

Controlled Substance Monitoring Database (CSMD) Data for Drug Overdose Surveillance

The Tennessee Controlled Substance Monitoring Database (CSMD) is Tennessee's Prescription Drug Monitoring Program (PDMP). PDMPs are an important tool for monitoring controlled substance prescribing and dispensing, supporting informed clinical decisions, and helping protect patients who may be at risk of prescription drug-related harm. The CSMD collects information about controlled substances dispensed to patients and allows healthcare providers to review a patient's controlled substance prescription history. The Tennessee Department of Health (TDH) also uses CSMD data to monitor patterns and trends in controlled substances dispensed to patients across the state.

This document describes how TDH develops prescription drug measures from CSMD data and provides information to help users understand and interpret these measures. It includes definitions of prescription drug indicators, information about available demographic and geographic variables, and important considerations about the strengths, limitations, and timeliness of the data.

These methods and definitions are used across TDH's prescription drug surveillance activities and support public data products, including reports, downloadable datasets, and the Tennessee Drug Overdose Dashboard.

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About Controlled Substance Monitoring Database (CSMD)

The Tennessee Department of Health (TDH), in coordination with the Tennessee Board of Pharmacy and CSMD Committee, administers the Controlled Substance Monitoring Database (CSMD). The TDH Overdose Surveillance Program uses CSMD data to monitor patterns and trends in controlled substances dispensed to Tennessee patients. This section provides more information about the CSMD and how its data are used for prescription drug surveillance.

About Controlled Substance Monitoring Database Data

The Controlled Substance Monitoring Database (CSMD) is Tennessee's Prescription Drug Monitoring Program (PDMP). The CSMD was established through the Controlled Substance Monitoring Act of 2002, with statewide data collection beginning in 2006. The CSMD collects information about controlled substances dispensed to patients, including both human and animals, in Tennessee and provides healthcare providers with access to a patient's controlled substance prescription history.

Tennessee law requires dispensers of controlled substances to report certain information to the CSMD. The database includes dispensing information for controlled substances in Schedules II, III, IV, and V. These data allow TDH to monitor patterns and trends in controlled substance dispensing across Tennessee.

Timeliness of CSMD Data

CSMD data are reported on an ongoing basis. For controlled substances dispensed to human patients, required information must be submitted to the CSMD at least once each business day and no later than the close of the following business day. As a result, CSMD provides relatively timely information about controlled substances dispensed in Tennessee and allows TDH to report prescription drug trends sooner than many other surveillance data sources. For example, 2025 CSMD data were available for reporting in spring 2026.

CSMD records may be modified, corrected, or resubmitted by pharmacies after they are initially reported. As a result, CSMD data remain subject to change over time, and previously reported measures may change slightly as records are updated. These changes are generally expected to be small, but measures for a given year may not remain exactly the same across different data releases.

Who Reports Data to the CSMD?

Data are reported to the CSMD by dispensers of controlled substances in Tennessee. A dispenser may include a pharmacy or other person, institution, or entity authorized to dispense controlled substances. Dispensers are required to submit information about Schedule II, III, IV, and V controlled substances dispensed to patients.

The CSMD also receives prescription information from Veterans Health Administration (VA) pharmacies in Tennessee. However, prescriptions reported by VA pharmacies are excluded from

TDH's standard prescription drug surveillance measures and are not included in the metrics described in this document.

Identifying Prescription Drugs in CSMD Data

Each prescription reported to the CSMD includes information about the drug that was dispensed. TDH uses this information, along with standardized drug reference sources, to identify the specific drug and group prescriptions into drug classes used for surveillance. These categories allow TDH to monitor dispensing patterns for controlled substances such as opioids, benzodiazepines, stimulants, and other prescription drugs.

Drug classifications may be updated over time as drug information and classification methods improve. As a result, a prescription may be classified differently in a later analysis, and previously reported measures may change slightly.

TDH uses CSMD data to report several types of prescription drug measures, including:

- **Number of prescriptions:** The number of prescriptions dispensed within a specified time period. This measure counts prescriptions, not individual patients. A patient who fills more than one prescription will have each prescription counted.
- **Number of patients:** The number of unique patients who filled at least one prescription within a specified drug category and time period. A patient is counted once within each drug category, even if they filled multiple prescriptions in that category.
- **Prescription rate per 1,000 population:** The number of prescriptions dispensed divided by the applicable population and multiplied by 1,000. This measure describes the number of prescriptions dispensed relative to the size of the population and does not represent the percentage of people who received a prescription.

Considerations When Interpreting CSMD Data

CSMD data is an important source of information for prescription trends in Tennessee, but there are limitations to consider when interpreting these data.

Filled vs. written prescriptions: CSMD data reflect prescriptions that were dispensed (filled), not all prescriptions written by healthcare providers. Prescriptions that are written but never filled are not captured. Therefore, these measures describe controlled substances dispensed in Tennessee and should not be interpreted as a complete measure of prescribing practices.

Medication use: CSMD records show that a prescription was dispensed but do not provide information about what happens to the medication after it is filled. The data cannot determine whether a patient takes the medication as directed, does not take it, or gives or shares the medication with another person.

Veterinary prescriptions: A small proportion of prescriptions reported to the CSMD are for veterinary patients and are not excluded from these measures. Veterinary prescriptions are

estimated to represent approximately 1% of prescriptions reported to the CSMD each year and may have a small impact on reported measures.

Tennessee Prescription Drug Definitions

Prescription drug indicators are developed using **controlled substance** prescriptions dispensed to patients and reported to the CSMD. Each indicator represents a specific drug or group of drugs based on the medications included in that category. The definitions for each prescription drug indicator are provided below.

Controlled Substance is a medication, drug, or substance that can cause physical or mental dependence, and have restrictions on how they are prescribed and dispensed.

The Drug Enforcement Agency (DEA) classifies controlled substances into **Schedules (I-V)** based on their abuse potential. **Schedule I drugs** have the highest abuse and dependence potential. These are substances that the DEA has determined has no current acceptable medical use such as heroin or methamphetamine. **Schedule II, III, or IV drugs** have a high, moderate to low, and low potential of abuse, respectively. These substances can be optioned by prescription. Finally, **Schedule V drugs** have the lowest abuse potential. These are substances that contain limited quantities of certain narcotics such as prescription cough syrup.

CSMD data reflect prescriptions that were **dispensed (filled)**, not all prescriptions written by healthcare providers. Prescriptions that are written but never filled are not captured.

Prescription Indicators

Primary Criteria:

- Only limited to Tennessee residents, although the CSMD contains non-TN residents
- Only opioids for pain and benzodiazepines in DEA schedules II, III, IV are included

Indicators exclude the following:

- Buprenorphine products that are FDA-indicated for the treatment of opioid use disorder are excluded
- Prescriptions with zero or implausibly high quantities were excluded
- Prescriptions with zero or implausibly high days supply were excluded

All Opioids for Pain

Includes opioid medications used for the treatment of pain that were dispensed to patients and reported to the CSMD. Opioids are a class of medications used to treat moderate to severe pain and can have serious risks and side effects.

Hydrocodone, oxycodone, and tramadol are consistently among the most commonly dispensed opioids for pain in Tennessee and together typically account for more than 90% of opioid-for-pain prescriptions. For this reason, TDH also reports these medications separately to provide additional information about trends in specific opioids.

Hydrocodone

Includes prescriptions for medications containing hydrocodone that were dispensed to patients and reported to the CSMD.

Oxycodone

Includes prescriptions for medications containing oxycodone that were dispensed to patients and reported to the CSMD.

Tramadol

Includes prescriptions for medications containing tramadol that were dispensed to patients and reported to the CSMD.

All Benzodiazepines

Includes benzodiazepine medications that were dispensed to patients and reported to the CSMD. Benzodiazepines are a class of medications commonly used to treat conditions such as anxiety and insomnia. These medications can cause sedation and carry risks when used alone or with other substances. In particular, taking benzodiazepines with opioids can increase the risk of overdose.

TDH also reports separate measures for alprazolam, clonazepam, diazepam, and lorazepam, which are among the most commonly dispensed benzodiazepines in Tennessee.

Alprazolam

Includes prescriptions for medications containing alprazolam that were dispensed to patients and reported to the CSMD.

Clonazepam

Includes prescriptions for medications containing clonazepam that were dispensed to patients and reported to the CSMD.

Diazepam

Includes prescriptions for medications containing diazepam that were dispensed to patients and reported to the CSMD.

Lorazepam

Includes prescriptions for medications containing lorazepam that were dispensed to patients and reported to the CSMD.

Calculating Rates for Prescription Data

Prescription rates are reported as crude rates and are not age-adjusted. Rates are calculated using the number of qualifying prescriptions dispensed and the corresponding population for the geographic area and reporting period.

Because crude rates do not account for differences in the age distribution of populations, differences in prescription rates across geographic areas may be influenced by differences in the populations being compared. This should be considered when comparing rates across areas or over time.

Demographic Information Available in the CSMD

CSMD includes age and sex information that can be used to describe the characteristics of patients who received a dispensed controlled substance prescription.

Age

Age is based on the patient's age at the time the prescription is dispensed. For reporting purposes, patients are grouped into standard age categories: <18 years, 18–24 years, 25–34 years, 35–44 years, 45–54 years, 55–64 years, and 65+ years.

Sex

Sex is based on the information reported for the patient in the CSMD record. For surveillance purposes, sex is reported as male or female.

Calculating Rates for Prescription Data

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Public Data Products with Prescription Data

Prescription drug information from the Tennessee CSMD is available through several public resources maintained by Overdose Surveillance Program. These resources provide information on controlled substance dispensing trends, prescription drug indicators, and other measures derived from CSMD data. Available years of data and the level of detail vary by resource. TDH's CSMD data products can be found in the following locations:

Overdose Surveillance Website: <https://www.tn.gov/health/odsurveillance.htm>

CSMD Webpage: <https://www.tn.gov/health/licensure/csmd.html>

TN Data Portal: <https://healthdata.tn.gov/>

Drug Overdose Data Dashboard

- Tennessee's Overdose Data Dashboard provides interactive visualizations of prescription drug measures developed from CSMD data. The dashboard displays the five most recent years of available data and allows users to explore controlled substance dispensing trends by prescription drug indicator, demographic characteristics, and geographic area.
 - *The dashboard can be found at the OIA Webpage listed above. This dashboard is best viewed on a computer screen; however, a mobile version is also available.*
 - *The dashboard currently includes prescription drug measures for opioids and benzodiazepines only. Additional controlled substances are available in CSMD but are not displayed in the dashboard.*
 - *Demographic data included in the dashboard are available at the statewide and public health region level.*

Downloadable Data Sheets

- Downloadable data files are available for users who need access to the CSMD data displayed within the Tennessee Overdose Data Dashboard. These files include the dashboard data as well as additional historical years of data dating back to 2013. The same indicator definitions and methods used for TDH's nonfatal overdose surveillance are applied to the downloadable data.

Annual Reports

- Annual Tennessee CSMD reports provide comprehensive summaries of finalized prescription drug overdose data, including statewide trends, demographic characteristics, geographic patterns, and substances involved. This report is published each year after the data are finalized. Archived reports and related products are available dating back to 2016.

Preliminary Prescription Data

Preliminary CSMD data and trends are not released separately. Public CSMD measures are based on the most current data available at the time of analysis. Because pharmacies may correct, update, or resubmit prescription records, previously reported measures may change slightly over time.

Requesting Additional Data

The Overdose Surveillance Program makes overdose data publicly available whenever possible through reports, dashboards, and downloadable data files. However, some data cannot be released because they are not yet complete or because the level of details could identify individuals or compromise privacy.

If the information you need is not available through existing public data products, you may submit a request for additional aggregate overdose data.

Requests for additional CSMD data may require additional review and approval because of the sensitive nature of prescription information. Depending on the type and level of detail requested, requests may require review by the CSMD Program and approval by the CSMD Operations Committee. As a result, CSMD data requests may take longer to review and fulfill than requests for other TDH overdose surveillance data.

Data request form: <https://tdhrc.health.tn.gov/redcap/surveys/?s=DHMKP9HDD4FAT43K>

Because data requests may take time to review and fulfill, we recommend contacting the Overdose Surveillance Program (TDH.Analytics@tn.gov) before submitting a formal request. We can help determine whether the data are already publicly available, discuss whether your request can be fulfilled, and identify the most appropriate data source for your needs.

Additional Questions

Feel free to reach out to OIA directly for any questions at tdh.analytics@tn.gov