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2014 HOSPITALIZATIONS DUE TO DRUG POISONINGS IN TENNESSEE

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

2016

The mission of the Tennessee 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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2014 Hospitalizations due to Drug Poisonings in Tennessee

Executive Summary

This surveillance report summarizes the treatment of all individuals who sought medical care at a licensed Tennessee hospital for a drug-related poisoning episode during the 2014 calendar year. The information provided includes the frequency of emergency department visits and hospitalizations for treatment of drug poisonings, 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, and the distribution of the payer mix for the hospital charges.

Overview

Drug poisonings were involved in 21,977 inpatient and outpatient hospital discharges in 2014. Of these, 93% were residents of Tennessee. Emergency department admissions accounted for 92% of drug poisoning-related discharges. The total number of inpatient admissions and outpatient visits for drug poisoning has remained over 20,000 during 2010 through 2014. Of the 2014 hospitalizations, those discharged deceased were 196.

Populations with the Highest Incidence of Drug Poisonings

Most of the hospitalizations due to drug poisoning were among females (59%). Whites had the highest incidence of drug poisonings and 50% of all cases were among white females. **Drug poisonings were most common among those age 20 to 59 years** with the highest incidence among those 50-59 years old.

Nature of the Drug Poisonings

Nearly half (44%) of all drug poisonings were accidental with 35% being self-afflicted or suicide-related. The most common drug category responsible for drug poisonings was psychotropic agents. Approximately one out of five drug poisonings involved more than one drug category, such as a combination opioids and anti-anxiety medication.

Billed Charges due to Drug Poisonings

A total of **\$307 million** were billed to patients and/or their payers for inpatient and outpatient hospitalizations due to drug poisonings during 2014. The total charges increased approximately 8% from \$283 million in 2013, and they increased about 14% from \$268 million in 2012.

Payer Mix

TennCare was the largest payer, paying for 28% of hospitalizations due to drug poisonings. Medicare paid for 27%, other insurance companies paid for 24%, and 19% were billed to patients.

Hospitalizations due to Drug Poisoning, 2014

Introduction

Drug poisonings are a significant problem in Tennessee. The costs, 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, better policies can be established and planning for future interventions can 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 an International Classification of Diseases, 9th Edition, Clinical Modification (ICD-9-CM) code for a drug poisoning as reported for the calendar year two (2) years prior to the current year by licensed hospitals. Hospitalizations from January 1st through December 31st, 2014 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

Drug poisonings were identified using International Classification of Diseases, 9th Edition, Clinical Modification (ICD-9-CM) codes 960-979. 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, E850-E858, for accidental poisoning; E930-E949 for therapeutic use; E950-E959 for suicide and self-inflicted; E960-E969 for homicide and other; rest of records for other/unknown.

Hospitalizations due to Drug Poisoning, 2014

Discharges and their Demographics

In 2014, hospitals licensed by the Tennessee Department of Health reported a total of 21,977 discharges (both inpatient and outpatient) due to drug poisoning as listed in one of the 18 diagnosis fields on the hospital discharge data reporting form. Drug poisoning was listed as the primary diagnosis on 18,036 (82%) of all hospital discharges for all ages. According to the death file in 2014, 543 deaths out of the 1,290 overall deaths recorded in Tennessee due to drug overdoses occurred while the individual was at or on the way to the hospital.

Of the hospital discharges, 37% were inpatient stays, while the other 63% were treated as outpatients. Among the inpatient discharges, 83% were admitted through the emergency department (ED); among outpatient discharges, 97% were ED admissions. Overall, 92% of all hospital discharges due to drug poisoning were admitted through the emergency department.

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 50-59 age group with 3,444 (16%) discharges. A majority of the drug poisoning discharges were female (59%), with 49% of all hospitalizations due to drug poisoning being among white females. Even after age-adjusting the rates to reduce the potential confounding effect of age, females in general and white females in particular had higher rates of hospitalizations due to drug poisoning. See Figure 1 on page 5.

Causes and Intentions of Drug Poisonings

Two factors of particular interest when it comes to drug poisonings are: (1) which drug was used and; (2) for what intent. The answers to these questions affect the approaches used in reducing drug poisonings.

Types of Drugs

The most common types of drugs in the hospitalizations due to drug poisonings were psychotropic agents. These agents are medications primarily used to treat the symptoms of mental disorders such as schizophrenia, depression, bipolar disorder, and anxiety disorders. The second most common types of drugs fall under the category of analgesic, antipyretic, and anti-rheumatic agents. Many of these agents are used to treat pain, either as prescribed by a doctor or as over-the-counter pain medicine. See Table 1 on page 5.

Hospitalizations due to Drug Poisoning, 2014

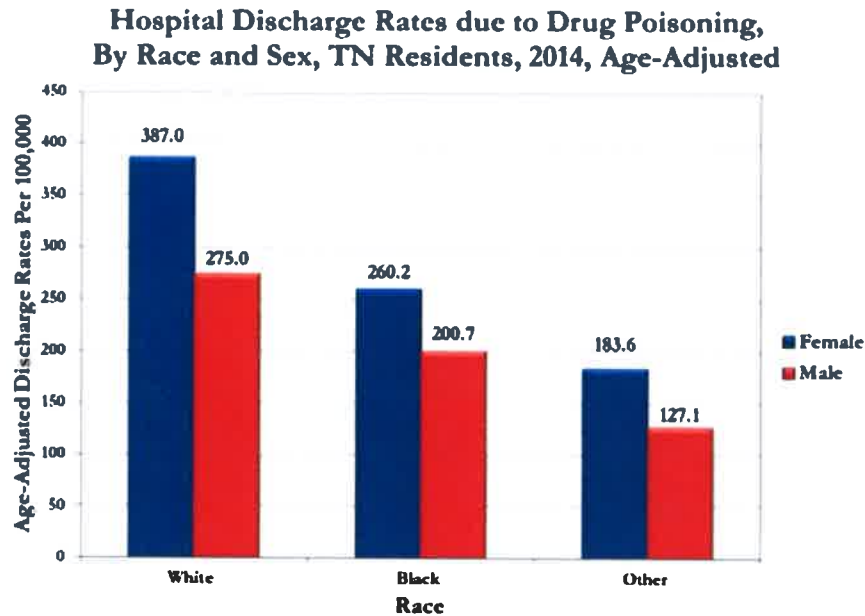


Figure 1: Age-adjusted hospital discharge rates per 100,000 persons by race and gender, with valid race and sex information

Table 1: Ten Most Common Drugs for Discharges due to Drug Poisonings, 2014, Tennessee Residents and Non-Residents

Rank	Type of Drugs	Frequency*	Percent
1	Psychotropic agents**	5,968	27.2%
2	Analgesics, antipyretics, & anti-rheumatics**	5,428	24.7%
3	Other and unspecified substances	3,459	15.7%
4	Sedatives and hypnotics	1,312	6.0%
5	Cardiovascular agents	945	4.3%
6	Anticonvulsants & Anti-Parkinsonian	801	3.6%
7	Hormones and substitutes	790	3.6%
8	Systemic agents	725	3.3%
9	Muscular and respiratory drugs	673	3.1%
10	Central Nervous System stimulants	532	2.4%

Percent is out of total number of discharges due to drug poisonings (n=21,977)

*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.

**See "Additional Sources" section for examples of the brand name drugs included in these categories.

Hospitalizations due to Drug Poisoning, 2014

Intentions

The majority (80%) of drug poisonings during 2014 can be categorized as either accidental or intended self-harm. Of the total discharges, 44% of the hospitalizations due to drug poisonings were accidental. The second most common reason was due to suicide or self-harm intention (35%). The approaches to reducing drug poisoning from an intent standpoint will then differ depending on whether the poisoning was intentional or not.

Drug Poisoning Charges

The charges for discharges due to drug poisonings are billed to patients or to their respective insurance companies. Depending on the type of admission the average charges vary. Out of the total \$307 million charged for hospitalizations due to drug poisonings, \$237 million (77%) were charged to inpatient stays. On average, each inpatient stay resulted in charges of approximately \$28,826 and each outpatient visit averaged charges of \$5,051.

Despite outpatient visits making up the majority (63%) of discharges, inpatient stays accounted for the higher percentage of charges despite only accounting for less than half of the total discharges due to drug poisoning.

Primary Payers

Medicare and TennCare were the most common payers billed for hospital discharges due to drug poisoning, accounting for 54% of the total number of discharges. Another 24% of the drug poisoning discharges were billed to other insurance agencies and 19% were billed directly to the patients.

Limitations of this Report

Due to the nature of the data, this report does have several limitations. First, the drug types were categories that contain several possible drugs. The actual drug involved, whether or not it was prescribed or not, dosage, and whether the drug was illicit or legal were not known. Secondly, the drug poisoning report focused on the number of discharges due to drug poisoning and details of the first diagnosis of a drug poisoning were not provided. Discharges with multiple drug poisoning diagnoses were counted and analyzed according to the first drug poisoning diagnosis in the 18 diagnosis fields. 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.

Additional Sources

1. **Psychotropic agent examples by brand name** = Prozac, Valium, Ritalin, Loxitane, and others

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**
= Methadose, Tylenol, Aspirin, Advil, and others

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.

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Hospitalizations due to Drug Poisoning, 2014

Drug Poisoning Inpatient Discharge Rate By Tennessee County, 2014

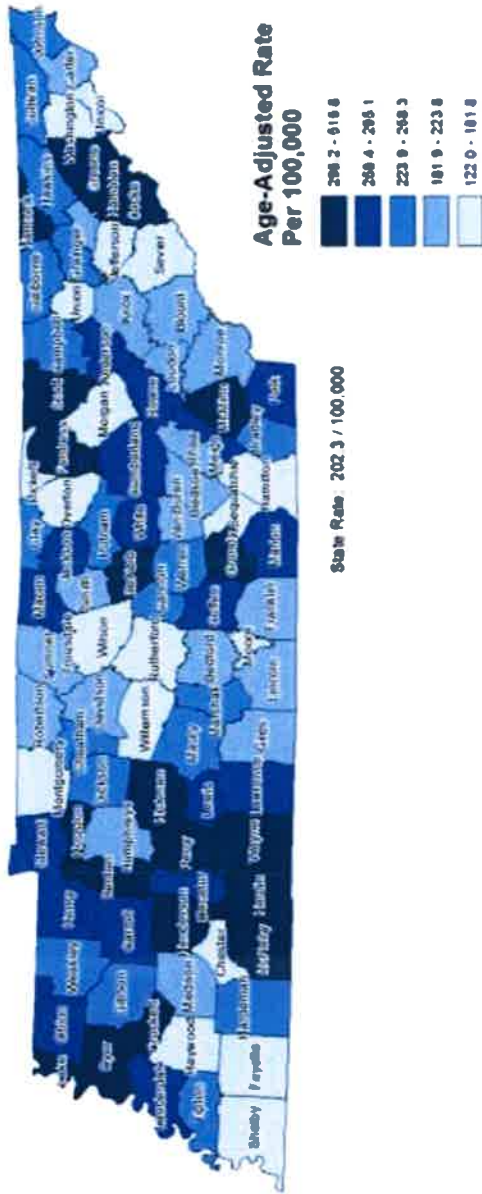


Data source and map by Tennessee Department of Health, Division of Policy, Planning and Assessment, Office of Healthcare Statistics

Figure 2: Age-adjusted inpatient admission rates per 100,000 persons by resident county.

Hospitalizations due to Drug Poisoning, 2014

Drug Poisoning Outpatient Discharge Rate By Tennessee County, 2014



Data source and map by Tennessee Department of Health, Division of Policy, Planning and Assessment, Office of Healthcare Statistics

Figure 3: Age-adjusted outpatient discharge rates per 100,000 persons by resident county.