



# 2015 HOSPITALIZATIONS DUE TO DRUG POISONINGS IN TENNESSEE

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Tennessee Department of Health,  
Division of Policy, Planning and Assessment

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The mission of the Department of Health is to protect, promote and improve the health  
and prosperity of people in Tennessee.

*This report was prepared pursuant to TCA 68-1-108(f).*



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# 2015 Hospitalizations due to Drug Poisonings in Tennessee

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## Executive Summary

This surveillance report provides a summary description of drug poisonings related hospital visits in Tennessee during the 2015 calendar year. The information provided in this report includes the frequency of emergency department visits and hospitalizations for treatment of drug poisonings. The report also contains demographic information of the populations with the highest incidence of drug poisonings, the nature of the poisonings and the categories of drugs most frequently responsible for these poisonings, as well as the distribution of the payer mix for the hospital charges.

### Overview

In 2015, Tennessee hospitals reported a total of 23,548 inpatient and outpatient discharges for drug poisonings. Of these, 92% ( 21,705 discharges) were residents of Tennessee. Emergency department admissions accounted for 93% of drug poisoning related discharges. The total number of inpatient and outpatient visits for drug poisoning has remained between 20,000 and 24,000 from 2010 through 2015. 213 patients admitted with a drug-related diagnosis in 2015 died while in the hospital.

### Populations with the Highest Incidence of Drug Poisonings

Females accounted for approximately 58% of drug poisoning related discharges. Whites had the highest percentage of drug poisoning related hospital visits with 84% (19,770 discharges out of 23,548). Blacks had the second highest percentage of drug poisoning related hospital visits at approximately 13%. Drug poisonings were most common among those between the ages of 15 and 64 years.

### Billed Charges due to Drug Poisonings

The charges associated with the treatment of drug poisoning in Tennessee were \$356 million in 2015. These total charges increased approximately 16% from \$307 million in 2014.

### Payer Mix

TennCare was the largest payer, accounting for payment for 30% of hospitalizations due to drug poisonings. The second and third payers in order of frequency are Medicare and other insurance companies with 26% and 24% respectively.

# Hospitalizations Due to Drug Poisoning, 2015

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## Introduction

Drug poisonings are a significant problem in Tennessee. The charges, both monetary and physical, for treating these episodes are high and increasing. Drugs used in these poisonings are often prescriptions or over-the-counter medications. These drugs are widely available, used and misused. Therefore, it is important to understand the demographics of the population most at risk for drug poisonings and the intentions that lead to drug poisonings in Tennessee. By increasing knowledge about hospitalizations due to drug poisoning in Tennessee, additional policies may be established and planning for future interventions may be conducted to reduce the burden of drug poisonings in the state.

## Methods

This surveillance summary was prepared pursuant to a legislative requirement for a report that summarizes the aggregate claims data on all inpatient and outpatient discharges that include a drug poisoning diagnosis as reported for the calendar year two (2) years prior to the current year by licensed hospitals. Hospitalizations from January 1st through December 31st, 2015 due to drug poisonings were obtained from the Tennessee Hospital Discharge Data System, a data system containing both inpatient and outpatient discharge records from all licensed Tennessee hospitals since 1997.

This report gives an overview of hospitalizations due to drug poisoning in Tennessee. It provides insight into a variety of items, from the most likely group to be hospitalized due to a drug poisoning to which drugs caused the poisoning incident, to how much is charged on average per stay.

## Case Definition

For the first three quarters, drug poisonings were identified using International Classification of Diseases, 9th Edition, Clinical Modification (ICD-9-CM) codes 960-979. For the last quarter of 2015, International Classification of Diseases, 10th Edition, (ICD-10) codes T36-T50 were used. Only the initial encounters were considered in the ICD-10 codes.

Unless indicated otherwise in the text, drug poisonings include discharges with an appropriate code in the primary and/or other diagnosis fields (18 fields in total). In the case of multiple diagnosis fields containing different drug poisoning codes, the first field with a drug poisoning code is counted.

Poisoning intention was classified based on ICD-9-CM codes in the first listed E-code field. Injury codes, E800-E869 and E880-E929 for accidental poisoning; E950-E959 for suicide and self-inflicted; E960-E969 for homicide and other; rest of records for other/unknown. In the cases of ICD-10, the intent classification, built into the diagnosis codes, was used.

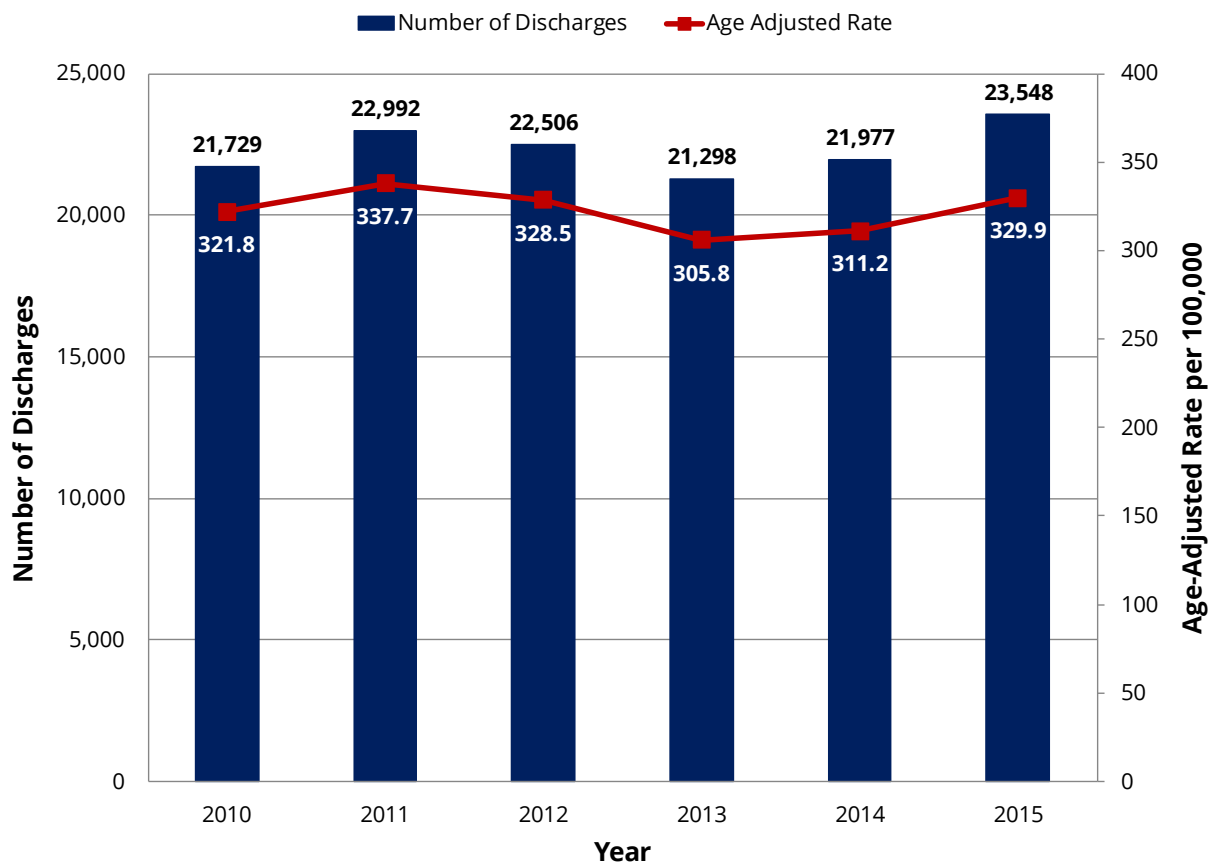
# Hospitalizations Due to Drug Poisoning, 2015

## Discharges and their Demographics

In 2015, hospitals licensed by the Tennessee Department of Health reported a total of 23,548 discharges (both inpatient and outpatient) with drug poisoning listed in one of the 18 diagnosis fields on the hospital discharge data reporting form. Drug poisoning was listed as the primary diagnosis on 19,118 (81%) of all hospital discharges for all ages.

Of the hospital discharges, 37% were inpatient stays, while the other 63% were treated as outpatients. Among the inpatient discharges, 85% were admitted through the emergency department (ED); among outpatient discharges, 98% were ED admissions. Overall, 93% of all hospital discharges (both inpatient and outpatient) due to drug poisoning were admitted through the ED. The most common reason an individual was admitted through an alternate method is because they were transferred from another hospital.

## Drug Poisoning Discharges in Tennessee, 2010-2015



Data Source: Hospital Discharge Data System, 2010 - 2015. Office of Healthcare Statistics, Division of Policy, Planning and Assessment, Tennessee Department of Health. Nashville, Tennessee.

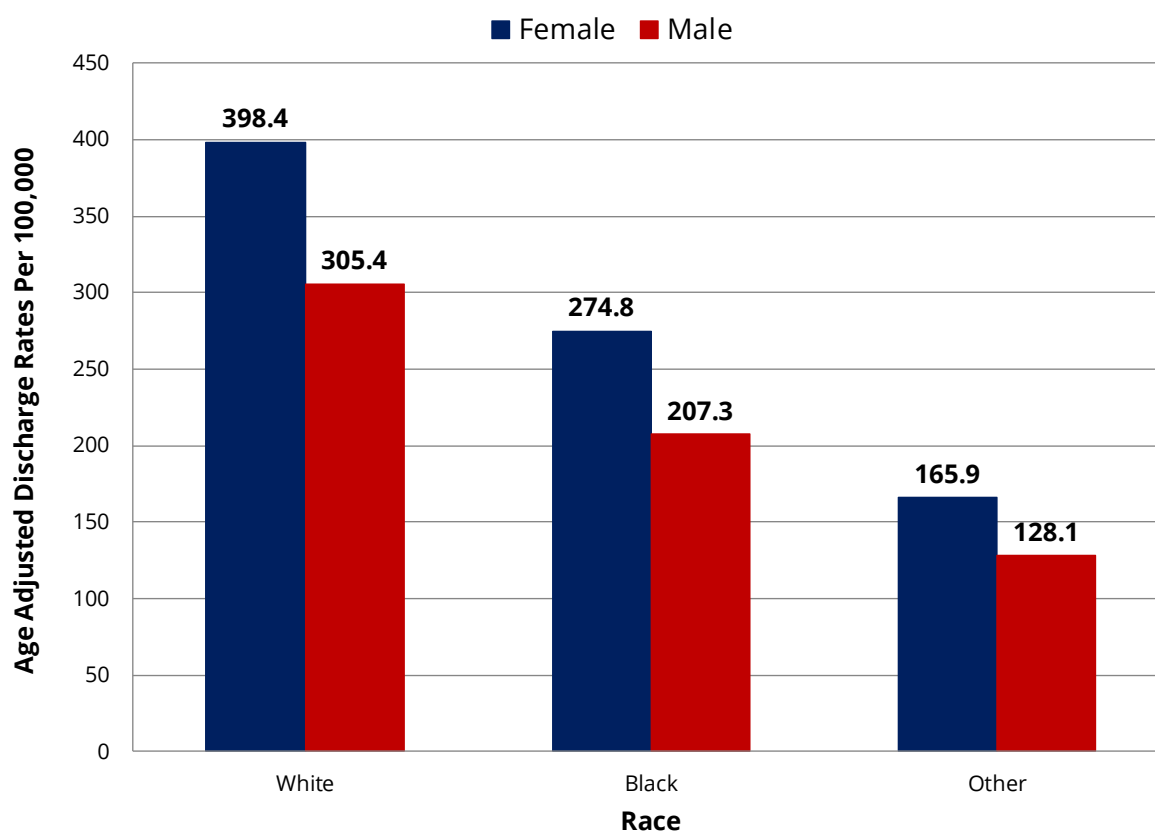
# Hospitalizations Due to Drug Poisoning, 2015

## Race, Sex and Age Groups

Among discharges with valid race data, 84% were of whites, 13% were of blacks and 2% were of other races. In terms of age, the number of drug poisonings was highest in the 20-29 age group with 3,711 (16%) discharges.

A majority of the drug poisoning discharges were female (58%), with 48% of all hospitalizations due to drug poisoning being among white females. The rates also show that females in general and white females in particular had higher rates of hospitalizations due to drug poisoning.

## Age-Adjusted Hospital Discharge Rates due to Drug Poisoning, by Race and Gender, Tennessee Residents, 2015



Data Source: Hospital Discharge Data System, 2015. Office of Healthcare Statistics, Division of Policy, Planning and Assessment, Tennessee Department of Health. Nashville, Tennessee.

# Hospitalizations Due to Drug Poisoning, 2015

## Type of Drug and Intentions of Drug Poisonings

### Types of Drugs

The type of drug involved and the reason for taking the drug are two factors which provide insight into the best approach to prevent future drug poisonings.

Analgesic, antipyretic, and anti-rheumatic agents are primarily used to treat pain, either as prescribed by a doctor or as over-the-counter pain medicine. This class also includes opioids such as heroin.

Psychotropic agents are medications primarily used to treat the symptoms of mental disorders such as schizophrenia, depression, bipolar disorder, and anxiety disorders.

By far, these two classes of drugs were the most common classes of drugs involved in drug poisonings. Together they accounted for over half of the drug related hospitalizations.

### Ten Most Common Drugs for Discharges due to Drug Poisonings, Tennessee Residents and Non-Residents, 2015

Rank	Drug Group	Frequency*	Percent
1	Analgesics, antipyretics, & antirheumatics	6,563	27.9%
2	Psychotropic agents	5,993	25.5%
3	Other and unspecified substances	3,334	14.2%
4	Cardiovascular agents	986	4.2%
5	Sedatives and hypnotics	949	4.0%
6	Systemic agents	762	3.2%
7	Hormones and substitutes	748	3.2%
8	Anticonvulsants & Anti-Parkinsonian	684	2.9%
9	Agents affecting blood	633	2.7%
10	Muscular and respiratory drugs	589	2.5%

Data Source: Hospital Discharge Data System, 2015. Office of Healthcare Statistics, Division of Policy, Planning and Assessment, Tennessee Department of Health. Nashville, Tennessee.

Percent is out of total number of discharges due to drug poisonings (n=23548 )

\*In the case of multiple drug poisoning codes within one discharge record, the first field with a drug poisoning code indicated which drug type was counted.

382 cases of poisoning identified by ICD 10 T426X, T4271X, T4272X, T4273X, T4274X and T428X were excluded from the grouping because they can be mapped to two different ICD 9 diagnostic groups.

# Hospitalizations Due to Drug Poisoning, 2015

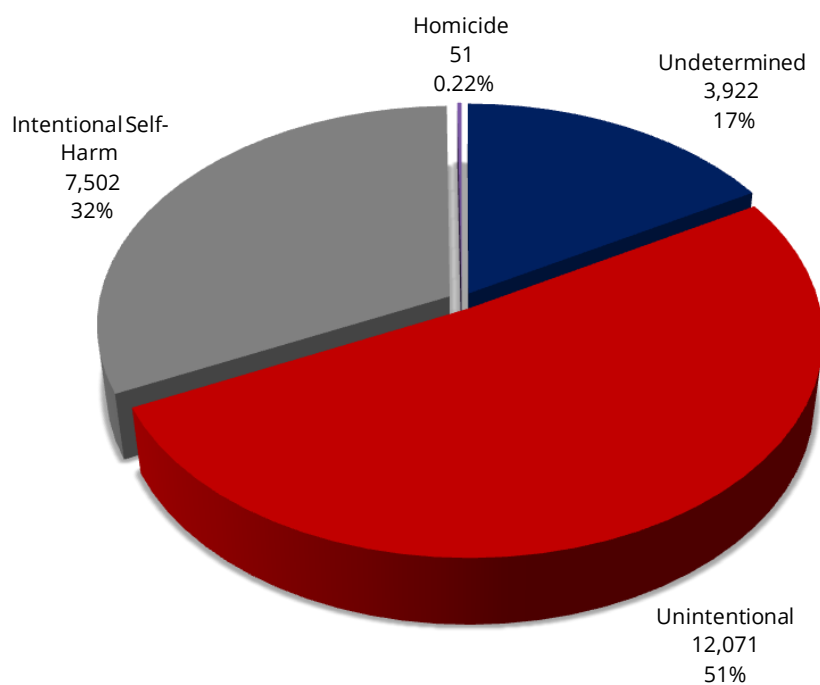
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## Intentions

Approximately 51% of drug poisoning hospital discharges were due to unintentional poisoning, while 32% and 17% respectively were due to intentional self harm (suicide) and unknown reasons.

The majority (80%) of drug poisonings during 2015 can be categorized as either accidental or intended self-harm.

**Reported Intention of Drug Poisonings,  
Tennessee, 2015**



Data Source: Hospital Discharge Data System, 2015. Office of Healthcare Statistics, Division of Policy, Planning and Assessment, Tennessee Department of Health. Nashville, Tennessee.



# Hospitalizations Due to Drug Poisoning, 2015

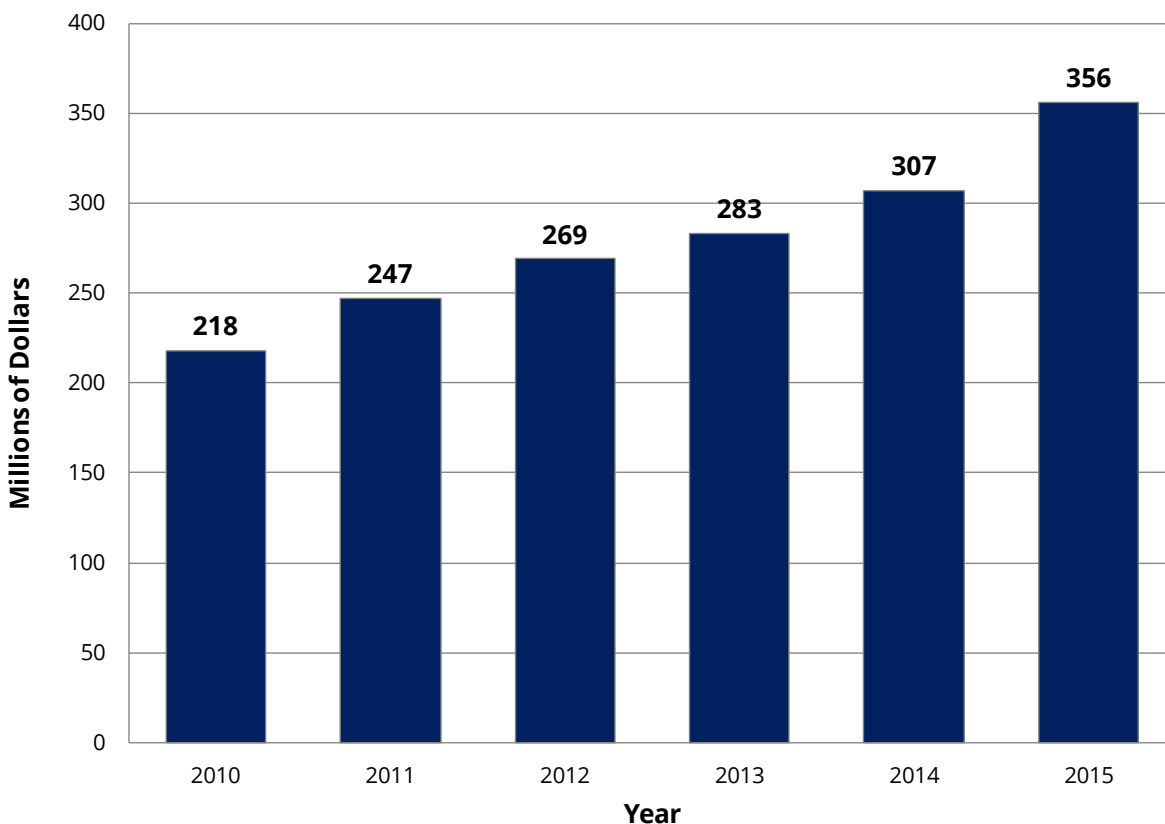
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## Drug Poisoning Charges and Payer Mix

### Drug Poisoning Charges

The charges for discharges due to drug poisonings are billed to patients or to their respective insurance companies. The average charges vary depending on the location of the discharge. Out of the total \$356 million charged for hospital visits due to drug poisonings, \$278 million were charged as inpatient stays. On average, each inpatient stay resulted in charges of approximately \$32,000 and each outpatient visit averaged charges of \$5,300.

**Total Charges for Discharges Due to Drug Poisoning,  
2010 - 2015**



Data Source: Hospital Discharge Data System, 2010 - 2015. Office of Healthcare Statistics, Division of Policy, Planning and Assessment, Tennessee Department of Health. Nashville, Tennessee.

# Hospitalizations Due to Drug Poisoning, 2015

## Primary Payers

TennCare was the largest payer, paying for approximately 30% of hospitalizations due to drug poisonings. The second and third payer in order of frequency were Medicare and other insurance companies with 26% and 24%, respectively.

### Primary Payers for Hospital Visits for Drug Poisonings

Payers	Frequency	Percent
TennCare	6,993	29.7%
Medicare	6,171	26.2%
Other Ins	5,703	24.2%
Self Pay	4,183	17.8%
Free Care	186	0.8%
Cover TN, Kids, Access TN	101	0.4%
Other and Unknown	211	0.9%

Data Source: Hospital Discharge Data System, 2015. Office of Healthcare Statistics, Division of Policy, Planning and Assessment, Tennessee Department of Health. Nashville, Tennessee.

## Limitations of this Report

Due to the nature of the data, this report has several limitations. The drug type categories contain several possible drugs. The actual drug involved, whether or not it was prescribed, dosage, and whether the drug was illicit or legal is not captured in the data source. The drug poisoning report focuses on the number of discharges which included drug poisonings; context behind the hospitalization (For example, was the person hospitalized for the drug poisoning or initially hospitalized from a car accident) is not fully examined. Discharges with multiple drug poisoning diagnoses were counted and analyzed according only to the first drug poisoning diagnosis in the 18 diagnosis fields. The fact that both ICD 9 and ICD 10 were used as diagnostic has made it difficult to group the drugs by categories or intention. As a consequence, it is not appropriate to compare the categories of drugs reported this year to those of previous years. Also, federal hospitals within Tennessee do not report their data to the Tennessee Department of Health. Therefore, data from these hospitals are not included in this report. Finally, the report covers all discharges due to drug poisoning treated in Tennessee, which include non-Tennessee residents treated in licensed Tennessee hospitals. However, as this report is an overview and not meant to be exhaustive, these limitations can be used to encourage further investigation into drug poisonings in Tennessee.

# Hospitalizations Due to Drug Poisoning, 2015

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## **Additional Sources**

### **1. Psychotropic agent examples by brand name :**

Prozac, Valium, Ritalin, and Loxitane,

Please see the following website for further information on psychotropic agents:

[Names and uses of psychotropic drugs](#)

### **2. Analgesic, antipyretic and anti-rheumatic agent examples by brand name:**

Tylenol, Aspirin, Advil, and Methadone

Please see the following link for further information on analgesic, antipyretic, and anti-rheumatic agents:

[Names and uses of analgesic, antipyretic and anti-rheumatic drugs](#)

## **Technical Notes**

Prepared by the Office of Healthcare Statistics; Division of Policy, Planning and Assessment; Tennessee Department of Health (TDH). Statistics were derived from the TDH Hospital Discharge Data System (HDDS), which contains discharge-level claims data.

Race was classified regardless of ethnicity. Most payments are discounted from the billed charges; therefore, the billed charges are not necessarily the actual amount paid for the services rendered. TennCare insurance included TennCare, Cover TN, Cover Kids, and Access TN.

Age adjusted rates were calculated using patients who were TN residents. All other statistics were calculated using all patients.

## **Contact:**

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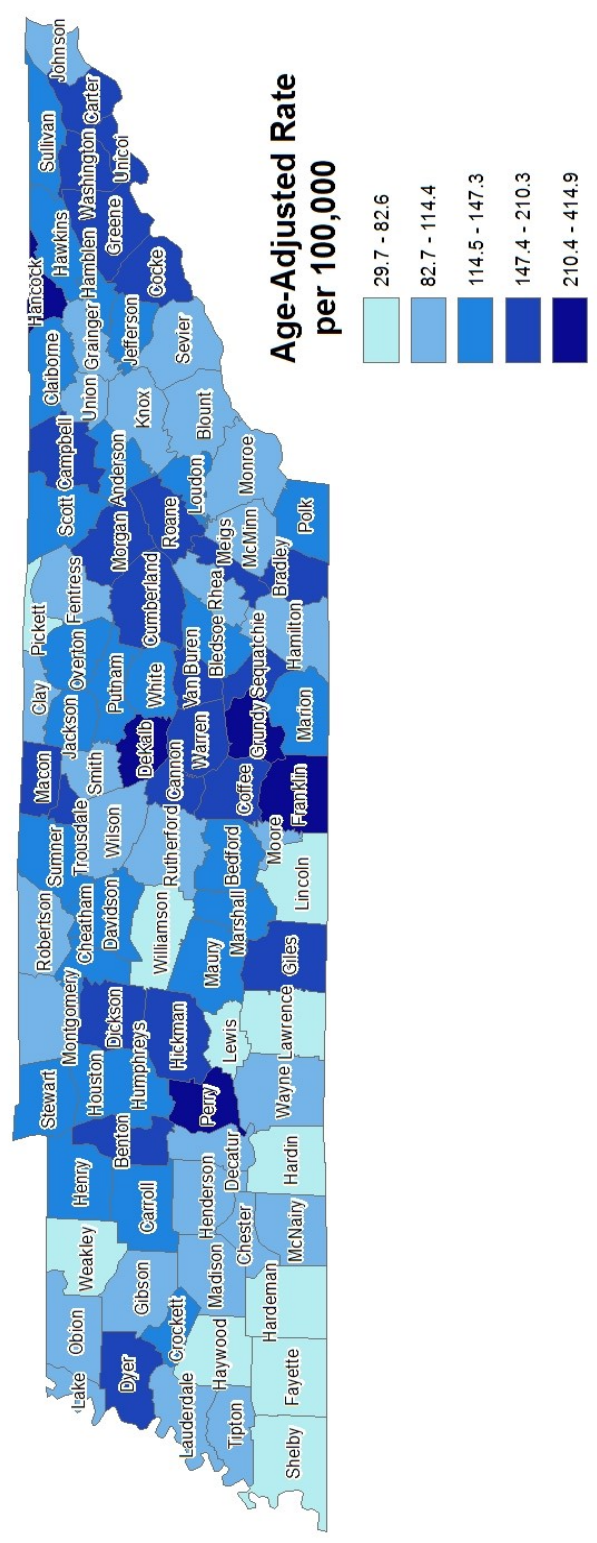
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# Hospitalizations Due to Drug Poisoning, 2015

## Drug Poisonings Inpatient Discharge Rate by Tennessee Counties



Source: Tennessee Department of Health, Division of Policy, Planning and Assessment, Tennessee, Office of Health Care Statistics

# Drug Poisonings Outpatient Discharge Rate by Tennessee Counties

