OVERDOSE DATA TO ACTION (OD2A)

Non-Fatal Overdose Surveillance Annual Report
Palm Beach County, 2021

Florida HEALTH
Palm Beach County

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UNDERSTANDING THE EPIDEMIC

THE EVOLVING EPIDEMIC

The Overdose Data to Action (OD2A) innovative surveillance project at the Florida Department of Health (FDOH) in Palm Beach County (PBC) aims to increase the surveillance of suspected drug overdoses and use that data to drive action, policy change, and community outreach. Surveillance of suspected drug overdose events in PBC can help the overdose epidemic by identifying clusters or areas of high drug overdose incidences, revealing more about the social determinants of substance use disorder, and can help identify novel substances or new trends in illicit drugs. The findings of the data collected through this surveillance initiative are designed to be shared with the PBC community, providing a foundation of evidence for preventing overdose and early intervention for people with substance use disorder (SUD).

Three Waves of the Rise in Opioid Overdose Deaths

SOURCE: National Vital Statistics System Mortality File.
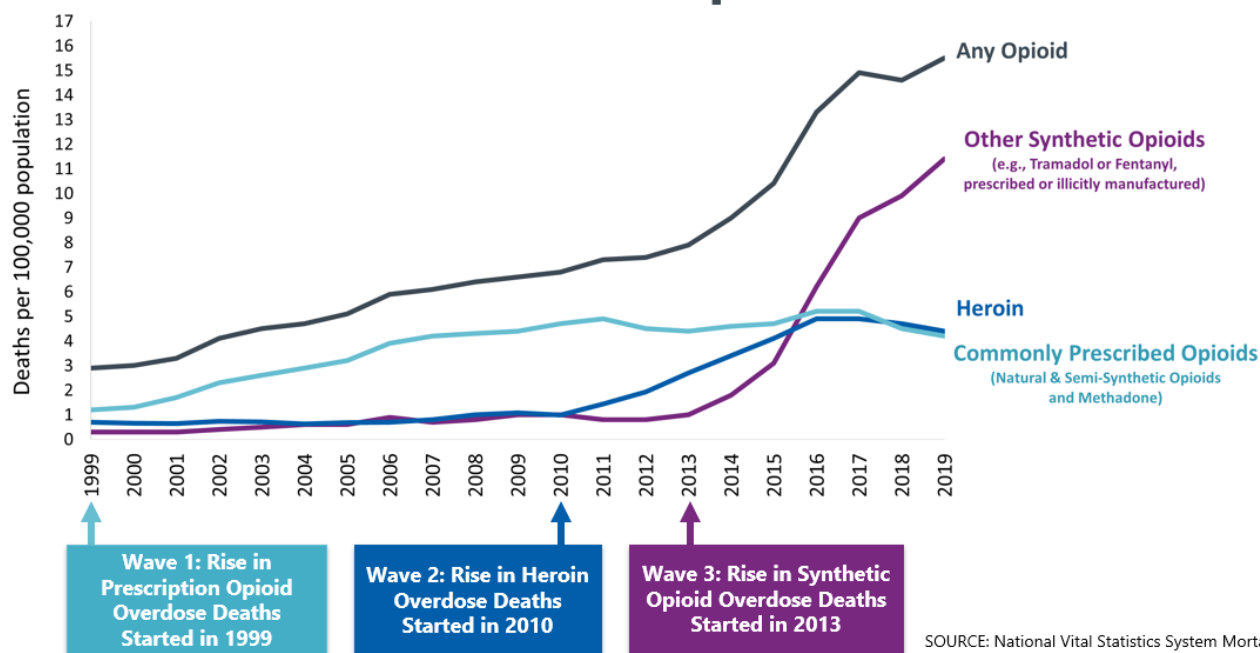
Image: Three Waves of the Rise in Opioid Overdose Deaths. Centers for Disease Control and Prevention (CDC). Accessed 2021, December 12, from https://www.cdc.gov/drugoverdose/deaths/index.html

EMERGING TRENDS

Wave 4 – Psychostimulants

In recent years, there has been a significant increase in the number of deaths due to psychostimulants[1]. Psychostimulants are a broad category of drug that includes cocaine, methamphetamine, MDMA, and prescription stimulants like Adderall and Vyvanse. Stimulant-involved overdose deaths tend to disproportionally affect racial and ethnic minority groups. Use of psychostimulants together with opioids and the increasing presence of fentanyl-contaminated drug supply are driving this new wave of overdose deaths.

SOCIAL DETERMINANTS OF HEALTH AND SUBSTANCE USE DISORDER

Social determinants of health (SDH) are the environmental conditions in which people are born, live, work, and play and have a broad impact on health and health outcomes[2,3]. These circumstantial environmental factors in which people live their lives can positively or negatively affect health. SDH can be broadly categorized into five domains: education, healthcare, built environment, community, and economic stability. For those living with substance use disorder (SUD), SDH can have unique effects on their path toward recovery.

Image: Healthy People 2030, U.S. Department of Health and Human Services. Accessed 2021, December 12, from https://health.gov/ healthypeople/objectives-and-data/social-determinants-health

Education Access and Quality. Studies have long shown that higher levels of education strongly correlate with an overall increase in health. Education and the environment in which a child learns can significantly affect both mental and physical health. It is estimated that 40.6% of adults in Florida have less than or equal to a high school diploma[4]. Data examined in the OD2A Annual Report showed that 58.7% of people who fatally overdosed in 2020 had less than or equal to a high school diploma.

Health Care Access and Quality. Many people in the U.S. do not receive the health care they need, and for people with SUD disorder, that number may be higher. Data from the 2020 OD2A Annual Report[5] found that over half (54.6%) of patients experiencing an overdose did not have health insurance. That is more than four times the estimate of the 12.9% of Floridians who were uninsured. Without health insurance, people with SUD might find difficulty accessing health services, including mental health and primary care, which can help prevent SUD. Their access to SUD treatment may also be limited, further hindering recovery.

Neighborhood and the Built Environment. The neighborhood and built environment provide a foundation for health outcomes. Access to clean water, healthful groceries, and outdoor recreation can have positive impacts on overall health. Neighborhoods with high rates of violence or illicit drug use can increase the risk of SUD.

Social and Community Context. The interpersonal relationships and interactions with a person's family, friends, co-workers, and community can all affect health and wellbeing. Adverse childhood experiences (ACEs), such as having one or more family members incarcerated, household violence and other dysfunction, and exposure to bullying at school can all negatively affect mental, physical, and social outcomes. The relationship between ACEs and SUD can be described as a dose-response relationship, in which higher cumulative ACEs events are associated with higher risk of SUD and other poor health outcomes.

Economic Stability. Economic stability affects a person's ability to obtain stable housing, healthful foods, safe neighborhoods, and health care. People with SUD often have trouble maintaining employment due to the illness and are at greater risk for homelessness and unsafe housing.

INNOVATIVE OVERDOSE SURVEILLANCE FRAMEWORK

Substance use disorder (SUD) is increasingly being recognized as a chronic disease that requires prevention, early intervention, and treatment. The most effective method to prevent morbidity and mortality from any disease is to prevent it from the start, also called primary prevention. Like receiving a vaccine to prevent measles, several factors can help prevent a person from developing a SUD later in life. For those with SUD, early intervention and treatment can help prevent overdose and/or death. Like many other chronic diseases (e.g., diabetes, cancer, and asthma), SUD can be treated and managed successfully.

Preventing and treating any illness is most effective when addressing the issue from a holistic perspective by considering the complex interactions between a person and their surroundings. The framework for PBC OD2A overdose surveillance incorporates all aspects of whole person health. It uses a multidisciplinary approach to examine the epidemic through individual factors, interpersonal relationships, community involvement, and societal barriers or solutions. This requires the consideration of the individual health behaviors and genetic makeup that influence health, but also the social and physical environments that account for an estimated 30-55% of health outcomes[2]. Integrating this systems framework into overdose surveillance can add key prevention elements that might otherwise be overlooked.

Society	Community	Relationships	Individual
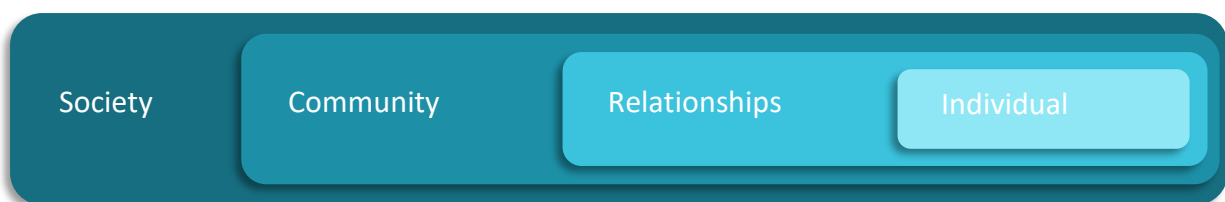
OVERDOSE SURVEILLANCE DATA

Throughout this report, data will be subdivided into two components – syndromic surveillance and innovative surveillance. Primary data for suspected drug overdoses was obtained from the following sources:

- ➢ Syndromic Surveillance – high-level overview
  - > Biospatial
    - ▪ EMS provider data
    - ▪ Uses emergency medical services (EMS) provider primary/secondary impressions and treatment protocols (i.e. naloxone administration) to identify overdoses
  - > Electronic Surveillance System for the Early Notification of Community-Based Epidemics (ESSENCE-FL):
    - ▪ Syndromic surveillance for suspected overdoses – hospital ED data
    - ▪ Uses emergency department (ED) chief complaints and discharge diagnoses (CCDD) to identify suspected overdoses

- ➢ Innovative Surveillance – integrated, in-depth review
  - > Non-fatal Overdose surveillance
    - ▪ Patient-level morbidity data obtained through ED medical records from overdoses
    - ▪ Integration of multiple data sources, using a whole-person perspective with people who survive an overdose, and identifies risk factors and emerging trends

All data is securely stored in compliance with HIPAA and FDOH health information standard. Details methods of data procurement and analysis can be found in the Technical Notes section at the end of this report.

PERSON-FIRST LANGUAGE

This report was designed to place the people in the forefront of the epidemic by using person-first language and medically accurate terms as often as possible to reduce stigma towards people with SUD. Stigma and stigmatizing language attach negative labels, stereotypes, and judgments to certain groups of people and can negatively impact health and wellness[6]. Stigma can come from many different sources including social stigma, structural stigma, and even self-stigma.

Using person-first language can be an excellent first step to combat stigma in all situations. Person-first language places the person in front of the condition, rather than defining them by their condition. This simple tool can be an effective reminder that people in our very own community have experienced overdose. The language we use when discussing these events may affect a person's perception of how others view them and how they view themselves.

Stigmatization often decreases a person's willingness to seek help, particularly when the stigma comes from healthcare professionals. By using neutral and non-judgmental person-first language, the emphasis is kept where it belongs – on the person and not their condition.

Table 1: Person-First Language and Terms

| Recommended Language and Terms	Stigmatizing Language and Terms
person with a substance use disorder (SUD) person who uses drugs (PWUD)	drug addict, drug habit, junkie, user, drug abuser
person with law enforcement interactions person arrested for [x offense or violation]	criminal, drug offender
medication for opioid use disorder (MOUD)	replacement therapy, maintenance therapy
person who returned to substance use person who resumed substance use	relapse, slip
person in recovery	clean, straight, sober, former addict

PREFACE

NOTABLE CHANGES FROM 2020 NON-FATAL OVERDOSE REPORT

The most notable change made to the non-fatal innovative overdose surveillance was the expansion of types of overdoses that were included. In 2020, the minimum criterion for inclusion was that at least one opioid was involved in the overdose. Overdoses on a psychostimulant ("stimulants") or benzodiazepine ("benzos") alone would have not been included unless there was also an opioid involved. Increased capacity in 2021 allowed for the expansion of overdose surveillance to also include stimulant and benzo overdoses, regardless of whether an opioid was also involved.

The figure below shows the percent change from 2020 to 2021 for select variables. Unlike the sample from 2020 in which opioids were involved in 100% of overdose events analyzed, the 2021 sample included 81% opioid-involved and 19% of the sample involved non-opioid related substances. Percent changes listed below may be influenced by the expansion of inclusion criteria.

Figure 1: Percent Change in Non-Fatal Innovative Overdose Surveillance Sample Findings, 2020 to 2021
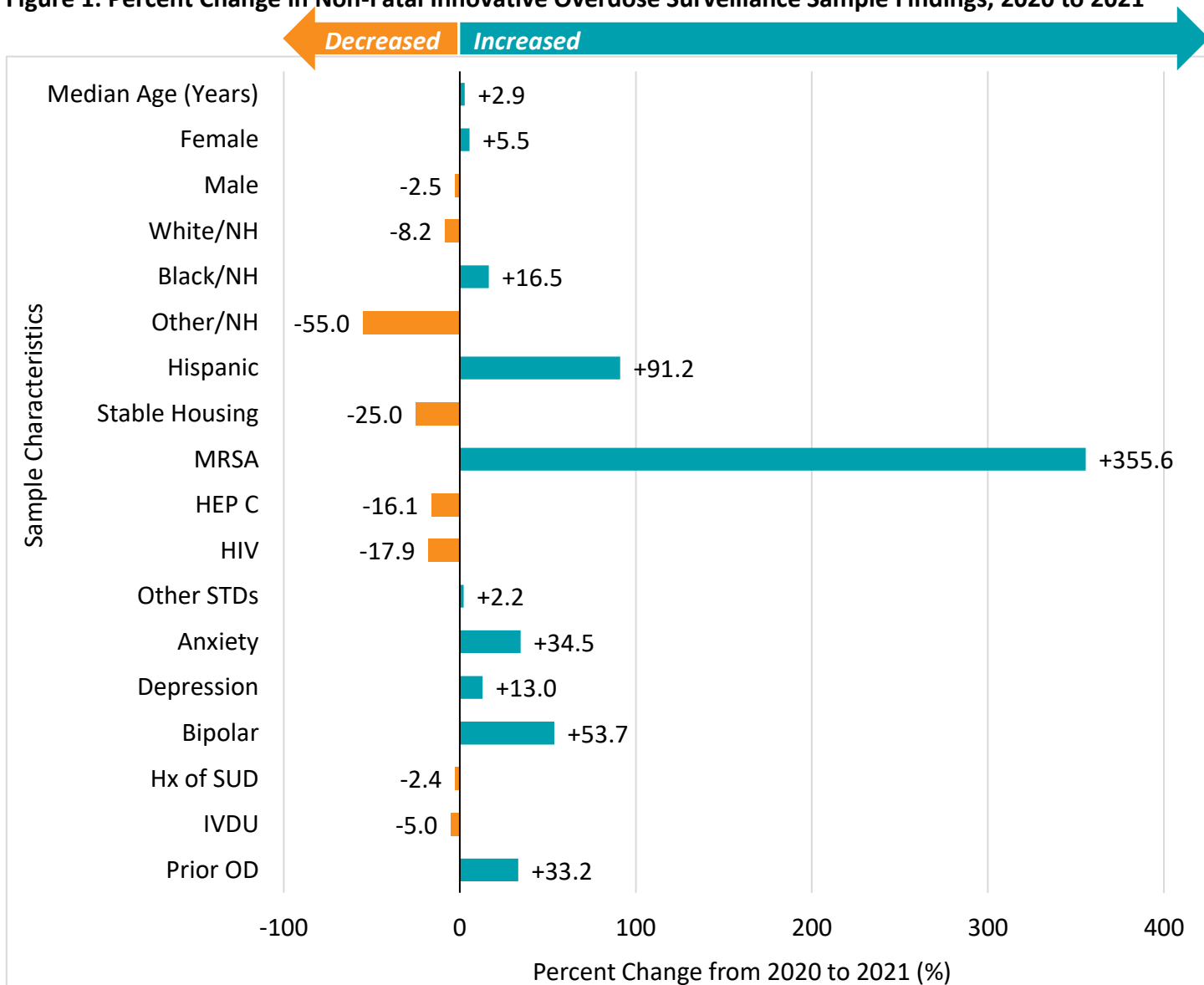
NOTES ON MAPS AND FIGURES

Before continuing, this section explains portions of the report that may be helpful in reading this report.

The Maps

Sections of the 2021 data in this report looks at geographical distribution of overdoses per ZIP Code. Palm Beach County is the largest county in Florida by land mass, and the third largest by population. These conditions have resulted in a unique geographical distribution that means some ZIP Codes can be small in size but large in population, while others can be large in size but small in population. For this reason, it is not useful to visualize overdose data in terms of raw values or counts per ZIP Code. For example, suppose ZIP Code A and B both reported 10 overdoses for 2021. Raw values might lead someone to believe the scope of the overdose epidemic is affecting both regions equally. ZIP Code A, however, has a total population of 100 people, whereas ZIP Code B has a population of 10,000 people. The rate at which overdoses occurred in these two ZIP Codes were significantly different. ZIP Code A had a proportion of 10 overdoses out of 100 population, or 0.1 (10%). ZIP Code B had a proportion of 10 overdoses out of 10,000 population, or 0.001 (0.1%). To make these numbers more meaningful for readers, we multiply these proportions by a standard number across all ZIP Codes, typically by 100,000 people. This allows comparison between ZIP Codes of varying population sizes. After this statistical adjustment, ZIP Code A has an overdose rate of 10,000 per 100,000 population, and ZIP Code B has an overdose rate of 100 per 100,000 population. Overdoses that are adjusted to the population of each corresponding ZIP Code better reflect the burden experienced by each geographical area.

The Figures

Only overdoses that involved at least one of the following substances – opioids, psychostimulants, or benzodiazepines – were included in this analysis. Overdoses could involve more than one substance. The figures and maps categorized by substance type in this report are not mutually exclusive unless otherwise stated. That is, the data does not account for polysubstance use (i.e., a person whose overdose involves a mixture of substances will be represented in each of those corresponding substance categories) unless explicitly stated.

Data presented in figures throughout this report are calculated in percentage of total sample, or by subgroup (i.e., sex, race/ethnicity, etc.) if applicable. Percentages were determined to be a better choice for this sample – as opposed to counts or frequency – in part to appeal to a wider variety of readers of this report. Furthermore, various data elements were restricted when an exceptionally low count for a subgroup occurred, most frequently of the racial/ethnic group "Other/NH." This was done to ensure data remains de-identifiable and to prevent skewed data caused by the presence of outliers.

HISTORICAL TRENDS IN OVERDOSES

Figure 2, below, examines historical trends (2016-2021) in suspected overdoses, using hospital emergency department (ED) data and emergency medical services (EMS) data as indicators. OD2A's innovative surveillance began in 2020, so 2016-2019 historical trends rely on syndromic data. Differences in syndromic definitions and other unforeseen factors may explain discrepancies between EMS and ED data. For example, patients might arrive to the ED via private vehicle, thus bypassing interaction with EMS. An unknown number of overdose events occurs each year that are not captured by either data source, such as when bystanders administer naloxone or other first aid. Therefore, overdoses are likely undercounted. Additional limitations of syndromic surveillance for overdose events can be found in the Technical Notes section at the end of the report.

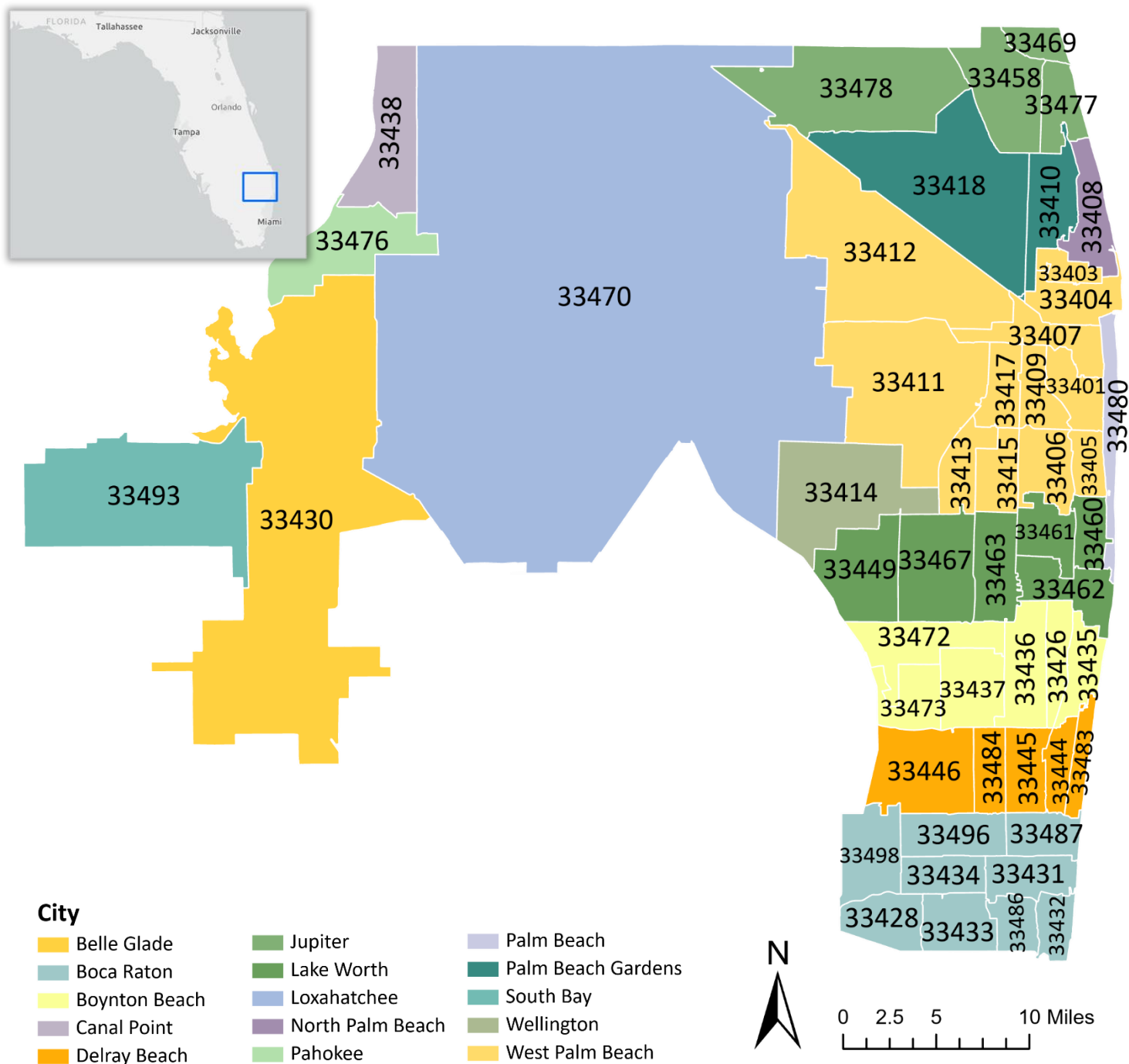**Figure 2: Quarterly Trends in All Suspected Overdoses, Palm Beach County, 2016 – 2021**
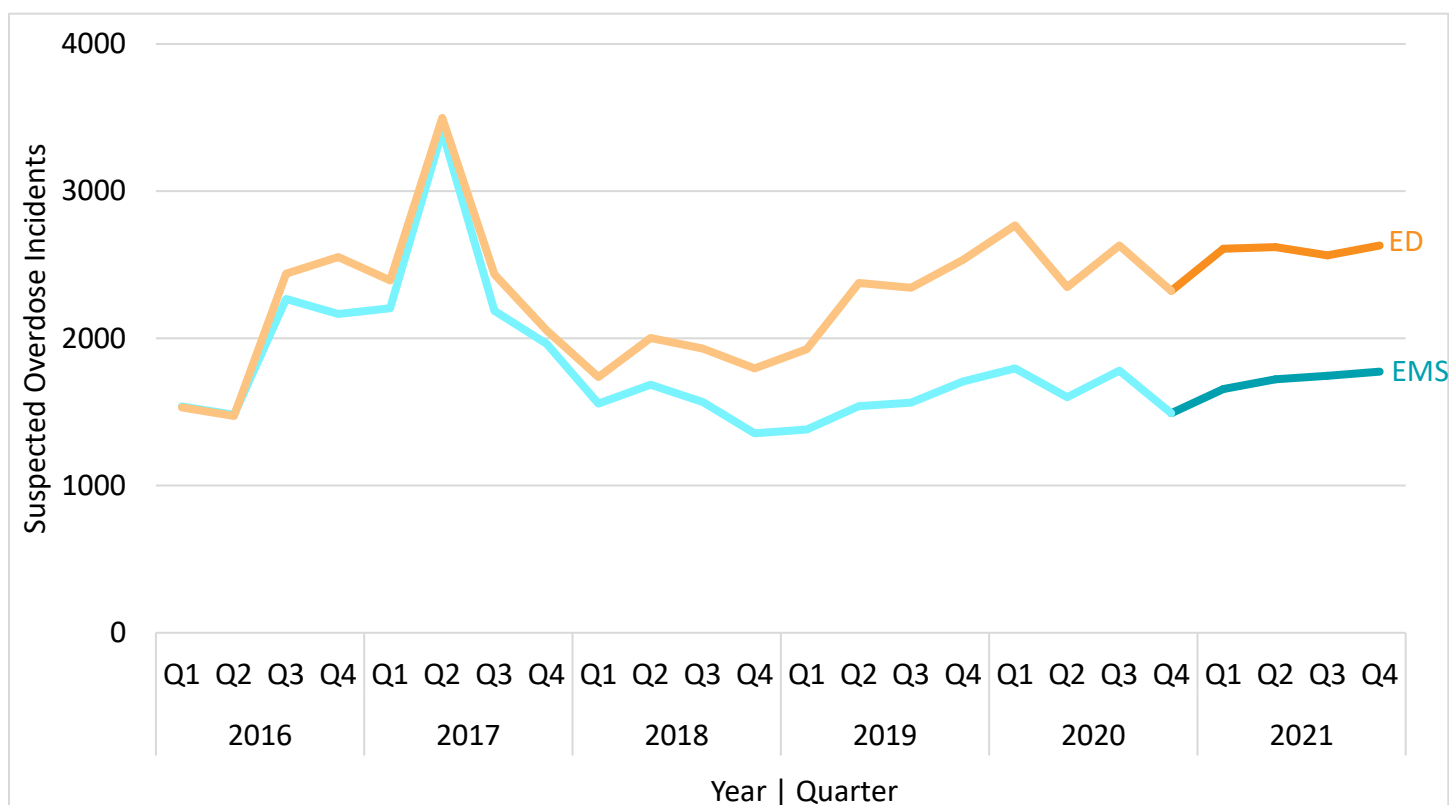
COUNTY CHARACTERISTICS

PALM BEACH COUNTY, FL

2021 Population Estimate: 1,497,987
White (74.2%) Black (20.1%) Hispanic (23.9%)
Median Household Income: $65,015
Persons Living in Poverty: 12.0%
Source: U.S. Census Bureau[7]

Map 1: ZIP Code and City Boundaries of Palm Beach County, FL

City

- Belle Glade
- Boca Raton
- Boynton Beach
- Canal Point
- Delray Beach
- Jupiter
- Lake Worth
- Loxahatchee
- North Palm Beach
- Pahokee
- Palm Beach
- Palm Beach Gardens
- South Bay
- Wellington
- West Palm Beach

2021 SYNDROMIC SURVEILLANCE RESULTS

EMS Syndromic Surveillance Results

EMS data in this report was collected and reported by incident location. Incident location is the corresponding ZIP Code to which EMS was dispatched and is *not* related to a patient's home address. PWUD may or may not use in the same areas where they live. Overdose incidents that occurred in ZIP Codes outside PBC were not included in the following figures.

In 2021, EMS responded to 6,664 suspected overdoses. Opioids were suspected to be involved in 3,157 (47.4%) of overdoses events, and 2,129 (31.9%) were treated with the opioid overdose reversal medication naloxone. The use of naloxone is an important indicator that a suspected drug overdose involved an opioid, even when the patient is unsure of the substance ingested.

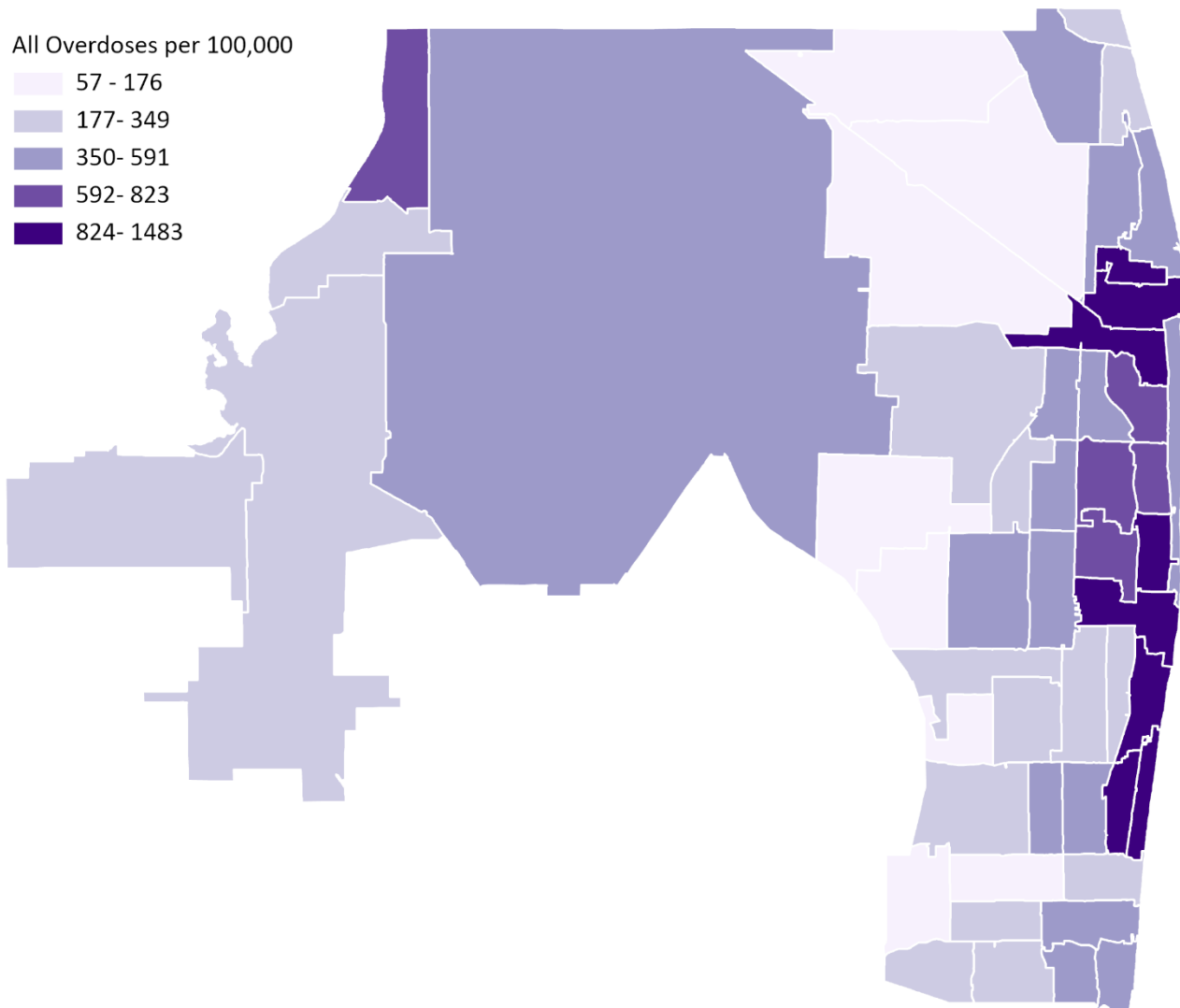## EMS Responses for Suspected Overdose by Month

Figure 3: Monthly EMS Responses for Suspected Overdose, Palm Beach County, 2021
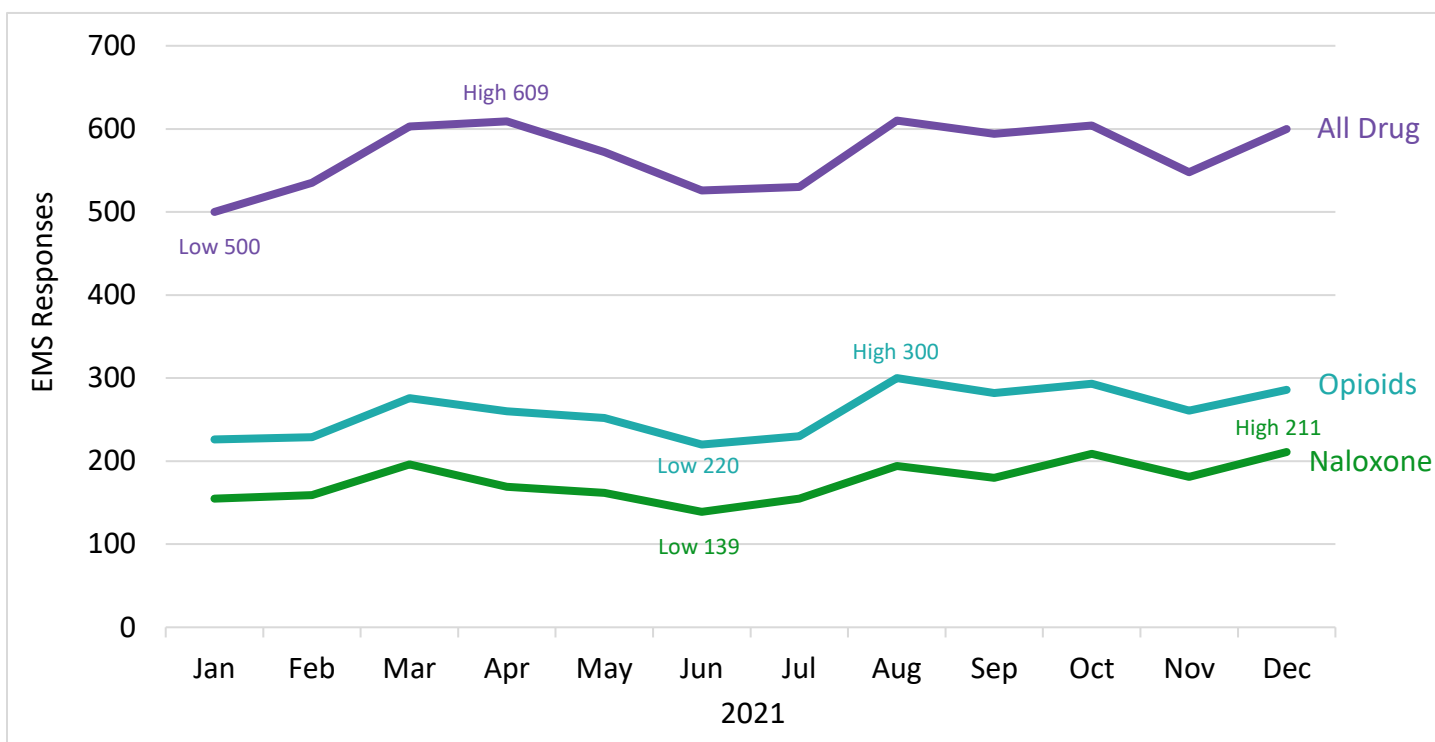
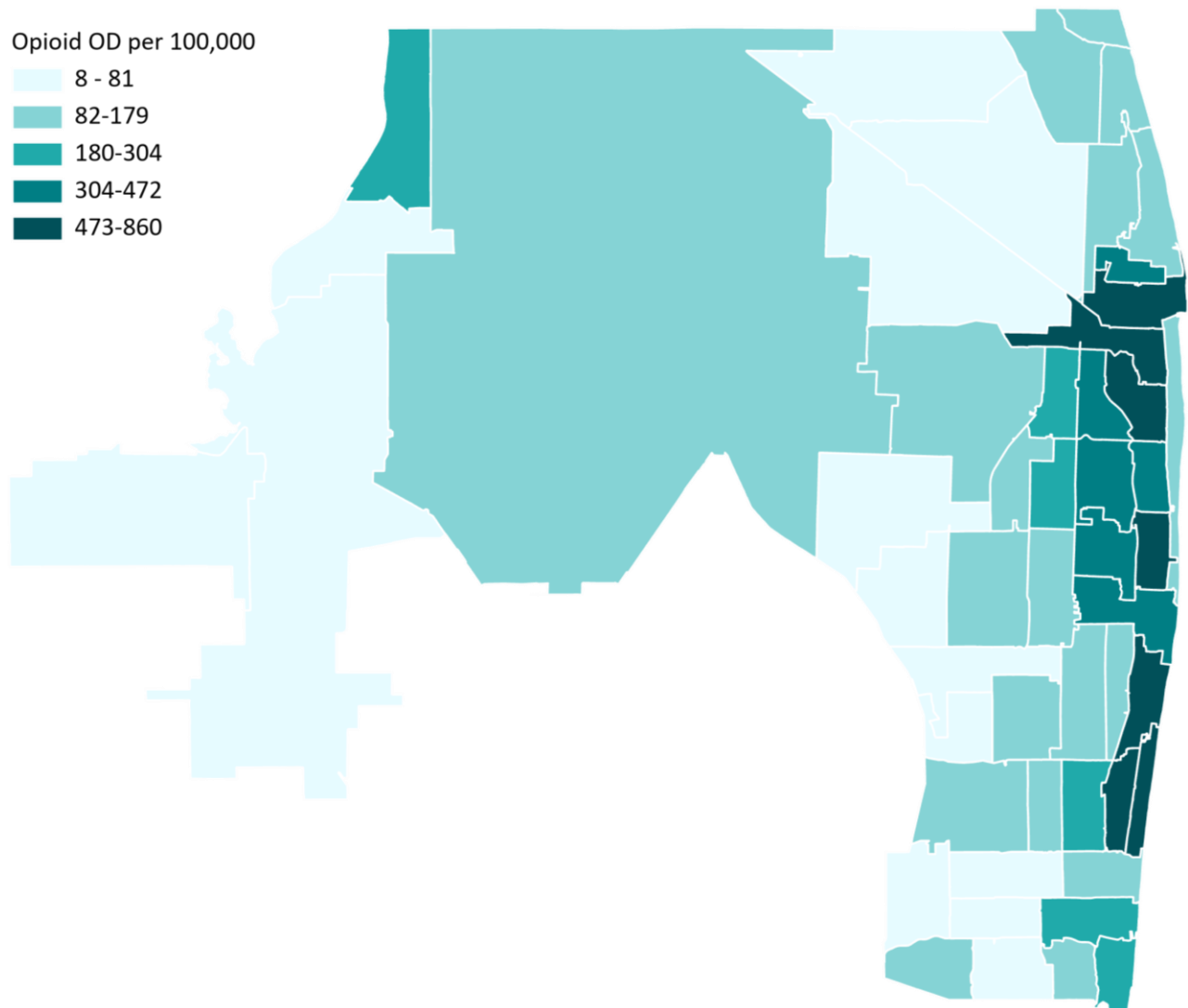## Suspected Overdose by Incident ZIP Code, All Drug

All maps in this section are adjusted to show the suspected overdose incidence rate per 100,000 in the population by zip code. This creates a standardization across all zip codes so that comparisons can be made across different areas of Palm Beach County, and rate of overdoses can be more clearly analyzed. Population data by zip code was sourced from 2020 Census data[7].

Map 2: EMS Responses per 100,000 Population for Suspected Overdose by Incident ZIP Code, All Drug

All Overdoses per 100,000
- 57 - 176
- 177- 349
- 350- 591
- 592- 823
- 824- 1483

Suspected Overdose by Incident ZIP Code, Opioids

Map 3: EMS Responses per 100,000 Population for Suspected Overdose by Incident ZIP Code, Opioid

Opioid OD per 100,000
- 8 - 81
- 82-179
- 180-304
- 304-472
- 473-860

Suspected Overdose by Incident ZIP Code, Naloxone Treated

Map 4: EMS Responses per 100,000 Population for Suspected Overdose by Incident ZIP Code, Naloxone Treated

Naloxone use for OD per 100,000
- 0-39
- 40-100
- 101-185
- 186-354
- 355-523
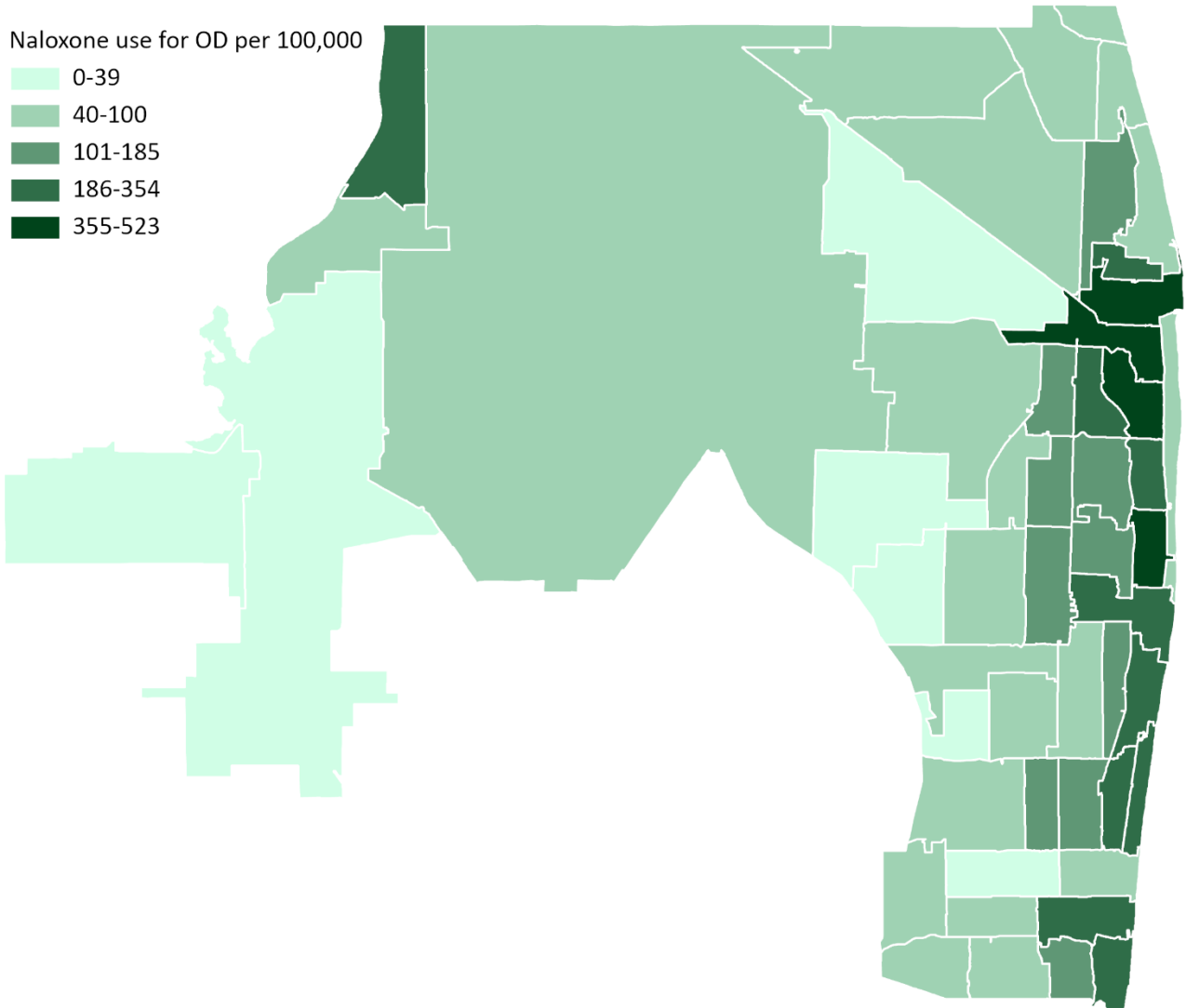
ED SYNDROMIC SURVEILLANCE RESULTS

ED data in this report was collected and reported by patient location. Patient location is the corresponding ZIP Code to a patient's home address as reported by ED hospital records. PWUD may or may not use in the same areas where they live. Overdose from patients that had a home ZIP Code outside PBC were not included in the following figures.

In 2021, there were 8,827 total emergency department visits for suspected overdoses. Opioids were suspected in 3,099 (35.1%) of overdose events, stimulants in 926 (10.5%), and benzodiazepines in 514 (5.8%) events.
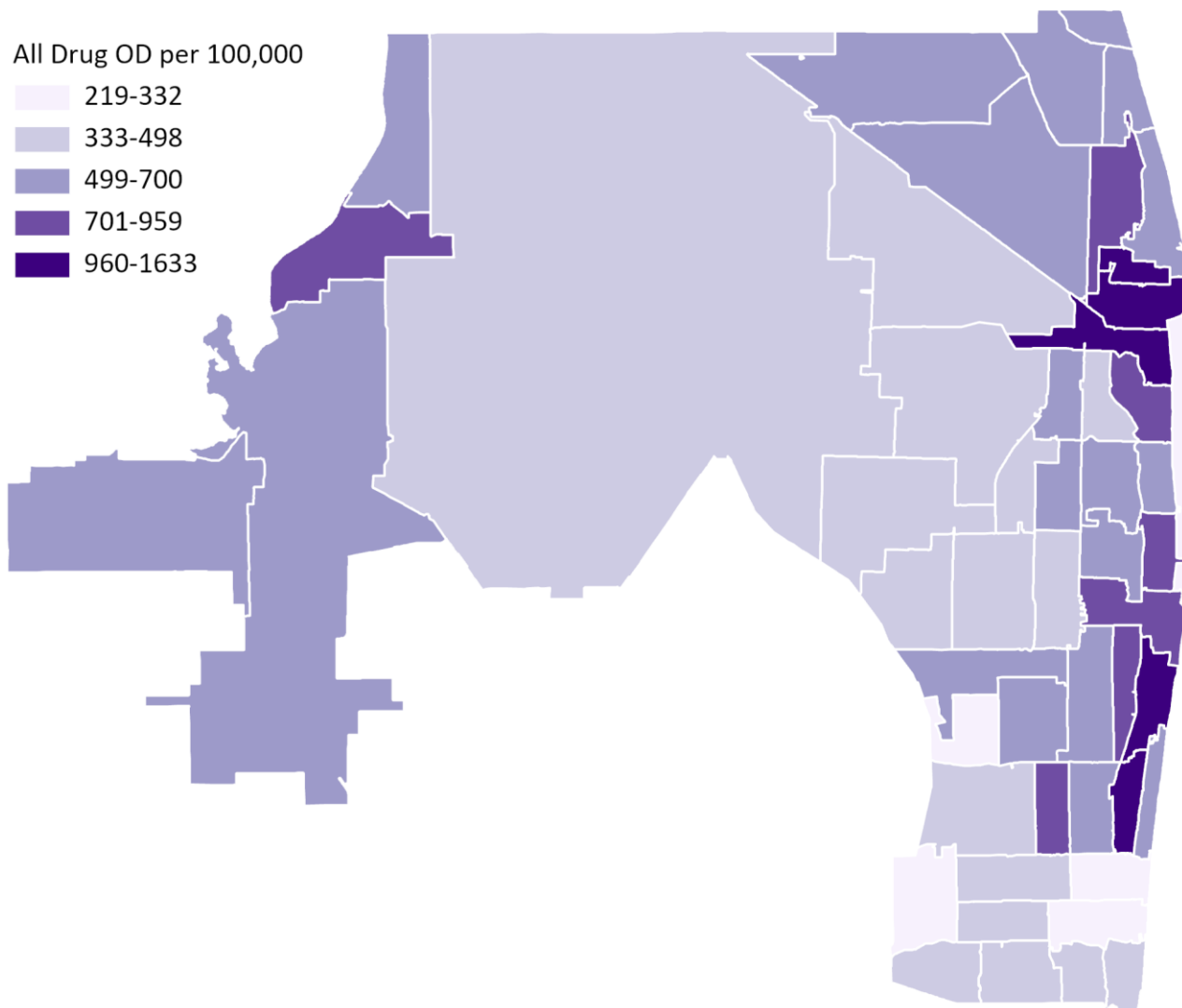
ED Visits for Suspected Overdose by Month

Figure 4: Monthly ED Visits for Suspected Overdose, Palm Beach County, 2021
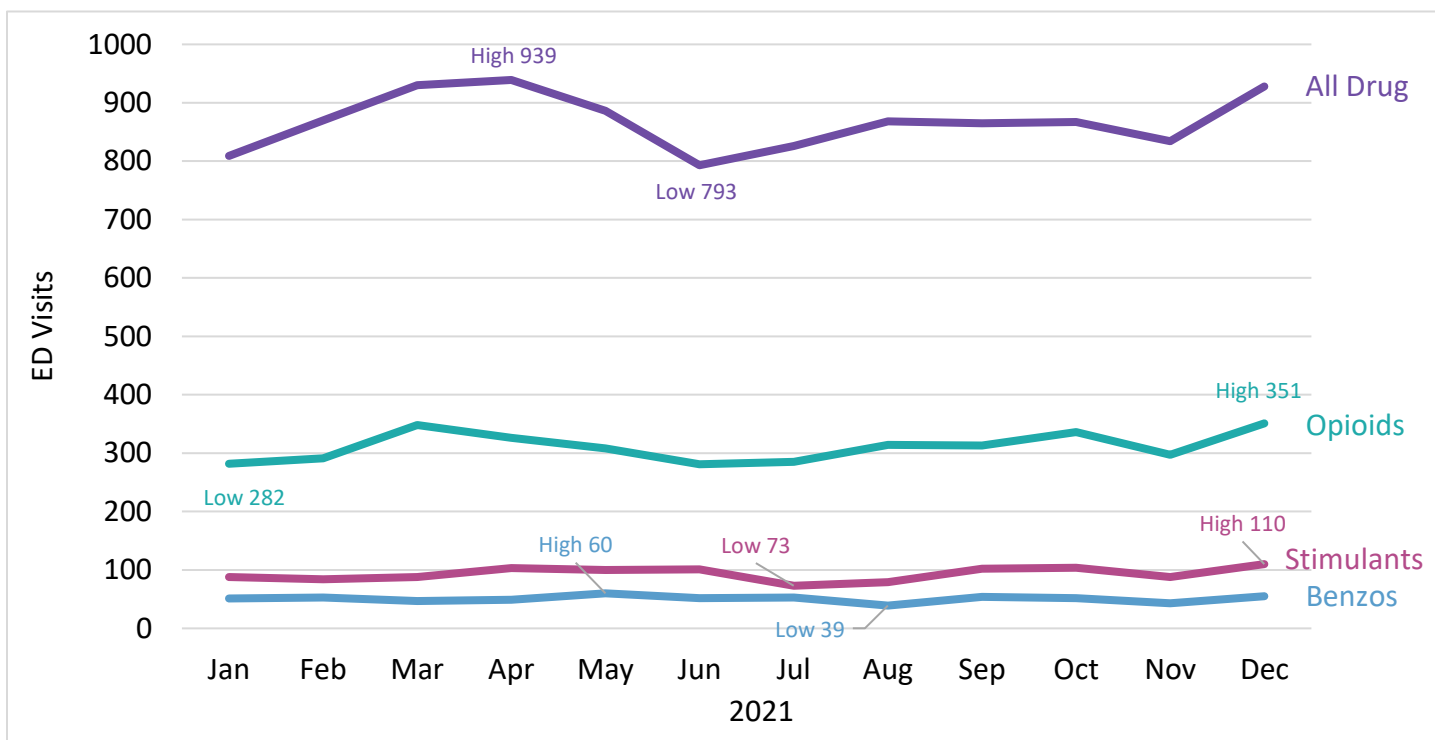
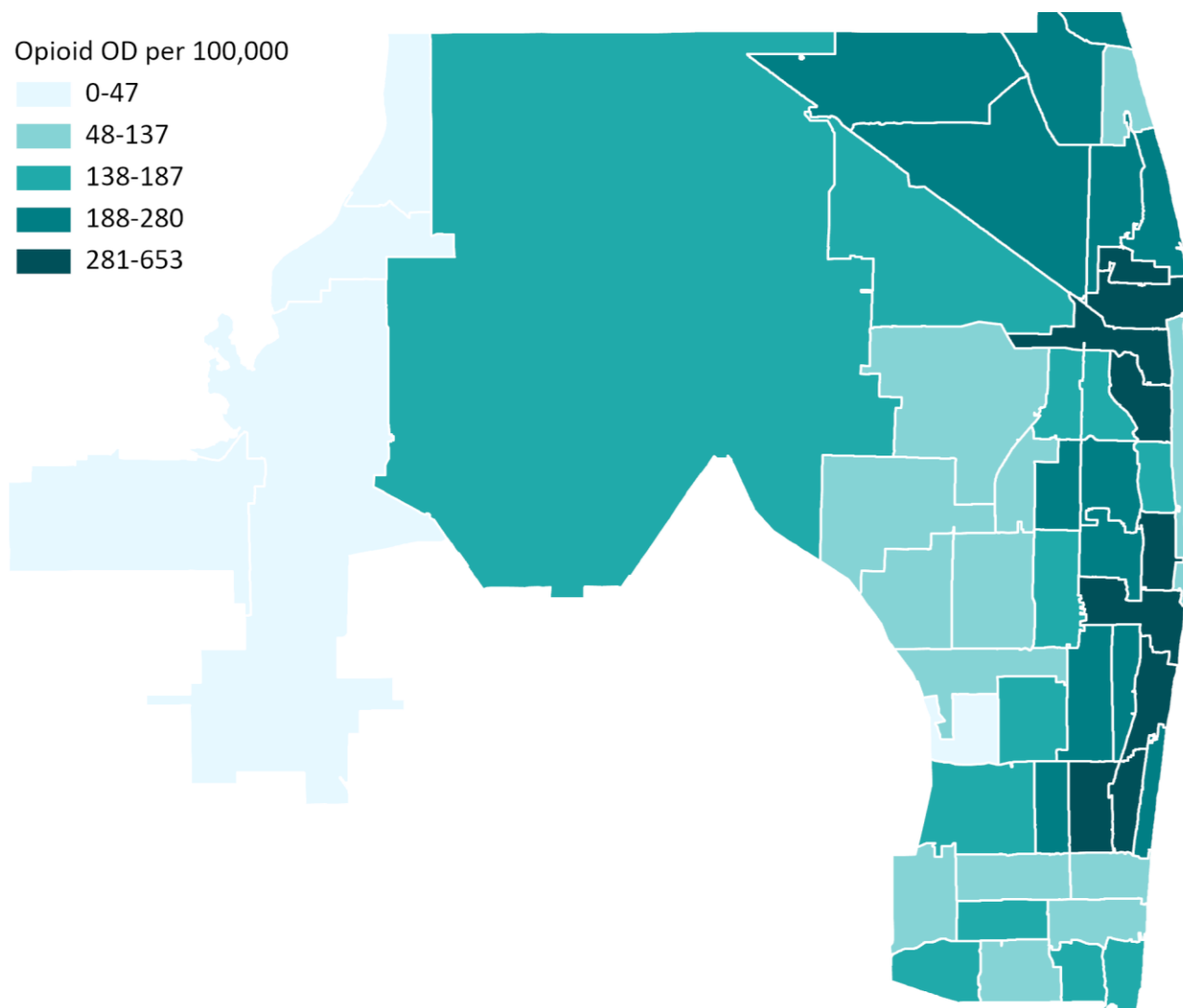## Suspected Overdose by Patient ZIP Code, All Drug

All maps in this section are adjusted to show the suspected overdose incidence rate per 100,000 in the population by zip code. This creates a standardization across all zip codes so that comparisons can be made across different areas of Palm Beach County, and rate of overdoses can be more clearly analyzed. Population data by zip code was sourced from 2020 Census data[7].

Map 5: ED Visits per 100,000 Population for Suspected Drug Overdose by Patient ZIP Code, All Drug


All Drug OD per 100,000
- 219-332
- 333-498
- 499-700
- 701-959
- 960-1633

Suspected Overdose by Patient ZIP Code, Opioids

Map 6: ED Visits per 100,000 Population for Suspected Opioid Overdose by Patient ZIP Code

Opioid OD per 100,000

- 0-47
- 48-137
- 138-187
- 188-280
- 281-653

Suspected Overdose by Patient ZIP Code, Stimulants

Map 7: ED Visits per 100,000 Population for Suspected Stimulant Overdose by Patient ZIP Code

Stimulant OD per 100,000

- 0-22
- 23-39
- 40-60
- 61-112
- 113-115
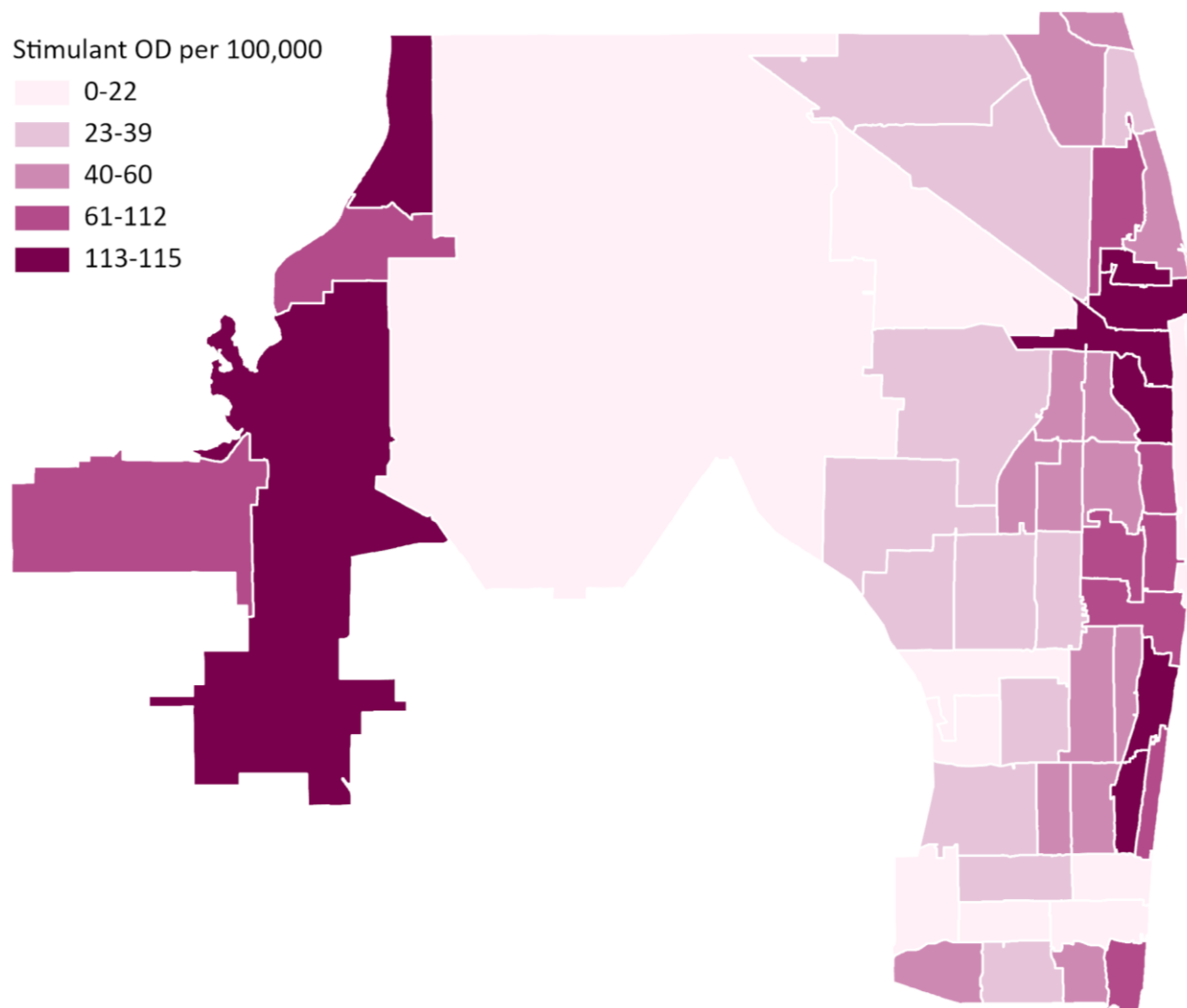
Suspected Overdose by Patient ZIP Code, Benzodiazepine

Map 8: ED Visits per 100,000 Population for Suspected Benzodiazepine Overdose by Patient ZIP Code

Benzo Overdoses per 100,000

- 0-7
- 8-25
- 26-36
- 37-48
- 49-81
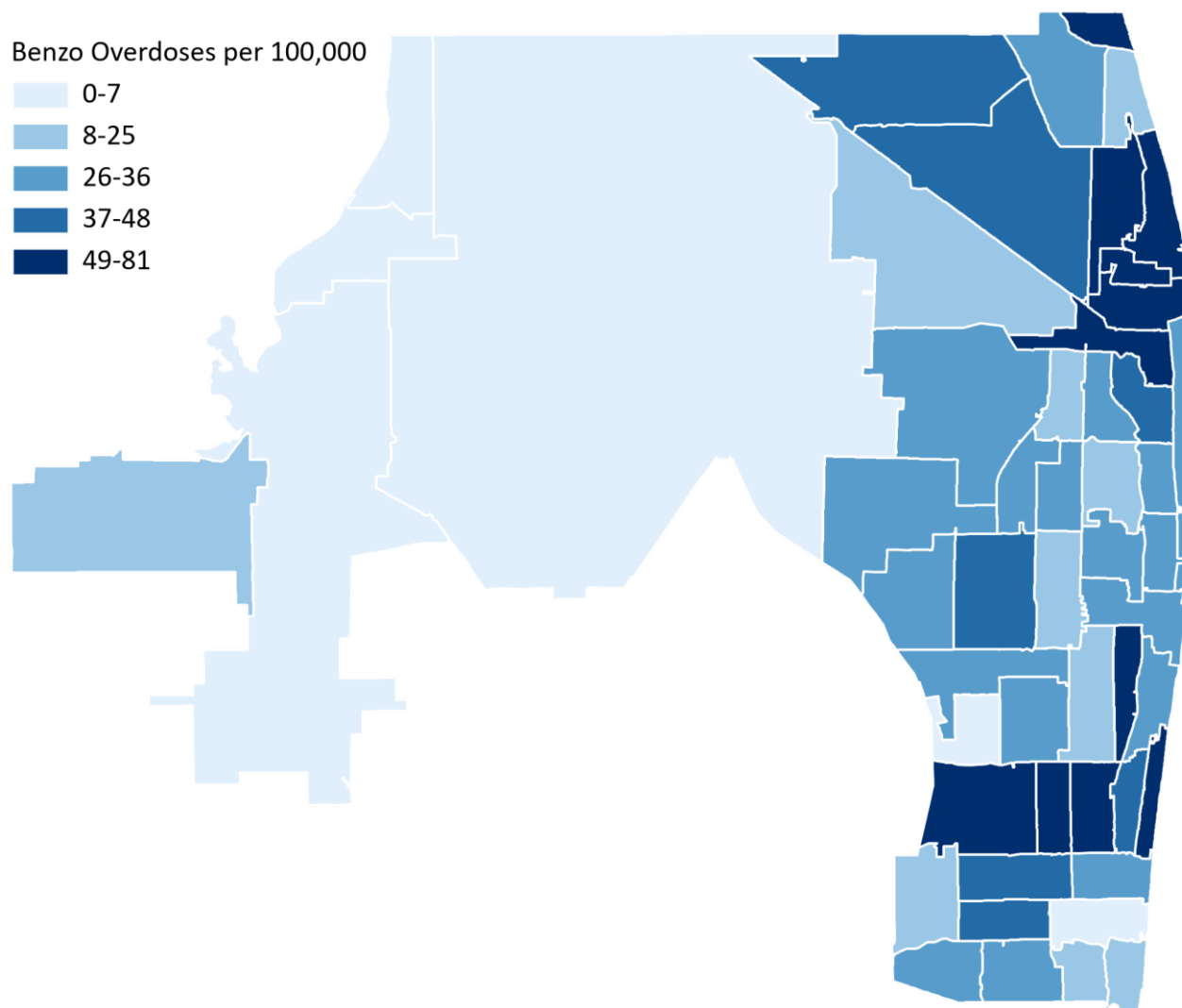
YOUTH ED SYNDROMIC SURVEILLANCE RESULTS, 2021

ED data in this report was collected and reported by patient location. Patient location is the corresponding ZIP Code to a patient's home address as reported by ED hospital records. PWUD may or may not use in the same areas where they live. Overdose from patients that had a home ZIP Code outside PBC were not included in the following figures.

Feedback on the OD2A PBC 2020 Annual Report showed growing interest in overdoses among youth. This section contains charts and maps specific to overdoses among youth aged 0-19 years.

In 2021, there were 759 ED visits for suspected overdoses among youth aged 0-19 years. Of these, 264 (34.8%) were drug-involved intentional self-harm or attempted suicides. Suicide attempts primarily occurred among ages 10-19, and 80.6% of attempts were females. Opioids accounted for 48 (6.3%) suspected overdose events, stimulants 29 (3.8%), benzodiazepines 38 (5.0%), and cannabinoids 162 (21.3%).

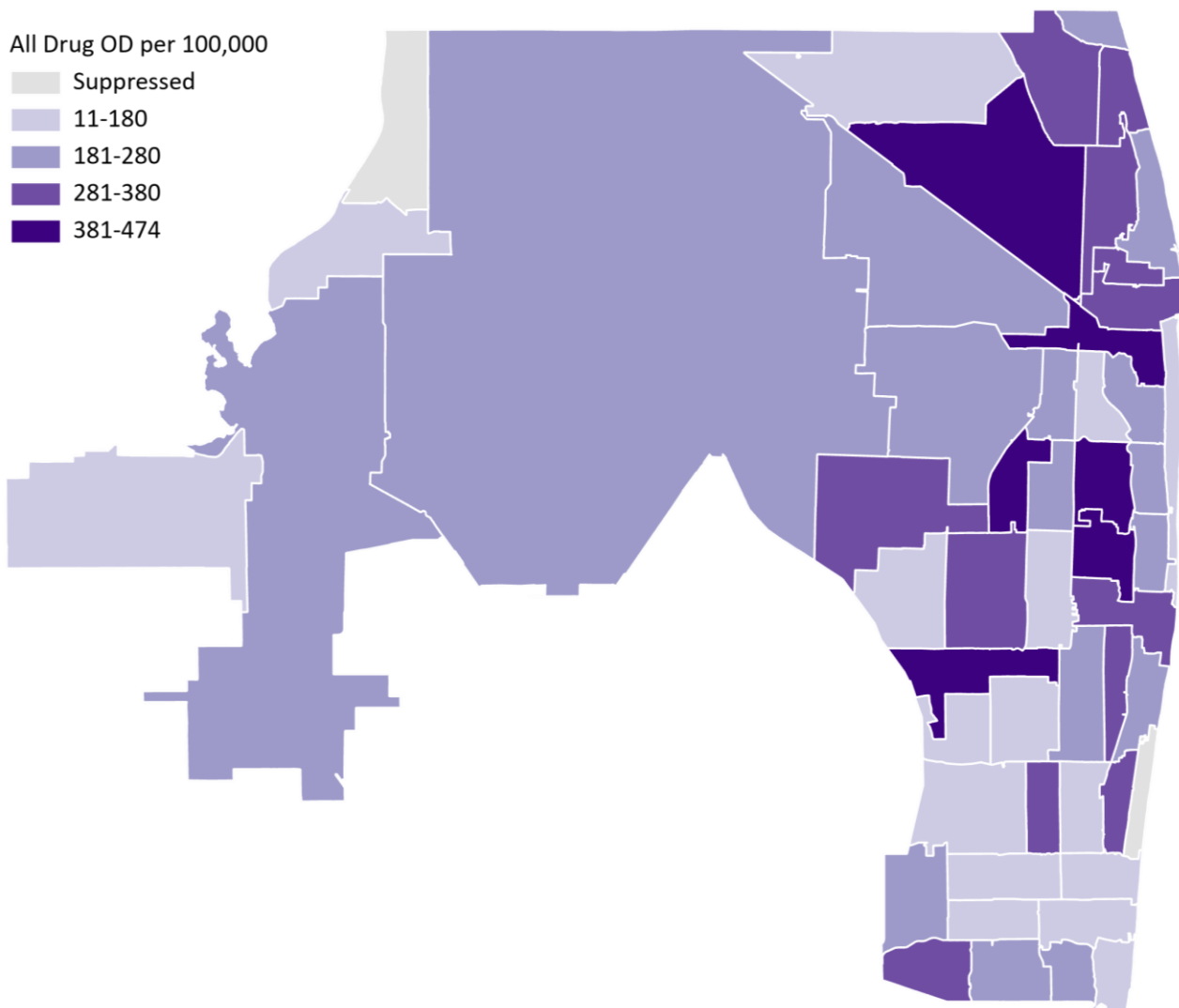## Youth ED Visits for Suspected Overdose by Month

Figure 5: Monthly Youth ED Visits for Suspected Overdose, Palm Beach County, 2021
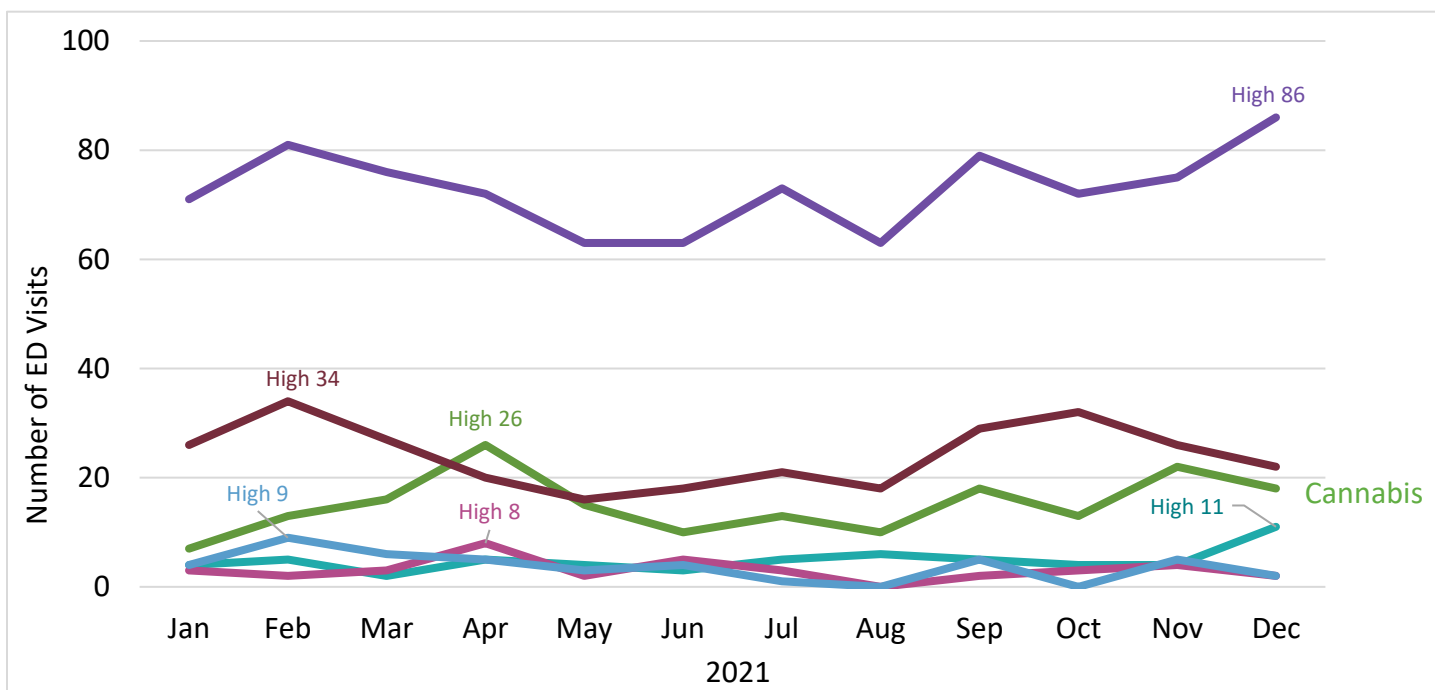
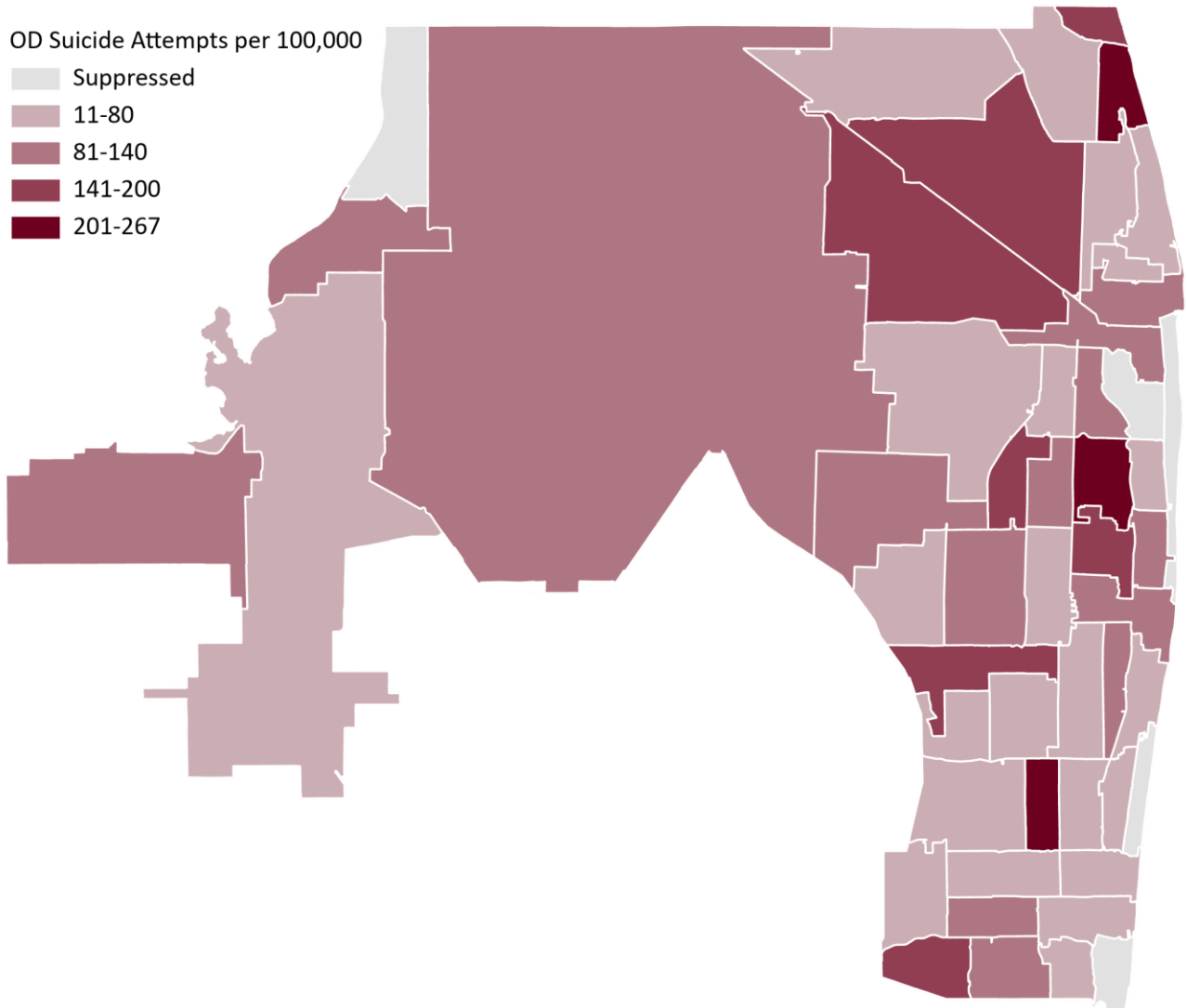## Suspected Youth Overdose by Patient ZIP Code, All Drug

All maps in this section are adjusted to show the suspected overdose incidence rate per 100,000 in the population by zip code. This creates a standardization across all zip codes so that comparisons can be made across different areas of Palm Beach County, and rate of overdoses can be more clearly analyzed. Population data by zip code was sourced from 2020 Census data[7].

Map 9: ED Visits per 100,000 Youth Population Aged 0 – 19 Years for Suspected Overdose by Patient ZIP Code, Palm Beach County

Suspected Youth Overdose with Suicide or Self-Harm Intent by Patient ZIP Code, All Drug

Map 10: ED Visits per 100,000 Youth Population Aged 0 – 19 Years for Suspected Drug Overdose with Suicide Intent or Ideation by Patient ZIP Code, Palm Beach County


OD Suicide Attempts per 100,000
- Suppressed
- 11-80
- 81-140
- 141-200
- 201-267

Suspected Youth Overdose by Patient ZIP Code, Opioid

Map 11: Youth ED Visits per 100,000 Youth Population Aged 0 – 19 Years for Suspected Opioid Overdose by Patient ZIP Code, Palm Beach County

Opioid per 100,000
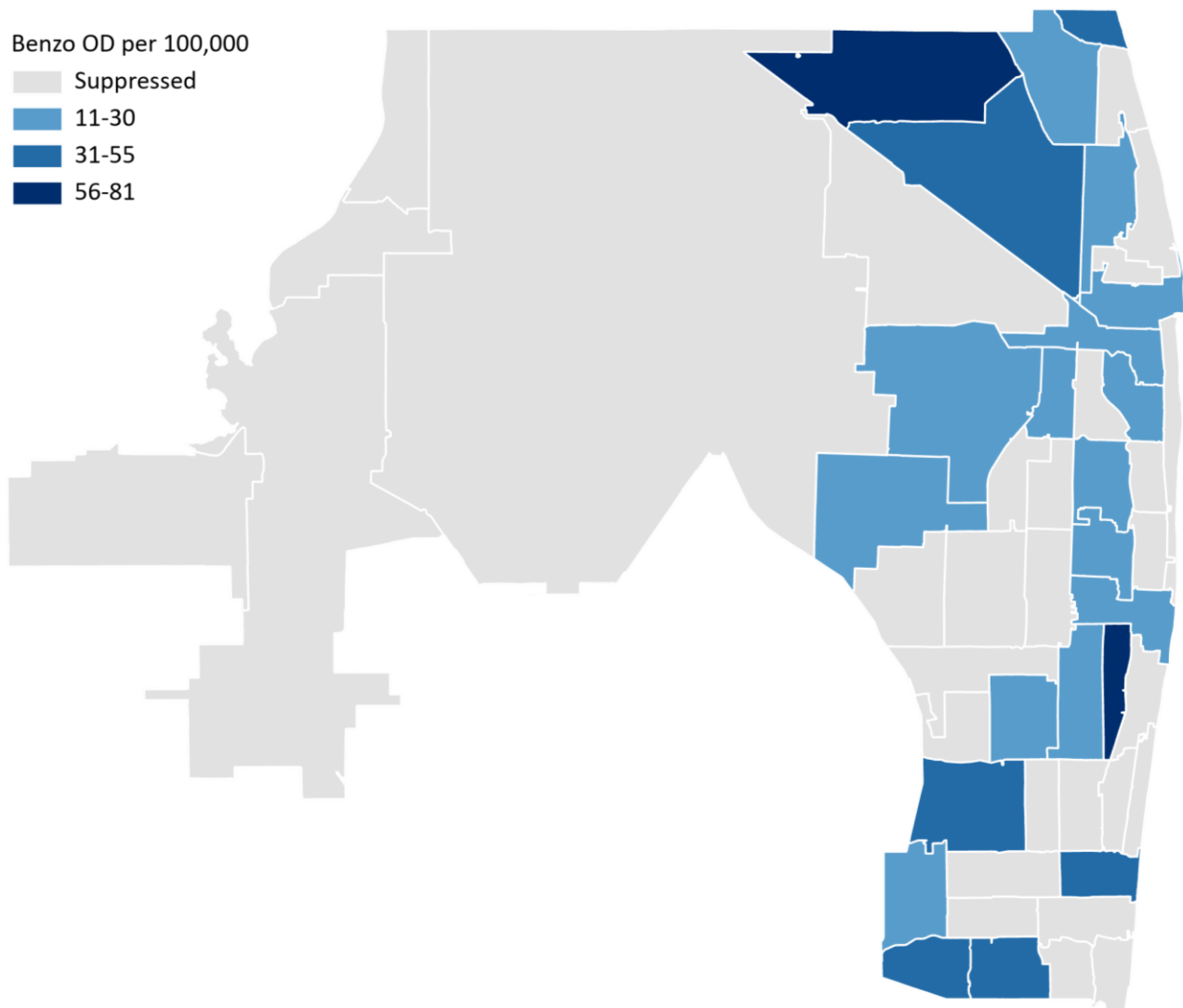- Suppressed
- 11-30
- 31-45
- 46-60
- 61-73
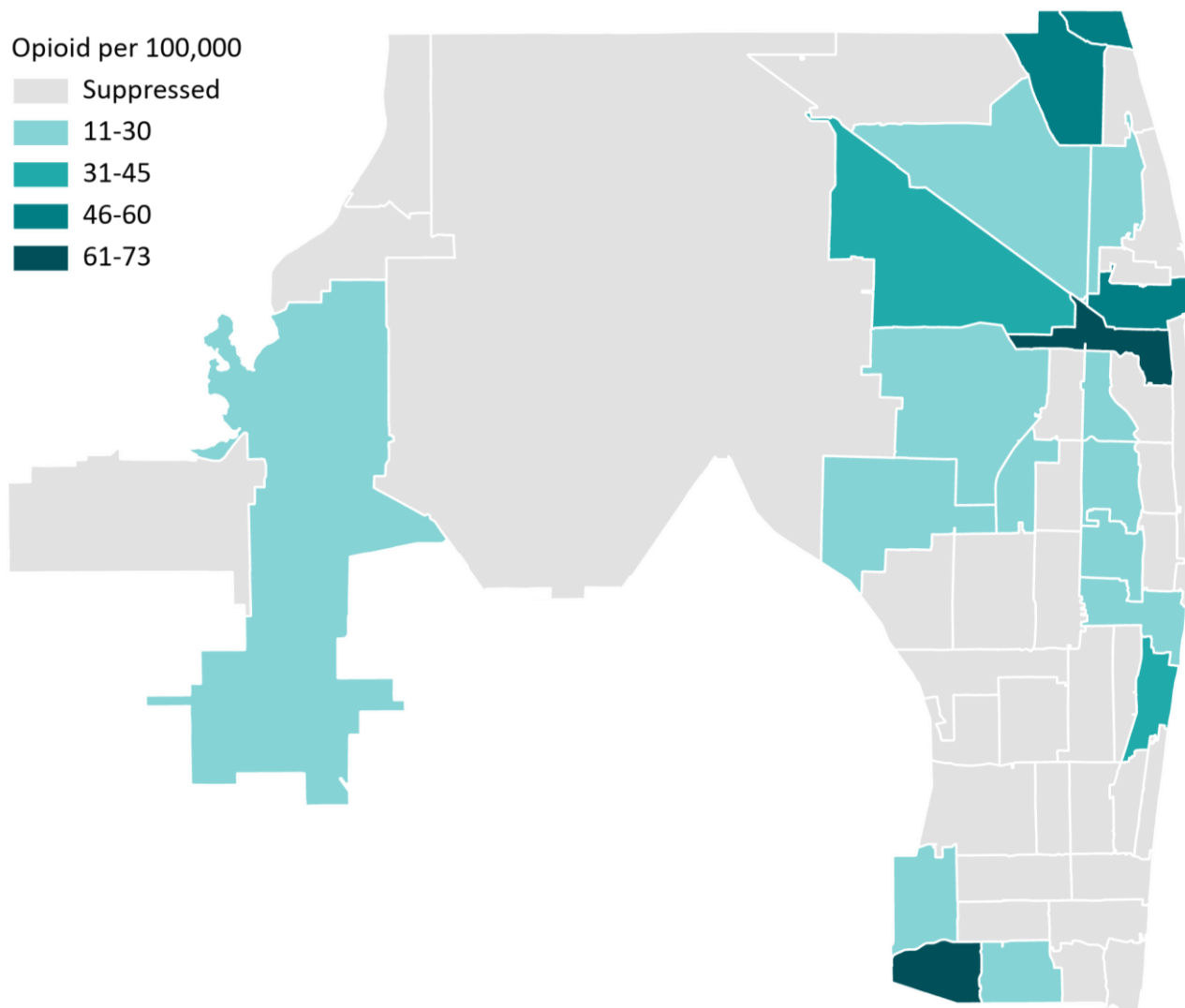
Suspected Youth Overdose by Patient ZIP Code, Stimulants

Map 12: ED Visits per 100,000 Youth Population Aged 0 – 19 Years for Suspected Stimulant Overdose by Incident ZIP Code, Palm Beach County
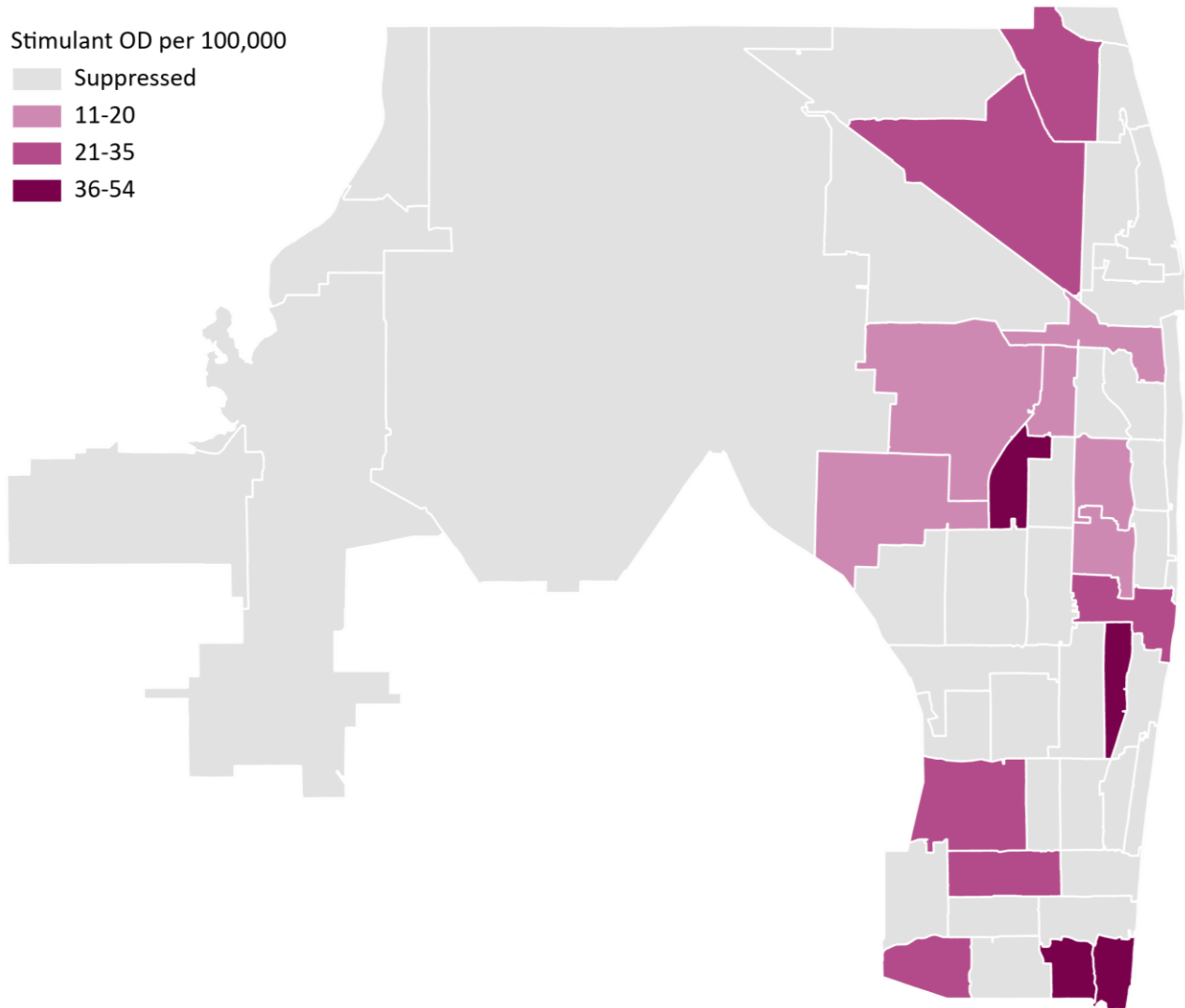
Suspected Youth Overdose by Patient ZIP Code, Benzodiazepine

Map 13: ED Visits per 100,000 Youth Population Aged 0 – 19 Years for Suspected Benzodiazepine Overdose by Patient ZIP Code, Palm Beach County

Suspected Youth Overdose by Patient ZIP Code, Cannabis

Map 14: ED Visits per 100,000 Youth Population Aged 0 – 19 Years for Suspected Cannabis Overdose by Patient ZIP Code, Palm Beach County

Cannabis OD per 100,000
- Suppressed
- 11-55
- 56-90
- 91-125
- 126-161
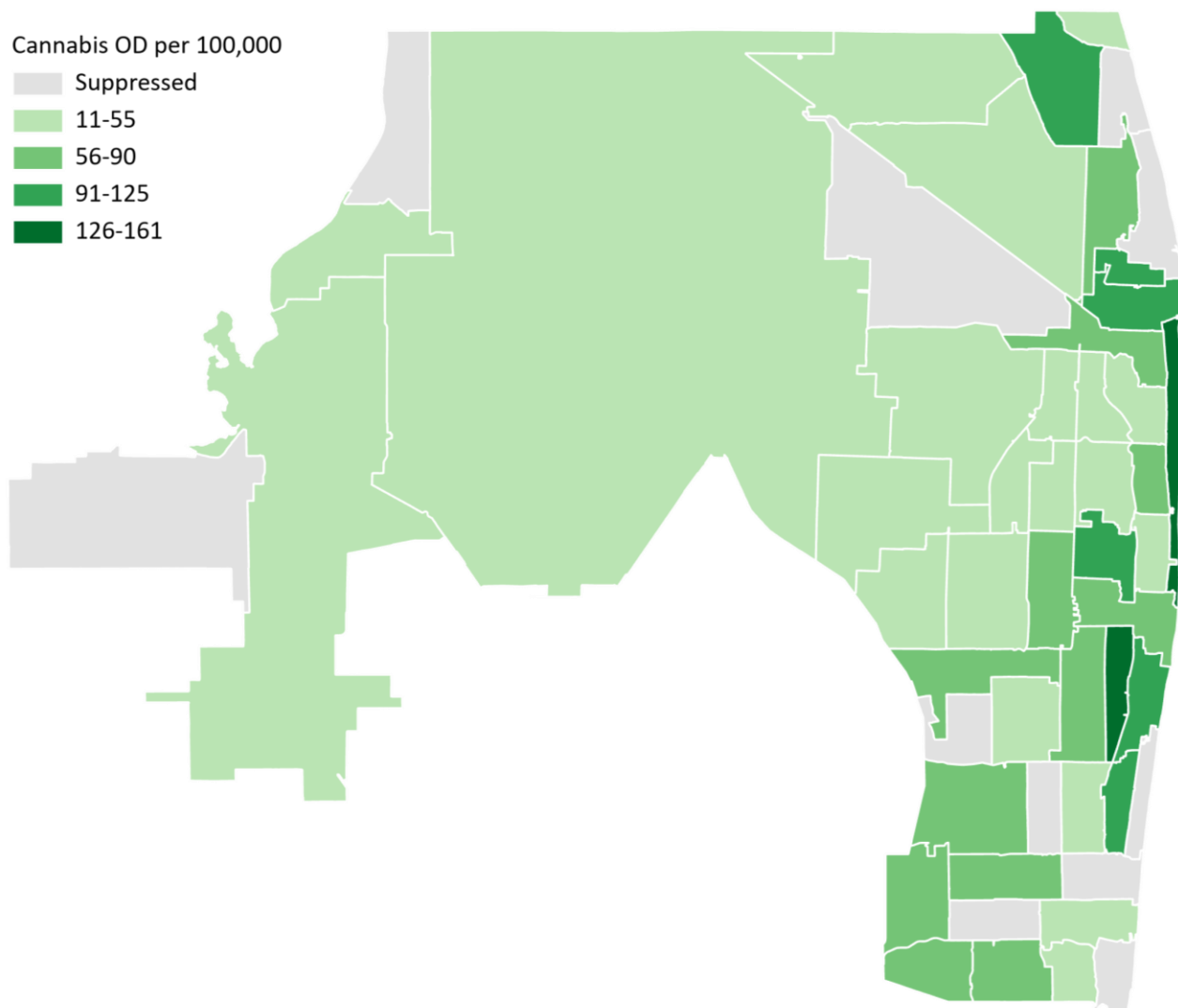
2021 INNOVATIVE SURVEILLANCE RESULTS

THE PEOPLE BEHIND THE STATISTICS

Deaths from overdose have been increasing across the U.S. in recent years. This epidemic affects people in every area of this country, in every type of community, and from every walk of life. Indeed, it is likely that you, the reader, are personally affected – or know someone affected – by this epidemic. This report centers people in our understanding of the epidemic by using person-first language and medically accurate terms as often as possible to reduce stigma toward people with SUD.

Demographics

The 2021 non-fatal overdose surveillance sample reviewed a total of 1380 overdoses. The sample was largely White/non-Hispanic (74.2%, n=1024) and male (65.7%, n=906). The sample was 12.0% (n=165) Black/non-Hispanic, 0.9% (n=12) Other/non-Hispanic race, and 13.0% (n=179) Hispanic. Ages ranged from 0 – 103 years of age, with a median value of 36.0 years. The mean age of the sample was 39.6 years (SD 15.6 years).

Race and ethnicity in this report were categorized into four separate groups: White/non-Hispanic (NH), Black/NH, Other/NH, and Hispanic. OD2A PBC recognizes the multitude of racial and ethnic groups that make up the rich diversity of South Florida. Due to the lack of consistency regrading racial and ethnic reporting across EMS, hospitals, and other data sources, the decision to categorize race and ethnicity as such was a practical one when integrating multiple data sources. The other race/ethnicity category includes American Indian, Alaskan Native, Native Hawaiian, Pacific Islander, and Asian. Other/NH accounted for 12 (0.9%) of overdoses. The small sample size introduces possible bias and may not represent the larger population of those categorized in Other/NH. To prevent misrepresentation, some figures in this report may omit the category from analysis. All figures in which this occurred are noted in the footnotes for that figure.
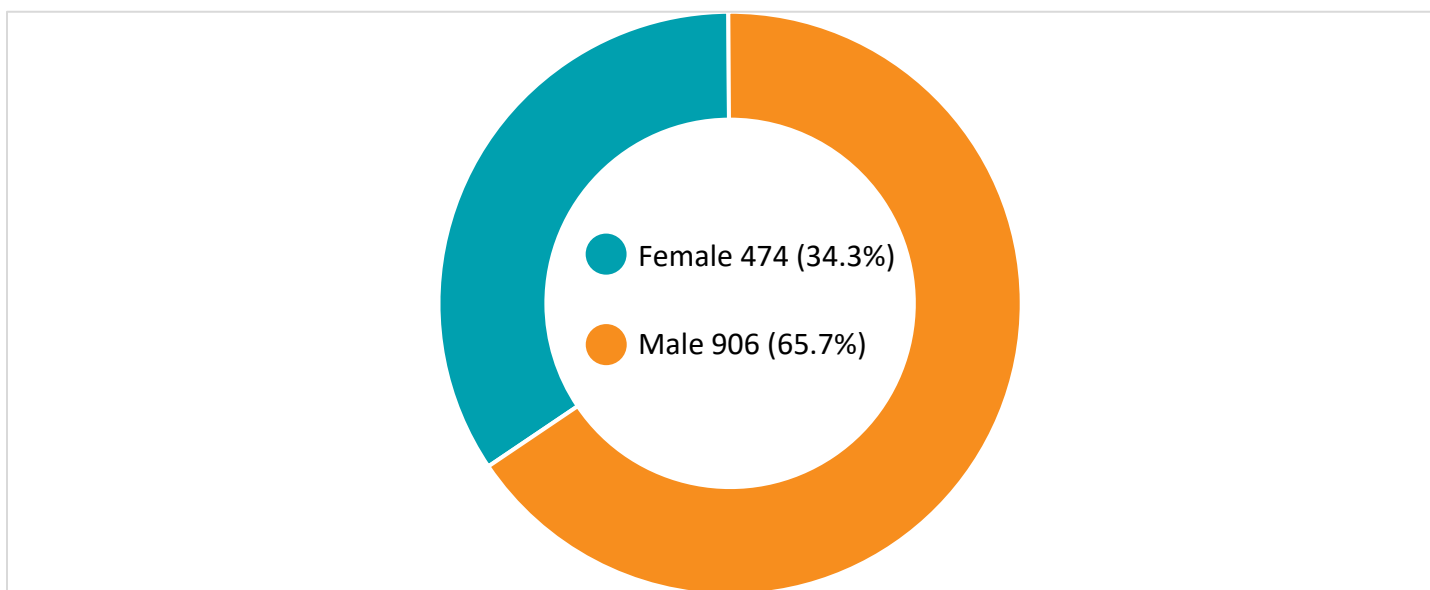
Figure 6.1: Proportion of Overdoses by Sex

Female 474 (34.3%)

Male 906 (65.7%)

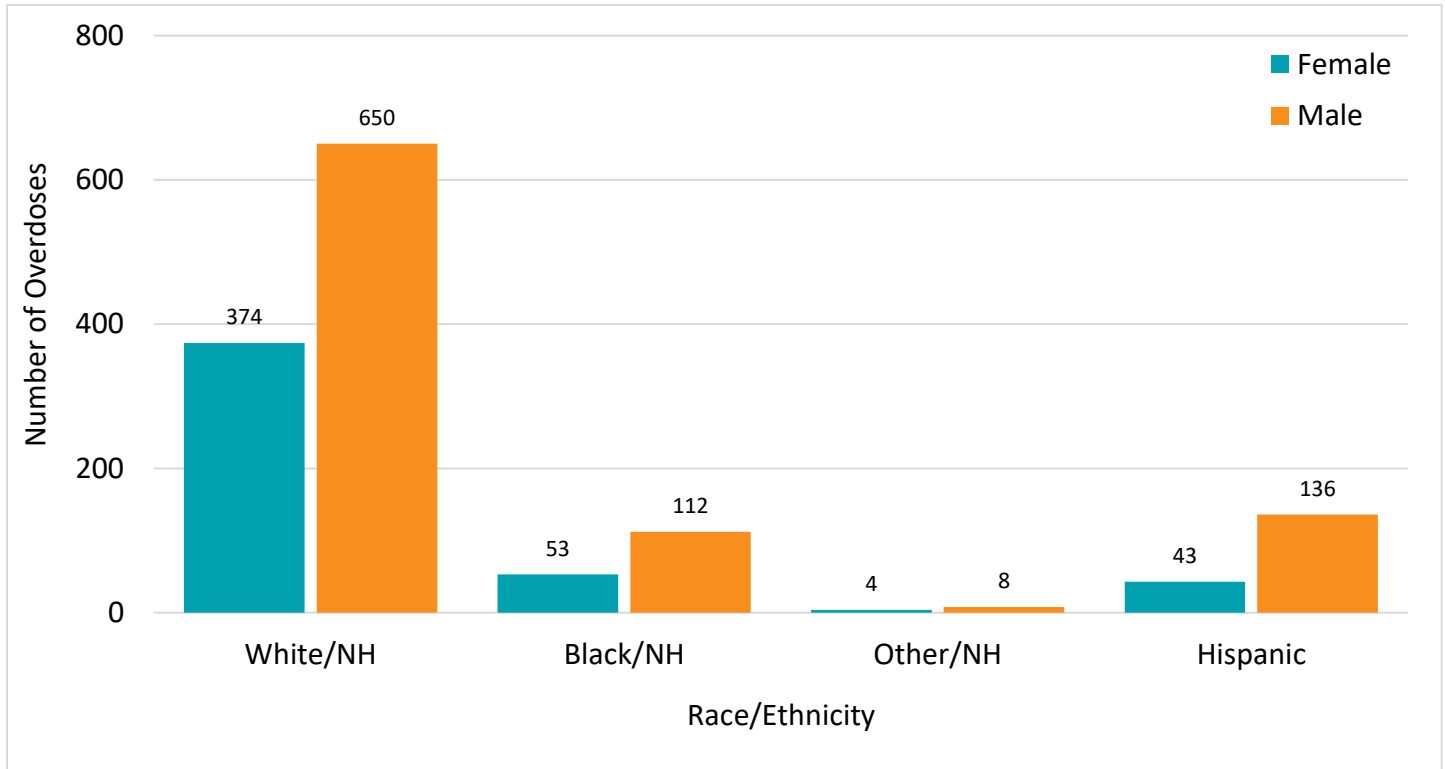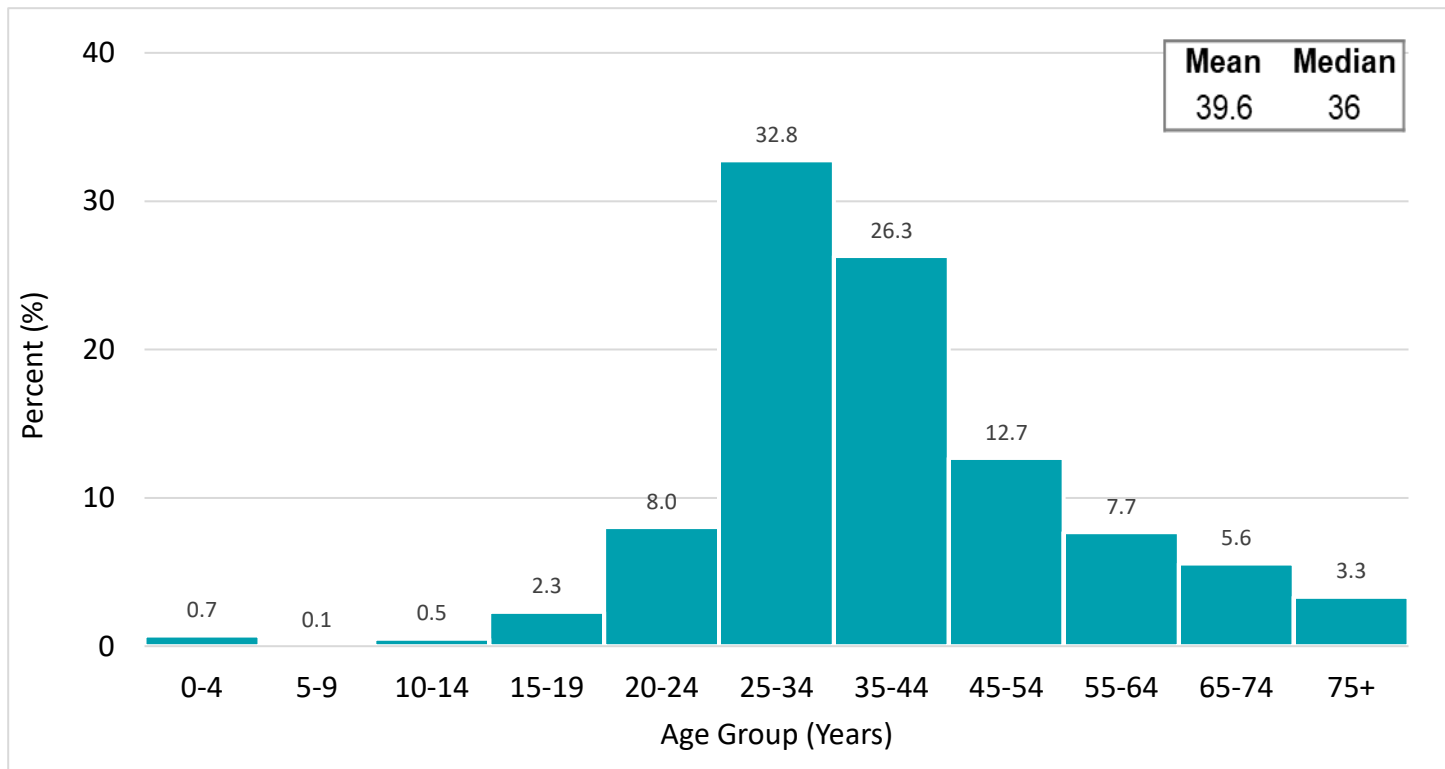**Figure 6.2: Overdoses by Race/Ethnicity and Sex**

Figure 6.3: Overdose Age Distribution by Age Group

Demographics by substance involved are presented in the figures below, categorized by opioid, psychostimulant ("stimulant"), and benzodiazepine ("benzo"). Opioid was involved in 1,119 (81.1%) of all overdoses reviewed. Stimulant was involved in 294 (21.3%) of all overdoses reviewed. Benzodiazepine was involved in 350 (25.4%) of all overdoses reviewed.

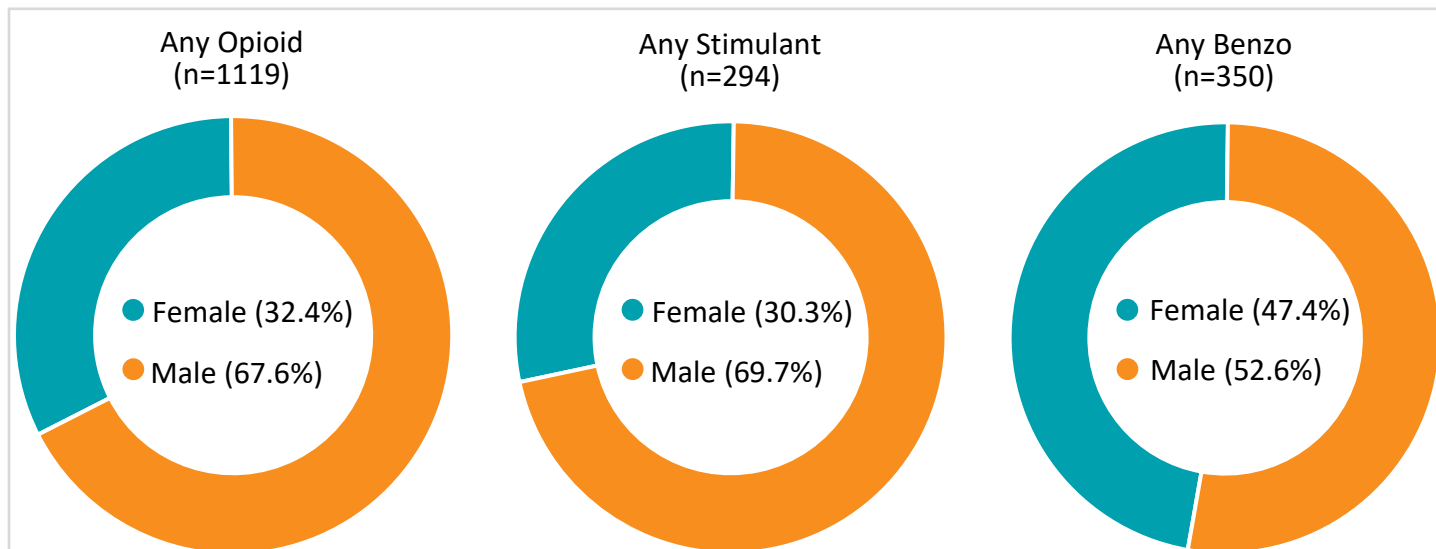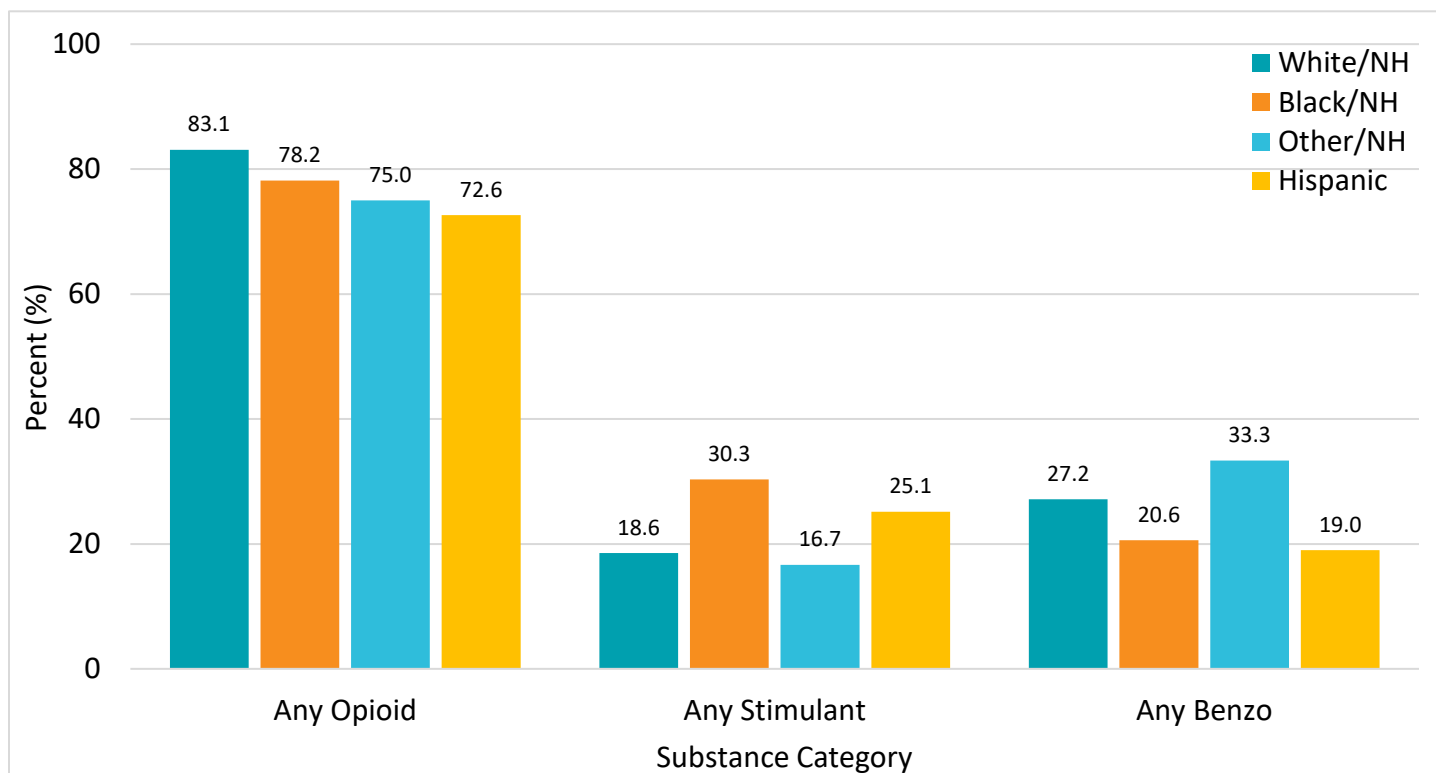**Figure 7.1: Overdose Substance Type by Sex**

Figure 7.2: Overdose Substance Type by Race/Ethnicity

Figures 8.1-8.3: Age Distribution by Age Group for Any Opioid (1), Stimulant (2), and Benzodiazepine (3)

Figure 8.1: Age Group Distribution for Opioid-Involved Overdose

Mean	Median
39.6	36
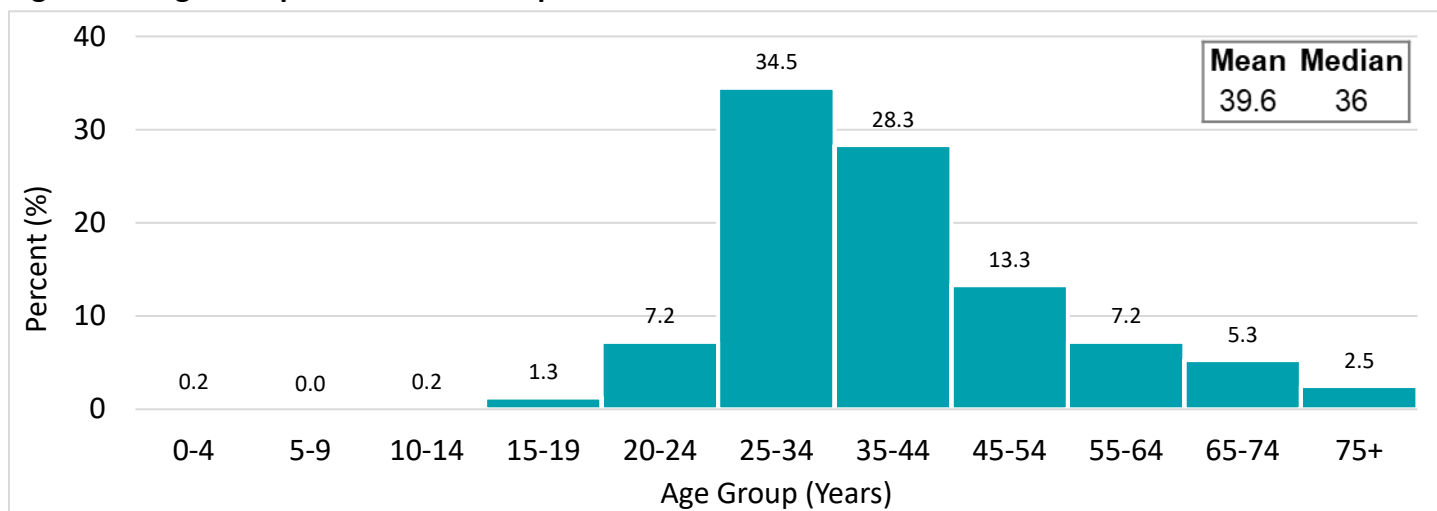
Figure 8.2: Age Group Distribution for Stimulant-Involved Overdose

Mean	Median
34.7	33
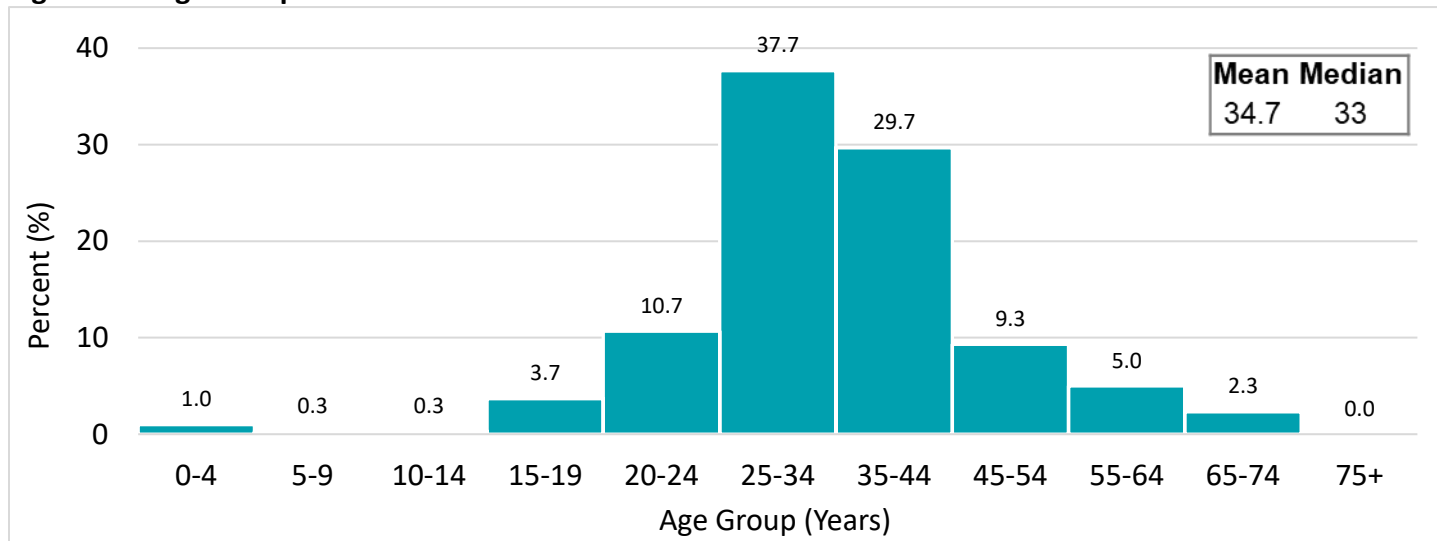
Figure 8.3: Age Group Distribution for Benzodiazepine-Involved Overdose

Mean	Median
43.1	39
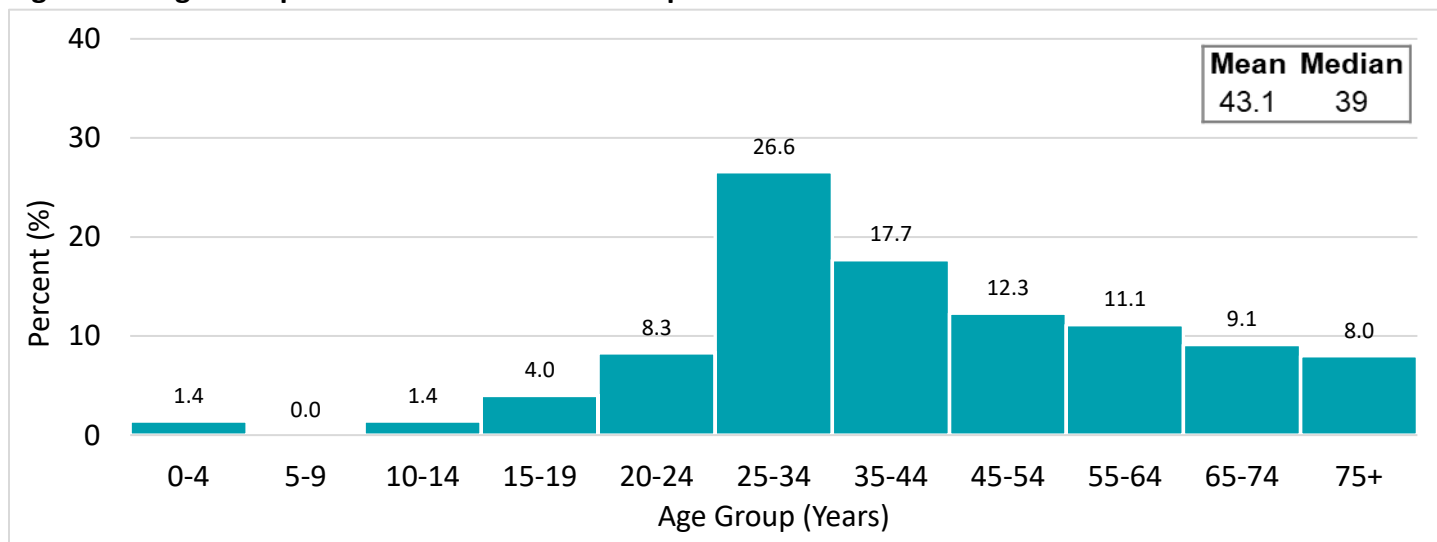
Employment status was obtained from medical record data at the time of ED visit for suspected overdose. Employment is a strong indicator of economic and financial stability[3]. Gainful employment is associated with increased health and well-being and may help ensure that a person's basic needs are met. Child or minors aged 17 years or younger were classified as such, regardless of actual employment status. Student were classified as adults aged 18 years or older whose employment status listed the occupation as student.
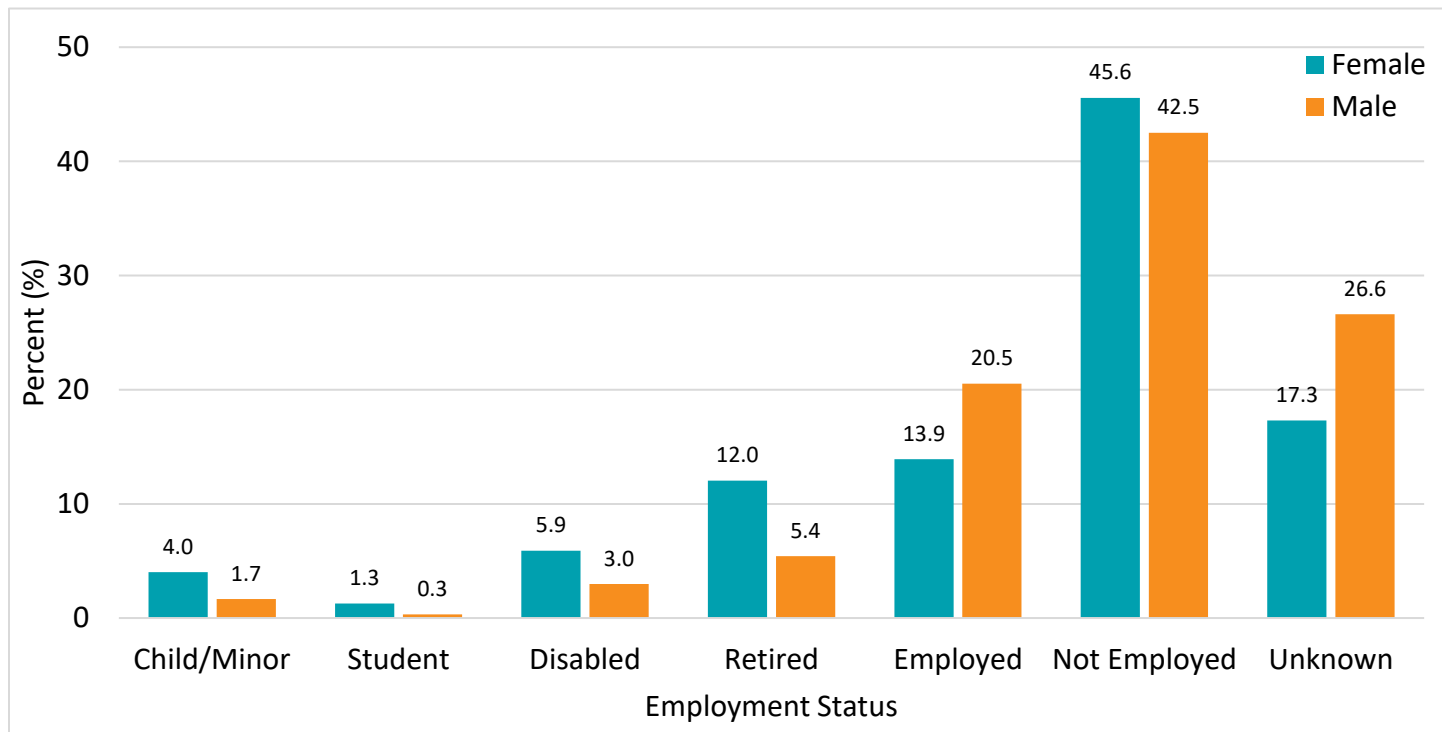
Figure 9.1: Employment Status by Sex

Figure 9.2: Employment Status by Race/Ethnicity
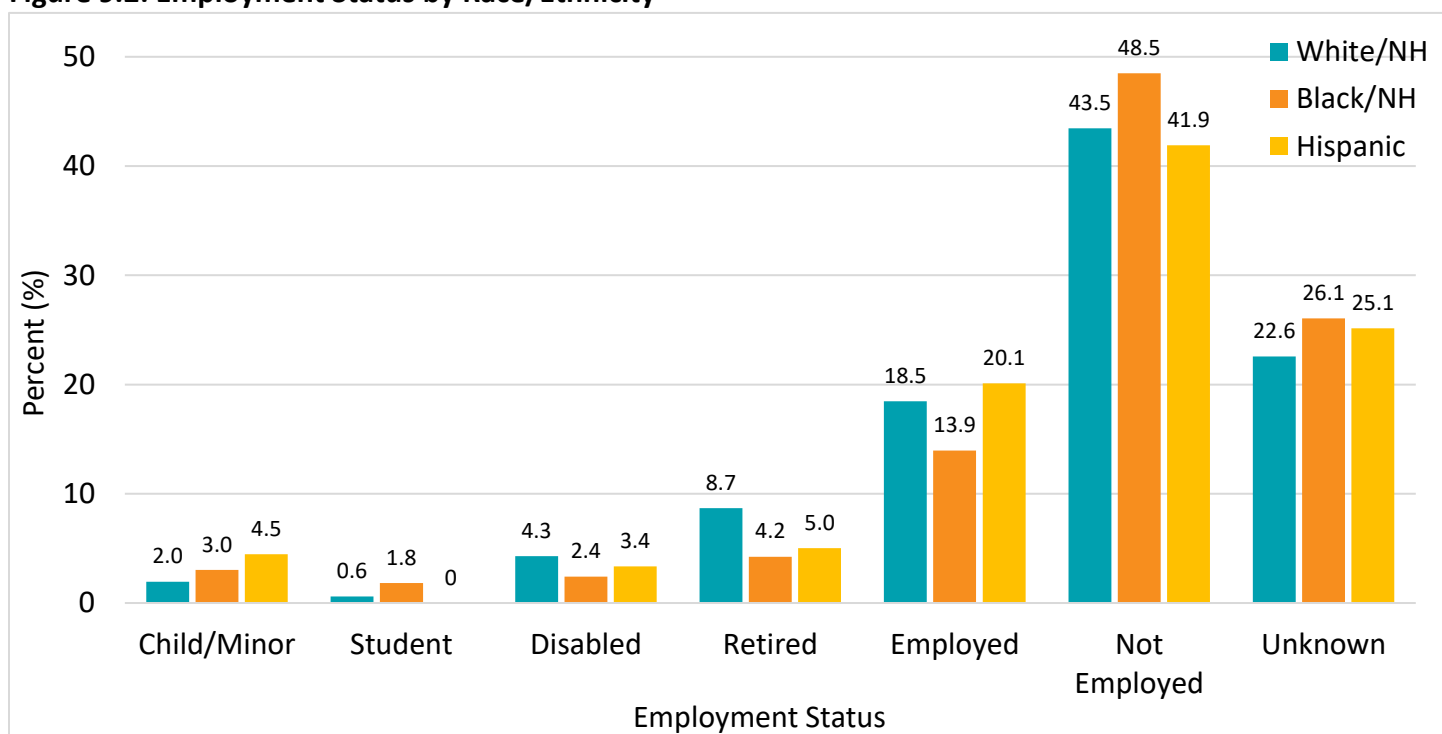
Note: Other/NH was excluded due to low response values.

Health insurance coverage is an important factor in determining treatment plans for people who have SUD and survivors of overdose. Health Care District (HCD) insurance is available for qualifying low-income residents who do not qualify for Medicaid8. Some hospitals in Palm Beach County have staff on site who assist patients with the HCD or Medicaid application process. While these patients are technically uninsured at the time of overdose, these patients represent a valuable linkage to care service and were accounted for separately in this analysis.

Figure 10.1: Health Insurance Coverage by Sex
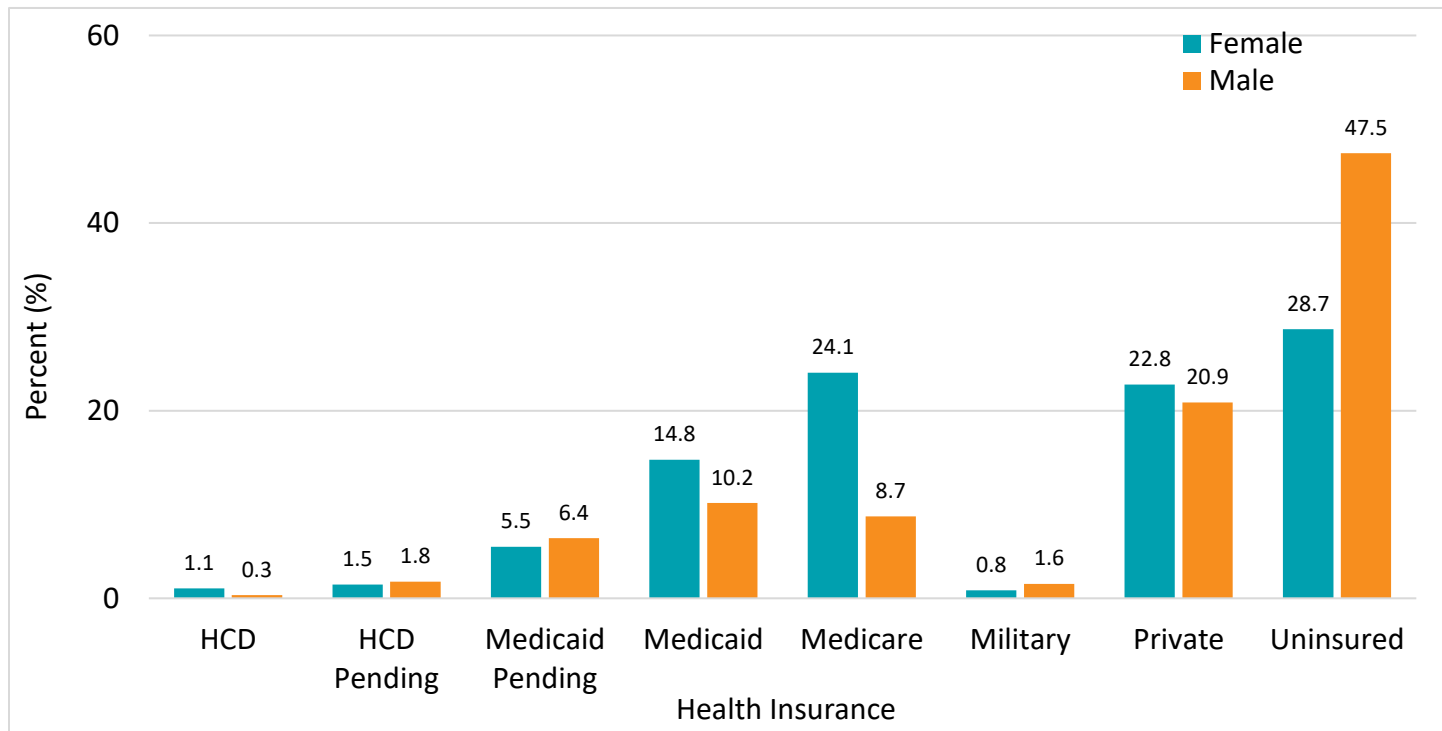
Figure 10.2: Health Insurance Coverage by Race/Ethnicity
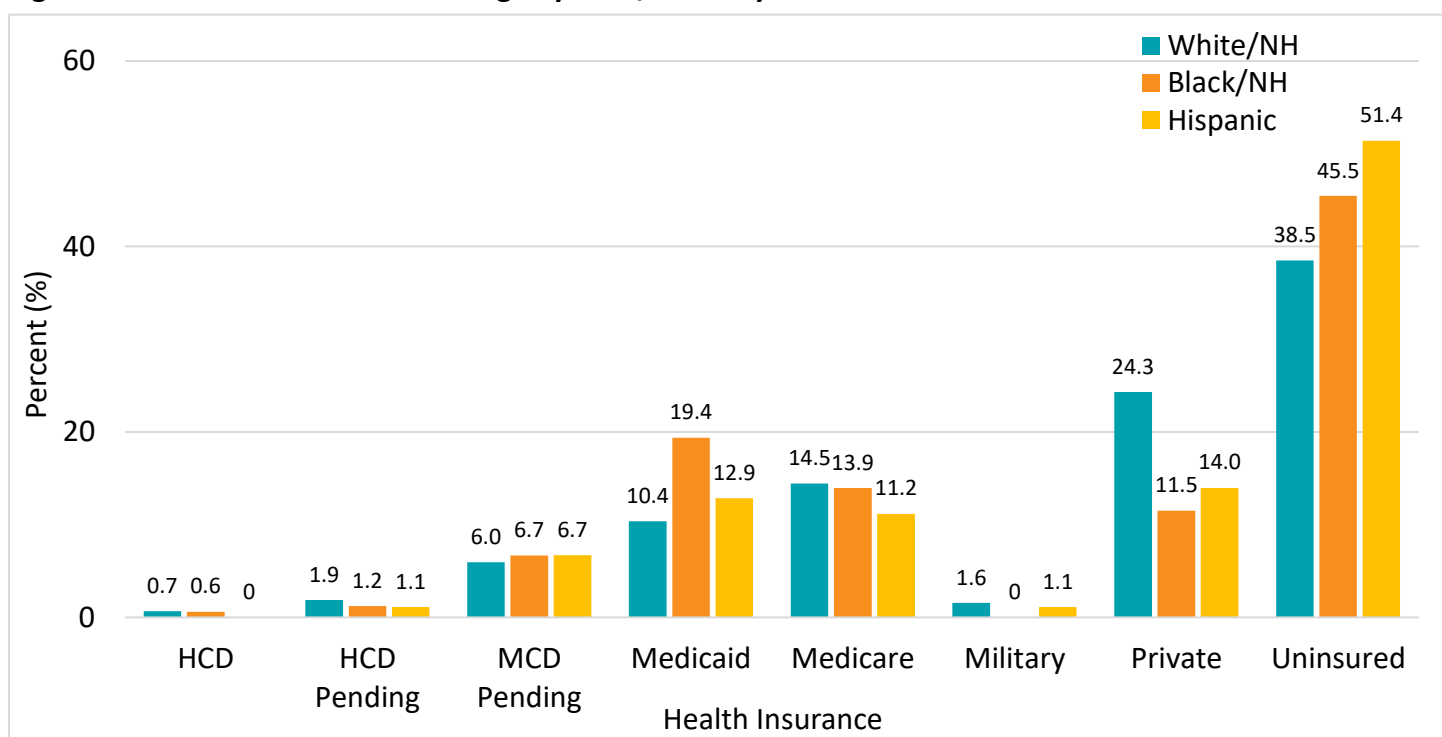
Note: Other/NH was excluded due to low response values.

Safe and stable housing is a basic need for maintaining physical and mental wellbeing. For this analysis, unstable housing included those who are unhoused or homeless. Unstable housing also included transient housing situations such as living in a motel/hotel, frequent stays in jail/prison, a series of stays at various SUD treatment centers, or any other living arrangement in which the patient did not appear to have stable housing.

Figure 11.1: Housing Status by Sex
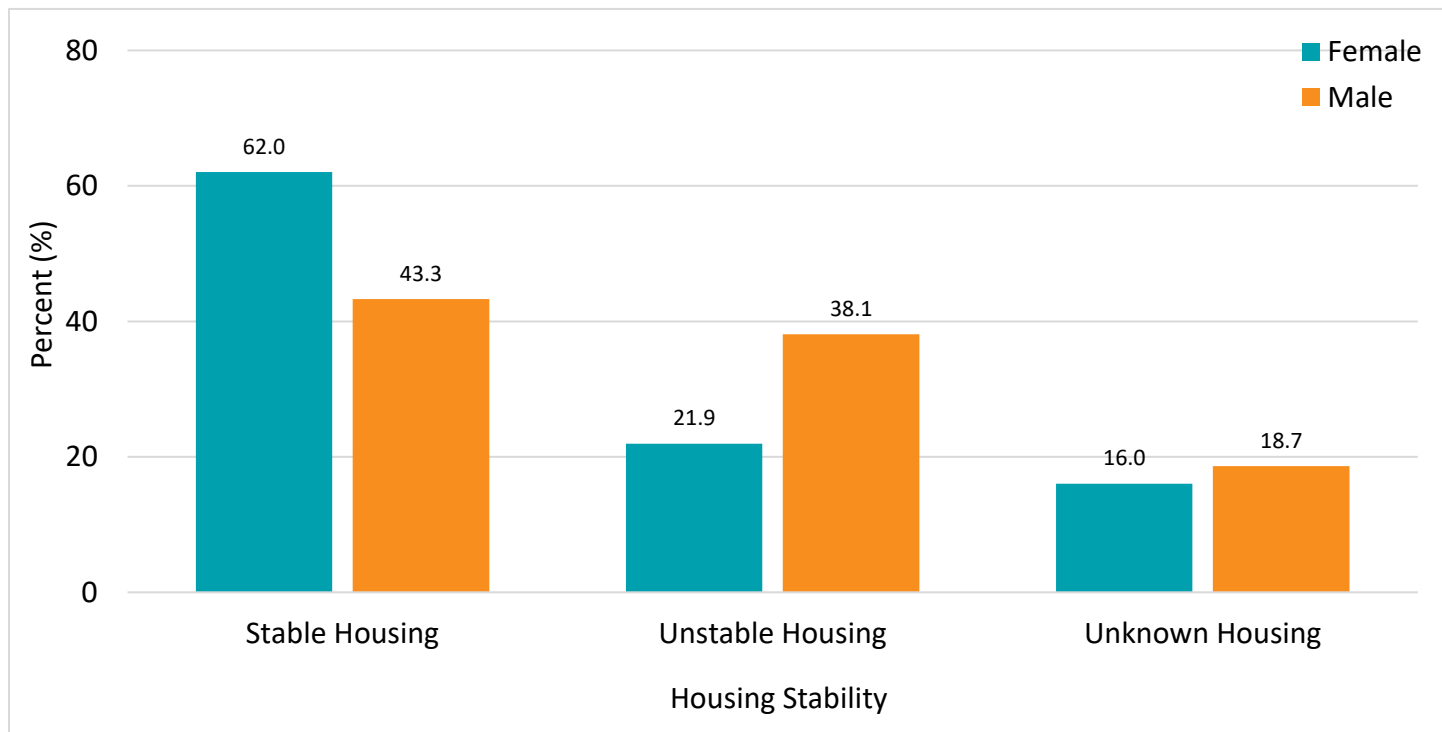
Figure 11.2: Housing Status by Race/Ethnicity
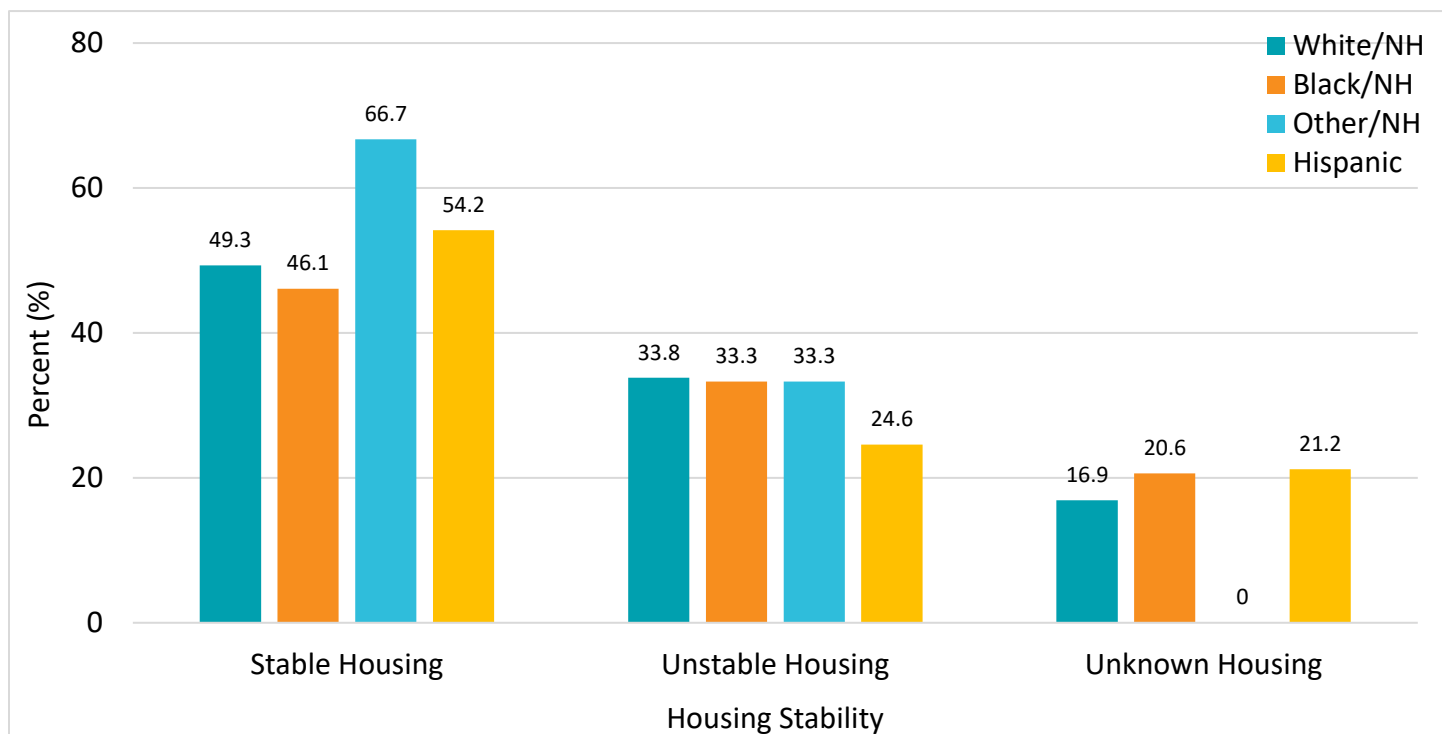
State of Residence provides important information relating to overdose surveillance data. There are many reasons a person might have an out of state driver's license while being treated for an overdose in PBC. In addition to being a vacation destination, PBC is colloquially known as "the rehab capital of the world," referring to the many treatment and recovery facilities for people with SUD. People who relocate to PBC for SUD treatment programs may experience increased loneliness, feelings of isolation, or depression as a result of being distant from family and friends.

Map 15: Non-Fatal Overdoses by Driver's License State
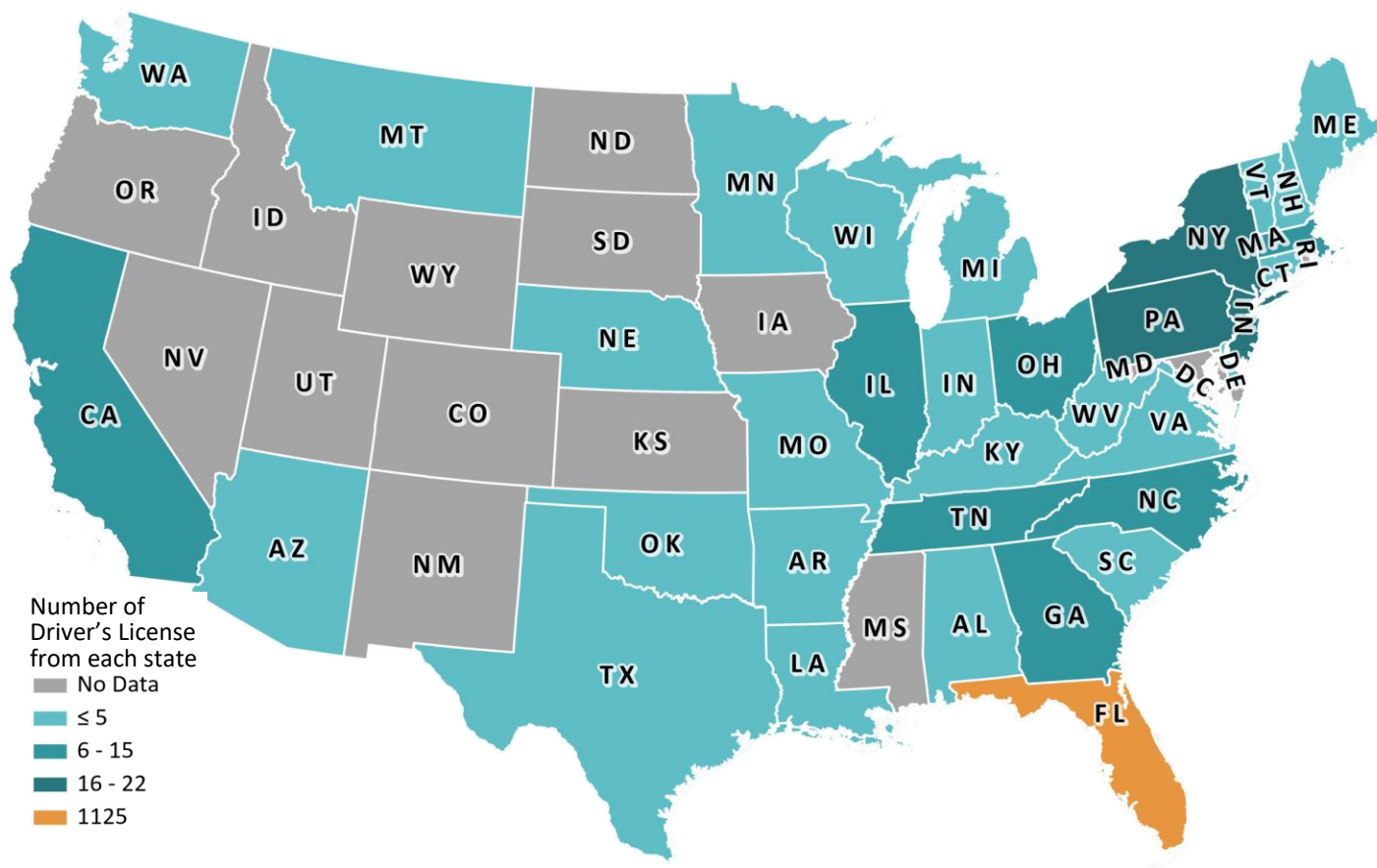
Note: No data was available for Hawaii and Alaska.

Law Enforcement Interactions

Law enforcement interactions for people with SUD can serve as vital opportunities for early intervention for people with SUD. In 2021, 988 (71.6%) patients were found to have prior interaction(s) with law enforcement and the justice system relating to one or more of the offenses outlined in the figures below, regardless of conviction status. The lasting trauma and stigmatization from these interactions can have lasting negative impacts, even among those that were not convicted. For the formerly incarcerated individuals who have successfully completed their sentences, many still stru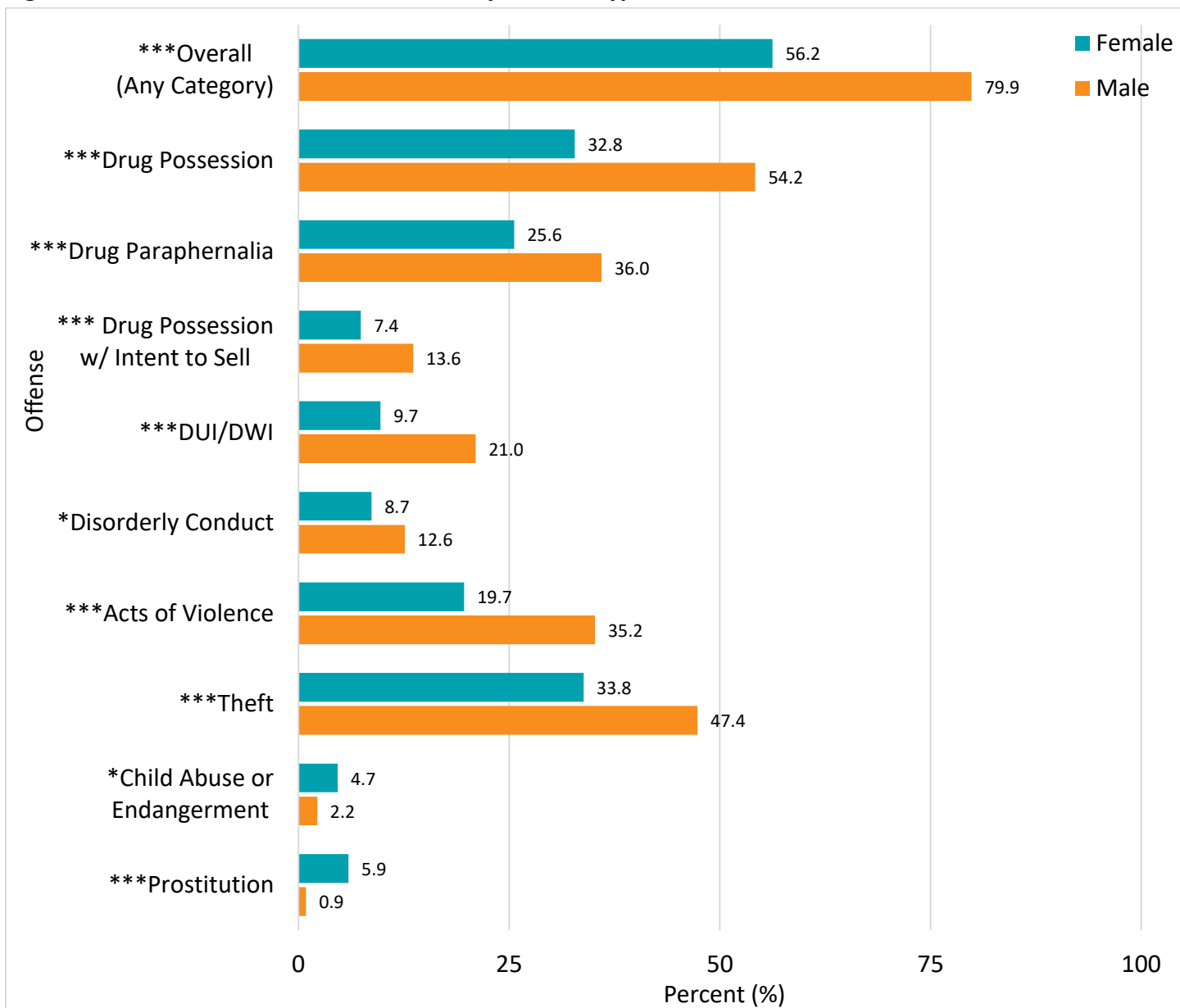ggle to find gainful employment, safe and stable housing, and maintaining physical and mental wellbeing. **The offenses do not reflect guilt or innocence**, but simply an interaction within the law enforcement or justice system.

Figure 12.1: Law Enforcement Interactions by Offense Type and Sex

Note: Disorderly conduct includes related offenses such as public intoxication. Acts of violence include physical or sexual violence. Theft includes offenses relating to taken money or property. Prostitution includes both prostitution and solicitation. Other offenses that might not be represented in this figure include trespassing, traffic offenses not including DUI/DWI, and resisting arrest, among others. Chi-square test with significance level of p<.05(*), p<.01(**), and p<.001(***) was calculated for comparison.

Figure 12.2: Law Enforcement Interactions by Offense Type and Race/Ethnicity
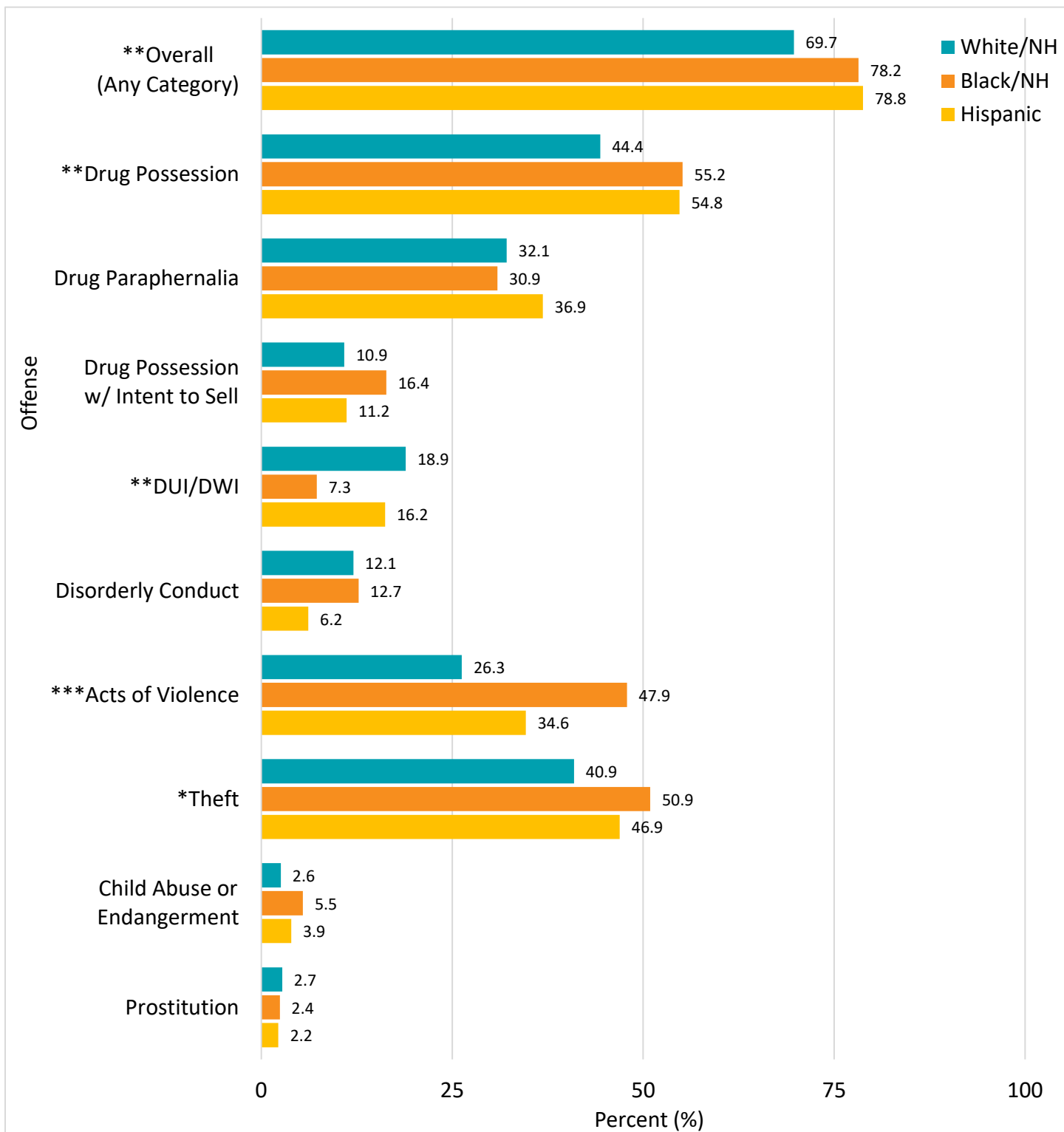
Note: Disorderly conduct includes related offenses such as public intoxication. Acts of violence include assault, battery, sexual violence, and any offense of bodily harm towards another. Theft includes the theft of money or property, dealing in stolen property, fraud, forgery, or other related offenses. Prostitution includes both prostitution and solicitation. Other offenses that might not be represented in this figure include trespassing, traffic offenses not including DUI/DWI, and resisting arrest, among others. Other/NH was excluded due to low response values. Chi-square test with significance level of p<.05(*), p<.01(**), and p<.001(***) was calculated for comparison.

Figures 13.1-13.3: Law Enforcement Interactions by Patients Whose Overdose Involved Any Opioid (1), Any Stimulant (2), and Any Benzodiazepine (3)

Figure 13.1: Law Enforcement Interactions by Patients Whose Overdose Involved Any Opioid
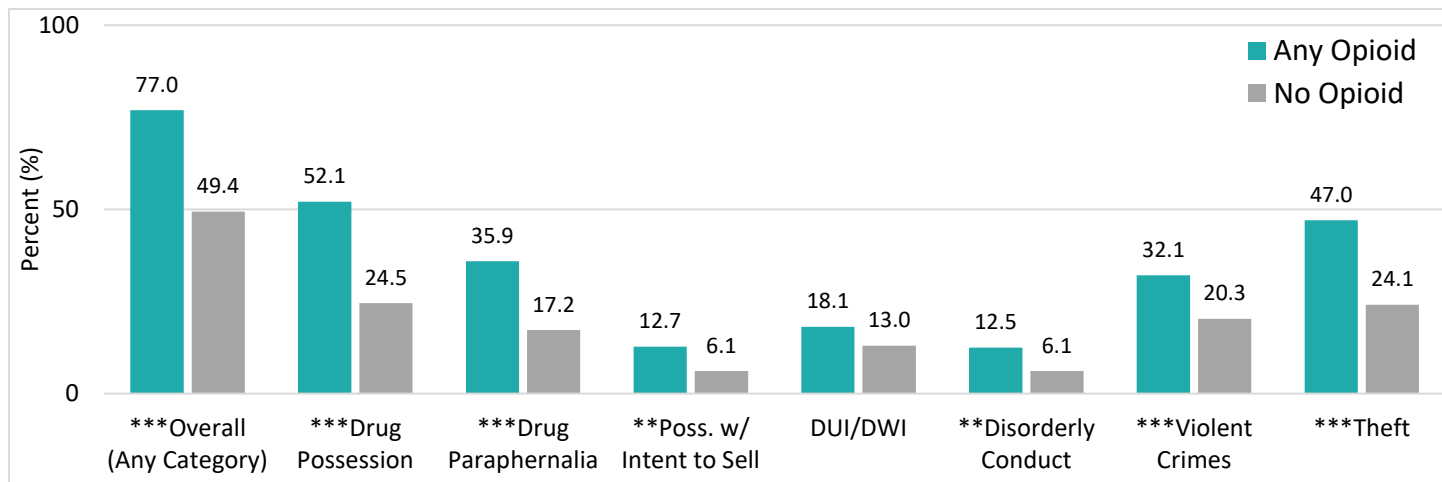
Figure 13.2: Law Enforcement Interactions by Patients Whose Overdose Involved Any Stimulant
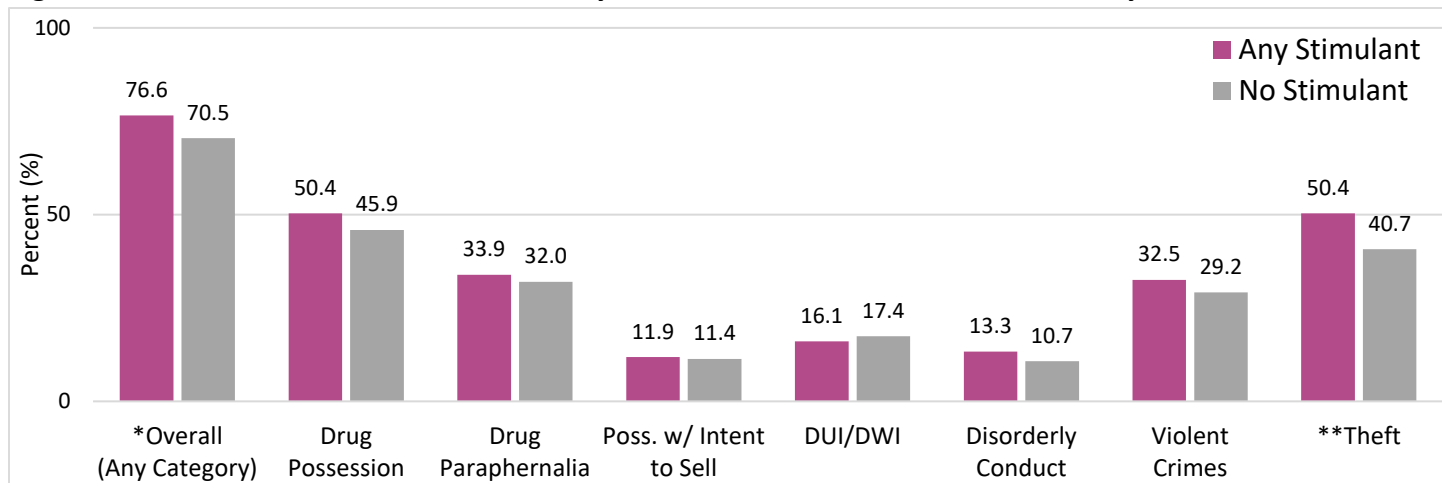
Figure 13.3: Law Enforcement Interactions by Patients Whose Overdose Involved Any Benzodiazepine
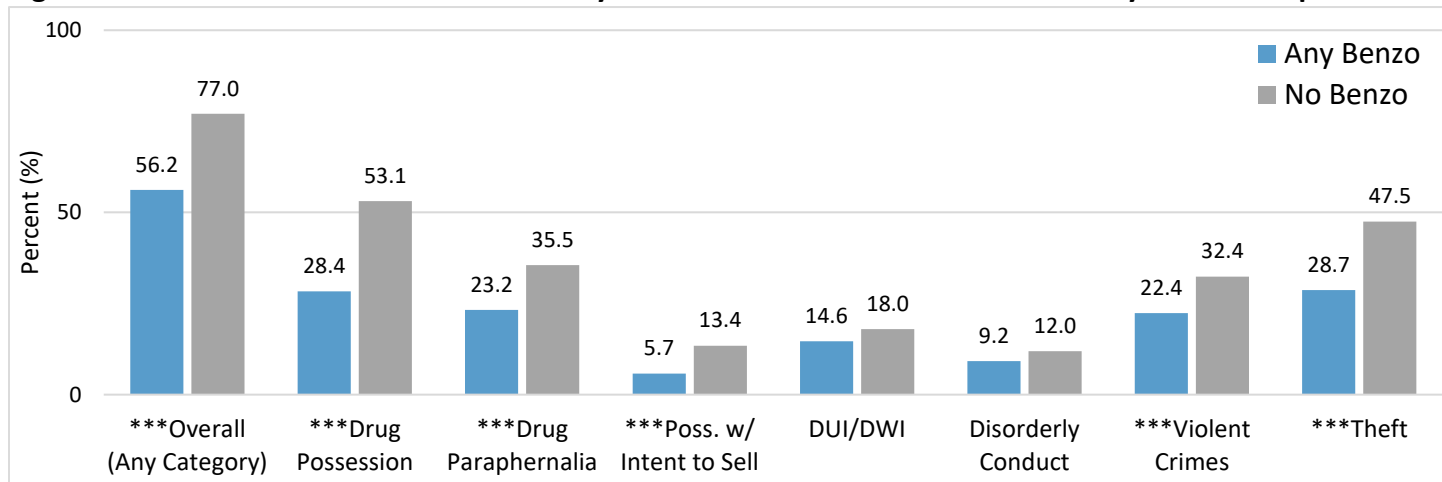
Note: Statistical significance level of $p<.05$(*), $p<.01$(**), and $p<.001$(***) was calculated for comparison.

Physical Health and Communicable Disease

There is a clearly established correlation between substance use disorders and communicable diseases including Hepatitis, HIV, MRSA, and STDs. It is also understood that chronic pain and other physical ailments are correlated with substance use disorders. The following data analyzes the prevalence of communicable and non-communicable disease among those with SUD. Of those with a non-fatal overdose and a history of substance use, 37.4% were diagnosed with Hepatitis C; this number increased to 64.6% among those with a history of IV drug use. Of those who experienced a non-fatal opioid overdose, 87.6% reported chronic pain.

Figure 14.1: Distribution of Reported Health Conditions by Sex
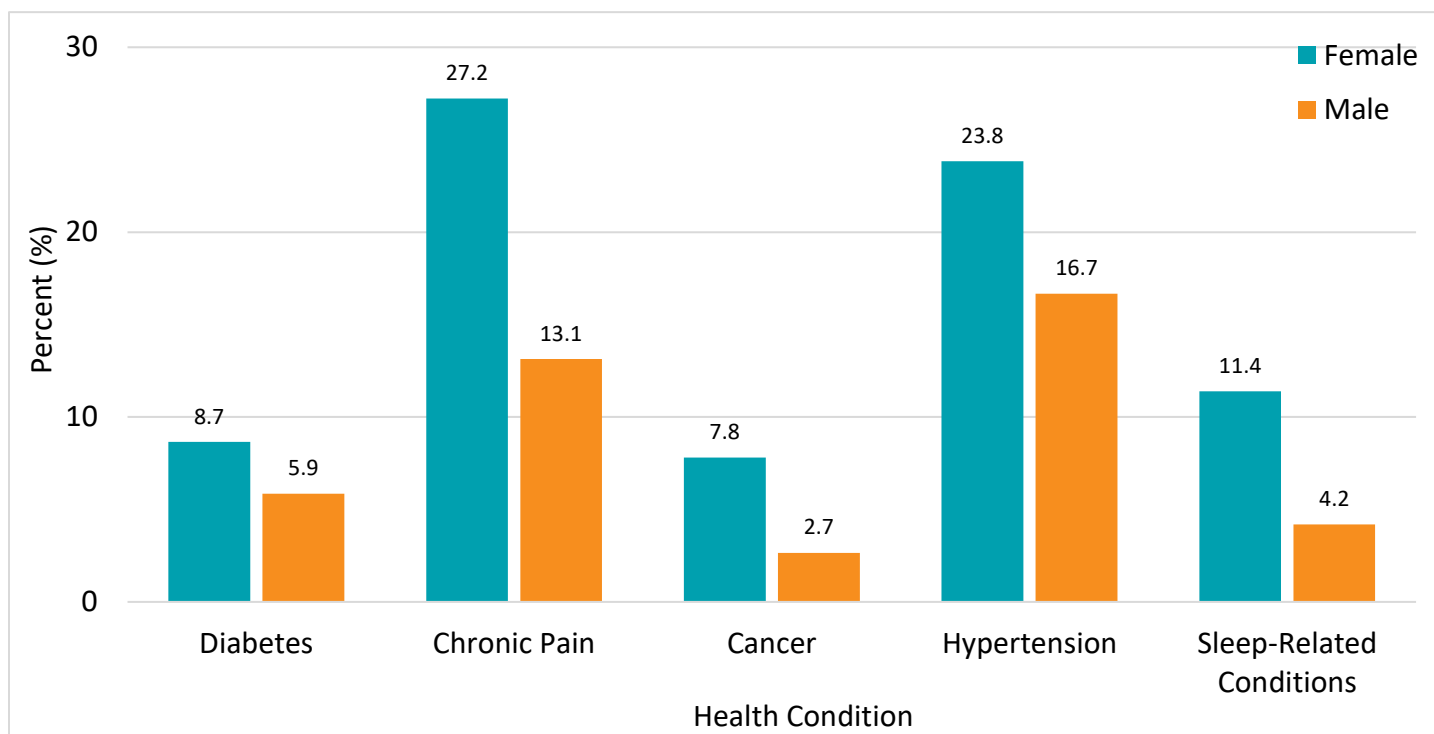
Note: Sleep-related conditions includes insomnia, sleep apnea, and narcolepsy

Figure 14.2: Distribution of Reported Health Conditions by Race/Ethnicity
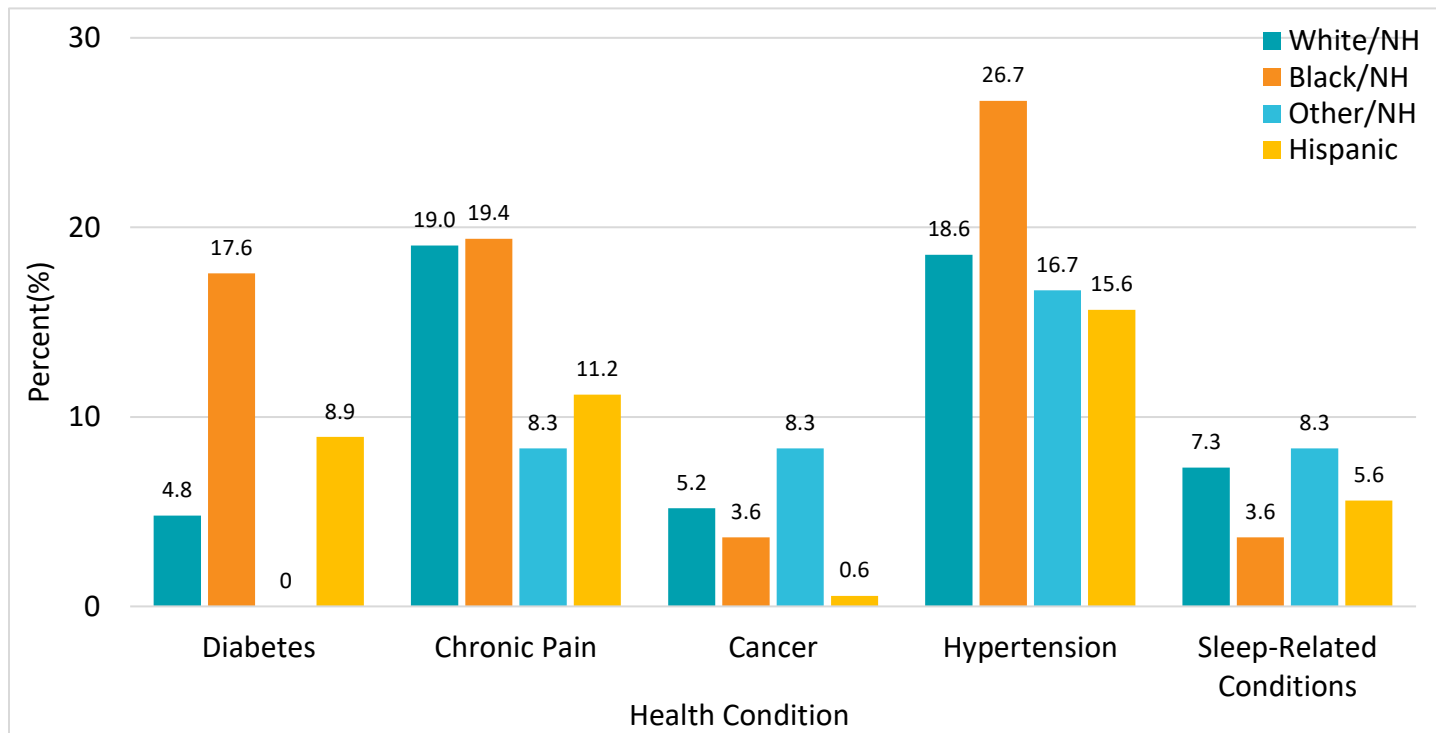
Note: Sleep-related conditions includes insomnia, sleep apnea, and narcolepsy

Figure 15: Chronic Pain History by Drug Type
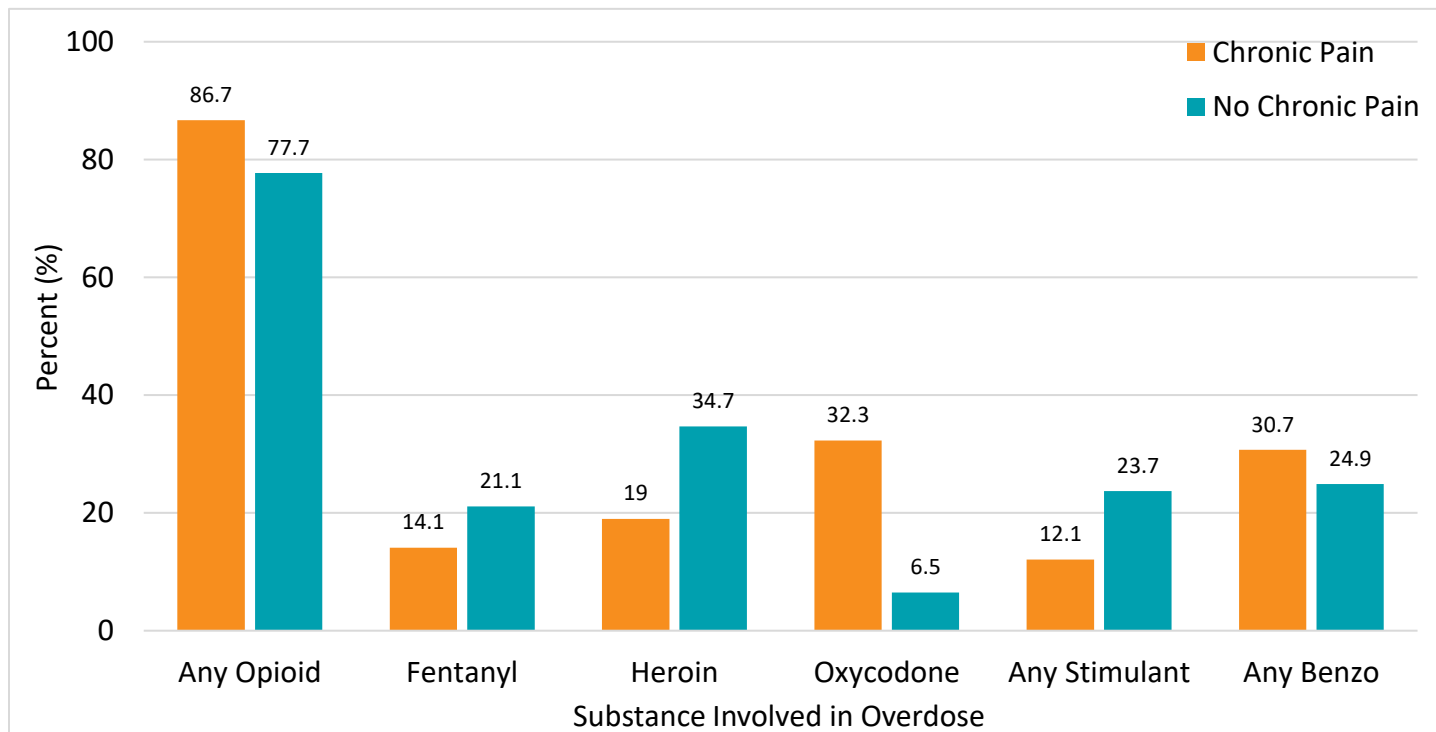
Figure 16.1: Distribution of Communicable Health Conditions by Sex
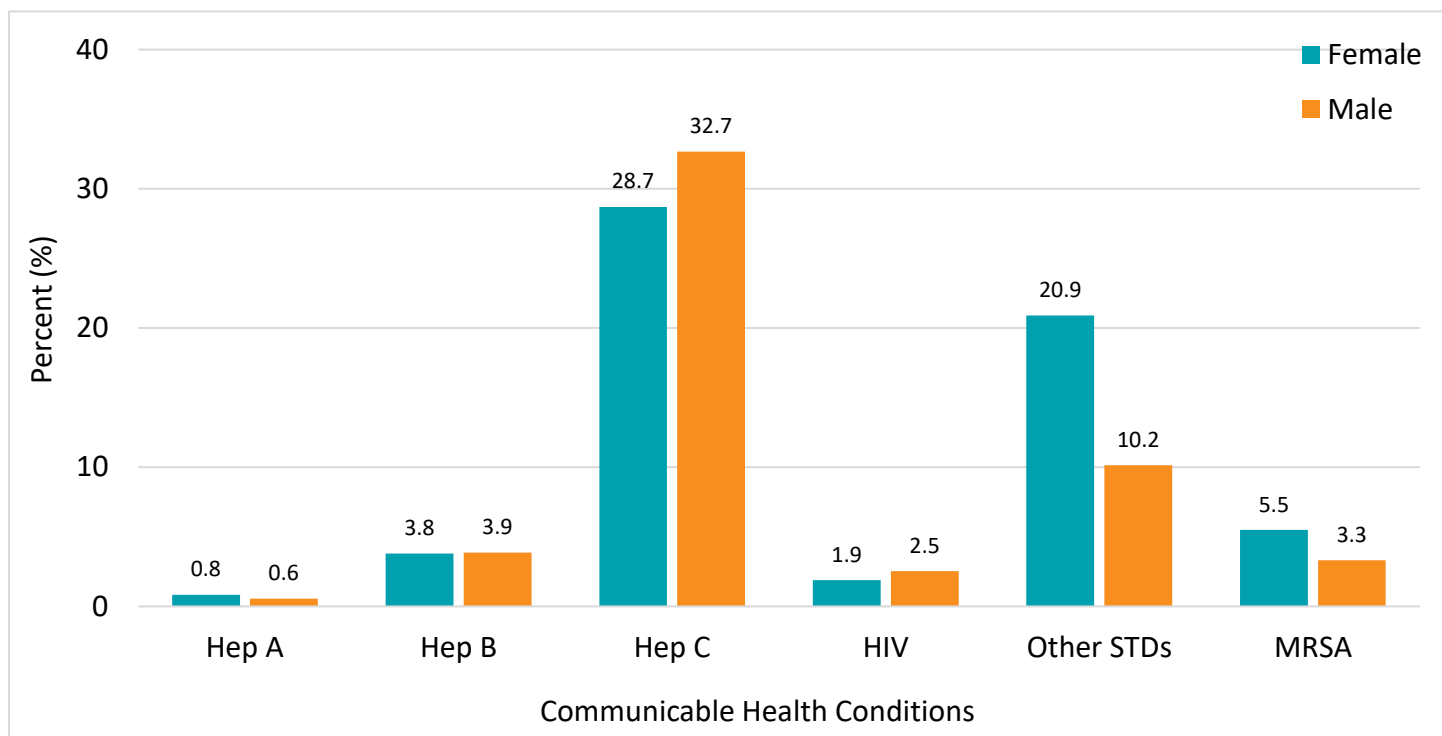
Figure 16.2: Distribution of Communicable Health Conditions by Race/Ethnicity
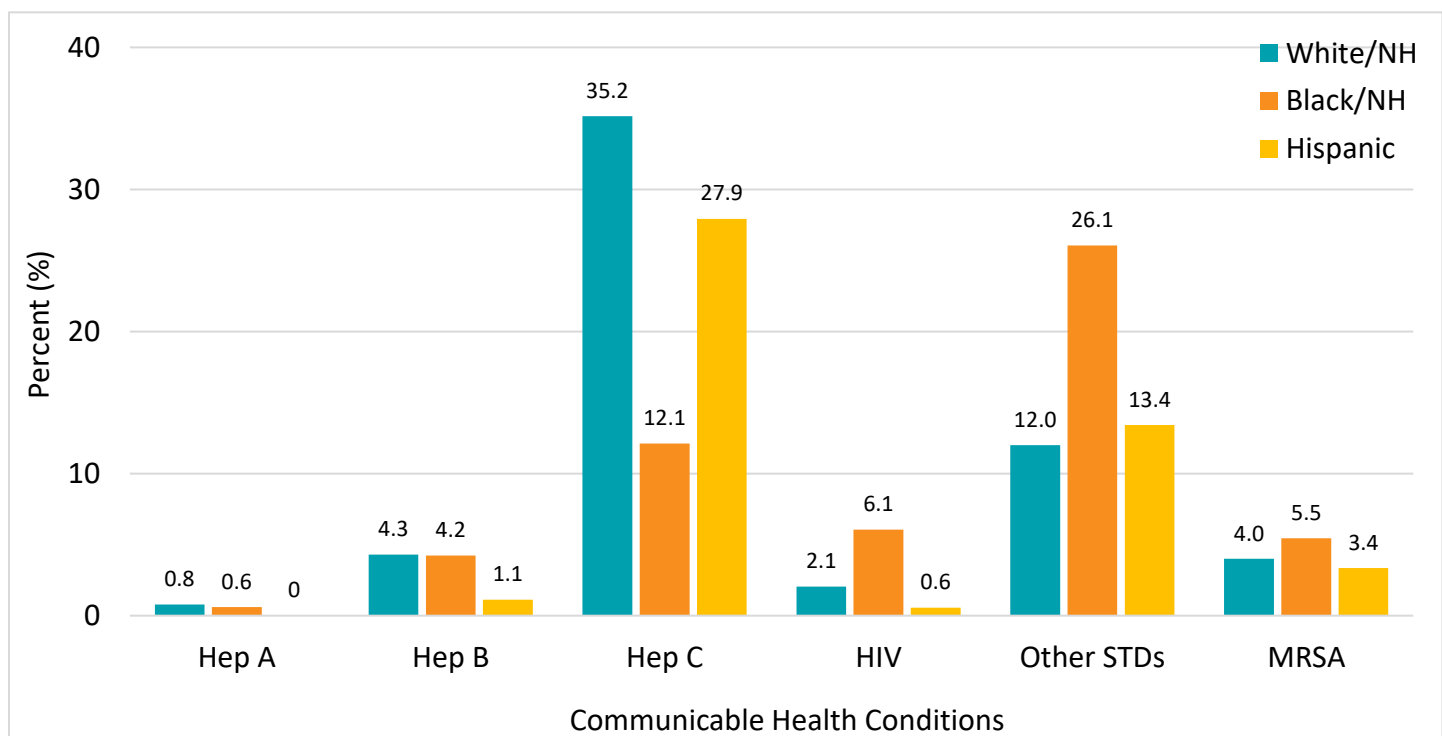
Note: Other/NH was excluded due to low response values.

Figure 16.3: Distribution of Communicable Health Conditions by Substance Use History

Figure 16.3: Distribution of Communicable Health Conditions by Substance Use History

Legend: No Known Hx, History of Substance Use

Condition	No Known Hx	History of Substance Use
Hep A	0.0	0.8
Hep B	0.4	4.7
Hep C	6.3	37.4
HIV	0.4	2.8
Other STDs	6.3	15.7
MRSA	2.2	4.5

Figure 16.4: Distribution of Communicable Disease by IV Drug Use History

Figure 16.4: Distribution of Communicable Disease by IV Drug Use History

Legend: No Known Hx, IVDU History

Condition	No Known Hx	IVDU History
Hep A	0.5	1.0
Hep B	1.9	8.5
Hep C	17.8	64.6
HIV	1.8	3.5
Other STDs	12.4	17.3
MRSA	2.9	7.0
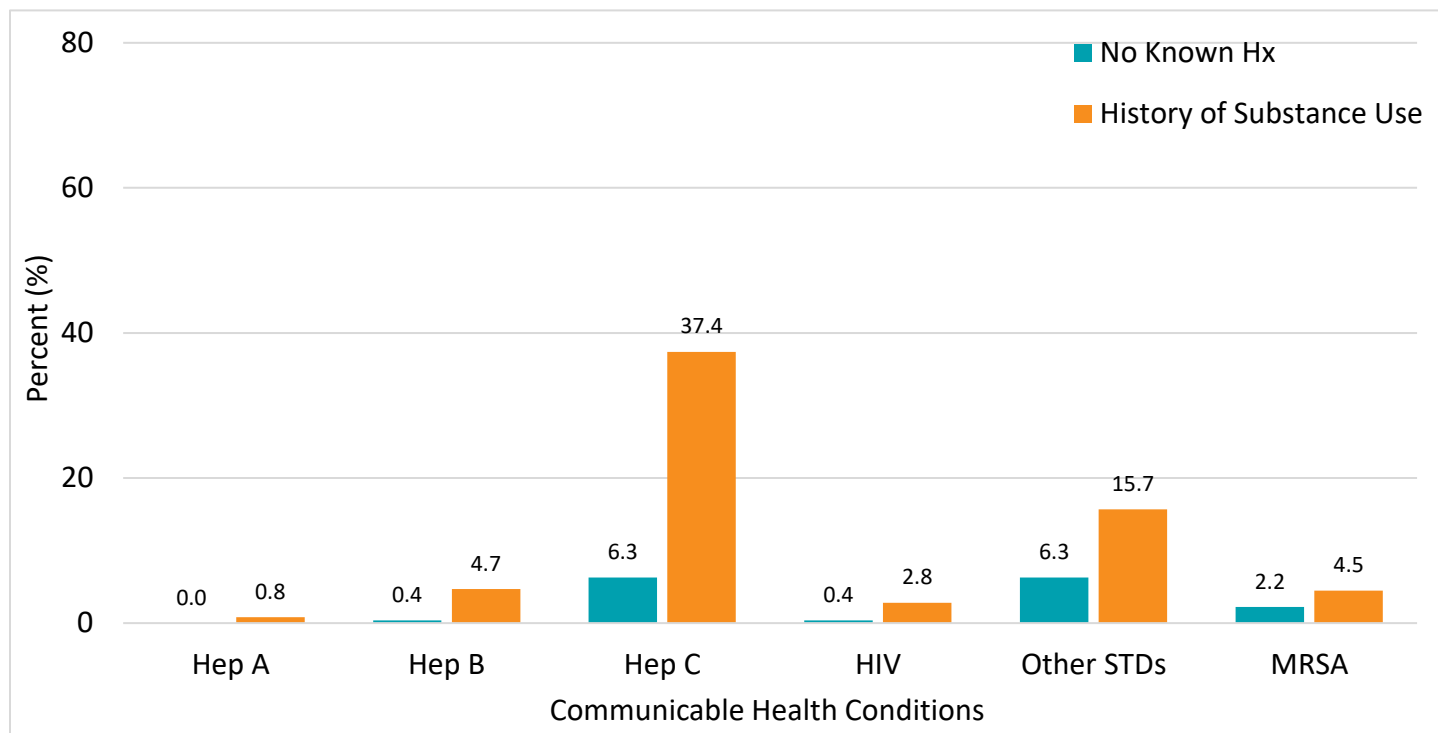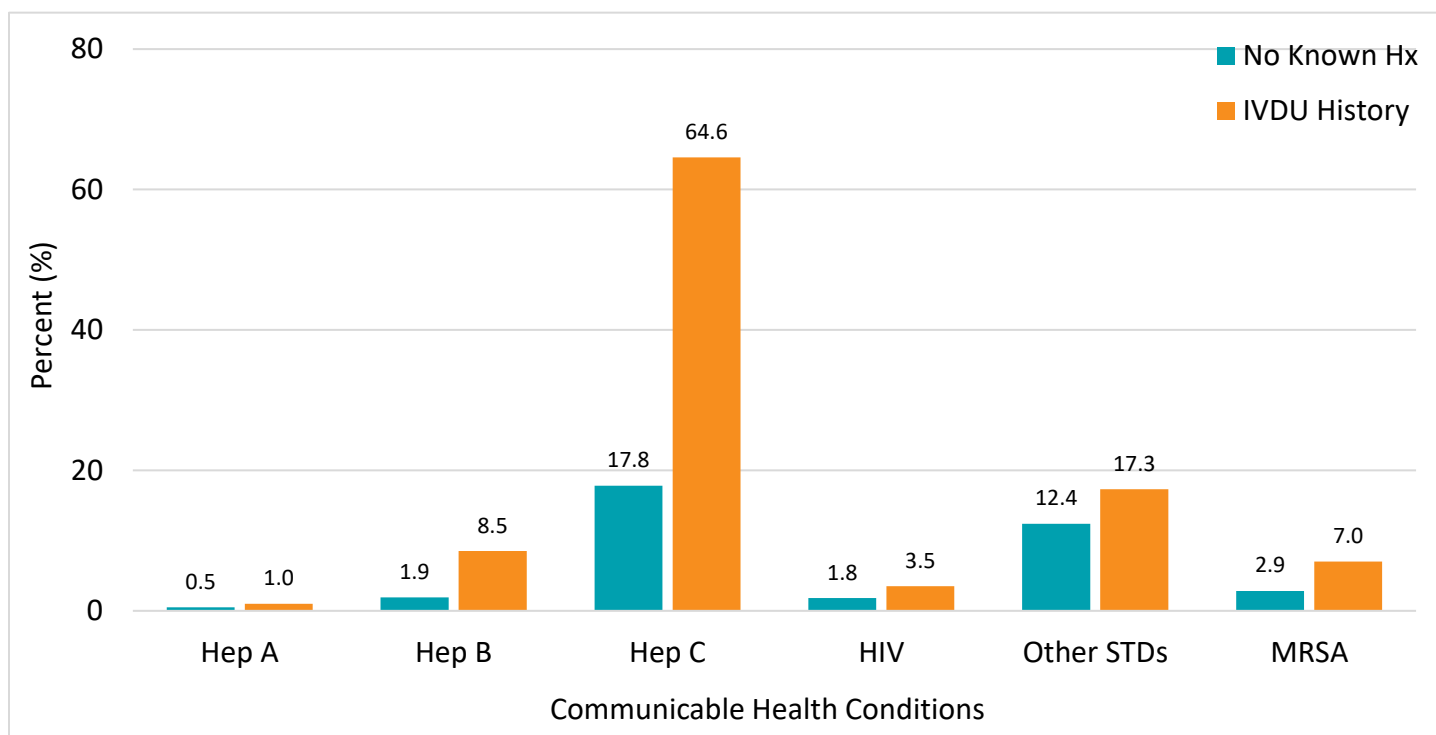
Figure 17.1: COVID-19 Vaccination Status by Sex
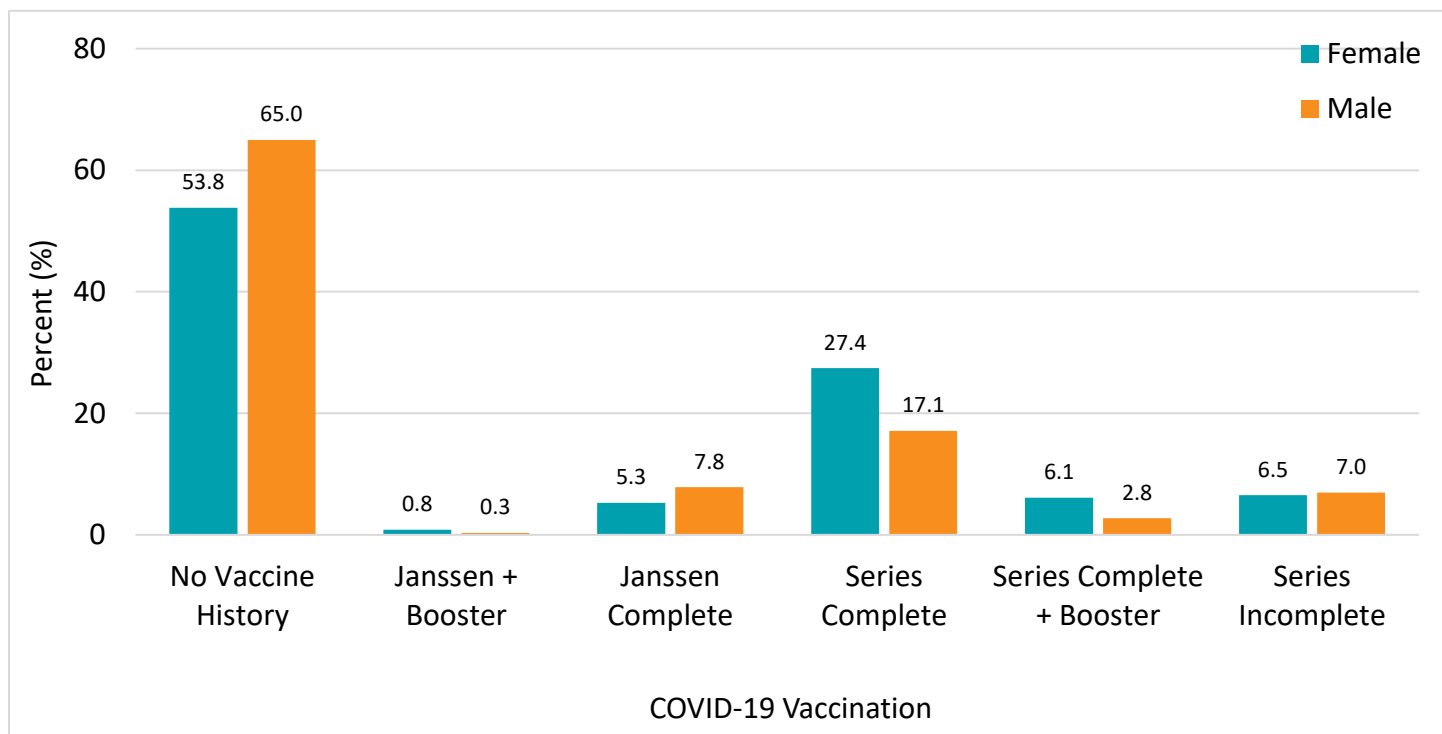
Note: Series includes Moderna or Pfizer vaccines

Figure 17.2: COVID-19 Vaccination Status by Race/Ethnicity
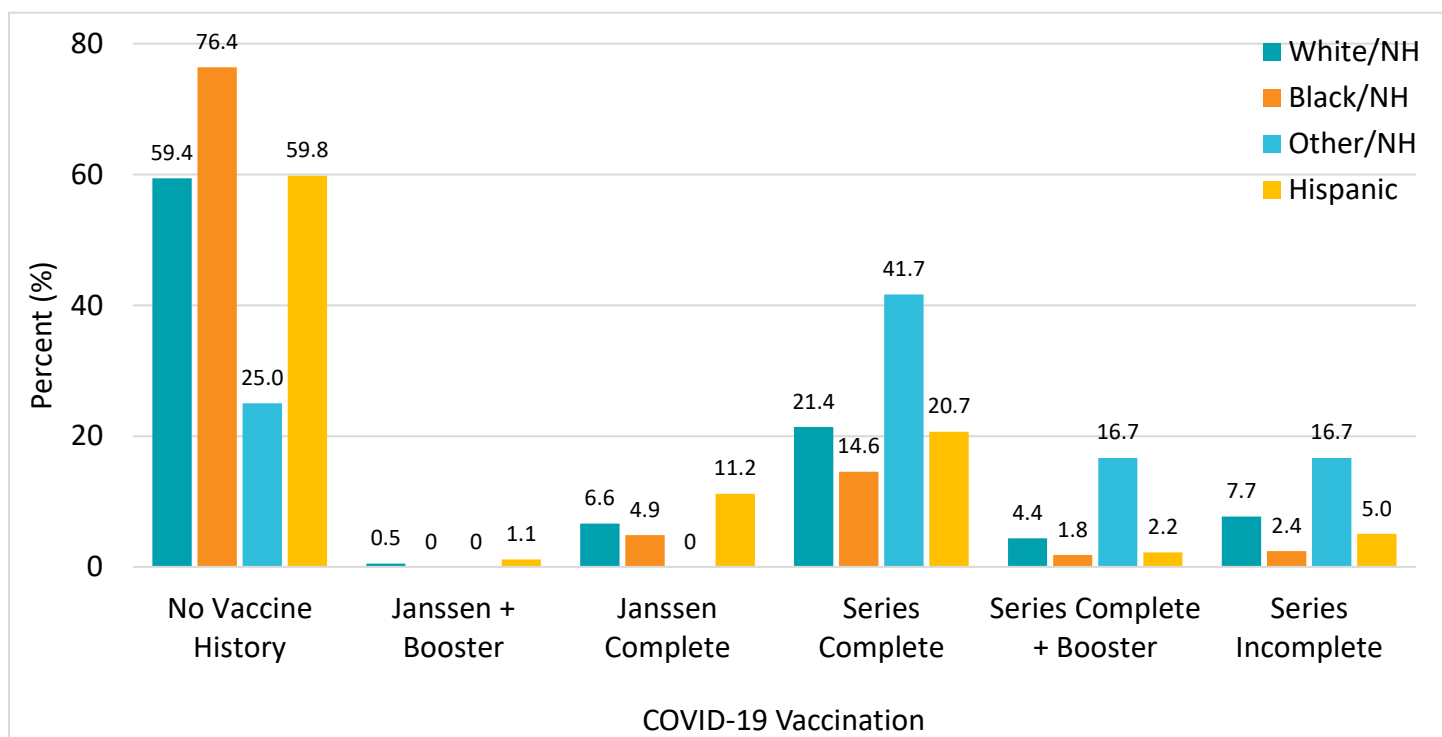
Note: Series includes Moderna or Pfizer vaccines

Mental Health and Wellness

Data presented here reflects a patient history of mental health conditions as reported by the patient and included in records by physicians. Stigma surrounding mental health could introduce reporting bias during the period in which healthcare providers are recording patient history. This can lead to an underestimating the depth of mental health conditions in the population.

Figure 18.1: Mental Health Conditions by Sex
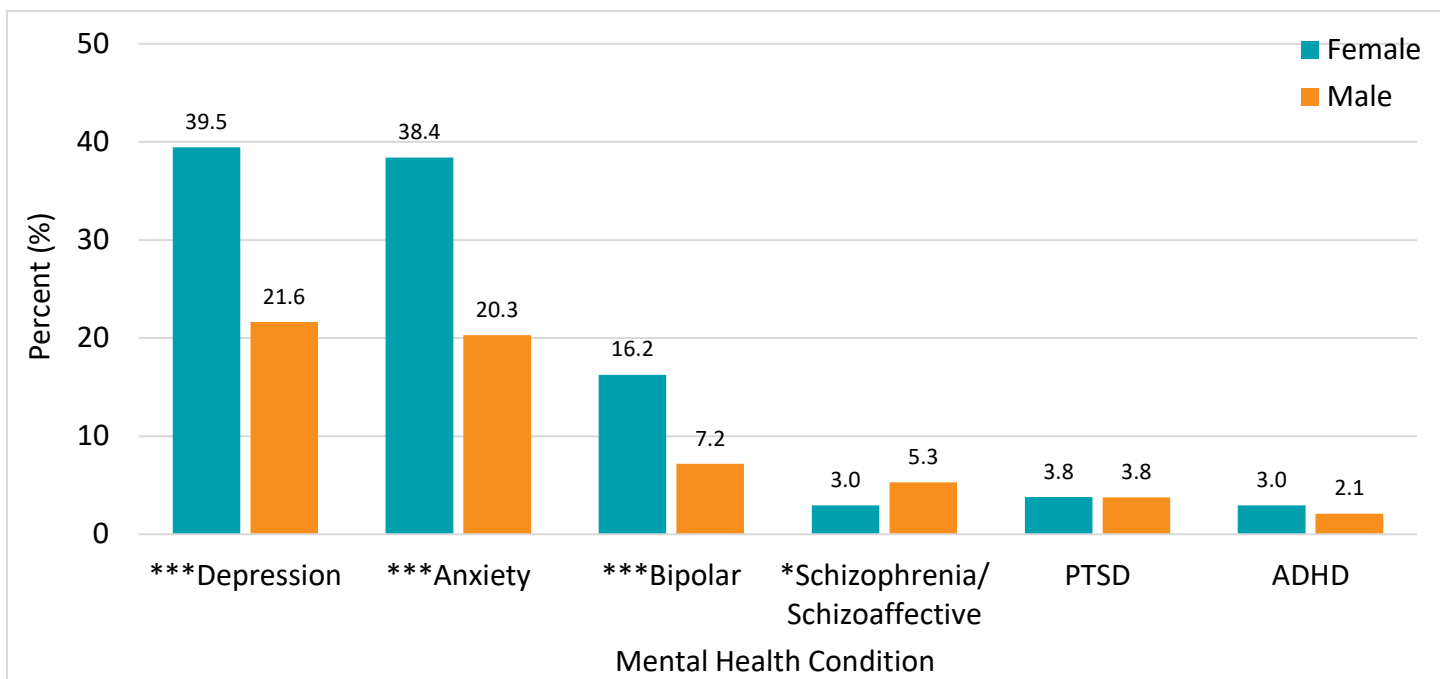
Note: Statistical significance level of p<.05(*), p<.01(**), and p<.001(***) was calculated for comparison.

Figure 18.2: Mental Health Conditions by Race/Ethnicity
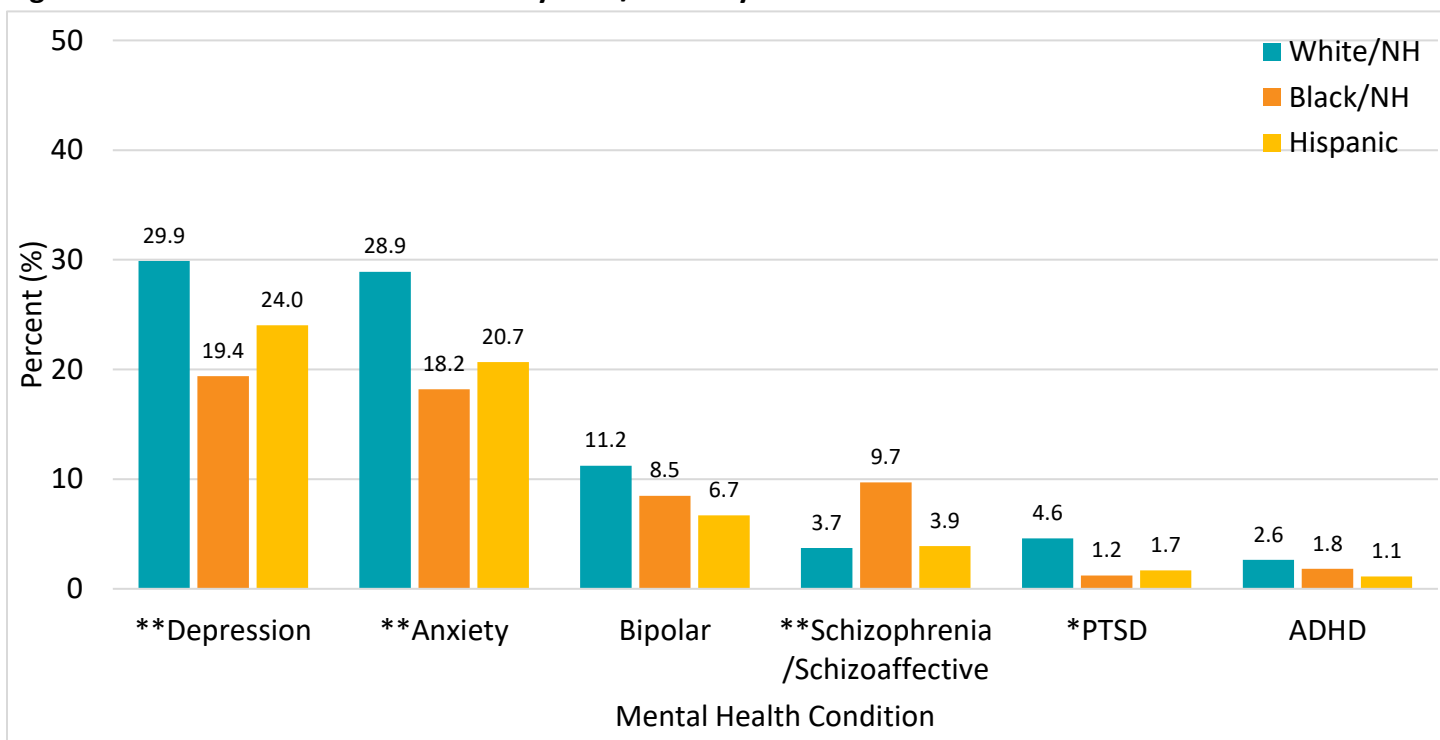
Note: Other/NH was excluded due to low response values. Statistical significance level of p<.05(*), p<.01(**), and p<.001(***) was calculated for comparison.

Figure 18.3: Mental Health Condition by Drug Type
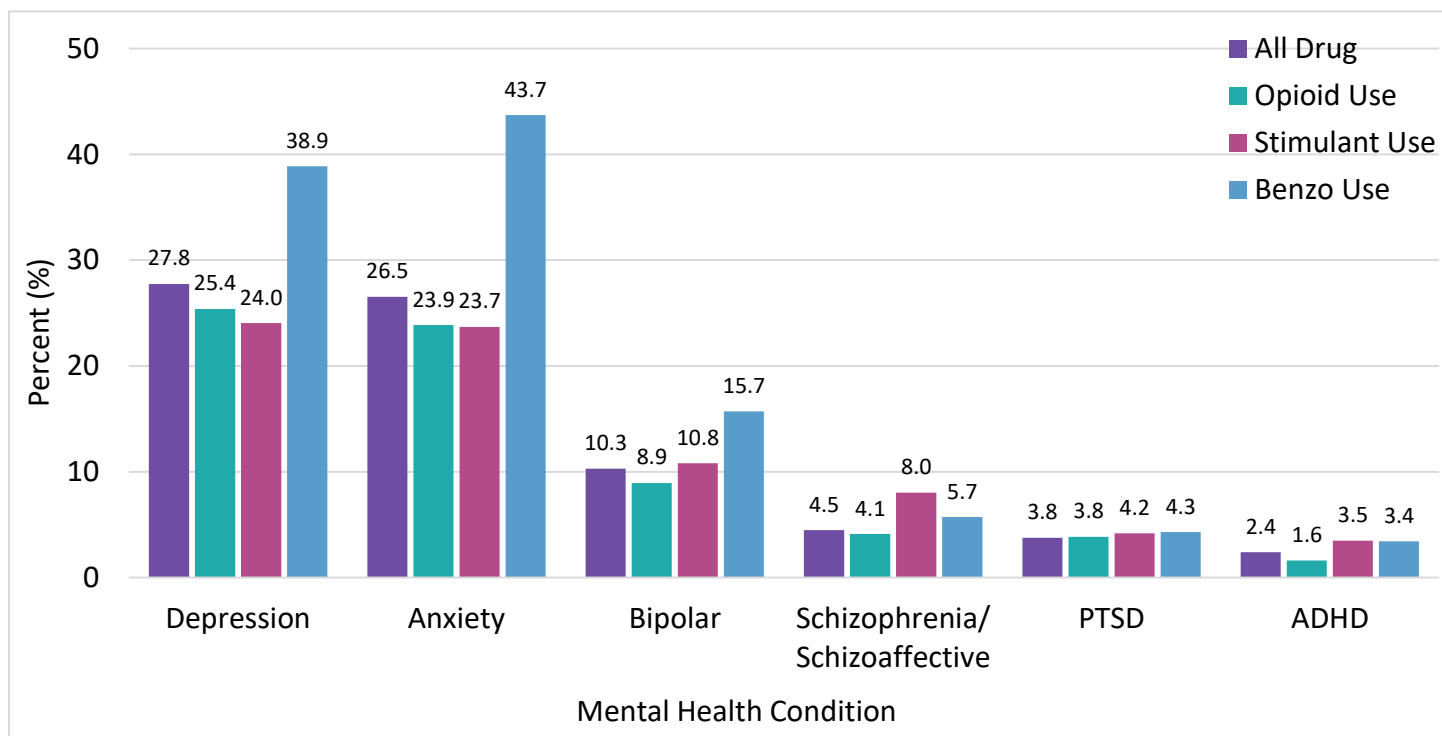
Note: Substances involved in overdoses are not mutually exclusive and may be counted in more than one category. For example, a person who overdosed on an opioid and a stimulant will be counted once in each corresponding category.

Prescribed medications are another indicator of the prevalence of mental health conditions among people who experienced an overdose. Stigma surrounding mental health could introduce reporting bias during the period in which healthcare providers are recording patient history. This can lead to underestimating the depth of mental health conditions in the population.

Figure 19.1: Prescription Medications by Sex
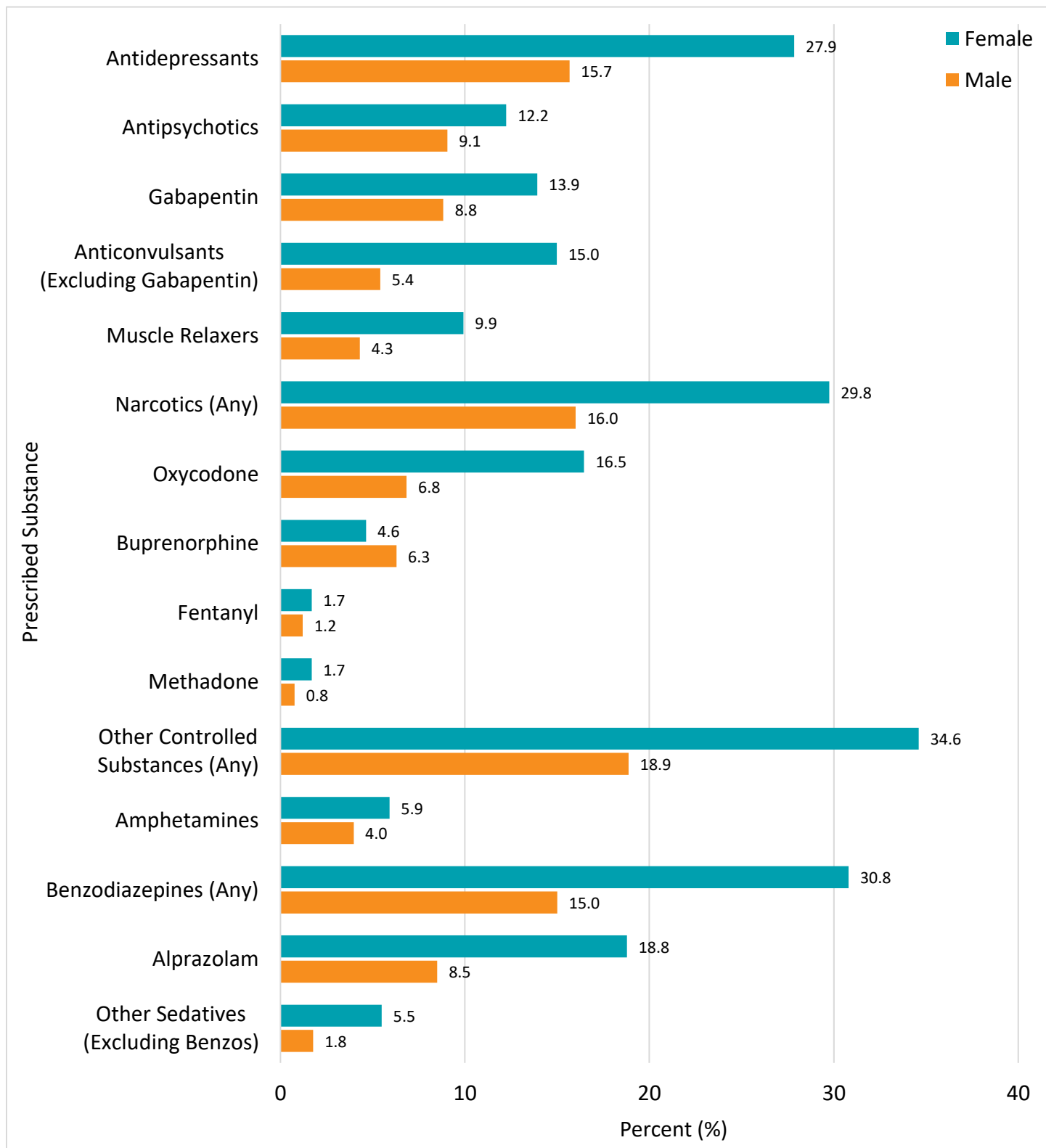
Figure 19.2: Prescription Medications by Race/Ethnicity
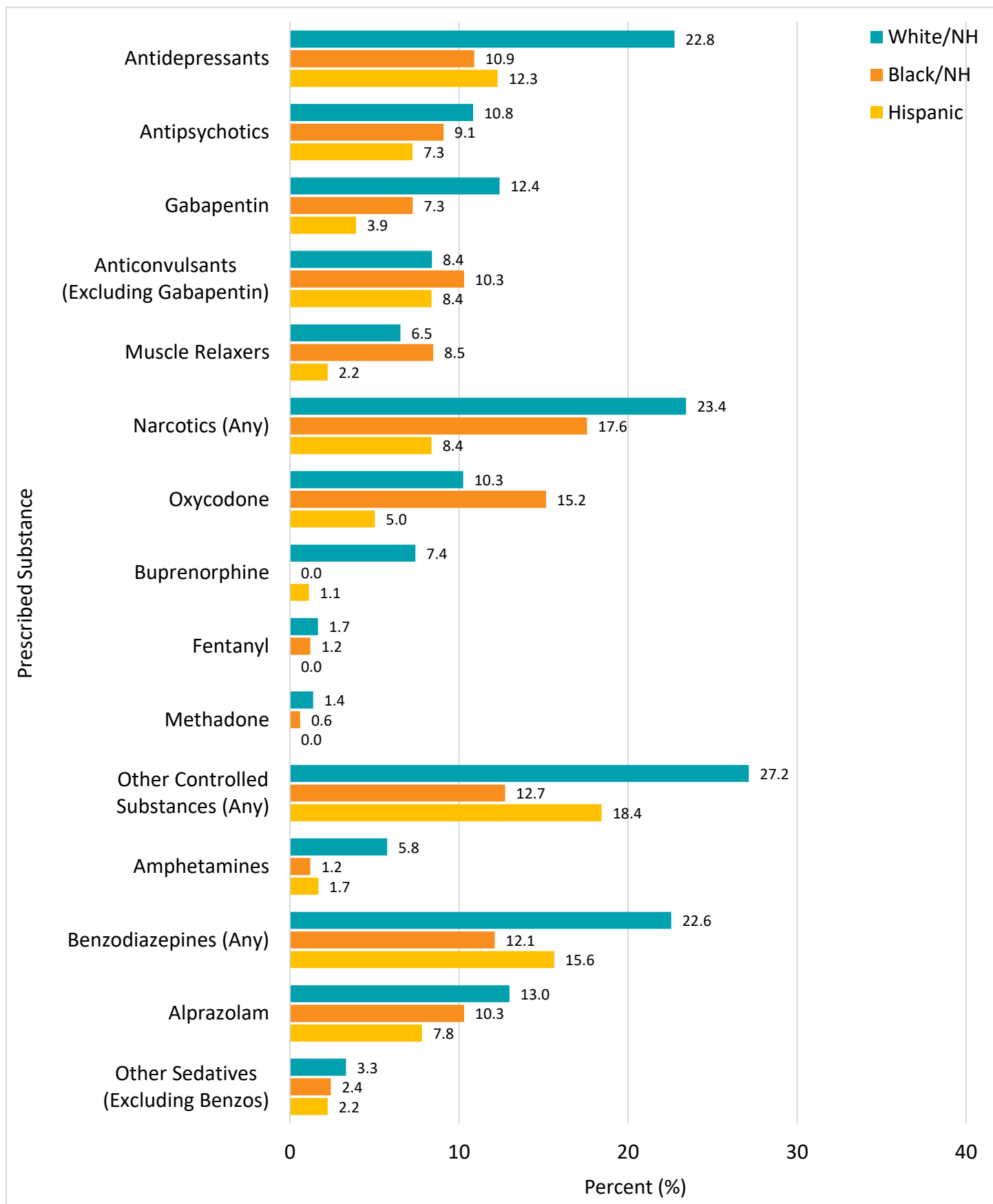
Note: Other/NH was excluded due to low response values.

The figures below represent the proportion of those with prescribed medication(s) from the subset of people who did *not* indicate any mental health conditions (n=816, 59.1%). Medications can be indicated for more than one medical condition, and some medications are prescribed off-label. For example, someone who is taking an antidepressant has not necessarily been diagnosed with depression. These figures are meant to highlight *potential* underreporting of mental health conditions.

Figure 20.1: Prescribed Medications Where No Mental Health History Was Reported by Sex
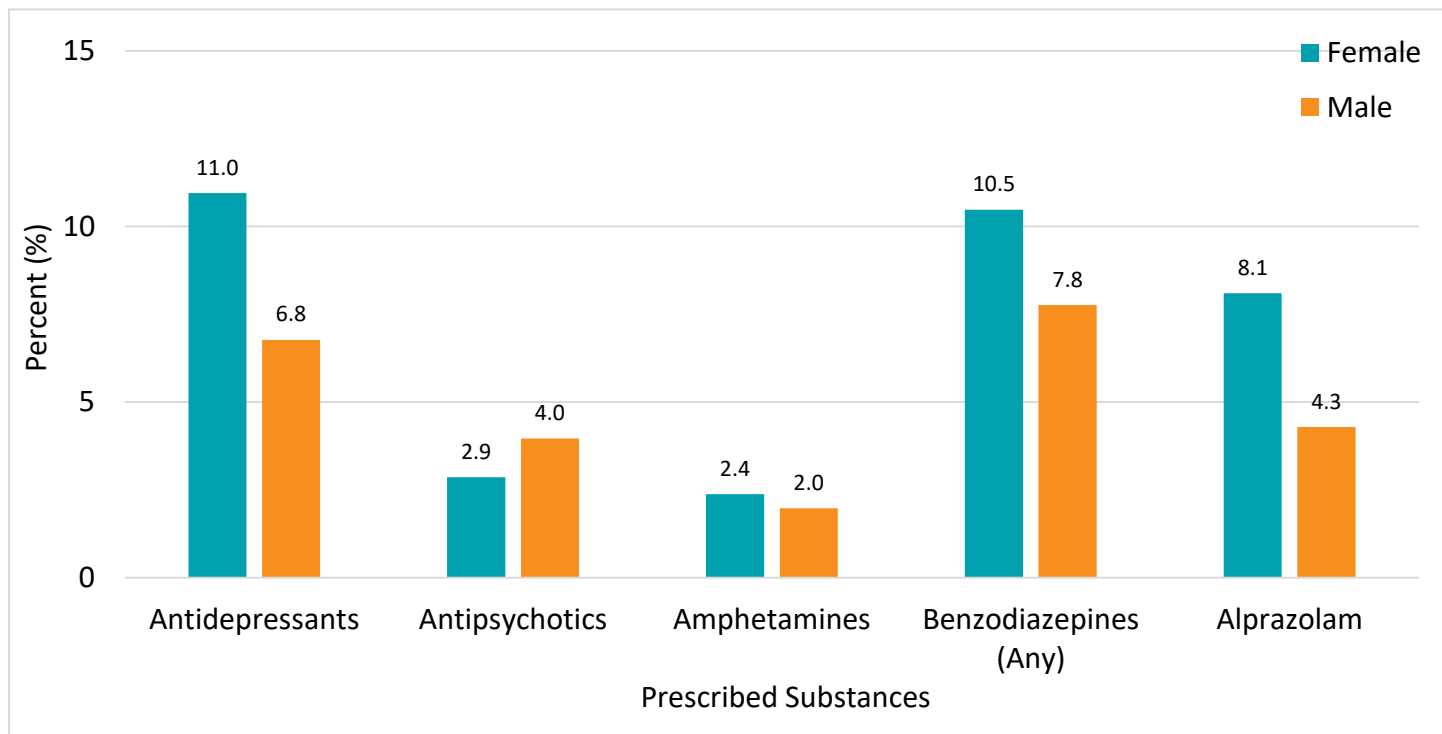
Figure 20.2: Prescribed Medications Where No Mental Health History Was Reported by Race/Ethnicity

Note: Other/NH was excluded due to low response values.

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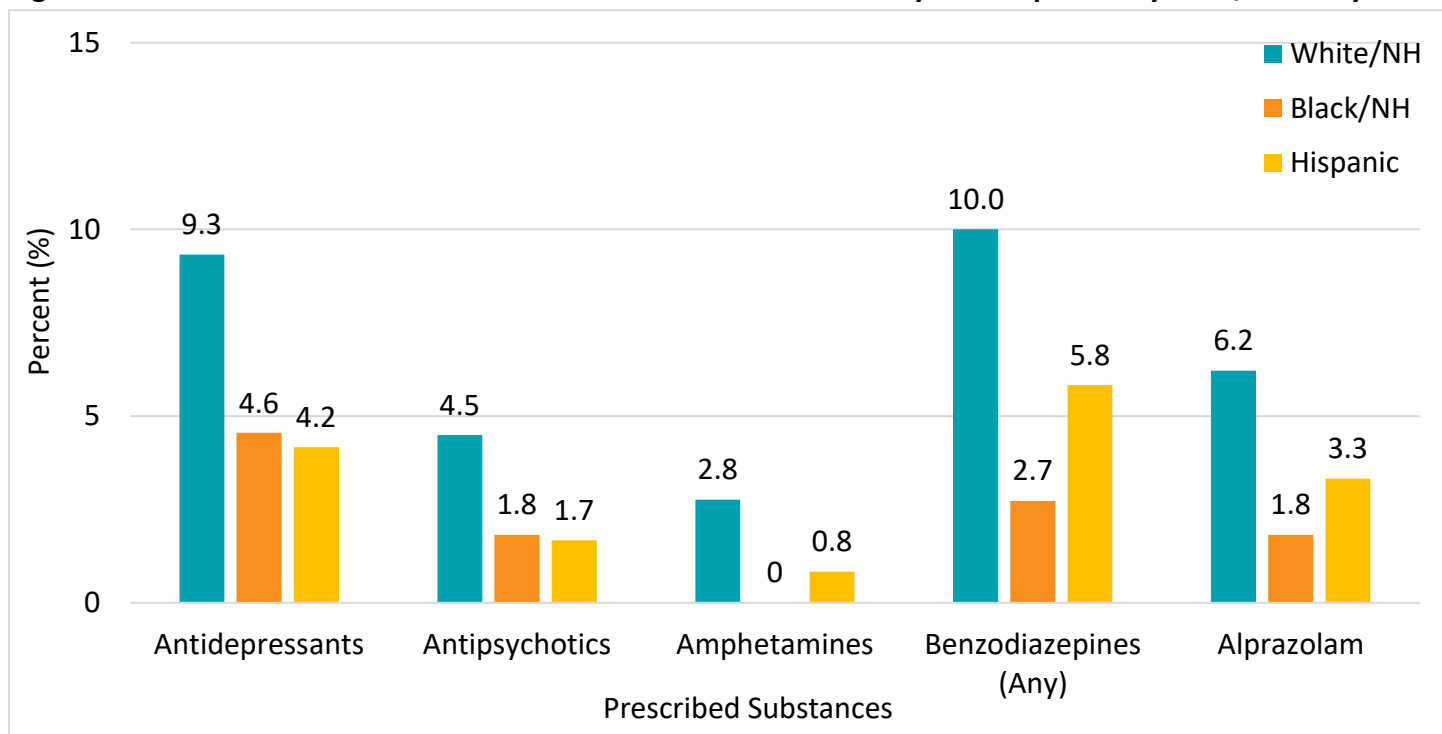
Substance Use and Treatment History

Data presented here reflects a known patient history of substance use, overdose, and related medications for opioid use disorder. This information is subject to the limits of patient self-disclosure and/or clinician disclosure. Stigma surrounding substance use history could introduce reporting bias during the period in which healthcare providers are recording patient history. This can lead to underestimation of substance use history in the population.

Figure 21.1: Substance Use & Treatment History by Sex
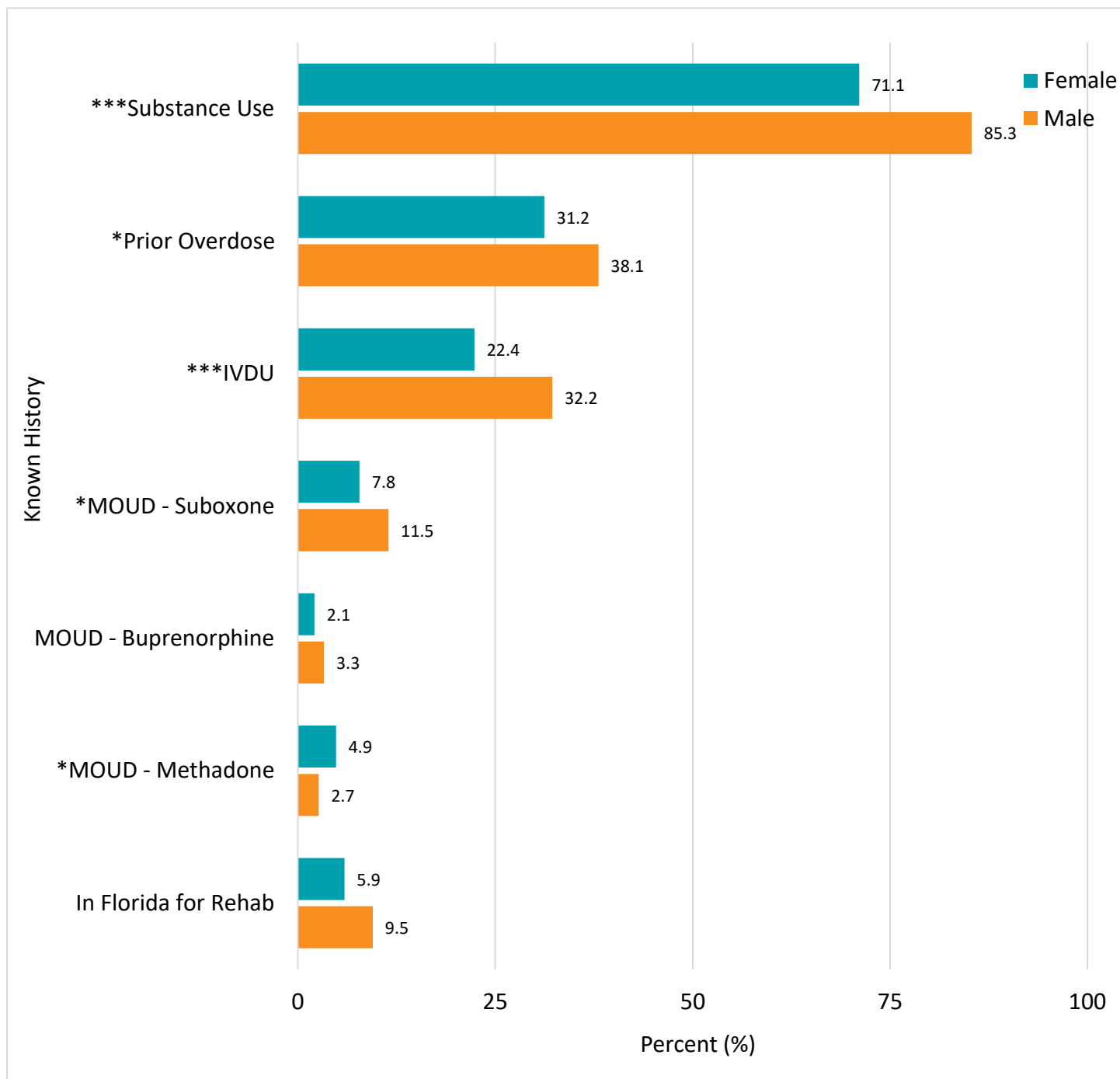
Note: In Florida for Rehab was reported by the patient in medical record regardless of the patient entering a treatment program. Statistical significance level of $p<.05$(*), $p<.01$(**), and $p<.001$(***) was calculated for comparison.

Figure 21.2: Substance Use & Treatment History by Race/Ethnicity
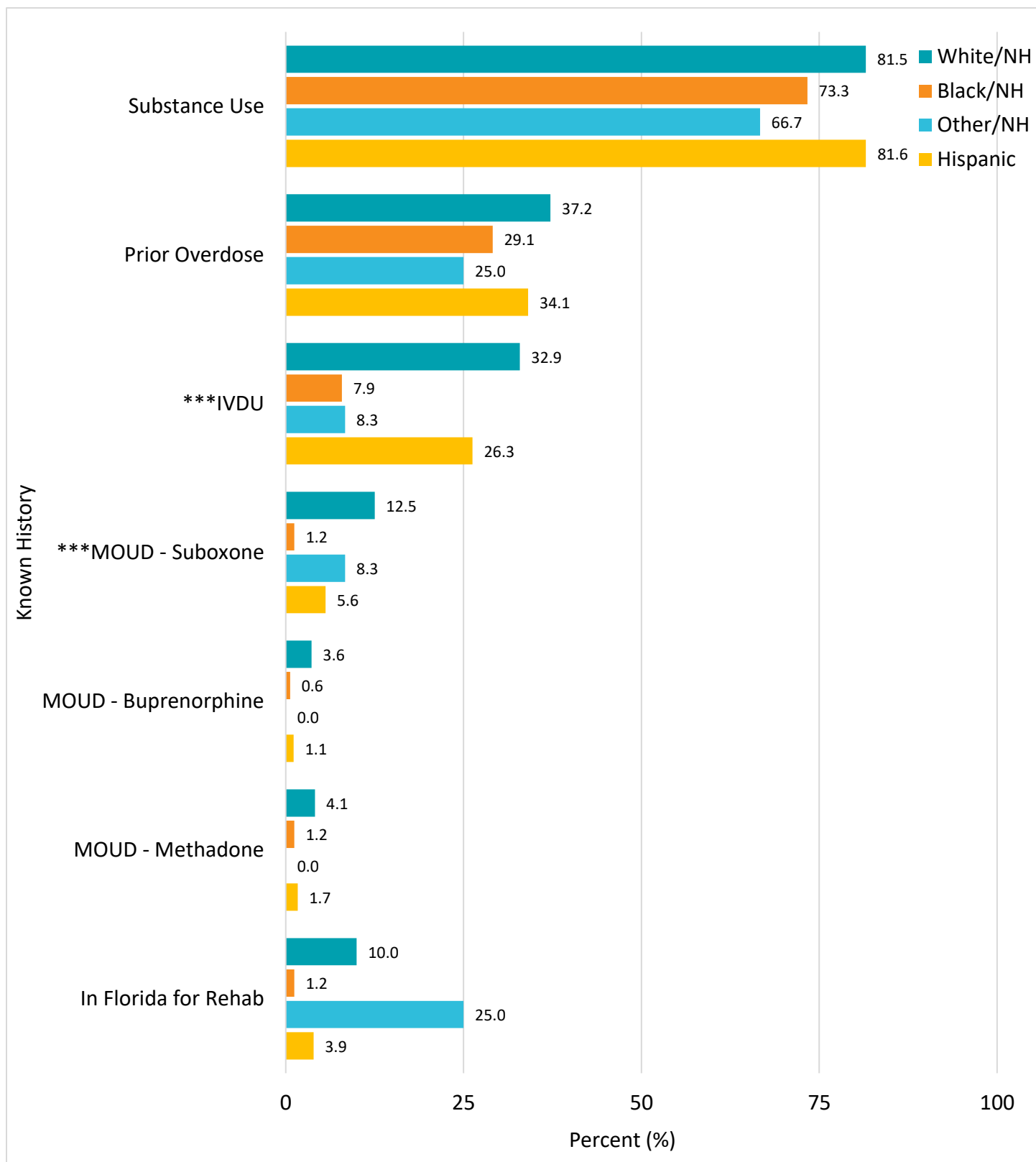
Note: In Florida for Rehab were reported by the patient or medical record regardless of the patient entering a treatment program. Statistical significance level of p<.05(*), p<.01(**), and p<.001(***) was calculated for comparison.

THE EMERGENCY RESPONSE – PRE-HOSPITAL

Contributing Factors and Life Events

Data presented here reflects self-reported contributing factors for substance use and overdose. This information is subject to the limits of patient self-disclosure and/or clinician disclosure. Stigma surrounding substance use and reasons for use could introduce reporting bias during the period in which healthcare providers are recording patient history. This can lead to an underestimation of contributing factors involved in overdose events.

Figure 22.1: Contributing Factors/Reasons for Use by Sex
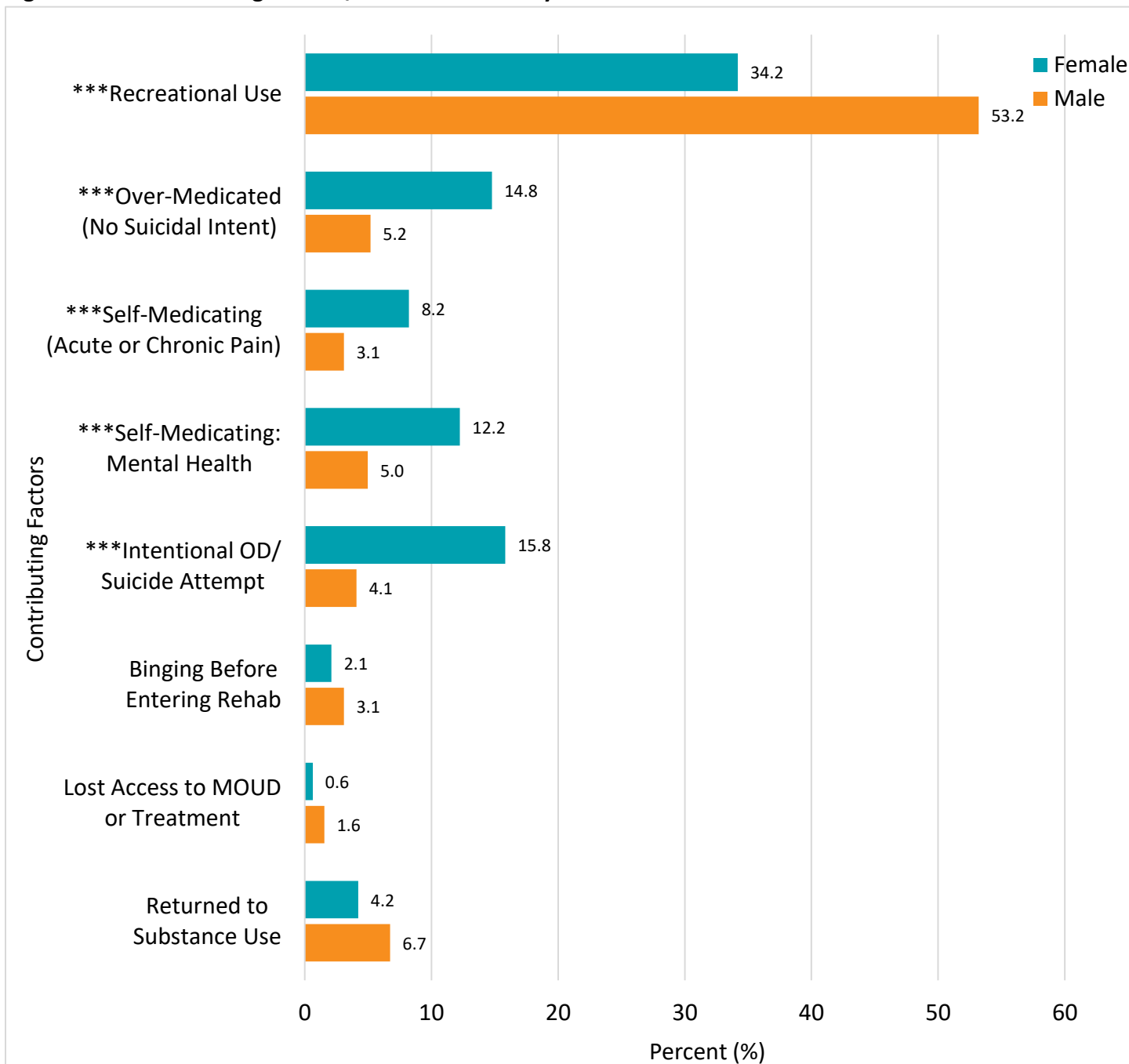
Note: Statistical significance level of p<.05(*), p<.01(**), and p<.001(***) was calculated for comparison.

Figure 22.2: Contributing Factors/Reasons for Use by Race/Ethnicity
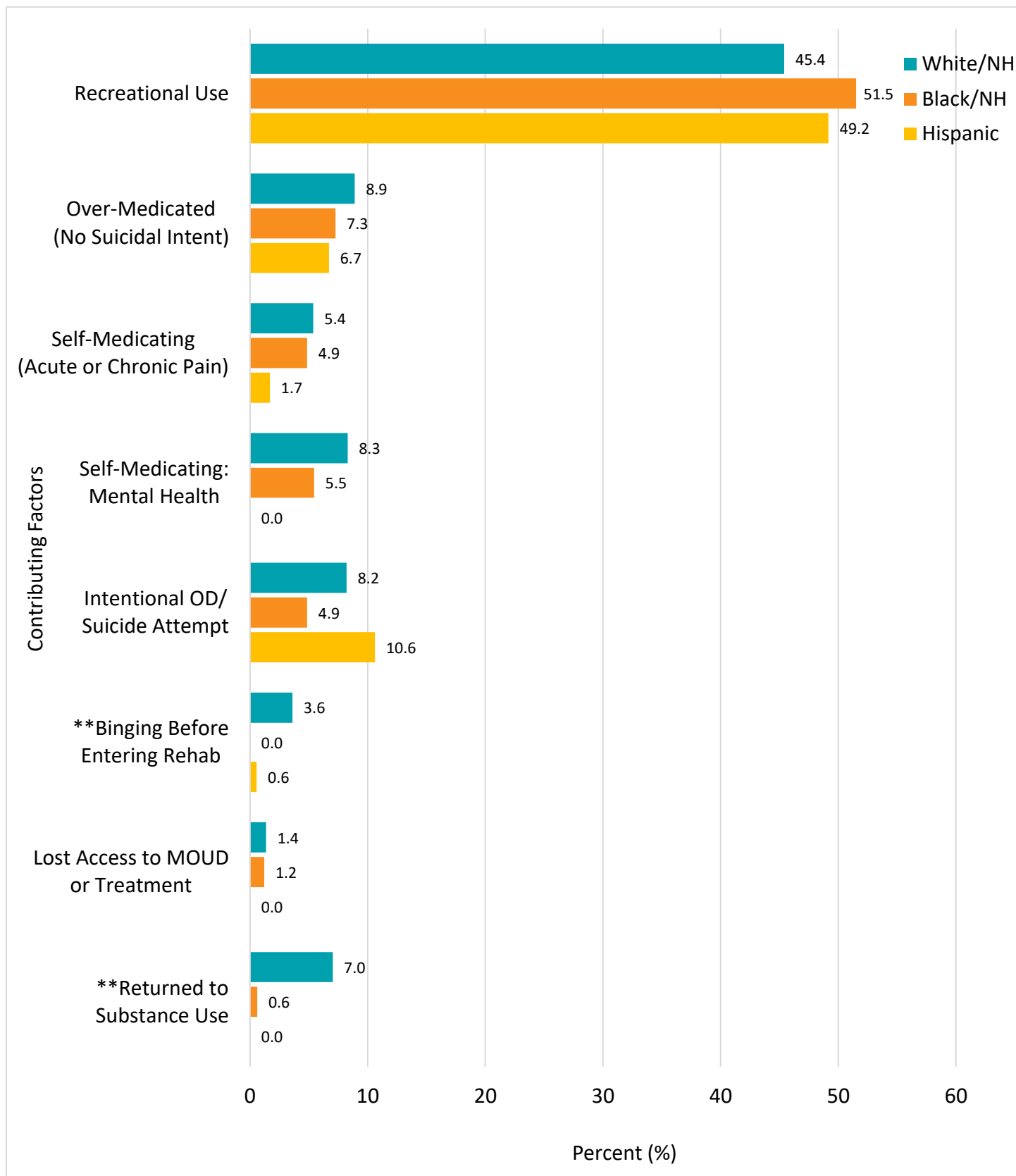
Note: Other/NH was excluded due to low response values. Statistical significance level of p<.05(*), p<.01(**), and p<.001(***) was calculated for comparison.

Overdose Location

Understanding where overdoses are occurring and the settings in which people use substances can be important factors to consider when developing prevention strategies. In Palm Beach County, the majority (47.2%) of non-fatal overdoses occurred in private residences.

Figure 23.1: Location Setting of Non-Fatal Overdose Incident (General)

Car was involved in an accident, 2.0
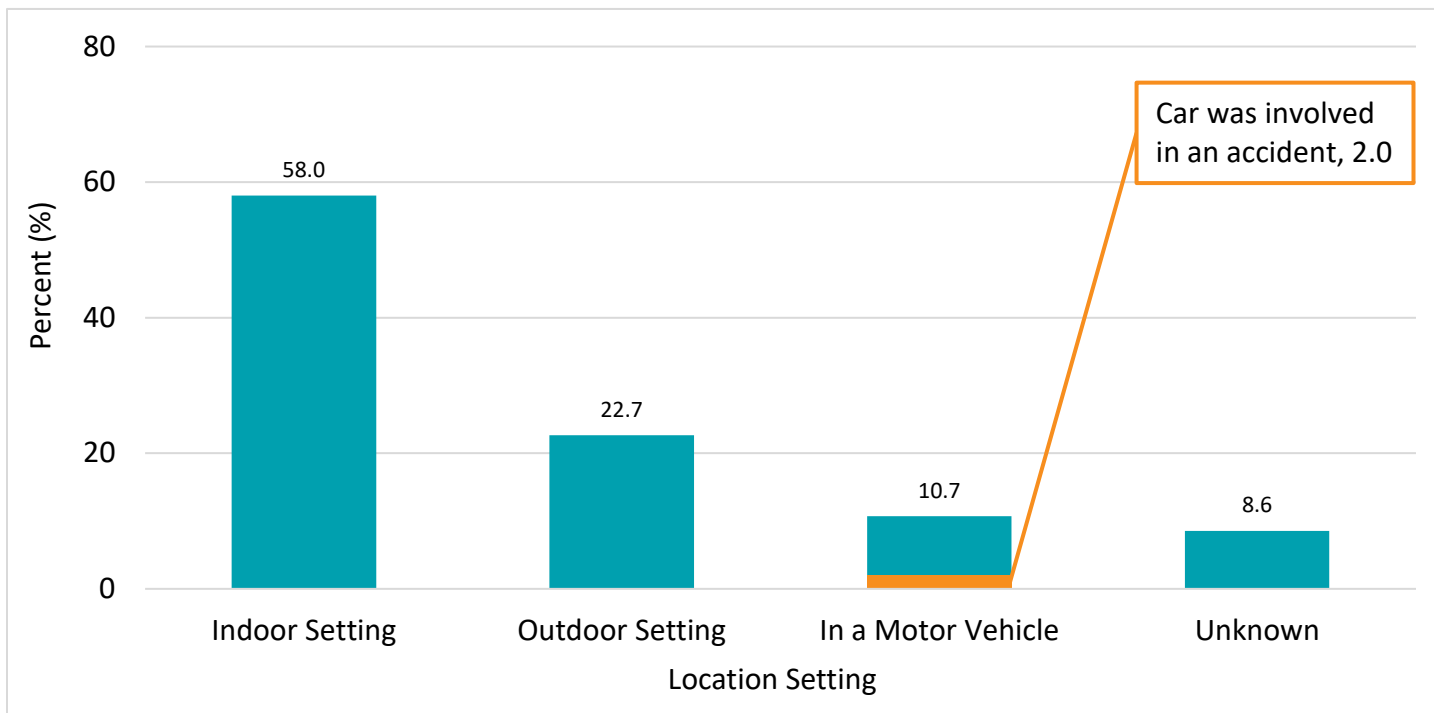
Note: In a motor vehicle includes patient as driver or passenger in a car, stationary or moving.

Figure 23.2: Overdose Location Setting by Substance Route of Administration
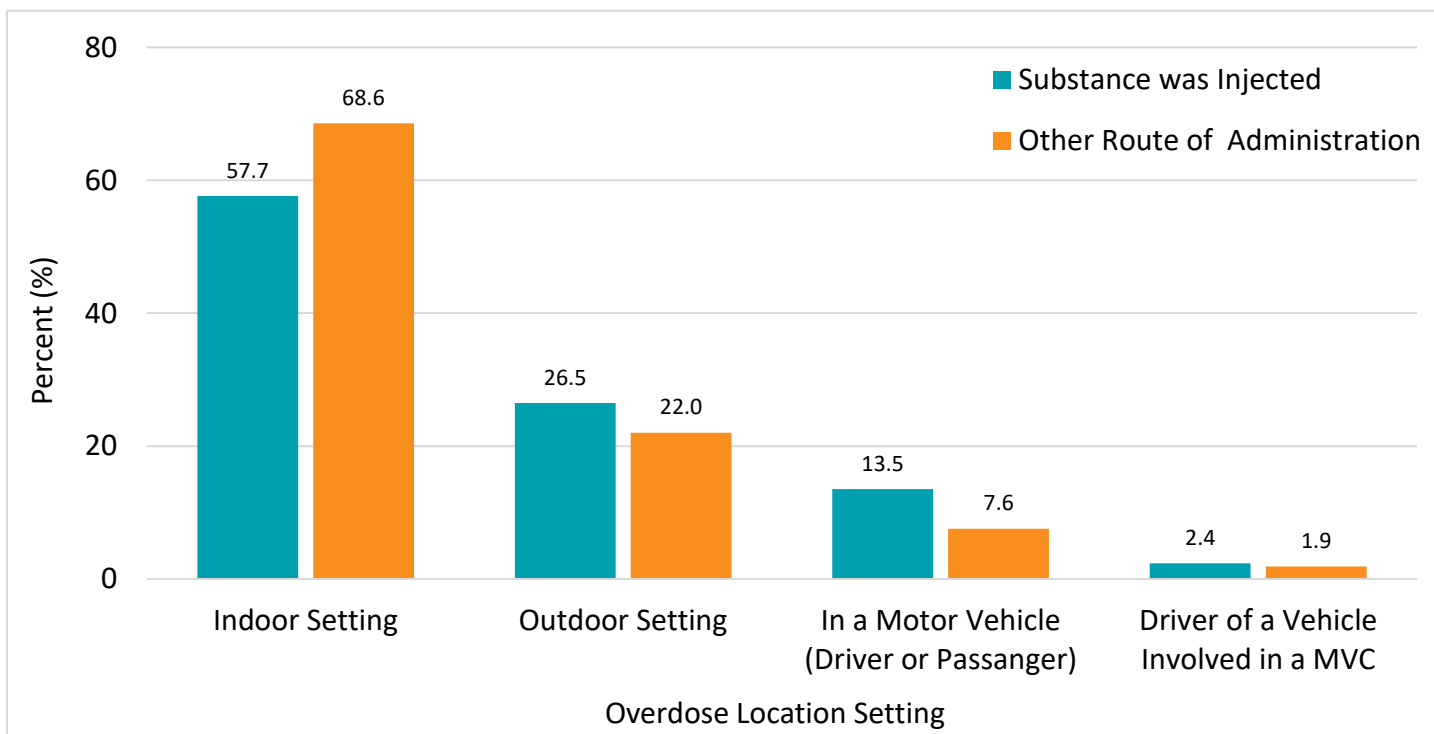
Note: In a Motor Vehicle – patient as driver or passenger in a car, stationary or moving.

Figure 23.3: Type of Location of Non-Fatal Overdose Incident (Specific)
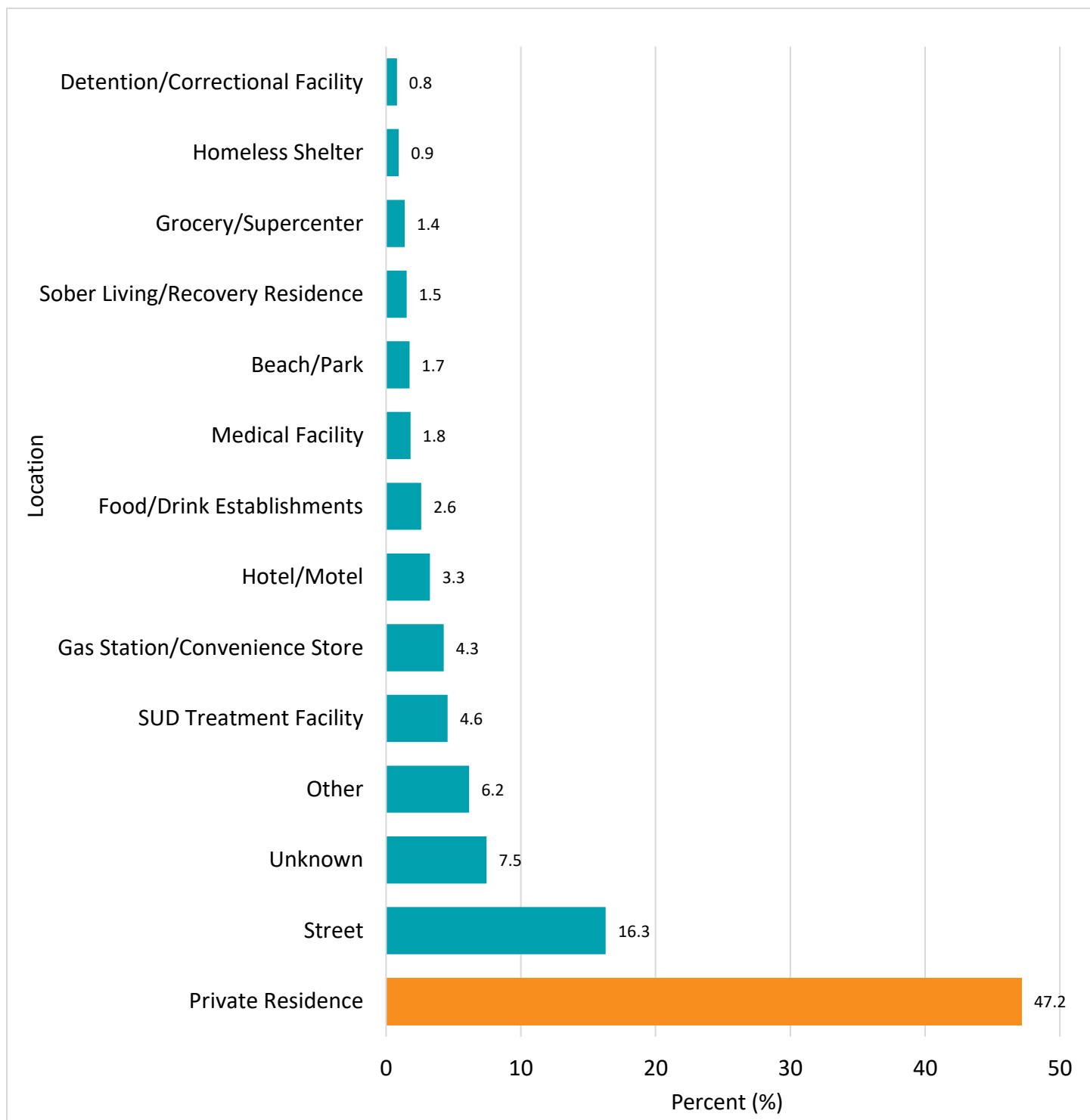
Note: "Street" includes being physically on a street or sidewalk, as well as all motor vehicles as either driver or passenger.

First Aid and Treatment Interventions

The figures below describe the first aid and treatment interventions patients received prior to arriving at the ED. Overall, 131 (9.5%) required cardiopulmonary resuscitation (CPR) by either a bystander or law enforcement officer, and 622 (45.1%) were administered naloxone by a bystander, law enforcement officer, or EMS before arriving at the ED.

Figure 24.1: CPR and Naloxone Administration Prior to ED Arrival by Sex
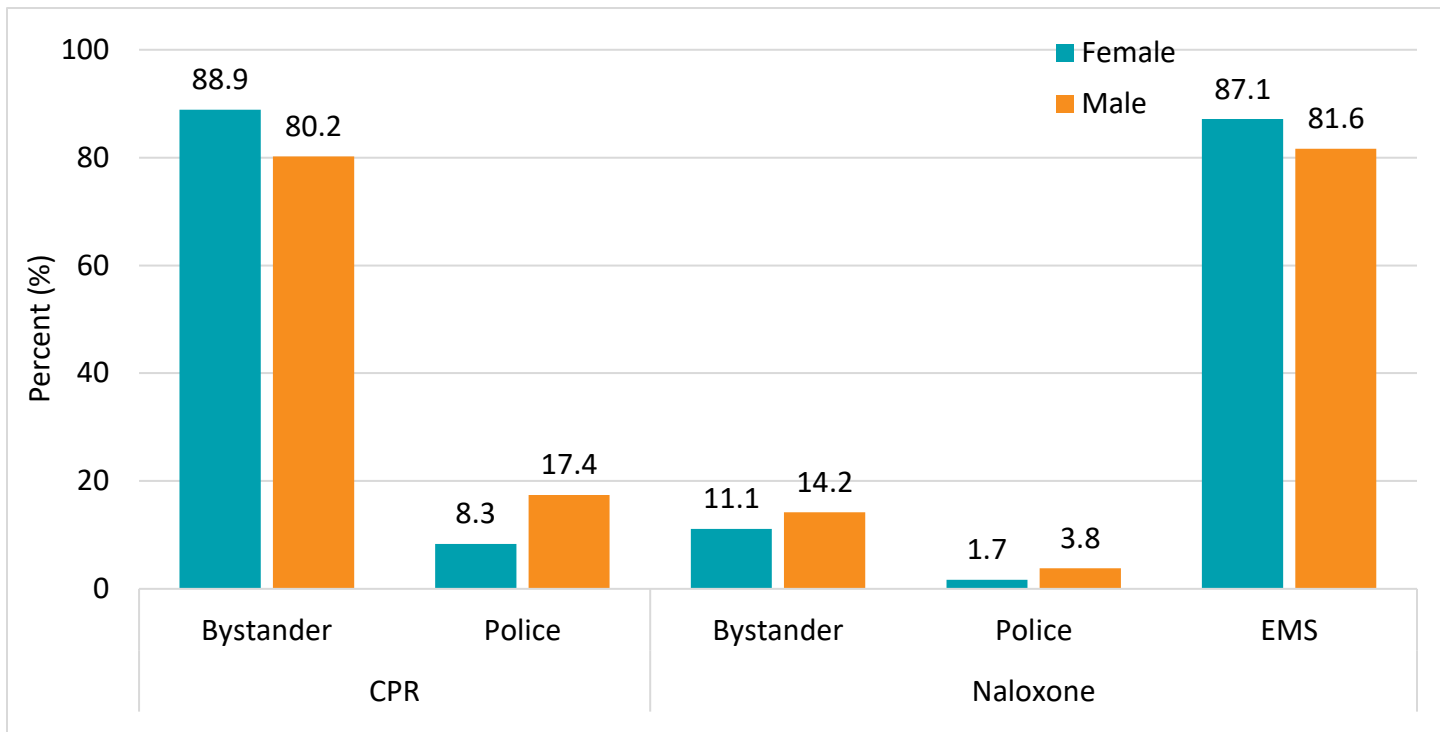
Figure 24.2: CPR and Naloxone Administration Prior to ED Arrival by Race/Ethnicity
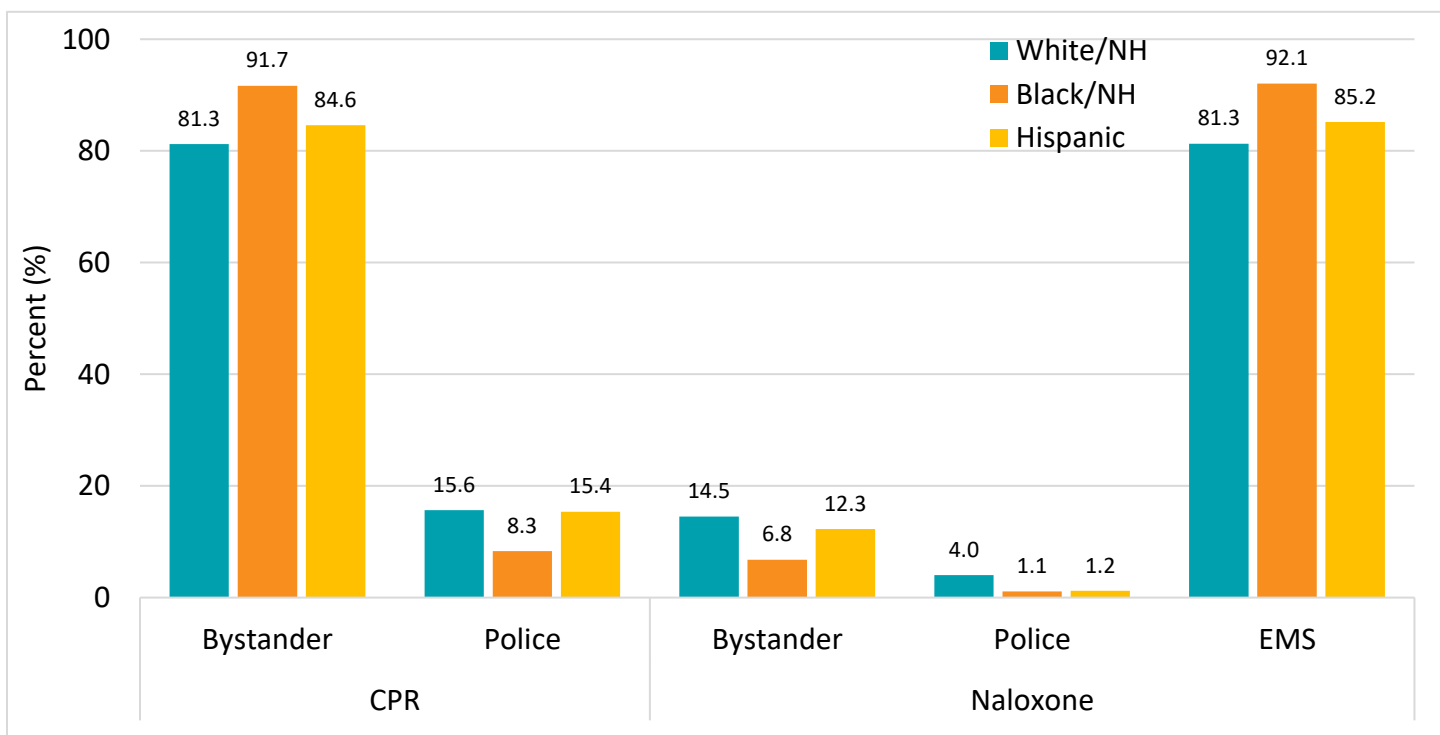
Note: Other/NH was excluded due to low response values.

Mode of Arrival

Figure 25.1: Mode of Arrival to ED by Sex
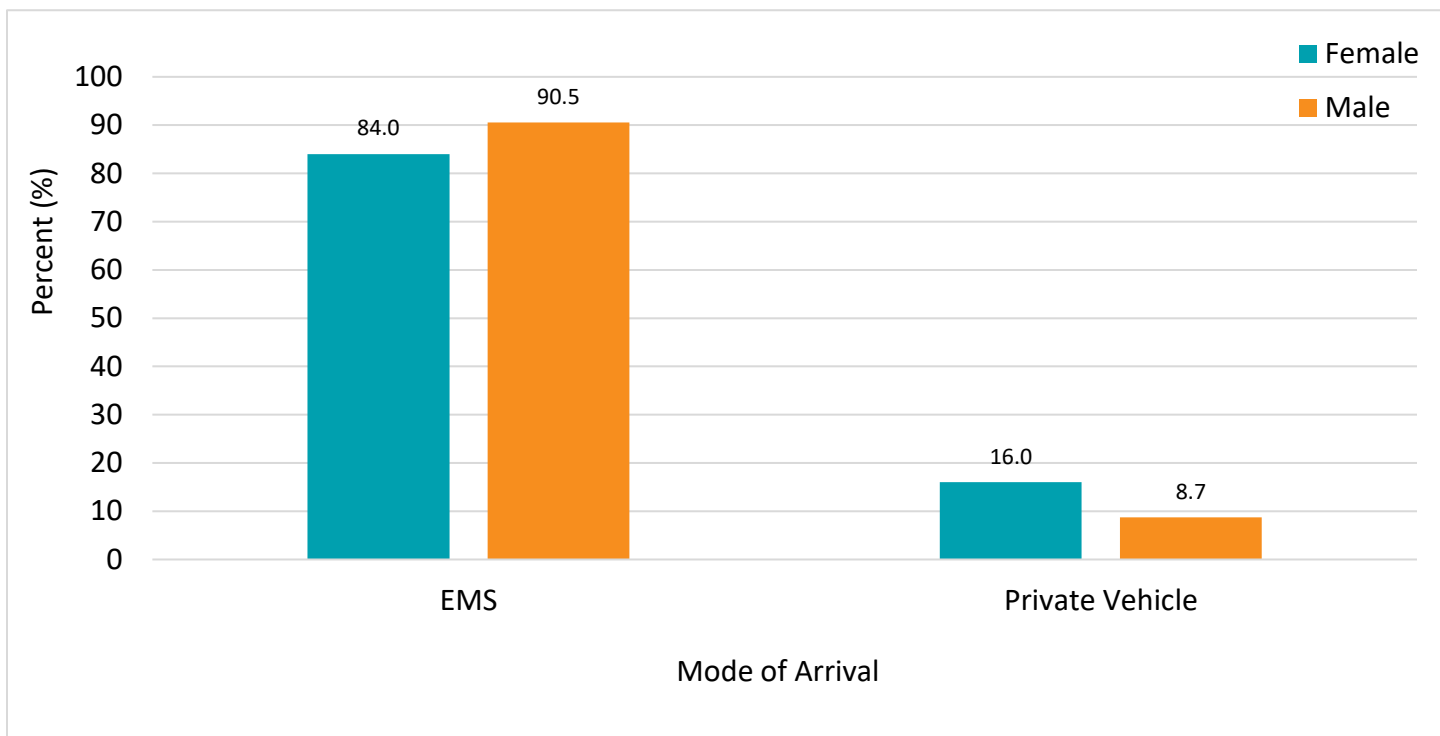
Figure 25.2: Mode of Arrival to ED by Race/Ethnicity
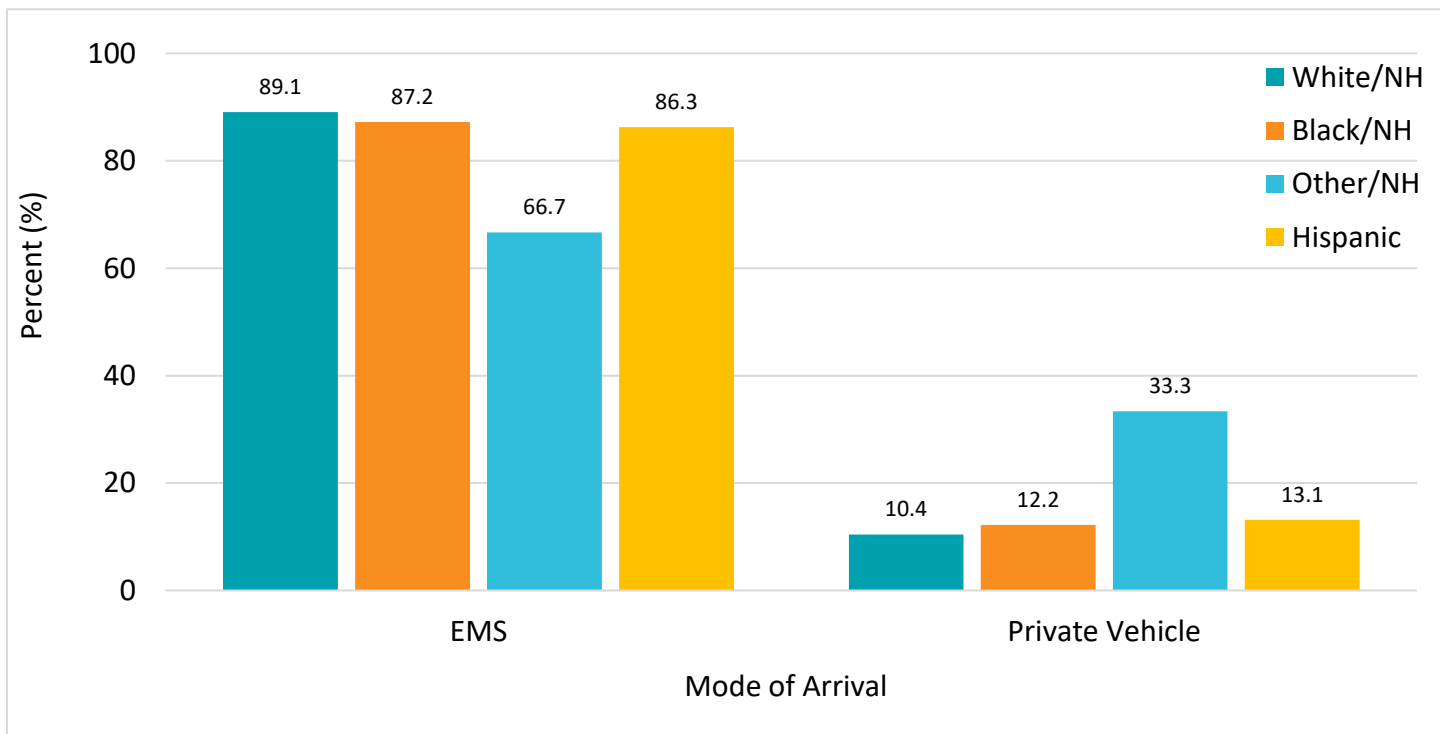
Figure 25.3: Mode of Arrival at ED by Health Insurance Type
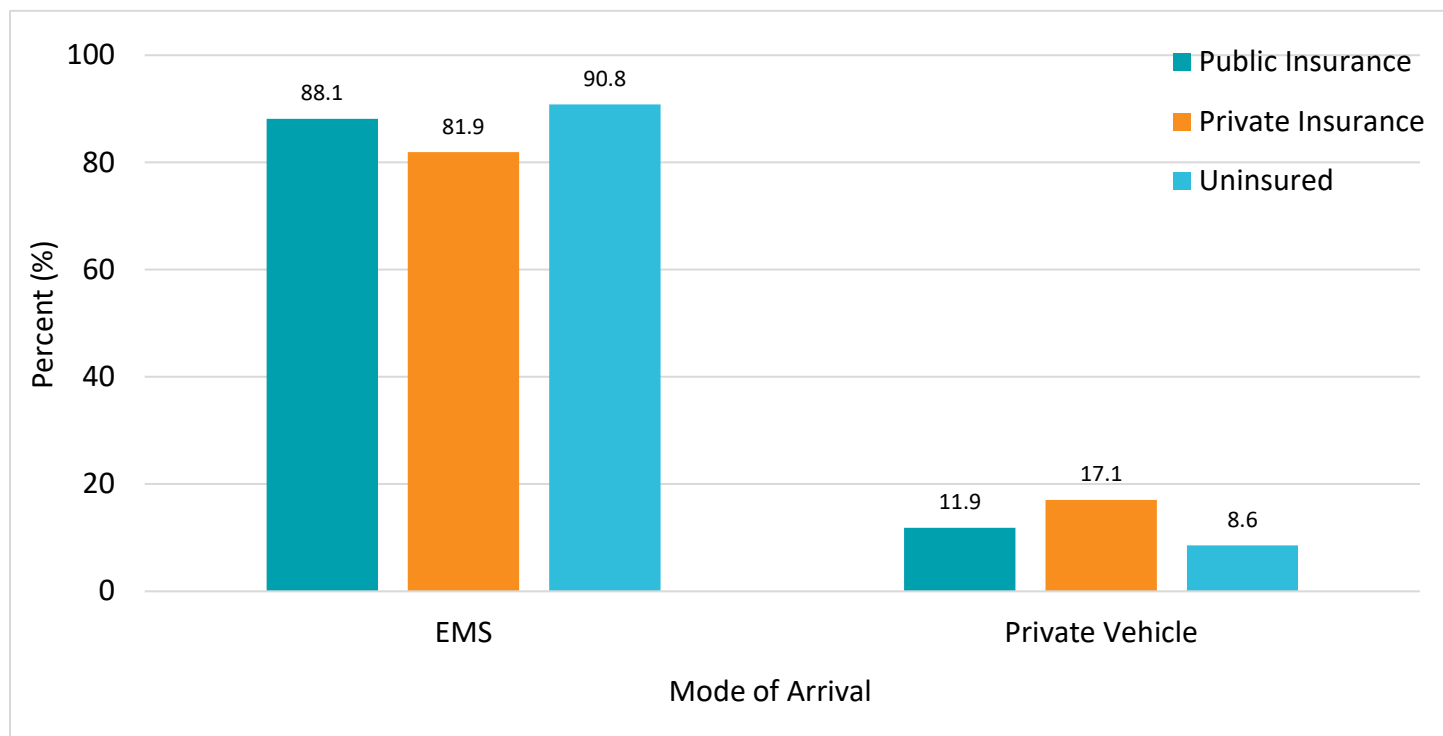
THE CLINICAL COURSE – HOSPITAL

Substances Involved in Overdose Events

The 2021 innovative overdose surveillance expanded on the surveillance conducted by OD2A PBC in 2020. In addition to opioid-involved overdoses, this year's report included overdoses in which at least one of the substances involved was either stimulants, benzodiazepines, or a handful of other illicit substances including kratom, ketamine, LSD.

Figure 26: Substances Involved in Overdose Event

Substance	Number of Patients (n)
Alcohol	240
Amphetamines	44
Anticonvulsants	15
Barbiturates	3
Benzodiazepines	350
Buprenorphine	21
Cocaine	200
DMT	3
Fentanyl	263
GHB	3
Heroin	458
Ketamine	3
Kratom	3
LSD	2
Marijuana	70
MDMA	22
Methadone	16
Methamphetamine	26
Muscle Relaxer	17
Non-Benzo Sedatives	10
Other Rx Opioids	60
Oxycodone	145
Psilocybin	4
Synthetic Cathinones	3
Unknown Stimulant	18
Unspecified Opioid	287
Unspecified Sedative	5

Note: Overdose events may involve more than one substance. This figure does not account for polysubstance use, and substances should not be interpreted as mutually exclusive events. Over-the-counter medications or other prescription medications such as acetaminophen, antihistamines, antihypertensives, antidepressants, and others were not included.

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Confirming an overdose to a specific substance requires a costly and time-consuming investigation. Suspected overdoses are identified by a series of compatible signs, symptoms, responses to certain medications, toxicological testing, patient testimony, items found on scene, and clinical judgment. Opioids were involved in 76.4% (n=362) of overdoses among females and 83.6% (n=757) of overdoses among males. The proportion of opioids involved in overdoses among females and males is further categorized below.

Figure 27.1: Type of Opioid by Sex
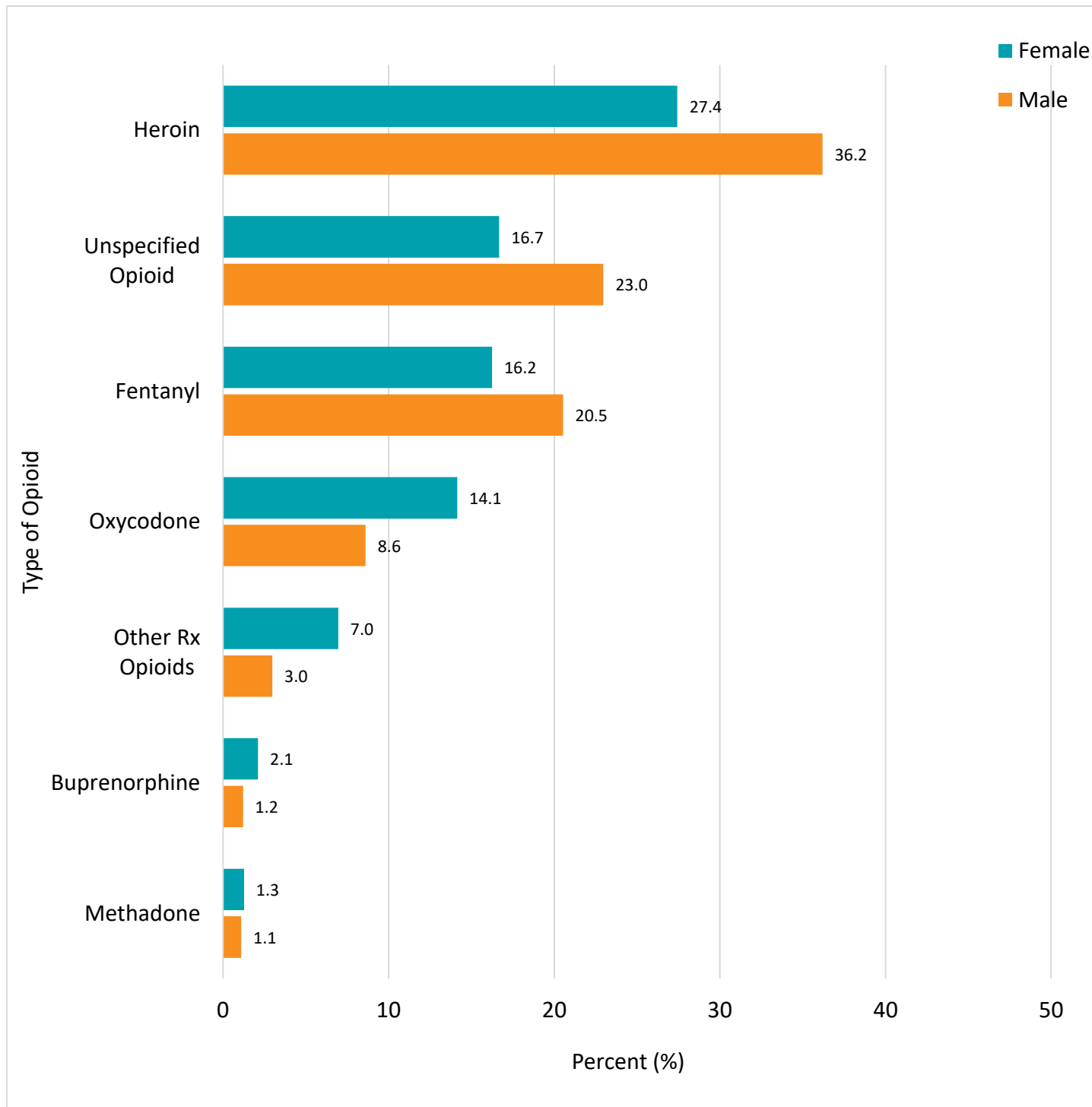
Note: Fentanyl includes both illicit and prescription fentanyl. Other Rx opioids include prescription opioids other than prescription fentanyl, oxycodone, methadone, and buprenorphine, such as hydrocodone, hydromorphone, morphine, and codeine. Substances involved in overdoses are not mutually exclusive and may be counted in more than one category if the patient ingested multiple substances in the overdose event.

Opioids were involved in 83.1% (n=851) of overdoses among White non-Hispanic, 78.2% (n=129) among Black non-Hispanic, 75.0% (n=9) among Other non-Hispanic, and 72.6% (n=130) among Hispanics. The proportion of opioids involved in overdoses by race/ethnicity is further categorized below.

Figure 27.2: Type of Opioid by Race/Ethnicity
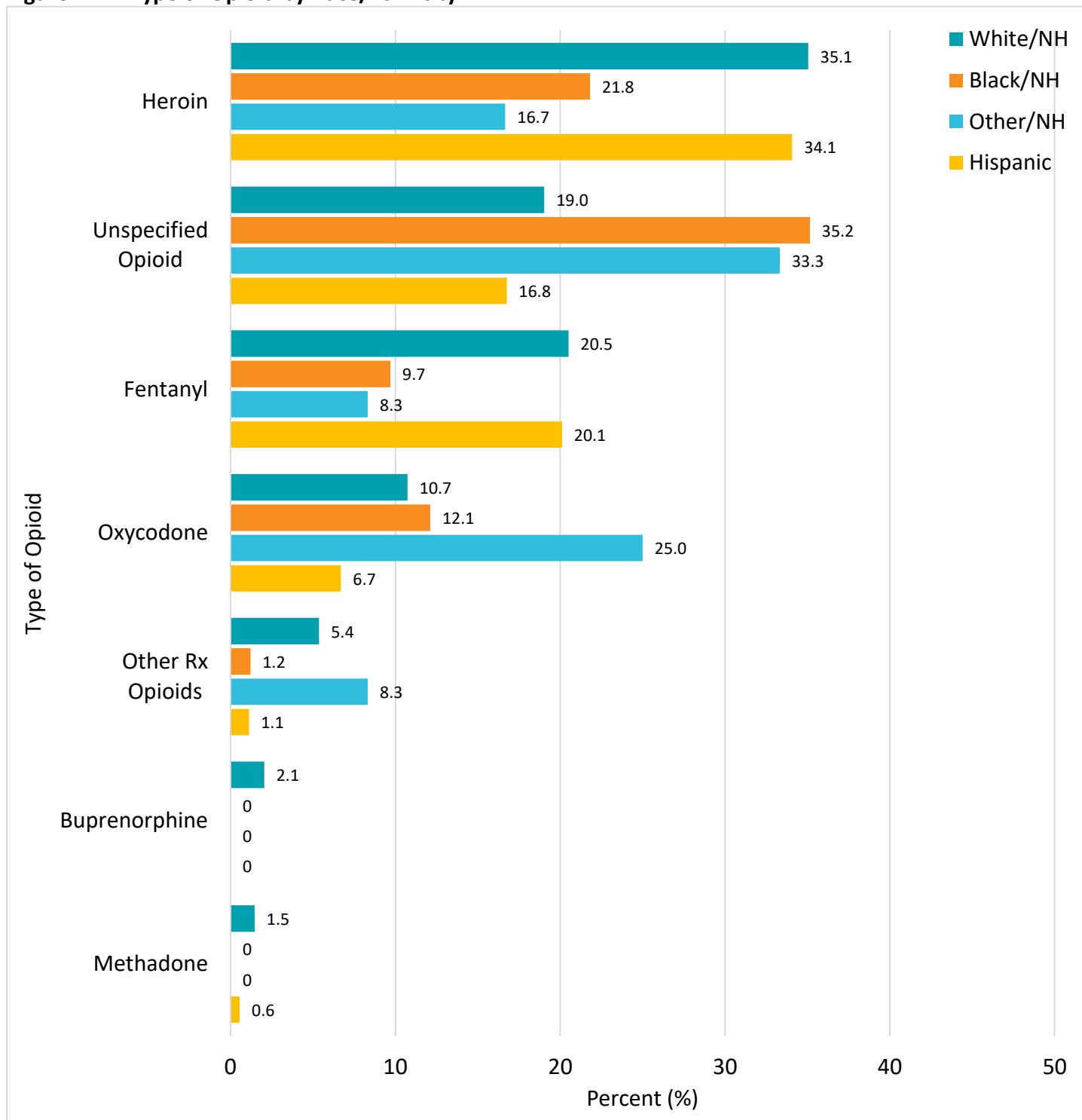
Note: Fentanyl includes both illicit and prescription fentanyl. Other Rx opioids include prescription opioids other than prescription fentanyl, oxycodone, methadone, and buprenorphine, such as hydrocodone, hydromorphone, morphine, and codeine. Substances involved in overdoses are not mutually exclusive and may be counted in more than one category if the patient ingested multiple substances in the overdose event.

Figure 28.1: Type of Stimulant by Sex
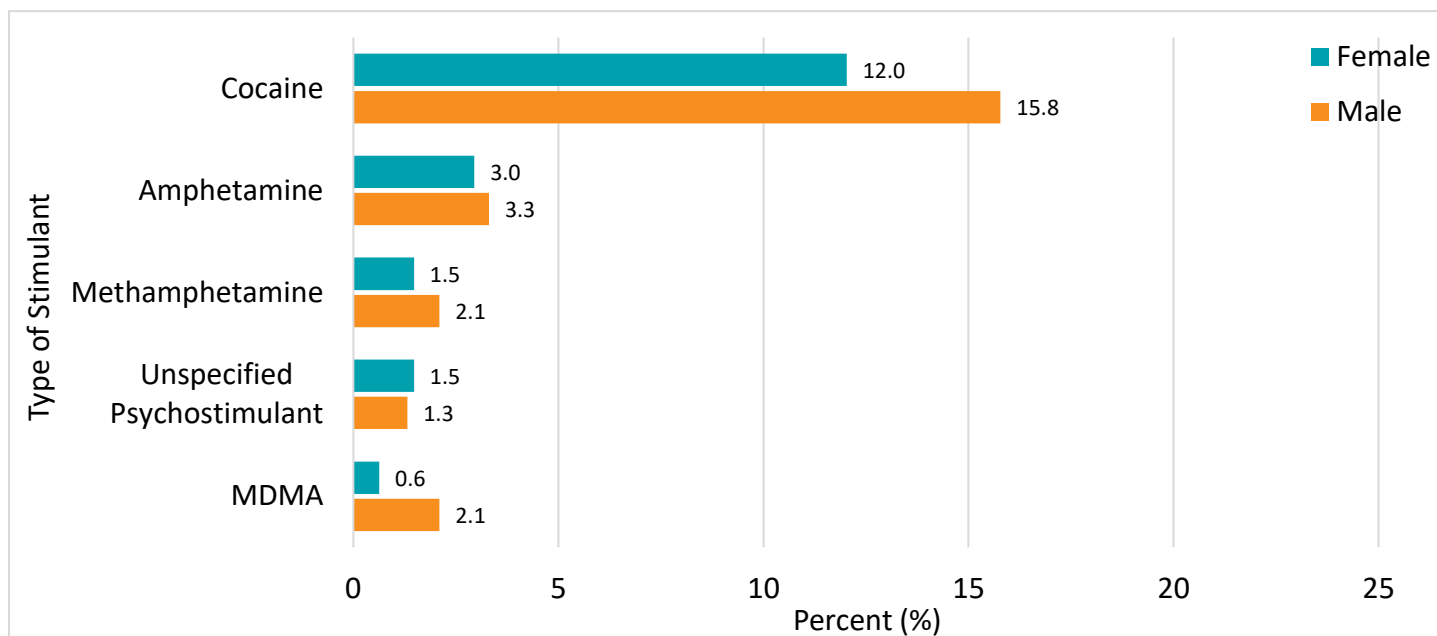
Note: Substances involved in overdoses are not mutually exclusive and may be counted in more than one category.

Figure 28.2: Type of Stimulant by Race/Ethnicity
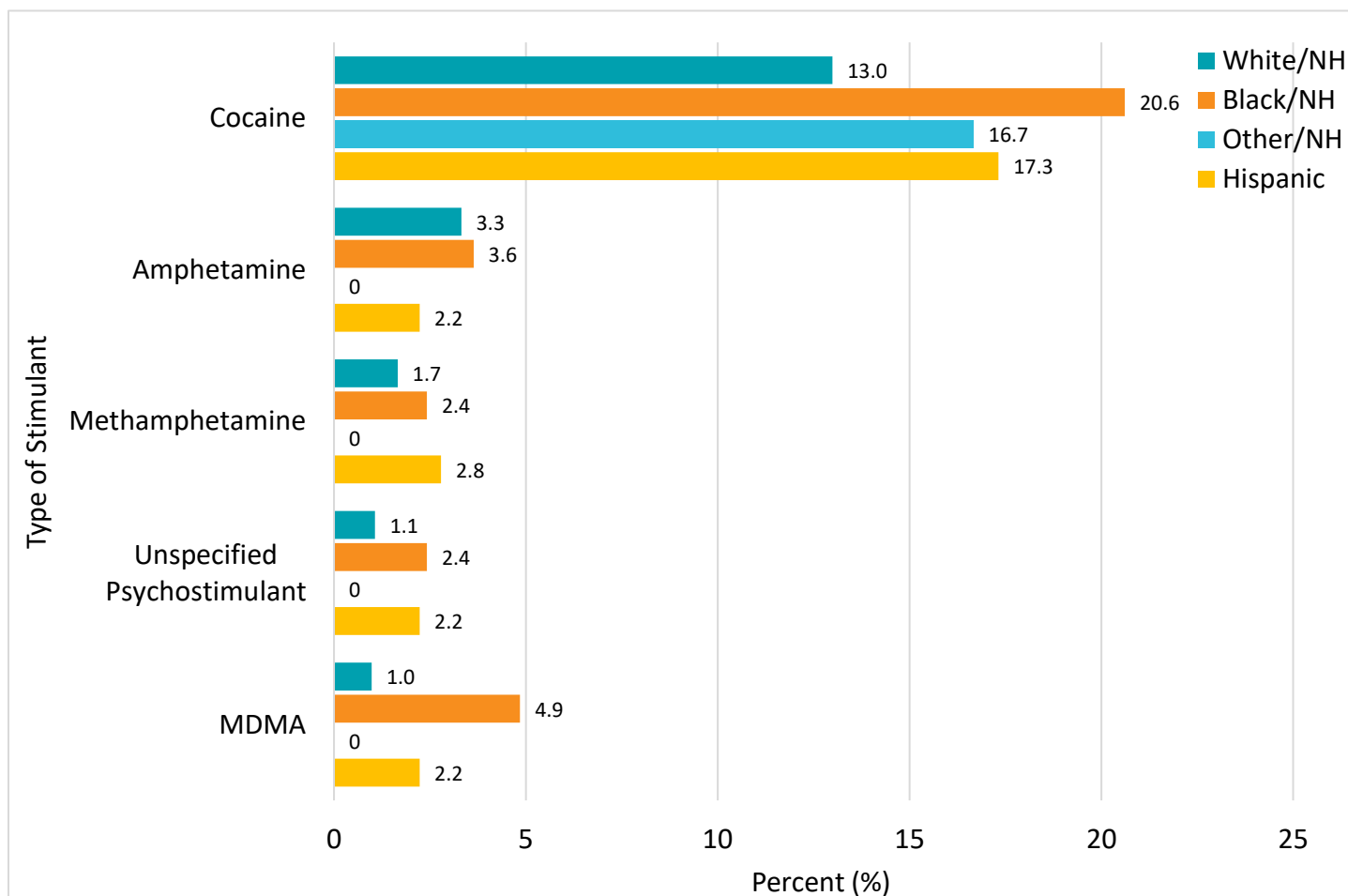
Note: Substances involved in overdoses are not mutually exclusive and may be counted in more than one category.

Polysubstance use can increase risk of serious illness or death. Polysubstance-involved overdoses accounted for 30.0% (n=414) of all overdoses compared to 70.0% (n=966) that involved only one substance (excluding alcohol or marijuana). Males more frequently used opioids alone compared to females.

Figure 29: Single Substance and Polysubstance Use Relative to Sex
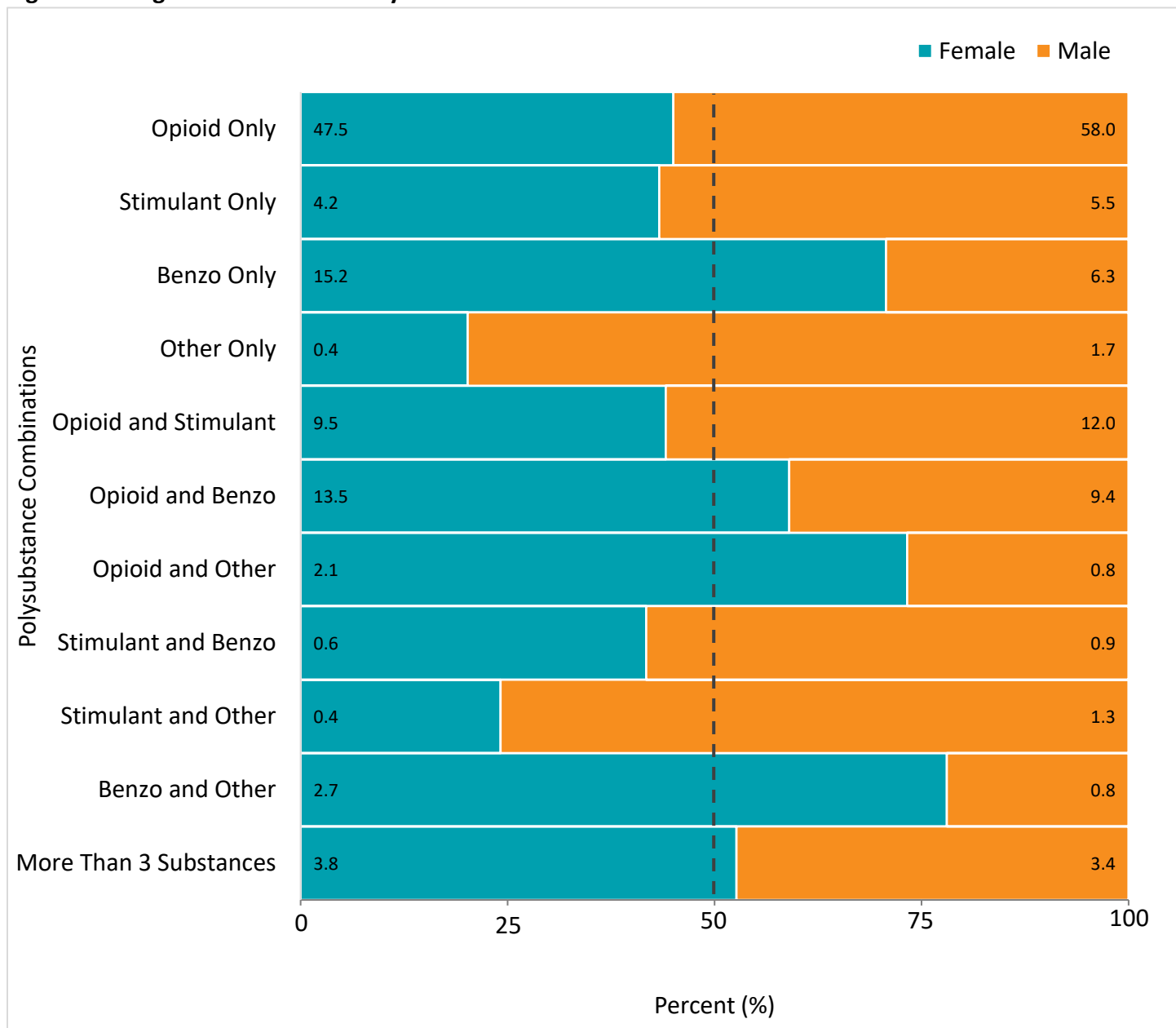
Note: Polysubstance includes multiple substances used during the overdose incident excluding alcohol and marijuana.

Toxicology Findings

Toxicology is essential for overdose surveillance to properly function. Toxicology allows surveillance systems to identify changes in substance use over time, emerging psychoactive substances, and overdose clusters relating to supply contamination. In 2021, 474 (34.4%) overdose records reported any toxicology result.

Figure 30.1: Toxicology Reporting by Sex
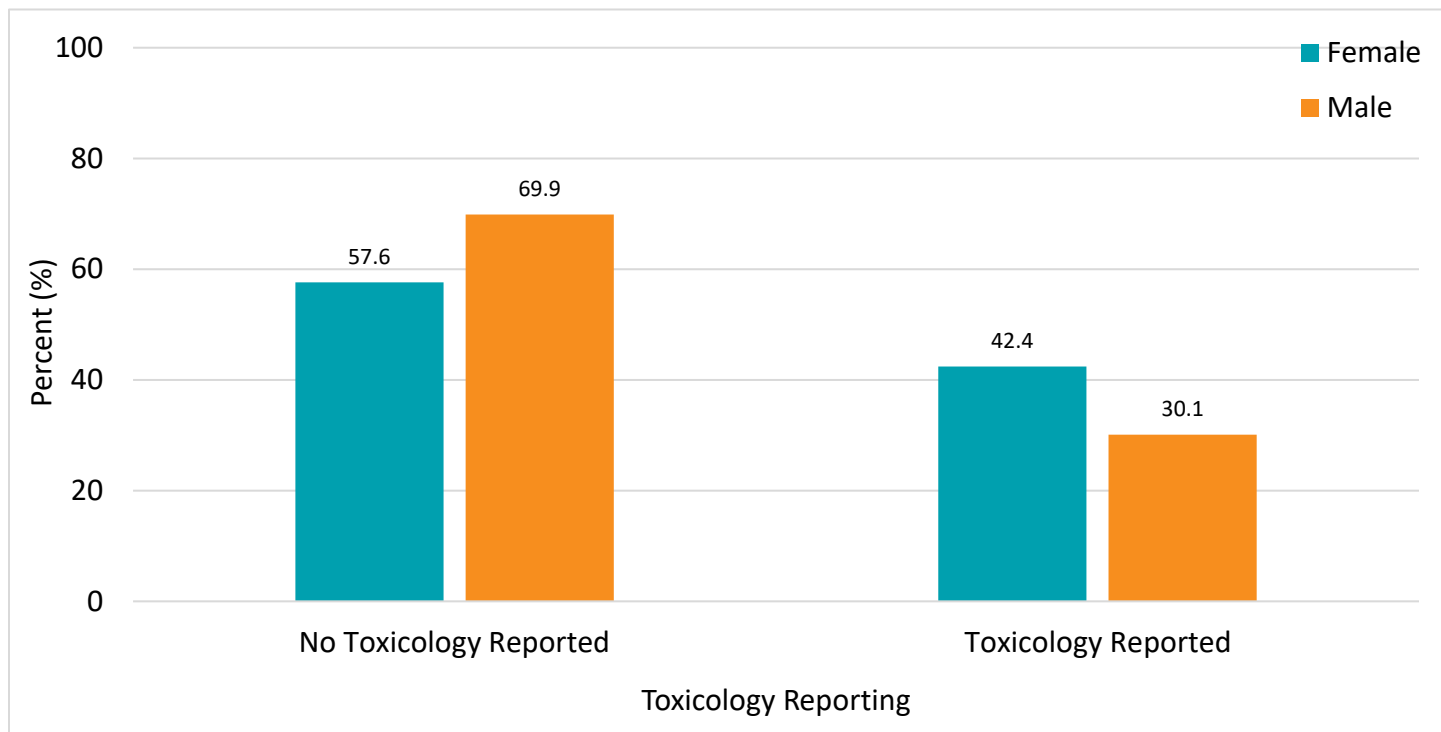
Figure 30.2: Toxicology Reporting by Race/Ethnicity
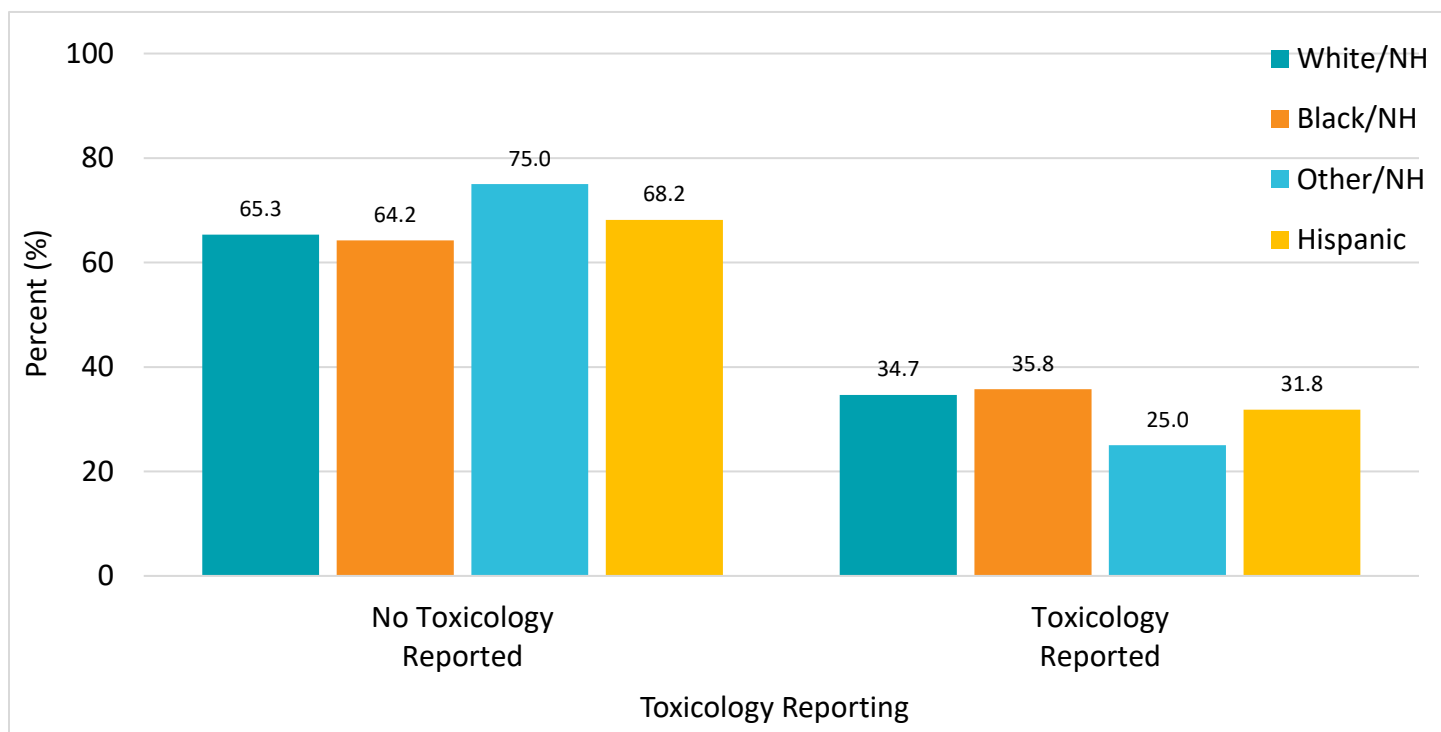
Only about one in three patients received toxicology in the 2021 sample. Those with a known history of SUD were screened even less frequently. The figure below compares the overall proportion of each race/ethnicity that received toxicology screening (gray shaded area) to the proportion each race/ethnicity that received toxicology screening when the patient had a known history of substance use (colored area). For example, 25.0% of Other/NH were given a toxicology screening. When those who are Other/NH had a history of SUD, only 12.5% received toxicology screening.

Figure 31.1: Toxicology Reported Overall Compared to Known History of Substance Use by Race/Ethnicity
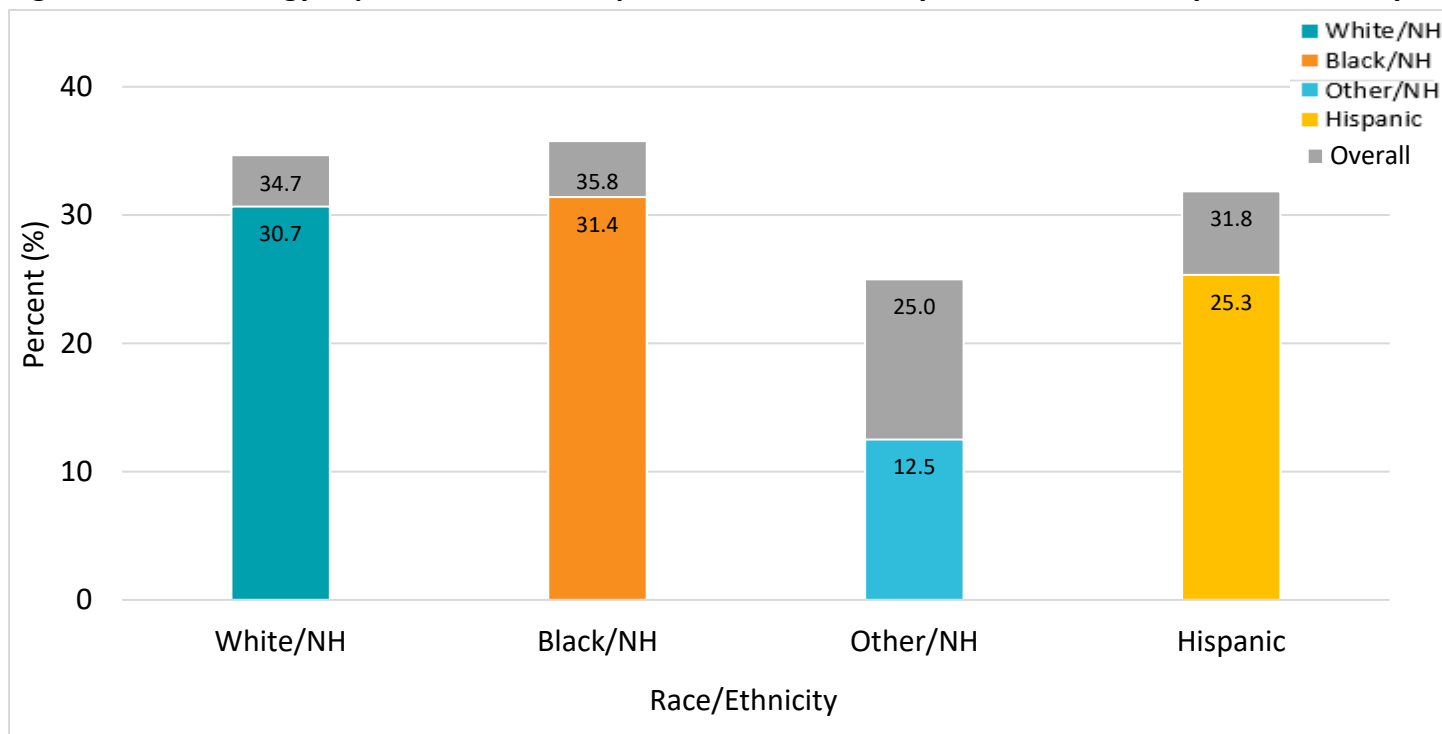
Figure 31.2: Toxicology Testing by Patient Insurance
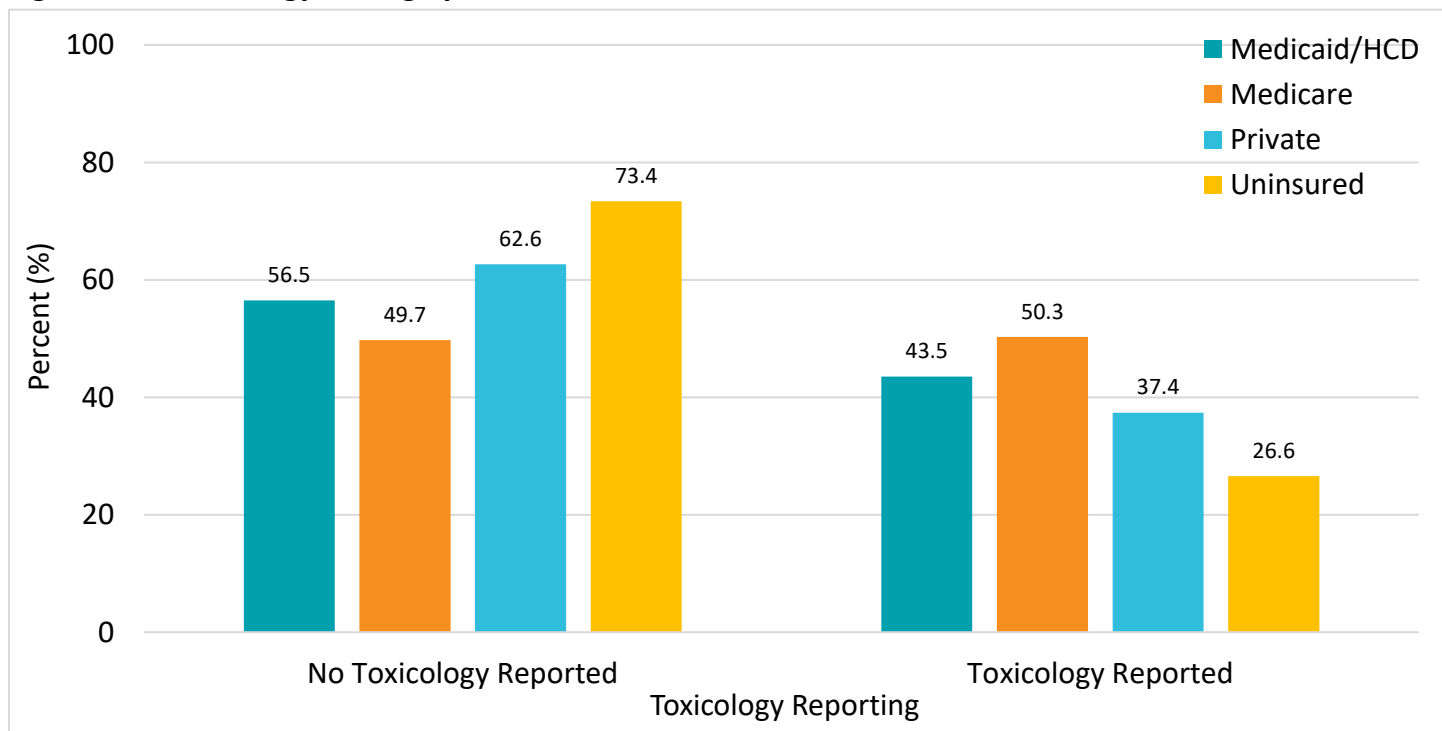
Figure 31.3: Toxicology Testing by Patient Disposition
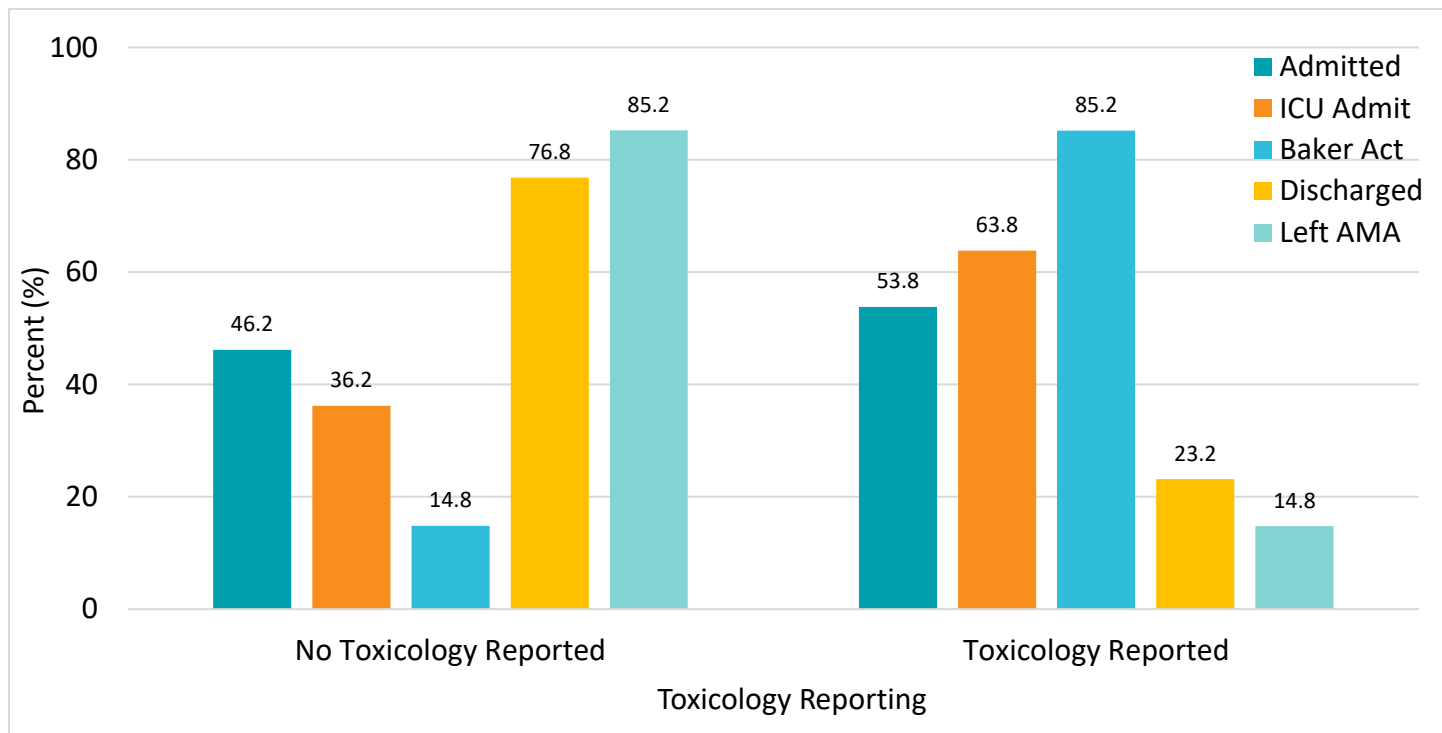
Figure 32: Toxicology Results by Substance
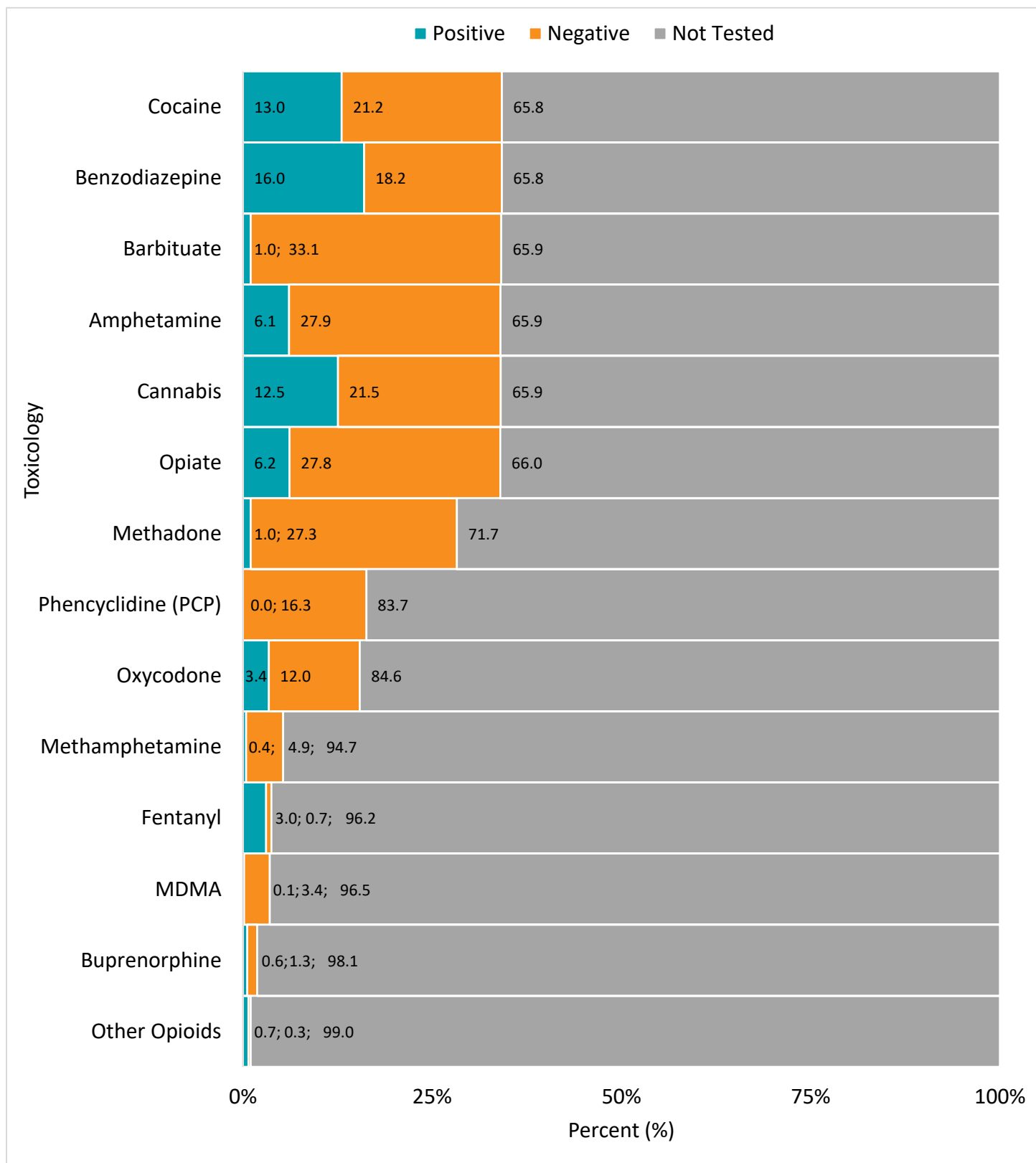
Note: Other opioids tested for included morphine, codeine, hydromorphone, and other opioid metabolites.

Figure 33.1: Toxicology Percent Positivity by Drug Type
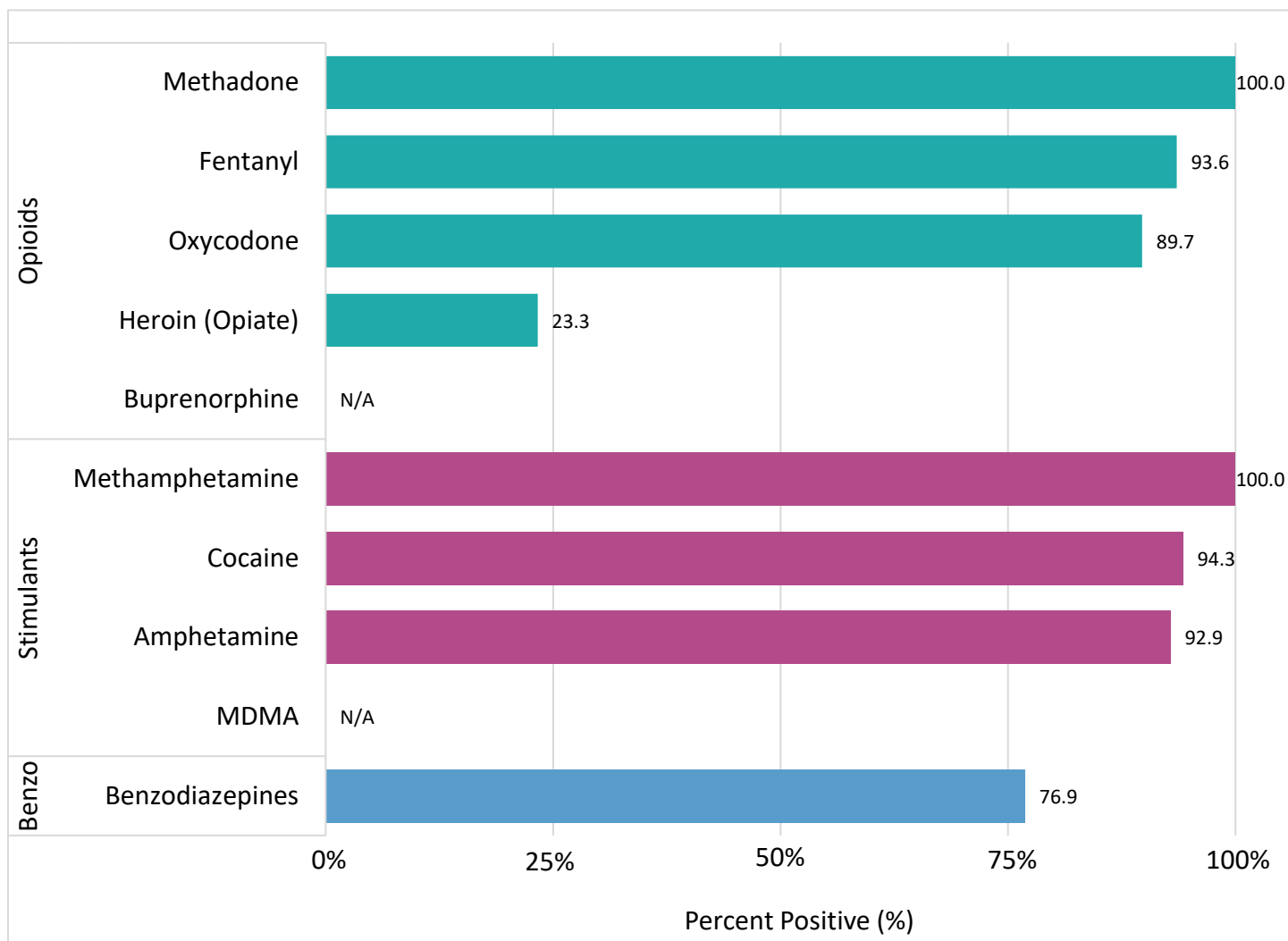
Table 2: Toxicology Percent Positivity by Drug Type

	Substance Involved in Overdose	Number Tested	Percent Positive
Opioids	Methadone	23	**100**
	Fentanyl	31	93.6
	Oxycodone	39	89.7
	Heroin (Opiate)	8	23.3
	Buprenorphine	0	N/A
Stimulants	Methamphetamine	87	**100**
	Cocaine	28	94.3
	Amphetamine	2	92.9
	MDMA	0	N/A
Benzo	Benzodiazepines	186	76.9

Figure 34.1: Ethanol Toxicology Results (Qualitative) by Sex
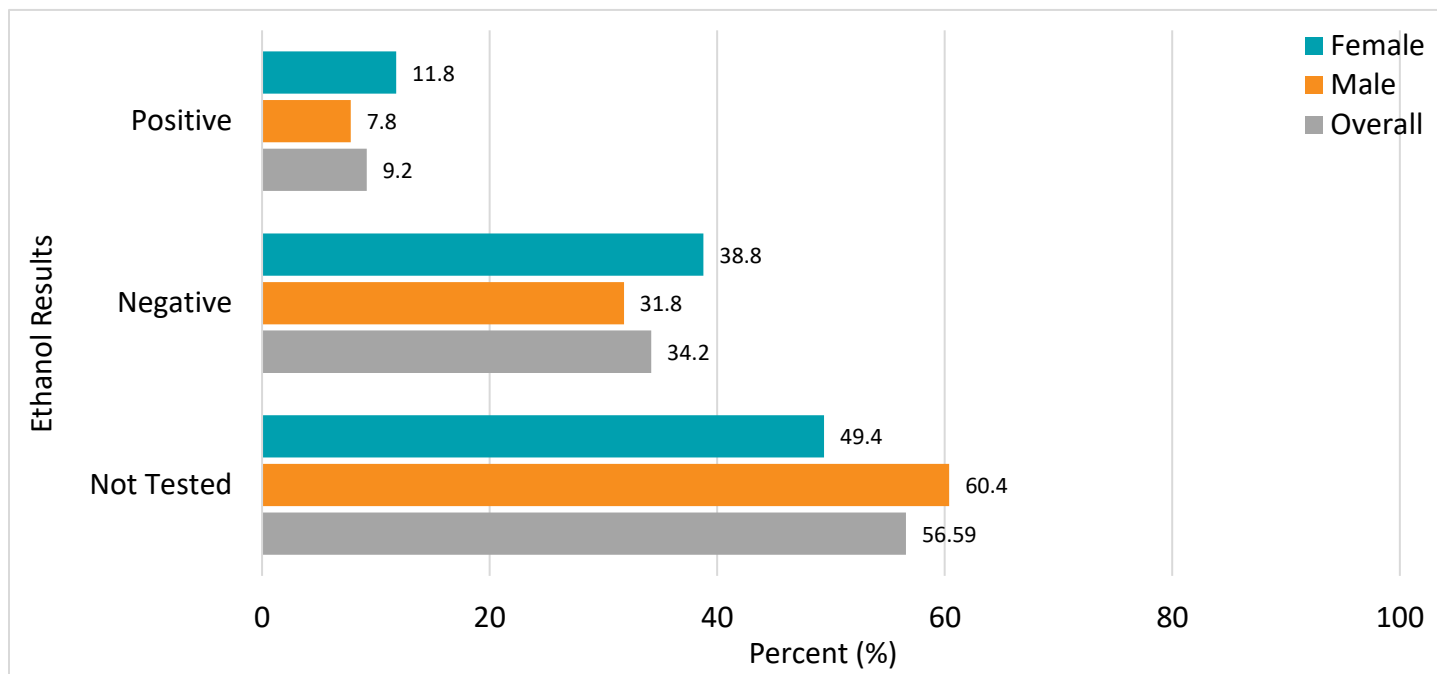
Figure 34.2: Ethanol Quantitative Result by Sex
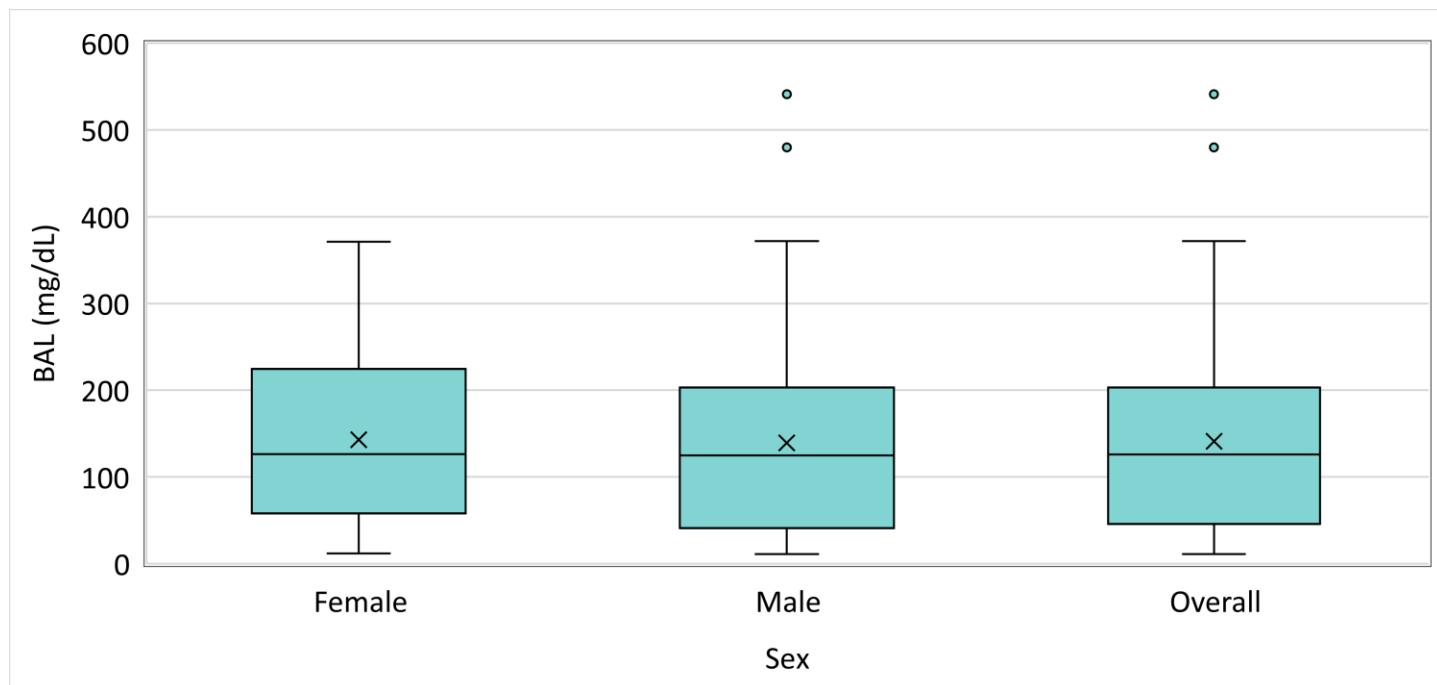
Table 3: Ethanol Quantitative Result by Sex

Sex	N Obs	N	Mean	Std Dev	Minimum	Maximum
Female	474	56	143.1 mg/dL	99.9 mg/dL	12 mg/dL	371 mg/dL
Male	906	71	139.2 mg/dL	111.8 mg/dL	11 mg/dL	541 mg/dL
Overall	1380	127	140.9 mg/dL	106.3 mg/dL	11 mg/dL	541 mg/dL

Complications

Medically diagnosed complications were reported in 280 (20.3%) patients. Other complications may have been diagnosed that are not reflected in the table below. Patients may have been diagnosed with complication(s) after ED discharge and would not be reflected in these results.

Figure 35.1: Medical Complications Following Overdose Event by Sex
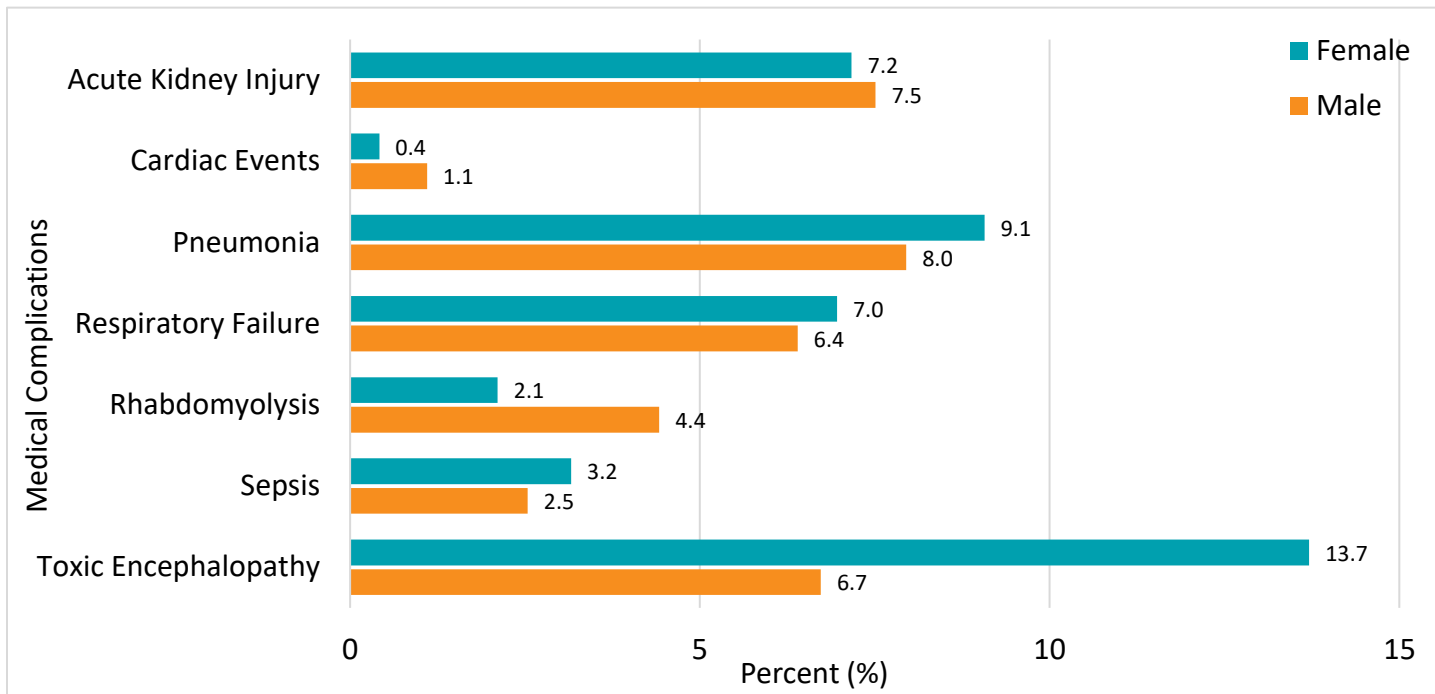
Note: Pneumonia includes aspiration pneumonia and pneumonia from unspecified organism.

Figure 35.2: Medical Complications Following Overdose Event by Race/Ethnicity
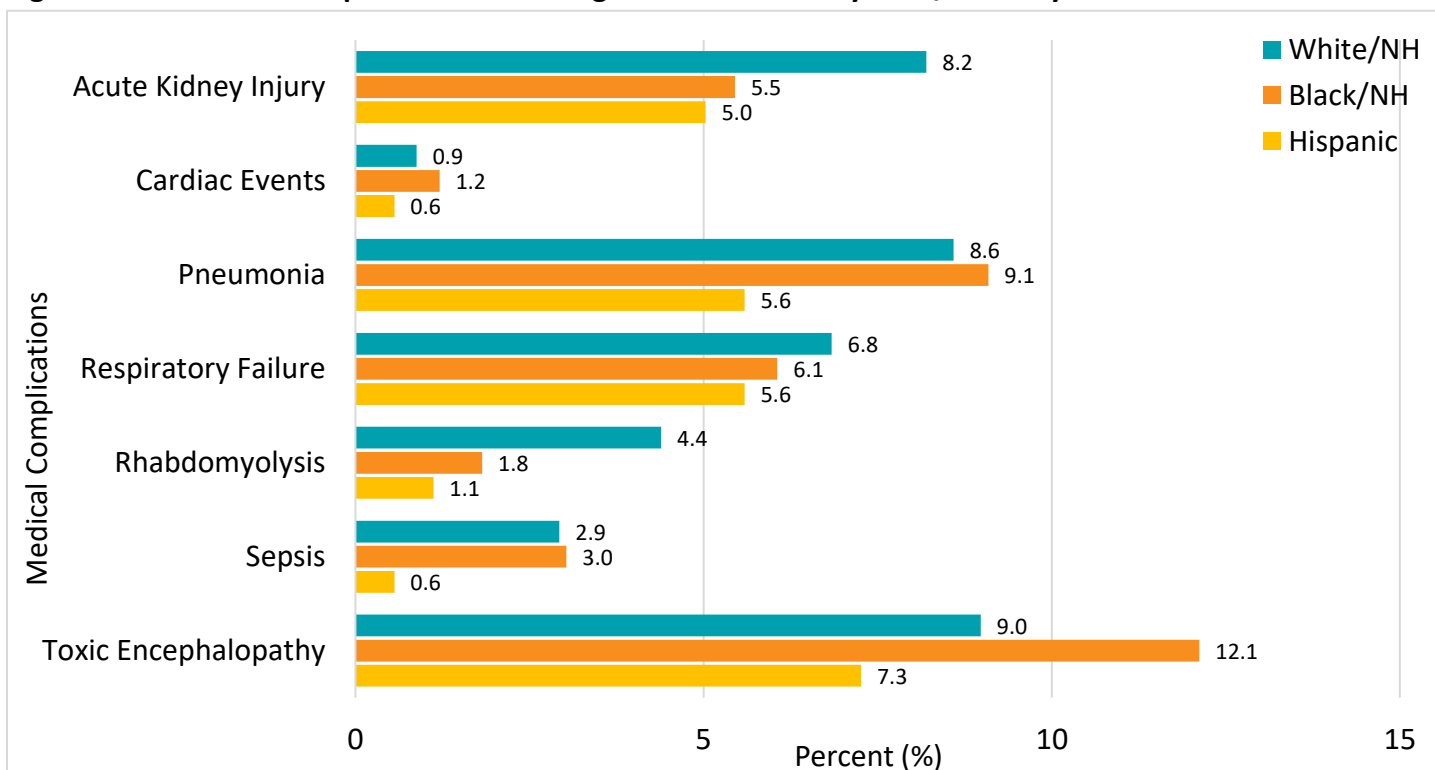
Note: Non-Hispanic Other was excluded from this chart due to small sample size. Pneumonia includes aspiration pneumonia and pneumonia from unspecified organism.

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Figure 35.3: Medical Complication by BMI Status
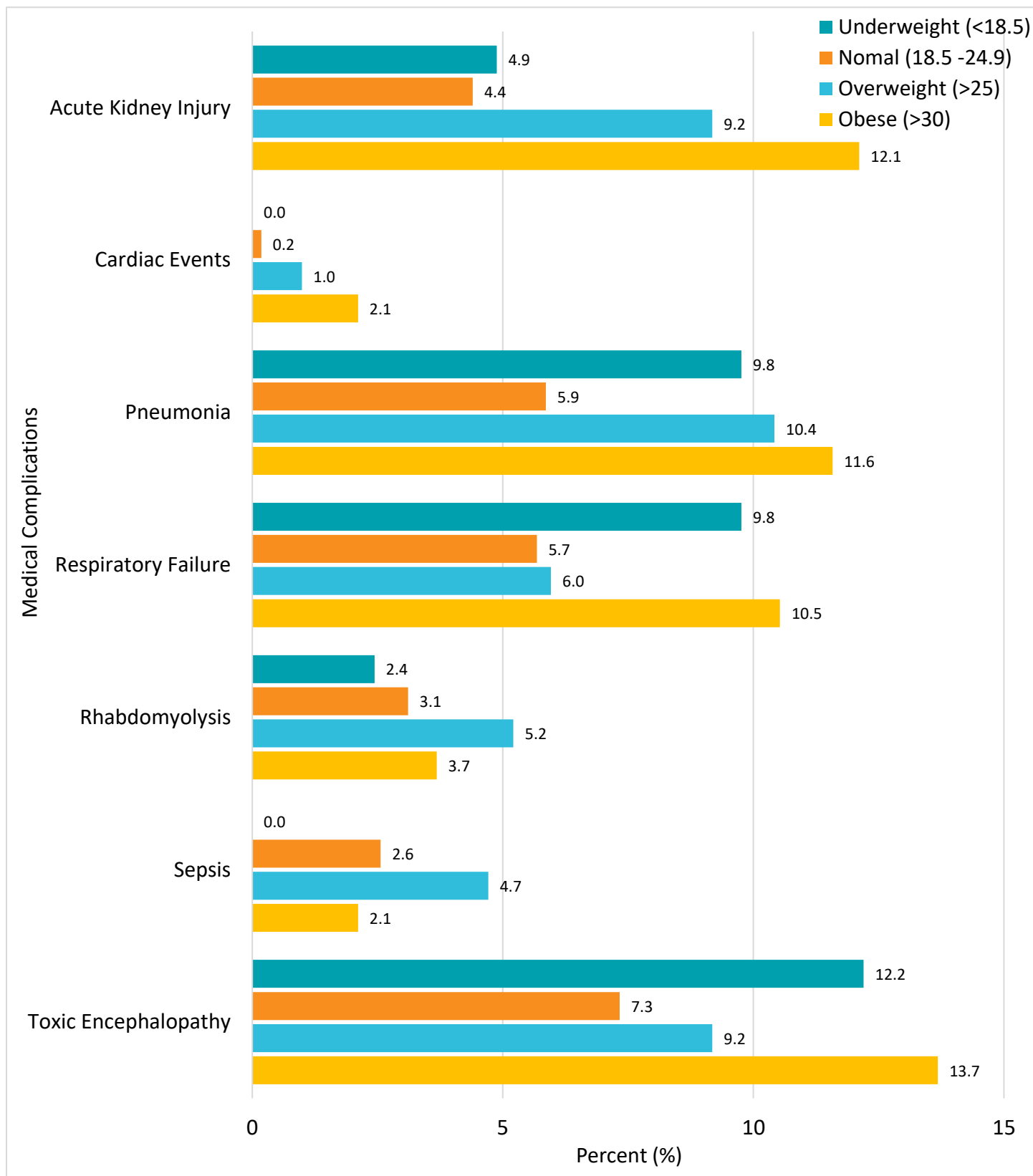
Note: Pneumonia includes aspiration pneumonia and pneumonia from unspecified organism.

Patient Disposition

Figure 36.1: Disposition of Emergency Department Patients by Sex
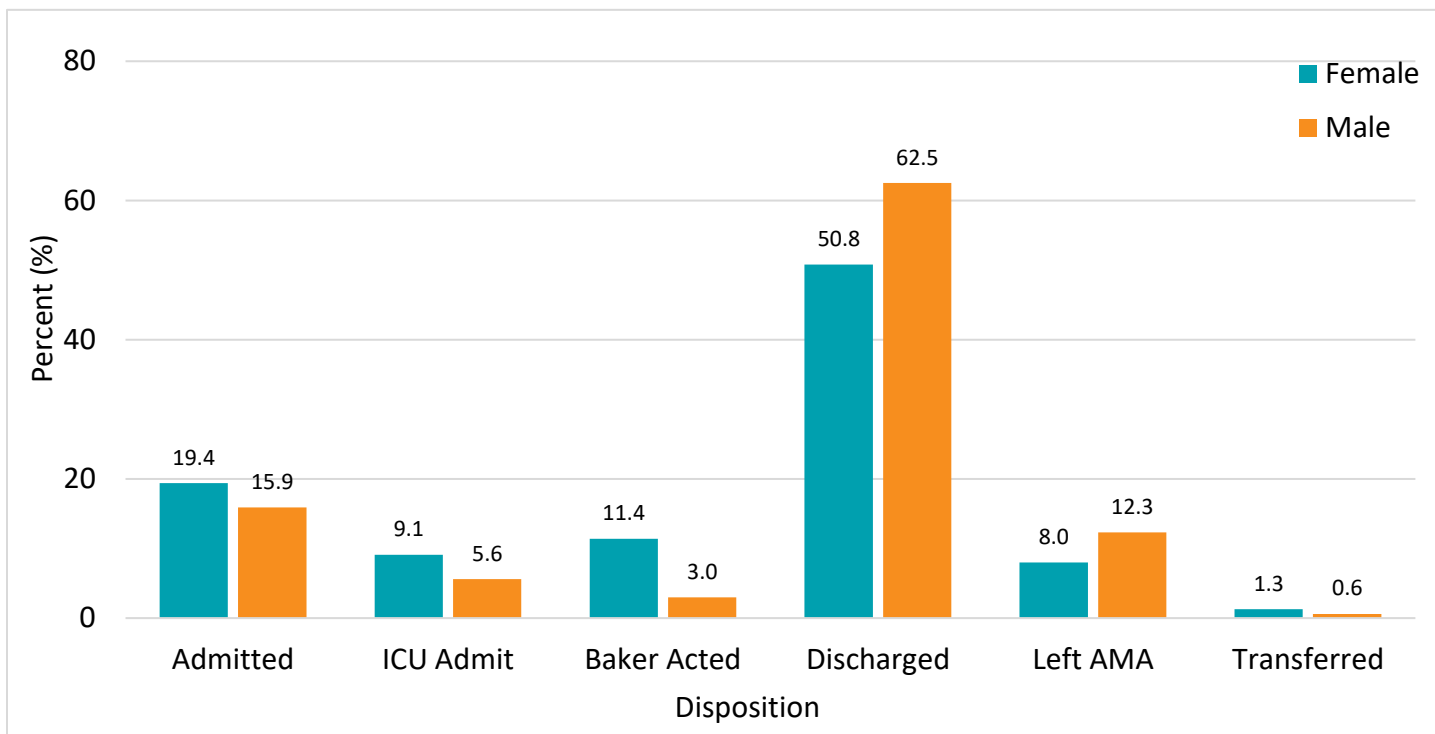
Figure 36.2: Disposition of Emergency Department Patients by Race/Ethnicity
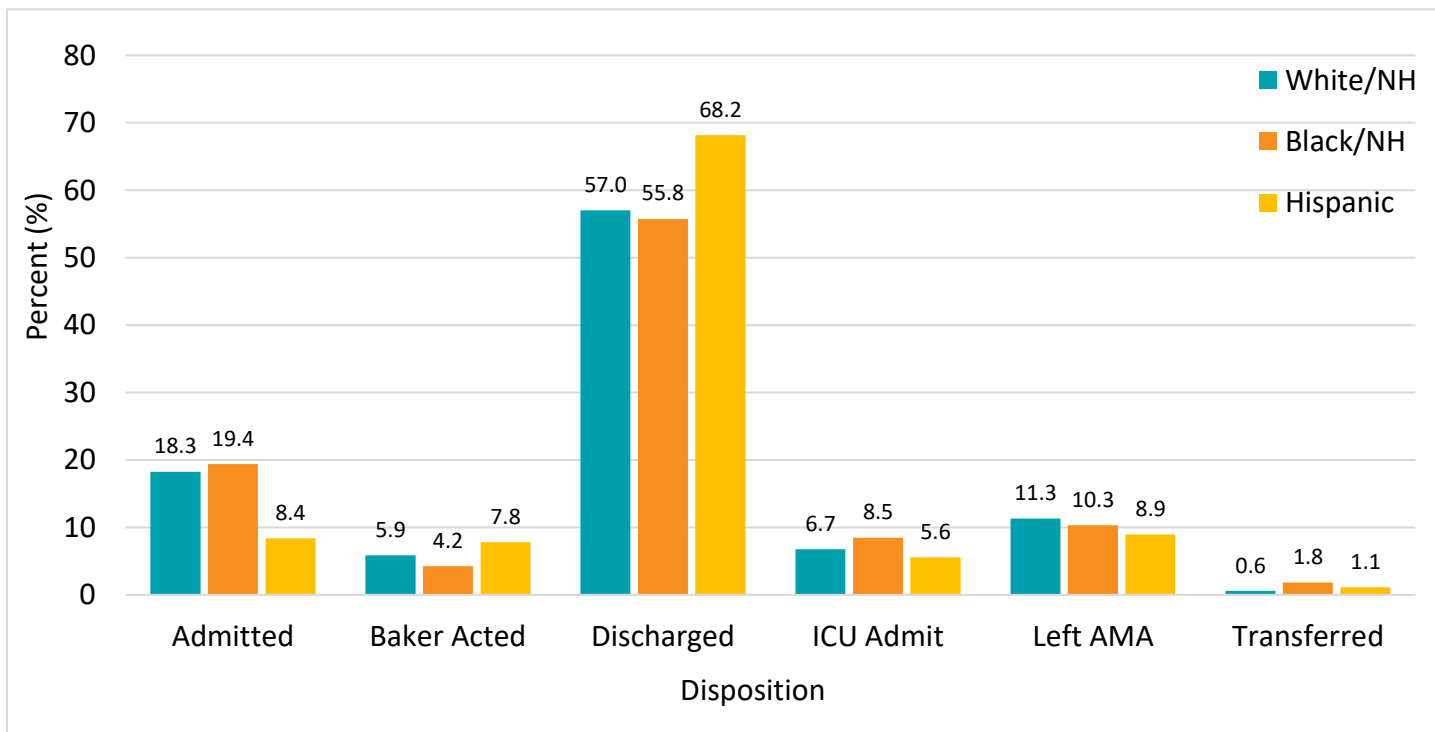
Note: Other/NH was excluded due to low response values.

Figure 37: Patients Admitted to the ICU by Substance and Race/Ethnicity
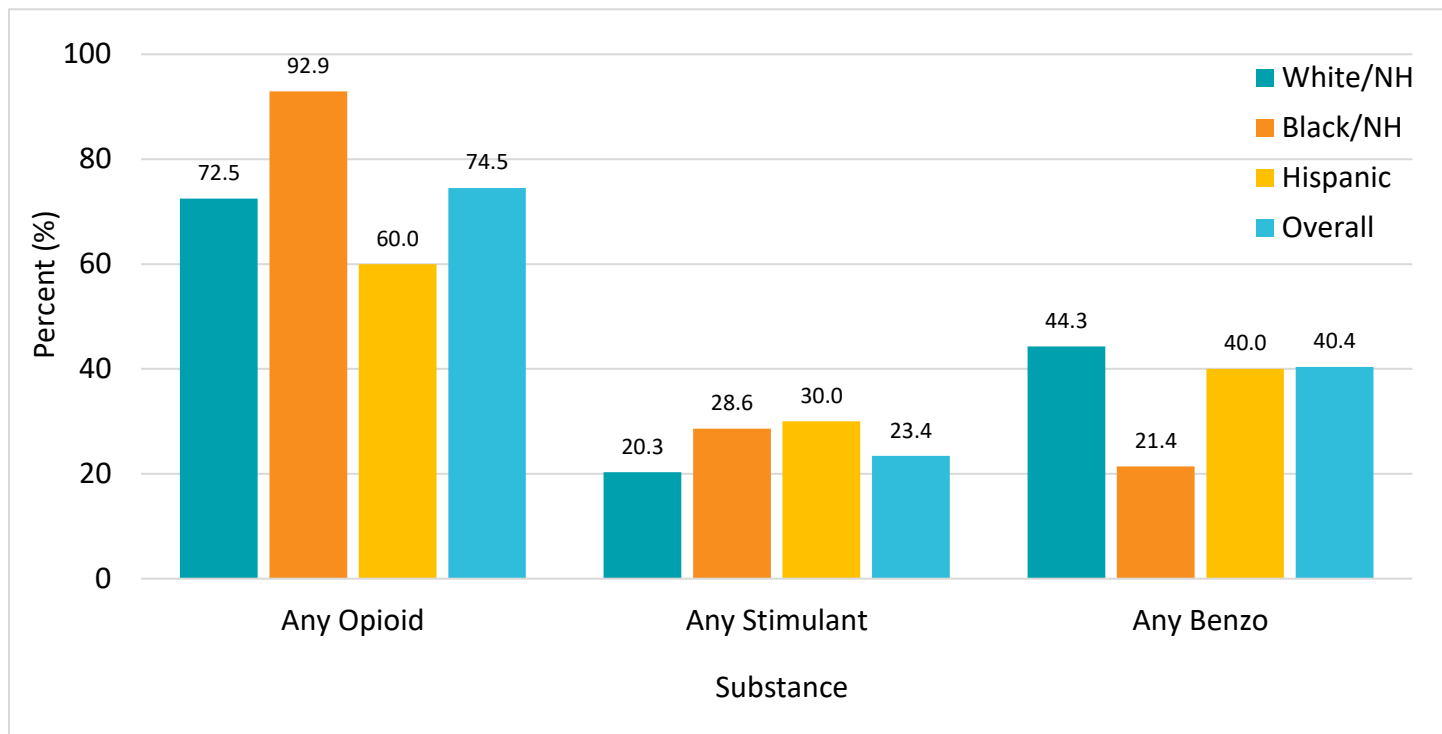
Note: Other/NH was excluded due to low response values.

Harm Reduction Services at Discharge

Figure 38.1: Harm Reduction Service by Sex
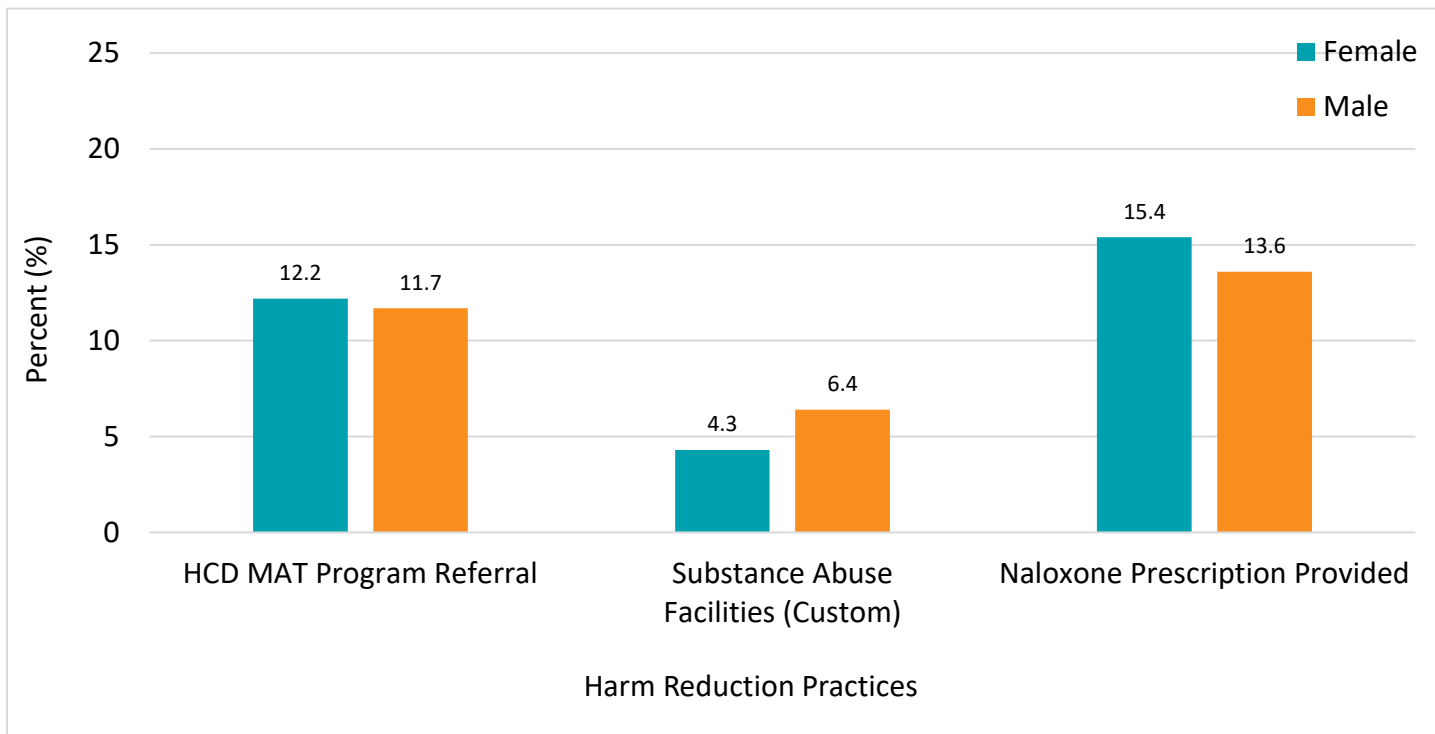
Figure 38.2: Harm Reduction Service by Race/Ethnicity
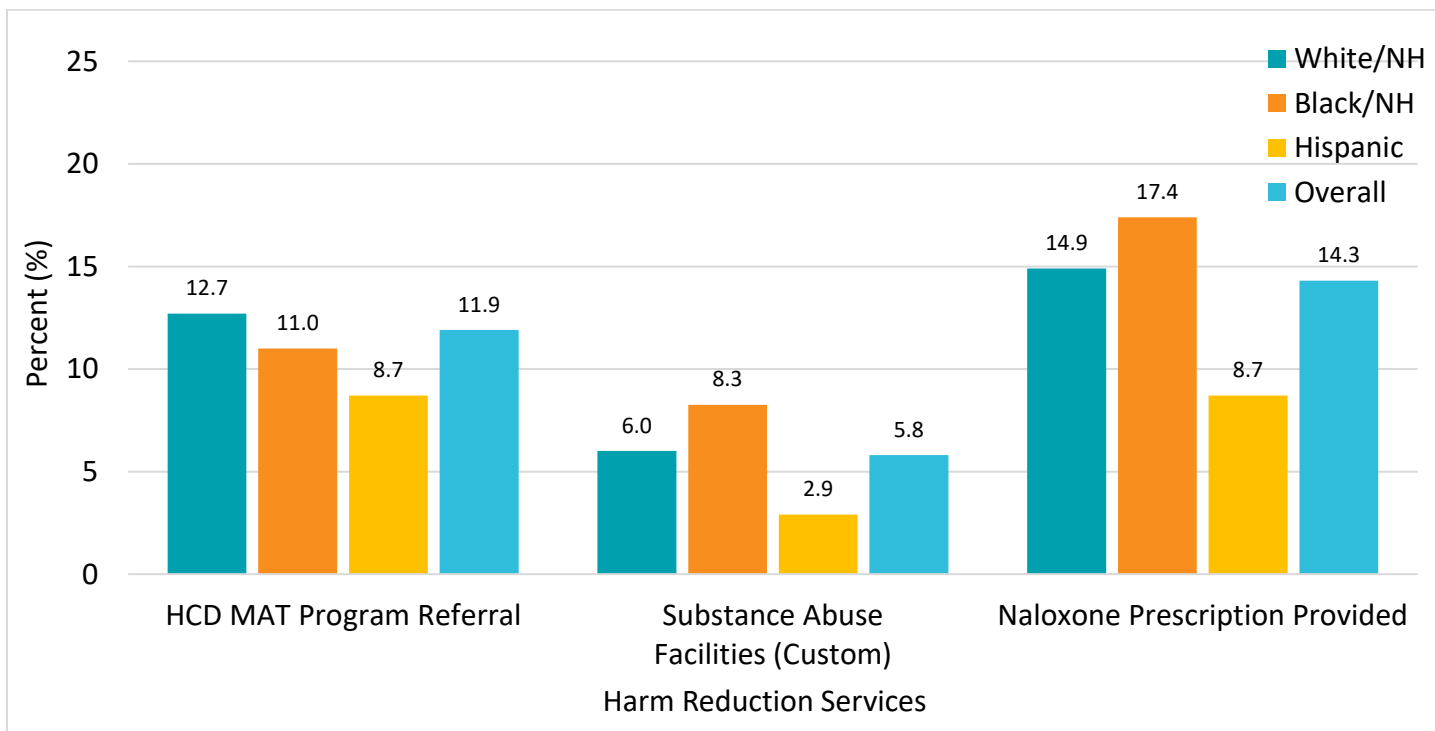
Putting Overdose Data to Action

Data presented in this report is an accumulation of many months of data digestion, integration, and validation. OD2A innovative surveillance data provides community-specific analysis of the complex and evolving overdose epidemic. This foundational knowledge drives innovative prevention and early intervention programs, creates impactful recommendations and strengthens the implementation of policies that serve the community. The following section describes current strategies the OD2A team is implementing and recommendations for consideration. By continuing to put overdose data to action, OD2A and our community partners are informing ways to address substance use disorder, prevent overdoses, and save lives. OD2A's ongoing work promises to enact real change to save real lives**.**

Harm Reduction

Harm reduction is an evidence-based prevention strategy employed across a spectrum of public health programs. Harm reduction services such as needle exchange programs, naloxone distribution, and fentanyl test strips have proven successful in reducing drug overdose fatalities among those with substance use disorders[9]. These services also help to reduce stigma and play a role in the pathway to care when an individual is ready. Data-driven overdose surveillance efforts can monitor trends and spatially analyze areas where harm reduction services can create the most impact in a population. Increasing availability of harm reduction services in PBC hospitals and OD2A community partner organizations is an effective way to combat this fast and evolving epidemic and save lives.

Overdose Fatality Review Committee

Overdose surveillance data collected by OD2A is directly integrated into the interdisciplinary overdose fatality review (OFR) in PBC. The general purpose of an OFR is to identify systemic gaps and innovative community-specific overdose prevention plans and strategies for early intervention. Fatality reviews are used to address several complex public health issues. Reviews such as homicide, child death, maternal mortality, critical incidents, suicide, and overdose deaths share many common components, such as a focus on prevention, convening of multidisciplinary teams to do a series of case reviews, identification of missed opportunities for prevention and intervention, and development and implementation of data-driven prevention and intervention strategies. OD2A collects and analyzes data on the life course of each OFR decedent. This process generates information about the decedent and his or her interactions with services and systems. Putting overdose data to action, the OFR recommendations committee generates real, actionable recommendations for the community it serves to prevent further overdose morbidity and mortality.

ACADEMIC DETAILING/PDMP EDUCATION

Academic detailing is outreach education for healthcare professionals that calls attention to evidence-based interventions to improve quality of patient care. OD2A incorporates overdose surveillance data to bring the problem home from a national epidemic to a local one. Integrating OD2A data into detailing sessions can better inform providers of the challenges and barriers for the patient and the community they serve. These interactive 1:1 discussions promote positive changes in patient care, better informed health care providers regarding local overdose trends, and increase cultural competency of providers treating patients with a substance use disorder. As a prevention tool in the OD2A program, academic detailers assess the trends in prescription and overdose data to better inform our outreach to the providers in our county.

The main initiative of academic detailing is to increase prescriber utilization of the Florida PDMP (E-FORSCE®) when prescribing controlled substances. The Florida E-FORSCE® is a database that collects and stores controlled substance dispensing information[10]. The purpose of the database is to encourage safer prescribing and reduce substance use disorders and drug diversion. Assessing prescription trends county-wide assists in tailoring the interactive detailing visit to the need of the community and bridge any gap between the individual's clinic practice and county-level data.

COMMUNICATING FINDINGS

Overdose surveillance data collected by OD2A is directly informing public health campaigns and community outreach events. Data provided to local OD2A communications personnel can increase the efficacy of the message reaching the target audience in future public health campaigns. By identifying demographics and characteristics of people who experienced an overdose, and by describing regional variations in trends, messaging can be adjusted to the needs of each region.

INCREASING TOXICOLOGY SCREENING

Toxicology screening can be an incredibly helpful tool for clinicians to properly treat an overdose and recommend long-term SUD management. Toxicology screening data is used in overdose surveillance in the county to monitor 1) changes in substance use trends over time, 2) new or novel psychoactive substances (NPS), and 3) contaminated local drug supply (i.e. "laced") that may cause increases in overdoses. Data from 2021 non-fatal innovative overdose surveillance found that 34.4% of patients were screened for toxicology compared to the 33.4% screened in 2020[4]. Testing for fentanyl remains a challenge in PBC, with anecdotal evidence citing issues with a lack of controls for fentanyl toxicology screening. Overall, the 2021 non-fatal overdose surveillance sample increased from 1.1% tested to 3.7% for fentanyl testing.

TECHNICAL NOTES

DATA COLLECTION AND ANALYSIS

Syndromic Surveillance:

ESSENCE-FL: De-identified ED data was obtained from ESSENCE-FL. ESSENCE has three functions that include data ingestion, reporting, and analysis[11]. During data ingestion, hospital CCDD data is received electronically and placed in syndrome groups. The query used for reporting is the CCDD category "Drug-CDC All Drug v2 OD2A" based off the CDC inclusion and exclusion criteria for overdose[12]. Variables of interest included patient home ZIP Code, date and time of ED visit, data pertaining to CCDD, and patient demographics including age, sex, race, and ethnicity. Microsoft Excel (Microsoft Corporation, Redmond, WA) and SAS Version 9.4 (SAS Institute, Cary, NC) were used for data management and analysis. Spatial analysis was completed using ArcGIS Pro 3.0.1 (ESRI, Redlands, CA).

Biospatial: De-identified EMS data was obtained from Biospatial. Biospatial collects timely EMS electronic patient care report (ePCR) data according to the National EMS Information System (NEMSIS) standard[13]. Syndrome definitions for overdose are based on Enhanced State Opioid Overdose Surveillance (ESOOS) criteria as defined by the state of Florida[14]. Variables of interest included incident ZIP Code, date and time of overdose EMS response, suspected substances involved, and patient demographics including age, sex, race, and ethnicity. Microsoft Excel (Microsoft Corporation, Redmond, WA) and SAS Version 9.4 (SAS Institute, Cary, NC) were used for data management and analysis. Spatial analysis was completed using ArcGIS Pro 3.0.1 (ESRI, Redlands, CA).

Innovative Non-Fatal Overdose Surveillance

Data Procurement: Medical records for suspected overdose were received from participating hospitals through secure FDOH fax, secure FDOH email, or in person by OD2A personnel. Physical records were securely stored in locking file cabinets behind no fewer than two locked doors. Electronic records were stored securely in Merlin, the state's communicable disease repository. All patient records were handled in accordance with Health Insurance Portability and Accountability Act (HIPAA) regulations at all times.

Data Abstraction and Analysis: All medical records were manually reviewed to determine if they met inclusion/exclusion criteria. In records in which information was scarce, the OD2A data team convened a committee to review available data and vote on the inclusion or exclusion of the record in question. Records that met the case definition for suspected overdose then underwent abstraction to extract a wide range of variables. A unique patient ID was assigned to each patient to protect patient privacy. Variables extracted include but are not limited to demographics, lifestyle characteristics, health history, social history, substance use and treatment history, and history of law enforcement interactions. Supplemental data was obtained through the data sources found in Table 4 of the Appendix. In some instances, chi-square tests with significance level of $p<.05(*)$, $p<.01(**)$, and $p<.001(***)$ were calculated for comparison between groups. Microsoft Excel (Microsoft Corporation, Redmond, WA) and SAS Version 9.4 (SAS Institute, Cary, NC) were used for data management and analysis. Spatial analysis was completed using ArcGIS Pro 3.0.1 (ESRI, Redlands, CA).

LIMITATIONS

The limitations presented below are non-exhaustive.

Syndromic Surveillance

Syndromic surveillance was originally designed for infectious disease or communicable disease for the early notification of a potential outbreak or epidemic. Syndromic surveillance was designed to be more sensitive (capturing as many true cases of disease as possible) but not as specific (excluding those who do not have the disease). This means that the system itself was designed to prioritize including all true cases of disease at the risk of including some cases that do not have the disease (false positives). For potentially fatal diseases (e.gl, rabies, smallpox, etc.) the public health risk is so great that it is better to include false positives than to potentially exclude a true positive case. Adapting syndromic surveillance to surveil for suspected overdoses is a relatively new process. The data collected from surveillance systems such as ESSENCE-FL may include ED visits that were not actual overdose incidents, but rather ED visits in which CCDD terms might have included one or more key words or phrases that triggered the inclusion.

Syndromic surveillance in this report did not account for polysubstance use overdose (i.e. where multiple substances were involved in the overdose event). Substances involved in suspected events are not mutually exclusive. Therefore, overdose events where multiple substances are reported, such as when a person overdoses on a combination of opioids and stimulants, might be counted across multiple categories.

Innovative Surveillance

During the data collection process for 2021, suspected overdoses were not a reportable condition in Florida. Hospital participation in the OD2A PBC innovative surveillance initiative was voluntary, and not all hospitals chose to participate. Data received varied by hospital. This report is based on information available at the time of review. Unlike syndromic surveillance data, which all 14 PBC hospitals report in ESSENCE, not all hospitals are represented in the innovative surveillance data. Spatial analysis is limited in its ability to accurately show geographical distributions and trends using this data and is largely omitted from this report.

Limitations exist in classifying types of substances involved in overdose events. The type of overdose (substance involved) is determined based on a combination of provider impressions, patient or witness testimony recorded in the record, discharge diagnoses, and medications administered (i.e., the use of naloxone), where data was available. Records in which a patient denies any substance use required additional information provided in the medical record to be included in this analysis, such as naloxone administration with improvement, toxicology, or discharge diagnosis. This may have led to the misclassification – and possible exclusion – of the type of overdose based on the limited scope of knowledge at the time of review.

Data for innovative surveillance was supplemented through previous overdose records or other hospital events in the FDOH database. Not all patients were in the database, because some may have not had a previous overdose recorded or had gone to the hospital for SUD; therefore, different data for each patient was obtained. Patient data may be subject to response bias, in which the patient may have answered health or lifestyle questions inaccurately due to fear of stigma or possible legal prosecution. Reporting of race/ethnicity was determined based on the information presented and is subject to misattribution. Housing status was determined based on multiple potential indicators at the time of overdoses event and is subject to misattribution. Prescription medication history was not always in the medical record or would only be self-reported as transcribed in the free text of medical records. Patients that left AMA from the ED following the overdose were less likely to have a thorough history and physical taken at the time of overdose and data may be limited for those situations.

ABBREVIATIONS AND DEFINITIONS

Abbreviations

ACEs	Adverse Childhood Experiences
ADHD	Attention Deficit Hyperactivity Disorder
AMA	Against Medical Advice (i.e. "left AMA")
ASU	Addiction Stabilization Unit at JFK Medical Center North Campus
BMI	Body Mass Index
CCDD	Chief Complaint/Discharge Diagnosis
CDC	Centers for Disease Control and Prevention
DMT	N, N-Dimethyltryptamine
DUI/DWI	Driving Under the Influence/Driving While Intoxicated
ED	Emergency Department
EMS	Emergency Medical Services
ESSENCE	Electronic Surveillance System for the Early Notification of Community-Based Epidemics
FDOH	Florida Department of Health
GHB	Gamma Hydroxybutyrate
HCD	Health Care District
HIPAA	Health Insurance Portability and Accountability Act
HIV	Human Immunodeficiency Virus
ICU	Intensive Care Unit
IVDU	Intravenous Drug Use
LE	Law Enforcement
LSD	Lysergic Acid Diethylamide
MAT	Medication Assisted Treatment
MDMA	3,4 - methylenedioxymethamphetamine
MEO	Medical Examiner Office
MOUD	Medications for Opioid Use Disorder
MRSA	Methicillin Resistant Staphylococcus Aureus
NAS	Neonatal Abstinence Syndrome
NH	Non-Hispanic
OD	Overdose
OD2A	Overdose Data to Action
OFR	Overdose Fatality Review
OUD	Opioid Use Disorder
PBC	Palm Beach County
PDMP	Prescription Drug Monitoring Program
PTSD	Post-Traumatic Stress Disorder
PWID	People Who Inject Drugs
PWUD	People Who Use Drugs
RX	Prescription
SOOTM	Synthetic Opioids Other Than Methadone
STARS	Surveillance Tools and Reporting System
STD	Sexually Transmitted Disease
SUD	Substance Use Disorder

Definitions

Amphetamines: Stimulants commonly prescribed to treat certain medical conditions such as ADHD or narcolepsy and carrying a potential for abuse. Examples: Adderall, Ritalin, Vyvanse.

Baker Act: The Florida Baker Act law allows doctors, mental health professionals, judges, and law enforcement to commit a person to a mental health treatment center for up to 72 hours if they display certain violent or suicidal signs of mental illness.

Benzodiazepines: Depressants commonly prescribed to treat certain medical conditions such as anxiety or insomnia and carrying the potential for abuse. Examples: Xanax, Valium, Klonopin.

Buprenorphine: A partial opioid agonist prescribed to treat opioid use disorder as well as long term pain management. Examples: Subutex, Suboxone, Sublocade.

Cocaine: An illicit stimulant found as a powdery substance or in a crystalline form as crack.

Fentanyl: A synthetic opioid 50 to 100 times more potent than morphine, originally used in medical settings to treat severe pain, and now dominating the illicit opioids supply.

Gamma hydroxybutyrate (GHB): A psychoactive designer drug often used as a party drug in bars, nightclubs and raves. Also known as a "date rape drug" or as Liquid Ecstasy.

Harm Reduction: A set of practical strategies and ideas aimed at reducing negative consequences associated with drug use. Examples: safe prescribing practices, clean syringe programs, naloxone distribution.

Heroin: An illicit opioid processed from morphine that rose to prominence in 2010 as a cheaper alternative to the diversion of prescription opioids.

Ketamine: A powerful anesthetic originally used by veterinarians that has become popular as party drug. Also known as "Special K."

Kratom: A psychoactive herbal substance that can cause produce opioid and stimulant-like effects.

Lysergic acid diethylamide (LSD): A psychedelic drug also known for its hallucinogenic affect and altered sensory perception. Also known as "acid."

Marchman Act: A civil and involuntary commitment statue in the state of Florida that provides means to voluntarily or involuntarily commit those who are struggling with a substance use disorder.

Medication for Opioid Use Disorder (MOUD): An evidence-based approach to treat opioid use disorder that combines the use of FDA-approved medications with counseling and behavioral therapies.

Methadone: A synthetic opioid prescribed to treat opioid use disorder as well as manage chronic pain.

Methamphetamine: An illicit stimulant that takes the form of a white odorless powder or in a crystalline form as crystal meth.

N, N-Dimethyltryptamine (DMT): A hallucinogenic similar to psilocybin, or "magic mushroom**."**

Naloxone: An opioid antagonist used to rapidly reverse the effects of an opioid overdose. Examples include the nasal spray, Narcan, and as an auto injectable, Evzio.

Naltrexone: An opioid antagonist medication prescribed to treat opioid and alcohol use disorder. Examples include Vivitrol and Revia.

Opiates: A class of opioids naturally derived from the poppy plant. Examples: Morphine, Codeine, Heroin.

Opioids: A class of drug that act on receptors to reduce pain and carry a potential for abuse. They encompass naturally derived opiates, as well as synthetic and semi-synthetic opioids. Examples: Fentanyl, Heroin, Oxycodone.

Stigma: A set of negative attitudes or beliefs that can lead to labeling, stereotypes, and discrimination.

Suboxone (Buprenorphine/ Naloxone): A sublingual medication prescribed to treat opioid use disorder that combines the partial agonist buprenorphine with the antagonist naloxone.

Syndromic Surveillance: Gathers information about patient's symptoms during the early phases of illness.

Synthetic Cathinones: A class of drug known as novel psychoactive substances design to mimic other illicit drugs, also known as "Flakka" or "bath salts."

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Suggested Citation

APPENDIX

Table 3: Non-Fatal Overdose Sample Data by Hospital, Palm Beach County 2021

Palm Beach County Hospital	Frequency (n)	Percent (%)
West Boca Medical Center	107	7.8
Wellington Regional Hospital	313	22.7
St Mary's Medical Center	191	13.8
Palms West Hospital	21	1.5
Palm Beach Gardens Medical Center	79	5.7
Lakeside Medical Center	0	0.0
Jupiter Medical Center	135	9.8
JFK Medical Center North	132	9.6
JFK Medical Center	10	0.7
Good Samaritan Medical Center	139	10.1
Delray Medical Center	141	10.2
Boca Raton Regional Hospital	111	8.0
Bethesda Hospital West	0	0.0
Bethesda Hospital East	1	0.1

Table 4: Supplemental Data Sources for Innovative Overdose Surveillance

Data Source	Purpose/Information Obtained
Biospatial	EMS response narrative, demographics, health information, and incident ZIP Code
ESSENCE-FL	ED visits including CCDD data, past ED visits, demographics, health information, and patient ZIP Code
FL Shots	Vaccination history
LexisNexis- Accurint for Government	Address history, arrest history, court history, work history, and driver's license issue state
Merlin	Florida reportable disease case reports, overdose data, and information on reportable diseases/conditions
STARS	Sexually transmitted disease history
E-Vault	Vital statistics and death certificate information

Contact Information

OD2A is a collaborative initiative lead by the Florida Department of Health Palm Beach County and the Centers for Disease Control and Prevention, National Center for Injury Prevention and Control.

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Thank You

Thank you to the agencies, organizations, and individuals who participated in the OD2A innovative surveillance initiative. Participation in this program helped make this report possible.

We gratefully acknowledge all organizations in our extensive list of community partners we have worked with throughout the county. Our shared goals are made stronger by our partnerships.

Report Feedback

To better meet the needs of our community, we are asking that readers provide feedback on the data presented in this report.

To help OD2A PBC data and reporting, follow the link below, or scan the QR code to complete the brief survey.

Link for Survey