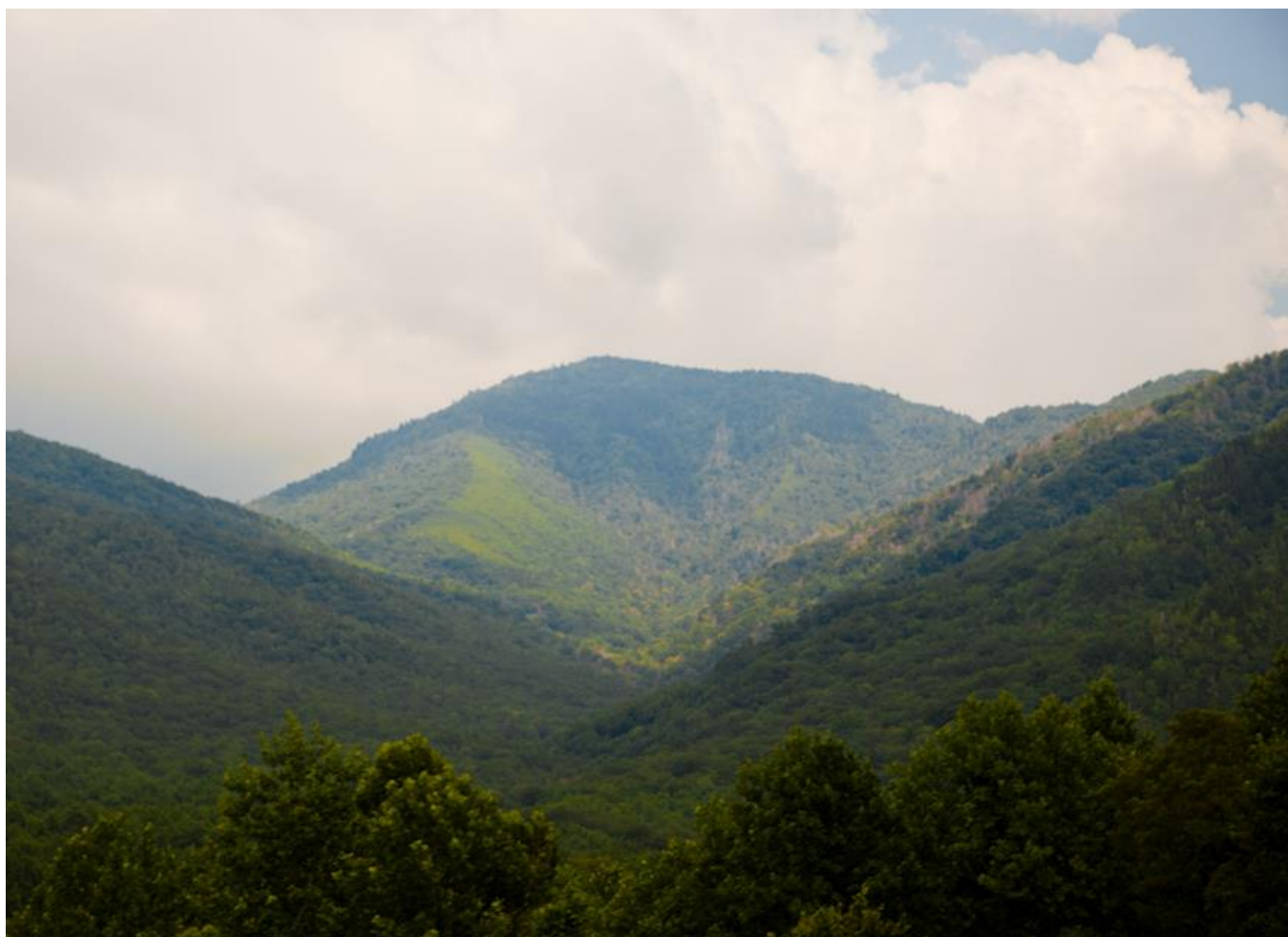


# Controlled Substance Monitoring Database

## 2018 Report to the 110th Tennessee General Assembly



Health Licensure & Regulation  
Controlled Substance Monitoring Database Committee  
March 1, 2018

## Contents

Tennessee Department of Health Key Points Related To the Drug Epidemic .....	3
Key findings for 2017: .....	3
Key Improvements in the CSMD in 2017:.....	3
Tennessee Department of Health Important Lessons and Concerns during 2017: .....	4
Education and Survey Update:.....	4
Trends in Drug Overdose Deaths in Tennessee and the Role of the CSMD .....	5
Moving Upstream to Use Weekly Hospital Data.....	6
Neonatal Abstinence Syndrome Surveillance Update .....	6
The Role of and Presence of Pain Clinics across Tennessee.....	7
Fewer Prescriptions without CSMD Evaluation.....	7
Ratio of Number of Prescriptions to a Request in the CSMD, 2010-2017 .....	8
Number of Registrants of the CSMD, 2010 - 2017 .....	8
MME Improvements and Concerns by Age Group .....	9
Change in MME Dispensed Among TN Patients, 2011 vs. 2017.....	9
Trends Related to Utilization of Benzodiazepines and Stimulants .....	9
Number of Benzodiazepine Prescriptions Dispensed Among TN Patients by Age Group and Reported to the CSMD, 2010-2017 .....	10
Number of Stimulant Prescriptions Dispensed Among TN Patients by Age Group and Reported to the CSMD, 2010-2017 .....	11
Increased Buprenorphine for Opioid Use Disorders.....	12
Number of Buprenorphine Prescriptions for Opioid Use Disorders Dispensed Among TN Patients by Age Group and Reported to the CSMD, 2010-2017 .....	12
Interventions Related to Top 50 Prescribers and Top 10 Prescribers for Small Counties .....	13
MMEs Prescribed by Top 50 Prescribers and Dispensed in 2013 – 2017 .....	13
Decline in Potential Doctor-Pharmacy Shopping .....	13
Potential Doctor and Pharmacy Shoppers Identified in the CSMD, 2010-2017 .....	14
User Satisfaction & Perception of the CSMD .....	14
2017 Prescriber User Survey.....	14
2017 Dispensers User Survey .....	15
Database Performance.....	15
Increased Interstate Data Sharing .....	15
Tennessee 2017 Interstate Data Sharing.....	16

Security Measures .....	16
TDH Provides Significant Educational Outreach .....	17
TDH Grants Update .....	18
TDH Recommends the Following Approaches to the Opioid Epidemic .....	19
Conclusion .....	19
2017 Members of the CSMD Committee.....	21
Appendix .....	22
Number of Prescriptions Reported to TN CSMD, 2010-2017 .....	23
Number of Prescriptions Dispensed among TN Patients and Reported to CSMD by Age Group, 2010-2017 .....	24
Number of Prescriptions Reported to TN CSMD by Class of Controlled Substances, 2010 - 2017.....	25
MME of Opioids Reported to TN CSMD, 2010-2017 .....	26
MME for Long Acting Opioids Reported to the TN CSMD, 2010-2017 .....	27
MME for Short Acting Opioids Reported to the TN CSMD, 2010-2017.....	27
Distribution of the Top 10 Most Frequently Prescribed Controlled Substance Products in the CSMD for 2017 .....	28
2018 Prescriber and Dispenser Survey Results .....	29
Acronyms .....	31

## Tennessee Department of Health Key Points Related To the Drug Epidemic

The 2018 Controlled Substance Monitoring Database (CSMD) report from Tennessee Department of Health (TDH) addresses activities and outcomes related to the substance abuse crisis as it relates to the CSMD. TDH is pleased to provide a concise update on the prescription drug abuse crisis in the state at <https://tn.gov/content/dam/tn/health/healthprofboards/csmd/2018%20Concise%20CSMD%20Annual%20Report.pdf>. The CSMD Committee reports annually on the outcome of the program with respect to its effect on distribution and abuse of controlled substances, along with recommendations for improving control, prevention, and diversion of controlled substances.

Prescription drug monitoring programs, like Tennessee's CSMD, are the cornerstone to state-level interventions to improve opioid prescribing, inform clinical practice, and protect patients at risk. Provision of accurate, timely dispensing information is essential to wise clinical decision making which can provide safe and effective treatment of pain.

### Key findings for 2017:



- MME dispensed has decreased 32% (2012-2017)
- MME dispensed by top 50 prescribers has decreased 39% (2013-2017)
- Pain clinics have been reduced by 48% (2014-2017)
- Number of potential doctor shoppers have decreased 76% (2011-2017)
- Number of all opioid prescriptions have decreased by 14% (2015-2017)
- Patients receiving >120 MME/day decreased by 38% (2012-2015)



- Searches of CSMD have increased 363% and continue to increase (2012-2017)
- Strongest Board actions for prescribing or diversion increased 303% (2013-2017)
- Dispensers reporting within 24h went from 0% to 88% (2013-2017)
- The increase in Neonatal Abstinence Syndrome slowed to 2% (2016-2017)

### Key Improvements in the CSMD in 2017:

- Clinical risk notifications were implemented to provide prescribers with proactive notification of their patients who had a significant change in key risk factors for increased opioid-related mortality.
- Improved time available: the CSMD system was up and functional 99.9% of the year.
- Improved response time in CSMD to less than two seconds if request does not include data from another state.
- The CSMD program in 2017 added Alabama, North Carolina (as of February, 2018), Ohio and Texas and is working with Georgia, Massachusetts, and Oklahoma to establish sharing of data.
- A new indicator has been added to the CSMD patient report which indicates TennCare has identified a patient in the CSMD who is locked into a single pharmacy.

- Tennessee was one of the first states to allow CRNA's without DEA numbers to have direct access to the CSMD
- Specific roles for State Medical Examiner, Deputy State Chief Medical Examiner and County Medical Examiners were created to allow direct access to the CSMD even if they do not have a DEA number.
- A question on patient report was added to allow CSMD users to indicate when patient lookup is due to suspected overdose.

### **Tennessee Department of Health Important Lessons and Concerns during 2017:**

- There was one search of the CSMD for every two prescriptions in TN in 2017, up from one search for every 14 prescriptions in 2010. This is a remarkably high number of searches and, combined with the continuing decrease in MME dispensed, indicates the ongoing effectiveness of providing timely and accurate decision support for prescribing of controlled substances.
- For the first time, less than half of individuals (47%) who died of drug overdose had any controlled substance dispensed within 60 days of death. The increase in overdose deaths due to opioids in 2016 was largely due to illicit fentanyl (74% increase) and heroin (24% increase). This reinforces the need for a three pronged approach of prevention, treatment, and law enforcement in turning the tide of this epidemic.
- The number of patient reports requested increased 22% in 2017 to 8,623,521 compared with 2016.
- After four years of annual review of the top 50 prescribers, MMEs prescribed by this group have declined 39%, a rate of decline that is faster than the overall rate for the rest of the state.
- Benzodiazepines, such as Xanax and Valium, share the deadly side effect of respiratory depression with opioids, and concomitant use is known to be dangerous. The FDA has given their strongest warning to prescribers (a "Black Box Warning") about using opioids and benzodiazepines together. As compared with 2016, in 2017, dispensing of benzodiazepines decreased 8.0% overall. However, for people dying of opioid-related overdose death, benzodiazepines were present in 44%, highlighting the urgent need to avoid concomitant use of opioids and benzodiazepines.
- The number of prescriptions for stimulants continued to increase, growing by 50% from 2010 to 2017. This trend has been seen in previous epidemics of opioid abuse and highlights the urgent need for timely treatment of opioid use disorder.
- There has been a 236% increase in the number of prescriptions for buprenorphine between 2010 to 2017 for opioid use disorders dispensed to Tennessee patients. Since buprenorphine is helpful in stabilizing patients through medication assisted therapy, in conjunction with other support services, this trend is encouraging. However, buprenorphine has increasingly been present in patients dying of opioid overdose (4.1% in 2016) in Tennessee.

### **Education and Survey Update:**

- Educational programs by TDH staff reached approximately 3,000 attendees state wide. Education included information on regulatory changes, best practices for prescribing,

dispensing, review of the Chronic Pain Guidelines and requirements related to pain clinics and pain specialists.

- The 2017 Prescriber Satisfaction Survey showed 87% of respondents report that the CSMD is useful for decreasing doctor shopping; and 48% report they are less likely to prescribe controlled substances after checking the CSMD.
- The 2017 Dispenser Satisfaction Survey showed 90% of respondents report that the CSMD is useful for decreasing doctor shopping; and 84% report that they are less likely to fill a prescription as written after checking the CSMD.

### **Trends in Drug Overdose Deaths in Tennessee and the Role of the CSMD**

In the past year, there has been continuing progress in key CSMD-related indicators. The proportion of individuals receiving high MME prescriptions (above 120 MME daily) continues to decrease, and potential doctor shopping also continues to decrease. The TDH has built a tool to increase the efficiency and effectiveness of its review of clinician data to ensure focused investigations of clinicians and their charts.

The TDH uses methodology established by the CDC to understand and describe drug overdose deaths in our state (CDC, 2016).<sup>1</sup> Data from Vital Statistics indicates from 2015 to 2016, drug overdose deaths in Tennessee rose by 12%, increasing from 1451 to 1631, despite improvement in a number of measures of good medical practice, including reductions in the amount of opioids prescribed and dispensed, fewer doctor shoppers, and increased utilization of the CSMD. Although the proportion of drug deaths associated with opioids was approximately the same in 2016 (72%), this number includes illicit drugs. The proportion of deaths categorized by the CDC as associated with opioid pain relievers decreased from 48% to 45%. Deaths associated with benzodiazepines increased 16% from 492 to 573. Deaths that included a combination of benzodiazepine and opioid increased 17% from 447 to 522. Just under half (44%) of opioid associated deaths also included a benzodiazepine.

Under half (47%) of individuals who died of drug overdose had a controlled substance dispensed within 60 days of death, a decrease from 56% in 2015. This continues to suggest that other factors are playing a significant role in overdose deaths, including illicit fentanyl, heroin, and diverted prescription opioids.

Once again, the number of deaths in which fentanyl was involved increased 74%, from 169 to 294, and now account for 18% of drug overdose deaths. Heroin deaths increased 26 percent, from 205 to 260. Methadone deaths increased 22 percent, from 67 to 82 and buprenorphine associated deaths increased from 34 percent, from 50 to 67. Of the 67 deaths that included buprenorphine, 41 (61.2%) also had a benzodiazepine involved, and 10 (14.9%) had fentanyl involved.

The TDH continues to improve how the CSMD is used in stopping the epidemic and is combining data

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<sup>1</sup> Rudd RA, Seth P, David F, Scholl L. Increases in Drug and Opioid-Involved Overdose Deaths — United States, 2010–2015. *MMWR Morb Mortal Wkly Rep* 2016;65:1445–1452. DOI: <http://dx.doi.org/10.15585/mmwr.mm65051e1>



from the CSMD with other patient data to identify key markers for increased risk. Epidemiologists at the TDH continue to map the natural history of addiction from prescription phase to what appears to be the danger zone, when individuals may move into the illicit market and are at higher risk for overdose and death. Policy and programs can be targeted more specifically to intervene early, when recovery is easier and more likely to be successful. In addition, the Office of Informatics and Analytics is developing a data driven method of identifying prescribers who may be engaging in high risk prescribing or who have high risk patient populations.

The TDH is working closely with a number of other departments, including the Tennessee Department of Mental Health and Substance Abuse Services (TDMHSAS) and the Tennessee Bureau of Investigation (TBI), to respond to the epidemic. This includes analyzing and providing county-level data to stakeholders on the ground, including drug coalitions, using data TDH epidemiologists are rapidly accumulating and analyzing and updating state-specific guidelines for use of controlled substances in pain management. In summary, the TDH is fighting an evolving epidemic that is invoking unprecedented collaboration among agencies and community partners. The CSMD is proving a key component to the TDH's response, by providing critical data when and where needed.

### **Moving Upstream to Use Weekly Hospital Data**

In 2016, for every drug overdose death, more than 15 nonfatal overdoses were identified in state hospital discharge data having been treated in the emergency department or hospital. The proportion of these hospital visits due to opioids has steadily increased, with a particularly substantial increase in heroin related nonfatal overdoses continuing to be seen in 2016.

These overdoses are treated in emergency departments and hospitals, but information about those overdoses currently are not available to clinicians outside the hospital or to the CSMD. In 2016, Public Chapter 959 provided the Commissioner with the opportunity to require healthcare facilities to provide the TDH with near real-time data on nonfatal drug overdoses. Such a data collection system was implemented in 2017, with a pilot project involving 11 hospitals. The system is now in its active stage, with the expectation that all hospitals across the State will be on-boarded in the spring of 2018, ideally by the end of March. At this time, 13 hospitals are sending weekly data extracts, 31 are submitting test files and an additional 49 are registered and beginning the onboarding process. On average, a hospital moves from test to production in approximately three weeks. As this program expands statewide, these data will be used in developing risk indicators to provide clinicians with the important information that their patients may be headed for serious risk of negative outcomes, including fatal overdose.

### **Neonatal Abstinence Syndrome Surveillance Update**

Since surveillance of Neonatal Abstinence Syndrome (NAS) began in 2013, there has been a slight non-statistically significant increase in the case rate from 11.7 cases per 1,000 live births in 2013 to 13.3 in 2017 (provisional data). In 2017, 1,081 cases were reported, of which 70.0% were exposed to medication assisted treatment (MAT) and 75.2% were exposed to at least one legally prescribed medication, either alone or in conjunction with diverted or illicit substances. The highest rates of NAS were observed in East, Northeast health regions and Sullivan County.

## **The Role of and Presence of Pain Clinics across Tennessee**

The number of pain clinics declined to 172 in 2017 which represents a 48% decrease from the peak number of 333 in 2014. One of the goals of the TDH has been to increase access to quality pain management. As of July 1, 2016, TCA § 63-1-306 requires that pain management specialists be the medical directors of pain clinics. Medical directors who are pain specialists based on training as defined by statute should provide consistency in the quality of care for the citizens of Tennessee.

The certification system changed to a licensure system on July 1, 2017, TCA § 63-1-316 requiring more intensive reporting and inspection. Prior to licensure the clinics are inspected and patient charts are reviewed and must meet minimum standards of care to pass inspection.

After a public hearing on July 24, 2017, the pain management clinic rules were adopted and posted on November 26, 2017 <http://publications.tnsosfiles.com/rules/1200/1200-34/1200-34-01.20171126.pdf>.

Pain Clinic Practice Guidelines have been developed and were published in January of 2017 with help from pain medicine specialists and other groups. The guidelines are available at: [https://www.tn.gov/content/dam/tn/health/documents/Pain\\_Clinic\\_Guidelines.pdf](https://www.tn.gov/content/dam/tn/health/documents/Pain_Clinic_Guidelines.pdf).

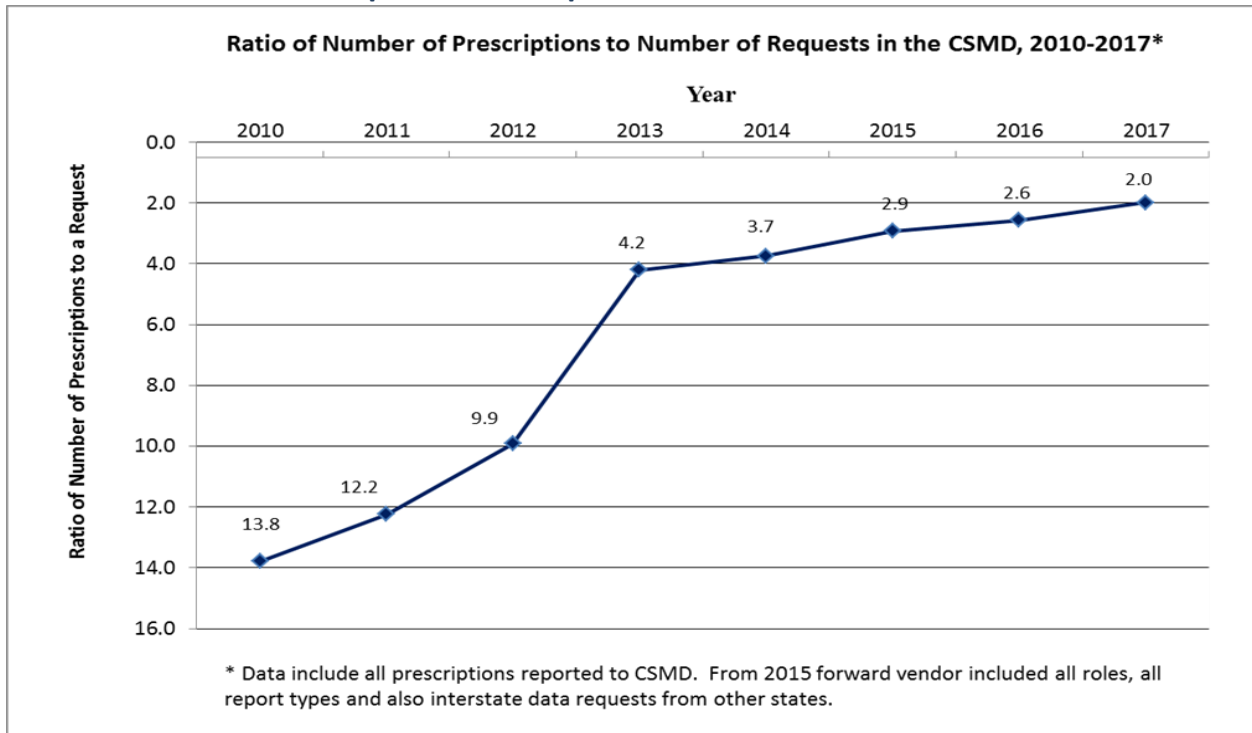
Additionally, version 2 of the Chronic Pain Guidelines was completed by the Chronic Pain Guidelines Expert Panel in 2016 and posted in January 2017. The guidelines and those who gave of their time and expertise to make the guidelines a reality are available at: <https://www.tn.gov/content/dam/tn/health/documents/ChronicPainGuidelines.pdf>.

## **Fewer Prescriptions without CSMD Evaluation**

The Prescription Safety Act (PSA) of 2012 facilitated a substantial increase in utilization of the CSMD and the PSA of 2016 again expanded the requirement for when healthcare practitioners are to check the CSMD. Year after year the CSMD continues to have significant increases in the number of registrants. By the end of 2017 the number of registrants had grown to 47,294. This slight increase was not as much as seen in previous years due to the CSMD efforts to inactivate unused accounts to minimize security risk and better prepare the program for a planned upgrade. Prior to the PSA of 2012 and 2016, Tennessee had 14 prescriptions reported for every CSMD patient request and now there are approximately 2 prescriptions reported for each request. The number of patient reports requested increased 22% in 2017 to 8,623,521 compared with 2016.



**Ratio of Number of Prescriptions to a Request in the CSMD, 2010-2017**



**Number of Registrants of the CSMD, 2010 - 2017**

Number of Registrants of the CSMD, 2010 - 2017*		
Year	Registrants	Change (%)
2010	13,182	-
2011	15,323	16.2
2012	22,192	44.8
2013	34,802	56.8
2014	38,871	11.7
2015	42,835	10.2
2016	46,576	8.7
2017	47,294	1.5

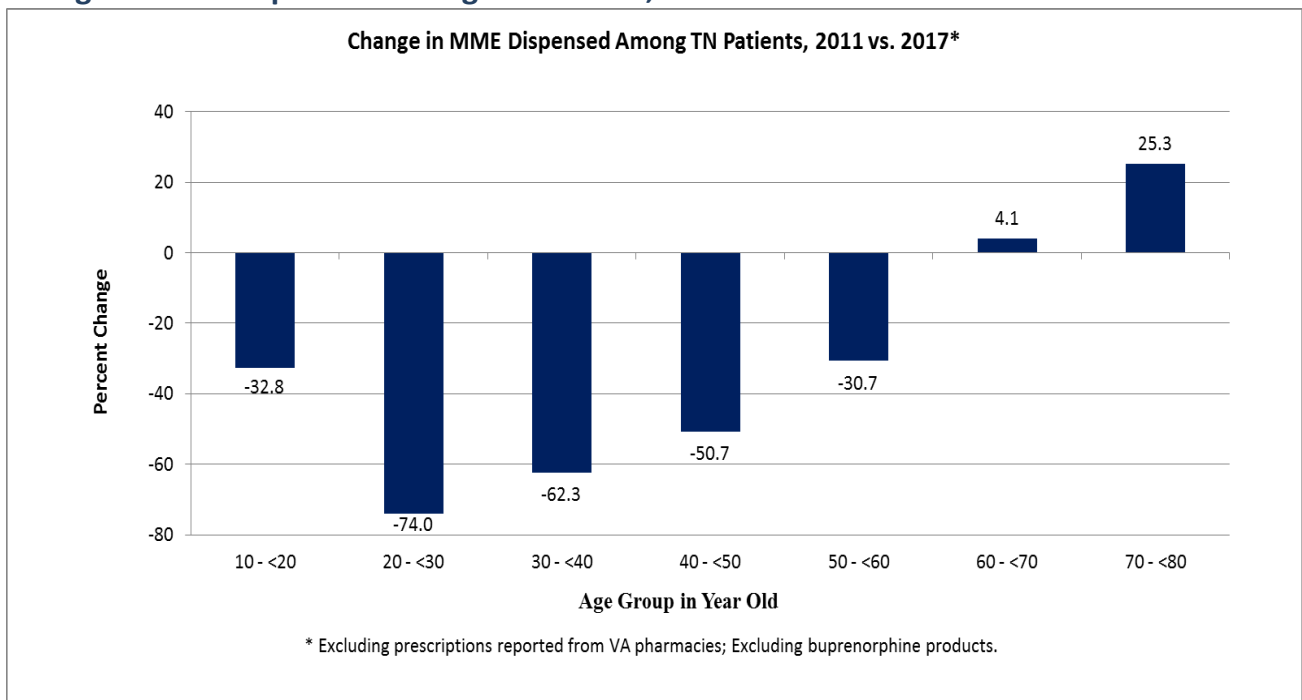
\*VA registrants were included 2013 and forward as they were allowed to register.

Law enforcement requests to the CSMD continue to be a critical use of the CSMD as TDH works together to address questionable controlled substance use in Tennessee. Of the 8,623,521 requests 1,390 were from law enforcement officers. Effective July 1, 2011, law enforcement officers were granted access to the CSMD. That access was further expanded through the PSA of 2016. During 2016, the TDH received a federal grant that will allow enhancement of the CSMD to provide law enforcement and drug courts improved access to the CSMD that will occur once the CSMD migrates to a new application.

### MME Improvements and Concerns by Age Group

For 2017, the CSMD program provided a more detailed analysis of the MME for trends by age group for Tennessee patients. Encouragingly, there was a decline in MMEs dispensed for the 20 to 59 age ranges compared to 2011 data. These improvements for the younger age groups are an indicator that the TDH’s efforts are preventing a new generation from being overexposed to opioids by the healthcare system. In the age groups over 60 the upward trending MME is slowing. In 2017, MME increased 4.1% compared to 2011 in the 60–69 age group. This is an improvement over 2016 when MME increased 12.8% compared to 2011 for the same age group. Another observation was in the 70-79 age group in 2017 the MME increased 25.3% compared to 2011. An improvement was also observed over 2016 when MME increased 28.3%.

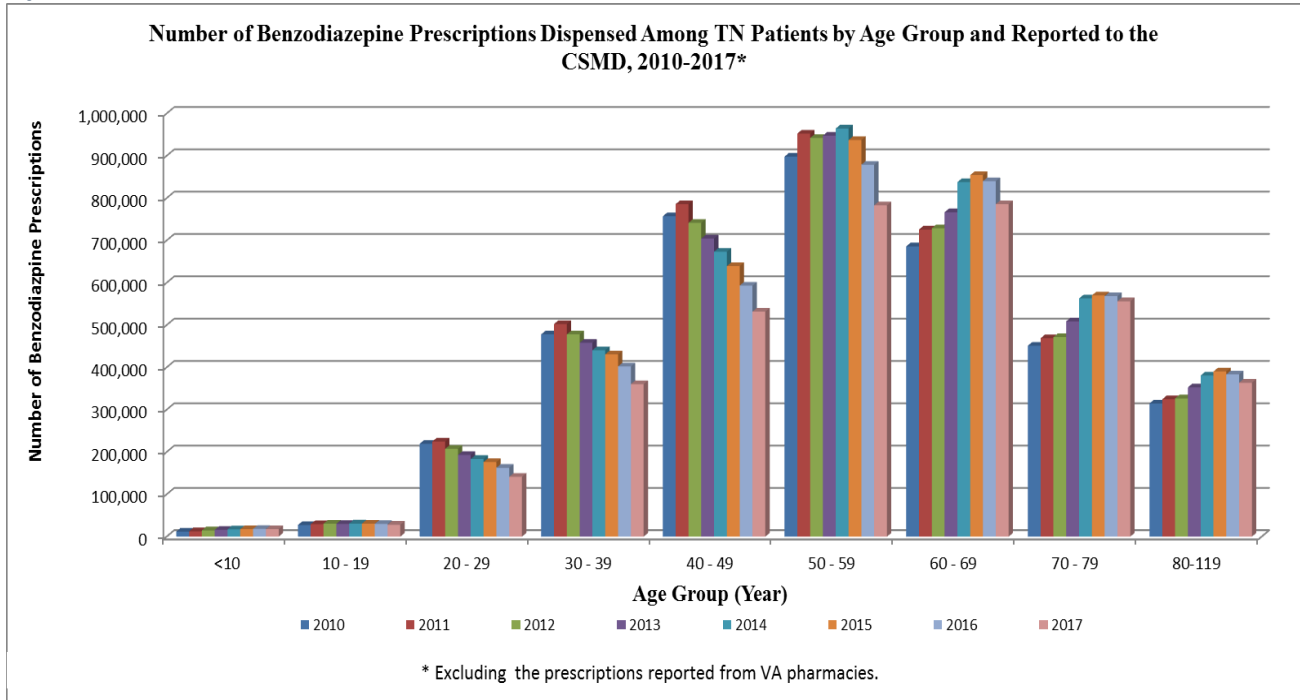
### Change in MME Dispensed Among TN Patients, 2011 vs. 2017



### Trends Related to Utilization of Benzodiazepines and Stimulants

Benzodiazepines, such as Xanax and Valium, showed an 8.0% decrease in prescriptions from 2016 to 2017. This class has seen a notable decline in prescribing and dispensing for people between the ages of 20 and 59.

**Number of Benzodiazepine Prescriptions Dispensed Among TN Patients by Age Group and Reported to the CSMD, 2010-2017**

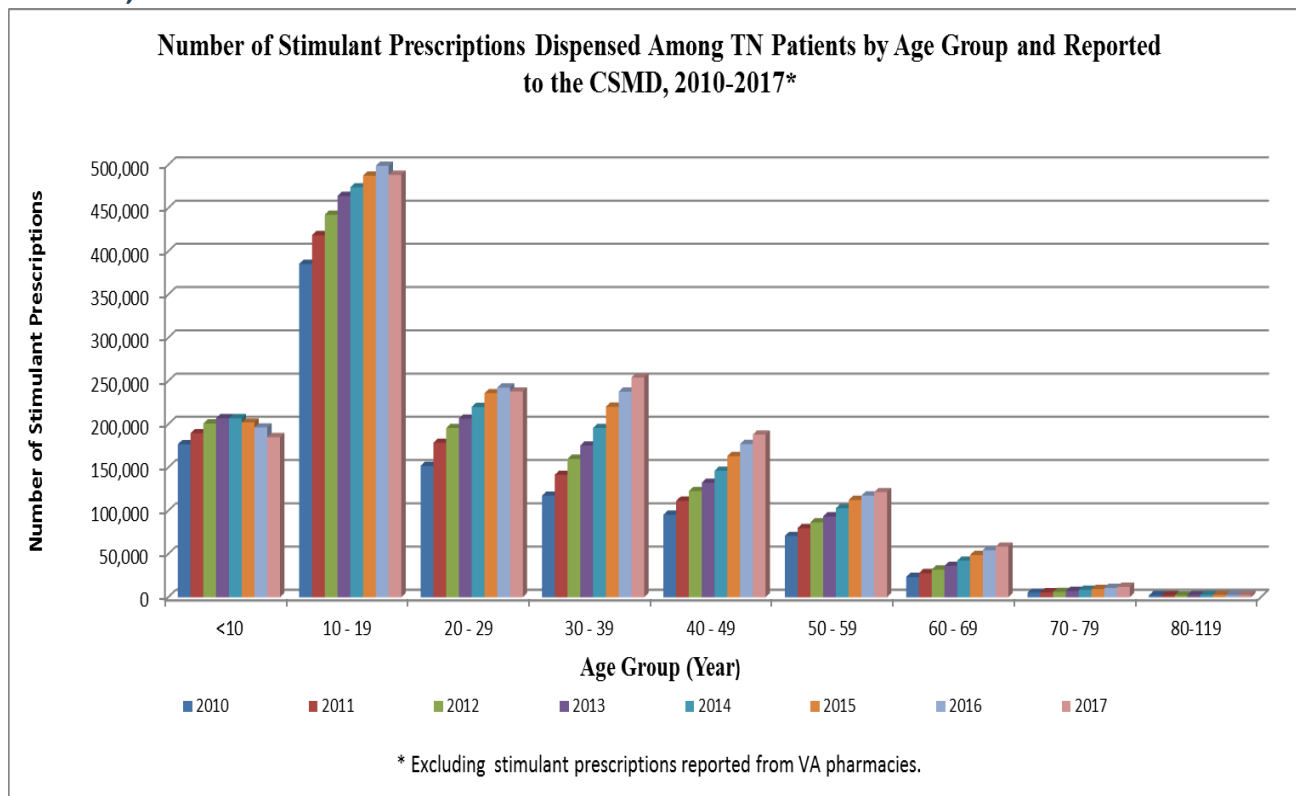


<b>Number of Benzodiazepine Prescriptions Dispensed Among TN Patients and Reported to the CSMD by Age Group, 2010-2017*</b>								
Age Group (year)	2010	2011	2012	2013	2014	2015	2016	2017
<10	11,945	12,642	14,722	15,916	17,289	17,728	18,222	17,702
10 - 19	27,418	29,658	30,588	30,239	30,969	30,756	30,153	28,243
20 - 29	219,273	224,892	207,374	193,152	183,579	176,202	162,723	141,303
30 - 39	477,994	502,452	477,944	458,036	440,626	430,854	402,183	360,376
40 - 49	757,239	785,750	741,601	704,311	673,380	639,313	593,237	531,743
50 - 59	898,004	952,574	942,038	947,723	964,464	937,257	878,903	782,820
60 - 69	685,919	725,684	728,794	766,606	837,814	854,331	840,140	785,785
70 - 79	451,257	468,781	471,609	508,760	562,871	569,886	568,314	556,320
80-119	314,729	324,678	326,717	352,816	380,853	390,395	383,314	363,815
Unknown	2	6	7	2	2	7	0	6

\* Excluding benzodiazepine prescriptions reported from VA pharmacies.

The number of prescriptions for stimulants has continued to increase, growing by 50% for patients in Tennessee from 2010 to 2017.

### Number of Stimulant Prescriptions Dispensed Among TN Patients by Age Group and Reported to the CSMD, 2010-2017



### Number of Stimulant Prescriptions Dispensed Among TN Patients and Reported to the CSMD, 2010-2017\*

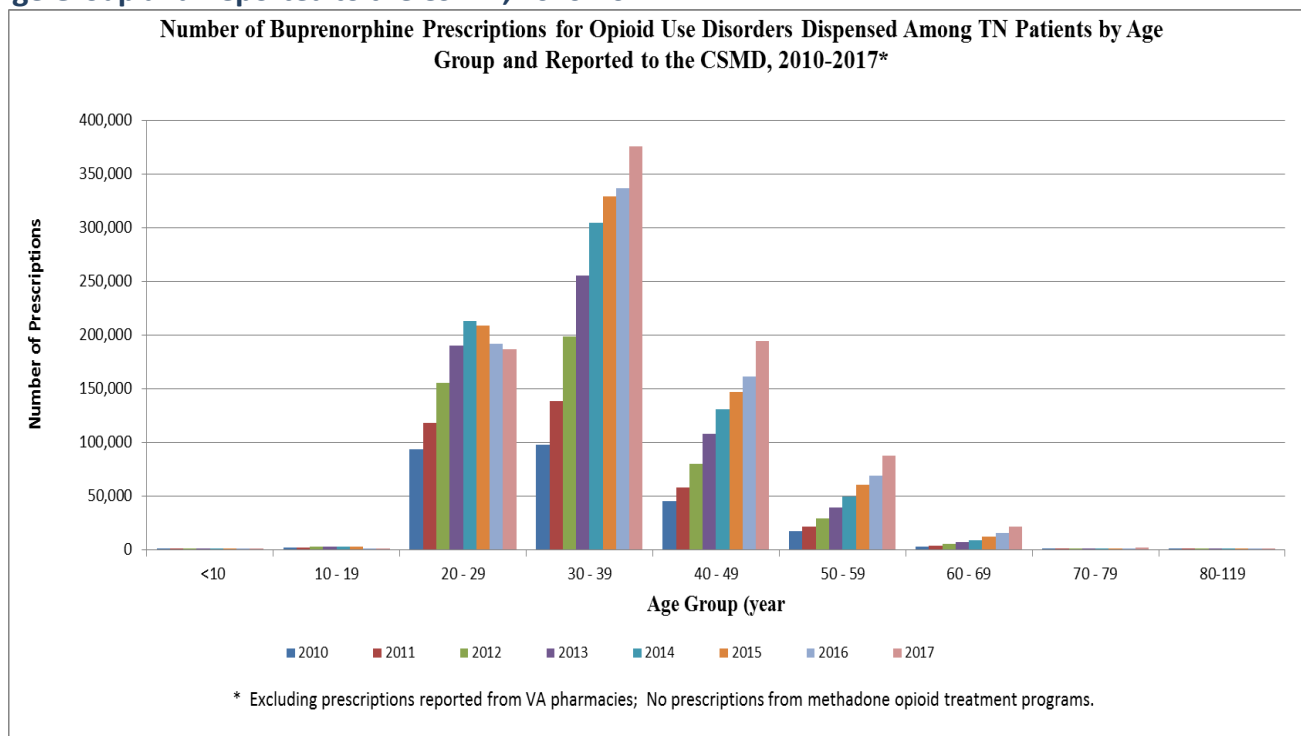
Age Group (year)	2010	2011	2012	2013	2014	2015	2016	2017
<10	176,825	189,708	200,863	207,017	207,003	202,075	196,281	185,017
10 - 19	385,488	418,610	442,321	464,013	473,973	487,541	498,950	488,413
20 - 29	151,844	178,553	195,633	206,472	220,028	235,900	242,424	237,867
30 - 39	117,353	141,529	160,022	175,434	195,712	220,224	237,693	253,979
40 - 49	95,338	111,529	122,807	132,257	146,213	163,150	177,136	188,024
50 - 59	70,841	79,906	86,549	93,459	102,871	112,459	117,536	121,494
60 - 69	23,463	27,873	32,006	36,295	42,258	48,863	54,455	58,490
70 - 79	5,133	5,766	6,132	7,221	8,504	9,515	10,741	11,991
80-119	2,126	2,255	1,995	2,376	2,612	2,654	2,535	2,354
Unknown	0	1	0	0	6	4	0	0

\* Excluding stimulant prescriptions reported from VA pharmacies.

## Increased Buprenorphine for Opioid Use Disorders

There has been a 236% increase in the number of prescriptions comparing 2010 and 2017 of buprenorphine for opioid use disorders dispensed among Tennessee patients. In order to provide a perspective of age break down for Tennessee population see the graph below. This may indicate that many patients have been successful in getting treatment for opioid use disorder but it should be noted that these drugs can be associated with overdoses and NAS.

### Number of Buprenorphine Prescriptions for Opioid Use Disorders Dispensed Among TN Patients by Age Group and Reported to the CSMD, 2010-2017



### Number of Buprenorphine Prescriptions for Opioid Use Disorders Dispensed Among TN Patients and Reported to the CSMD by Age Group, 2010-2017\*

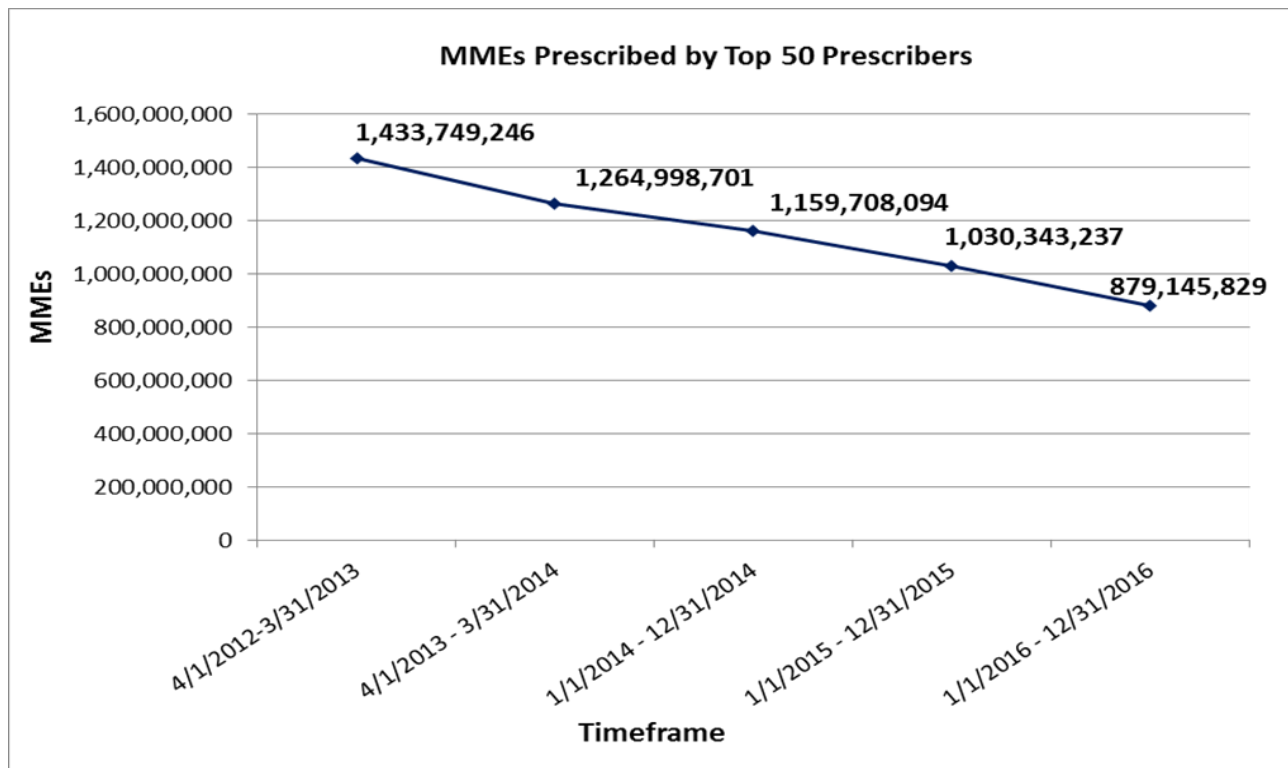
Age Group	2010	2011	2012	2013	2014	2015	2016	2017
<10	106	149	427	438	727	1,469	1,565	1,356
10 - 19	1,860	2,158	3,145	3,080	3,054	2,586	1,585	1,311
20 - 29	93,581	118,284	155,265	190,312	212,562	208,775	192,192	186,885
30 - 39	97,939	138,449	198,927	255,011	304,316	328,803	337,076	375,231
40 - 49	45,288	58,267	79,666	108,027	130,873	147,026	161,570	194,270
50 - 59	17,194	21,834	29,503	39,740	49,269	60,380	68,832	87,468
60 - 69	2,902	3,861	5,024	6,733	9,192	12,103	15,381	21,769
70 - 79	190	329	423	776	1,061	1,177	1,595	2,298
80-119	45	69	71	49	52	64	65	316
Unknown	0	0	23	4	2	1	0	0

\* Excluding prescriptions reported from VA pharmacies; No prescriptions from methadone opioid treatment programs.

### Interventions Related to Top 50 Prescribers and Top 10 Prescribers for Small Counties

TCA 68-1-128 (passed during 2015) required the TDH to continue to identify the top 50 prescribers in Tennessee and added a new requirement for the TDH to identify the top 10 prescribers from all of the combined counties having populations of fewer than 50,000 residents to the top prescriber annual identification process. After four years of experience with the top 50 prescriber analysis, the MMEs prescribed by this group have declined 39% since the first analysis perform on data from 04/01/2012 – 03/31/2013 as noted in the line graph below.

#### MMEs Prescribed by Top 50 Prescribers and Dispensed in 2013 – 2017

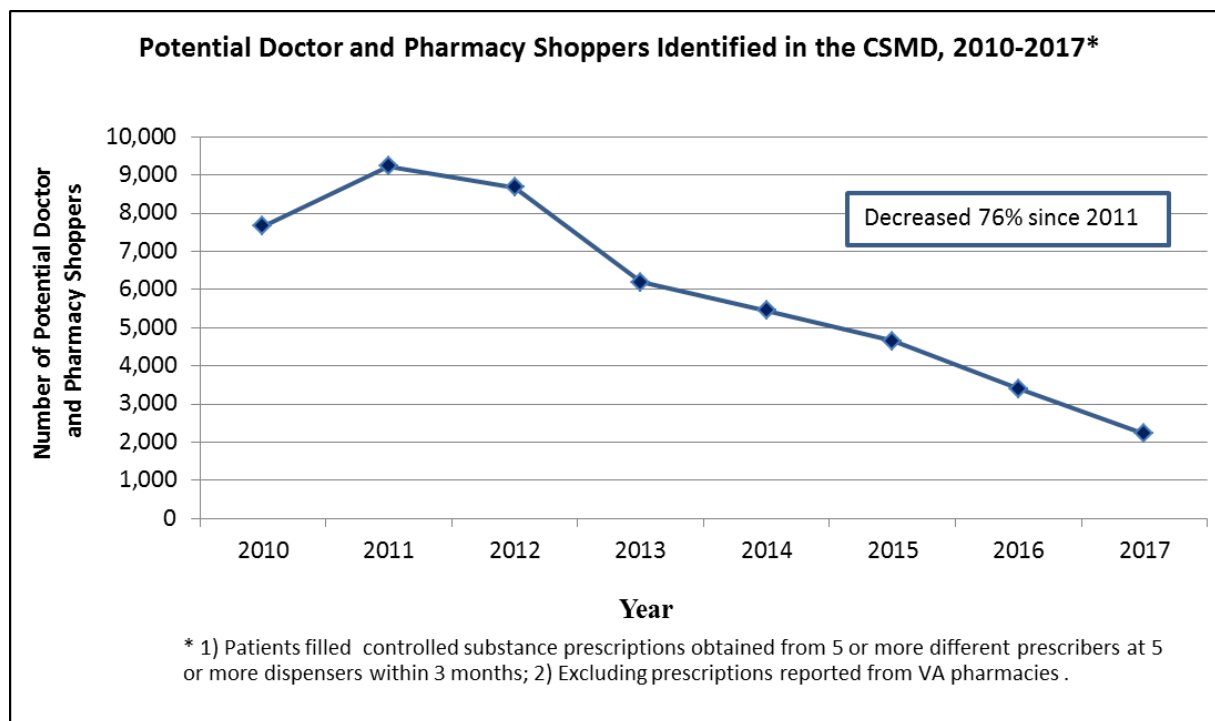


#### Decline in Potential Doctor-Pharmacy Shopping

The TDH defines a potential doctor and pharmacy shopper as an individual visiting five or more prescribers and five or more dispensers in a 3 month period, referred to as 5-5-3 criteria. Within Tennessee, there has been a 76% decrease of potential doctor and pharmacy shopping patients from 2011 to 2017.



## Potential Doctor and Pharmacy Shoppers Identified in the CSMD, 2010-2017



## User Satisfaction & Perception of the CSMD

Prescribers and Dispensers were provided the opportunity to communicate their satisfaction and perception of the CSMD through a survey. The 2017 survey was the fourth for prescribers and the third for dispensers. Highlights of the 2017 survey are listed below.

### 2017 Prescriber User Survey

As a measure of satisfaction with improvements to the CSMD, a survey of prescribers was conducted in 2017 with greater than 2,800 prescribers responding:

- 63% use the CSMD at least monthly;
- 65% of responders have changed a treatment plan after viewing a CSMD report;
- 66% report discussing the CSMD report with their patients;
- 20% of responders are more likely to refer a patient for substance use disorder treatment;
- 87% of respondents report that the CSMD is useful for decreasing doctor shopping;
- 48% report that they are less likely to prescribe controlled substances after checking the CSMD;
- 60% of respondents received a Clinical Notification and of those 71% felt information useful;
  - Increase awareness (respondents could choose more than one):
    - 89% more aware of patients going to multiple prescriber;
    - 57% more aware of patients going to multiple dispensers;
    - 66% more aware of patients receiving highest dose of opioids.

### **2017 Dispensers User Survey**

A survey of dispensers was conducted in 2017 with approximately 1,000 responding:

- 84% use the CSMD at least monthly;
- 69% of responders communicate with the prescriber after viewing a CSMD report;
- 69% report discussing the CSMD report with their patients;
- 59% of responders are more likely to communicate with the prescriber regarding a patient with potential for referral to substance abuse treatment;
- 90% of respondents report that the CSMD is useful for decreasing doctor shopping;
- 79% report that they are less likely to fill a prescription as written after checking the CSMD.

See appendix for additional information on the surveys

### **Database Performance**

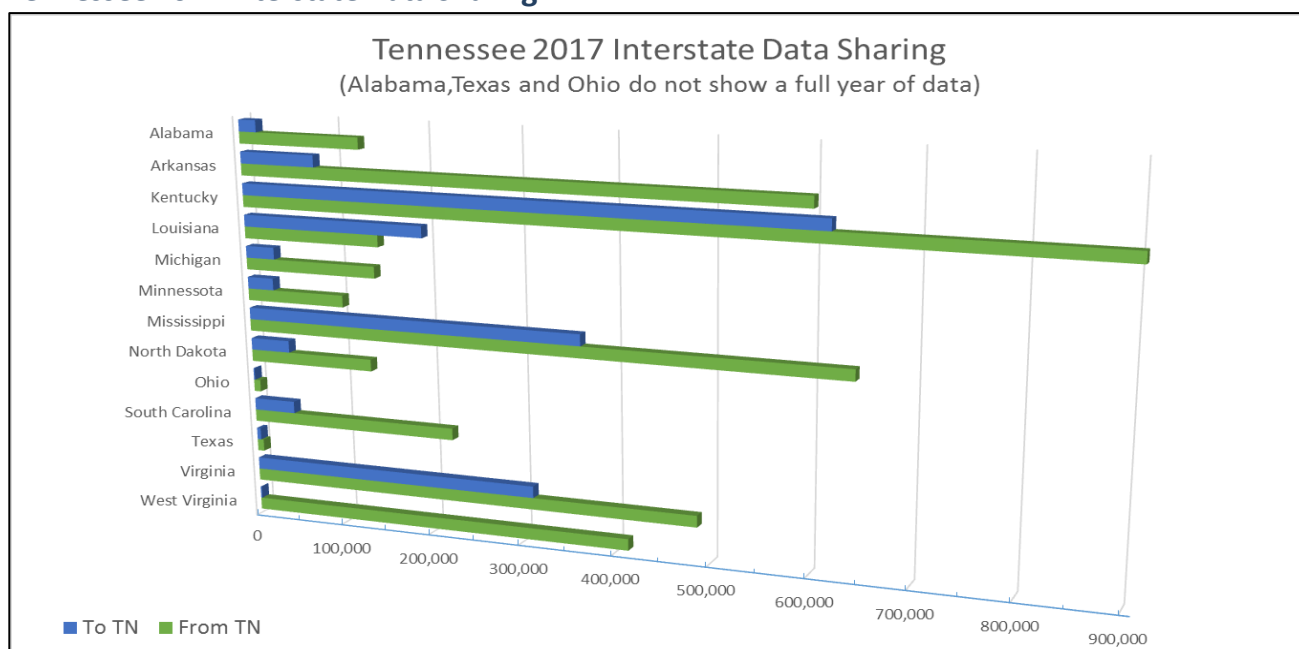
In 2017, the system was up and functional 99.9% of the year. Due to the CSMD team working with the vendor the system stabilized in 2017. The CSMD responds in less than two seconds when a patient request is initiated that does not include data from another state.

The supported browsers that provide the best performance of the CSMD include Internet Explorer 8 or above, Safari, Chrome, and Firefox. At this time Edge is incompatible with CSMD. Language has been added to the login page of the CSMD to make users aware of which browsers are compatible with the CSMD.

### **Increased Interstate Data Sharing**

The PSAs of 2012 and 2016 permit data sharing with other states. One of the areas of focus for 2017 was to enhance the sharing of prescription data with other authorized states. The CSMD program shared data with Kentucky, Virginia, South Carolina, Mississippi, Arkansas, North Dakota, Louisiana, West Virginia, Minnesota, and Michigan practitioners to give them a more complete picture of patients' controlled substance prescription history. The CSMD program in 2017 added Alabama, North Carolina (as of February, 2018), Ohio and Texas and has been in communication with Georgia, Massachusetts, and Oklahoma to share data. Each state has unique regulations and requirements that need to be addressed to share data.

## Tennessee 2017 Interstate Data Sharing



## Security Measures

In order to ensure that only those individuals and entities authorized pursuant to the PSA of 2016 have access to the information contained in the database, the CSMD employs the following security measures:

- All authorized entities and individuals that have been granted access to the database pursuant to TENN. CODE ANN. § 53-10-306(a)(1-7) are allowed to enter the database through a registration process where identifying credentials are validated before the creation of a unique user name and password are generated. For healthcare practitioner delegates an additional approval from their supervising healthcare practitioner is required.
- Before the Office of Inspector General, the Medicaid Fraud Control Unit, and TennCare personnel are able to access the database, the individuals requesting access must submit a written request approved by his or her supervisor. The CSMD administrative staff verifies the requester's employment and only then are they supplied with unique individual user names and passwords.
- The CSMD staff has oversight of the data accessed, updated or viewed by a specific user through the creation of an audit trail for each user. This audit trail tracks each piece of data accessed or updated by end users.
- Requests by law enforcement personnel for information sent to, contained in, and reported from the database pursuant to TENN. CODE ANN. § 53-10-306(a)(8) must submit a written request with a case number corresponding to a criminal investigation. Before releasing any information, the Board of Pharmacy/CSMD staff verifies that the law enforcement personnel are on the approved list submitted by the TBI director or the district attorney general in the judicial district in which the law enforcement agency or judicial district drug task force has jurisdiction.

- Requests for access by persons other than those individuals outlined in TENN. CODE ANN. § 53- 10-306(a)(1-7) and (9) were reviewed by Board of Pharmacy staff and Legal Counsel to determine if the person requesting access could be granted access pursuant to applicable laws and rules. Legal staff also reviewed all subpoenas and court orders to ensure compliance with the law before releasing any information.
- In 2016, the Department expanded its internal access systems as part of the creation of the Health Enterprise Warehouse (“HEW”), which works to more efficiently provide usable data access to a limited number of authorized users. As part of this project the TDH implemented the use of a SAS tool for its investigations and general counsel staff, on an as needed access. The security and access related to these projects is handled by a variety of actors including Strategic Technology Solutions (STS) staff, TDH Information Technology Services Division (ITSD) staff, the Office of General Counsel (OGC) and the Informatics Staff in conjunction with oversight from the CSMD program.
- The Health Enterprise Warehouse (“HEW”) and SAS Analytical servers and data storage including CSMD data reside in the State Data Center, are behind the State network firewalls preventing outside access without the proper approved connection through a Virtual Private Network. All data on these servers is encrypted.
- Currently only administrators and a select group of individuals have access to the CSMD data associated with the Health Enterprise Warehouse (HEW) and SAS Analytical servers. Users of these tools have to receive permission from Dr. Melissa McPheeters, Director, Office of Informatics and Analytics Tennessee Department of Health; and Dr. David Bess, Director of Tennessee Controlled Substances Monitoring Database Program Department of Health in order to access CSMD data from the HEW or SAS environments. As the HEW grows, fewer users will have direct access and instead will be able to request and receive specific datasets.
- The data stored in the CSMD reporting database is maintained in an encrypted format both during transmission and while at rest. During 2016, this information was moved to a new data center operated by Amazon Web Services. This data center maintains the highest level of data security. Additionally, the data center does not have access to the encryption key utilized by the CSMD program and thus is unable to unencrypt any of the stored data.

### **TDH Provides Significant Educational Outreach**

Over 50 presentations were made live across the state to approximately 3,000 attendees to educate on regulatory changes related to the best practices of controlled substance prescribing, dispensing, and monitoring as well as the Chronic Pain Guidelines and requirements related to pain clinics and pain specialists. The audiences consisted of consumers, health care providers, law enforcement officers, drug enforcement officials, and attorneys.

Ten of these events were accredited courses complying with the education requirement in TCA § 63-1- 402 and provided in partnership with East Tennessee State University (ETSU) and Vanderbilt University. Programming included live audiences, live streaming, and archived efforts to reach all health care providers. The streaming and archived programs reached additional health care providers.

Each of these educational opportunities allowed health care providers to earn Continuing Medical Education (CME) or other Continuing Education (CE) credits. We had 2,136 healthcare providers to successfully complete the online course through Vanderbilt in 2017.

## TDH Grants Update

**CDC Grant** – In September 2015, TDH was awarded a grant of \$3.4 million from the Centers for Disease Control and Prevention (CDC) to assist with funding epidemiologic studies pertaining to the nation’s prescription drug overdose (PDO) epidemic. Funding for this initiative, “PDO: Prevention for States” (PFS), was awarded to sixteen states. The grant expanded upon the work already under way through the “PDO: Boost” grant. In 2016, the TDH was awarded additional, supplemental funding to expand use of data and allow for better, complex linkages across data sources. In 2017, TDH was awarded an additional supplement to coordinate regional planning summits for opioid response, and to support public education about the risks associated with opioids. The purpose of the PFS grant is to provide state health departments with additional resources and support needed to advance interventions for preventing prescription drug overdoses within their own jurisdictions.

- Overall, the funding supports part of the Director of Informatics and Analytics salary, a statistical research specialist, seven epidemiologists and costs for building, maintaining and conducting analysis in the TDH Health Enterprise Warehouse. It is this work that is allowing the team to generate learning using combined data about prescriptions, hospital based care for overdoses, births and deaths and other important data subsets, such as Worker’s Compensation data.
- Included in the grant work are a number of key areas of activity:
  - **Enhancing and Maximizing CSMD**  
Using data to better understand the behavior of the prescription drug overdose epidemic.
  - **Expanding and Improving Proactive CSMD Reporting**  
To identify and address inappropriate prescribing patterns.
  - **Implementing Community or Insurer/Health Systems Interventions**  
Improving opioid prescribing interventions for insurers and health systems, as well as enhancing the use of evidenced based opioid prescribing guidelines.
  - **Conducting Policy Evaluations**  
Evaluation of policies and legislation currently in place to further understand what is working well and areas for improvement to prevent prescription drug overdoses.
  - **Developing and Implementing Rapid Response Projects**  
Implementing a project to advance an innovative prevention approach and respond to new and emerging crises and opportunities.

In addition, in 2016, the TDH was awarded a grant from the Department of Justice (DOJ) under the Harold Rogers program; to create rapid data based collaboration between TDH, TBI and TDMHSAS. The grant will fund improved access for law enforcement and drug courts to the CSMD, and the collection and integration of law enforcement and mental health data to better identify and react to emerging and existing hotspots, as well as changes in the drug epidemic. The grant supports a full time junior epidemiologist to develop visualizations and data analytics on which the team can act.

Finally, in 2017, TDH received another CDC grant, this one to enhance surveillance of opioid overdoses. For this grant, we are working to expand the nonfatal overdose reporting from hospitals and to validate those data, and we are working on establishing methods of early identification of fatal overdoses, in collaboration with the Office of the State Medical Examiner.

### **TDH Recommends the Following Approaches to the Opioid Epidemic**

- **We recommend decreasing the supply of and reliance on opioids for pain**  
Specifically, we suggest working with prescribers and dispensers to reduce the duration and intensity of opioid use in opioid naïve patients, providing overdose information from patients seen in Emergency Departments, developing timely ways to track naloxone administration, improving our high risk patient model including proactively reaching out to clinicians with information about high risk patients via clinical notifications, improving medication take back programs, and promoting safer, effective non-opioid treatments for pain.
- **We recommend increasing focus on prevention**  
Specifically, we suggest developing education for patients, healthcare practitioners, and healthcare trainees, to clearly communicate the risks of even short duration opioid exposure. Additionally, we recommend focus on adolescents to foster resistance to substance abuse, increasing screening for opioid abuse (SBIRT), increasing the availability of SUD treatment and increasing oversight of clinics offering MAT (through MHSAS), expanding support for community drug coalitions including their important work to reduce the stigma of substance use disorders, adopting effective safe syringe programs, and increased use of naloxone (estimated to decrease overdose deaths by 10%).
- **We recommend focus on reducing NAS**  
Specifically, increasing support for prevention of unintended pregnancy and strategies for prevention of substance abuse, and focusing on medical management of pregnant women at risk of substance use disorder, especially in the third trimester.
- **In summary**  
By focusing on minimizing opioid exposure for people who are opioid naïve, we “turn off the faucet” and avoid the difficult and expensive physical, legal and mental health implications of progression to dependence and substance use disorder. By better integrating actions thorough rapid analysis and coordinated responses we can work with communities to address developing problems before they become more entrenched in our communities. By working to eliminate the stigma of SUD we can help people who have substance use disorders to get help early, when treatment is easier and more successful.

### **Conclusion**

While much progress has been made, much work remains to be done. This is an urgent situation that is unparalleled in recent state history. Much more should and, thankfully, can be done. TDH is pleased to see improvements in opioid prescribing and dispensing across the state and is maximizing partnerships with other agencies and grant funding to best design a process to more quickly share information and empower CSMD users, law enforcement, drug courts and coalitions to have the best information



available to fight the substance abuse crisis. While these are important steps in fighting the prescription drug epidemic, several important new initiatives have begun across the state involving many partners both inside and outside of government. We must continue to take action in three areas: prevention, treatment, and law enforcement in order to reverse the overdose death trend in Tennessee and to shrink the number of NAS cases in our state.

The TDH would like to provide a special thanks to the current and past members of the legislature, the CSMD Committee, the Tennessee Chronic Pain Guideline Expert Panel and the leadership of other federal and state agencies as we continue to work together to form a team of teams that will be successful in preventing harm to the public health from the prescription drug abuse crisis.

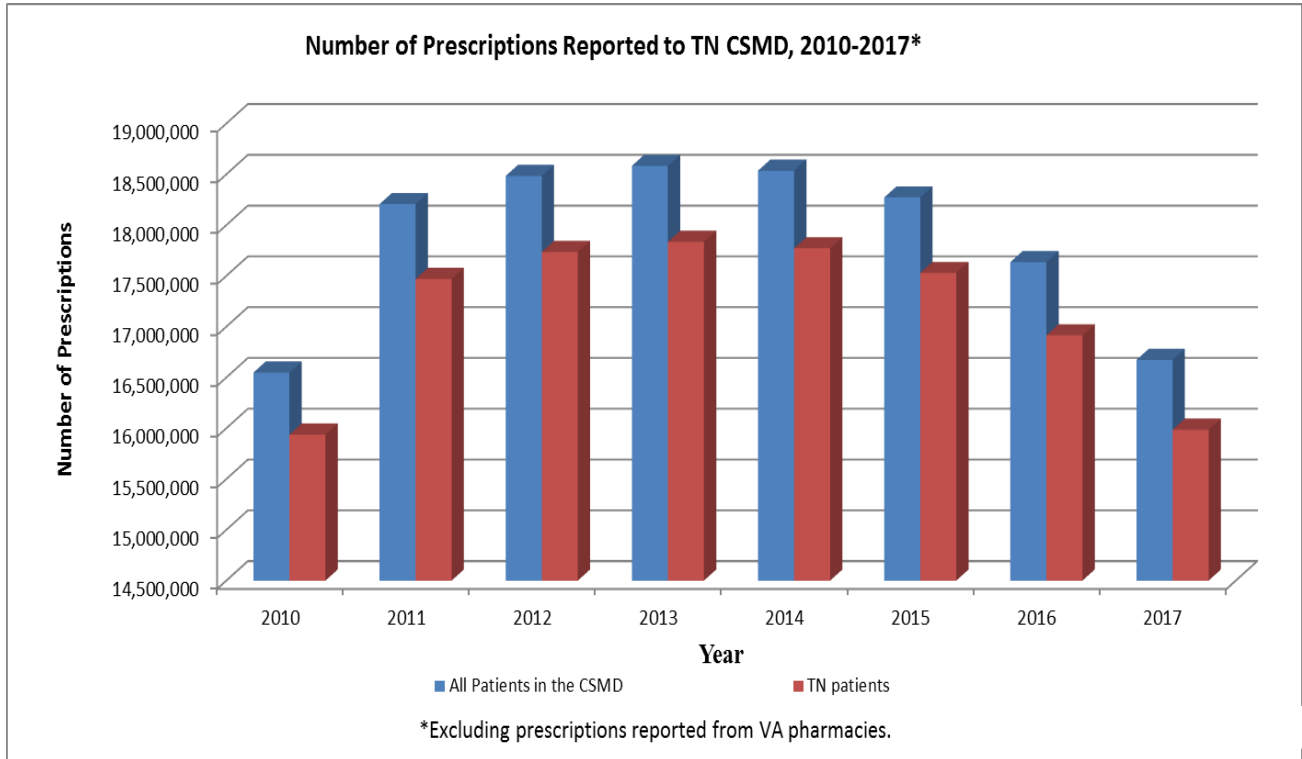
**2017 Members of the CSMD Committee**

<b>Member Name</b>	<b>Board</b>
Melanie Blake, M.D.	Board of Medical Examiners
Katherine N. Halls, DDS	Board of Dentistry
Brent Earwood, APN, CRNA	Board of Nursing
Brad Lindsay	Board of Optometry
Shant Garabedian, DO	Board of Osteopathy
Michael Dickerson, D.Ph.	Board of Pharmacy
Sheila Schuler, DPM	Board of Podiatry
Stephen Ladd, DVM	Board of Veterinary Medical Examiners
Omar Nava, PA-C	Committee on Physician Assistants
Robert Ellis	Public Member Board of Medical Examiners
Lisa Tittle	Public Member Board of Pharmacy

## Appendix

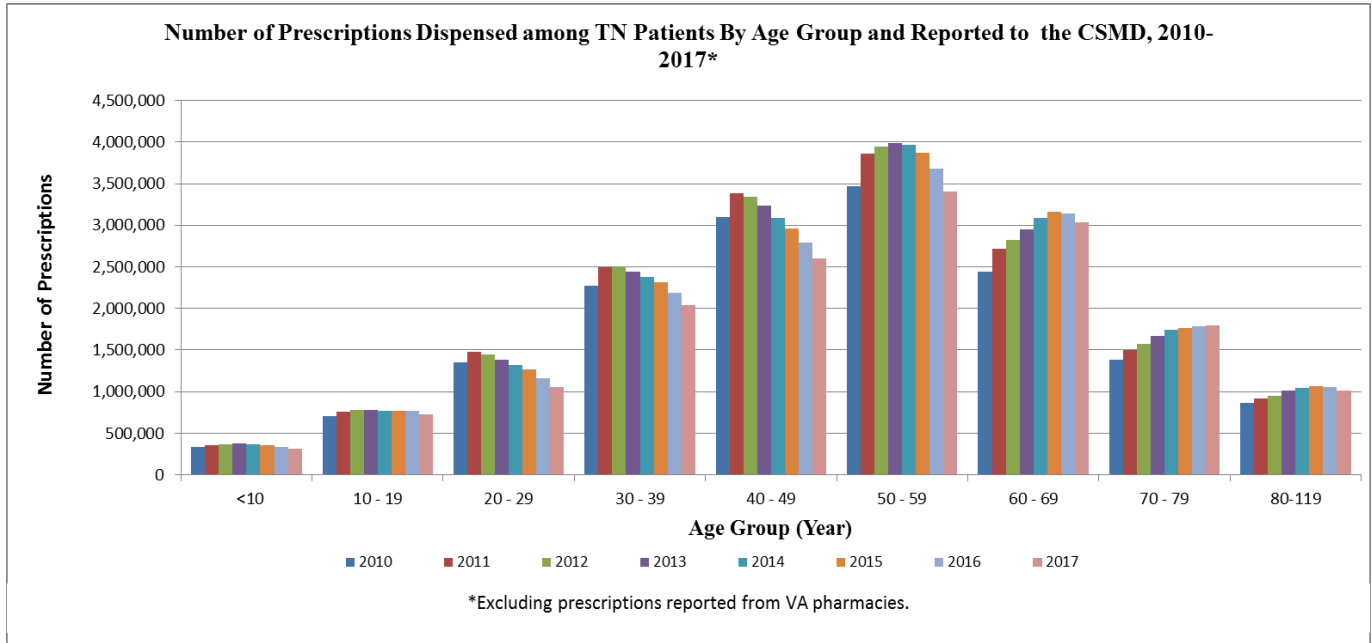
The CSMD data used for the 2018 report were downloaded on January 25, 2018. MME calculations and classification of controlled substances were completed based on a combination of CDC's MME conversion tables from 2011 to 2017. The CDC adjusted certain drug conversion factors over time for various reasons. If a drug had different MME conversion factors in different version tables, the data analysis provided through 2017 used the conversion factor provided in the latest CDC version table. Therefore different MME results for a similar indicator would be expected for CSMD annual reports published in previous years. Prescriptions and MME identified for TN patients were based on a patient's state listed as 'TN' or state FIPS code of '47' on his/her address associated with a prescription. Otherwise, the patient was identified as a non-TN patient. If a drug in the CSMD was not classified by the CDC table, the drug was classified as 'other' in this report. Please note that human and animal prescription data are included in this report as it relates to the data analysis through 2017.

**Number of Prescriptions Reported to TN CSMD, 2010-2017**



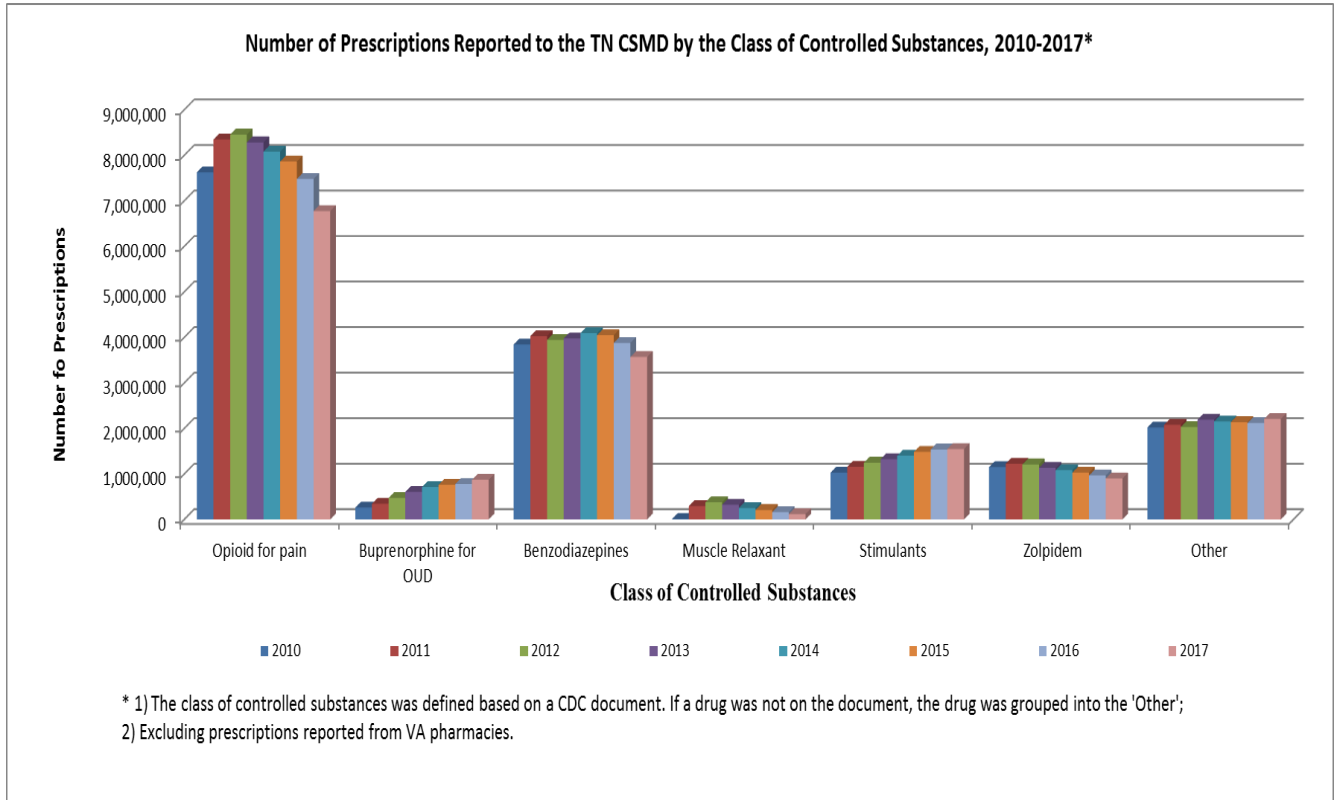
Number of Prescriptions Reported to Tennessee CSMD, 2010-2017*				
Year	All Patients in the CSMD	Change (%)	TN Patients	Change (%)
2010	16,547,712	-	15,937,441	-
2011	18,206,496	10.0	17,469,257	9.6
2012	18,484,001	1.5	17,734,247	1.5
2013	18,582,815	0.5	17,834,413	0.6
2014	18,535,747	-0.3	17,771,226	-0.4
2015	18,271,266	-1.4	17,528,157	-1.4
2016	17,635,516	-3.5	16,914,824	-3.5
2017	16,673,440	-5.5	15,985,449	-5.5

**Number of Prescriptions Dispensed among TN Patients and Reported to CSMD by Age Group, 2010-2017**



Number of Prescriptions Dispensed among TN Patients and Reported to the CSMD by Age, 2010-2017*								
Age Group (year)	2010	2011	2012	2013	2014	2015	2016	2017
<10	337,912	357,874	370,965	375,775	366,790	352,366	339,951	315,738
10 - 19	708,235	757,544	776,716	776,506	764,386	768,914	765,653	731,722
20 - 29	1,356,317	1,474,506	1,449,791	1,379,409	1,320,165	1,262,799	1,164,556	1,050,549
30 - 39	2,268,993	2,500,008	2,501,157	2,446,404	2,373,575	2,318,440	2,185,786	2,043,834
40 - 49	3,100,767	3,387,897	3,343,214	3,233,941	3,090,096	2,956,964	2,796,407	2,600,405
50 - 59	3,465,771	3,857,773	3,949,232	3,988,059	3,970,979	3,873,828	3,684,527	3,405,267
60 - 69	2,441,467	2,712,480	2,826,961	2,954,027	3,090,333	3,159,094	3,142,519	3,037,093
70 - 79	1,388,144	1,504,412	1,569,151	1,668,101	1,746,684	1,767,613	1,781,144	1,791,146
80-119	869,792	916,717	946,982	1,012,162	1,048,197	1,068,103	1,054,276	1,009,671
Unknown	43	46	78	29	21	36	5	24

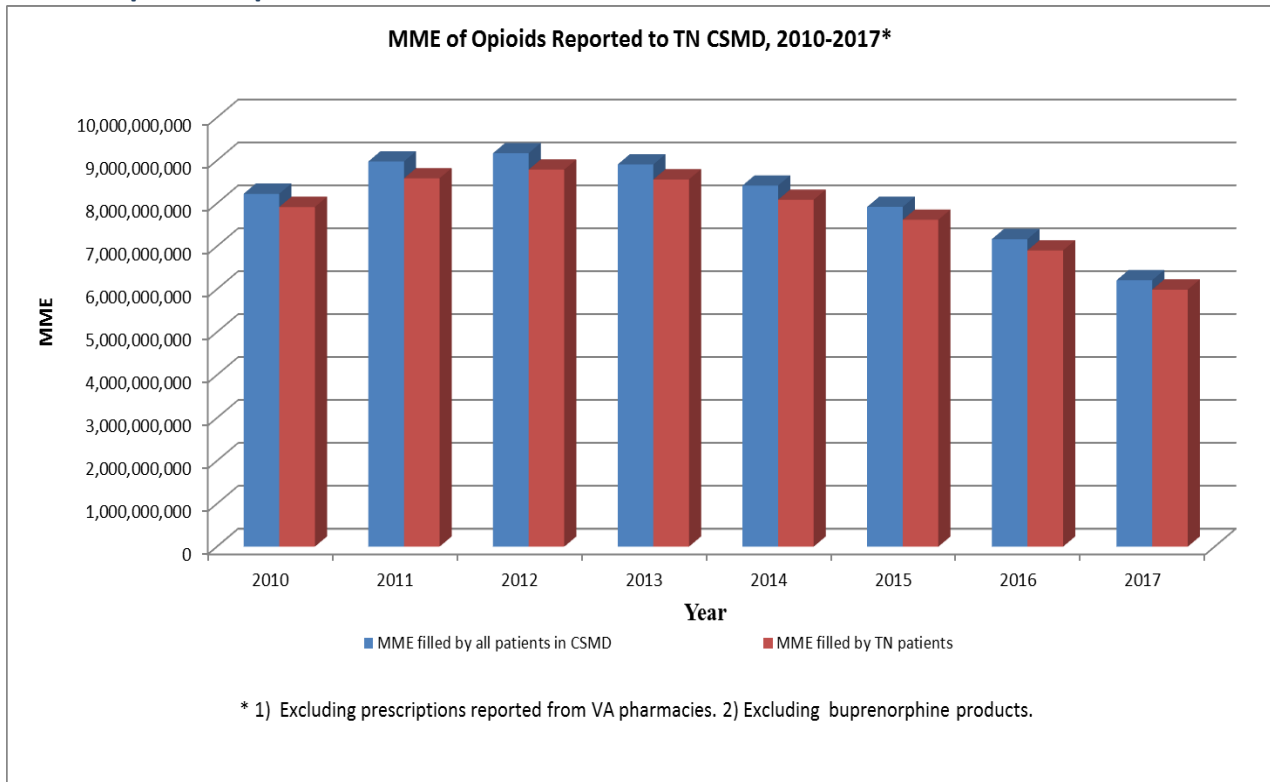
**Number of Prescriptions Reported to TN CSMD by Class of Controlled Substances, 2010 - 2017**



Number of Prescriptions Reported to the TN CSMD by Class of Controlled Substances, 2010-2017*							
Year	Opioid	Buprenorphine for Opioid Use Disorders	Benzodiazepines	Muscle Relaxant	Stimulants	Zolpidem	Other
2010	7,625,005	259,105	3,843,780	11,503	1,028,411	1,149,240	2,020,397
2011	8,346,171	343,400	4,027,117	293,676	1,155,730	1,224,451	2,078,712
2012	8,455,493	472,474	3,941,394	377,824	1,248,328	1,209,119	2,029,615
2013	8,283,493	604,170	3,977,561	321,979	1,324,544	1,133,354	2,189,312
2014	8,081,715	711,108	4,091,847	250,249	1,399,180	1,084,802	2,152,325
2015	7,861,607	762,384	4,046,729	207,996	1,482,385	1,028,972	2,138,084
2016	7,478,561	779,861	3,877,189	159,812	1,537,751	965,195	2,116,455
2017	6,774,264	870,904	3,568,113	117,283	1,547,629	899,699	2,207,557



**MME of Opioids Reported to TN CSMD, 2010-2017**



<b>MME of Opioid Reported to TN CSMD, 2010-2017*</b>				
Year	MME Filled by All Patients in CSMD	Change (%)	MME Filled by TN Patients	Change (%)
2010	8,223,625,859	-	7,915,888,705	-
2011	8,976,670,055	9.2	8,584,658,409	8.4
2012	9,169,715,721	2.2	8,787,111,356	2.4
2013	8,908,071,490	-2.9	8,559,305,459	-2.6
2014	8,414,912,347	-5.5	8,084,199,884	-5.6
2015	7,918,607,948	-5.9	7,617,750,961	-5.8
2016	7,166,312,823	-9.5	6,904,299,208	-9.4
2017	6,208,608,469	-13.4	5,990,404,491	-13.2

**MME for Long Acting Opioids Reported to the TN CSMD, 2010-2017**

<b>MME for Long Acting Opioids Reported to the CSMD, 2010-2017*</b>			
Year	Overall patients in CSMD	TN patients	Change among TN patients (%)
2010	3,186,575,097	3,053,655,395	-
2011	3,250,846,435	3,117,382,279	2.1
2012	3,281,165,787	3,144,485,150	0.9
2013	3,234,719,734	3,102,687,379	-1.3
2014	2,921,833,043	2,803,168,526	-9.7
2015	2,549,901,625	2,451,782,440	-12.5
2016	2,122,567,448	2,043,554,990	-16.7
2017	1,626,479,677	1,565,314,892	-23.4

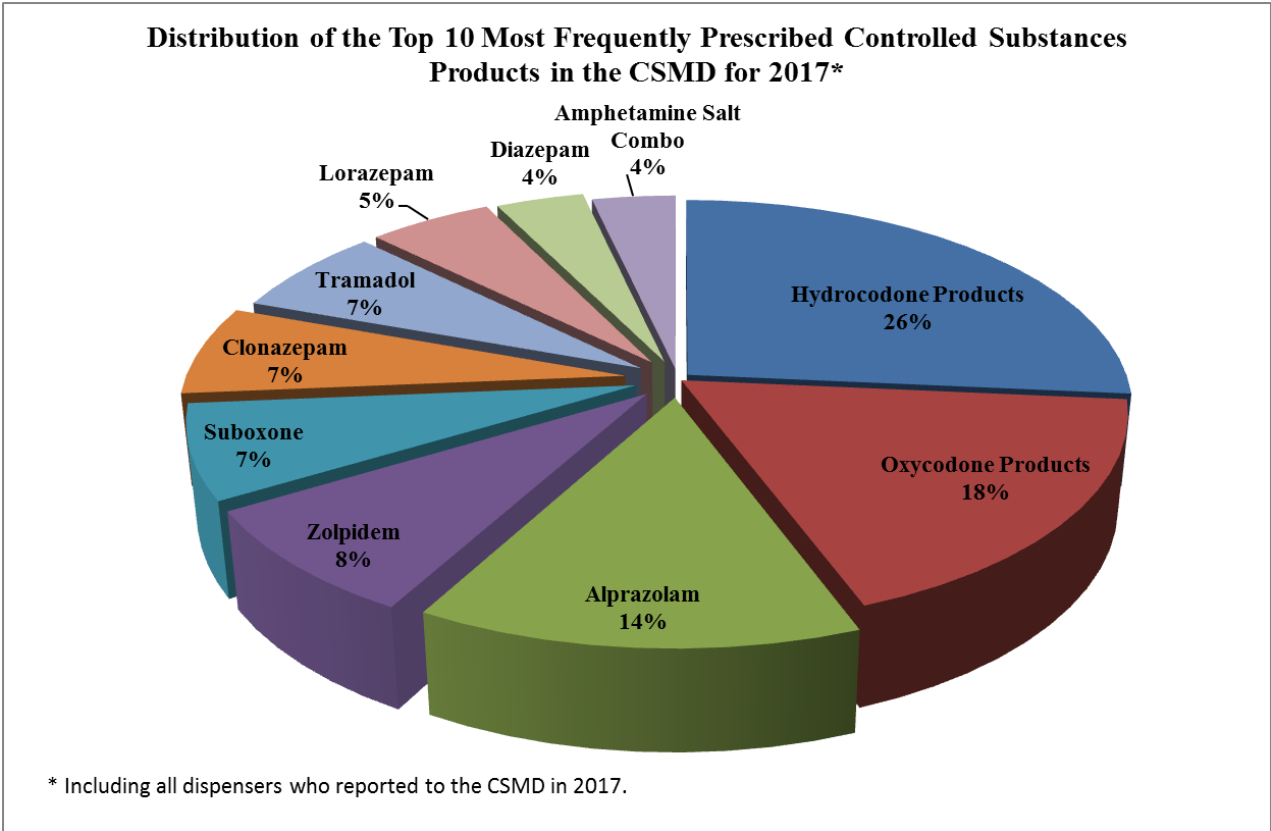
\* 1) The classes of controlled substances were defined based on a CDC document; 2) Excluding prescriptions reported from VA pharmacies; 3) Excluding buprenorphine products.

**MME for Short Acting Opioids Reported to the TN CSMD, 2010-2017**

<b>MME for Short Acting Opioids Reported to the CSMD, 2010-2017*</b>			
Year	Overall patients in CSMD	TN Patients	Change among TN Patients (%)
2010	5,037,050,762	4,862,233,311	-
2011	5,725,823,620	5,467,276,130	12.4
2012	5,888,549,934	5,642,626,206	3.2
2013	5,673,351,755	5,456,618,080	-3.3
2014	5,493,079,304	5,281,031,358	-3.2
2015	5,368,706,323	5,165,968,521	-2.2
2016	5,043,745,375	4,860,744,219	-5.9
2017	4,582,128,792	4,425,089,600	-9.0

\* 1) The classes of controlled substances were defined based on a CDC document; 2) Excluding prescriptions reported from VA pharmacies; 3) Excluding buprenorphine products.

**Distribution of the Top 10 Most Frequently Prescribed Controlled Substance Products in the CSMD for 2017**



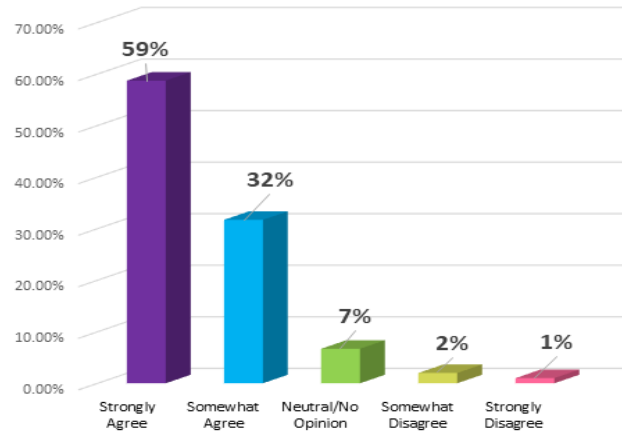
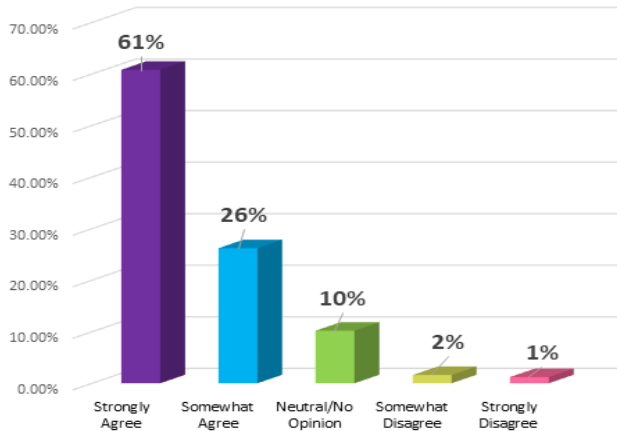
This information above was obtained from the CSMD web application.

2018 Prescriber and Dispenser Survey Results

# The CSMD is useful for decreasing the incidence of doctor shopping

Prescribers

Dispensers



Strongly Agree or Somewhat Agree = 87%

Strongly Agree or Somewhat Agree = 91%



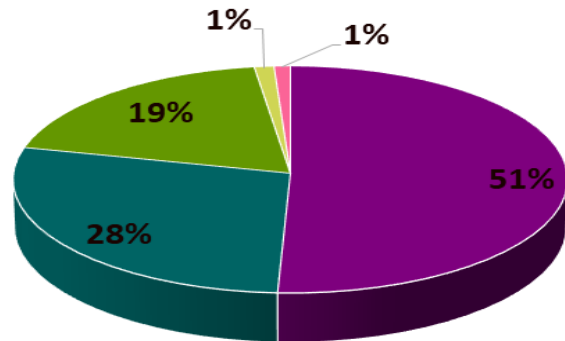
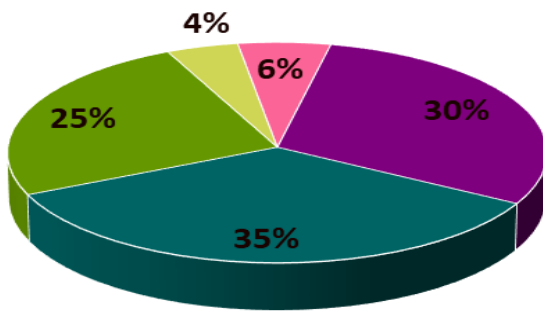
Source: 2017 CSMD Prescriber and Dispenser Survey

## After viewing information found in the CSMD, I changed the treatment plan for a patient

## After viewing information found in the CSMD, I refused to fill a prescription as written

Prescribers

Dispensers



~ 65% of Prescribers have changed their treatment plan

~ 79% of Dispensers are less likely to fill a prescription as written

- Strongly Agree
- Somewhat Agree
- Neutral/No Opinion
- Somewhat Disagree
- Strongly Disagree



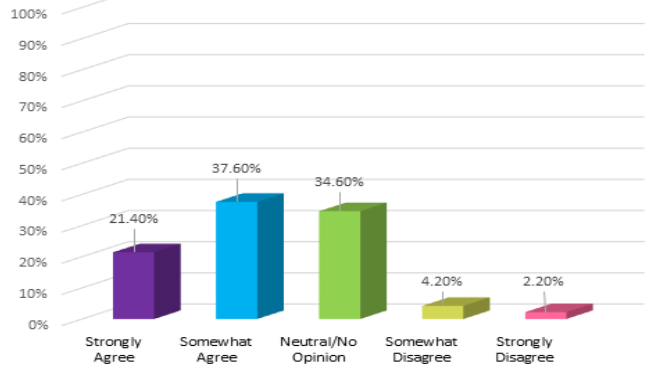
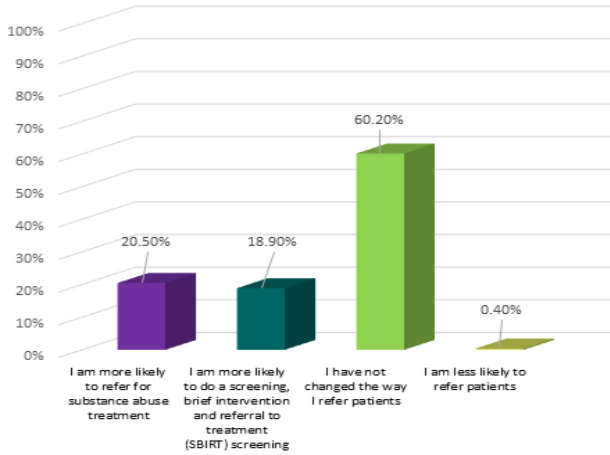
Source: 2017 CSMD Prescriber and Dispenser Survey

**Has checking the CSMD changed your practice of referring patients for Substance Use Disorder (SUD) treatment**

**The CSMD has changed my practice of communicating with the prescriber regarding a patient whom I believe needs referred for Substance Use Disorder(SUD) treatment**

**Prescribers**

**Dispensers**



**39% of prescribers are more likely to refer patients for substance use disorder treatment.**

**59% of dispensers are more likely to communicate with the prescriber regarding potential patient referral to substance use disorder treatment.**

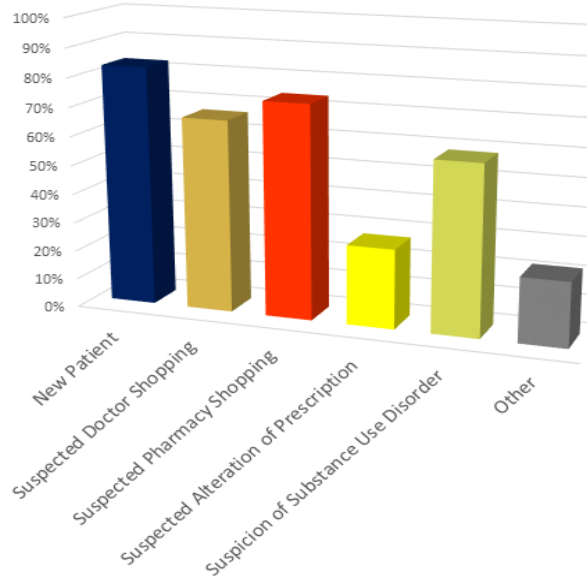
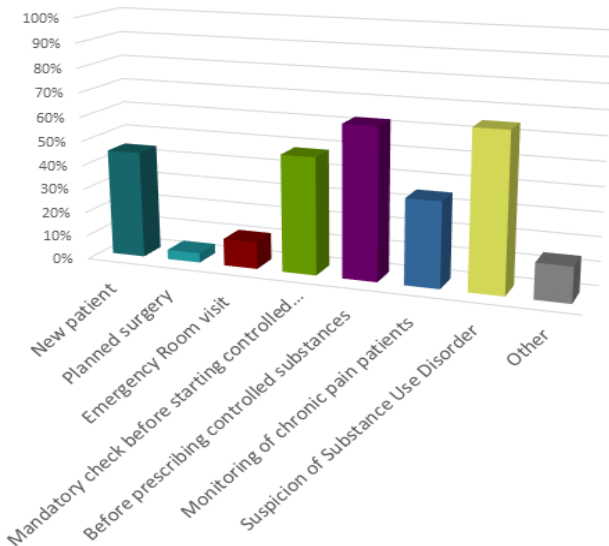


Source: 2017 CSMD Prescriber and Dispenser Survey

**Why do prescribers and dispensers check the CSMD?**

**Prescribers**

**Dispensers**



Source: 2017 CSMD Prescriber and Dispenser Survey

Acronyms	
Advanced Practice Registered Nurse	APRN
Amazon Web Services	AWS
Centers for Disease Control and Prevention	CDC
Certified Registered Nurse Anesthetist	CRNA
Continuing Education	CE
Continuing Medical Education	CME
Controlled Substance Monitoring Database	CSMD
Controlled Substance Monitoring Database Committee	CSMD Committee
Department of Justice	DOJ
Drug Enforcement Administration	DEA
East Tennessee State University	ETSU
Emergency Department	ED
Food and Drug Administration	FDA
Medicated Assisted Treatment	MAT
Mental Health and Substance Abuse Services	MHSAS
Morphine Milligram Equivalents	MME
Neonatal Abstinence Syndrome	NAS
Physician Assistant	PA
Prescription Drug Monitoring Program	PDMP
Prescription Drug Overdose	PDO
Prevention for States	PFS
Prescription Safety Act	PSA



Acronyms	
Screening, Brief Intervention and Referral to Treatment	SBIRT
Substance Use Disorder	SUD
Tennessee	TN
Tennessee Bureau of Investigations	TBI
Tennessee Code Annotated	TCA
Tennessee Department of Health	TDH
Tennessee Department of Mental Health and Substance Abuse Services	TDMHSAS
Veterans Affairs	VA