

Controlled Substance Monitoring Database

2017 Report to the 110th Tennessee General Assembly



Health Licensure & Regulation
Controlled Substance Monitoring Database Committee
March 1, 2017

Contents

Tennessee Department of Health Response to Substance Abuse Epidemic.....	3
Trends in Drug Overdose Deaths in Tennessee and the Role of the CSMD	3
Moving Upstream to Use Weekly Hospital Data	4
The Story of Neonatal Abstinence Syndrome	4
The Role of and Presence of Pain Clinics across Tennessee	5
Fewer Prescriptions without CSMD Evaluation.....	5
Ratio of Number of Prescriptions to a Request in the CSMD, 2010-2016*	6
Number of Registrants of the CSMD, 2010 - 2016*	6
MME Improvements and Concerns by Age Group	7
Change in MME for Tennessee Patients, 2011 to 2016.....	7
Trends Related to Utilization of Benzodiazepines and Stimulants.....	7
Increased Buprenorphine for Opioid Use Disorders.....	10
Interventions Related to Top 50 Prescribers and Top 10 Prescribers for Small Counties.....	11
MMEs Prescribed by Top 50 Prescribers and Dispensed in 2013 – 2016*	12
Decline in Potential Doctor-Pharmacy Shopping	12
Potential Doctor and Pharmacy Shoppers Identified in the CSMD, 2010-2016*	12
User Satisfaction & Perception of the CSMD	13
2016 Prescriber User Survey.....	13
2016 Dispensers User Survey	13
Database Performance	13
Increased Interstate Data Sharing	13
Tennessee 2016 Interstate Data Sharing	14
Security Measures.....	14
TDH Provides Significant Educational Outreach.....	15
TDH Grants Update	16
TDH Recommends the Following Approaches to the Opioid Epidemic.....	16
Conclusion	17
2017 Members of the CSMD Committee	18
Appendix.....	19
Number of Prescriptions Dispensed among TN Patients and Reported to CSMD by Age, 2010-2016*20	
Number of Prescriptions Reported to Tennessee CSMD, 2010-2016	21

Number of Prescriptions Reported to TN CSMD by Class of Controlled Substances, 2010 - 2016*..22

MME of Opioids Reported to TN CSMD, 2010-2016*23

MME for Long Acting Opioids Reported to the TN CSMD, 2010-2016*24

MME for Short Acting Opioids Reported to the TN CSMD, 2010-2016*.....24

Distribution of the Top 10 Most Frequently Prescribed Controlled Substance Products in the CSMD
for 201625

2017 Prescriber and Dispenser Survey Results.....26

Acronyms28

Tennessee Department of Health Response to Substance Abuse Epidemic

The 2017 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 http://tn.gov/assets/entities/health/attachments/2017_Concise_CSMD_Annual_Report.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.

The CSMD continues to be a valuable tool to the prescribers and dispensers in caring for patients who rely on it daily. TDH is concerned that overdose deaths for 2015 were up despite progress observed from the data including a noted decline in Morphine Milligram Equivalents (MMEs) prescribed in 2016 for long acting and short acting opioids, a decline in potential doctor/pharmacy shoppers and a significant decline in the total MMEs of top 50 prescribers in the state. The CSMD is being utilized more than ever to assure that fewer prescriptions are being prescribed and dispensed without a check to the CSMD. CSMD data suggests an increase in the prescribing of drugs associated with treatment of opioid use disorder through medication assisted therapy. Further, the TDH was successful in empowering pharmacists with naloxone collaborative practice agreements with the Chief Medical Officer to increase access to potentially life-saving naloxone. However, these public health improvements have not yet decreased the drug overdose death trend in the most recently released data covering 2015.

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 go down, and potential doctor shopping remains substantially decreased. Specifically, the number of people receiving more than an average daily dose of 120 MME went down 40% between 2012 and 2015. 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)¹. Data from Vital Statistics indicates from 2014 to 2015, drug overdose deaths in Tennessee rose by 14%, increasing from 1263 to 1451, 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. Only about half (56%) of people who died of overdose had controlled substances dispensed in the 60 days prior to death, suggesting that other factors played a significant role in overdose deaths, including illicit fentanyl, heroin, and diverted prescription opioids. However, nearly three quarters (74%) of those who died had filled a prescription for a controlled substance within the past year. Taken together, these are likely signs that the epidemic is evolving and that changes are needed in how we identify and intervene prior to fatal overdose. Against a

¹ 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.mm655051e1>

national backdrop of large increases in opioid deaths, the proportion of Tennessee drug overdose deaths in which an opioid was involved rose only slightly in 2015, from 68% to 71% of deaths compared to 2014. This may suggest that the role of opioids in drug overdose deaths overall is leveling off. However, the number of deaths in which fentanyl was involved rose significantly, from 69 (5.5%) to 174 (12%). Of special concern is that approximately one third of drug overdose deaths include a combination of opioids and benzodiazepines, an interaction that is known to have high risk for respiratory suppression, the main cause of overdose death.

The TDH continues to improve how the CSMD is used in stopping the epidemic and is combining data from the CSMD with other patient data to identify key markers for increased risk. Epidemiologists at the TDH are beginning 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.

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 2014, 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. The data for 2015 is complicated by the fact that hospitals moved to a new coding system (ICD-10) mid-year, and methods are still being developed to analyze those data correctly. However, preliminary data suggests nonfatal overdose care continues to increase, with high medical costs, particularly for heroin.

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 is being implemented in 2017, with pilot data being collected in January. Eleven hospitals across the State are working with TDH to pilot the reporting system and provide weekly uploads of key information on drug overdoses. 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.

The Story of Neonatal Abstinence Syndrome

In 2016, 1057 cases of Neonatal Abstinence Syndrome (NAS) were reported, as compared to 1039 cases in 2015, representing a very minimal increase (the rate per 1000 live births went from 12.9 in 2015 to 13.0 in 2016 which is < 1% increase). Of the reported cases, approximately 70% were among women

receiving medication-assisted treatment (MAT) for substance abuse. Approximately 10% included the legal prescription of an opioid pain reliever. The largest rates of NAS continued to be in the East and Northeast regions of the state.

The CSMD is providing an opportunity to explore the potential role of prescribing in NAS, and the TDH is using a linkage of the data with NAS reporting to develop models that describe the risk for NAS among women who receive opioid prescriptions. In 2013 and 2014, 588 of approximately 2000 NAS cases in Tennessee were to women who appeared in the CSMD database as having prescriptions during their pregnancy. Most (74%) were white, one third had a household income of less than \$10,000 and about half had no more than a high school education. TDH analyses suggest that there is an increase in risk with increasing cumulative MME, and that risk of NAS is increased among women receiving opioid medication during their third trimester, especially with increasing doses of opioids. Notably, this analysis does not include data on methadone use, although it does include buprenorphine. These results will be fully available in the spring, and TDH epidemiologists anticipate developing risk scoring tools and educational materials for clinicians in the state. Identifying factors that increase risk of a negative outcome, including potentially types of drugs, prescribing patterns, and MME, may help in developing interventions to support pregnant women and prevent NAS. The CSMD has implemented an indicator encouraging clinicians to be particularly thoughtful about prescribing to women of childbearing age, and to facilitate clinicians in counseling and treating these women.

The Role of and Presence of Pain Clinics across Tennessee

The number of pain clinics declined to 185 in 2016 which represents a 44% 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.

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: http://tn.gov/assets/entities/health/attachments/Pain_Clinic_Guidelines.pdf.

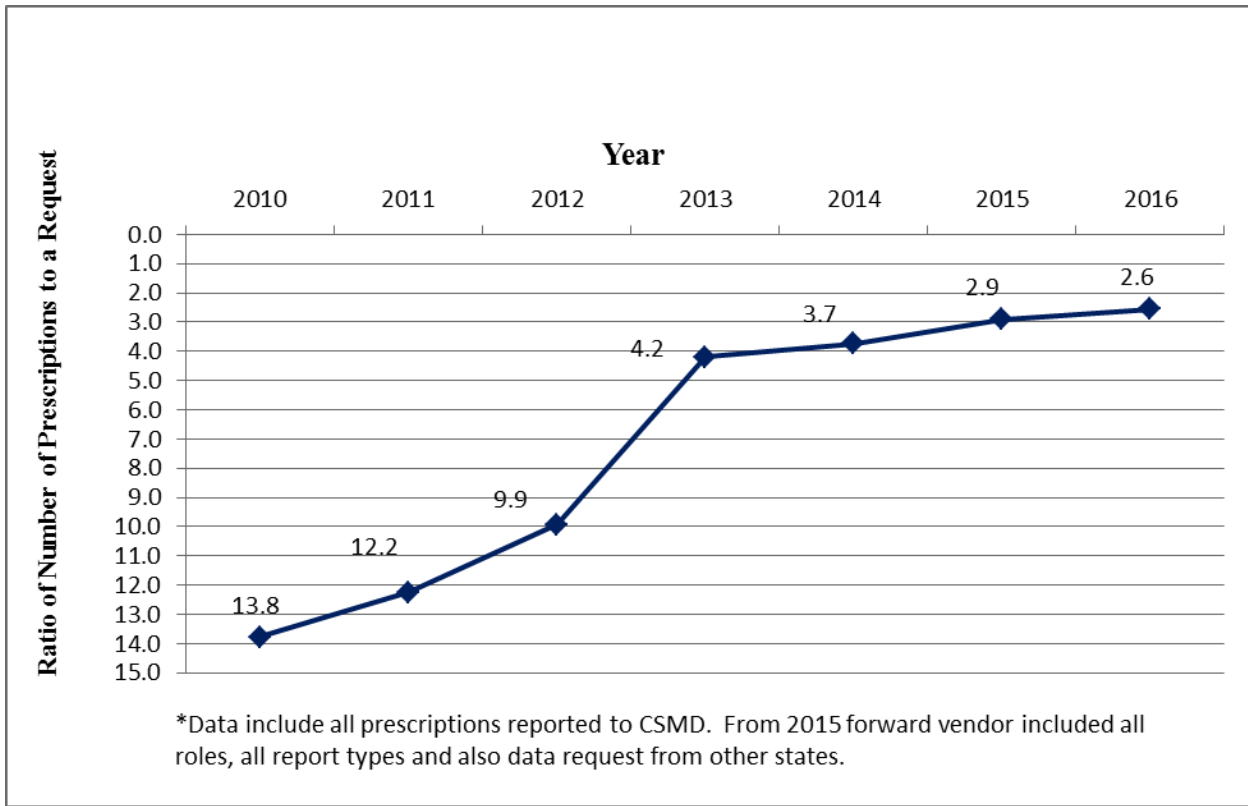
Pain Clinic Rules are in the process of being finalized and input was received from the Chronic Pain Guidelines Expert Panel. The expert panel consists of pain experts across the state. TDH is in the process of scheduling a public hearing for these rules.

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: <http://tn.gov/assets/entities/health/attachments/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 2016 the number of registrants had grown to 46,576, an increase of 8.7% over 2015. Prior to the PSA of 2012 and 2016, Tennessee had 14 prescriptions reported for every CSMD patient request and now there are fewer than 3 prescriptions reported for each request. The number of patient reports requested increased 9.7 % in 2016 to 7,071,199.

Ratio of Number of Prescriptions to a Request in the CSMD, 2010-2016*



Number of Registrants of the CSMD, 2010 - 2016*

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

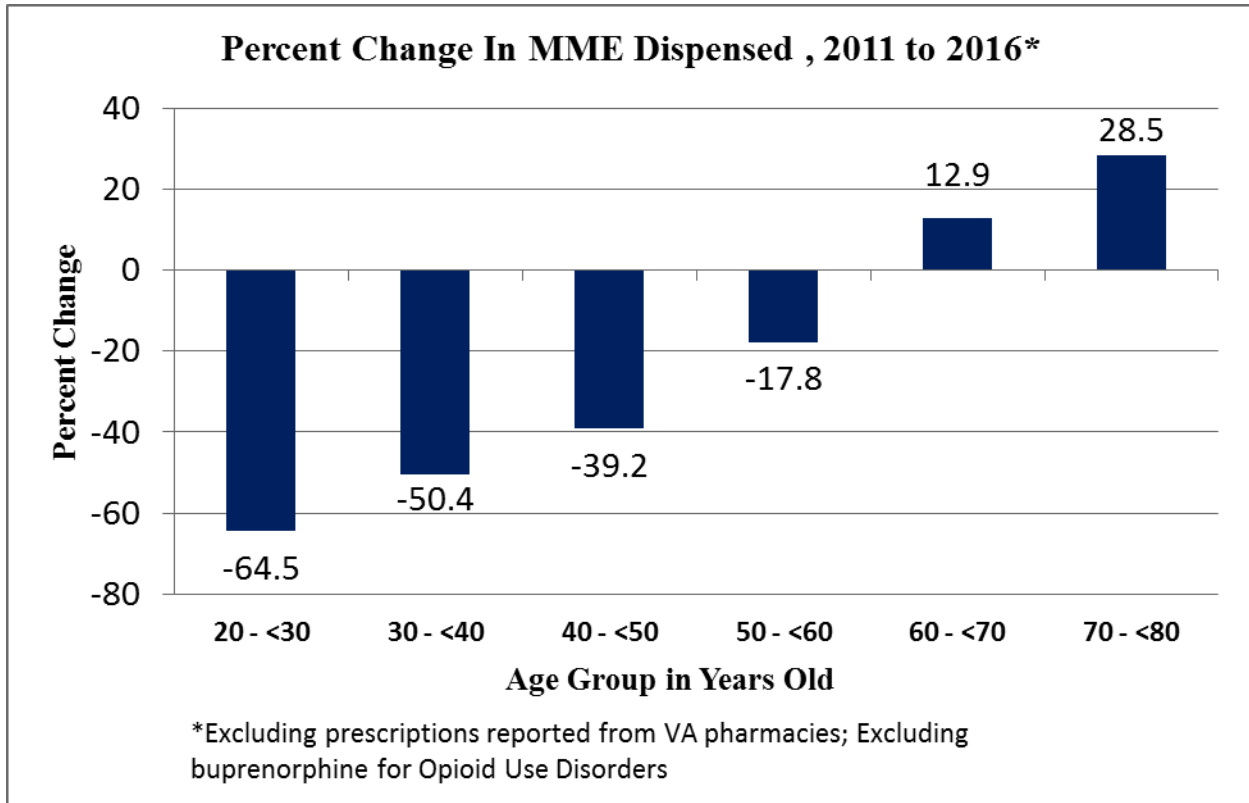
***VA registrants are included 2013 and forward as they were allowed to register.**

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 7,071,199 requests 1,326 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.

MME Improvements and Concerns by Age Group

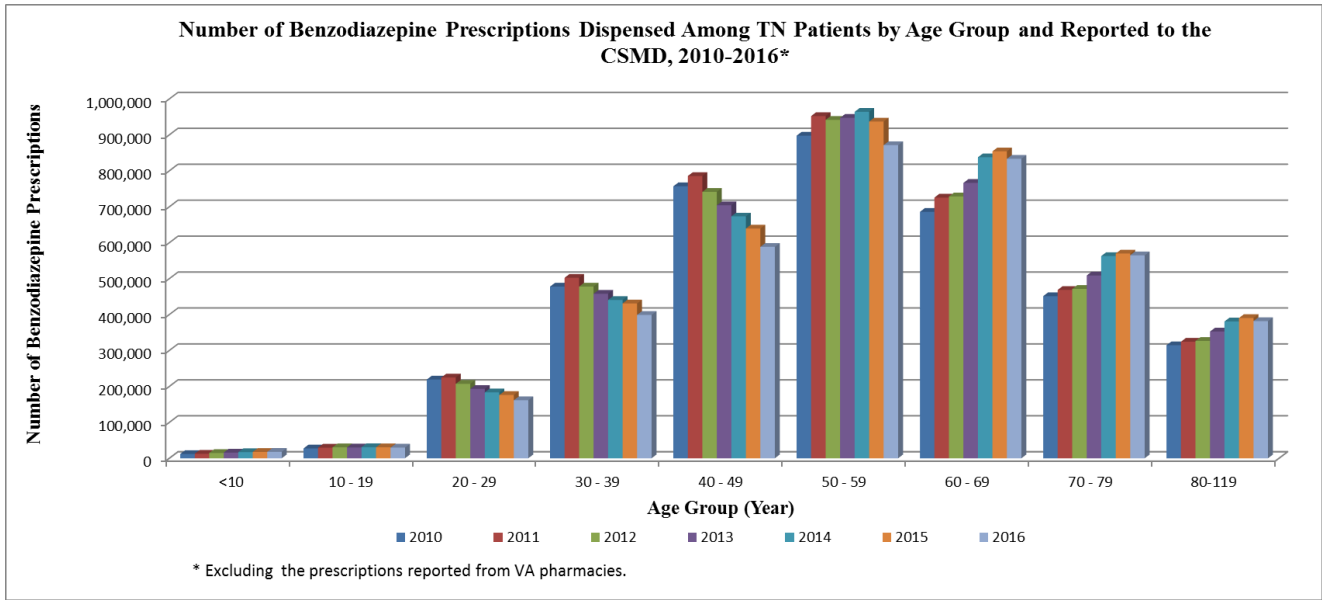
For 2016, the CSMD program provided a more detailed analysis of the MME for trends by age group for Tennessee patients. Encouragingly, there was a decline in MMEs dispensed for the 20 to 59 age ranges compared to 2011 data. These improvements for the younger age groups are an indicator that the TDH’s efforts are preventing a new generation from being overexposed to opioids by the healthcare system. However, the over 60 age group’s upward trending MME may lead to negative drug related outcomes for this high risk population.

Change in MME for Tennessee Patients, 2011 to 2016



Trends Related to Utilization of Benzodiazepines and Stimulants

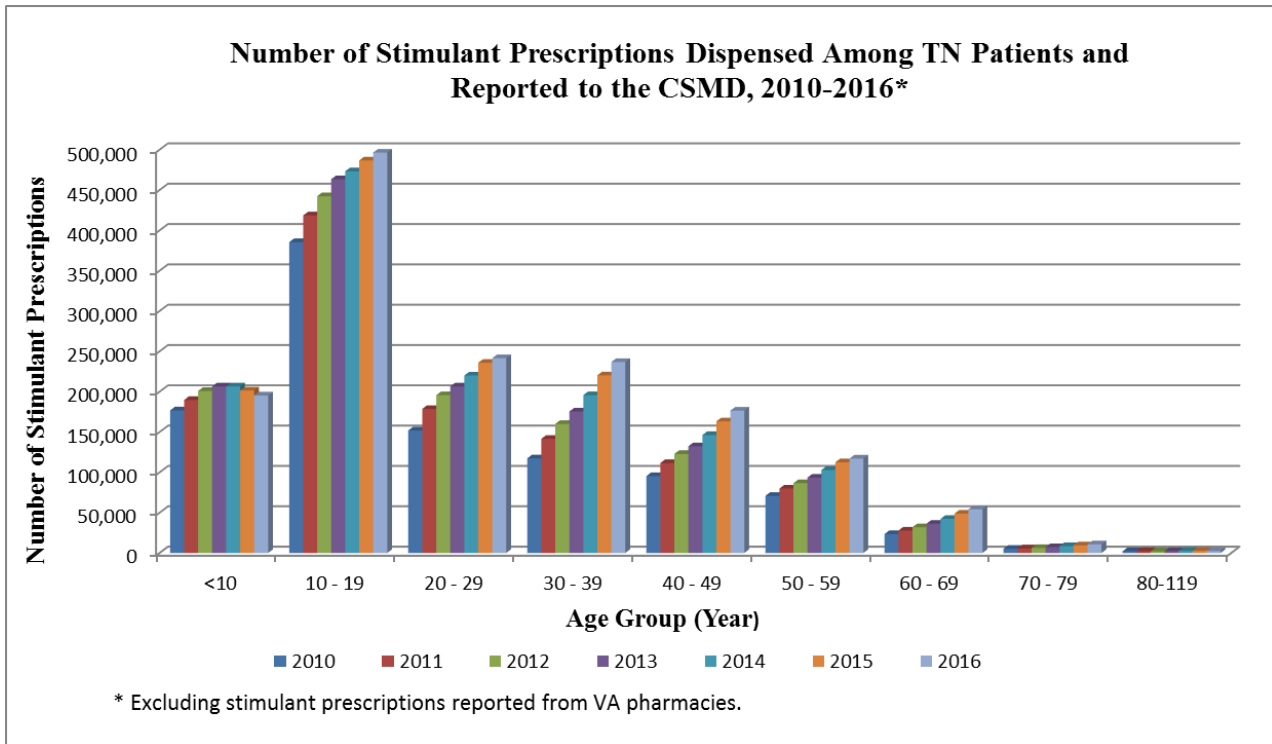
Benzodiazepines, such as Xanax and Valium, showed a 4.9% decrease in prescriptions from 2015 to 2016. This class has seen a notable decline in prescribing and dispensing for people between the ages of 20 and 60.



Age Group (year)	2010	2011	2012	2013	2014	2015	2016
<10	11,943	12,642	14,722	15,916	17,286	17,727	17,955
10 - 19	27,414	29,651	30,587	30,239	30,968	30,754	29,864
20 - 29	219,209	224,795	207,280	193,109	183,572	176,156	161,562
30 - 39	477,881	502,342	477,890	457,989	440,548	430,801	398,943
40 - 49	757,012	785,544	741,440	704,118	673,248	639,265	588,449
50 - 59	897,782	952,327	941,810	947,436	964,224	937,113	871,492
60 - 69	685,791	725,504	728,649	766,459	837,719	854,204	833,544
70 - 79	451,124	468,579	471,492	508,701	562,827	569,848	564,928
80-119	314,642	324,589	326,649	352,775	380,836	390,368	381,756
Unknown	2	6	7	2	2	7	0

* Excluding Benzodiazepine prescriptions reported from VA pharmacies.

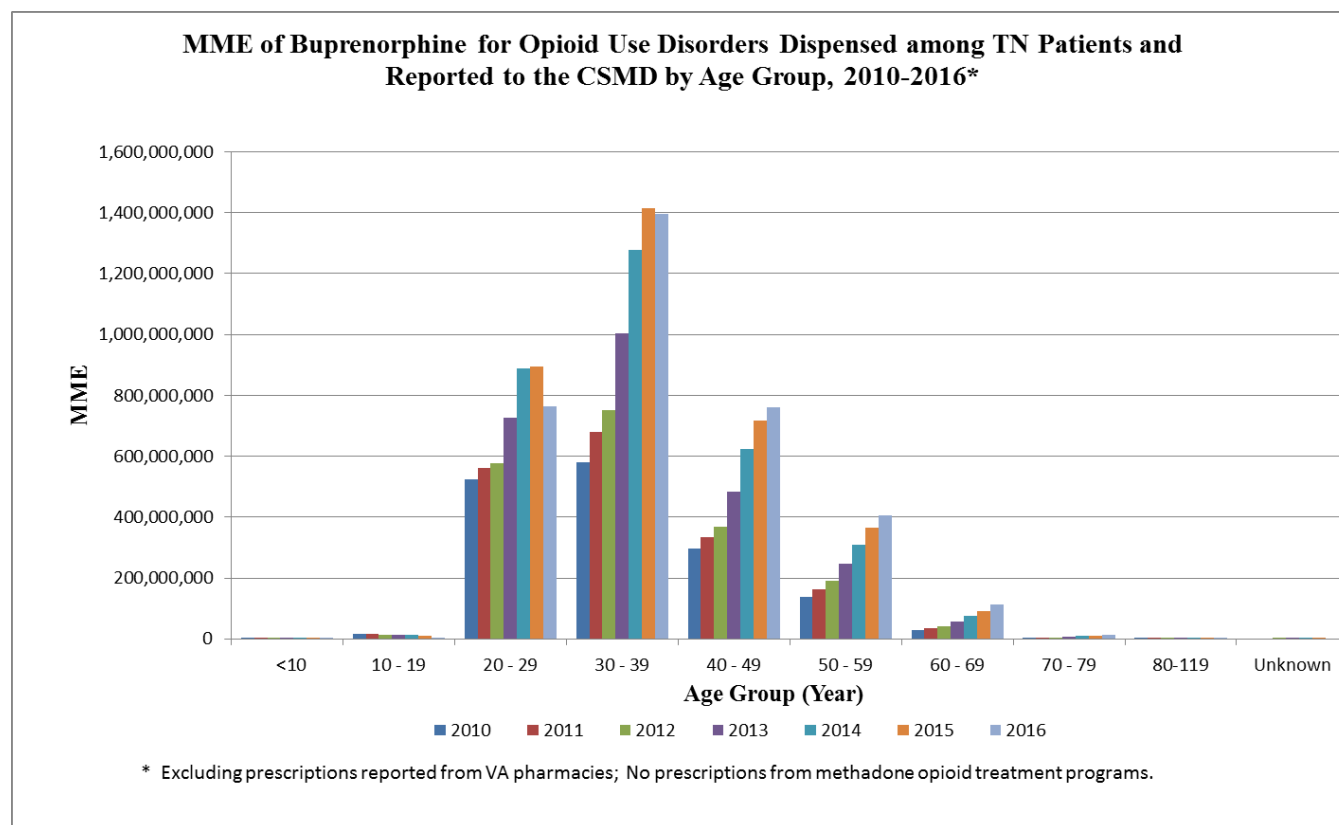
The number of prescriptions for stimulants has continued to increase, growing by 48.9% for patients in Tennessee from 2010 to 2016.



	2010	2011	2012	2013	2014	2015	2016
<10	176,813	189,696	200,846	206,479	206,468	201,418	195,280
10 - 19	385,450	418,577	442,303	463,404	473,215	486,711	496,415
20 - 29	151,816	178,519	195,628	206,444	220,010	235,856	241,504
30 - 39	117,350	141,518	160,017	175,430	195,710	220,216	236,808
40 - 49	95,315	111,513	122,797	132,254	146,213	163,144	176,481
50 - 59	70,814	79,878	86,539	93,457	102,871	112,460	117,067
60 - 69	23,458	27,855	31,995	36,282	42,256	48,859	54,251
70 - 79	5,133	5,766	6,132	7,216	8,498	9,509	10,717
80-119	2,126	2,254	1,995	2,376	2,612	2,654	2,536
Unknown	0	1	0	0	6	4	0
* Excluding stimulant prescriptions reported from VA pharmacies.							

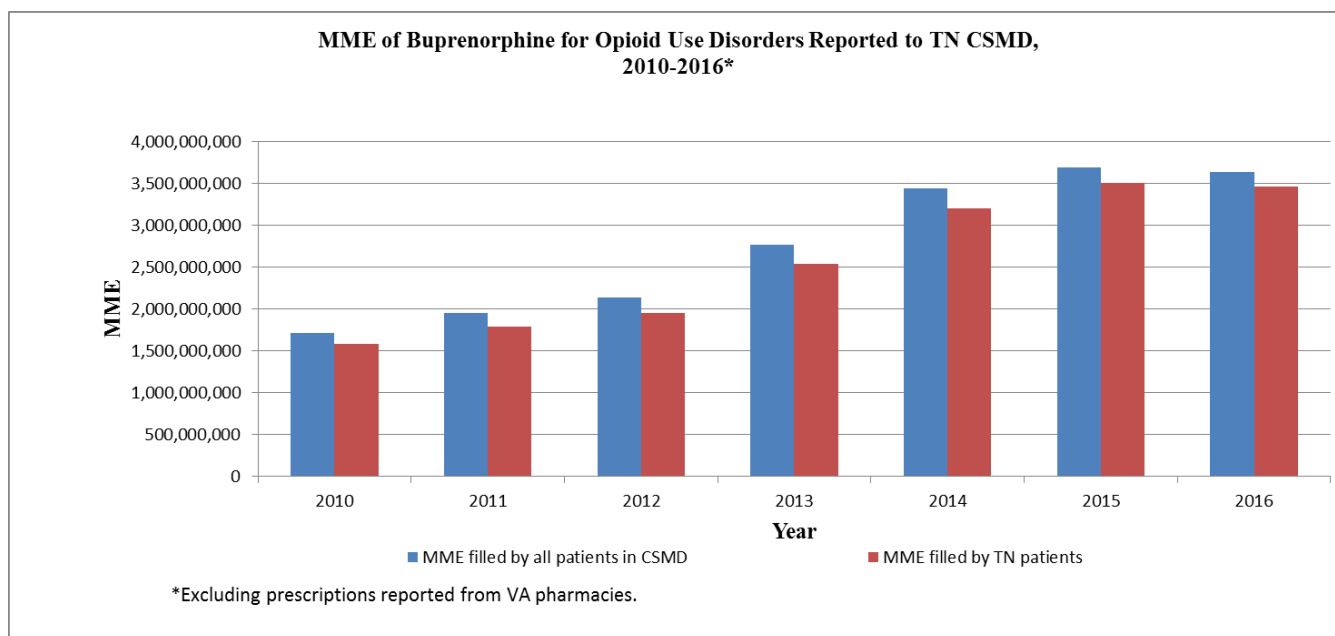
Increased Buprenorphine for Opioid Use Disorders

There has been a 119% increase in MMEs between 2010 and 2016 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.



Age Group (year)	2010	2011	2012	2013	2014	2015	2016
<10	406,620	114,948	134,554	64,941	228,234	483,893	491,340
10 - 19	15,313,968	15,521,184	13,204,052	13,598,346	12,894,094	10,881,224	5,250,604
20 - 29	524,322,972	560,229,492	577,055,532	727,424,978	887,822,067	895,861,127	764,546,871
30 - 39	578,754,600	678,853,200	750,962,040	1,003,035,318	1,277,816,482	1,414,744,964	1,396,568,838
40 - 49	295,559,640	335,060,040	369,220,800	484,771,737	623,294,551	715,674,368	761,066,404
50 - 59	137,499,960	163,873,620	192,034,440	247,935,357	310,237,217	365,676,854	404,326,024
60 - 69	27,538,440	36,170,280	41,784,600	58,111,965	77,242,467	92,387,822	112,586,272
70 - 79	1,890,900	2,800,320	3,018,276	6,757,650	9,134,301	10,803,792	13,446,714
80-119	418,332	469,620	365,400	223,440	365,568	671,550	763,140
Unknown	0	0	12,960	50,400	16,800	20,160	0

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



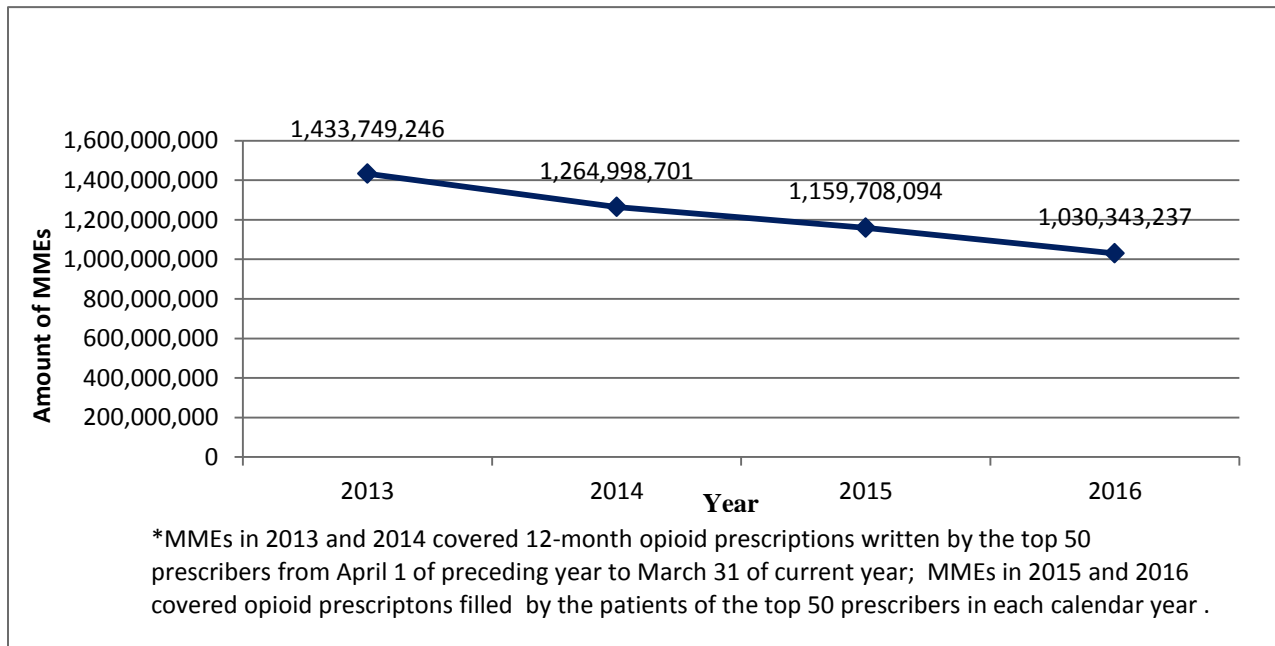
Year	MME filled by all patients in CSMD	Change (%)	MME filled by TN patients	Change (%)
2010	1,715,478,732	-	1,581,705,432	-
2011	1,957,687,644	14.1	1,793,092,704	13.4
2012	2,136,225,791	9.1	1,947,792,653	8.6
2013	2,763,736,797	29.4	2,541,974,132	30.5
2014	3,440,850,031	24.5	3,199,051,781	25.8
2015	3,692,149,184	7.3	3,507,205,755	9.6
2016	3,641,915,837	-1.4	3,459,046,206	-1.4

* 1) Excluding prescriptions reported from VA pharmacies.

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

Public Chapter 476 (passed during 2015) required the CSMD to continue to identify the top 50 prescribers in Tennessee and added a new requirement for the CSMD program 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 28% since 2013 as noted in the line graph below.

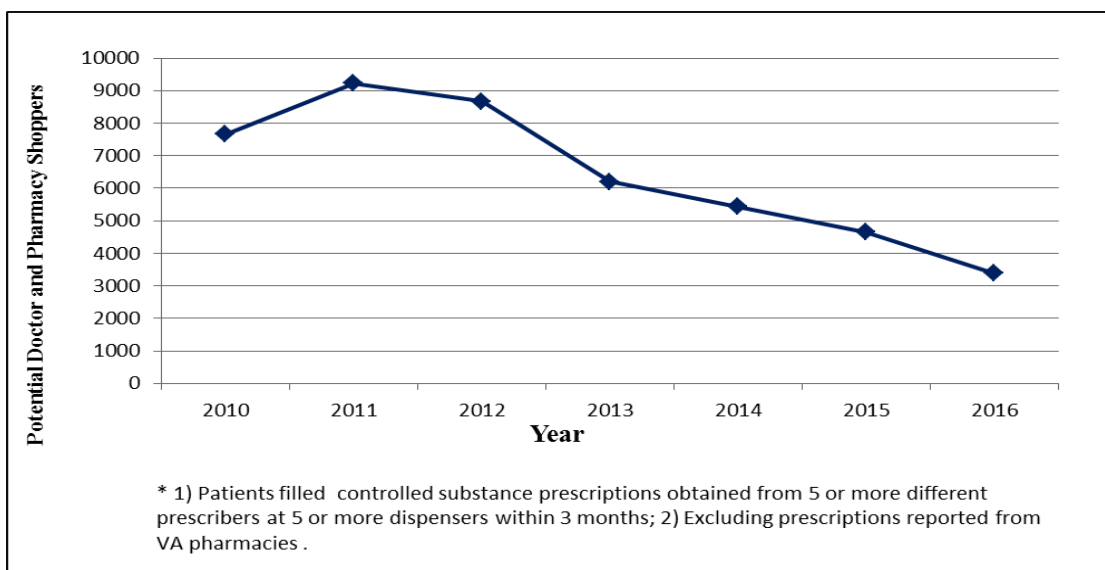
MMEs Prescribed by Top 50 Prescribers and Dispensed in 2013 – 2016*



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 63% decrease of potential doctor and pharmacy shopping patients from 2011 to 2016.

Potential Doctor and Pharmacy Shoppers Identified in the CSMD, 2010-2016*



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 2016 survey was the third for prescribers and the second for dispensers. Highlights of the 2016 survey are listed below.

2016 Prescriber User Survey

As a measure of satisfaction with improvements to the CSMD, a survey of prescribers was conducted in 2016 with greater than 2,800 prescribers responding:

- 73% use the CSMD at least monthly;
- 70% of responders have changed a treatment plan after viewing a CSMD report;
- 72% report discussing the CSMD report with their patients and 44% do so somewhat to very often;
- 28% of responders are more likely to refer a patient for substance abuse treatment;
- 87% of respondents report that the CSMD is useful for decreasing doctor shopping; and
- 43% report that they are less likely to prescribe controlled substances after checking the CSMD.

2016 Dispensers User Survey

A survey of dispensers was conducted in 2016 with greater than 950 responding:

- 91% use the CSMD at least monthly;
- 69% of responders communicate with the prescriber after viewing a CSMD report;
- 71% report discussing the CSMD report with their patients and 34% do so somewhat to very often;
- 58% of responders are more likely to communicate with the prescriber regarding a patient with potential for referral to substance abuse treatment;
- 91% 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.

See appendix for additional information on the surveys

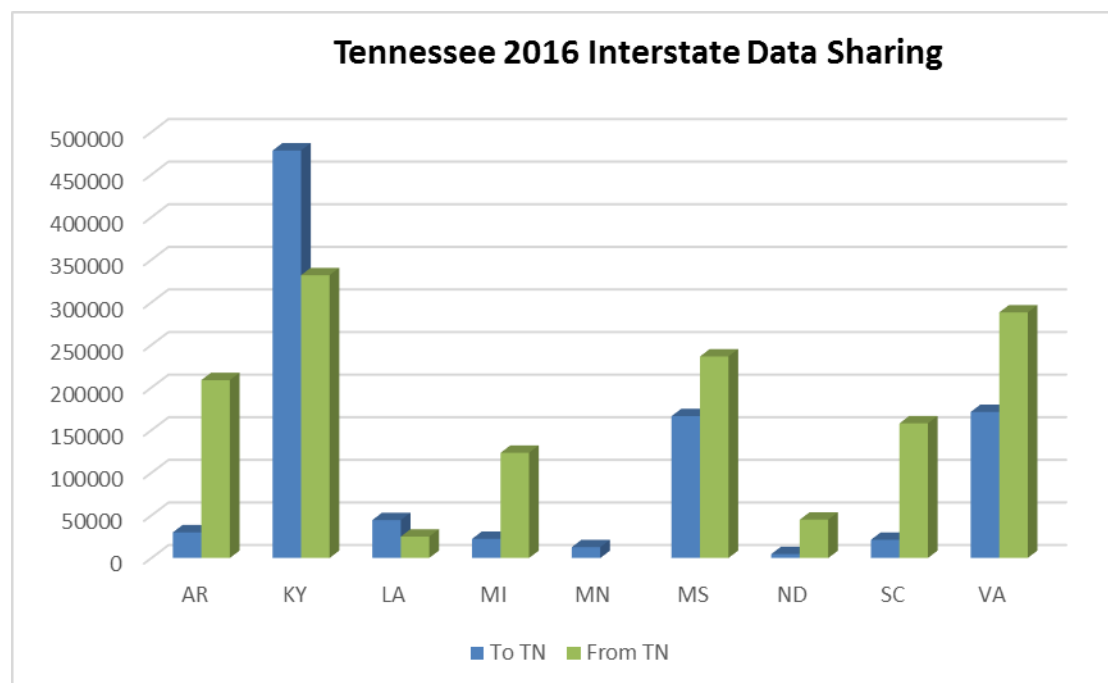
Database Performance

In 2016, the system was up and functional 99.9% of the year. Most downtimes occurred in the first half of 2016. The CSMD team worked with the vendor to improve stability and the system stabilized by the last quarter of 2016.

Increased Interstate Data Sharing

The PSAs of 2012 and 2016 permit data sharing with other states. One of the areas of focus for 2016 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 has been in communication with Alabama, Georgia, Oklahoma, North Carolina, and Rhode Island to share data. Each state has unique regulations and requirements that need to be addressed to share data.

Tennessee 2016 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.
- 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 staffs 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 a footprint 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 55 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.

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. 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 the 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. In addition, the grant supports a full time junior epidemiologist to develop visualizations and data analytics on which the team can act.

TDH Recommends the Following Approaches to the Opioid Epidemic

- **We recommend decreasing the supply of and reliance on opioids for pain**
Specifically, we suggest improving information provided through CSMD to include overdose information from Emergency Departments, proactively reaching out to clinicians with warning signs of patient opioid abuse, 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, focused on adolescents, to foster resistance to substance abuse, increasing screening for opioid abuse (SBIRT), increasing the availability of SUD treatment (through MHSAS), 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 increase 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 reducing the number of people who are nonmedical users 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 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. And by working with FDA on new medication approval, we can continue to assure Tennesseans have the safety and efficacy they have rightly come to expect from approved medications.

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, the many partners must continue to take action 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.

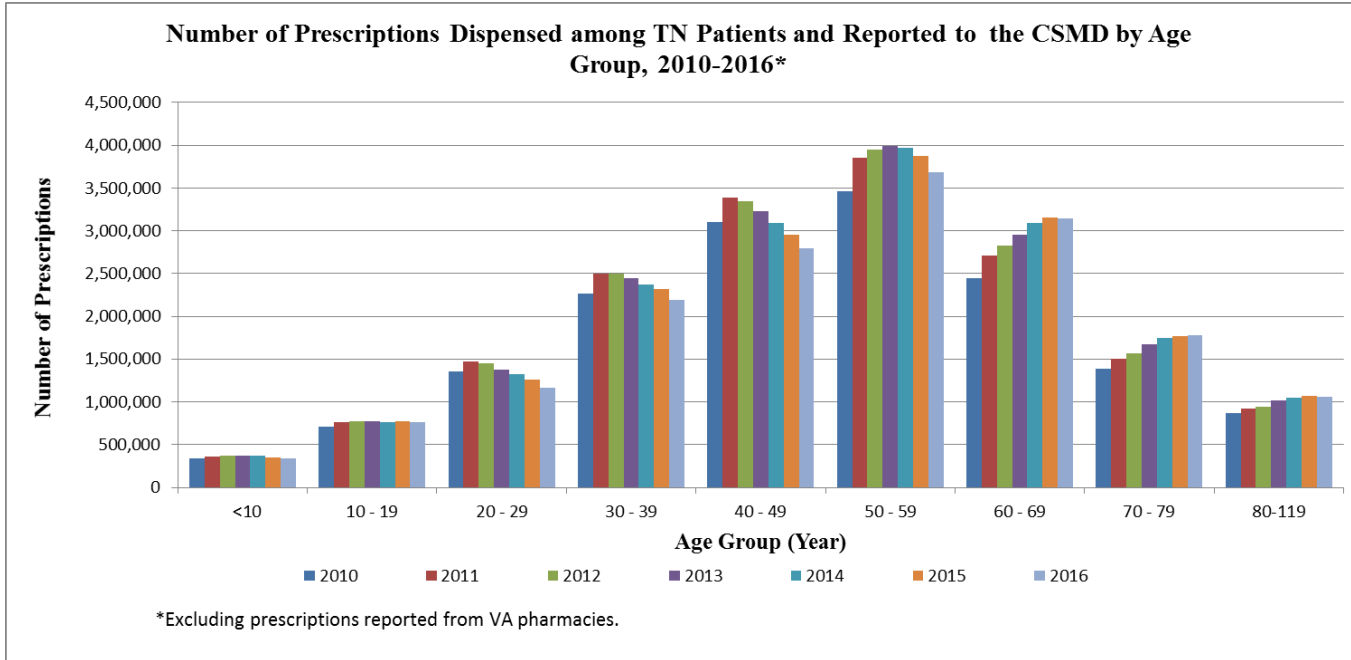
2017 Members of the CSMD Committee

Member Name	Board
Alan Musil, 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
Debra Wilson, D.Ph.	Board of Pharmacy
David J. Sables, DPM	Board of Podiatry
Kim Johnson, DVM	Board of Veterinary Medical Examiners
Omar Nava, PA-C	Committee on Physician Assistants
Julianne Coles	Public Member Board of Medical Examiners
Lisa Tittle	Public Member Board of Pharmacy

Appendix

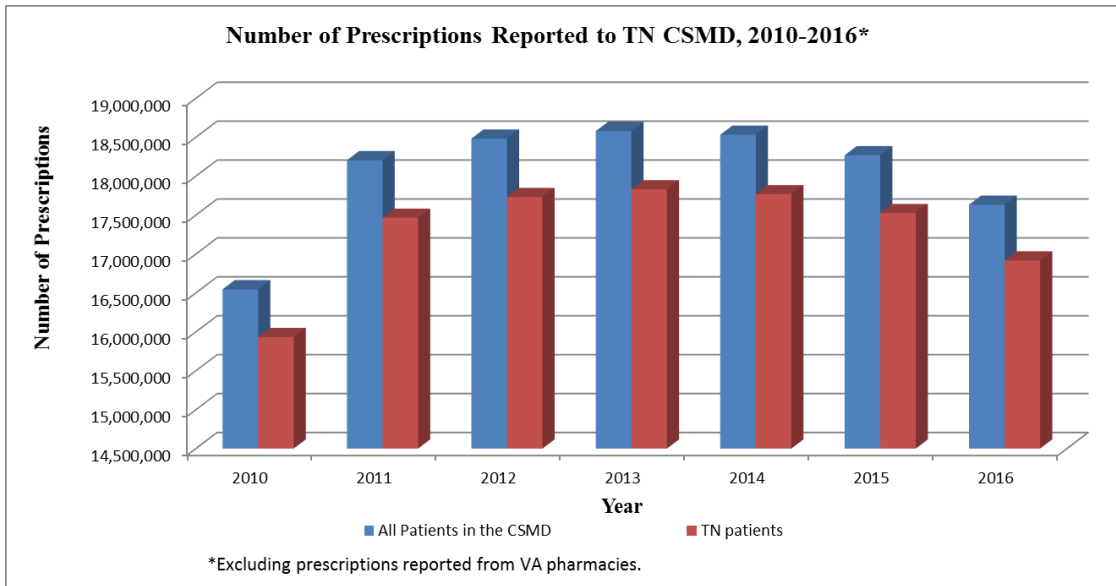
The CSMD data used for the 2016 report were downloaded on January 13, 2017. MME calculations and classification of controlled substances were completed based on a combination of CDC's MME conversion tables from 2011 to 2016. The CDC adjusted certain drug conversion factors over time for various reasons. If a drug had different MME conversion factors in different version tables, the data analysis provided through 2016 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 2016.

Number of Prescriptions Dispensed among TN Patients and Reported to CSMD by Age, 2010-2016*



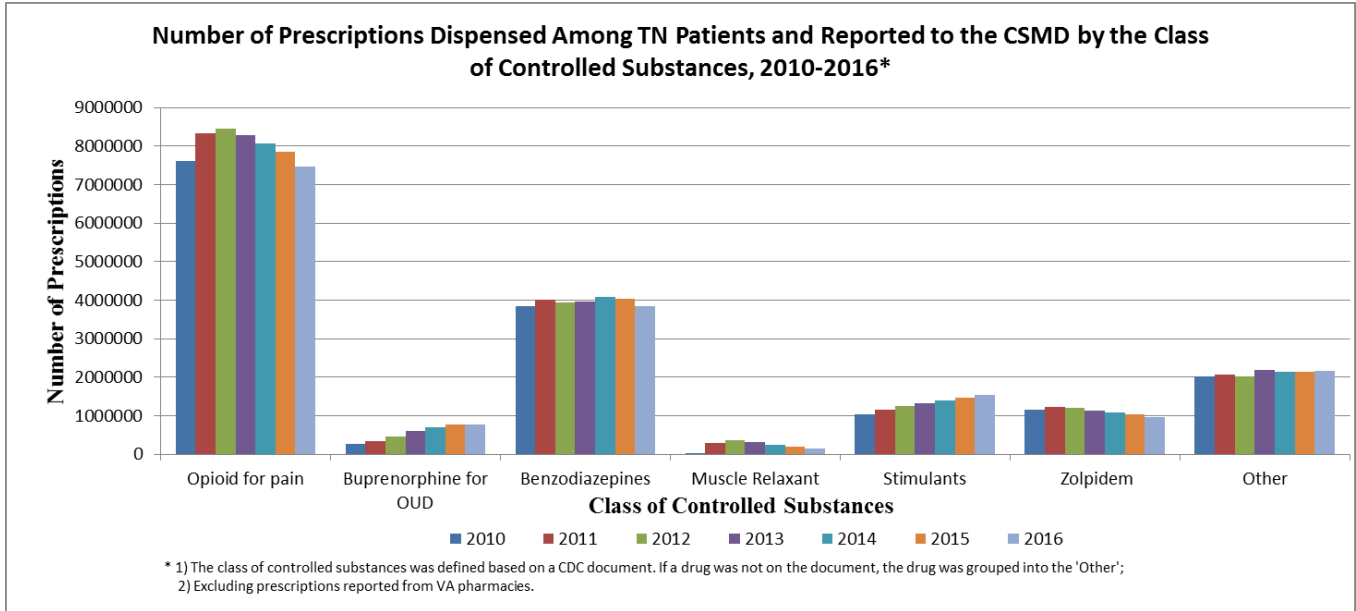
Age Group	2010	2011	2012	2013	2014	2015	2016
<10	337,869	357,839	370,915	375,138	366,070	351,502	336,470
10 - 19	708,122	757,442	776,636	775,863	763,505	767,877	762,236
20 - 29	1,355,929	1,474,100	1,449,580	1,379,252	1,319,913	1,262,629	1,164,649
30 - 39	2,268,563	2,499,475	2,500,911	2,446,203	2,373,073	2,318,503	2,186,960
40 - 49	3,099,973	3,387,166	3,342,761	3,233,228	3,089,505	2,956,915	2,797,909
50 - 59	3,464,826	3,856,848	3,948,722	3,987,508	3,970,341	3,873,626	3,686,014
60 - 69	2,440,806	2,711,750	2,826,543	2,953,683	3,090,013	3,158,881	3,144,680
70 - 79	1,387,785	1,503,946	1,568,804	1,667,921	1,746,554	1,767,514	1,783,113
80-119	869,551	916,438	946,707	1,012,030	1,048,122	1,068,050	1,055,016
Unknown	43	46	78	29	21	36	5

Number of Prescriptions Reported to Tennessee CSMD, 2010-2016



Year	All Patients in the CSMD	Change (%)	TN Patients	Change (%)
2010	16,546,607	-	15,933,467	-
2011	18,205,089	10.0	17,465,050	9.6
2012	18,482,295	1.5	17,731,657	1.5
2013	18,579,534	0.5	17,830,855	0.6
2014	18,531,764	-0.3	17,767,117	-0.4
2015	18,268,822	-1.4	17,525,533	-1.4
2016	17,632,621	-3.5	16,917,052	-3.5

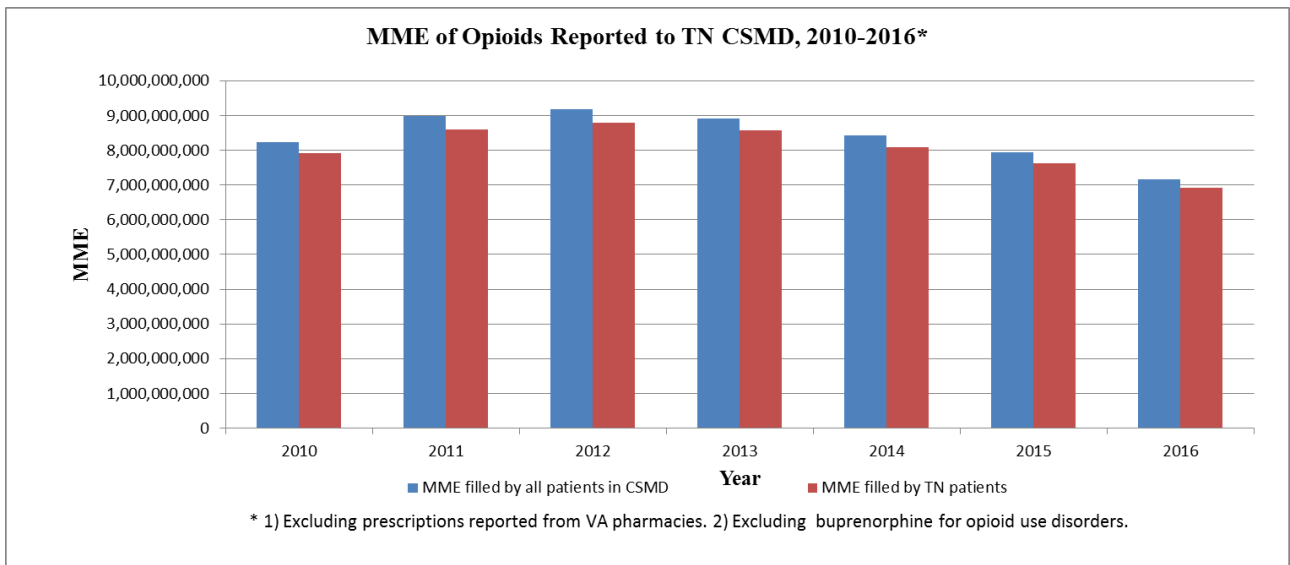
Number of Prescriptions Reported to TN CSMD by Class of Controlled Substances, 2010 - 2016*



Year	Opioid	Buprenorphine for Opioid Use Disorders	Benzodiazepines
2010	7,623,095	259,046	3,842,800
2011	8,344,081	343,339	4,025,979
2012	8,454,410	472,384	3,940,526
2013	8,282,673	604,035	3,976,744
2014	8,081,070	711,039	4,091,230
2015	7,860,964	762,371	4,046,243
2016	7,477,465	778,553	3,848,493

Year	Muscle Relaxants	Stimulants	Miscellaneous Zolpidem	Other
2010	11,469	1,028,275	1,148,968	2,019,814
2011	293,595	1,155,577	1,224,227	2,078,252
2012	377,778	1,248,252	1,209,035	2,029,272
2013	321,914	1,323,342	1,133,219	2,188,928
2014	250,234	1,397,859	1,084,736	2,150,949
2015	207,978	1,480,831	1,028,999	2,138,147
2016	159,627	1,531,059	967,038	2,154,817

MME of Opioids Reported to TN CSMD, 2010-2016*



Year	MME Filled by All Patients in CSMD	Change (%)	MME Filled by TN Patients	Change (%)	Non-TN patients
2010	8,223,343,645	-	7,913,924,913	-	309,418,731
2011	8,979,674,578	9.2	8,585,589,033	8.5	394,085,546
2012	9,175,821,133	2.2	8,792,299,398	2.4	383,521,735
2013	8,915,517,915	-2.8	8,566,376,681	-2.6	349,141,234
2014	8,425,123,268	-5.5	8,093,881,114	-5.5	331,242,153
2015	7,929,333,162	-5.9	7,627,956,974	-5.8	301,376,188
2016	7,173,013,109	-9.5	6,910,979,124	-9.4	262,033,985

MME for Long Acting Opioids Reported to the TN CSMD, 2010-2016*

Year	Type of Acting	Overall	TN patients	Change among TN patients (%)
2010	Long-Acting	3,186,455,763	3,052,920,656	-
2011	Long-Acting	3,254,028,523	3,119,841,822	2.2
2012	Long-Acting	3,287,433,361	3,150,223,683	1.0
2013	Long-Acting	3,242,479,165	3,110,153,338	-1.3
2014	Long-Acting	2,932,341,008	2,813,217,581	-9.5
2015	Long-Acting	2,560,885,499	2,462,353,973	-12.5
2016	Long-Acting	2,132,943,995	2,053,726,339	-16.6

1) The classes of controlled substances were defined based on a CDC document; 2) Excluding prescriptions reported from VA pharmacies; 3) Excluding buprenorphine for opioid use disorders.

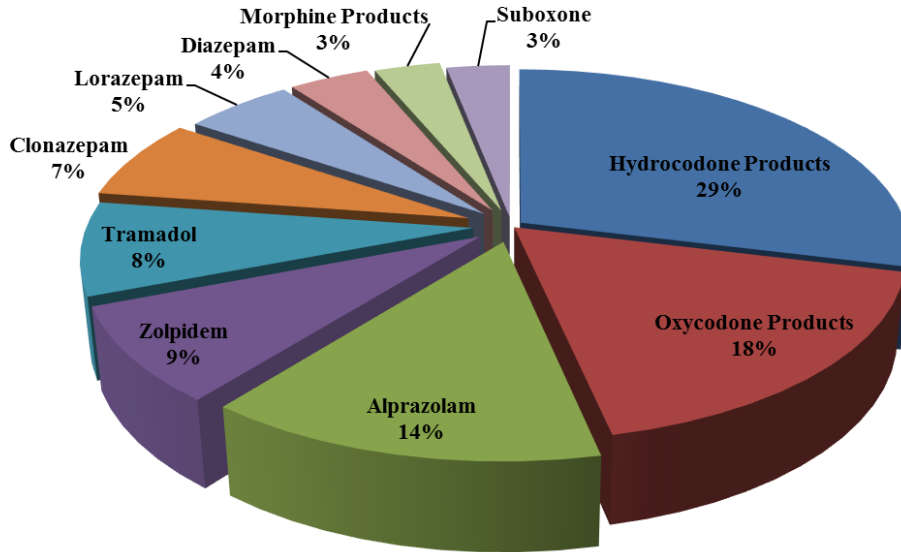
MME for Short Acting Opioids Reported to the TN CSMD, 2010-2016*

Year	Type of Acting	Overall	TN Patients	Change among TN Patients (%)
2010	Short-Acting	5,036,887,881	4,861,004,258	-
2011	Short-Acting	5,725,646,055	5,465,747,211	12.4
2012	Short-Acting	5,888,387,772	5,642,075,715	3.2
2013	Short-Acting	5,673,038,750	5,456,223,343	-3.3
2014	Short-Acting	5,492,782,260	5,280,663,533	-3.2
2015	Short-Acting	5,368,447,663	5,165,603,001	-2.2
2016	Short-Acting	5,040,069,113	4,857,252,785	-6.0

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

Distribution of the Top 10 Most Frequently Prescribed Controlled Substance Products in the CSMD for 2016

Distribution of the Top 10 Most Frequently Prescribed Controlled Substance Products in the CSMD for 2016*

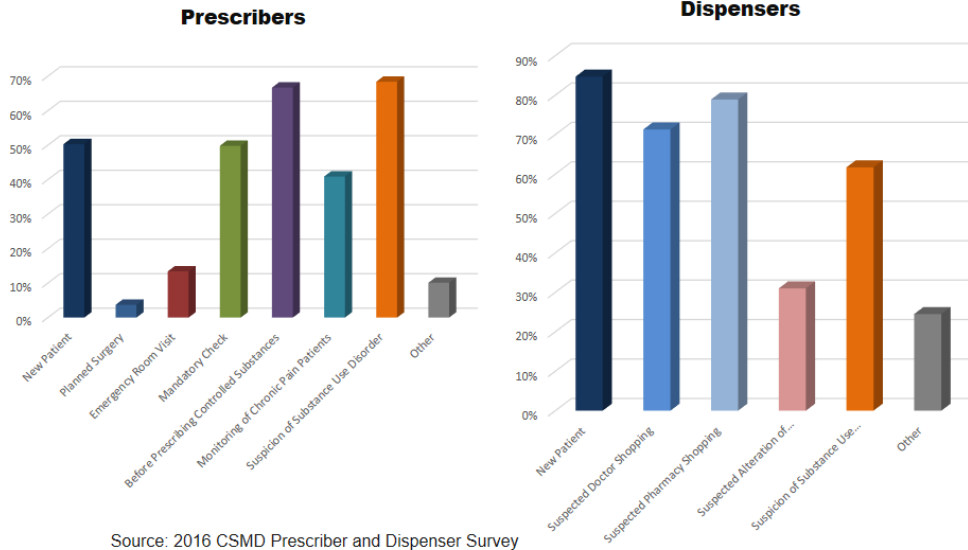


* Including all dispensers who reported to the CSMD in 2016.

This information above was obtained by running a report in the web application all parameters were provided by Appriss.

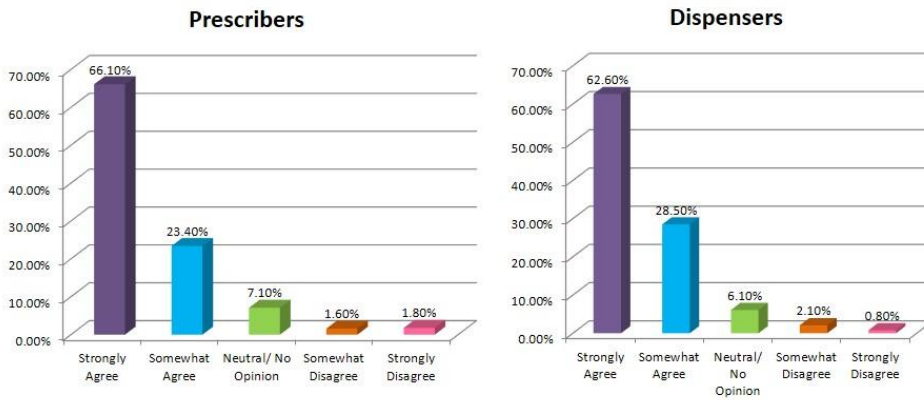
2017 Prescriber and Dispenser Survey Results

Why do prescribers and dispensers check the CSMD?



Source: 2016 CSMD Prescriber and Dispenser Survey

The CSMD is useful for decreasing the incidence of doctor shopping



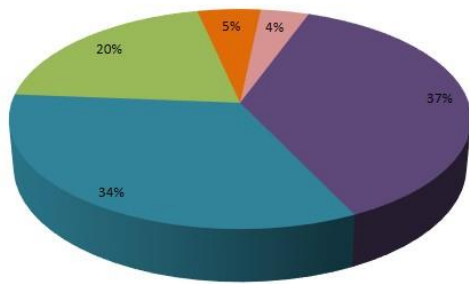
Strongly Agree or Somewhat Agree ~ 90%

Strongly Agree or Somewhat Agree ~ 91%

Source: 2016 CSMD Prescriber and Dispenser Survey

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

Prescribers

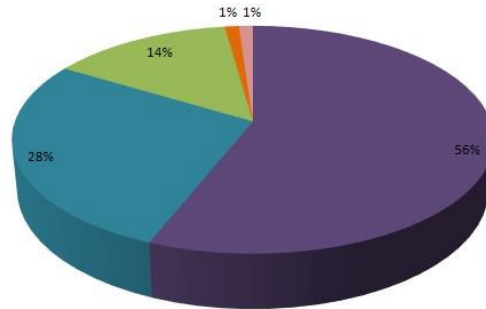


~ 71% of Prescribers have changed their treatment plan

- Strongly Agree
- Neutral/ No Opinion
- Strongly Disagree

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

Dispensers



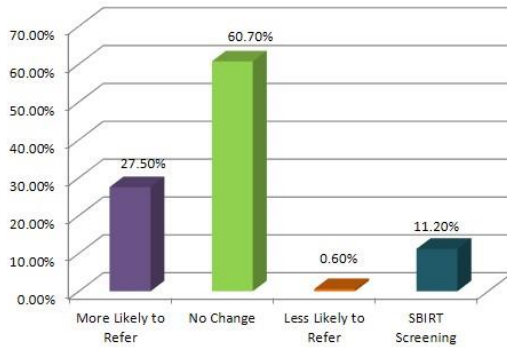
~ 84% of Dispensers are less likely to fill a prescription as written

- Somewhat Agree
- Somewhat Disagree

Source: 2016 CSMD Prescriber and Dispenser Survey

Has checking the CSMD changed your practice of referring patients for substance abuse treatment?

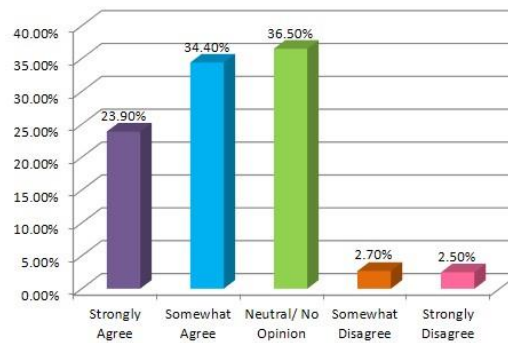
Prescribers



28% of prescribers are more likely to refer patients for substance abuse treatment.

CSMD has changed my practice of communicating with the physician regarding a patient whom I believe needs referred for substance abuse treatment.

Dispensers



56% of dispensers are more likely to communicate with the prescriber regarding potential patient referral to substance abuse treatment.

Source: 2016 CSMD Prescriber and Dispenser Survey

Acronyms

Advanced Practice Registered Nurse	APRN
Amazon Web Services	AWS
Centers for Disease Control and Prevention	CDC
Continuing Education	CE
Continuing Medical Education	CME
Controlled Substance Monitoring Database	CSMD
Controlled Substance Monitoring Database Committee	CSMD Committee
Department of Justice	DOJ
East Tennessee State University	ETSU
Emergency Department	ED
Food and Drug Administration	FDA
Medicated Assisted Treatment	MAT
Morphine Milligram Equivalents	MME
Neonatal Abstinence Syndrome	NAS
Physician Assistant	PA
Prescription Drug Monitoring Program	PDMP
Prescription Drug Overdose	PDO
Prevention for States	PFS
Screening, Brief Intervention and Referral to Treatment	SBIRT
Substance Use Disorder	SUD
Tennessee	TN
Tennessee Bureau of Investigations	TBI
Tennessee Department of Health	TDH
Tennessee Department of Mental Health and Substance	TDMHSAS
Veterans Affairs	VA