



# Drug Abuse Warning Network (DAWN): Findings from Drug-Related Emergency Department Visits, 2022

## Acknowledgments

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# 1 Executive Summary

The Substance Abuse and Mental Health Services Administration's (SAMHSA's) dedication to promoting mental health and preventing substance use is supported by data collection efforts aimed at understanding the magnitude of these problems. The collection of data on drug-related emergency department (ED) visits, including those related to alcohol, from the Drug Abuse Warning Network (DAWN), supports SAMHSA's commitment to data and evidence. It is used to inform programs to aid in preventing overdose and substance use-related health consequences.

DAWN is a nationwide public health surveillance system that captures data on ED visits related to recent substance use directly from the electronic health records of participating hospitals. In 2022, DAWN identified 143,596 (unweighted) drug-related ED visits from 53 participating hospitals. These data were analyzed to generate nationally representative weighted estimates (1) for all drug-related ED visits, (2) for the top drugs involved in drug-related ED visits, (3) for different opioid types involved in ED visits, (4) to describe polysubstance in ED visits, and (5) to identify newly mentioned drugs in 2022.

## WEIGHTED NATIONAL ESTIMATES FOR ALL DRUG-RELATED ED VISITS, 2022

- › There were an estimated total of 7,714,521 drug-related ED visits in the U.S. in 2022. The rate of drug-related ED visits was 2,153 (1,765–2,540) per 100,000 individuals.
- › Rates of drug-related ED visits from participating hospitals were highest among individuals with the following characteristics: 26 to 44 and 45 to 64 years, male, Black or African American, and not Hispanic or Latino.
- › While the proportion of drug-related ED visits was highest among White individuals compared to other races, after accounting for the underlying population, Black or African American individuals had significantly higher rates compared to White individuals.
- › American Indian or Alaska Native patients account for 0.7 percent, and Native Hawaiian or Pacific Islander individuals account for 0.2 percent of all drug-related ED visits. After accounting for the underlying population, they both had rates similar to White individuals.
- › The rate of drug-related ED visits was similar across U.S. Census Regions.

## WEIGHTED NATIONAL ESTIMATES OF THE TOP SUBSTANCES INVOLVED IN DRUG-RELATED ED VISITS, 2022

- › Alcohol was reported in the highest percentage of drug-related ED visits (45.0%), followed by opioids (12.7%) and cannabis (11.9%).
- › While White individuals accounted for the highest percentage of alcohol-related ED visits (57.2%), Black individuals had a significantly higher rate (1,498 per 100,000), nearly double that of White individuals (735 per 100,000). American Indians or Alaska Natives comprised only 1.1 percent of all alcohol-related ED visits but had estimated rates similar to White individuals (796 per 100,000 [AI/AN]; 735 per 100,000 [White]).
- › When estimating the rate of drug-related ED visits for the top 6 drugs (alcohol, opioid, cannabis, methamphetamine, cocaine, and benzodiazepine) notable similarities and differences were identified.

- The rates of drug-related visits were highest for 26- to 44-year-olds for most drugs, including alcohol, opioid, methamphetamine, cocaine, and benzodiazepine. However, cannabis-related ED visits were highest in individuals 18 to 25 years.
- Males had higher drug-related ED visits for all top drugs except benzodiazepine. For benzodiazepine-related visits, the percentages and rates were similar between males and females.
- Black or African American individuals had significantly higher rates of drug-related visits compared to all other racial groups for alcohol, cannabis, and cocaine. They had similar rates to White individuals for opioid and benzodiazepine.
- The rate of cannabis-related ED visits was highest among Black or African American (660 per 100,000) compared to White (153 per 100,000) and American Indian or Alaskan Native (91 per 100,000) individuals.
- The rate of cocaine-related ED visits was highest in these demographic groups: individuals 26 to 44 (223 per 100,000) and 45 to 64 (199 per 100,000), males (178 per 100,000), Black or African American (459 per 100,000), and Not Hispanic or Latino (165 per 100,000).
- Not Hispanic or Latino individuals had higher rates than Hispanic or Latino individuals for all substances.
- Regional rates were similar for all drug categories except for alcohol-related visits, which were highest in the Northeast, and methamphetamine-related visits, which were highest in the West.

## **WEIGHTED NATIONAL ESTIMATES OF OPIOID-RELATED ED VISITS BY TYPE, 2022**

- › Heroin was reported in 44.0 percent, and prescription or other opioids were reported in 39.4 percent of opioid-related ED visits. Fentanyl-related visits were reported at 20.8 percent.
- › Oxycodone was the most common opioid reported in prescription or other opioid-related ED visits (32.9%).

## **WEIGHTED NATIONAL ESTIMATES OF DRUG-RELATED ED VISITS INVOLVING POLYSUBSTANCE, 2022**

- › In 2022, 21.2 percent of all drug-related ED visits involved more than one substance (polysubstance).
- › Alcohol was the substance most commonly reported in polysubstance, with cannabis, cocaine, and methamphetamine being the top three combinations involved with alcohol.
- › Alcohol was involved in the highest number of polysubstance-related ED visits (weighted n=653,310). However, 20.2 percent of all alcohol visits were polysubstance with 79.8 percent reporting alcohol only.
- › Cocaine was the third most common substance involved in polysubstance ED visits (weighted n=311,945) but had the highest proportion (74.7%) of visits with more than one substance involved.

## **SUBSTANCES NEW TO DAWN, 2022**

- › In 2022, 32 substances were added to the DAWN drug classification system. Of the 32 substances, nine (28.1%) were classified as illicit, and 23 (71.8%) were classified as non-illicit.

## 2 Introduction

The Drug Abuse Warning Network (DAWN) is a nationwide public health surveillance system, whose mission is to provide early warning and ongoing monitoring of emerging drug trends and characteristics of drug and/or alcohol-related emergency department (ED) visits. DAWN is administered by the Center for Behavioral Health Statistics and Quality (CBHSQ), Substance Abuse and Mental Health Services Administration (SAMHSA), the agency within the U.S. Department of Health and Human Services that leads public health efforts to advance the behavioral health of the nation. As part of DAWN's ongoing monitoring efforts, the purpose of this report is to provide national estimates for 2022 data.

### 2.A Methods Summary

We provide a brief summary of data collection, weighting, and analysis methods that were used. A more in-depth description of DAWN methodology is provided in Section 8.

#### SAMPLE AND DATA COLLECTION

Fifty-three participating hospitals were selected for DAWN using a hybrid sentinel surveillance and probability-based sample design. Data collection involved the direct record review of ED visits from all participating hospitals. Trained medical record abstractors reviewed key areas of each patient's ED visit to assess whether alcohol and/or drugs were either the direct cause or a contributing factor to the visit. Examples of drug-related visits could be those related to poisoning or overdose, suicide attempts with a drug involved, drug detox or withdrawal, or adverse reaction to a drug.

Substances involved included:

- › Alcohol and alcohol products
- › Illicit drugs
- › Prescription medications
- › Over-the-counter medications
- › Dietary supplements
- › Non-pharmaceutical inhalants

If it was determined that drugs and/or alcohol were involved in the visit, key data items from the record were abstracted. This included the visit characteristics, patient demographics, drugs involved, text-based diagnoses, patient disposition, and a brief narrative describing how the drug was involved in the visit. Patient identifiers were not collected.

#### WEIGHTING AND ANALYSIS

Data were weighted using a multi-step process to produce national estimates. This process produced weighted counts and standard errors to provide point estimates and 95 percent confidence intervals. Data are presented as weighted counts, percentages, and unadjusted rates. The percentage highlights the distribution of ED visits by characteristic variables (age, sex at birth, race, ethnicity, region, and quarter). The rate uses the weighted count and accounts for the subpopulation size using the 2022 U.S. Resident Population Estimates provided by the Census Bureau. Rates are reported as the number



of drug-related ED visits per 100,000 people. In this way, the weighted count and percentage highlight the total burden by subpopulation, while the rate describes the risk to each subpopulation. For example, the percentage of visits by region highlights which regions have the highest burden of drug-related visits, while the rate highlights where the risk is the highest.

To compare and describe reported estimates, we used multiple statistical approaches. For the percentages, confidence intervals were used to measure whether estimates were different from each other. Estimates with confidence intervals that did not overlap were noted as significantly different. For rate figures, we made pairwise comparisons (i.e., t-tests) between estimates using a Bonferonni correction to account for multiple comparisons. A similar approach was taken for analysis providing the percentage of ED visits by drug where the estimates were directly compared to each other. Some significant differences are highlighted under the figures, while the full list of significant differences is provided in Appendix A.

## 3 Weighted National Estimates of All Drug-Related ED Visits, 2022

### 3.A Characteristics of All Drug-Related ED Visits, 2022

This section describes the characteristics of all drug-related ED visits in 2022 from participating DAWN hospitals. In 2022, there were 143,596 drug-related visits from participating hospitals documented in DAWN. This represents an estimated total of 7,714,521 drug-related visits with a rate of 2,153 (1,765–2,540) visits per 100,000 individuals.

Table 3.A provides both the 2022 unweighted and weighted count and 95 percent confidence interval for all drug-related ED visits by characteristic (age, sex at birth, race, ethnicity, region, and quarter).

**Table 3.A** Characteristics of drug-related ED visits

Characteristic	Unweighted (N=143,596)	Weighted (N=7,174,521)	Lower 95 CI	Upper 95 CI
<b>Age group</b>				
0 to 11 years	2,080	130,774	76,228	185,321
12 to 17 years	3,885	228,666	149,493	307,839
18 to 25 years	16,625	799,227	639,982	958,472
26 to 44 years	59,863	2,770,347	2,155,495	3,385,200
45 to 64 years	44,060	2,258,979	1,852,324	2,665,633
65+ years	16,365	949,814	763,304	1,136,324
Missing*	718	*	*	*
<b>Sex at birth</b>				
Female	51,548	2,813,774	2,426,366	3,201,181
Male	91,856	4,354,927	3,422,213	5,287,641
Other	85	*	*	*
Not documented*	107	2,787	1,239	4,336
<b>Race</b>				
American Indian or Alaska Native	3,635	49,376	15,358	83,394
Asian	3,460	89,391	25,721	153,060
Black or African American	34,565	1,547,691	462,980	2,632,402
Native Hawaiian or Other Pacific Islander	1,590	13,336	5,561	21,111
White	79,498	4,256,479	2,927,683	5,585,275
Other <sup>1</sup>	14,422	918,594	524,161	1,313,028
Multi-Racial <sup>2</sup>	2,808	52,983	30,185	75,781
Missing/Not documented*	3,618	*	*	*

Characteristic	Unweighted (N=143,596)	Weighted (N=7,174,521)	Lower 95 CI	Upper 95 CI
<b>Ethnicity</b>				
Hispanic or Latino	20,318	863,274	424,281	1,302,266
Not Hispanic or Latino	113,483	5,862,612	4,913,016	6,812,208
Missing/Not documented*	9,795	448,635	125,384	771,886
<b>Region</b>				
Northeast	25,687	1,622,222	1,038,522	2,205,922
Midwest	35,963	1,590,462	1,276,815	1,904,109
South	28,580	2,050,949	1,622,491	2,479,408
West	53,180	1,900,948	899,455	2,902,442
Outside U.S.	186	*	*	*
<b>Quarter</b>				
Quarter 1	34,829	1,711,256	1,386,177	2,036,336
Quarter 2	37,322	1,855,416	1,515,241	2,195,592
Quarter 3	36,094	1,839,999	1,503,354	2,176,644
Quarter 4	35,351	1,767,849	1,429,611	2,106,088

\* Estimates with relative standard error (RSE) > 0.5 are suppressed.

<sup>1</sup> Other race—The race documented in the medical record does not fit any other race category.

<sup>2</sup> ED visits with multiple-race categories are counted in the Multi-Racial category only.

## 3.B All Drug-Related ED Visits by Characteristics

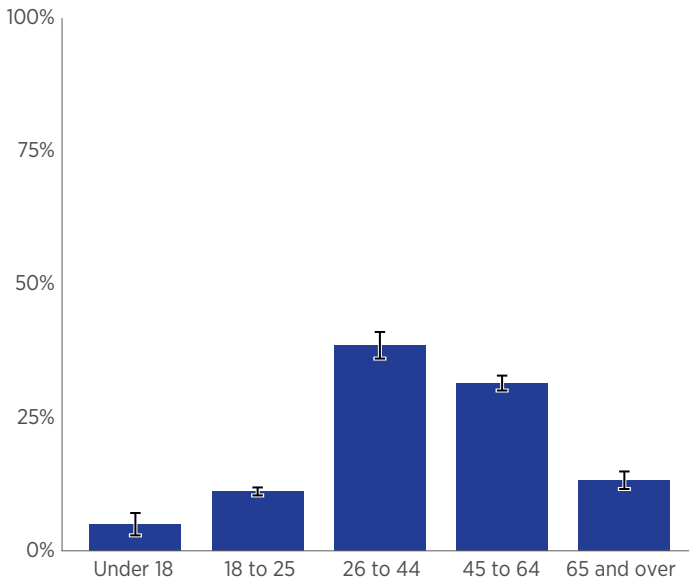
The weighted frequencies were used to produce both the percentage and unadjusted rate per 100,000 for all drug-related ED visits and are presented in this section by demographic characteristics. The percentage highlights the distribution of ED visits by demographic variables and quarter. The rate uses the weighted count and accounts for the subpopulation size using the 2022 U.S. Resident Population Estimates provided by the Census Bureau. Data tables associated with data can be found in Appendix A.

### Key Findings

- › There were an estimated total of 7,714,521 drug-related ED visits in the U.S. in 2022. The rate of drug-related ED visits was 2,153 (1,765 – 2,540) per 100,000 individuals.
- › Rates of drug-related ED visits were highest among individuals with these characteristics: 26 to 44 (3,265 per 100,000) and 45 to 64 (2,738 per 100,000) years, male (2,635 per 100,000), Black or African American (3,409 per 100,000), and Not Hispanic or Latino (2,174 per 100,000).
- › While the proportion of drug-related ED visits was highest among White individuals compared to other races, after accounting for the underlying population, Black or African American individuals had significantly higher rates compared to White individuals (3,409 per 100,000 and 1,692 per 100,000, respectively).
- › American Indian or Alaska Native patients account for 0.7 percent, and Native Hawaiian or Pacific Islander individuals account for 0.2 percent of all drug-related ED visits. After accounting for the underlying population, they had rates similar to White individuals (AI/AN: 1,127 per 100,000, NH/PI: 1,518 per 100,000, White: 1,692 per 100,000).
- › The rate of drug-related ED visits was similar across regions, with a range from 1,593 per 100,000 (South) to 2,844 per 100,000 (Northeast).

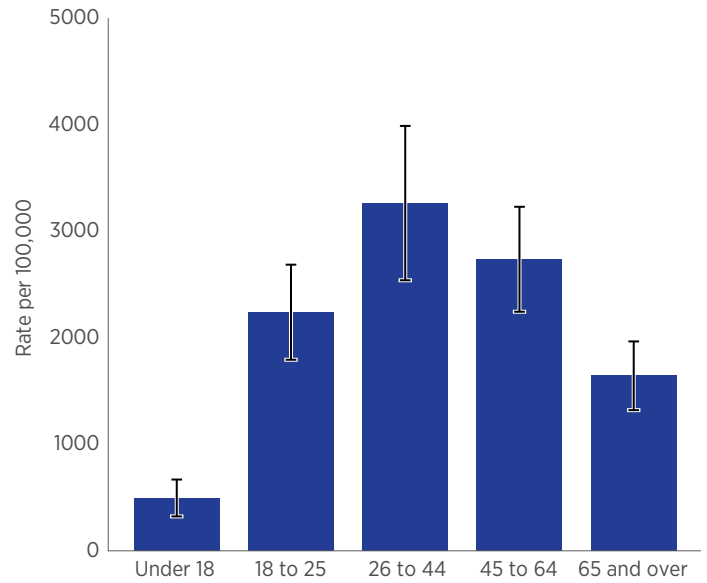
## ALL DRUG-RELATED ED VISITS BY AGE GROUP

**Figure 3.B.1** Percentage by age group



The percentage of drug-related ED visits was higher among patients 26 to 44 (38.6%).

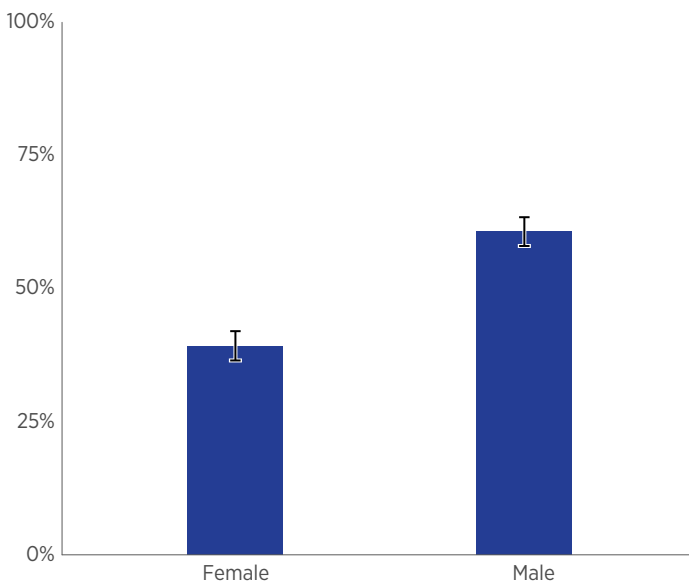
**Figure 3.B.2** Rate by age group



The rate of drug-related ED visits was higher among individuals 26 to 44 (3,265 per 100,000) and 45 to 64 (2,738 per 100,000).

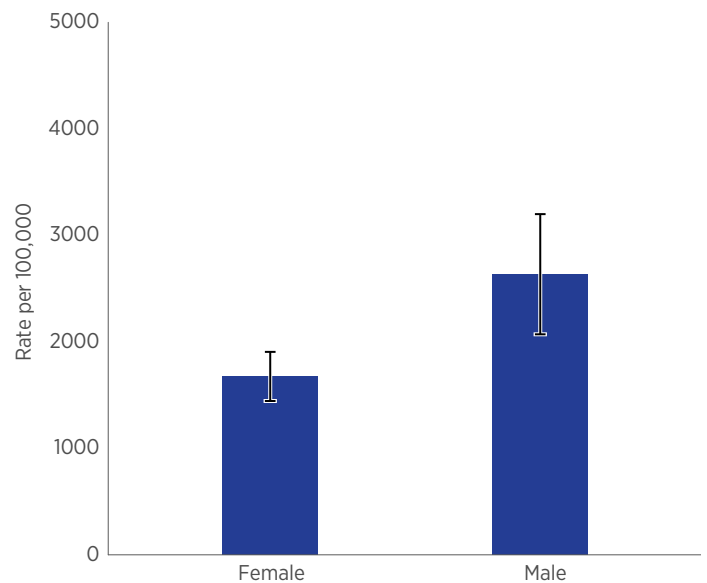
## ALL DRUG-RELATED ED VISITS BY SEX AT BIRTH

**Figure 3.B.3** Percentage by sex



The percentage of drug-related ED visits was higher among males (60.7%) than females (39.2%).

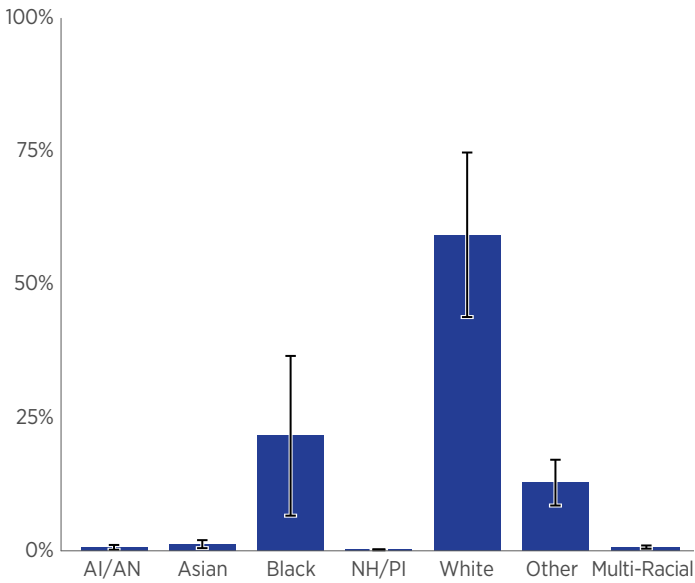
**Figure 3.B.4** Rate by sex



The rate of drug-related ED visits was higher among males (2,635 per 100,000) than females (1,675 per 100,000).

## ALL DRUG-RELATED ED VISITS BY RACE

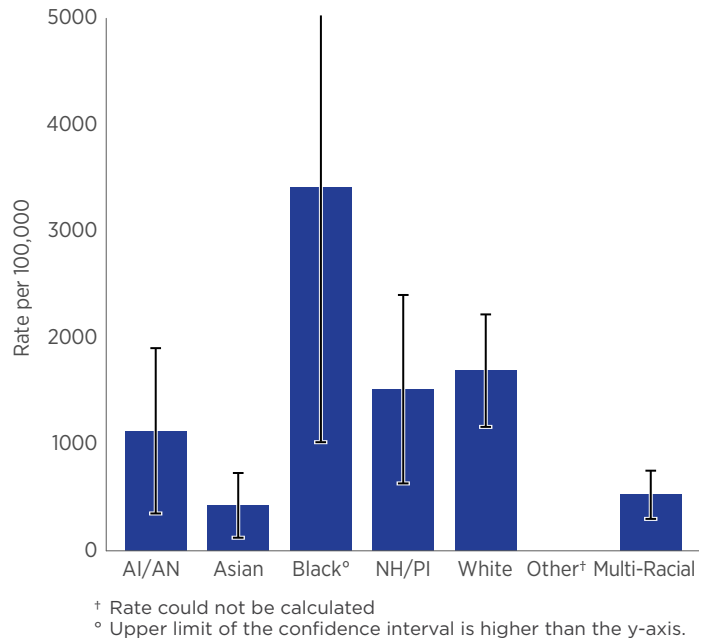
**Figure 3.B.5** Percentage by race



The percentage was highest among White patients (59.3%).

**Race data note:** Other—The race documented in the medical record does not fit any other race category. Multi-Racial—Multiple races were selected. AI/AN—American Indian or Alaska Native. NH/PI—Native Hawaiian or Other Pacific Islander.

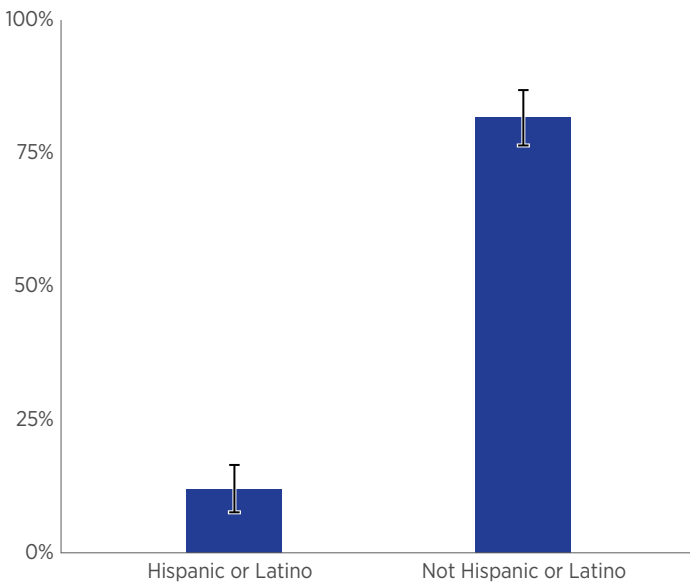
**Figure 3.B.6** Rate by race



The rate was highest among Black individuals (3,409 per 100,000).

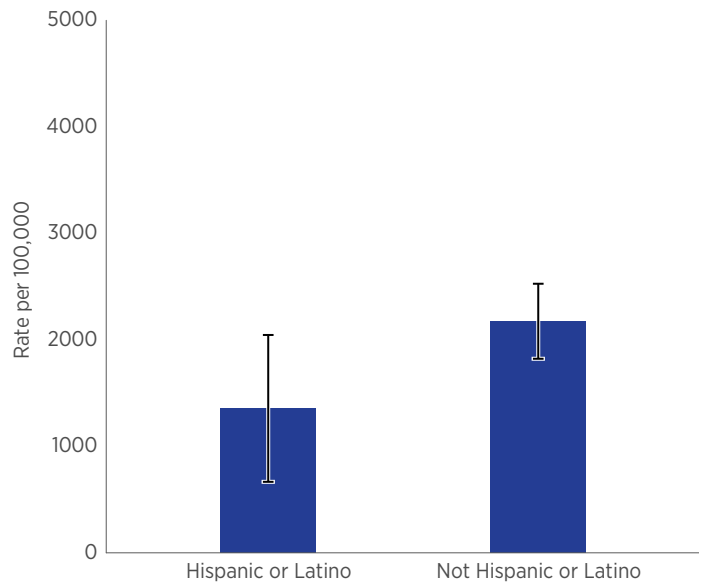
## ALL DRUG-RELATED ED VISITS BY ETHNICITY

**Figure 3.B.7** Percentage by ethnicity



The percentage of drug-related ED visits was higher among Not Hispanic or Latino (81.7%) compared to Hispanic or Latino (12.0%) patients.

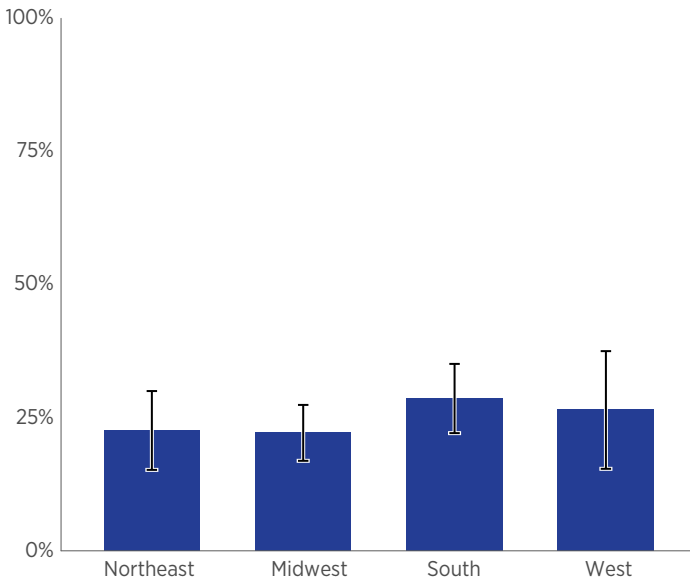
**Figure 3.B.8** Rate by ethnicity



The rate of drug-related ED visits was higher among Not Hispanic or Latino (2,174 per 100,000) compared to Hispanic or Latino (1,356 per 100,000) individuals.

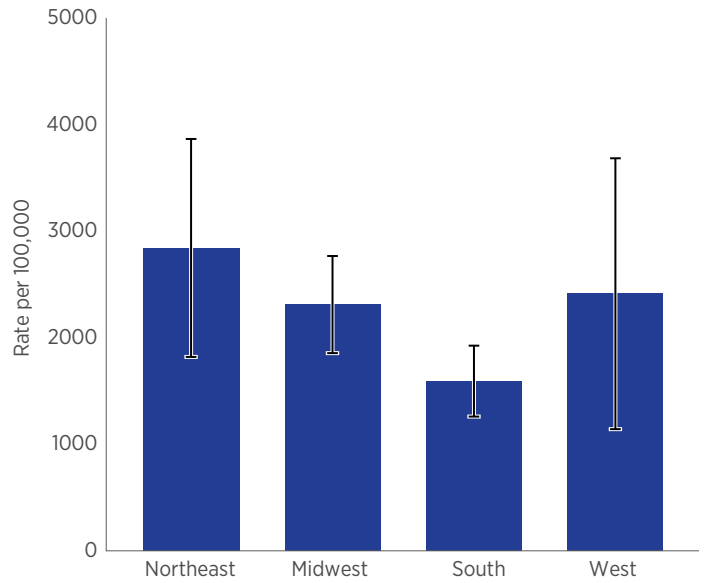
## ALL DRUG-RELATED ED VISITS BY REGION

**Figure 3.B.9** Percentage by region



The percentage of drug-related ED visits was similar across regions, with a range between 22.2 percent (Midwest) and 28.6 percent (South).

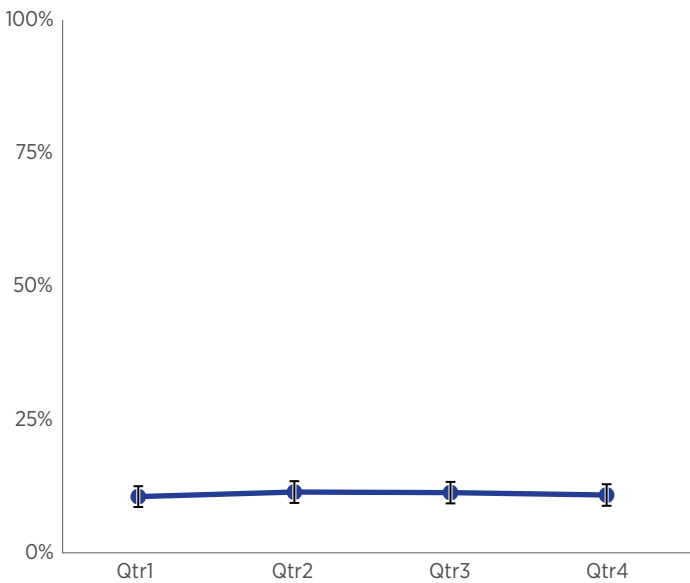
**Figure 3.B.10** Rate by region



The rate of drug-related ED visits was similar across regions, with a range from 1,593 per 100,000 (South) to 2,844 per 100,000 (Northeast).

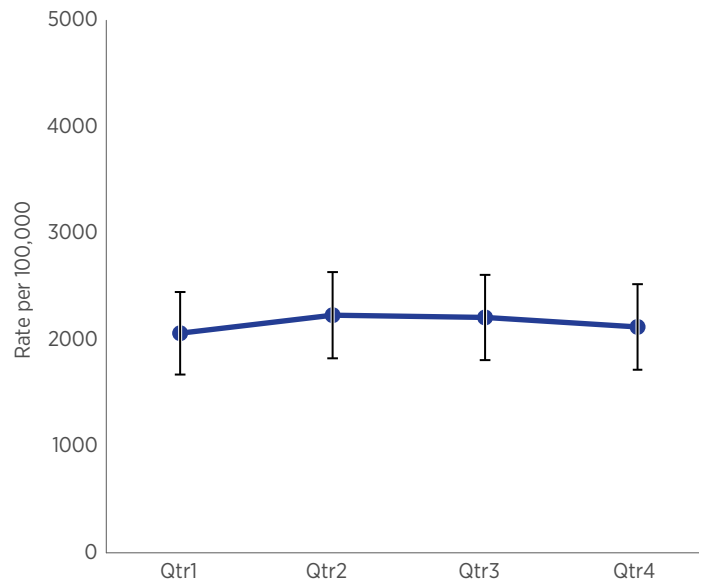
## ALL DRUG-RELATED ED VISITS BY QUARTER

**Figure 3.B.11** Percentage by quarter



The percentage of drug-related ED visits was similar across quarters, with a range from 23.9 percent (Qtr1) to 25.9 percent (Qtr2).

**Figure 3.B.12** Rate by quarter



The rate of drug-related ED visits was similar across quarters, with a range from 2,057 per 100,000 (Qtr1) to 2,228 per 100,000 (Qtr2).

## 4 Weighted National Estimates of the Top Substances Involved in Drug-Related ED Visits, 2022

### 4.A Top Substances

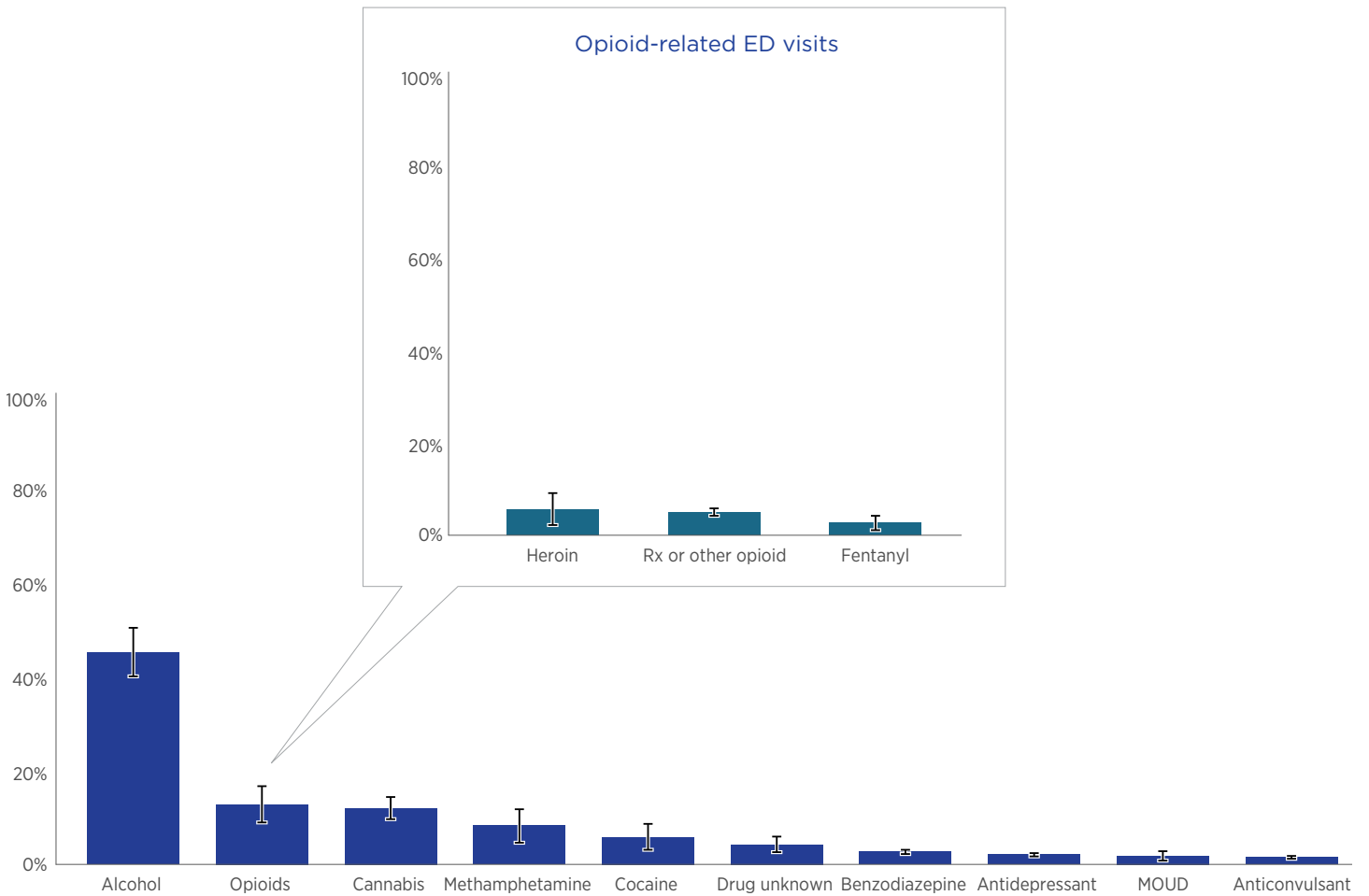
This section presents weighted national estimates of the most common substances involved in drug-related ED visits in 2022. Substance group definitions and data tables can be found in Appendices A and B.

#### Key Findings

- › Alcohol was reported in the highest percentage of drug-related ED visits (45.0%), four times more common than opioids (12.7%) and cannabis (11.9%), which were reported in similar percentages.
- › Heroin (5.6%) and prescription or other opioid (5.0%) were reported more often than fentanyl (2.7%) in drug-related ED visits.
- › When estimating the rate of drug-related ED visits for the top six drugs (alcohol, opioid, cannabis, methamphetamine, cocaine, and benzodiazepine) notable similarities and differences were identified.
  - The rate of drug-related visits was highest for 26- to 44-year-olds for most drugs, including alcohol, opioid, methamphetamine, cocaine, and benzodiazepine. However, cannabis-related ED visits were highest in individuals 18 to 25 years.
  - Males had higher drug-specific related ED visits for all top drugs except benzodiazepine. For benzodiazepine-related visits, the percentage and rate were similar between males and females.
  - Black or African American individuals had significantly higher rates of drug-related visits compared to all other racial groups for alcohol, cannabis, and cocaine. They had similar rates to White individuals for opioid and benzodiazepine.
  - Not Hispanic or Latino individuals had higher rates than Hispanic or Latino individuals for all substances.
  - Regional rates were similar for all drug categories except alcohol-related visits were highest in the Northeast and methamphetamine-related visits were highest in the West.



**Figure 4.A** Top ten substances involved in drug-related ED visits, 2022



**Note:** Opioid includes heroin, fentanyl, and other prescription opioids. See Appendix B for other drug definitions. Multiple substances can be reported in a single ED visit, so percentages can add up to more than 100 percent.

**In 2022, alcohol was the substance most reported (45.0%) in drug-related ED visits, followed by opioids (12.7%) and cannabis (12.0%). Among 4.2 percent of drug-related ED visits, an unknown drug was reported as at least one of the substances involved. Within opioids, heroin (5.6%) and Rx or other opioids (5.0%) were reported significantly more often than fentanyl (2.7%).**

## 4.B Alcohol-Related ED Visits

This section presents subgroup analyses for the six most common substances involved in drug-related ED visits. Each section provides both the percentage and unadjusted rate for demographic characteristics.

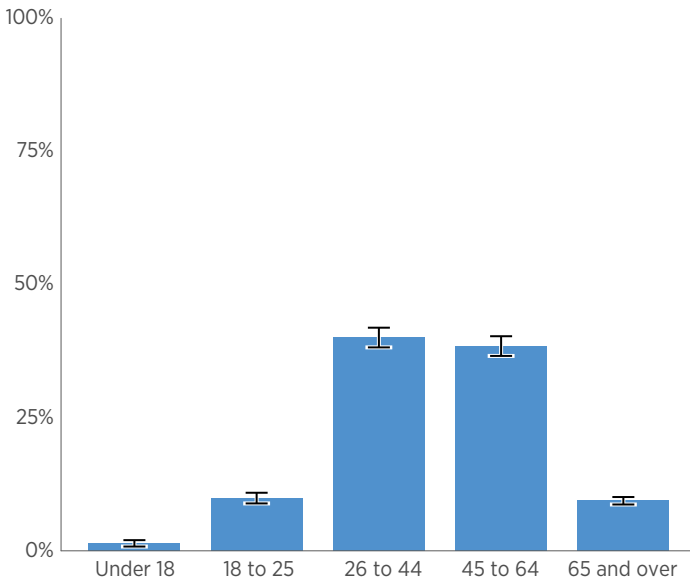
The six most common substances involved in drug-related ED visits were analyzed further to produce the percentage and unadjusted rate by demographic characteristics.

### Key Findings

- › The rate for alcohol-related ED visits was highest in these demographic groups: individuals 26 to 44 (1,526 per 100,000) and 45 to 64 (1,507 per 100,000), males (1,358 per 100,000), Black or African American (1,498 per 100,000), Not Hispanic or Latino (963 per 100,000), and Northeast region (1,519 per 100,000).
- › Patients 21 and older accounted for 95.4 percent of alcohol-related ED visits with a rate of 1,244 per 100,000 individuals.
- › While White individuals accounted for the highest percentage of alcohol-related ED visits (57.2%), Black individuals had a significantly higher rate (1,498 per 100,000), nearly double that of White individuals (735 per 100,000). American Indians or Alaska Natives comprised only 1.1 percent of all alcohol-related ED visits but had estimated rates similar to White individuals (796 per 100,000 [AI/AN]; 735 per 100,000 [White]).
- › The estimated percentage of alcohol-related ED visits was similar across regions, while the rate in the Northeast region was significantly higher than all other regions at 1,519 per 100,000.
- › The rate of alcohol-related visits was lowest in quarter 4 (900 per 100,000).

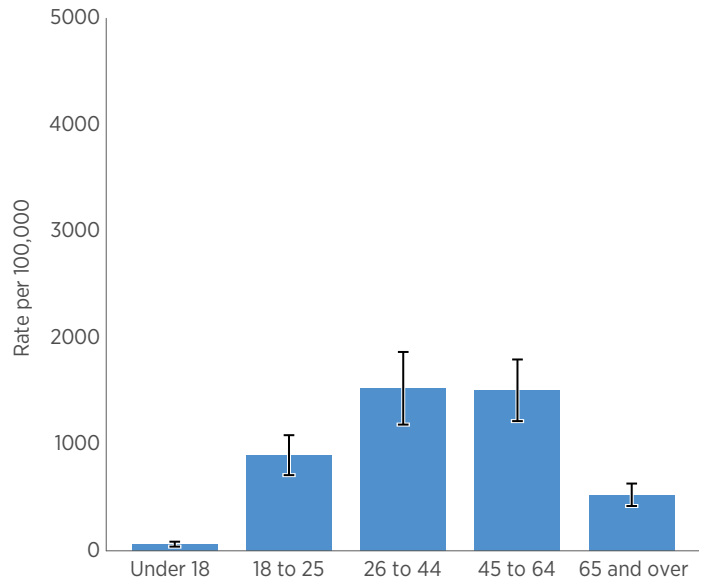
## ALCOHOL-RELATED ED VISITS BY AGE GROUP

**Figure 4.B.1** Percentage by age group



The percentage of alcohol-related ED visits was higher among patients 26 to 44 (40.1%) and 45 to 64 (38.5%).

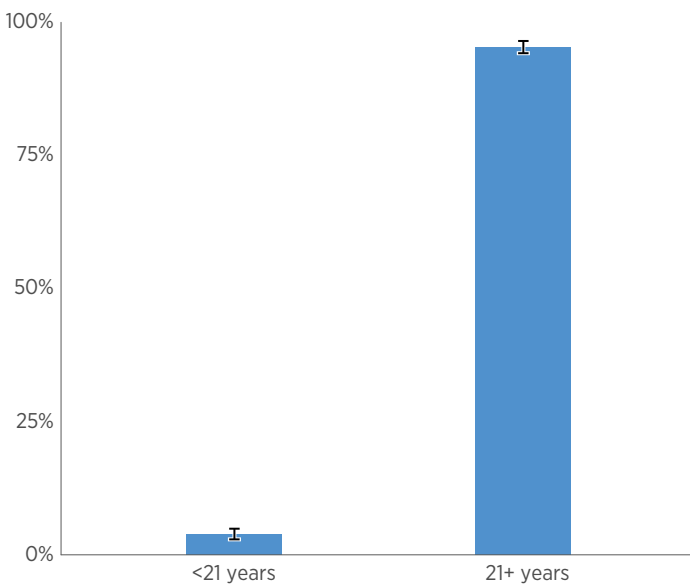
**Figure 4.B.2** Rate by age group



The rate of alcohol-related visits was significantly higher among individuals 26 to 44 (1,526 per 100,000) and 45 to 64 (1,507 per 100,000).

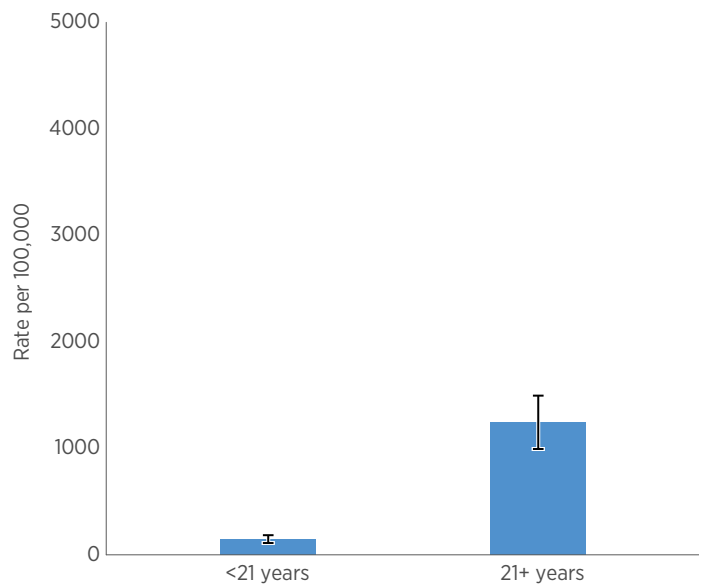
## ALCOHOL-RELATED ED VISITS BY AGE (<21 AND 21+)

**Figure 4.B.3** Percentage by age (<21 and 21+)



Patients 21+ accounted for the majority of alcohol-related ED visits (95.4%).

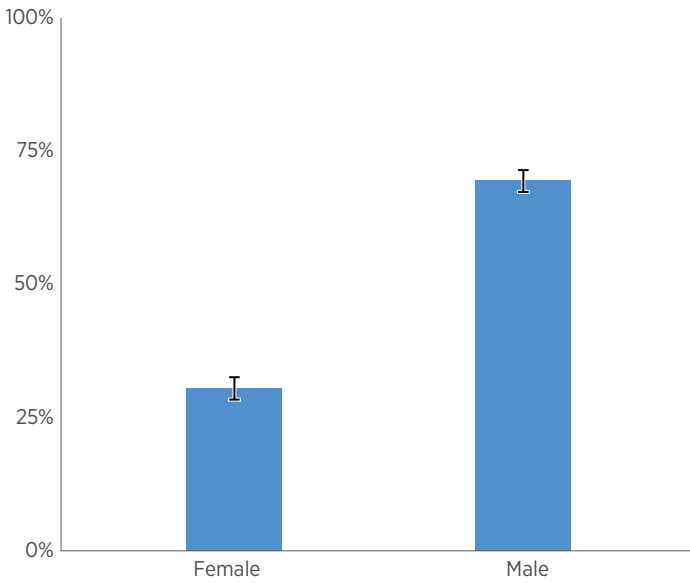
**Figure 4.B.4** Rate by age (<21 and 21+)



The rate of alcohol-related ED visits was significantly higher among individuals 21+ years (1,244 per 100,000) than individuals under 21 (148 per 100,000).

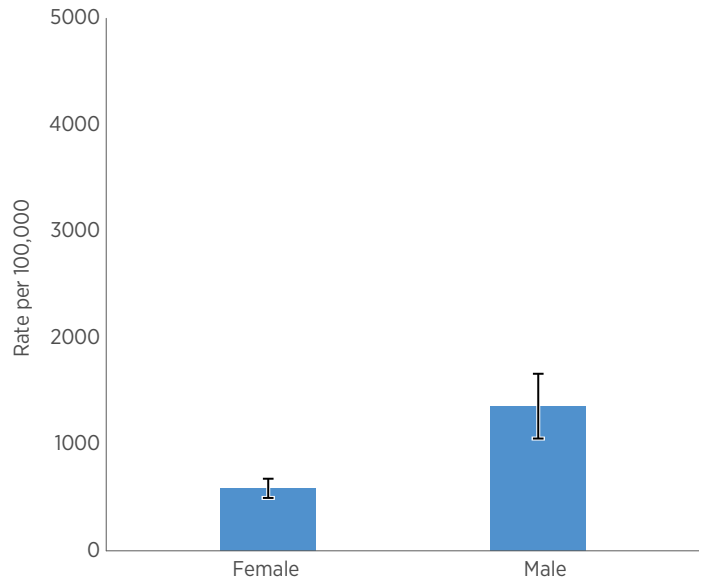
## ALCOHOL-RELATED ED VISITS BY SEX AT BIRTH

**Figure 4.B.5** Percentage by sex



The percentage of alcohol-related ED visits was higher among males (69.5%) than females (30.5%).

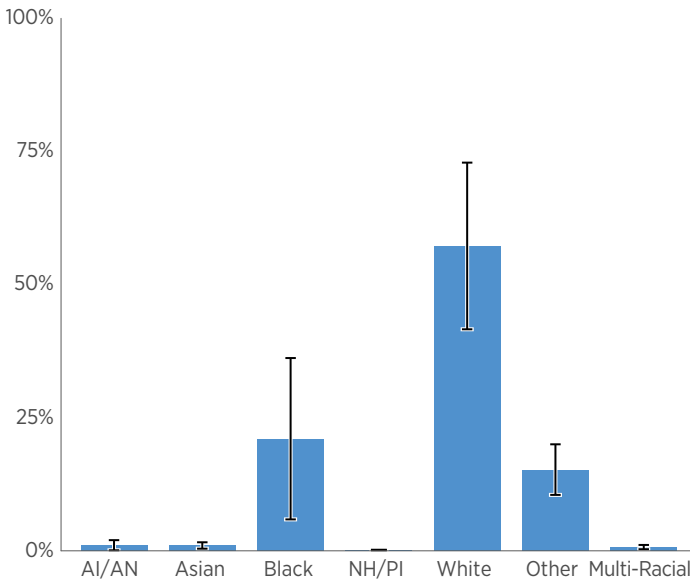
**Figure 4.B.6** Rate by sex



The rate of alcohol-related ED visits among males (1,358 per 100,000) was significantly higher than that of females (587 per 100,000).

## ALCOHOL-RELATED ED VISITS BY RACE

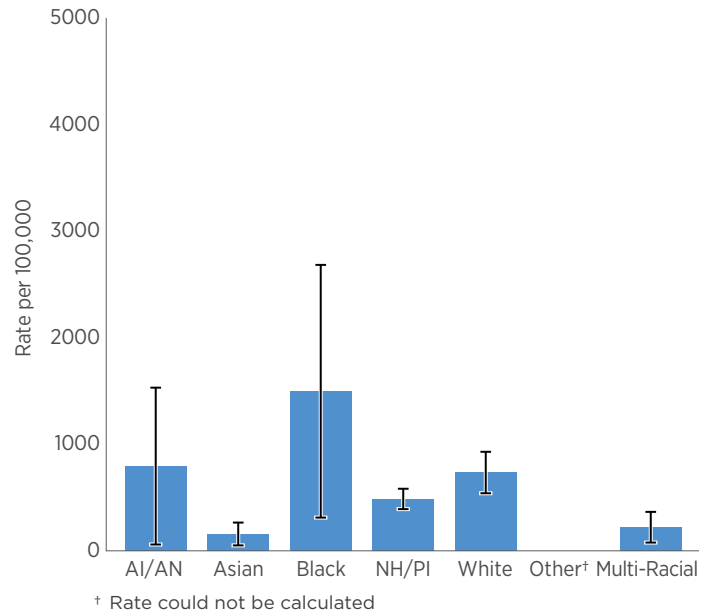
**Figure 4.B.7** Percentage by race



The percentage of alcohol-related ED visits was highest among White (57.2%), followed by Black (21.0%) and Other (15.2%) with similar percentages.

**Race data note:** Other—The race documented in the medical record does not fit any other race category. Multi-Racial—Multiple races were selected. AI/AN—American Indian or Alaska Native. NH/PI—Native Hawaiian or Other Pacific Islander.

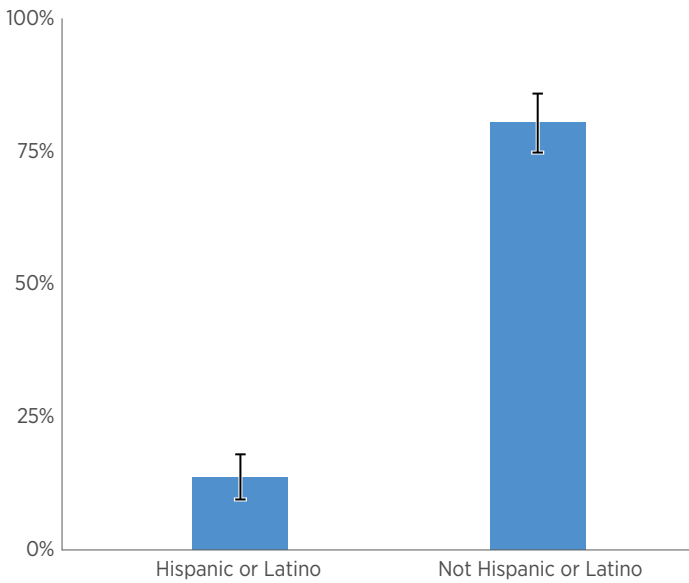
**Figure 4.B.8** Rate by race



The rate of alcohol-related ED visits was significantly highest among Black individuals (1,498 per 100,000).

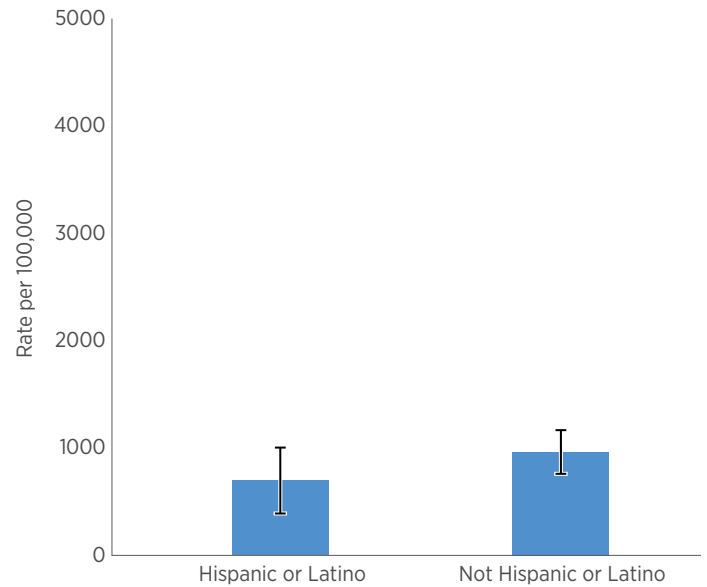
## ALCOHOL-RELATED ED VISITS BY ETHNICITY

**Figure 4.B.9** Percentage by ethnicity



The percentage of alcohol-related ED visits was higher among Not Hispanic or Latino (80.4%) than Hispanic or Latino (13.7%) patients.

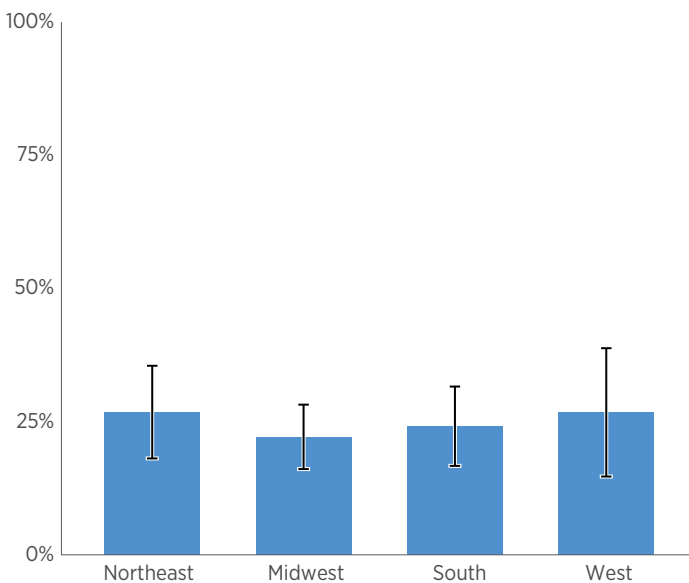
**Figure 4.B.10** Rate by ethnicity



The rate of alcohol-related ED visits was significantly higher among Not Hispanic or Latino (963 per 100,000) than Hispanic or Latino (697 per 100,000) individuals.

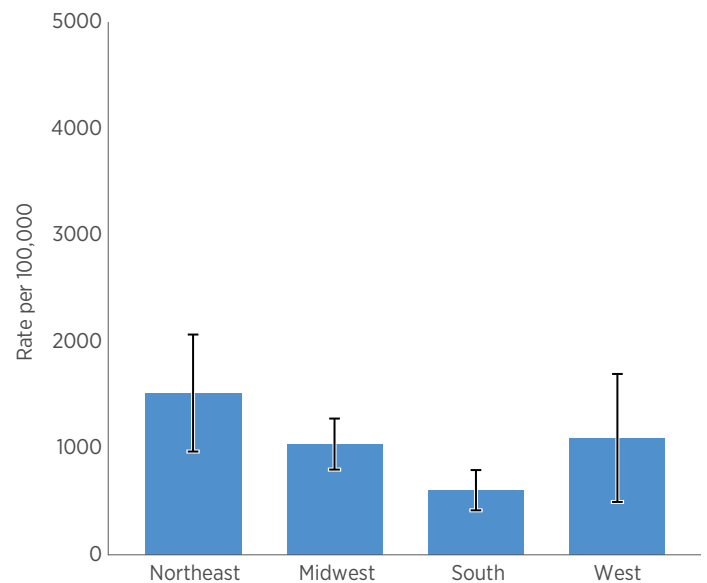
## ALCOHOL-RELATED ED VISITS BY REGION

**Figure 4.B.11** Percentage by region



The percentage of alcohol-related ED visits was similar across regions, with a range between 22.1 percent (Midwest) and 26.8 percent (Northeast).

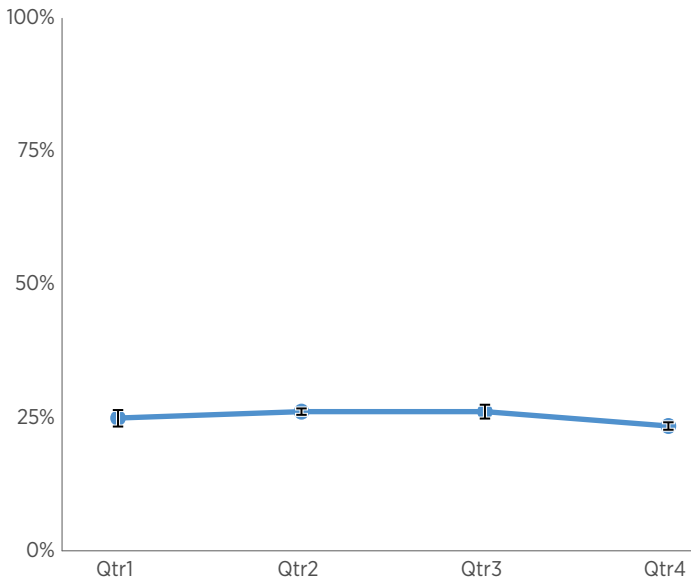
**Figure 4.B.12** Rate by region



The rate of alcohol-related ED visits was significantly highest in the Northeast (1,519 per 100,000) compared to all other regions.

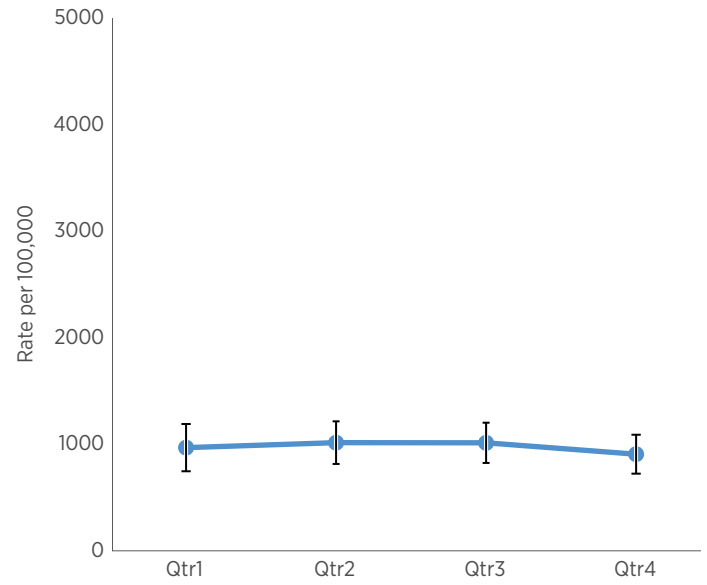
## ALCOHOL-RELATED ED VISITS BY QUARTER

**Figure 4.B.13** Percentage by quarter



The percentage of alcohol-related ED visits was similar across quarters, with a range between 23.3 percent (Qtr4) and 26.0 percent (Qtr2).

**Figure 4.B.14** Rate by quarter



The rate of alcohol-related ED was significantly lower in Qtr4 (900 per 100,000) compared to earlier quarters (range between 962 per 100,000 [Qtr1] and 1,009 per 100,000 [Qtr3]).

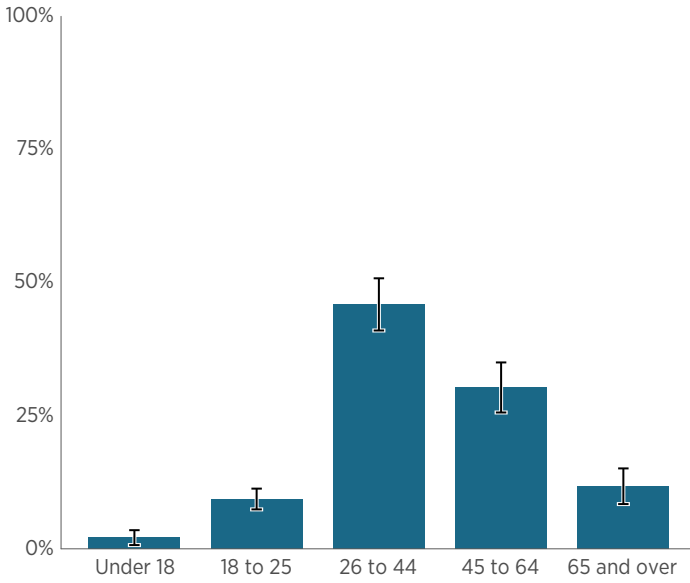
## 4.C Opioid-Related ED Visits

### Key Findings

- › The population rate of opioid-related ED visits was highest among individuals 26 to 44 years (495 per 100,00), males (356 per 100,000), and Not Hispanic or Latino individuals (279 per 100,000).
- › Black or African American (476 per 100,000) and White (213 per 100,000) individuals had the highest rates, though not significantly different from each other.
- › There were no significant differences between regions or quarters.

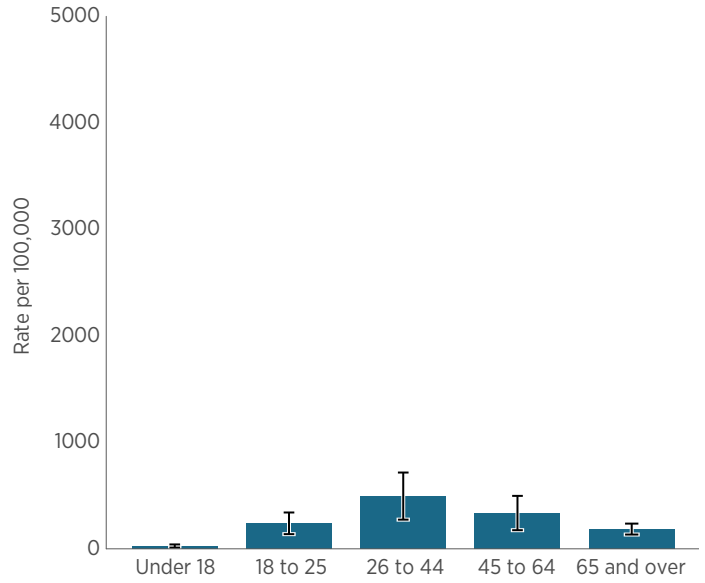
## OPIOID-RELATED ED VISITS BY AGE GROUP

**Figure 4.C.1** Percentage by age group



The percentage of opioid-related ED visits was highest among patients 26 to 44 (45.9%), followed by 45 to 64 (30.3%).

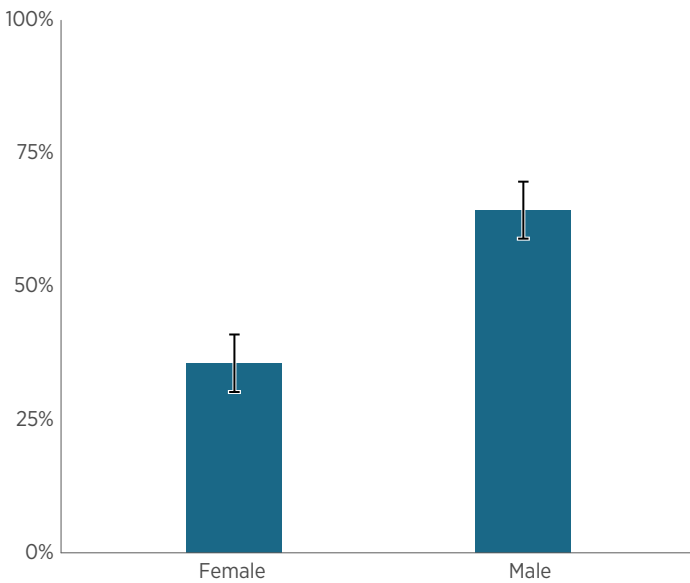
**Figure 4.C.2** Rate by age group



The rate of opioid-related ED visits was significantly highest among individuals 26 to 44 (495 per 100,000).

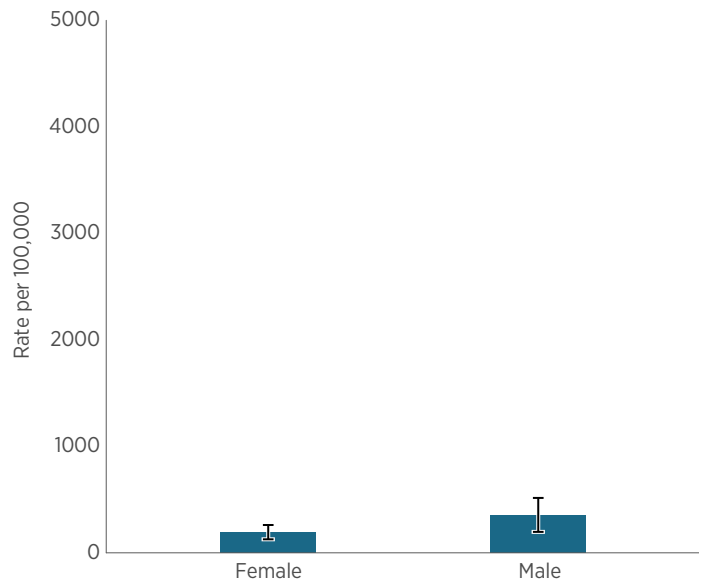
## OPIOID-RELATED ED VISITS BY SEX AT BIRTH

**Figure 4.C.3** Percentage by sex



The percentage of opioid-related ED visits was higher among males (64.3%) than females (35.6%).

**Figure 4.C.4** Rate by sex

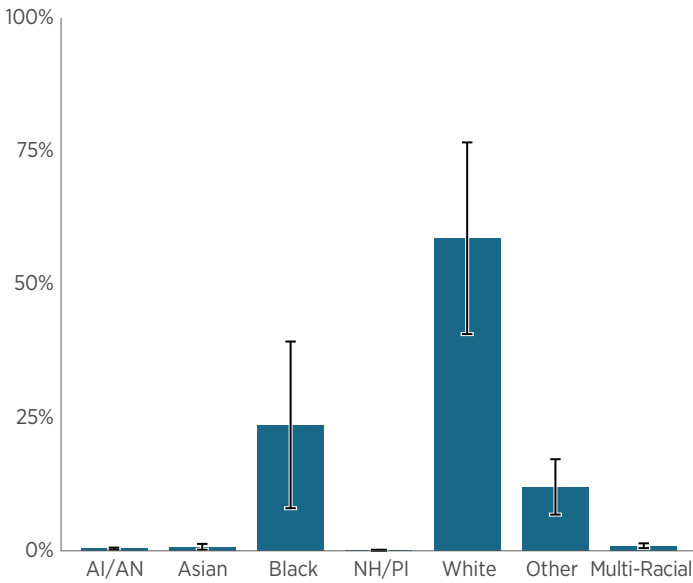


The rate of opioid-related ED visits was significantly higher among males (356 per 100,000) than females (194 per 100,000).



## OPIOID-RELATED ED VISITS BY RACE

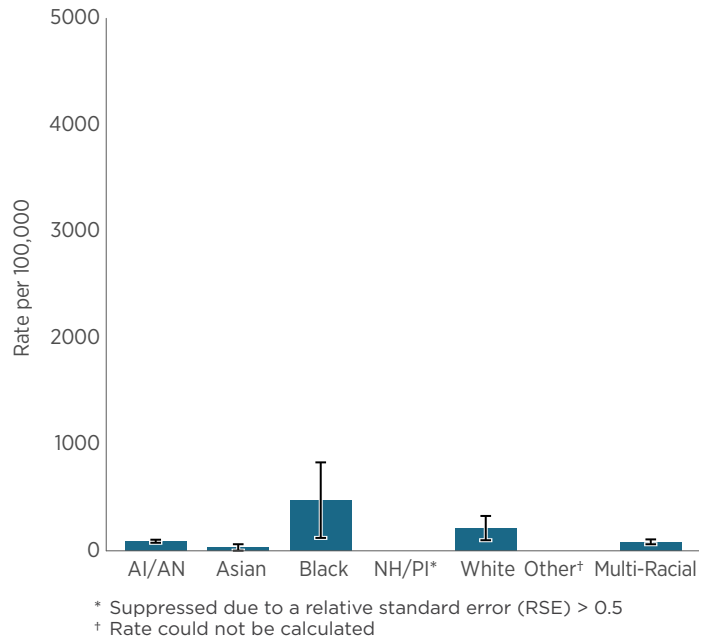
**Figure 4.C.5** Percentage by race



The percentage of opioid-related ED visits was highest among White (58.7%) patients.

**Race data note:** Other—The race documented in the medical record does not fit any other race category. Multi-Racial—Multiple races were selected. AI/AN—American Indian or Alaska Native. NH/PI—Native Hawaiian or Other Pacific Islander.

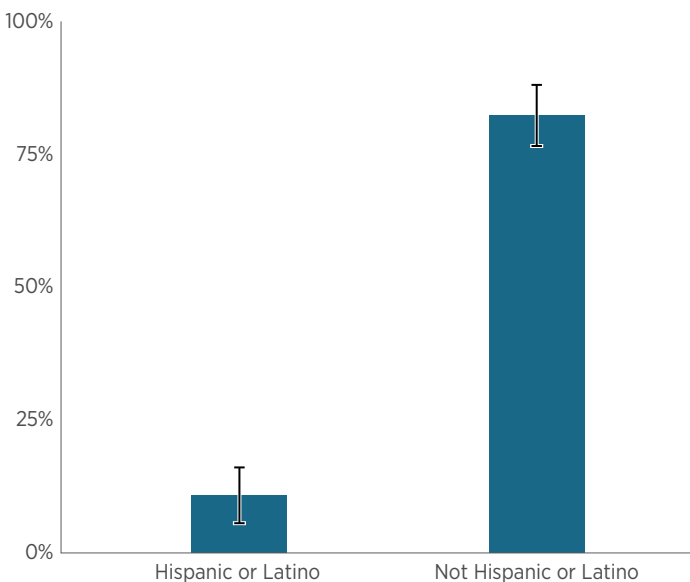
**Figure 4.C.6** Rate by race



The rate of opioid-related ED visits was similar among Black (476 per 100,000), White (213 per 100,000), and NH/PI (117 per 100,000) individuals.

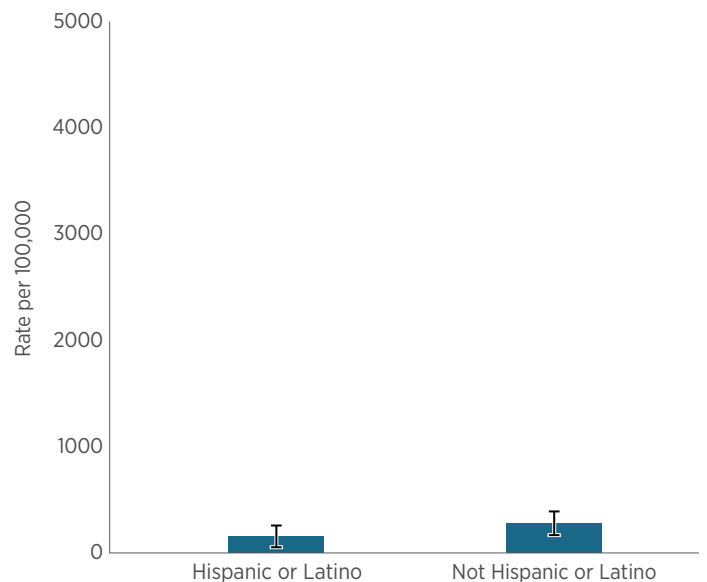
## OPIOID-RELATED ED VISITS BY ETHNICITY

**Figure 4.C.7** Percentage by ethnicity



The percentage of opioid-related ED visits was higher among Not Hispanic or Latino (82.3%) than Hispanic or Latino (10.9%) patients.

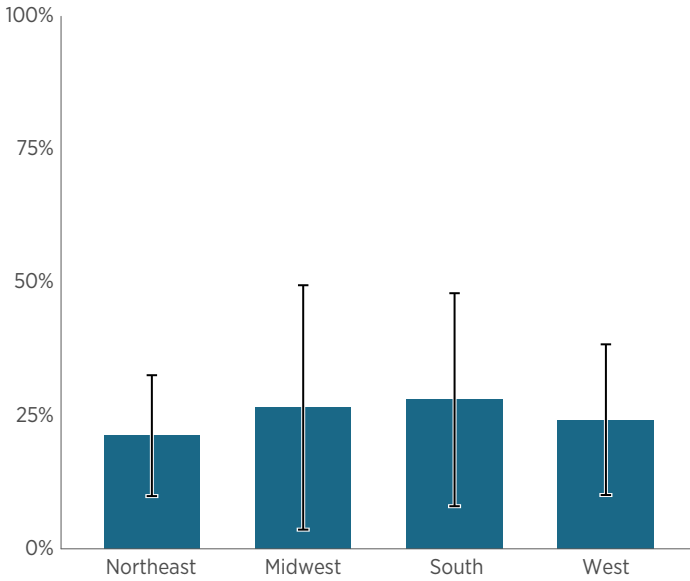
**Figure 4.C.8** Rate by ethnicity



The rate of opioid-related ED visits was significantly higher among Not Hispanic or Latino (279 per 100,000) than Hispanic or Latino (156 per 100,000) individuals.

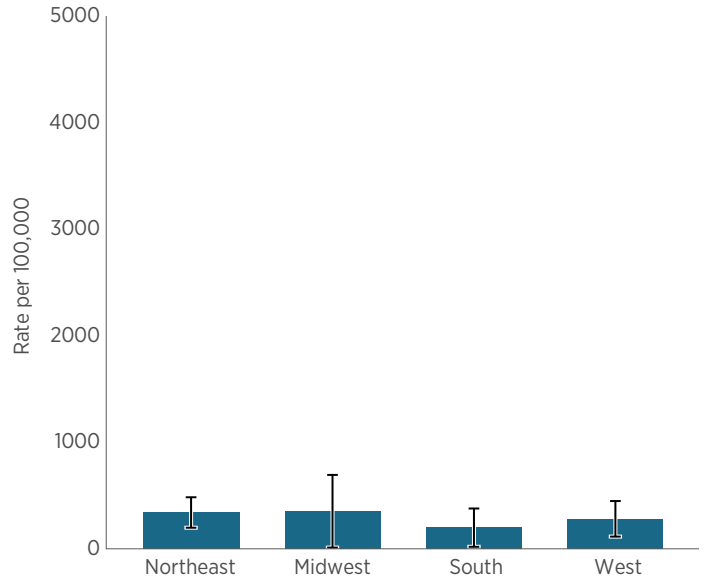
## OPIOID-RELATED ED VISITS BY REGION

**Figure 4.C.9** Percentage by region



The percentage of opioid-related ED visits was similar across regions, with a range between 21.3 percent (Northeast) and 28.0 percent (South).

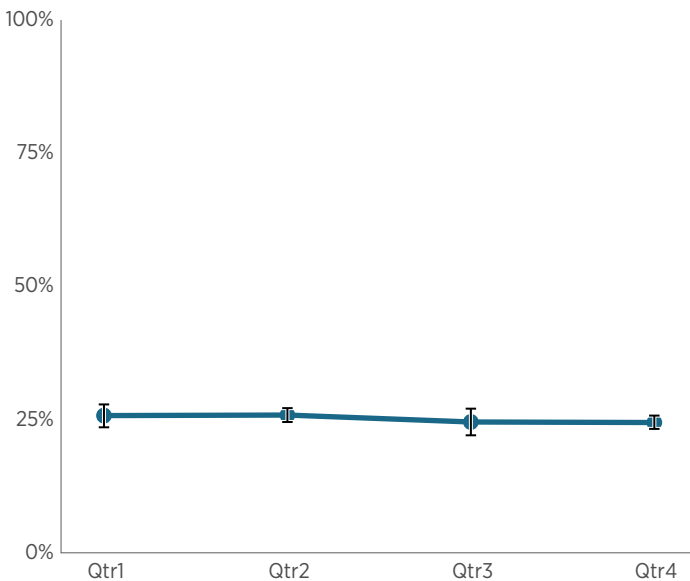
**Figure 4.C.10** Rate by region



The rate of opioid-related ED visits was similar across regions, with a range between 199 per 100,000 (South) and 353 per 100,000 (Midwest).

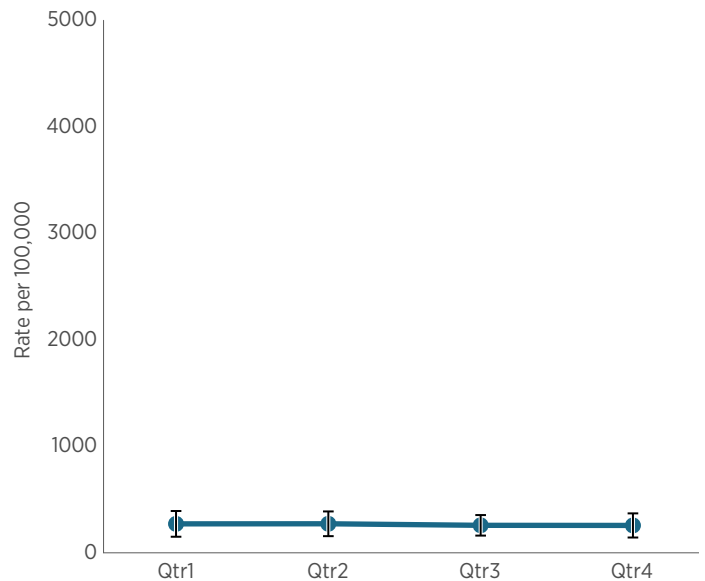
## OPIOID-RELATED ED VISITS BY QUARTER

**Figure 4.C.11** Percentage by quarter



The percentage of opioid-related ED visits was similar across quarters, with a range between 24.3 percent (Qtr4) and 25.7 percent (Qtr2).

**Figure 4.C.12** Rate by quarter



The rate of opioid-related ED visits was similar across quarters, with a range between 267 per 100,000 (Qtr4) and 282 per 100,000 (Qtr2).

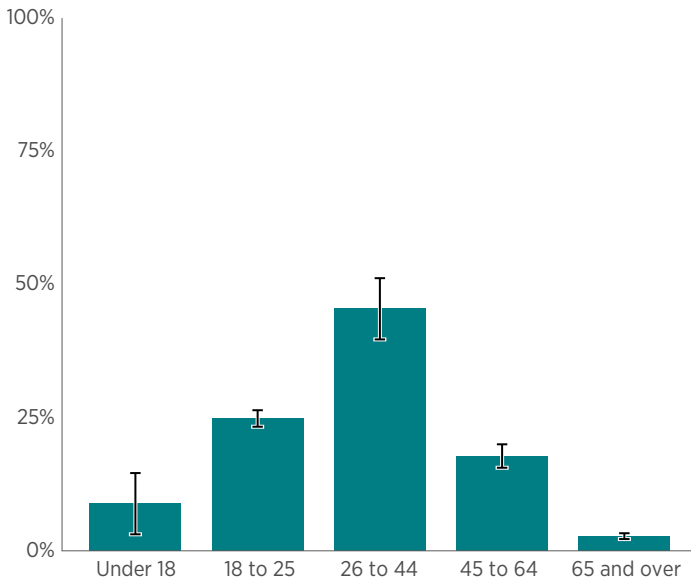
## 4.D Cannabis-Related ED Visits

### Key Findings

- › Rates for cannabis-related ED visits were highest in these demographic groups: 18 to 25 years (597 per 100,000), males (313 per 100,000), Black or African American (660 per 100,000), Not Hispanic or Latino (257 per 100,000).
- › Individuals 26 to 44 years accounted for nearly half of cannabis-related ED visits; however, when accounting for underlying population, the rate was significantly highest among individuals 18 to 25 years.
- › The rate of cannabis-related ED visits was highest among Black or African American (660 per 100,000) compared to White (153 per 100,000) and American Indian or Alaskan Native (91 per 100,000) individuals.

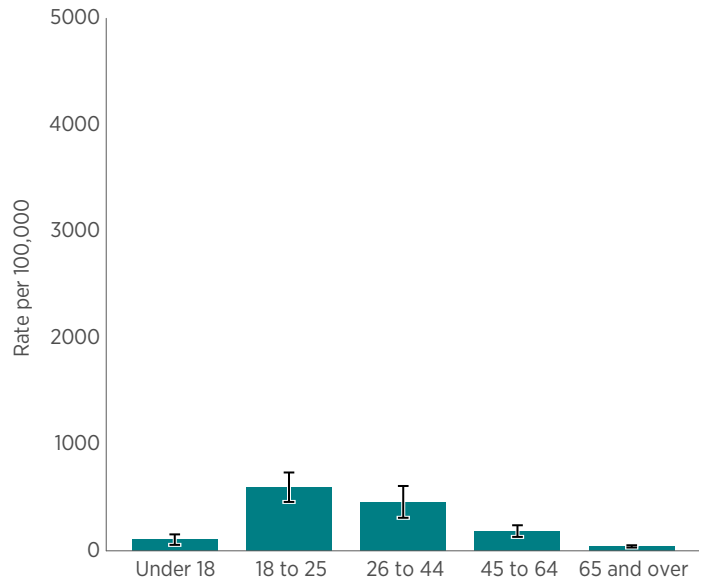
## CANNABIS-RELATED ED VISITS BY AGE GROUP

**Figure 4.D.1** Percentage by age group



The percentage of cannabis-related ED visits was highest among patients 26 to 44 (45.5%).

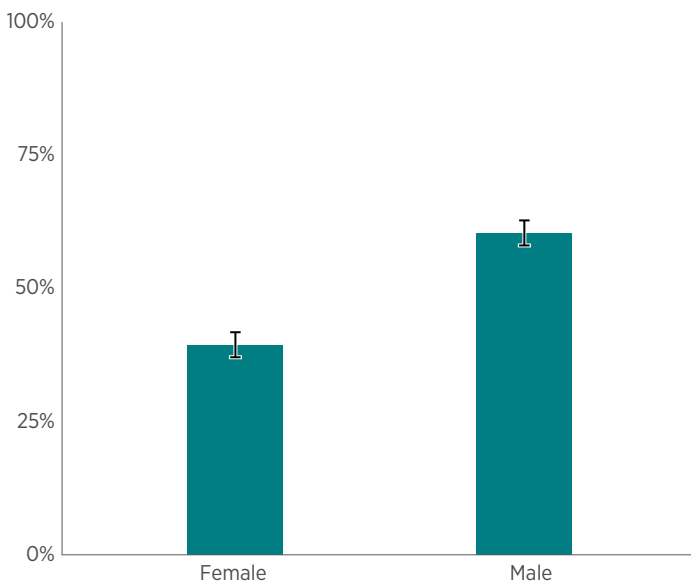
**Figure 4.D.2** Rate by age group



The rate of cannabis-related ED visits was significantly higher among individuals 18 to 25 (597 per 100,000).

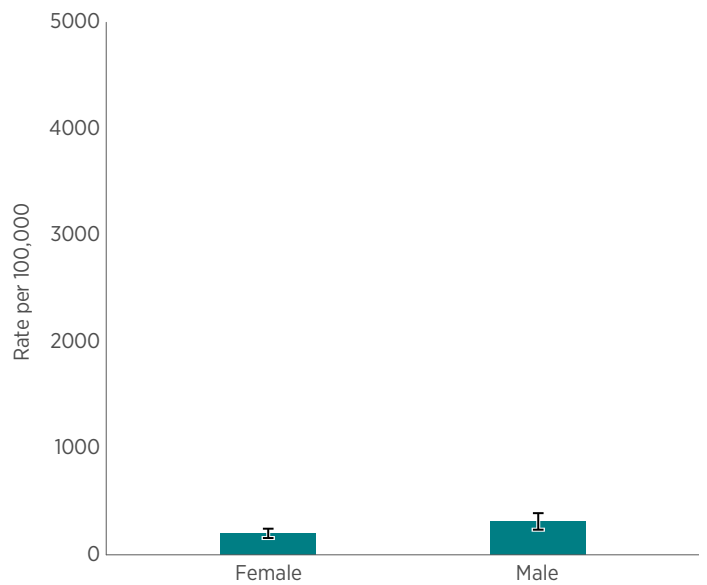
## CANNABIS-RELATED ED VISITS BY SEX AT BIRTH

**Figure 4.D.3** Percentage by sex



The percentage of cannabis-related ED visits was higher among males (60.4%) than females (39.4%).

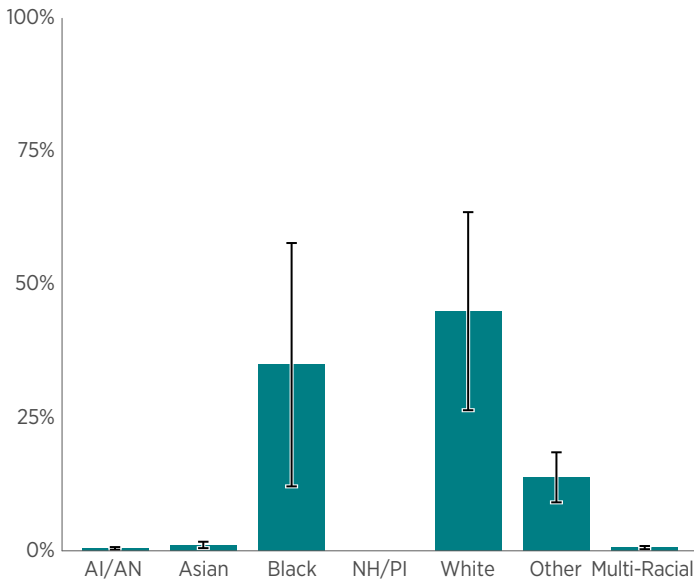
**Figure 4.D.4** Rate by sex



The rate of cannabis-related ED visits was significantly higher among males (314 per 100,000) than females (201 per 100,000).

## CANNABIS-RELATED ED VISITS BY RACE

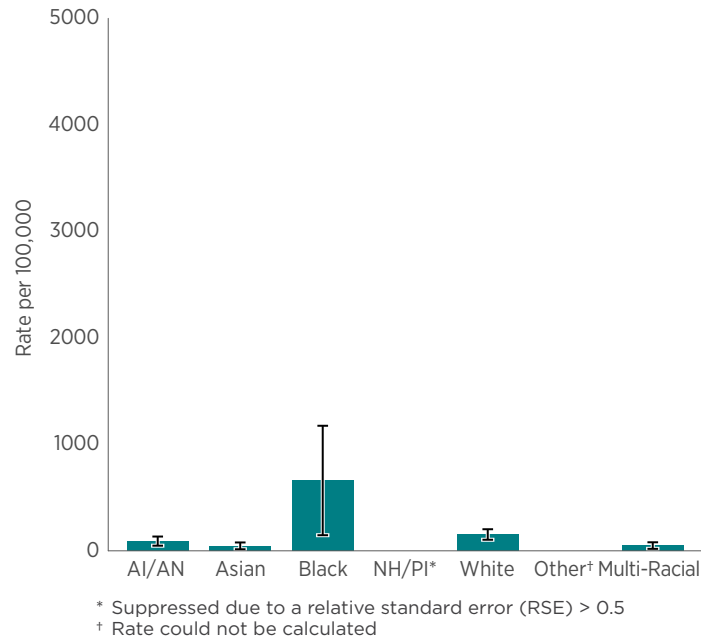
**Figure 4.D.5** Percentage by race



The percentage of cannabis-related ED visits was higher among White (45.0%) and Black (35.0%) patients.

**Race data note:** Other—The race documented in the medical record does not fit any other race category. Multi-Racial—Multiple races were selected. AI/AN—American Indian or Alaska Native. NH/PI—Native Hawaiian or Other Pacific Islander.

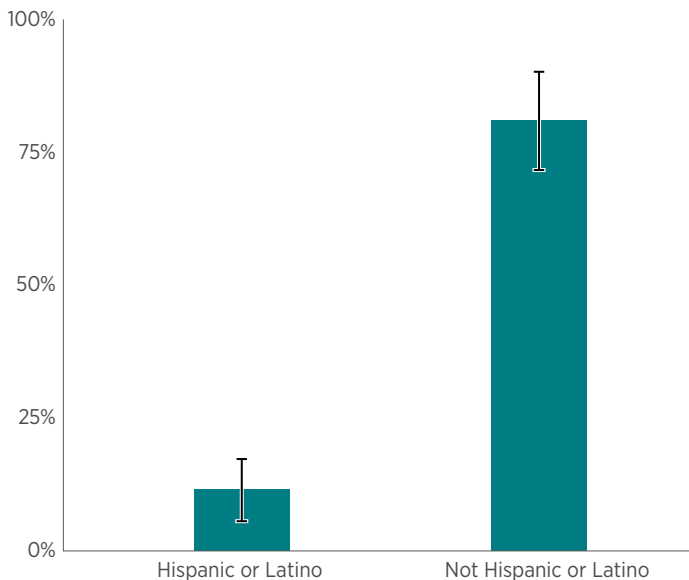
**Figure 4.D.6** Rate by race



The rate of cannabis-related ED visits was significantly highest among Black (660 per 100,000) individuals.

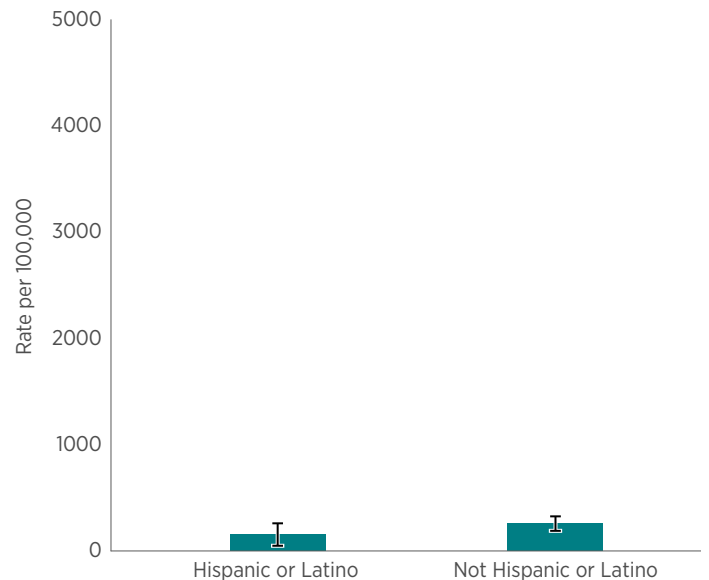
## CANNABIS-RELATED ED VISITS BY ETHNICITY

**Figure 4.D.7** Percentage by ethnicity



The percentage of cannabis-related ED visits was higher among Not Hispanic or Latino (81.0%) than Hispanic or Latino (11.5%) patients.

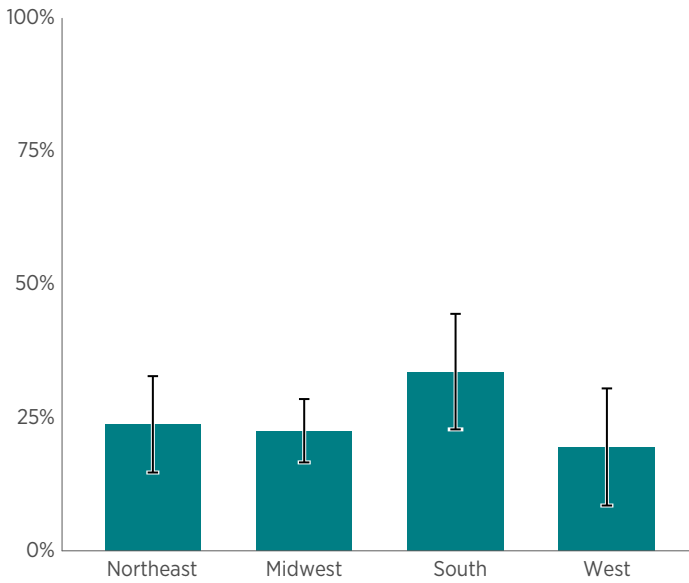
**Figure 4.D.8** Rate by ethnicity



The rate of cannabis-related ED visits was significantly higher among Not Hispanic or Latino (257 per 100,000) than Hispanic or Latino (154 per 100,000) individuals.

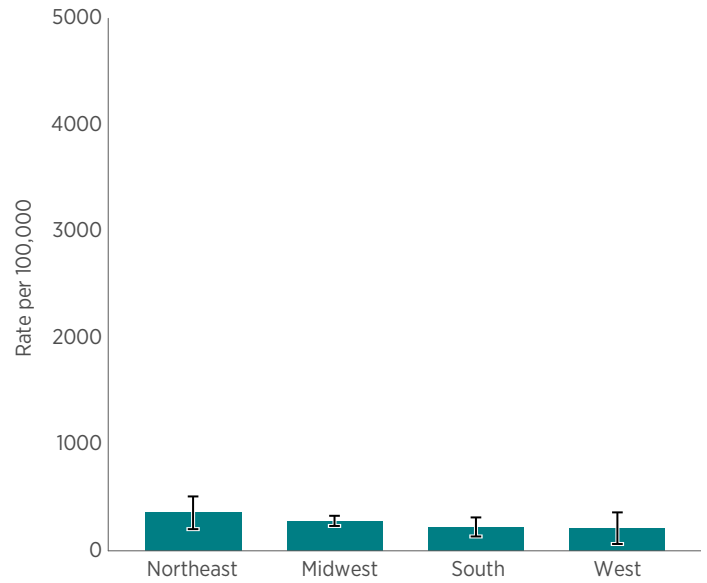
## CANNABIS-RELATED ED VISITS BY REGION

**Figure 4.D.9** Percentage by region



The percentage of cannabis-related ED visits was similar across regions, with a range between 19.5 percent (West) and 33.6 percent (South).

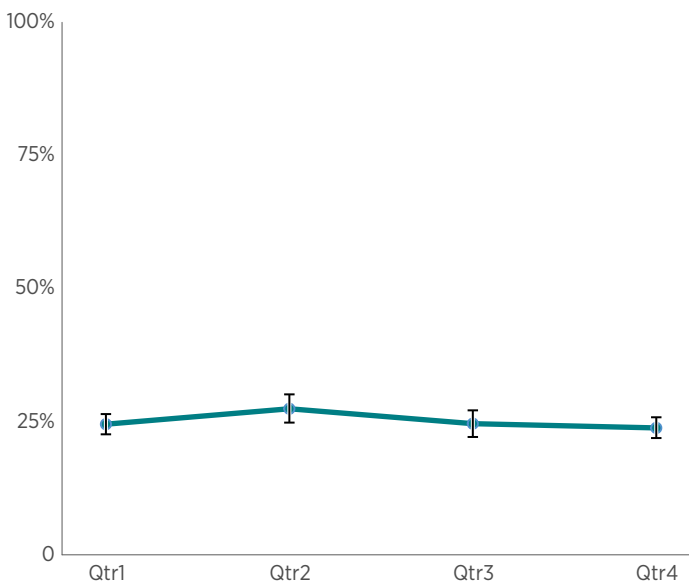
**Figure 4.D.10** Rate by region



The rate of cannabis-related ED visits was significantly higher among individuals in the Northeast (357 per 100,000) compared to the West (212 per 100,000).

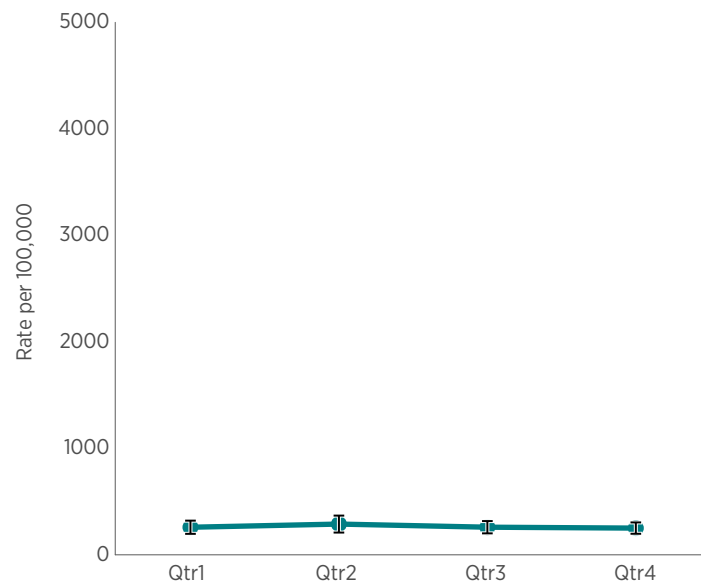
## CANNABIS-RELATED ED VISITS BY QUARTER

**Figure 4.D.11** Percentage by quarter



The percentage of cannabis-related ED visits was similar across quarters, with a range between 23.7 percent (Qtr4) and 27.3 percent (Qtr2).

**Figure 4.D.12** Rate by quarter



The rate of cannabis-related ED visits was similar across quarters, with a range between 244 per 100,000 (Qtr4) and 281 per 100,000 (Qtr2).

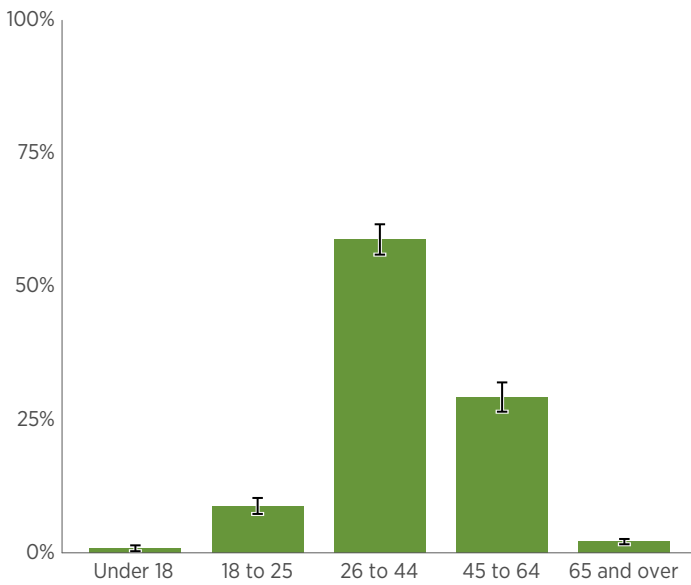
## 4.E Methamphetamine-Related ED Visits

### Key Findings

- › Rates for methamphetamine-related ED visits were highest in these demographic groups: individuals 25 to 44 years (406 per 100,000), males (250 per 100,000), and West region (381 per 100,000).
- › The rate of methamphetamine-related ED visits was not significantly different between most racial groups or quarters.

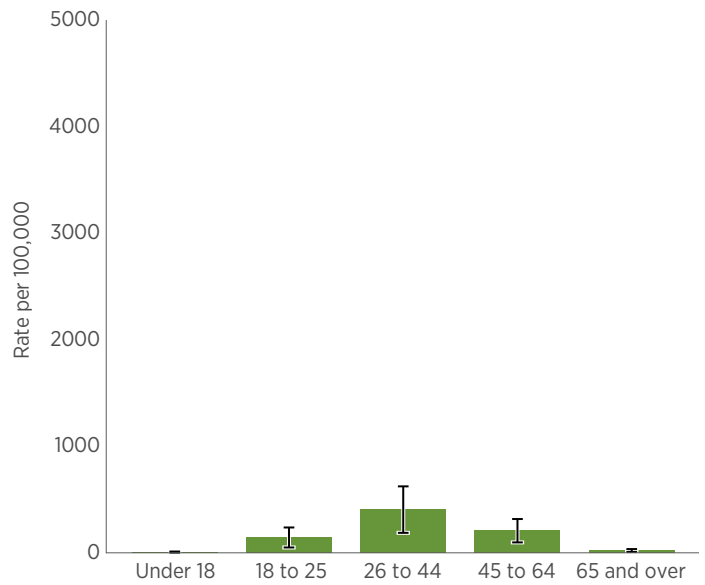
## METHAMPHETAMINE-RELATED ED VISITS BY AGE GROUP

**Figure 4.E.1** Percentage by age group



The percentage of methamphetamine-related ED visits was highest among patients 26 to 44 (58.8%).

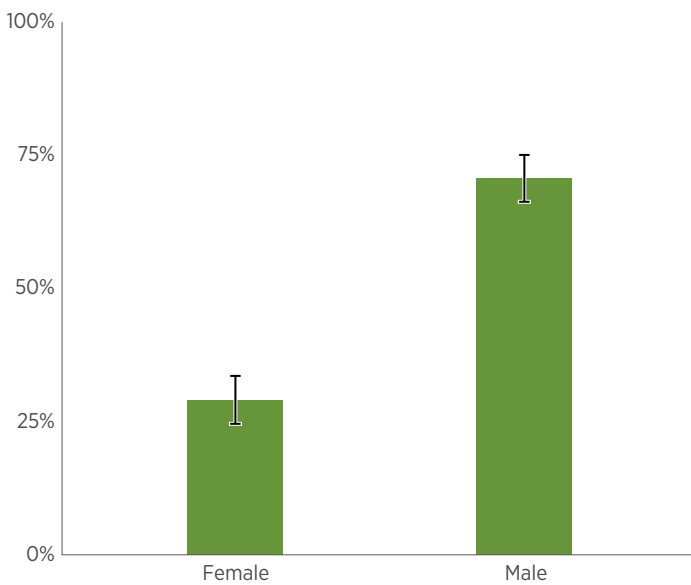
**Figure 4.E.2** Rate by age group



The rate of methamphetamine-related ED visits was significantly higher among individuals 26 to 44 (406 per 100,000).

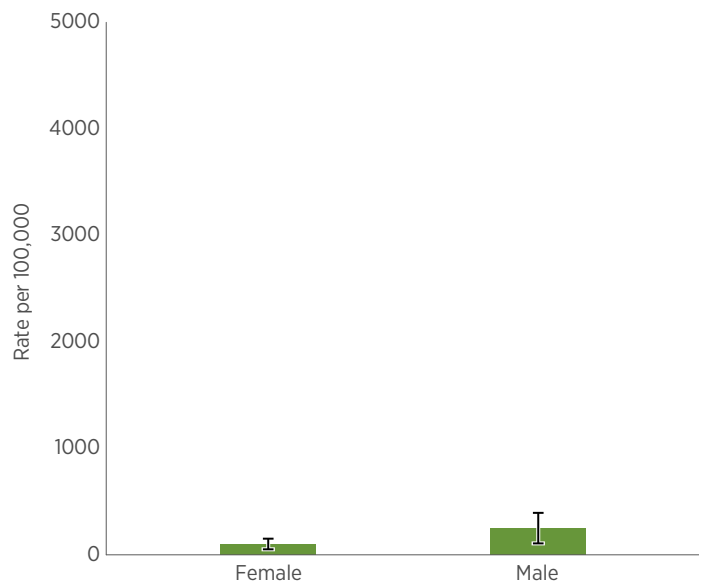
## METHAMPHETAMINE-RELATED ED VISITS BY SEX AT BIRTH

**Figure 4.E.3** Percentage by sex



The percentage of methamphetamine-related ED visits was higher among males (70.7%) than females (29.1%).

**Figure 4.E.4** Rate by sex

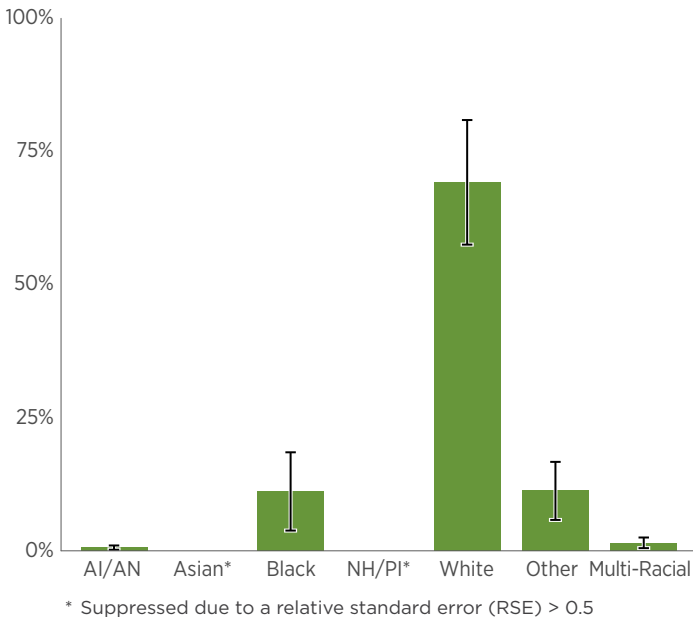


The rate of methamphetamine-related ED visits was significantly higher among males (250 per 100,000) than females (101 per 100,000).



## METHAMPHETAMINE-RELATED ED VISITS BY RACE

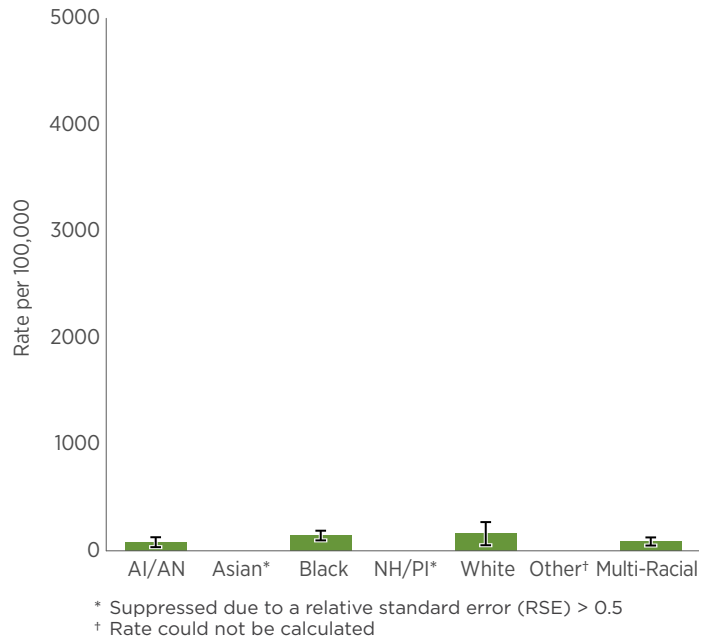
**Figure 4.E.5** Percentage by race



The percentage of methamphetamine-related visits was highest among White patients (69.2%).

**Race data note:** Other—The race documented in the medical record does not fit any other race category. Multi-Racial—Multiple races were selected. AI/AN—American Indian or Alaska Native. NH/PI—Native Hawaiian or Other Pacific Islander.

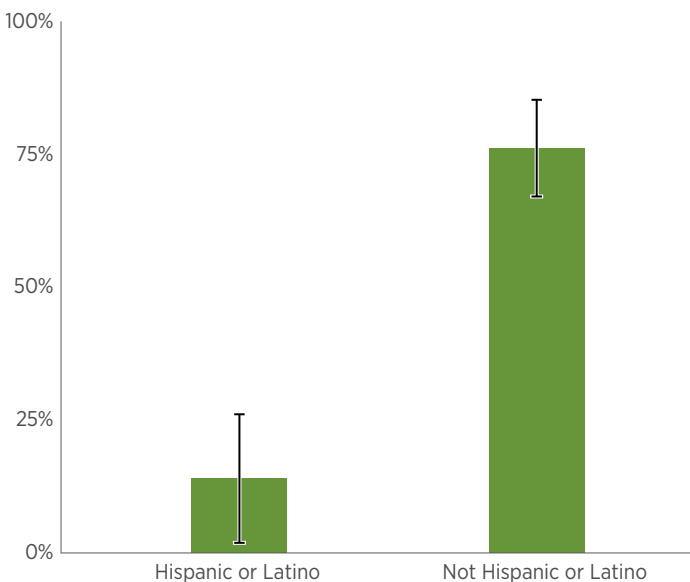
**Figure 4.E.6** Rate by race



The rate of methamphetamine-related ED visits was not significantly different between most racial groups, with a range between 161 per 100,000 (White) and 37 per 100,000 (AI/AN).

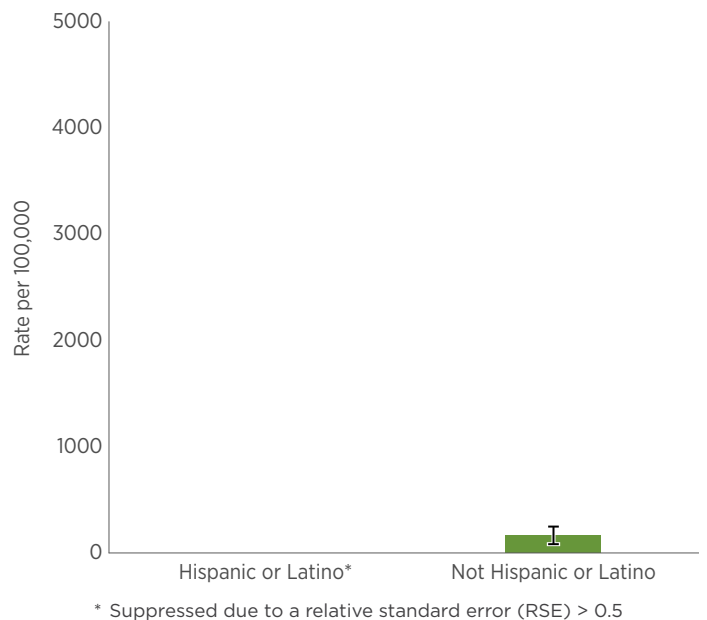
## METHAMPHETAMINE-RELATED ED VISITS BY ETHNICITY

**Figure 4.E.7** Percentage by ethnicity



The percentage of methamphetamine-related ED visits was higher among Not Hispanic or Latino (76.2%) than Hispanic or Latino (14.0%) patients.

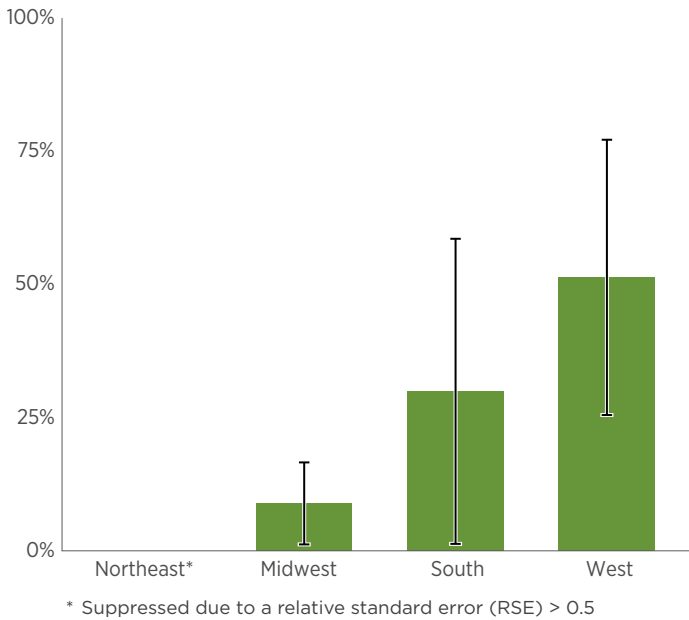
**Figure 4.E.8** Rate by ethnicity



The rate of methamphetamine-related ED visits was 165 per 100,000 Not Hispanic or Latino individuals.

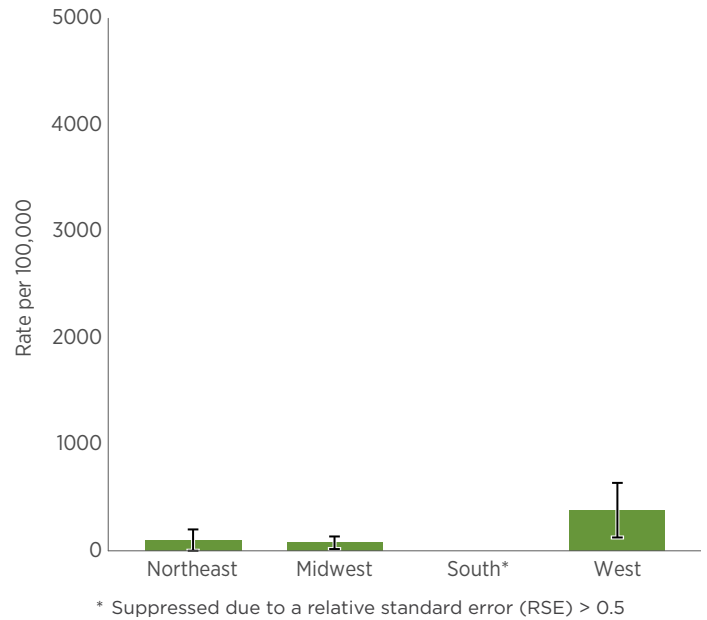
## METHAMPHETAMINE-RELATED ED VISITS BY REGION

**Figure 4.E.9** Percentage by region



The percentage of methamphetamine-related ED visits was higher in the West (51.3%) compared to the Midwest (8.9%).

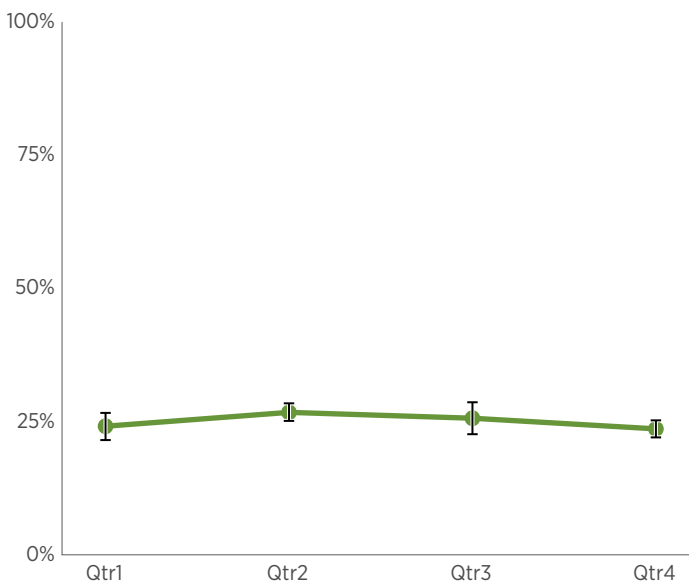
**Figure 4.E.10** Rate by region



The rate of methamphetamine-related ED visits was significantly highest among individuals in the West (381 per 100,000).

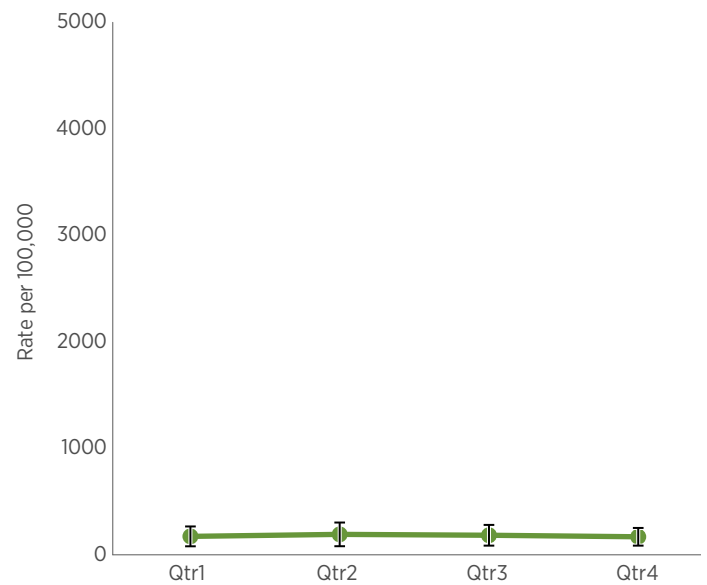
## METHAMPHETAMINE-RELATED ED VISITS BY QUARTER

**Figure 4.E.11** Percentage by quarter



The percentage of methamphetamine-related ED visits was similar across quarters, with a range between 23.6 percent (Qtr4) and 26.7 percent (Qtr2).

**Figure 4.E.12** Rate by quarter



The rate of methamphetamine-related ED visits was similar across quarters, with a range between 165 per 100,000 (Qtr4) and 188 per 100,000 (Qtr2).

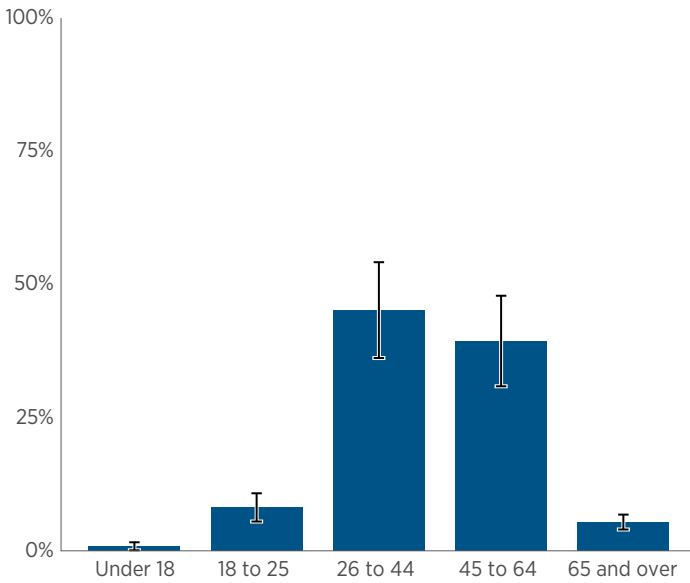
## 4.F Cocaine-Related ED Visits

### Key Findings

- › The rate of cocaine-related ED visits was highest in these demographic groups: individuals 26 to 44 (223 per 100,000) and 45 to 64 (199 per 100,000), males (178 per 100,000), Black or African American (459 per 100,000), Not Hispanic or Latino (165 per 100,000).
- › The rate of cocaine-related ED visits was significantly higher in the Northeast (240 per 100,000) compared to the West (51 per 100,000).
- › The rate of cocaine-related ED visits was significantly lower among individuals during quarter 4 (106 per 100,000) compared to quarter 3 (130 per 100,000).

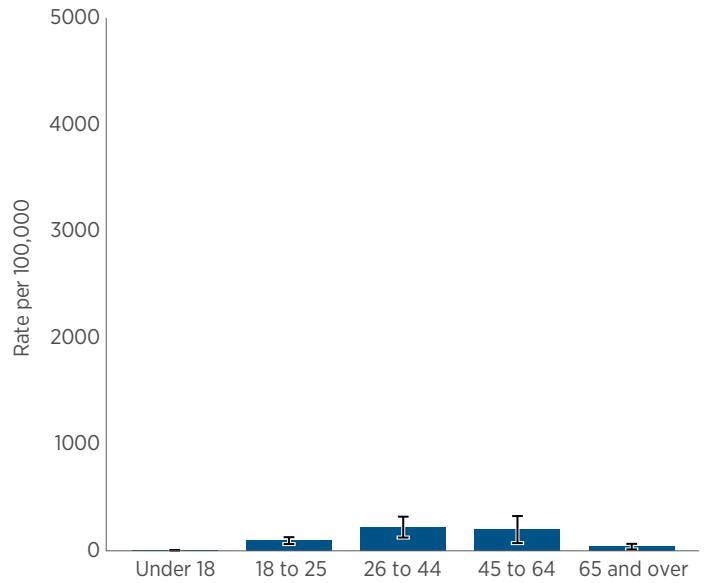
## COCAINE-RELATED ED VISITS BY AGE GROUP

**Figure 4.F.1** Percentage by age group



The percentage of cocaine-related ED visits was higher among patients 26 to 44 (45.2%) and 45 to 64 (39.4%).

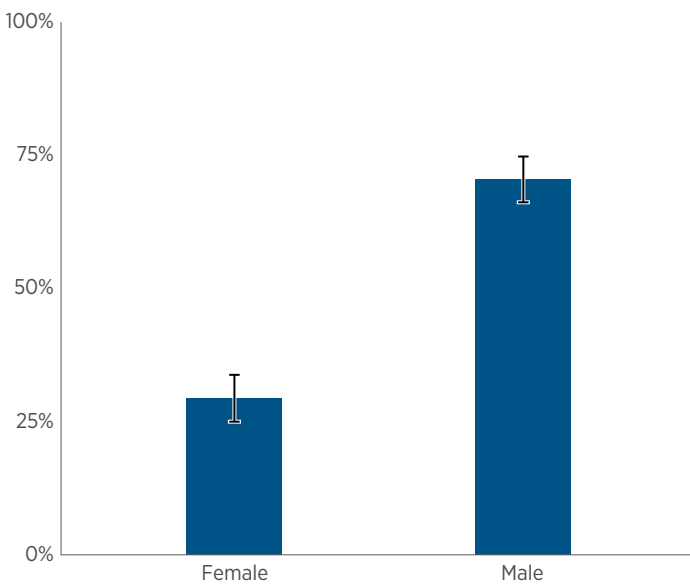
**Figure 4.F.2** Rate by age group



The rate of cocaine-related ED visits was significantly higher among individuals 26 to 44 (223 per 100,000) compared to all age groups except 45 to 64 (199 per 100,000).

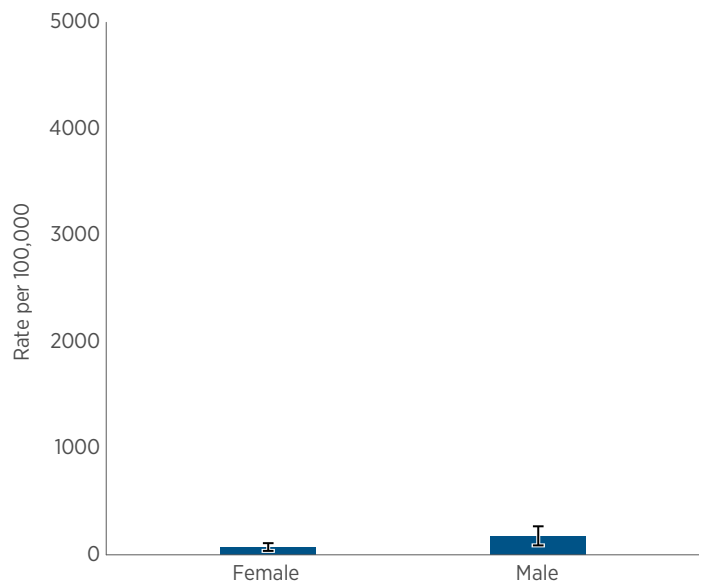
## COCAINE-RELATED ED VISITS BY SEX AT BIRTH

**Figure 4.F.3** Percentage by sex



The percentage of cocaine-related ED visits was higher among males (70.5%) than females (29.4%).

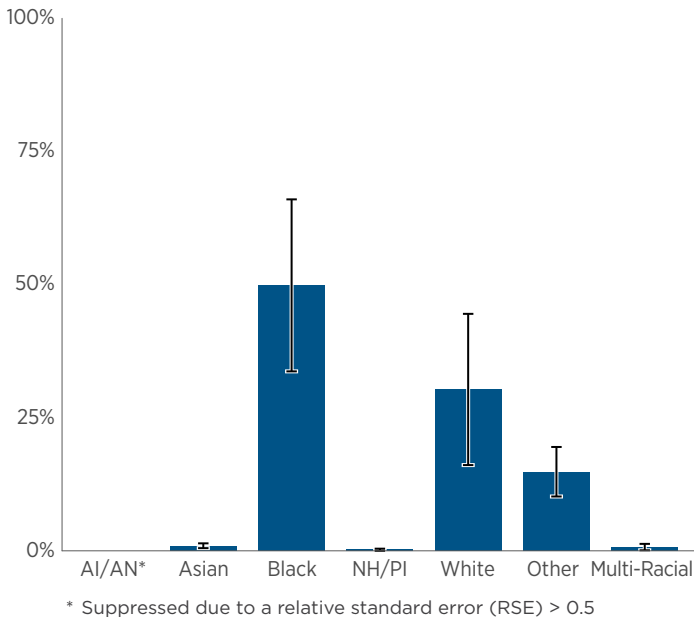
**Figure 4.F.4** Rate by sex



The rate of cocaine-related ED visits was significantly higher among males (178 per 100,000) than females (73 per 100,000).

## COCAINE-RELATED ED VISITS BY RACE

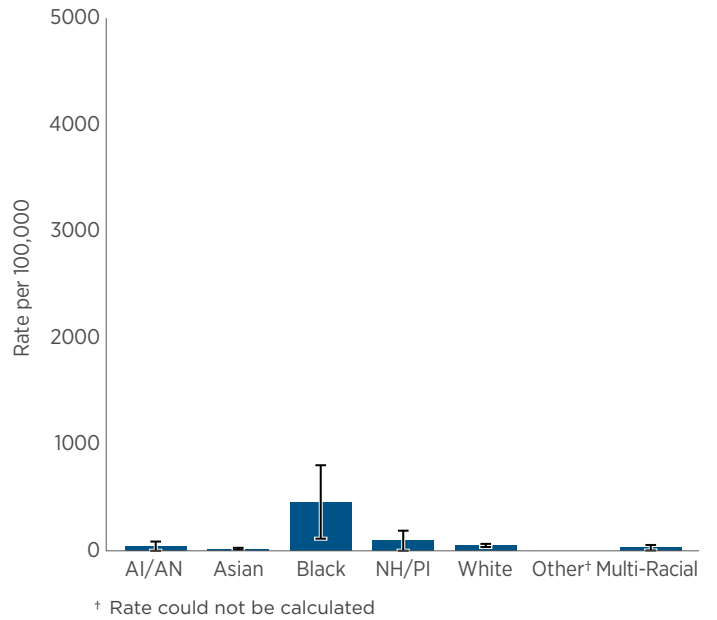
**Figure 4.F.5** Percentage by race



The percentage of cocaine-related ED visits was higher among Black (49.9%) and White (30.3%) patients.

**Race data note:** Other—The race documented in the medical record does not fit any other race category. Multi-Racial—Multiple races were selected. AI/AN—American Indian or Alaska Native. NH/PI—Native Hawaiian or Other Pacific Islander.

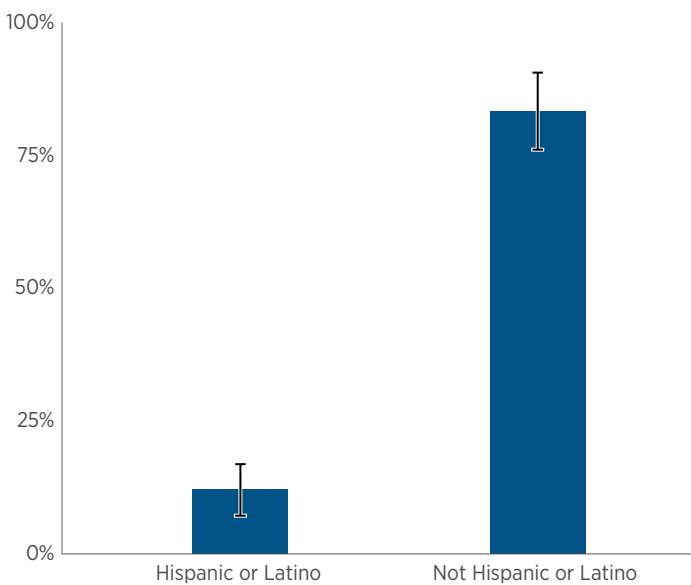
**Figure 4.F.6** Rate by race



The rate of cocaine-related ED visits was significantly highest among Black (459 per 100,000) individuals.

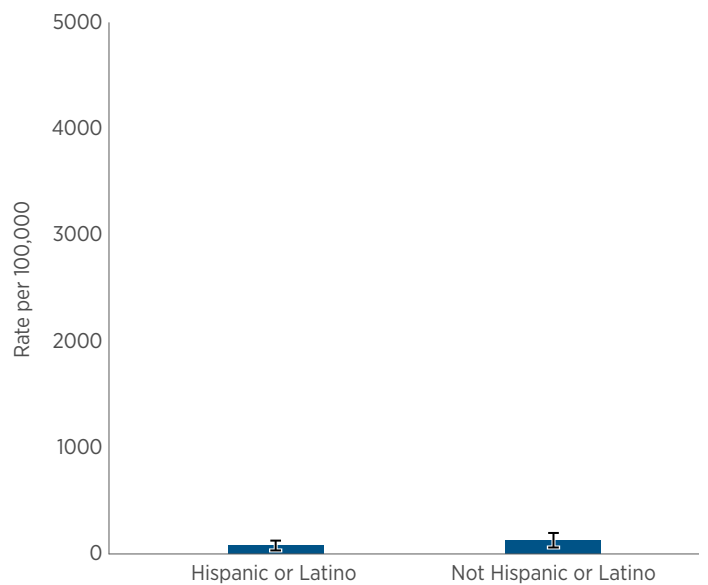
## COCAINE-RELATED ED VISITS BY ETHNICITY

**Figure 4.F.7** Percentage by ethnicity



The percentage of cocaine-related ED visits was higher among Not Hispanic or Latino (83.3%) than Hispanic or Latino (12.1%) patients.

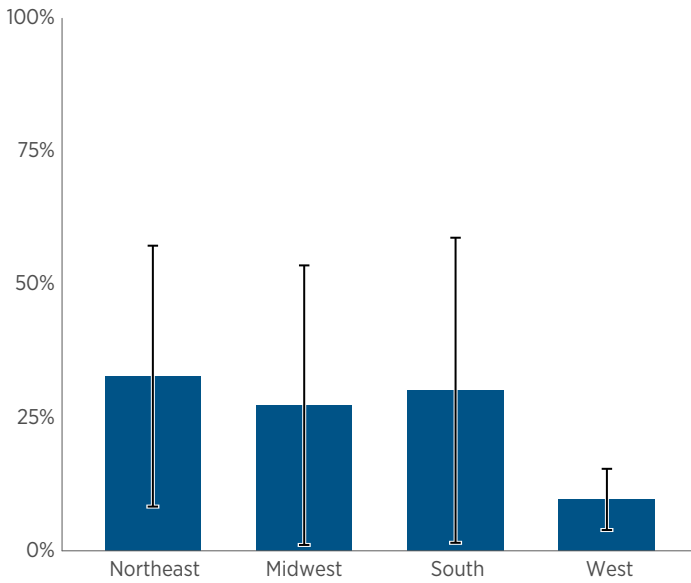
**Figure 4.F.8** Rate by ethnicity



The rate of cocaine-related ED visits was 129 per 100,000 among Not Hispanic or Latino individuals.

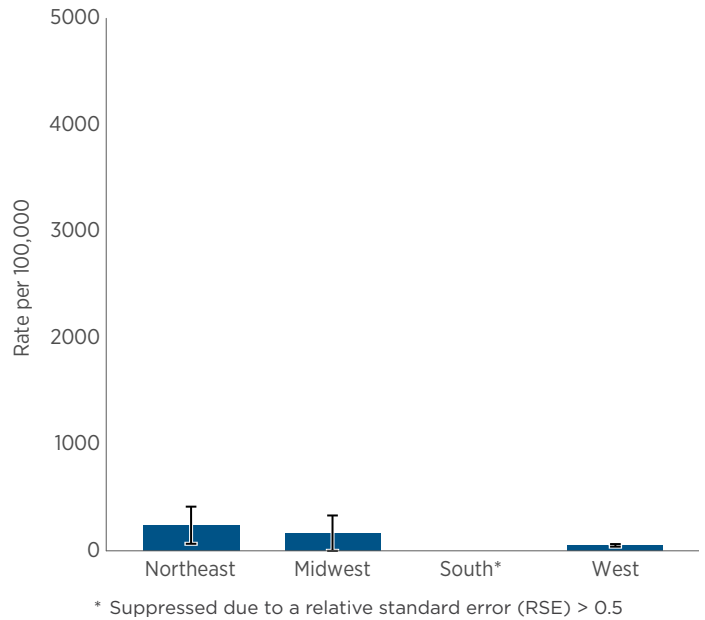
## COCAINE-RELATED ED VISITS BY REGION

**Figure 4.F.9** Percentage by region



The percentage of cocaine-related ED visits was similar across regions, with a range from 9.7 percent (West) to 32.8 percent (Northeast).

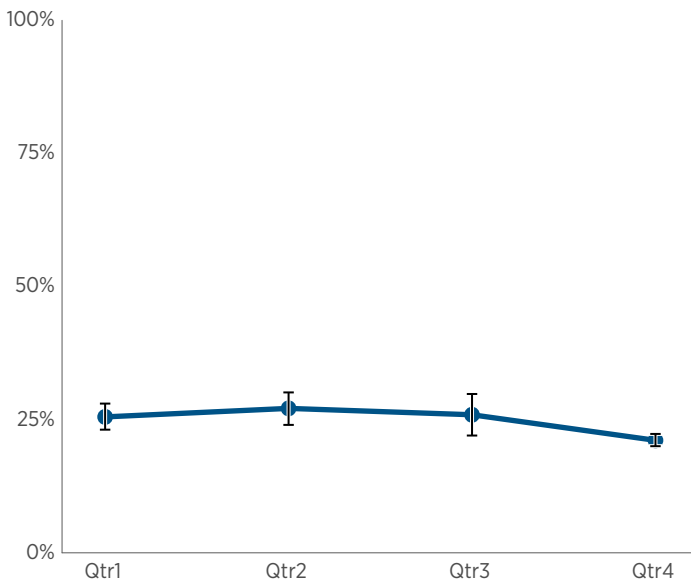
**Figure 4.F.10** Rate by region



The rate of cocaine-related ED visits was significantly higher among individuals in the Northeast (240 per 100,000) compared to the West (51 per 100,000).

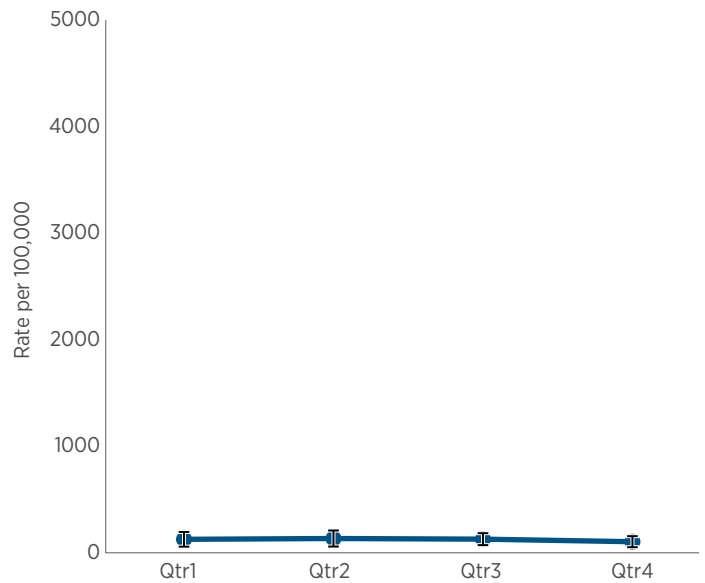
## COCAINE-RELATED ED VISITS BY QUARTER

**Figure 4.F.11** Percentage by quarter



The percentage of cocaine-related ED visits was lower in Qtr4 (21.2%) compared to Qtr1 (25.6%) and Qtr2 (27.2%).

**Figure 4.F.12** Rate by quarter



The rate of cocaine-related ED visits was significantly lower among individuals during Qtr4 (106 per 100,000) compared to Qtr3 (130 per 100,000).

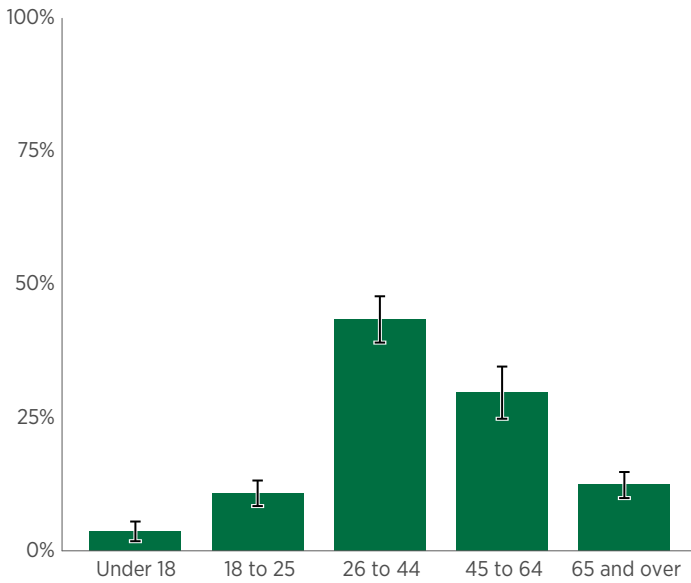
## 4.G Benzodiazepine-Related ED Visits

### Key Findings

- › The rate of benzodiazepine-related ED visits was highest in the following demographic groups: individuals 26 to 44 (98 per 100,000), White (57 per 100,000), Black or African American (46 per 100,000), and Not Hispanic or Latino (62 per 100,000).
- › Males and females had similar rates of benzodiazepine-related ED visits (54 per 100,000 and 60 per 100,000).
- › There were no significant differences between regions or quarters.

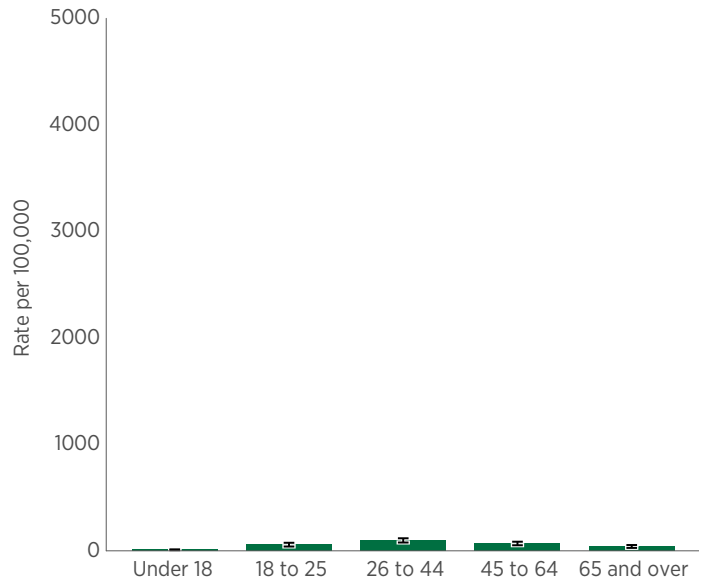
## BENZODIAZEPINE-RELATED ED VISITS BY AGE GROUP

**Figure 4.G.1** Percentage by age group



The percentage of benzodiazepine-related ED visits was highest among patients 26 to 44 (43.4%).

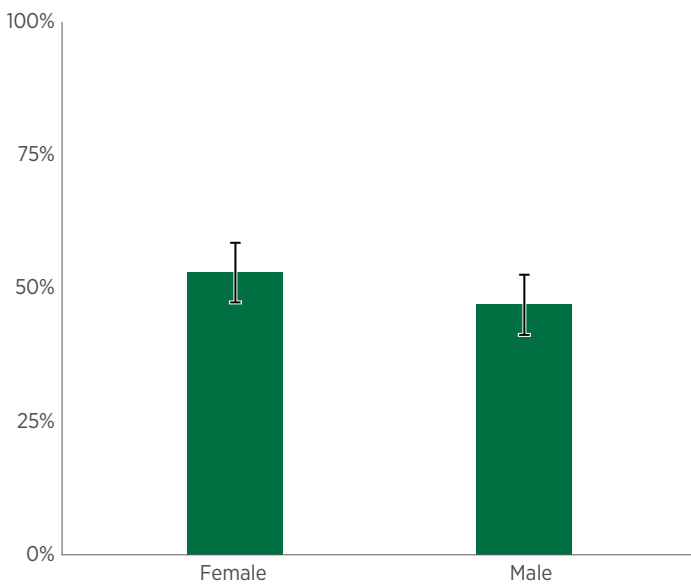
**Figure 4.G.2** Rate by age group



The rate of benzodiazepine-related ED visits was significantly highest among individuals 26 to 44 (98 per 100,000).

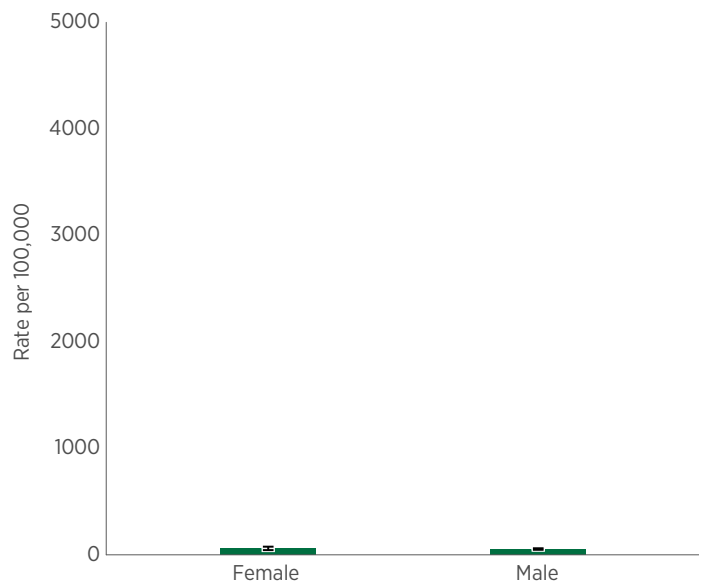
## BENZODIAZEPINE-RELATED ED VISITS BY SEX AT BIRTH

**Figure 4.G.3** Percentage by sex



The percentage of benzodiazepine-related ED visits was similar among females (53.0%) and males (47.0%).

**Figure 4.G.4** Rate by sex

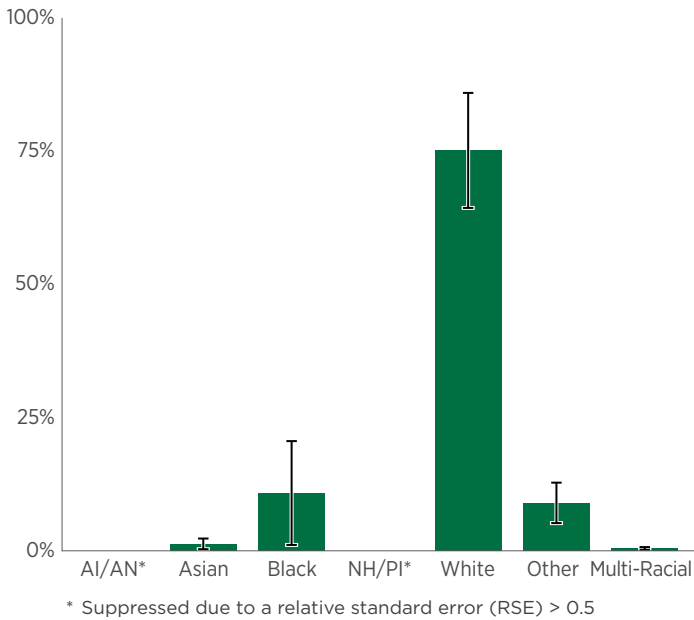


There was no significant difference in the rate of benzodiazepine-related ED visits between males (54 per 100,000) and females (60 per 100,000).



## BENZODIAZEPINE-RELATED ED VISITS BY RACE

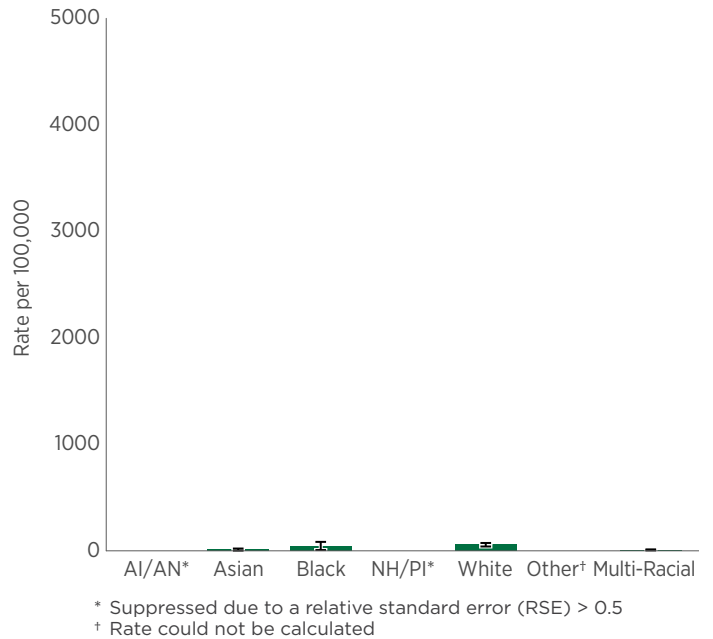
**Figure 4.G.5** Percentage by race



The percentage of benzodiazepine-related ED visits was highest among White (75.2%) patients.

**Race data note:** Other—The race documented in the medical record does not fit any other race category. Multi-Racial—Multiple races were selected. AI/AN—American Indian or Alaska Native. NH/PI—Native Hawaiian or Other Pacific Islander.

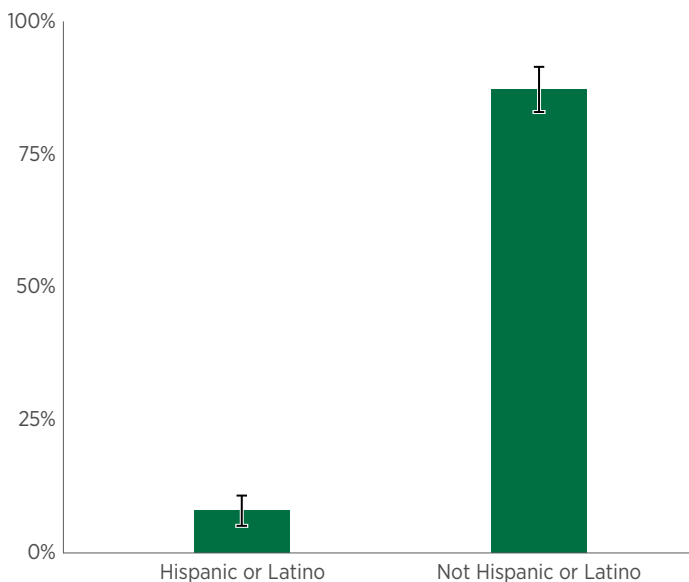
**Figure 4.G.6** Rate by race



The rate of benzodiazepine-related ED visits was similar among White (57 per 100,000), Black (46 per 100,000), and NH/PI (25 per 100,000) individuals.

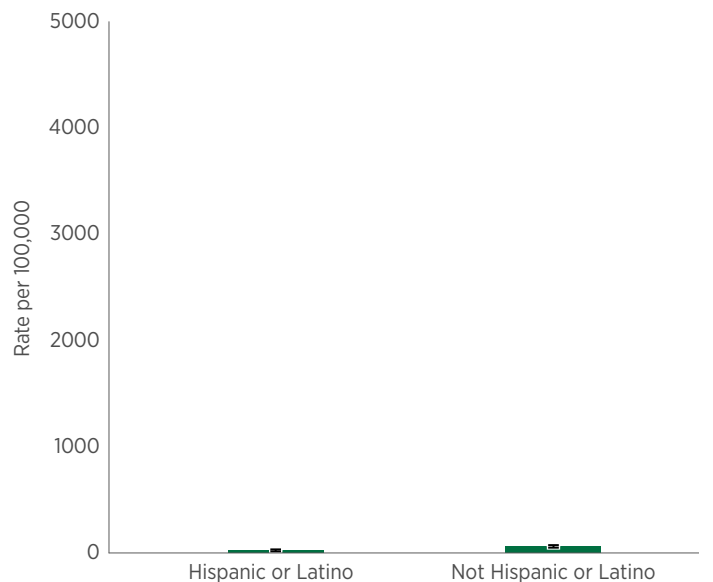
## BENZODIAZEPINE-RELATED ED VISITS BY ETHNICITY

**Figure 4.G.7** Percentage by ethnicity



The percentage of benzodiazepine-related ED visits was higher among Not Hispanic or Latino (87.2%) than Hispanic or Latino (8.0%) patients.

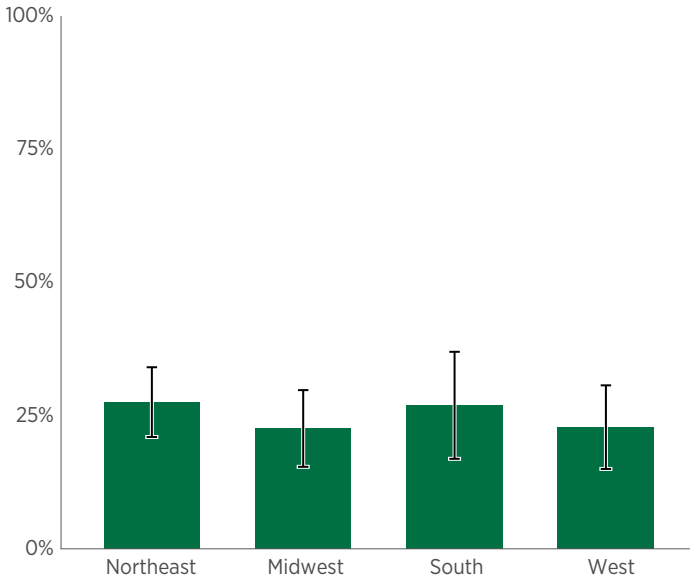
**Figure 4.G.8** Rate by ethnicity



The rate of benzodiazepine-related ED visits was significantly higher among Not Hispanic or Latino (62 per 100,000) than Hispanic or Latino (24 per 100,000) individuals.

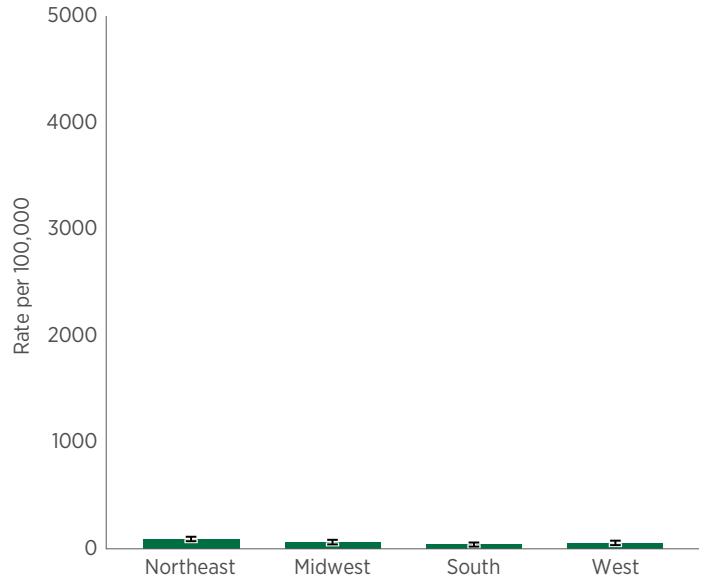
## BENZODIAZEPINE-RELATED ED VISITS BY REGION

**Figure 4.G.9** Percentage by region



The percentage of benzodiazepine-related ED visits was similar across regions, with a range between 22.6 percent (Midwest) and 27.6 percent (Northeast).

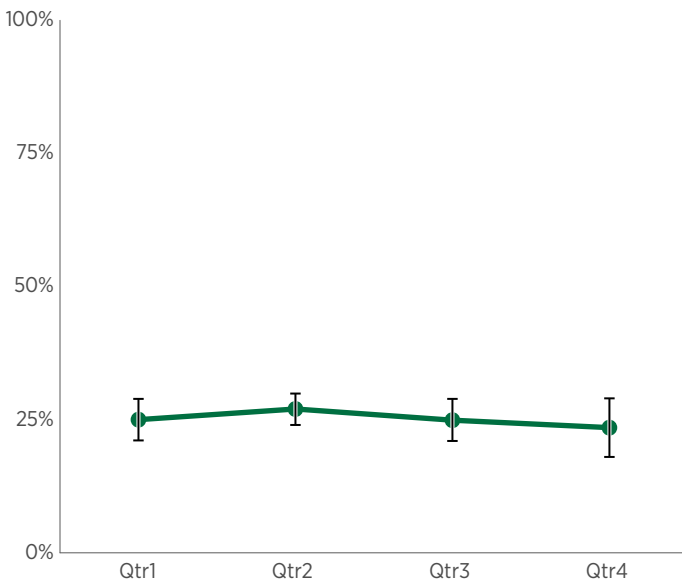
**Figure 4.G.10** Rate by region



The rate of benzodiazepine-related ED visits was similar across regions, with a range between 40 per 100,000 (South) and 92 per 100,000 (Northeast).

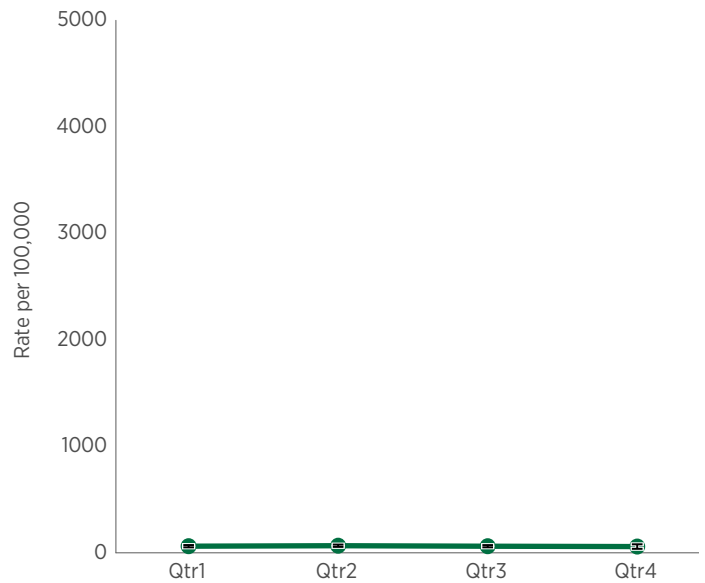
## BENZODIAZEPINE-RELATED ED VISITS BY QUARTER

**Figure 4.G.11** Percentage by quarter



The percentage of benzodiazepine-related ED visits was similar across quarters, with a range between 23.4 percent (Qtr4) and 26.9 percent (Qtr2).

**Figure 4.G.12** Rate by quarter



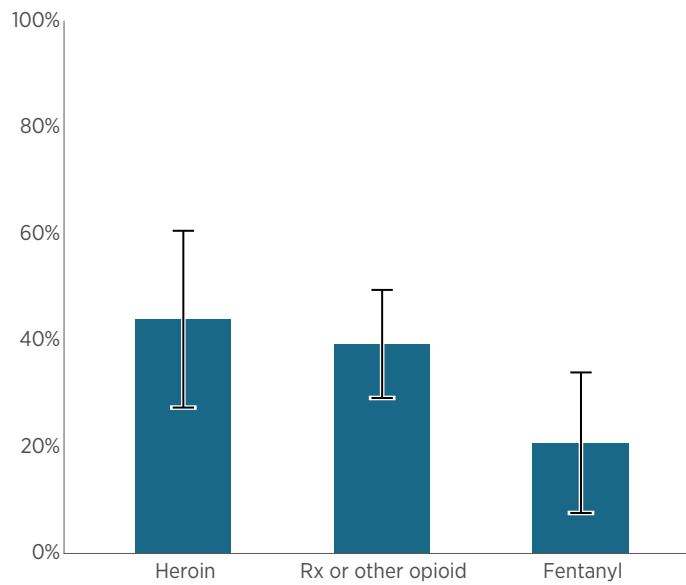
The rate of benzodiazepine-related ED visits was similar across quarters, with a range between 54 per 100,000 (Qtr4) and 62 per 100,000 (Qtr2).

# 5 Weighted National Estimates of Opioid-Related ED Visits by Type, 2022

## 5.A Opioid-Related ED Visits by Type of Opioid

This section focuses on national estimates of opioid-related ED visits in 2022 with ED visits with any opioid reported as the denominator. Opioid-related ED visits are further classified as fentanyl, heroin, and prescription (Rx) or other opioid visits. Rx or other opioids are also presented as subcategories. Opioid definitions and data tables can be found in Appendices A and B.

**Figure 5.A** Opioid-related ED visits by type of opioid



**Data note:** Multiple substances can be reported in a single ED visit, so percentages can add up to more than 100 percent.

**Heroin was reported in 44.0 percent, and Rx or other opioids were reported in 39.4 percent of opioid-related ED visits. Fentanyl visits were half as common at 20.8 percent.**

## 5.B Types of Rx Opioid

**Table 5.B** Rx or other opioid-related ED visit by opioid type

Substance	Percent (%)	95 percent CI (%)
Oxycodone	32.9	27.0 - 38.7
Hydrocodone	10.7	6.8 - 14.6
Tramadol	5.3	3.5 - 7.1
Morphine	3.8	2.0 - 5.6
Hydromorphone	3.0	1.1 - 4.9
Codeine	1.4	0.9 - 1.9









**Oxycodone was the most commonly reported opioid among Rx or other opioid-related ED visits (32.9%).**

## 6 Weighted National Estimates of Drug-Related ED Visits Involving Polysubstance, 2022

This section highlights findings from drug-related ED visits involving more than one substance, referred to as polysubstance. For example, if cocaine and marijuana were both documented in the medical record for an ED visit, it is considered a polysubstance visit. This section presents the most reported polysubstance-related ED visits and which substances are reported most often together by the top six substances (with opioid further described by type) involved in drug-related ED visits.

In 2022, 21.2 percent of all drug-related ED visits were polysubstance. Table 6 presents each substance's frequency of polysubstance drug-related ED visits and the proportion of visits that were polysubstance for that specific drug.

**Table 6** Frequency of polysubstance-related ED visits and proportion of visits that were polysubstance for each drug

Substance	Polysubstance weighted frequency (n)	Lower 95 CI	Upper 95 CI	Proportion that are polysubstance (%)
Alcohol	653,310	469,092	837,528	20.2 
Cannabis	407,995	285,962	530,027	47.6 
Cocaine	311,945	157,552	466,338	74.7 
Methamphetamine	248,817	138,679	358,954	42.5 
Heroin	173,307	67,655	278,960	43.1 
Rx or other opioid	160,169	121,596	198,743	44.5 
Benzodiazepine	138,829	112,705	164,953	72.8 
Fentanyl	103,184	49,745	156,622	54.2 

**Alcohol had the highest number of polysubstance-related ED visits (n=653,310) but the lowest proportion of visits involving polysubstance (20.2%). Approximately four out of five alcohol-related ED visits involved alcohol only. Cocaine had the third highest frequency of polysubstance ED visits (n=311,945) but the highest proportion (74.7%) involving additional substances.**

**Figure 6** Top three polysubstance combinations by substance group

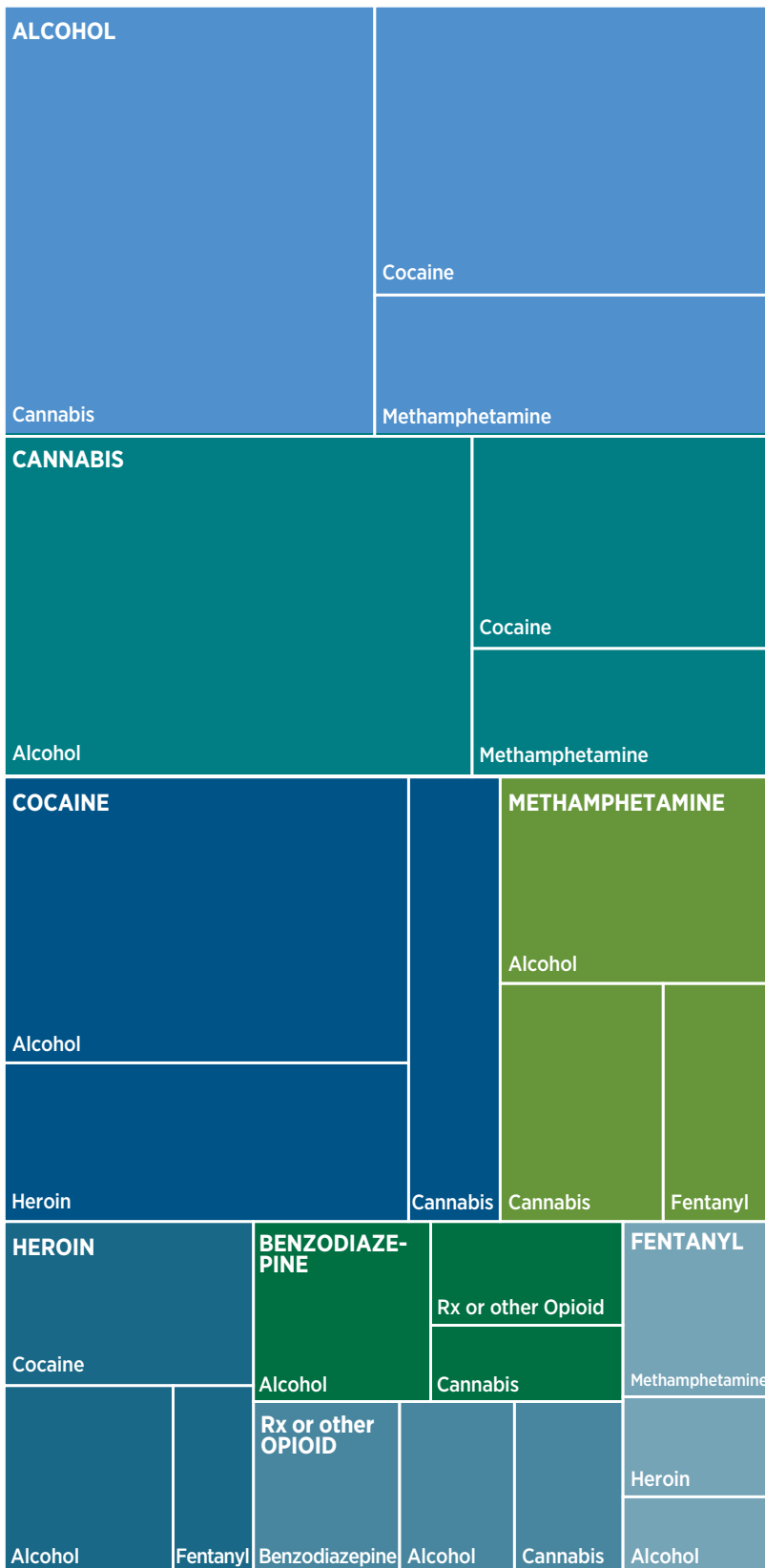


Figure 6 depicts each substance (identified by color) with the top three polysubstance combinations. The relative size of the rectangles highlights the relative occurrence of each polysubstance pair. For the data table accompanying this figure, see [Appendix Table A11](#).

**Alcohol was in the top three combinations for all substance groups.**

**The top three combinations involved with alcohol (top group) were cannabis (approximately half), cocaine, and methamphetamine. The top three combinations involved with cannabis (second group) were the same as alcohol.**

## 7 Substances New to DAWN, 2022

DAWN has developed a comprehensive drug vocabulary and classification system to classify all substances it collects. When a drug involved in an ED visit is not yet listed in the system, it is recorded verbatim from the ED record. These new drugs are reviewed regularly for inclusion and are added to the DAWN classification system based on research with experts in the field. Table 7 presents the complete list of substances new to DAWN in 2022.

**Table 7** Substances newly reported in DAWN in 2022

Category (number identified)	Substance category (number identified)	Drugs added to Drug Classification System
<b>Illicit (9)*</b>	New combinations (4)	Meth with GHB, Marijuana with Ecstasy, Valium laced with Methamphetamine, PCP with Opioid
	Cannabinoids (1)	THC paste
	Cocaine (1)	Scrabble (Cocaine)
	MDMA (Ecstasy) (1)	Roller (Ecstasy)
	Heroin (1)	Brown Sugar Heroin
	Ketamine (1)	Ketofol
<b>Non-Illicit (23)</b>	Analgesics (3)	8-Ball Fentanyl, D (Dilaudid/Hydromorphone), Fentanyl with Morphine
	Nutraceutical products (3)	Burn PM, Calming Sleep Formula, Nootropics
	Antiviral agents (2)	TPOXX vaccine, Hepatitis B medication
	Anxiolytics, sedatives, and hypnotics (2)	Mexazolam, Bromazolam
	Miscellaneous CNS agents (2)	dexamethasone/diclofenac/methocarbamol (Rumoquin), dexamethasone/diclofenac/methocarbamol (Ortiga)
	Antidepressants (1)	SNRI
	Antifungals (1)	Azole Antifungals
	CNS stimulants (1)	C4 Energy Drink
	Functional bowel disorder agents (1)	Pinaverium Bromide
	Growth hormones (1)	CJC 1295-Ipamorelin
	Herbal products (1)	Homeopathic supplement
	Immunostimulants (1)	Monkeypox vaccine
	Investigational drugs	Donanemab
	Local injectable anesthetics with corticosteroids (1)	Facet Joint Injection
	Miscellaneous uncategorized agents (1)	Radiesse
	Probiotics (1)	FloraMyces

\* Illicit substances are those that are not legally available to purchase, like prescription or over-the-counter medication.

**In 2022, 32 substances were added to the DAWN drug classification system. After investigating each new entry, all substances were added to the system and assigned to existing drug categories. Of the 32 substances, nine (28.1%) were classified as illicit, and 23 (71.8%) were classified as non-illicit. Four of the new illicit drugs were new combinations. The largest groups of non-illicit substances were analgesics (n=3) and alternative medicines (n=3).**

## 8 Methods

This section provides a more in-depth description of the methodology for the Drug Abuse Warning Network (DAWN) hospital selection, data collection, weighting, and analysis.

### DAWN HOSPITAL SELECTION DESIGN

To be eligible for DAWN, hospitals had to be in the United States and non-federal, short-stay, general surgical and medical hospitals, with at least one 24-hour ED, and at least 100 annual ED visits. From this list of eligible hospitals, 53 were selected to participate in DAWN using a hybrid design of sentinel hospital-based surveillance and probability sample-based surveillance. This sample was considered in three parts (A, B, and C).

**Part A** consists of ten high priority sentinel hospitals that were specifically selected to enhance drug-related ED visit surveillance. Three early sampled hospitals were added to Part A during a sample redesign in 2019.

**Part B** is a systematic random sample of eight rural and suburban hospitals located in counties with the highest rates of five-year combined drug-related overdose deaths. This part was included to ensure representation from suburban and rural communities in the sample. The top rural and suburban county rates were stratified by U.S. census regions (Northeast, South, Midwest, and West) and their counties' drug-related five-year combined death rate (high, low).

**Part C** is a systematic random sample of 32 hospitals from counties not included in Part B. The hospitals in Part C were similarly stratified by U.S. census regions and their counties' drug-related five-year combined death rate and were additionally stratified by ED annual visit counts (high, low) with two hospitals selected per stratum.

### DATA ABSTRACTION

DAWN's data collection involved the direct record review of all ED visit records from participating hospitals. Trained medical record abstractor's reviewed key areas of each patient's ED visit record to determine whether drugs and/or alcohol were either the direct cause or a contributing factor to the visit. If it was, they abstracted key data items from the record into a web-based reporting system. ED visits where the patient left the ED without being seen by a clinician, or visits where the patient came to the ED but was directly admitted to the hospital, were ineligible for review.

DAWN used a multi-step process to ensure data quality throughout the data collection and reporting cycle. Since DAWN reviewed every ED visit from participating hospitals, there was no sampling error within a hospital. Missing data was minimal, which reduced the potential for bias beyond measurement error and/or data quality.

### DEFINING SUBSTANCES

DAWN collected detailed information on the substance(s) reported in the ED visit record for each drug-related visit. To standardize this information, a comprehensive drug vocabulary and classification system was used for all substances DAWN collected. The system was derived from the Multum Lexicon<sup>®</sup>, 2020 Cerner Multum, Inc., with modifications to meet DAWN's unique requirements. Substances from this classification system were collapsed into analytic groups based on having similarities in molecular structure, action in the body, toxicity, and misuse potential (e.g., methamphetamine, benzodiazepine). Opioids were classified in multiple ways to support more specific reporting given differences between



opioid types. In some cases, a single visit may have involve multiple substances from distinct analytical categories. Illicit and some narcotic substances reported as a combination, such as cocaine/heroin, were considered two separate substances. Opioids were investigated as any opioid and then further described by the type of opioid (heroin, fentanyl, and Rx or other opioid) and then further broken down in Section 5.

Polysubstance is the use of multiple substances in a short period. DAWN defined an ED visit as polysubstance when there was more than one substance reported (excluding nicotine). Polysubstance visits included instances when an unknown substance was reported, but then further classified as an unknown polysubstance or illicit combination.

Analytic group definitions for each of the figures displayed in this report can be found in Appendix B.

## WEIGHTING AND ESTIMATION

Given DAWN's hybrid sentinel surveillance and probability sample design, DAWN employed a multi-step weighting process to produce nationally representative estimates. The multi-step weighting process involved (1) calculating initial base weights for each sampling part/stratum, (2) adjusting the initial base weights for changes in the sample design and sampling frame, (3) adjusting for hospital non-response, and (4) post-stratification to adjust DAWN estimates of ED visit totals to American Hospital Association (AHA) ED visits for the given stratum.

Initial base weights for each stratum were generated using the inverse of the selection probability. Since part A hospitals were chosen by SAMHSA with certainty, their initial base weight was set to 1. Initial base weights were adjusted to reflect changes to the DAWN sample design and sampling frame and address duplicate records from the sampling frame. The adjusted base weights were further adjusted to generate quarterly nonresponse-adjusted weights. Depending on data availability by a hospital in a given quarter, DAWN employed two types of nonresponse adjustment. For hospitals with at least one month of completed data in the quarter, quarterly weights were adjusted by the ratio of the number of days in the quarter to the number of non-missing days in the quarter. For hospitals with less than 1 month of data in the quarter, the weights of other hospitals in the same or similar stratum, after collapsing, were adjusted to represent both the responding and nonresponding hospitals in that collapsed stratum. Weights were then calibrated (poststratify) to the estimated number of annual ED visits from the responding DAWN hospitals to the total number of ED visits in DAWN-eligible hospitals from 2021 AHA Annual Survey Database for Parts B and C. The poststratification adjustment was done within collapsed strata created in Step 3.

The final step required creation of the final weight variable for generating 2022 DAWN estimates, calculated as:

$$\text{Final Weight} = \text{Initial Base Weight} * \text{Base Weight Adjustment Factor} * \\ \text{Nonresponse Adjustment Factor} * \text{Poststratification Factor}$$

Weighted frequencies percentages, unadjusted rates per 100,000, and respective 95 percent confidence intervals were calculated to represent the national population by demographic characteristic. Percentages were calculated using the weighted frequency of all drug or drug-specific ED visits as the denominator and weighted frequency for each demographic category as the numerator. Rates were calculated using the weighted frequency as the numerator and U.S. Census Resident July 2022 population estimate as the denominator.

Multiple statistical tests were used to provide additional information to indicate whether two point-estimates could be considered significantly different from each other. Pairwise t-tests were calculated to determine whether the overall differences in percentage of substance (Figure 4.A) and the unadjusted rates between each level of demographic characteristic (e.g., Figure 4.E.2) were significantly different. We used the Bonferroni correction for each demographic

variable to account for multiple tests. That is, if there were  $n$  comparisons being made (note that if there were  $k$  levels to a variable, then  $n=k*(k-1)/2$ ), then the updated significance level to which we compared the resulting t-test p-value was  $0.05/n$ .

## **ADDITIONAL DATA CONSIDERATIONS**

- › DAWN does not collect identifiable information from ED visits, so a patient with multiple drug-related ED visits was counted as a separate visit each time.
- › Currently DAWN has a limited sample size of fifty-three hospitals.
- › Estimates were suppressed from this report when the relative standard error was greater than 50 percent or the count was between 1 and 10.
- › Listed substances are based on what was reported in the medical record.
- › Data should not be compared with legacy DAWN.
- › There were minor changes between the 2021 and 2022 DAWN reports, specifically in classifying some substances and the definition of polysubstance. More information on new definitions is provided in Appendix B.

**Table A1** Weighted national estimates for all drug-related ED visits, 2022

Characteristic	Percent	95 percent CI	Rate per 100,000	95 percent CI
<b>Age group</b>				
Under 18	5.0	2.9 - 7.1	496	323 - 669
18 to 25	11.1	10.4 - 11.9	2,240	1,794 - 2,687
26 to 44	38.6	36.1 - 41.1	3,265	2,540 - 3,990
45 to 64	31.5	30.1 - 32.9	2,738	2,245 - 3,230
65 and over	13.2	11.6 - 14.9	1,643	1,321 - 1,966
Missing	*	*	†	†
<b>Sex at birth</b>				
Female	39.2	36.5 - 42.0	1,675	1,444 - 1,905
Male	60.7	58.0 - 63.4	2,635	2,071 - 3,199
Other	*	*	*	*
<b>Race</b>				
American Indian or Alaska Native	0.7	0.2 - 1.1	1,127	350 - 1,903
Asian	1.2	0.5 - 2.0	427	123 - 730
Black or African American	21.6	6.6 - 36.6	3,409	1,020 - 5,798
Native Hawaiian or Other Pacific Islander	0.2	0.1 - 0.3	1,518	633 - 2,402
White	59.3	43.9 - 74.8	1,692	1,164 - 2,220
Other <sup>1</sup>	12.8	8.5 - 17.1	†	†
Multi-Racial <sup>2</sup>	0.7	0.4 - 1.0	526	300 - 752
Missing/ND	*	*	†	†
<b>Ethnicity</b>				
Hispanic or Latino	12.0	7.6 - 16.5	1,356	666 - 2,046
Not Hispanic or Latino	81.7	76.5 - 86.9	2,174	1,822 - 2,527
Missing/ND	6.3	1.8 - 10.7	†	†
<b>Region</b>				
Northeast	22.6	15.2 - 30.0	2,844	1,821 - 3,867
Midwest	22.2	16.9 - 27.4	2,312	1,856 - 2,768
South	28.6	22.1 - 35.1	1,593	1,261 - 1,926
West	26.5	15.4 - 37.5	2,414	1,142 - 3,686
Outside U.S.	*	*	*	*
<b>Quarter</b>				
Qtr1	23.9	22.1 - 25.6	2,057	1,667 - 2,448
Qtr2	25.9	25.1 - 26.7	2,228	1,820 - 2,637
Qtr3	25.6	24.5 - 26.8	2,207	1,803 - 2,610
Qtr4	24.6	23.6 - 25.7	2,117	1,712 - 2,522

\* Estimates with relative standard error (RSE) > 0.5 are suppressed.

† Rate could not be calculated

<sup>1</sup> Other race—The race documented in the medical record does not fit any other race category.

<sup>2</sup> ED visits with multiple race categories are counted in the Multi-Racial category only.

**Table A2** Weighted estimates of the top substances involved in drug-related ED visits, 2022

Substance	Percent	95 percent CI	Rate per 100,000	95 percent CI	Subgroups with statistical differences*
Alcohol	45.0	39.9 - 50.2	970	775 - 1,164	All drugs
Opioid	12.7	8.9 - 16.6	274	164 - 384	Alcohol Anticonvulsant Antidepressant Benzodiazepine Drug unknown MOUD
Cannabis	11.9	9.6 - 14.3	257	198 - 317	Alcohol Anticonvulsant Antidepressant Benzodiazepine Cocaine Drug unknown MOUD
Methamphetamine	8.2	4.6 - 11.7	176	81 - 270	Alcohol Anticonvulsant Antidepressant Benzodiazepine Drug unknown MOUD
Cocaine	5.8	3.1 - 8.6	125	63 - 187	Alcohol Anticonvulsant Cannabis
Drug unknown	4.2	2.6 - 5.9	91	48 - 133	Alcohol Anticonvulsant Cannabis Methamphetamine MOUD Opioid
Benzodiazepine	2.7	2.2 - 3.1	57	47 - 68	Alcohol Anticonvulsant Cannabis Methamphetamine Opioid
Antidepressant	2.1	1.7 - 2.4	44	37 - 51	Alcohol Anticonvulsant Cannabis Methamphetamine Opioid
MOUD	1.8	0.8 - 2.8	40	17 - 62	Alcohol Cannabis Drug unknown Methamphetamine Opioid

Substance	Percent	95 percent CI	Rate per 100,000	95 percent CI	Subgroups with statistical differences <sup>‡</sup>
Anticonvulsant	1.5	1.2 - 1.8	32	25 - 38	Alcohol Antidepressant Benzodiazepine Cannabis Cocaine Drug unknown Methamphetamine
Heroin	5.6	2.2 - 9.1	121	39 - 202	Fentanyl
Rx or other opioid	5.0	4.2 - 5.8	108	86 - 130	Fentanyl
Fentanyl	2.7	1.1 - 4.2	57	17 - 98	Heroin Rx or other Opioid

<sup>‡</sup> Pairwise comparison performed with t-tests using the Bonferonni correction to account for multiple comparisons. All significant differences are listed.



**Table A3** Weighted subgroup estimates of alcohol-related ED visits, 2022

Characteristic	Percent	95 percent CI	Rate per 100,000	95 percent CI	Subgroups with statistical differences <sup>†</sup>
<b>Age group</b>					
Under 18	1.4	0.8 - 2.0	62	39 - 85	18 to 25 26 to 44 45 to 64 65 and over
18 to 25	9.9	8.9 - 10.9	898	711 - 1,086	Under 18 26 to 44 45 to 64 65 and over
26 to 44	40.1	38.2 - 41.9	1,526	1,185 - 1,867	Under 18 18 to 25 65 and over
45 to 64	38.5	36.6 - 40.3	1,507	1,218 - 1,797	Under 18 18 to 25 65 and over
65 and over	9.4	8.7 - 10.1	526	420 - 631	Under 18 18 to 25 26 to 44 45 to 64
<b>Sex at birth</b>					
Female	30.5	28.4 - 32.6	587	496 - 677	Male
Male	69.5	67.4 - 71.5	1,358	1,054 - 1,662	Female
<b>Race</b>					
American Indian or Alaska Native	1.1	0.1 - 2.0	796	59 - 1,532	Asian Black Multi-Racial
Asian	1.0	0.4 - 1.6	158	51 - 265	AI/AN Black NH/PI White Multi-Racial
Black or African American	21.0	5.9 - 36.2	1,498	312 - 2,685	AI/AN Asian NH/PI White Multi-Racial
Native Hawaiian or Other Pacific Islander	0.1	0.1 - 0.2	487	391 - 583	Asian Black
White	57.2	41.6 - 72.9	735	540 - 930	Asian Black Multi-Racial
Other <sup>1</sup>	15.2	10.5 - 20.0	†	†	†

Characteristic	Percent	95 percent CI	Rate per 100,000	95 percent CI	Subgroups with statistical differences <sup>‡</sup>
Multi-Racial <sup>2</sup>	0.7	0.3 - 1.1	221	77 - 366	AI/AN Asian Black White
<b>Ethnicity</b>					
Hispanic or Latino	13.7	9.5 - 18.0	697	390 - 1,004	Not Hispanic or Latino
Not Hispanic or Latino	80.4	74.8 - 85.9	963	760 - 1,167	Hispanic or Latino
<b>Region</b>					
Northeast	26.8	18.1 - 35.5	1,519	970 - 2,068	Midwest South West
Midwest	22.1	16.1 - 28.2	1,040	800 - 1,279	Northeast
South	24.2	16.7 - 31.6	607	418 - 796	Northeast West
West	26.7	14.7 - 38.8	1,097	496 - 1,698	Northeast South
<b>Quarter</b>					
Qtr1	24.8	23.2 - 26.3	962	740 - 1,184	Qtr4
Qtr2	26.0	25.4 - 26.6	1,009	809 - 1,209	Qtr4
Qtr3	26.0	24.7 - 27.3	1,007	818 - 1,196	Qtr4
Qtr4	23.3	22.6 - 24.0	900	718 - 1,083	Qtr1 Qtr2 Qtr3

\* Estimates with relative standard error (RSE) > 0.5 are suppressed.

† Rate could not be calculated

- No significant differences

‡ Pairwise comparison performed with t-tests using the Bonferonni correction to account for multiple comparisons. All significant differences are listed.

<sup>1</sup> Other race—The race documented in the medical record does not fit any other race category.

<sup>2</sup> ED visits with multiple-race categories are counted in the Multi-Racial category only.

**Note:** AI/AN—American Indian or Alaska Native. NH/PI—Native Hawaiian or Other Pacific Islander, Black—Black or African American.

**Table A4** Weighted subgroup estimates of opioid-related ED visits, 2022

Characteristic	Percent	95 percent CI	Rate per 100,000	95 percent CI	Subgroups with statistical differences <sup>‡</sup>
<b>Age group</b>					
Under 18	2.1	0.7 - 3.5	26	11 - 41	18 to 25 26 to 44 45 to 64 65 and over
18 to 25	9.3	7.4 - 11.3	239	138 - 341	Under 18 26 to 44
26 to 44	45.9	41.0 - 50.8	495	274 - 716	Under 18 18 to 25 45 to 64 65 and over
45 to 64	30.3	25.6 - 35.0	336	175 - 497	Under 18 26 to 44 65 and over
65 and over	11.7	8.4 - 15.1	185	134 - 237	Under 18 26 to 44 45 to 64
<b>Sex at birth</b>					
Female	35.6	30.2 - 41.0	194	127 - 261	Male
Male	64.3	59.0 - 69.7	356	196 - 515	Female
<b>Race</b>					
American Indian or Alaska Native	0.4	0.2 - 0.6	90	75 - 104	Black
Asian	0.7	0.2 - 1.3	32	2 - 62	Black White Multi-Racial
Black or African American	23.6	8.0 - 39.3	476	121 - 830	AI/AN Asian Multi-Racial
Native Hawaiian or Other Pacific Islander	0.1	0.0 - 0.2	*	*	—
White	58.7	40.7 - 76.7	213	99 - 327	Asian Multi-Racial
Other <sup>1</sup>	12.0	6.8 - 17.2	†	†	†
Multi-Racial <sup>2</sup>	0.9	0.5 - 1.4	84	62 - 107	Asian Black White
<b>Ethnicity</b>					
Hispanic or Latino	10.9	5.6 - 16.1	156	54 - 258	Not Hispanic or Latino
Not Hispanic or Latino	82.3	76.6 - 88.1	279	168 - 391	Hispanic or Latino



Characteristic	Percent	95 percent CI	Rate per 100,000	95 percent CI	Subgroups with statistical differences <sup>‡</sup>
<b>Region</b>					
Northeast	21.3	9.9 - 32.6	341	198 - 484	—
Midwest	26.5	3.6 - 49.5	353	11 - 694	—
South	28.0	8.0 - 48.0	199	19 - 379	—
West	24.2	10.1 - 38.4	281	115 - 448	—
<b>Quarter</b>					
Qtr1	25.6	23.4 - 27.7	281	161 - 402	—
Qtr2	25.7	24.4 - 27.0	282	166 - 398	—
Qtr3	24.4	21.9 - 26.9	268	171 - 364	—
Qtr4	24.3	23.1 - 25.6	267	153 - 380	—

\* Estimates with relative standard error (RSE) > 0.5 are suppressed.

† Rate could not be calculated

— No significant differences

‡ Pairwise comparison performed with t-tests using the Bonferonni correction to account for multiple comparisons. All significant differences are listed.

<sup>1</sup> Other race—The race documented in the medical record does not fit any other race category.

<sup>2</sup> ED visits with multiple-race categories are counted in the Multi-Racial category only.

**Note:** AI/AN—American Indian or Alaska Native. NH/PI—Native Hawaiian or Other Pacific Islander, Black—Black or African American.



**Table A5** Weighted subgroup estimates of cannabis-related ED visits, 2022

Characteristic	Percent	95 percent CI	Rate per 100,000	95 percent CI	Subgroups with statistical differences*
<b>Age group</b>					
Under 18	8.9	3.1 - 14.6	105	56 - 154	18 to 25 26 to 44 65 and over
18 to 25	24.8	23.3 - 26.4	597	459 - 735	Under 18 26 to 44 45 to 64 65 and over
26 to 44	45.5	39.7 - 51.2	459	310 - 609	Under 18 18 to 25 45 to 64 65 and over
45 to 64	17.8	15.6 - 20.0	185	131 - 240	18 to 25 26 to 44 65 and over
65 and over	2.8	2.2 - 3.3	41	31 - 52	Under 18 18 to 25 26 to 44 45 to 64
<b>Sex at birth</b>					
Female	39.4	37.1 - 41.8	201	157 - 245	Male
Male	60.4	58.1 - 62.8	314	236 - 391	Female
<b>Race</b>					
American Indian or Alaska Native	0.5	0.2 - 0.7	91	48 - 134	Black
Asian	1.1	0.5 - 1.7	46	14 - 78	Black White
Black or African American	35.0	12.1 - 57.8	660	146 - 1,174	AI/AN Asian NH/PI White Multi-Racial
Native Hawaiian or Other Pacific Islander	*	*	*	*	Black
White	45.0	26.4 - 63.6	153	104 - 203	Asian Black Multi-Racial
Other <sup>1</sup>	13.8	9.1 - 18.5	†	†	†
Multi-Racial <sup>2</sup>	0.6	0.3 - 0.9	49	19 - 80	Black White
<b>Ethnicity</b>					
Hispanic or Latino	11.5	5.6 - 17.3	154	49 - 260	Not Hispanic or Latino
Not Hispanic or Latino	81.0	71.7 - 90.2	257	189 - 326	Hispanic or Latino

Characteristic	Percent	95 percent CI	Rate per 100,000	95 percent CI	Subgroups with statistical differences <sup>‡</sup>
<b>Region</b>					
Northeast	23.8	14.7 - 32.8	357	203 - 511	—
Midwest	22.5	16.6 - 28.5	281	233 - 329	—
South	33.6	22.8 - 44.5	224	135 - 313	—
West	19.5	8.5 - 30.5	212	64 - 361	—
<b>Quarter</b>					
Qtr1	24.4	22.5 - 26.3	252	190 - 314	—
Qtr2	27.3	24.7 - 30.0	281	202 - 361	—
Qtr3	24.5	22.0 - 27.0	252	194 - 310	—
Qtr4	23.7	21.8 - 25.7	244	191 - 297	—

\* Estimates with relative standard error (RSE) > 0.5 are suppressed.

† Rate could not be calculated

— No significant differences

‡ Pairwise comparison performed with t-tests using the Bonferonni correction to account for multiple comparisons. All significant differences are listed.

<sup>1</sup> Other race—The race documented in the medical record does not fit any other race category.

<sup>2</sup> ED visits with multiple-race categories are counted in the Multi-Racial category only.

**Note:** AI/AN—American Indian or Alaska Native. NH/PI—Native Hawaiian or Other Pacific Islander, Black—Black or African American.



**Table A6** Weighted subgroup estimates of methamphetamine-related ED visits, 2022

Characteristic	Percent	95 percent CI	Rate per 100,000	95 percent CI	Subgroups with statistical differences*
<b>Age group</b>					
Under 18	0.9	0.3 - 1.4	7	2 - 12	18 to 25 26 to 44 45 to 64
18 to 25	8.8	7.3 - 10.3	144	50 - 238	Under 18 26 to 44 65 and over
26 to 44	58.8	56.0 - 61.7	406	188 - 624	Under 18 18 to 25 45 to 64 65 and over
45 to 64	29.2	26.5 - 32.0	207	98 - 317	Under 18 26 to 44 65 and over
65 and over	2.1	1.6 - 2.6	21	8 - 35	18 to 25 26 to 44 45 to 64
<b>Sex at birth</b>					
Female	29.1	24.6 - 33.6	101	52 - 151	Male
Male	70.7	66.3 - 75.1	250	107 - 394	Female
<b>Race</b>					
American Indian or Alaska Native	0.6	0.2 - 1.0	81	34 - 127	—
Asian	*	*	*	*	White
Black or African American	11.1	3.8 - 18.5	143	98 - 189	—
Native Hawaiian or Other Pacific Islander	*	*	*	*	—
White	69.2	57.5 - 80.9	161	52 - 270	Asian
Other <sup>1</sup>	11.3	5.8 - 16.7	†	†	†
Multi-Racial <sup>2</sup>	1.5	0.5 - 2.5	88	50 - 126	—
<b>Ethnicity</b>					
Hispanic or Latino	14.0	1.9 - 26.1	*	*	—
Not Hispanic or Latino	76.2	67.1 - 85.3	165	83 - 248	—
<b>Region</b>					
Northeast	*	*	101	1 - 201	West
Midwest	8.9	1.2 - 16.6	76	16 - 135	West
South	30.0	1.3 - 58.6	*	*	—
West	51.3	25.5 - 77.2	381	125 - 638	Northeast Midwest

Characteristic	Percent	95 percent CI	Rate per 100,000	95 percent CI	Subgroups with statistical differences <sup>‡</sup>
<b>Quarter</b>					
Qtr1	24.1	21.5 - 26.6	169	76 - 262	—
Qtr2	26.7	25.1 - 28.4	188	77 - 299	—
Qtr3	25.6	22.6 - 28.6	180	82 - 277	—
Qtr4	23.6	22.0 - 25.2	165	82 - 248	—

\* Estimates with relative standard error (RSE) > 0.5 are suppressed.

† Rate could not be calculated

— No significant differences

<sup>‡</sup> Pairwise comparison performed with t-tests using the Bonferonni correction to account for multiple comparisons. All significant differences are listed.

<sup>1</sup> Other race—The race documented in the medical record does not fit any other race category.

<sup>2</sup> ED visits with multiple-race categories are counted in the Multi-Racial category only.

**Note:** AI/AN—American Indian or Alaska Native. NH/PI—Native Hawaiian or Other Pacific Islander, Black—Black or African American.



**Table A7** Weighted subgroup estimates of cocaine-related ED visits, 2022

Characteristic	Percent	95 percent CI	Rate per 100,000	95 percent CI	Subgroups with statistical differences*
<b>Age group</b>					
Under 18	0.9	0.1 - 1.6	5	3 - 7	18 to 25 26 to 44 45 to 64
18 to 25	8.2	5.5 - 10.8	96	63 - 128	Under 18 26 to 44 65 and over
26 to 44	45.2	36.2 - 54.2	223	125 - 320	Under 18 18 to 25 65 and over
45 to 64	39.4	30.9 - 47.9	199	72 - 327	Under 18 65 and over
65 and over	5.4	4.0 - 6.8	39	13 - 65	18 to 25 26 to 44 45 to 64
<b>Sex at birth</b>					
Female	29.4	25.0 - 33.8	73	37 - 109	Male
Male	70.5	66.2 - 74.8	178	88 - 268	Female
<b>Race</b>					
American Indian or Alaska Native	*	*	44	1 - 87	Black
Asian	0.9	0.5 - 1.4	19	10 - 28	Black
Black or African American	49.9	33.7 - 66.0	459	114 - 803	AI/AN Asian NH/PI White Multi-Racial
Native Hawaiian or Other Pacific Islander	0.2	0.0 - 0.4	95	1 - 189	Black
White	30.3	16.1 - 44.5	50	36 - 65	Black
Other <sup>1</sup>	14.8	10.2 - 19.5	†	†	†
Multi-Racial <sup>2</sup>	0.7	0.1 - 1.3	29	3 - 55	Black
<b>Ethnicity</b>					
Hispanic or Latino	12.1	7.2 - 16.9	79	33 - 125	Not Hispanic or Latino
Not Hispanic or Latino	83.3	76.1 - 90.6	129	61 - 197	Hispanic or Latino
<b>Region</b>					
Northeast	32.8	8.3 - 57.3	240	66 - 415	West
Midwest	27.3	1.1 - 53.6	166	0 - 332	—
South	30.2	1.5 - 58.8	*	*	—
West	9.7	3.9 - 15.4	51	39 - 63	Northeast

Characteristic	Percent	95 percent CI	Rate per 100,000	95 percent CI	Subgroups with statistical differences <sup>‡</sup>
<b>Quarter</b>					
Qtr1	25.6	23.2 - 28.1	129	60 - 197	—
Qtr2	27.2	24.1 - 30.2	136	61 - 211	—
Qtr3	26.0	22.1 - 29.9	130	74 - 186	Qtr4
Qtr4	21.2	20.1 - 22.4	106	54 - 158	Qtr3

\* Estimates with relative standard error (RSE) > 0.5 are suppressed.

† Rate could not be calculated

– No significant differences

<sup>‡</sup> Pairwise comparison performed with t-tests using the Bonferonni correction to account for multiple comparisons. All significant differences are listed.

<sup>1</sup> Other race—The race documented in the medical record does not fit any other race category.

<sup>2</sup> ED visits with multiple-race categories are counted in the Multi-Racial category only.

**Note:** AI/AN—American Indian or Alaska Native. NH/PI—Native Hawaiian or Other Pacific Islander, Black—Black or African American.

**Table A8** Weighted subgroup estimates of benzodiazepine-related ED visits, 2022

Characteristic	Percent	95 percent CI	Rate per 100,000	95 percent CI	Subgroups with statistical differences*
<b>Age group</b>					
Under 18	3.6	1.8 - 5.5	10	6 - 13	18 to 25 26 to 44 45 to 64 65 and over
18 to 25	10.8	8.4 - 13.2	58	40 - 75	Under 18 26 to 44
26 to 44	43.4	39.1 - 47.8	98	78 - 118	Under 18 18 to 25 45 to 64 65 and over
45 to 64	29.7	24.8 - 34.6	69	52 - 85	18 to 25 26 to 44 65 and over
65 and over	12.4	9.9 - 14.8	41	27 - 54	Under 18 26 to 44 45 to 64
<b>Sex at birth</b>					
Female	53.0	47.4 - 58.6	60	44 - 76	—
Male	47.0	41.3 - 52.6	54	47 - 61	—
<b>Race</b>					
American Indian or Alaska Native	*	*	*	*	White
Asian	1.3	0.3 - 2.3	12	2 - 21	Black White
Black or African American	10.8	1.1 - 20.6	46	7 - 84	Asian Multi-Racial
Native Hawaiian or Other Pacific Islander	*	*	*	*	—
White	75.2	64.4 - 86.0	57	41 - 74	AI/AN Asian Multi-Racial
Other <sup>1</sup>	9.0	5.2 - 12.8	†	†	†
Multi-Racial <sup>2</sup>	0.4	0.2 - 0.7	8	4 - 13	Black White
<b>Ethnicity</b>					
Hispanic or Latino	8.0	5.1 - 10.8	24	15 - 33	Not Hispanic or Latino
Not Hispanic or Latino	87.2	83.0 - 91.5	62	50 - 74	Hispanic or Latino
<b>Region</b>					
Northeast	27.6	21.0 - 34.1	92	71 - 113	—
Midwest	22.6	15.4 - 29.8	63	41 - 84	—
South	26.9	16.9 - 37.0	40	21 - 59	—
West	22.9	15.0 - 30.7	55	35 - 76	—



Characteristic	Percent	95 percent CI	Rate per 100,000	95 percent CI	Subgroups with statistical differences <sup>‡</sup>
<b>Quarter</b>					
Qtr1	24.9	21.0 - 28.8	57	46 - 68	—
Qtr2	26.9	23.9 - 29.8	62	51 - 72	—
Qtr3	24.8	20.9 - 28.8	57	46 - 67	—
Qtr4	23.4	17.9 - 28.9	54	32 - 75	—

\* Estimates with relative standard error (RSE) > 0.5 are suppressed.

† Rate could not be calculated

— No significant differences

<sup>‡</sup> Pairwise comparison performed with t-tests using the Bonferonni correction to account for multiple comparisons. All significant differences are listed.

<sup>1</sup> Other race—The race documented in the medical record does not fit any other race category.

<sup>2</sup> ED visits with multiple-race categories are counted in the Multi-Racial category only.

**Note:** AI/AN—American Indian or Alaska Native. NH/PI—Native Hawaiian or Other Pacific Islander, Black—Black or African American.

**Table A9** Opioid-related ED visits by type of opioid

Characteristic	Percent (%)	95 percent CI
Fentanyl	20.8	7.6 - 34.0
Heroin	44.0	27.4 - 60.6
Rx or other opioid	39.4	29.2 - 49.5

**Table A10** Types of Rx opioid

Substance	Percent (%)	95 percent CI	Subgroups with statistical differences <sup>‡</sup>
Oxycodone	32.9	27.0-38.7	Codeine Hydrocodone Hydromorphone Morphine Tramadol
Hydrocodone	10.7	6.8-14.6	Codeine Hydromorphone Oxycodone Tramadol
Tramadol	5.3	3.5-7.1	Codeine Hydrocodone Oxycodone
Morphine	3.8	2.0-5.6	Codeine Oxycodone
Hydromorphone	3.0	1.1-4.9	Hydrocodone Oxycodone
Codeine	1.4	0.9-1.9	Hydrocodone Morphine Oxycodone Tramadol

<sup>‡</sup> Pairwise comparison performed with t-tests using the Bonferonni correction to account for multiple comparisons. All significant differences are listed.

**Table A11** Substances most commonly involved in polysubstance-related ED visits with the top three most frequently reported combinations

Substance	Top three	Frequency (N)	95 percent CI range
<b>Alcohol</b>	Cannabis	228,539	149,743 - 307,334
	Cocaine	165,731	76,367 - 255,094
	Methamphetamine	81,174	43,830 - 118,518
<b>Benzodiazepine</b>	Alcohol	45,809	37,638 - 53,980
	Rx opioid	28,672	17,527 - 39,817
	Cannabis	20,984	13,365 - 28,604
<b>Cannabis</b>	Alcohol	228,539	149,743 - 307,334
	Cocaine	91,994	39,358 - 144,631
	Methamphetamine	55,733	31,639 - 79,828
<b>Cocaine</b>	Alcohol	165,731	76,367 - 255,094
	Cannabis	91,994	39,358 - 144,631
	Heroin	58,573	18,931 - 98,215
<b>Fentanyl</b>	Methamphetamine	38,031	2,637 - 73,425
	Heroin	21,839	15,512 - 28,166
	Alcohol	17,081	7,029 - 27,133
<b>Heroin</b>	Cocaine	58,573	18,931 - 98,215
	Alcohol	46,048	17,987 - 74,110
	Methamphetamine	37,682	0 - 77,009
<b>Methamphetamine</b>	Alcohol	81,174	43,830 - 118,518
	Cannabis	55,733	31,639 - 79,828
	Fentanyl	38,031	2,637 - 73,425
<b>Rx or other Opioid</b>	Alcohol	36,502	27,547 - 45,457
	Benzodiazepine	28,672	17,527 - 39,817
	Cannabis	27,133	18,549 - 35,716
<b>Unknown</b>	Alcohol	50,823	36,985 - 64,662
	Methamphetamine	11,025	5,721 - 16,329
	Cocaine	8,039	5,372 - 10,706

**Table B1** Drug analytic categories used to narrow down to the top ten drugs

Substance	Example of drugs included in analytic category
Acetaminophen	Acetaminophen, Acetaminophen-Diphenhydramine
Alcohol	Alcohol (ethanol), Alcohol/Sanitizers, Alcohol products (food and liquid)
Amphetamine	Amphetamine
Anticonvulsant	Gabapentin, Lamotrigine
Antidepressant	Sertraline, Trazodone, Escitalopram
Antihistamine	Diphenhydramine, Cetirizine, Loratadine
Antipsychotic	Quetiapine, Aripiprazole, Haloperidol
Benzodiazepine	Alprazolam, Clonazepam, Lorazepam
Cannabis	Cannabinoids, THC, Delta-8
Cocaine	Cocaine, Crack Cocaine
Drug Unknown (Unknown)	Substance reported as “unknown” in the medical record
Gamma Hydroxybutyrate (GHB)	Gamma Hydroxybutyrate
Hallucinogen	Methylenedioxymethamphetamine, Psilocybin, Lysergic Acid Diethylamide
Inhalant	Fluorinated hydrocarbons
Ketamine	Ketamine
Medication for Opioid Use Disorder (MOUD)	Buprenorphine, Methadone
Methamphetamine	Methamphetamine
Opioid	Heroin, Fentanyl, Oxycodone
Phencyclidine (PCP)	Phencyclidine
Synthetic Cannabis	Synthetic cannabinoid (e.g. spice)
Upper Respiratory Agents (URA)	Dextromethorphan combinations (flu, cold, and cough)
Other	ED visit with no mention of substances above

**Table B2** Drug analytic categories used to define opioid type

Substance	Example of drugs included in analytic category
Heroin	Heroin, Illicit combinations with heroin
Fentanyl	Fentanyl, Illicit and some narcotic combinations with fentanyl
Rx or other opioid	Carfentanil, Codeine, Hydrocodone, Hydromorphone, Morphine, Oxycodone, Tramadol



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