a state-wide enhanced surveillance system funded by the CDC that collects detailed information on unintentional and undetermined drug overdose deaths that occur in NC to aid researchers, legislators, local health departments, and community-based organizations in the development of public health prevention strategies to reduce overdose deaths. Data collected include toxicology, death scene investigations, route of administration and other associated risk factors. North Carolina was funded by CDC in 2017 and NC-SUDORS began collecting data in 2018 on fatal opioid-related overdoses. The SUDORS program was expanded in 2019 to collect data on all unintentional and undetermined drug overdose deaths. De-identified NC-SUDORS data are then reported to the CDC and are captured in the national SUDORS.

Population Data

NC population estimates are obtained from the US Census provided by the National Center of Health Statistics (NCHS) bridged population data; NC State Demographer data are not

used. Population estimates are classified by year, county, race, gender, age, and Hispanic origin to support the calculation of rates.

For more information on NCHS bridged population data, visit: https://www.cdc.gov/nchs/nvss/bridged_race.htm.

Population estimates by veteran status are obtained from the US Census American Community Survey, Table S2101: https://data.census.gov/cedsci/table?q=Veteran&g=0400000US37&tid=ACSST1Y2019.S2101&hidePreview=false

Definitions

Injury Mechanism and Intent

ICD-10 and ICD-10-CM coded data are organized within frameworks called injury matrices using external cause of injury codes to understand the cause and intent of an injury. The injury mechanism represents the vector that transfers energy to the body to cause an injury, and injury intent describes whether that injury was inflicted purposefully. Injury mechanism can be further described by the sub-cause of injury, which provides more detail around the injury mechanism.

The external cause matrix for ICD-10-CM coded data was created based on Injury Mortality Diagnosis Matrix for data coded in ICD-10 (ICD-10 external cause matrix) as well as the Barell Matrix for data coded within ICD-9-CM through collaboration with the CDC, NCHS, the Council of State and Territorial Epidemiologists (CSTE) and state injury surveillance programs. However, due to differences between the ICD-10 and ICD-10-CM coding structures, the external cause matrices for mortality and morbidity data are not directly comparable. Some specific codes are assigned to different injury mechanism and intent categories between the two matrices. Additional categories are also available within the ICD-10-CM coded data that are not available for death data due to the specificity of the ICD-10-CM codes. Injuries related to adverse effects in healthcare are excluded from the injury matrix for both ICD-10 and ICD-10-CM coded data. Tables 1 and 2 below summarize the overall categories of injury mechanism and intent included within each matrix.

For more information on the development of the external cause matrices, categorization of injuries by mechanism and intent, the Barell Matrix, and specific placement of ICD-10 and ICD-10-CM codes within their respective matrices, visit https://www.cdc.gov/nchs/injury/injury_tools.htm or https://www.cdc.gov/nchs/injury/injury_matrices.htm.

Table 1. Injury Mechanism and Sub-Cause Categories

Injury Mechanism	Sub-cause
Cut/Pierce	
Drowning/Submersion	
Fall	
Fire/Burn	Fire/Flame
	Hot Object/Substance
Firearm	
Machinery	
Motor Vehicle Non-Traffic*	
Motor Vehicle Traffic (MVT)	Motorcyclist
	Occupant
	Other*
	Pedal Cyclist
	Pedestrian
	Unspecified
Natural/Environmental	Bites/Nonvenomous*
	Bites/Venomous*
	Other*
Other Land Transport	
Other Specified/Classifiable	Child/Adult Abuse*
	Foreign Body*
	Other Classifiable*
Other Specified/Not Elsewhere Classified (NEC)	
Other Transport	
Overexertion	
Pedal Cyclist Other	
Pedestrian Other	
Poisoning	Drug
	Nondrug
Struck By/Against	
Suffocation	
Unspecified	

***** Indicates categories unavailable for ICD-10 coded data (death certificate data)
For more information on what is included in each category, please visit:
https://www.cdc.gov/injury/wisqars/cost_help/mechanism_injury.html

Table 2. Injury Intent Categories

Injury Intent	Notes
Unintentional	Includes injuries not deliberately inflicted, including those described as an "accident," regardless of whether inflicted by oneself or by another person[1].
Self-Inflicted	Includes injuries resulting from deliberate self-directed violence, including records related to attempted suicide, completed suicide, and self-harm[1].
Assault	Includes injuries resulting from acts of violence where physical force by one or more people is used with the intent of causing harm, injury, or death to another person[1].
Legal Intervention	Includes injuries caused by police or other law enforcement agents in the course of official duties. For deaths, this category includes state-sanctioned executions[1]. The legal intervention classification does not speak to the legality surrounding the event. Definitions of legal intervention differ slightly for NC-VDRS, which excludes legal executions, legal assisted suicides, and deaths due to acts of war.
Undetermined	Includes injuries for which the intent of the injury was not determined

[1] CDC WISQARS, https://www.cdc.gov/injury/wisqars/cost_help/intent_injury.html

Surveillance Methodology

Identifying Injuries

The IVPB has implemented guidance from the NCHS and CDC/CSTE for identifying injury-related deaths and classifying injury-related deaths, hospitalizations, and ED visits by mechanism and intent. For more information on the categorization of injuries by mechanism and intent, including ICD-10 and ICD-10-CM matrices with specific codes, visit: https://www.cdc.gov/nchs/injury/injury_tools.htm

For more information on North Carolina drug overdose surveillance case definitions, visit: https://www.injuryfreenc.ncdhhs.gov/DataSurveillance/poisoning/SummaryTableforPoisoningDefinitions-13Nov18-FINAL.pdf

Deaths (Death Certificate Data)

Injury-related deaths are limited to records with an ICD-10 code of U01-U03, V01-Y36, Y85-Y87, or Y89 in the primary cause of death field (COD1) and are limited to NC residents. This would include NC residents that die out of state. Injury-related deaths are further categorized by the mechanism and intent of injury using ICD-10 codes in the primary cause of death field. Specific injury categories consider ICD-10 codes listed in any cause of death field and are described further below.

To search for specific ICD-10 codes, visit: https://icd.who.int/browse10/2019/en

Medication/Drug Overdose-Related Deaths by Drug Type

For injury deaths related to medication/drug overdose (ICD-10 code of X40-X44, Y10-Y14, X85, or X60-X64 listed as the primary cause of death), all 20 subsequent cause of death fields (not including primary cause of death) are searched for any mention of ICD-10 codes for specific substances. Records with these ICD-10 codes are then categorized as having any opioids, commonly prescribed opioids, methadone, other synthetic narcotics, heroin, cocaine, psychostimulants, benzodiazepines, and antiepileptics, among others. These categories are not mutually exclusive and a death may be represented in multiple categories. For the list of ICD-10 codes included in each category, please see the North Carolina drug overdose surveillance case definitions: https://www.injuryfreenc.ncdhhs.gov/DataSurveillance/poisoning/SummaryTableforPoisoningDefinitions-13Nov18-FINAL.pdf

TBI-Related Deaths

For records identified as injury deaths, all 20 subsequent cause of death fields (not including primary cause of death) are searched for the following ICD-10 codes to identify TBI-related injury deaths: S01.0-S01.9, S02.0, S02.1, S02.3, S02.7-S02.9, S04.0, S06.0-S06.9, S07.0, S07.1, S07.8, S07.9, S09.7-S09.9, T01.0, T02.0, T04.0, T06.0, T90.1, T90.2, T90.4, T90.5, T90.8, T90.9.

For information on case definitions for violent deaths using NC-VDRS data, please see the NVDRS Coding Manual at: https://www.cdc.gov/violenceprevention/datasources/nvdrs/resources.html

Surveillance using ICD-10-CM Coded Data

The IVPB has chosen to implement adapted versions of the CSTE ICD-10-CM case definitions to identify injury-related hospitalizations and ED visits that do not exclude records that result in death (Table 3). These records are retained in efforts to understand the total number of injury-related hospitalizations and ED visits in the state. For that reason, the data for injury-related deaths, hospitalizations, and ED visits are not mutually exclusive.

The CSTE case definitions for overall injury hospitalizations and ED visits and specific injury indicators by mechanism and intent can be found under the Injury Indicators section of the CSTE ICD-10-CM Injury Surveillance Toolkit: https://resources.cste.org/Injury-Surveillance-Methods-Toolkit/.

For injury case definitions by mechanism and intent, ICD-10-CM coded data are searched to identify any mention of external cause codes (Table 4). Records that have ICD-10-CM external codes for multiple injury mechanisms/intents will be included in the count for each of these respective injury categories but only counted once in the overall number of injury-related hospitalizations or ED visits. Similarly, records that have ICD-10-CM codes for multiple injury sub-causes will be included in the count for each of

these respective sub-cause categories, but only counted once within the injury mechanism category. Prior to 2020, only the first listed injury was counted. An example is provided in Figure 1 to demonstrate how the shift to identifying any mention of an injury has impacted injury surveillance. Data products using ICD-10-CM coded data from 2016 onward have since been updated to identify any mention of an injury.

Table 3. ICD-10-CM Injury Diagnosis Codes

Injury Diagnosis Codes*	Description
S00-S99	Anatomic Injuries
T07-T34	Foreign bodies, burns, corrosions, frostbite
T36-T50 with a 6th character of 1, 2, 3, or 4 (includes T36.9, T37.9, T39.9, T41.4, T42.7, T43.9, T45.9, T47.9, and T49.9 with 5th character of 1, 2, 3, or 4)	Poisoning by drugs, medicaments, and biological substances (Includes accidental, intentional self-harm, assault, and underdetermined intents; Excludes adverse effects and underdosing)
T51-T65	Toxic effects of substances nonmedicinal as to source
T66-T76	Other and unspecified effects of external causes
T79	Certain early complications of trauma, not elsewhere classified
O9A.2-O9A.5	Traumatic injuries and abuse complicating pregnancy, childbirth, and the puerperium
T84.04, M97	Periprosthetic fracture around internal prosthetic joint (T84.04 was retired and replaced by M97 in the FY2017 version of ICD-10-CM)

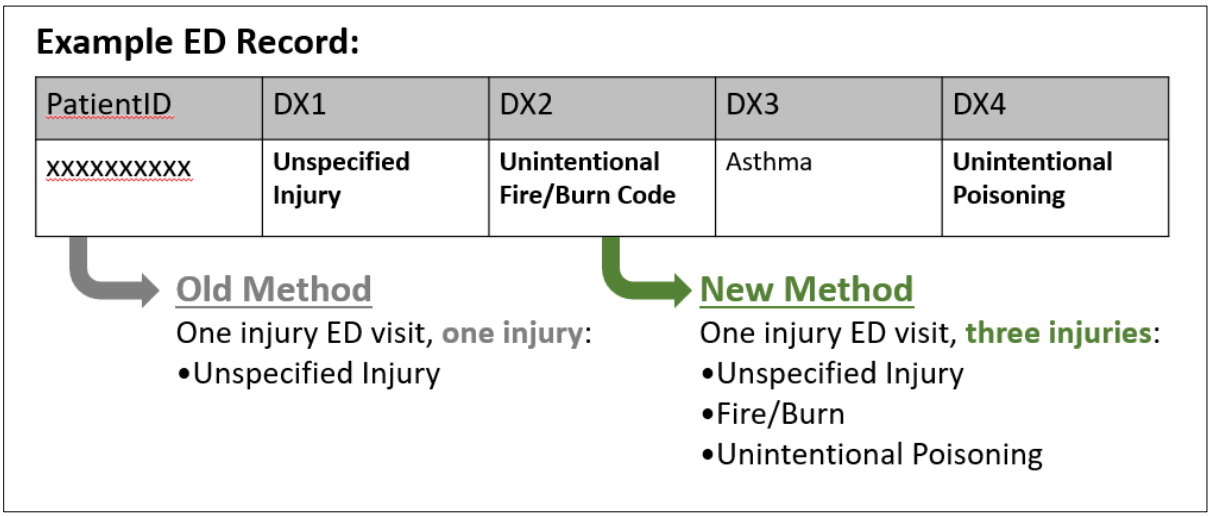
* 7th character of A, B, C, or missing (reflects initial encounter, active treatment). T30-T32 do not have a 7 th character.
To search for specific ICD-10-CM codes, visit:
https://icd10cmtool.cdc.gov/?fy=FY2021

Table 4. ICD-10-CM External Cause of Injury Codes

External Cause of Injury Codes*	Description
V00-V99	Transport accidents
W00-X58	Other external causes of accidental injury
X71-X83	Intentional self-harm
X92-Y09	Assault
Y21-Y33	Event of undetermined intent
Y35-Y38	Legal intervention, operations of war, military operations, and terrorism

* 7th character of A, B, C, or missing (reflects initial encounter, active treatment). T30-T32 do not have a 7th character.
** T84.04 was retired and replaced by M97 in the FY2017 version of ICD-10-CM which went into effect on Oct 1, 2016.

Figure 1: Example of the Shift to Identify Any Mention of an Injury



Hospitalizations

Injury-related hospitalizations are limited to records among NC residents with any of the ICD-10-CM diagnostic codes listed in the principal diagnosis field. Unlike the CSTE injury case definitions, records resulting in death are retained in the data. Veterans Affairs (VA) and other federal hospitals, rehabilitation centers, and psychiatric hospitals are excluded. The list of facilities excluded may change over time. For a comprehensive list of excluded facilities please contact the IVPB.

CSTE injury-related hospitalization definition: https://resources.cste.org/ICD-10-CM/Gen%20Injury%20Indicators/Nonfatal%20Hospitalizations%20for%20All%20Injuries.pdf

Injury-related hospitalizations are further categorized by the mechanism and intent of injury by searching for any mention of the ICD-10-CM external cause of injury codes in any diagnosis field. The HDD typically contain over 90 diagnosis fields; however, the exact number may vary year to year.

ED Visits

Injury-related ED visits are limited to records among NC residents with any mention of the ICD-10-CM diagnostic codes or ICD-10-CM external cause of injury codes in any diagnosis field. Unlike the CSTE injury case definitions, records resulting in death are retained in the data. VA and other federal hospitals, rehabilitation centers, and psychiatric hospitals are excluded. This includes the same list of facilities identified in the Hospitalizations section above.

CSTE injury-related ED visit definition: https://resources.cste.org/ICD-10-CM/Gen%20Injury%20Indicators/Nonfatal%20Emergency%20Department%20Visits%20for%20All%20Injuries.pdf

Injury-related ED visits are further categorized by the mechanism and intent of injury by searching for any mention of the ICD-10-CM external cause of injury codes in any diagnosis field. There are 37 diagnosis fields available within the NC DETECT data.

Differences in IVPB Figures and Other Data Sources

There may be slight variations between the figures produced by IVPB and those produced by the NC SCHS, NC Office of the Chief Medical Examiner (OCME), the CDC and other agencies. Many of these differences, particularly between IVPB and CDC, are due to variations in data finalization procedures. These differences are also due in part to variations in the case definitions used to identify and classify injuries. As previously mentioned, IVPB does not exclude injury ED visits or hospitalizations that result in death as is outlined in the CDC/CSTE case definitions for these data sources, which may include injuries excluded by other jurisdictions and/or CDC. Additionally, IVPB most frequently categorizes injuries based on the residence of the individual injured rather than the geographic location of the injury to support the calculation of rates (NC-VDRS county-specific factsheets are an exception; these products identify violent deaths based on injury occurrence rather than victim residence). This therefore includes individuals who are injured outside of NC that have a NC residence and excludes injuries that occur in NC among non-residents. Other agencies may produce injury figures based on injury location rather than residence.

Rate Calculations and Data Suppression

Crude Rate Calculations

NC SCHS defines a rate as number computed as (A/B) x C, where A (the numerator) is the number of observed events within the population within a given time period, B (the denominator) is the size of the population at risk, and C is the unit of measure by which the rate is expressed (https://schs.dph.ncdhhs.gov/data/glossary.htm).

Crude (unadjusted) rates are calculated within IVPB surveillance documents for overall and specific injury-related deaths, hospitalizations, and ED visits per 100,000 population. Rates are typically calculated over one calendar year or a five-year period.

Additional age-adjusted rates are calculated annually for the CDC State Injury Indicator reports and as needed for reports or data requests using the direct method and the standard 2000 US population. Crude age-specific rates are calculated across 10 to 13 standard age groups (<1, 1-4, 5-9, 10-14, 15-19, 20-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, and 85+ years) for the population of interest. The proportion of the standard population for the corresponding age group is multiplied against the crude age-specific rate to produce the age-adjusted rate, or the expected rate for the population of interest if it were to have the same age distribution as the standard population (https://schs.dph.ncdhhs.gov/SCHS/pdf/primer13.pdf).

Data suppression

Vital statistics data, including death certificate data, are publicly available in North Carolina, therefore even small counts of injury-related deaths are not suppressed in data dissemination materials produced by IVPB.

For injury-related ED visits, IVPB follows the suppression guidelines outlined by NC DETECT, https://ncdetect.org/2018/06/sharing-nc-detect-data-with-non-nc-detect-users/. Data are suppressed when the number of observed events is greater than zero and fewer than five, and 1) data are for a county or region for a period of under one year and there are fewer than 500 ED visits in that geographic area, or 2) when data are stratified by demographic group for any time period and there are fewer than 500 ED visits among that stratified group.

The same suppression practices are followed for injury-related hospitalizations as outlined for injury-related ED visits.

Rates are not calculated for any data when the number of observed events is fewer than five. Rates calculated when the number of observed events is between five and nine should be interpreted with caution.

Categorization of Demographic Variables

Race/Ethnicity

“Race is considered a "marker" for certain health problems. Race or ethnicity per se does not cause a particular health problem or status. It is likely that factors such as income, education, access to health care, stress and racism are among the major causes of the poorer health of minorities on many health measures, compared to whites. Few sources of health data record these types of health information, though most do have information on race and/or ethnicity. Showing data by race can identify specific areas of disparities and can help target resources and interventions to populations most in need” (NC SCHS, https://schs.dph.ncdhhs.gov/data/minority.cfm).

Race and ethnicity information is available for different time periods within each of the datasets used for surveillance. These data are available for all years of death certificate data but are only available in the HDD starting in 2014. Data were not available in the ED data until 2016, however the information was not complete for all facilities in that year; therefore, ED data on race/ethnicity is only to be used for 2017 onward in most situations.

Each data source described in this document reports race and ethnicity as separate fields. For injury surveillance, race and ethnicity fields are combined into one race/ethnicity field with mutually exclusive categories for Hispanic, non-Hispanic (NH) white, NH Black, NH American Indian/Native American (AI/NA), NH Asian (including Hawaiian and Pacific Islander), other, as well as unknown and missing race/ethnicity. Individuals of any racial group with a Hispanic ethnicity are captured within the Hispanic race/ethnicity category.

Within the HDD and NC DETECT ED visit data, race is obtained as a single field with mutually exclusive categories. In the ED visit data, multiple races are collected but only the first listed race is reported to NC DETECT and available for injury surveillance.

Death certificate and NC-VDRS data provide a single dichotomous field for each racial group and for ethnicity, allowing for a single person to be identified within multiple racial/ethnic groups. To facilitate comparison across data systems, these categories have been condensed to capture each person within one of the racial/ethnic group described above. This process was updated in July 2021 to also categorize individuals of multiple races. Previously, individuals only fell into one of the NH race categories if that was the only race specified in the record; anyone who was NH with multiple racial groups endorsed were captured in the other category. As of July 2021, race is prioritized for underrepresented groups by first classifying NH AI/AN, then NH Asian, NH Black, and finally NH white, in efforts to identify as many individuals as possible within these groups. For example, an individual that is both NH AI/AN and NH white would be captured in the NH AI/AN category and an individual that is NH Black and NH white would be captured as NH Black. Individuals with documented information on race/ethnicity that do not fit in the above mentioned racial/ethnic groups are categorized as other. Data for all available years have been reprocessed to group race/ethnicity in this way. Therefore, race/ethnicity data shared in factsheets, reports, dashboards, or in data requests produced prior to July 2021 may vary from data by race/ethnicity in materials produced using these data sources after this change was implemented.

Age

For injury-related deaths and ED visits, age is calculated based on the date of birth and date of injury event (date of death or ED arrival date) and rounded down to the whole integer, accounting for leap years. For injury-related hospitalizations, the patient age provided within the hospital discharge record is used. Age is then categorized into age groups for comparison. Regularly used age groups include are described in Table 5 below.

Table 5. Commonly Used Age Groups

5 and 10-year increments	5-year increments	Condensed age group	Subsets by age group	
Less than 1	0-4	Less than 20	**Children**	Less than 1
1-4				1-4
5-9	5-9			5-9
10-14	10-14			10-14
15-19	15-19			15-17
20-24	20-24	20-24		or 0-17
25-34	25-29	25-34		
	30-34			
35-44	35-39	35-44	**School-Aged**	10-14
	40-44			15-18
45-54	45-49	45-54		or 10-18
	50-54			
55-64	55-59	55-64		
	60-64			
65-74	65-69	65 and older	**Older adults**	65-74
	70-74			75-84
75-84	75-79			85 and older
	80-84			65-74
85 and older	85 and older			or 65 and older

Sex

Sex is categorized across all datasets as female, male, unknown, and missing. Sex within death certificate data represent the individual's sex at birth, whereas sex within the hospital discharge and ED visit data represent the individual's gender.

An additional variable is available within NC-VDRS and NC-SUDORS to capture if a victim self-identifies as transgender or a friend/family member reports that the victim self-identified as transgender. However, this is not typically endorsed due to the completeness of this information in records available for abstraction.

Urban/Rural Classification

There are multiple ways to classify the rurality or urbanization of geographic areas within the state. Traditionally, IVPB has applied the US Census classification of counties as mostly urban, mostly rural, or completely rural, collapsing mostly and completely rural into a single category for rural counties. The CDC definition of metropolitan (Large central, large fringe, medium, and small metro) and non-metropolitan (micropolitan and non-core) is also available to classify counties. These definitions differ slightly from those used by the NC Office of Rural Health (ORH). The Office of Budget and Management designates counties within five categories for metropolitan/micropolitan statistical areas

and as central or outlying to a core based statistical areas (CBSA) that the ORH then condensed to a definition for urban and rural, where only those counties categorized as metropolitan statistical areas central to a CBSA are considered urban (https://files.nc.gov/ncdhhs/Metro%20Micropolitan%20Counties%20%2812DEC16%29.pdf). Tables 5a-5c below identify which counties fall within each group.

As the distribution of urbanization can vary within a given county, IVPB is exploring using smaller geographic areas such as census tracts to classify injury outcomes within urban and rural settings.

Table 5a. US Census Definition for Rurality

US Census Mostly Urban/Rural Classification					
Urban		Rural			
Mostly Urban		Mostly Rural		Completely Rural	
Alamance	Hoke	Alexander	Macon	Alleghany	
Brunswick	Iredell	Anson	Madison	Cherokee	
Buncombe	Lee	Ashe	Martin	Clay	
Burke	Lenoir	Avery	McDowell	Gates	
Cabarrus	Mecklenburg	Beaufort	Mitchell	Graham	
Caldwell	Nash	Bertie	Montgomery	Greene	
Carteret	New Hanover	Bladen	Moore	Hyde	
Catawba	Onslow	Camden	Northampton	Jones	
Craven	Orange	Caswell	Pender	Pamlico	
Cumberland	Pasquotank	Chatham	Person	Perquimans	
Dare	Pitt	Chowan	Polk	Swain	
Davidson	Richmond	Cleveland	Randolph	Tyrrell	
Durham	Rowan	Columbus	Robeson	Warren	
Edgecombe	Scotland	Currituck	Rockingham	Yancey	
Forsyth	Union	Davie	Rutherford		
Gaston	Wake	Duplin	Sampson		
Guilford	Wayne	Franklin	Stanly		
Henderson	Wilson	Granville	Stokes		
		Halifax	Surry		
		Harnett	Transylvania		
		Haywood	Vance		
		Hertford	Washington		
		Jackson	Watauga		
		Johnston	Wilkes		
		Lincoln	Yadkin		

Table 5b. CDC Definition for Rurality

CDC Metro/Non-Metro Classification					
Metropolitan				Non-Metropolitan	
Large Central Metro	Large Fringe Metro	Medium Metro	Small Metro	Micropolitan	Non-core
Mecklenburg Wake	Cabarrus Currituck Franklin Gaston Gates Iredell Johnston Lincoln Rowan Union	Alexander Brunswick Buncombe Burke Caldwell Catawba Chatham Cumberland Davidson Davie Durham Forsyth Guilford Haywood Henderson Hoke Madison New Hanover Orange Pender Person Randolph Rockingham Stokes Yadkin	Alamance Craven Edgecombe Jones Nash Onslow Pamlico Pitt Wayne	Beaufort Camden Carteret Cleveland Dare Granville Halifax Harnett Jackson Lee Lenoir McDowell Moore Northampton Pasquotank Perquimans Richmond Robeson Rutherford Scotland Stanly Surry Transylvania Tyrrell Vance Watauga Wilkes Wilson	Alleghany Anson Ashe Avery Bertie Bladen Caswell Cherokee Chowan Clay Columbus Duplin Graham Greene Hertford Hyde Macon Martin Mitchell Montgomery Polk Sampson Swain Warren Washington Yancey

Table 5c. NC Office of Rural Health Definition for Rurality

NC Office of Rural Health					
Urban		Rural			
Metropolitan Statistical Area/Central to CBSA		Metropolitan Statistical Area/ Outlying to CBSA	Micropolitan Statistical Area/ Central to CBSA	Micropolitan Statistical Area/ Outlying to CBSA	Neither Metropolitan or Micropolitan
Alamance	Haywood	Alexander	Beaufort	Camden	Alleghany
Brunswick	Henderson	Cabarrus	Carteret	Northampton	Anson
Buncombe	Hoke	Currituck	Cleveland	Perquimans	Ashe
Burke	Iredell	Franklin	Dare	Tyrrell	Avery
Caldwell	Johnston	Gaston	Granville		Bertie
Catawba	Mecklenburg	Gates	Halifax		Bladen
Chatham	Nash	Jones	Harnett		Caswell
Craven	New	Lincoln	Jackson		Cherokee
Cumberland	Hanover	Madison	Lee		Chowan
Davidson	Onslow	Pamlico	Lenoir		Clay
Davie	Orange	Pender	McDowell		Columbus
Durham	Pitt	Person	Moore		Duplin
Edgecombe	Stokes	Randolph	Pasquotank		Graham
Forsyth	Union	Rockingham	Richmond		Greene
Guilford	Wake	Rowan	Robeson		Hertford
	Wayne	Yadkin	Rutherford		Hyde
			Scotland		Macon
			Stanly		Martin
			Surry		Mitchell
			Transylvania		Montgomery
			Vance		Polk
			Watauga		Sampson
			Wilkes		Swain
			Wilson		Warren
					Washington
					Yancey

Use of Provisional Data

Final annual data are used to produce the majority of IVPB's injury surveillance data products. These data provide the most accurate, and complete information for surveillance. However, it takes time to finalize data within each of the respective surveillance systems. Each system has its own close out process to ensure data quality that impacts the timeliness and availability of final annual data. Estimated time frames to produce final year-end data using final 2019 data are shown as an example in Table 6 below, though these may vary from year to year.

Table 6. Estimated Lag Time for Year-End Surveillance Data

Data Source	Timeline for Final Year-End Data	Example Data Year	Estimated Availability
Death Certificate Data	October of following year (9-month lag)	2019	October 2020
Hospital Discharge Data	Summer of the following year (7- to 8-month lag)	2019	August 2020
NC DETECT ED Visit Data	Summer of the following year (6- to 7-month lag)	2019	July 2020
NC-VDRS	Spring 1¼ years following (~14-month lag data frozen for closeout; ~16-month lag for final data)	2019	April 2021
NC-SUDORS	NC SUDORS is a newer surveillance system and a regular timeline for the availability of final year-end data for analytics is still being established	2019	Not Currently Available

Provisional data are preliminary data that are reported within each system and are not considered final data. These data are subject to change as they are reviewed for quality and as new and updated information flows into each data system. The primary benefit of using provisional data for surveillance is in the timeliness of the information to monitor injury morbidity and mortality in the state. Although they do not provide a complete picture, provisional data can offer insights into trends and indicate when action is needed around a specific injury or health event.

Each data system varies in the completeness and timeliness of provisional data.

Death Certificate Data

IVPB receives a provisional death certificate file from the SCHS monthly. However, there is a lag of several months due to the time required to enter these data into the system.

Hospital Discharge Data

Provisional hospital discharge data are obtained quarterly for injury surveillance.

NC DETECT ED Visit Data

NC DETECT ED Visit data are the most timely data available for injury surveillance. IVPB receives provisional ED visit data from NC DETECT monthly. These data are used to produce overdose and other surveillance reports that are posted to the IVPB website and distributed to partners to inform public health decision making and response. These data are also available to NC DETECT users within the NC DETECT data portal in “near real time”.

Contact Information

For questions related to substance use data requests, please email substanceusedata@dhhs.nc.gov

For all other questions, please email beinjuryfreenc@dhhs.nc.gov

For phone, fax, mailing information, or information on IVPB staff, please visit: https://www.injuryfreenc.ncdhhs.gov/contact.htm

NC DEPARTMENT OF
HEALTH AND HUMAN SERVICES
Division of Public Health

State of North Carolina
Department of Health and Human Services
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Injury and Violence Prevention Branch

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