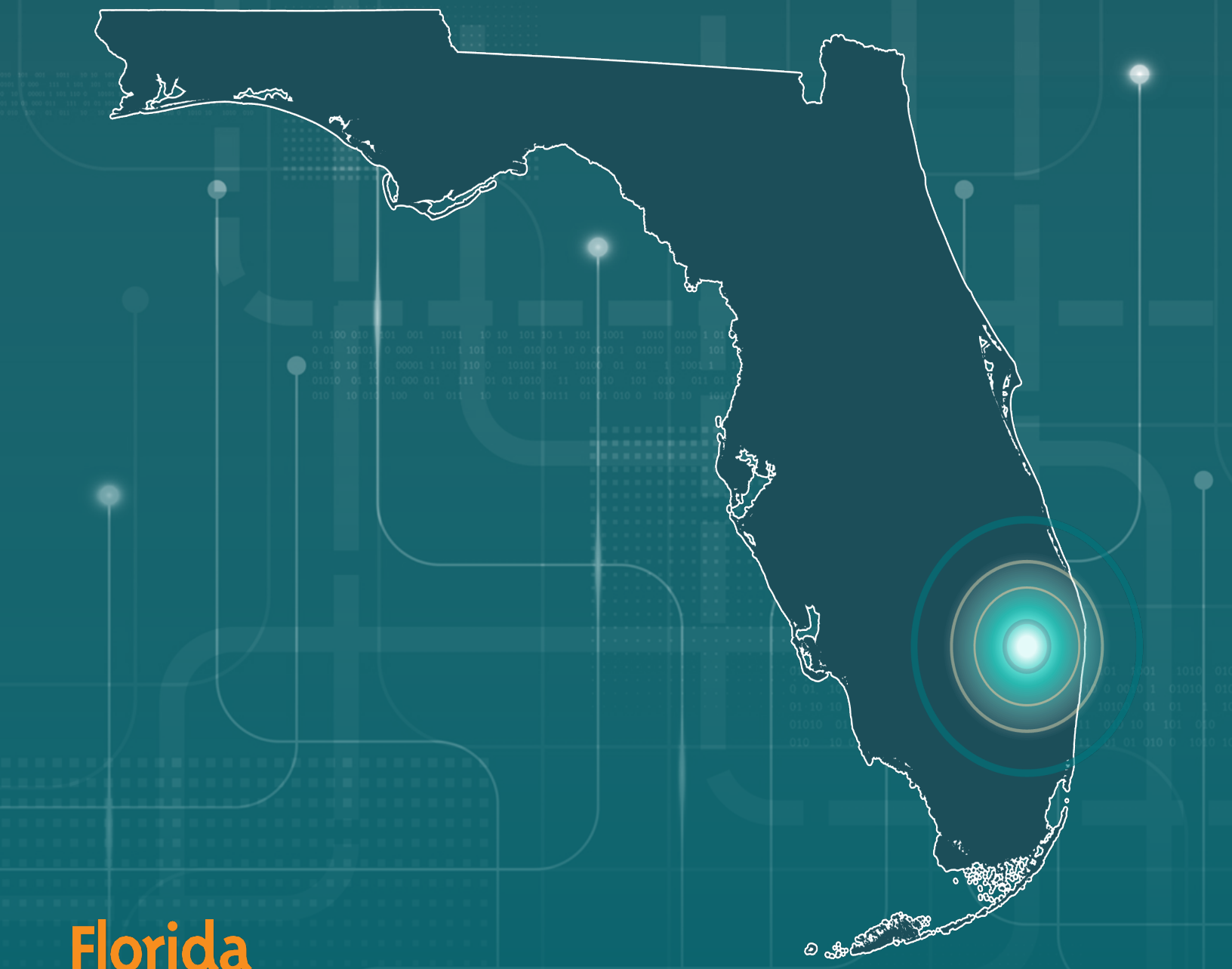
OVERDOSE DATA TO ACTION (OD2A)

2024 Non-Fatal Overdose Surveillance Annual Report

Palm Beach County, Florida



Florida HEALTH

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Executive Summary

The 2024 Overdose Data to Action (OD2A) Non-Fatal Overdose Annual Report presents a comprehensive analysis of suspected and confirmed non-fatal drug overdoses in Palm Beach County, Florida. This report is part of a broader CDC-funded initiative aimed at using data to inform and strengthen overdose prevention and response strategies.

Key Highlights

- **Decline in Overdose Events:**
  In 2024, Palm Beach County saw a notable reduction in overdose-related emergency responses:
  - **Emergency medical services (EMS)** responses declined by **19.7%** from 2023 and **29.6%** from 2022.
  - **Emergency department (ED)** visits for suspected overdoses dropped by **19.0%** from 2023 and **21.1%** from 2022.
- **Hospital Surveillance Sample:**
  Of the 5,220 suspected overdoses in 2024, 2,166 cases met OD2A criteria and were analyzed in-depth. These cases provide insights into demographics, substances involved, and care outcomes.
- **Demographics and Risk Factors:**
  - **Sex:** 62.2% of cases were male; females had a higher median age (43 and 38 years, respectively).
  - **Race/Ethnicity:** White/non-Hispanic individuals accounted for 64.2% of cases; Black/non-Hispanic 15.9%; Hispanic (any race) 16.9%.
  - **Age:** Most overdoses occurred among adults aged 25-44 years.
  - **Housing Instability:** 26.7% of individuals were unstably housed, with higher rates among men and Black/non-Hispanic individuals.
  - **Employment:** Over half (55.9%) were unemployed at the time of overdose.
  - **Insurance:** 34.2% were uninsured; Medicare coverage was more common among older women.
- **Substances Involved:**
  - **Opioids** were involved in 72.8% of cases, with **fentanyl** being the most frequently reported.
  - **Stimulants** (27.1%) and **benzodiazepines** (19.7%) were also prevalent.
  - **Polysubstance use** was common, and toxicology data revealed high positivity rates for cocaine (41.2%) and benzodiazepines (40.7%).
- **Naloxone Use:**
  - 55.8% of cases received naloxone; 49.4% administered by EMS, 40.1% by hospital staff.

- **Mental Health and Co-Morbidities:**
  - Nearly half (49.3%) had a documented mental health condition.
  - 12.4% were Baker Acted during their overdose event, with higher rates among females.
- **Justice Involvement:**
  - A significant portion of individuals had prior justice system involvement, including drug possession (43.4%), theft/fraud (40.7%), and public order offenses (40.5%).
- **Treatment and Discharge:**
  - Only 13.0% of opioid-involved cases received naloxone prescriptions at discharge.
  - ED-initiated buprenorphine was rare (2.7%), and most patients were discharged without linkage to care.
  - Reasons for declining treatment included personal obligations, perceived self-sufficiency, and fear of withdrawal.

Conclusion

The data reflects both progress and persistent challenges in addressing non-fatal overdoses in Palm Beach County. While overdose rates are declining, social and structural factors such as housing instability, lack of insurance, and limited access to treatment continue to drive vulnerability. The OD2A initiative remains committed to using data to guide targeted interventions, strengthen community partnerships, and improve outcomes for individuals at risk of overdose.

Funding and Authorship

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About Overdose Data to Action (OD2A)

Overdose Data to Action (OD2A) is a multi-year cooperative agreement initiative led by the Centers for Disease Control and Prevention (CDC) [1]. The first iteration of OD2A was launched on September 1, 2019, and ended on August 31, 2023. This program provided funding and support to state and local health departments to address the drug overdose crisis through evidence-based prevention and response strategies.

On September 1, 2023, the CDC launched the second iteration of OD2A through two distinct programs for states and local health departments:

- OD2A in States (OD2A-S)
- OD2A: Limiting Overdose through Collaborative Actions in Localities (OD2A: LOCAL).

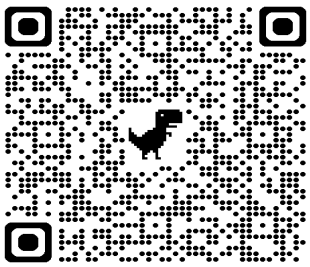
Currently OD2A-S funds 49 state health departments and the District of Columbia, while OD2A: LOCAL funds 40 city, county, and territorial health departments. OD2A-S and OD2A: LOCAL are designed to work in parallel, harnessing unique capabilities and collaborative partnerships available at various levels of government to address drug overdose in our communities.

At its core, OD2A emphasizes a "data to action" framework – leveraging multiple data sources to inform, enhance, and expand overdose prevention programs and policies. Quality data collected through overdose surveillance and programmatic evaluations guide prevention and overdose response strategies. Similarly, prevention and overdose response strategies guide overdose surveillance and evaluation. The two systems in the “data to action” framework provide continuous feedback to dynamically adjust to the needs of the community.

Our Goals

- Strengthen foundational understanding of substance use in Palm Beach County by collecting data on fatal and non-fatal drug overdoses.
- Increase public awareness of the risk associated with illicit drug use and misuse of prescription medicines.
- Collaborate with community organizations and public safety partners to address illicit substance use and support coordinated responses efforts.
- Support health care providers in evidence-based opioid prescribing practices in alignment with CDC guidelines on opioid prescribing.
- Improve community-centered linkages to care and overdose prevention and response programs through data-driven interventions and implementation.
- Monitoring emerging trends to support a timely, effective response to the epidemic.
- Prioritize evidence-informed, high-impact interventions and implement them within responsive programs.
- Ensure ongoing evaluation of OD2A: LOCAL surveillance and prevention programs in Palm Beach County to assess data quality, system performance, and the impact of implemented interventions to help guide programmatic enhancements that strengthen public health action.

For more information about OD2A in Palm Beach County visit OvercomeOverdosePBC.com or scan



About the Data

Our approach to overdose surveillance is grounded in generating a multifactorial understanding of the overdose epidemic. Data are integrated from multiple sources to provide a more comprehensive look at the people behind the data. This report examines socioeconomic and environmental factors that can impact health and health outcomes such as housing stability, access to health care, and employment.

To capture this comprehensive picture, the strategy requires integrating various data sources into cohesive surveillance systems. This integration allows public health professionals to identify how social factors contribute to overdose risk within communities, a crucial step for developing more effective, impactful, and targeted prevention and response initiatives that move beyond treating the individual to address the root environmental causes of the crisis.

Building on this approach, the report is divided into two main sections: syndromic and non-fatal overdose surveillance.

Syndromic Surveillance

Syndromic surveillance is a public health system used to detect and monitor a variety of different health events in real-time or near real-time. In this report, it is used to provide an overview of suspected overdose trends in Palm Beach County.

Data in this section is collected from emergency medical services and from hospital emergency departments. Events captured by EMS and ED syndromic surveillance systems are queried using a wide range of overdose-related terms, medications administered, provider impressions, chief complaints, and hospital diagnostic codes. Data that meet syndrome definitions have not been individually reviewed and are thus considered to be “suspected” overdose.

Non-Fatal Overdose Surveillance

While syndromic surveillance offers a timelier and comprehensive view of the number of overdoses in the county, it is limited in the scope of information available. The non-fatal overdose surveillance section presents an in-depth review of cases that we received from participating hospitals, which aligns with the specific overdose criteria set by OD2A.

Medical records were manually reviewed to determine if the case definition was met. Records were included if they met at least one of the following criteria: chief complaint or discharge diagnosis indicating overdose, naloxone administration with a positive clinical response, or clinically compatible overdose symptoms with either patient reporting drug use or a high degree of suspicion of drug use by EMS or clinician. Along with the medical records, we integrated multiple different data sources to provide deeper context to the overdose event using a whole-person perspective.

Variables extracted include but are not limited to demographics, overdose incident details, health history, social history, substance use history, discharge referrals, and law enforcement interactions. Hospital participation is voluntary, and we may receive all suspected overdose records, some records, or none.

Data Sources and Methodology

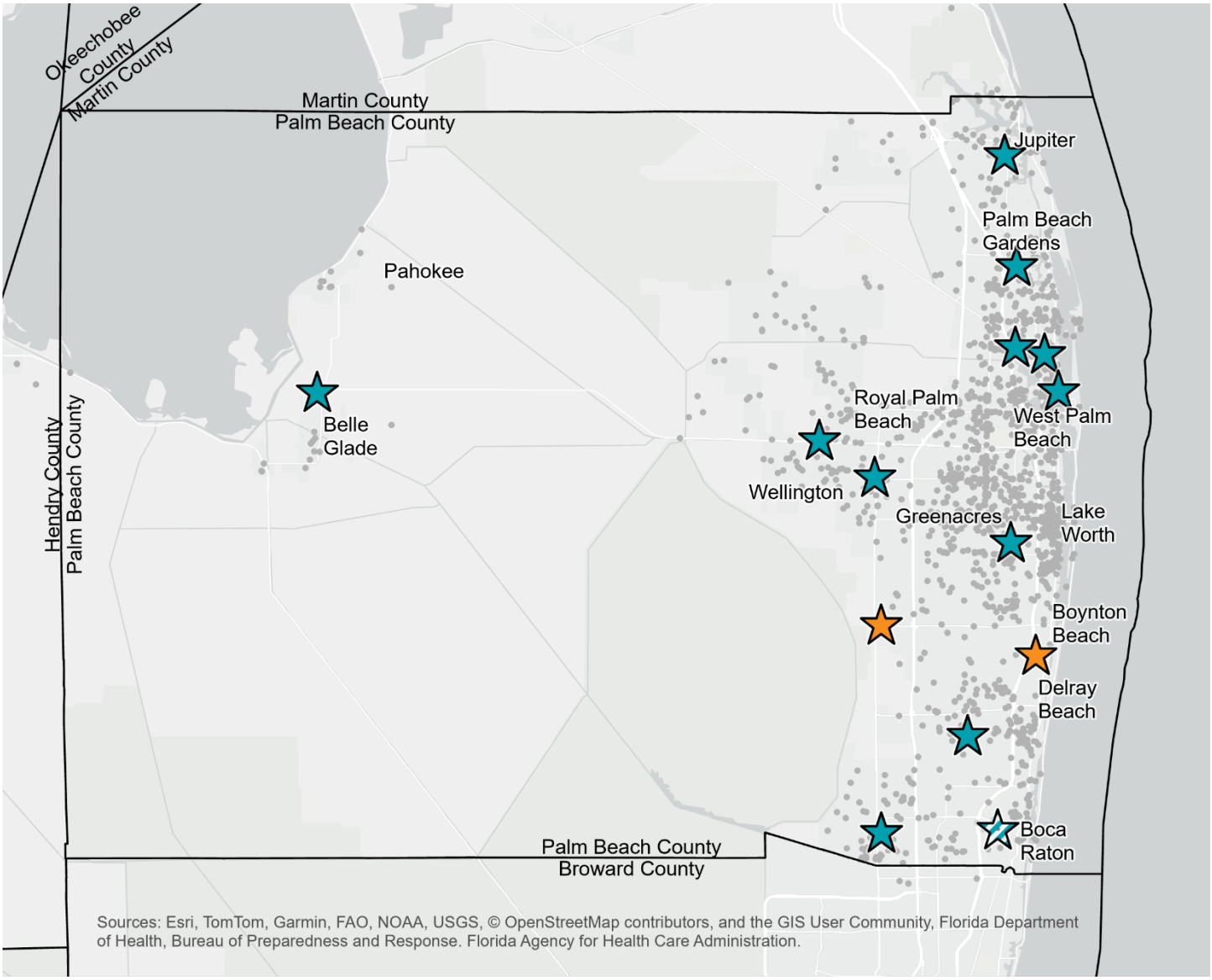
Individual data for suspected overdoses are collected from various sources at DOH-Palm Beach to support both syndromic and non-fatal overdose surveillance. For syndromic surveillance, the Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE-FL) bio surveillance system was used to analyze suspected overdose incidents through patient outcomes and discharge disposition from hospital EDs across Palm Beach County. ESSENCE-FL is a bio-surveillance system used by public health professionals in Florida that collects and analyzes syndromic surveillance data from multiple sources including ED visits. Biospatial is a surveillance system that utilizes pre-hospital EMS data to collect information about the incident location, setting, and scene narratives.

For our non-fatal overdose surveillance, ED medical records serve as the primary data source. These records provide detailed information on demographics, medical history, discharge outcomes, and circumstances surrounding the incident. Through the OD2A initiative, 12 of the county's 14 hospital EDs voluntarily share non-fatal overdose data with the DOH-Palm Beach. This collaboration reflects a shared commitment to using timely, actionable data to uncover emerging overdose trends, identify populations most at risk, and better understand contributing factors. Map 1 shows the spatial distribution of non-fatal overdose incidents collected and analyzed in this report.

Supplementary data used includes ESSENCE-FL, Biospatial, Merlin, LexisNexis, and public court records. ESSENCE-FL is used to identify prior overdose visits at the same hospital. It includes the ability to search for medical record numbers (MRNs), which are unique to each hospital. This allows OD2A to identify whether a patient has experienced prior overdoses at that specific facility. Biospatial is used to note incident details such as scene address, situation, and intervention(s) given. Merlin is Florida's repository for reportable diseases and conditions. It is designed for communicable disease surveillance but has been adapted for surveillance of non-communicable diseases and conditions as well. OD2A compiles received medical records into this database, allowing access to prior records a patient may have. LexisNexis is used for criminal record history and addresses. Public court records were used to obtain law enforcement interaction history and drug court involvement history.

Population-adjusted rates presented in this report were calculated using 2020 U.S. Census data obtained from the Esri demographics shapefile available through ArcGIS Pro [2]. Geospatial analysis was conducted using ArcGIS Pro Version 3.5.1 (Redlands, CA). Statistical analyses were conducted using SAS Version 9.4 (Cary, NC).

Map 1. Distribution of Non-Fatal Overdoses and Hospital Emergency Departments



Data Limitations

The data presented in this report use syndromic surveillance data for an overall snapshot of the county as well as an in-depth analysis using a sample of drug overdoses collected from hospitals that voluntarily participated with OD2A. Several limitations should be considered when reviewing this report.

Syndromic surveillance captures preliminary data using chief complaints and diagnosis codes from initial clinical impressions and may not include final diagnoses. It may represent an undercount given potential inaccuracies in preliminary coding or other technical errors. It is also potentially limited by incomplete diagnoses and chief complaint information that is used to classify suspected overdoses. Additionally, toxicological testing is not typically captured in these data and may underreport the specific types of drugs involved.

Some data was also found to contain incomplete, erroneous, or missing information. Medical documentation in records may have been impacted by patients' willingness to cooperate with clinical staff or decreased mental capacity due to intoxication. Additionally, clinical factors may impact reporting due to factors such as stigma surrounding substance use disorder, compassion fatigue for patients who frequent EDs, or lack of awareness with the latest drug threats in a constantly evolving epidemic.

Drug overdoses are not mutually exclusive and may reflect a nesting of drug categories (e.g., suspected overdoses involving fentanyl would be included in the all-drug category, as well as within the opioid and synthetic opioid categories). Additionally, overdoses may have involved multiple substances such as an opioid and a stimulant or an unknown polypharmacy. For incidents having unknown or unspecified substances involved, documented signs and symptoms, and reported medications were used to classify overdoses. For example, if the diagnostic code of a suspected overdose was recorded as T50.901 (overdose/poisoning by unknown substance) and the patient presented with pinpoint pupils and responded to naloxone intervention, the overdose would be classified as unknown drug with opioid-like effects.

Data were collected from 12 of the 14 hospital EDs in the county participating in data sharing with DOH-Palm Beach through the OD2A initiative. Participation is not mandatory, and reporting practices may vary across facilities. As a result, the dataset may not fully represent all non-fatal overdose events occurring in the county. Differences from gaps in hospital participation, varying protocols, and variability in data completeness can be a source of unintentional bias. The geospatial patterns identified in the map above should therefore be interpreted with caution, as areas with limited access to hospital data may appear to have fewer non-fatal overdose events than what occurred.

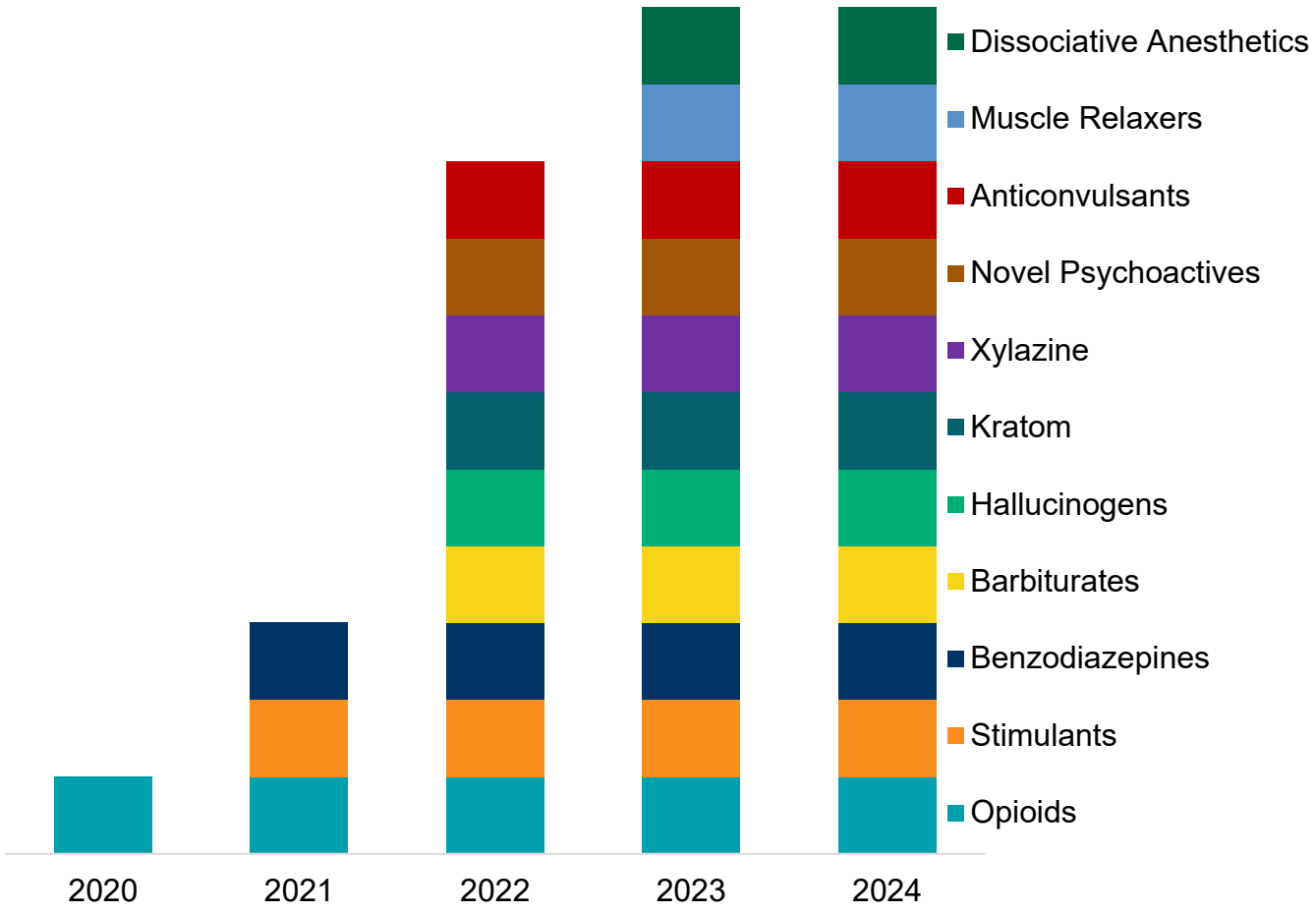
These data limitations should be carefully considered when reviewing the content of this report. Therefore, it is important to use caution when interpreting results presented throughout this report.

Updates in Data Collection

The categories of substances monitored in the overdose surveillance system have expanded steadily from OD2A's initial start of the surveillance program in 2020 through 2024. The system initially focused on opioid-related overdoses in 2020, then broadened in 2021 to include benzodiazepines and stimulants. By 2022, the scope widened further to track barbiturates, hallucinogens, and psychedelics, kratom, xylazine, novel psychoactive substances (NPS), and anticonvulsants. The most recent update in 2024 added muscle relaxers and dissociative anesthetics to the list.

These categories represent the primary substances under surveillance – that is, at least one of these substances must be involved to be included in this report. Additional substances, such as alcohol and marijuana, are also documented when they appear in combination with the monitored drugs. This ongoing expansion strengthens our ability to understand and respond to the evolving landscape of substance use and overdose risk.

Figure 1. Drugs Included in Non-Fatal Overdose Surveillance, 2020-2024



County Characteristics

Palm Beach County, FL

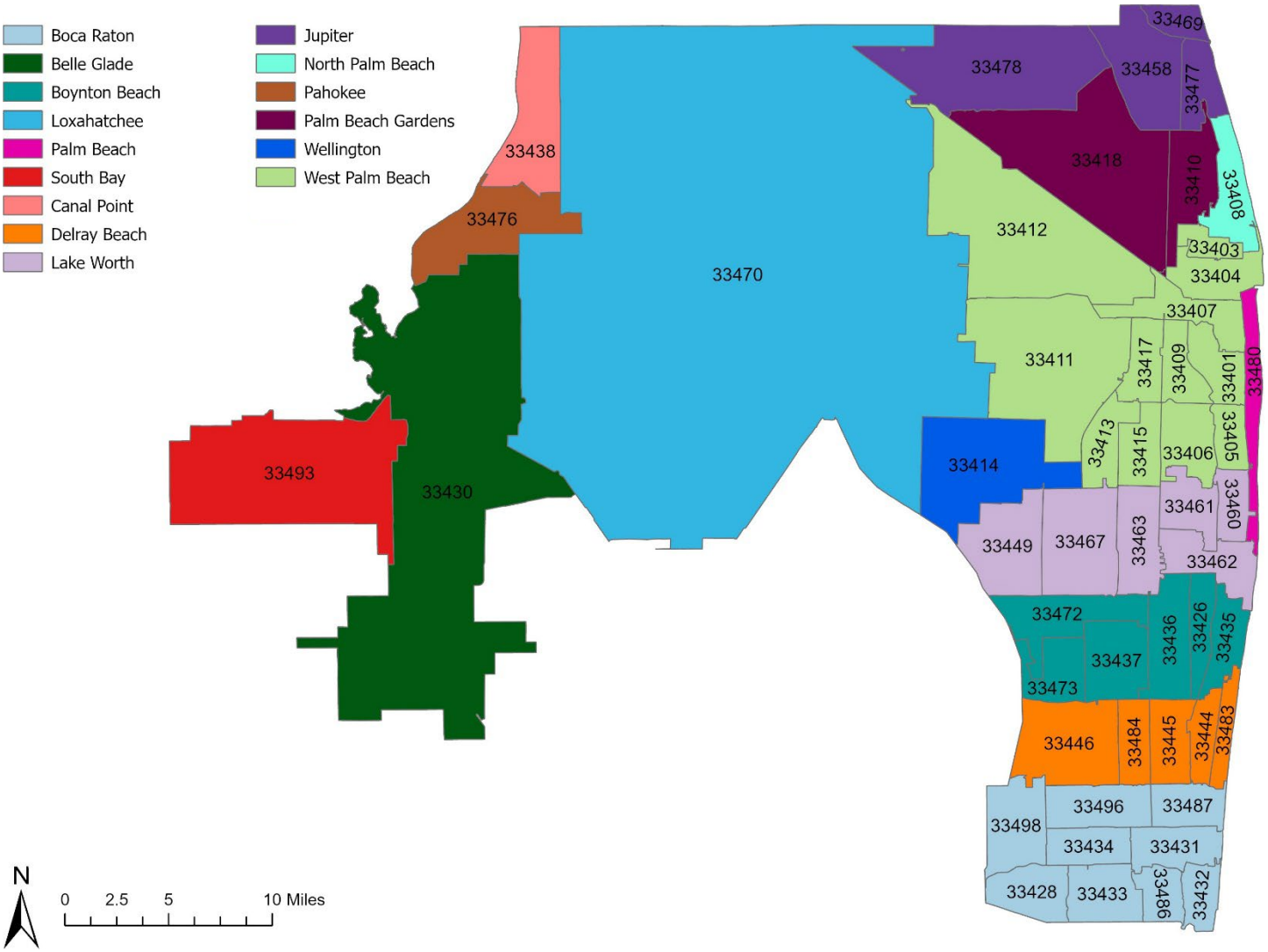
2024 Total Population Estimate: 1,492,191

White (57.3%), Black (17.6%), Hispanic (23.5%)

Median Household Income: $84,921

Poverty Rate: 10.7%

Map 2. ZIP Codes and City Boundaries of Palm Beach County, FL



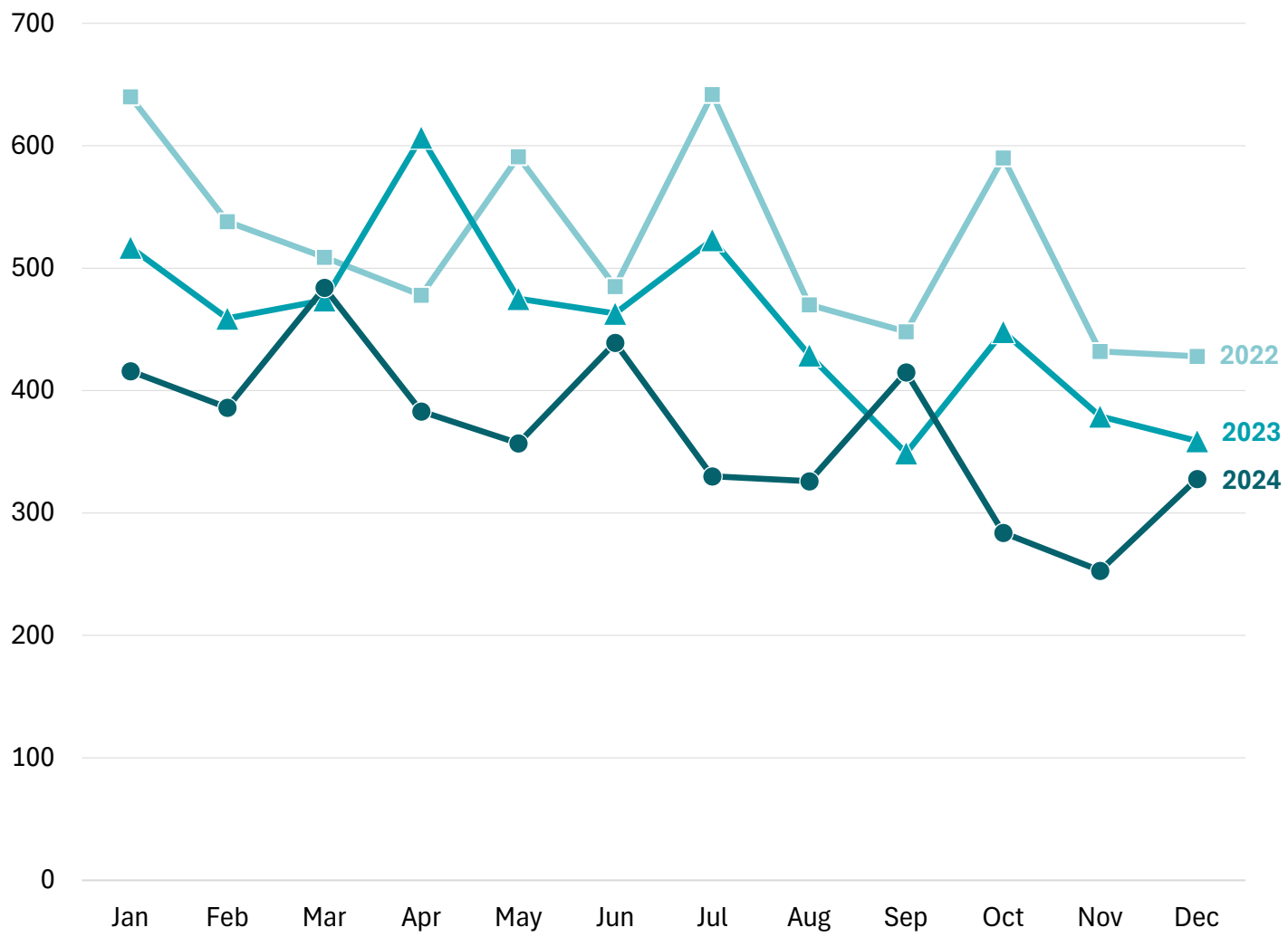
Syndromic Surveillance Report

Emergency Medical Services (EMS) Syndromic Surveillance

EMS responses for incidents that met the Florida Enhanced State Opioid Overdose Surveillance (FL ESOOS) syndromic definition for suspected drug overdose were collected and analyzed for events occurring in Palm Beach County from 2022 to 2024 (see Appendix). In 2024, there were 4,401 reported EMS responses for suspected drug overdose – a 19.7% decrease compared to 2023 (n=5,482) and a 29.6% decrease compared to 2022 (n=6,251). Incidents in 2024 peaked in March (n=484) and were the lowest in November (n=253).

This consistent decline suggests a positive impact from community-based overdose prevention and response efforts, including the Palm Beach County Fire Rescue (PBCFR) Mobile Integrated Health Program [3]. Through this OD2A-funded initiative, specialized PBCFR teams support clients by facilitating linkages to substance use disorder treatment and other social services, improving access to care and supportive resources.

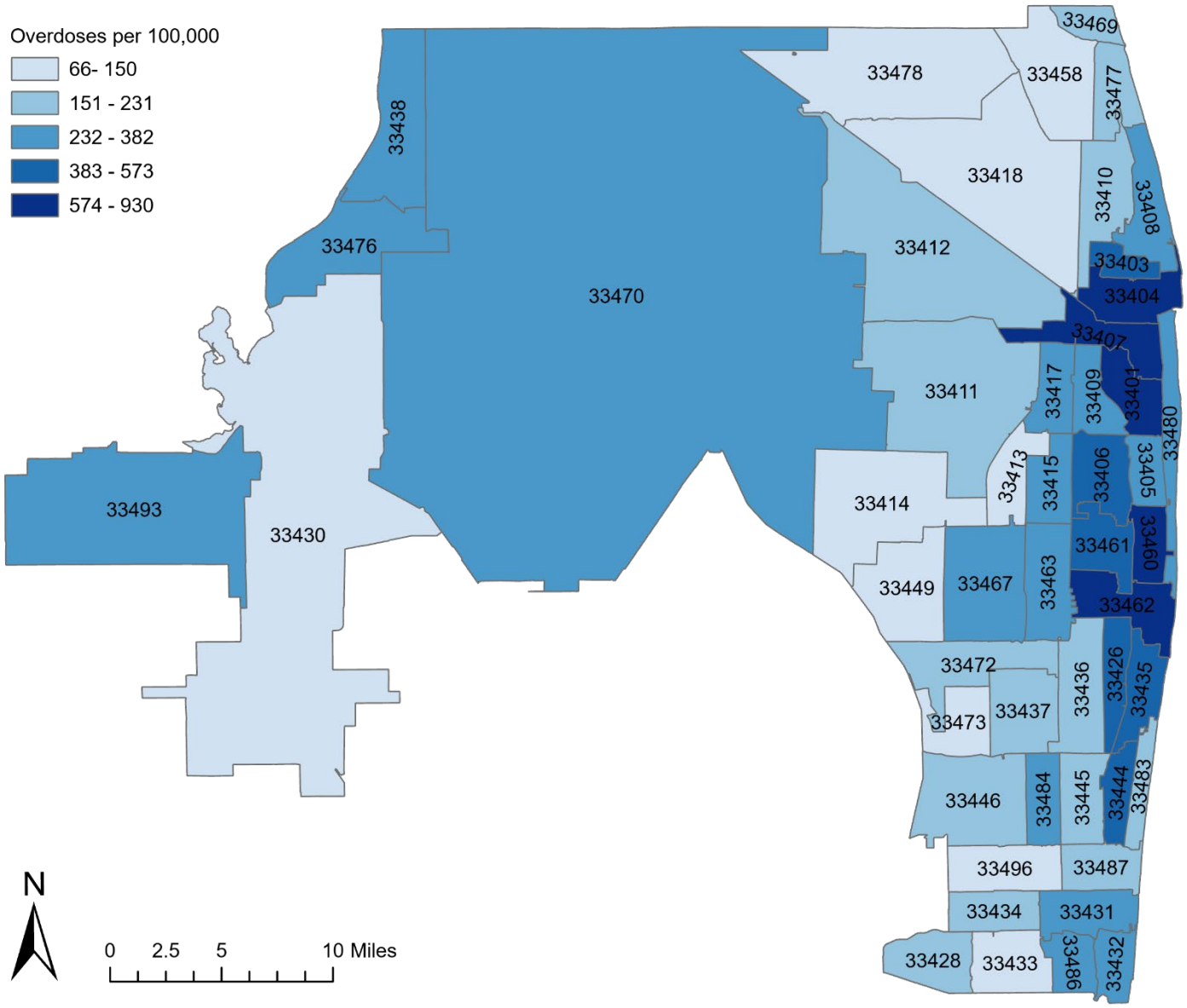
Figure 2. Monthly EMS Responses for Suspected Overdose, 2022-2024



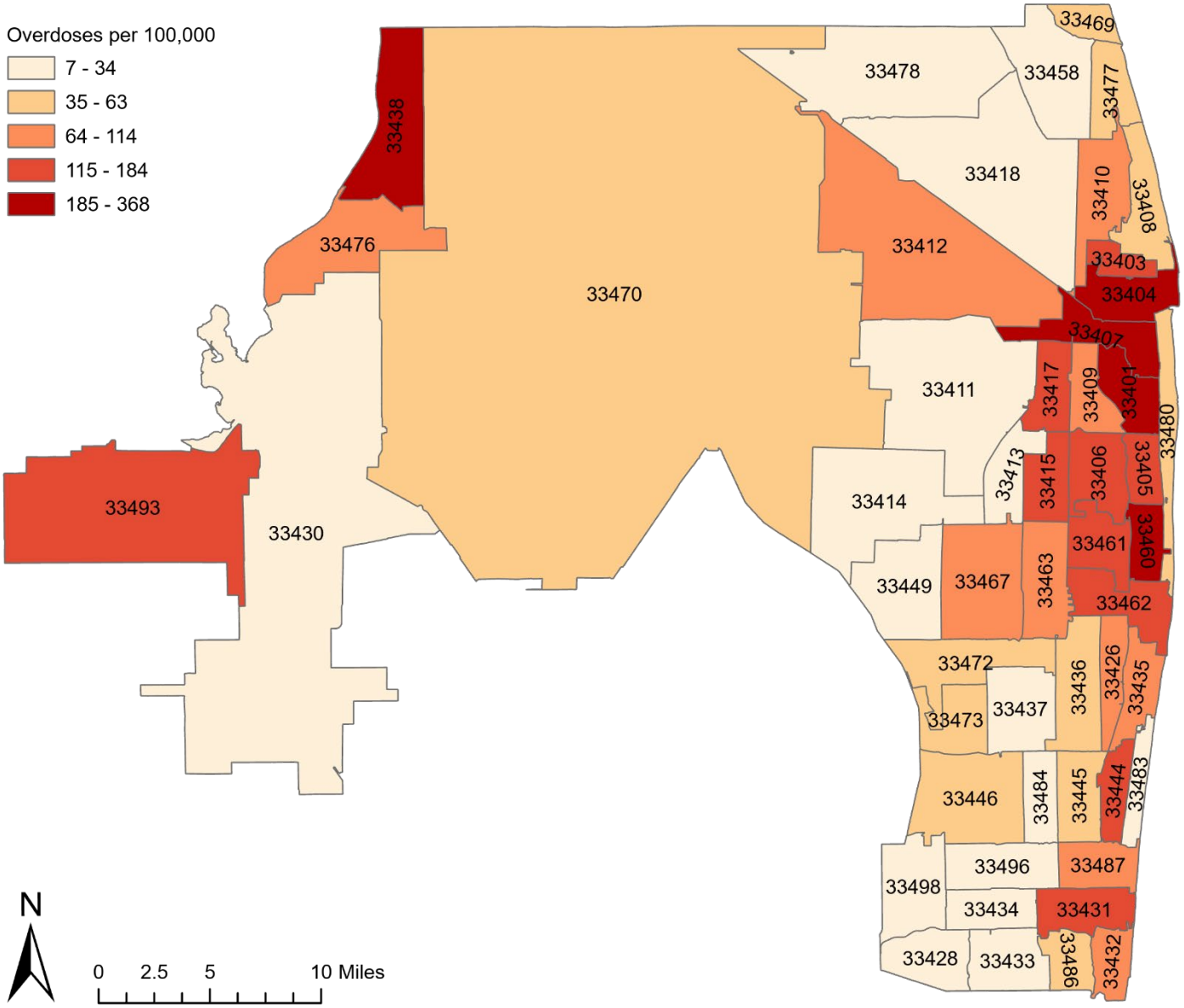
Incident locations for EMS responses in Palm Beach County in 2024 were collected and mapped by ZIP Code. ZIP Code 33460 in Lake Worth had the highest population-adjusted rate, with 930 EMS responses for suspected overdoses per 100,000 residents.

In West Palm Beach, ZIP Codes 33401 and 33404 also showed elevated rates, with 711 and 702 suspected overdoses per 100,000 residents, respectively.

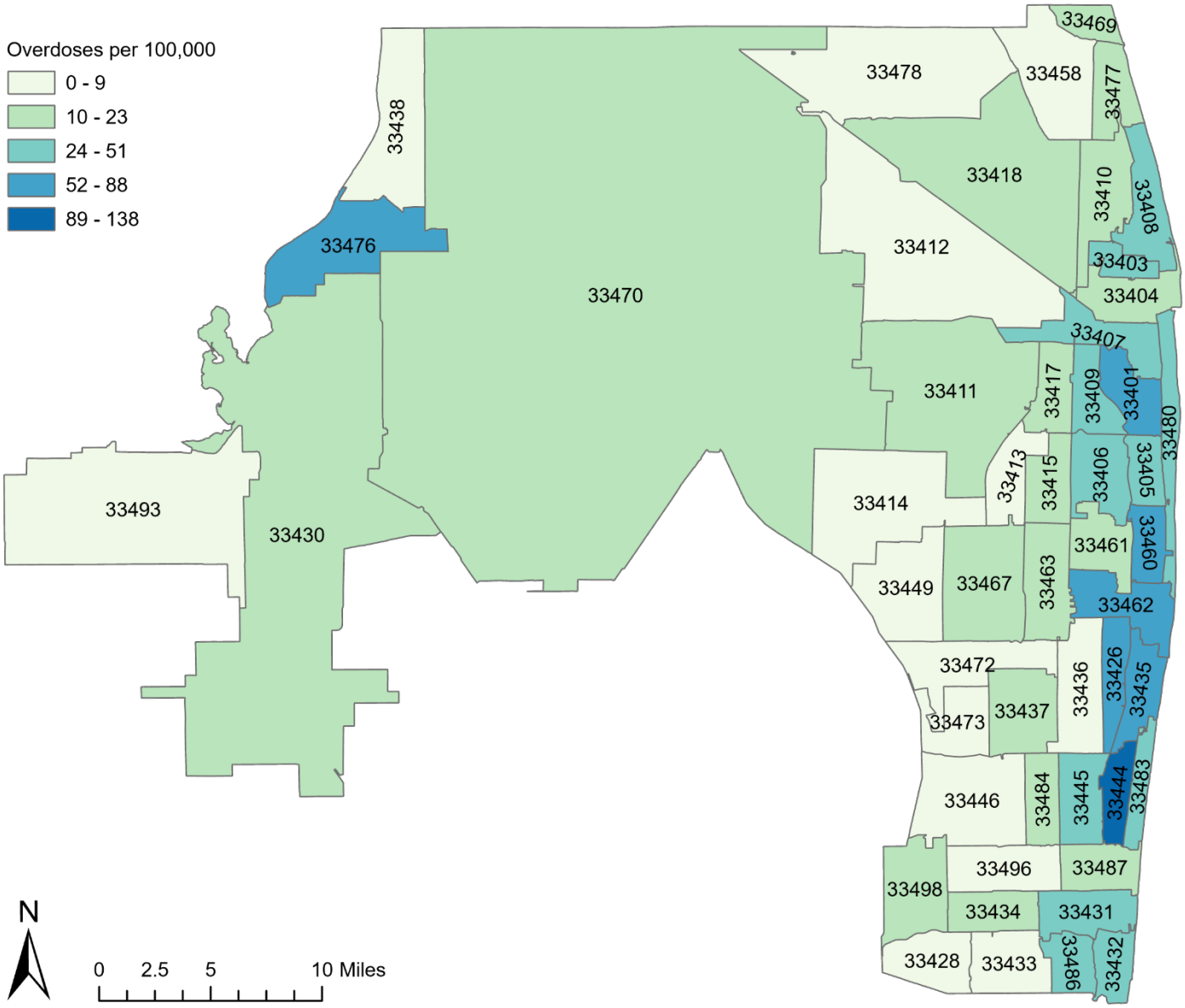
Map 3. Population-Adjusted EMS Responses for Suspected Overdose by Incident ZIP Code



Map 4. Population-Adjusted EMS Responses for Suspected Opioid Overdose by Incident ZIP Code

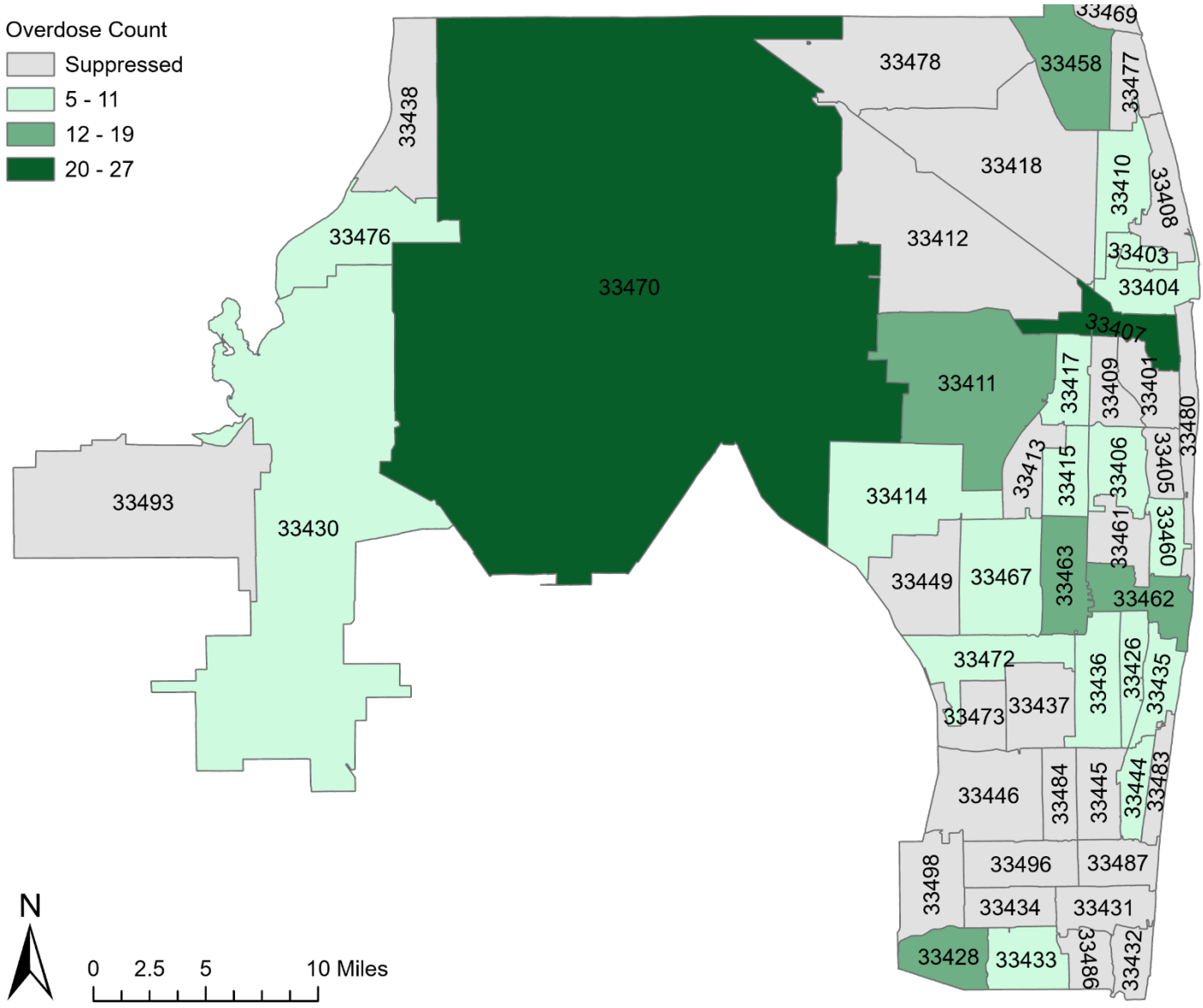


Map 5. Population-Adjusted EMS Responses for Suspected Stimulant Overdose by Incident ZIP Code



EMS responses for suspected overdoses were stratified for children and youth aged 0 – 17 years. Because age-specific population estimates were not available, the analysis reflects counts rather than rates. In 2024, ZIP Code 33407 (West Palm Beach) recorded the highest number of EMS responses among this age group (n=27), followed by Loxahatchee ZIP Code 33470 (n=22) and 33411 for West Palm Beach (n=17).

Map 6. EMS Responses for Suspected Overdose in Children 0-17 Years by Incident ZIP Code

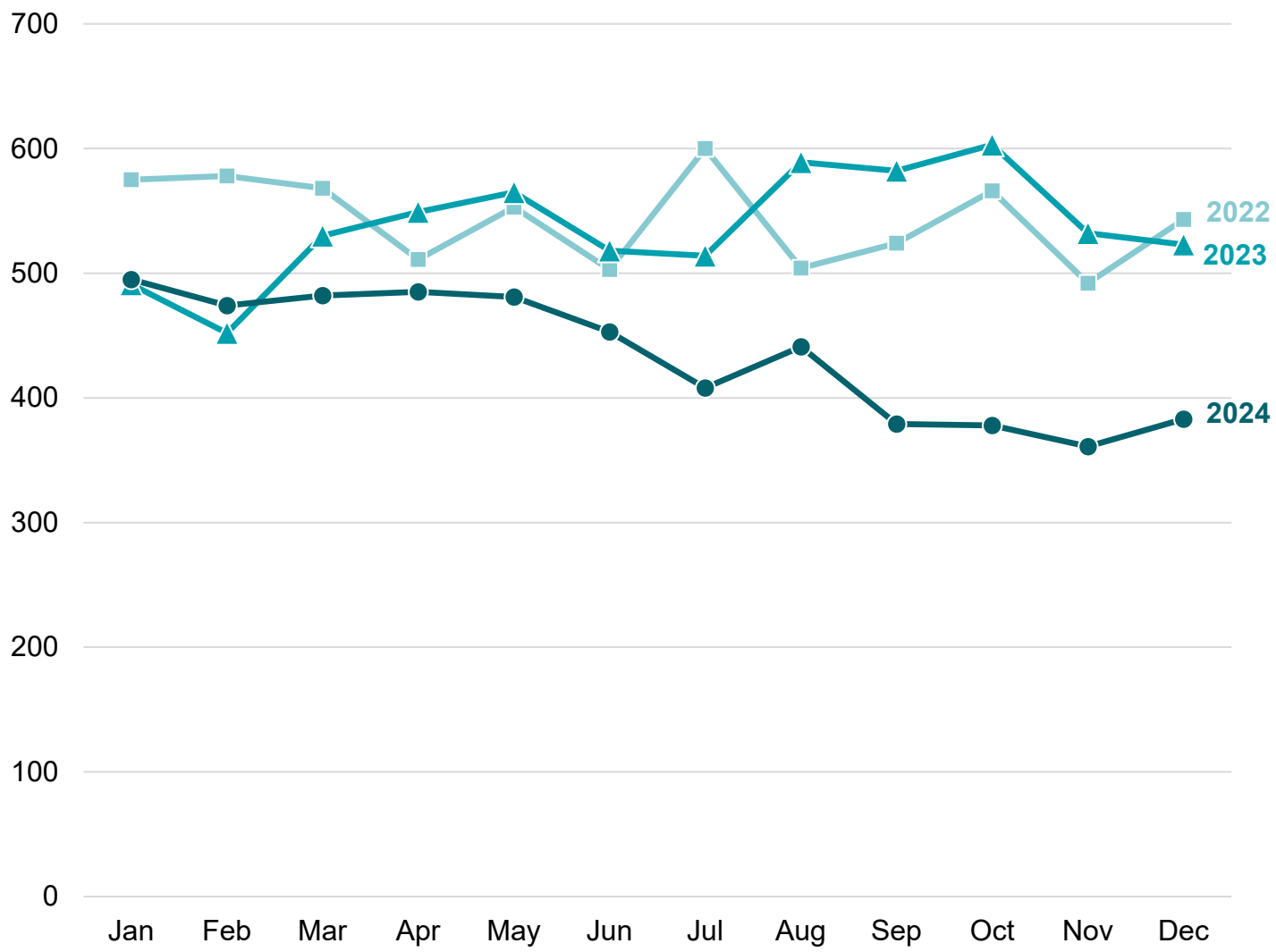


Emergency Department Syndromic Surveillance

Hospital ED visits that met the National Syndromic Surveillance Program (NSSP) syndromic definition for suspected drug overdose were collected and analyzed for events occurring in Palm Beach County from 2022 to 2024 (see Appendix). In 2024, there were 5,220 ED visits for suspected overdose – a 19.0% decrease from 2023 (n=6,448) and a 21.1% decrease from 2022 (n=6,617). Visits in 2024 were highest in January (n=495) and lowest in November (n=361).

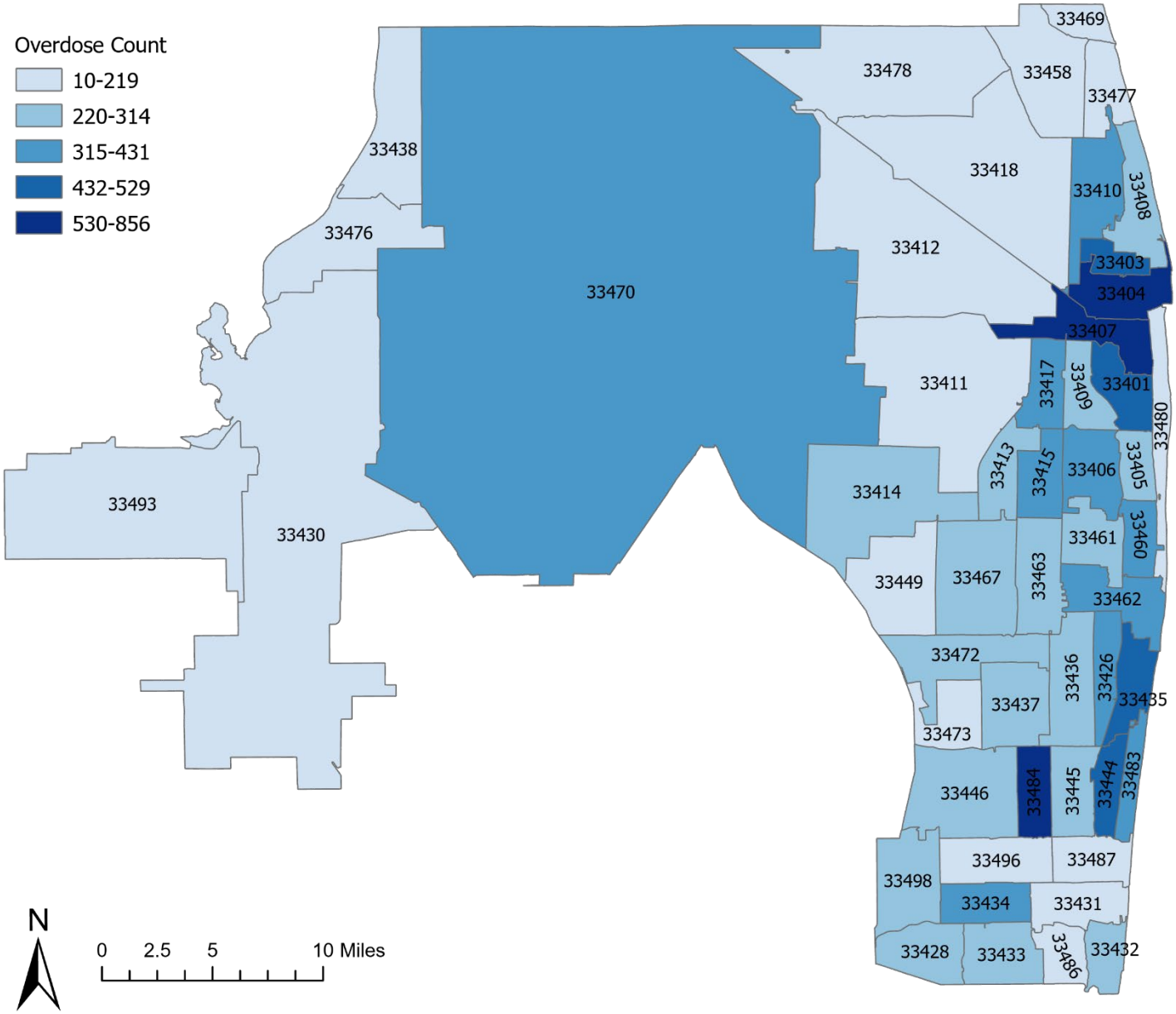
The notable decline in suspected overdose-related ED visits may reflect the impact of community-based overdose prevention and response initiatives in Palm Beach County. These efforts include programs that employ specialized coordinators to link individuals with substance use disorder (SUD) to evidence-based treatment and supportive services. For example, through OD2A funding, the Health Care District (HCD) places linkage-to-care coordinators at selected hospitals to help connect individuals with SUD to treatment and other essential resources.

Figure 3. Monthly ED Visits for Suspected Overdose, 2022-2024

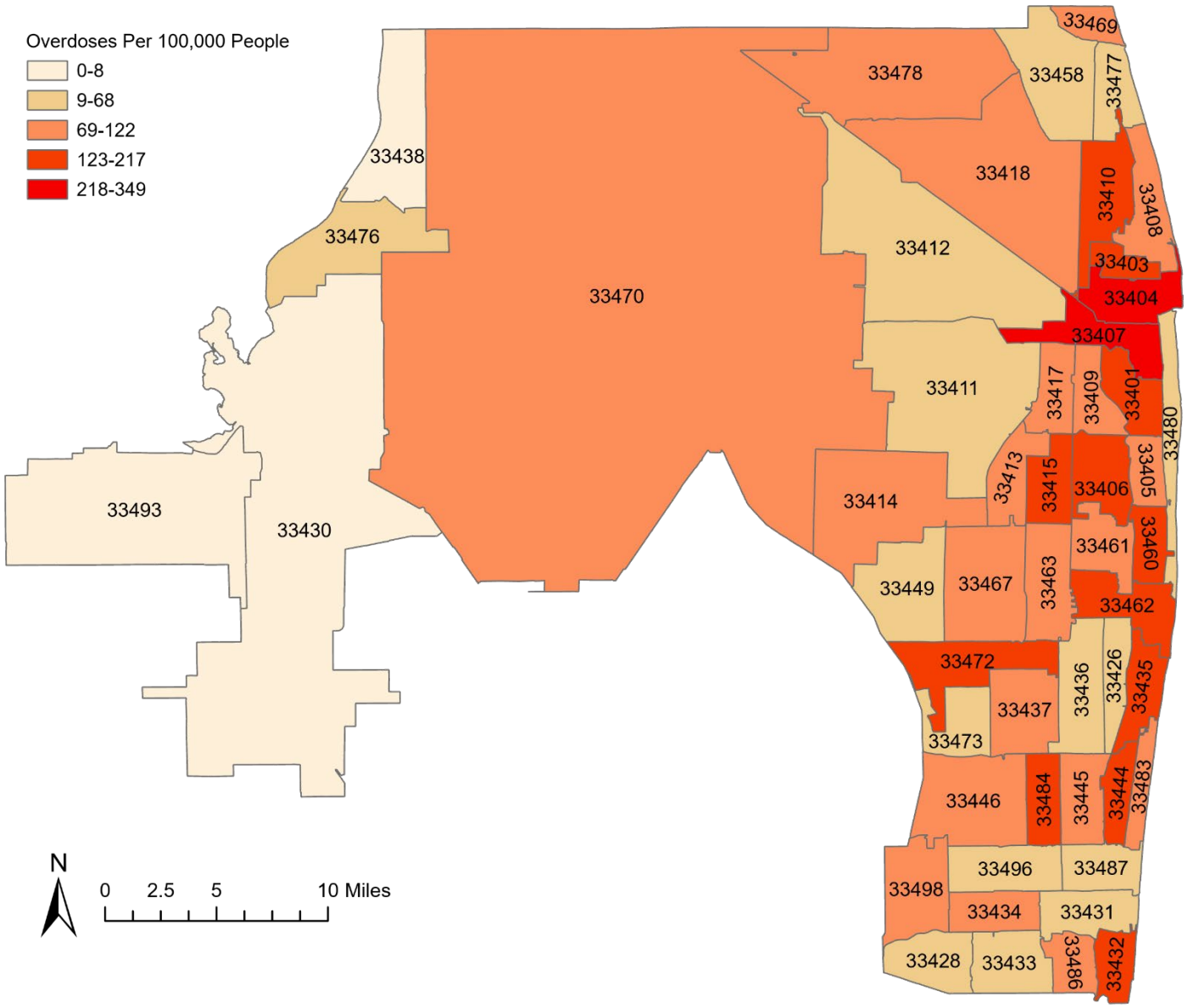


Home ZIP Codes for individuals visiting the ED for suspected overdose in Palm Beach County in 2024 were collected and mapped. Of the 5,220 ED visits recorded, 85.7% (n=4,473) were among residents of Palm Beach County. West Palm Beach ZIP Codes 33407 and 33404 had the highest population-adjusted rates, with 856 and 774 suspected overdose-related ED visits per 100,000 residents, respectively.

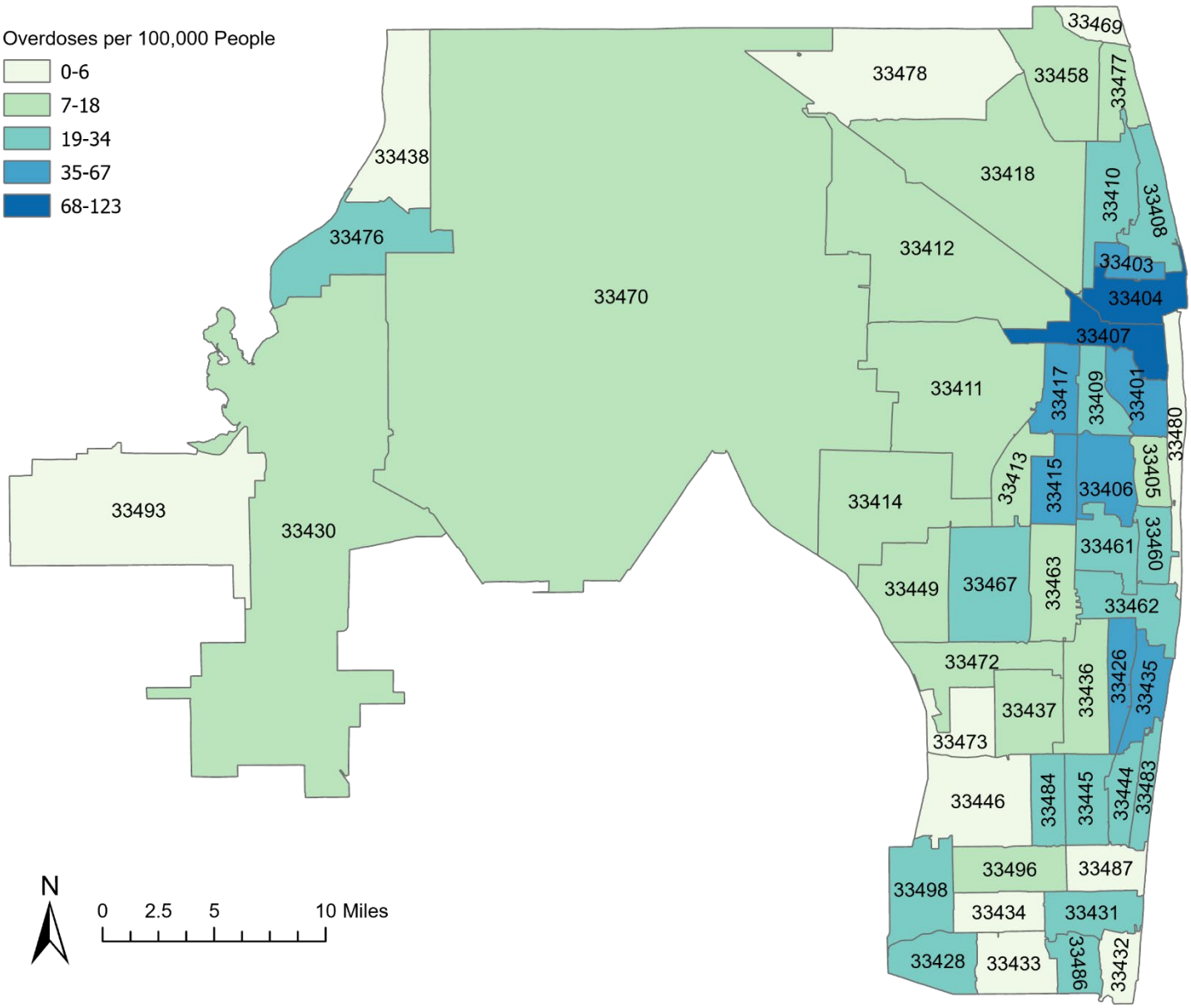
Map 7. Population-Adjusted Rate of ED Visits for Suspected Overdose by Home ZIP Code



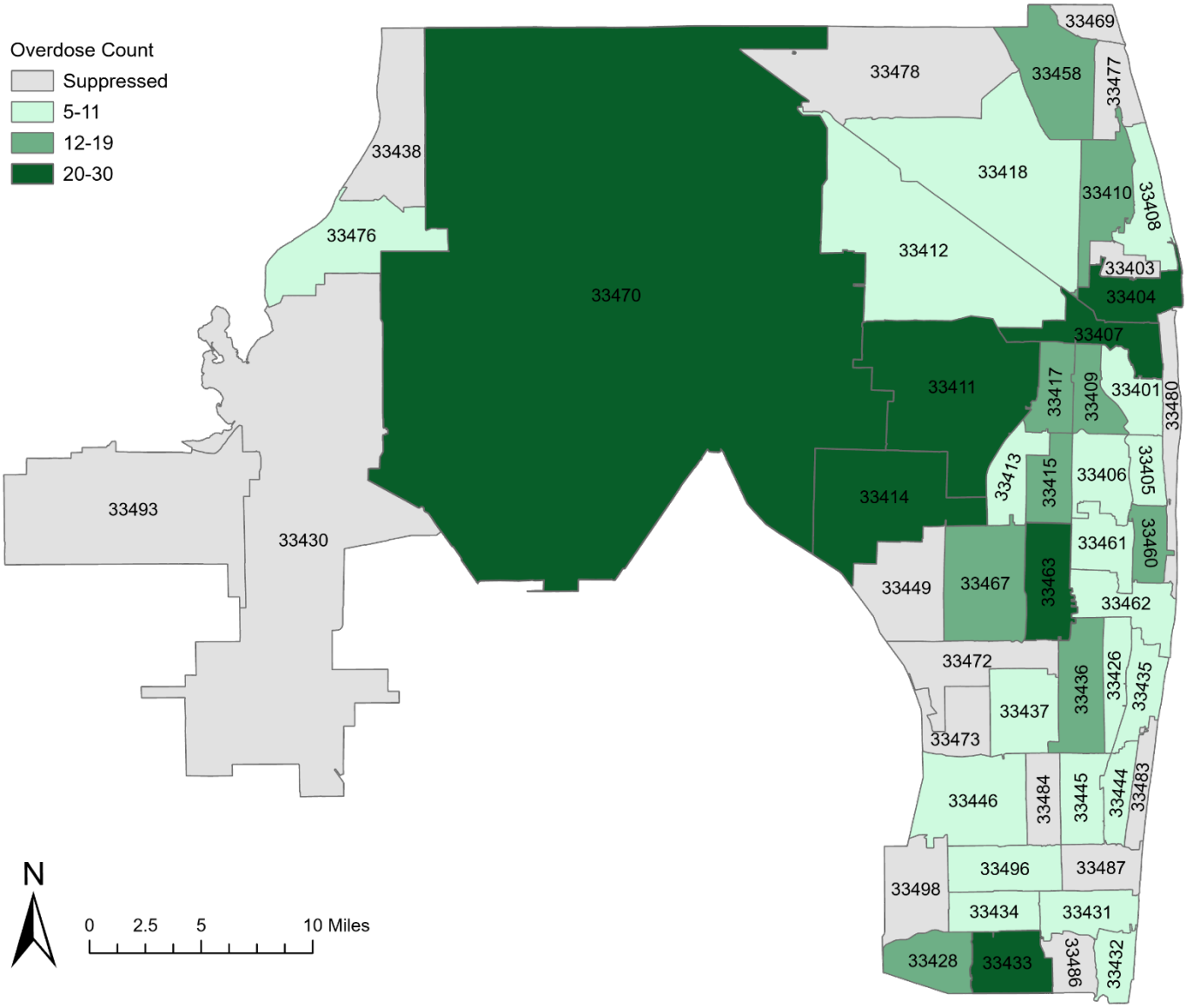
Map 8. Population-Adjusted Rate of ED Visits for Suspected Opioid Overdose by Home ZIP Code



Map 9. Population-Adjusted Rate of ED Visits for Suspected Stimulant Overdose by Home ZIP Code



Map 10. ED Visits for Suspected Overdose in Children 0-17 Years by Home ZIP Code



Non-Fatal Overdose Surveillance Report

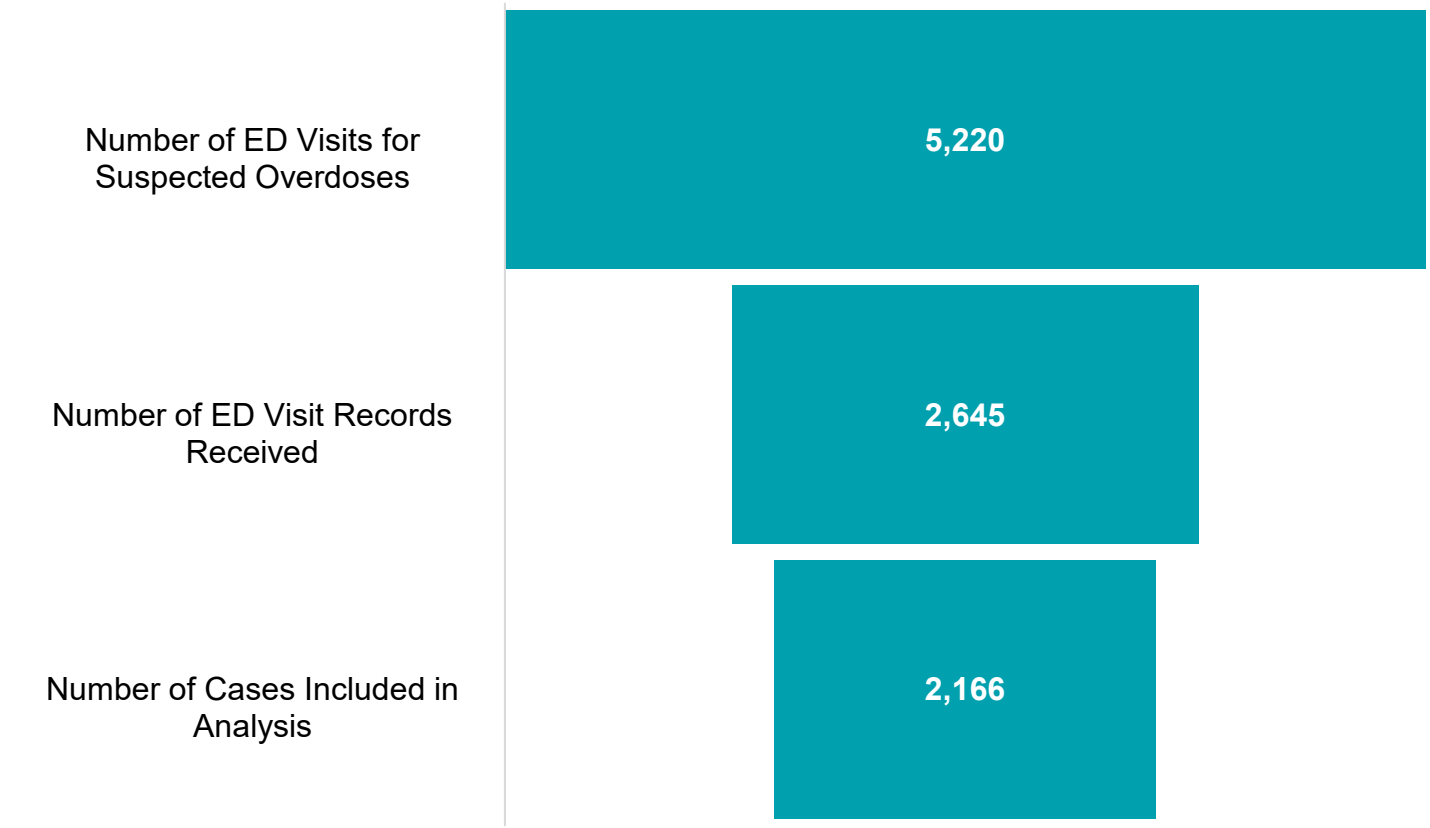
Cases Included in This Analysis

To conduct a comprehensive analysis of overdoses in Palm Beach County, the OD2A team worked to collect medical records from hospitals' emergency departments. Of the 5,220 suspected overdoses identified in 2024, 2,645 (50.7%) medical records were received and reviewed. Each record was thoroughly reviewed to determine if cases met the inclusion and exclusion criteria of an overdose as defined by the CDC Drug Overdose Surveillance and Epidemiology (DOSE) System [4].

Additionally, cases were only included if at least one of the drugs involved in the incident was one from the 2024 list (Figure 1). Largely, overdoses not included in this analysis were due to drugs such as marijuana, antidepressants, antipsychotics, insulin, other prescription medications, and over-the-counter (OTC) substances. Of the medical records reviewed, 2,166 (81.9%) were included in the final analysis.

OD2A participation is voluntary, and the completeness of the number of records received varied by hospital (Map 1). Potential differences in underlying population characteristics of each hospital catchment area may exist. Therefore, it is important to use caution when interpreting results presented in this section, as it may not be representative of the county (see Data Limitations).

Figure 4. Sample of Non-Fatal Overdoses



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Sample Characteristics

Demographics

Of the 2,166 non-fatal overdoses in the sample, most were male (n=1,347, 62.2%). Females accounted for 37.8% of overdoses (n=819). Racial and ethnic composition included 61.2% (n=1,391) White/non-Hispanic (NH), 16.9% (n=366) Hispanic (any race), 15.9% (n=345) Black/NH, and 2.6% (n=56) other race/NH. Race and ethnicity data were missing for 0.4% (n=8).

Throughout this report we will often be referring to the non-Hispanic population as "NH" when describing race and ethnicity numbers and figures. The relative proportion of race by sex is displayed in Figure 6. White/NH makes up a larger share of females in this sample compared to males in this sample (71.9% of females are White/NH vs. 59.9% of males).

Figure 5. Sex of Non-Fatal Overdose Cases Included in the Sample

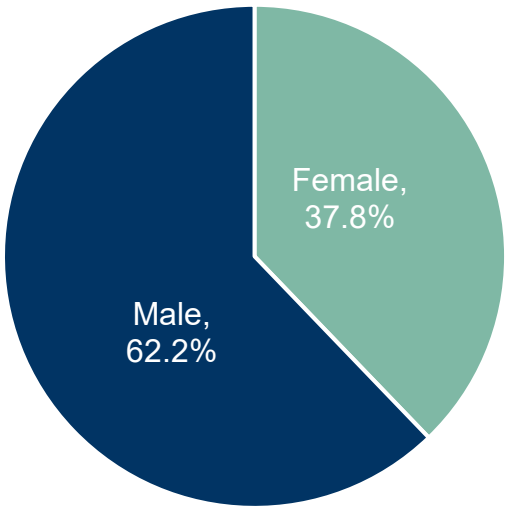
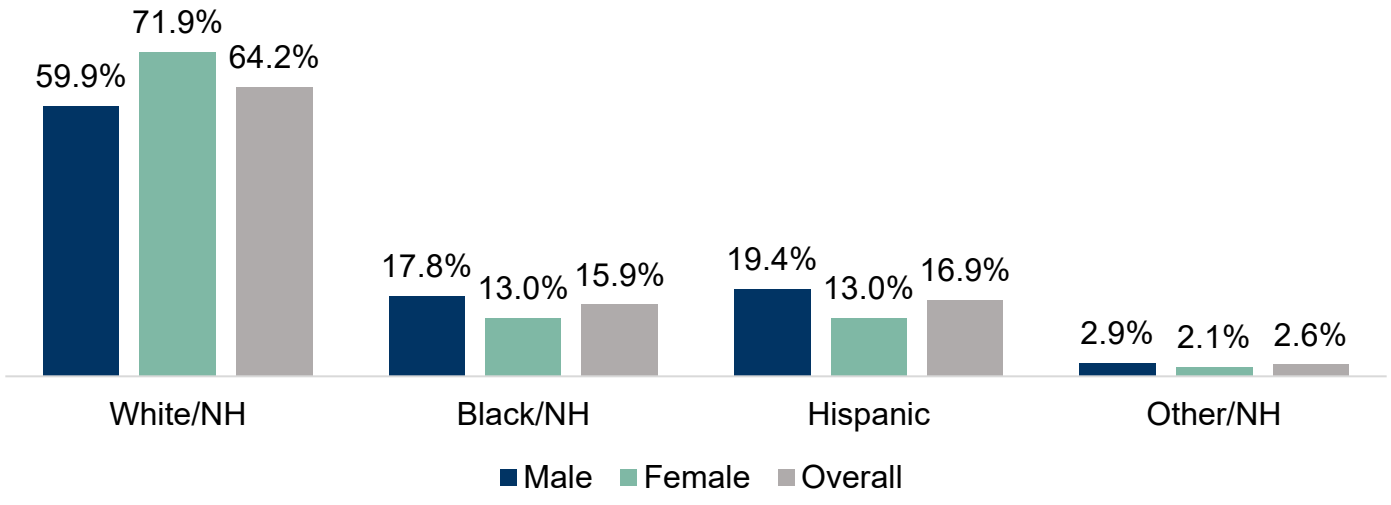


Figure 6. Race/Ethnicity of Non-Fatal Overdose Cases Included in the Sample



Most overdoses occurred among adults aged 25-44 years. In comparison, overdoses in older adults and young children happen less frequently. Overall, median age was 38 years, which aligns with previous OD2A non-fatal overdose reports [5]. The median age among men in this sample was 38 years, while women had a significantly higher median age of 43 years. Additionally, 19% of overdoses among women in this sample were aged 65 years or older compared to only 7.7% of overdoses in men. Overdoses in children are relatively rare and are usually a result of accidental ingestion. This usually occurs when a child accesses unsecured medications or illicit substances, in some instances mistaking it for “candy”. These age-specific patterns highlight the need for tailored strategies to prevent overdoses in individual age groups.

Figure 7. Distribution of Age Groups (Years)

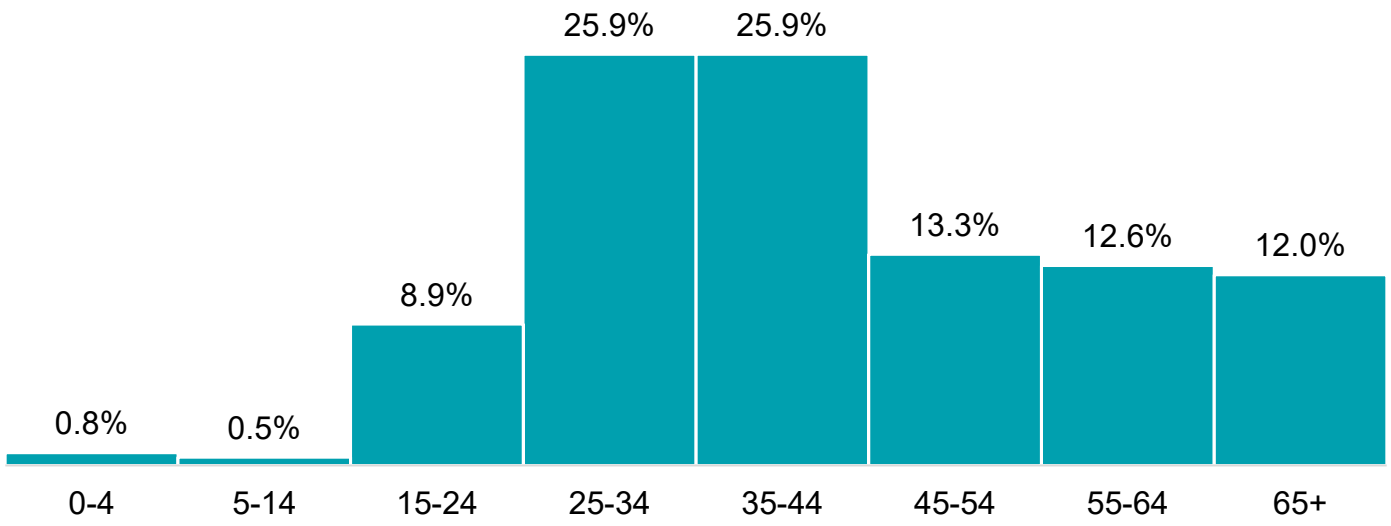
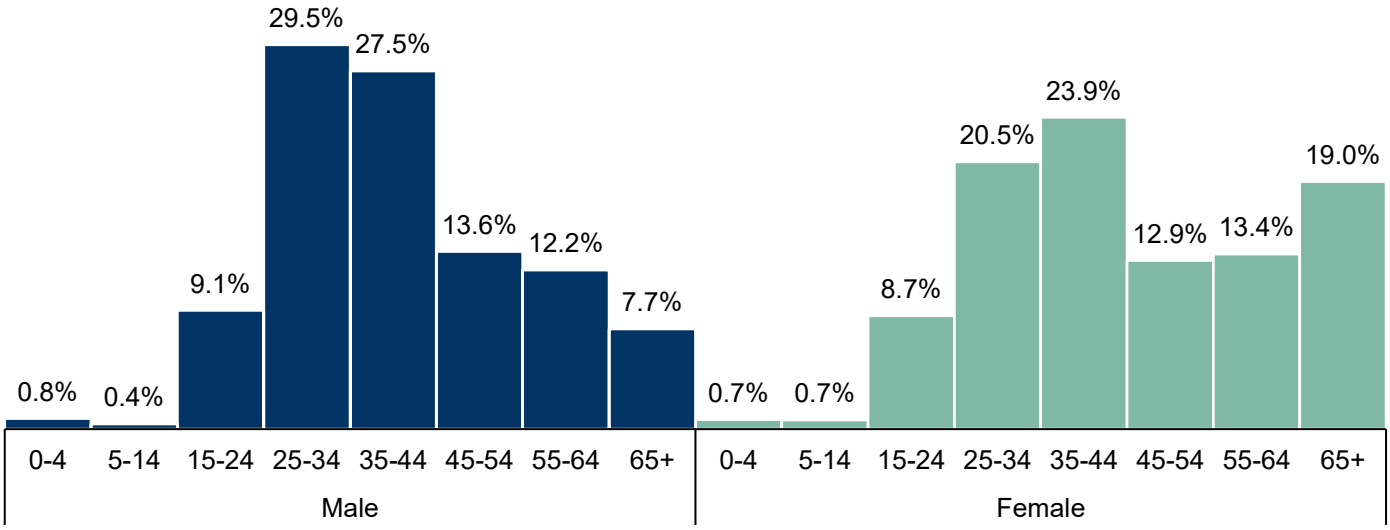


Figure 8. Age Distribution (Years) by Sex



Social Factors Impacting Health

Employment

Factors such as unemployment or job instability can contribute to, or correlate with a greater risk of SUD and/or overdoses [6]. The figures below show information on individuals' employment status at the time of an overdose. More than half (55.9%) of patients in the sample were not employed at the time of the overdose, 14.3% were employed, 6.1% were self-employed, and 23.8% had unknown employment.

Women were more likely to not have employment than men – 63.1% of women were not employed compared to 51.5% of men. White/NH and Black/NH had similar rates of patients who were not employed (58.2% White/NH vs. 56.8% Black/NH).

Figure 10. Employment Status by Sex

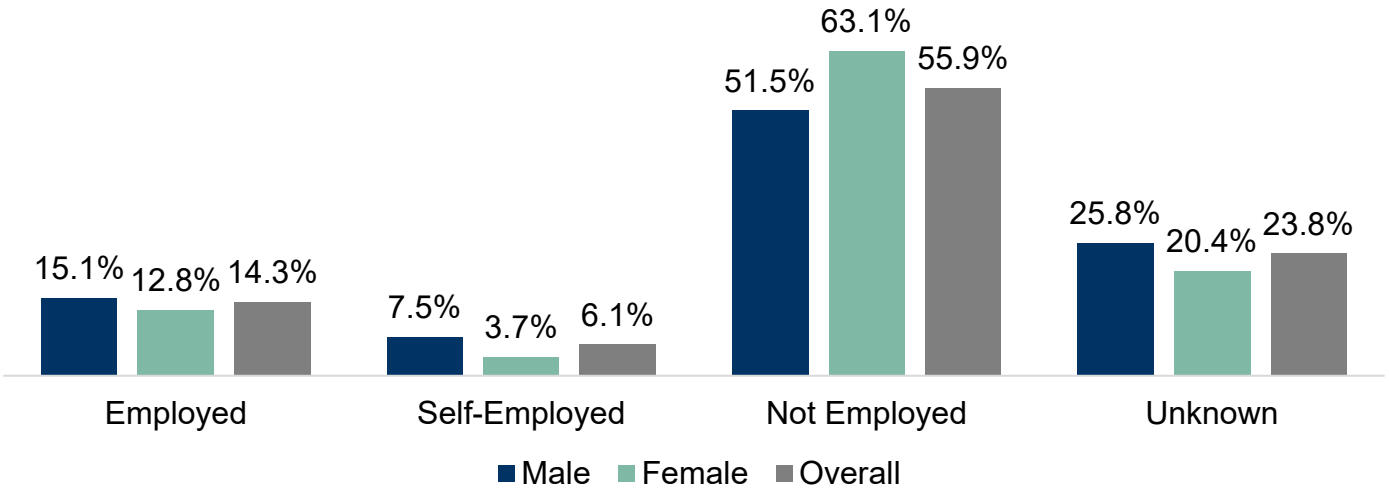


Figure 9. Employment Status by Race/Ethnicity

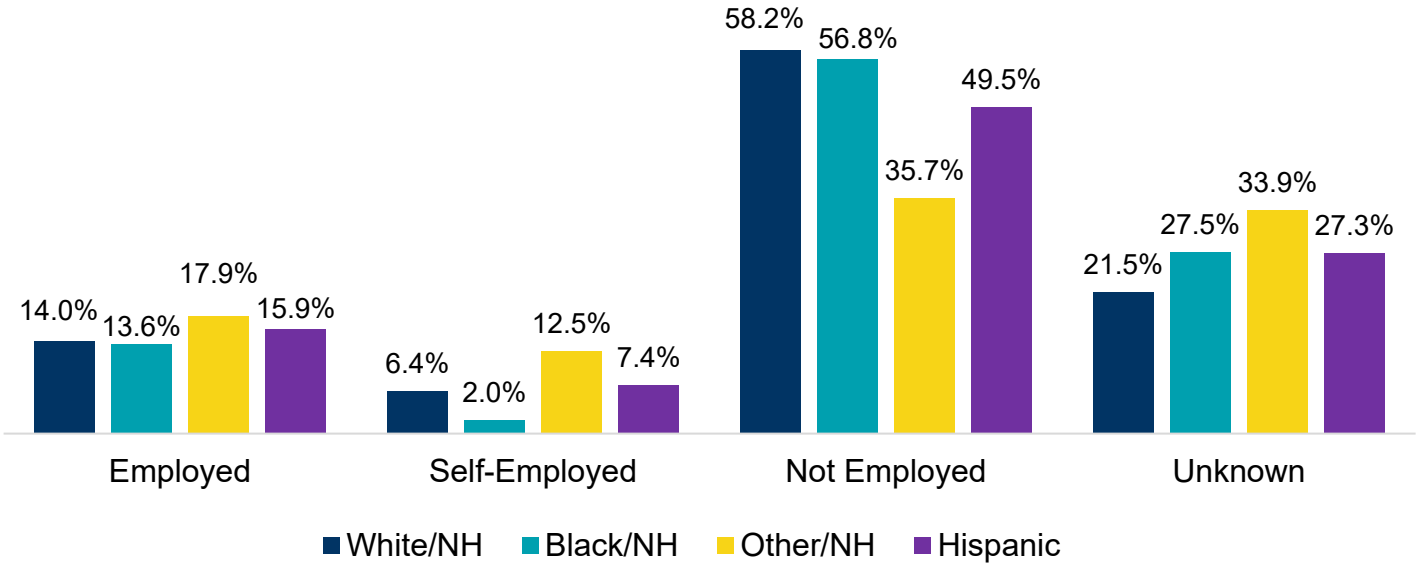


Figure 11. Word Cloud of Employment Industry or Occupation

Employment industry information was collected for 35.4% (n=766) of the sample. Occupational industries were categorized and used to generate the word cloud in the figure above. The size of each word is proportionate to the frequency with which it appears in the dataset with larger words appearing more frequently. The top five occupation industries included construction and labor, food and beverage, health care, retail, and automotive services.

Health Insurance

Access to health care is critical for treating SUD because it provides access to essential treatment and services. Health insurance can reduce financial barriers to receiving evidence-based treatments and support long-term recovery [7]. It also supports integrated care models, where mental health and physical health services are coordinated for better outcomes. Health insurance can help prevent SUD through funding preventive services and mental health care which can reduce the risk of developing SUD later in life. Most (61.1%) of patients had some health care coverage. Of the 773 (35.7%) patients that had private health insurance, 459 (59.4%) received coverage through the Health Insurance Exchange (HIX) digital marketplace.

While men had a higher rate of having private insurance (37.2% vs. 33.2% of women), men also had higher rates of being uninsured compared to women (39.3% vs. 25.9%). Women were more likely to be on Medicare (23.9% vs. 9.9%), the publicly funded federal health insurance program typically reserved for adults aged 65 years and older. The higher proportion of women on Medicare aligns with sample data showing that women who overdose are typically older than men. Of the 2,166 cases reviewed, 7.2% were women 65+ years and 4.8% were men 65 years or older.

Patients who were White/NH had higher rates of both private insurance and Medicare than other groups. The rate of Medicaid insurance was highest among Black/NH patients with 15.1% of Black/NH patients being enrolled in Medicaid. Other/NH and Hispanic (any race) had the highest relative rates of being uninsured (50.0% other/NH, 49.2% Hispanic).

Figure 12. Health Insurance at the Time of Overdose

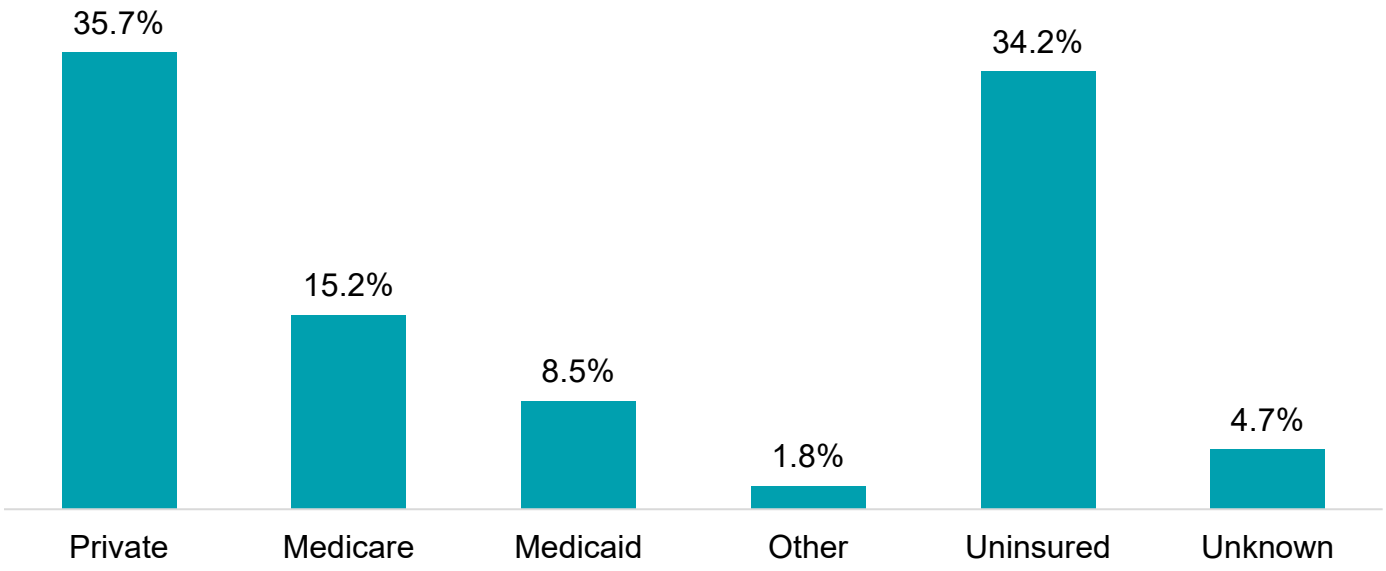


Figure 13. Health Insurance by Sex

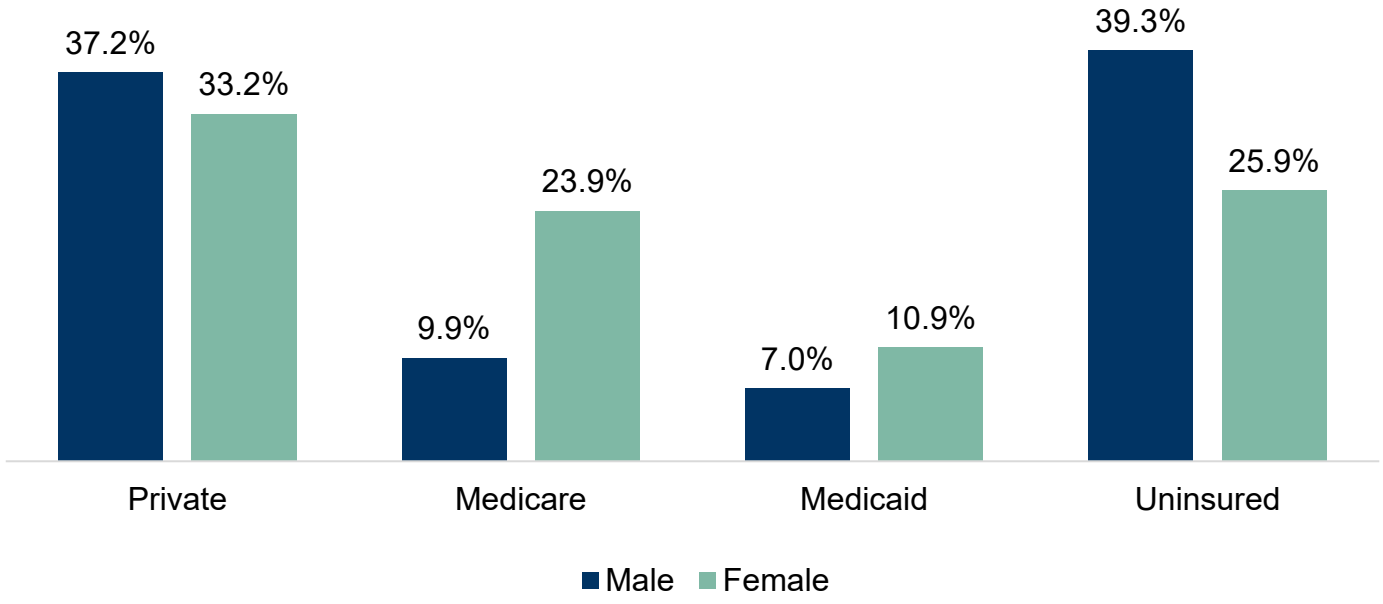
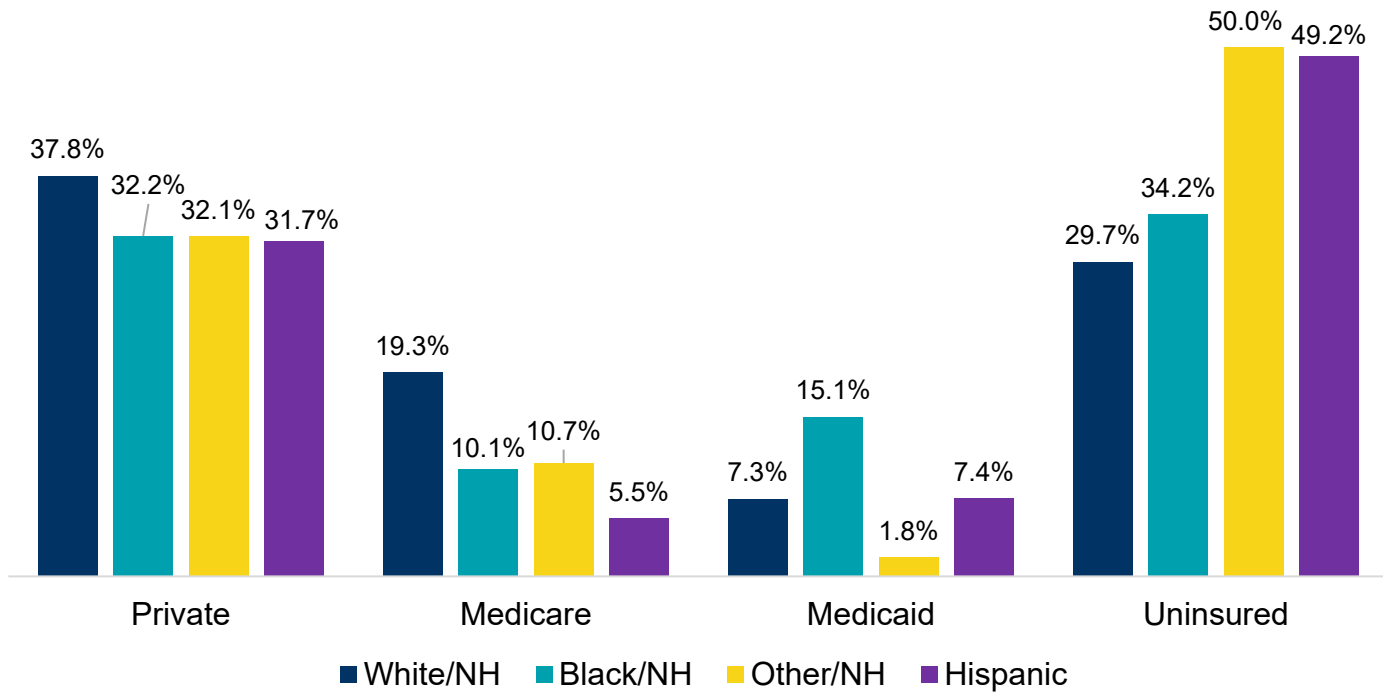


Figure 14. Health Insurance by Race/Ethnicity



Housing

Housing instability has been shown to significantly increase the risk of SUD and overdose, while access to safe and stable housing can support treatment and long-term recovery [8]. Housing instability poses additional barriers to accessing care as those who are unhoused, homeless, or otherwise lack adequate housing often have additional factors such as food insecurity and lack of transportation. They also might not have a safe place to store medications and might find it difficult to maintain appointments or dosing schedules.

In this report, housing statuses were categorized as stable, transitional, and unstable.

- **Stable:** Permanent residence with consistent tenancy.
- **Transitional:** Temporary housing in settings such as jails/prisons, recovery homes, or treatment facilities.
- **Unstable:** Lacking a permanent residence in settings such as couch surfing, living in cars or places not meant for habitation, motels, homeless shelters, or sleeping on the streets.

One-in-four (26.7%) patients was experiencing unstable housing. Men had significantly higher rates of housing instability compared to women (31.9% vs. 18.2%). Rates of stable housing were highest in White/NH and Hispanic groups. Transitional housing was highest in Other/NH. Black/NH had the highest rates of unstable housing (35.9%).

Figure 15. Housing Status at the Time of Overdose

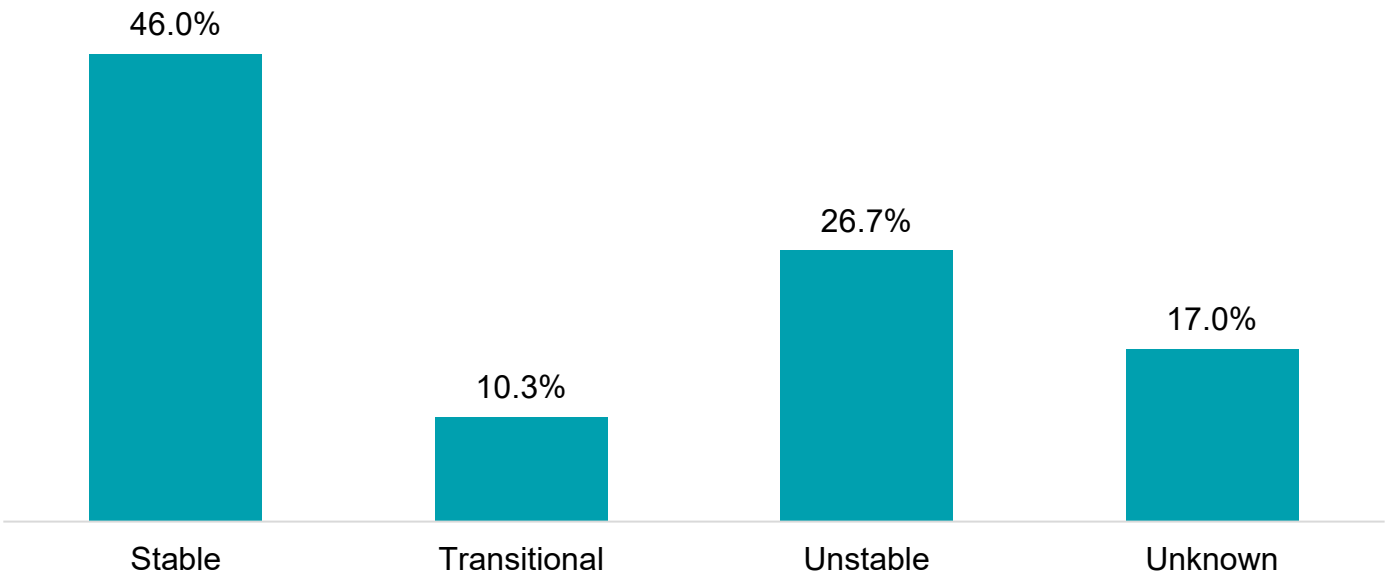


Figure 16. Housing Status by Sex

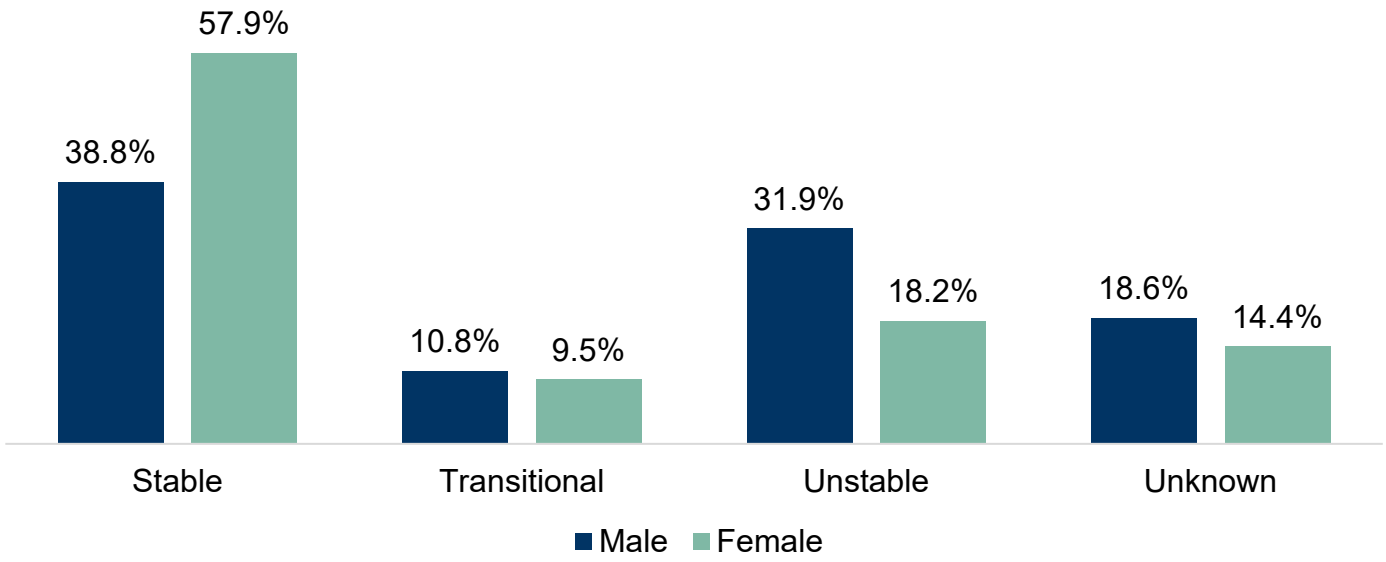
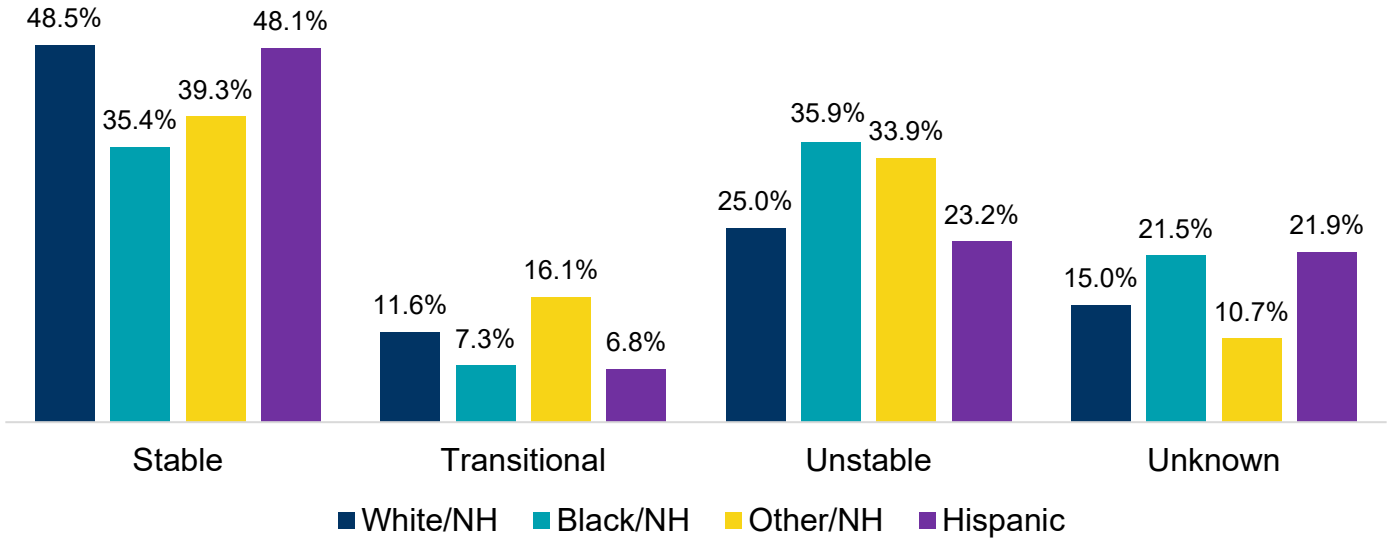


Figure 17. Housing Status by Race/Ethnicity



To provide additional measures on housing stability and instability, the number of addresses associated with each case within one year of overdose was collected. Whereas housing stability assesses the best approximation of a person's current living situation, the number of addresses associated in the past year gives a wider perspective. Frequent relocations or moves can cause increased stress and can disrupt social support networks and the continuum of care [9]. These factors can increase vulnerability to substance use and reduce the likelihood of successful treatment or recovery. Although the reasons for these relocations are unclear, the data suggest a strong correlation between frequent address changes and overdose, underscoring the need to address housing as a critical component of public health interventions.

Figure 18. Number of Addresses Associated Within the Past Year by Sex

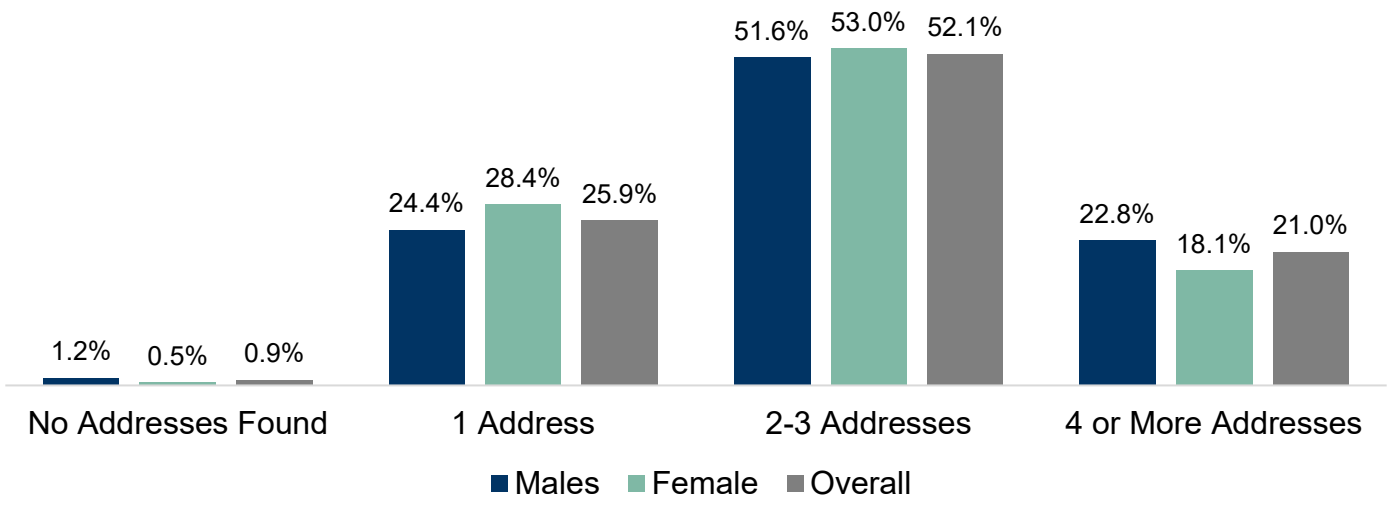
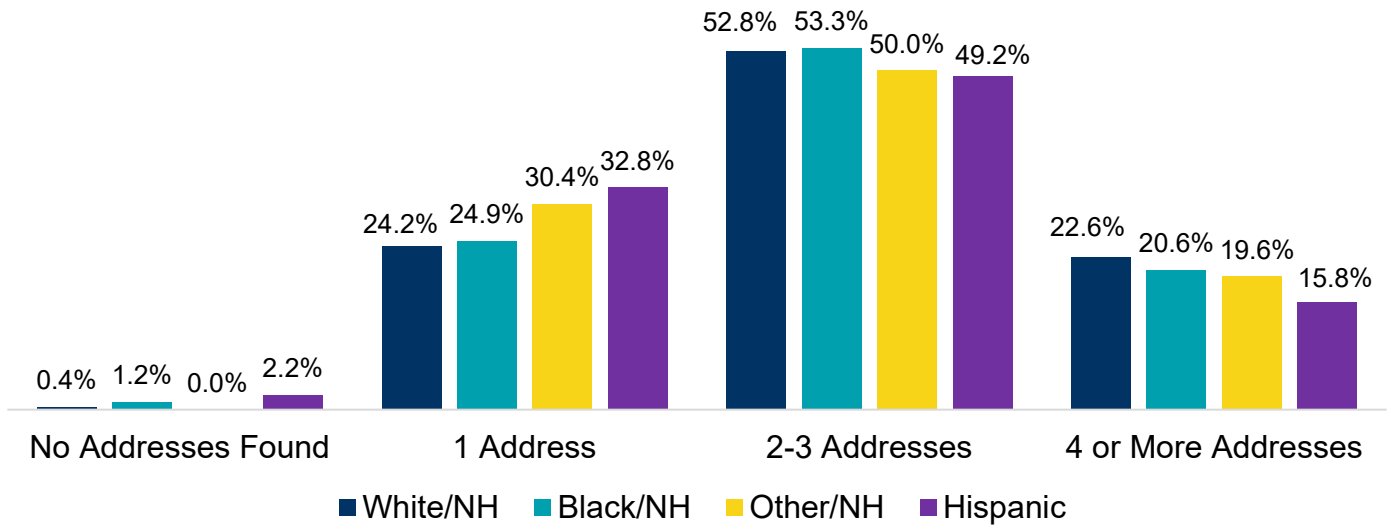


Figure 19. Number of Addresses Associated Within the Past Year by Race/Ethnicity

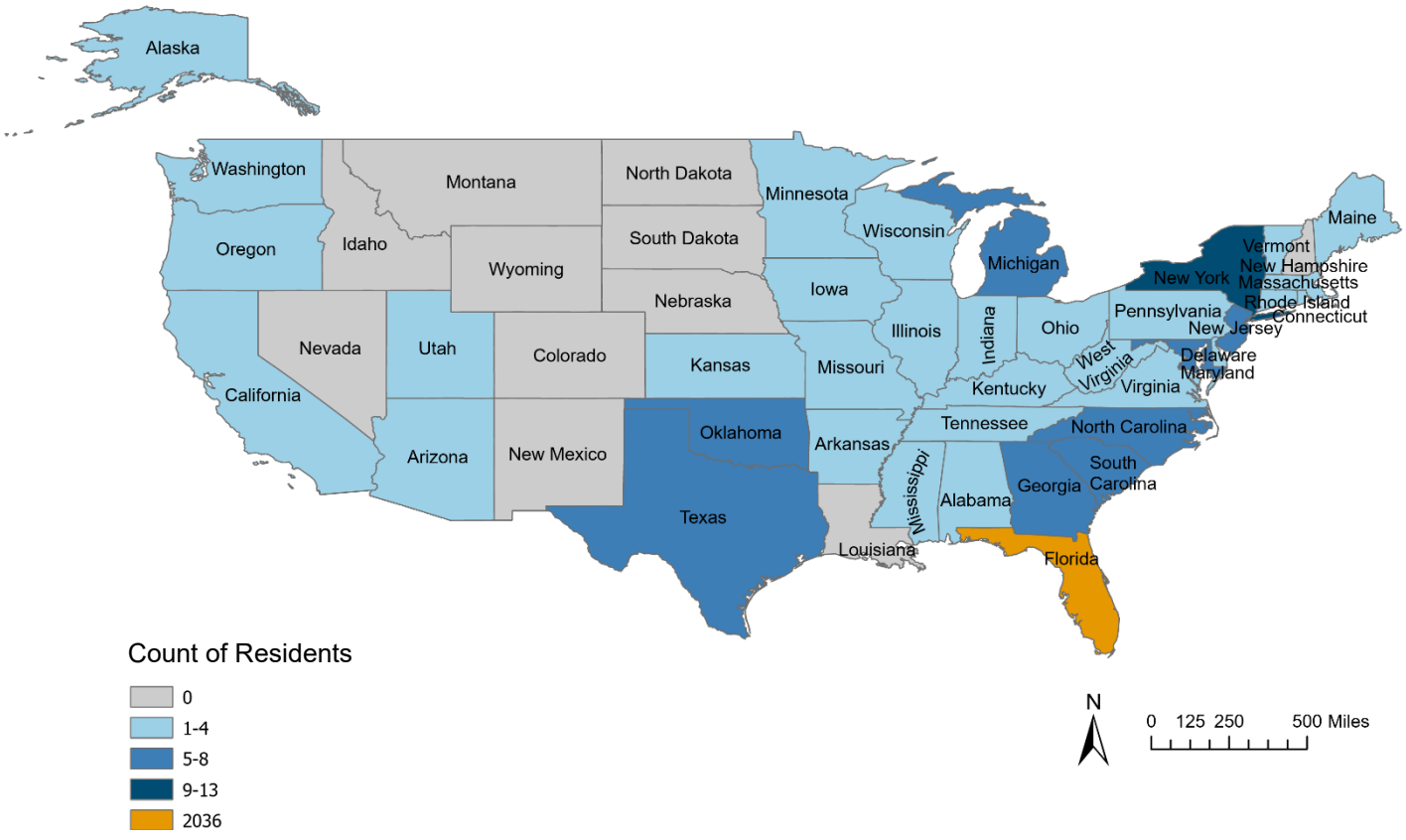


State and County of Residence

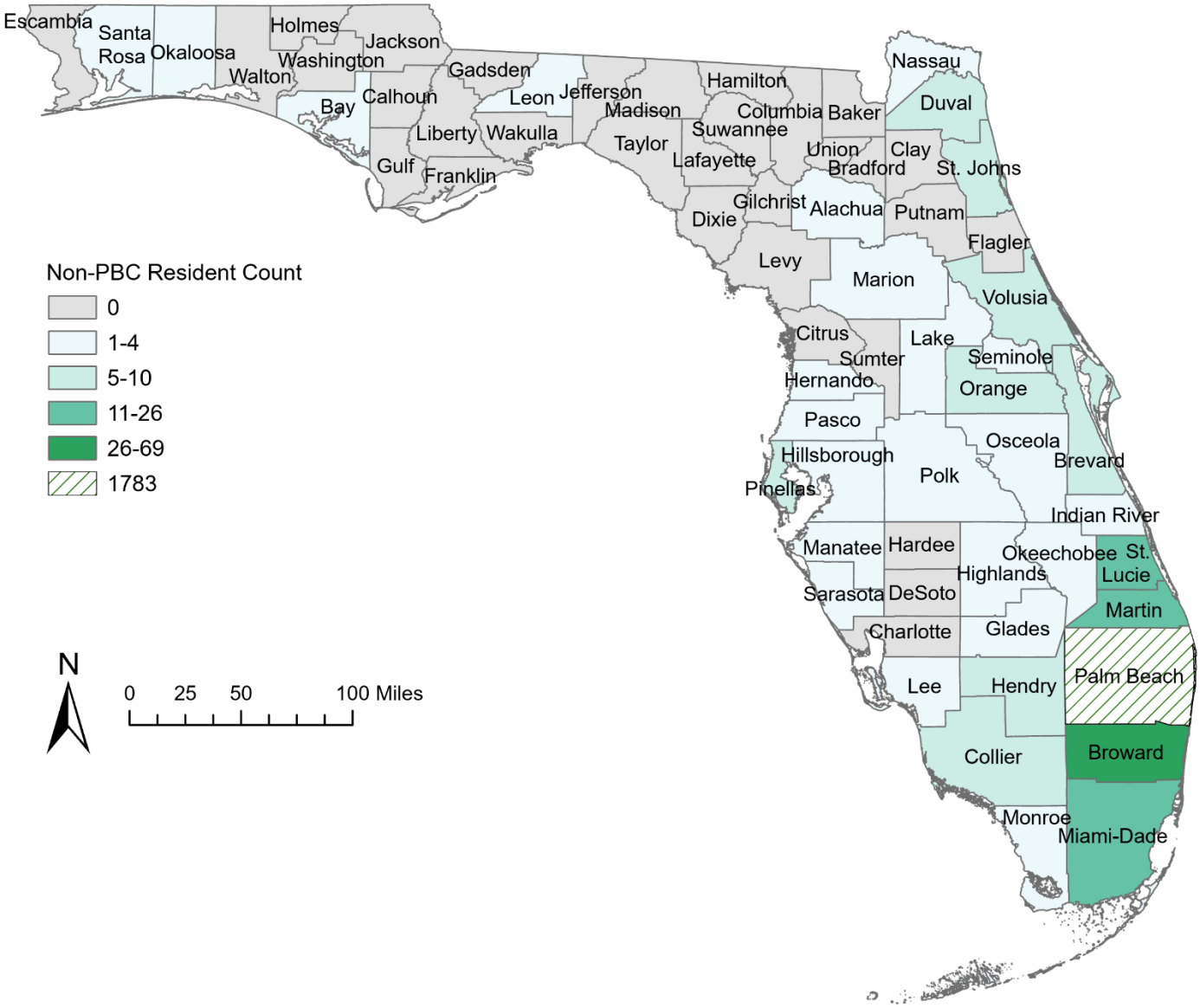
This report examines data records of non-fatal overdoses reported by Palm Beach County hospitals and categorized based on the individual's county and state of residency at the time of the incident. The majority (94.0%, n=2036) involved residents of Palm Beach County, while 17.7% were from individuals with residency outside the county.

Of Florida residents, 87.6% (n=1,783) resided in Palm Beach County. Identifying where people reside can provide valuable insight for prevention and response strategies as effective strategies must account not only for residents but also for individuals who come to the county for treatment, leisure, or due to transient living situations.

Map 11. Geographic Distribution of U.S. State Residency Among Individuals Who Overdosed in Palm Beach County, Florida



Map 12. Geographic Distribution of Florida County Residency Among Individuals Who Overdosed in Palm Beach County, Florida



Social Support Networks

Social support networks can increase resiliency and support treatment outcomes [10]. In this report, two proxy measures are used to look at social support. Marital status and having an emergency contact can reflect the presence of close, personal relationships in a person's life. It is important to note that these measures do not reflect the quality or depth of interpersonal relationships, only the presence or absence of a close personal relationship.

Figure 20. Marital Status

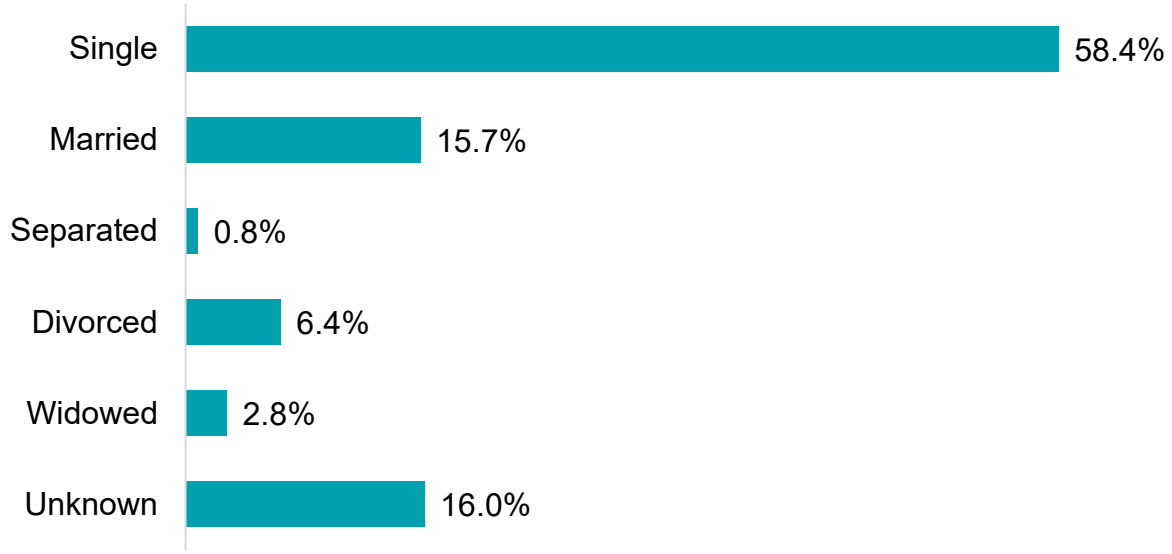
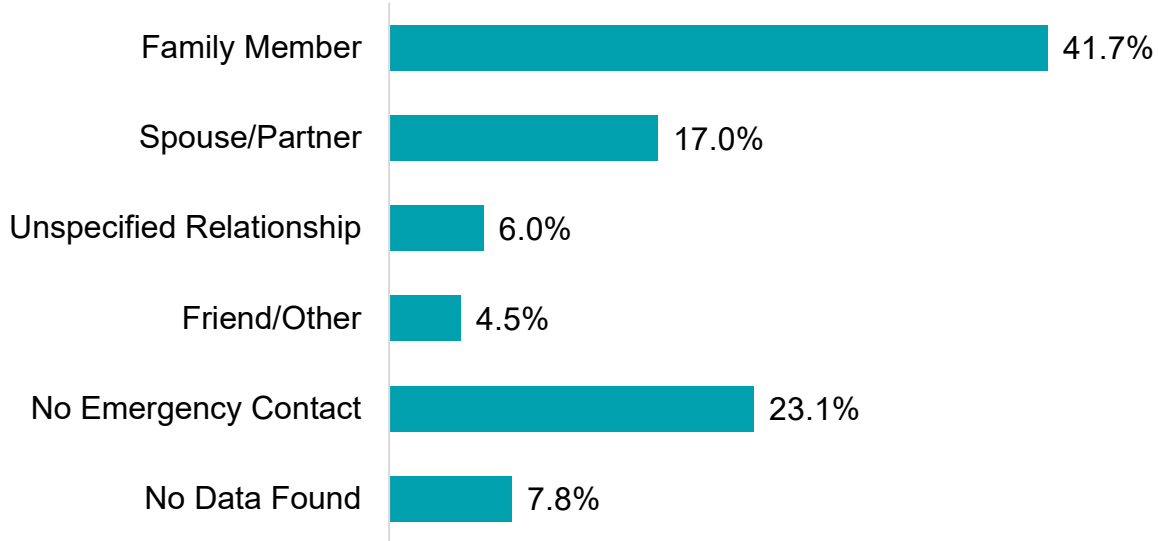


Figure 21. Relationship of Emergency Contact



Overdose Incident Circumstances

Location and Emergency Response

Understanding where overdoses are happening – both the location and setting – is essential for prevention. Individuals who use drugs alone, inside a private residence, may have an increased risk of overdose, and as the overdose is not likely to be witnessed, may have a greater risk of death. Using substances in vehicles may lead to an increased risk of motor vehicle collisions (MVC).

Our data shows the majority of overdoses happen indoors (54.4%). This information reveals that prevention and intervention should also be tailored to reach individuals in private home settings. This includes access to naloxone kits, training for family members or possible tele-health in-house support for those who are at a high risk of overdoses. By targeting location settings interventions are more likely to reach individuals in critical moments when help is needed.

Figure 22. Overdose Location Setting by Sex

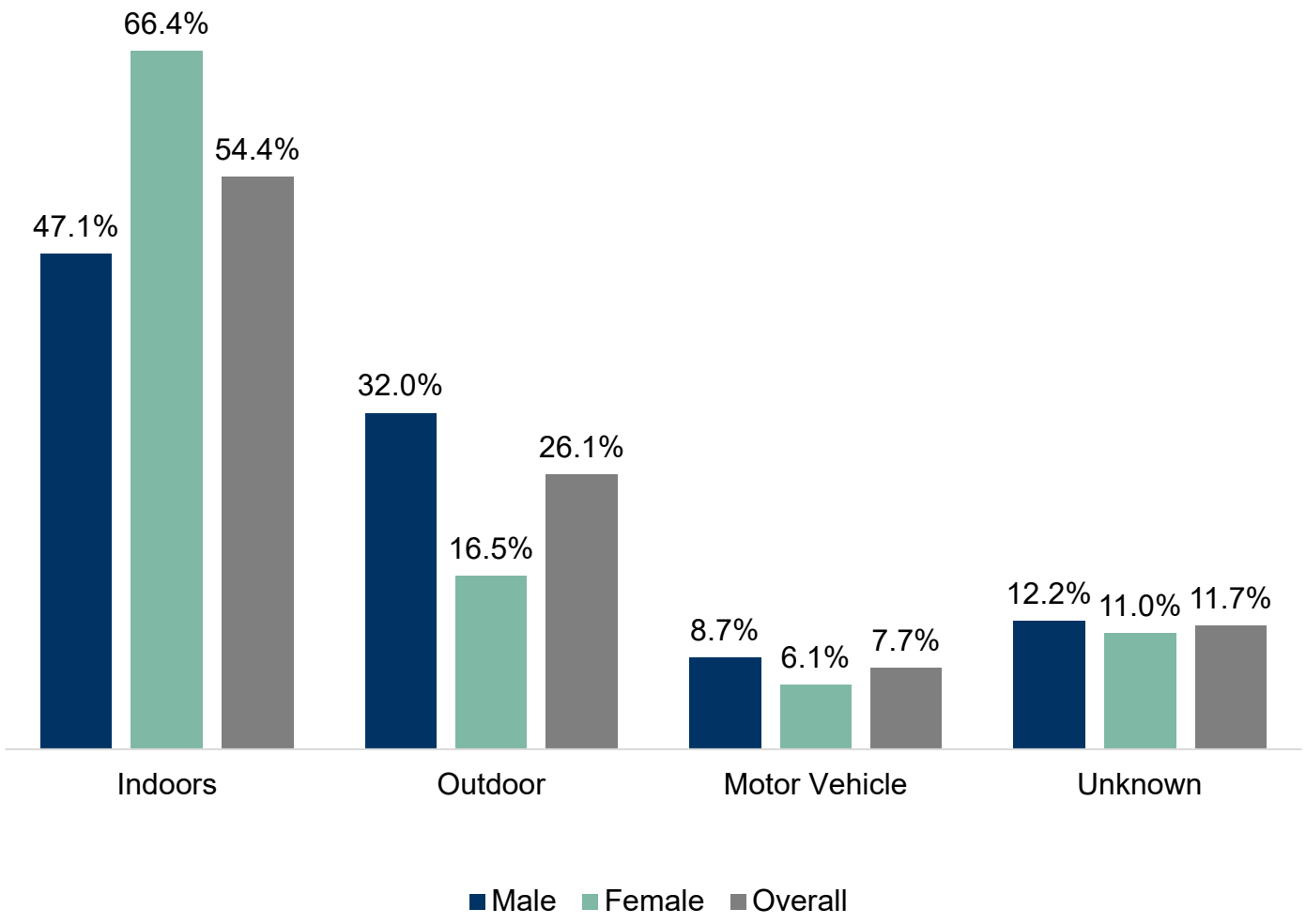


Figure 23. Overdose Location Setting by Race/Ethnicity

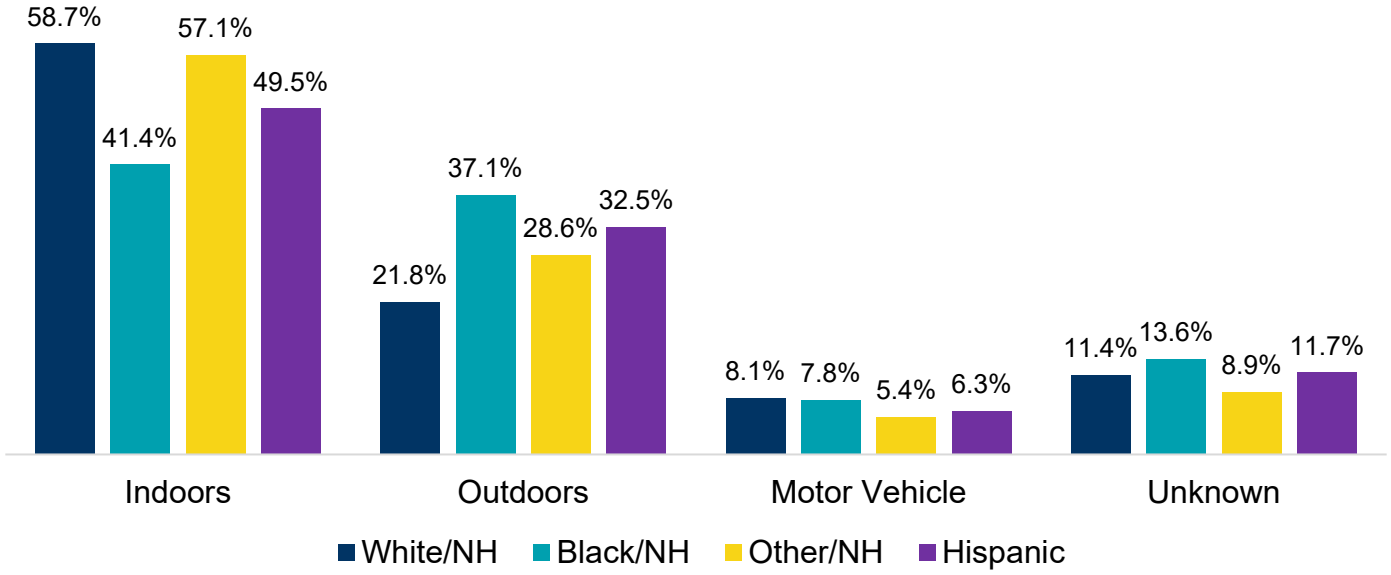


Figure 24. Overdose Location Type (Excluding Private Residence)

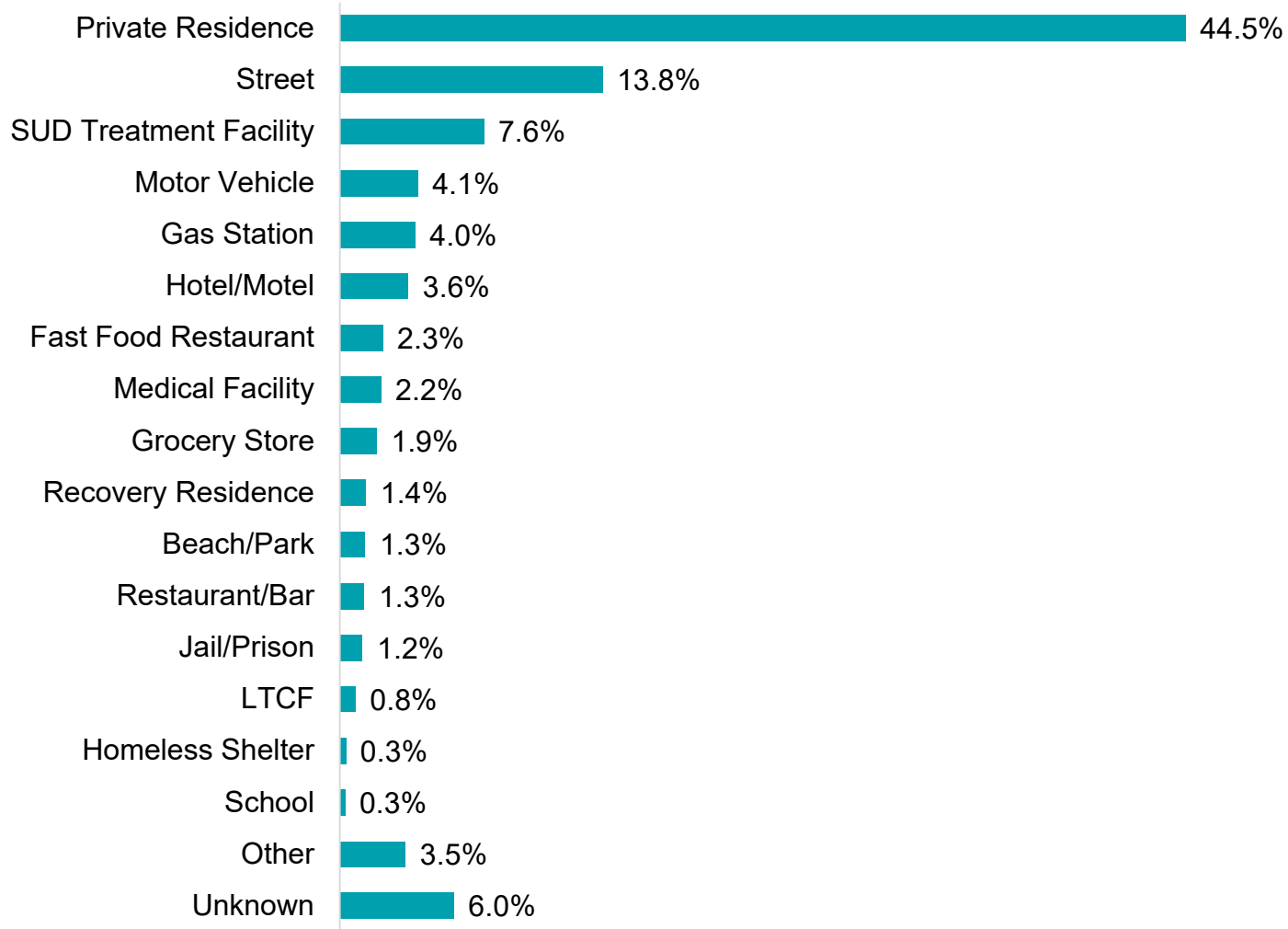


Figure 23. Overdose Location Type by Sex

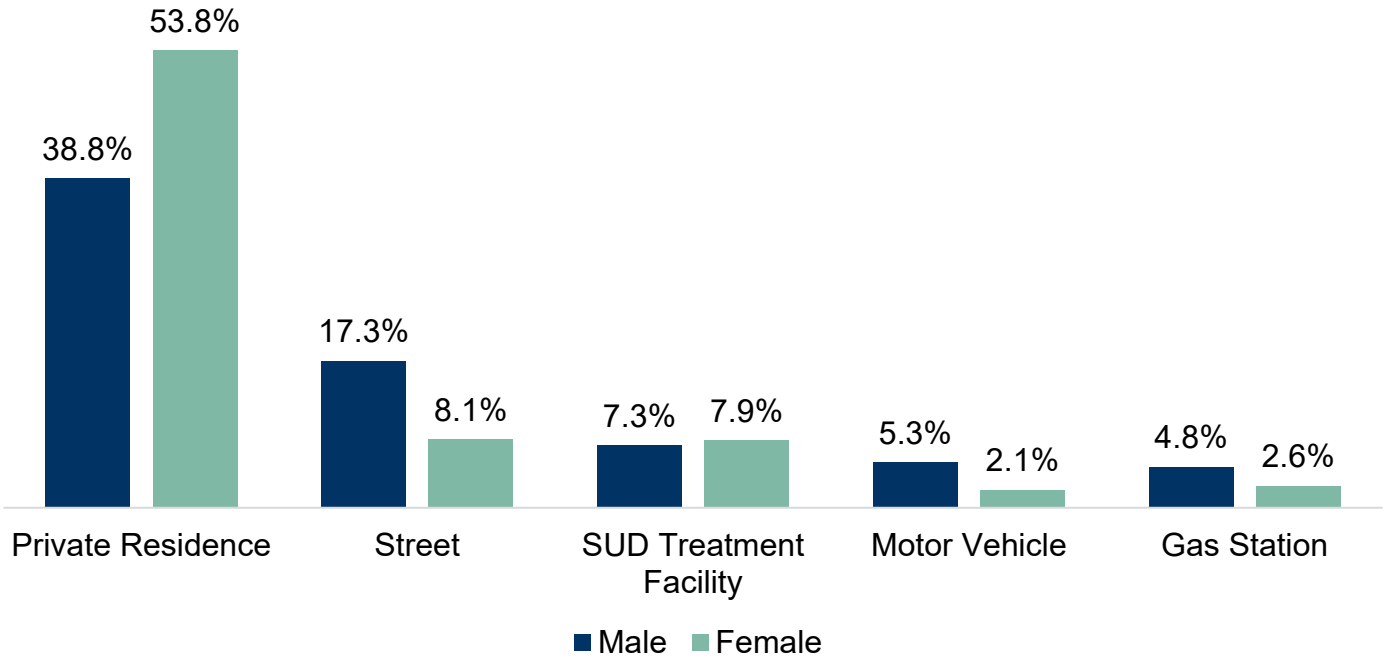
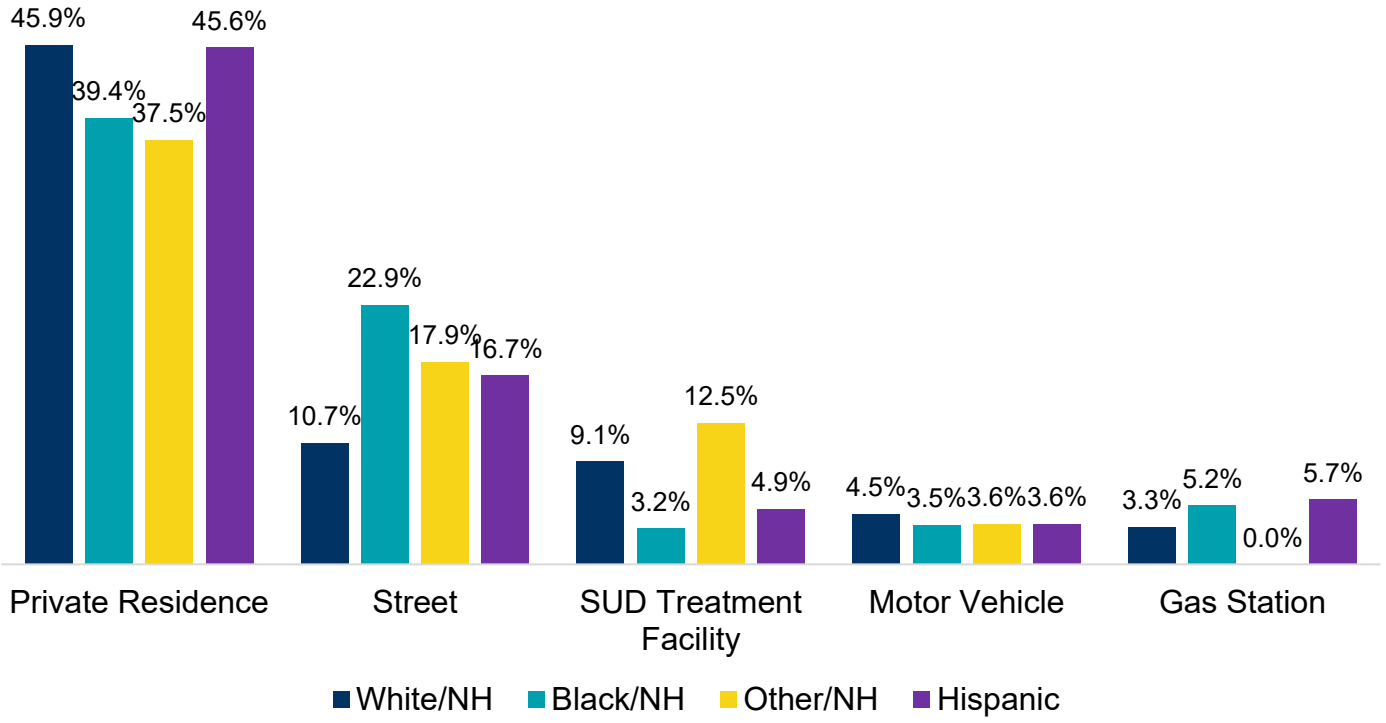


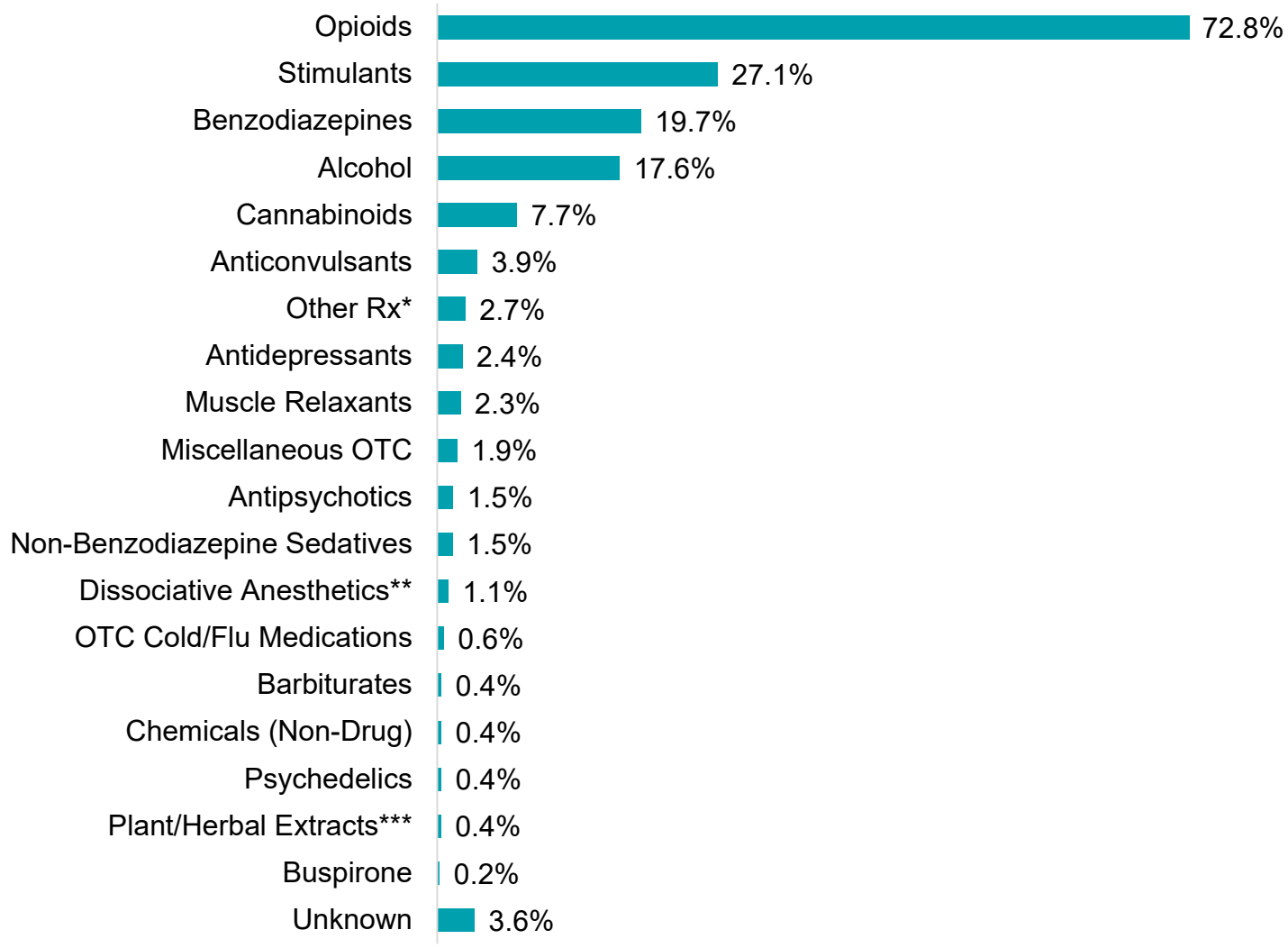
Figure 24. Overdose Location Type by Race/Ethnicity



Drug(s) Involved

This section provides a detailed overview of the substances most involved in non-fatal overdoses in Palm Beach County. Opioids, particularly fentanyl, continue to dominate the landscape, reflecting national trends in synthetic opioid prevalence. Opioid use was more common among males, with 75.4% of males having an overdose that involved opioids compared to 68.5% in females. Stimulants and benzodiazepines also appear frequently. Overdoses involving stimulants, primarily cocaine, were more common in males (31.6% vs. 19.8% in females), and Black/NH individuals (40.0% vs. 23.5% in White/NH). Alcohol as a co-ingested substance was most common in Hispanic individuals (21.3% vs. 17.5% in White/NH). Understanding the substances involved is critical for tailoring prevention strategies, informing clinical protocols, and guiding public health messaging.

Figure 25. Suspected or Reported Substance(s) Involved in Overdose



* Other Rx: Other prescription medications.
** Dissociative Anesthetics: Includes substances such as ketamine and phencyclidine (PCP).
***Plant/Herbal Extracts: Includes substances such as mitragynine/kratom, kava, and khat.

Figure 26. Suspected or Reported Substance(s) Involved in Overdose by Sex

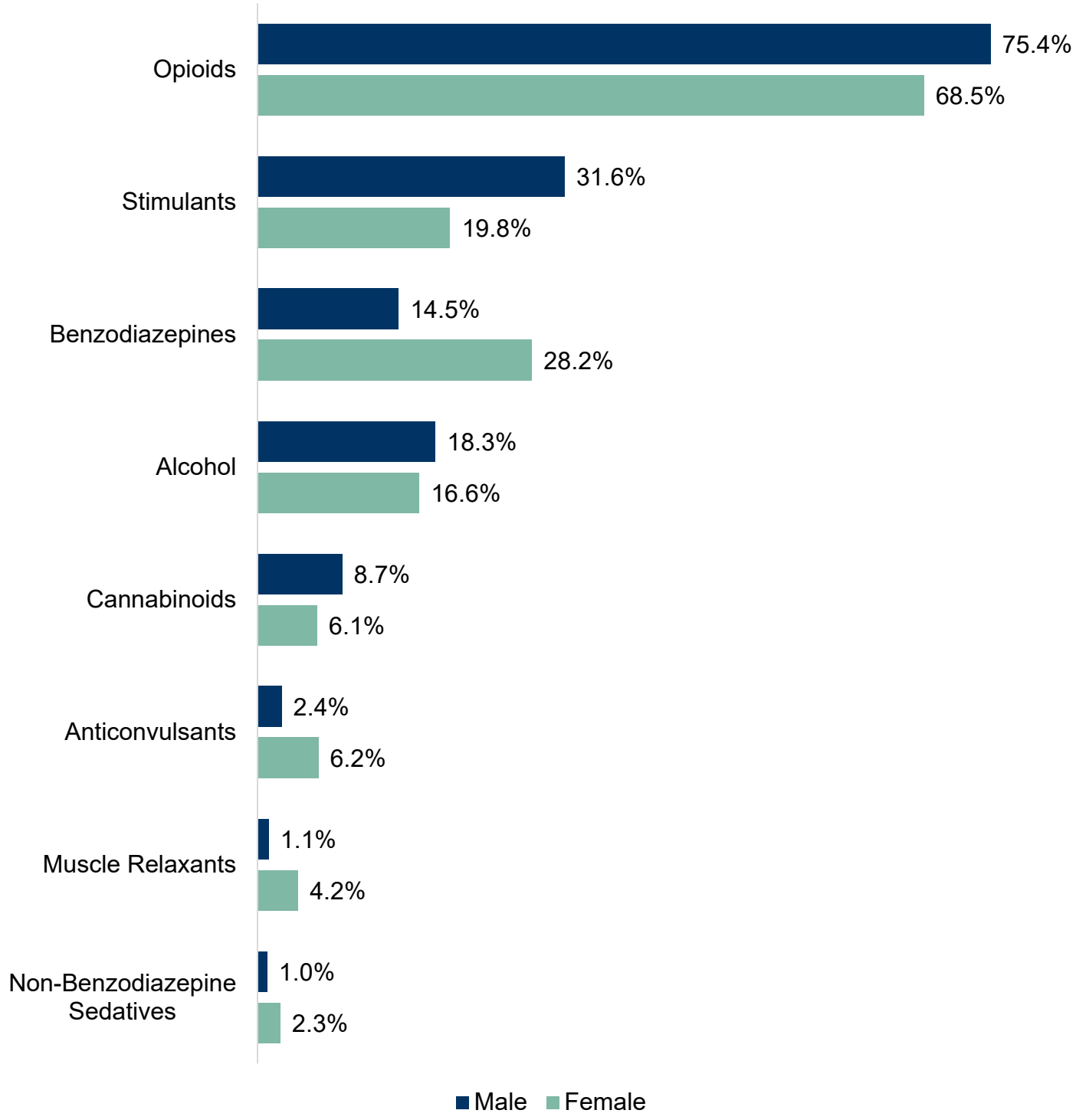


Figure 27. Suspected or Reported Substance(s) Involved in Overdose by Race/Ethnicity

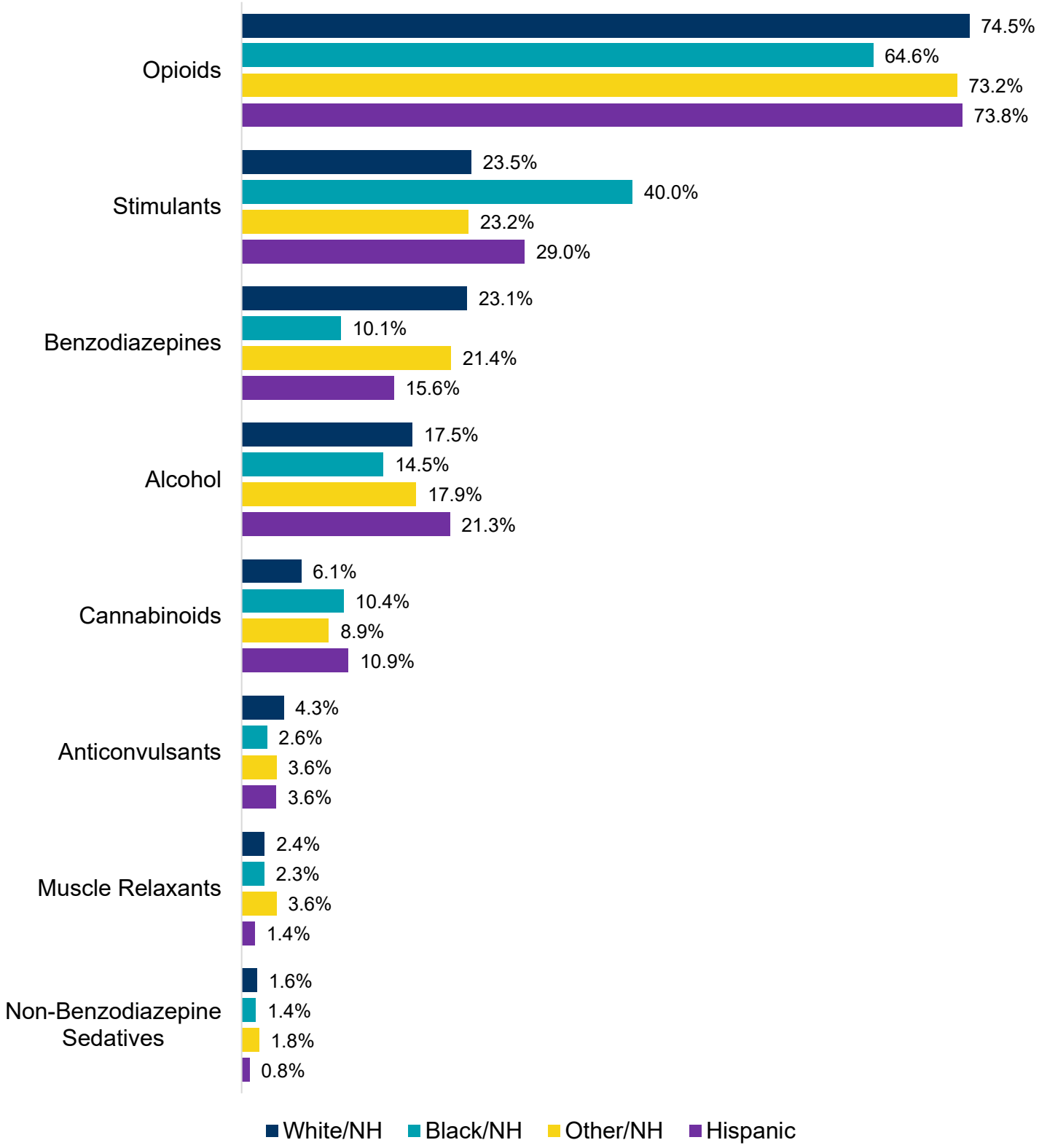
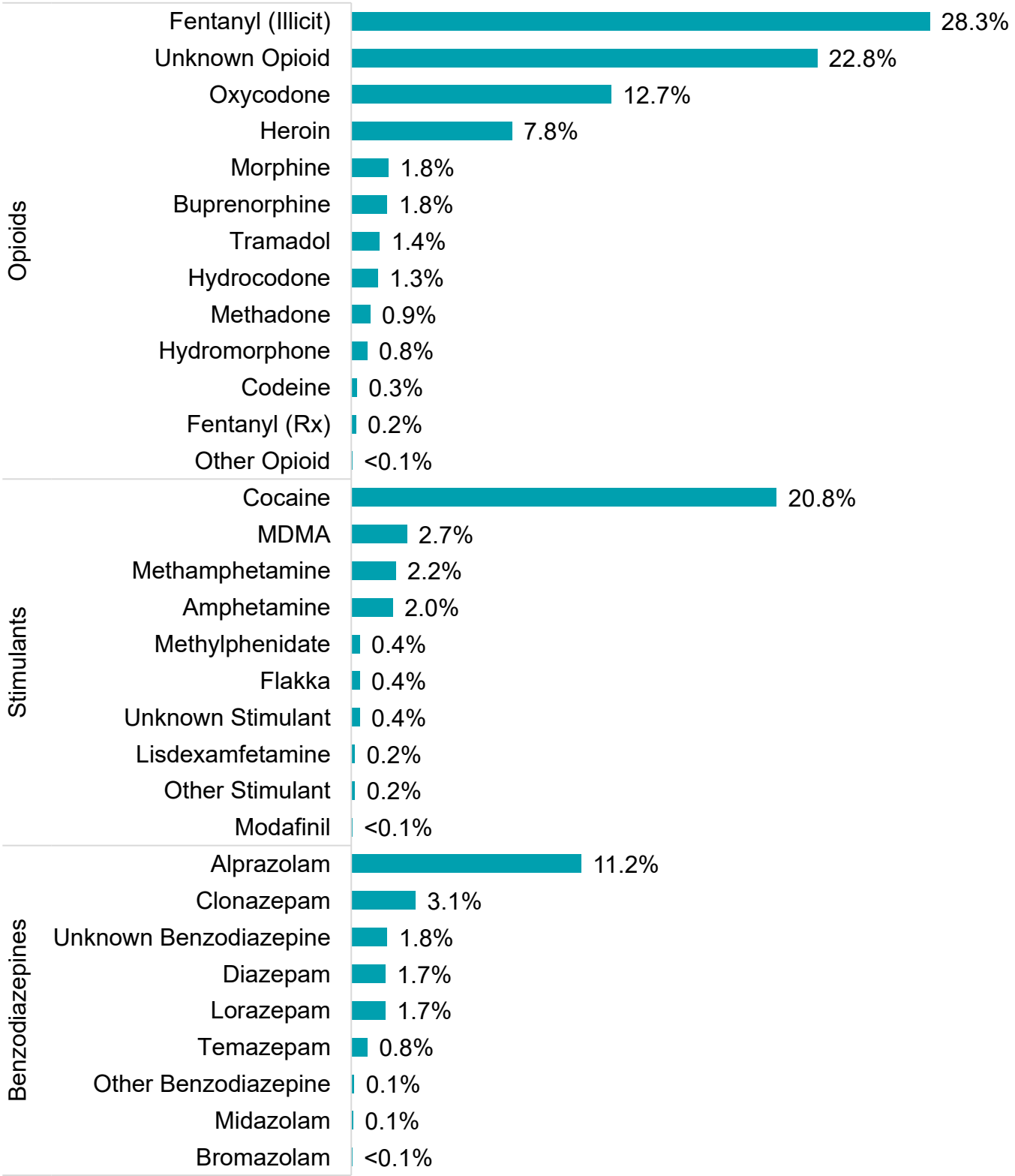


Figure 28. Subcategories of Substance(s) Involved



Route of Drug Ingestion

The route of ingestion or administration offers insight into patterns of substance use and potential risk factors for overdose. Inhalation and injection are associated with rapid onset and an increased risk of overdose [11]. In addition to increasing the risk of overdose, injection drug use also carries the risk of acquiring or transmitting blood-borne pathogens like HIV and hepatitis B and C. Injection drug use may also cause endocarditis, cellulitis, and abscesses which can be difficult to treat, especially among individuals who are homeless or have unstable housing conditions [12]. These data may help inform overdose prevention and response strategies, including education on safer use and distribution of naloxone.

Data on the route of administration were available for 63.4% (n=1,374) cases. The figures below reflect the relative proportion of drug administration for cases where data was available. Oral ingestion was the most common method of use, but males had lower rates of oral ingestion compared to females (49.4% and 75.3%, respectively).

Males had higher rates of smoking/vaping and snorting (smoking/vaping: 28.1% male vs 12.8% female; snorting: 22.5% vs. 10.6%). Individuals that were Black/NH had higher rates of smoking/vaping (33.7% Black/NH vs. 18.0% White/NH). Other/NH and Hispanic individuals had higher rates of snorting (23.5% and 21.5%, respectively) than White/NH and Black/NH individuals (16.6% and 15.0%, respectively).

Figure 29. Route of Administration by Sex

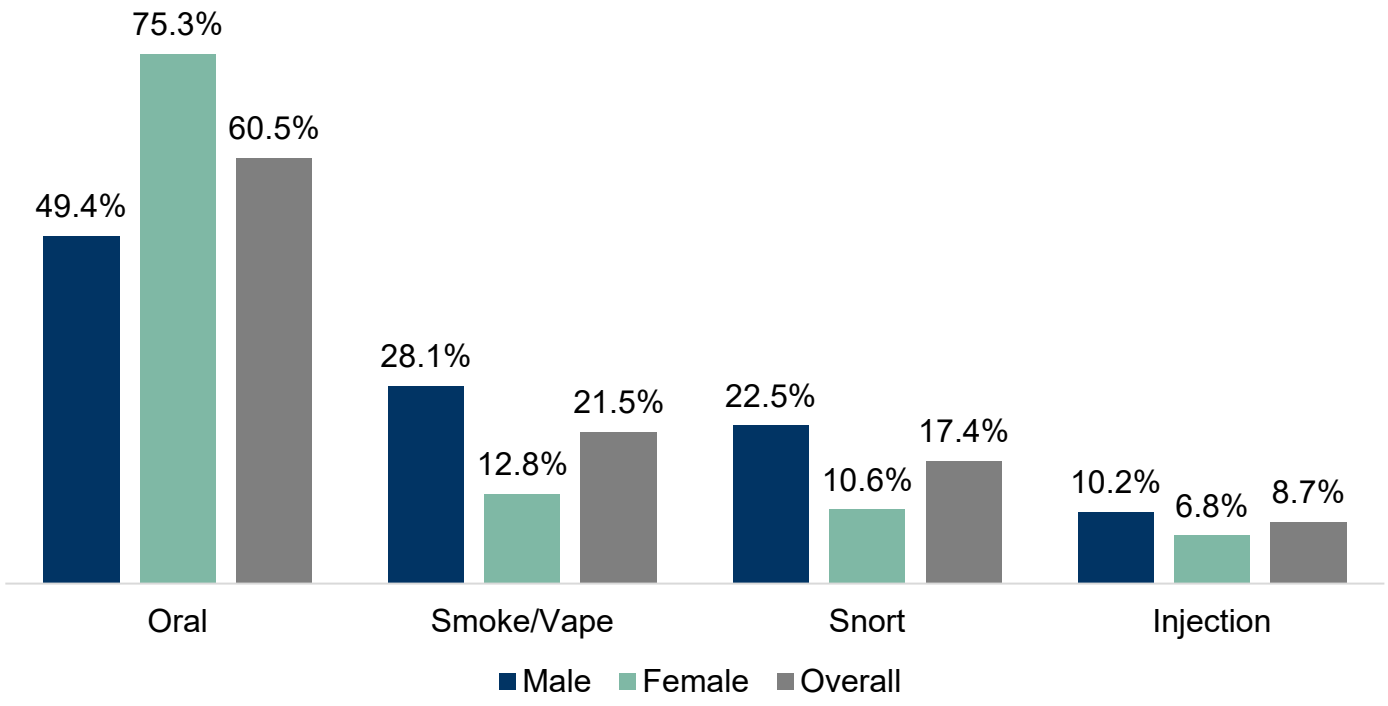
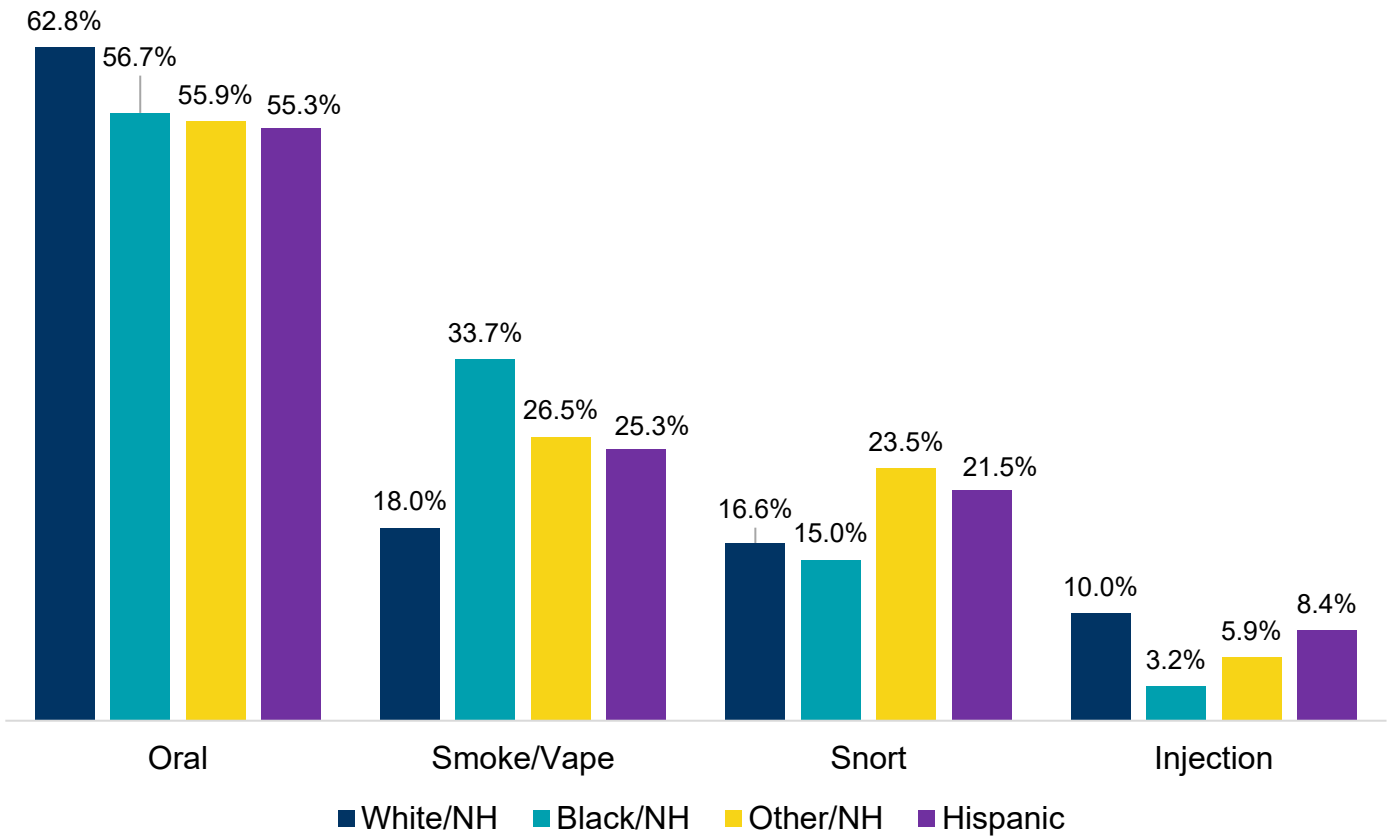


Figure 30. Route of Administration by Race/Ethnicity

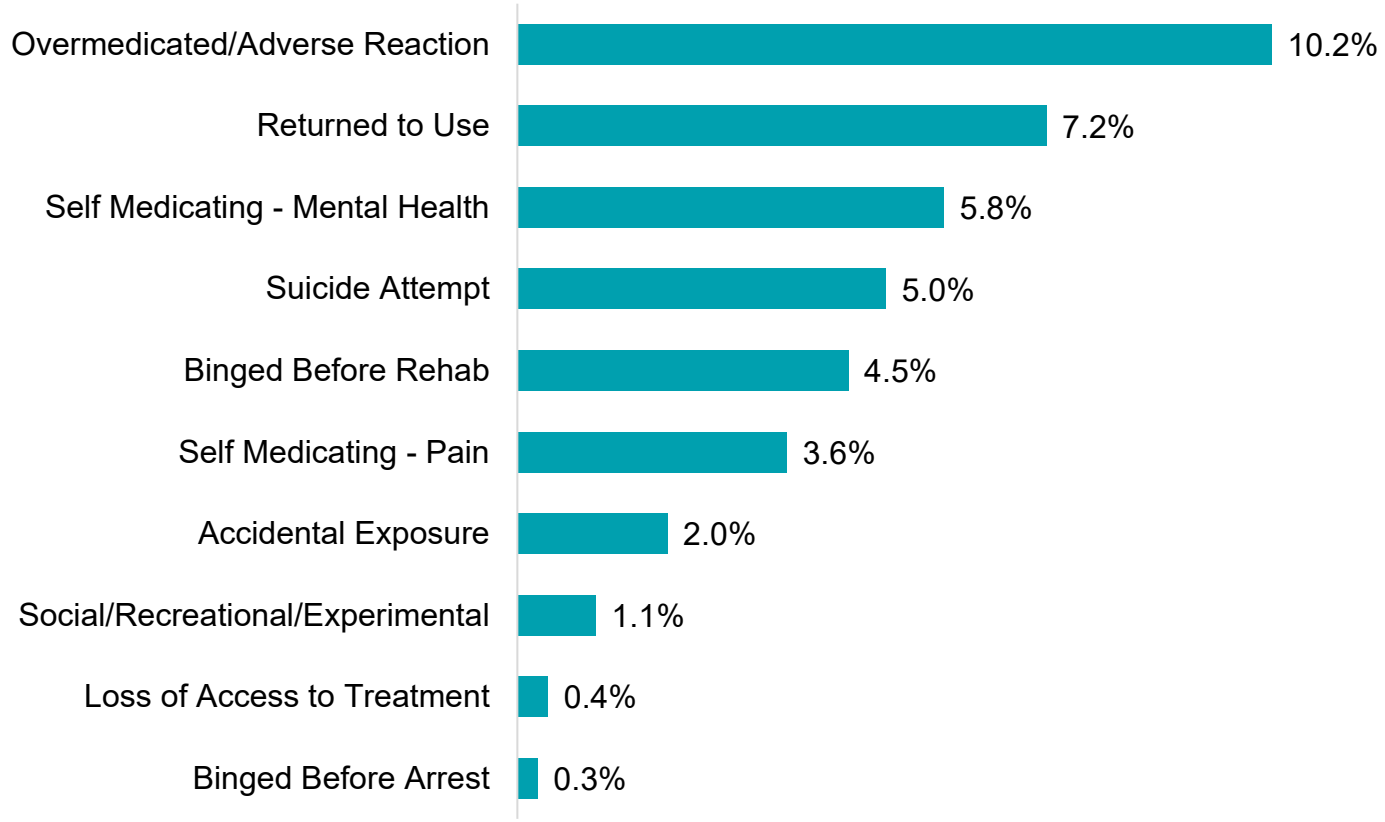


Circumstances Surrounding Use

Data on the circumstances surrounding substance use and overdose were collected. Due to the nature of data collection, all circumstances identified in this sample were collected from patient reports and care narratives. Although this is likely an underestimate of the true circumstances surrounding substance use, these data can shed light on some of the reasons why an individual might overdose and provide better information on how to prevent it in the future. Overdoses due to overmedicating or adverse reactions accounted for 10.2% of overdoses.

Older adults were at greatest risk for overmedication as 74.2% of overmedicated-caused overdoses occurred in adults 55 years and older. A recent return to use was identified in 7.2% of individuals. Returning to use after a period of abstinence – either due to incarceration, treatment, or otherwise – can increase the risk of overdose and death due to a potential decrease in tolerance.

Figure 31. Reported Circumstances Relating to Substance Use and/or Overdose



EMS Response

Mode of arrival to the hospital ED for individuals who experienced an overdose was collected. This included whether patients arrived via EMS/fire rescue, private vehicle or walk-in, law enforcement, or were already in the hospital at the time of the event. Understanding how individuals access emergency care can inform response planning and resource allocation. In our sample of 2,166 cases, the majority (84.9%, n=1,839) of individuals arrived through EMS/Fire Rescue.

Figure 32. Hospital Mode of Arrival

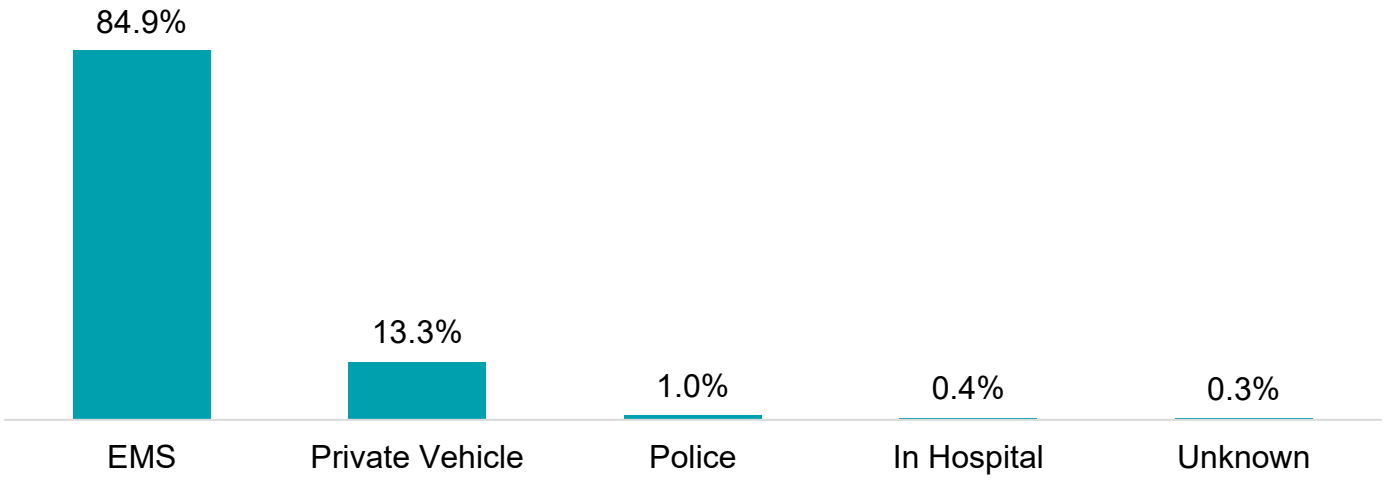
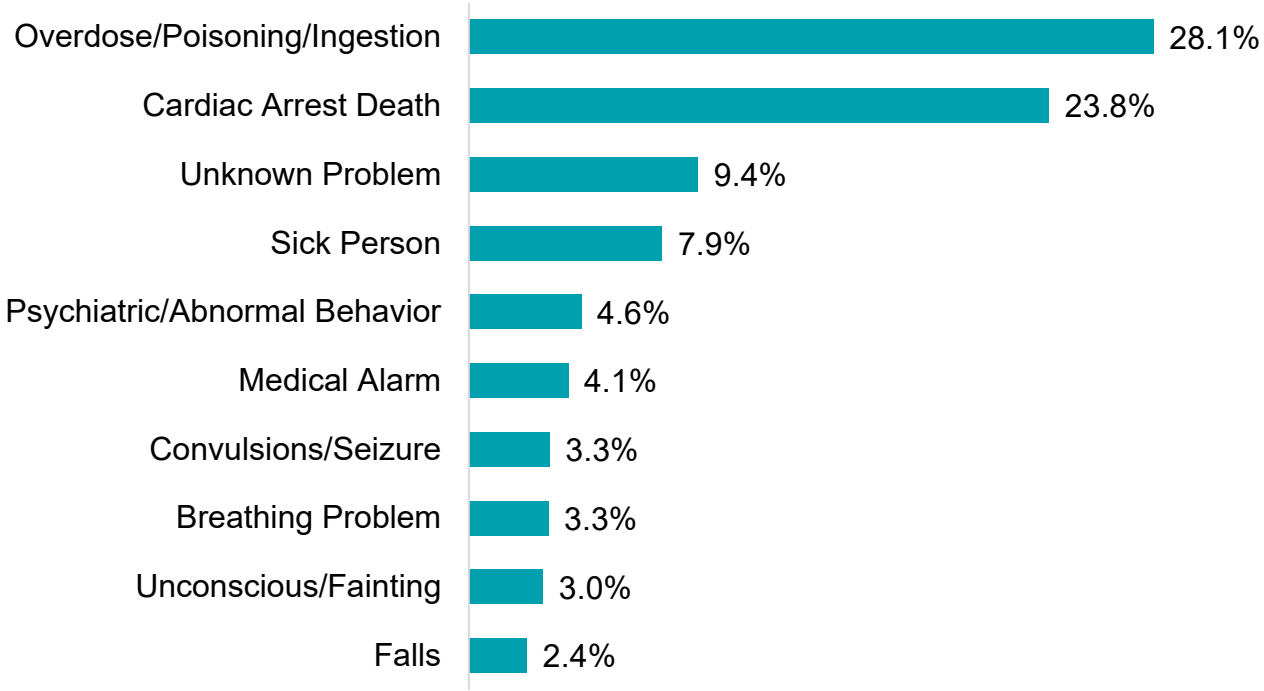


Figure 33. EMS Dispatch Complaints



Naloxone Administration

Timely naloxone administration can be lifesaving as it reverses the respiratory depression that can occur during an opioid overdose [13]. More than half (55.8%, n=1,208) of the sample received at least one dose of naloxone while 23.0% required multiple doses. Of those who received naloxone, half was administered by EMS (49.4%). Hospital staff also administered a significant portion of naloxone doses, with 40.1% of people receiving them in the hospital setting. Bystanders – such as family or friends – administered naloxone in 19.8% of overdoses, and although rare, 1.0% (n=12) of individuals self-administered naloxone. These data highlight the critical role of community access to naloxone and informing strategies to expand training and availability.

Figure 34. Naloxone Administration

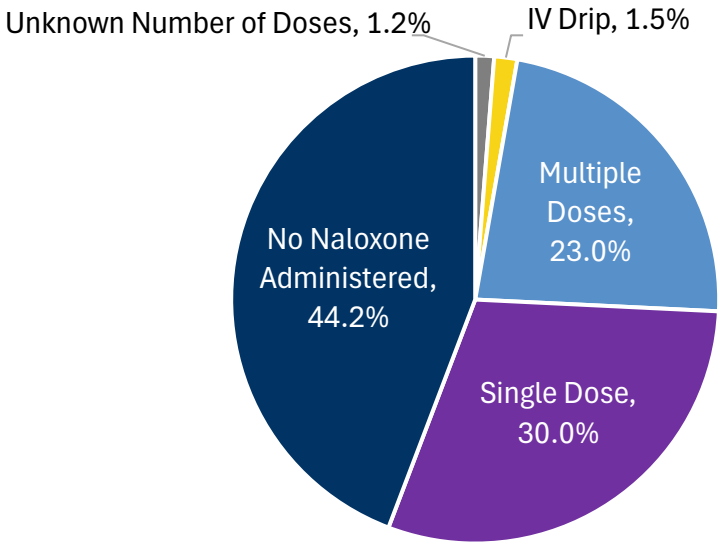
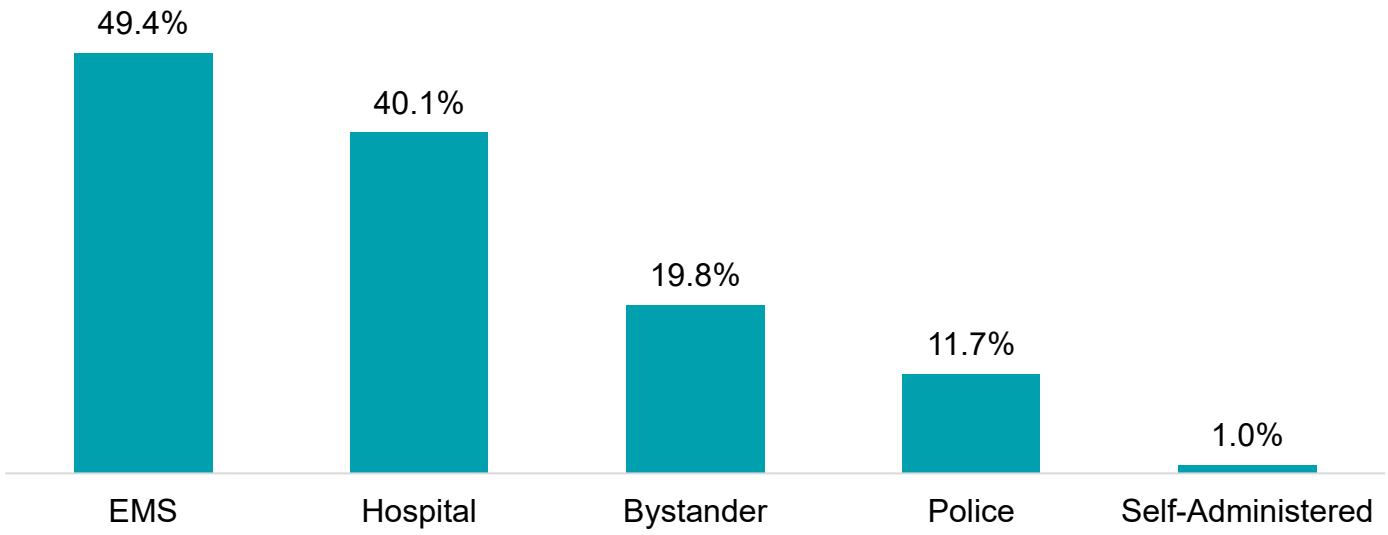


Figure 35. Persons Who Administered Naloxone



Hospital Course of Care

Baker Act

The Baker Act, formally known as the Florida Mental Health Act of 1971, allows for the involuntary examination of individuals who are deemed to be a danger to themselves or others due to mental illness [14]. This includes those experiencing suicidal ideation or behavior, which can often accompany overdose events. In our sample, 268 (12.4%) individuals were Baker Acted at the time of their overdose, highlighting the intersection between mental health crises and substance use emergencies. The highest rates of Baker Acts occurred in females (17.9% vs. 9.0% of males) and individuals who were Other/NH. Opioids and benzodiazepines were the most frequently involved substances.

Figure 36. Baker Act by Sex

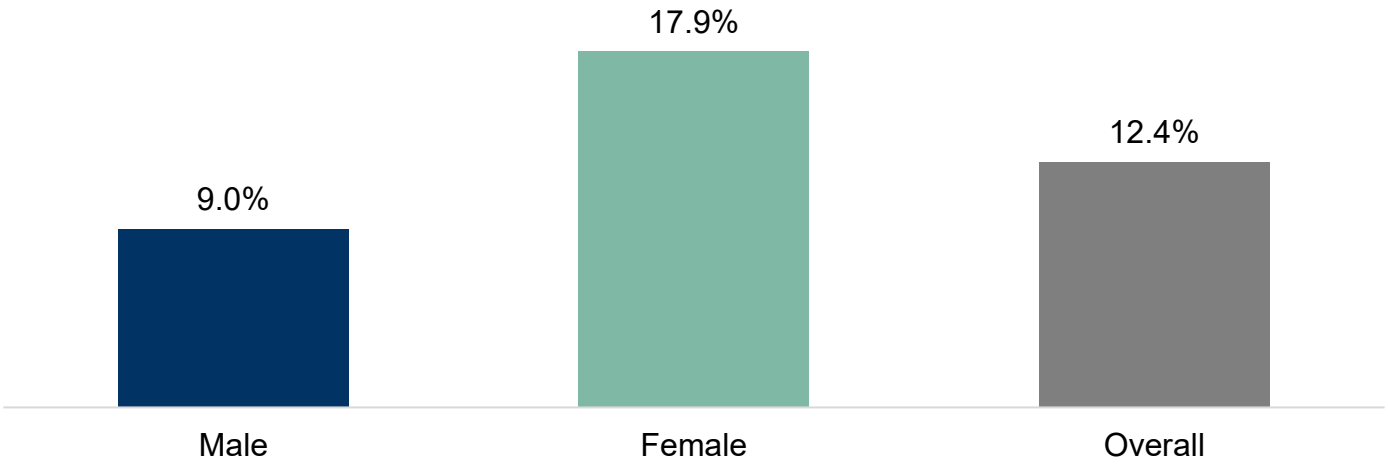


Figure 37. Baker Act by Race/Ethnicity

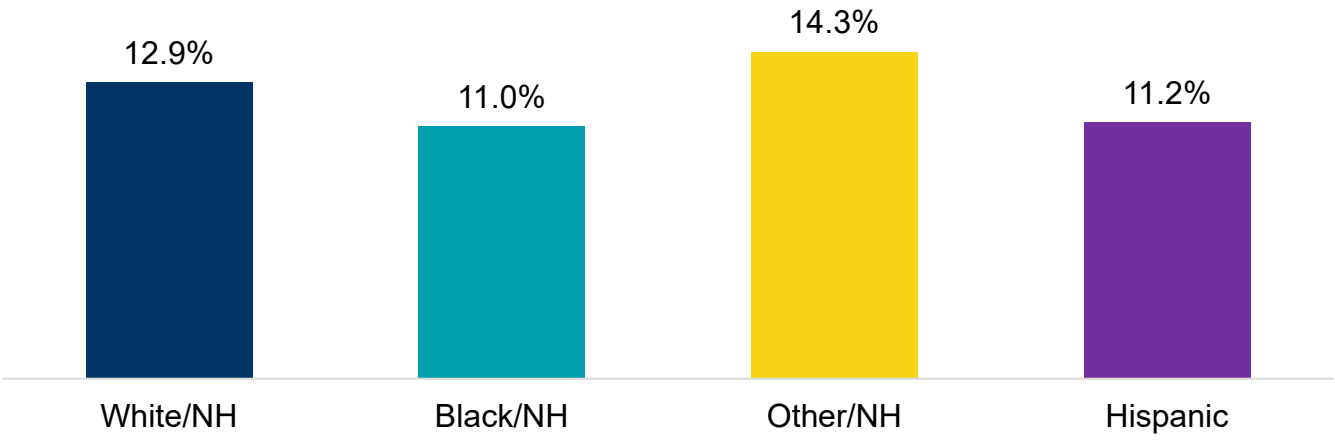
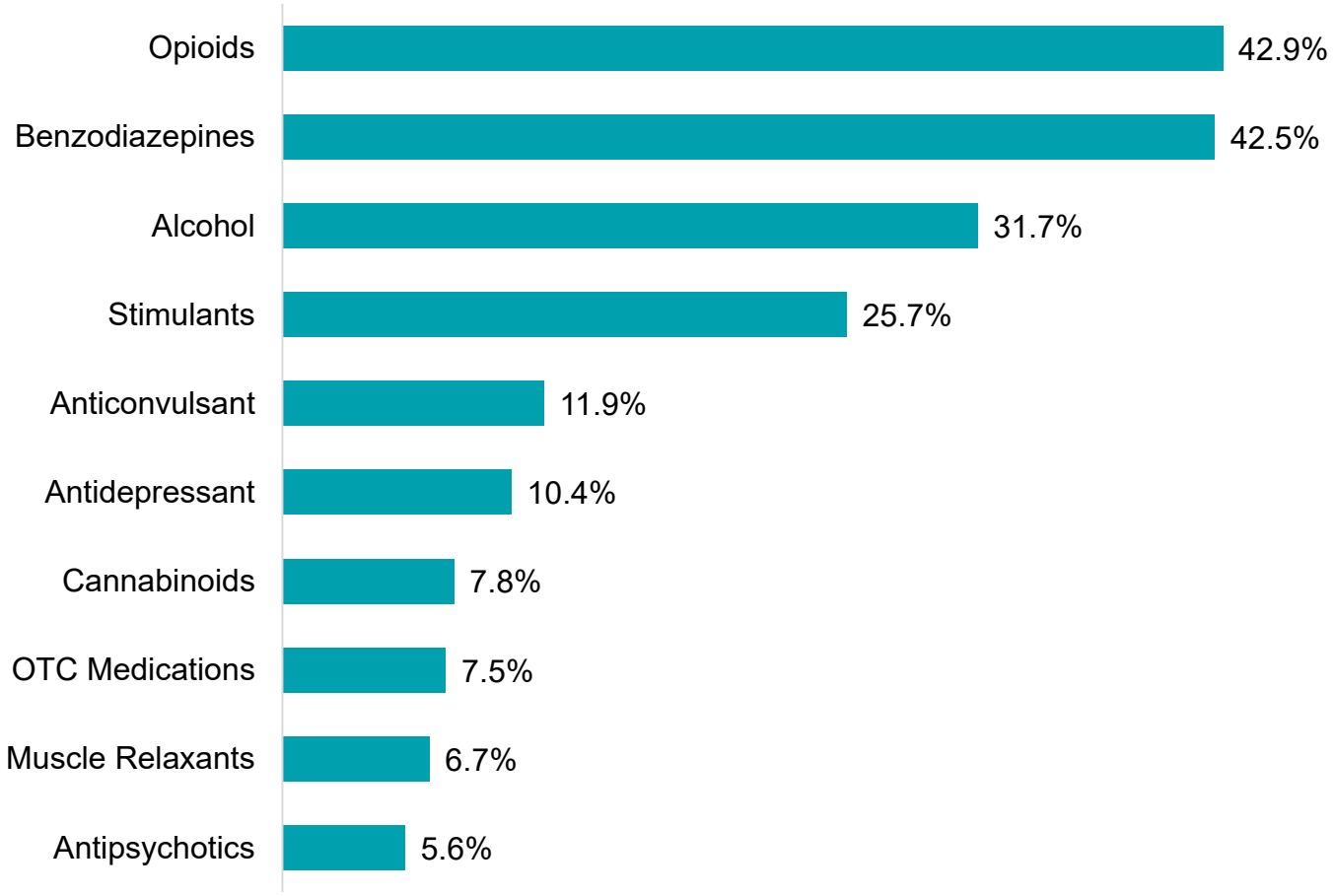


Figure 38. Substances Involved in Baker Acted Individuals



Hospital Toxicology

Toxicology can help provide better clinical care by properly diagnosing and treating the substance ingested. Toxicology data were reported for 59.9% of records. Of note, complete medical records were not always received, so it is possible that toxicology was performed that is not reflected in this analysis. The figure below shows the relative number of samples tested and the percent positivity for each substance. Cocaine, amphetamine, benzodiazepine, cannabis, barbiturate, and opioid panels were the most frequently reported toxicology screens. Of those, cocaine and benzodiazepines had the highest positivity rate – 41.2% of individuals were positive for cocaine and 40.7% of individuals were positive for benzodiazepines. Although tested less frequently, fentanyl had the highest positivity rate overall, with 67.5% of individuals who were tested for fentanyl having a positive result.

Results of blood alcohol level tests were reported in 53.6% of the sample. Alcohol was detected in 20.7% of tested individuals and ranged from 4–539 mg/dL, with a median value of 133 mg/dL.

Figure 39. Number of Toxicology Samples Reported and Percent That Returned a Positive Result

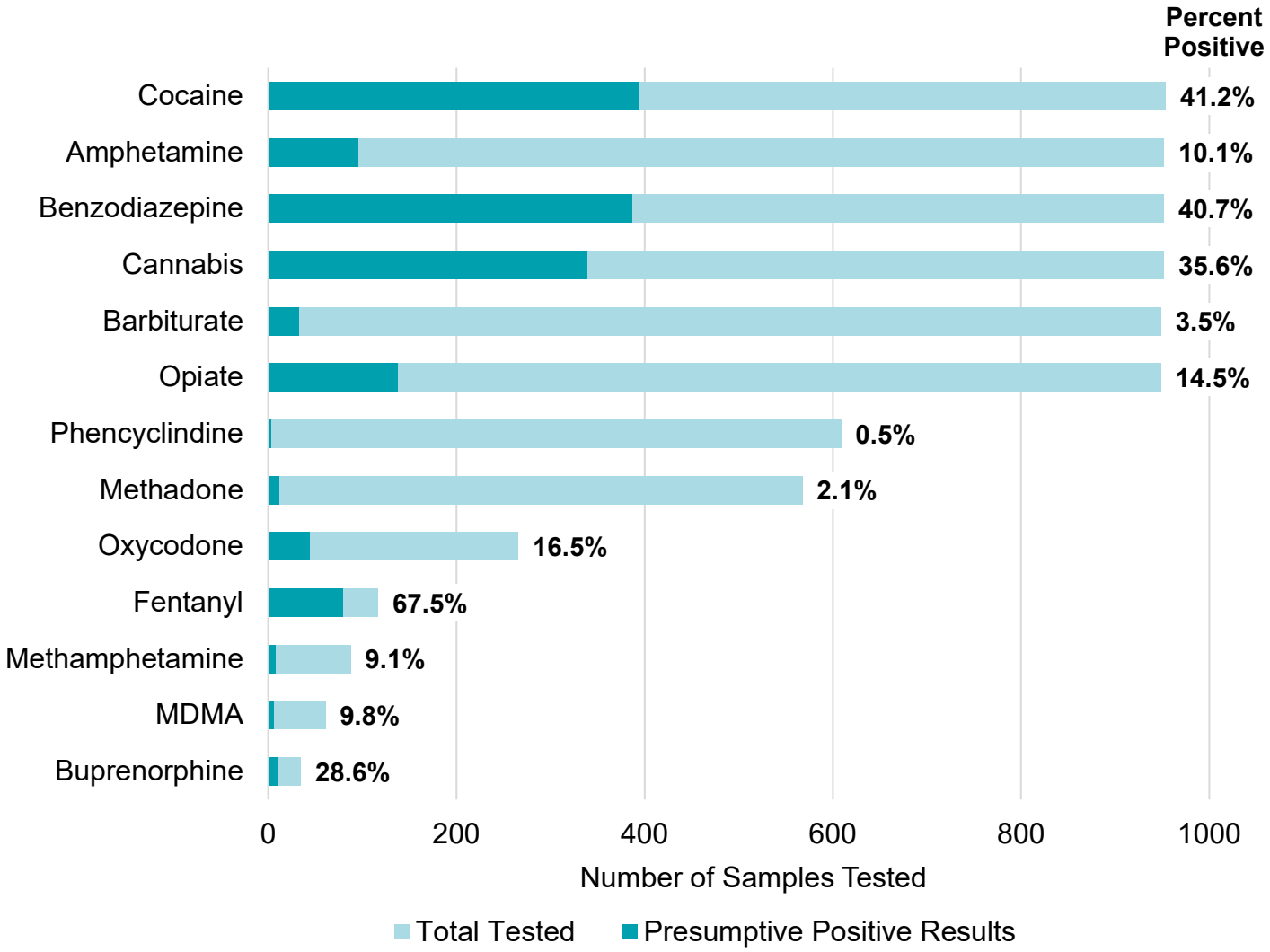


Figure 40. Relative Percent Positive for Toxicology Tests by Sex

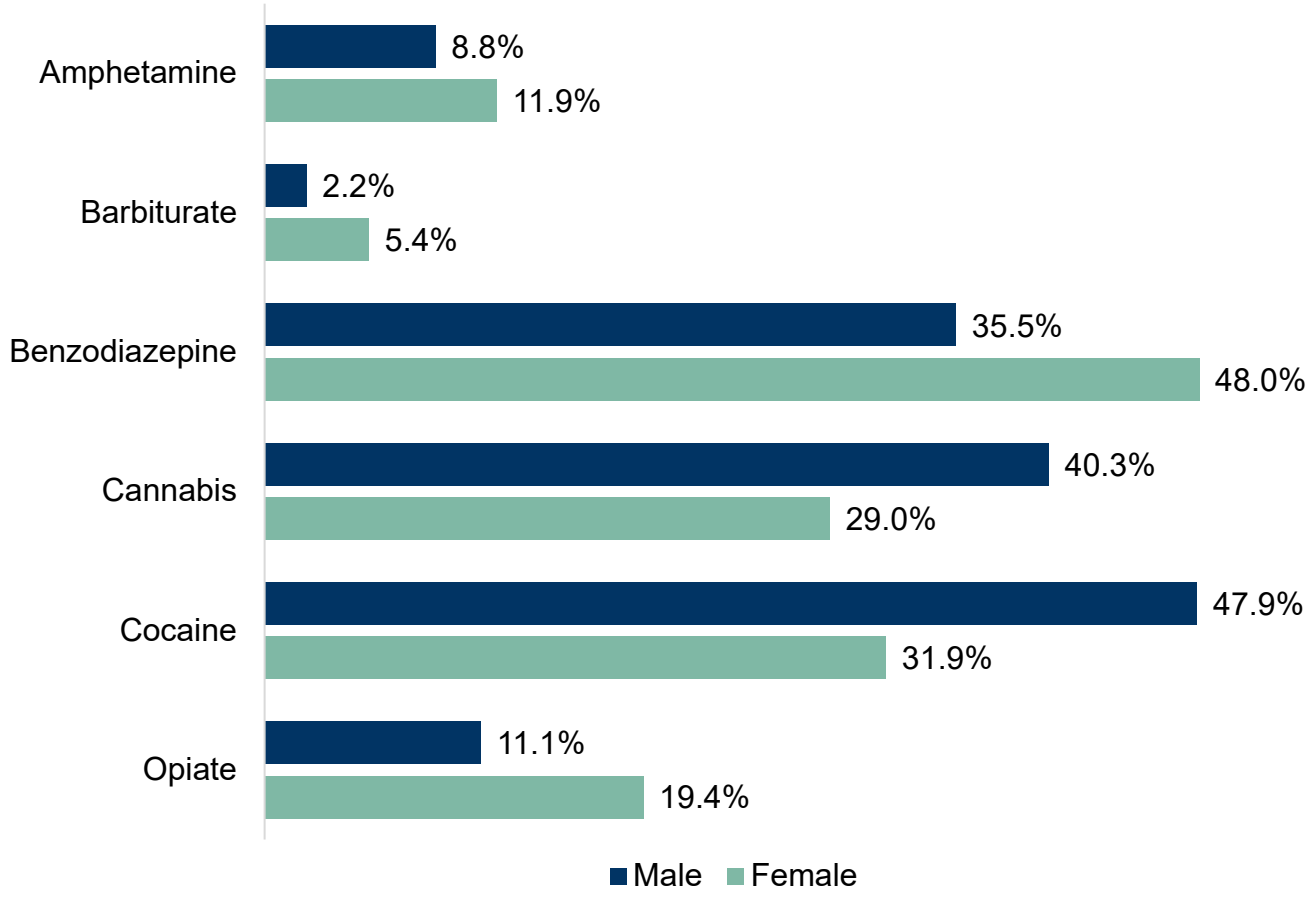
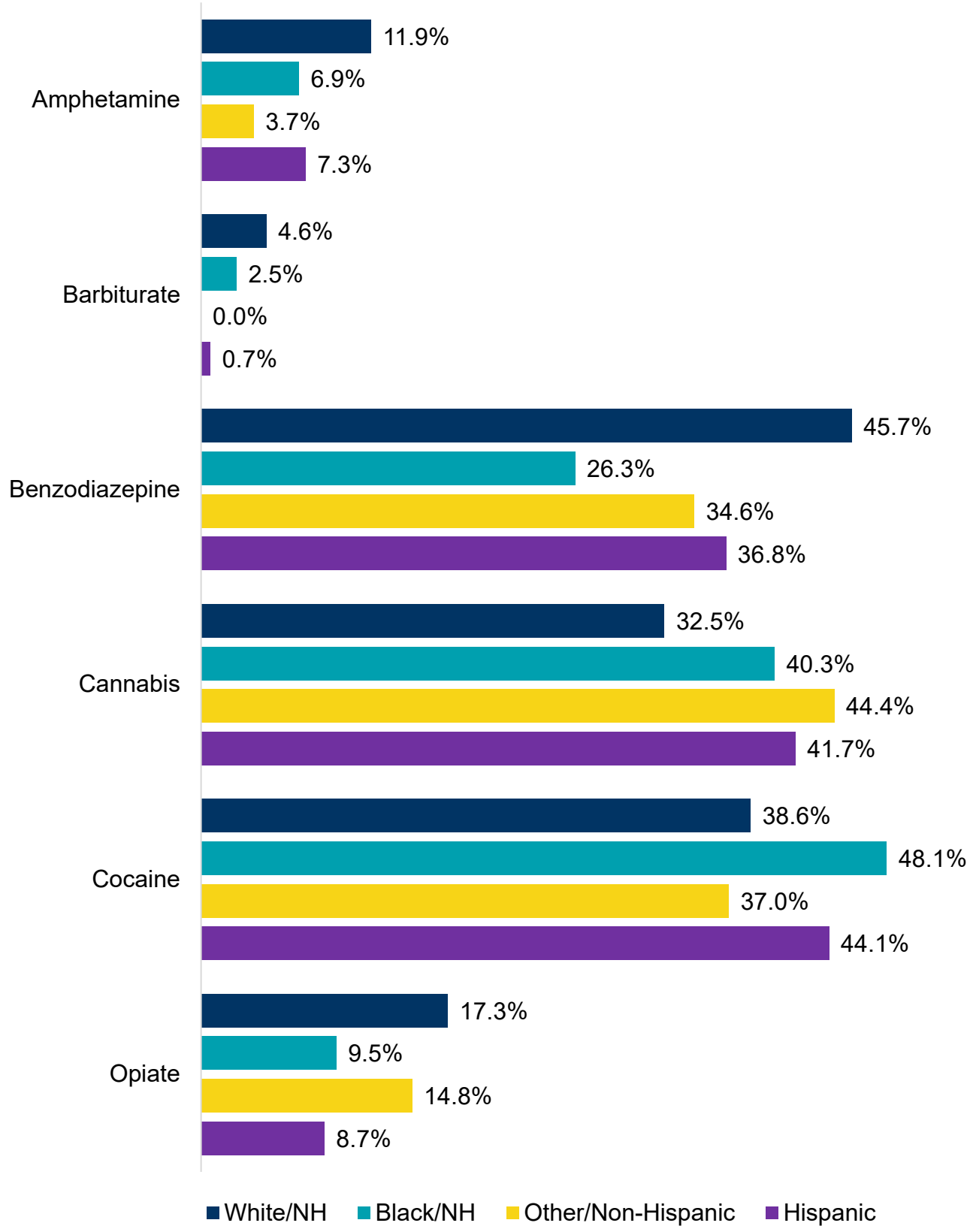


Figure 41. Relative Percent Positive for Toxicology Tests by Race/Ethnicity



Hospital Discharge

Hospital discharge practices play a pivotal role in post-overdose care and prevention of recurrence. Despite the availability of medications for opioid use disorders (MOUD), such as buprenorphine, initiation rates remain low. Discharge planning should prioritize linkage to care, including referrals to treatment programs, peer support services, and follow-up appointments. Increasing access to naloxone and providing education at discharge are essential components of a comprehensive response. In this sample, only 13.0% (n=281) of individuals were prescribed naloxone at discharge, and only 12.8% of cases involving an opioid overdose were prescribed naloxone. Additionally, only 2.7% (n=43) of individuals who survived an opioid overdose received MOUD in the ED.

Discharge data also offers insight into the severity of overdose incidents. Over half of individuals were routinely discharged from the ED (56.9%, n=1,233), while 9.8% (n=213) left against medical advice (AMA). Individuals who leave AMA may not have the opportunity to be connected to SUD treatment and services. Admission rates were highest among those with Medicare insurance (46.2%) and lowest among those with other insurance (12.5%). Other health insurance providers in this sample included military insurance (such as Tricare), Health Care District voucher program, and those currently in jail or prison (Wellpath).

Referrals to follow-up care or treatment were made in 58.2% (n=1,260) of cases. However, 633 (29.2%) were only given a referral to follow up with their primary care provider, even if no primary provider was associated with the patient. A small number of referrals were made for SUD treatment. Just 6.5% were referred to Health Care District for the MAT treatment program and 1.8% referred to the Drug Abuse Foundation (DAF). Training clinicians and integrating MAT protocols into standard discharge procedures are recommended strategies.

Figure 42. Discharge Status by Health Insurance Type

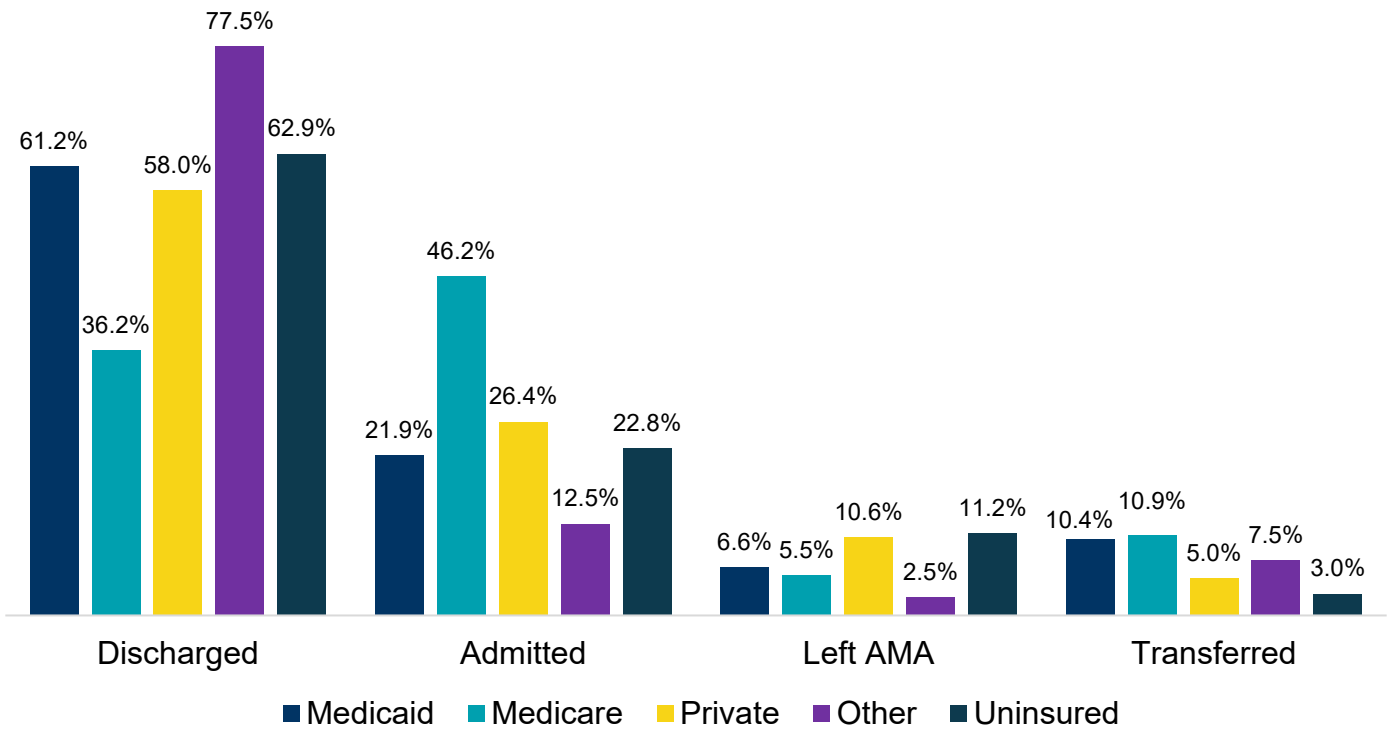


Figure 43. Naloxone Prescribed at Discharge

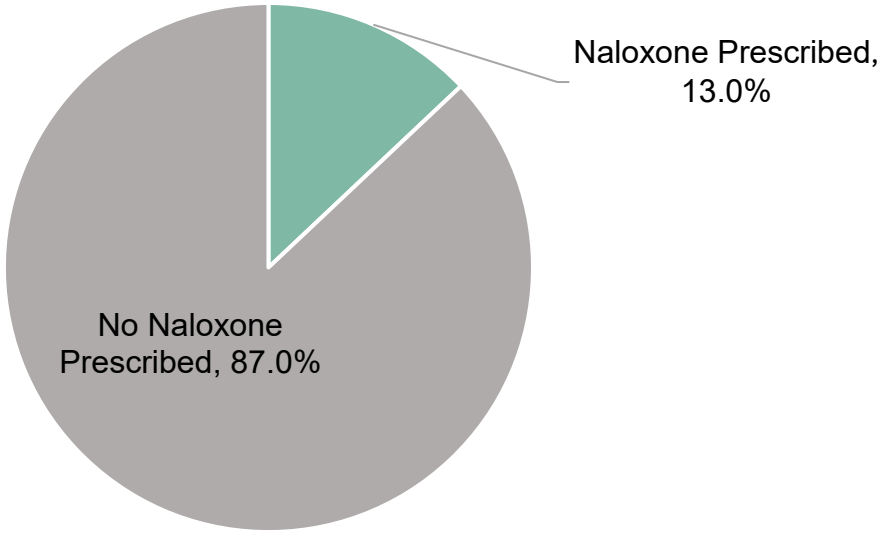


Figure 44. ED-Initiated Buprenorphine and Buprenorphine Prescribing at Discharge for Opioid-Involved Overdoses

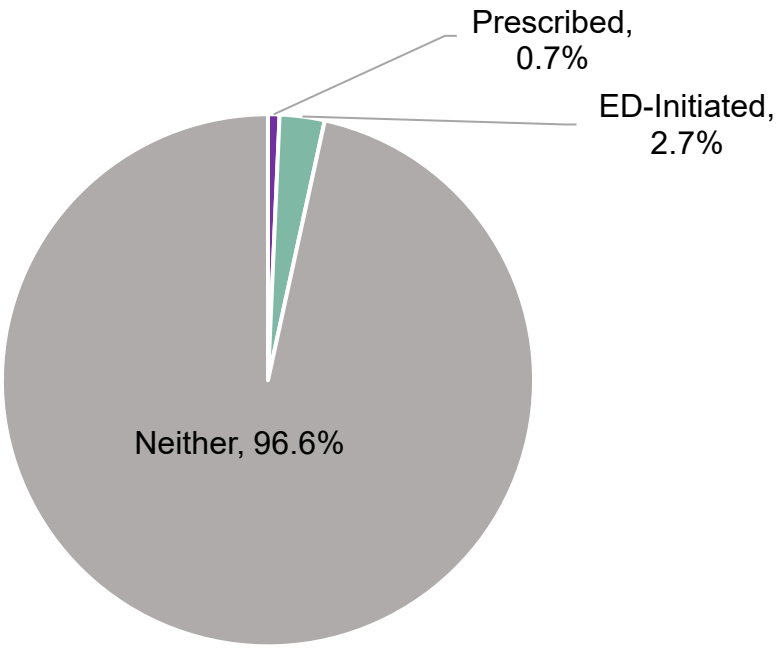
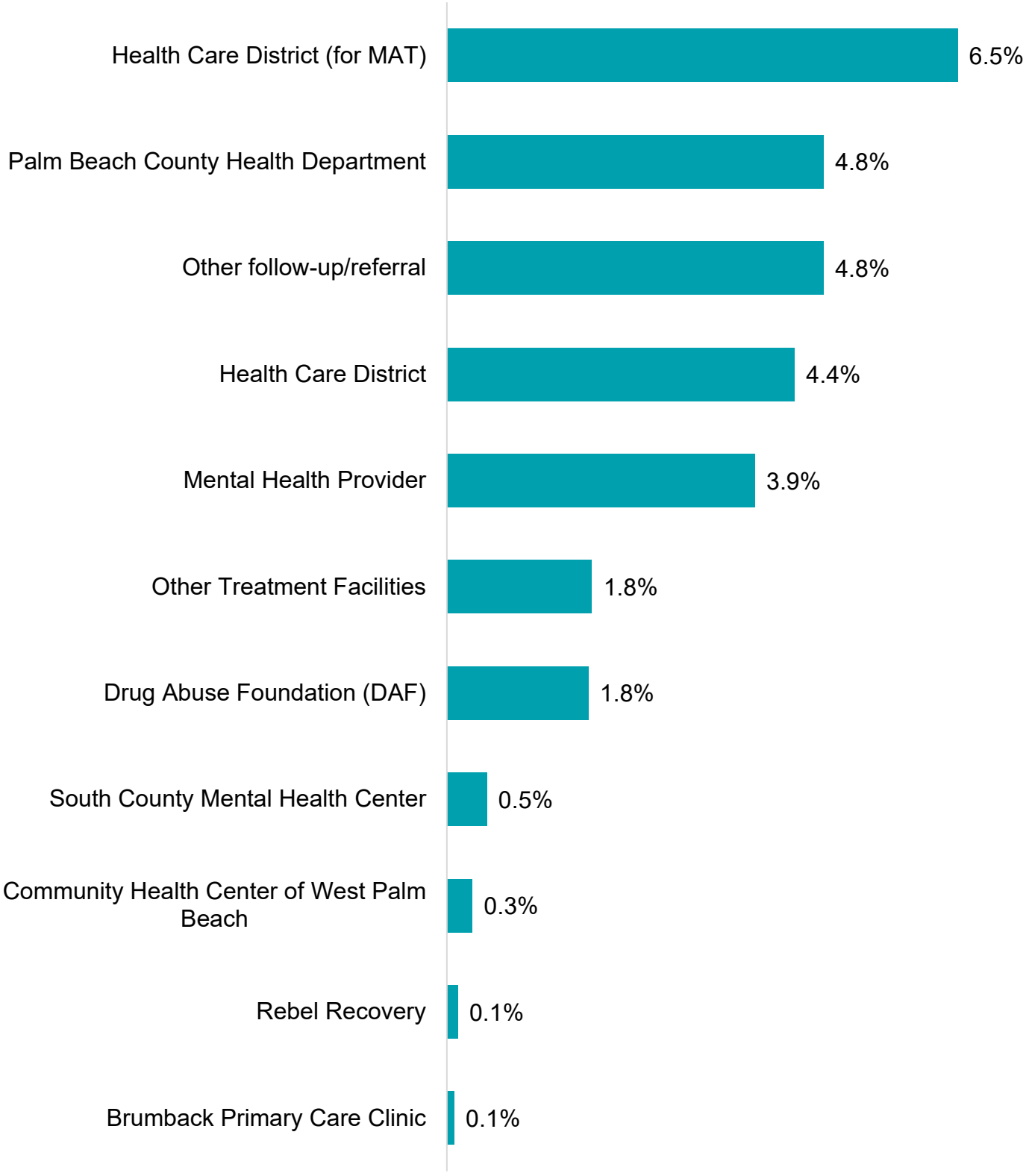


Figure 45. Treatment Referrals Made at Discharge



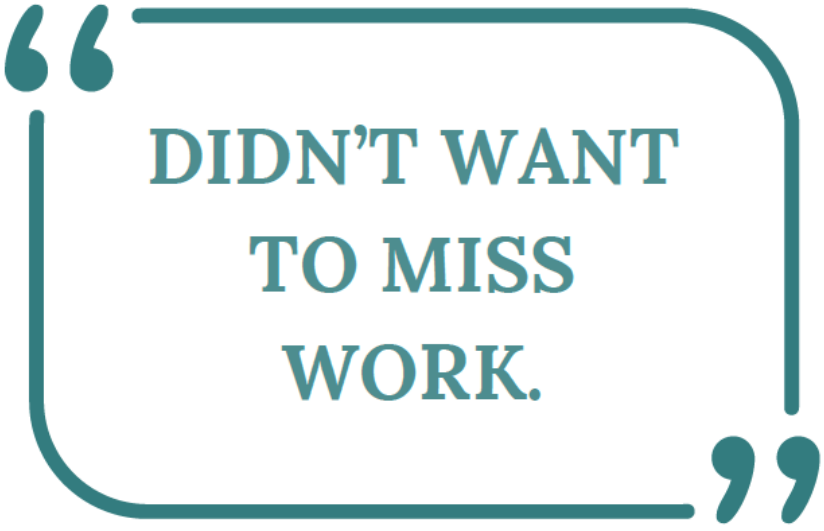
Individuals That Declined SUD Treatment

Of the records reviewed, 78 records documented that the patient declined treatment referrals or services. Anecdotal, qualitative data was collected where information was available for the reasons why treatment referrals were declined. A thematic analysis of this data revealed four overarching themes including personal beliefs and a readiness for treatment, logistical barriers, treatment preferences or concerns about treatment options, and reliance on social support or external resources. Understanding the reasons for low uptake of treatment can help to address some of these barriers and more successfully engage in care. These findings highlight the importance of motivational interviewing, peer support, and flexible treatment options that accommodate individual circumstances and reduce barriers to engagement.

Personal Beliefs or Readiness

These reasons suggest ambivalence, denial, or a lack of perceived need for treatment:

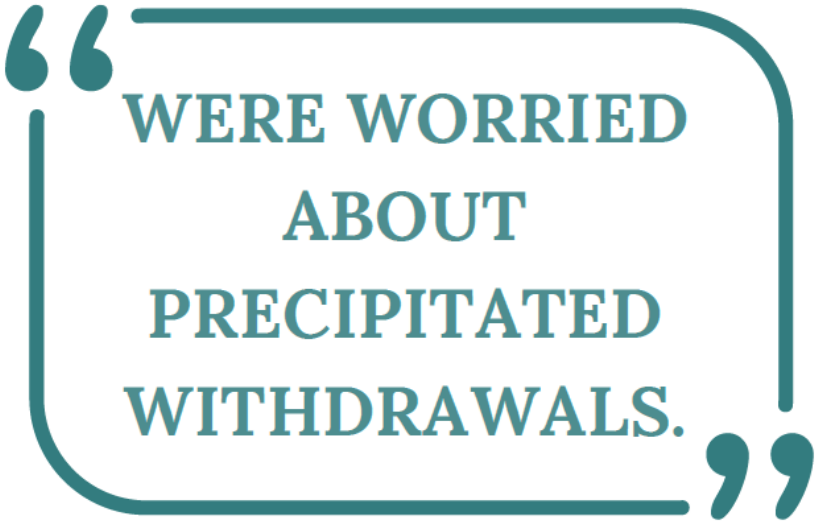
- Feel they can stop on their own
- Weren't sure if they wanted treatment
- Said it was a one-time thing
- Don't use drugs all the time
- Aren't sure if they are ready for treatment
- Didn't need help



Logistical Barriers

These reflect immediate practical constraints that interfered with treatment entry:

- Didn't want to miss work
- Had things to do at home
- Had to go to court
- Had to get their pet
- Had to take care of their pet



Treatment Preferences or Concerns

These reflect dissatisfaction with available options or fear of treatment effects:

- Wanted Subutex instead of Suboxone
- Had Suboxone at home
- Were worried about precipitated withdrawals
- Weren't getting narcotic pain medication
- Needed to get fentanyl to curb their withdrawals, even though alternatives were offered

Social Support or External Resources

These indicate reliance on personal networks or prior treatment experiences:

- Wanted to go find their significant other
- Had just been discharged from rehab
- Had outside resources
- Had family that would help them find treatment

Health History

Home Medications

Home medication data were collected from available medical records, though medications may not have been known or documented at the time, making these findings likely underreported. In this sample, 23.9% (n=517) of records listed an opioid among home medications, but only 7.3% (n=159) included naloxone. Because naloxone can be obtained without a prescription, its presence in records may be underreported. Opioid medications were more common among females (31.1%) and White/NH individuals (28.5%). Of opioid medications, oxycodone was the most common. Oxycodone was involved in 275 overdoses, and almost half (n=133, 48.4%) had a prescription for oxycodone.

Figure 48. Naloxone, Opioid, and Stimulant Home Medications by Sex

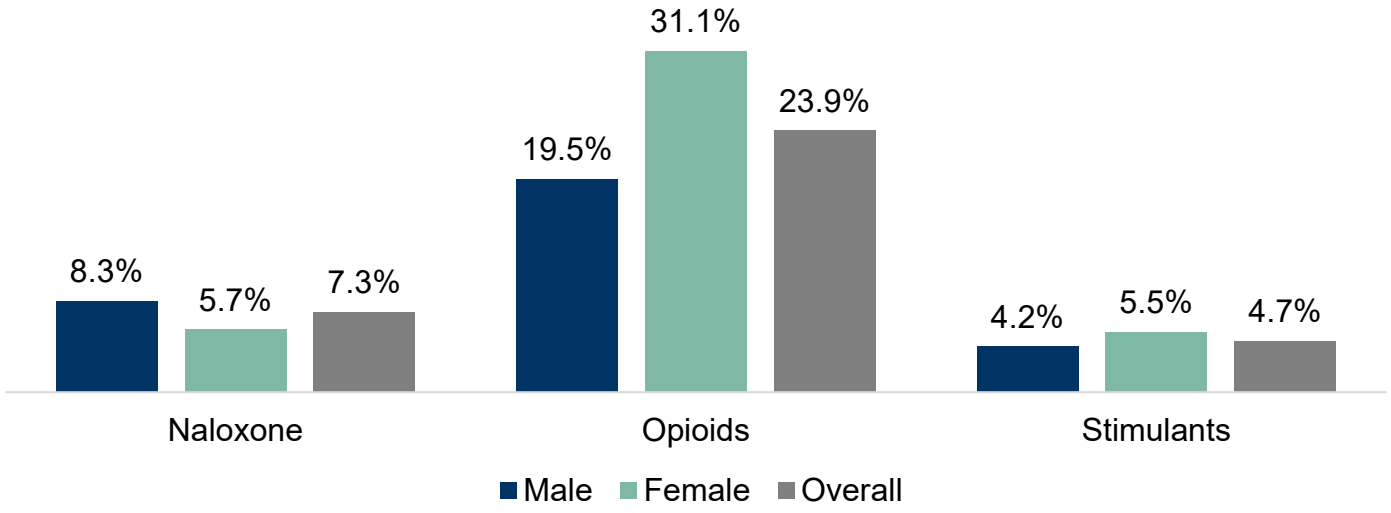
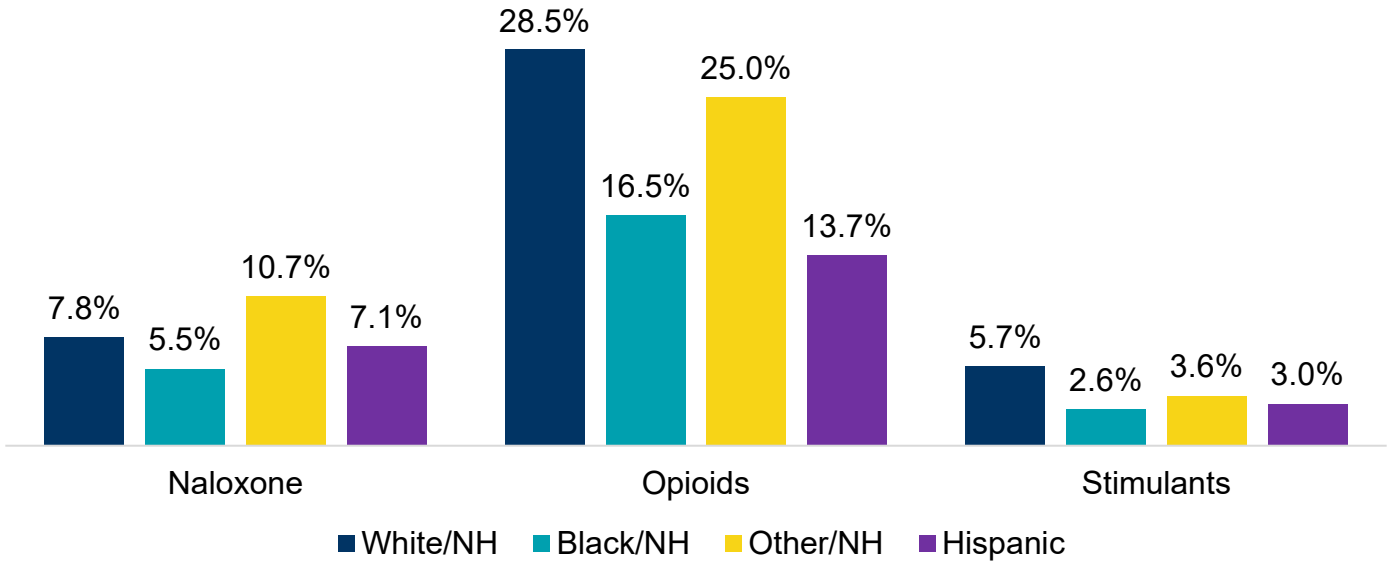


Figure 49. Naloxone, Opioid, and Stimulant Home Medications by Race/Ethnicity



Mental Health Conditions

Mental health conditions were commonly reported among individuals who use drugs. Nearly half (49.3%, n=1,067) of the sample had a documented mental health condition, with depression (26.7%) and anxiety (22.8%) being the most common. Bipolar disorder (9.2%) and schizophrenia (4.5%) were also present, though at lower rates. These findings underscore the intersection between mental health and SUD. Treatment of co-occurring conditions can be complex and requires integrated, coordinated care. Screening and referral for mental health services should be standard practice in overdose response.

Women in this sample had significantly higher rates of mental health conditions compared to men (57.0% in women vs. 44.5% in men). White/NH individuals had the highest overall rate of documented mental health conditions (53.3%), followed by Black/NH (46.4%), Other/NH (41.1%), and Hispanic individuals (38.5%). Schizophrenia and similar conditions (schizoaffective disorder, delusional disorder, etc.) were an exception to these trends, with higher rates being reported in males (5.1% vs. 3.4% in females) and Black/NH individuals (10.4% vs. 3.4% in White/NH individuals).

Figure 46. Mental Health Conditions by Sex

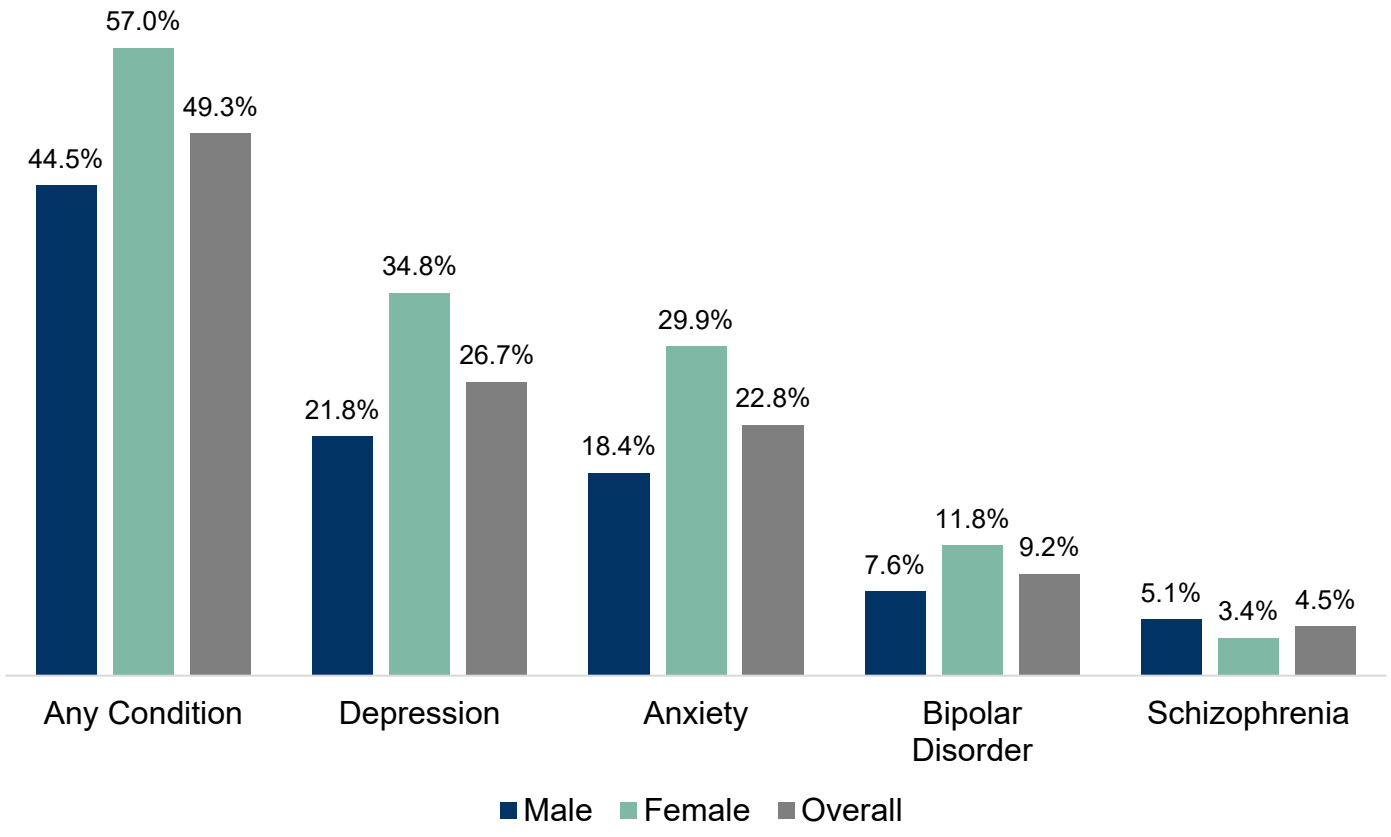
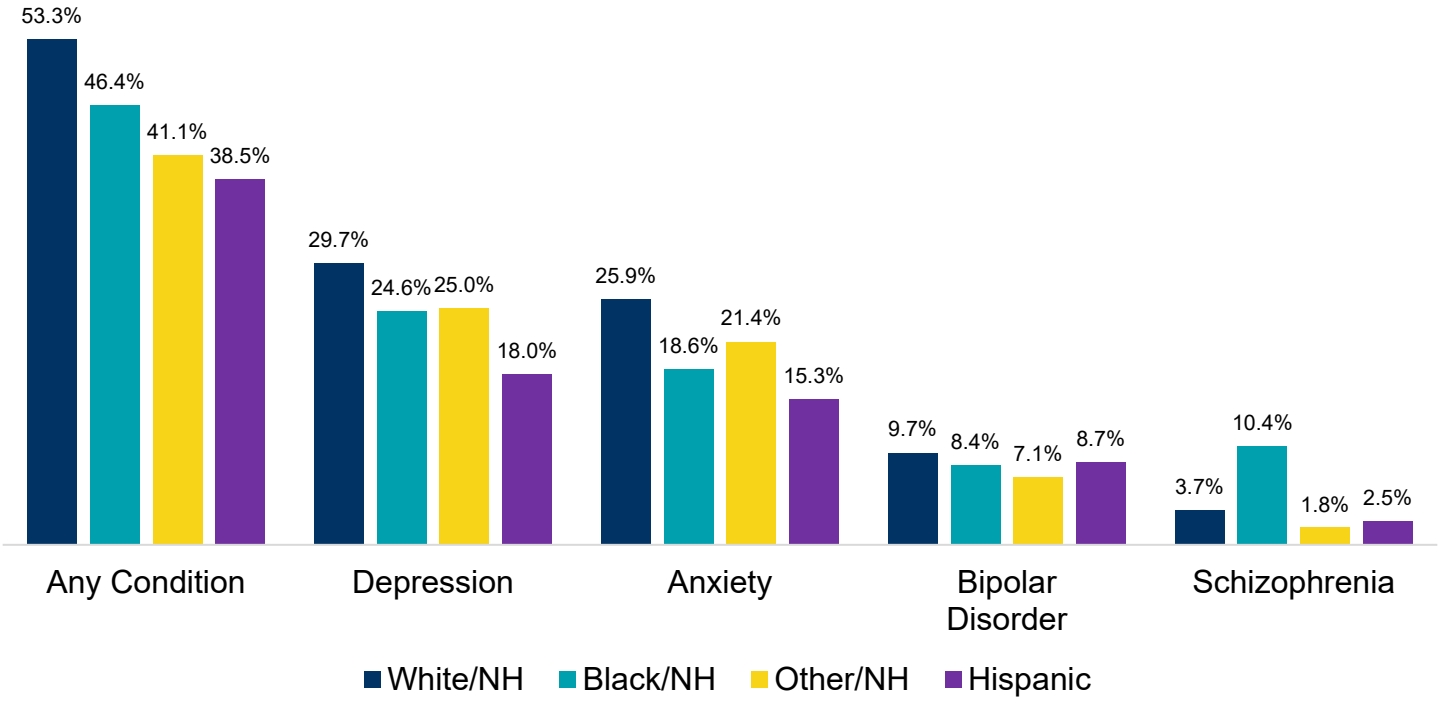


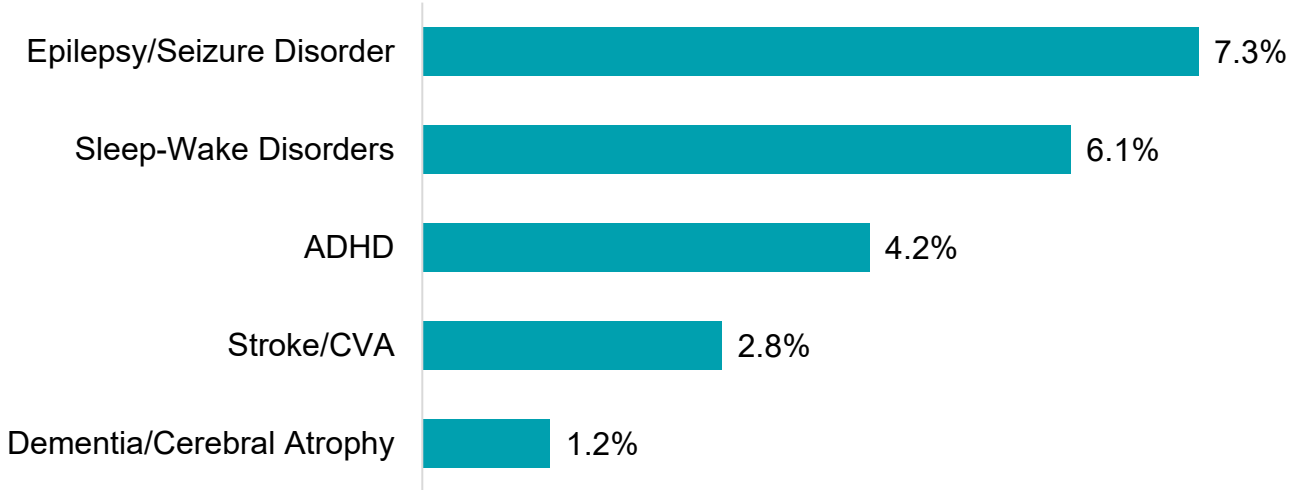
Figure 47. Mental Health Conditions by Race/Ethnicity



Neurological Conditions

Neurological disorders such as epilepsy, sleep-wake disturbances, ADHD, and stroke were present in a subset of individuals who experienced non-fatal overdoses. These conditions may contribute to increased vulnerability due to impaired cognition, medication interactions, or challenges in managing co-occurring health needs. Recognizing and addressing neurological comorbidities is important for tailoring overdose prevention and treatment strategies.

Figure 48. Neurological Conditions Reported



Chronic Pain

Chronic pain is a significant driver of opioid use and misuse [15]. Individuals with chronic pain may be prescribed opioids long-term, increasing the risk of dependence and overdose. Chronic pain was a common comorbidity in this sample, with 21.4% (n=463) experiencing some form of chronic pain conditions such as back and neck pain, arthritis, and neuropathy frequently documented. Women more frequently had significantly higher rates of chronic pain compared to men (30.0% in women vs. 18.5% in men). White/NH individuals had the highest overall rate for chronic pain (24.9%), followed by Other/NH (21.4%), Black/NH (18.6%), and Hispanic individuals (10.9%). Rates of chronic pain due to arthritis were highest in Other/NH individuals (25.0% vs. 3.4% in White/NH individuals).

Figure 49. Chronic Pain Conditions by Sex

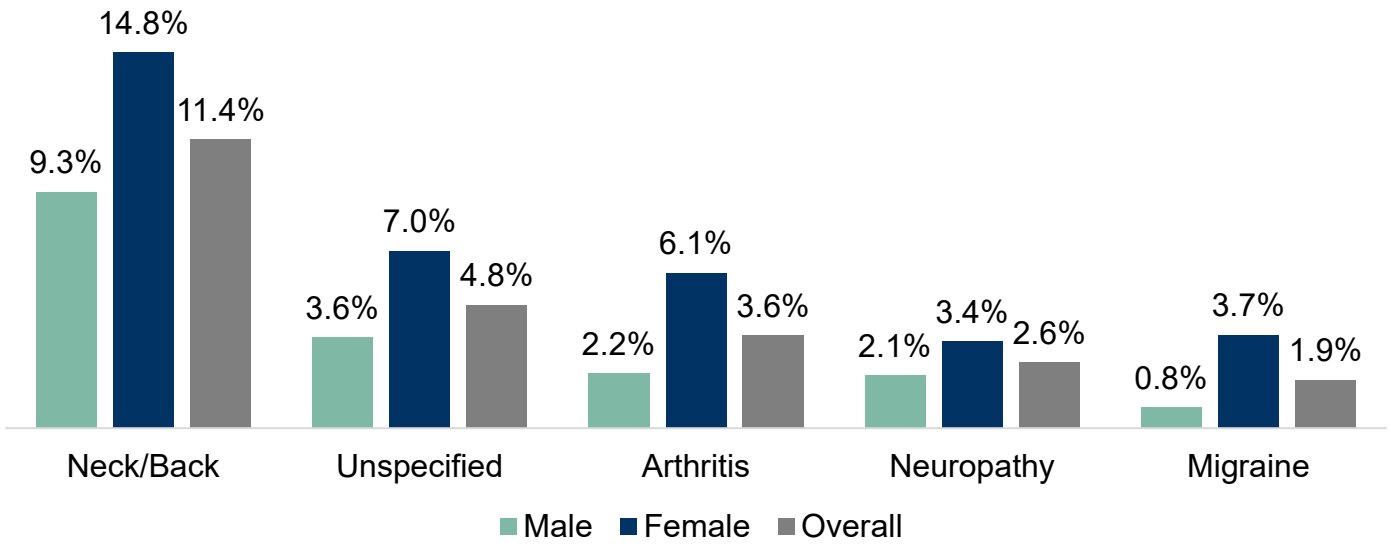
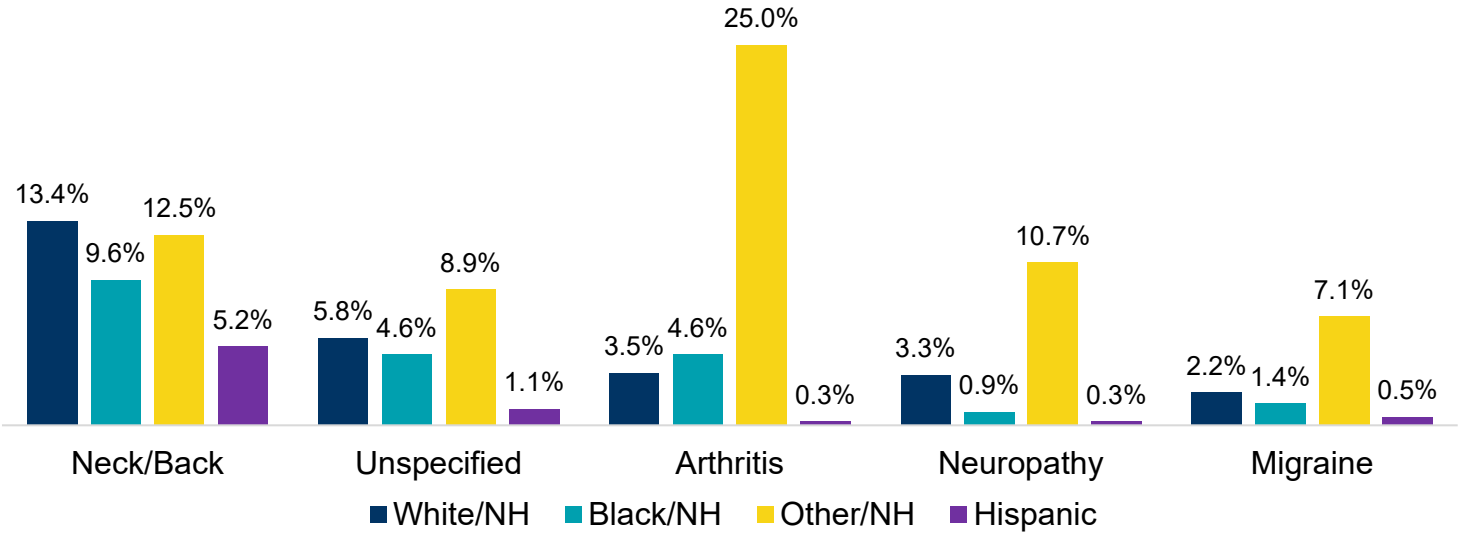


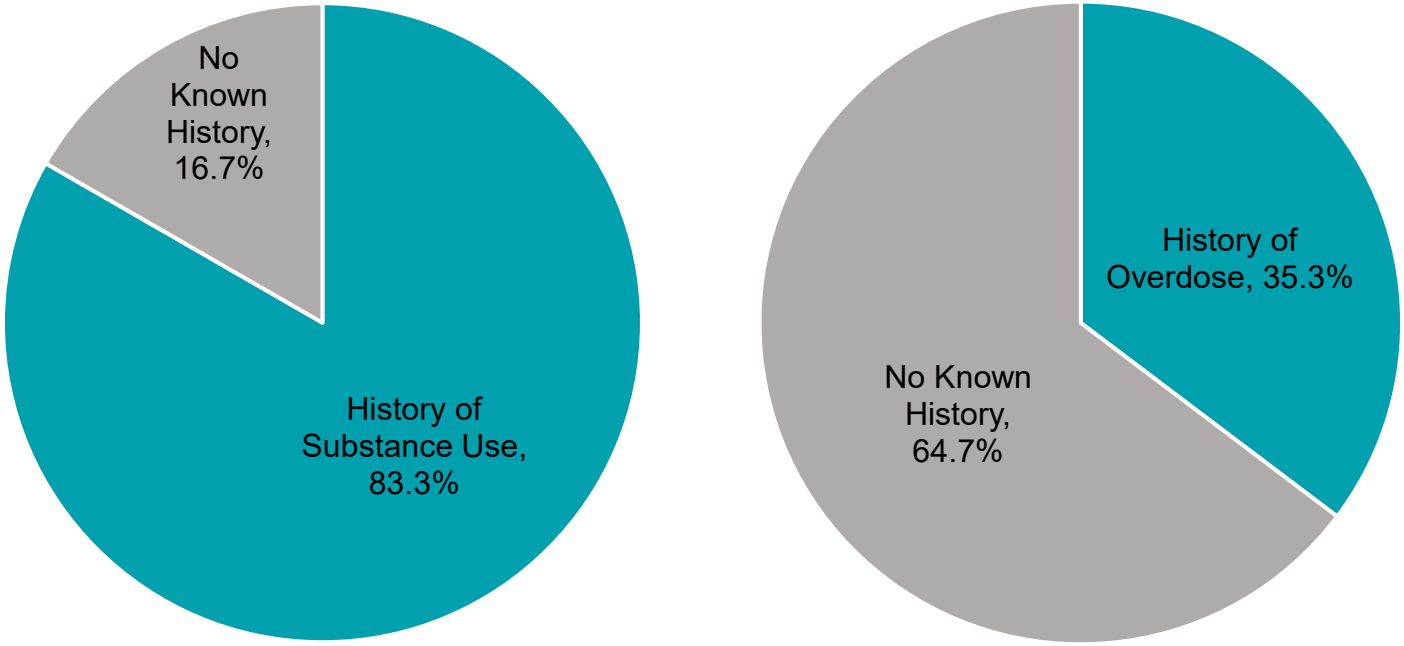
Figure 50. Chronic Pain Conditions by Race/Ethnicity



Past Substance Use

History of substance use and overdose may be underreported. Evidence of a history of substance use and overdose is collected through past medical history as documented in patient records, or from previously being included in the OD2A non-fatal surveillance report. Most had a known history of substance use (83.3%), and 35.3% had a history of overdose.

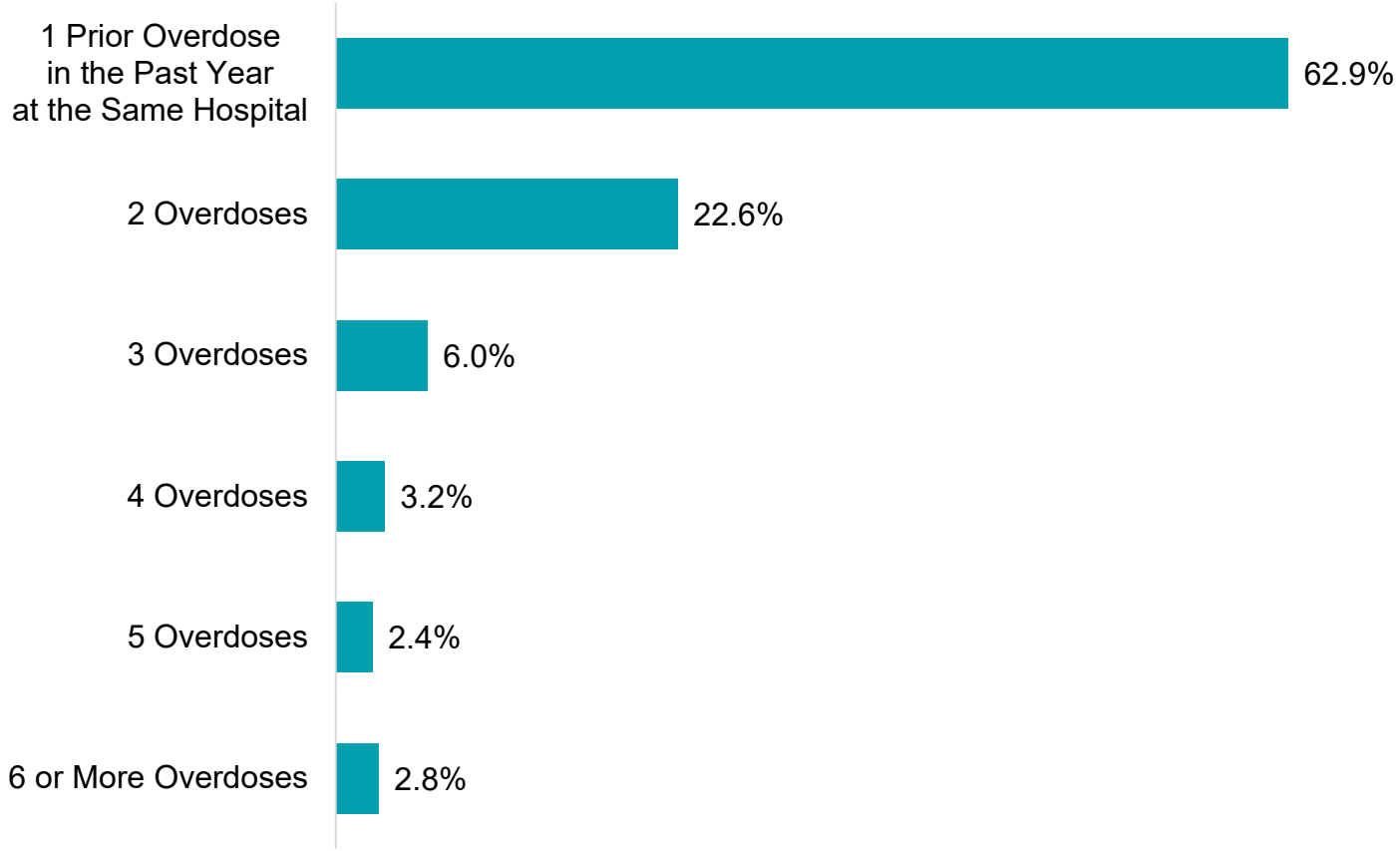
Figure 51. History of Substance Use and History of Known Overdose



In addition to examining substance use history, this report also assessed repeat overdoses at the same hospital by identifying duplicated medical record numbers (MRNs) associated with overdose visits. MRN data were available for 1,897 cases. Among hospitals with available MRN information, 3.8% (n=73) of individuals had a prior overdose within the past month, and 13.1% (n=248) had been treated for an overdose at the same hospital within the past year. Of those with a past-year overdose, 37.1% had two or more repeat events.

Caring for patients with recurrent overdoses can contribute to burnout and compassion fatigue among ED clinicians, potentially affecting quality of care. Additionally, 34.2% of this sample was uninsured at the time of overdose. Implementing care coordinators and peer navigators in ED settings is a proven approach to connecting patients with substance use disorder treatment. For hospitals serving uninsured or underinsured populations, and for the clinicians who care for them, linking patients to ongoing services after ED treatment is a key strategy to reduce repeat overdoses.

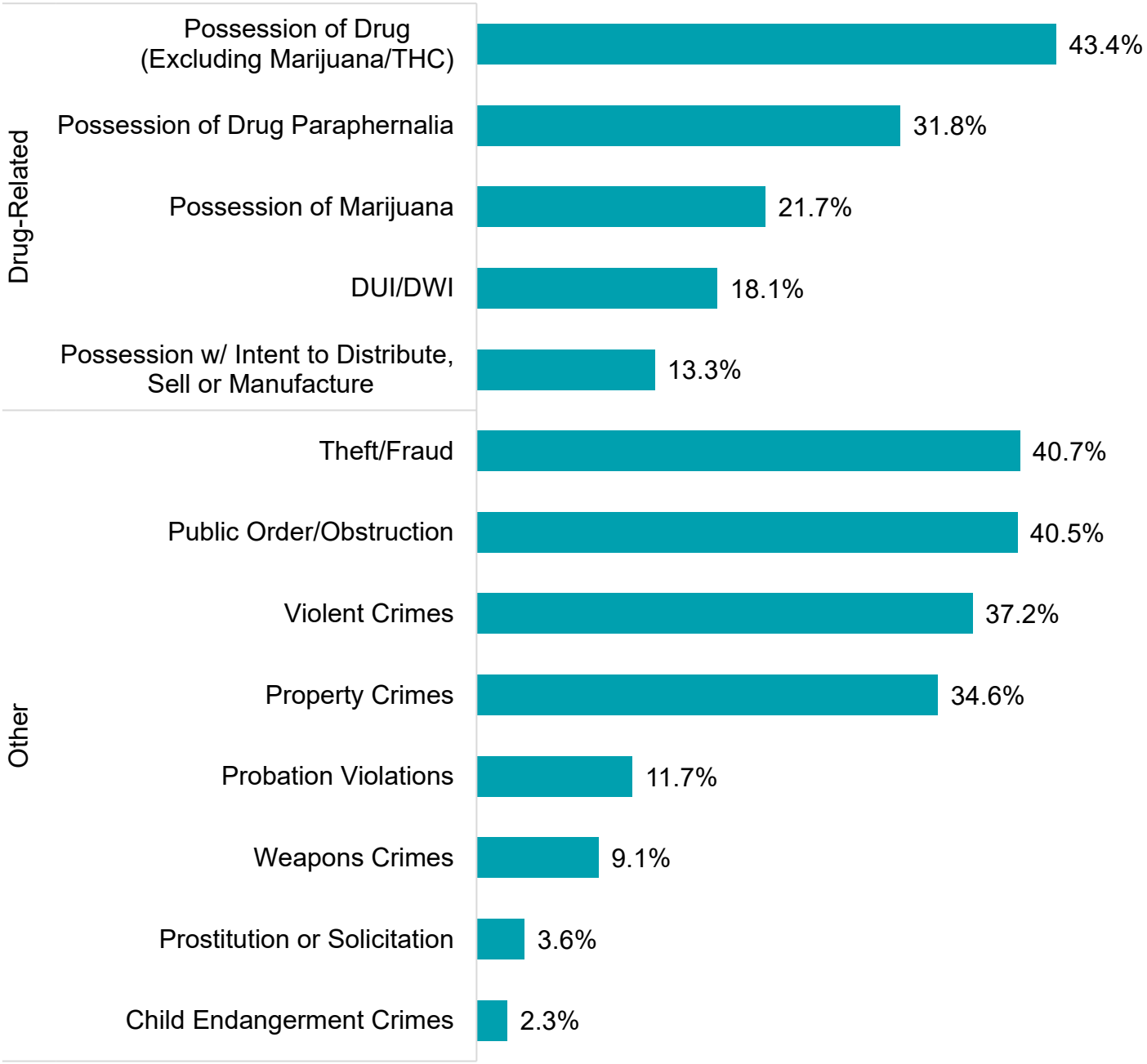
Figure 52. Number of Overdoses Treated at the Same Hospital in the Past Year for Individuals with a Prior Overdose at that Hospital (n=248)



Justice Involvement

Justice system involvement was common among individuals who experience non-fatal overdoses. Arrest relating to drug possession (excluding marijuana/THC) was the most common offense (43.4%) followed by theft/fraud offenses. Prior arrests for drug possession, theft, and public order offenses reflect the intersection of substance use and criminalization. Diversion programs, drug courts, and reentry support services can play a critical role in reducing recidivism and supporting recovery. Public health and criminal justice collaboration is essential for addressing the root causes of overdose and promoting rehabilitation.

Figure 53. History of Arrest



Appendix

1. Overdose EMS Syndromic Definition

Source: Biospatial

Categorical syndrome definition based on Enhanced State Opioid Overdose Surveillance (ESOOS) criteria as defined by the state of Florida, intended to detect incidents involving any drug overdose. The criteria are defined as follows:

Labeled as an overdose if **any** of the following are true:

- Provider primary/secondary impression (E09_15, E09_16; eSituation.11, eSituation.12) is any of 977.90 (ICD-9), F11-F16, F18-F19, T36-T50 (sub-codes included).
- Narrative (E13_01; eNarrative.01) **OR** chief/secondary complaint (E09_05; eSituation.04) contains "meth" or "methamphetamine". Certain phrases are excluded, for example: "methadone", "denies meth use", "drawsheet meth" and phrases associated with "Methodist" hospitals: "dispatched to meth", "Meth-Dallas", "meth-main", "transferred to meth".
- Narrative (E13_01; eNarrative.01) **OR** chief complaint (E09_05; eSituation.04) contains "overdose", "OD", "O.D.", "O/D", "OD/", or "ODED". Common misspellings and other variants of these terms are considered.
- The patient meets the criteria for the Florida ESOOS opioid overdose definition "Opioid (FL ESOOS)".

2. Overdose ED Syndromic Definition

Source: FL-ESSENCE

The CCDD Parsed field is used to query both the Discharge Diagnoses Parsed and Chief Complaint Free Text fields.

- Automatic inclusion:
    - The ED visit is automatically included in the syndrome definition if the ED visit includes:
        - If a diagnosis code indicating an acute unintentional or undetermined intent drug poisoning is present, and/or
        - Mention of an overdose in the chief complaint text.
    - The ED visit is automatically included in the syndrome definition if the ED visit meets one or more of the nested drug overdose definitions:
        - CDC All Opioid Overdose v3 Parsed
        - CDC All Stimulant Overdose v4 Parsed
        - CDC Benzodiazepine Overdose v2 Parsed
- Conditional inclusion:
    - If the ED visit does not include a diagnosis code for drug poisoning of unintentional or undetermined intent, an overdose term, or meet the criteria for one or more of the

nested drug overdose definitions, the visit is captured only if it includes two components and no exclusion terms:

- 1) chief complaint text indicating an overdose or poisoning, AND
- 2) chief complaint text indicating drug involvement

- The exclusion terms are applied to the chief complaint text only when the automatic inclusion criteria are not met.

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