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2025

WAKE COUNTY

Drug Overdose Integrated Epidemiologic Profile



Public Health



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1.0 OVERVIEW

In 2024, an average of 221 people died from overdoses each day in the United States.¹ Given these numbers, a significant portion of the population has been impacted by overdose and substance use both nationally and in Wake County. This report presents overdose counts and rates, including separate data on fatal and nonfatal incidents. It is important to remember that these figures represent real people- not only those who experienced an overdose, but also the broader ripple effects on their families, friends, and communities.

The 2025 Wake County Drug Overdose Integrated Epidemiologic Profile describes the burden of the drug overdose crisis on the population of Wake County in terms of socio-demographic and geographic characteristics of people experiencing drug overdoses. The profile represents a data-driven resource for local level partners and community members to understand current drug overdose trends, patterns, and possible risk factors in Wake County.

Goals of this Drug Overdose Integrated Epidemiologic Profile:

- Describe the socio-demographic characteristics of the general population in Wake County for comparison to overdose statistics,
- Use data to provide a thorough description of drug overdose morbidity and mortality among various populations (age, race, sex, ZIP Code, etc.) in Wake County, and
- Provide insights for overdose prevention.

2.0 EXECUTIVE SUMMARY

Drug overdoses are a leading cause of injury-related death among adults, both nationally and locally. Over the past several decades, overdose death rates in the United States increased substantially, including those involving synthetic opioids (such as fentanyl) and stimulants (such as cocaine and methamphetamine). However, in recent years, rates have stabilized and declined from 2022 to 2024.¹² In 2024, an average of eight North Carolinians died each day from a drug overdose.² In Wake County, nearly 2,000 overdose deaths occurred between 2010 and 2024, with annual deaths decreasing from 233 in 2023 to 169 in 2024.² Similar declines were observed at both the state and national levels during this period.² Nationally, overdose deaths decreased by nearly 27% between 2023 and 2024, according to provisional data.⁹ Further decreases are expected for 2025 at the state and national levels once the deaths have been fully investigated and finalized.

Opioids are a class of drugs that include the illegal drug heroin, synthetic opioids such as fentanyl, and pain relievers available legally by prescription, such as oxycodone (OxyContin®), hydrocodone (Vicodin®), codeine, morphine, and many others.

The increase in overall drug overdose deaths is driven by opioids and other substances mixed or cut with opioids. This is demonstrated in the three waves of the opioid epidemic. The first wave of deaths from the opioid epidemic began in the late 1990s when there was a rise in prescription opioid overdose deaths.¹¹ The second started around 2010 with a rise in heroin-specific overdose deaths, and the third wave only a few years later around 2013 with a rise in synthetic opioid overdose deaths.¹¹ At the national and state levels, there is evidence of a fourth wave starting around 2018, where rates of overdose deaths rose and then stayed at elevated levels through 2022. Early evidence suggests a decline in overdose deaths in 2023 and 2024, though overdose levels remain high nationwide.



More than 44,500 North Carolinians lost their lives to drug overdoses between 2000 and 2024.²

Substance use disorder (SUD), recognized as a medical condition, affects the brain and changes behavior.³ It involves some pattern of regular or compulsive substance use. Addiction is the result of psychological or physiological dependence on that use. There is not one single driving factor that leads to addiction; it is a confluence of many factors and anyone can have substance use disorder.³ In 2023, an estimated 54.2 million Americans aged 12 or older needed substance use disorder treatment in the past year, but only 12.8 million individuals with a substance use disorder received treatment.¹³



There were nearly 2,000 drug overdose deaths in Wake County between 2010 and 2024.

According to the U.S. Census Bureau estimates, there were 1,232,444 residents of Wake County as of July 2024. This shows a growth of 37% in Wake County residents since the 2010 Census when the population was 900,993. Based on 2024 estimates, approximately 61% of the county population are under the age of 45 and approximately 55% are between the ages of 25 and 64. The county's population is 51% female. Additionally, Wake County is 54.9% Non-Hispanic White, 18.1% Non-Hispanic Black, and 11.9% Hispanic. Other races and mixed-race are included in Table 2 of this report. Tables 3-7 provide additional information on the sociodemographic composition of Wake County residents including marital status, education level, socioeconomic status, employment status, and health insurance coverage, all of which can be risk factors for substance use and drug overdoses.

The risk of an opioid overdose for individuals using cocaine, methamphetamine, or other non-opioid illicit substances in the 1990s and early 2000s would have been minimal. The risk of overdose during the current wave of the opioid epidemic is much higher due to a rise in synthetic opioids such as fentanyl, and non-opiates such as cocaine now being "cut" (diluted or mixed) with fentanyl without the user knowing. Fentanyl was originally created to legally manage pain from cancer. It entered the illicit drug market because it was cheaper than heroin for dealers and gave their product a higher potency. Now, illicit fentanyl looks like other drugs when in powder form.

It is commonly mixed with drugs such as heroin, cocaine, and methamphetamine and molded into pills that are made to resemble other prescription opioids.⁵

At the national level, nearly 76% of drug overdose deaths in 2023 involved an opioid (prescription or illicit), and 69% involved synthetic opioids other than methadone, primarily illegally manufactured fentanyl and its analogs.¹³ Overdose deaths of Wake County residents involving fentanyl occurred at a rate of 7.8 per 100,000 population in 2024. This rate was significantly lower than the 2021 peak but slightly higher than the 2019 rate of 7.1 per 100,000 population.

In addition to synthetic opioids like fentanyl, other substances are increasingly being identified in the drug supply at both the national and local levels, each with distinct health impacts. For example, medetomidine has been associated with severe withdrawal symptoms, while xylazine has been linked to complications in wound healing. Both substances are non-opioid veterinary sedatives and analgesics. Additional information on these substances is provided in the "Emerging Substance: Medetomidine" subsection later in this report.

3.0 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 this profile, 2024 American Community Survey (ACS) (Census Bureau) estimates are used.

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

This profile uses emergency department (ED) 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 (data from Fall 2024 and onward), 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 (2021-2025) ED 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 interactive 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.

NCDHHS Injury and Violence Prevention Branch

The 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. Some of the overdose death data for Wake County, particularly broken up by demographic categories, were provided through requests made to the Injury and Violence Prevention Branch in 2025 and spring of 2026.

4.0 STRENGTHS AND LIMITATIONS

The 2025 Wake County Drug Overdose Integrated Epidemiologic Profile provides important information that local partners can use as a resource for prevention strategies. Strengths of this profile include robust datasets and detailed analyses. Comprehensive population demographics data from the Census Bureau offer community context. Data from the North Carolina Overdose Epidemic Data interactive dashboard include many data points that can be compared with other counties and to statewide rates. NC DETECT data are near real-time data from Wake County emergency departments that are updated daily and can demonstrate trends in non-fatal overdoses.

The NCDHHS Injury and Violence Prevention Branch website has additional data available for all counties and statewide and can provide specific data for Wake County upon request by the Wake County Public Health (WCPH) Epidemiology Program. Overdose data provided by the Branch and through the Overdose and Substance Use Action Plan data dashboard include information and trends by demographic categories including biological sex, age, race, and ethnicity.

While there are many strengths in the data sources that are included in this profile, some limitations must be acknowledged. There is a significant delay in the reporting and finalization of death data. Due to this delay, the death data in this report is through 2024, as 2025 data have not been finalized. NC DETECT data are de-identified to some degree, resulting in classifiers not capturing all overdoses. Additionally, non-standard reporting across hospital systems can make this data hard for the system to interpret.

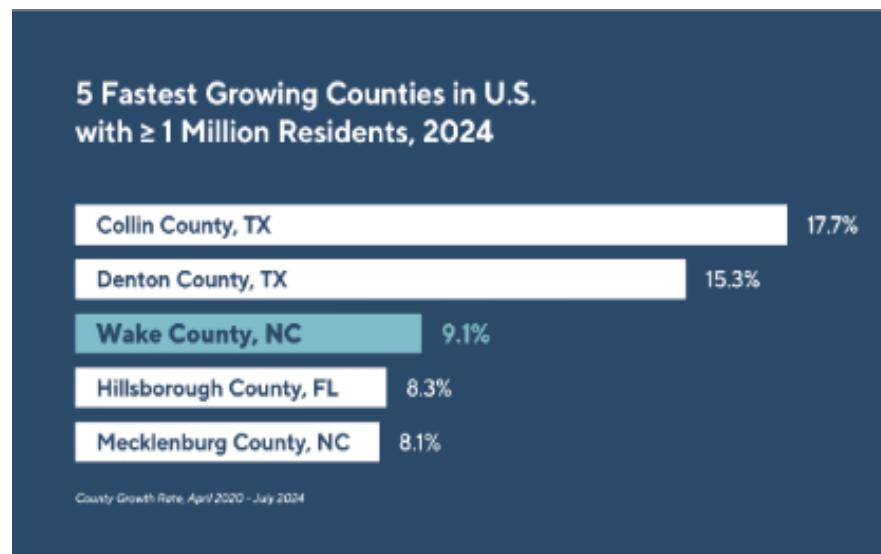
5.0 GEOGRAPHICAL COMPOSITION AND DEMOGRAPHIC PROFILE OF GENERAL POPULATION, WAKE COUNTY, N.C.

Figure 1. Geographical Location of Wake County, N.C.



Wake County, with a population of over 1.2 million, is one of the fastest growing counties in the country. The county grows by approximately 66 people per day and added more than 103,000 people since 2020. A significant portion of this growth is attributed to an aging population, as U.S. Census Bureau estimates from April 2020 to July 2023 show that 52% of new residents were 55 and older.¹⁰

Figure 2. The Five Fastest Growing Counties in the United States with 1 million or Greater Residents, 2024



Demographic Profile

In 2024, the median age of people living in Wake County was 37.7 years. More than half of the population (54.9%) in Wake County are between the ages 25–64 years. Nearly one third of the population (31.3%) are younger than 25 years old; and about 14.0% of the population are 65 years and older.

Table 1: Population Distribution by Age Group and Sex, Wake County, NC 2024

Age Group	Males N = 603,548	%	Females N = 628,896	%	Total Population N = 1,232,444	%
<15	114,146	18.9%	109,374	17.5%	223,520	18.1%
15-24	81,723	13.5%	80,907	12.9%	162,630	13.2%
25-34	88,085	14.6%	91,928	14.7%	180,013	14.6%
35-44	92,819	15.4%	95,009	15.1%	187,828	15.2%
45-54	83,870	13.9%	85,461	13.6%	169,331	13.7%
55-64	68,509	11.4%	71,948	11.4%	140,457	11.4%
65+	74,396	12.4%	94,269	14.8%	168,665	13.7%

Source: 2024 American Community Survey 1-Year Estimates, United States Census Bureau¹³

Note: Percentages may not sum to 100% due to rounding.

The four largest ethnic groups in Wake County are White (Non-Hispanic) (54.9%), Black or African American (Non-Hispanic) (18.1%), Hispanic or Latino (11.9%) and Asian (9.6%)(Table 2).

Table 2: Population Distribution by Race and Ethnicity, Wake County, NC 2024

Race and Ethnicity	Total Population *1,232,444	%
Hispanic or Latino	146,144	11.9%
White Non-Hispanic, single race	676,188	54.9%
Black or African American Non-Hispanic, single race	223,072	18.1%
American Indian/Alaska Native Non-Hispanic, single race	1,570	0.1%
Asian Non-Hispanic, single race	118,756	9.6%
Native Hawaiian and Other Pacific Islander Non-Hispanic, single race	181	0.0%
Two or more races Non-Hispanic	60,900	4.9%

Source: 2024 American Community Survey 1-Year Estimates, United States Census Bureau¹³

Note: Percentages may not sum to 100% due to rounding.

*This is the total including residents who identified as “other” race, which is not shown in the current table.

Poverty, Income and Education

In 2024, the median household income for Wake County was \$106,848 compared to \$73,958 for North Carolina. In Wake County, about 8.6% of the population was below the federal poverty level, compared to 12.5% for the state (Table 3). Of those residing in Wake County, 8.0% of males and 9.3% of females live below the federal poverty level. When broken down by race and ethnicity, 6.1% of Non-Hispanic White, 13.3% of Non-Hispanic Black, 17.5% of Hispanic or Latino and 4.6% of the Non-Hispanic Asian populations live below the federal poverty level.

More than half (58.5%) of the population aged 25 years and older in Wake County has a bachelor’s degree or higher. While 14.2% of the population has a high school degree or GED, only 5.7% of the population reported having an education less than high school (Table 4).

Table 3: Socioeconomic Characteristics of Population, Wake County and North Carolina, 2024

Characteristics	Wake County	North Carolina
Median household income	\$106,848	\$73,958
Average per capita income	\$58,417	\$42,777
Below Federal Poverty Level		
Individual	8.6%	12.5%
Male	8.0%	11.4%
Female	9.3%	13.6%
Below Federal Poverty Level by Age Group		
<18	10.9%	16.5%
18-64	7.8%	11.6%
>=65	8.7%	11.1%
Below Federal Poverty Level by Race and Ethnicity		
Hispanic or Latino	17.5%	20.2%
White Non-Hispanic, single race	6.1%	9.3%
Black or African American Non-Hispanic, single race	13.3%	18.9%
American Indian/Alaska Native Non-Hispanic, single race	N	17.1%
Asian Non-Hispanic, single race	4.6%	8.5%
Native Hawaiian and Other Pacific Islander Non-Hispanic, single race	N	24.4%
Two or more races Non-Hispanic	11.2%	15.3%

Table 4: Educational Status of the Population (Age ≥25 Years), Wake County, NC 2024

Education	Males N= 407,679	%	Females N= 438,615	%	Total Population N= 846,294	%
Less than High School	26,025	6.4%	22,228	5.1%	48,253	5.7%
High School Diploma/GED	56,654	13.9%	63,448	14.5%	120,102	14.2%
Some College, no degree	59,448	14.6%	58,481	13.3%	117,929	13.9%
Associate degree	27,671	6.8%	37,752	8.6%	65,423	7.7%
Bachelor's degree	137,493	33.7%	146,472	33.4%	283,965	33.6%
Graduate or Professional degree	100,388	24.6%	110,234	25.1%	210,622	24.9%

Source for Tables 3 and 4: 2024 American Community Survey 1-Year Estimates, United States Census Bureau¹³

Note: Percentages may not sum to 100% due to rounding.

N= The estimate cannot be displayed because there were an insufficient number of sample cases in the selected geographic area.

Marital Status, Employment, and Healthcare Coverage

Table 5 shows marital status information by sex for residents 15 years of age and older in Wake County. More than half (52.0%) of the population reported being married. Additionally, 11.1% females and 6.6% of males reported being divorced, while 34.1% of the population have never been married, and 3.2% of the population (mostly females) reported being widowed.

Table 6 provides information on the employment status of the civilian labor force that is at least 16 years old and older for Wake County and North Carolina. The civilian labor force, or currently active workforce, is defined as all civilian noninstitutionalized residents who fulfil the requirements for inclusion among the employed or the unemployed. The employed of Wake County (67.6%) are defined as those who work for pay or profit at least one hour a week, or have a job, but are temporarily on leave due to illness, industrial action, etc. Those that are unemployed (3.7%) are defined as people without work but are actively seeking a job and currently available to start work.⁸ The unemployment rate has increased for Wake County from the previous year (3.4% vs. 3.7%, respectively).

Table 7 shows the percentage of population covered by health insurance compared to the state. More than half (67.8%) of Wake County's population has insurance through their employer. 14.0% of the population have Medicare, 12.2% are covered by Medicaid and 6.0% reported being uninsured, a slight decrease from the previous year.

Table 5: Marital Status of the Population (Age ≥ 15 years), Wake County, NC 2024

Marital Status (> 15 years)	Males N = 489,402	%	Females N = 519,522	%	Total Population N = 1,008,924	%
Married	265,176	54.2%	259,913	50.0%	525,089	52.0%
Divorced	32,375	6.6%	57,780	11.1%	90,155	8.9%
Never married	178,631	36.5%	165,501	31.9%	344,132	34.1%
Widowed	6,743	1.4%	25,774	5.0%	32,517	3.2%

Source: 2024 American Community Survey 1- Year Estimates, United States Census Bureau¹³

Note: Percentages may not sum to 100% due to rounding.

*Totals include marital status: separated, which is not shown in the current table.

Table 6: Employment Status of the Population (Age ≥ 16 years), Wake County and North Carolina, 2024

Employment Status	Wake County		North Carolina	
	Total	%	Total	%
In Labor Force	698,006	70.3%	5,697,035	63.4%
Employed	670,885	67.6%	5,369,487	59.8%
Unemployed	25,900	3.7%	223,064	4.0%

Source: 2024 American Community Survey 1-Year Estimates, United States Census Bureau¹³

Note: Percentages may not sum to 100% due to rounding.

Table 7: Healthcare Coverage in Wake County and North Carolina, 2024

Health Insurance Coverage	Wake County (%)	North Carolina (%)
Employer	67.8%	52.5%
Medicaid	12.2%	20.1%
Medicare	14.0%	19.4%
Military/VA	1.9%	3.1%
Uninsured	6.0%	8.6%

Source: 2024 American Community Survey 1-Year Estimates, United States Census Bureau¹³

Note: Percentages may not sum to 100% due to rounding.

6.0 DRUG OVERDOSE MORTALITY-TOTAL DEATHS

Figure 3 displays the top five causes of injury-related death in Wake County from 2020 to 2024, including unintentional poisoning, falls, motor vehicle traffic crashes, firearm injuries, and suffocation. Drug overdoses account for the majority of deaths within the unintentional poisoning category.

Figure 4 displays annual rates for the top five causes of injury-related death. In 2020, unintentional poisoning surpassed unintentional falls to become the leading cause and remained markedly higher than other causes through 2022. By 2023, rates declined, and unintentional falls again became the leading cause of injury-related death.

Figure 3: Percentage of the Top Five Causes of Injury-Related Death, Wake County, 2020-2024*

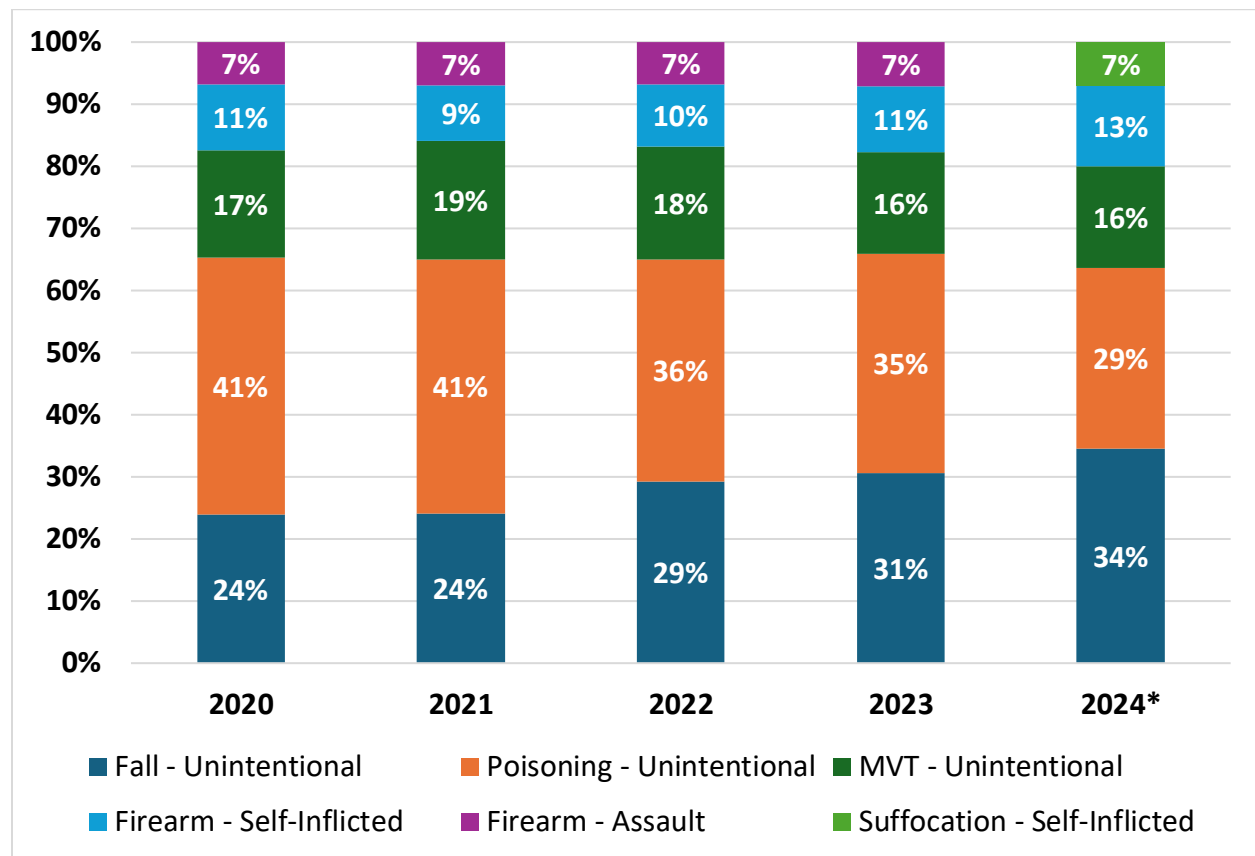
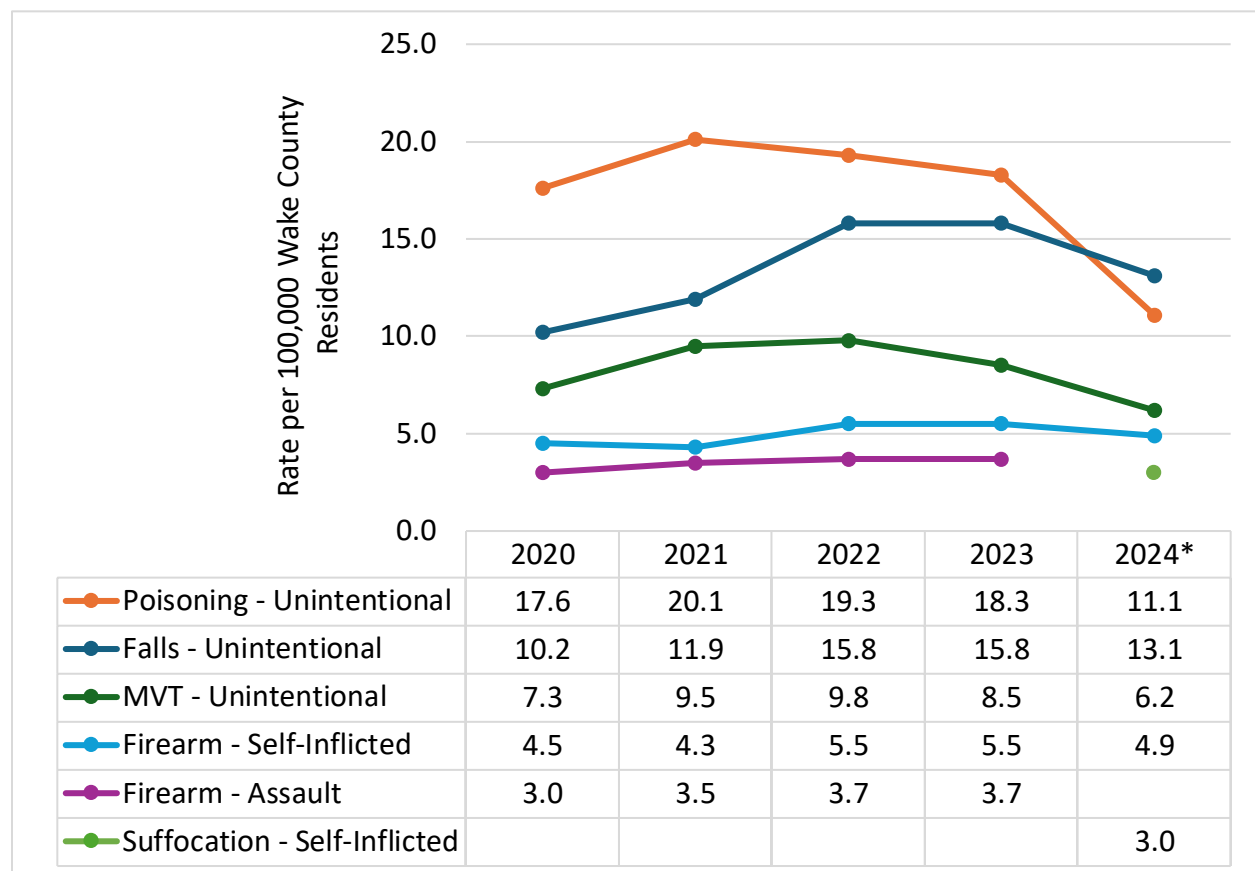


Figure 4: Death Rates, Top Five Causes of Injury Death, Wake County, 2020-2024*



Source for Figures 3 and 4: North Carolina State Center for Health Statistics, Vital Statistics Death Certificate Data, 2020-2024*; US Census non-bridged single race population estimates 2020-2024; provided by NCDHHS DPH Injury and Violence Prevention Branch, 08/01/2025.

*2024 data are provisional.

Blank cells: Cause of injury death was not in the top five causes of injury death for that year.

Drug overdose death rates in Wake County increased steadily from 2000 through a peak in 2021, followed by a notable decline through 2024 (Figure 5). A similar pattern is observed at the state level, although Wake County rates have consistently remained lower than those for North Carolina. Correspondingly, the number of overdose deaths in Wake County rose substantially over time, peaking in 2021 before declining to 169 deaths in 2024 (Figure 6).

Figures 5 and 6 include overdose deaths of all intents and across multiple drug categories, including opioids (such as prescription opioids, heroin, and synthetic opioids like fentanyl), stimulants (such as cocaine and methamphetamine), benzodiazepines, and others. While these data include overdoses of all intents, the majority of deaths are unintentional. The sharp increases observed in 2020 and 2021 may be partially associated with the social and economic impacts of the COVID-19 pandemic.

Figure 5: Drug Overdose Death Rates, All Intent, NC Compared to Wake County, 2000-2024

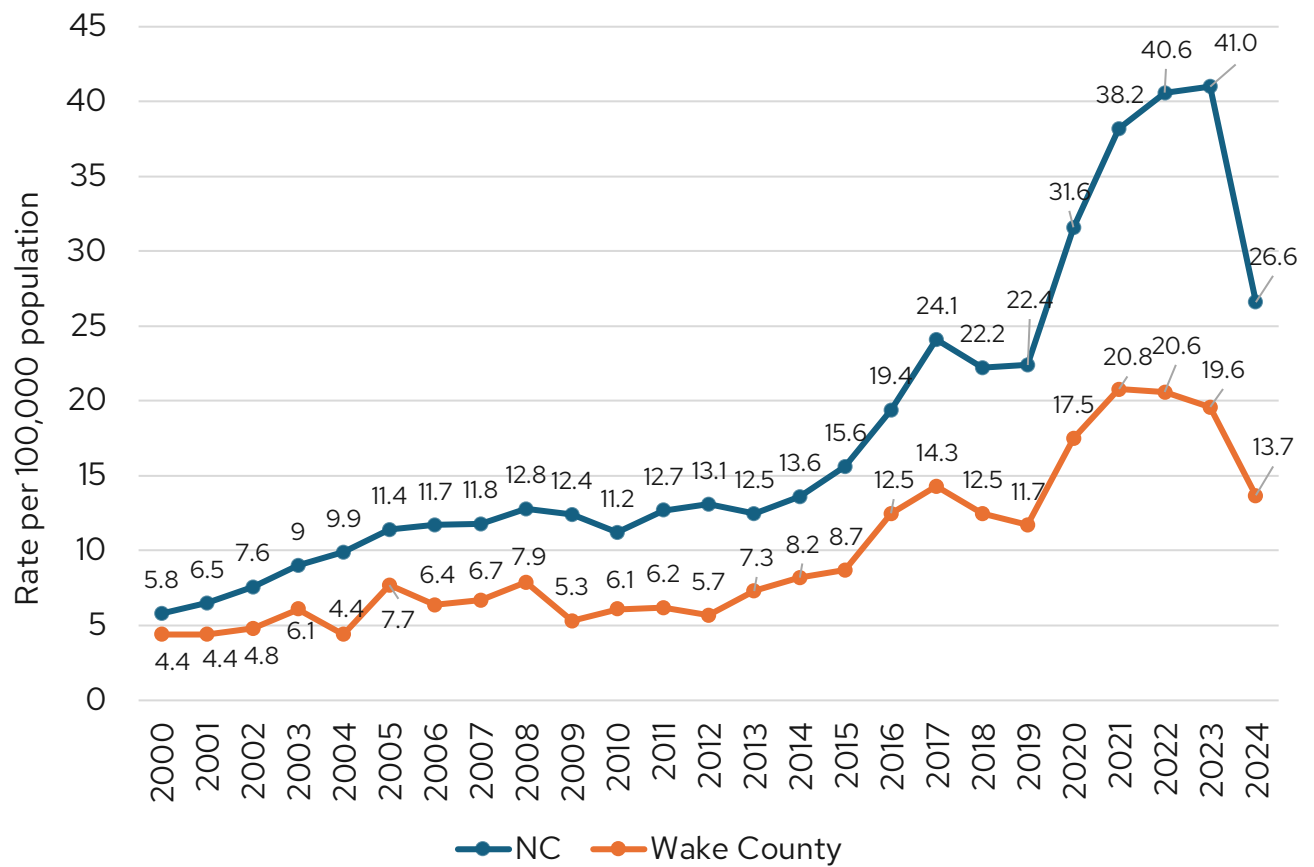
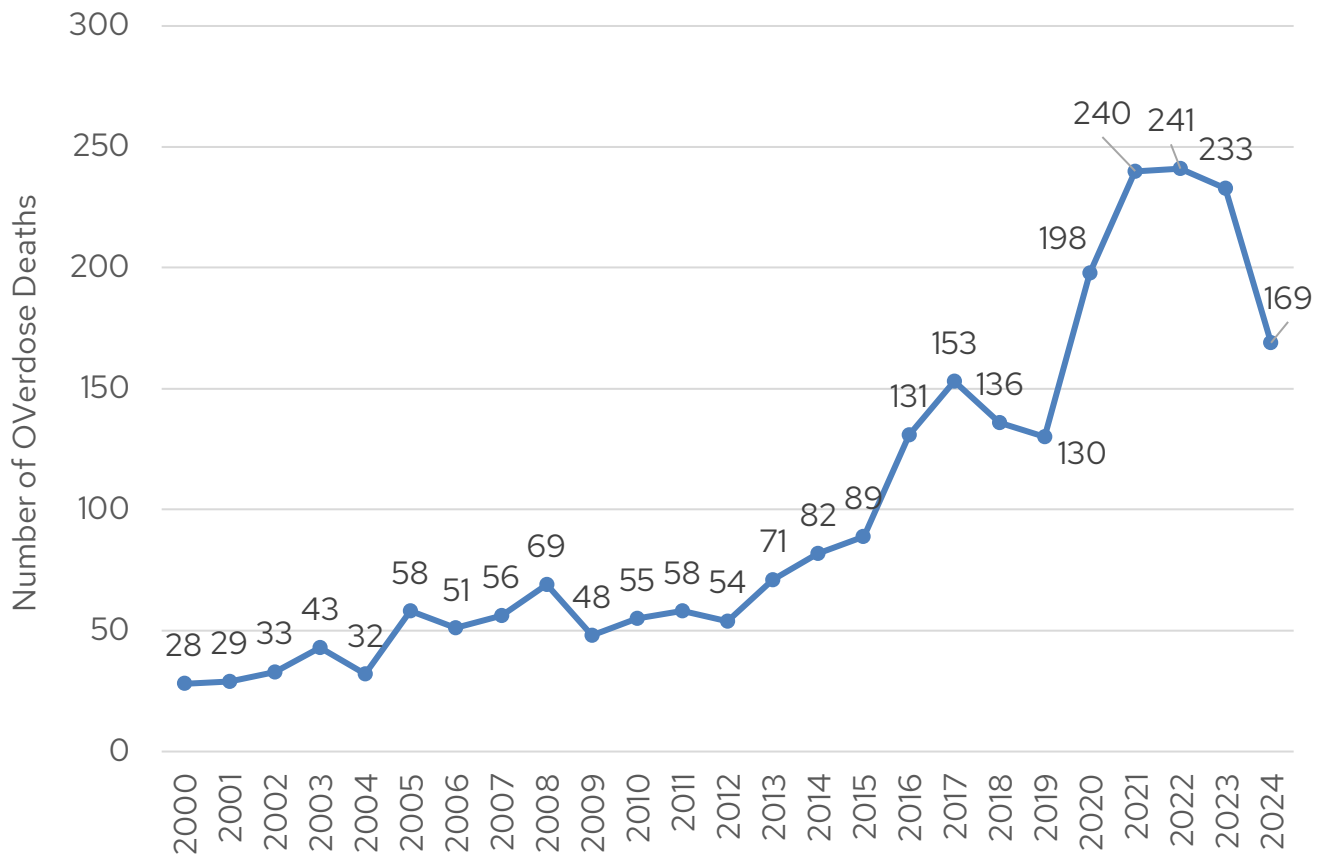


Figure 6: Drug Overdose Death Counts in Wake County, All Intent, 2000-2024



Source for Figures 5 and 6: North Carolina Overdose Epidemic Data interactive dashboard, NCDHHS. 03/31/2026.

7.0 DRUG OVERDOSE MORTALITY-DEMOGRAPHICS AND GEOGRAPHICAL ANALYSES

The demographic breakdown shown in Table 8 reflects unintentional poisoning deaths. While drug overdoses account for the majority of these deaths, other unintentional poisonings, such as those involving alcohol, are also included. As of August 2025 (with 2024 data considered provisional), there were 1,015 unintentional poisoning deaths in Wake County from 2020 to 2024, representing an 8.7% increase compared to 2019-2023.

Consistent with previous years, males (73.7%), Non-Hispanic White individuals (57.2%), and adults aged 25-54 (71.2%) accounted for the highest proportions of unintentional poisoning deaths. Notably, the unintentional poisoning death rate among Non-Hispanic Black individuals increased from 25.9 per 100,000 in 2019-2023 to 29.6 per 100,000 in 2020-2024.

Table 8: Unintentional Poisoning Deaths, Wake County, 2020-2024*

Characteristic	Number	Percent	Rate per 100,000
Sex			
Female	267	26.3%	8.9
Male	748	73.7%	25.9
Race/Ethnicity**			
White (NH)	581	57.2%	17.2
Black (NH)	339	33.4%	29.6
American Indian (AI)/Alaska Native (AN) (NH)	***	***	***
Asian (NH)	15	1.5%	2.8
Hispanic	65	6.4%	9.5
Other (NH)/Unknown	9	0.9%	-
Age Group			
0-14	***	***	***
15-24	123	12.1%	15.9
25-34	276	27.2%	32.0
35-44	281	27.7%	31.6
45-54	165	16.3%	20.1
55-64	134	13.2%	19.7
65+	35	3.5%	4.6
Total	1,015	100.0	17.2

- : rate not calculated for other/unknown due to unknown not having a category or total population count to calculate a rate from. *2024 data are provisional as of 08/01/2025. **" NH" means Non-Hispanic ethnicity. ***Number, percentage, and rate suppressed for counts 1-4.

Table 9: Unintentional Overdose Deaths by Marital Status and Education Level, Wake County, 2020-2024*

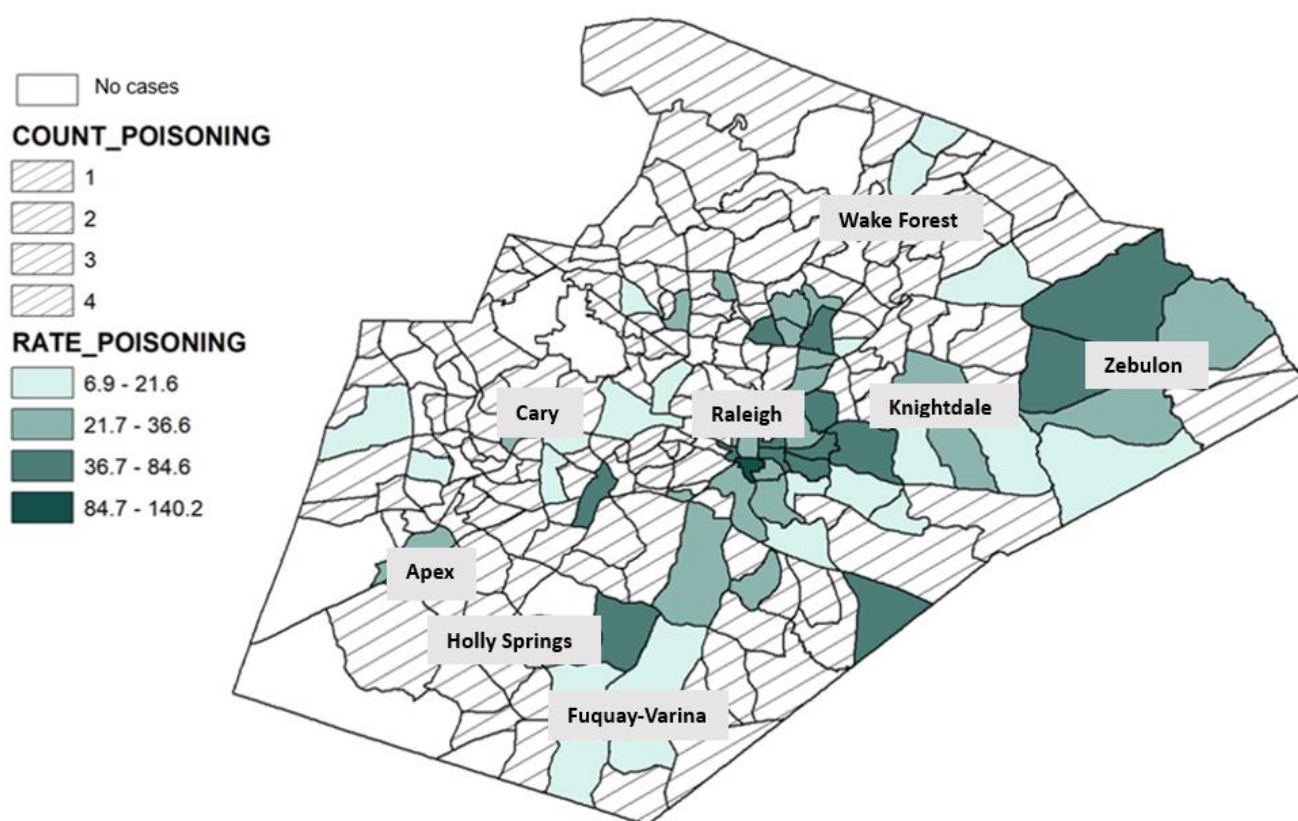
	2020		2021		2022		2023		2024*	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Marital Status										
Married	31	15.6%	27	11.6%	33	14.5%	38	17.3%	25	15.8%
Divorced	34	17.1%	36	15.5%	41	18.1%	32	14.5%	32	20.3%
Married but separated	5	2.5%	8	3.4%	5	2.2%	8	3.6%	***	***
Never Married	118	59.3%	155	66.8%	142	62.6%	130	59.1%	93	58.9%
Widowed	7	3.5%	***	***	***	***	6	2.7%	6	3.8%
Not Classifiable	***	***	***	***	***	***	6	2.7%	***	***
Education Level										
8th grade or less	***	***	5	2.2%	6	2.6%	7	3.2%	6	3.8%
9th-12 grade, no diploma	22	11.1%	39	16.8%	41	18.1%	45	20.5%	30	19.0%
High school graduate or GED completed	84	42.2%	104	44.8%	99	43.6%	94	42.7%	77	48.7%
Some college credit but no degree	44	22.1%	38	16.4%	45	19.8%	35	15.9%	27	17.1%
Associate degree	22	11.1%	12	5.2%	12	5.3%	12	5.5%	6	3.8%
Bachelor's degree	14	7.0%	22	9.5%	17	7.5%	20	9.1%	8	5.1%
Master's degree	***	***	7	3.0%	***	***	***	***	***	***
Doctorate	***	***	***	***	0	0.0%	0	0.0%	0	0.0%
Unknown	***	***	***	***	***	***	***	***	***	***
Total	199		232		227		220		158	

Source for Tables 8 and 9: NCDHHS Division of Public Health, Injury and Violence Prevention Branch (provided in 08/2025 and 4/2026, respectively) For Table 9: *2024 data are provisional. ***Number, percentage, and rate suppressed for counts 1-4.

Figure 7 displays the geographic distribution of unintentional drug overdose death rates across Wake County census tracts from 2020-2024, based on the residential address of the decedent. Although elevated rates were observed throughout the county, notable concentrations occurred in eastern, central, and southern Wake County.

Census tracts with 1-4 overdose deaths during this period were suppressed from the map to protect confidentiality. All tracts highlighted represent areas with five or more overdose deaths between 2020 and 2024.

Figure 7: Wake County All Medication/Drug Overdose Rates per 100,000 Population Mapped by Census Tract, All Intent, 2020-2024

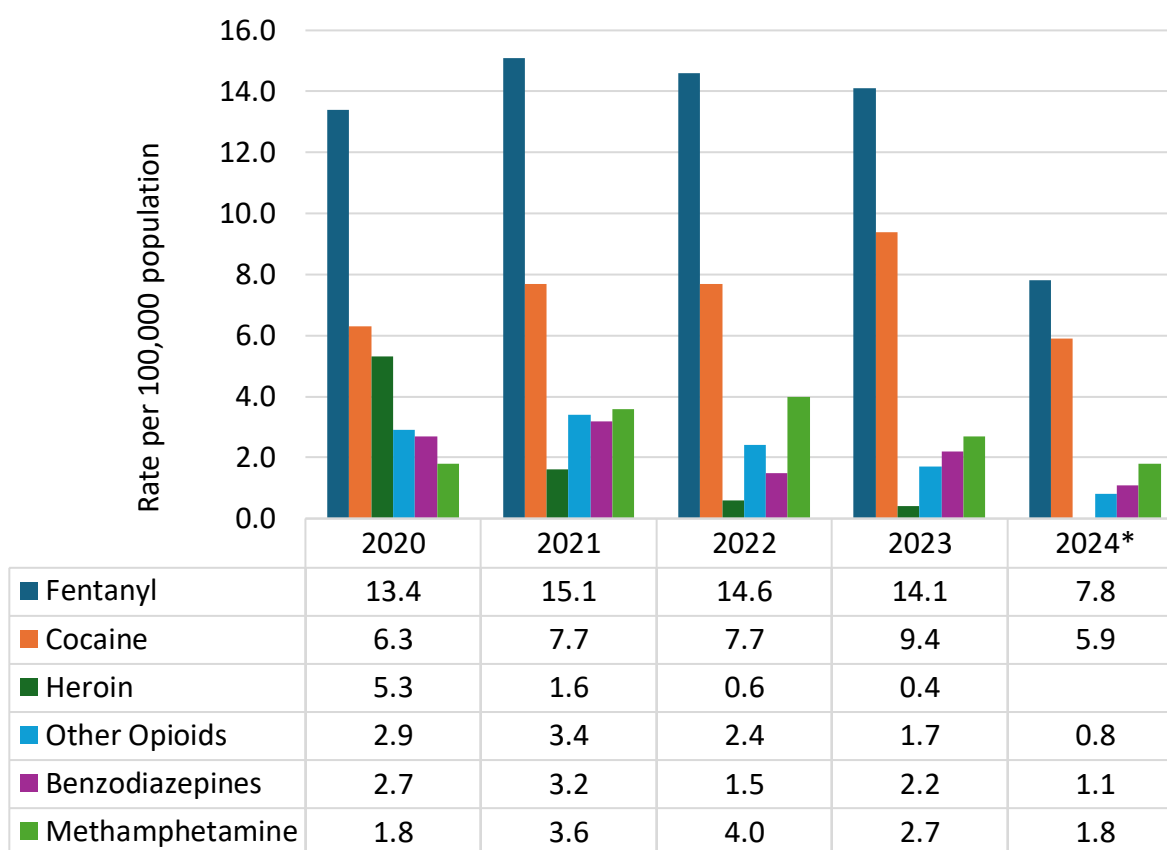


Source for Figure 7: NCDHHS Division of Public Health, Injury and Violence Prevention Branch, 4/2026.

8.0 DRUG OVERDOSE MORTALITY-DRUG TYPES

Figure 8 shows rates of drug overdose deaths that are positive for specific substances. It is important to note that a single overdose death may be counted in multiple substance categories, as many deaths involve more than one substance. Overall, rates of drug overdose deaths decreased from 2023 to 2024, with all substance categories reflecting this decline. The unintentional drug overdose rate for heroin (**) is not reported for 2024 due to the low count (between 1 and 4).

Figure 8: Drug Overdose Death Rates by Substance, Wake County, 2020-2024*



Source: NCDHHS Division of Public Health, Injury and Violence Prevention Branch, 08/2025. *2024 data are provisional; data as of 08/01/2025.

Table 10 shows that fentanyl-involved overdose deaths in Wake County increased by 8.2% from 2019-2023 to 2020-2024. The majority of deaths occurred among males (74.1%), and individuals aged 25-34 (30.9%) and 35-44 (28.0%) accounted for the largest proportions by age group. By race and ethnicity, Non-Hispanic White individuals represented the highest proportion of deaths (57.1%), while Non-Hispanic Black individuals experienced a higher rate per 100,000 population.

Table 10: Fentanyl-Involved Overdose Deaths, Wake County, 2020-2024*

	Number	Percent	Rate per 100,000
Sex			
Female	198	25.9	31.5
Male	566	74.1	93.8
Race/Ethnicity**			
White (NH)	436	57.1	12.9
Black (NH)	254	33.3	22.2
American Indian (AI)/Alaska Native (AN) (NH)	***	***	***
Asian (NH)	11	1.4	2.1
Hispanic	52	6.8	7.6
Other (NH)/Unknown	9	1.1	-
Age Group			
0-14	***	***	***
15-24	111	14.5	14.4
25-34	236	30.9	27.4
35-44	214	28.0	24.1
45-54	116	15.2	14.1
55-64	69	9.0	10.1
65+	17	2.2	2.2
Total	764	100.0	12.3

Table 11 shows that the overall cocaine overdose death rate increased by 15.6% from 2019-2023 to 2020-2024. Non- Hispanic Black individuals continue to be disproportionately affected, accounting for a larger share of deaths and experiencing rates more than three times higher than Non-Hispanic White individuals and approximately six times higher than Hispanic individuals. Males also experienced substantially higher rates of cocaine overdose death compared to females.

Table 11: Cocaine Overdose Deaths, Wake County, 2020-2024*

	Number	Percent	Rate per 100,000
Sex			
Female	115	26.4	18.3
Male	321	73.6	53.2
Race/Ethnicity**			
White (NH)	185	42.4	5.5
Black (NH)	216	49.5	18.9
American Indian (AI)/Alaska Native (AN) (NH)	***	***	***
Asian (NH)	7	1.6	1.3^
Hispanic	22	5.0	3.2
Other (NH)/Unknown	5	1.3	-
Age Group			
0-14	0	0	0
15-24	26	6.0	3.4
25-34	108	24.7	12.5
35-44	131	30.1	14.7
45-54	89	20.4	10.8
55-64	65	14.9	9.6
65+	17	3.9	2.2
Total	436	100.0	6.6

The heroin overdose death rate decreased by 24.6% from 2019-2023 to 2020-2024* (Table 12). From 2020 to 2024, males experienced the highest rates by sex. By race and ethnicity, Non-Hispanic White individuals had the highest rates, and adults aged 35-44 experienced the highest rates among all age groups.

Table 12: Heroin Overdose Deaths, Wake County, 2020-2024*

	Number	Percent	Rate per 100,000
Sex			
Female	19	20.7	3.0
Male	73	79.4	12.1
Race/Ethnicity**			
White (NH)	66	71.7	2.0
Black (NH)	19	20.7	1.7
American Indian (AI)/Alaska Native (AN) (NH)	0	0	0
Asian (NH)	***	***	***
Hispanic	5	5.4	5.7^
Other (NH)/Unknown	***	***	-
Age Group			
0-14	0	0.0	0.0
15-24	15	16.3	1.9
25-34	23	25.0	2.7
35-44	32	34.8	3.6
45-54	10	10.9	1.2
55-64	9	9.8	1.3^
65+	***	***	***
Total	92	100.0	2.1

Source for Tables 10, 11, and 12: NCDHHS, Division of Public Health, Injury and Violence Prevention Branch, 08/2025. ^For counts between 5-9, interpret the rate with caution. *2024 data are provisional. - No rates calculated for unknown populations due to no denominator. **"NH" means non-Hispanic ethnicity. *** Number, percentage, and rate suppressed for counts 1-4.

8.1 EMERGING SUBSTANCE IN THE DRUG MARKET: MEDETOMIDINE

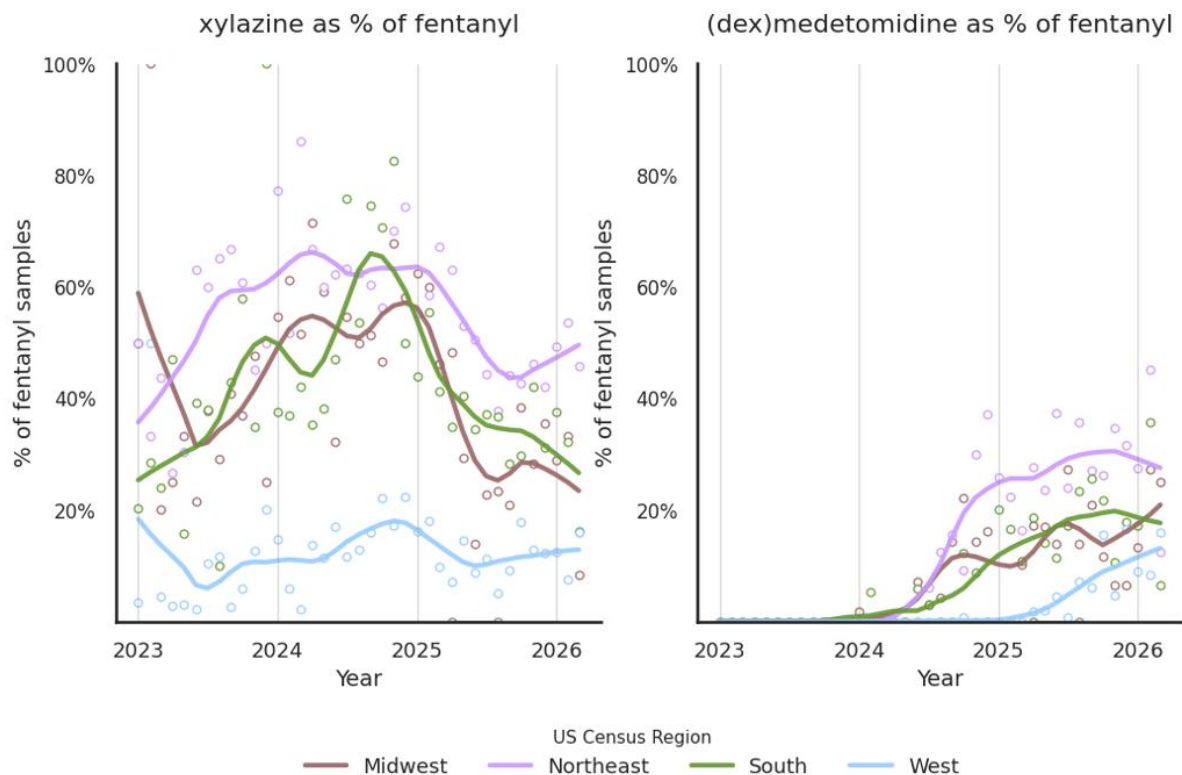
Medetomidine, a mixture of dexmedetomidine and levo-medetomidine, is commonly used in veterinary medicine to produce sedation and analgesia.⁶ Dexmedetomidine is approved by the U.S. Food and Drug Administration for human use and is commonly used in hospital settings; however, medetomidine (the mixture including levo-medetomidine) is not approved for use in humans.⁶

Medetomidine was first identified in the illicit drug supply in combination with illegally manufactured fentanyl in 2021, and by 2024, it was beginning to replace xylazine as a commonly observed veterinary sedative adulterant.⁷ By late July 2024, medetomidine had been detected in drug samples and biological specimens from individuals who use illegal opioids in at least 18 states and the District of Columbia.⁷ While xylazine is associated with wounds and complications related to impaired wound healing, medetomidine can cause profound sedation, bradycardia, and hypotension. Discontinuation following repeated use may lead to severe withdrawal with symptoms including hypertension, anxiety, nausea, vomiting, and fluctuating alertness, and may require emergency or intensive care.⁷

At the national level, increased adverse effects and hospitalizations associated with medetomidine have been reported, particularly in the mid-Atlantic region. From September 2024 to January 2025, 165 patients across three Philadelphia health systems were hospitalized for fentanyl withdrawal complicated by severe autonomic dysfunction.⁷ Similar presentations were reported in Pittsburgh (October 2024–March 2025), where many patients required dexmedetomidine infusions and ICU-level care, and in Maryland (July 2025–August 2025), where medetomidine-related overdoses were frequently accompanied by withdrawal symptoms.⁷

Locally, the UNC Street Drug Analysis Lab has identified dexmedetomidine or medetomidine in 20 samples from the Triangle region in recent years and has observed increasing detection in samples nationwide. While xylazine continues to account for a higher proportion of samples tested, its presence has generally declined over time, whereas medetomidine detections have gradually increased.

Figure 9: Percentage of Fentanyl-Positive Samples Containing Xylazine or (Dex) Medetomidine by U.S. Census Region, 2021-Early 2026



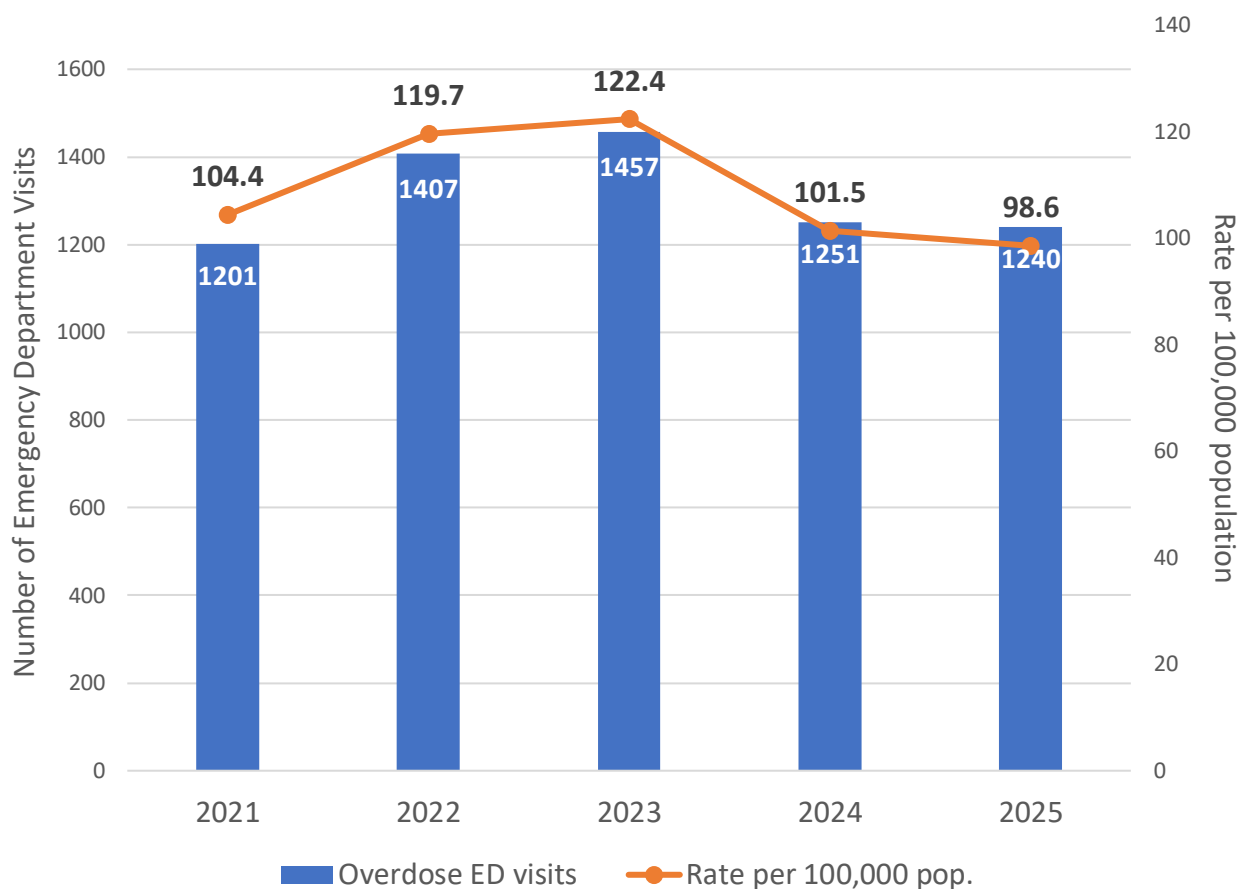
Source: UNC Street Drug Analysis Lab Presentation to the Wake County Public Health Committee, March 20, 2026. Full slide deck can be accessed here: https://cdr.lib.unc.edu/concern/scholarly_works/zw12zn68j?locale=en

It is important for hospital systems, clinicians, and public health professionals to be aware of medetomidine as an emerging substance in the illicit drug supply and its associated health effects, particularly with repeated exposure and the potential for withdrawal. Clinicians, especially those who treat patients experiencing overdose or substance use, should be prepared to recognize and manage medetomidine withdrawal in individuals who have used opioids. Existing public health surveillance systems at the state and local levels, including poison control center data, EMS data, medical examiner toxicology reports, and syndromic surveillance systems, can be used to monitor trends in medetomidine-related exposures, withdrawal symptoms, and other associated health outcomes in the population. Increasing awareness of medetomidine and other emerging substances in the drug supply may lead to greater submission of samples for testing (e.g., through the UNC Street Drug Analysis Lab), improving understanding of the drug supply and helping to reduce potential harms among people who use drugs.

9.0 DRUG OVERDOSE MORBIDITY-TOTAL EMERGENCY DEPARTMENT VISITS

From 2021 to 2025, there were approximately 6,556 emergency department (ED) visits for suspected drug overdoses of unintentional or undetermined intent in Wake County. ED visits increased from 2021 through a peak in 2023, even when accounting for population growth. However, a decline was observed in 2024, which continued slightly into 2025, as shown in Figure 10.

Figure 10: Unintentional or Undetermined Intent Medication or Drug Overdose Emergency Department (ED) Visits, Wake County, 2021-2025



Source: NC DETECT, NCDHHS Division of Public Health, UNC School of Medicine, 03/02/2026, and U.S. Census Bureau for annual population estimates.

10.0 DRUG OVERDOSE MORBIDITY-EMERGENCY DEPARTMENT VISIT DEMOGRAPHICS AND GEOGRAPHICAL ANALYSES

The demographic characteristics of individuals visiting the emergency department (ED) for suspected drug overdoses are shown in Figures 11-14. From 2021 to 2025, the largest proportion of overdose-related ED visits occurred among adults aged 25-44, with individuals aged 45-64 representing the second largest group (Figure 11). Males consistently accounted for a higher number of ED visits compared to females (Figure 13). By race, White individuals accounted for the highest number of ED visits across all years; however, visits among this group began to decline after 2023. In contrast, visits among Black individuals increased through 2023, declined in 2024, and then increased slightly in 2025 (Figure 12). In terms of insurance status, individuals with private insurance represented the largest proportion of ED visits in 2024 (38.3%), while the remaining visits were covered by Medicaid, Medicare, other government programs, self-pay, or unknown insurance status. Between 2022 and 2025, the proportion of visits among Medicaid recipients increased, while visits classified as self-pay decreased (Figure 14).

Figure 11: Unintentional or Undetermined Intent Medication or Drug Overdose Emergency Department (ED) Visits by Age Group, Wake County, 2021-2025

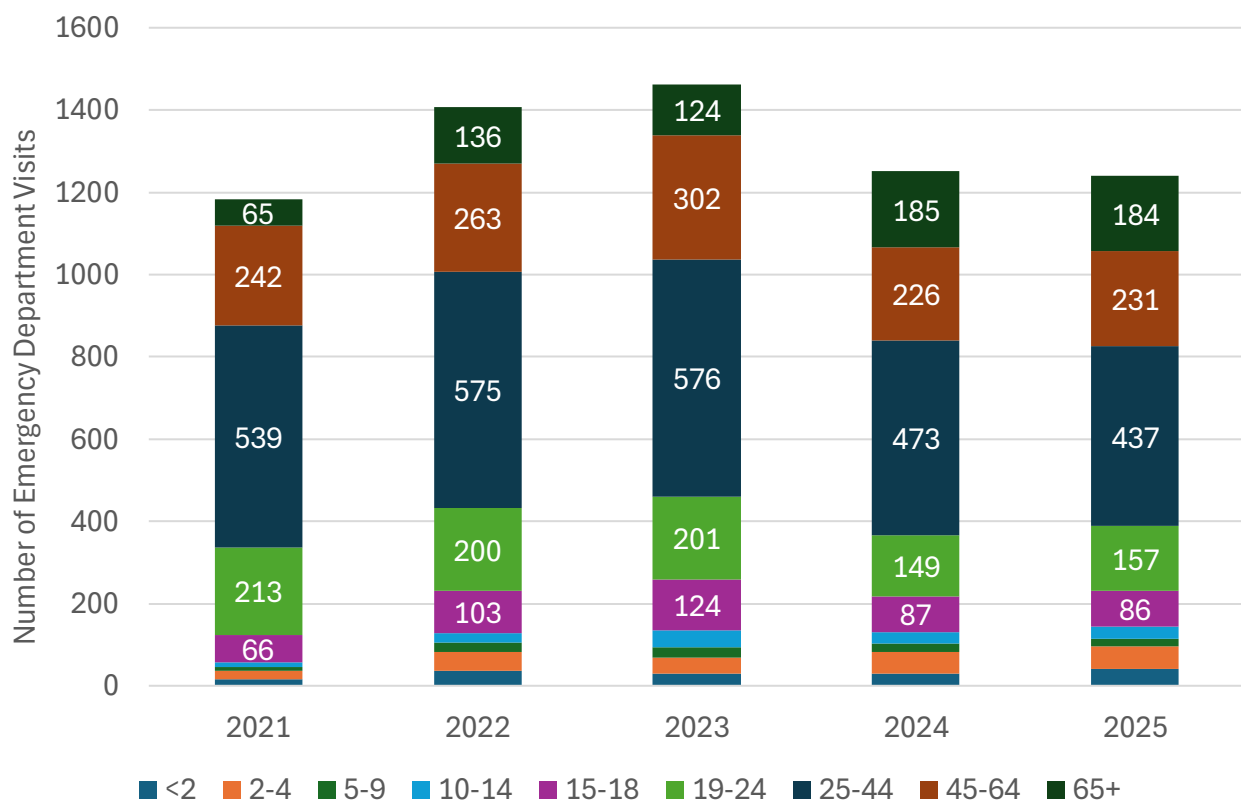


Figure 12: Unintentional or Undetermined Intent Medication or Drug Overdose Emergency Department (ED) Visits by Race, Wake County, 2021-2025

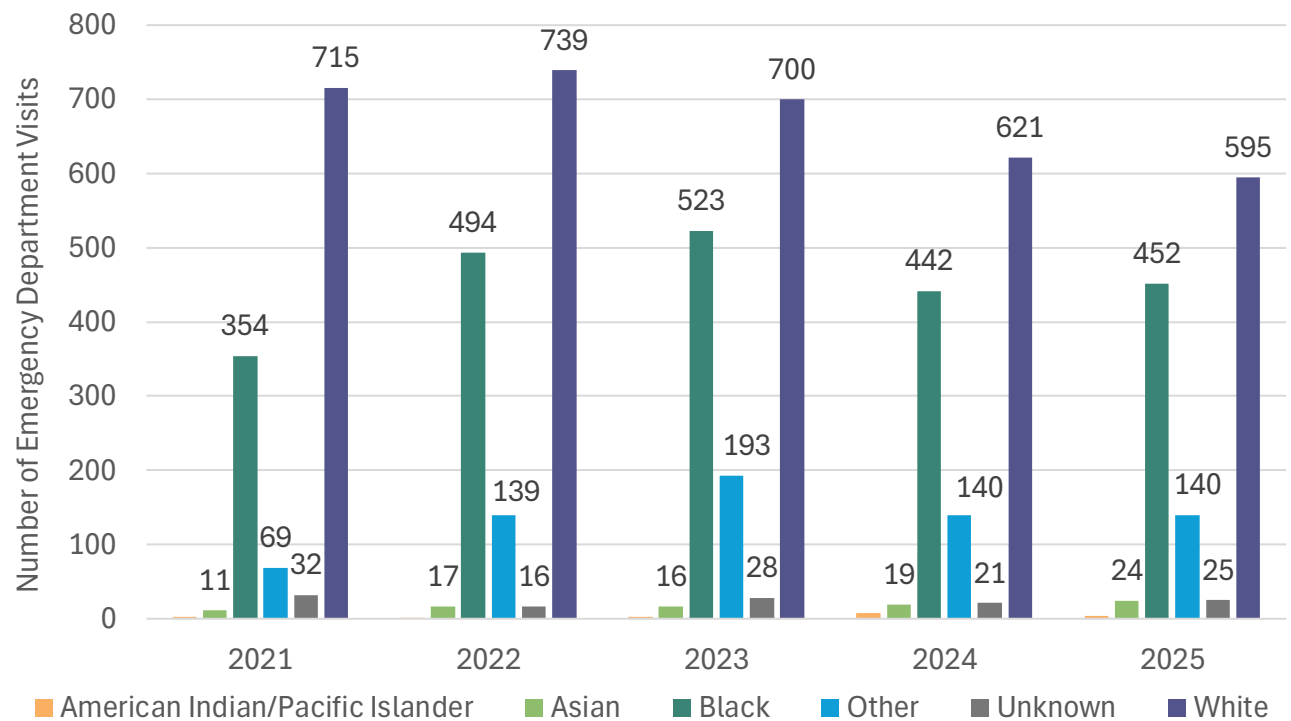


Figure 13: Unintentional or Undetermined Intent Medication or Drug Overdose Emergency Department (ED) Visits by Sex, Wake County, 2021-2025

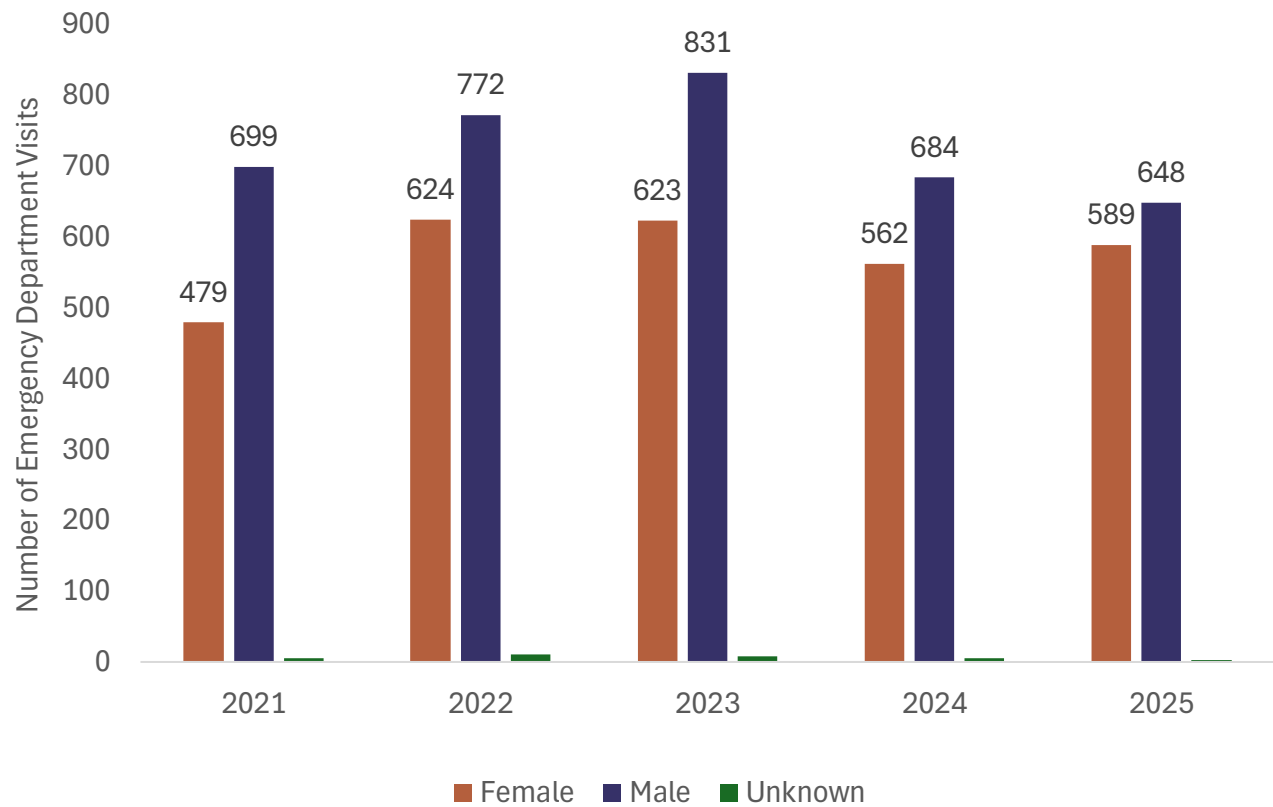
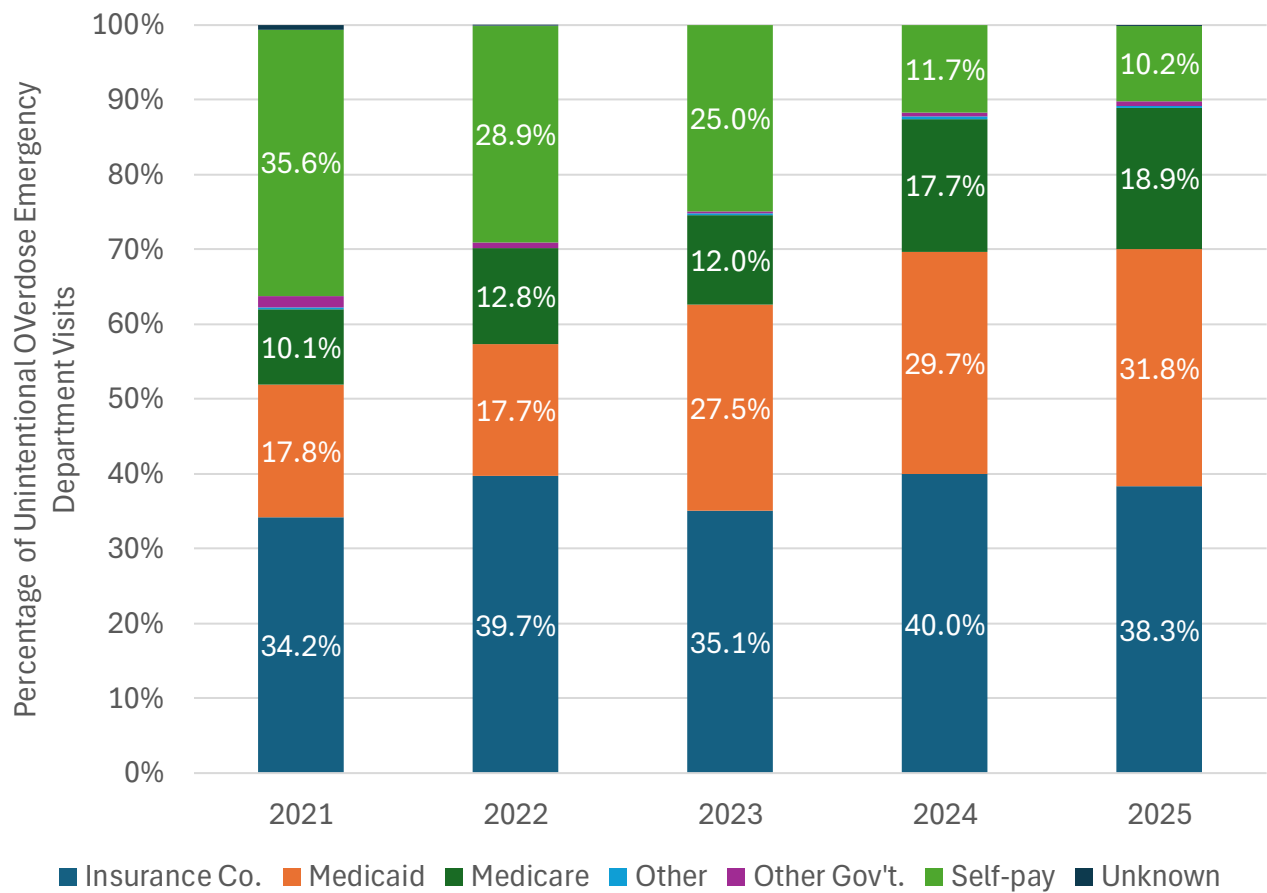


Figure 14: Insurance Status of Unintentional or Undetermined Intent Medication or Drug Overdose Emergency Department (ED) Visits, Wake County, 2020-2024



Source for Figures 11, 12, 13 & 14: NC DETECT, NCDHHS Division of Public Health, UNC School of Medicine, 03/02/2026.

Geographical Analysis

Figure 15 presents a geographic analysis of NC DETECT data, showing the number of emergency department (ED) visits for all drug/medication overdoses by patient residential zip code in Wake County from 2021 to 2025. Higher numbers of ED visits are observed across several zip codes, with notable concentrations in and around Raleigh.

Table 13 highlights the top 10 zip codes for ED visits related to all drug/medication overdoses during this period. Several of these zip codes are located at least partially within Raleigh, including zip code 27610, which had the highest number of visits.

Figure 15: Number of ED Visits for All Drug/Medication Overdoses in Wake County by Patient Residential Zip Code, 2021-2025

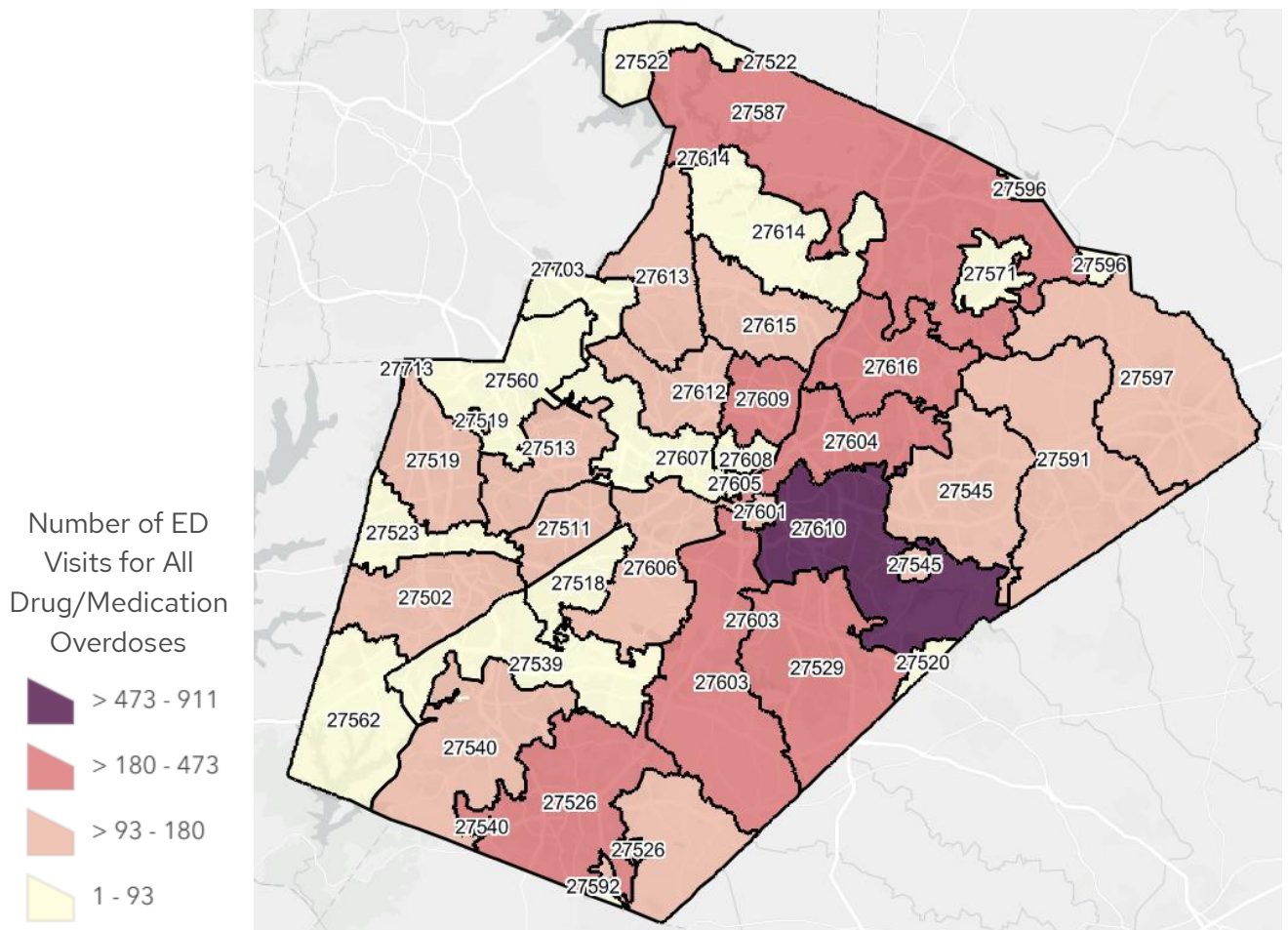


Table 13: Top 10 Zip Codes for All Drug/Medication Overdose ED Visits, Wake County, 2021-2025

Patient Residential Zip Code	Number of Overdose ED Visits
27610	891
27603	411
27529	271
27604	271
27587	249
27616	241
27609	198
27526	188
27606	177
27545	154

Source for Figure 15 and Table 13: NC DETECT, NCDHHS Division of Public Health, UNC School of Medicine, 03/31/2026.

11.0 IN CONCLUSION

This integrated epidemiologic profile provides guidance for drug overdose prevention and control efforts by combining multiple data sources and identifying populations most affected in Wake County. Recent trends indicate that males are consistently more likely to die from an overdose and to visit the emergency department (ED) for suspected drug overdoses compared to females. Between 2020 and 2024, Non-Hispanic Black individuals experienced higher rates of death from unintentional poisoning (the majority of which are drug overdoses) compared to Non-Hispanic White individuals. Adults aged 25–44 accounted for over half of unintentional poisoning deaths in Wake County during this period. Wake County experienced a large increase in overdose deaths involving fentanyl through 2021. Since then, from 2022 through 2024, deaths have declined across drug types.

Medetomidine, an emerging substance in the illicit drug supply, has increasingly been identified in combination with fentanyl and may be replacing xylazine in some cases. Repeated exposure to medetomidine may increase the risk of withdrawal, in addition to overdose risk from co-occurring substances. Withdrawal symptoms can be severe and may require emergency or intensive care. While xylazine remains present in the drug supply, its detection has declined as medetomidine detections have increased.

Emergency department data indicate that individuals aged 25–44 account for the largest share of visits related to unintentional or undetermined drug overdoses. While ED visits among White individuals have declined since 2023, visits among Black individuals increased through 2023, declined in 2024, and then leveled off in 2025. In terms of insurance status, the largest proportion of overdose-related ED visits in 2025 involved individuals with private insurance; however, the majority of visits overall were covered by Medicaid, Medicare, other government programs, self-pay, or unknown coverage. From 2022 to 2025, visits among Medicaid recipients increased, while self-pay visits declined.

Geographic analyses of overdose deaths and ED visits show that the burden of overdoses is distributed across Wake County, with higher rates and counts observed in multiple areas rather than a single location.

This report highlights key sociodemographic patterns and trends in overdose mortality and morbidity in Wake County. The findings are intended to inform and support prevention and harm reduction strategies, with a focus on populations at increased risk of drug overdose.

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