

# A Report on Violent Injuries Treated in North Carolina Emergency Departments, 2012-2015



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## Introduction

Violence-related injuries are a major source of morbidity and mortality in North Carolina (NC). Over the period 2005-2014, suicide and homicide ranked as NC's 11<sup>th</sup> and 16<sup>th</sup> causes of death, respectively. In 2014 alone, there were 1,932 total violent deaths, of which 1,303 were due to suicide (67%), 536 due to homicide (28%), and 93 due to some other mechanism of violent injury (5%). These deaths represent a small fraction of the total number of violence-related injuries in NC, however.<sup>1</sup>

The North Carolina Disease Event Tracking and Epidemiologic Collection Tool (NC DETECT) is a grant-funded, population-based surveillance system that collects data for public health surveillance and early event detection. NC DETECT collects emergency department (ED) visit data, Carolinas Poison Center (CPC) data, Pre-hospital Medical Information System data (PreMIS), and pilot data from select urgent care centers. NC DETECT is managed by the Carolina Center for Health Informatics (CCHI) at the University of North Carolina at Chapel Hill under a contract with the North Carolina Division of Public Health (NC DPH) Communicable Disease Branch.<sup>3</sup>

NC DETECT ED data are a valuable resource for the surveillance of violent injuries. NC DETECT ED visit data are population-based, timely, include a variety of clinical and administrative data elements, and are the closest estimate of the "actual" number of medically attended violent injuries since outpatient and urgent care data are not captured at the population-level in NC. NC DETECT collects ED visit data from all 24/7, acute-care, civilian, hospital-affiliated EDs as mandated by NC General Statute § 130A-480.<sup>2</sup> As of June 5, 2017 there were 124 facilities sending data to NC DETECT (a full list of participating hospitals is available at <http://ncdetect.org/participating-hospitals>).<sup>3</sup> Since NC DETECT is primarily designed for acute event detection (e.g. infectious disease outbreaks, bioterrorism, etc.) and situational awareness, facilities are required to submit ED visit data to NC DETECT every 12 hours. While many data elements are available in near real-time, data elements tied to hospital billing (such as diagnosis codes) may take up to a few weeks to enter the system. While the near real-time data are available to authorized users through a secure web portal, annual static data sets are made available to researchers approximately six months after the close of the calendar year, significantly faster than other statewide hospital and ED discharge and mortality data sets.<sup>4</sup> NC DETECT collects a variety of data elements for research and surveillance purposes, including patient sex, patient age, patient county of residence, visit date and time, chief complaint, mode of transport, expected source of payment, ED discharge disposition, and diagnosis codes. Please visit <http://ncdetect.org/data-elements/> for a full list of data elements.<sup>3</sup>

This report uses ED visit data from NC DETECT to describe violent injuries treated in NC EDs. For the purposes of this report, violent injuries include self-inflicted injuries (i.e. self-harm), injuries due to assault, injuries due to legal intervention (i.e. injuries caused by legal authorities during law enforcement activities), and unintentional firearm-related injuries. This report also briefly describes injuries of an undetermined intent. ED visits for injuries of an undetermined intent are not included in the total number of violence-related NC ED visits presented in this report.

The objectives of this report are to: 1) present descriptive statistics of violent injury-related ED visits in North Carolina, and 2) introduce the reader to the type of information NC DETECT collects and NC DETECT's value as a system for injury surveillance.

## Section I: Methods

### *Defining Type of Injury*

#### Conceptual Definitions of Violent Injury

The decision to define various types of injuries as “violent” stems from the concepts developed by the National Violent Death Reporting System (NVDRS) and the North Carolina Violent Death Reporting System (NC-VDRS).<sup>5,6</sup> NC-VDRS defines a violent death as due to “the intentional use of physical force against oneself, another person, or against a group or community.”<sup>1</sup> However, the definitions developed by NVDRS and NC-VDRS apply only to mortality; thus, this report uses nonfatal conceptual definitions developed by the National Center for Injury Prevention and Control (NCIPC) at the Centers for Disease Control and Prevention (CDC) for the Web-based Injury Statistics Query and Reporting System (WISQARS™).<sup>7</sup>

- **Self-Inflicted Injury/Self-harm** – A *suspected* or confirmed injury or poisoning “resulting from a deliberate violent act inflicted on oneself with the intent to take one’s own life or with the intent to harm oneself.” This category includes injuries in which a person deliberately hurt oneself without *necessarily* having suicidal intent.<sup>7</sup>
- **Assault** – A *suspected* or confirmed injury or poisoning resulting from “an act of violence where physical force (or poisoning) by one or more persons is used with the intent of causing harm, injury, or death to another person”. This category includes injuries due to terrorism.<sup>7</sup>
- **Legal Intervention** – An injury or poisoning (e.g. tear gas, pepper spray, etc.) “caused by police or other legal authorities (including security guards) during law enforcement activities”.<sup>7</sup>
- **Unintentional (“Accidental”) Firearm** – An injury “resulting from a bullet or other projectile shot from a powder-charged gun”, not caused by “deliberate means.” This category includes firearm injuries due to handguns, shotguns, rifles, military style firearms, and other and unspecified firearms. It does *not* include injuries due to paint guns, BB guns, and other types of air guns.<sup>7</sup>

In addition to violent injuries, this report briefly describes injuries treated in NC EDs due to an undetermined intent.

- **Undetermined Intent** – An injury in which it cannot be determined whether the injury was self-inflicted, due to an assault, or unintentional (“accidental”) in nature.

### **ICD-9-CM-based Definitions of Violent Injury**

This report utilized the “Recommended framework of External Cause of Mechanism Code (E-code) groupings for presenting injury mortality and morbidity data” developed by the NCIPC for use with ICD-9-CM data sets. The only change made to the original E-code groupings was removing legal intervention from column labeled “Other”.<sup>8</sup> **Table 1** displays the ICD-9-CM-based definitions of violent injury.

NC DETECT includes up to five ICD-9-CM E-codes per patient visit. A NC ED visit was classified as “violence-related” if it contained a violence-related E-code in any position. If a NC ED visit contained more than one violence-related E-code, it was categorized based on the *first-listed* E-code. In NC DETECT, the *first-listed* E-code is not the same as the *primary mechanism of injury*. In NC DETECT, the primary mechanism of injury can rarely be determined with certainty using the limited information collected. For this report, 164,860 ED visits contained one violence-related E-code (90.4%), 15,825 visits contained two violence-related E-codes (8.7%), 1,544 visits contained three violence-related E-codes (0.9%), 145 visits contained four violence-related E-codes (0.08%), and 11 visits contained five violence-related E-codes (0.01%).

### **ICD-9-CM Definition of Occupational Injury**

An estimated two million American employees report being the victims of workplace violence each year.<sup>9</sup> We have attempted to identify occupational violent-injury related ED visits in NC. We defined a violent injury-related ED visit as an occupational injury if it included one of the following E-codes (in any position): E000.0, E000.1, E800-E807 (.0), E830-E838 (.2 or .6), E840-E845 (.0 or .8) and/or an expected source of payment of “Workers’ Compensation”.

**Table 1. ICD-9-CM-based E-code Definitions<sup>1</sup>**  
**(shaded cells are NOT included in the violent injury case definitions)**

Mechanism/Cause	Manner/Intent					
	Unintentional	Self-inflicted	Assault	Legal Intervention	Undetermined	Other <sup>2</sup>
<b>Cut/pierce</b>	E920.0-.9	E956	E966	E974	E986	E995.2
<b>Drowning/submersion</b>	E830.0-.9, E832.0-.9 E910.0-.9	E954	E964		E984	E995.4
<b>Fall</b>	E880.0-E886.9, E888	E957.0-.9	E968.1		E987.0-.9	
<b>Fire/burn</b>	E890.0-E899, E924.0-.9	E958.1,.2,.7	E961, E968.0,.3, E979.3		E988.1,.2,.7	
<b>Firearm</b>	E922.0-.3,.8, .9	E955.0-.4	E965.0-4, E979.4	E970	E985.0-.4	
<b>Machinery</b>	E919 (.0-.9)					
<b>Motor vehicle traffic</b>	E810-E819 (.0-.9)	E958.5	E968.5		E988.5	
<b>Pedal cyclist, other</b>	E800-E807 (.3) E820-E825 (.6), E826.1,.9 E827-E829(.1)					
<b>Pedestrian, other</b>	E800-807(.2) E820-E825(.7) E826-E829(.0)					
<b>Transport, other</b>	E800-E807 (.0,.1,.8,.9) E820-E825 (.0-.5,.8,.9) E826.2-.8 E827-E829 (.2-.9), E831.0-.9, E833.0-E845.9	E958.6			E988.6	
<b>Natural/environmental</b>	E900.0-E909, E928.0-.2	E958.3			E988.3	

**Table 1. ICD-9-CM-based E-code Definitions<sup>1</sup>**  
**(shaded cells are NOT included in the violent injury case definitions)**

Mechanism/Cause	Manner/Intent					
	Unintentional	Self-inflicted	Assault	Legal Intervention	Undetermined	Other <sup>2</sup>
<b>Bites and stings</b>	E905.0-.6,.9 E906.0-.4,.5,.9					
<b>Overexertion</b>	E927.0-.4,.8-.9					
<b>Poisoning</b>	E850.0-E869.9	E950.0- E952.9	E962.0-.9, E979.6,.7	E972	E980.0-E982.9	
<b>Struck by, against</b>	E916-E917.9		E960.0; E968.2	E973, E975		E995 (.0,.1)
<b>Suffocation</b>	E911-E913.9	E953.0-.9	E963		E983.0-.9	E995.3
<b>Other specified and Classifiable<sup>3</sup></b>	E846-E848, E914-E915  E918, E921.0- .9, E922.4,.5  E923.0-.9, E925.0-E926.9  E928(.3-.7), E929.0-.5	E955.5,.6,.7,.9  E958.0,.4	E960.1, E965.5-.9  E967.0-.9,  E968.4,.6, .7  E979 (.0-.2,.5,.8,.9)	E971, E978	E985.5,.6,.7  E988.0,.4	E990-E994, E996  E997.0-.2
<b>Other specified, not elsewhere classifiable</b>	E928.8, E929.8	E958.8, E959	E968.8, E969,E999.1	E977	E988.8, E989	E995 (.8,.9), E997.8  E998, E999.0
<b>Unspecified</b>	E887, E928.9, E929.9	E958.9	E968.9	E976	E988.9	E997.9
<b>All injury</b>	E800-E869, E880-E929	E950-E959	E960- E969, E979,E999.1	E970-E978	E980-E989	E990- E999.0

<sup>1</sup>Adapted from the NCIPC "Recommended framework of E-code groupings for presenting injury mortality and morbidity data" by NCIPIC, CDC, 2011. Available at: [www.cdc.gov/injury/wisqars/ecode\\_matrix.html](http://www.cdc.gov/injury/wisqars/ecode_matrix.html).

<sup>2</sup>Includes operations of war (E990-E999).

<sup>3</sup>E000 (external cause status), E001-E030 (activity), and E849 (place of occurrence) have been excluded from the matrix.



### ***Inclusion Criteria***

This report describes NC DETECT ED visits made to a 24/7, acute-care, civilian, hospital-affiliated ED during the period January 1, 2012 – September 30, 2015 that included an ICD-9-CM E-code indicating a violent injury due to one of the following injury types: self-inflicted injury, assault, legal intervention, or unintentional firearm. The end date September 30, 2015 was used rather than December 31, 2015 due to the transition from ICD-9-CM to ICD-10-CM on October 1, 2015. This change in administrative coding resulted in data quality issues during the final quarter of 2015. During the period January 1, 2012 – September 30, 2015, there were 182,385 ED visits identified as being due to a violent injury.

### ***Analysis***

This is a descriptive report, including counts, percentages, and incidence rates. As of 2015, NC DETECT captured the demographic characteristics of age, sex, and patient county of residence (race and ethnicity are available in 2016 NC DETECT ED visit data). This report uses the following age group categories: <1, 1-4, 5-9, 10-14, 15-19, 20-24, 25-34, 35-44, 55-64, 65-74, 75-84, and 85+. For some categories of violent injury, age groups were collapsed into fewer categories due to small numbers. In addition, in order to protect patient anonymity, counts of 1-9 ED visits were suppressed for tabular data stratified by patient county of residence.

All analyses were performed at the ED visit rather than patient level. Among the 182,385 violence-related ED visits, there were 161,782 individually identified patients. This single patient count may be an overestimate as NC DETECT is only able to track repeat visits to the same ED or healthcare system. If the same patient visited two or more EDs in different healthcare systems, he or she would receive two or more different patient IDs and be counted as separate people. A patient may have visited the same ED or healthcare system for treatment for another incident event or returned for follow-up treatment of a prior injury (e.g. suture removal). In NC DETECT, it is not possible to classify these return visits as incident or follow-up visits. Among the 161,782 individually identified patients, 146,529 patients made one visit (90.6%), 12,059 patients made two visits (7.5%), 2,172 patients made three visits (1.3%), and 1,022 patients (0.6%) made four or more violence-related visits to the same ED or healthcare system during the period January 1, 2012 through September 30, 2015.

Population-based incidence rates of violence-related ED visits were calculated using the following formula:

$$\text{Incidence rate (IR)}: \frac{\text{Total number of ED visits}}{\text{Total person - time (person - years)}} \times 100,000 \text{ person - years}$$

Person-time was calculated using the National Center for Health Statistics (NCHS) “Bridged-Race Population Estimates, United States July 1st Resident Population by State, County, Age, Sex, Bridged-race, and Hispanic Origin”, released in June 2016.<sup>10</sup> **Appendix A** contains NC population and person-time estimates. Incidence rates calculated for the demographic characteristics sex and age include ED visits made by resident and non-residents. NC ED visits made by non-NC residents were included in analyses in an attempt to offset NC residents who traveled outside NC for medical care. Incidence rates calculated for patient county of residence include only ED visits made by NC residents. During the period January 1, 2012 – September 30, 2015, there were 177,058 violence-related NC ED visits made by NC residents (97.2%) and 5,188 ED visits made by non-residents (2.8%), with 139 visits missing residency status.

## Section II: Violent Injuries

### *Basic Characteristics of Violent Injuries Treated in North Carolina Emergency Departments*

**Table 2** describes selected demographics of patients treated for violent injuries in North Carolina emergency departments, January 1, 2012 – September 30, 2015. **Figure 1** displays the unadjusted incidence rate of violence-related NC ED visits per 100,000 person-years stratified by patient age group.

#### Key Findings:

- There were 182,385 violence-related NC ED visits during the period January 1, 2012 – September 30, 2015 (492.1 per 100,000 person-years).
- Among the 182,385 violence-related NC ED visits, there were 161,782 individually identified patients. Among these 161,782 patients, 146,529 (90.6%) made one visit to the same healthcare system and 15,253 patients made two or more visits to the same healthcare system. The maximum number of violence-related ED visits made by a single patient during the period January 1, 2012 – September 30, 2015 was 47 ED visits (data are not displayed).
- Males were more likely to visit a NC ED for treatment of violent injuries than females (550.3 versus 436.2 ED visits per 100,000 person-years, respectively).
- Young adults (visits per 100,000 person-years in parentheses) 20-24 years of age had the highest rate of violence-related NC ED visits (1,242.9), followed by individuals aged 25-34 (997.4), 15-19 (935.3), 35-44 (635.6) and 45-54 (461.3).

**Tables 3** and **4** list the type and mechanism of violence-related NC ED visits, respectively. **Figure 2** displays the type of violence-related NC ED visits and **Figure 3** displays the mechanism of violence-related NC ED visits. **Table 5** shows the type of firearm involved in violence-related NC ED visits.

#### Key Findings:

- The two most common types of violence-related NC ED visits were assault (72.7%) and self-inflicted injuries (22.7%).
- The three leading specific injury mechanisms for violence-related NC ED visits were “struck by/against object or person” (35.0%), “poisoning” (14.2%), and “sharp instrument” (10.0%).
- Among violence-related NC ED visits, the most common type of firearm involved was “other/unspecified” (72.7%).

**Table 6** describes violence-related NC ED visits by mode of transport to the ED, discharge disposition, expected source of payment, and whether or not the ED visit was occupation-related.

#### Key Findings:

- Among violence-related NC ED visits, the most common mode of transport was private transportation (37.7%).
- The majority of violence-related NC ED visits were discharged home from the ED (77.7%).
- Among violence-related NC ED visits, the most common expected source of payment was self-payment (37.5%).
- Less than three percent of violence-related NC ED visits were identified as due to occupational injuries.

**Table 7** and **Figure 4** show the crude rates of violence-related NC ED visits by patient county of residence.

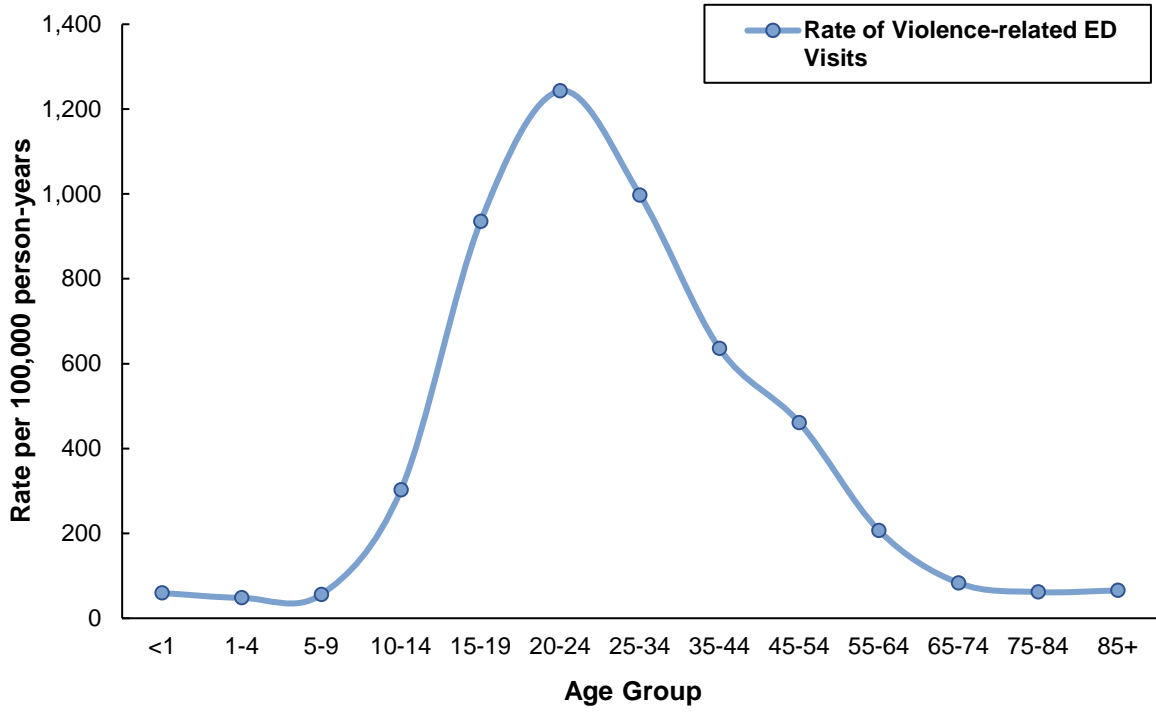
## Key Findings:

- The majority of violence-related NC ED visits were made by NC residents (97.2%).
- The five NC counties with the highest incidence rates of violence-related ED visits (visits per 100,000 person-years in parentheses) were Robeson (1,202.9), Scotland (1,064.2), Vance (999.6), Richmond (965.4), and Halifax (954.1) counties.

<b>Table 2. Demographics of Violence-Related NC ED Visits, 2012-2015</b>			
	<b>Number</b>	<b>Percent</b>	<b>Rate<sup>1</sup></b>
<b>Sex</b>			
Female	82,920	45.5%	436.2
Male	99,369	54.5%	550.3
<b>Total</b>	<b>182,289</b>	<b>100.0%</b>	<b>491.8</b>
Missing	96	--	--
<b>Age Group (Years)</b>			
<1	267	0.1%	59.5
1-4	885	0.5%	48.1
5-9	1,351	0.7%	56.0
10-14	7,372	4.0%	302.5
15-19	22,922	12.6%	935.3
20-24	33,119	18.2%	1,242.9
25-34	48,011	26.3%	997.4
35-44	31,121	17.1%	635.6
45-54	23,677	13.0%	461.3
55-64	9,551	5.2%	207.0
65-74	2,624	1.4%	83.2
75-84	971	0.5%	61.7
85+	411	0.2%	65.6
<b>Total</b>	<b>182,282</b>	<b>100.0%</b>	<b>491.8</b>
Missing	103	--	--
<b>Total ED Visits</b>	<b>182,385</b>	<b>100.0%</b>	<b>492.1</b>

<sup>1</sup>Unadjusted rates are reported per 100,000 person-years.

**Figure 1. Unadjusted Rates of Violence-Related NC ED Visits, 2012-2015**



**Table 3. Type of Violence-Related NC ED Visits, 2012-2015**

	<b>Number</b>	<b>Percent</b>
<b>Type of Injury</b>		
Assault	132,550	72.7%
Self-Inflicted Injury	41,455	22.7%
Unintentional Firearm-Related Injuries	5,940	3.3%
Legal Intervention	2,440	1.3%
<b>Total ED Visits</b>	<b>182,385</b>	<b>100.0%</b>

**Table 4. Mechanism of Violence-Related NC ED Visits, 2012-2015**

	<b>Number</b>	<b>Percent</b>
<b>Mechanism of Injury</b>		
Struck By/Against Object or Person	63,775	35.0%
Poisoning	25,951	14.2%
Sharp Instrument	18,326	10.0%
Firearm	10,085	5.5%
Suffocation	1,251	0.7%
Motor Vehicle Collision	491	0.3%
Fire/Burn	398	0.2%
Fall	334	0.2%
Drowning	32	0.0%
Terrorism	9	0.0%
Late Effects of Injury	1,713	0.9%
Other Specified Mechanism <sup>1</sup>	35,462	19.4%
Unspecified Mechanism	24,558	13.5%
<b>Total ED Visits</b>	<b>182,385</b>	<b>100.0%</b>

<sup>1</sup>"Other Specified Mechanism" includes all other specified, classifiable (e.g. "electrocution", "explosives", "jumping or lying before moving object", etc.) as well as "other specified, not elsewhere classifiable" mechanisms of injury.

Figure 2. Type of Violence-Related NC ED Visits, 2012-2015

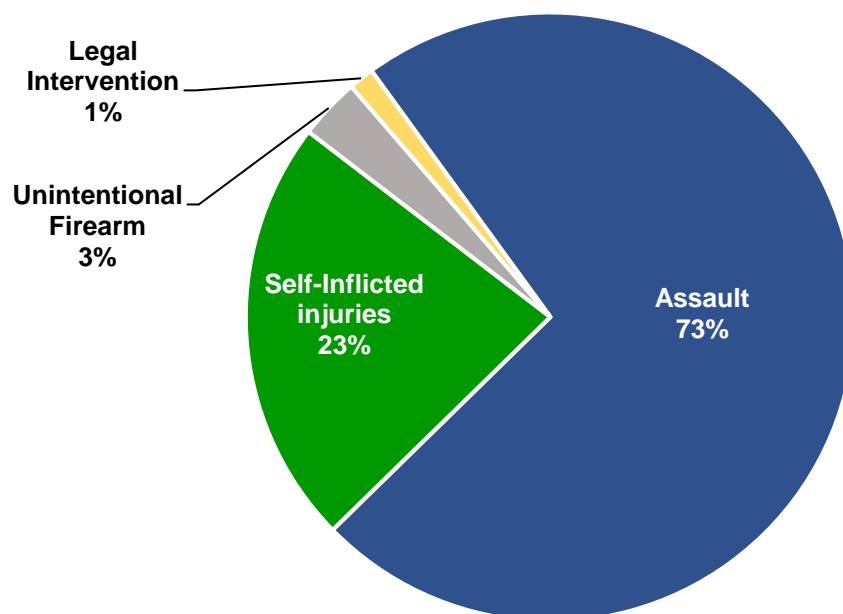
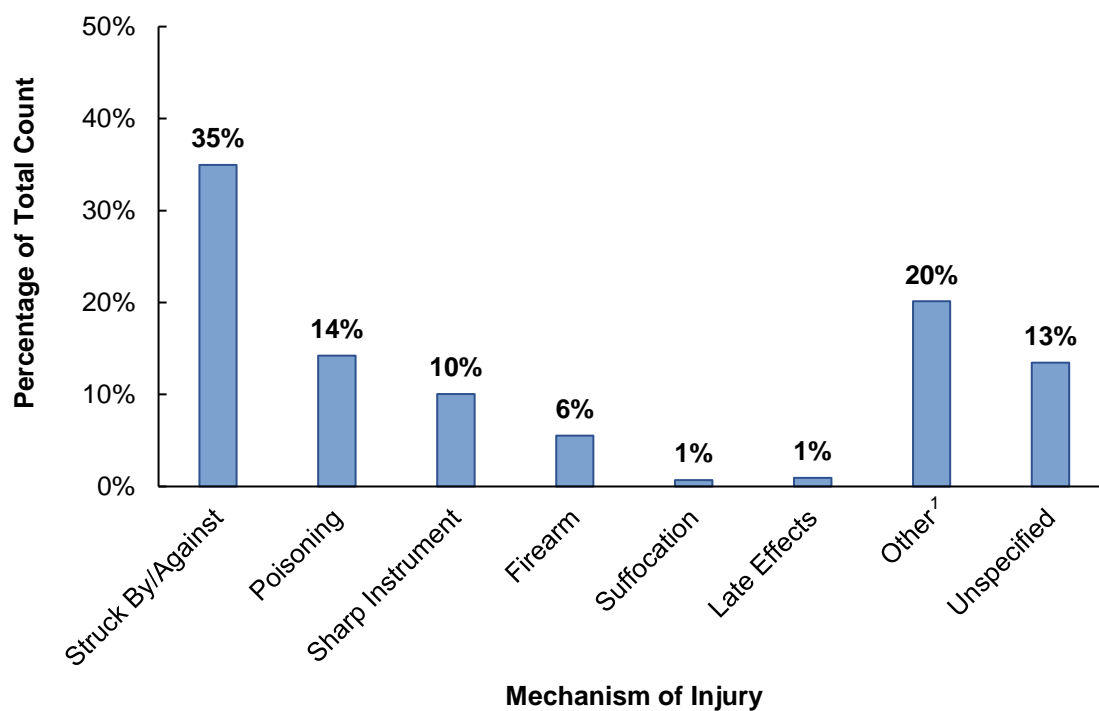


Figure 3. Mechanism of Violence-Related NC ED Visits, 2012-2015



<sup>1</sup>"Other" includes the following mechanisms: motor vehicle collision, fire/burns, fall, drowning, terrorism, and all other specified, classifiable as well as specified, unclassifiable mechanisms of injury.

<b>Table 5. Type of Firearm Involved in Violence-Related NC ED Visits, 2012-2015</b>		
	<b>Number</b>	<b>Percent</b>
<b>Firearm Type</b>		
Handgun	2,003	19.9%
Shotgun	554	5.5%
Rifle	174	1.7%
Military Style Firearms	20	0.2%
Other/Unspecified Firearm	7,334	72.7%
<b>Total ED Visits with Firearm Involvement</b>	<b>10,085</b>	<b>100.0%</b>



Table 6. Selected Characteristics of Violence-Related NC ED Visits, 2012-2015		
	Number	Percent
<b>Mode of Transport</b>		
Walk-ins	64,295	41.7%
<i>Walk-in Following Transport Via Private Transportation</i>	58,214	37.7%
<i>Walk-in Following Transport Via Law Enforcement Transport</i>	5,595	3.6%
<i>Walk-in Following Transport Via Public Transportation</i>	486	0.3%
<i>Walk-in, Not Otherwise Specified</i>	32,608	21.1%
Ambulance	51,887	33.6%
<i>Ground Ambulance</i>	43,809	28.4%
<i>Air Ambulance<sup>1</sup></i>	647	0.4%
<i>Ambulance, Not Otherwise Specified</i>	7,431	4.8%
<i>Other Mode of Transport</i>	5,426	3.5%
<b>Total</b>	<b>154,216</b>	<b>100.0%</b>
Missing	28,169	
<b>Disposition</b>		
Discharged Home	136,071	77.7%
Admitted	20,410	11.7%
<i>ICU</i>	1,222	0.7%
<i>Psychiatry</i>	4,460	2.5%
<i>Other</i>	14,728	8.4%
Transferred	11,704	6.7%
Left AMA	2,420	1.4%
Left without Advice	1,658	0.9%
Died	611	0.3%
Other Disposition <sup>2</sup>	2,177	1.2%
<b>Total</b>	<b>175,051</b>	<b>100.0%</b>
Missing	7,334	
<b>Expected Source of Payment</b>		
Self-pay	66,137	37.5%
Medicaid	45,176	25.6%
Insurance Company	27,017	15.3%
Medicare	13,893	7.9%
Workers' Compensation	4,392	2.5%
Other Government Payments	4,391	2.5%
No Charge	151	0.1%
Other Type of Payment, Not Otherwise Specified	15,067	8.5%
<b>Total</b>	<b>176,224</b>	<b>100.0%</b>
Missing	6,161	
<b>Occupational Injury<sup>3</sup></b>		
Yes	5,207	2.9%
No	177,178	97.1%

<b>Total</b>	<b>182,385</b>	<b>100.0%</b>
<b>Total ED Visits</b>	<b>182,385</b>	<b>100.0%</b>

Abbreviations: ICU, intensive care unit; AMA, against medical advice

<sup>1</sup>Contains "Fixed Wing Air Ambulance" and "Helicopter Ambulance".

<sup>2</sup>Contains "Observation Unit" and "Other Specified Disposition."

<sup>3</sup>An "Occupational Injury" was defined as an injury-related ED visit containing one of the following codes: E000.0, E000.1, E800-E807 (.0), E830-E838 (.2 or .6), E840-E845 (.0 or .8) and/or an expected source of payment of "Workers' Compensation".

Table 7. Violence-Related NC ED Visits Stratified by Patient County of Residence, 2012-2015

	Number	Rate <sup>1</sup>		Number	Rate <sup>1</sup>
County <sup>2,3</sup>			County <sup>2,3</sup>		
Alamance	2,760	472.8	Johnston	2,378	353.5
Alexander	754	541.1	Jones	238	625.3
Alleghany	187	458.1	Lee	688	307.7
<b>Anson</b>	<b>687</b>	<b>703.0</b>	Lenoir	<b>1,935</b>	<b>879.7</b>
Ashe	290	285.3	Lincoln	1,388	464.1
Avery	273	411.8	Macon	454	356.9
<b>Beaufort</b>	<b>1,182</b>	<b>663.3</b>	Madison	224	283.5
<b>Bertie</b>	<b>720</b>	<b>940.3</b>	Martin	331	373.7
Bladen	476	366.1	McDowell	<b>1,126</b>	<b>667.8</b>
Brunswick	1,769	403.3	Mecklenburg	14,563	388.6
Buncombe	3,934	422.1	Mitchell	307	534.3
Burke	1,785	533.1	Montgomery	581	562.7
Cabarrus	2,108	296.3	Moore	1,289	372.8
Caldwell	1,687	550.9	Nash	907	255.9
Camden	73	191.2	New Hanover	*	*
Carteret	1,406	548.0	<b>Northampton</b>	<b>633</b>	<b>811.7</b>
Caswell	261	301.5	Onslow	3,304	475.9
Catawba	3,300	568.8	Orange	1,029	196.7
Chatham	472	185.6	Pamlico	220	454.3
Cherokee	351	345.7	Pasquotank	692	462.1
<b>Chowan</b>	<b>411</b>	<b>749.0</b>	Pender	701	336.8
Clay	92	230.3	Perquimans	211	416.4
<b>Cleveland</b>	<b>2,668</b>	<b>732.7</b>	Person	844	574.3
<b>Columbus</b>	<b>1,358</b>	<b>634.1</b>	Pitt	3,914	598.2
<b>Craven</b>	<b>2,746</b>	<b>701.1</b>	Polk	225	295.1
Cumberland	6,668	547.4	Randolph	3,162	591.8
Currituck	168	182.1	<b>Richmond</b>	<b>1,663</b>	<b>965.4</b>
Dare	620	472.5	<b>Robeson</b>	<b>6,084</b>	<b>1,202.9</b>
Davidson	3,377	549.3	<b>Rockingham</b>	<b>2,658</b>	<b>769.7</b>
Davie	545	350.6	Rowan	2,880	554.9
Duplin	972	435.7	Rutherford	1,336	533.6
Durham	4,225	386.8	Sampson	1,221	509.2
Edgecombe	1,266	612.3	<b>Scotland</b>	<b>1,431</b>	<b>1,064.2</b>
Forsyth	7,267	533.7	Stanly	997	438.7
Franklin	738	314.8	Stokes	795	455.5
Gaston	4,974	630.6	Surry	1,495	545.5
Gates	75	171.7	Swain	336	631.5
Graham	149	457.7	Transylvania	681	551.2
Granville	923	423.0	Tyrrell	69	447.9

Table 7. Violence-Related NC ED Visits Stratified by Patient County of Residence, 2012-2015

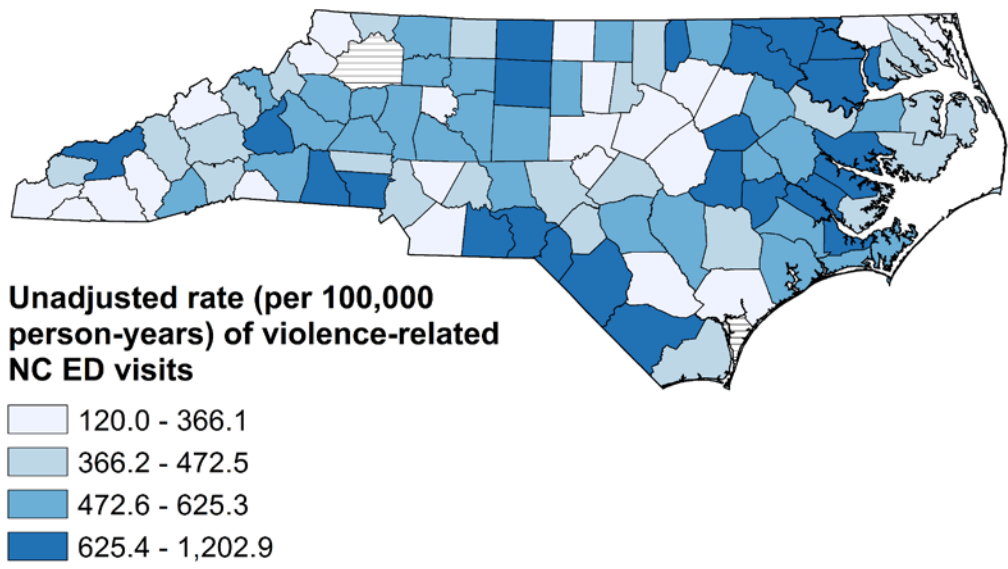
	Number	Rate <sup>1</sup>		Number	Rate <sup>1</sup>
County <sup>2,3</sup>			County <sup>2,3</sup>		
Greene	490	615.0	Union	2,338	289.9
<b>Guilford</b>	<b>12,105</b>	<b>634.0</b>	<b>Vance</b>	<b>1,677</b>	<b>999.6</b>
<b>Halifax</b>	<b>1,905</b>	<b>954.1</b>	Wake	11,714	317.0
Harnett	1,836	390.3	Warren	462	604.9
Haywood	1,003	451.4	Washington	259	547.6
Henderson	1,628	394.3	Watauga	567	288.7
<b>Hertford</b>	<b>611</b>	<b>669.2</b>	<b>Wayne</b>	<b>3,869</b>	<b>829.0</b>
Hoke	799	414.6	Wilkes	*	*
Hyde	93	437.6	<b>Wilson</b>	<b>2,127</b>	<b>695.0</b>
Iredell	3,148	506.3	Yadkin	672	472.8
Jackson	454	295.7	Yancey	284	430.7
<b>Total Resident ED Visits</b>	<b>176,870</b>	<b>477.2</b>			
Out-of-State Residents	5,188	--			
Missing	327	--			
<b>Total ED Visits</b>	<b>182,385</b>	<b>492.1</b>			

<sup>1</sup>Unadjusted rates are reported per 100,000 person-years.

<sup>2</sup>For counties with  $\geq 50\%$  missing External Cause of Mechanism Codes and/or counties with 1-9 ED visits, data are suppressed. These counties are marked with an “\*”.

<sup>3</sup>Top 20 counties with the highest unadjusted rate of violence-related ED visits are shown in **bold**.

Figure 4. Map of Unadjusted Rates of Violence-Related NC ED Visits by Patient County of Residence, 2012-2015



### ***Violent Injuries Treated in NC Emergency Departments by Month, Day of Week, and Time of Day***

**Table 8** and **Figure 5** describe the frequency of violence-related NC ED visits by month, day of week, and time of day.

#### **Key Findings:**

- Over the three-year period for which data are complete (2012-2014), the summer months of June – August had the highest frequency of violence-related NC ED visits (26.7%).
- Over one-third of violence-related NC ED visits occurred during the weekend, with 16.2% of visits on Saturday and 17.6% of visits on Sunday.
- Violence-related NC ED visits occurred most frequently during the evening hours of 6 PM – 11 PM (33.6%).

### ***Sex and Age of Patients Treated in NC Emergency Departments for Violent Injuries***

**Table 9** and **Figure 6** describe violence-related NC ED visits stratified by sex and age group.

#### **Key Findings:**

- Male violence-related NC ED visits peaked at 20-24 years of age, with 1,341.5 ED visits per 100,000 person-years.
- Female violence-related NC ED visits peaked at 20-24 years of age, with 1,135.1 ED visits per 100,000 person-years.

Table 8. Violence-Related NC ED Visits by Month, Day of Week, and Time of Day, 2012-2015

	Number	Percent
<b>Month<sup>1</sup></b>		
December - February	34,384	22.5%
March - May	39,137	25.7%
June - August	40,776	26.7%
September - November	38,241	25.1%
<b>Total 2012-2014 ED Visits</b>	<b>152,538</b>	<b>100.0%</b>
<b>Day of Week</b>		
Monday	25,478	14.0%
Tuesday	24,330	13.3%
Wednesday	23,725	13.0%
Thursday	23,397	12.8%
Friday	23,879	13.1%
Saturday	29,498	16.2%
Sunday	32,078	17.6%
<b>Total</b>	<b>182,385</b>	<b>100.0%</b>
<b>Time of Day</b>		
12-5 AM	41,872	23.0%
6-11 AM	29,719	16.3%
12-5 PM	49,557	27.2%
6-11 PM	61,237	33.6%
<b>Total</b>	<b>182,385</b>	<b>100.0%</b>
<b>Total ED Visits</b>	<b>182,385</b>	<b>100.0%</b>

<sup>1</sup>Since 2015 ED visit data do not include the months October - November 2015, ED visit data for 2015 are not included in the month of visit analyses.

**Figure 5. Heat Map of Violence-Related ED Visits Stratified by Day of Week and Time of Day, 2012-2015**

Day of Week	Hour of Day				Total
	12-5 AM	6-11 AM	12-5 PM	6-11 PM	
Monday	2.5%	2.4%	4.1%	4.9%	14.0%
Tuesday	2.5%	2.3%	3.8%	4.7%	13.3%
Wednesday	2.5%	2.2%	3.7%	4.7%	13.0%
Thursday	2.5%	2.2%	3.7%	4.5%	12.8%
Friday	2.8%	2.1%	3.5%	4.6%	13.1%
Saturday	4.7%	2.5%	3.9%	5.1%	16.2%
Sunday	5.4%	2.7%	4.4%	5.1%	17.6%
<b>Total</b>	<b>23.0%</b>	<b>16.3%</b>	<b>27.2%</b>	<b>33.6%</b>	<b>100.0%</b>

**Table 9. Violence-Related NC ED Visits Stratified by Sex and Age Group, 2012-2015**

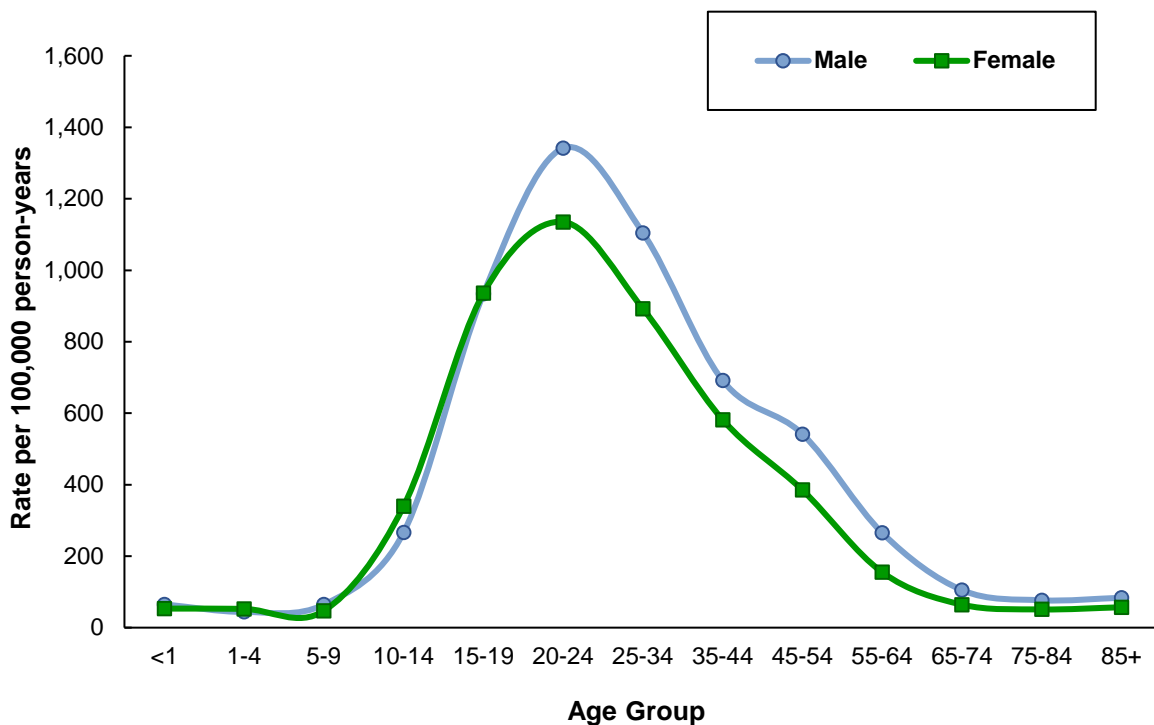
Age Group (Years)	Male			Female		
	Number	Percent	Rate <sup>1</sup>	Number	Percent	Rate <sup>1</sup>
<1	149	0.2%	65.1	117	0.1%	53.2
1-4	412	0.4%	43.9	473	0.6%	52.6
5-9	795	0.8%	64.5	556	0.7%	47.1
10-14	3,311	3.3%	266.4	4,061	4.9%	340.0
15-19	11,702	11.8%	933.9	11,209	13.5%	935.7
20-24	18,613	18.7%	1,341.5	14,498	17.5%	1,135.1
25-34	26,218	26.4%	1,104.4	21,765	26.3%	892.2
35-44	16,574	16.7%	691.4	14,536	17.5%	581.6
45-54	13,536	13.6%	541.4	10,135	12.2%	384.9
55-64	5,786	5.8%	265.0	3,761	4.5%	154.8
65-74	1,533	1.5%	105.0	1,090	1.3%	64.3
75-84	504	0.5%	76.7	467	0.6%	51.0
85+	168	0.2%	83.6	243	0.3%	57.1
<b>Total ED Visits</b>	<b>99,301</b>	<b>100.0%</b>	<b>549.9</b>	<b>82,911</b>	<b>100.0%</b>	<b>436.2</b>

Missing: 173 ED visits missing sex and/or age group.

<sup>1</sup>Unadjusted rates are reported per 100,000 person-years.



**Figure 6. Unadjusted Rates of Violence-Related NC ED Visits Stratified by Sex and Age Group, 2012-2015**



## Section III: Self-Inflicted Injuries

### *Basic Characteristics of Self-Inflicted Injuries Treated in North Carolina Emergency Departments*

**Table 10** describes selected demographics of patients treated for self-inflicted injuries in North Carolina emergency departments for the period January 1, 2012 – September 30, 2015. **Figure 7** displays the unadjusted incidence rate of NC ED visits due to self-inflicted injuries per 100,000 person-years, stratified by age group.

#### Key Findings:

- There were 41,455 NC ED due to self-inflicted injuries during the period January 1, 2012 – September 30, 2015 (111.8 per 100,000 person-years).
- Among the 41,455 NC ED visits due to self-inflicted injuries, there were 37,293 individually identified patients. Among these 37,293 patients, 34,439 (92.3%) made one visit to same healthcare system and 2,854 patients (7.7%) made two or more visits to the same healthcare system. The maximum number of ED visits made by a single patient during the period January 1, 2012 – September 30, 2015 was 47 ED visits (data are not displayed).
- Females were more likely to visit a NC ED for treatment of self-inflicted injuries than males (126.8 versus 96.0 ED visits per 100,000 person-years, respectively).
- Teenagers (visits per 100,000 person-years in parentheses) 15-19 years of age had the highest rate of NC ED visits due to self-inflicted injuries (291.9), followed by individuals aged: 20-24 (221.5), 25-34 (177.6), 35-44 (143.8) and 45-54 years of age (118.7).

**Tables 11** and **Figure 8** describe the injury mechanism for NC ED visits due to self-inflicted injuries. **Table 12** displays the type of firearm involved in NC ED visits due to self-inflicted injuries.

#### Key Findings:

- The three most common specific mechanisms of injury for both men and women were “poisoning” (62.0%), “sharp instrument” (22.9%), and “suffocation” (2.1%).
- A greater proportion of women visited the NC ED due to self-inflicted poisonings (68.6%) than men (52.9%).
- A greater proportion of men visited the ED due to self-inflicted injuries due to firearms (2.0%) than women (0.3%).
- Among NC ED visits due to self-inflicted injuries, the most common type of firearm was “handgun” (47.4%).

**Table 13** describes NC ED visits due to self-inflicted poisonings, stratified by sex.

**Key Findings:**

- The most common category of self-inflicted poisonings for both men and women was “drugs/medications” (92.0%).
- Over half of all NC ED visits due to self-inflicted poisonings were due to one of two classes of drugs/medications: “tranquilizers and other psychotropic agents” (33.7%) and “analgesics, antipyretics, and antirheumatics” (22.4%).
- Men were more likely to have a self-inflicted poisoning due to some “other solid/liquid substance” (8.8%) than women (6.6%).

**Table 14** describes NC ED visits due to self-inflicted injuries stratified by mode of transport to the ED, discharge disposition, expected source of payment, and whether or not the ED visit was occupation-related.

**Key Findings:**

- Among NC ED visits due to self-inflicted injuries, the most common mode of transport was ground ambulance (43.7%).
- Among NC ED visits due to self-inflicted injuries, the most common discharge disposition was admission to the hospital (39.3%).
- Among NC ED visits due to self-inflicted injuries, the most common expected source of payment was Medicaid (26.9%).
- Approximately 1% of NC ED visits due to self-inflicted injuries were classified as occupational.

**Table 15** and **Figure 9** show the unadjusted rates of NC ED visits due to self-inflicted injuries, stratified by patient county of residence.

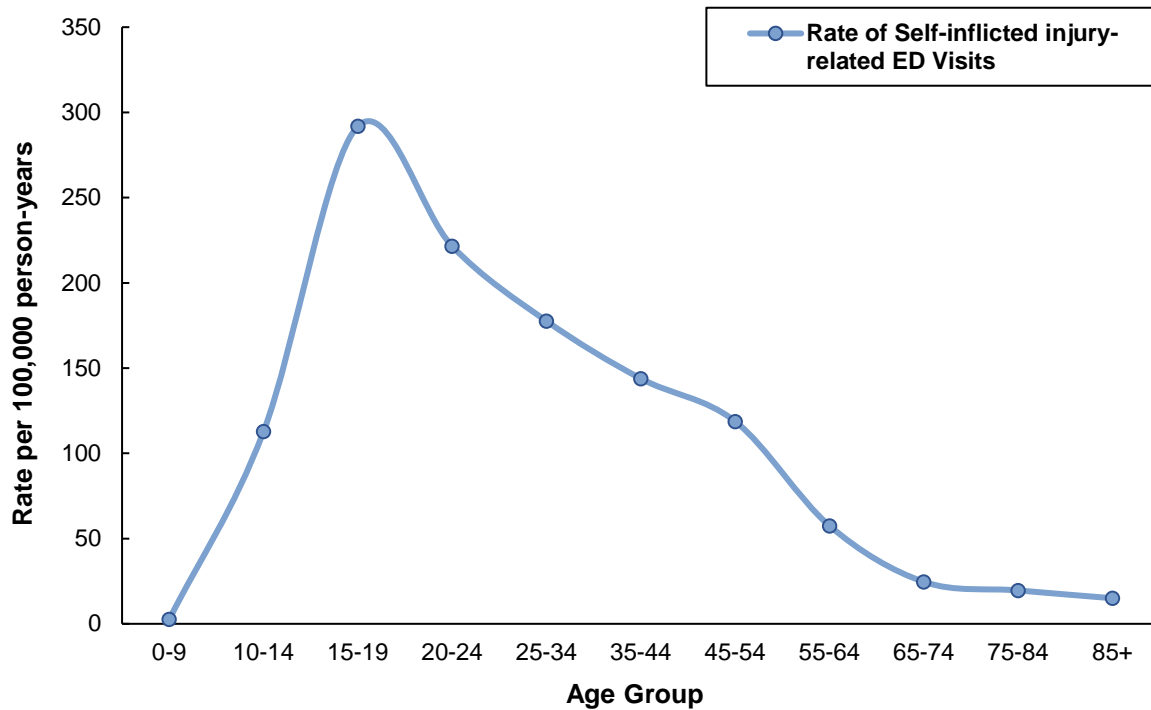
**Key Findings:**

- The majority of NC ED visits due to self-inflicted injuries were made by NC residents (97.6%).
- During the period January 1, 2012 – September 30, 2015, the five NC counties with the highest incidence rates of ED visits due to self-inflicted injuries (visits per 100,000 person-years in parentheses) were Wayne (199.7), Transylvania (195.1), Yadkin (193.5), Randolph (187.3), and Surry (187.2) counties.

<b>Table 10. Demographics of Self-Inflicted Injury-Related NC ED Visits, 2012-2015</b>			
	<b>Number</b>	<b>Percent</b>	<b>Rate<sup>1</sup></b>
<b>Sex</b>			
Female	24,109	58.2%	126.8
Male	17,337	41.8%	96.0
<b>Total</b>	<b>41,446</b>	<b>100.0%</b>	<b>111.8</b>
Missing	9	--	--
<b>Age Group (Years)</b>			
0-9	121	0.3%	2.6
10-14	2,750	6.6%	112.8
15-19	7,154	17.3%	291.9
20-24	5,902	14.2%	221.5
25-34	8,548	20.6%	177.6
35-44	7,042	17.0%	143.8
45-54	6,094	14.7%	118.7
55-64	2,652	6.4%	57.5
65-74	777	1.9%	24.6
75-84	308	0.7%	19.6
85+	94	0.2%	15.0
<b>Total</b>	<b>41,442</b>	<b>100.0%</b>	<b>111.8</b>
Missing	13	--	--
<b>Total ED Visits</b>	<b>41,455</b>	<b>100.0%</b>	<b>111.8</b>

<sup>1</sup>Unadjusted rates are reported per 100,000 person-years.

Figure 7. Unadjusted Rates of Self-Inflicted Injury-Related NC ED Visits, 2012-2015



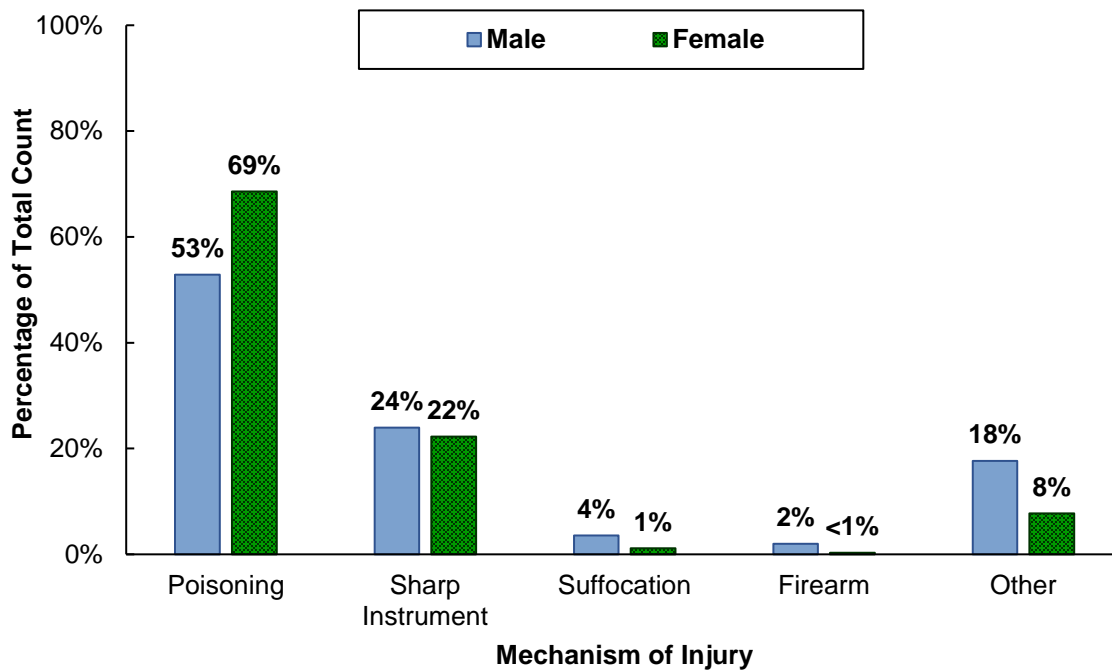
**Table 11. Mechanism of Self-Inflicted Injury-Related NC ED Visits Stratified by Sex, 2012-2015**

	Male		Female		Total	
	Number	Percent	Number	Percent	Number	Percent
<b>Mechanism of Injury</b>						
Poisoning	9,167	52.9%	16,530	68.6%	25,701	62.0%
Sharp Instrument	4,149	23.9%	5,362	22.2%	9,511	22.9%
Suffocation	615	3.5%	273	1.1%	889	2.1%
Firearm	341	2.0%	73	0.3%	416	1.0%
Fall	105	0.6%	45	0.2%	150	0.4%
Fire/Burn	65	0.4%	52	0.2%	117	0.3%
Motor Vehicle Collision	57	0.3%	32	0.1%	89	0.2%
Drowning	10	0.1%	14	0.1%	24	0.1%
Struck By/Against Object or Person	3	0.0%	1	0.0%	4	0.0%
Late Effects of Injury	89	0.5%	50	0.2%	139	0.3%
Other Specified Mechanism <sup>1</sup>	2,734	15.8%	1,674	6.9%	4,410	10.6%
Unspecified Mechanism	2	0.0%	3	0.0%	5	0.0%
<b>Total ED Visits</b>	<b>17,337</b>	<b>100.0%</b>	<b>24,109</b>	<b>100.0%</b>	<b>41,455</b>	<b>100.0%</b>

Missing: 9 ED visits missing sex.

<sup>1</sup>"Other Specified Mechanism" includes all other specified, classifiable (e.g. "electrocution", "explosives", "jumping or lying before moving object", etc.) as well as "other specified, not elsewhere classifiable" mechanisms of injury.

**Figure 4. Mechanism of Self-Inflicted Injury-Related NC ED Visits Stratified by Sex, 2012-2015**



<sup>1</sup>"Other" includes the following mechanisms: motor vehicle collision, fire/burns, fall, drowning, late effects, unspecified, and all other specified, classifiable as well as specified, unclassifiable mechanisms of injury.

**Table 12. Type of Firearm Involved in Self-Inflicted injury-Related NC ED Visits Stratified by Sex, 2012-2015**

	Male		Female		Total	
	Number	Percent	Number	Percent	Number	Percent
<b>Firearm Type</b>						
Handgun	156	45.7%	40	54.8%	197	47.4%
Shotgun	35	10.3%	7	9.6%	42	10.1%
Rifle	19	5.6%	1	1.4%	20	4.8%
Military Style Firearms	2	0.6%	0	0.0%	2	0.5%
Other/Unspecified Firearm	129	37.8%	25	34.2%	155	37.3%
<b>Total ED Visits with Firearm Involvement</b>	<b>341</b>	<b>100.0%</b>	<b>73</b>	<b>100.0%</b>	<b>416</b>	<b>100.0%</b>

Missing: 2 ED visits missing sex.



**Table 13. Type of Drug/Medication/Poison Involved in Self-Inflicted Injury-Related NC ED Visits Stratified by Sex, 2012-2015**

	Male		Female		Total	
	Number	Percent	Number	Percent	Number	Percent
<b>Drug/Medication/Poison Type<sup>1</sup></b>						
<i>Drug/Medication</i>	8,252	90.0%	15,394	93.1%	23,649	92.0%
Analgesics, antipyretics, and antirheumatics	1,910	20.8%	3,848	23.3%	5,760	22.4%
Barbiturates	27	0.3%	30	0.2%	57	0.2%
Other sedatives and hypnotics	441	4.8%	863	5.2%	1,304	5.1%
Tranquilizers and other psychotropic agents	2,909	31.7%	5,750	34.8%	8,659	33.7%
Other specified drugs and medicinal substances	2,282	24.9%	3,633	22.0%	5,915	23.0%
Unspecified drug or medicinal substance	683	7.5%	1,270	7.7%	1,954	7.6%
<i>Other Solid/Liquid Substances</i>	803	8.8%	1,087	6.6%	1,891	7.4%
Agricultural and horticultural chemical and pharmaceutical preparations other than plant foods and fertilizers	47	0.5%	22	0.1%	69	0.3%
Corrosive and caustic substances	101	1.1%	99	0.6%	201	0.8%
Arsenic and its compounds	3	0.0%	0	0.0%	3	0.0%
Other and unspecified solid and liquid substances	652	7.1%	966	5.8%	1,618	6.3%
<i>Gases in Domestic Use</i>	4	0.0%	2	0.0%	6	0.0%
Gas distributed by pipeline	1	0.0%	1	0.0%	2	0.0%
Liquefied petroleum gas distributed in mobile containers	2	0.0%	1	0.0%	3	0.0%
Other utility gas	1	0.0%	0	0.0%	1	0.0%
<i>Other Gases and Vapors</i>	108	1.2%	47	0.3%	155	0.6%
Motor vehicle exhaust gas	55	0.6%	24	0.1%	79	0.3%
Other carbon monoxide	16	0.2%	5	0.0%	21	0.1%
Other specified gases and vapors	28	0.3%	18	0.1%	46	0.2%
Unspecified gases and vapors	9	0.1%	0	0.0%	9	0.0%
<b>Total</b>	<b>9,167</b>	<b>100.0%</b>	<b>16,530</b>	<b>100.0%</b>	<b>25,701</b>	<b>100.0%</b>

Missing: 4 ED visits missing sex.

<sup>1</sup>NC DETECT ED visits may contain up to five E-codes describing the mechanism of injury; for ED visits with more than one self-inflicted injury E-code, the visit was categorized based on the first-listed E-code.

Table 14. Selected Characteristics of Self-Inflicted Injury-Related NC ED Visits, 2012-2015

	Number	Percent
<b>Mode of Transport</b>		
Walk-in	15,414	45.3%
<i>Walk-in Following Transport Via Private Transportation</i>	9,158	26.9%
<i>Walk-in Following Transport Via Law Enforcement Transport</i>	1,833	5.4%
<i>Walk-in Following Transport Via Public Transportation</i>	72	0.2%
<i>Walk-in, Not Otherwise Specified</i>	4,351	12.8%
Ambulance	17,290	50.8%
<i>Ground Ambulance</i>	14,872	43.7%
<i>Air Ambulance<sup>1</sup></i>	77	0.2%
<i>Ambulance, Not Otherwise Specified</i>	2,341	6.9%
Other Mode of Transport	1,360	4.0%
<b>Total</b>	<b>34,064</b>	<b>100.0%</b>
Missing	7,391	
<b>Disposition</b>		
Discharged Home	14,513	37.9%
Admitted	15,037	39.3%
ICU	957	2.5%
Psych	4,207	11.0%
Other	9,873	25.8%
Transferred	7,264	19.0%
Left AMA	352	0.9%
Left without Advice	95	0.2%
Died	207	0.5%
Other Disposition <sup>2</sup>	825	2.2%
<b>Total</b>	<b>38,293</b>	<b>100.0%</b>
Missing	3,162	
<b>Expected Source of Payment</b>		
Self-pay	10,014	25.1%
Medicaid	10,706	26.9%
Insurance Company	9,386	23.5%
Medicare	4,577	11.5%
Workers' Compensation	485	1.2%
Other Government Payments	1,696	4.3%
No Charge	77	0.2%
Other Type of Payment, Not Otherwise Specified	2,926	7.3%
<b>Total</b>	<b>39,867</b>	<b>100.0%</b>
Missing	1,588	
<b>Occupational Injury<sup>3</sup></b>		
Yes	508	1.2%
No	40,947	98.8%

<b>Total</b>	<b>41,455</b>	<b>100.0%</b>
<b>Total ED Visits</b>	<b>41,455</b>	<b>100.0%</b>

Abbreviations: ICU, intensive care unit; AMA, against medical advice

<sup>1</sup>Contains "Fixed Wing Air Ambulance" and "Helicopter Ambulance".

<sup>2</sup>Contains "Observation Unit" and "Other Specified Disposition."

<sup>3</sup>An "Occupational Injury" was defined as an injury-related ED visit containing one of the following codes: E000.0, E000.1, E800-E807 (.0), E830-E838 (.2 or .6), E840-E845 (.0 or .8) and/or an expected source of payment of "Workers' Compensation".

Table 15. Self-Inflicted Injury-Related NC ED Visits Stratified by Patient County of Residence, 2012-2015

	Number	Rate <sup>1</sup>		Number	Rate <sup>1</sup>
County <sup>2,3</sup>			County <sup>2,3</sup>		
<b>Alamance</b>	<b>965</b>	<b>165.3</b>	Johnston	569	84.6
<b>Alexander</b>	<b>239</b>	<b>171.5</b>	<b>Jones</b>	<b>58</b>	<b>152.4</b>
Alleghany	61	149.4	Lee	106	47.4
Anson	76	77.8	<b>Lenoir</b>	<b>340</b>	<b>154.6</b>
Ashe	103	101.3	Lincoln	317	106.0
Avery	76	114.6	Macon	112	88.1
Beaufort	220	123.5	Madison	54	68.3
Bertie	78	101.9	Martin	40	45.2
Bladen	99	76.1	McDowell	225	133.5
Brunswick	451	102.8	Mecklenburg	2,845	75.9
Buncombe	784	84.1	<b>Mitchell</b>	<b>90</b>	<b>156.6</b>
Burke	323	96.5	Montgomery	99	95.9
Cabarrus	554	77.9	Moore	273	79.0
Caldwell	394	128.7	Nash	150	42.3
Camden	16	41.9	New Hanover	*	*
<b>Carteret</b>	<b>444</b>	<b>173.1</b>	Northampton	81	103.9
Caswell	59	68.2	<b>Onslow</b>	<b>1,148</b>	<b>165.3</b>
Catawba	733	126.3	Orange	326	62.3
Chatham	125	49.2	Pamlico	62	128.0
Cherokee	99	97.5	Pasquotank	93	62.1
Chowan	79	144.0	Pender	185	88.9
Clay	35	87.6	Perquimans	44	86.8
Cleveland	511	140.3	Person	187	127.2
Columbus	193	90.1	Pitt	659	100.7
<b>Craven</b>	<b>711</b>	<b>181.5</b>	Polk	76	99.7
Cumberland	1,814	148.9	<b>Randolph</b>	<b>1,001</b>	<b>187.3</b>
Currituck	39	42.3	Richmond	156	90.6
<b>Dare</b>	<b>209</b>	<b>159.3</b>	<b>Robeson</b>	<b>797</b>	<b>157.6</b>
Davidson	810	131.7	Rockingham	534	154.6
Davie	190	122.2	Rowan	651	125.4
Duplin	223	100.0	Rutherford	380	151.8
Durham	659	60.3	Sampson	216	90.1
Edgecombe	172	83.2	Scotland	138	102.6
Forsyth	1,879	138.0	Stanly	102	44.9
Franklin	208	88.7	<b>Stokes</b>	<b>287</b>	<b>164.4</b>
Gaston	1,053	133.5	<b>Surry</b>	<b>513</b>	<b>187.2</b>
Gates	11	25.2	Swain	61	114.6
Graham	43	132.1	<b>Transylvania</b>	<b>241</b>	<b>195.1</b>
Granville	224	102.7	Tyrrell	*	*

**Table 15. Self-Inflicted Injury-Related NC ED Visits Stratified by Patient County of Residence, 2012-2015**

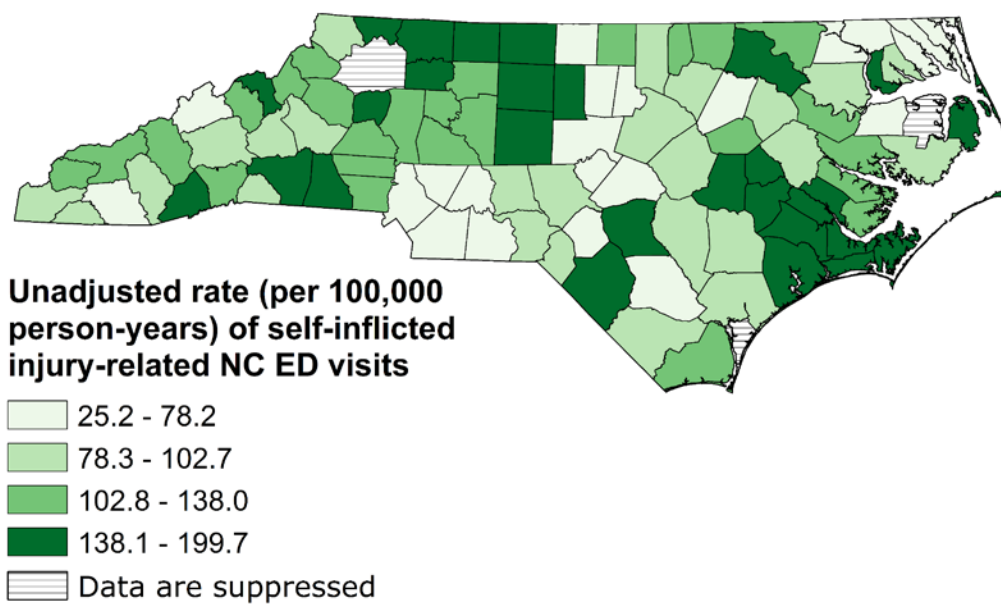
	Number	Rate <sup>1</sup>		Number	Rate <sup>1</sup>
County <sup>2,3</sup>			County <sup>2,3</sup>		
<b>Greene</b>	<b>131</b>	<b>164.4</b>	Union	588	72.9
<b>Guilford</b>	<b>2,907</b>	<b>152.3</b>	Vance	210	125.2
<b>Halifax</b>	<b>355</b>	<b>177.8</b>	Wake	3,379	91.5
Harnett	298	63.4	Warren	99	129.6
Haywood	274	123.3	Washington	37	78.2
Henderson	444	107.5	Watauga	218	111.0
Hertford	50	54.8	<b>Wayne</b>	<b>932</b>	<b>199.7</b>
Hoke	140	72.6	Wilkes	*	*
Hyde	21	98.8	Wilson	371	121.2
Iredell	753	121.1	<b>Yadkin</b>	<b>275</b>	<b>193.5</b>
Jackson	134	87.3	Yancey	70	106.1
<b>Total</b>	<b>40,409</b>	<b>109.0</b>			
Out-of-State Residents	1,004	--			
Missing	42	--			
<b>Total ED visits</b>	<b>41,455</b>	<b>492.1</b>			

<sup>1</sup>Unadjusted rates are reported per 100,000 person-years.

<sup>2</sup>For counties with  $\geq 50\%$  missing External Cause of Mechanism Codes and/or counties with 1-9 ED visits, data are suppressed. These counties are marked with an "\*\*".

<sup>3</sup>Top 20 counties with the highest unadjusted rate of self-inflicted injury-related ED visits are shown in **bold**.

**Figure 9. Map of Unadjusted Rates of Self-Inflicted Injury-Related NC ED Visits by Patient County of Residence, 2012-2015**



### ***Self-Inflicted Injuries Treated in NC Emergency Departments by Month, Day of Week, and Time of Day***

**Table 16** and **Figure 10** describe the frequency of self-inflicted injury-related NC ED visits by month, day of week, and time of day.

#### **Key Findings:**

- Over the three-year period for which data are complete (2012-2014), the spring (March – May; 25.4%) and fall months (September – November; 25.4%) had the highest frequency of self-inflicted injury-related NC ED visits.
- Self-inflicted injury-related ED visits were nearly evenly split across the seven days of the week with Monday having the highest proportion (15.1%).
- Self-inflicted injury-related NC ED visits occurred most frequently during the evening hours of 6 PM – 11 PM (37.0%).

### ***Sex and Age of Patients Treated in NC Emergency Departments for Self-Inflicted Injuries***

**Table 17** and **Figure 11** describe self-inflicted injury-related NC ED visits stratified by sex and age group.

#### **Key Findings:**

- Male self-inflicted injury-related NC ED visits peaked at 20-24 years of age with 207.3 ED visits per 100,000 person-years.
- Female self-inflicted injury-related NC ED visits peaked at 15-19 years of age with 386.1 ED visits per 100,000 person-years.

### ***Self-Inflicted Injuries Treated in NC Emergency Departments by Place of Occurrence***

**Table 17** describe self-inflicted injury-related NC ED visits by the place of occurrence.

#### **Key Findings:**

- Among the 10,308 NC ED visits with a valid place of occurrence code, over one-half of self-inflicted injuries occurred in the “home”.

**Table 15. Self-Inflicted Injury-Related NC ED Visits by Month, Day of Week, and Time of Day, 2012-2015**

	<b>Number</b>	<b>Percent</b>
<b>Month<sup>1</sup></b>		
December - February	8,187	24.1%
March - May	8,620	25.4%
June - August	8,498	25.1%
September - November	8,599	25.4%
<b>Total 2012-2014 ED Visits</b>	<b>33,904</b>	<b>100.0%</b>
<b>Day of Week</b>		
Monday	6,259	15.1%
Tuesday	6,247	15.1%
Wednesday	6,054	14.6%
Thursday	5,795	14.0%
Friday	5,576	13.5%
Saturday	5,428	13.1%
Sunday	6,096	14.7%
<b>Total</b>	<b>41,455</b>	<b>100.0%</b>
<b>Time of Day</b>		
12-5 AM	7,715	18.6%
6-11 AM	6,285	15.2%
12-5 PM	12,118	29.2%
6-11 PM	15,337	37.0%
<b>Total</b>	<b>41,455</b>	<b>100.0%</b>
<b>Total ED Visits</b>	<b>41,455</b>	<b>100.0%</b>

<sup>1</sup>Since 2015 ED visit data do not include the months October - November 2015, ED visit data for 2015 are not included in the month of visit analyses.



**Figure 10. Heat Map of Self-Inflicted Injury-Related ED Visits Stratified by Day of Week and Time of Visit, 2012-2015**

		Hour of Day				Total
		12-5 AM	6-11 AM	12-5 PM	6-11 PM	
Day of Week	Monday	2.6%	2.3%	4.4%	5.8%	15.1%
	Tuesday	2.5%	2.3%	4.6%	5.6%	15.1%
	Wednesday	2.6%	2.2%	4.3%	5.5%	14.6%
	Thursday	2.5%	2.2%	4.2%	5.0%	14.0%
	Friday	2.5%	2.3%	3.9%	4.7%	13.5%
	Saturday	2.8%	1.9%	3.7%	4.7%	13.1%
	Sunday	3.0%	2.0%	4.1%	5.6%	14.7%
	Total	18.6%	15.2%	29.2%	37.0%	100.0%

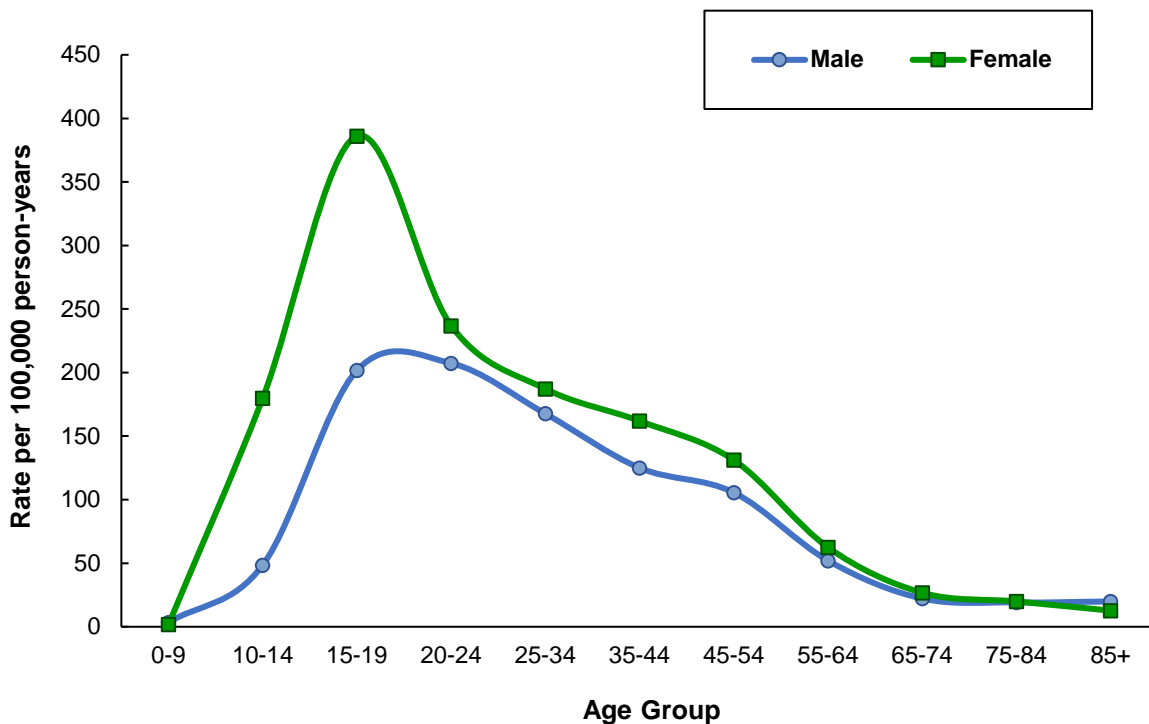
**Table 17. Self-Inflicted Injury-Related NC ED Visits Stratified by Sex and Age Group, 2012-2015**

	Male			Female		
	Number	Percent	Rate <sup>1</sup>	Number	Percent	Rate <sup>1</sup>
Age Group (Years)						
0-9	81	0.5%	3.4	40	0.2%	1.7
10-14	603	3.5%	48.5	2,147	8.9%	179.8
15-19	2,527	14.6%	201.7	4,625	19.2%	386.1
20-24	2,876	16.6%	207.3	3,025	12.5%	236.8
25-34	3,980	23.0%	167.6	4,566	18.9%	187.2
35-44	2,996	17.3%	125.0	4,046	16.8%	161.9
45-54	2,640	15.2%	105.6	3,453	14.3%	131.1
55-64	1,136	6.6%	52.0	1,516	6.3%	62.4
65-74	324	1.9%	22.2	453	1.9%	26.7
75-84	126	0.7%	19.2	182	0.8%	19.9
85+	40	0.2%	19.9	54	0.2%	12.7
Total ED Visits	17,329	100.0%	96.0	24,107	100.0%	126.8

Missing: 19 ED visits missing sex and/or age group.

<sup>1</sup>Unadjusted rates are reported per 100,000 person-years.

**Figure 11. Unadjusted Rates of Self-Inflicted Injury-Related NC ED Visits Stratified by Sex and Age Group, 2012-2015**



**Table 18. Place of Occurrence of Self-Inflicted Injury-Related NC ED Visits, 2012-2015**

	Number	Percent
<b>Place of Occurrence</b>		
Home	5,856	56.8%
Unspecified place	2,803	27.2%
Residential institution	920	8.9%
Other specified place	335	3.2%
Public building	220	2.1%
Street and highway	129	1.3%
Industrial place and premises	28	0.3%
Place for recreation and sport	14	0.1%
Farm	3	0.0%
<b>Total ED Visits with a Place of Occurrence Code</b>	<b>10,308</b>	<b>100.0%</b>

Missing: 31,147 ED visits missing place of occurrence.

## Section IV: Assault

### *Basic Characteristics of Assaults Treated in North Carolina Emergency Departments*

**Table 19** describes selected demographics of patients treated for assault in North Carolina emergency departments for the period January 1, 2012 – September 30, 2015. **Figure 12** displays the unadjusted incidence rate of NC ED visits due to assault per 100,000 person-years, stratified by age group.

#### Key Findings:

- There were 132,550 assault-related NC ED visits during the period January 1, 2012 – September 30, 2015 (357.6 ED visits per 100,000 person-years).
- Among the 132,550 NC ED visits due to assault, there were 119,345 individually identified patients. Among these 119,345 patients, 109,140 (91.4%) made one visit to the same healthcare system and 10,205 patients (8.6%) made two or more visits to the same healthcare system. The maximum number of ED visits made by a single patient during the period January 1, 2012 – September 30, 2015 was 24 ED visits (data are not displayed).
- Males were more likely to visit a NC ED for treatment of assault than females (414.3 versus 303.6 ED visits per 100,000 person-years, respectively).
- Young adults (visits per 100,000 person-years in parentheses) 20-24 years of age had the highest rate of assault-related NC ED visits (953.3), followed by individuals aged 25-34 (770.1), 15-19 (608.1), 35-44 (463.9) and 45-54 years of age (324.3).

**Table 20** and **Figure 13** describe the injury mechanism for assault-related NC ED visits. **Table 21** displays the type of firearm implicated in these ED visits.

#### Key Findings:

- The three most common specific mechanisms of injury for both men and women were “struck by/against object or persons” (46.6%), “sharp instrument” (6.6%), and “firearm” (2.7%).
- A greater proportion of men visited the NC ED with injuries due to “struck by/against object or persons” (50.6%) and “sharp instrument” (9.2%) than women (41.6% and 3.3%, respectively).
- A greater proportion of women visited the ED with injuries due to “other specified means of assault” (23.4%) than men (16.3%).
- Among NC ED visits due to assault, the most common type of firearm involved was “other/unspecified” (67.4%).

**Table 22** describes NC ED visits due to suspected sexual/physical abuse, stratified by sex. **Table 23** describes the suspected perpetrator of the assault (where available).

#### Key Findings:

- Among the, 6,771 NC ED visits with a code indicating physical/sexual abuse, the most common type of abuse indicated was suspected rape (28.4%).
- Females were over four times more likely to have a code indicating a suspected rape than males.
- Males were more likely to have a code indicating suspected “adult maltreatment, unspecified” (37.1%) and “child physical abuse” (11.1%) than females (14.0% and 1.8%, respectively).

- Among the 7,735 NC ED visits with a code indicating suspected perpetrator type, the most common coded perpetrator was “father, stepfather, or boyfriend” (38.0%).
- Females were nearly twice as likely to have a suspected perpetrator coded as “father, stepfather, or boyfriend” and nearly three times as likely to have a perpetrator coded as “spouse or partner” than males.

**Table 24** describes assault-related NC ED visits stratified by mode of transport to the ED, discharge disposition, expected source of payment, and whether or not the ED visit was occupation-related.

### Key Findings:

- Among assault-related NC ED visits, the most common mode of transport was walk-in via private transportation (41.5%).
- Among assault-related NC ED visits, the most common discharge disposition was discharged home from the ED (90.0%).
- Among assault-related NC ED visits, the most common expected source of payment was self-pay (40.9%).
- Approximately three percent of assaults treated in NC EDs were classified as occupational.

**Table 25** and **Figure 14** show the unadjusted rates of assault-related NC ED visits, stratified by patient county of residence.

### Key Findings:

- Most assault-related NC ED visits were made by NC residents (97.1%).
- During the period January 1, 2012 – September 30, 2015, the five NC counties with the highest incidence rates of assault-related NC ED visits (visits per 100,000 person-years in parentheses) were Robeson (957.3), Scotland (895.4), Richmond (836.5), Bertie (799.3), and Vance (796.4) counties.

<b>Table 19. Demographics of Assault-Related NC ED Visits, 2012-2015</b>			
	<b>Number</b>	<b>Percent</b>	<b>Rate<sup>1</sup></b>
<b>Sex</b>			
Female	57,706	43.5%	303.6
Male	74,801	56.5%	414.3
<b>Total</b>	<b>132,507</b>	<b>100.0%</b>	<b>357.5</b>
Missing	43	--	--
<b>Age Group (Years)</b>			
<1	261	0.2%	58.2
1-4	819	0.6%	44.6
5-9	1,225	0.9%	50.8
10-14	4,482	3.4%	183.9
15-19	14,905	11.2%	608.1
20-24	25,404	19.2%	953.3
25-34	37,068	28.0%	770.1
35-44	22,716	17.1%	463.9
45-54	16,647	12.6%	324.3
55-64	6,459	4.9%	140.0
65-74	1,633	1.2%	51.8
75-84	588	0.4%	37.4
85+	292	0.2%	46.6
<b>Total</b>	<b>132,499</b>	<b>100.0%</b>	<b>357.5</b>
Missing	51	--	--
<b>Total ED Visits</b>	<b>132,550</b>	<b>100.0%</b>	<b>357.6</b>

<sup>1</sup>Unadjusted rates are reported per 100,000 person-years.

**Figure 12. Unadjusted Rates of Assault-Related NC ED Visits, 2012-2015**

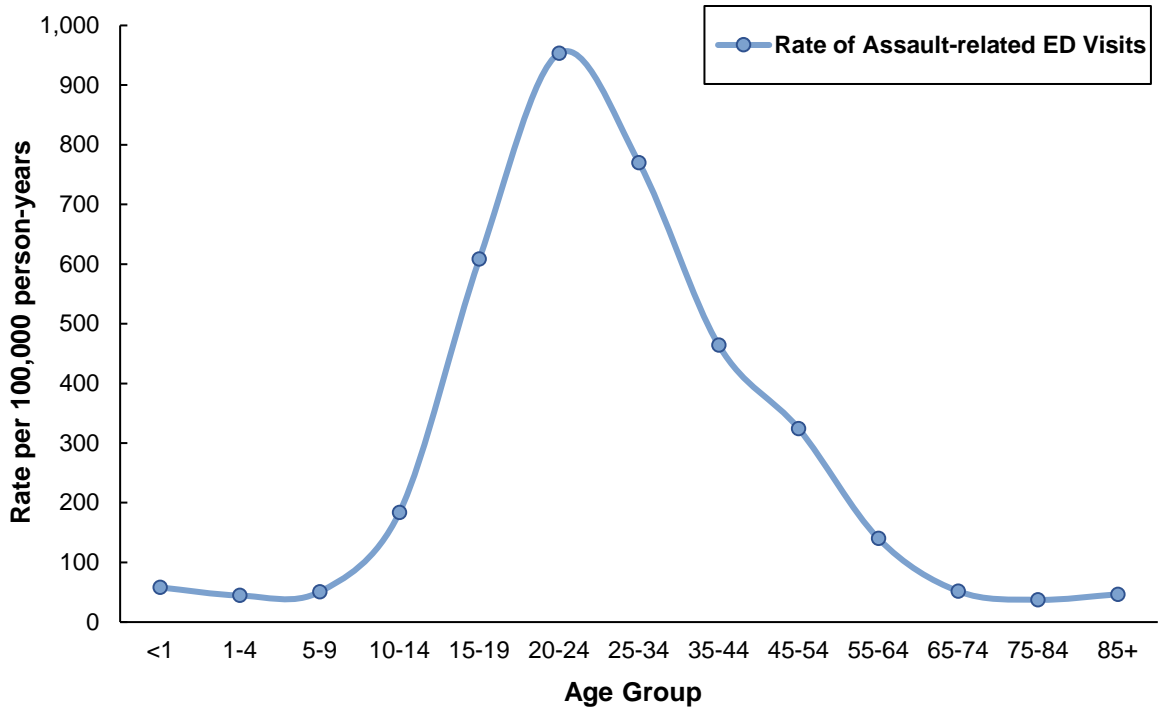


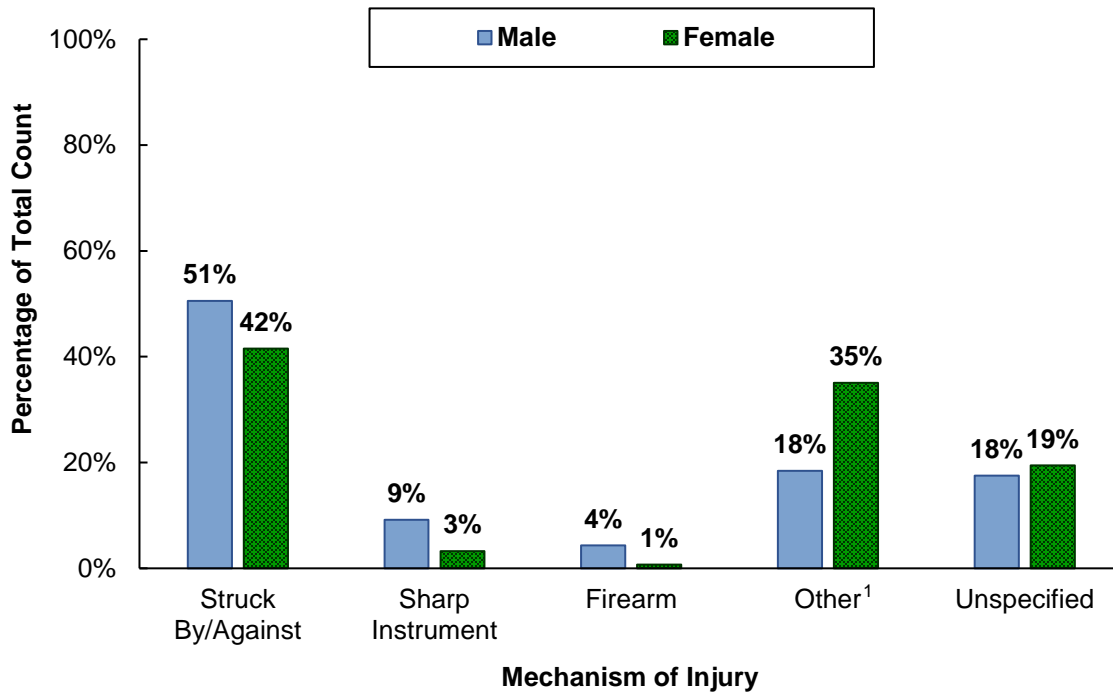
Table 20. Mechanism of Assault-Related NC ED Visits, Stratified by Sex, 2012-2015

	Male		Female		Total	
	Number	Percent	Number	Percent	Number	Percent
<b>Method of Injury</b>						
Struck By/Against	37,813	50.6%	23,984	41.6%	61,803	46.6%
Sharp instrument	6,858	9.2%	1,882	3.3%	8,750	6.6%
Firearm	3,226	4.3%	399	0.7%	3,633	2.7%
Motor Vehicle Collision	196	0.3%	206	0.4%	402	0.3%
Suffocation	77	0.1%	285	0.5%	362	0.3%
Fire/Burn	164	0.2%	117	0.2%	281	0.2%
Poisoning	96	0.1%	129	0.2%	225	0.2%
Fall	50	0.1%	134	0.2%	184	0.1%
Terrorism	6	0.0%	3	0.0%	9	0.0%
Drowning	3	0.0%	5	0.0%	8	0.0%
Late Effects	982	1.3%	590	1.0%	1,574	1.2%
Other Specified Mechanism <sup>1</sup>	12,225	16.3%	18,754	32.5%	30,983	23.4%
Unspecified Mechanism	13,105	17.5%	11,218	19.4%	24,336	18.4%
<b>Total ED Visits</b>	<b>74,801</b>	<b>100.0%</b>	<b>57,706</b>	<b>100.0%</b>	<b>132,550</b>	<b>100.0%</b>

Missing: 51 missing sex.

<sup>1</sup>"Other Specified Mechanism" includes all other specified, classifiable (e.g. "bombs", "explosives", "human bite", etc.) as well as "other specified, not elsewhere classifiable" mechanisms of injury.

**Figure 13. Mechanism of Assault-Related NC ED Visits, Stratified by Sex, 2012-2015**



<sup>1</sup>"Other" includes the following mechanisms: motor vehicle collision, fire/burns, fall, drowning, late effects, and all other specified, classifiable as well as specified, unclassifiable mechanisms of injury.



Table 21. Type of Firearm Involved in Assault-Related NC ED Visits, Stratified by Sex, 2012-2015

	Male		Female		Total	
	Number	Percent	Number	Percent	Number	Percent
<b>Firearm Type</b>						
Handgun	817	25.3%	101	25.3%	919	25.3%
Shotgun	210	6.5%	30	7.5%	240	6.6%
Rifle	15	0.5%	3	0.8%	18	0.5%
Military Style Firearms	2	0.1%	4	1.0%	6	0.2%
Other/Unspecified Firearm	2,182	67.6%	261	65.4%	2,450	67.4%
<b>Total ED Visits with Firearm Involvement</b>	<b>3,226</b>	<b>100.0%</b>	<b>399</b>	<b>100.0%</b>	<b>3,633</b>	<b>100.0%</b>

Missing: 8 ED visits missing sex.

**Table 22. Assault-Related NC ED Visits with a Code Indicating Suspected Sexual/Physical Abuse and Rape, Stratified by Sex, 2012-2015<sup>1</sup>**

		Male		Female		Total	
		Number	Percent	Number	Percent	Number	Percent
Code	Sexual/Physical Abuse Type						
E960.1	Rape	109	7.7%	1,815	33.9%	1,924	28.4%
995.81	Adult physical abuse	386	27.1%	1,436	26.9%	1,822	26.9%
995.80	Adult maltreatment, unspecified	529	37.1%	751	14.0%	1,280	18.9%
V71.5	Observation/evaluation for alleged rape	42	2.9%	510	9.5%	552	8.2%
995.53	Child sexual abuse	41	2.9%	262	4.9%	303	4.5%
995.54	Child physical abuse	158	11.1%	94	1.8%	252	3.7%
995.83	Adult sexual abuse	13	0.9%	226	4.2%	239	3.5%
995.50	Child abuse, unspecified	45	3.2%	63	1.2%	108	1.6%
V71.81	Observation/evaluation for abuse and neglect	25	1.8%	60	1.1%	85	1.3%
995.82	Adult emotional/psychological abuse	5	0.4%	40	0.7%	45	0.7%
995.85	Other adult abuse and neglect	2	0.1%	37	0.7%	39	0.6%
995.59	Other child abuse and neglect	21	1.5%	14	0.3%	35	0.5%
995.84	Adult neglect (nutritional)	18	1.3%	13	0.2%	31	0.5%
995.52	Child neglect (nutritional)	10	0.7%	8	0.1%	18	0.3%
E968.4	Criminal neglect	9	0.6%	4	0.1%	13	0.2%
995.55	Shaken infant syndrome	7	0.5%	5	0.1%	12	0.2%
995.51	Child emotional/psychological abuse	2	0.1%	5	0.1%	7	0.1%
V61.11	Counseling for victim of partner abuse	0	0.0%	4	0.1%	4	0.1%
V62.83	Counseling for perpetrator of physical/sexual abuse	1	0.1%	0	0.0%	1	0.0%
V61.21	Counseling for victim of child abuse	1	0.1%	0	0.0%	1	0.0%
	<b>Total</b>	<b>1,424</b>	<b>100.0%</b>	<b>5,347</b>	<b>100.0%</b>	<b>6,771</b>	<b>100.0%</b>

Missing: 43 ED visits missing sex.

<sup>1</sup>Among assault-related ED visits, abuse and maltreatment may be coded using an E-code, diagnosis code, or V-code. NC DETECT ED visits may contain up to eleven diagnosis codes (includes V-codes) and five E-codes. For ED visits with more than one diagnosis code/E-code, then the visit was categorized based on the first-listed code. If an ED visit had an abuse related diagnosis code **and** an abuse related E-code, then the visit was classified by the first-listed E-code.

<b>Table 23. Assault-Related NC ED Visits with a Code Indicating a Perpetrator of Assault/Abuse, Stratified by Sex, 2012-2015<sup>1</sup></b>						
	<b>Male</b>		<b>Female</b>		<b>Total</b>	
	<b>Number</b>	<b>Percent</b>	<b>Number</b>	<b>Percent</b>	<b>Number</b>	<b>Percent</b>
<b>Perpetrator Type</b>						
Father, stepfather, or boyfriend	305	23.2%	2,632	41.0%	2,937	38.0%
Spouse or partner	177	13.5%	2,340	36.5%	2,518	32.6%
Other specified person	303	23.0%	649	10.1%	952	12.3%
Mother, stepmother, or girlfriend	207	15.7%	150	2.3%	357	4.6%
Child	108	8.2%	235	3.7%	343	4.4%
Other relative	94	7.1%	192	3.0%	286	3.7%
Sibling	84	6.4%	158	2.5%	242	3.1%
Grandparent	20	1.5%	32	0.5%	52	0.7%
Non-related caregiver	17	1.3%	31	0.5%	48	0.6%
<b>Total</b>	<b>1,315</b>	<b>100.0%</b>	<b>6,419</b>	<b>100.0%</b>	<b>7,735</b>	<b>100.0%</b>

Missing: 43 ED visits missing sex.

<sup>1</sup>NC DETECT ED visits may contain up to five E-codes describing the type of perpetrator; for ED visits with more than one E-code, the visit was categorized based on the first-listed E-code.

Table 24. Selected Characteristics of Assault-Related NC ED Visits, 2012-2015

	Number	Percent
<b>Mode of Transport</b>		
Walk-in	77,823	68.7%
<i>Walk-in Following Transport Via Private Transportation</i>	47,000	41.5%
<i>Walk-in Following Transport Via Law Enforcement Transport</i>	3,209	2.8%
<i>Walk-in Following Transport Via Public Transportation</i>	396	0.3%
<i>Walk-in, Not Otherwise Specified</i>	27,218	24.0%
Ambulance	31,730	28.0%
<i>Ground Ambulance</i>	26,738	23.6%
<i>Air Ambulance<sup>1</sup></i>	404	0.4%
<i>Ambulance, Not Otherwise Specified</i>	4,588	4.0%
Other Mode of Transport	3,792	3.3%
<b>Total</b>	<b>113,345</b>	<b>100.0%</b>
Missing	19,205	
<b>Disposition</b>		
Discharged Home	115,840	90.0%
Admitted	4,363	3.4%
<i>ICU</i>	244	0.2%
<i>Psych</i>	219	0.2%
<i>Other</i>	3,900	3.0%
Transferred	3,673	2.9%
Left AMA	1,988	1.5%
Left without Advice	1,548	1.2%
Died	173	0.1%
Other Disposition <sup>2</sup>	1,146	0.9%
<b>Total</b>	<b>128,731</b>	<b>100.0%</b>
Missing	3,819	
<b>Expected Source of Payment</b>		
Self-pay	52,618	40.9%
Medicaid	33,110	25.8%
Insurance Company	16,380	12.7%
Medicare	8,835	6.9%
Workers' Compensation	3,582	2.8%
Other Government Payments	2,443	1.9%
No Charge	70	0.1%
Other Type of Payment, Not Otherwise Specified	11,479	8.9%
<b>Total</b>	<b>128,517</b>	<b>100.0%</b>
Missing	4,033	
<b>Occupational Injury<sup>3</sup></b>		
Yes	4,309	3.3%
No	128,241	96.7%

**Section IV**

<b>Total</b>	<b>132,550</b>	<b>100.0%</b>
<b>Total ED Visits</b>	<b>132,550</b>	<b>100.0%</b>

Abbreviations: ICU, intensive care unit; AMA, against medical advice

<sup>1</sup>Contains "Fixed Wing Air Ambulance" and "Helicopter Ambulance".

<sup>2</sup>Contains "Observation Unit" and "Other Specified Disposition."

<sup>3</sup>An "Occupational Injury" was defined as an injury-related ED visit containing one of the following codes: E000.0, E000.1, E800-E807 (.0), E830-E838 (.2 or .6), E840-E845 (.0 or .8) and/or an expected source of payment of "Workers' Compensation".

Table 25. Assault-Related NC ED Visits, Stratified by Patient County of Residence, 2012-2015

	Number	Rate <sup>1</sup>		Number	Rate <sup>1</sup>
County <sup>2,3</sup>			County <sup>2,3</sup>		
Alamance	1,682	288.1	Johnston	1,720	255.7
Alexander	489	350.9	Jones	166	436.1
Alleghany	111	271.9	Lee	541	241.9
<b>Anson</b>	<b>570</b>	<b>583.3</b>	<b>Lenoir</b>	<b>1,493</b>	<b>678.8</b>
Ashe	172	169.2	Lincoln	1,038	347.0
Avery	188	283.6	Macon	870	516.0
<b>Beaufort</b>	<b>921</b>	<b>516.8</b>	Madison	323	253.9
<b>Bertie</b>	<b>612</b>	<b>799.3</b>	Martin	161	203.7
Bladen	346	266.1	<b>McDowell</b>	<b>276</b>	<b>311.6</b>
Brunswick	1,263	287.9	Mecklenburg	11,294	301.3
Buncombe	3,027	324.8	Mitchell	212	368.9
Burke	1,402	418.7	Montgomery	435	421.3
Cabarrus	1,499	210.7	Moore	945	273.3
Caldwell	1,233	402.7	Nash	721	203.4
Camden	56	146.7	New Hanover	*	*
Carteret	898	350.0	<b>Northampton</b>	<b>510</b>	<b>654.0</b>
Caswell	194	224.1	Onslow	2,063	297.1
Catawba	2,473	426.3	Orange	645	123.3
Chatham	319	125.5	Pamlico	141	291.2
Cherokee	232	228.5	Pasquotank	573	382.6
<b>Chowan</b>	<b>319</b>	<b>581.3</b>	Pender	502	241.2
Clay	52	130.2	Perquimans	159	313.8
<b>Cleveland</b>	<b>2,029</b>	<b>557.2</b>	Person	614	417.8
<b>Columbus</b>	<b>1,113</b>	<b>519.7</b>	Pitt	3,100	473.8
Craven	1,931	493.0	Polk	141	184.9
Cumberland	4,552	373.7	Randolph	2,047	383.1
Currituck	125	135.5	<b>Richmond</b>	<b>1,441</b>	<b>836.5</b>
Dare	374	285.0	<b>Robeson</b>	<b>4,842</b>	<b>957.3</b>
Davidson	2,442	397.2	<b>Rockingham</b>	<b>1,992</b>	<b>576.8</b>
Davie	334	214.9	Rowan	2,051	395.2
Duplin	707	316.9	Rutherford	908	362.7
Durham	3,072	281.2	Sampson	932	388.7
<b>Edgecombe</b>	<b>1,046</b>	<b>505.9</b>	<b>Scotland</b>	<b>1,204</b>	<b>895.4</b>
Forsyth	4,848	356.0	Stanly	848	373.1
Franklin	496	211.6	Stokes	460	263.6
Gaston	3,787	480.1	Surry	915	333.9
Gates	62	141.9	Swain	265	498.0
Graham	102	313.3	Transylvania	423	342.4

Table 25. Assault-Related NC ED Visits, Stratified by Patient County of Residence, 2012-2015

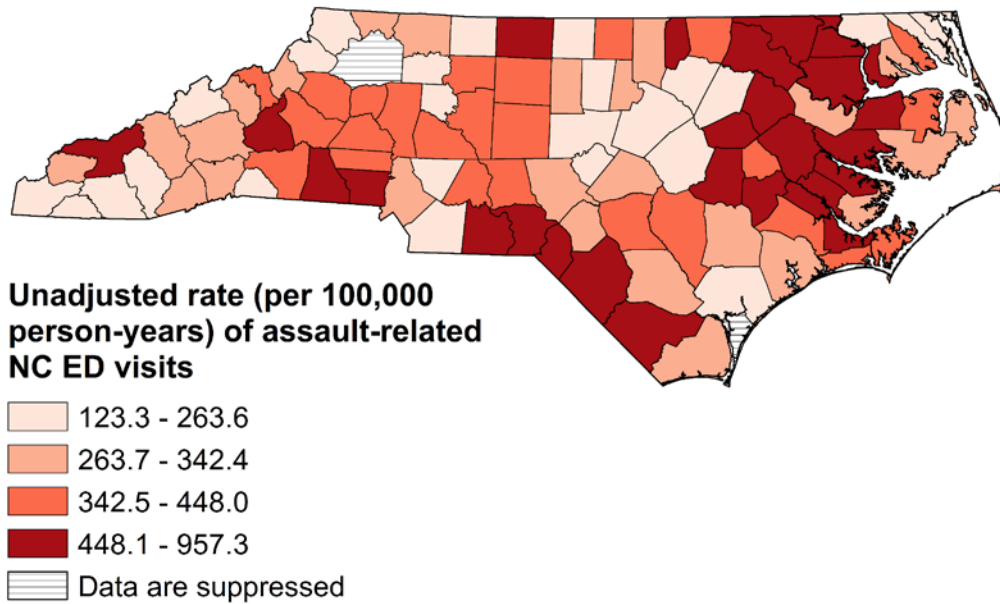
	Number	Rate <sup>1</sup>		Number	Rate <sup>1</sup>
County <sup>2,3</sup>			County <sup>2,3</sup>		
Granville	645	295.6	Tyrrell	61	395.9
Greene	336	421.7	Union	1,675	207.7
Guilford	8,554	448.0	<b>Vance</b>	<b>1,336</b>	<b>796.4</b>
<b>Halifax</b>	<b>1,448</b>	<b>725.2</b>	Wake	7,859	212.7
Harnett	1,445	307.2	Warren	331	433.4
Haywood	706	317.8	Washington	216	456.7
Henderson	1,126	272.7	Watauga	334	170.1
<b>Hertford</b>	<b>532</b>	<b>582.7</b>	<b>Wayne</b>	<b>2,788</b>	<b>597.4</b>
Hoke	622	322.7	Wilkes	*	*
Hyde	69	324.7	<b>Wilson</b>	<b>1,652</b>	<b>539.8</b>
Iredell	2,282	367.0	Yadkin	362	254.7
Jackson	299	194.7	Yancey	207	313.9
<b>Total</b>	<b>128,418</b>				
Out-of-State Residents	3,882	--			
Missing	250	--			
<b>Total ED visits</b>	<b>132,550</b>	<b>492.1</b>			

<sup>1</sup>Unadjusted rates are reported per 100,000 person-years.

<sup>2</sup>For counties with  $\geq 50\%$  missing External Cause of Mechanism Codes and/or counties with 1-9 ED visits, data are suppressed. These counties are marked with an “\*”.

<sup>3</sup>Top 20 counties with the highest unadjusted rate of assault-related ED visits are shown in bold.

Figure 14. Map of Unadjusted Rates of Assault-Related NC ED Visits by Patient County of Residence, 2012-2015





### ***Assaults Treated in NC Emergency Departments by Month, Day of Week, and Time of Day***

**Table 26** and **Figure 15** describe the frequency of assault-related NC ED visits stratified by month, day of week, and time of day.

#### **Key Findings:**

- Over the three-year period for which data are complete (2012-2014), the summer months of June–August had the highest frequency of assault-related NC ED visits (27.3%).
- Sunday had the highest proportion of assault-related NC ED visits (18.5%) by day of week.
- Assault-related NC ED visits occurred most frequently during the evening hours of 6 PM – 11 PM (32.4%).

### ***Sex and Age of Patients Treated in NC Emergency Departments for Assaults***

**Table 27** and **Figure 16** describe assault-related NC ED visits stratified by sex and age group.

#### **Key Findings:**

- Except for females 1-4 years of age, males had higher rates of assault-related NC ED visits for all age groups.
- Male and female assault-related NC ED visits peaked at 20-24 years of age with 1,016.2 ED visits per 100,000 person-years and 884.8 ED visits per 100,000 person-years, respectively.

### ***Assaults Treated in NC Emergency Departments by Place of Occurrence***

**Table 27** describes assault-related NC ED visits by place of occurrence.

#### **Key Findings:**

- Among 39,094 NC ED visits with a valid place of occurrence code, the most commonly cited place of occurrence was the “home” (31.8%).

Table 26. Assault-Related NC ED Visits by Month, Day of Week, and Time of Day, 2012-2015		
	Number	Percent
<b>Month<sup>1</sup></b>		
December - February	24,570	22.0%
March - May	28,905	25.8%
June - August	30,558	27.3%
September - November	27,879	24.9%
<b>Total 2012-2014 ED Visits</b>	<b>111,912</b>	<b>100.0%</b>
<b>Day of Week</b>		
Monday	18,110	13.7%
Tuesday	17,045	12.9%
Wednesday	16,612	12.5%
Thursday	16,560	12.5%
Friday	17,185	13.0%
Saturday	22,508	17.0%
Sunday	24,530	18.5%
<b>Total</b>	<b>132,550</b>	<b>100.0%</b>
<b>Time of Day</b>		
12-5 AM	31,961	24.1%
6-11 AM	22,287	16.8%
12-5 PM	35,314	26.6%
6-11 PM	42,988	32.4%
<b>Total</b>	<b>132,550</b>	<b>100.0%</b>
<b>Total ED Visits</b>	<b>132,550</b>	<b>100.0%</b>

<sup>1</sup>Since 2015 ED visit data do not include the months October - November, 2015 ED visit data are not included in the month of visit analyses.

**Figure 15. Heat Map of Assault-Related ED Visits Stratified by Day of Week and Time of Day, 2012-2015**

		Hour of Day				
		12-5 AM	6-11 AM	12-5 PM	6-11 PM	Total
Day of Week	Monday	2.5%	2.4%	4.1%	4.7%	13.7%
	Tuesday	2.5%	2.3%	3.6%	4.4%	12.9%
	Wednesday	2.5%	2.1%	3.5%	4.4%	12.5%
	Thursday	2.5%	2.2%	3.5%	4.3%	12.5%
	Friday	2.9%	2.1%	3.4%	4.5%	13.0%
	Saturday	5.2%	2.7%	4.0%	5.1%	17.0%
	Sunday	6.1%	3.0%	4.5%	4.9%	18.5%
	Total	24.1%	16.8%	26.6%	32.4%	100.0%

**Table 27. Assault-Related NC ED Visits Stratified by Sex and Age Group, 2012-2015**

Age Group (Years)	Male			Female		
	Number	Percent	Rate <sup>1</sup>	Number	Percent	Rate <sup>1</sup>
<1	146	0.2%	63.7	115	0.2%	52.3
1-4	368	0.5%	39.2	451	0.8%	50.1
5-9	713	1.0%	57.9	512	0.9%	43.3
10-14	2,590	3.5%	208.4	1,892	3.3%	158.4
15-19	8,424	11.3%	672.3	6,476	11.2%	540.6
20-24	14,100	18.9%	1,016.2	11,301	19.6%	884.8
25-34	20,165	27.0%	849.4	16,888	29.3%	692.3
35-44	12,426	16.6%	518.3	10,285	17.8%	411.5
45-54	10,102	13.5%	404.1	6,542	11.3%	248.5
55-64	4,278	5.7%	195.9	2,180	3.8%	89.7
65-74	1,025	1.4%	70.2	608	1.1%	35.9
75-84	319	0.4%	48.5	269	0.5%	29.4
85+	110	0.1%	54.8	182	0.3%	42.7
<b>Total ED Visits</b>	<b>74,766</b>	<b>100.0%</b>	<b>414.1</b>	<b>57,701</b>	<b>100.0%</b>	<b>303.6</b>

Missing: 83 ED visits missing sex and/or age group.

<sup>1</sup>Unadjusted rates are reported per 100,000 person-years.

**Figure 16. Unadjusted Rates of Assault-Related NC ED Visits Stratified by Sex and Age Group, 2012-2015**

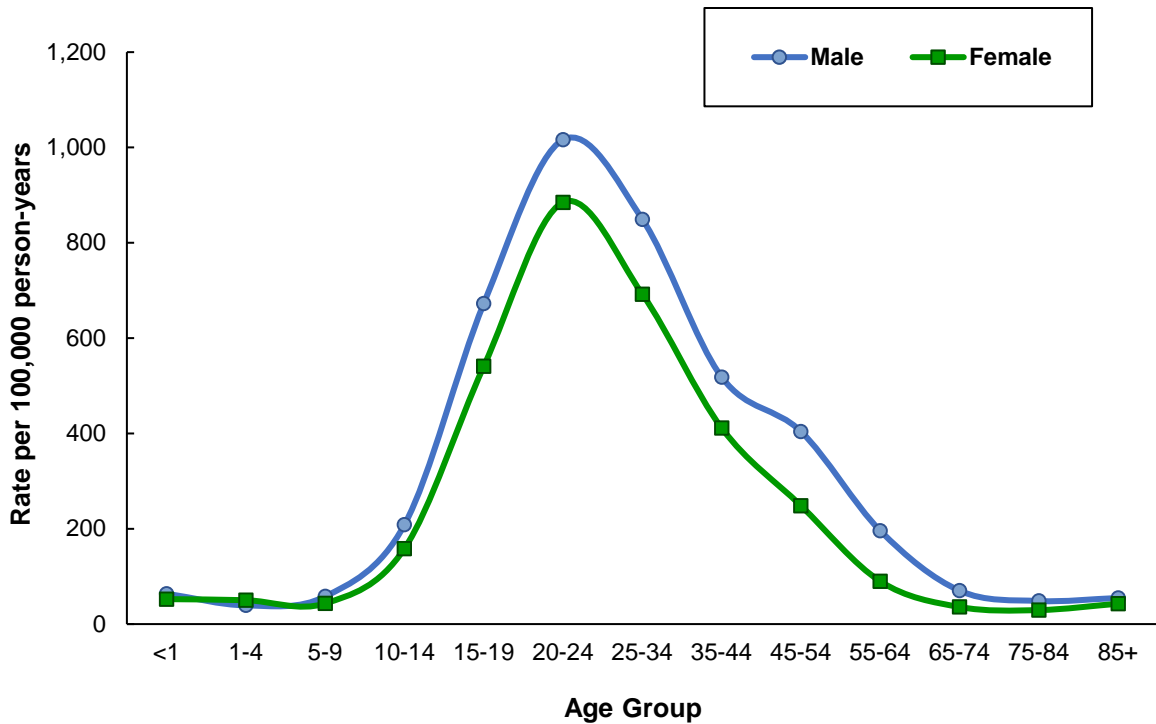


Table 28. Place of Occurrence of Assault-Related NC ED Visits, 2012-2015		
	Number	Percent
<b>Place of Occurrence</b>		
Home	12,423	31.8%
Unspecified place	10,749	27.5%
Residential institution	4,427	11.3%
Other specified place	4,273	10.9%
Public building	3,767	9.6%
Street and highway	2,236	5.7%
Industrial place and premises	766	2.0%
Place for recreation and sport	448	1.1%
Farm	5	0.0%
<b>Total ED Visits with a Place of Occurrence Code</b>	<b>39,094</b>	<b>100.0%</b>

Missing: 93,456 ED visits missing place of occurrence.

## Section V: Legal Intervention

### *North Carolina Emergency Department Visits Related to Legal Intervention*

**Table 29** describes selected demographics of patients treated for legal intervention-related injuries (e.g. injuries caused by the police, military, or other law enforcement agents acting in the line of duty) in North Carolina emergency departments for the period January 1, 2012 – September 30, 2015. **Figure 17** displays the unadjusted incidence rate of NC ED visits due to legal intervention per 100,000 person-years, stratified by age group. Due to the relatively small number of legal intervention-related ED visits, some cells have been collapsed. Caution should be used in interpreting the rates of cells containing small numbers of legal intervention-related ED visits.

#### **Key Findings:**

- There were 2,440 NC ED visits related to legal intervention during the period January 1, 2012 – September 30, 2015 (6.6 ED visits per 100,000 person-years).
- Among the 2,440 legal intervention-related NC ED visits, there were 2,389 individually identified patients. Among these 2,389 patients, 2,339 (97.1%) made one visit to the same healthcare system and 50 patients (2.1%) made two or more visits to the same healthcare system. The maximum number of ED visits made by a single patient during the period January 1, 2012 – September 30, 2015 was three ED visits (data are not displayed).
- Adults (visits per 100,000 person-years in parentheses) 25-34 years of age had the highest rate of NC ED visits related to legal intervention (16.7), followed by individuals aged: 20-24 (15.0), 35-44 (10.4), 45-54 (7.1) and 15-19 years of age (6.0).

**Table 30** and **Figure 18** describe the mechanism of injury for NC ED visits related to legal intervention.

#### **Key Findings:**

- The most common specific mechanism of injury among legal intervention-related ED visits was “struck by/against another object or person” (80.7%).

**Table 31** describes NC ED visits related to legal intervention stratified by mode of transport to the ED, discharge disposition, expected source of payment, and whether or not the ED visit was occupation-related.

#### **Key Findings:**

- Among NC ED visits related to legal intervention, the most common mode of transport was walk-in via private transportation (29.9%) followed by walk-in via law enforcement transport (25.1%).
- Among NC ED visits related to legal intervention, the most common discharge disposition was discharged home from the ED (81.7%).
- Among NC ED visits related to legal intervention, the most common expected source of payment was self-pay (44.8%).
- Over 10% of NC ED visits related to legal intervention were classified as occupational in nature. This was an unexpected result. We hypothesize that, rather than referring to injuries inflicted **by** law enforcement while making or attempting to make an arrest, this E-code may have been used to designate injuries **to** law enforcement officials while on active duty. NC DETECT does not provide enough information about the individual ED visit to make a conclusive determination, however.

**Table 32** and **Figure 19** show the unadjusted rates of legal intervention-related NC ED visits stratified by patient county of residence.

**Key Findings:**

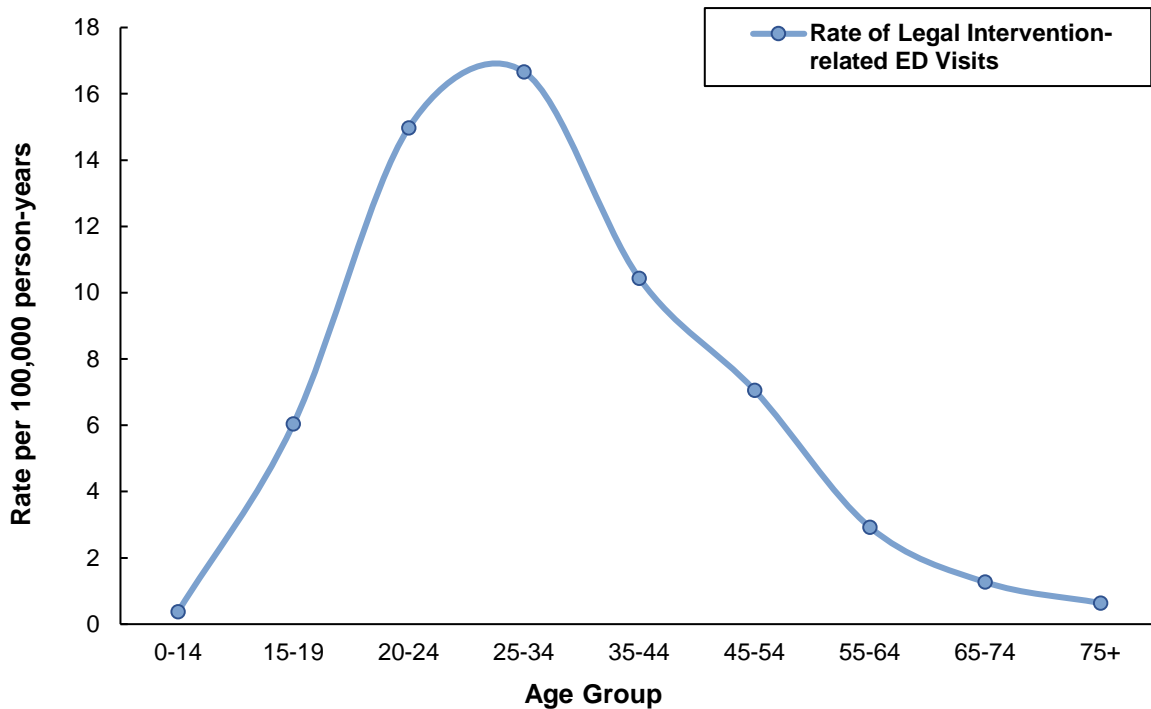
- The majority of NC ED visits related to legal intervention were made by NC residents (97.1%).

During the period January 1, 2012 – September 30, 2015, the five NC counties with the highest incidence rates of ED visits related to legal intervention (visits per 100,000 person-years in parentheses) were Dare (21.3), Warren (21.0), Vance (20.3), Montgomery (19.4), and Greene (18.8) counties.

<b>Table 29. Demographics of Legal Intervention-Related NC ED Visits, 2012-2015</b>			
	<b>Number</b>	<b>Percent</b>	<b>Rate<sup>1</sup></b>
<b>Sex</b>			
Female	420	17.2%	2.2
Male	2,020	82.8%	11.2
<b>Total</b>	<b>2,440</b>	<b>100.0%</b>	<b>6.6</b>
Missing	0	--	
<b>Age Group (Years)</b>			
0-14	27	1.1%	0.4
15-19	148	6.1%	6.0
20-24	399	16.4%	15.0
25-34	802	32.9%	16.7
35-44	511	21.0%	10.4
45-54	362	14.8%	7.1
55-64	135	5.5%	2.9
65-74	40	1.6%	1.3
75+	14	0.6%	0.6
<b>Total</b>	<b>2,438</b>	<b>100.0%</b>	<b>6.6</b>
Missing	2		
<b>Total ED Visits</b>	<b>2,440</b>	<b>100.0%</b>	<b>6.6</b>

<sup>1</sup>Unadjusted rates are reported per 100,000 person-years.

**Figure 17. Unadjusted Rates of Legal Intervention-Related NC ED Visits, 2012-2015**

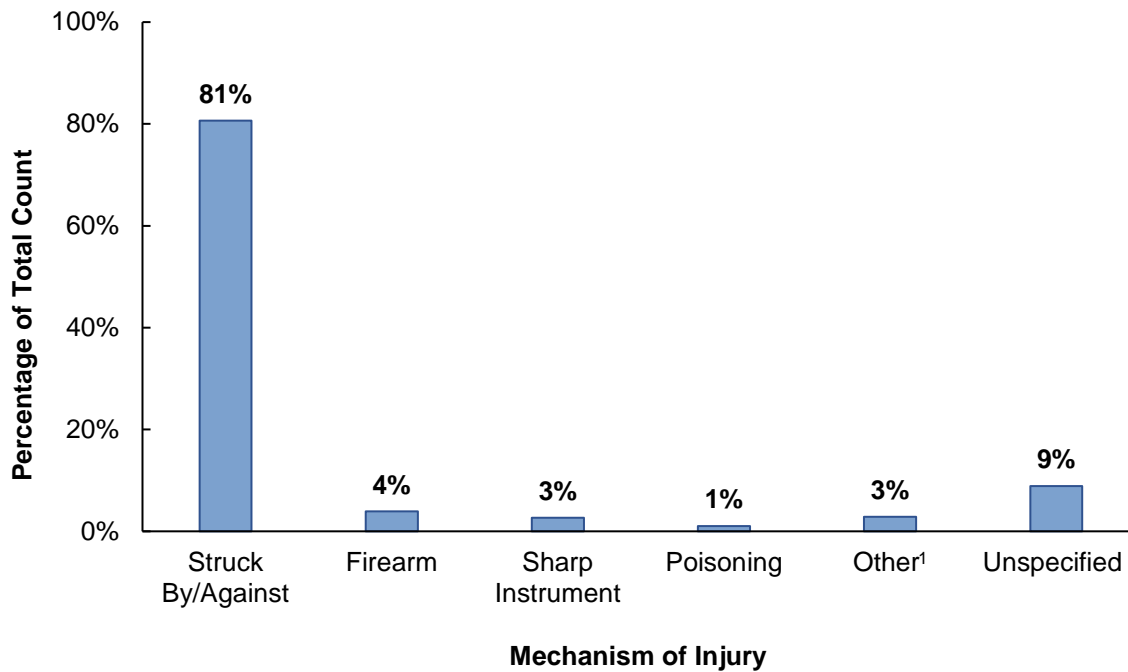


<b>Table 30. Mechanism for Legal Intervention-Related NC ED Visits, 2012-2015</b>		
	<b>Number</b>	<b>Percent</b>
<b>Mechanism of Injury</b>		
Struck By/Against	1,968	80.7%
Firearm	96	3.9%
Sharp Instrument	65	2.7%
Poisoning	25	1.0%
Other Specified Mechanism <sup>1</sup>	69	2.8%
Unspecified Mechanism	217	8.9%
<b>Total ED Visits</b>	<b>2,440</b>	<b>100.0%</b>

<sup>1</sup>Other Specified Mechanism" includes all other specified, classifiable (e.g. "explosives") as well as other "specified, not elsewhere classifiable" mechanisms of injury.



Figure 18. Mechanism for Legal Intervention-Related NC ED Visits, 2012-2015



<sup>1</sup>"Other" includes all other "specified, classifiable" as well as "other specified, not elsewhere classifiable" mechanisms of injury.

Table 31. Selected Characteristics of Legal Intervention-Related NC ED Visits, 2012-2015

	Number	Percent
<b>Mode of Transport</b>		
Walk-in	1,428	68.4%
<i>Walk-in Following Transport Via Private Transportation</i>	625	29.9%
<i>Walk-in Following Transport Via Law Enforcement Transport</i>	525	25.1%
<i>Walk-in Following Transport Via Public Transportation</i>	3	0.1%
<i>Walk-in, Not Otherwise Specified</i>	275	13.2%
Ambulance	579	27.7%
<i>Ground Ambulance</i>	478	22.9%
<i>Air Ambulance<sup>1</sup></i>	1	0.0%
<i>Ambulance, Not Otherwise Specified</i>	100	4.8%
Other Mode of Transport	81	3.9%
<b>Total</b>	<b>2,088</b>	<b>100.0%</b>
Missing	352	
<b>Disposition</b>		
Discharged Home	1,922	81.7%
Admitted	87	3.7%
<i>ICU</i>	5	0.2%
<i>Psych</i>	14	0.6%
<i>Other</i>	68	2.9%
Transferred	141	6.0%
Left AMA	31	1.3%
Left without Advice	5	0.2%
Died	5	0.2%
Other Disposition <sup>2</sup>	161	6.8%
<b>Total</b>	<b>2,352</b>	<b>100.0%</b>
Missing	88	
<b>Expected Source of Payment</b>		
Self-pay	1,060	44.8%
Medicaid	331	14.0%
Insurance Company	231	9.8%
Medicare	156	6.6%
Workers' Compensation	235	9.9%
Other Government Payments	122	5.2%
No Charge	1	0.0%
Other Type of Payment, Not Otherwise Specified	228	9.6%
<b>Total</b>	<b>2,364</b>	<b>100.0%</b>
Missing	76	
<b>Occupational Injury<sup>3</sup></b>		
Yes	283	11.6%

No	2,157	88.4%
<b>Total</b>	<b>2,440</b>	<b>100.0%</b>
<b>Total ED Visits</b>	<b>2,440</b>	<b>100.0%</b>

Abbreviations: ICU, intensive care unit; AMA, against medical advice

<sup>1</sup>Contains "Fixed Wing Air Ambulance" and "Helicopter Ambulance".

<sup>2</sup>Contains "Observation Unit" and "Other Specified Disposition."

<sup>3</sup>An "Occupational Injury" was defined as an injury-related ED visits containing one of the following codes: E000.0, E000.1, E800-E807 (.0), E830-E838 (.2 or .6), E840-E845 (.0 or .8) and/or an expected source of payment of "Workers' Compensation".

Table 32. Legal Intervention-Related NC ED Visits, Stratified by Patient County of Residence, 2012-2015

	Number	Rate <sup>1</sup>		Number	Rate <sup>1</sup>
County <sup>2,3</sup>			County <sup>2,3</sup>		
Alamance	14	2.4	Johnston	19	2.8
Alexander	*	*	Jones	*	*
Alleghany	0	0.0	Lee	*	*
<b>Anson</b>	<b>13</b>	<b>13.3</b>	<b>Lenoir</b>	<b>24</b>	<b>10.9</b>
Ashe	0	0.0	Lincoln	*	*
Avery	*	*	Macon	*	*
<b>Beaufort</b>	<b>19</b>	<b>10.7</b>	Madison	*	*
<b>Bertie</b>	<b>13</b>	<b>17.0</b>	Martin	*	*
Bladen	*	*	McDowell	10	5.9
Brunswick	18	4.1	Mecklenburg	177	4.7
Buncombe	57	6.1	Mitchell	*	*
Burke	14	4.2	<b>Montgomery</b>	<b>20</b>	<b>19.4</b>
Cabarrus	24	3.4	Moore	11	3.2
Caldwell	18	5.9	Nash	11	3.1
Camden	0	0.0	New Hanover	*	*
<b>Carteret</b>	<b>43</b>	<b>16.8</b>	Northampton	*	*
Caswell	*	*	Onslow	30	4.3
Catawba	31	5.3	Orange	19	3.6
Chatham	10	3.9	Pamlico	*	*
Cherokee	*	*	Pasquotank	*	*
Chowan	*	*	Pender	*	*
Clay	*	*	Perquimans	*	*
Cleveland	32	8.8	Person	*	*
Columbus	14	6.5	<b>Pitt</b>	<b>97</b>	<b>14.8</b>
<b>Craven</b>	<b>47</b>	<b>12.0</b>	Polk	*	*
Cumberland	49	4.0	Randolph	38	7.1
Currituck	*	*	<b>Richmond</b>	<b>20</b>	<b>11.6</b>
<b>Dare</b>	<b>28</b>	<b>21.3</b>	<b>Robeson</b>	<b>50</b>	<b>9.9</b>
Davidson	43	7.0	Rockingham	34	9.8
Davie	*	*	Rowan	34	6.6
Duplin	15	6.7	Rutherford	18	7.2
Durham	67	6.1	Sampson	10	4.2
Edgecombe	*	*	Scotland	*	*
<b>Forsyth</b>	<b>193</b>	<b>14.2</b>	Stanly	10	4.4
Franklin	*	*	Stokes	*	*
Gaston	41	5.2	Surry	*	*
Gates	*	*	Swain	0	0.0
Graham	0	0.0	Transylvania	*	*

Table 32. Legal Intervention-Related NC ED Visits, Stratified by Patient County of Residence, 2012-2015

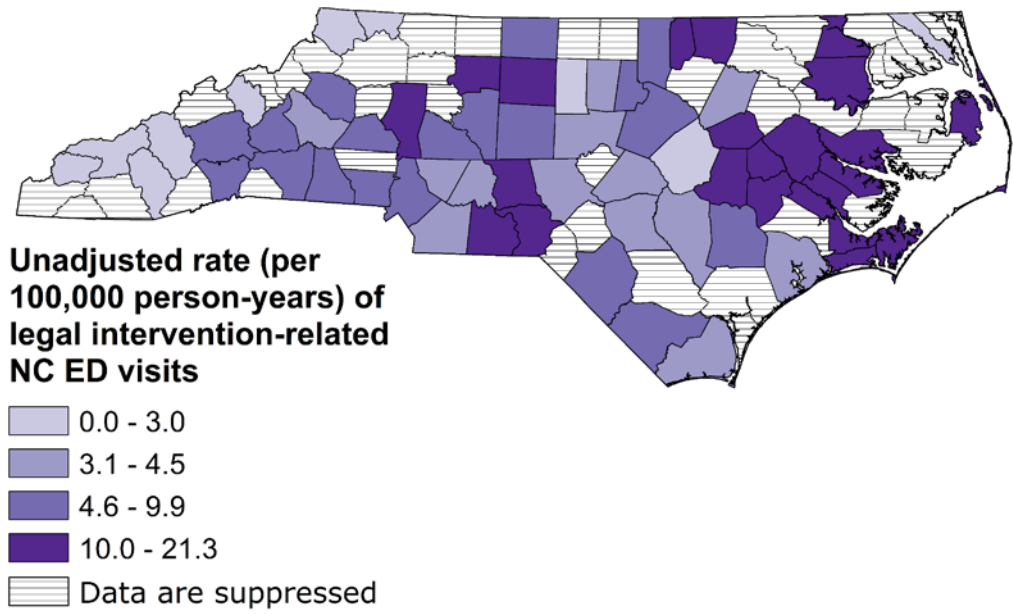
	Number	Rate <sup>1</sup>		Number	Rate <sup>1</sup>
County <sup>2,3</sup>			County <sup>2,3</sup>		
Granville	11	5.0	Tyrrell	*	*
<b>Greene</b>	<b>15</b>	<b>18.8</b>	Union	29	3.6
<b>Guilford</b>	<b>197</b>	<b>10.3</b>	<b>Vance</b>	<b>34</b>	<b>20.3</b>
Halifax	*	*	Wake	207	5.6
Harnett	21	4.5	<b>Warren</b>	<b>16</b>	<b>21.0</b>
Haywood	0	0.0	Washington	*	*
Henderson	25	6.1	Watauga	*	*
<b>Hertford</b>	<b>12</b>	<b>13.1</b>	<b>Wayne</b>	<b>56</b>	<b>12.0</b>
Hoke	*	*	Wilkes	*	*
Hyde	*	*	<b>Wilson</b>	<b>43</b>	<b>14.1</b>
<b>Iredell</b>	<b>67</b>	<b>10.8</b>	Yadkin	*	*
Jackson	0	0.0	Yancey	0	0.0
<b>Total</b>	<b>2,360</b>	<b>6.4</b>			
Out-of-State Residents	71	--			
Missing	9	--			
<b>Total ED visits</b>	<b>2,440</b>				

<sup>1</sup>Unadjusted rates are reported per 100,000 person-years.

<sup>2</sup>For counties with  $\geq 50\%$  missing External Cause of Mechanism Codes and/or counties with 1-9 ED visits, data are suppressed. These counties are marked with an “\*”.

<sup>3</sup>Top 20 counties with the highest unadjusted rate of legal intervention-related ED visits are shown in bold.

**Figure 19. Map of Unadjusted Rates of Legal Intervention-Related NC ED Visits by Patient County of Residence, 2012-2015**



### ***Legal Intervention-Related Injuries Treated in NC Emergency Departments by Month, Day of Week, and Time of Day***

**Table 33** and **Figure 20** describe the frequency of legal intervention-related NC ED visits by month, day of week, and time of day.

#### **Key Findings:**

- Over the three-year period for which data are complete (2012-2014), the summer months of June–August had the highest frequency of legal intervention-related NC ED visits (26.2%).
- Saturday had the highest proportion of legal intervention-related NC ED visits (18.2%) by day of week.
- Legal intervention-related NC ED visits occurred most frequently during the evening hours of 6 PM – 11 PM (32.9%).

### ***Sex and Age of Patients Treated in NC Emergency Departments for Legal Intervention-Related Injuries***

**Table 34** and **Figure 21** describe legal intervention-related NC ED visits stratified by sex and age group.

#### **Key Findings:**

- Males had higher rates of legal intervention-related NC ED visits across all age groups.
- Male and female legal intervention-related NC ED visits peaked at 25-34 years of age, with 28.3 ED visits per 100,000 person-years and 5.4 ED visits per 100,000 person-years, respectively.

### ***Legal Intervention-Related Injuries Treated in NC Emergency Departments by Place of Occurrence***

**Table 35** describes legal intervention-related NC ED visits by the place of occurrence.

#### **Key Findings:**

- Among the 816 NC ED visits with a valid place of occurrence code, the most commonly cited place of occurrence was “unspecified place” (24.5%) followed by “street and highway” (17.4%).

Table 33. Legal Intervention-Related NC ED Visits by Month, Day of Week, and Time of Day, 2012-2015		
	Number	Percent
<b>Month<sup>1</sup></b>		
December - February	515	24.1%
March - May	542	25.4%
June - August	560	26.2%
September - November	519	24.3%
<b>Total 2012-2014 ED Visits</b>	<b>2,136</b>	<b>100.0%</b>
<b>Day of Week</b>		
Monday	319	13.1%
Tuesday	343	14.1%
Wednesday	306	12.5%
Thursday	328	13.4%
Friday	333	13.6%
Saturday	445	18.2%
Sunday	366	15.0%
<b>Total</b>	<b>2,440</b>	<b>100.0%</b>
<b>Time of Day</b>		
12-5 AM	624	25.6%
6-11 AM	374	15.3%
12-5 PM	639	26.2%
6-11 PM	803	32.9%
<b>Total</b>	<b>2,440</b>	<b>100.0%</b>
<b>Total ED Visits</b>	<b>2,440</b>	<b>100.0%</b>

<sup>1</sup>Since 2015 ED visit data do not include the months October - November, 2015 ED visit data are not included in analyses for month of ED visit.



**Figure 15. Heat Map of Legal Intervention-Related ED Visits Stratified by Day of Week and Time of Day, 2012-2015**

		Hour of Day				
		12-5 AM	6-11 AM	12-5 PM	6-11 PM	Total
Day of Week	Monday	2.6%	2.2%	3.7%	4.8%	13.3%
	Tuesday	3.2%	2.2%	4.4%	4.5%	14.3%
	Wednesday	2.5%	2.3%	3.1%	4.3%	12.1%
	Thursday	2.4%	1.8%	4.6%	4.7%	13.5%
	Friday	3.5%	2.0%	3.4%	4.6%	13.6%
	Saturday	6.1%	2.6%	4.1%	4.7%	17.5%
	Sunday	5.3%	2.1%	2.9%	5.4%	15.6%
	Total	25.6%	15.3%	26.2%	32.9%	100.0%

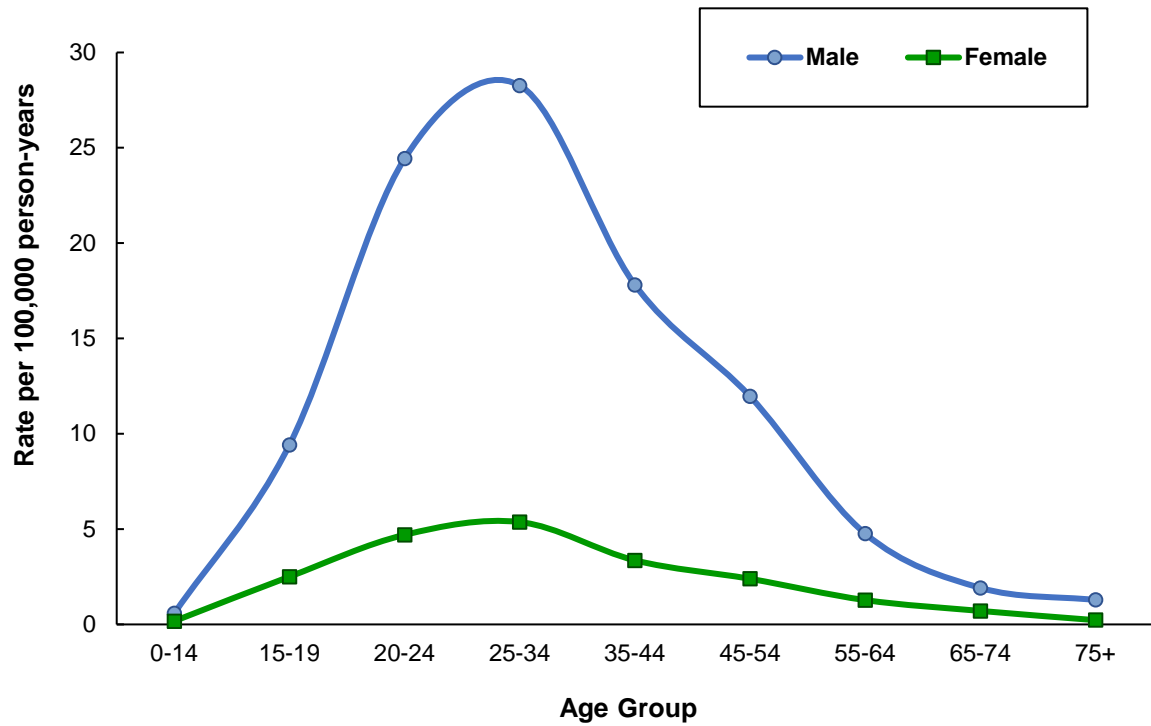
**Table 34. Legal Intervention-Related NC ED Visits, Stratified by Sex and Age Group, 2012-2015**

	Male			Female		
	Number	Percent	Rate <sup>1</sup>	Number	Percent	Rate <sup>1</sup>
Age Group (Years)						
0-14	21	1.0%	0.6	6	1.4%	0.2
15-19	118	5.8%	9.4	30	7.1%	2.5
20-24	339	16.8%	24.4	60	14.3%	4.7
25-34	671	33.3%	28.3	131	31.2%	5.4
35-44	427	21.2%	17.8	84	20.0%	3.4
45-54	299	14.8%	12.0	63	15.0%	2.4
55-64	104	5.2%	4.8	31	7.4%	1.3
65-74	28	1.4%	1.9	12	2.9%	0.7
75+	11	0.5%	1.3	3	0.7%	0.2
Total ED Visits	<b>2,018</b>	<b>100.0%</b>	<b>11.2</b>	<b>420</b>	<b>100.0%</b>	<b>2.2</b>

Missing: 2 ED visits missing sex and/or age group.

<sup>1</sup>Unadjusted rates are reported per 100,000 person-years.

**Figure 21. Unadjusted Rates of Legal Intervention-Related NC ED Visits, Stratified by Sex and Age Group, 2012-2015**



**Table 35. Place of Occurrence of Legal Intervention-Related NC ED Visits, 2012-2015**

	<b>Number</b>	<b>Percent</b>
<b>Place of Occurrence</b>		
Unspecified place	200	24.5%
Street and highway	142	17.4%
Other specified place	137	16.8%
Residential institution	99	12.1%
Home	97	11.9%
Public building	89	10.9%
Industrial place and premises	46	5.6%
Place for recreation and sport	6	0.7%
<b>Total ED Visits with a Place of Occurrence Code</b>	<b>816</b>	<b>100.0%</b>

Missing: 1,624 ED visits missing place of occurrence.

## Section VI: Unintentional Firearms

### ***Basic Characteristics of Unintentional Firearm-Related Injuries Treated in North Carolina Emergency Departments***

**Table 36** describes selected patient demographics of unintentional firearm-related injuries (e.g. injury “resulting from a bullet or other projectile shot from a powder-charged gun”, not caused by “deliberate means.”) treated in North Carolina emergency departments for the period January 1, 2012 – September 30, 2015. **Figure 22** displays the unadjusted incidence rate of NC ED visits due to unintentional firearm-related injuries per 100,000 person-years, stratified by age group.

#### **Key Findings:**

- There were 5,940 NC ED visits due to unintentional firearm-related injuries during the period January 1, 2012 – September 30, 2015 (15.9 ED visits per 100,000 person-years).
- Among the 5,940 unintentional firearm injury-related NC ED visits, there were 5,713 individually identified patients. Among these 5,713 patients, 5,510 (96.4%) made one visit to the same healthcare system and 203 patients (3.6%) made two or more visits to the same healthcare system. The maximum number of ED visits made by a single patient during the period January 1, 2012 – September 30, 2015 was five ED visits (data are not displayed).
- Males were more likely to visit a NC ED for treatment of unintentional firearm-related injuries than females (28.9 versus 3.6 ED visits per 100,000 person-years, respectively).
- Young adults (visits per 100,000 person-years in parentheses) 20-24 years of age had the highest rate of NC ED visits due to unintentional firearm-related injuries (53.1), followed by individuals aged 25-34 (33.1), 15-19 (29.2), 35-44 (717.4) and 45-54 years of age (11.2).

**Table 37** describes the type of firearm NC ED visits due to unintentional firearm-related injuries.

#### **Key Findings:**

- The most common type of firearm involved was “other/unspecified firearm” (78.0%) followed by “handgun” (14.9%).

**Table 38** describes NC ED visits due to unintentional firearm-related injuries stratified by mode of transport to the ED, discharge disposition, expected source of payment, and whether or not the ED visit was occupation-related.

#### **Key Findings:**

- Among NC ED visits due to unintentional firearm-related injuries, the most common mode of transport was ground ambulance (36.5%).
- Among NC ED visits due to unintentional firearm-related injuries, the most common discharge disposition was discharged home from the ED (66.9%).
- Among NC ED visits due to unintentional firearm-related injuries, the most common expected source of payment was self-pay (44.6%).

- About 2% of NC ED visits due to unintentional firearm-related injuries were classified as occupational in nature.

**Table 39** and **Figure 23** show the unadjusted rates of NC ED visits due to unintentional firearm-related injuries, stratified by patient county of residence.

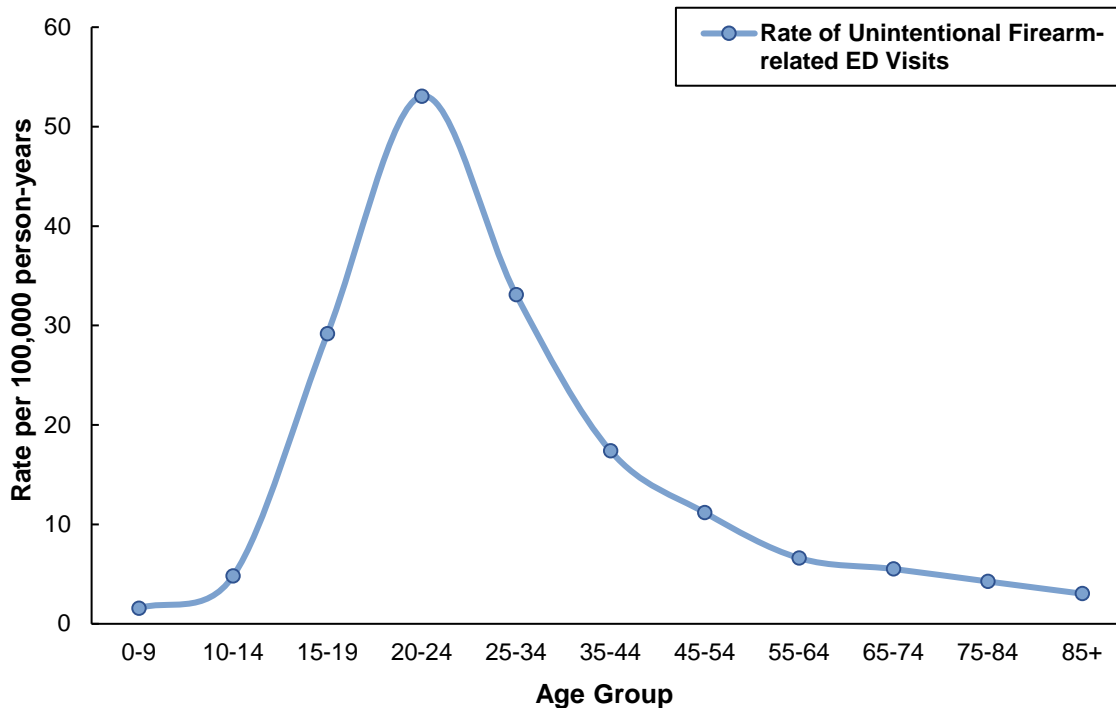
**Key Findings:**

- The majority of NC ED visits due to unintentional firearm-related injuries were made by NC residents (96.1%).
- During the period January 1, 2012 – September 30, 2015, the five NC counties with the highest incidence rates of ED visits due to unintentional firearm-related injuries (visits per 100,000 person-years in parentheses) were Robeson (78.1), Scotland (62.5), Vance (57.8), Halifax (47.6), and Northampton (44.9) counties.

<b>Table 36. Demographics of NC ED Visits Due to Unintentional Firearm-Related Injuries, 2012-2015</b>			
	<b>Number</b>	<b>Percent</b>	<b>Rate<sup>1</sup></b>
<b>Sex</b>			
Female	685	11.6%	3.6
Male	5,211	88.4%	28.9
<b>Total</b>	<b>5,896</b>	<b>100.0%</b>	<b>15.9</b>
Missing	44	--	
<b>Age Group (Years)</b>			
0-9	73	1.2%	1.6
10-14	117	2.0%	4.8
15-19	715	12.1%	29.2
20-24	1,414	24.0%	53.1
25-34	1,593	27.0%	33.1
35-44	852	14.4%	17.4
45-54	574	9.7%	11.2
55-64	305	5.2%	6.6
65-74	174	2.9%	5.5
75-84	67	1.1%	4.3
85+	19	0.3%	3.0
<b>Total</b>	<b>5,903</b>	<b>100.0%</b>	<b>15.9</b>
Missing	37		
<b>Total ED Visits</b>	<b>5,940</b>	<b>100.0%</b>	<b>16.0</b>

<sup>1</sup>Unadjusted rates are reported per 100,000 person-years.

**Figure 22. Unadjusted Rates of NC ED Visits Due to Unintentional Firearm-Related Injuries, 2012-2015**



**Table 37. Type of Firearm Involved in NC ED Visits Due to Unintentional Firearm-Related Injuries, 2012-2015**

	Number	Percent
<b>Firearm Type</b>		
Handgun	886	14.9%
Shotgun	272	4.6%
Rifle	136	2.3%
Military Style Firearms	12	0.2%
Other/Unspecified Firearm	4,634	78.0%
<b>Total ED Visits with Firearm Involvement</b>	<b>5,940</b>	<b>100.0%</b>

<b>Table 38. Selected Characteristics of NC ED Visits Due to Unintentional Firearm-Related Injuries, 2012-2015</b>		
	<b>Number</b>	<b>Percent</b>
<b>Mode of Transport</b>		
Walk-in	2,238	47.4%
<i>Walk-in Following Transport Via Private Transportation</i>	1,431	30.3%
<i>Walk-in Following Transport Via Law Enforcement Transport</i>	28	0.6%
<i>Walk-in Following Transport Via Public Transportation</i>	15	0.3%
<i>Walk-in, Not Otherwise Specified</i>	764	16.2%
Ambulance	2,288	48.5%
<i>Ground Ambulance</i>	1,721	36.5%
<i>Air Ambulance<sup>1</sup></i>	165	3.5%
<i>Ambulance, Not Otherwise Specified</i>	402	8.5%
Other Mode of Transport	193	4.1%
<b>Total</b>	<b>4,719</b>	<b>100.0%</b>
Missing	1,221	
<b>Disposition</b>		
Discharged Home	3,796	66.9%
Admitted	923	16.3%
<i>ICU</i>	16	0.3%
<i>Psych</i>	20	0.4%
<i>Other</i>	887	15.6%
Transferred	626	11.0%
Left AMA	49	0.9%
Left without Advice	10	0.2%
Died	226	4.0%
Other Disposition <sup>2</sup>	45	0.8%
<b>Total</b>	<b>5,675</b>	<b>100.0%</b>
Missing	265	
<b>Expected Source of Payment</b>		
Self-pay	2,445	44.6%
Medicaid	1,029	18.8%
Insurance Company	1,020	18.6%
Medicare	325	5.9%
Workers' Compensation	90	1.6%
Other Government Payments	130	2.4%
No Charge	3	0.1%
Other Type of Payment, Not Otherwise Specified	434	7.9%
<b>Total</b>	<b>5,476</b>	<b>100.0%</b>
Missing	464	

<b>Occupational Injury<sup>3</sup></b>		
Yes	107	1.8%
No	5,833	98.2%
<b>Total</b>	<b>5,940</b>	<b>100.0%</b>
<b>Total ED Visits</b>		
	<b>5,940</b>	<b>100.0%</b>

Abbreviations: ICU, intensive care unit; AMA, against medical advice

<sup>1</sup>Contains "Fixed Wing Air Ambulance" and "Helicopter Ambulance".

<sup>2</sup>Contains "Observation Unit" and "Other Specified Disposition."

<sup>3</sup>An "Occupational Injury" was defined as an injury-related ED visit containing one of the following codes: E000.0, E000.1, E800-E807 (.0), E830-E838 (.2 or .6), E840-E845 (.0 or .8) and/or an expected source of payment of "Workers' Compensation".



**Table 39. NC ED Visits Due to Unintentional Firearm-Related Injuries, Stratified by Patient County of Residence, 2012-2015**

	Number	Rate <sup>1</sup>		Number	Rate <sup>1</sup>
County <sup>2,3</sup>			County <sup>2,3</sup>		
Alamance	99	17.0	Johnston	70	10.4
Alexander	17	12.2	Jones	*	*
<b>Alleghany</b>	<b>15</b>	<b>36.7</b>	Lee	33	14.8
<b>Anson</b>	<b>28</b>	<b>28.7</b>	<b>Lenoir</b>	<b>78</b>	<b>35.5</b>
Ashe	15	14.8	Lincoln	24	8.0
Avery	*	*	Macon	14	11.0
Beaufort	22	12.3	Madison	*	*
<b>Bertie</b>	<b>17</b>	<b>22.2</b>	Martin	13	14.7
Bladen	26	20.0	McDowell	21	12.5
Brunswick	37	8.4	Mecklenburg	247	6.6
Buncombe	66	7.1	Mitchell	*	*
Burke	46	13.7	<b>Montgomery</b>	<b>27</b>	<b>26.1</b>
Cabarrus	31	4.4	Moore	60	17.4
Caldwell	42	13.7	Nash	25	7.1
Camden	*	*	New Hanover	*	*
Carteret	21	8.2	<b>Northampton</b>	<b>35</b>	<b>44.9</b>
Caswell	*	*	Onslow	63	9.1
Catawba	63	10.9	Orange	39	7.5
Chatham	18	7.1	Pamlico	10	20.7
Cherokee	15	14.8	Pasquotank	22	14.7
Chowan	10	18.2	Pender	10	4.8
Clay	*	*	Perquimans	*	*
<b>Cleveland</b>	<b>96</b>	<b>26.4</b>	<b>Person</b>	<b>34</b>	<b>23.1</b>
Columbus	38	17.7	Pitt	58	8.9
Craven	57	14.6	Polk	*	*
Cumberland	253	20.8	Randolph	76	14.2
Currituck	*	*	<b>Richmond</b>	<b>46</b>	<b>26.7</b>
Dare	*	*	<b>Robeson</b>	<b>395</b>	<b>78.1</b>
Davidson	82	13.3	<b>Rockingham</b>	<b>98</b>	<b>28.4</b>
Davie	16	10.3	<b>Rowan</b>	<b>144</b>	<b>27.7</b>
Duplin	27	12.1	Rutherford	30	12.0
<b>Durham</b>	<b>427</b>	<b>39.1</b>	<b>Sampson</b>	<b>63</b>	<b>26.3</b>
Edgecombe	39	18.9	<b>Scotland</b>	<b>84</b>	<b>62.5</b>
<b>Forsyth</b>	<b>347</b>	<b>25.5</b>	Stanly	37	16.3
Franklin	25	10.7	<b>Stokes</b>	<b>39</b>	<b>22.3</b>
Gaston	93	11.8	Surry	60	21.9
Gates	*	*	Swain	10	18.8
Graham	*	*	Transylvania	13	10.5

**Table 39. NC ED Visits Due to Unintentional Firearm-Related Injuries, Stratified by Patient County of Residence, 2012-2015**

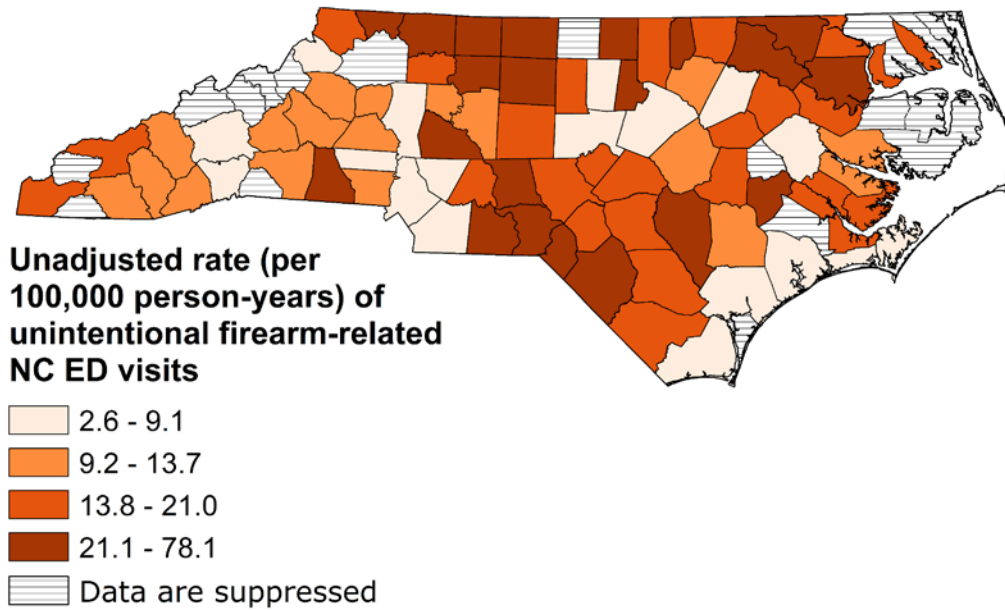
	Number	Rate <sup>1</sup>		Number	Rate <sup>1</sup>
County <sup>2,3</sup>			County <sup>2,3</sup>		
Granville	43	19.7	Tyrrell	0	0.0
Greene	*	*	Union	46	5.7
<b>Guilford</b>	<b>447</b>	<b>23.4</b>	<b>Vance</b>	<b>97</b>	<b>57.8</b>
<b>Halifax</b>	<b>95</b>	<b>47.6</b>	Wake	269	7.3
Harnett	72	15.3	Warren	16	21.0
Haywood	23	10.4	Washington	*	*
Henderson	33	8.0	Watauga	12	6.1
Hertford	17	18.6	Wayne	93	19.9
Hoke	33	17.1	Wilkes	*	*
Hyde	*	*	Wilson	61	19.9
Iredell	46	7.4	Yadkin	29	20.4
Jackson	21	13.7	Yancey	*	*
<b>Total</b>	<b>5,683</b>	<b>15.3</b>			
Out-of-State Residents	231	--			
Missing	26	--			
<b>Total ED visits</b>	<b>5,940</b>	<b>492.1</b>			

<sup>1</sup>Unadjusted rates are reported per 100,000 person-years.

<sup>2</sup>For counties with  $\geq 50\%$  missing External Cause of Mechanism Codes and/or counties with 1-9 ED visits, data are suppressed. These counties are marked with an “\*”.

<sup>3</sup>Top 20 counties with the highest unadjusted rate of unintentional firearm-related ED visits are shown in **bold**.

**Figure 23. Map of Unadjusted Rates of NC ED Visits Due to Unintentional Firearm-Related Injuries by Patient County of Residence, 2012-2015**



### ***Unintentional Firearm-Related Injuries Treated in NC Emergency Departments by Month, Day of Week, and Time of Day***

**Table 40** and **Figure 24** describe the frequency of unintentional firearm injury related NC ED visits by month, day of week, and time of day.

#### **Key Findings:**

- Over the three-year period for which data are complete (2012-2014), the fall months of September–November had the highest frequency of NC ED visits due to unintentional firearm-related injuries (27.1%).
- Saturday had the highest proportion of NC ED visits due to unintentional firearm-related injuries (18.8%) by day of week.
- NC ED visits related to unintentional firearm injuries occurred most frequently during the evening hours of 6 PM – 11 PM (35.5%).

### ***Sex and Age of Patients Treated in NC Emergency Departments for Unintentional Firearm-Related Injuries***

**Table 41** and **Figure 25** describe NC ED visits due to unintentional firearm-related injuries, stratified by sex and age group.

#### **Key Findings:**

- Males had higher rates of NC ED visits due to unintentional firearm-related injuries across all age groups.
- Male and female NC ED visits due to unintentional firearm-related injuries peaked at 20-24 years of age with 93.6 ED visits per 100,000 person-years and 8.8 ED visits per 100,000 person-years, respectively.

### ***Unintentional Firearm-Related Injuries Treated in NC Emergency Departments by Place of Occurrence***

**Table 42** describes NC ED visits due to unintentional firearm-related injuries by the place of occurrence.

#### **Key Findings:**

- Among the 1,527 NC ED visits with a valid place of occurrence code, the most commonly cited place of occurrence was the “home” (35.6%), followed by “unspecified place” (33.8%).

<b>Table 40. NC ED Visits Due to Unintentional Firearm-Related Injuries by Month, Day of Week, and Time of Day, 2012-2015</b>		
	<b>Number</b>	<b>Percent</b>
<b>Month<sup>1</sup></b>		
December - February	1,112	24.2%
March - May	1,070	23.3%
June - August	1,160	25.3%
September - November	1,244	27.1%
<b>Total 2012-2014 ED Visits</b>	<b>4,586</b>	<b>100.0%</b>
<b>Day of Week</b>		
Monday	790	13.3%
Tuesday	695	11.7%
Wednesday	753	12.7%
Thursday	714	12.0%
Friday	785	13.2%
Saturday	1,117	18.8%
Sunday	1,086	18.3%
<b>Total</b>	<b>5,940</b>	<b>100.0%</b>
<b>Time of Day</b>		
12-5 AM	1,572	26.5%
6-11 AM	773	13.0%
12-5 PM	1,486	25.0%
6-11 PM	2,109	35.5%
<b>Total</b>	<b>5,940</b>	<b>100.0%</b>
<b>Total ED Visits</b>	<b>5,940</b>	<b>100.0%</b>

<sup>1</sup>Since 2015 ED visit data do not include the months October - November, 2015 ED visit data are not included in analyses of Month of ED visit.

**Figure 24. Heat Map of NC ED Visits Due to Unintentional Firearm-Related Injuries, Stratified by Day of Week and Time of Day, 2012-2015**

		Hour of Day				
		12-5 AM	6-11 AM	12-5 PM	6-11 PM	Total
Day of Week	Monday	2.7%	2.2%	3.5%	4.8%	13.2%
	Tuesday	2.5%	1.5%	3.1%	4.9%	12.0%
	Wednesday	2.7%	2.1%	3.1%	4.6%	12.6%
	Thursday	2.4%	1.4%	3.0%	4.7%	11.6%
	Friday	3.0%	1.5%	3.3%	5.2%	13.0%
	Saturday	6.4%	2.2%	4.2%	5.4%	18.4%
	Sunday	6.7%	2.1%	4.7%	5.9%	19.4%
	Total	26.5%	13.0%	25.0%	35.5%	100.0%

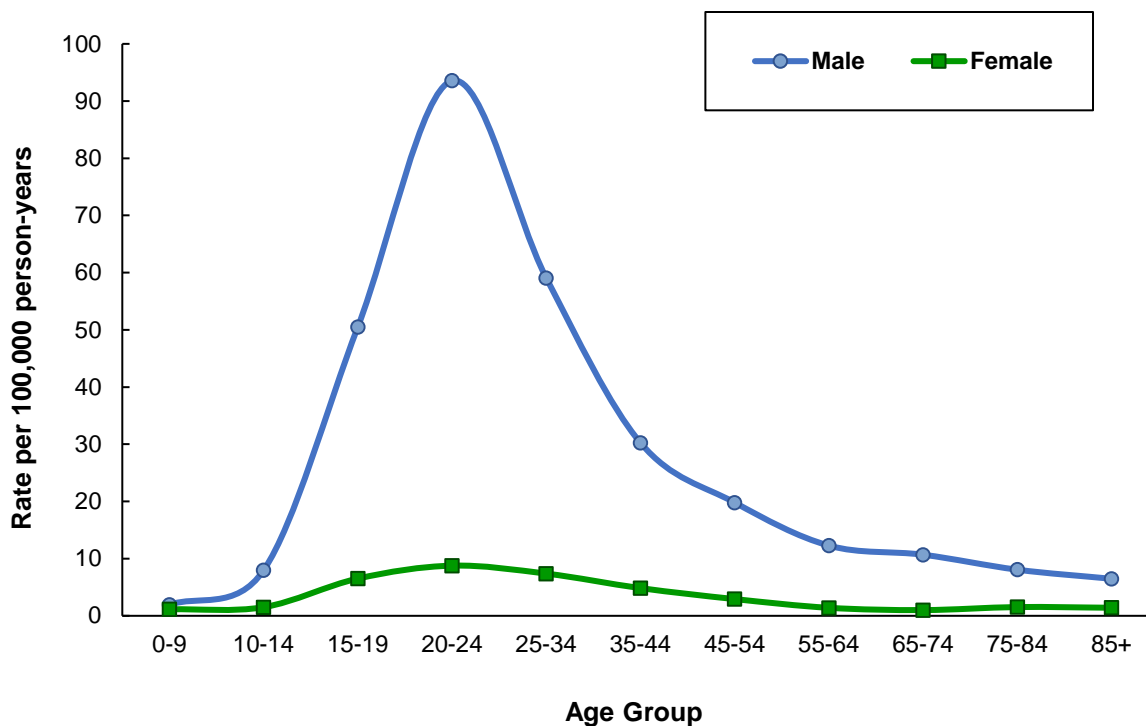
**Table 41. NC ED Visits Due to Unintentional Firearm-Related Injuries Stratified by Sex and Age Group, 2012-2015**

	Male			Female		
	Number	Percent	Rate <sup>1</sup>	Number	Percent	Rate <sup>1</sup>
Age Group (Years)						
0-9	46	0.9%	1.9	26	3.8%	1.1
10-14	99	1.9%	8.0	18	2.6%	1.5
15-19	633	12.2%	50.5	78	11.4%	6.5
20-24	1,298	25.0%	93.6	112	16.4%	8.8
25-34	1,402	27.0%	59.1	180	26.4%	7.4
35-44	725	14.0%	30.2	121	17.7%	4.8
45-54	495	9.5%	19.8	77	11.3%	2.9
55-64	268	5.2%	12.3	34	5.0%	1.4
65-74	156	3.0%	10.7	17	2.5%	1.0
75-84	53	1.0%	8.1	14	2.0%	1.5
85+	13	0.3%	6.5	6	0.9%	1.4
Total ED Visits	<b>5,188</b>	<b>100.0%</b>	<b>28.7</b>	<b>683</b>	<b>100.0%</b>	<b>3.6</b>

Missing: 69 ED visits missing sex and/or age group.

<sup>1</sup>Unadjusted rates are reported per 100,000 person-years.

**Figure 25. Unadjusted Rates of NC ED Visits Due to Unintentional Firearm-Related Injuries, Stratified by Sex and Age Group, 2012-2015**



	<b>Number</b>	<b>Percent</b>
<b>Place of Occurrence</b>		
Home	543	35.6%
Unspecified place	516	33.8%
Other specified place	244	16.0%
Street and highway	125	8.2%
Public building	64	4.2%
Place for recreation and sport	14	0.9%
Industrial place and premises	10	0.7%
Residential institution	10	0.7%
Farm	1	0.1%
<b>Total ED Visits with a Place of Occurrence Code</b>	<b>1,527</b>	<b>100.0%</b>

Missing: 4,413 ED visits missing place of occurrence.

## Section VII: Violent Injuries Among Children (<18 Years of Age)

### *Basic Characteristics of Violent Injuries Among Children Treated in North Carolina Emergency Departments*

**Table 43** describes selected demographics of violent injuries among children 0-17 years of age treated in North Carolina emergency departments for the period January 1, 2012 – September 30, 2015. **Figure 26** displays the unadjusted incidence rate of violence-related NC ED visits per 100,000 person-years, stratified by age.

#### Key Findings:

- There were 21,876 violence-related NC ED visits among children during the period January 1, 2012 – September 30, 2015 (255.3 per 100,000 person-years).
- Among the 21,876 violence-related NC ED visits among children, there were 20,602 individually identified patients. Among these 20,602 patients, 19,492 (94.6%) made one visit to the same healthcare system and 1,110 patients (5.4%) made two or more visits to the same healthcare system. The maximum number of ED visits made by a single patient during the period January 1, 2012 – September 30, 2015 was six ED visits (data are not displayed).
- Girls were slightly more likely to visit a NC ED for treatment of violent injuries than boys (271.4 versus 239.8 ED visits per 100,000 person-years, respectively).
- Teenagers (visits per 100,000 person-years in parentheses) 17 years of age had the highest rate of violence-related NC ED visits (1,924.9), followed by individuals aged 16 (841.7), 15 (752.1), 14 (624.3) and 13 years of age (400.8).

**Tables 44** and **45** list the type and injury mechanism for violence-related NC ED visits among children, respectively. **Figure 26** displays the type of violence-related NC ED visits among boys and **Figure 27** displays the type of violence-related NC ED visits among girls. **Figure 29** displays the injury mechanism for violence-related NC ED visits for both sexes. **Table 46** shows the type of firearm involved in violence-related NC ED visits among children.

#### Key Findings:

- Assault was the most common type of violence-related NC ED visit among boys (75.1%) and girls (52.6%); however, self-inflicted injuries made up a much larger proportion of visits among girls (46.5%) than boys (20.2%).
- Among boys, the most common specific injury mechanism of violence-related NC ED visits was “struck by/against object or person” (42.0%).
- Among girls, the most common specific injury mechanism of violence-related NC ED visits was “poisoning” (27.4%).
- Among violence-related NC ED visits by children, the most common firearm involved was “other/unspecified” (75.5%).

**Table 47** describes violence-related NC ED visits among children by mode of transport to the ED, discharge disposition, expected source of payment, and whether or not the ED visit was occupation-related.

#### Key Findings:



- Among violence-related NC ED visits by children, the most common mode of transport was private transportation (49.9%).
- The majority of violence-related NC ED visits among children were discharged home (78.3%).
- Among violence-related NC ED visits by children, the most common expected source of payment was Medicaid (60.8%).
- Less than 1% of violence-related NC ED visits among children were identified as due to occupational injuries.

**Table 48** and **Figure 30** show the crude rates of violence-related NC ED visits among children by patient county of residence.

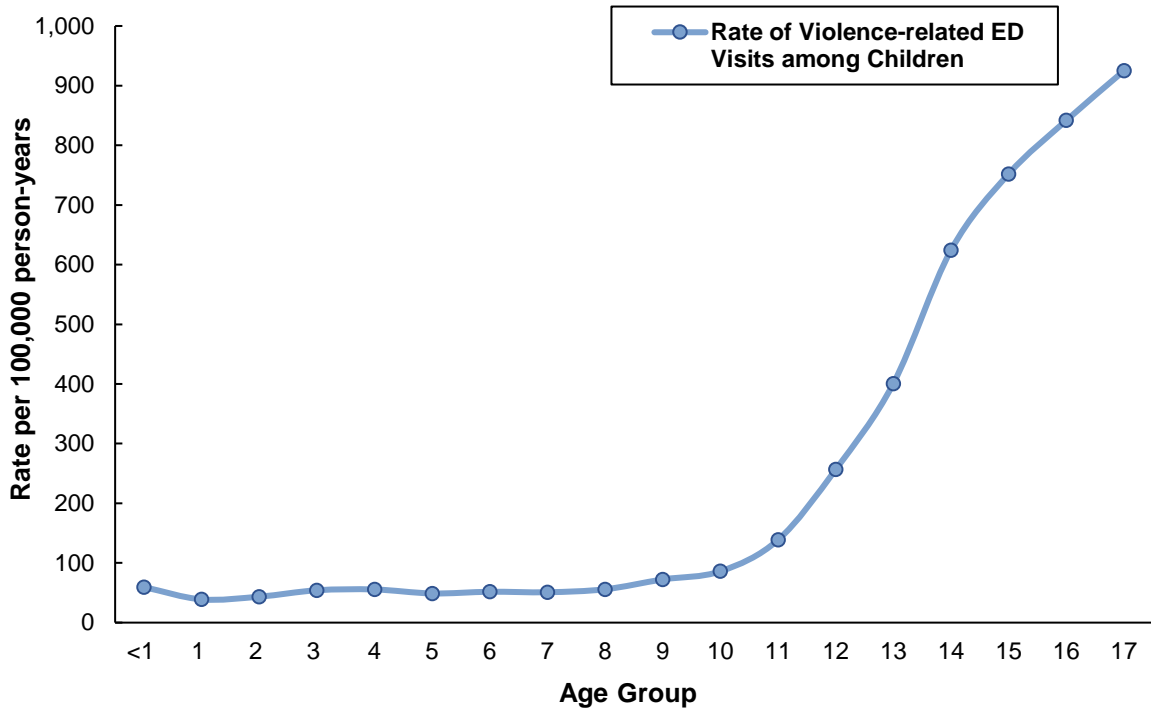
### Key Findings:

- The majority of violence-related NC ED visits among children were made by NC residents (98.1%).
- The five NC counties with the highest incidence rates of violence-related ED visits among children (visits per 100,000 person-years in parentheses) were Bertie (629.1), Chowan (587.0), Lenoir (517.9), Vance (486.7), and Scotland (479.4) counties.

<b>Table 43. Demographics of Violence-Related NC ED Visits Among Children, 2012-2015</b>			
	<b>Number</b>	<b>Percent</b>	<b>Rate<sup>1</sup></b>
<b>Sex</b>			
Female	11,390	52.1%	271.4
Male	10,482	47.9%	239.8
<b>Total</b>	<b>21,872</b>	<b>100.0%</b>	<b>255.3</b>
Missing	4	--	
<b>Age Group (Years)</b>			
<1	267	1.2%	59.5
1	176	0.8%	38.9
2	198	0.9%	43.5
3	250	1.1%	54.2
4	261	1.2%	55.5
5	234	1.1%	48.9
6	250	1.1%	51.7
7	247	1.1%	50.9
8	271	1.2%	55.9
9	349	1.6%	72.4
10	414	1.9%	86.0
11	673	3.1%	138.7
12	1,257	5.7%	256.8
13	1,969	9.0%	400.8
14	3,059	14.0%	624.3
15	3,628	16.6%	752.1
16	3,996	18.3%	841.7
17	4,377	20.0%	924.9
<b>Total</b>	<b>21,876</b>	<b>100.0%</b>	<b>255.3</b>
Missing	0		
<b>Total ED Visits</b>	<b>21,876</b>	<b>100.0%</b>	<b>255.3</b>

<sup>1</sup>Unadjusted rates are reported per 100,000 person-years.

**Figure 26. Unadjusted Rates of Violence-Related NC ED Visits Among Children, 2012-2015**



**Table 44. Type of Violence-Related NC ED Visits Among Children, Stratified by Sex, 2012-2015**

	Male		Female		Total	
	Number	Percent	Number	Percent	Number	Percent
<b>Manner of Injury</b>						
Assault	7,874	75.1%	5,995	52.6%	13,870	63.4%
Self-inflicted Injuries	2,122	20.2%	5,294	46.5%	7,417	33.9%
Unintentional Firearm	406	3.9%	80	0.7%	488	2.2%
Legal Intervention	80	0.8%	21	0.2%	101	0.5%
<b>Total ED Visits</b>	<b>10,482</b>	<b>100.0%</b>	<b>11,390</b>	<b>100.0%</b>	<b>21,876</b>	<b>100.0%</b>

**Figure 27. Type of Violence-Related NC ED Visits Among Male Children, 2012-2015**

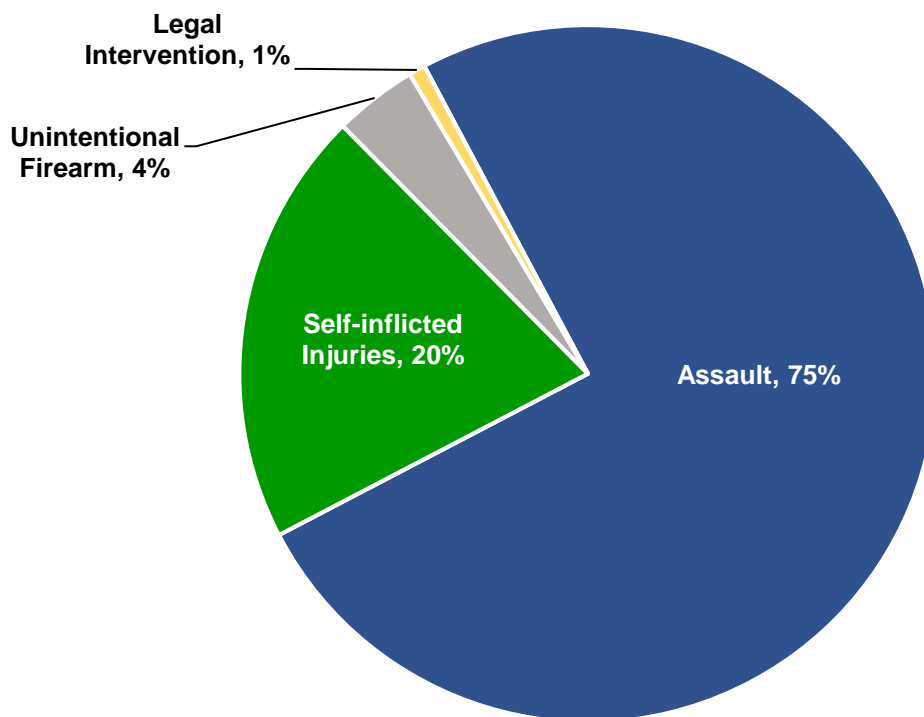


Figure 28. Type of Violence-Related NC ED Visits Among Female Children, 2012-2015

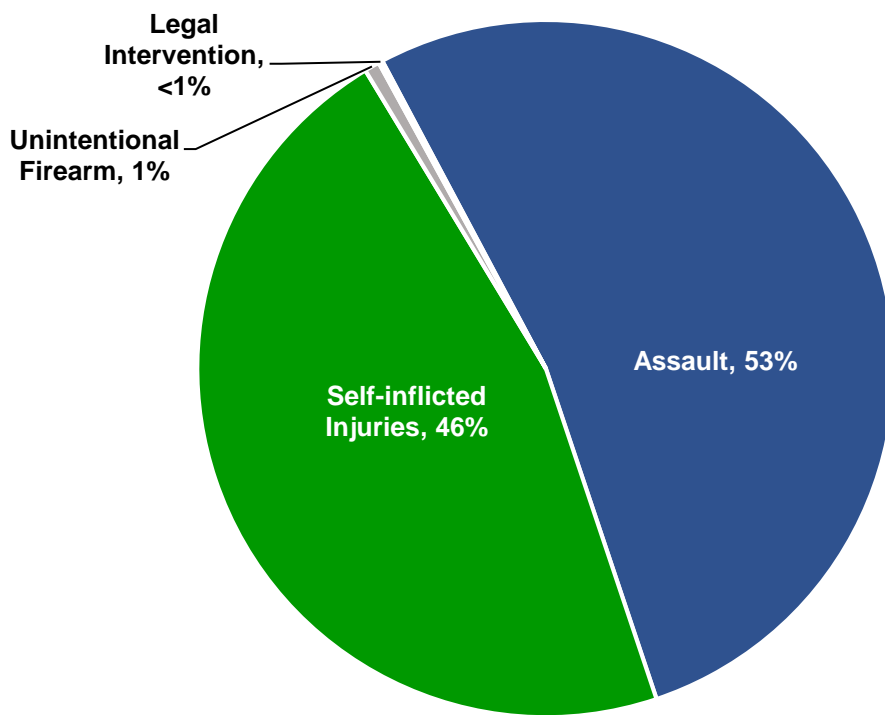
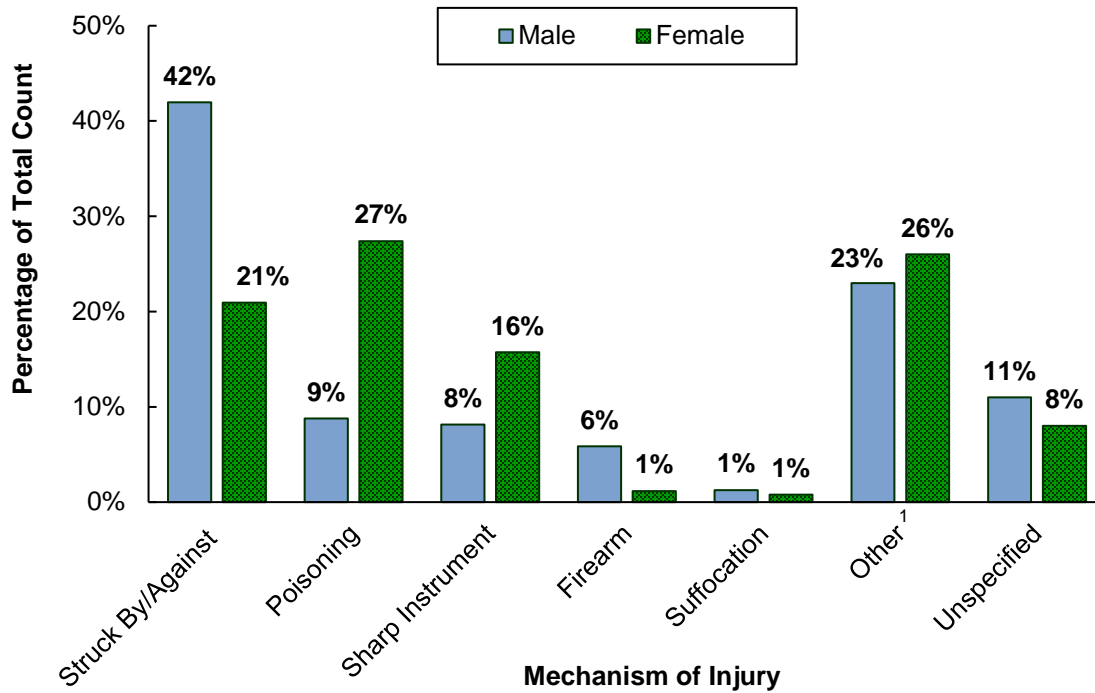


Table 45. Mechanism of Violence-Related NC ED Visits Among Children, Stratified by Sex, 2012-2015

	Male		Female		Total	
	Number	Percent	Number	Percent	Number	Percent
<b>Mechanism of Injury</b>						
Struck By/Against Object or Person	4,398	42.0%	2,383	20.9%	6,782	31.0%
Poisoning	920	8.8%	3,121	27.4%	4,042	18.5%
Sharp Instrument	852	8.1%	1,791	15.7%	2,643	12.1%
Firearm	615	5.9%	131	1.2%	748	3.4%
Suffocation	133	1.3%	91	0.8%	224	1.0%
Fire/Burn	41	0.4%	24	0.2%	65	0.3%
Fall	22	0.2%	22	0.2%	44	0.2%
Motor Vehicle Collision	11	0.1%	8	0.1%	19	0.1%
Drowning	2	0.0%	3	0.0%	5	0.0%
Terrorism	0	0.0%	0	0.0%	0	0.0%
Late Effects of Injury	43	0.4%	26	0.2%	69	0.3%
Other Specified Mechanism <sup>1</sup>	2,292	21.9%	2,878	25.3%	5,170	23.6%
Unspecified Mechanism	1,153	11.0%	912	8.0%	2,065	9.4%
<b>Total ED Visits</b>	<b>10,482</b>	<b>100.0%</b>	<b>11,390</b>	<b>100.0%</b>	<b>21,876</b>	<b>100.0%</b>

<sup>1</sup>"Other Specified Mechanism" includes all other specified, classifiable (e.g. "electrocution", "explosives", "jumping or lying before moving object", etc.) as well as "other specified, not elsewhere classifiable" mechanisms of injury.

**Figure 29. Mechanism of Violence-Related NC ED Visits Among Children, Stratified by Sex, 2012-2015**



<sup>1</sup>"Other" includes the following mechanism: motor vehicle collision, fire/burns, fall, drowning, late effects, and all other specified, classifiable as well as specified, unclassifiable mechanisms of injury.

**Table 46. Type of Firearm Involved in Violence-Related NC ED Visits Among Children, 2012-2015**

	<b>Number</b>	<b>Percent</b>
<b>Firearm Type</b>		
Handgun	102	13.6%
Shotgun	49	6.6%
Rifle	25	3.3%
Military Style Firearms	7	0.9%
Other/Unspecified Firearm	565	75.5%
<b>Total ED Visits with Firearm Involvement</b>	<b>748</b>	<b>100.0%</b>



<b>Table 47. Selected Characteristics of Violence-Related NC ED Visits Among Children, 2012-2015</b>		
	<b>Number</b>	<b>Percent</b>
<b>Mode of Transport</b>		
Walk-in	14,201	76.1%
<i>Walk-in Following Transport Via Private Transportation</i>	9,314	49.9%
<i>Walk-in Following Transport Via Law Enforcement Transport</i>	481	2.6%
<i>Walk-in Following Transport Via Public Transportation</i>	42	0.2%
<i>Walk-in, Not Otherwise Specified</i>	4,364	23.4%
Ambulance	3,906	20.9%
<i>Ground Ambulance</i>	3,239	17.4%
<i>Air Ambulance<sup>1</sup></i>	32	0.2%
<i>Ambulance, Not Otherwise Specified</i>	635	3.4%
Other Mode of Transport	557	3.0%
<b>Total</b>	<b>18,664</b>	<b>100.0%</b>
Missing	3,212	
<b>Disposition</b>		
Discharged Home	16,284	78.3%
Admitted	1,815	8.7%
<i>ICU</i>	104	0.5%
<i>Psych</i>	694	3.3%
<i>Other</i>	1,017	4.9%
Transferred	2,251	10.8%
Left AMA	115	0.6%
Left without Advice	91	0.4%
Died	37	0.2%
Other Disposition <sup>2</sup>	216	1.0%
<b>Total</b>	<b>20,809</b>	<b>100.0%</b>
Missing	1,067	
<b>Expected Source of Payment</b>		
Self-pay	1,734	8.2%
Medicaid	12,803	60.8%
Insurance Company	4,172	19.8%
Medicare	73	0.3%
Workers' Compensation	78	0.4%
Other Government Payments	578	2.7%
No Charge	13	0.1%
Other Type of Payment, Not Otherwise Specified	1,602	7.6%
<b>Total</b>	<b>21,053</b>	<b>100.0%</b>
Missing	823	

<b>Occupational Injury<sup>3</sup></b>		
Yes	64	0.3%
No	21,812	99.7%
<b>Total</b>	<b>21,876</b>	<b>100.0%</b>
<b>Total ED Visits</b>	<b>21,876</b>	<b>100.0%</b>

Abbreviations: ICU, intensive care unit; AMA, against medical advice

<sup>1</sup>Contains "Fixed Wing Air Ambulance" and "Helicopter Ambulance".

<sup>2</sup>Contains "Observation Unit" and "Other Specified Disposition".

<sup>3</sup>An "Occupational Injury" was defined as an injury-related ED visit containing one of the following codes: E000.0, E000.1, E800-E807 (.0), E830-E838 (.2 or .6), E840-E845 (.0 or .8) and/or an expected source of payment of "Workers' Compensation".

Table 48. Violence-Related NC ED Visits Among Children, Stratified by Patient County of Residence, 2012-2015

	Number	Rate <sup>1</sup>		Number	Rate <sup>1</sup>
County <sup>2,3</sup>			County <sup>2,3</sup>		
Alamance	348	260.3	Johnston	324	180.6
Alexander	65	219.5	<b>Jones</b>	<b>34</b>	<b>462.3</b>
Alleghany	18	238.3	Lee	102	178.6
Anson	51	254.3	<b>Lenoir</b>	<b>262</b>	<b>517.9</b>
Ashe	31	164.0	Lincoln	135	203.3
Avery	37	347.0	Macon	77	319.1
<b>Beaufort</b>	<b>152</b>	<b>402.3</b>	Madison	16	106.7
<b>Bertie</b>	<b>91</b>	<b>629.1</b>	Martin	31	168.1
Bladen	58	204.0	McDowell	97	274.6
Brunswick	227	297.1	Mecklenburg	2,013	217.7
Buncombe	354	193.9	Mitchell	14	130.9
Burke	142	208.9	Montgomery	83	344.8
Cabarrus	284	151.2	Moore	167	227.5
Caldwell	152	233.0	Nash	110	135.7
Camden	12	131.6	New Hanover	*	*
Carteret	122	256.9	<b>Northampton</b>	<b>66</b>	<b>441.2</b>
Caswell	39	235.4	Onslow	403	227.1
Catawba	347	260.0	Orange	148	138.5
Chatham	47	90.6	Pamlico	26	322.6
Cherokee	26	141.1	Pasquotank	91	275.9
<b>Chowan</b>	<b>68</b>	<b>587.0</b>	Pender	97	209.2
Clay	*	*	Perquimans	36	352.8
Cleveland	252	309.3	<b>Person</b>	<b>126</b>	<b>389.0</b>
Columbus	160	334.2	<b>Pitt</b>	<b>561</b>	<b>388.5</b>
<b>Craven</b>	<b>344</b>	<b>387.7</b>	Polk	21	156.6
Cumberland	796	251.9	Randolph	325	257.0
Currituck	16	77.4	<b>Richmond</b>	<b>189</b>	<b>463.0</b>
Dare	67	259.1	<b>Robeson</b>	<b>621</b>	<b>471.5</b>
Davidson	405	288.9	Rockingham	223	305.9
Davie	68	198.5	Rowan	351	296.8
Duplin	144	259.8	Rutherford	129	240.5
Durham	561	233.4	Sampson	144	241.9
<b>Edgecombe</b>	<b>185</b>	<b>381.6</b>	<b>Scotland</b>	<b>152</b>	<b>479.4</b>
Forsyth	841	259.6	Stanly	121	243.7
Franklin	102	187.4	Stokes	78	219.2
Gaston	490	267.3	Surry	191	312.4
Gates	*	*	Swain	44	364.9
Graham	*	*	Transylvania	66	320.1

**Table 48. Violence-Related NC ED Visits Among Children, Stratified by Patient County of Residence, 2012-2015**

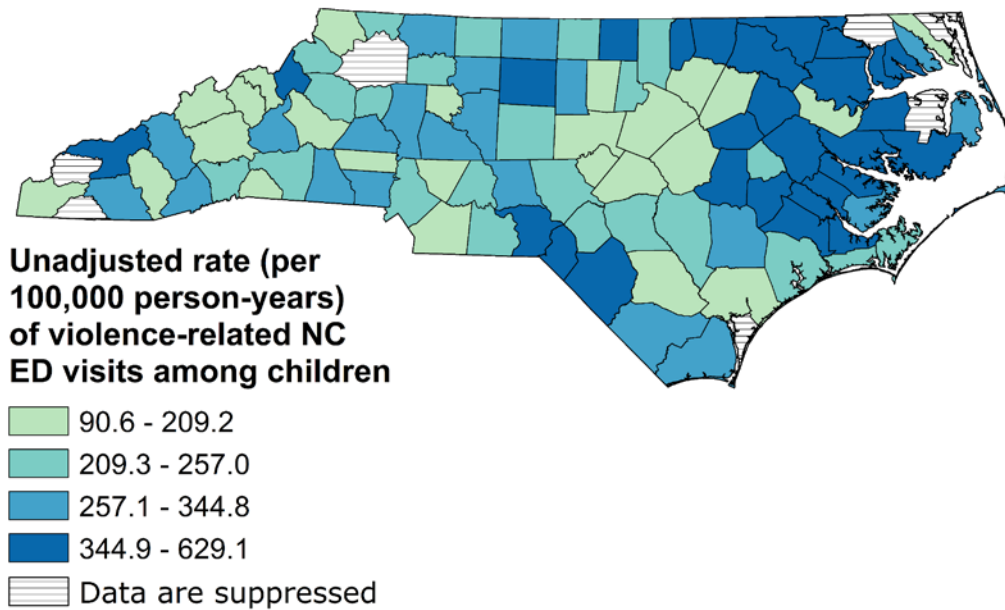
	Number	Rate <sup>1</sup>		Number	Rate <sup>1</sup>
County <sup>2,3</sup>			County <sup>2,3</sup>		
Granville	114	243.3	Tyrrell	*	*
Greene	41	236.6	Union	366	157.9
<b>Guilford</b>	<b>1,651</b>	<b>378.9</b>	<b>Vance</b>	<b>198</b>	<b>486.7</b>
<b>Halifax</b>	<b>180</b>	<b>411.2</b>	Wake	1,753	189.0
Harnett	251	195.6	Warren	54	369.5
Haywood	119	287.9	<b>Washington</b>	<b>39</b>	<b>382.6</b>
Henderson	182	221.8	Watauga	58	220.9
<b>Hertford</b>	<b>74</b>	<b>406.6</b>	<b>Wayne</b>	<b>419</b>	<b>370.9</b>
Hoke	125	223.8	Wilkes	*	*
<b>Hyde</b>	<b>14</b>	<b>372.2</b>	Wilson	259	356.3
Iredell	421	281.0	Yadkin	74	235.8
Jackson	49	184.2	Yancey	21	165.1
<b>Total</b>	<b>21,453</b>	<b>250.4</b>			
Out-of-State Residents	405	--			
Missing	18	--			
<b>Total ED visits</b>	<b>21,876</b>	<b>255.3</b>			

<sup>1</sup>Unadjusted rates are reported per 100,000 person-years.

<sup>2</sup>For counties with  $\geq 50\%$  missing External Cause of Mechanism Codes and/or counties with 1-9 ED visits, data are suppressed. These counties are marked with an "\*\*".

<sup>3</sup>Top 20 counties with the highest unadjusted rate of unintentional violence-related ED visits are shown in **bold**.

**Figure 23. Map of Unadjusted Rates of Violence-Related NC ED Visits Among Children by Patient county of Residence, 2012-2015**



### ***Violent Injuries Among Children Treated in NC Emergency Departments by Month, Day of Week, and Time of Day***

**Table 49** and **Figure 31** describe the frequency of violence-related NC ED visits by month, day of week, and time of day among children.

#### **Key Findings:**

- Over the three-year period for which data are complete (2012-2014), the spring months of March - May had the highest frequency of violence-related NC ED visits among children (28.3%).
- Among children, Monday had the highest proportion of violence-related NC ED visits (15.6%) by day of week.
- Among children, violence-related NC ED visits occurred most frequently during the evening hours of 6 PM – 11 PM (41.7%).

### ***Sex and Age of Children Treated in NC Emergency Departments for Violent Injuries***

**Table 50** and **Figure 32** describe violence-related NC ED visits among children, stratified by sex and age group.

#### **Key Findings:**

- Rates of violence-related NC ED visits peaked for both male and female children at age 17, with 876.1 per 100,000 person-years and 855.5 ED visits per 100,000 person-years, respectively.

### ***Violent Injuries Among Children Treated in NC Emergency Departments by Place of Occurrence***

**Table 51** describes violence-related NC ED visits among children, stratified by the place of occurrence.

#### **Key Findings:**

- Of the 6,911 violence-related NC ED visits among children with a valid place of occurrence code, the most commonly cited place of occurrence was the “home” (34.8%) followed by “unspecified place” (23.2%) and “public building” (21.8%).

<b>Table 49. Violence-Related NC ED Visits Among Children by Month, Day of Week, and Time of Day, 2012-2015</b>		
	<b>Number</b>	<b>Percent</b>
<b>Month<sup>1</sup></b>		
December - February	4,267	23.7%
March - May	5,103	28.3%
June - August	3,815	21.1%
September - November	4,854	26.9%
<b>Total 2012-2014 ED Visits</b>	<b>18,039</b>	<b>100.0%</b>
<b>Day of Week</b>		
Monday	3,417	15.6%
Tuesday	3,354	15.3%
Wednesday	3,303	15.1%
Thursday	3,299	15.1%
Friday	3,124	14.3%
Saturday	2,475	11.3%
Sunday	2,904	13.3%
<b>Total</b>	<b>21,876</b>	<b>100.0%</b>
<b>Time of Day</b>		
12-5 AM	2,558	11.7%
6-11 AM	3,048	13.9%
12-5 PM	7,152	32.7%
6-11 PM	9,118	41.7%
<b>Total</b>	<b>21,876</b>	<b>100.0%</b>
<b>Total ED Visits</b>	<b>21,876</b>	<b>100.0%</b>

<sup>1</sup>Since 2015 ED visit data do not include the months October - November, 2015 ED visit data are not included in Month of visit analyses.

**Figure 31. Heat Map of Violence-Related ED Visits Among Children, Stratified by Weekday and Time of Visit, 2012-2015**

		Hour of Day				
		12-5 AM	6-11 AM	12-5 PM	6-11 PM	Total
Day of Week	Monday	1.5%	2.1%	5.4%	6.7%	15.6%
	Tuesday	1.5%	2.4%	5.0%	6.4%	15.3%
	Wednesday	1.4%	2.2%	5.0%	6.5%	15.1%
	Thursday	1.5%	2.4%	5.4%	5.8%	15.1%
	Friday	1.5%	2.2%	4.9%	5.7%	14.3%
	Saturday	2.0%	1.4%	3.2%	4.7%	11.3%
	Sunday	2.4%	1.2%	3.9%	5.8%	13.3%
	Total	11.7%	13.9%	32.7%	41.7%	100.0%

**Table 50. Violence-Related NC ED Visits Among Children, Stratified by Sex and Age Group, 2012-2015**

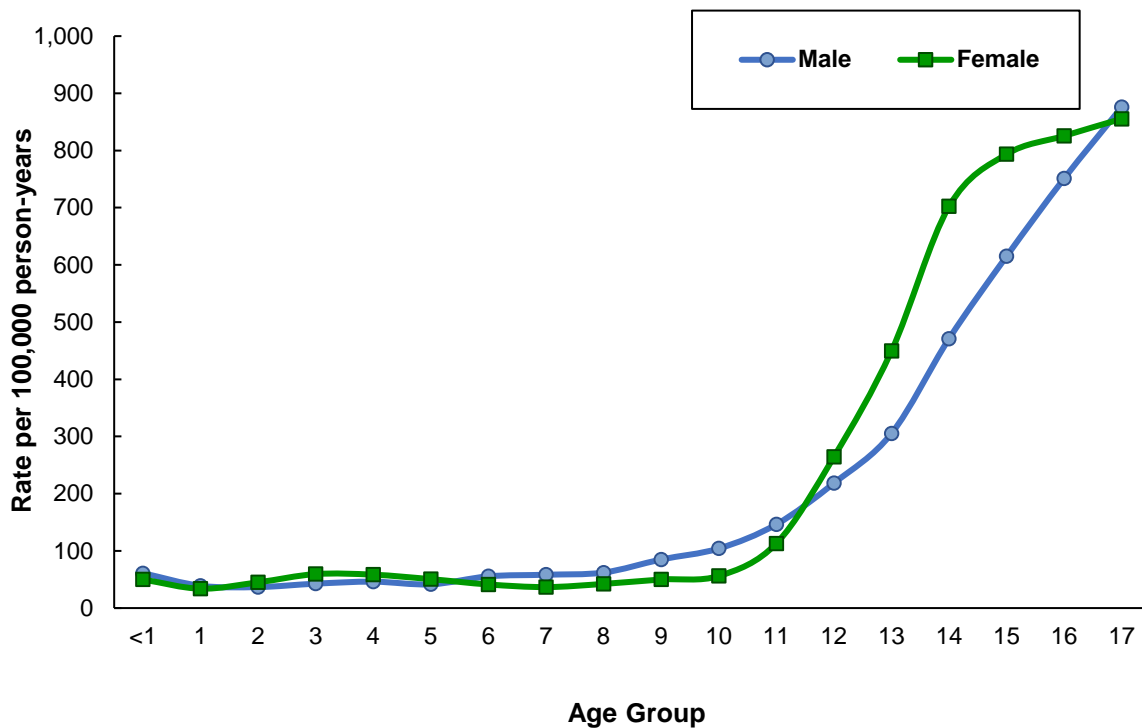
	Male			Female		
	Number	Percent	Rate <sup>1</sup>	Number	Percent	Rate <sup>1</sup>
Age (Years)						
<1	149	1.4%	61.0	117	1.0%	49.9
1	96	0.9%	39.0	80	0.7%	33.9
2	91	0.9%	36.7	107	0.9%	45.0
3	107	1.0%	42.7	143	1.3%	59.4
4	118	1.1%	46.2	143	1.3%	58.4
5	108	1.0%	41.5	126	1.1%	50.6
6	146	1.4%	55.5	104	0.9%	41.3
7	154	1.5%	58.3	93	0.8%	36.7
8	164	1.6%	62.1	107	0.9%	42.2
9	223	2.1%	85.0	126	1.1%	50.0
10	273	2.6%	104.1	141	1.2%	56.0
11	387	3.7%	146.3	286	2.5%	112.9
12	581	5.5%	218.3	676	5.9%	264.4
13	814	7.8%	305.3	1,155	10.1%	449.5
14	1,256	12.0%	471.1	1,803	15.8%	702.4
15	1,615	15.4%	615.3	2,011	17.7%	793.6
16	1,942	18.5%	751.3	2,054	18.0%	825.6
17	2,258	21.5%	876.1	2,118	18.6%	855.5
Total ED Visits	10,482	100.0%	239.8	11,390	100.0%	271.4

Missing: 4 ED visits missing sex and/or age group.

<sup>1</sup>Unadjusted rates are reported per 100,000 person-years.



**Figure 32. Unadjusted Rates of Violence-Related NC ED Visits Among Children, Stratified by Sex and Age Group, 2012-2015**



<b>Table 51. Place of Occurrence of Violence-Related NC ED Visits Among Children, 2012-2015</b>		
	<b>Number</b>	<b>Percent</b>
<b>Place of Occurrence</b>		
Home	2,403	34.8%
Unspecified place	1,601	23.2%
Public building	1,509	21.8%
Other specified place	672	9.7%
Street and highway	336	4.9%
Residential institution	195	2.8%
Place for recreation and sport	169	2.4%
Industrial place and premises	26	0.4%
<b>Total ED Visits with A Place of Occurrence Code</b>	<b>6,911</b>	<b>100.0%</b>

Missing: 14,965 ED visits missing place of occurrence.

## Section VIII: Injuries of an Undetermined Intent

### *Basic Characteristics of Injuries of an Undetermined Intent Treated in North Carolina Emergency Departments*

The following tables and figures describe NC ED visits not included in the total of “violence-related NC ED visits”. However, as these ED visits reflect circumstances in which the intent was unspecified or could not be determined as to whether the injuries were due to an unintentional, self-inflicted, or assaultive injury mechanism, these ED visits may include violent injuries. **Table 52** describes patient demographics of injuries of undetermined intent treated in North Carolina emergency departments for the period January 1, 2012 – September 30, 2015. **Figure 33** displays the unadjusted incidence rate of NC ED visits for injuries of an undetermined intent per 100,000 person-years, stratified by age group.

#### Key Findings:

- There were 20,867 NC ED visits for injuries of an undetermined intent during the period January 1, 2012 – September 30, 2015 (56.3 per 100,000 person-years).
- Among the 20,867 NC ED visits for injuries of an undetermined intent, there were 20,181 individually identified patients. Among these 20,181 patients, 19,617 (97.2%) made one visit to the same healthcare system and 564 patients (2.8%) made two or more visits to the same healthcare system. The maximum number of ED visits made by a single patient during the period January 1, 2012 – September 30, 2015 was ten ED visits (data are not displayed).
- Males were more likely to visit a NC ED for treatment for injuries of an undetermined intent than females (61.8 versus 51.0 ED visits per 100,000 person-years, respectively).
- Young adults (visits per 100,000 person-years in parentheses) 20-24 years of age had the highest rate of NC ED visits for injuries of an undetermined intent (89.0), followed by individuals aged 25-34 (84.8), 15-19 (74.11), 35-44 (66.1) and 145-54 years of age (62.3).

**Table 53 and Figure 34** display the injury mechanism for NC ED visits of an undetermined intent. **Table 54** shows the type of firearm involved in NC ED visits of an undetermined intent.

#### Key Findings:

- “Poisoning” (70.1%) was the most common specific injury mechanism for NC ED visits of an undetermined intent.
- Among NC ED visits of an undetermined intent, the most common firearm involved was “other/unspecified” (82.7%).

**Table 55** describes NC ED visits of an undetermined intent by mode of transport to the ED, discharge disposition, expected source of payment, and whether or not the ED visit was occupation-related.

**Key Findings:**

- Among NC ED visits of an undetermined intent, the most common mode of transport was ground ambulance (36.2%).
- Most NC ED visits of an undetermined intent were discharged home from the ED (64.3%).
- Among NC ED visits of an undetermined intent, the most common expected source of payment was self-pay (25.4%).
- Two percent of NC ED visits of an undetermined intent were identified as due to occupational injuries.

**Table 56** and **Figure 35** show the unadjusted rates of NC ED visits of an undetermined intent by patient county of residence.

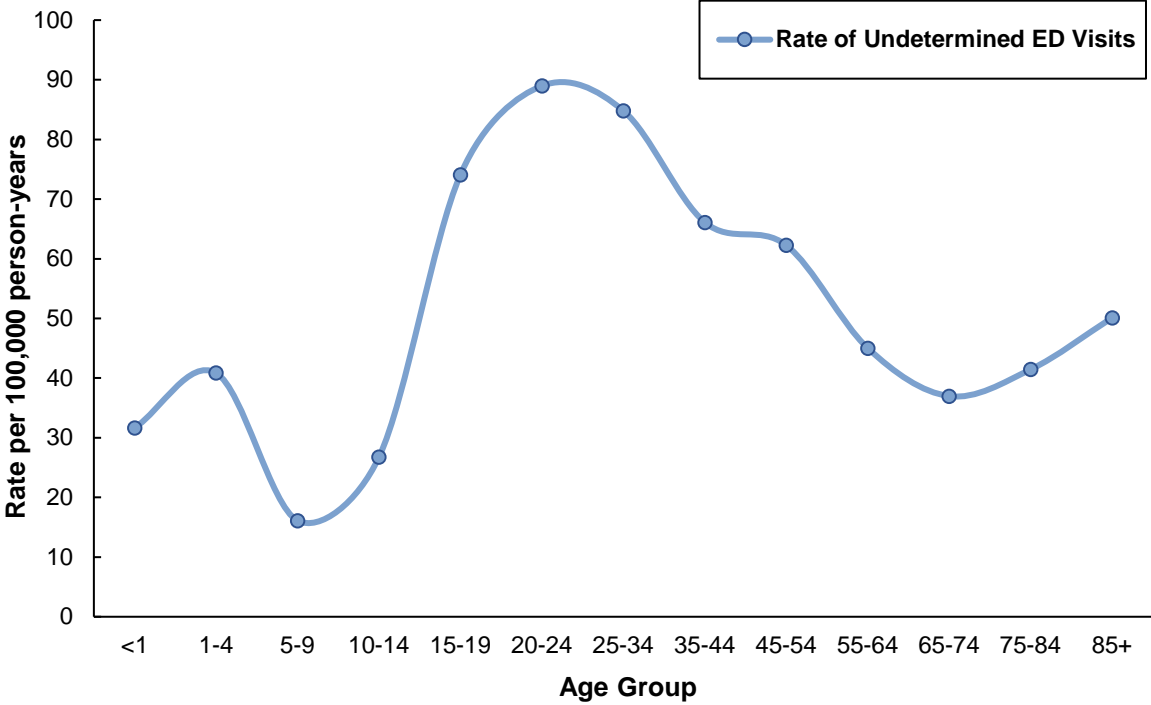
**Key Findings:**

- The majority of NC ED visits of an undetermined intent were made by NC residents (95.8%).
- The five NC counties with the highest incidence rates of NC ED visits of an undetermined intent (rates per 100,000 person-years are in parentheses) were Avery (132.3), Rockingham (121.3), Robeson (103.0), Surry (100.0), and Stokes counties (99.7).

<b>Table 52. Demographics of NC ED Visits of an Undetermined Intent, 2012-2015</b>			
	<b>Number</b>	<b>Percent</b>	<b>Rate<sup>1</sup></b>
<b>Sex</b>			
Female	9,695	46.5%	51.0
Male	11,154	53.5%	61.8
<b>Total</b>	<b>20,849</b>	<b>100.0%</b>	<b>56.2</b>
Missing	18	--	
<b>Age Group (Years)</b>			
<1	142	0.7%	31.6
1-4	751	3.6%	40.9
5-9	389	1.9%	16.1
10-14	652	3.1%	26.7
15-19	1,816	8.7%	74.1
20-24	2,371	11.4%	89.0
25-34	4,082	19.6%	84.8
35-44	3,237	15.5%	66.1
45-54	3,196	15.3%	62.3
55-64	2,077	10.0%	45.0
65-74	1,167	5.6%	37.0
75-84	652	3.1%	41.5
85+	314	1.5%	50.1
<b>Total</b>	<b>20,846</b>	<b>100.0%</b>	<b>56.2</b>
Missing	21		
<b>Total ED Visits</b>	<b>20,867</b>	<b>100.0%</b>	<b>56.3</b>

<sup>1</sup>Unadjusted rates are reported per 100,000 person-years.

Figure 26. Unadjusted Rates of NC ED Visits of an Undetermined Intent, 2012-2015

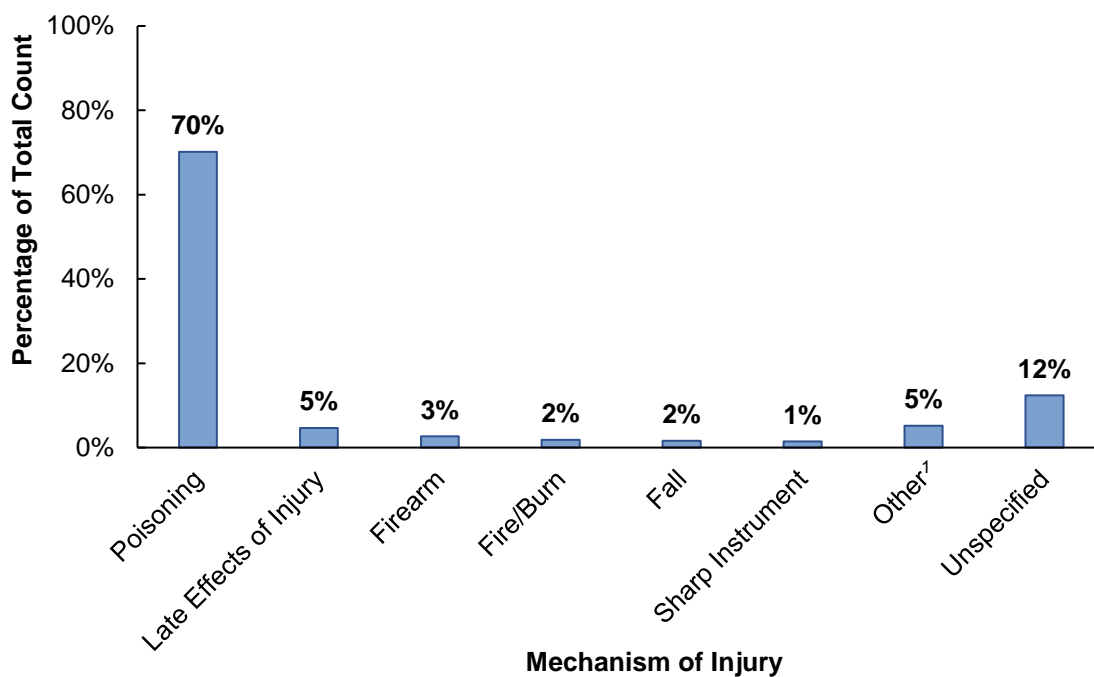


**Table 53. Mechanism of NC ED Visits of an Undetermined Intent, 2012-2015**

	<b>Number</b>	<b>Percent</b>
<b>Method of Injury</b>		
Poisoning	14,638	70.1%
Late Effects of Injury	970	4.6%
Firearm	555	2.7%
Fire/Burn	384	1.8%
Fall	334	1.6%
Sharp Instrument	309	1.5%
Suffocation	77	0.4%
Motor Vehicle Collision	77	0.4%
Drowning	25	0.1%
Struck By/Against Object or Person	5	0.0%
Other Specified Mechanism <sup>1</sup>	902	4.3%
Unspecified Mechanism	2,591	12.4%
<b>Total ED Visits</b>	<b>20,867</b>	<b>100.0%</b>

<sup>1</sup>"Other Specified Mechanism" includes all other specified, classifiable (e.g. "Other transport incident") as well as unspecified, unclassifiable mechanisms of injury.

Figure 34. Mechanism of NC ED Visits of an Undetermined Intent, 2012-2015



<sup>1</sup>"Other" includes the following mechanisms: suffocation, motor vehicle collision, fire/burns, fall, drowning, and all other specified, classifiable (e.g. "other transport") as well as specified, unclassifiable mechanisms of injury.

Table 54. Type of Firearm Involved in NC ED Visits of an Undetermined Intent, 2012-2015

	Number	Percent
<b>Firearm Type</b>		
Handgun	65	11.7%
Shotgun	23	4.1%
Rifle	8	1.4%
Military Style Firearms	0	0.0%
Other/Unspecified Firearm	459	82.7%
<b>Total ED Visits with Firearm Involvement</b>	<b>555</b>	<b>100.0%</b>



Table 55. Selected Characteristics of NC ED Visits of an Undetermined Intent, 2012-2015		
	Number	Percent
<b>Mode of Transport</b>		
Walk-in	8,340	49.3%
<i>Walk-in Following Transport Via Private Transportation</i>	4,882	28.9%
<i>Walk-in Following Transport Via Law Enforcement Transport</i>	263	1.6%
<i>Walk-in Following Transport Via Public Transportation</i>	38	0.2%
<i>Walk-in, Not Otherwise Specified</i>	3,157	18.7%
Ambulance	7,697	45.5%
<i>Ground Ambulance</i>	6,129	36.2%
<i>Air Ambulance<sup>1</sup></i>	93	0.5%
<i>Ambulance, Not Otherwise Specified</i>	1,475	8.7%
Other Mode of Transport	876	5.2%
<b>Total</b>	<b>16,913</b>	<b>100.0%</b>
Missing	3,954	
<b>Disposition</b>		
Discharged Home	12,828	64.3%
Admitted	4,408	22.1%
<i>ICU</i>	249	1.2%
<i>Psych</i>	297	1.5%
<i>Other</i>	3,862	19.4%
Transferred	1,608	8.1%
Left AMA	419	2.1%
Left without Advice	232	1.2%
Died	197	1.0%
Other Disposition <sup>2</sup>	261	1.3%
<b>Total</b>	<b>19,953</b>	<b>100.0%</b>
Missing	914	
<b>Expected Source of Payment</b>		
Self-pay	4,926	25.4%
Medicaid	4,585	23.6%
Insurance Company	3,559	18.3%
Medicare	3,132	16.1%
Other Government Payments	383	2.0%
Workers' Compensation	311	1.6%
No Charge	26	0.1%
Other Type of Payment, Not Otherwise Specified	2,484	12.8%
<b>Total</b>	<b>19,406</b>	<b>100.0%</b>
Missing	1,461	

<b>Occupational Injury<sup>3</sup></b>		
Yes	420	2.0%
No	20,447	98.0%
<b>Total</b>	<b>20,867</b>	<b>100.0%</b>
<b>Total ED Visits</b>	<b>20,867</b>	<b>100.0%</b>

Abbreviations: ICU, intensive care unit; AMA, against medical advice

<sup>1</sup>Contains "Fixed Wing Air Ambulance" and "Helicopter Ambulance".

<sup>2</sup>Contains "Observation Unit" and "Other Specified Disposition."

<sup>3</sup>An "Occupational Injury" was defined as an injury-related ED visit containing one of the following codes: E000.0, E000.1, E800-E807 (.0), E830-E838 (.2 or .6), E840-E845 (.0 or .8) and/or an expected source of payment of "Workers' Compensation".

Table 56. NC ED Visits of an Undetermined Intent, Stratified by Patient County of Residence, 2012-2015

	Number	Rate <sup>1</sup>		Number	Rate <sup>1</sup>
County <sup>2,3</sup>			County <sup>2,3</sup>		
Alamance	267	45.7	Johnston	338	50.2
Alexander	64	45.9	Jones	16	42.0
<b>Alleghany</b>	<b>31</b>	<b>75.9</b>	Lee	59	26.4
<b>Anson</b>	<b>91</b>	<b>93.1</b>	Lenoir	107	48.6
Ashe	37	36.4	Lincoln	189	63.2
<b>Avery</b>	<b>91</b>	<b>137.3</b>	<b>Macon</b>	<b>91</b>	<b>71.5</b>
Beaufort	85	47.7	Madison	11	13.9
<b>Bertie</b>	<b>61</b>	<b>79.7</b>	Martin	54	61.0
Bladen	80	61.5	McDowell	54	32.0
Brunswick	208	47.4	Mecklenburg	1,430	38.2
Buncombe	278	29.8	Mitchell	35	60.9
Burke	209	62.4	Montgomery	37	35.8
Cabarrus	314	44.1	Moore	87	25.2
Caldwell	150	49.0	Nash	54	15.2
Camden	*	*	New Hanover	448	55.7
Carteret	78	30.4	Northampton	38	48.7
Caswell	33	38.1	Onslow	448	64.5
Catawba	383	66.0	Orange	167	31.9
Chatham	69	27.1	Pamlico	24	49.6
Cherokee	31	30.5	Pasquotank	34	22.7
Chowan	24	43.7	Pender	104	50.0
Clay	*	*	Perquimans	12	23.7
<b>Cleveland</b>	<b>299</b>	<b>82.1</b>	Person	84	57.2
Columbus	137	64.0	Pitt	278	42.5
Craven	189	48.3	Polk	15	19.7
Cumberland	703	57.7	<b>Randolph</b>	<b>413</b>	<b>77.3</b>
Currituck	21	22.8	<b>Richmond</b>	<b>162</b>	<b>94.0</b>
Dare	80	61.0	<b>Robeson</b>	<b>521</b>	<b>103.0</b>
<b>Davidson</b>	<b>533</b>	<b>86.7</b>	<b>Rockingham</b>	<b>419</b>	<b>121.3</b>
Davie	111	71.4	Rowan	293	56.5
<b>Duplin</b>	<b>190</b>	<b>85.2</b>	Rutherford	96	38.3
Durham	747	68.4	<b>Sampson</b>	<b>177</b>	<b>73.8</b>
Edgecombe	99	47.9	Scotland	94	69.9
<b>Forsyth</b>	<b>1,034</b>	<b>75.9</b>	Stanly	95	41.8
Franklin	90	38.4	<b>Stokes</b>	<b>174</b>	<b>99.7</b>
Gaston	359	45.5	<b>Surry</b>	<b>274</b>	<b>100.0</b>
Gates	14	32.0	<b>Swain</b>	<b>51</b>	<b>95.8</b>
Graham	17	52.2	<b>Transylvania</b>	<b>100</b>	<b>80.9</b>
Granville	107	49.0	Tyrrell	5	32.5

**Table 56. NC ED Visits of an Undetermined Intent, Stratified by Patient County of Residence, 2012-2015**

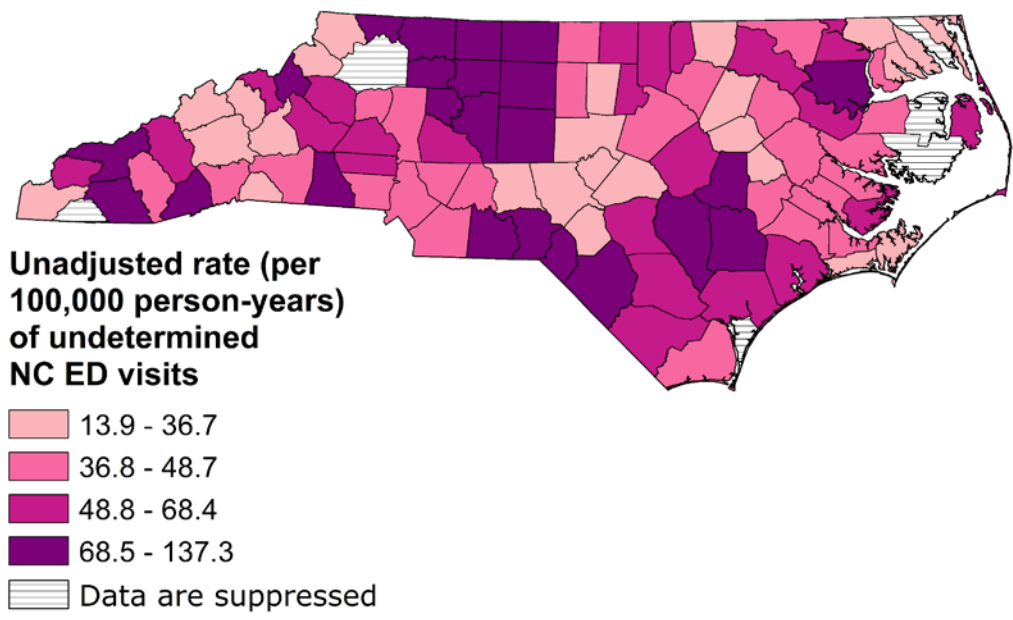
	Number	Rate <sup>1</sup>		Number	Rate <sup>1</sup>
County <sup>2,3</sup>			County <sup>2,3</sup>		
Greene	28	35.1	Union	320	39.7
<b>Guilford</b>	<b>1,859</b>	<b>97.4</b>	Vance	96	57.2
Halifax	123	61.6	Wake	1,522	41.2
Harnett	149	31.7	Warren	24	31.4
Haywood	138	62.1	Washington	18	38.1
Henderson	157	38.0	Watauga	72	36.7
Hertford	61	66.8	Wayne	326	69.9
Hoke	45	23.3	Wilkes	64	24.8
Hyde	*	*	Wilson	93	30.4
Iredell	236	38.0	<b>Yadkin</b>	<b>107</b>	<b>75.3</b>
Jackson	57	37.1	Yancey	22	33.4
<b>Total</b>	<b>19,935</b>				
Out-of-State Residents	879	--			
Missing	53	--			
<b>Total ED visits</b>	<b>20,867</b>	<b>56.3</b>			

<sup>1</sup>Unadjusted rates are reported per 100,000 person-years.

<sup>2</sup>For counties with >50% missing External Cause of Mechanism Codes and/or counties with 1-9 ED visits, data are suppressed. These counties are marked with an "\*".

<sup>3</sup>Top 20 counties with the highest unadjusted rate of undetermined ED visits are shown in bold.

**Figure 35. Map of Unadjusted Rates of NC ED Visits of an Undetermined Intent by Patient County of Residence, 2012-2015**



### ***Injuries of an Undetermined Intent Treated in NC Emergency Departments by Month, Day of Week, and Time of Day***

**Table 57** and **Figure 36** describe the frequency of NC ED visits of an undetermined intent by month, day of week, and time of day.

#### **Key Findings:**

- Over the three-year period for which data are complete (2012-2014), the autumn months of September - November had the highest frequency of NC ED visits of an undetermined intent (28.8%).
- Saturday and Sunday had the highest frequency of NC ED visits of an undetermined intent, by day of week.
- NC ED visits of an undetermined intent occurred most frequently during the evening hours of 6 PM – 11 PM (33.1%).

### ***Sex and Age of Patients Treated in NC Emergency Departments for Injuries of an Undetermined Intent***

**Table 58** and **Figure 37** describe NC ED visits of an undetermined intent, stratified by sex and age group.

#### **Key Findings:**

- Rates of NC ED visits of an undetermined intent peaked for both male and females at age 20-24 years of age, with 103.1 per 100,000 person-years and 73.7 ED visits per 100,000 person-years, respectively.

### ***Injuries of an Undetermined Intent Treated in NC Emergency Departments by Place of Occurrence***

**Table 59** describes NC ED visits of an undetermined intent, stratified by the place of occurrence.

#### **Key Findings:**

- Among the 4,761 NC ED visits of an undetermined intent with a valid place of occurrence code, the most commonly cited place of occurrence was “unspecified place” (39.0%) followed by the “home” (38.1%).

Table 57. NC ED Visits of an Undetermined Intent by Month, Day of Week, and Time of Day, 2012-2015		
	Number	Percent
<b>Month<sup>1</sup></b>		
December - February	3,669	22.6%
March - May	3,516	21.7%
June - August	4,372	27.0%
September - November	4,664	28.8%
<b>Total 2012-2014 ED Visits</b>	<b>16,221</b>	<b>100.0%</b>
<b>Day of Week</b>		
Monday	2,879	13.8%
Tuesday	2,945	14.1%
Wednesday	2,972	14.2%
Thursday	2,867	13.7%
Friday	2,946	14.1%
Saturday	3,127	15.0%
Sunday	3,131	15.0%
<b>Total</b>	<b>20,867</b>	<b>100.0%</b>
<b>Time of Day</b>		
12-5 AM	3,410	16.3%
6-11 AM	4,153	19.9%
12-5 PM	6,397	30.7%
6-11 PM	6,907	33.1%
<b>Total</b>	<b>20,867</b>	<b>100.0%</b>
<b>Total ED Visits</b>	<b>20,867</b>	<b>100.0%</b>

<sup>1</sup>Since 2015 ED visit data do not include the months October - November, 2015 ED visit data are not included in month of visit analyses.

**Figure 36. Heat Map of NC ED Visits of an Undetermined Intent, Stratified by Day of Week and Time of Day, 2012-2015**

		Hour of Day				
		12-5 AM	6-11 AM	12-5 PM	6-11 PM	Total
Day of Week	Monday	2.0%	3.0%	4.3%	4.7%	14.0%
	Tuesday	2.2%	2.8%	4.4%	4.5%	13.9%
	Wednesday	2.0%	2.8%	4.5%	4.8%	14.0%
	Thursday	2.0%	2.9%	4.2%	5.0%	14.0%
	Friday	2.2%	3.0%	4.4%	4.7%	14.3%
	Saturday	3.0%	2.6%	4.4%	4.5%	14.6%
	Sunday	3.0%	2.9%	4.4%	4.9%	15.2%
	Total	16.3%	19.9%	30.7%	33.1%	100.0%

**Table 58. NC ED Visits of an Undetermined Intent, Stratified by Sex and Age Group, 2012-2015**

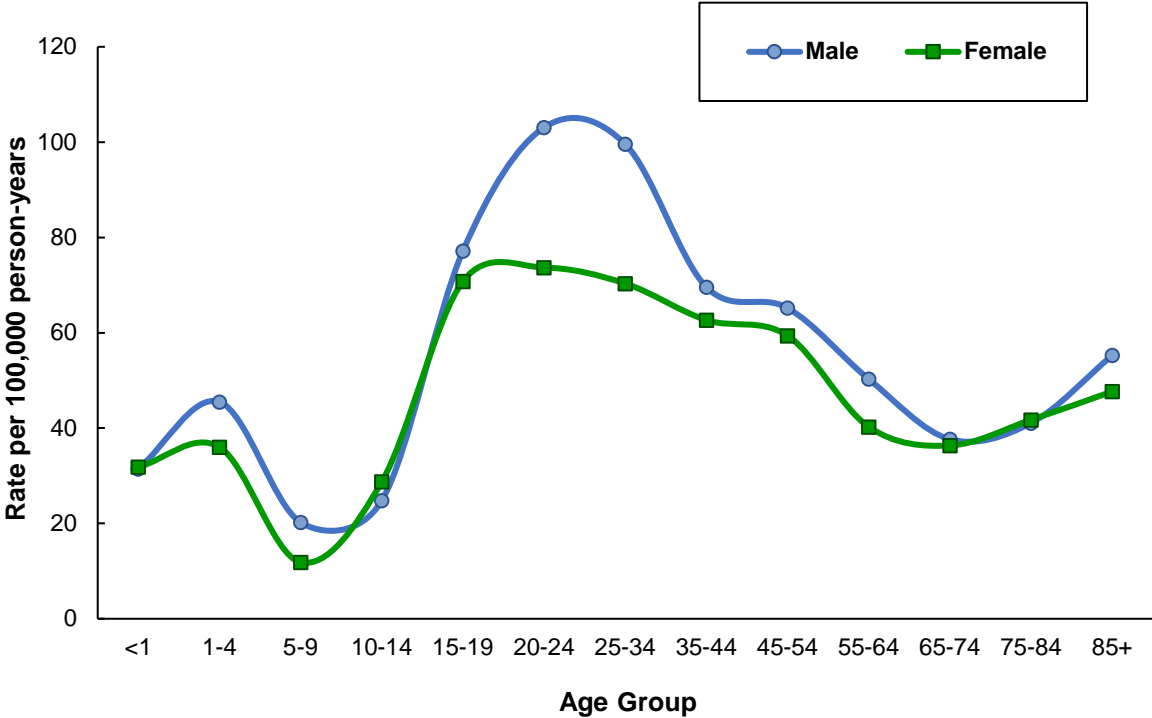
	Male			Female		
	Number	Percent	Rate <sup>1</sup>	Number	Percent	Rate <sup>1</sup>
Age Group (Years)						
<1	72	0.6%	31.4	70	0.7%	31.9
1-4	427	3.8%	45.5	324	3.3%	36.0
5-9	249	2.2%	20.2	140	1.4%	11.8
10-14	308	2.8%	24.8	343	3.5%	28.7
15-19	967	8.7%	77.2	848	8.8%	70.8
20-24	1,430	12.8%	103.1	941	9.7%	73.7
25-34	2,364	21.2%	99.6	1,716	17.7%	70.3
35-44	1,668	15.0%	69.6	1,566	16.2%	62.7
45-54	1,630	14.6%	65.2	1,564	16.1%	59.4
55-64	1,098	9.9%	50.3	978	10.1%	40.3
65-74	550	4.9%	37.7	616	6.4%	36.3
75-84	270	2.4%	41.1	382	3.9%	41.7
85+	111	1.0%	55.3	203	2.1%	47.7
Total ED Visits	11,144	100.0%	61.7	9,691	100.0%	51.0

Missing: 32 ED visits missing sex and/or age group.

<sup>1</sup>Unadjusted rates are reported per 100,000 person-years.



**Figure 37. Unadjusted Rates of NC ED Visits of an Undetermined Intent, Stratified by Sex and Age Group, 2012-2015**



<b>Table 59. Place of Occurrence of NC ED Visits of an Undetermined Intent, 2012-2015</b>		
	<b>Number</b>	<b>Percent</b>
<b>Place of Occurrence</b>		
Unspecified place	1,856	39.0%
Home	1,815	38.1%
Other specified place	396	8.3%
Public building	205	4.3%
Residential institution	191	4.0%
Street and highway	146	3.1%
Industrial place and premises	100	2.1%
Place for recreation and sport	46	1.0%
Farm	6	0.1%
<b>Total ED Visits with a Place of Occurrence Code</b>	<b>4,761</b>	<b>100.0%</b>

Missing: 16,106 ED visits missing place of occurrence

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## Appendix A: Population and Person-Time for Incidence Rate Calculations

Appendix : North Carolina Population Data and Person Time for Incidence Rate Calculations – January 1, 2012 – September 30, 2015							
	Annual Population				P-yrs for 9 months of 2015	Total P-yrs	Percent of total P-yrs
	2012	2013	2014	2015			
<b>Sex</b>							
Female	4,999,261	5,047,834	5,097,826	5,150,777	3,863,083	19,008,004	51.3%
Male	4,747,760	4,797,598	4,842,561	4,892,025	3,669,019	18,056,938	48.7%
<b>Age Group (Years)</b>							
<1	119,274	119,219	119,841	120,576	90,432	448,766	1.2%
1-4	498,455	490,515	486,136	484,135	363,101	1,838,207	5.0%
5-9	640,889	645,292	645,099	643,091	482,318	2,413,598	6.5%
10-14	647,359	649,847	652,278	650,569	487,927	2,437,411	6.6%
15-19	651,298	651,475	652,431	660,901	495,676	2,450,880	6.6%
20-24	695,778	710,802	718,594	719,393	539,545	2,664,719	7.2%
25-34	1,264,481	1,275,978	1,291,715	1,308,587	981,440	4,813,614	13.0%
35-44	1,312,440	1,309,385	1,302,839	1,295,812	971,859	4,896,523	13.2%
45-54	1,369,945	1,367,078	1,366,797	1,372,414	1,029,311	5,133,131	13.8%
55-64	1,198,932	1,219,479	1,241,839	1,270,500	952,875	4,613,125	12.4%
65-74	782,059	826,552	867,748	905,426	679,070	3,155,429	8.5%
75-84	405,900	414,752	424,970	436,354	327,266	1,572,888	4.2%
85+	160,211	165,058	170,100	175,044	131,283	626,652	1.7%
<b>Total ED Visits</b>	<b>9,747,021</b>	<b>9,845,432</b>	<b>9,940,387</b>	<b>10,042,802</b>	<b>7,532,102</b>	<b>37,064,942</b>	<b>100.0%</b>

Abbreviations: P-yrs, person-years.



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