



# 2023

# Injury Report



PUBLIC HEALTH REPORT



Health &  
Human Services

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# TABLE OF CONTENTS

|   |           |
|---|-----------|
| <b>1.0 Overview</b>   | <b>3</b>  |
| <b>2.0 Demographic Profile of Wake County</b>   | <b>4</b>  |
| <b>3.0 Leading Causes of Injury Emergency Department (ED) Visits and Hospitalizations by Injury</b> | <b>5</b>  |
| <b>4.0 Leading Causes of Injury Death</b>   | <b>7</b>  |
| <b>5.0 Unintentional Fall Injuries and Deaths</b>   | <b>9</b>  |
| <b>6.0 Unintentional Poisoning Deaths</b>   | <b>11</b> |
| Overdose Deaths   | 12        |
| <b>7.0 Firearm Injuries</b>   | <b>15</b> |
| Firearm Injury ED Visits and Emergency Medical Services (EMS) Responses                             | 15        |
| Geospatial Analysis of Firearm Injury ED Visits and EMS Responses                                   | 19        |
| Firearm Deaths  | 21        |
| <b>8.0 Motor Vehicle Traffic (MVT) Deaths</b>   | <b>24</b> |
| <b>9.0 Pedestrian/Automobile Crashes</b>  | <b>25</b> |
| <b>10.0 Summary</b>   | <b>26</b> |
| <b>11.0 Data Sources</b>  | <b>27</b> |

|                             |           |
|-----------------------------|-----------|
| <b>12.0 References</b>      | <b>29</b> |
| <b>13.0 Acknowledgments</b> | <b>29</b> |

## 1.0 OVERVIEW

Information about injuries in Wake County is complex and is gathered from several data sources such as death certificates, medical examiner reports, law enforcement reports, hospital admissions and emergency department visits. This report describes injuries and their impact on the health of those who live, work, play, and learn in Wake County. Deaths are the most severe outcome from injuries but are the “tip of the iceberg” (Figure 1) when evaluating the burden of injuries. Many injuries are either treated by medical providers during outpatient visits and not reported, or no medical treatment is sought for the injury. Thus, the total societal burden of injuries from all causes is unknown.

The term “intentional” is used to refer to injuries resulting from purposeful human action, whether directed at oneself or others. Intentional injuries include self-inflicted and interpersonal acts of violence intended to cause harm.

“Unintentional” is used to refer to injuries that were unplanned and can be defined as events in which:

- the injury occurs in a short period of time (seconds or minutes),
- a harmful outcome was not sought, or
- the outcome was the result of one of the forms of physical energy in the environment or normal body

functions being blocked by external means (like drowning).<sup>1</sup>

This report analyzes the three leading causes of injury death in Wake County (motor vehicle traffic (MVT), falls, and poisonings). Similar to previous years, unintentional poisonings was the number one cause of injury death in 2022. Self-inflicted firearm deaths were the fourth cause of injury death in Wake County from 2018-2022, and assault firearm deaths were the fifth cause of injury death in Wake County since 2020. In this report, data is limited to Wake County and North Carolina residents (rates per 100,000 population).

**Figure 1. The Injury Iceberg**



Source: <https://injuryfreenc.dph.ncdhhs.gov/injuryiceberg.htm>, retrieved 9/6/23

## 2.0 DEMOGRAPHIC PROFILE OF WAKE COUNTY

- In 2022, the median age of people living in Wake County was 37.3 years.
- About half of the population (55%) in Wake County is between the ages of 25-64 years.
- 50.9% of Wake County residents are female and 49.1% are male.
- The two largest racial groups in Wake County are White (non-Hispanic)(NH) (58.6%) and Black or African American (non-Hispanic)(NH) (19.1%) (Table 3). Regarding ethnicity, approximately 10.6% of Wake County's population is Hispanic or Latino (Table 2).

**Table 1: Population Distribution by Sex, Wake County, 2022**

| Sex    | Population | Percent |
|--------|------------|---------|
| Female | 597,948    | 50.9%   |
| Male   | 577,073    | 49.1%   |
| Total  | 1,175,021  | 100%    |

**Table 2: Population Distribution by Ethnicity, Wake County, 2022**

| Ethnicity    | Population | Percent |
|--------------|------------|---------|
| Hispanic     | 124,402    | 10.6%   |
| Non-Hispanic | 1,050,619  | 89.4%   |

**Table 3: Population Distribution by Race, Wake County, 2022**

| Race                          | Population | Percent |
|-------------------------------|------------|---------|
| Non-Hispanic White            | 688,529    | 58.6%   |
| Non-Hispanic Black            | 224,385    | 19.1%   |
| American Indian/Alaska Native | 2,450      | 0.2%    |
| Asian                         | 100,571    | 8.6%    |
| Two or More Races             | 105,686    | 9.0%    |
| Other                         | 53,223     | 4.5%    |

**Table 4: Population Distribution by Age Group, Wake County, 2022**

| Age Group | Total Population (N = 1,175,021) | Percent |
|-----------|----------------------------------|---------|
| <15       | 217,516                          | 18.4%   |
| 15-24     | 157,180                          | 13.3%   |
| 25-34     | 171,571                          | 14.6%   |
| 35-44     | 175,493                          | 14.9%   |
| 45-54     | 164,273                          | 14.0%   |
| 55-64     | 135,843                          | 11.5%   |
| 65+       | 153,145                          | 13.1%   |

For Tables 1-4: Source: 2022 American Community Survey Estimates, United States Census Bureau. Note: Percentages may not sum to 100% due to rounding.

### 3.0 LEADING CAUSES OF EMERGENCY DEPARTMENT (ED) VISITS AND HOSPITALIZATIONS BY INJURY

Unintentional falls were the leading cause of injury emergency department (ED) visits in Wake County from 2020-2022, replacing motor vehicle traffic (MVT) injuries which were the leading cause of injury ED visits from 2018-2019 (Table 5).

**Table 5: Top Five Causes of Injury ED Visits (All Ages), Wake County, 2018-2022**

| Cause of Injury                              | 2018   |        |      | 2019   |        |      | 2020   |       |      | 2021   |       |      | 2022   |        |      |
|--|--------|--------|------|--------|--------|------|--------|-------|------|--------|-------|------|--------|--------|------|
|  | Cases  | Rate   | Rank | Cases  | Rate   | Rank | Cases  | Rate  | Rank | Cases  | Rate  | Rank | Cases  | Rate   | Rank |
| Fall - Unintentional                         | 11,661 | 1068.6 | 2    | 11,887 | 1069.2 | 2    | 10,273 | 908.6 | 1    | 11,007 | 955.2 | 1    | 13,341 | 1135.4 | 1    |
| MVT - Unintentional                          | 11,796 | 1080.9 | 1    | 11,910 | 1071.3 | 1    | 8,829  | 780.9 | 2    | 9,969  | 865.1 | 2    | 10,730 | 913.2  | 2    |
| Natural/Environmental - Unintentional        | 2,771  | 253.9  | 3    | 2,762  | 248.4  | 3    | 2,108  | 186.4 | 3    | 2,132  | 185.0 | 3    | 2,488  | 211.7  | 3    |
| Unspecified - Unintentional                  | 1,866  | 171.0  | 4    | 1,916  | 172.3  | 4    | -      | -     | -    | -      | -     | -    | -      | -      | -    |
| Poisoning - Unintentional                    | -      | -      | -    | -      | -      | -    | 1,210  | 107.0 | 5    | 1,483  | 128.7 | 5    | 1,683  | 143.2  | 4    |
| Other Specified/Classifiable - Unintentional | 1,849  | 169.4  | 5    | 1,785  | 160.6  | 5    | 1,643  | 145.3 | 4    | 1,624  | 140.9 | 4    | 1,673  | 142.4  | 5    |

-: Cause of injury was not in the top five causes of injury ED visits for that particular year. Source: North Carolina State Center for Health Statistics, North Carolina Healthcare Association Hospital Discharge Data, 2018-2022\*; US Census non-bridged single race population estimates, 2018-2022.

Analysis by: North Carolina Division of Public Health (NC DPH), Injury and Violence Prevention Branch, Epidemiology, Surveillance, and Informatics Unit.

Unintentional falls were the top cause of injury hospitalizations in Wake County from 2018 to 2022 by a substantial margin (Table 6).

**Table 6: Top Five Causes of Injury Hospitalizations (All Ages), Wake County, 2018-2022\***

| Cause of Injury             | 2018  |       |      | 2019  |       |      | 2020  |       |      | 2021  |       |      | 2022* |       |      |
|-----------------------------|-------|-------|------|-------|-------|------|-------|-------|------|-------|-------|------|-------|-------|------|
|                             | Cases | Rate  | Rank | Cases | Rate  | Rank | Cases | Rate  | Rank | Cases | Rate  | Rank | Cases | Rate  | Rank |
| Fall - Unintentional        | 1,883 | 172.6 | 1    | 2,148 | 193.2 | 1    | 1,943 | 171.8 | 1    | 2,053 | 178.2 | 1    | 2,067 | 175.9 | 1    |
| MVT - Unintentional         | 474   | 43.4  | 2    | 550   | 49.5  | 2    | 491   | 43.4  | 2    | 524   | 45.5  | 2    | 509   | 43.3  | 2    |
| Poisoning - Unintentional   | 307   | 28.1  | 3    | 334   | 30.0  | 3    | 317   | 28.0  | 3    | 356   | 30.9  | 3    | 444   | 37.8  | 3    |
| Poisoning - Self-Inflicted  | 221   | 20.3  | 4    | 246   | 22.1  | 4    | 202   | 17.9  | 4    | 223   | 19.4  | 4    | 198   | 16.9  | 4    |
| Fire/Burn - Unintentional   | 182   | 16.7  | 5    | 184   | 16.6  | 5    | -     | -     | -    | -     | -     | -    | -     | -     | -    |
| Unspecified - Unintentional | -     | -     | -    | -     | -     | -    | 151   | 13.4  | 5    | 146   | 12.7  | 5    | 167   | 14.2  | 5    |

\* 2022 data are provisional; data as of 08/01/2023

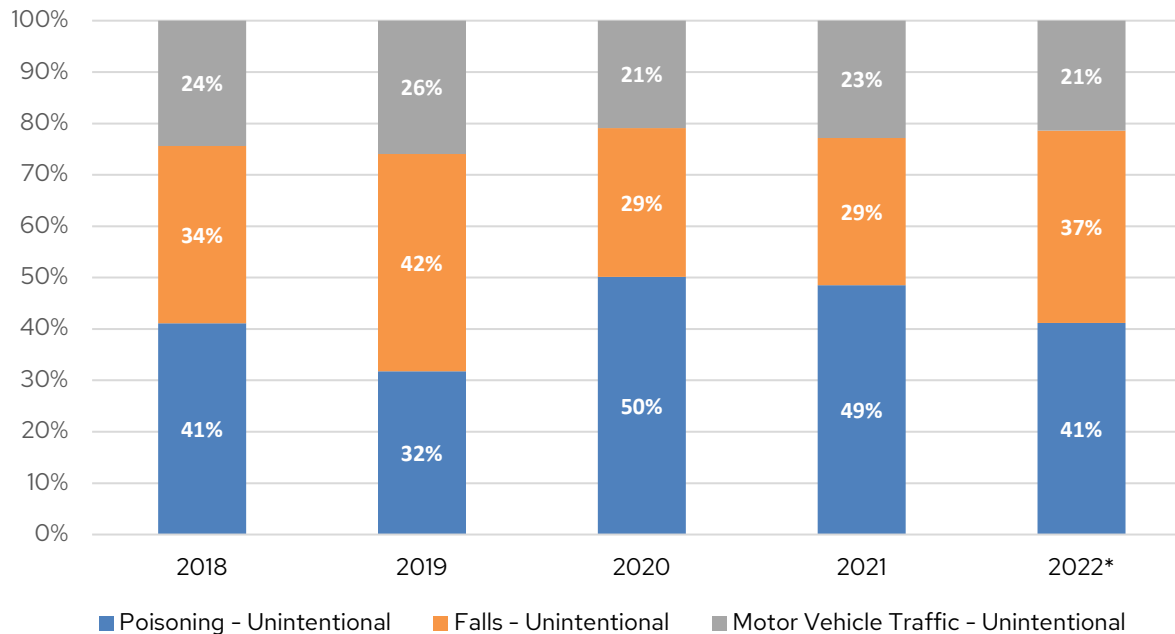
-: Cause of injury was not in the top five causes of injury hospitalizations for that particular year. Source: North Carolina State Center for Health Statistics, North Carolina Healthcare Association Hospital Discharge Data, 2018-2022\*; US Census non-bridged single race population estimates, 2018-2022.

Analysis by: North Carolina Division of Public Health (NC DPH), Injury and Violence Prevention Branch, Epidemiology, Surveillance, and Informatics Unit.

## 4.0 LEADING CAUSES OF INJURY DEATH

As in previous years, the top three causes of injury death in Wake County were unintentional poisonings, unintentional falls, and motor vehicle traffic deaths in 2022. While unintentional falls represented the highest percentage of injury deaths in 2019, unintentional poisonings had the highest percentage in 2020 through 2022 (Figure 2).

**Figure 2: Percentage of the Top Three Causes of Injury Death, Wake County, 2018-2022\***

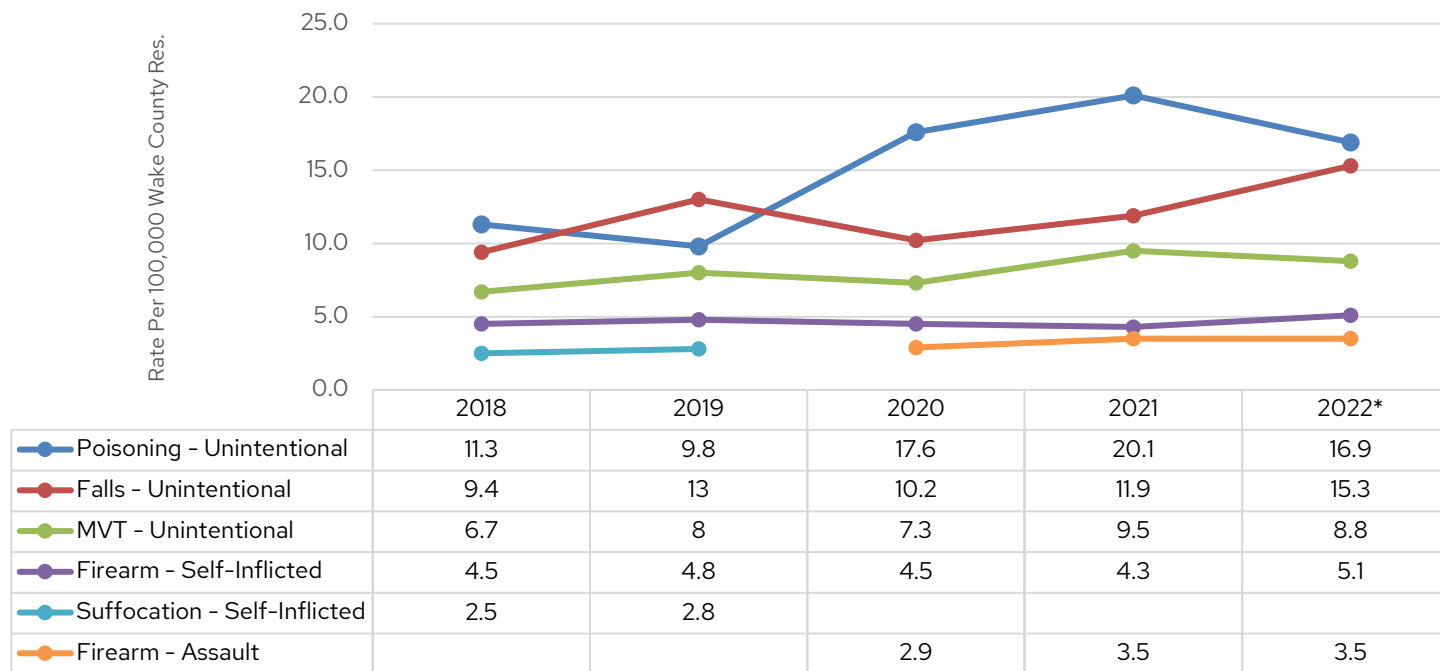


Note: \*2022 data are provisional; data as of 08/01/2023.

Source: North Carolina State Center for Health Statistics, Vital Statistics Death Certificate Data, 2018-2022\*; US Census non-bridged single race population estimates, 2018-2022. Provided by NC DPH, Injury and Violence Prevention Branch.

Figure 3 shows the top five causes of injury death in Wake County from 2018–2022. In 2022, the rates of unintentional poisoning and motor vehicle traffic deaths slightly decreased, firearm-assault deaths remained stable, and the rates of unintentional fall and self-inflicted firearm deaths increased compared to 2021.

**Figure 3: Death Rates, Top Five Causes of Injury Death, Wake County, 2018 – 2022\***



\*2022 data are provisional; data as of 08/01/2023. Source: North Carolina State Center for Health Statistics, Vital Statistics Death Certificate Data, 2018–2022\*; US Census non-bridged single race population estimates, 2018–2022. Provided by NC DPH, Injury and Violence Prevention Branch. Blank cells: Cause of injury death was not in the top five causes of injury death for that year.

## 5.0 UNINTENTIONAL FALL INJURIES AND DEATHS

Unintentional falls were the leading cause of injury ED visits from 2020 to 2022 and hospitalizations from 2018 to 2022. Table 7 includes demographic breakdowns of unintentional fall ED visits and hospitalizations from 2017-2020. Females, Whites (NH), and those 85 years and older had the highest rates of hospitalizations and ED visits for unintentional falls in Wake County from 2017-2020. In the table, numbers and rates are suppressed for counts between 1 and 4 (\*\*). Rates are not calculated for Other and Unknown populations (\*).

**Table 7: Unintentional Fall Injury Hospitalizations and Emergency Department (ED) Visits, Wake County, 2017-2020**

| Demographic   | Hospitalizations |              | ED Visits     |              |
|---------------|------------------|--------------|---------------|--------------|
|               | Number           | Rate         | Number        | Rate         |
| <b>Gender</b> |                  |              |               |              |
| Female        | 4,911            | 217.0        | 26,801        | 1,184.2      |
| Male          | 2,906            | 135.5        | 16,828        | 784.4        |
| Unknown       | **               | **           | 35            | *            |
| <b>Race</b>   |                  |              |               |              |
| White (NH)    | 6,353            | 237.1        | 29,784        | 1,111.5      |
| Black (NH)    | 806              | 88.4         | 9,111         | 998.9        |
| AI/AN (NH)    | 11               | 77.4         | 49            | 344.8        |
| Hispanic      | 251              | 55.1         | 2,359         | 518.1        |
| Asian (NH)    | 160              | 46.1         | 627           | 180.6        |
| Other (NH)    | 14               | *            | 1,387         | *            |
| Unknown       | 96               | *            | 347           | *            |
| <b>Age</b>    |                  |              |               |              |
| 0-14          | 227              | 26.2         | 4,680         | 541.0        |
| 15-24         | 142              | 24.4         | 2,424         | 416.7        |
| 25-34         | 163              | 25.0         | 2,670         | 409.4        |
| 35-44         | 245              | 37.3         | 2,574         | 392.0        |
| 45-54         | 373              | 59.6         | 3,620         | 577.9        |
| 55-64         | 849              | 168.3        | 5,056         | 1,002.5      |
| 65-84         | 3,477            | 745.1        | 14,556        | 3,119.2      |
| 85+           | 2,341            | 4209.3       | 8,084         | 14,535.6     |
| Unknown       | **               | **           | 0             | 0            |
| <b>Total</b>  | <b>7,818</b>     | <b>177.3</b> | <b>43,664</b> | <b>990.4</b> |

Note: Multiple injuries can be identified for the same individual in the hospitalization and ED visit data, therefore injury categories are not mutually exclusive and do not sum to the total number of injuries. Analysis by: NC DPH, Injury and Violence Prevention Branch, Epidemiology, Surveillance, and Informatics Unit.

There were 680 unintentional fall deaths in Wake County from 2018-2022. The 65+ age group led all age groups in the number of unintentional fall deaths, and the rate for that age group increased from 82.3 per 100,000 during 2017-2021 to 87.1 per 100,000 during 2018-2022. White non-Hispanics had the highest fall death rate among racial and ethnic groups, and females had a slightly higher rate of death from unintentional falls than males per 100,000 (Table 8). In the table, counts, percentages, and rates are suppressed for counts between 1 and 4 (\*\*).

**Table 8: Unintentional Fall Deaths, Wake County, 2018-2022\***

|  | Number     | Percent    | Rate per 100,000 |
|--|------------|------------|------------------|
| <b>Sex</b>                                   |            |            |                  |
| Female                                       | 366        | 53.8       | 12.7             |
| Male   | 314        | 46.2       | 11.3             |
| <b>Race/Ethnicity</b>                        |            |            |                  |
| White (NH)                                   | 595        | 87.5       | 17.8             |
| Black (NH)                                   | 43         | 6.3        | 3.8              |
| American Indian (AI)/Alaska Native (AN) (NH) | 0          | 0.0        | 0.0              |
| Asian (NH)                                   | 15         | 2.2        | 3.3              |
| Hispanic                                     | 24         | 3.5        | 4.1              |
| Other (NH)/Unknown                           | **         | **         | **               |
| <b>Age Group</b>                             |            |            |                  |
| 0-14   | 0          | 0.0        | 0.0              |
| 15-24  | **         | **         | **               |
| 25-34  | **         | **         | **               |
| 35-44  | 12         | 1.8        | 1.4              |
| 45-54  | 15         | 2.2        | 1.9              |
| 55-64  | 40         | 5.9        | 6.1              |
| 65+  | 607        | 89.3       | 87.1             |
| <b>Total</b>                                 | <b>680</b> | <b>100</b> | <b>12.0</b>      |

\* 2022 data are provisional; data as of 08/01/2023. Source: North Carolina State Center for Health Statistics, Vital Statistics Death Certificate Data, 2018-2022\*; US Census non-bridged single race population estimates, 2018-2022. Note: US Census non-bridged single race population categories do not directly align with death certificate data race categories (population estimates exclude 1.8% multi-race residents). Analysis by: NC DPH, Injury and Violence Prevention Branch, Epidemiology, Surveillance, and Informatics Unit.

## 6.0 UNINTENTIONAL POISONING DEATHS

A poisoning exposure can be defined as ingestion, injection, inhalation, absorption, or contact with a substance that produces a toxic effect or bodily harm.<sup>2</sup> An unintentional poisoning occurs when the individual does not intend to cause harm when they are exposed to the substance.<sup>2</sup> Across the United States, illegal and prescription drugs are the cause of nearly 9 out of 10 unintentional poisonings.<sup>2</sup> However, poisonings can also be caused by a variety of other gases, vapors, chemicals, and substances including alcohol, pesticides, and carbon monoxide.<sup>2</sup>

Table 9 shows that there were 861 unintentional poisoning deaths in Wake County from 2018-2022, an increase of 10.5% from 2017-2021. Similar to previous years, males (74.5%), white non-Hispanics (65.3%), and people ages 25-54 (72.5%) had the highest percentages of unintentional poisoning deaths. The rate of unintentional poisoning deaths is higher among Black non-Hispanics than other racial and ethnic groups. Black non-Hispanic poisoning deaths increased by 25.1% from 2017-2021 to 2018-2022. In the table, counts, percentages, and rates are suppressed for counts between 1 and 4 (\*\*). Rates may not be calculated due to low counts (-).

**Table 9: Unintentional Poisoning Deaths, Wake County, 2018-2022\***

|                       | Number     | Percent    | Rate per 100,000 |
|-----------------------|------------|------------|------------------|
| <b>Sex</b>            |            |            |                  |
| Female                | 220        | 25.6       | 7.6              |
| Male                  | 641        | 74.5       | 23.1             |
| <b>Race/Ethnicity</b> |            |            |                  |
| White (NH)            | 562        | 65.3       | 16.8             |
| Black (NH)            | 239        | 27.8       | 21.3             |
| AI/AN (NH)            | **         | **         | **               |
| Asian (NH)            | 10         | 1.2        | 2.2              |
| Hispanic              | 41         | 4.8        | 6.9              |
| Other (NH)/Unknown    | 7          | 0.8        | -                |
| <b>Age Group</b>      |            |            |                  |
| 0-14                  | **         | **         | **               |
| 15-24                 | 108        | 12.5       | 14.4             |
| 25-34                 | 269        | 31.2       | 32.4             |
| 35-44                 | 215        | 25.0       | 25.4             |
| 45-54                 | 140        | 16.3       | 17.5             |
| 55-64                 | 104        | 12.1       | 15.9             |
| 65+                   | 24         | 2.8        | 3.4              |
| <b>Total</b>          | <b>861</b> | <b>100</b> | <b>15.2</b>      |

\* 2022 data are provisional; data as of 08/01/2023.

Source: North Carolina State Center for Health Statistics, Vital Statistics Death Certificate Data, 2018-2022\*; US Census non-bridged single race population estimates, 2018-2022. Note: US Census non-bridged single race population categories do not directly align with death certificate data race categories (population estimates exclude 1.8% multi-race residents). Analysis by: NC DPH, Injury and Violence Prevention Branch, Epidemiology, Surveillance, and Informatics Unit.

## OVERDOSE DEATHS

Figure 4 shows the rate of overdose deaths in Wake County compared to North Carolina (NC) by year from 2000 to 2022. These rates include both unintentional and intentional overdose deaths, with more than 90% determined to be unintentional. As seen in Figure 4, there was a sharp increase in overdose deaths in Wake County during 2020 and 2021, but 2022 showed a slight decrease (also seen at the state level in North Carolina). The counts were also decreasing in 2018 and 2019, prior to the spike in 2020. Overall, since 2000, the overdose death rate in Wake County has been lower than the statewide rate in North Carolina. The statewide rate in 2022 was nearly double that of Wake County.

**Figure 4: All-Intent Overdose Death Rate per 100,000 Residents, Wake County vs. NC, 2000-2022**

Source:  
NC Opioid  
and  
Substance  
Use Action  
Plan Data  
dashboard

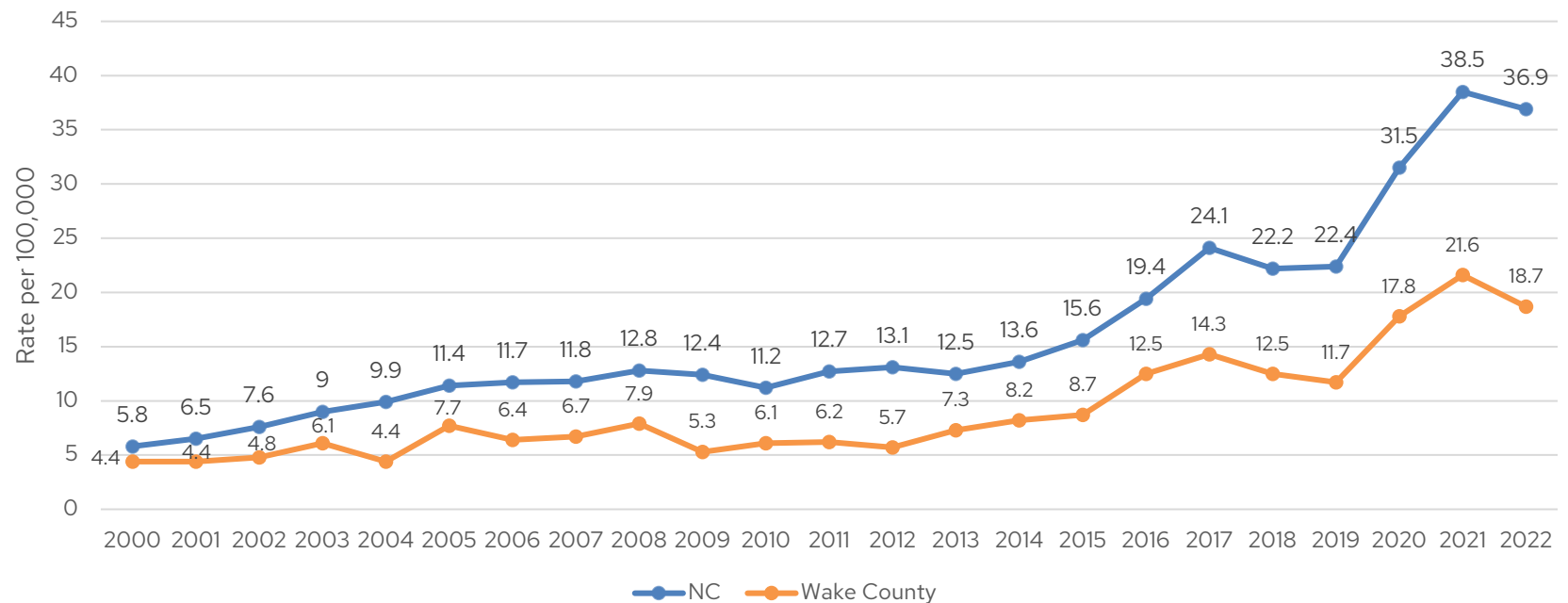
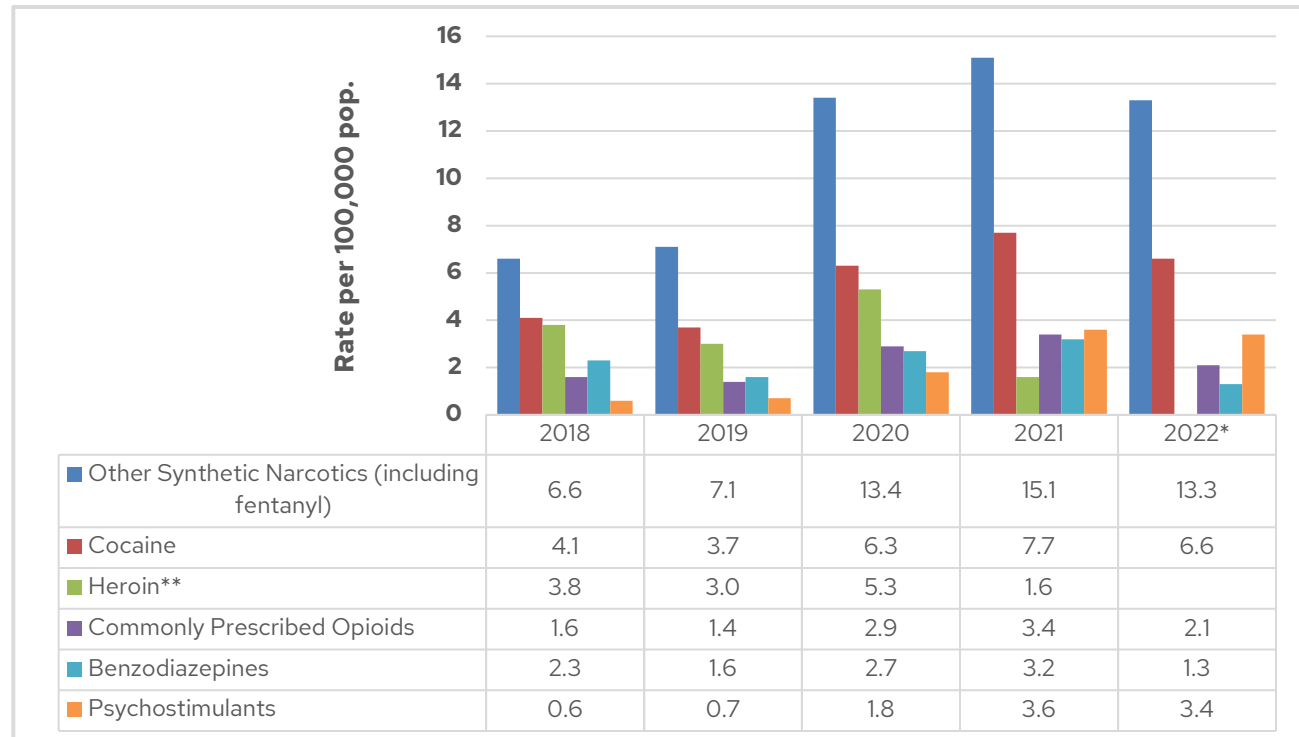


Figure 5 shows rates of unintentional drug overdose deaths that contain positive toxicology reports of certain substances. It should be noted that one drug overdose death can be counted in multiple substance categories. Many drug overdose deaths have positive toxicology results for multiple substances. Figure 5 shows a substantial increase in unintentional drug overdose deaths involving “other synthetic narcotics” (which includes fentanyl) in recent years. While the rate of unintentional overdose deaths involving “other synthetic narcotics” decreased in 2022 compared to 2021, it is still significantly higher than in 2019. The rates for all other substance categories either slightly decreased or remained stable in 2022 compared to 2021. The unintentional drug overdose rate for heroin is not included for 2022 due to the count being low (between 1 and 4) (\*\*).

**Figure 5: Unintentional Drug Overdose Death Rates by Drug Type, Wake County, 2018 – 2022\***

\*2022 data are provisional; data as of 08/01/2023.



From 2018-2022, unintentional overdose deaths involving other synthetic narcotics (including fentanyl) impacted mostly males (75.5%), White non-Hispanics (64.9%), and those between the ages of 25-44 (60.4%). However, it should be noted that the rate per 100,000 Wake County residents was higher for the Black non-Hispanic population than the White non-Hispanic population. In the table, counts, percentages, and rates are suppressed for counts between 1 and 4 (\*\*). Rates may not be calculated due to low counts (-).

**For additional drug overdose data and trends in Wake County, please see the 2022 Wake County Drug Overdose Integrated Epidemiologic Profile, which can be found [here](#).**

**Table 10: Other Synthetic Narcotic Overdose Deaths by Demographic Breakdown, Wake County, 2018-2022\***

|                       | Number     | Percent    | Rate per 100,000 |
|-----------------------|------------|------------|------------------|
| <b>Sex</b>            |            |            |                  |
| Female                | 155        | 24.5       | 5.4              |
| Male                  | 478        | 75.5       | 17.3             |
| <b>Race/Ethnicity</b> |            |            |                  |
| White (NH)            | 411        | 64.9       | 12.3             |
| Black (NH)            | 176        | 27.8       | 15.7             |
| AI/AN (NH)            | **         | **         | **               |
| Asian (NH)            | 8          | 1.3        | 1.8              |
| Hispanic              | 31         | 4.9        | 5.3              |
| Other (NH)/Unknown    | 6          | 1.0        | -                |
| <b>Age Group</b>      |            |            |                  |
| 0-14                  | 0          | 0.0        | 0.0              |
| 15-24                 | 95         | 15.0       | 12.6             |
| 25-34                 | 222        | 35.1       | 26.8             |
| 35-44                 | 160        | 25.3       | 18.9             |
| 45-54                 | 90         | 14.2       | 11.3             |
| 55-64                 | 56         | 8.9        | 8.6              |
| 65+                   | 10         | 1.6        | 1.4              |
| <b>Total</b>          | <b>633</b> | <b>100</b> | <b>11.2</b>      |

\*2022 data are provisional; data as of 08/01/2023. Source: North Carolina State Center for Health Statistics, Vital Statistics Death Certificate Data, 2018-2022\*; US Census non-bridged single race population estimates, 2018-2022. Note: US Census non-bridged single race population categories do not directly align with death certificate data race categories (population estimates exclude 1.8% multi-race residents). Analysis by: NC DPH, Injury and Violence Prevention Branch, Epidemiology, Surveillance, and Informatics Unit.

## 7.0 FIREARM INJURIES

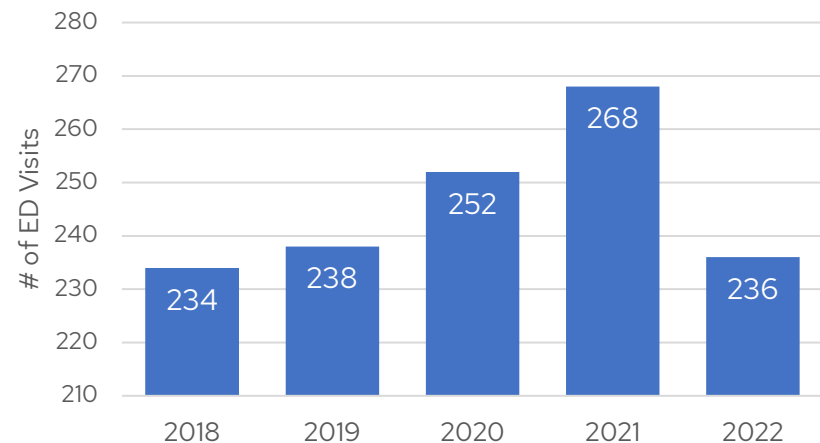
A firearm injury is a gunshot wound or penetrating injury from a weapon that uses a powder charge to fire a projectile.<sup>3</sup>

Weapons that use a powder charge include handguns, rifles, and shotguns.<sup>3</sup> Injuries from air- and gas-powered guns, BB guns, and pellet guns are not considered firearm injuries as these types of guns do not use a powder charge to fire a projectile.<sup>3</sup> Firearm injury data in this report are separated into two types – self-inflicted and assault. Self-inflicted includes firearm suicide or nonfatal self-harm injury from a firearm.<sup>3</sup> Assault firearm injury is defined as a firearm injury when the injured person was not the one holding or in charge of the weapon when it was fired.<sup>3</sup> Self-inflicted firearm deaths were the fourth leading cause of injury death in Wake County from 2018-2022, and assault firearm deaths were the fifth leading cause of injury death in Wake County since 2020. Firearm deaths included in this report are largely intentional (suicide/self-harm and homicide). Firearms are the leading cause of violent injury deaths in North Carolina.<sup>4</sup>

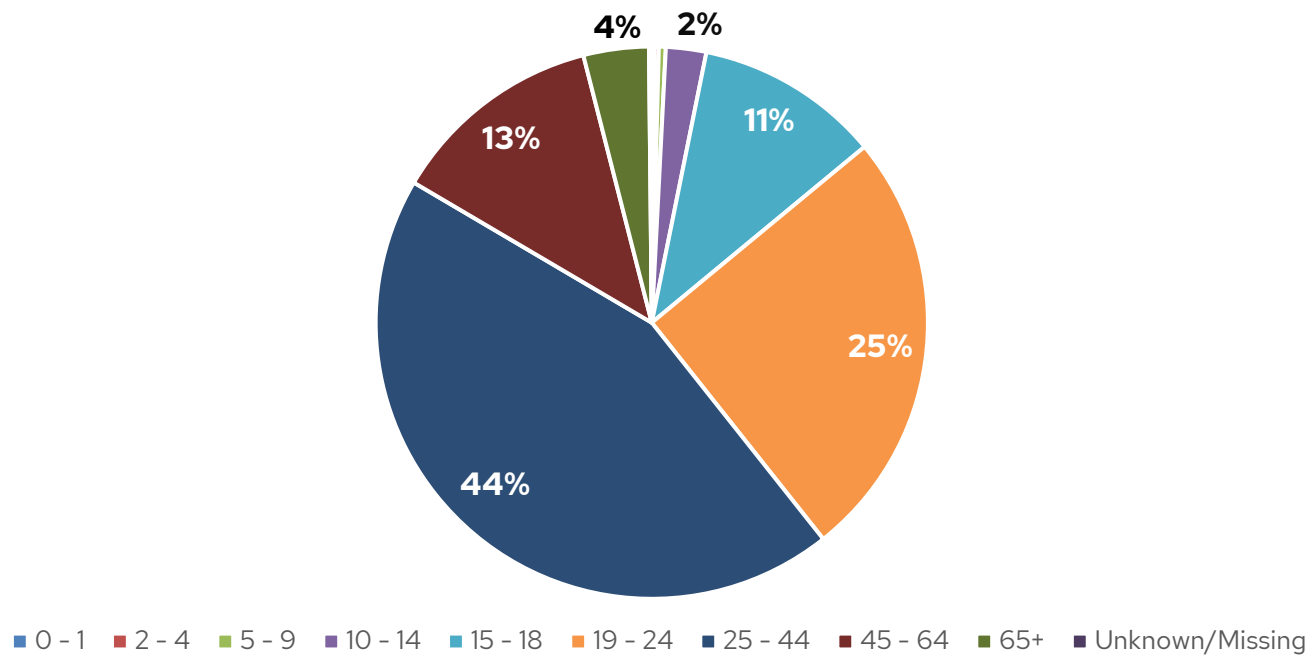
## FIREARM INJURY ED VISITS AND EMERGENCY MEDICAL SERVICES (EMS) RESPONSES

Figures 6-9 show the breakdown of emergency department (ED) visits for firearm injuries occurring between 2018 and 2022 (Source: NC DETECT). Figure 6 shows a decrease in the number of ED visits for firearm injuries in 2022 when compared to 2021. Figure 7 shows 25-44 as the age group most affected by firearm injuries at 44% with 19-24 being the next age group with 25%. Combined, ages 19-44 made up 69% of ED visits for firearm injuries during 2018-2022. These cases were also majority male (86%) and majority Black (68%).

**Figure 6. ED Visits Involving Firearm Injuries (All Intentions), Wake County, 2018 – 2022**

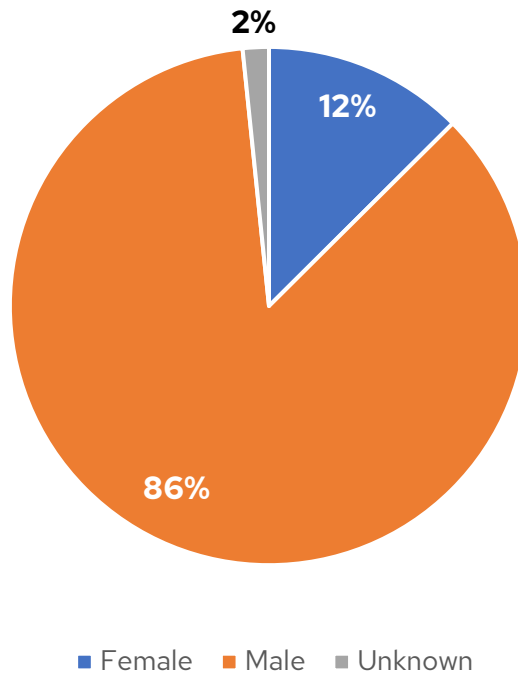


**Figure 7. ED Visits Involving Firearm Injuries (All Intent)**  
**by Age Group, Wake County, 2018-2022**



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**Figure 8. ED Visits Involving Firearm Injuries (All Intents) by Sex, Wake County, 2018-2022**



**Figure 9. ED Visits Involving Firearm Injuries (All Intents) by Race, Wake County, 2018-2022**

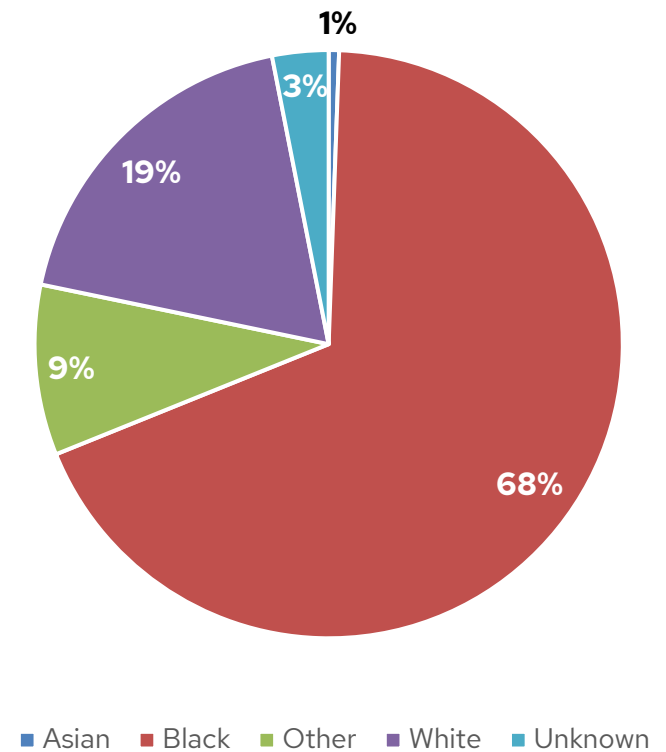
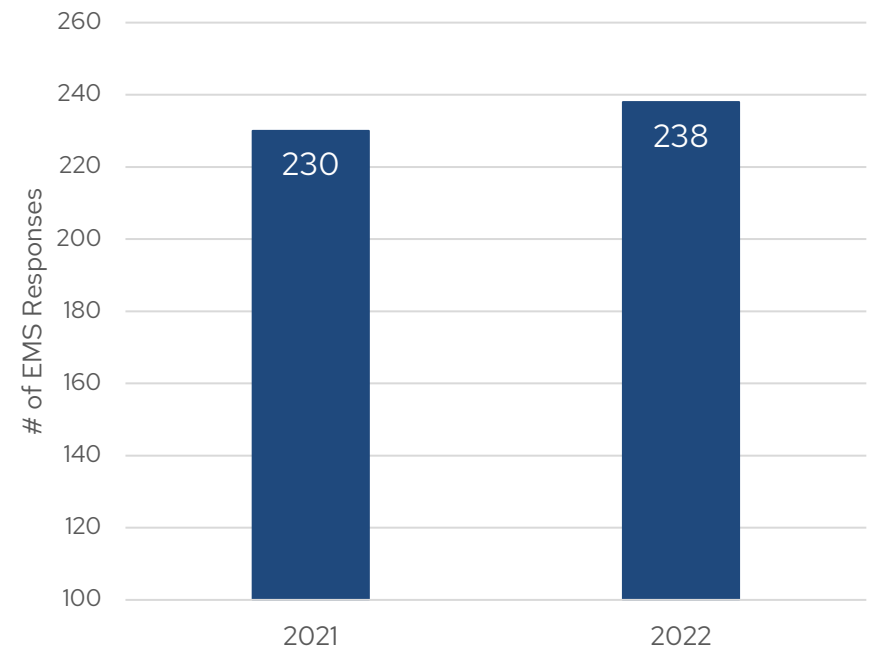


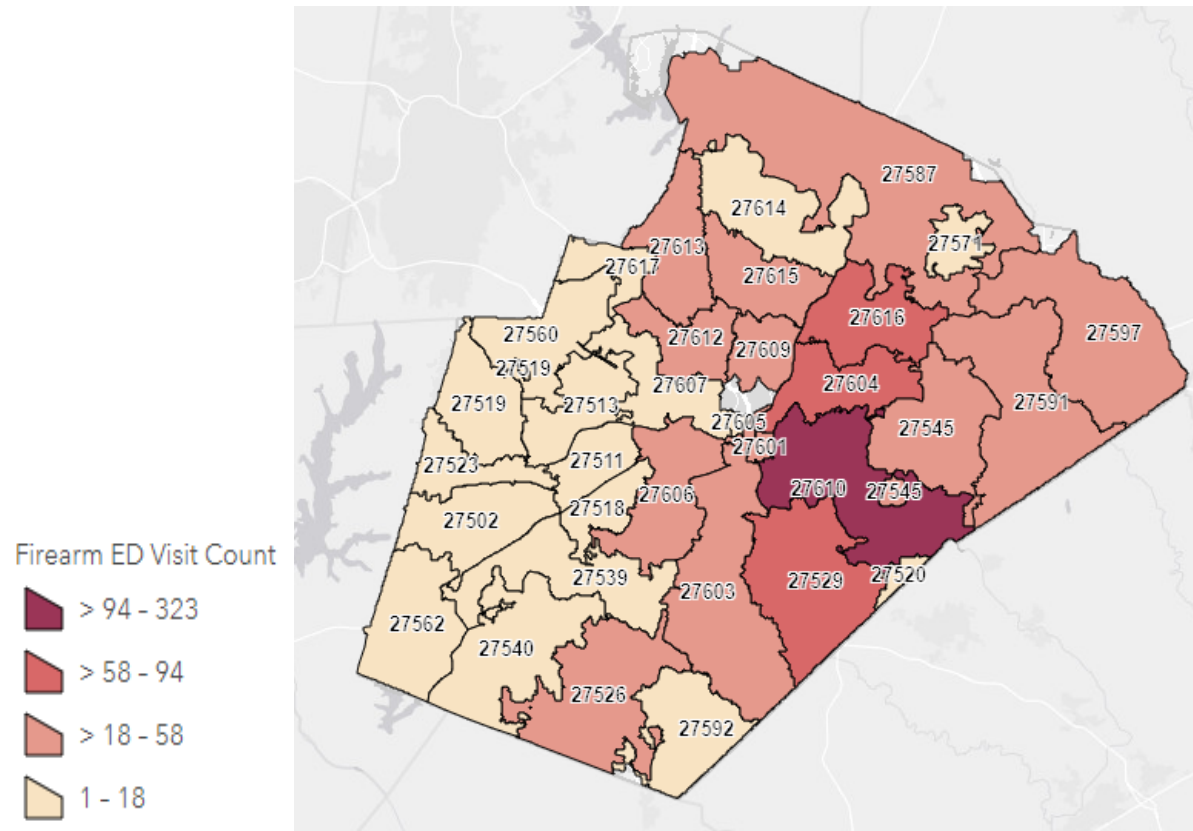
Figure 10 shows the number of EMS responses to firearm injuries in Wake County in 2021 and 2022. While ED visits for firearms had a decrease in 2022 compared to 2021, EMS responses to firearm injuries had a slight increase from 230 in 2021 to 238 in 2022.

**Figure 10. EMS Responses Involving Firearm Injuries (All Intents), Wake County, 2021 and 2022**



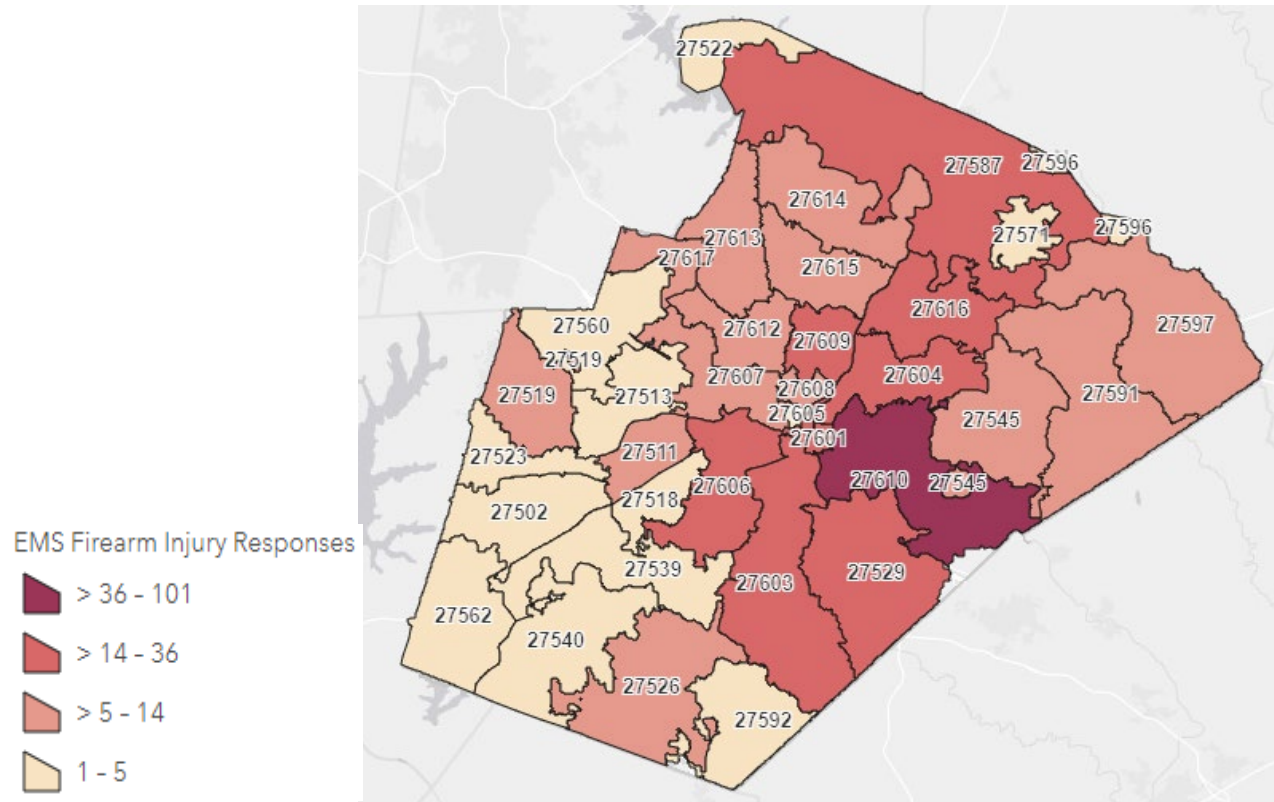
## GEOSPATIAL ANALYSIS OF FIREARM INJURY ED VISITS AND EMS RESPONSES

**Figure 11. Firearm Injury ED Visits by Patient Residential  
Zip Code, Wake County, 2018-2022**



Source: NC DETECT, map created in ArcGIS

**Figure 12. EMS Responses to Firearm Injuries by  
Response Location (Incident) Zip Code, Wake County,  
2021 and 2022**



Source: NC DETECT, map created in ArcGIS

## FIREARM DEATHS

Figure 13 shows the firearm death rate in Wake County remained consistently lower than the statewide North Carolina rate, from 2004-2021. According to the North Carolina Violent Death Reporting System (NCVDRS)'s data dashboard, Wake County's rate of 7.5 per 100,000 residents in 2021 was less than half of the statewide rate of 16.8 per 100,000.

**Figure 13: Firearm Death Rate (All Intent) per 100,000 Residents, Wake County vs. NC, 2004-2021**

Source:  
NCVDRS  
Data  
Dashboard,  
NC DPH,  
Injury and  
Violence  
Prevention  
Branch for  
2021 data.

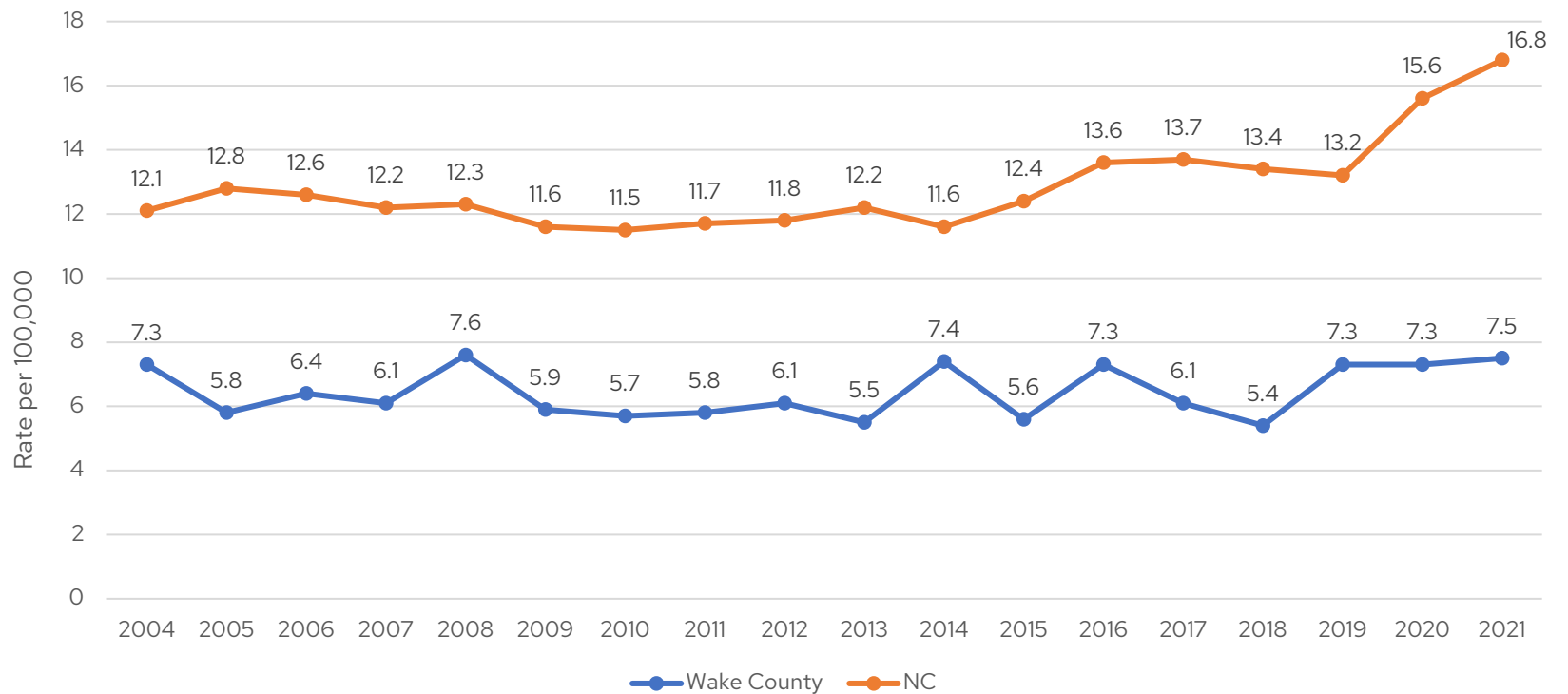
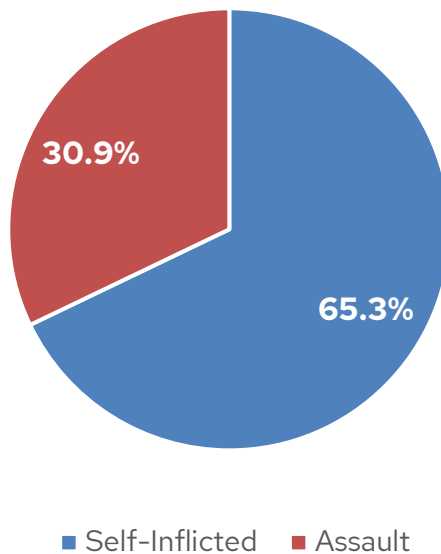


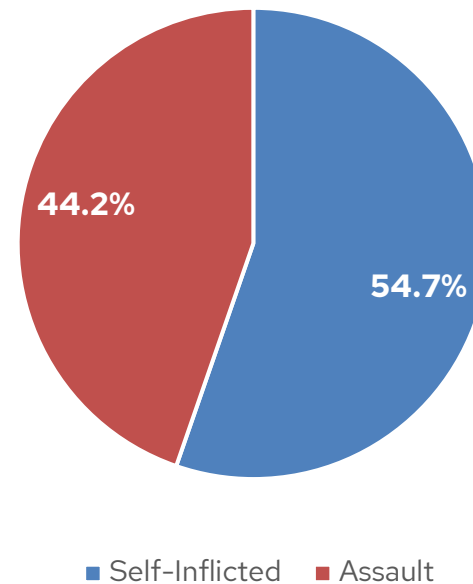
Figure 14 shows the percentage breakdown of firearm deaths in Wake County between suicide/self-inflicted and homicide/assault. There was a distinct difference between the 2016-2020 period when more than 65% of firearm deaths were self-inflicted and 2021 when 54.7% were self-inflicted. Assault accounted for 30.9% of firearm deaths in Wake County from 2016-2020 and 44.2% in 2021.

**Figure 14: Percent of Firearm-Related Deaths by Manner, Wake County, 2016-2020 vs. 2021**

**2016-2020**



**2021**



Source: North Carolina Violent Death Reporting System (NC VDRS) Dashboard.

Table 11 shows the breakdown of firearm deaths in Wake County and across North Carolina in 2021 by age and race categories. These data include firearm deaths of all intents. In Wake County, the 15-19 age group had the highest rate of firearm death of all age groups at 15 deaths per 100,000 residents. In North Carolina, this age group has the third highest firearm death rate, following the 20-24 and 25-34 age groups.

In Wake County, Black (non-Hispanic) residents had a higher rate of firearm deaths (16.3 per 100,000) than all other races. In North Carolina, American Indian/Native Americans had the highest rate of firearm deaths at 35.4 per 100,000 residents; the next highest rate was Black (non-Hispanic) at 30.5 per 100,000.

**Table 11. 2021 Firearm Death Counts and Rates, per 100,000 Residents, Wake County and North Carolina by Age and Race**

| Age                         | Wake County |                  | North Carolina |                  |
|-----------------------------|-------------|------------------|----------------|------------------|
|                             | Count       | Rate per 100,000 | Count          | Rate per 100,000 |
| <10                         | **          | **               | 13             | 1.1              |
| 10-14                       | 0           | 0                | 20             | 3.0              |
| 15-19                       | 12          | 15.0             | 180            | 25.6             |
| 20-24                       | 9           | 12.0             | 236            | 32.1             |
| 25-34                       | 21          | 12.5             | 396            | 28.0             |
| 35-44                       | 12          | 7.0              | 233            | 17.5             |
| 45-54                       | 14          | 8.6              | 223            | 16.6             |
| 55-64                       | 7           | 5.2              | 192            | 14.1             |
| 65-74                       | 7           | 7.8              | 150            | 13.8             |
| 75-84                       | **          | **               | 97             | 18.5             |
| >84                         | 0           | 0.0              | 39             | 21.1             |
| <b>Race/Ethnicity</b>       |             |                  |                |                  |
| American Indian (NH)        | 0           | 0.0              | 39             | 35.4             |
| Black (NH)                  | 37          | 16.3             | 684            | 30.5             |
| White (NH)                  | 45          | 6.6              | 925            | 14.1             |
| Asian (NH)                  | **          | **               | 16             | 4.5              |
| Hispanic                    | **          | **               | 111            | 10.3             |
| Other/Unknown               | 0           | 0                | **             | **               |
| <b>Total Firearm Deaths</b> | <b>86</b>   | <b>7.5</b>       | <b>1,779</b>   | <b>16.8</b>      |

\*\*Data suppressed due to count of 1 and 4 deaths.

Source: NC Violent Death Reporting System, 2021.

Analysis by: NC DPH Injury and Violence Prevention Branch, Epidemiology, Surveillance, and Informatics Unit.

## 8.0 MOTOR VEHICLE TRAFFIC (MVT) DEATHS

Similar to 2017-2021, Table 12 shows that during 2018-2022, males, Black non-Hispanics (NH), and the 65+ age group had the highest MVT death rates per 100,000 residents in Wake County. In the table, counts, percentages, and rates are suppressed due to counts being between 1 and 4 (\*\*). Rates may not be calculated due to low counts (-).

**Table 12: Unintentional Motor Vehicle Traffic Deaths, Wake County, 2018-2022\***

|                       | Number     | Percent    | Rate per 100,000 |
|-----------------------|------------|------------|------------------|
| <b>Sex</b>            |            |            |                  |
| Female                | 141        | 30.9       | 4.9              |
| Male                  | 316        | 69.2       | 11.4             |
| <b>Race/Ethnicity</b> |            |            |                  |
| White (NH)            | 201        | 44.0       | 327.3            |
| Black (NH)            | 166        | 36.3       | 582.3            |
| AI/AN (NH)            | **         | **         | **               |
| Asian (NH)            | 13         | 2.8        | 1.2              |
| Hispanic              | 69         | 15.1       | 431.5            |
| Other (NH)/Unknown    | 7          | 1.5        | -                |
| <b>Age Group</b>      |            |            |                  |
| 0-14                  | 16         | 3.5        | 1.5              |
| 15-24                 | 83         | 18.2       | 11.0             |
| 25-34                 | 92         | 20.1       | 11.1             |
| 35-44                 | 71         | 15.5       | 8.4              |
| 45-54                 | 55         | 12.0       | 6.9              |
| 55-64                 | 58         | 12.7       | 8.9              |
| 65+                   | 82         | 17.9       | 11.8             |
| <b>Total</b>          | <b>457</b> | <b>100</b> | <b>8.1</b>       |

\* 2022 data are provisional; data as of 08/01/2023. Source: North Carolina State Center for Health Statistics, Vital Statistics Death Certificate Data, 2018-2022\*; US Census non-bridged single race population estimates, 2018-2022. Note: US Census non-bridged single race population categories do not directly align with death certificate data race categories (population estimates exclude 1.8% multi-race residents). Analysis by: NC DPH, Injury and Violence Prevention Branch, Epidemiology, Surveillance, and Informatics Unit.

## 9.0 PEDESTRIAN/AUTOMOBILE CRASHES

Table 13 shows that pedestrian crash deaths increased by over 130% in 2022 (37 deaths) compared to 2021 (16 deaths); suspected serious injuries also significantly increased in 2022 (61 serious injuries), nearly doubling the count from 2021 (33 serious injuries). All other categories of pedestrian crash injuries either increased slightly or remained stable in 2022 compared to 2021. A pedestrian crash is defined in this data as any crash where one unit was recorded as a pedestrian by the reporting law enforcement officer.

**Table 13: Pedestrian Crash Data by Injury Severity, Wake County, 2018-2022\***

| <b>Severity</b>             | <b>2018</b> | <b>2019</b> | <b>2020</b> | <b>2021</b> | <b>2022</b> |
|-----------------------------|-------------|-------------|-------------|-------------|-------------|
| K: Killed                   | 17          | 22          | 26          | 16          | 37          |
| A: Suspected Serious Injury | 32          | 54          | 45          | 33          | 61          |
| B: Suspected Minor Injury   | 149         | 154         | 112         | 109         | 157         |
| C: Possible Injury          | 129         | 142         | 88          | 90          | 90          |
| O: No Injury                | 35          | 44          | 42          | 32          | 35          |
| Unknown Injury              | **          | **          | 0           | **          | **          |
| <b>Grand Total</b>          | <b>363</b>  | <b>417</b>  | <b>313</b>  | <b>281</b>  | <b>382</b>  |

\*Data are provisional as of 9/6/2023

\*\*Counts between 1 and 4 are suppressed.

Crashes in this table include those occurring on the roadway and off the roadway.

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## 10.0 SUMMARY

In Wake County in 2022, the rates of unintentional poisoning and motor vehicle traffic deaths slightly decreased, firearm-assault deaths remained stable, and the rates of unintentional fall and self-inflicted firearm deaths increased compared to 2021. Unintentional falls displaced unintentional motor vehicle traffic (MVT) injuries as the leading cause of injury emergency department (ED) visits starting in 2020 and remained at the top in 2022. Within the unintentional poisonings category, there has been a significant rise in recent years in unintentional overdose deaths involving “other synthetic narcotics” (which includes fentanyl).

This year’s report includes firearm injuries and deaths in Wake County over the last several years. Firearm deaths of all intents remained stable between 2019 and 2021 at 7.3 to 7.5 per 100,000 Wake County residents while the statewide rate for North Carolina increased from 13.2 to 16.8 per 100,000 North Carolina residents during that time. Young adults and adults ages of 19 – 44 and males have been the most impacted by firearm injuries and deaths. Additionally, the geospatial analysis of firearm injury ED visits (by patient residential zip code) and EMS responses (by response location zip code) displays 27610 as the zip code having the most firearm injuries during recent years. Other areas to note included some southern and northern parts of the county.

In 2022, there were significant increases in pedestrian crashes including those who were killed, suffered suspected serious injury, and suffered suspected minor injury compared to 2021 data.

There are racial disparities across multiple injury areas in Wake County as well as statewide in North Carolina. In Wake County, the Black (non-Hispanic) population has been disproportionately affected by unintentional poisoning deaths (including unintentional overdose deaths), firearm injuries and deaths, and motor vehicle traffic deaths in recent years. Additionally, the Hispanic or Latino population in Wake County has been disproportionately affected by motor vehicle traffic deaths between 2018 – 2022.

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## 11.0 DATA SOURCES

### **United States Census Bureau**

The Census Bureau collects and provides information about the people and economy of the United States. The Census Bureau's website (<http://www.census.gov/>) includes data on demographic characteristics of the population, family structure, educational attainment, income level, and the proportion of persons who live at or below the federal poverty level. State and county-specific data are easily accessible, and valuable to understand a population. In the demographic profile, 2022 American Community Survey (ACS) 1-year estimates were reported.

### **North Carolina Disease Event Tracking and Epidemiologic Collection Tool (NC DETECT)**

This report uses emergency department (ED) and emergency medical services (EMS) data from NC DETECT. NC DETECT is North Carolina's statewide syndromic surveillance system. It was created by the North Carolina Division of Public Health (NC DPH) in 2004 in collaboration with the Carolina Center for Health Informatics (CCHI) in the UNC Department of Emergency Medicine to address the need for early event detection and timely public health surveillance in North Carolina using a variety of secondary data sources.

Authorized users are currently able to view data from emergency departments, North Carolina Poison Control, and emergency medical services (EMS), as well as pilot data from select urgent care centers. NC DETECT is designed, developed, and maintained by CCHI staff with funding by the NC DPH. New functionality is added regularly based on end user feedback. This report includes 5-year trend (2018-2022) and 2021 and 2022 ED and EMS data.

### **North Carolina Department of Health and Human Services (NCDHHS) Opioid and Substance Use Action Plan**

To address the overdose crisis, the NCDHHS worked with community partners to develop North Carolina's Opioid and Substance Use Action Plan. From that collaboration, the Opioid and Substance Use Action Plan data dashboard was built. The data dashboard provides integration and visualization of state, regional, and county-level metrics for partners across North Carolina to track progress toward reaching the goals outlined in the plan. The NC Opioid and Substance Use Action Plan Data Dashboard can be accessed here: <https://www.ncdhhs.gov/opioid-and-substance-use-action-plan-data-dashboard>.

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## **NCDHHS Injury and Violence Prevention Branch**

NCDHHS' Injury and Violence Prevention Branch website includes statewide summary data, a link to the Opioid and Substance Use Action Plan Data Dashboard, monthly data updates, and county-level data. This branch of NCDHHS also provides data for drug overdoses, along with other injuries, by customizable requests. A significant portion of the data included in this report were provided through an annual request made to the Injury and Violence Prevention Branch earlier this year.

## **North Carolina Violent Death Reporting System**

The North Carolina Violent Death Reporting System (NC-VDRS) is a CDC-funded statewide surveillance system that collects detailed information on deaths that occur in North Carolina resulting from violence: homicide, suicide, unintentional firearm deaths, legal intervention, and deaths for which intent could not be determined. NC-VDRS is a multi-source incident-based system that gathers information from death certificates, medical examiner reports, and law enforcement reports. The goal of this system is to aid researchers, legislators, and community interest groups in the development of public health prevention strategies to reduce violent deaths. NC-VDRS began collecting data in January 2004. The NC-VDRS dashboard can be accessed here:

[https://dashboards.ncdhhs.gov/t/DPH/views/NCVDRSDashboard/NC-VDRSDashboard?%3AshowAppBanner=false&%3Adisplay\\_count=n&%3AshowVizHome=n&%3Aorigin=viz\\_share\\_link&%3AisGuestRedirectFromVizportal=y&%3Aembed=y](https://dashboards.ncdhhs.gov/t/DPH/views/NCVDRSDashboard/NC-VDRSDashboard?%3AshowAppBanner=false&%3Adisplay_count=n&%3AshowVizHome=n&%3Aorigin=viz_share_link&%3AisGuestRedirectFromVizportal=y&%3Aembed=y)

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## 12.0 REFERENCES

- 1) Unintentional Injury, Maine Center for Disease Control and Prevention, retrieved 9/6/23 from <https://www.maine.gov/dhhs/mecdc//population-health/inj/unintentional.html>
- 2) Unintentional Poisonings in the United States, Oklahoma State Department of Health, retrieved 9/15/23 from <https://oklahoma.gov/content/dam/ok/en/health/health2/documents/unintentional-poisonings-ok-us-8-2012.pdf>
- 3) Fast Facts: Firearm Violence Prevention. Centers for Disease Control and Prevention (CDC), retrieved 9/15/23 from <https://www.cdc.gov/violenceprevention/firearms/fastfact.html>
- 4) NC Violent Death Reporting System Data Dashboard Welcome Tab. NCDHHS Injury and Violence Prevention Branch, retrieved 9/18/23 from [https://dashboards.ncdhhs.gov/t/DPH/views/NCVDRSDashboard/NC-VDRSDashboard?%3AshowAppBanner=false&%3Adisplay\\_count=n&%3AshowVizHome=n&%3Aorigin=viz\\_share\\_link&%3AisGuestRedirectFromVizportal=y&%3Aembed=y](https://dashboards.ncdhhs.gov/t/DPH/views/NCVDRSDashboard/NC-VDRSDashboard?%3AshowAppBanner=false&%3Adisplay_count=n&%3AshowVizHome=n&%3Aorigin=viz_share_link&%3AisGuestRedirectFromVizportal=y&%3Aembed=y)

## 13.0 ACKNOWLEDGEMENTS

For contributions to this report:

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**Health & Human Services supports the behavioral health needs of our community by monitoring trends in substance use and its impact on our community. Our Drug and Injury Prevention Unit collaborates with capable people and organizations to provide outreach education and evidence-based strategies to prevent deaths and health problems due to tobacco and other drug use. One of the several important local initiatives includes the Drug Overdose Prevention Initiative.**

The Drug Overdose Prevention Initiative is designed to prevent and reduce substance use disorders in at-risk populations, support harm-reduction strategies, and link individuals to services to address social determinants of health. Through the Initiative, Wake County contracts with Healing Transitions, The Alice Aycock Poe Center for Health Education, and Recovery Communities of North Carolina to address substance use and prevention efforts. The Initiative aligns with the NC Opioid Action Plan with these strategies:

- Create a coordinated infrastructure.
- Reduce oversupply of prescription opioids.
- Reduce diversion and flow of illicit drugs.
- Increase community awareness and prevention.
- Make naloxone widely available and link overdose survivors to care.
- Expand treatment and recovery-oriented systems of care.
- Measure our impact and revise strategies based on results.

The Rapid Responder Post Overdose Response Team (PORT) was created through a partnership with Wake County Health and Human Services, Wake County EMS and Healing Transitions, whose employees are Certified Peer Support Specialists (CPSS). When EMS responds to someone who has overdosed, CPSS and EMS follow up with that individual and their families 24–48 hours post overdose to encourage those survivors to engage in treatment and recovery supports. The Rapid Responder staff employ an interdisciplinary approach to care planning. Each client is assessed for common risks associated with the use of street drugs, social barriers to health, readiness, and willingness to work toward a substance-free life and co-occurring physical and mental health concerns. Transportation services are provided to those who have difficulty getting to their medication-assisted treatment (MAT) providers. Individuals who are at high risk for recurrent overdoses are supplied with naloxone, Fentanyl Test Reagents, and instructed in the use of both.

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Through the Drug Overdose Prevention Initiative, Wake County distributed 656 naloxone kits during the 2022-2023 fiscal year.

In addition to the Drug Overdose Prevention Initiative, in November 2015, groups and organizations in Wake County working to prevent and respond to opioid overdoses formed the Wake County Drug Overdose Prevention Coalition. This collaboration helps combine resources to be more effective in preventing drug overdoses across the county. The Coalition meets quarterly for educational information, to exchange progress updates on the Coalition work plan, and to network.

**More information about the Drug Overdose Prevention Initiative and the Drug Overdose Prevention Coalition can be found [here](#).**



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