



2017 Tennessee Drug Overdose Deaths

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

9/5/2018

Introduction and purpose

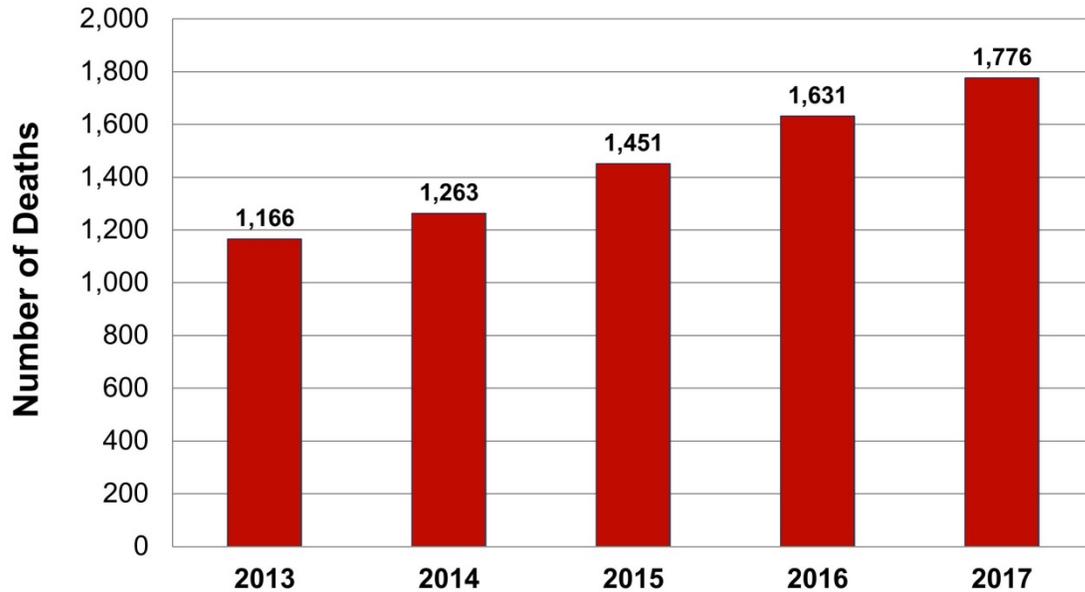
The purpose of this brief report is to describe drug overdose deaths in Tennessee in 2017, with an emphasis on providing useful data to stakeholders of Tennessee Department of Health (TDH) at the regional and county levels. Results presented here derive from vital statistics death certificate data as well as data from Tennessee's prescription drug monitoring program, the Controlled Substance Monitoring Database.

Definitions

- Drug overdose (fatal and nonfatal)
 - A drug overdose is classified medically as a “drug poisoning.” An overdose may be fatal or nonfatal, and in Tennessee in 2016, approximately 11 nonfatal overdoses hospital visits occurred for every identified fatal overdose.
- Underlying cause of death
 - To be classified as a fatal overdose, the underlying cause of death on a death certificate must be designated as a drug poisoning. Thus, while drugs play a part in causing some deaths, only those for which the drug poisoning is designated as the underlying cause of death are designated as overdoses by the Centers for Disease Control and Prevention (CDC). TDH provides a file of death certificate data to CDC and they provide the final classifications and coding for the causes of death. For this reason, it is possible that local medical examiners may consider rates of overdose death to be different than the final, official statistical data.
- Contributing cause of death
 - In addition to the underlying cause of death, a death certificate may include multiple contributing causes of death. Once a death is designated as an overdose, the contributing causes provide data on the types of drugs that were present in the body of the decedent, as identified through a toxicology screen. Of note, contributing causes of death are coded using ICD10 codes so drugs for which a code does not exist would not be identified in this way.
- Literal text on death certificates
 - In addition to the coded data available in the underlying and contributing causes of death columns of the data file, there are text fields available that may provide additional information. For example, no ICD10 code currently exists to specifically identify fentanyl; the analytic team uses text mining to identify cases involving fentanyl within the subset of individuals with an underlying cause of death of drug overdose.
- Controlled Substance Monitoring Database
 - The Controlled Substance Monitoring Database of Tennessee includes data on controlled substances that are *dispensed*. For our analyses, we include only those data on individuals who are residents of the state.

State-level overview 2013 – 2017

Drug Overdose Deaths in Tennessee, 2013-2017

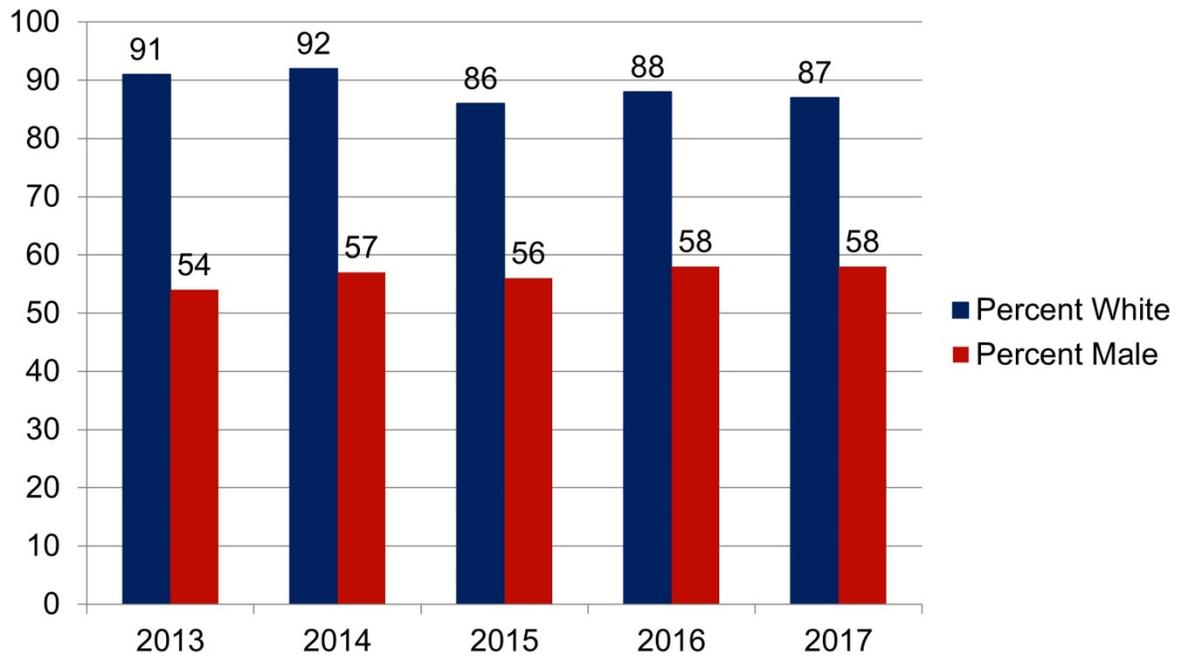


Source: Tennessee Department of Health, Office of Informatics and Analytics



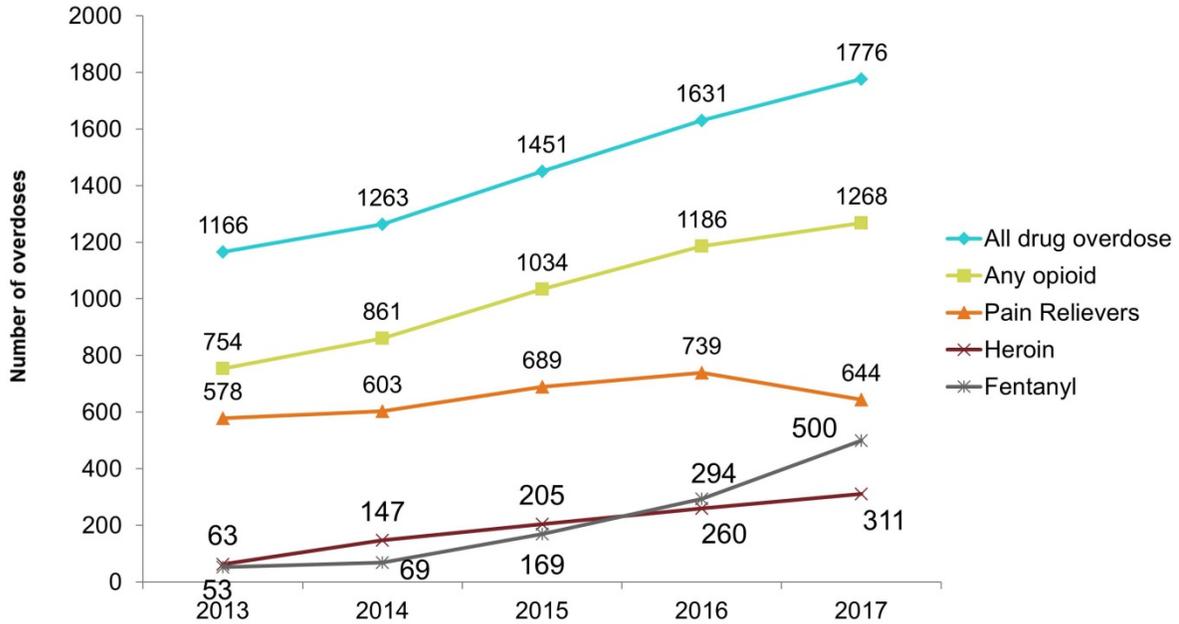
Over the past five years, drug overdose deaths in Tennessee have consistently increased. In 2017, 1,776 Tennesseans died of a drug overdose.

All Drug Overdose Deaths by Race and Sex, 2013-2017



Tennesseans who died of a drug overdose were more likely to be white and to be male.

Number of Overdose Deaths in Tennessee by Drug Type, 2013-2017



Opioids have consistently been common contributing causes among drug overdose deaths in Tennessee. The most substantial increases in recent years, however, have been in fentanyl and heroin presence among deaths. Of note, these are not mutually exclusive drug categories; fentanyl and heroin are included in the category of opioids.

Number of people who died of a drug overdose in Tennessee by contributing substance, 2013-2017 (n= 7,287)

Overdose Death	2013	2014	2015	2016	2017
All Drug	1,166	1,263	1,451	1,631	1,776
Opioid	754	861	1,034	1,186	1,268
Pain Relievers (per CDC Definition, includes methadone)	578	603	689	739	644
Heroin	63	147	205	260	311
Fentanyl	53	69	169	294	500
Methadone	86	71	67	82	69
Benzodiazepine	371	388	492	573	504
Opioid and Benzodiazepine	340	352	447	522	447
Stimulants other than Cocaine	80	73	112	187	319
Cocaine	130	134	203	250	306
Opioids and Stimulants	56	49	65	111	177



Deaths involving cocaine and other stimulants have also increased substantially over the past five years.

Note that the pain reliever category includes natural and semi-synthetic opioids (such as morphine and oxycodone) as well as methadone. It does not include synthetic opioids such as fentanyl which is shown in a separate category.

Controlled Substance Monitoring Database Concordance

Percent who filled any prescription in the Tennessee CSMD within 365 days of death by type of overdose death among all individuals who died by year, 2013-2017 (n=7,287 total)^a

Overdose Death	2013 (n=1,166)	2014 (n=1,263)	2015 (n=1,451)	2016 (n=1,631)	2017 (n=1,776)	Percent Difference ^b
All Drug	78	75	72	66	64	-14
Opioid	81	78	75	67	66	-15
Pain Relievers (per CDC Definition, includes methadone)	82	82	80	73	75	-7
Heroin	63	59	62	57	58	-5
Fentanyl	89	75	67	62	54	-35
Methadone	79	80	70	62	75	-4
Benzodiazepine	83	83	80	72	75	-8
Opioid and Benzodiazepine	84	85	81	72	75	-9

^bDifference between 2017 and 2013



The Controlled Substance Monitoring Database provides insight on the degree to which Tennesseans who die of drug overdoses have received prescriptions for controlled substances. For example, in 2017, 66% of individuals who died of an opioid overdose had filled any prescription noted in the CSMD in the past year, compared to 45% doing so in the past 60 days before death. *Categories of drug deaths are not mutually exclusive.*

Percent who filled any prescription in the Tennessee CSMD within 60 days of death by type of overdose death among all individuals who died by year, 2013-2017 (n=7,287 total)^a

Overdose Death	2013 (n=1,166)	2014 (n=1,263)	2015 (n=1,451)	2016 (n=1,631)	2017 (n=1,776)	Percent Difference^b
All Drug	61	58	54	47	43	-18
Opioid	65	61	58	48	45	-20
Pain Relievers (per CDC Definition, includes methadone)	66	66	65	57	58	-8
Heroin	38	36	39	34	28	-10
Fentanyl	77	62	45	36	30	-47
Methadone	58	61	49	43	55	-3
Benzodiazepine	69	68	68	55	57	-12
Opioid and Benzodiazepine	70	70	70	56	56	-14

^bDifference between 2017 and 2013



The following table tells us what percent of individuals with each type of drug overdose had specifically obtained prescriptions for opioids and benzodiazepines in the past 60 days before death and the change in these prescriptions over time. For example, in 2017, 37% of individuals with an underlying cause of death of drug overdose and a contributing factor of an opioid had filled an opioid prescription in the 60 days before death.

Percent who filled a prescription for an opioid or benzodiazepine in the Tennessee CSMD within 60 days of death by type of overdose death among all individuals who died by year, 2013-2017 (n=7,287 total)^a

Overdose Death	Opioid prescription filled						Benzodiazepine prescription filled					
	2013	2014	2015	2016	2017	Percent Difference ^b	2013	2014	2015	2016	2017	Percent Difference ^b
All Drug	52	48	45	37	34	-18	41	36	34	28	21	-20
Opioid	57	52	48	40	37	-20	43	38	36	28	21	-22
Pain Relievers	59	58	55	49	50	-9	43	43	43	36	30	-13
Heroin	25	28	27	26	22	-3	16	20	20	18	10	-6
Fentanyl	68	51	37	27	23	-45	53	38	24	17	11	-42
Methadone	50	49	30	32	46	-4	33	44	40	29	41	8
Benzodiazepine	58	55	57	43	43	-15	56	52	53	39	38	-18
Opioid and Benzodiazepine	59	59	59	45	44	-15	56	52	54	40	37	-19

^bDifference between 2013 and 2017



2017 County Level Data

The following pages include county data on the number of overdose deaths in 2017 by a subset of drug types.

Please note that the contributing drugs are not mutually exclusive and the counts of subcategories of overdose death will not necessarily sum to total overdose deaths.

Categories of drug overdose are designated by the CDC for the Prevention for States program as follows:

	<u>Criteria</u>
Primary Inclusion/Exclusion Criteria:	Only Tennessee residents. Excludes voided death certificates.
All Drug Overdose Inclusion Criteria:	Deaths that have been coded with any of the following ICD-10 codes as the underlying cause of death: X40-X44: Accidental poisoning by drugs X60-X64: Intentional self-poisoning by drugs X85: Assault by drug poisoning Y10-Y14: Drug poisoning of undetermined intent
Drug Overdose Deaths Involving Opioids Inclusion Criteria:	Must meet criteria for Indicator 1 AND contain at least one of the following ICD-10 codes as a contributing cause of death: T40.0: Poisoning by opium T40.1: Poisoning by heroin T40.2: Poisoning by natural and semisynthetic opioids T40.3: Poisoning by methadone T40.4: Poisoning by synthetic opioids other than methadone T40.6: Poisoning by other and unspecified narcotics
Drug Overdose Deaths Involving Opioid Pain Relievers Inclusion Criteria:	Must meet criteria for Indicator 1 AND contain at least one of the following ICD-10 codes as a contributing cause of death: T40.2: Poisoning by natural and semisynthetic opioids T40.3: Poisoning by methadone
Drug Overdose Deaths Involving Heroin Inclusion Criteria:	Must meet criteria for Indicator 1 AND contain the following ICD-10 code as a contributing cause of death: T40.1: Poisoning by heroin
Drug Overdose Deaths Involving Fentanyl Inclusion Criteria:	Must meet criteria for All Drug Overdose deaths AND contain the following text in the contributing cause of death text fields: 'FENTAN'

2017 Overdose Death Counts by County

	All Drug Overdose Deaths	Drug Overdose Deaths Involving Opioids	Drug Overdose Deaths Involving Opioid Pain Relievers	Drug Overdose Deaths Involving Heroin	Drug Overdose Deaths Involving Fentanyl
Anderson	47	34	22	7	11
Bedford	5	3	3	0	0
Benton	6	5	4	1	1
Bledsoe	3	2	2	0	1
Blount	54	29	14	5	14
Bradley	30	14	9	1	4
Campbell	11	5	2	1	2
Cannon	3	3	2	3	2
Carroll	4	2	1	1	1
Carter	21	16	12	2	0
Cheatham	25	24	15	5	6
Chester	3	1	1	0	0
Claiborne	6	2	2	0	1
Clay	3	2	1	0	0
Cocke	15	6	4	0	0
Coffee	16	12	8	0	4
Crockett	1	0	0	0	0
Cumberland	14	9	7	0	1
Davidson	236	184	78	77	75
Decatur	1	0	0	0	0
DeKalb	8	7	5	1	2
Dickson	9	6	4	3	2
Dyer	4	1	0	0	0
Fayette	6	3	2	0	1
Fentress	4	1	1	0	0
Franklin	7	3	1	1	1
Gibson	9	6	2	4	1
Giles	9	5	4	0	1
Grainger	2	1	0	0	1
Greene	21	17	11	0	5
Grundy	2	1	1	0	0
Hamblen	15	9	4	1	2
Hamilton	85	60	38	7	19
Hancock	3	3	3	0	0
Hardeman	5	4	3	0	0
Hardin	5	2	2	0	0
Hawkins	9	5	4	0	0

2017 Overdose Death Counts by County

	All Drug Overdose Deaths	Drug Overdose Deaths Involving Opioids	Drug Overdose Deaths Involving Opioid Pain Relievers	Drug Overdose Deaths Involving Heroin	Drug Overdose Deaths Involving Fentanyl
Haywood	0	0	0	0	0
Henderson	6	5	4	0	1
Henry	3	2	1	0	1
Hickman	5	3	1	1	1
Houston	2	1	1	0	0
Humphreys	7	4	2	0	1
Jackson	4	2	1	1	0
Jefferson	10	7	5	0	2
Johnson	1	1	1	0	1
Knox	242	196	91	45	110
Lake	1	0	0	0	0
Lauderdale	5	2	0	1	2
Lawrence	11	7	5	2	0
Lewis	6	2	2	0	1
Lincoln	5	4	2	1	1
Loudon	22	18	10	2	6
McMinn	16	6	5	0	0
McNairy	5	3	3	0	0
Macon	3	2	0	1	1
Madison	16	12	5	2	5
Marion	8	2	1	0	0
Marshall	9	6	2	2	0
Maury	16	12	5	6	2
Meigs	5	2	2	0	0
Monroe	10	5	5	0	1
Montgomery	37	22	15	2	5
Moore	2	1	1	0	0
Morgan	3	3	3	0	0
Obion	1	0	0	0	0
Overton	6	5	1	0	0
Perry	1	1	1	0	0
Pickett	1	1	0	0	1
Polk	5	2	2	0	0
Putnam	13	10	7	1	1
Rhea	7	4	3	1	0
Roane	22	16	8	0	5
Robertson	17	15	9	4	4

2017 Overdose Death Counts by County

	All Drug Overdose Deaths	Drug Overdose Deaths Involving Opioids	Drug Overdose Deaths Involving Opioid Pain Relievers	Drug Overdose Deaths Involving Heroin	Drug Overdose Deaths Involving Fentanyl
Rutherford	65	48	18	18	20
Scott	3	2	1	0	0
Sequatchie	4	3	1	0	1
Sevier	32	24	14	5	9
Shelby	207	159	52	59	106
Smith	3	2	1	1	1
Stewart	0	0	0	0	0
Sullivan	42	29	19	5	6
Sumner	40	28	11	10	11
Tipton	15	12	4	2	7
Trousdale	2	2	0	1	0
Unicoi	10	7	4	1	2
Union	8	4	3	1	1
Van Buren	0	0	0	0	0
Warren	4	1	0	0	0
Washington	33	24	15	1	7
Wayne	0	0	0	0	0
Weakley	1	1	0	0	1
White	2	0	0	0	0
Williamson	30	24	11	10	8
Wilson	34	26	13	5	10
Unknown	1	1	1	0	0
Tennessee	1776	1268	644	311	500