



2017 Drug Overdose Hospital Discharges in Tennessee

**Tennessee Department of Health
Office of Informatics and Analytics**

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Executive Summary

This report describes hospital discharges related to drug overdoses in Tennessee (TN) in 2017 using data from the TN Hospital Discharge Data System. Inpatient and outpatient hospital discharges due to drug overdoses are described overall and by sex, race, and age. The rate of all drug and opioid overdose deaths continue to increase in TN. The age-adjusted rate for all drug overdose deaths was 24.6 per 100,000 residents in 2016 and 26.6 per 100,000 residents in 2017. The age-adjusted rate for all opioid overdose deaths was 18.1 per 100,000 residents in 2016 and 19.3 per 100,000 residents in 2017. It is important to note, however, that the number and rate of non-fatal drug and opioid overdoses is much higher than for overdose deaths. Briefly summarized below are key epidemiologic data trends for non-fatal drug overdoses in Tennessee:

Non-fatal all drug overdoses continue to increase for outpatient visits, but not inpatient stays

- In 2017, there were 23,657 all drug overdose hospital discharges among TN residents. Of these, 7,708 (32.6%) were inpatient stays and 15,949 (67.4%) were outpatient visits.
- The rate of drug overdose outpatient visits due to any drug increased in 2017 compared to 2016, while drug overdose inpatient stays decreased.
 - The rate of overdose outpatient visits increased from 232.9¹ in 2016 to 246.3 in 2017 (a 6% increase). The rate of overdose inpatient stays decreased from 114.8 in 2016 to 110.8 in 2017 (a 3.5% decrease).
- Females had higher rates of all drug outpatient visits and inpatient stays compared to males. Rates of all drug overdose discharges were higher for Whites compared to Blacks. For outpatient visits, all drug overdose rates were highest among 25-34 year-olds. For inpatient stays, all drug overdose rates were highest in the 45-54 year-old age group.

Non-fatal opioid overdoses (excluding heroin) are increasingly likely to be treated in an outpatient setting

- In 2017, there were 4,430 hospital discharges for opioid overdoses (excluding heroin). Of these opioid overdose discharges, 55% were outpatient visits and 44.8% were inpatient stays.
- The rate of outpatient visits for non-heroin opioid overdoses increased from 2016 to 2017 (from 33.8 to 36.6), while the rate of inpatient stays decreased (from 30.1 to 26.8).
- Compared to males, females had higher rates for opioid (non-heroin) overdose-related inpatient stays (31.2 vs. 21.9) but slightly lower rates for outpatient visits (35.4 vs. 37.7). Non-heroin opioid overdose rates were higher among Whites (compared to Blacks) for both outpatient visits and inpatient stays. Non-heroin opioid overdose rates were highest among 25-34 year-olds for outpatient visits and among 55-64 year-olds for inpatient stays.

Non-fatal heroin overdoses, in particular for outpatient visits, are increasing

- The rate of heroin overdose outpatient visits increased from 24.1 to 37.9 from 2016 to 2017 (a 57% increase). The rate of heroin overdose inpatient visits increased from 4.8 to 6.2 from 2016 to 2017 (a 29% increase). Rates were highest for Whites (compared to Blacks) and males (compared to females) for both outpatient visits and inpatient stays.

Cocaine and amphetamine overdoses are increasing

- Rates of cocaine and amphetamine overdose are highest among males. Cocaine overdose rates are highest among Blacks while amphetamine overdose rates are highest among Whites.

¹ All rates in this report are age-adjusted and per 100,000 residents unless otherwise specified.

Introduction

The purpose of this report is to describe drug overdose hospital discharges in the State of Tennessee (TN) in 2017. This report meets the legislative requirement to summarize aggregate claims data on all inpatient and outpatient discharges that include a drug poisoning diagnosis as reported for the calendar year two years prior to the current year by licensed hospitals (TCA §68-1-108(f)).² Data presented here are from the TN Statewide Hospital Discharge Data System (HDDS) from 2016 to 2017. The HDDS contains billing codes from discharges at hospitals statewide on inpatient hospitalizations and outpatient visits, including emergency department visits. These billing codes (since October 1st 2015) are based on the International Classification of Diseases, Tenth Revisions, Clinical Modification (ICD-10-CM) and provide a standardized method for identification of drug overdoses using administrative data.

The current report includes discharges for TN residents at non-federal, acute care hospitals for eight drug overdose morbidity statistics:

- (1) **All drug overdose outpatient visits or inpatient stays** – caused by non-fatal acute poisonings due to the effects of drugs, regardless of intent (e.g., suicide, unintentional, assault, or undetermined).
- (2) **Opioid overdose excluding heroin outpatient visits or inpatient stays** – caused by non-fatal acute poisonings due to the effects of all opioids drugs, excluding heroin, regardless of intent (e.g., suicide, unintentional, assault, or undetermined).
- (3) **Heroin overdose outpatient visits or inpatient stays** – caused by non-fatal acute poisonings due to the effects of heroin, regardless of intent (e.g., suicide, unintentional, assault, or undetermined).
- (4) **Methadone overdose outpatient visits or inpatient stays** – caused by non-fatal acute poisonings due to the effects of methadone, regardless of intent (e.g., suicide, unintentional, assault, or undetermined).
- (5) **Other synthetic opioid overdose outpatient visits or inpatient stays** – caused by non-fatal acute poisonings due to the effects of other synthetic opioids (not including methadone), regardless of intent (e.g., suicide, unintentional, assault, or undetermined).
- (6) **Benzodiazepine overdose outpatient visits or inpatient stays** – caused by non-fatal acute poisonings due to the effects of benzodiazepines, regardless of intent (e.g., suicide, unintentional, assault, or undetermined).

² https://www.tn.gov/content/dam/tn/health/documents/HDDS_User_Manual_Final_2017.pdf

- (7) **Cocaine overdose outpatient visits or inpatient stays** – caused by non-fatal acute poisonings due to the effects of cocaine, regardless of intent (e.g., suicide, unintentional, assault, or undetermined).

- (8) **Amphetamine outpatient visits or inpatient stays** – caused by non-fatal acute poisonings due to the effects of amphetamines, regardless of intent (e.g., suicide, unintentional, assault, or undetermined).

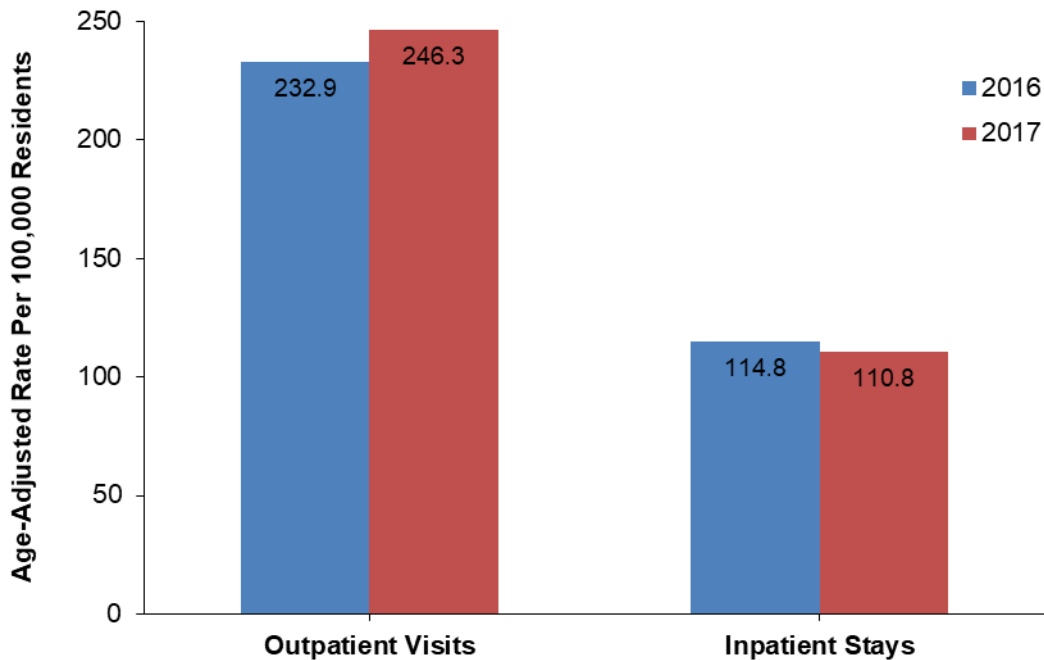
Events related to late effects, adverse effects, under-dosing and chronic poisonings due to the effects of drugs (e.g., damage to organs from long-term drug use), are excluded. Unless otherwise indicated, data exclude records with discharge status of deceased. As <0.2% of discharge records in Tennessee are coded as a subsequent encounter or sequela, morbidity statistics presented in this report are limited to only initial encounters following Prevention for the States/Data-Driven Prevention Initiative Programs definitions.³

³ Centers for Disease Control and Prevention (2018). CDC's Opioid Overdose Indicator Support Toolkit: Guidance for building and reporting on opioid-related mortality, morbidity, and PDMP indicators (Versions 3.0). Atlanta, GA.

Drug Overdose Hospital Discharges

All-Drug Overdose Outpatient Visits and Inpatient Stays

Age-Adjusted Rates for All-Drug Overdose Outpatient Visits and Inpatient Stays in Tennessee, 2016-2017



Analysis by the Office of Informatics and Analytics, TDH (last updated February 27, 2019). Limited to TN residents. Data source: Hospital Discharge Data System.

In 2017, there were 23,657 non-fatal⁴ drug overdose hospital discharges among TN residents. This total comprises 7,708 inpatient stays (32.6%) and 15,949 outpatient visits (67.4%). The above figure shows age-adjusted rates for all-drug overdose⁵ outpatient visits and inpatient stays in TN during 2016 to 2017. For outpatient visits,⁶ the age-adjusted rates increased from 232.9 per 100,000 in 2016 to 246.3 per 100,000 in 2017. For inpatient stays, the age-adjusted rates decreased slightly from 114.8 per 100,000 in 2016 to 110.8 per 100,000 in 2017.

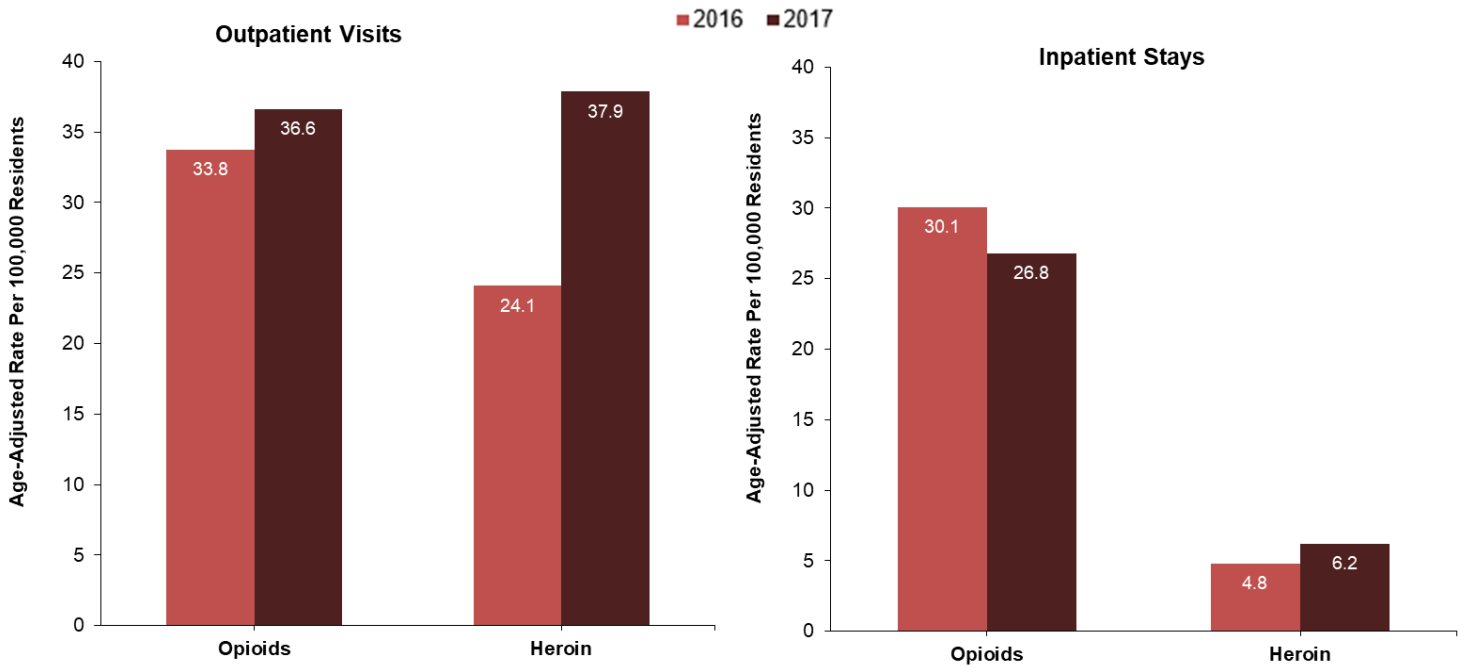
⁴ This number does not include 494 TN residents (408 inpatients, 86 outpatients) who died of a drug overdose in the hospital.

⁵ All drug overdose outpatient visits and inpatient stays are defined as drug overdoses caused by non-fatal acute poisonings due to the effects of drugs, regardless of intent (e.g., suicide, assault, unintentional, or undetermined). Identified using ICD-10-CM diagnosis codes (see Technical Notes for specific codes).

⁶ Hospital discharge data are often classified according to type of hospital stay, regardless of how the patient was admitted to the hospital. Outpatient visits include primarily emergency department visits, but also include any observation period of 23 hours or less, ambulatory surgeries or certain diagnostic services (such as MRIs or CT scans).

Opioid Overdose Outpatient Visits and Inpatient Stays

Age-Adjusted Rates for Opioid Excluding Heroin and Heroin Overdose Outpatient Visits and Inpatient Stays in Tennessee, 2016-2017



Analysis by the Office of Informatics and Analytics, TDH (last updated February 27, 2019). Limited to TN residents. Data source: Hospital Discharge Data System.

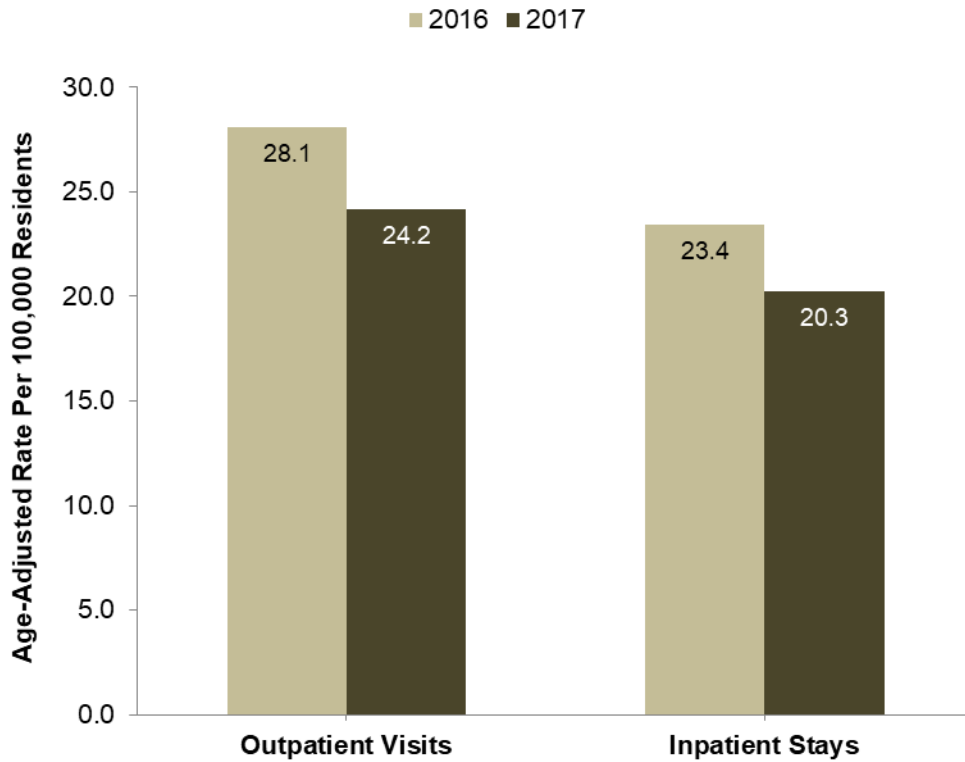
In 2017, there were 4,430 hospital discharges for opioid⁷ overdoses excluding heroin. Of these opioid overdose discharges, 2,447 were outpatient visits and 1,983 were inpatient stays. Heroin⁸ overdose discharges accounted for 2,804 of all overdoses, including 2,403 outpatient visits and 401 inpatient stays. Age-adjusted rates for outpatient visits and inpatient stays for both non-heroin opioid related overdoses and heroin overdoses from 2016 to 2017 are shown above. Outpatient visits for non-heroin opioid overdoses increased from 2016 to 2017, while inpatient stays for non-heroin opioid overdoses decreased. Inpatient stays for heroin overdoses remained low, with a small increase observed from 2016 to 2017. In contrast, a large increase was observed for outpatient visits for heroin (24.1 per 100,000 in 2016 to 37.9 per 100,000 in 2017).

⁷ Opioid overdoses excluding heroin inpatient stays or outpatient visits caused by non-fatal acute poisonings due to the effects of all opioids drugs, excluding heroin, regardless of intent (e.g., suicide, unintentional, or undetermined). Identified using ICD-10-CM diagnosis codes (see Technical Notes for specific codes).

⁸ Heroin overdose inpatient stays or outpatient visits caused by non-fatal acute poisonings due to the effects of heroin, regardless of intent (e.g., suicide, unintentional, or undetermined). Identified using ICD-10-CM diagnosis codes (see Technical Notes for specific codes).

Benzodiazepine, Stimulant, and Synthetic Opioid Overdoses

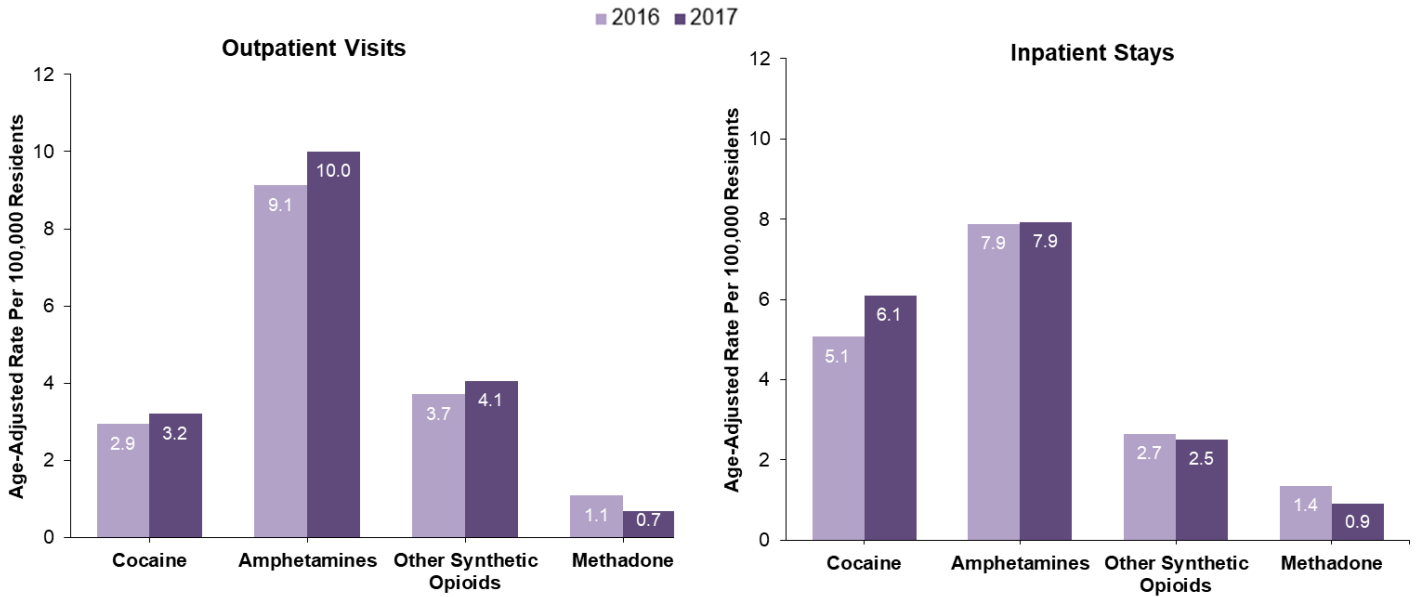
Age-Adjusted Rates Overdose Outpatient Visits and Inpatient Stays Involving Benzodiazepines in Tennessee, 2016-2017



Analysis by the Office of Informatics and Analytics, TDH (last updated February 27, 2019). Limited to TN residents. Data source: Hospital Discharge Data System.

In 2017, there were 3,015 hospital discharges for benzodiazepine-involved overdose. Of these benzodiazepine-involved overdose discharges, 1,590 were outpatient visits and 1,425 were inpatient stays. The age-adjusted rates (per 100,000 TN residents) for outpatient visits and inpatient stays for benzodiazepine-involved overdoses in 2016 and 2017 are shown above. A slight reduction in benzodiazepine-involved overdose rates from 2016 to 2017 was seen for both outpatient visits (28.1 in 2016 to 24.2 in 2017) and inpatient stays (23.4 in 2016 to 20.3 in 2017).

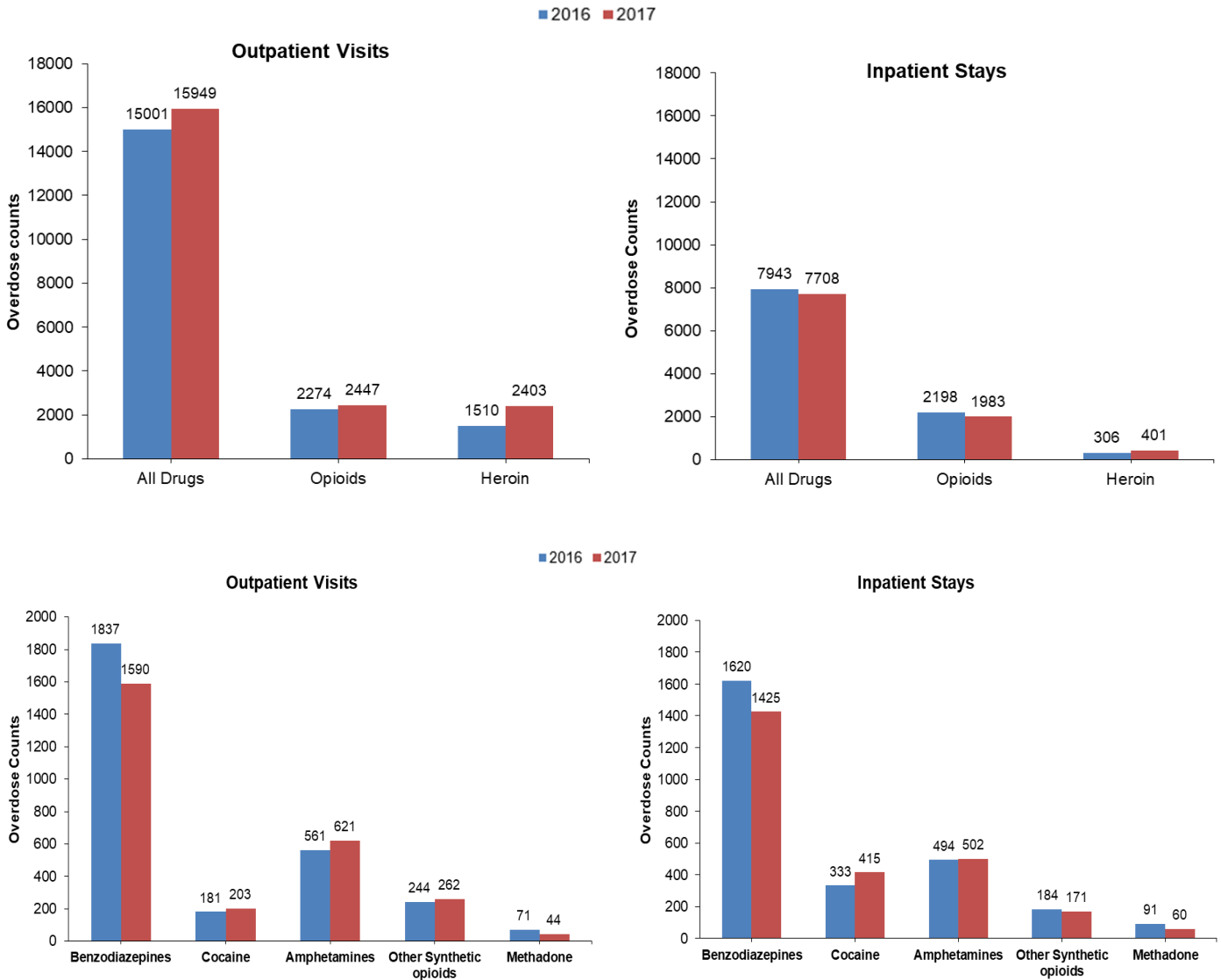
Age-Adjusted Rates for Stimulant and Synthetic Opioid Overdose Outpatient Visits and Inpatient Stays in Tennessee, 2016-2017



Analysis by the Office of Informatics and Analytics, TDH (last updated February 27, 2019). Limited to TN residents. Data source: Hospital Discharge Data System.

In 2017, the total number of other drug related overdose discharges were as follows: 618 (cocaine), 1,123 (amphetamine), 433 (other synthetic opioids) and 104 (methadone). Cocaine overdoses were more frequently inpatient stays (n=415) as compared to outpatient visits (n=203). The number of amphetamine and other synthetic opioid-related (not including methadone) overdose outpatient visits were higher as compared to inpatient stays. The age-adjusted rates (per 100,000 TN residents) for cocaine, amphetamine and other synthetic opioid-related overdose outpatient visits increased slightly from 2016 to 2017. Rates for discharges related to methadone overdoses decreased during the same time period. Rates for cocaine overdose inpatient stays increased from 5.1 in 2016 to 6.1 in 2017. Rates for synthetic opioid (including other synthetic opioids and methadone) inpatient stays decreased slightly, while amphetamine overdose inpatient stays were unchanged (7.9) between 2016 and 2017.

Number of Drug Overdose Outpatient Visits and Inpatient Stays in Tennessee, 2016-2017

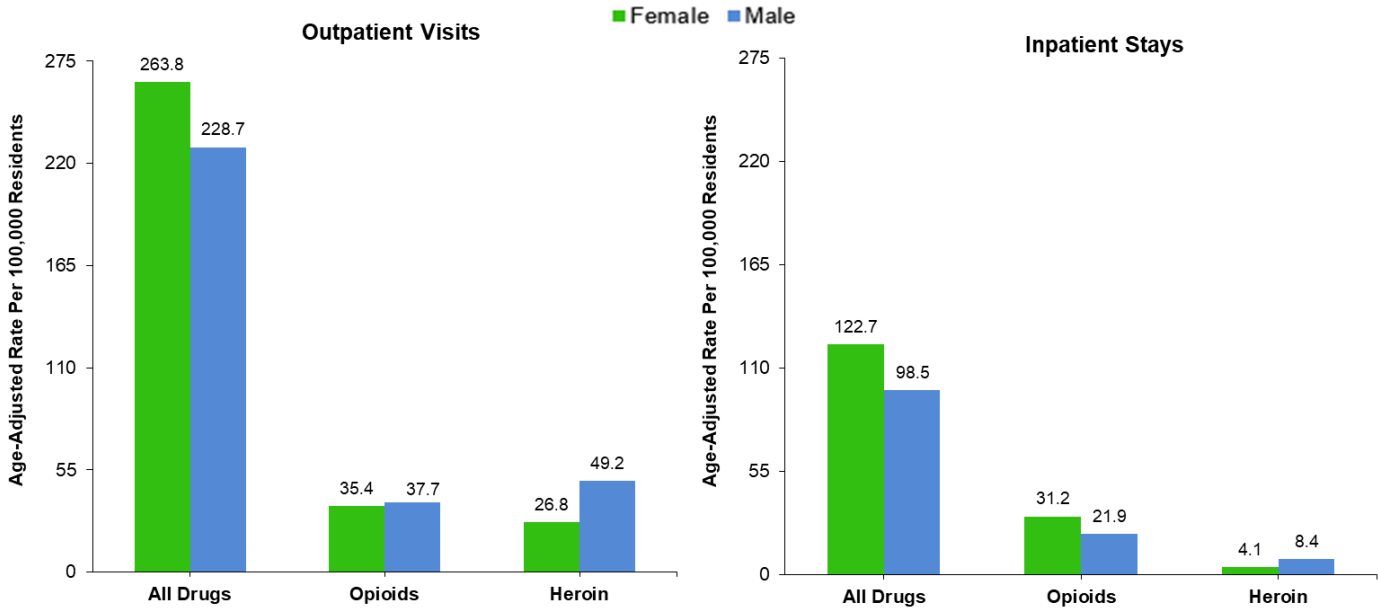


Analysis by the Office of Informatics and Analytics, TDH (last updated February 27, 2019). Limited to TN residents. Data source: Hospital Discharge Data System.

The above figure displays the number of drug overdose discharges for outpatient visits and inpatient stays. For outpatient visits, the number of discharges increased for all types of drug overdoses shown above between 2016 and 2017, with the exception of benzodiazepine and methadone overdoses. For inpatient stays, the number of discharges decreased for all types of drug overdoses shown above between 2016 and 2017, with the exception of heroin, cocaine, and amphetamine overdoses.

Drug Overdose Hospital Discharges by Sex

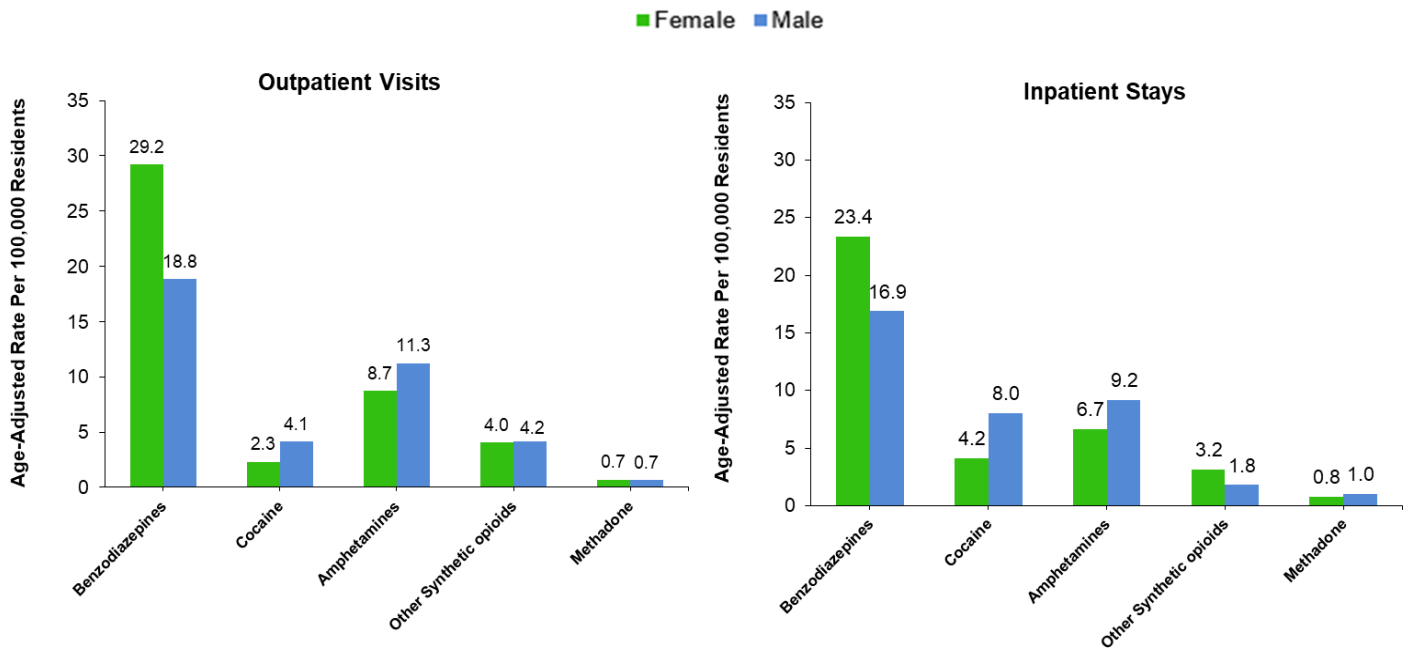
Age-Adjusted Rates for Drug Overdose Outpatient Visits and Inpatient Stays by Sex in Tennessee, 2017



Analysis by the Office of Informatics and Analytics, TDH (last updated February 27, 2019). Limited to TN residents. Data source: Hospital Discharge Data System.

In 2017, females accounted for 55.2% (13,068) of all drug overdose hospital discharges compared to 44.8% (10,589) for males. Outpatient visits were the most common type of discharge for both females (8,654) and males (7,295). The figure above displays the 2017 age-adjusted rates in TN for all drug, opioid (non-heroin), and heroin overdoses in males and females. The rates (per 100,000 TN residents) of all drug overdose outpatient visits (263.8 vs. 228.7) and inpatient stays (122.7 vs. 98.5) were higher in females than in males, while males had higher heroin overdose outpatient visits (49.2 vs. 26.8) and inpatient stays (8.4 vs. 4.1) than females. Compared to males, females had higher rates for opioid (non-heroin) overdose-related inpatient stays (31.2 vs. 21.9) but slightly lower rates for outpatient visits (35.4 vs. 37.7).

Age-Adjusted Rates for Benzodiazepine, Stimulant, and Synthetic Opioid Overdose Outpatient Visits and Inpatient Stays by Sex in Tennessee, 2017

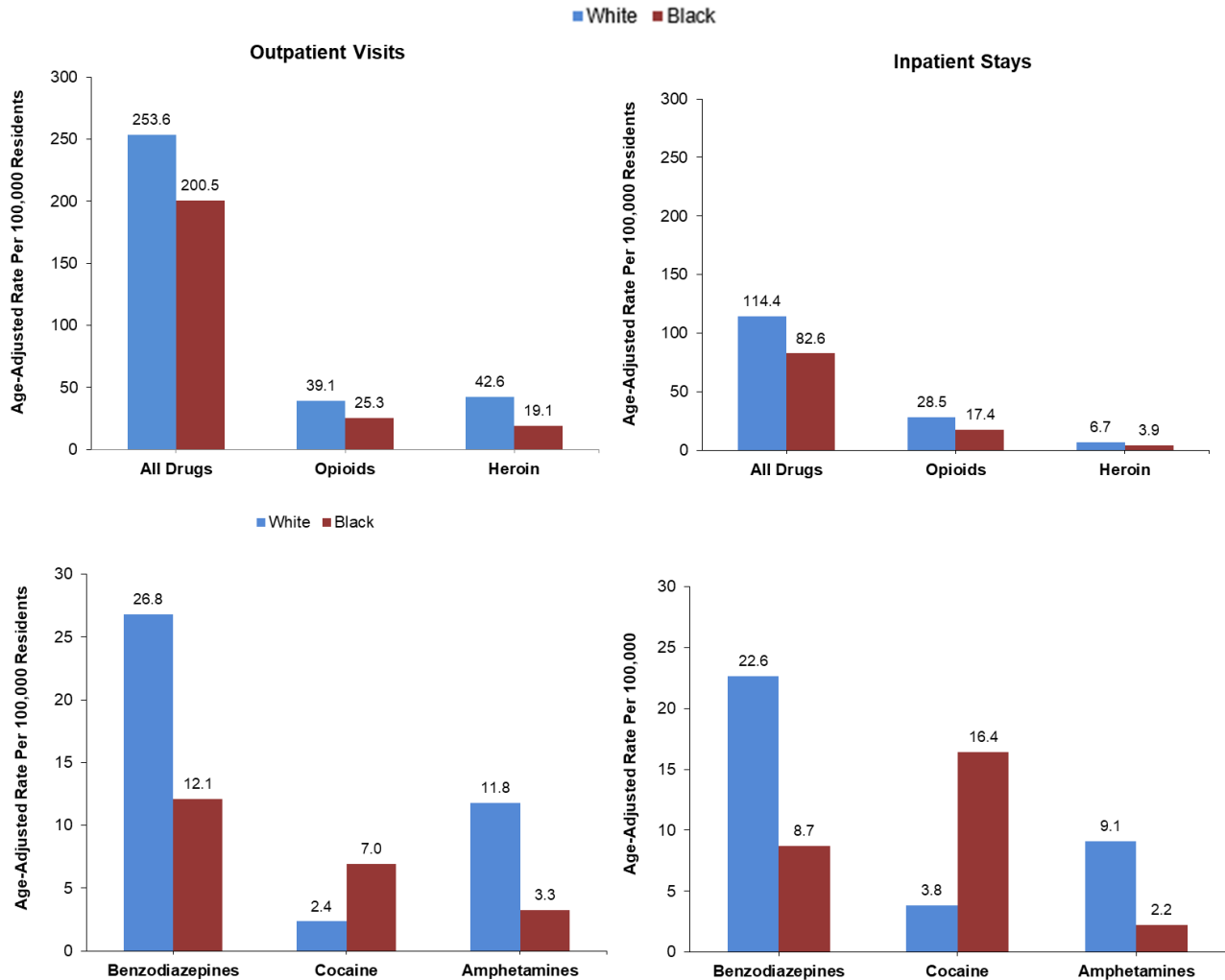


Analysis by the Office of Informatics and Analytics, TDH (last updated February 27, 2019). Limited to TN residents. Data source: Hospital Discharge Data System.

The figure above shows age-adjusted rates for females and males in 2017 for select overdose discharges. Males had higher outpatient visits for cocaine (4.1 vs. 2.3) and amphetamine (11.3 vs 8.7) overdoses, compared to females. Rates for outpatient visits for benzodiazepine-involved overdoses were higher for females compared to males (29.2 vs. 18.8). Similar patterns were observed for inpatient stays, with males having higher rates for cocaine and amphetamine overdoses, while females had higher rates for benzodiazepine-involved overdoses. Rates were similar for both males and females for outpatient visits for other synthetic opioids and methadone. Rates for inpatient stays related to other synthetic opioid overdoses were higher in females compared to males, and almost the same for methadone overdoses.

Drug Overdose Hospital Discharges by Race and Age

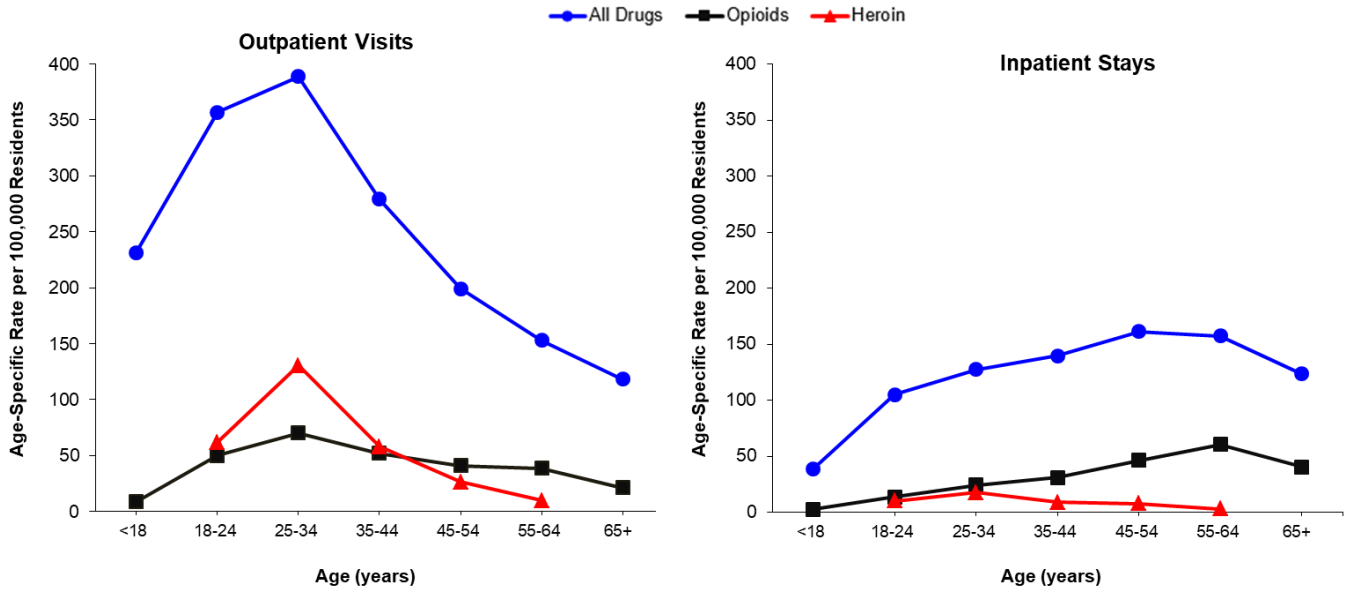
Age-Adjusted Rates for Drug Overdose Outpatient Visits and Inpatient Stays by Race in Tennessee, 2017



Analysis by the Office of Informatics and Analytics, TDH (last updated February 27, 2019). Limited to Black and White TN residents (small samples sizes precluded the ability to present data of other race groups). Data source: Hospital Discharge Data System.

In 2017, Whites accounted for 19,237 (81.3%) of all drug overdose hospital discharges, Blacks made up 3,420 (14.5%), and other or unknown races accounted for the remaining 1,000 (4.2%). Outpatient visits were the most common type of discharge for both Whites (12,846) and Blacks (2,437). The figure above shows the 2017 age-adjusted rates (per 100,000 TN residents) for all drug, opioid (non-heroin), heroin, benzodiazepine, cocaine, and amphetamine overdoses by race. All drug overdose rates were higher among Whites for outpatient visits (253.6 vs. 200.5) and inpatient stays (114.4 vs. 82.6) than Blacks. Whites also had higher rates for other types of overdoses for outpatient visits and inpatient stays, except for overdoses related to cocaine where Blacks had higher rates (outpatient visits: 7.0 vs. 2.4 and inpatient stays: 16.4 vs. 3.8).

Age-Specific Rates for Drug Overdose Outpatient Visits and Inpatient Stays by Age in Tennessee, 2017

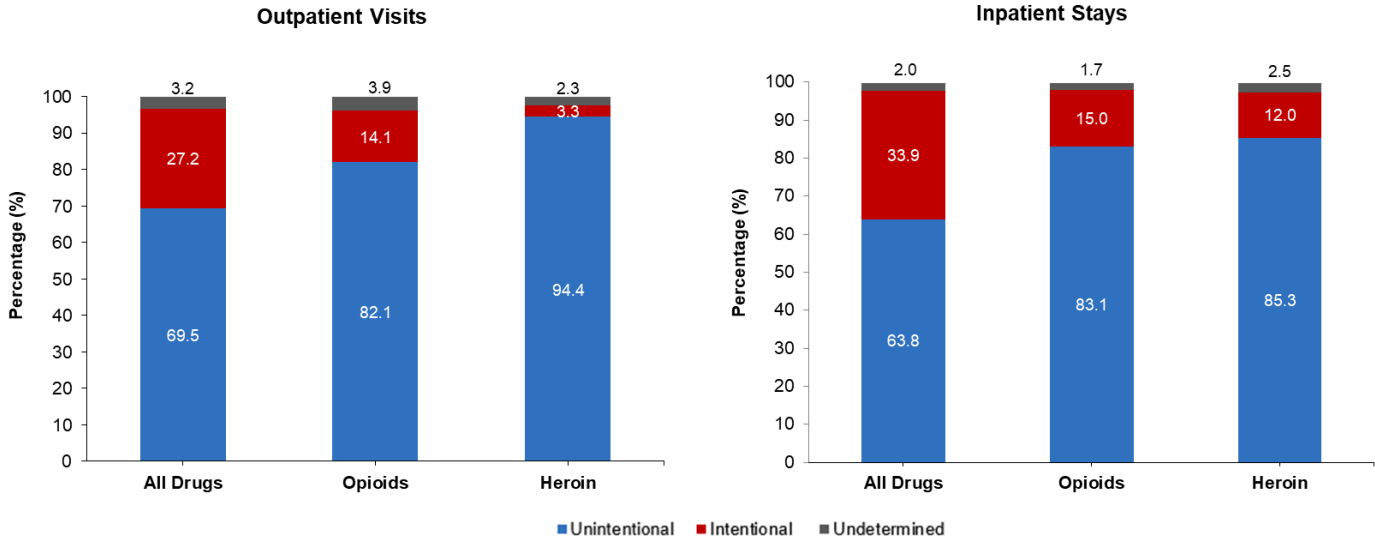


Analysis by the Office of Informatics and Analytics, TDH (last updated February 27, 2019). Limited to TN residents. Data source: Hospital Discharge Data System.

The figure above displays 2017 age-specific rates (per 100,000 residents) for all drug, opioid (non-heroin) and heroin overdoses in TN. Patients aged 25-34 years had the highest rates of all drug (388.8), non-heroin opioid (70.0) and heroin overdose (130.6) outpatient visits. Rates for heroin overdose outpatient visits were lower than the rates for opioid (non-heroin) overdose outpatient visits among those aged ≥ 45 years. For inpatient stays, all drug overdose rates were highest in the 45-54 years age group (161.2), opioid (non-heroin) overdose rates were highest in the 55-64 years group (60.7) and heroin overdose rates were highest in the 25-34 years age group (17.7).

Drug Overdose Hospital Discharges by Intentionality and Payer

Drug Overdose Hospital Discharges by Intentionality in Tennessee, 2017



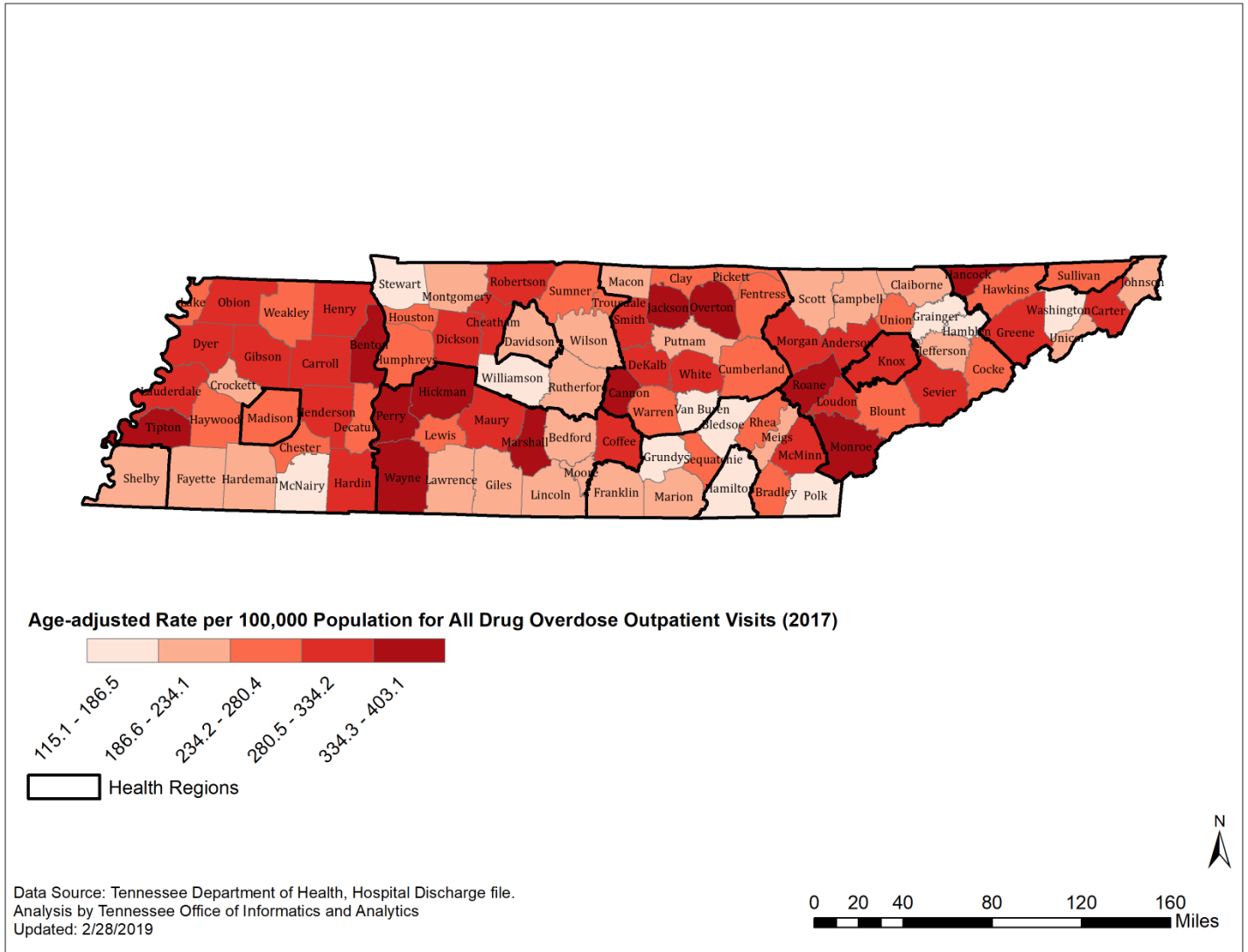
Analysis by the Office of Informatics and Analytics, TDH (last updated February 27, 2019). Limited to TN residents. Data source: Hospital Discharge Data System. Assaults were excluded from above figure due to small sample size.

In 2017, about 70% of all drug overdose outpatient visits and 64% of inpatient stays were due to unintentional poisoning while slightly over one third of inpatient discharges and 27.2% of outpatient visits were due to suicide. About 2-3% of all drug overdose discharges were undetermined. The majority of outpatient visits for heroin (94.4%) and opioid (non-heroin) overdoses (82.1%) were due to unintentional poisoning. About 14-15% of the opioid (non-heroin) overdose outpatient visits and inpatient stays were coded as intentional intent. For heroin overdoses, 3.3% of outpatient visits and 12% of inpatient stays were coded as intentional intent.

Drug Overdose Hospital Discharges by County

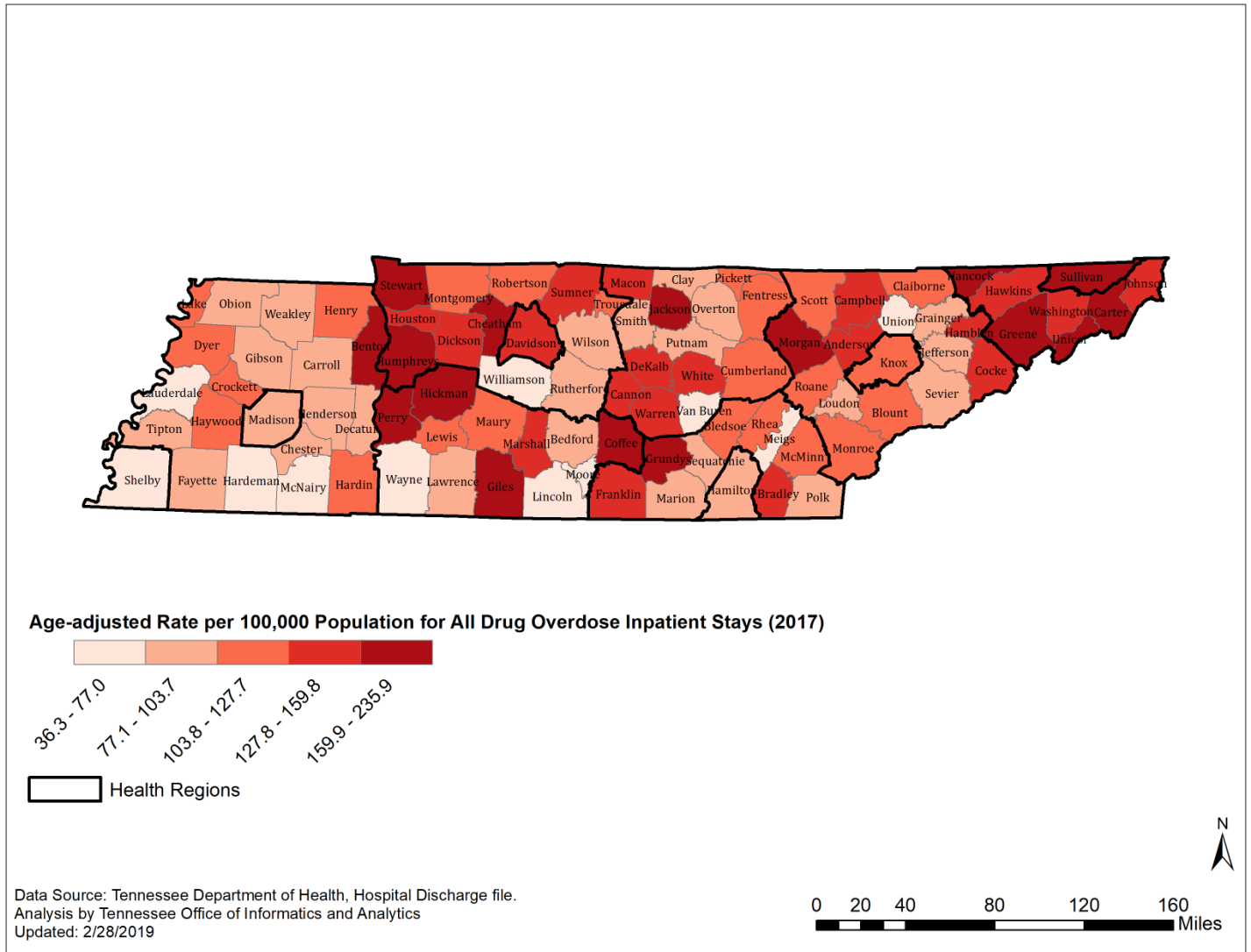
All Drug Overdoses

Age-Adjusted Rates for All Drug Overdose Outpatient Visits in 2017 by Tennessee County of Residence



The above map shows age-adjusted rates for all drug overdose outpatient visits in 2017 by TN County of residence. The rates ranged from 115.2 per 100,000 in Van Buren County to 403.1 per 100,000 in Hickman County for all drug overdose related outpatient visits. The five counties with the highest rates (≥ 370.6 per 100,000) for all drug overdose outpatient visits were Jackson, Hancock, Wayne, Overton and Hickman.

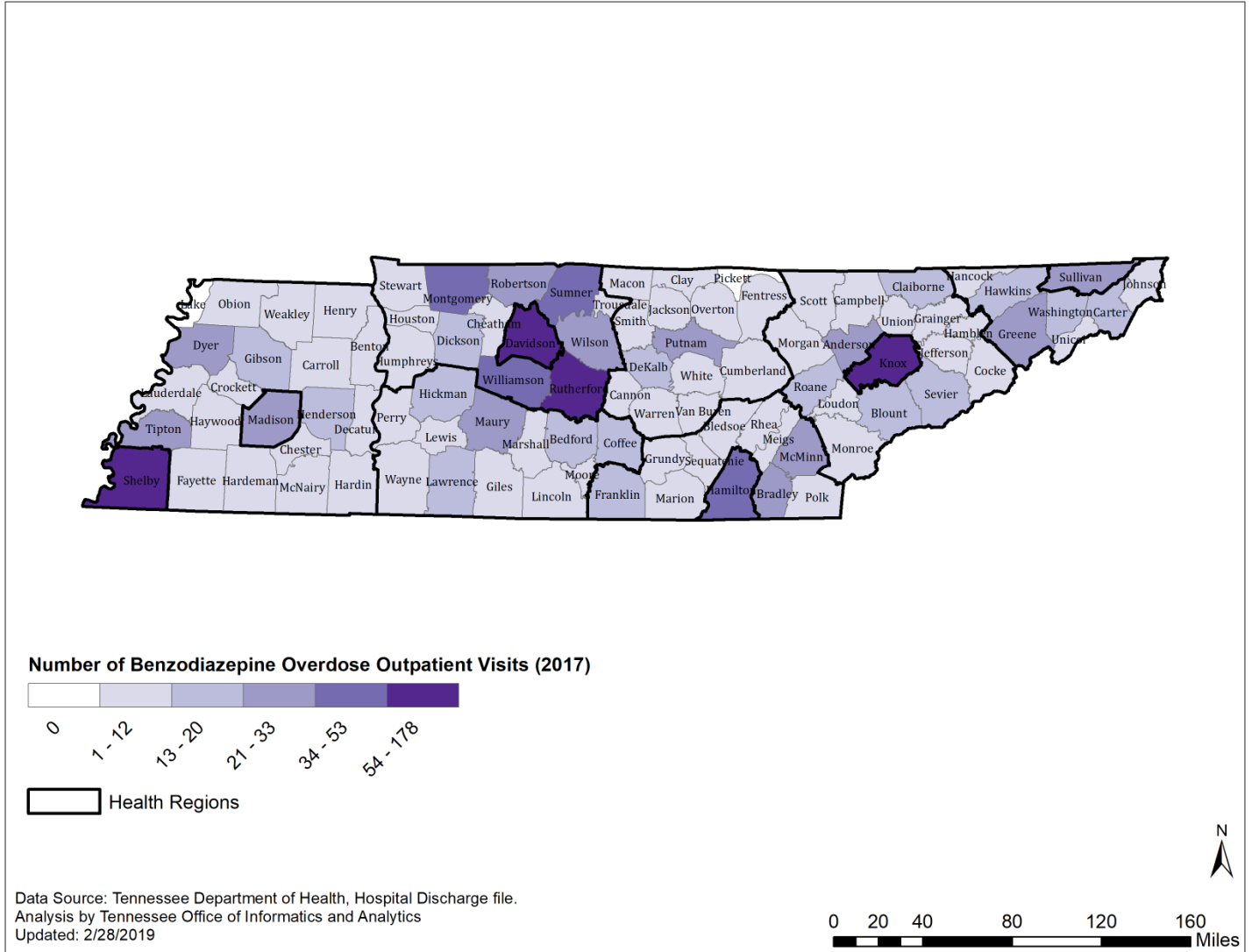
Age-Adjusted Rates for All Drug Overdose Inpatient Stays in 2017 by Tennessee County of Residence



The above map shows age-adjusted rates for all drug overdose inpatient stays in 2017 by TN County of residence. The rates ranged from 36.3 per 100,000 in Lincoln County to 235.9 per 100,000 in Hickman County for inpatient stays related to all drug overdose. The five counties with the highest rates for all drug overdose inpatient stays (≥ 188.1 per 100,000) were Coffee, Greene, Giles, Jackson and Hickman counties.

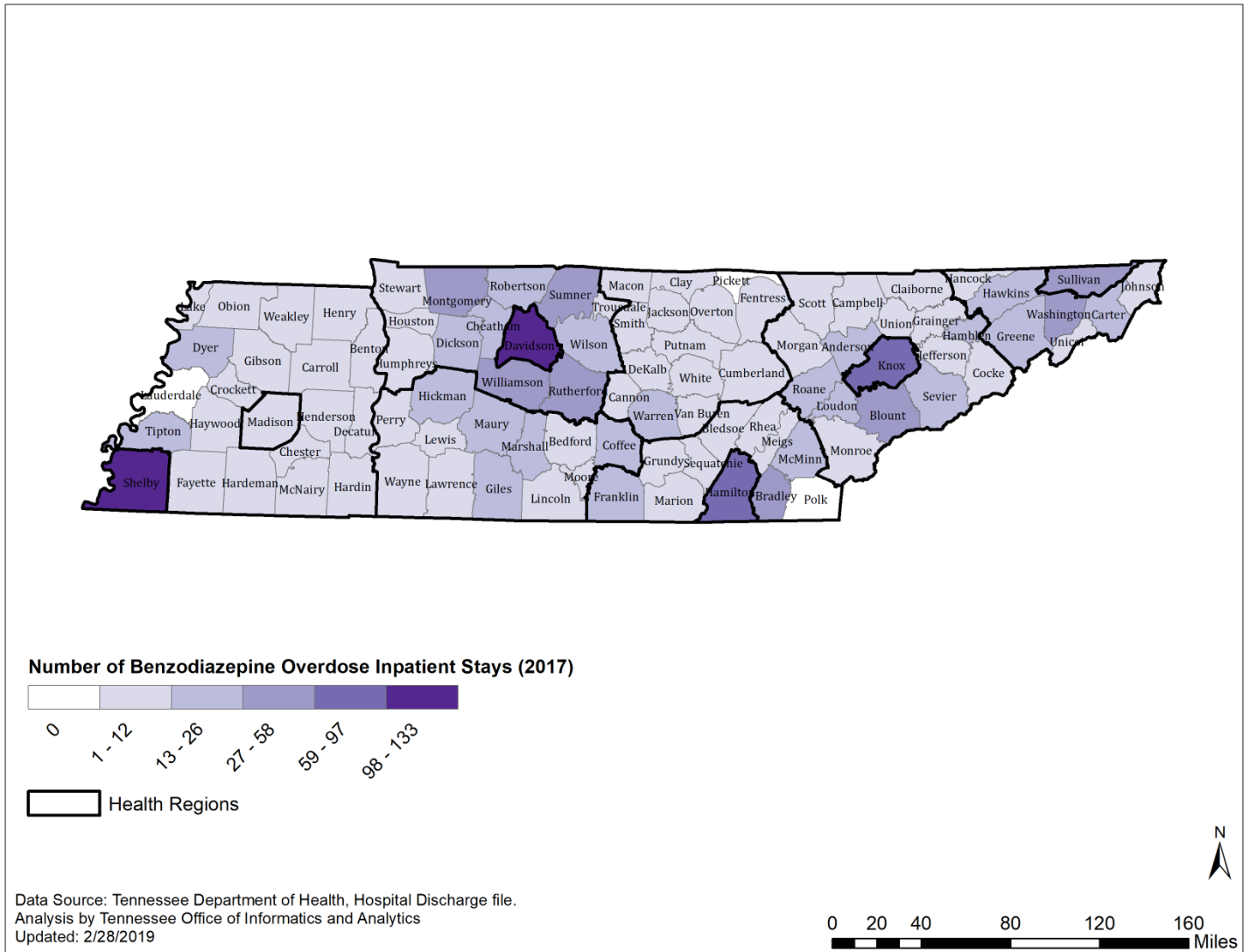
Drug Overdoses Involving Benzodiazepines

Number of Benzodiazepine-involved Overdose Outpatient Visits in 2017 by Tennessee County of Residence



The above map shows the number of benzodiazepine-involved overdose outpatient visits in 2017 by TN county of residence. Two (Lake and Pickett) counties reported no outpatient visits for benzodiazepine-involved overdoses in 2017. Hamilton, Rutherford, Knox, Davidson and Shelby counties reported the highest number (> 50) of outpatient visits.

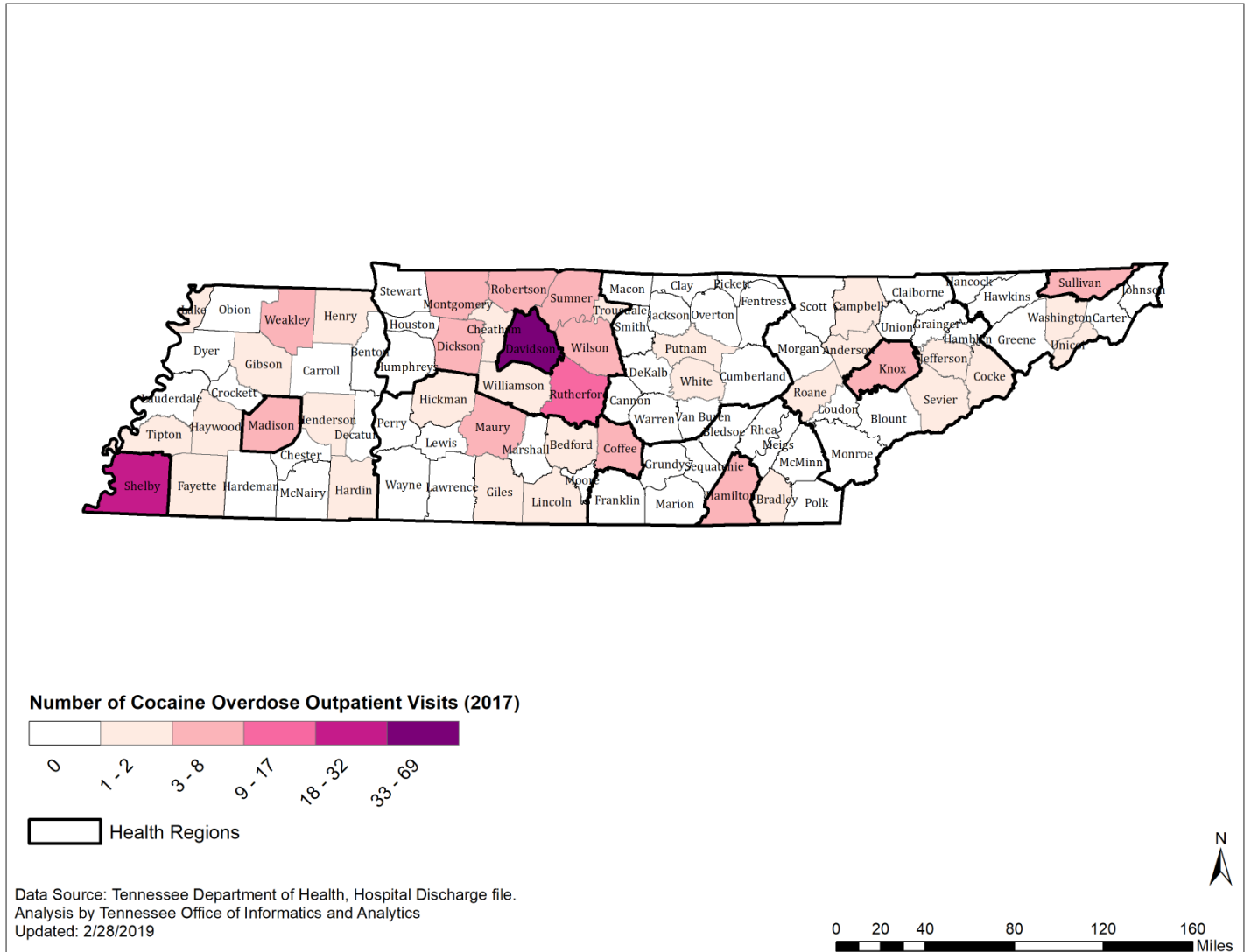
Number of Benzodiazepine-involved Overdose Inpatient Stays in 2017 by Tennessee County of Residence



The above map shows the number of benzodiazepine-involved overdose outpatient visits in 2017 by TN county of residence. Four counties (Lauderdale, Pickett, Polk and Houston) reported no inpatient stays related to benzodiazepine-involved overdoses in 2017. Hamilton, Rutherford, Knox, Davidson and Shelby counties reported the highest number (> 50) of inpatient stays.

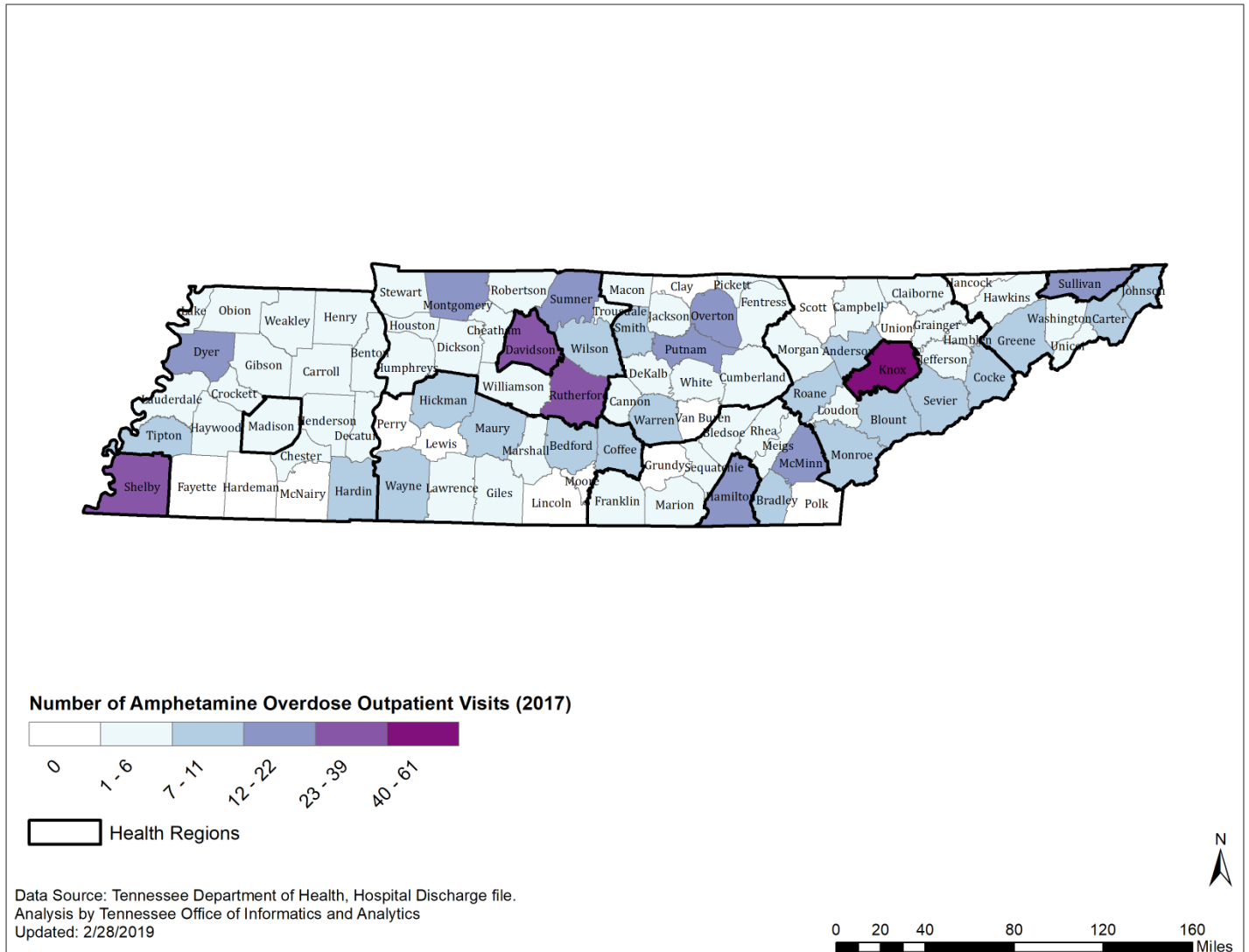
Stimulant Drug Overdoses

**Number of Cocaine Overdose Outpatient visits in 2017
by Tennessee County of Residence**



The above map shows number of cocaine related 2017 overdose outpatient visits in TN. Rutherford (n=17), Shelby (n=32) and Davidson (n=69) reported highest number of cocaine related outpatient visits in 2017.

Number of Amphetamine Overdose Outpatient Visits in 2017 by Tennessee County of Residence

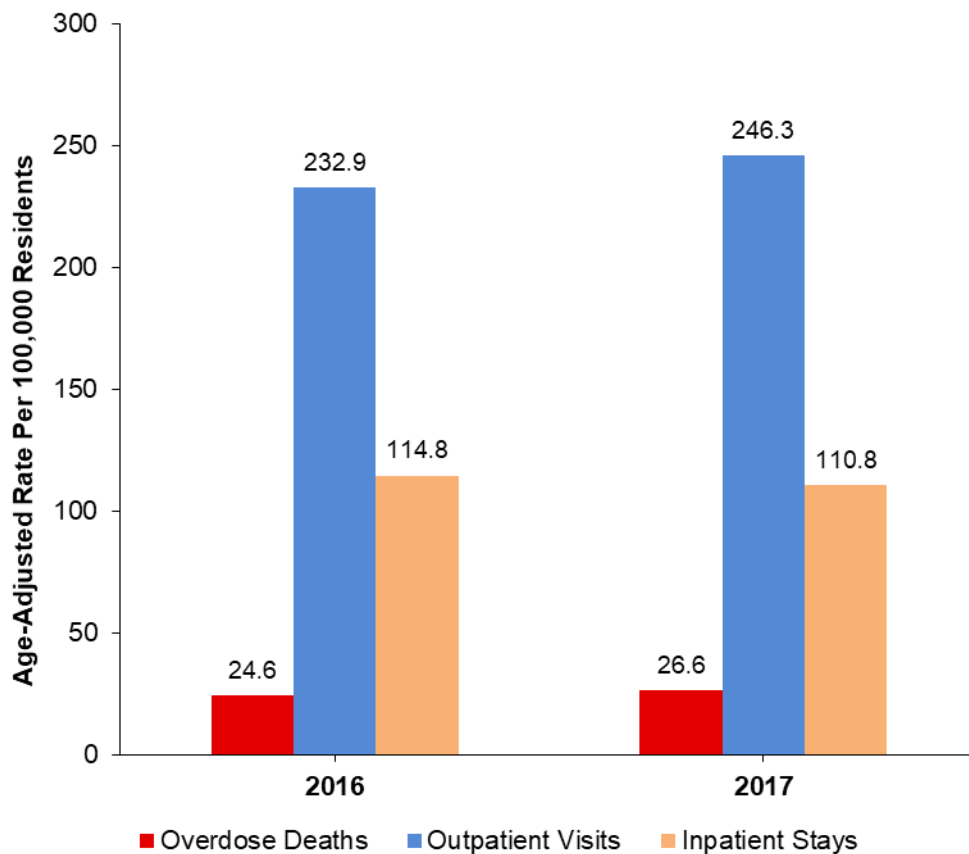


The above map shows number of amphetamine-related 2017 overdose outpatient visits in TN. Ten counties (Dyer, Montgomery, McMinn, Sumner, Hamilton, Putnam, Rutherford, Shelby, Davidson and Knox) reported more than 15 outpatient visits related to amphetamine overdoses in 2017. Knox County reported the highest number of outpatient visits (n=61) related to amphetamine overdoses in 2017.

Fatal and Non-Fatal Drug Overdose Trends

The following figures show non-fatal overdose hospital discharge rates alongside fatal overdose rates from 2016 to 2017. The death rates are derived from the TN Vital Statistics Death Statistical File, and include overdose deaths that occur both in and out of hospitals. **The vast majority of overdose deaths occur outside of hospitals.** In 2017, 1,776 TN residents died of a drug overdose while in a TN hospital 200 inpatients, 58 outpatients were deceased at the time of discharge. Similar to the non-fatal hospital discharge rates presented above, the below rates exclude records with the discharge status of deceased.

Age-Adjusted Rates for All Drug Overdose Hospital Discharges and Deaths in Tennessee, 2016-2017

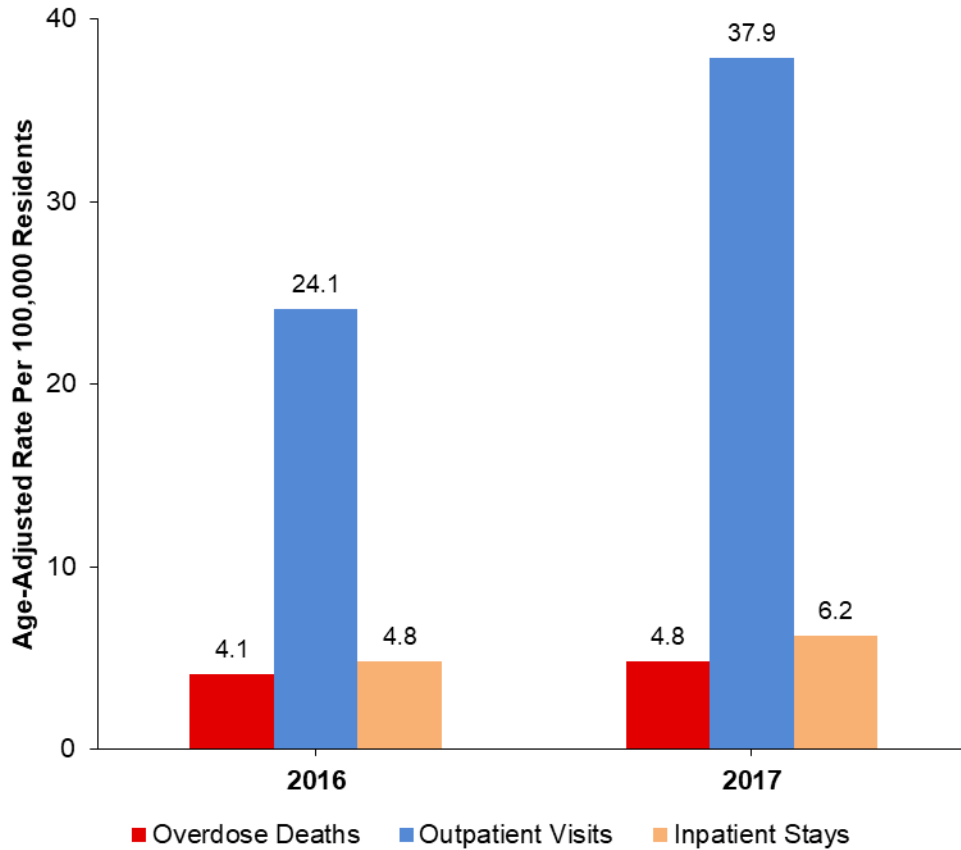


Analysis by the Office of Informatics and Analytics, TDH (last updated February 15, 2019). Limited to TN residents. Data source: Hospital Discharge Data System.

Rates of death from all drug overdoses increased from 24.6 in 2016 to 26.6 in 2017 (an eight percent increase in rate). Concurrently, rates for outpatient⁹ visits also increased while inpatient stays declined slightly since 2016. In 2017, opioid overdose deaths accounted for 71.4% of all drug overdose deaths.

⁹ Outpatient visits include primarily emergency department visits, but also include any observation 23 hours or less, ambulatory surgeries or certain diagnostic services (such as MRIs or CT scans).

Age-Adjusted Rates for Hospital Discharges and Deaths due to Heroin Overdoses in Tennessee, 2016-2017



Analysis by the Office of Informatics and Analytics, TDH (last updated February 15, 2019). Limited to TN residents. Data source: Hospital Discharge Data System.

In TN, the age-adjusted heroin overdose death rate increased from 4.1 deaths per 100,000 residents in 2016 to 4.8 deaths per 100,000 residents in 2017. From 2016 to 2017, the age-adjusted rate of non-fatal heroin overdose outpatient¹⁰ visits resulting in care and subsequent hospital discharge increased from 24.1 outpatient visits per 100,000 residents to 37.9 outpatient visits per 100,000 residents. During that same time period, the rate of nonfatal heroin overdose inpatient stays resulting in care and subsequent hospital discharge increased from 4.8 per 100,000 residents in 2016 to 6.2 per 100,000 residents in 2017.

¹⁰Outpatient visits include primarily emergency department visits, but also include any observation period of 23 hours or less, ambulatory surgeries or certain diagnostic services (such as MRIs or CT scans).

Technical Notes

Indicators	Drug Overdose Outpatient Visits and Inpatient Stays among Tennessee Residents
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<p>Definition of Measures</p>	<p>Inpatient stays are inpatient hospitalizations generally lasting longer than 24 hours while outpatient visits are those less than 24 hours. Outpatient visits include primarily emergency department visits, but also include any observation period of 23 hours or less, ambulatory surgeries or certain diagnostic services (such as MRIs or CT scans).</p> <p>Overdose is determined by the International Classification of Disease (ICD), Clinical Modification, 10th revision codes. Tennessee’s Hospital Discharge Data System (HDDS) includes up to 18 diagnosis fields and three fields for external causes of injury codes (abbreviated as e-codes). Prior to October 1, 2015, hospitals reported 9th revision codes (ICD-9-CM) and afterward reported 10th revision codes (ICD-10-CM). Relevant ICD-10-CM codes for each revision are listed for each drug indicator definition below.</p> <p>Age-adjusted rates for all drug overdose outpatient visits and inpatient stays</p> <ul style="list-style-type: none"> • <i>Numerator</i> – count of outpatient visits or inpatient stays caused by acute poisonings due to the effects of drugs, regardless of intent <ul style="list-style-type: none"> ○ ICD-10-CM any mention of diagnosis codes: <ul style="list-style-type: none"> ○ T36-50 (poisoning by drugs, medicaments, and biological substances) with intent codes 1-4 (accidental, intentional, assault, or undetermined) and encounter code A (initial encounter) or missing (not subsequent encounter or a sequela) • <i>Denominator</i> – Yearly state population in 100,000s
<p>Definition of Measures (continued)</p>	<p>Age-adjusted rates for opioid overdose excluding heroin outpatient visits and inpatient stays</p> <ul style="list-style-type: none"> • <i>Numerator</i> - count of outpatient visits or inpatient stays caused by acute poisonings due to the effects of all opioids excluding heroin, regardless of intent <ul style="list-style-type: none"> ○ ICD-10-CM Any mention of diagnosis codes: <ul style="list-style-type: none"> ○ T40.0X (poisoning by opium), ○ T40.2X (poisoning by other opioids), ○ T40.3X (poisoning by methadone), ○ T40.4X (poisoning by synthetic narcotics), ○ T40.60 (poisoning by unspecified narcotics), or ○ T40.69 (poisoning by other narcotics) with ○ intent codes 1-4 (accidental, intentional, assault, or undetermined) and encounter code A (initial encounter) or missing (not subsequent encounter or a sequela) ○ Exclusions: T401.1X (poisoning by heroin), any intent/any encounter type. • <i>Denominator</i> – Yearly state population in 100,000s <p>Age-adjusted rates for heroin overdose outpatient visits and inpatient stays</p> <ul style="list-style-type: none"> • <i>Numerator</i> - count of outpatient visits or inpatient stays caused by acute poisonings due to the effects of heroin, regardless of intent • ICD-10-CM any mention of diagnosis codes: <ul style="list-style-type: none"> • T40.1X (poisoning by heroin) with • intent codes 1-4 (accidental, intentional, assault, or undetermined) and encounter code A (initial encounter) or missing (not subsequent encounter or a sequela) • <i>Denominator</i> – Yearly state population in 100,000s <p>Age-adjusted rates for Benzodiazepine overdose outpatient visits and inpatient stays</p> <ul style="list-style-type: none"> • <i>Numerator</i> - count of outpatient visits or inpatient stays caused by acute poisonings

due to the effects of benzodiazepine, regardless of intent

- ICD-10-CM any mention of diagnosis codes:
- T42.4X (poisoning by benzodiazepine) with
- intent codes 1-4 (accidental, intentional, assault, or undetermined) and encounter code A (initial encounter) or missing (not subsequent encounter or a sequela)
- *Denominator* – Yearly state population in 100,000s

Age-adjusted rates for other synthetic opioids overdose outpatient visits and inpatient stays

- *Numerator* - count of outpatient visits or inpatient stays caused by acute poisonings due to the effects of other synthetic opioids (excludes methadone), regardless of intent
- ICD-10-CM any mention of diagnosis codes:
- T40.4X (poisoning by synthetic opioids) with
- intent codes 1-4 (accidental, intentional, assault, or undetermined) and encounter code A (initial encounter) or missing (not subsequent encounter or a sequela)
- *Denominator* – Yearly state population in 100,000s

Age-adjusted rates for methadone overdose outpatient visits and inpatient stays

- *Numerator* - count of outpatient visits or inpatient stays caused by acute poisonings due to the effects of methadone, regardless of intent
- ICD-10-CM any mention of diagnosis codes:
- T40.3X (poisoning by methadone) with
- intent codes 1-4 (accidental, intentional, assault, or undetermined) and encounter code A (initial encounter) or missing (not subsequent encounter or a sequela)
- *Denominator* – Yearly state population in 100,000s

Age-adjusted rates for cocaine overdose outpatient visits and inpatient stays

- *Numerator* - count of outpatient visits or inpatient stays caused by acute poisonings due to the effects of cocaine, regardless of intent
- ICD-10-CM any mention of diagnosis codes:
- T40.5X (poisoning by cocaine) with
- intent codes 1-4 (accidental, intentional, assault, or undetermined) and encounter code A (initial encounter) or missing (not subsequent encounter or a sequela)
- *Denominator* – Yearly state population in 100,000s

Age-adjusted rates for amphetamine overdose outpatient visits and inpatient stays

- *Numerator* - count of outpatient visits or inpatient stays caused by acute poisonings due to the effects of amphetamines, regardless of intent
- ICD-10-CM any mention of diagnosis codes:
- T43.62 (poisoning by stimulants) with
- intent codes 1-4 (accidental, intentional, assault, or undetermined) and encounter code A (initial encounter) or missing (not subsequent encounter or a sequela)
- *Denominator* – Yearly state population in 100,000s

Age/Race/Sex stratification

- Age is determined according to date of birth and at date of admission to hospital.
- Race and sex are reported by the hospital to the hospital discharge data system.
- Due to low numbers, patients of unknown race, Native American, Alaskan Native, Asian or Pacific Islander were not included in the analyses.

2017 Non-Fatal Drug Overdose Hospital Discharges

	Age-adjustment is used for all non-fatal overdose rates except for those stratified by age. Age-adjusted rates were calculated using 2000 US standard population for age-adjustment. The rate for a specific age group in a given population was multiplied by the proportion of people in the same age group in the 2000 U.S. standard population; adding across age groups yields the final age-adjusted rate.
Time Period	2016 – 2017
Inclusion/Exclusion Criteria	<ul style="list-style-type: none"> • Only Tennessee residents were considered • Only discharges from non-federal, acute care hospitals were included • Excludes patients discharged as dead/deceased • Late effects, adverse effects, under-dosing, and chronic poisonings due to the effects of drugs were excluded
Data Sources	<ul style="list-style-type: none"> • Tennessee Hospital Discharge Data System (HDDS) 2016-2017 • Population data was obtained from CDC Wonder bridged race populations estimates. The vintage year of the populations corresponds to the year of the indicator. (See http://wonder.cdc.gov/bridged-race-population.html for more details).
General Limitations of the Measures	<ul style="list-style-type: none"> • Non-fatal overdoses are only captured as hospital discharges and do not include those non-fatal overdoses that do not end up at an acute-care facility. • Limited to non-federal acute care-affiliated facilities. Excludes Veterans Affairs and other federal hospitals, rehabilitation centers, and psychiatric hospitals

Additional information/Questions:

- For county-level data, visit the TN Drug Overdose Data Dashboard: <https://www.tn.gov/health/health-program-areas/pdo/pdo/data-dashboard.html>
- Contact us by email: Prescription.Drugs@tn.gov